

SEA TO SKY CORRIDOR RECREATION TRAIL STRATEGY



DRAFT – FEBRUARY 2007



Ministry of Tourism, Sport and the Arts
Tourism and Resort Development Division
Recreation Sites and Trails Branch
Squamish Recreation District

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WORKING DRAFT STATEMENT

This strategy was developed by Cascade Environmental Resource Group in consultation with MTS, local government representatives and other key stakeholders. This strategy is intended as a working draft to be reviewed, adapted and amended as input is received from various interested parties. Draft copies will be provided to identified stakeholders and presented at working group meetings in each of the Corridor communities. Input on the draft strategy will be welcomed from all parties.

If you would like to submit comments on the draft strategy, please forward them to: Tim Hoskin, Squamish Recreation District, Recreation Officer (Tim.Hoskin@gov.bc.ca) Thank you

Prepared by:



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Main photo and first two thumbnail photos
by **Graham Osborne, CoastAlpine Photography**

EXECUTIVE SUMMARY

As a world renowned tourism destination, the Sea to Sky Corridor has garnered an international reputation for exceptional outdoor recreation. An extensive network of over 700 kilometres of recreational trails provides both residents and visitors of the Corridor with a wide range of trail based recreation opportunities. The close proximity of communities to a high quality network of trails nestled amongst mountains, forests, rivers and valleys offers immeasurable social, economic and environmental benefits to the entire Corridor and beyond.

The proximity of the Corridor to the large population base of the lower mainland and increased demand for unconfined, relatively unstructured outdoor recreation experiences exerts significant pressure on the expansive trail network. The majority of existing trails on provincial Crown land were built by individuals and clubs over time, with a recent proliferation of mountain bike trails constructed over the past decade. Most of these have not been authorized by the Province, which is a requirement under the *Forest and Range Practices Act (FRPA)*.

The Ministry of Tourism, Sport and the Arts (MTSA), the public agency responsible for recreation on Crown land, is increasingly challenged with managing this network to meet the respective needs of a wide and diverse range of users. Along with unprecedented growth in the Corridor, complex land use planning processes underway, competing interests amongst stakeholders and Olympic planning for 2010, careful consideration must be given to the future sustainability of the network.

The dramatic increase in demand for challenging trails by mountain bikers, dirt bikers, trials riders and other users brings liability and risk management concerns to the forefront. Responsible trail authorities are increasingly faced with balancing the demand for challenging trail experiences with the need to minimize exposure to liability.

Communities within the Corridor have taken different approaches to management of the trails that have become an integral part of their communities. Each municipality, community and the Squamish Lillooet Regional District function within different administrative and operational environments. At the same time the communities share a common vision for a well coordinated, sustainable and environmentally responsive trail network spanning the Corridor, managed for the benefit, health and prosperity of a diverse range of users.

All trails within the Corridor fall within one or more of the traditional territories of the Squamish Nation, Lil'wat Nation or N'Quatqua. Consultation and involvement of First Nations in the coordination of trail management activities will strengthen the sustainability of the entire network and ensure all stakeholders have input in the process.

This document provides strategic direction for the realization of this vision through a corridor-wide coordinated approach in which regions, municipalities and stakeholders all benefit from each others experiences and challenges. This document outlines strategic directions for the realization of long-term goals for an authorized, sustainable and environmentally sound trail network provided in Table I. It also offers management direction to support trail managers and stakeholders in addressing the most critical and immediate challenges of the network, summarized in Table II.

Table I. Summary of Long Term Goals, Objectives and Strategies

GOAL	OBJECTIVE	STRATEGIC DIRECTION
Authorized Trail Network	Authorize rehabilitation and maintenance of existing, eligible trails on Crown land according to section 57 of <i>FRPA</i> .	Identify currently unauthorized trails on Crown land eligible for authorization.
		Develop framework for trail agreements with SLRD and municipal governments.
		Provide mechanism for local clubs and user groups to contribute to trail management activities.
	Establish “marquee” trails according to section 56 of <i>FRPA</i> .	Identify high priority ‘marquee’ or signature trails to authorize and establish according to section 56 of <i>FRPA</i> .
A Coordinated Trail Network	Increase collaboration amongst the Province, regional land managers, local governments and stakeholders.	Establish a Sea to Sky recreation trail forum and foster local and/or regional trail coordination committees.
		Adopt and implement Corridor wide trail standards and guidelines based on established standards and guidelines.
Environmentally Responsive Trail Network	Minimize impacts to the natural environment from trail construction, maintenance and use.	Evaluate existing network to identify trails unduly impacting the environment and rehabilitate, relocate or de-activate.
		Establish environmental criteria for evaluation of future trail proposals.
		Adopt Corridor wide guidelines for trail construction and maintenance that minimize impacts to the environment.
A Sustainable and Economically Beneficial Trail Network	Develop coordinated, formal effort to address challenges to sustainability of trail network.	Conduct a strength, weakness, opportunities and threats (SWOT) analysis for the trail networks in each region.
		Develop regional and local (municipal) action plans to address threats and weaknesses to trail networks.
		Identify strategic locations for establishment of network trail head staging areas on Crown land.
	Ensure ‘no net loss” of trails in the Sea to Sky Corridor	Provincial, regional and local governments adopt and implement “no net loss” of trails policy in the Corridor.
		Identify potential trail network expansion and/or enhancement areas in each region that are consistent with integrated land use planning processes, regional and/or municipal plans completed or underway.

Table II. Summary of Management Objectives for Trail Network

MANAGEMENT ISSUE	MANAGEMENT OBJECTIVE
Risk Management	Develop, adopt and implement trail standards particularly with respect to technical trail features (TTF's) and signage.
	Evaluate implementation of the Provincial Mountain Bike Trail Policy.
	Encourage adoption of formal risk management programs by responsible land managers.
	Continue to assess position of land managers with respect to risk(s) associated with trail use.
Trail Use Conflicts	Establish motorized and non-motorized use areas
	Identify and maintain key access routes for motorized users
	Identify non-motorized and motorized-permitted trail expansion areas.
	Adopt and employ a hierarchy of management tools to reduce potential for conflict
	Establish framework for resolving trail use conflicts or disputes
Funding and Resources	Establish formal fund raising committee(s).
	Work with local Commercial Operators and MTSA to explore mechanisms to recover funding and/or resources for local trail maintenance
	Trail coordination committee(s) to explore concept and establish framework for trail 'adoption' programs.
Integrated Land Use	Ensure trail management decisions are consistent with the LRMP.
	Ensure Ministry of Forests and Range is involved in trail management decisions.

INTRODUCTION



The Sea to Sky Corridor is internationally recognized for its outdoor, adventure based recreation opportunities. In recent years the demand for unconfined and relatively unstructured outdoor recreation experiences has increased dramatically. A vast network of recreation trails located throughout the Sea to Sky Corridor is a fundamental component of these recreation opportunities. The increase in demand and subsequent proliferation of trails combined with evolving use patterns has led to numerous challenges in managing the extensive trail network.

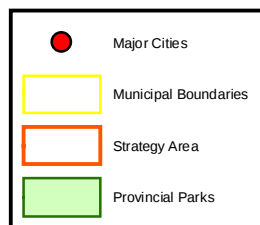
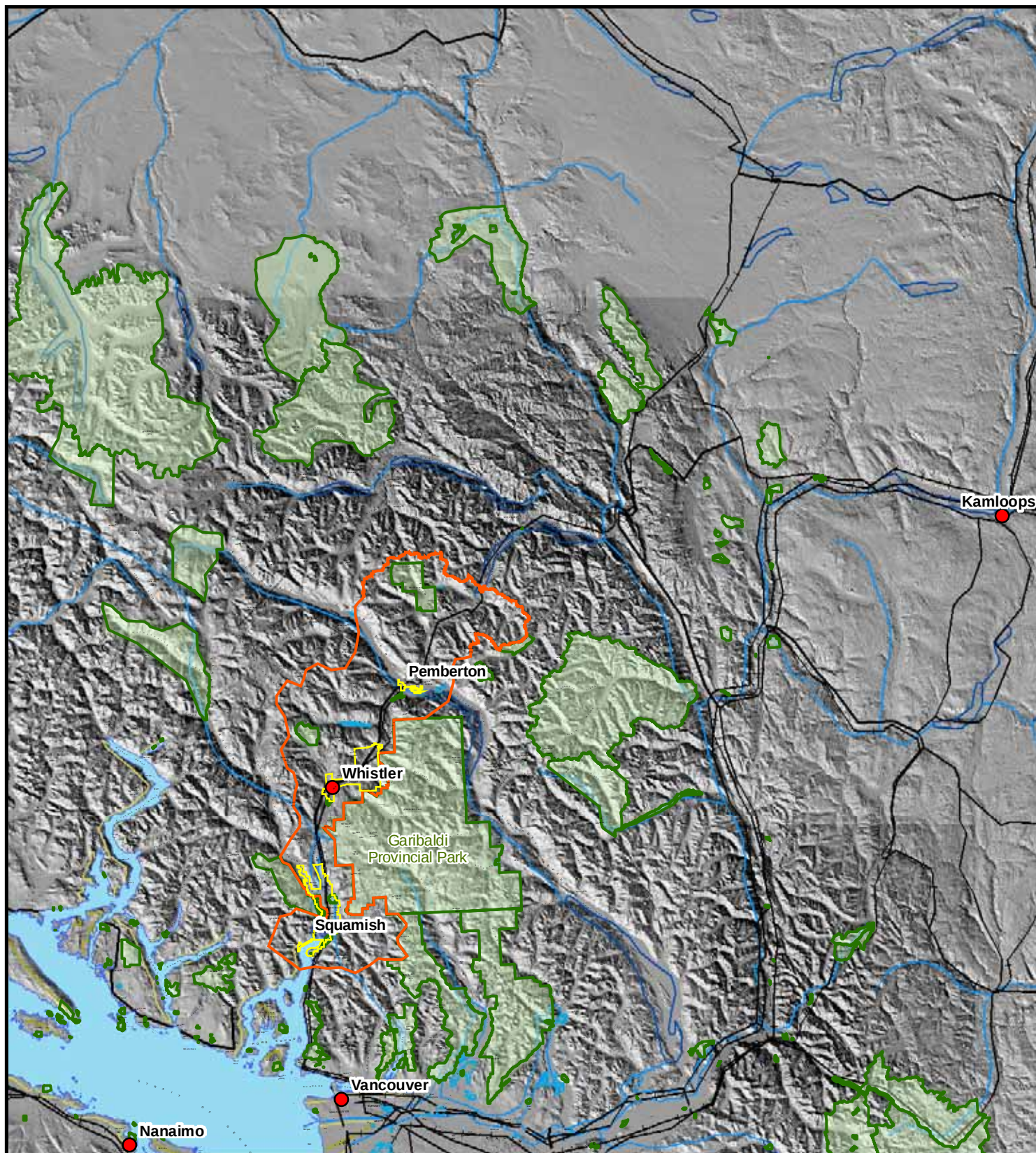
Corridor municipalities including Squamish, Whistler and Pemberton as well as the communities of Britannia, Mount Currie and D'Arcy recognize the trails and their associated recreation opportunities as valuable assets to both residents and visitors. As such recreational trails are widely recognized as playing a vital socio-economic role in the Corridor communities. They support a healthy, active lifestyle, strengthen social fabric and attract tourism. Recreational cycling has brought significant economic benefits to the three municipalities in the Corridor. Between June and September, 2006 mountain bike activities associated with the Sea to Sky trail network generated an estimated \$8.2 million in non-resident spending to Whistler and Squamish (WCMBTA, 2006). All the Corridor communities have a common interest in maintaining the integrity and sustainability of this world class network.

Of the approximately 710 km of known recreation trails outside of BC Parks, in the Sea to Sky Corridor, 551 km or 77% are located on Crown Land. Only 17 trails, accounting for approximately 117 km, are authorized or established under the *Forest and Range Practices Act*. Unauthorized trails on Crown land are therefore illegal and are not afforded consideration in land use planning processes. Most of the trails have been built and maintained by local clubs, groups and in some cases individual members of the general public. Authorization and establishment of the existing trail network has been identified as a priority by the Ministry of Tourism, Sport and the Arts (MTSA), the agency responsible for recreation on Crown land.

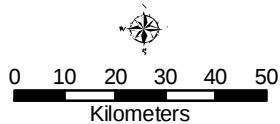
A dramatic increase in the popularity and demand for cycling in the Sea to Sky Corridor has led to a proliferation of trails over the past decade. As well, the cycling community has developed a growing passion for trails that provide a challenging experience by integrating man made and natural ramps, drops, elevated structures, jumps and other 'technical trail features' (TTF's) into trail design and construction. As a result, land managers are faced with serious concerns liability concerns. Conflicts over land use and amongst trail user groups are on the rise.

This plan endeavours to provide strategic direction to responsible authorities and other key stakeholders for the authorization and management of recreation trails on provincial Crown land within the Corridor. Since trails often cross multiple jurisdiction boundaries and are enjoyed by a diverse range of users, this plan can only prove effective if a coordinated and cooperative approach is taken by all interested parties including local government agencies and user groups.

Figure 1 provides an overview of the study area for the Strategy.



**Figure 1. General Location Map
Sea-to-Sky Corridor
Recreational Trails Strategy**



Date : January 4, 2007
 CERG File # 015-11-1
 Base Map : BCGS 92G/92J
 Projection : BC Albers
 Datum : NAD 83
 GIS Cartographer : Todd Hellinga

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Vision

A well coordinated, Sustainable and environmentally responsive trail network spanning the Corridor, managed for the benefit, health and prosperity of a diverse range of users.



Scope

This Strategy applies to trails in the Sea to Sky Corridor on provincial Crown land, outside of B.C. Parks. The Strategy intends to encompass all trails that originate or are contiguous with trails that originate within the Corridor. For the purposes of this plan, the Sea to Sky Corridor is defined, by the lands surrounding Highway 99 spanning from Britannia Beach in the south to Mount Currie northeast of Pemberton and includes the corridor along Pemberton Portage Road to D'Arcy as well as Pemberton Valley Road to the Lillooet FSR. This strategy does not address the intensively managed Whistler Bike Park or other trails within the Controlled Recreation Area (CRA). The Sea to Sky Corridor Trail Strategy area is identified in Figure 2.

“Trails consolidate and connect communities, rather than encourage them to expand and fragment.”

*-David Burwell,
Rails-to-Trails
Conservancy*

Strategic directions detailed in this document are provided for the management of trails on provincial Crown land. As the responsible agency for recreation on Crown land, MTSA will take the lead role in the implementation of these strategies. However, this strategy is not intended for MTSA alone. Strategic direction is provided and intended for multiple stakeholders in the Sea to Sky trail network.



This strategy considers all recreational trail use on Crown land, including motorized and non-motorized use. Pedestrian walking and jogging, backcountry hiking, cycling, trials and dirt bike riding, ATV use, equestrian riders, climbing route access and other uses are considered in the development of the strategy. This Strategy focuses on summer use recreational trails. Snow based activity trails and associated management deserves consideration in a separate plan that can adequately address specific challenges unique to winter activities.

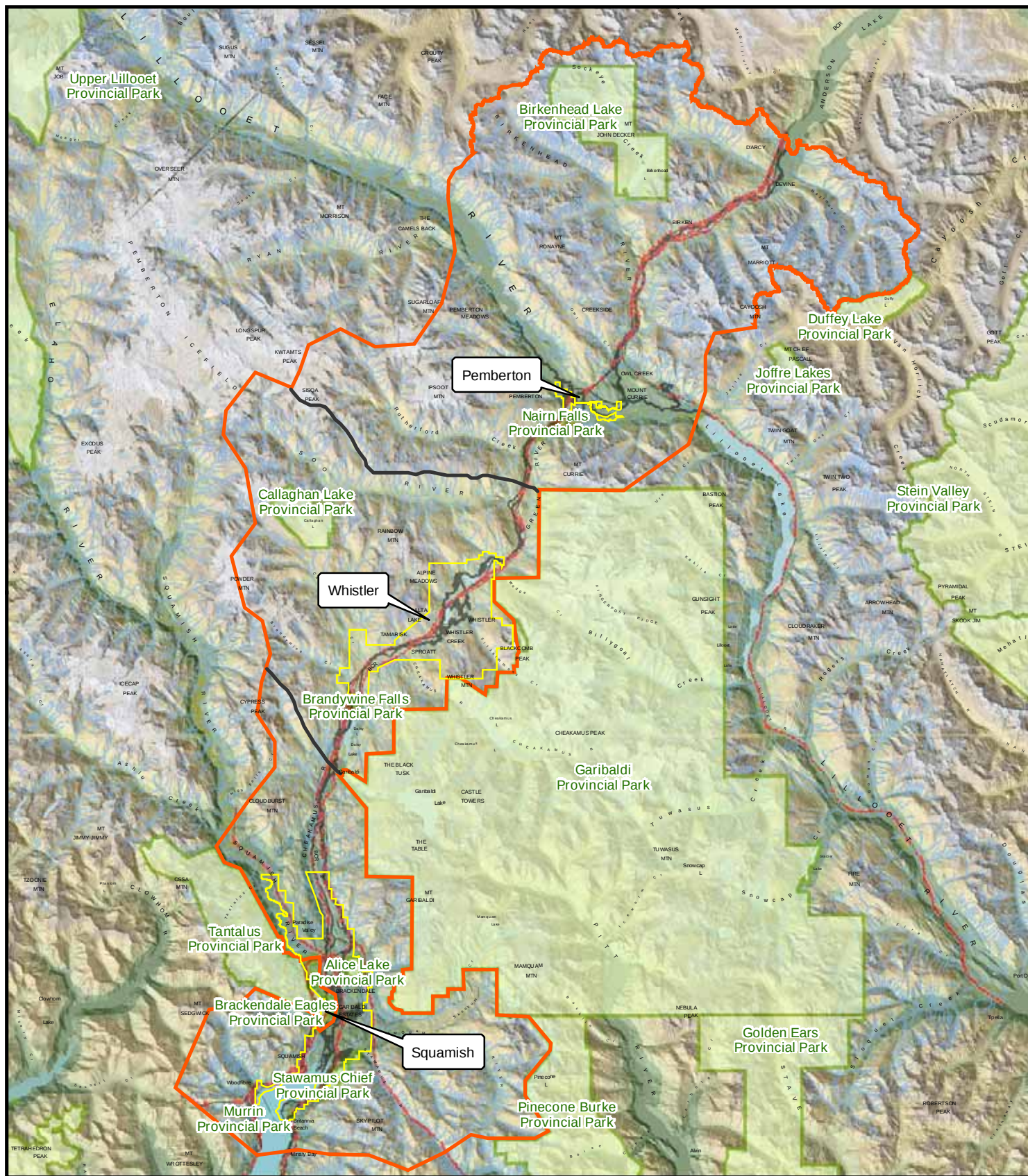
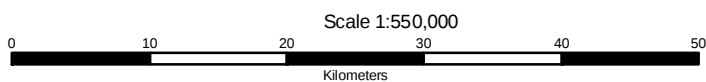


Figure 2 - Strategy Area
Sea to Sky Corridor Recreation Trail Strategy



Date : January 8, 2007
 CERF File 015-11-01
 Projection : UTM Zone 10 N
 Datum : Nad 83
 GIS Cartographer: Todd Hellinga

Prepared by:
CASCADE ENVIRONMENTAL
 PROJECTS GROUP LTD.

Planning Context

This Strategy, considered as a planning document, fits within a context of other land use, resource and community planning processes that have taken place both 'above' and 'below' it in a planning hierarchy. The success of this Strategy will largely be determined by its ability to meet the objectives of higher level plans such as the Sea to Sky LRMP and its effectiveness at providing guidance and authority to more operational, community based plans.

Sea to Sky LRMP

The Sea to Sky Land and Resource Management Plan (LRMP) process was undertaken to provide sub-regional, strategic direction for the management and use of all provincially administered land and resources within the Squamish Forest District. The Sea to Sky LRMP Consultation Draft (April 2006) provides some preliminary direction for management of recreation resources on Crown land.



The Draft LRMP recognizes the need for management of recreation resources in the Squamish Forest District Crown land base. The plan establishes the following four goals, and related objectives for the management of recreation values:

- Access to Crown land for public and commercial recreation.
- Commercial and public recreation use managed to ensure integration with other resource uses and values.
- High quality natural recreation features and land base to support recreation activities.
- Comprehensive database, knowledge and tools to support recreation management.

The LRMP further describes specific areas where resource management direction has been identified. These areas include both resource management zones and geographical areas. Resource management zones include a Frontcountry zone, Integrated Forest Management Zone, Wildland Zone, unresolved areas and Parks. Each zone has associated management direction.

As a function of the LRMP process the Sea to Sky Summer Backcountry Recreation Forum recommended three designations for summer backcountry recreation use zones; non-motorized (RA1); non-motorized with air support (RA1-A); and motorized (RA3).

The location of these zones relative to the existing network and any proposed future trails development carries management implications. Strategic directions outlined in this plan have been developed in line with strategic directions specified in the LRMP Consultation Draft and management recommendations from the Summer Backcountry Recreation Forum.

It should be noted that the recommendations of the Summer Backcountry Recreation Forum were never fully endorsed by the LRMP planning table and the work has been

considered incomplete. The recommendation of the SBRF presented in this Trails Strategy therefore should be considered as draft and may be subject to further review and revision that may occur through completion of a final approvals of the LRMP process. This Trails Strategy may also inform or support revisions to the final recommendations.

Local Resource, Operational and Community Plans

Additional community, resource and local club planning that has been considered in the development of the strategic direction outlined in this document includes:

- Squamish Mountain Bike Plan (2004).
- Squamish Mountain Bike Management Plan (2005)
- Draft Squamish Official Community Plan (2005)
- Draft District of Squamish Trail Standards (2006)
- Whistler Trail Standards: Environmental and Technical Trail Features (2003)
- Whistler Recreational Cycling Plan (2006)
- Whistler Trails Master Plan (2006)
- Village of Pemberton OCP (2006)
- Electoral Area C Official Community Plan (2006)

Existing Network

The current known recreational trail network spanning the Sea to Sky Corridor consists of over 700 kilometres of trail, outside of BC Parks. It is comprised of approximately 34 km of multi-user paved pathways, 555 km of singletrack and 115 km of doubletrack trails. As well, 134 km of gated and un-gated Forest Service Roads (FSR's) provide key access to the network but are not included in calculations as actual trails.

The expansive network is largely centered around the three municipal regions of Squamish, Whistler and Pemberton. Smaller communities such as Britannia Beach and D'Arcy also feature distinct network areas, however for the purpose of the plan the Sea to Sky network will be classified according to these three regions as identified in Figure 2. A description of the trails by type and land ownership is included in Table 1.

Table 1. Kilometers of Trail in Each Region by Land Ownership.*

Region	Land Ownership			Total
	Crown Land	Municipal Land	Private Land	
Squamish	173	8	41	222
Whistler	238	47	25	310
Pemberton	140	-	31	172
Total	551	55	97	704

The largest portion of trails in the Squamish region are singletrack, unsurfaced trail, the majority of which (77%) are located on Crown land both within and outside the Squamish District Boundary. Approximately 41 km of trails or 18% are located on private land within the district boundary. Additionally, an expansive network of trials bike trails exists above Britannia Beach. Although the exact location of these trails has not been identified in this planning process, it is estimated that there is approximately 75 km of singletrack trail used primarily by motorized trials riders and occasionally by heli-supported mountain bikers.

The Whistler Trail network is made up of 310 km of trails, the majority of which are un-surfaced singletrack. The Resort Municipality of Whistler (RMOW) also

constructed and manages the world class, Valley Trail System, with over 30 km of paved multi-user pathways spanning the RMOW and linking the residential communities of Whistler. The Whistler network is well positioned on Crown and municipal owned park land. Only 25 km or 8% of the network is located on Private lands.

For the purposes of this plan, the Pemberton region includes all trails contiguous with Highway 99 between the Rutherford River Valley to Mt. Currie, northeast to D'Arcy as well as trails northwest of Pemberton towards the Upper Lillooet FSR. There are approximately 196 km of known trails in the Pemberton region. Approximately 77% (151 km) are on Crown land with the remaining 33% on private land. A large portion of the Pemberton area trail network, originally located on Crown land has been recently transferred to the Lil'wat First Nation in a land disposition agreement reached with the Province.

BC Parks Trails

Within the Sea to Sky Corridor, vast networks of recreational trails exists within the numerous BC Parks, including Garibaldi, Alice Lake, Tantalus, Brandywine, Stawamus Chief, Nairn Falls

Provincial Parks and others. Trails on Crown, municipal and private lands often join or provide access to the Provincial Park trails and as such Park trails form an integral part of the Corridor network. While a comprehensive inventory of trails in BC Parks is beyond the scope of this strategy, it must be recognized that trails on Crown land that are contiguous with BC Parks trails are vital to the Parks trails themselves and vice versa.

Singletrack Trails

Off-road mountain biking constitutes the greatest intensity and volume of trail use in the Corridor. Other user groups including recreational cyclists, trials motorcycle riders, dirt bike riders, and equestrians also seek singletrack riding experiences. Singletrack and some doubletrack trails used by these riders are rated according to level of difficulty (see Trail Classification section) using the green circle, blue square, black diamond system used predominantly in the ski industry and adopted by the International Mountain Bike Association (IMBA). Table 2 shows the quantity of known trails in each region classified by difficulty rating. Trails used almost exclusively by pedestrians such as steep alpine hiking trails are rated according to the *BC Parks Trail Difficulty Ratings* and surfaced, valley bottom multi-user trails with grades less than 4% are not rated and not included in the table below.

Table 2. Allocation of Regional Singletrack Trails by Difficulty.

Region	Difficulty Rating	kilometers	% of regional network
Squamish	Green Circle	59	36
	Blue Square	56	35
	Black Diamond	34	22
	Double Black Diamond	10	7
	Sub-total	159	100
Whistler	Green Circle	33	16
	Blue Square	80	38
	Black Diamond	87	41
	Double Black Diamond	8	5
	Sub-total	208	100
Pemberton	Green Circle	16	20
	Blue Square	27	34
	Black Diamond	26	32
	Double Black Diamond	11	14
	Sub-total	80	100
Total	Green Circle	108	24
	Blue Square	163	36
	Black Diamond	147	33
	Double Black Diamond	29	7
	Total	447	100

SEA TO SKY TRAIL

The proposed Sea to Sky Trail embodies the concept of a coordinated trail network through the Corridor. A single, visionary trail that links the communities between Squamish at the northern end of Howe Sound and D'Arcy at the south end of Anderson Lake will provide the backbone for the Corridor trail network. A trail that passes through multiple jurisdictions including various municipalities, Provincial Parks, Crown land, and others, provides an exceptional opportunity for coordinated trail management.

This popular community project has seen intermittent progress over the past 12 years and while much of the proposed trail exists on the ground, the Sea to Sky Trail is not officially recognized as an entity. By 2004 in an effort to remedy this lack of official status, the Sea to Sky Trail Steering Committee was struck by the Squamish – Lillooet Regional District (SLRD), including the Village of Pemberton, the Resort Municipality of Whistler (RMOW), SLRD, and the District of Squamish. The Steering Committee is currently completing the Sea to Sky Trail Strategy.



Ideally the trail will be comprised of a 2m crushed gravel surface with an average grade less than 4%. The trail will be suitable for walking, cycling, hiking, x-country skiing and snowshoeing. In addition, certain sections may also be designed to accommodate horseback trail riding, ATV riding, snowmobiling, and potentially dirt biking, depending on the desires of the communities through which it passes.

The Sea to Sky Trail will not only provide a linkage between communities in the Corridor and a fantastic recreation opportunity, it can play an integral role in linking the more diverse and likely challenging trails throughout the network. The Sea to Sky Trail will link the various regions, anchor the network in the landscape and raise the profile of the region as a world class recreation destination. As well, the Sea to Sky Trail has the potential to bring broader recognition to the entire trail network and increase the status of trails in general throughout the Corridor. The Sea to Sky Trail will be the backbone of the corridor network.

The Ministry of Tourism Sport and the Arts, local and regional agencies, user groups and clubs should recognize the importance and value of the Sea to Sky Trail to the entire network. The relationship of existing and proposed trails to the Sea to Sky Trail should be considered by MTSA, trail coordination committees and other planning agencies when making trail network management decisions.

FIRST NATIONS

The entire network is located on lands within the traditional territories of the Squamish Nation, Lil'wat Nation or N'Quatqua. Current land negotiation processes and agreements underway in the Corridor will affect trails located on Crown lands.

Involvement of First Nations in the coordination of trail management activities will strengthen the sustainability of the entire network. First Nations must provide input into the planning and management of trails on their traditional territories to ensure trails do not impact sensitive cultural, archaeological and historic sites. First Nations share concerns for the environmental impact of trails.

Recent dispositions of Crown lands in the Pemberton area to the Lil'wat First Nations and planned dispositions of Crown land in the Squamish area to the Squamish Nation places both groups in the role of private (and potential) land owner with community enjoyed trails on their land. Involvement of the First Nations in trail planning and management processes occurring in the regions will help to foster a cooperative and understanding relationship between trail users and the land owners.

Lil'wat Nation Trail Use Agreement

The provincial government recently transferred over 400 acres of Crown land in the Mosquito Lake area to the Lil'wat Nation as compensation for land lost to the Sea to Sky Highway upgrades. The Mosquito Lake area contains a large portion of the Pemberton area mountain bike and walking trails. The Lil'wat Nation and the Pemberton Valley Trails Association (PVTa) reached an agreement that establishes the framework for a long-term cooperation. In exchange for allowing recreation access the PVTa provides liability insurance to cover the Lil'wat Nation. The Lil'wat have a representative on the PVTa board to ensure their interests are considered (Thompson, 2006).

Issues:

- Trails located throughout the Corridor located on First Nation's traditional territory.
- Trails have potential to impact sensitive cultural, historic and/or archaeological sites.
- First Nation's representation in trail management and planning committees.

Recommendations:

1. Ensure First Nations participation on local and Corridor trail coordination committees.
2. Consult First Nations on proposals for new trail authorization and establishment.
3. Consider existing agreement between Lil'wat Nation and PVTa as template for other applicable areas.

LONG TERM GOALS

The Sea to Sky Corridor Trail Strategy provides strategic direction for managing a trail network to achieve the following long term goals:

1. An Authorized Trail Network
2. A Coordinated Trail Network
3. An Environmentally Responsive Trail Network
4. A Sustainable and Economically Beneficial Trail Network

These four long -term goals will be realized by carrying out identified strategies to achieve more specific objectives.



GOAL

Authorized Trail Network

Only approximately 21% the 562 kilometres of trails located on Provincial Crown land (outside of BC Parks) within the Corridor are authorized or established as required by the *Forest and Range Practices Act* (FRPA). Unauthorized trails on Crown land are illegal and are not given consideration in land use management and planning processes. Section 57 of the *Act* enables eligible parties to construct, rehabilitate and maintain recreation trails on Crown land. Section 56 formally establishes a recreation trail on Crown land. The main purpose for establishing recreation trails under section 56 is to ensure they are recognized and accommodated during land use planning. Essentially, authorization (section 57) is the first step to establishing (section 56) a trail on Crown land.

An authorized and established trail network will facilitate development of a formal planning and management structure. An authorized network provides the following additional benefits:

- Ensures trails and recreation opportunities are considered in land use planning processes.
- Provides opportunities for integrated forest management and balance of land uses.
- Easier to secure funding and resources for an authorized network.
- Provides a platform for partnerships and cooperative management amongst organizations.
- Secures government support for trail initiatives and management.
- Facilitates commercial recreation tenure and permit awarding processes.
- Ensure environmental and risk management considerations are addressed in trail planning and management.
- Ensures trail construction and maintenance is not carried out unlawfully.

Authorization and establishment of a particular trail does not guarantee preservation in the same sense as a park or protected area. Forest development may occur adjacent to an established trail providing a buffer or may impact a trail directly. Responsible agencies will evaluate and consider recreation objectives when making land use decisions.

As the agency responsible for public recreation on Provincial Crown land, MTSA recognizes the importance and significance of the vast existing trail network within the Corridor. MTSA's policy is to accommodate the demand for use of existing trails and to authorize the new trails provided, (1) the trails and facilities are properly located, safe and do not result in significant user conflicts or environmental damage, and (2) the proponent is willing to make a long term commitment to manage new trails (MTSA, 2006).

MTSA does not have the capacity to locate, maintain and manage all the trails that have been built on Crown land. MTSA will enter into partnership agreements with local government organizations, clubs or agencies, allowing them to use maintain and develop trails on certain Crown lands.

Partnership Opportunities

In the Sea to Sky Corridor, the Squamish Lillooet Regional District (SLRD) and municipal governments, on behalf of communities that benefit from the trails, are the best suited organizations to enter into trail agreements with the Province. Regional and municipal governments have the capacity to build annual trail funding into capital and operational budgets, provide required insurance similar to other recreation amenities such as playgrounds and enter into long term agreements with the Crown.

User groups, clubs and other local organizations are potential proponents for trail agreements with the Province. Often their members are the most frequent users and in the case of the existing trails, they may be the original builders. Their members are usually the most familiar with localized management needs. In considering partnership agreements with local clubs however, it should be recognized that participation and resources available to clubs often fluctuate and therefore clubs may be less able to appropriately manage an extensive trail network. Furthermore, local clubs may not be as well positioned as municipal governments to manage liability issues associated with the recent proliferation of more challenging mountain bike trails. Clubs and user groups will be well suited for individual trail agreements or agreements for portions of a trail network. Local clubs and user groups should be identified as one of a variety of potential trail agreement parties within any region in the Corridor.

Commercial recreation is defined as outdoor recreational activities provided on a fee-for-service basis, with a focus on experiences associated with the natural environment. The provincial commercial recreation management program requires existing and new recreation operators to acquire tenures or permits for the provincial Crown lands they need or utilize to operate. Numerous Commercial Operators provide guided cycling on Crown land trails throughout the Corridor. Commercial Operators utilizing the trails are logical candidates for trail agreements with the Province.

Objective

Authorize the rehabilitation and maintenance of existing, eligible trails on Crown land according to section 57 of FRPA.

Strategy #1

Identify currently unauthorized trails on Crown land eligible for authorization.

Trails do not follow land jurisdiction boundaries. Many trails span private, municipal and Crown land or any combination of the three. In cases where trails span both Crown and private land, MTSA should consider applications for authorization of trails where significant, contiguous portions are located on Crown land (>80%). Similarly, trails significantly located on private land or regularly interrupted by private lots should be placed on low priority for authorization.

A list of identified trails, with portions greater than 80% located on Crown land is included in Appendix 1.

Strategy #2

Develop framework for trail agreements with SLRD and municipal governments.

In order to meet policy objectives for public safety, liability, user conflict avoidance and long-term management of trails, proponents for trail agreements with the Crown will likely have to be established organizations with the capacity to develop and maintain

formal structured trail management programs. This is particularly true for the vast network of mountain bike trails in the Corridor with associated perceived and real liability concerns arising from the construction and use of TTF's.

As a regional government with jurisdiction spanning the Corridor, established relationships with the various municipalities, and the capacity to collect and allocate tax dollars in the Corridor, the SLRD is uniquely positioned to take the lead role in establishing trail agreements with the Province. A Corridor Trail Committee, led by the SLRD and made up of representatives from the municipalities, can provide the requisite insurance through the Municipal Insurance Association (MIA), direct local trail management activities, acquire and distribute funds as deemed appropriate as well as contribute to the coordination of the entire Corridor trail network, MTSA will enter into discussions with local governments, specifically the SLRD, Squamish, Whistler and Pemberton to determine the scope and extent of possible trail management agreements for trails on Crown land.

Strategy #3

Provide mechanism for local clubs and user groups to contribute to trail management activities.

Local cycling clubs (SORCA, WORCA), trails societies (STS,SAS,PVTA), equestrian clubs and other user groups (SDBA) play an integral role in the construction, maintenance and management of trails. Clubs and their members also foster the "ethos" that has made the Sea to Sky a world class trail network. While clubs may not be as well positioned as local governments to enter into trail agreements, effective management by local governments will depend largely on support by the clubs. Municipal governments will need to establish their own frameworks for working with local clubs and user groups to carry out the mandate required by the trail agreements. These may include "adopt-a-trail" programs, formation of local trail advisory or coordination committees that include municipal staff and club representatives as well as support for club based activities such as races and events.

Objective

Establish "marquee" trails according to section 56 *FRPA*.

Strategy #1

Establish high priority 'marquee' or signature trails according to section 56 of *FRPA*.

While each trail in a particular region contributes to the character of the entire network, the public and other stakeholders view some trails as being more valuable than others. A particular trail may provide an exceptional recreation experience or form an integral part of the network due to location or access that it provides to other areas such as BC Parks. These trails are known to be the 'signature' or 'marquee' trails.

Not surprisingly, issues concerning these marquee trails generate the strongest interest and opinions amongst the public and other trail stakeholders. Threats to their viability and existence of have serious impacts to the entire trails community and undermine the long-term sustainability of the network. Trails identified as marquee, therefore should be given priority for authorization and subsequent establishment according to *FRPA* recreation regulations. Table 3 lists suggested marquee trails by region and identifies their ownership status.

Table 3. Suggested ‘Marquee’ Trails by Region.

Region	Trail	% Land Ownership		
		Crown/ Hydro*	Municipal	Private
Squamish	Power House Plunge	100	-	-
	Jack's Trail	95	-	5
	Upper Power Smart	100	-	-
	Ring Creek Rip	100	-	-
Whistler	Cut Yer Bars	55	14	31
	Comfortably Numb	93	7	-
	Kill Me Thrill Me	95	5	-
	Cheap Thrills	94	6	-
	Shit Happens	77	-	23
	River Runs Through It	100		
Pemberton	Gravitron	100	-	-
	Lumpy's Epic	99	-	1
	U. Mackenzie Cruise	96	-	4

GOAL

Coordinated Trail System

The vast network of trails in the Sea to Sky Corridor is supported, managed and enjoyed by a diverse range of people and organizations. User groups, land managers, the general public, commercial operators and First Nations all hold a stake in this world class trail network. Although the network spans the Corridor, it is comprised of three distinct regions centered in Squamish, Whistler and Pemberton. Each region within the corridor faces unique operating and administrative environments. While it is recognized that each jurisdiction may take a different approach to management of their trails, that variation should not be considered a barrier to integration. A coordinated approach to trail management that fosters the sharing of information, resources and experiences is essential to ensuring the long-term sustainability of the network. A coordinated effort will benefit the entire region and achieve greater levels of success. Additionally the coordination of the trail network on a Corridor wide basis has the potential to offer significant economic benefits to the entire region.



A significant portion of the recreational trails are found in the many BC Parks throughout the Sea to Sky Corridor. Often these trails are contiguous with trails outside park boundaries. Trails on Crown or private land that provide access to BC Parks are critical linkages in the overall network. As well, Parks infrastructure including staging areas, trail heads and signage provide exceptional opportunities for integration and enhancement of the existing network outside of Parks. Coordination with BC Parks will be a fundamental component of achieving a coordinated trail network.

Objective

Increase collaboration amongst the Province, regional land managers, local governments and stakeholders.

Strategy #1

Establish the a Sea to Sky recreation trail forum and foster local and/or regional trail coordination committees.

A Sea to Sky recreation trail forum will be made up of representatives from user groups, local and regional clubs, responsible land managers, municipal governments and other select stakeholders. The primary purpose is to provide a forum for members to share information, knowledge and experiences from regions throughout the corridor. Through the forum, measures can be implemented and adopted that maintain consistency amongst the regions. The creation of a forum will ensure that as the use and demands for trails in the corridor evolve, management efforts and strategies follow suit.

The Sea to Sky Recreation Trail Forum will act as an umbrella group made up of key land managers and representatives from smaller regional trail committees and organizations. The forum should include, at a minimum, representatives from the following groups:

- Ministry of Tourism, Sport and the Arts
- Ministry of Forests and Range
- Ministry of Environment / BC Parks
- Ministry of Agriculture
- District of Squamish
- Resort Municipality of Whistler
- The Village of Pemberton
- Squamish Lillooet Regional District
- First Nations
- Squamish Trails Society
- Whistler Cycling Committee
- Federation of Mountain Clubs of BC
- Pemberton Valley Trails Association
- Corridor dirt bikes
- Corridor trials riders
- Corridor equestrians

The Sea to Sky Recreation Trail Forum would not be expected to consider local level trail planning and management issues. Local planning and management will be left to the land managers and stakeholders in the particular region. It is expected that each region within the Corridor has or will develop its own trails coordinating bodies and mechanisms to address local issues.

The availability of time and resources is usually limited amongst public agency staff and club volunteers, therefore the committee will need to be sensitive to time concerns. Semi-annual meetings of the forum should be adequate to ensure Corridor wide information is shared and issues are addressed.

As the agency with responsibility and jurisdiction that spans the Corridor, MTSA would be expected to take the lead role in establishment and facilitation of the Forum. The chairperson would not necessarily be a Provincial government representative.

Strategy #2

Adopt and implement trail standards and guidelines based on widely accepted standards and guidelines.

Each region within the Sea to Sky Corridor provides a unique trail experience. As well, trail administrators in each region are faced with different user demand characteristics and operate in differing administrative environments. Because trails do not necessarily fall within distinct regional areas however; and single trails may fall under multiple jurisdictions, a single set of trail standards based on similar guidelines are necessary to maintain consistency within the network. Consistent trail standards will provide the following benefits:

- Provides trail users with a consistent trail type and difficulty rating system throughout the Corridor.
- Adherence to established standards will reduce exposure to liability for land managers.
- Enhance the marketability of the Sea to Sky Corridor as a single recreational trail destination and facilitate a coordinated marketing efforts.
- Enhance regional risk management programs by providing consistency and collaboration amongst trail management agencies.
- Provide clear and concise direction to trail managers, including local clubs for meeting minimum trail standards and guidelines.
- Meets the needs of the jurisdiction with the lowest risk tolerance.

Provincial land jurisdiction spans the Corridor and local governments or agencies necessarily share management responsibility for their trail networks with the Crown. By developing and adopting Corridor wide standards, the Province can facilitate consistency throughout the Sea to Sky area.

The Resort Municipality of Whistler (RMOW) has developed and adopted the *Whistler Trail Standards: Environmental and Technical Trail Features* (RMOW 2003), primarily focused on mountain bike trail planning, construction and maintenance. The standards identify trail types, trail difficulty ratings as well as trail and technical terrain feature (TTF) construction specifications. The Whistler standards are consistent with the International Mountain Bike Association (IMBA) guidelines for mountain bike trails as detailed in *Trail Solutions: IMBA's Guide to Building Sweet Singletrack*. Whistler Trail Standards have gained increasing recognition and have been adopted and applied in many jurisdictions within and outside of British Columbia.

MTSA will develop and apply trail standards and classification systems to trails on Crown land throughout the Corridor. The standards will be based on Whistler and IMBA guidelines with adaptations as required to address any provincial trail issues. Recommended trail standards are included as part of this Strategy.

GOAL:

Environmentally Responsive Trail Network

All trails impact the natural ecosystem to some degree. By its' very nature, the establishment of a trail by grubbing causes localized damage to the immediate environment. The extent to which a trail negatively impacts the environment on a larger scale is highly variable and can be minimized by adhering to basic, established trail planning and construction guidelines.

An environmentally responsive trail network meets the following criteria:

- Is planned and located to optimize the landscape by making use of natural terrain and avoiding sensitive areas.
- Trail locations are chosen that minimize potential for erosion and avoid steep, erodable slopes.
- Trails resist erosion through proper design, construction and maintenance.
- Has the potential to provide users with an intrinsic natural educational experience.
- Provides amenities appropriate for the type and number of users (trail head staging areas, signage etc.).
- Is appropriate for the regional landscape in which it is located.
- Does not conflict with other environmental landscape management objectives such as sensitive ecosystems or wildlife areas.

Objective

Minimize impacts to the natural environment from trail construction, maintenance and use.

Strategy #1

Evaluate existing network to identify trails unduly impacting the environment and rehabilitate, relocate or de-activate.

A reconnaissance level assessment of the existing trail network should be completed to determine if any known trails are significantly impacting the environment. Local knowledge will be valuable in reaching this determination. Existing trails that are identified as harmful can be evaluated to determine if the impacts are a result of poor construction that can be rehabilitated, poor placement that can be rectified by re-locating a segment of the trail or if the trail needs to be de-activated.

If a trail is identified and determined to be adversely impacting the natural environment, MTSA will notify local agencies, user groups or stakeholders of a pending deactivation order. Groups would then have an opportunity to enter into a Trail Agreement with MTSA to rehabilitate and maintain the trail in question.

There are existing high profile and regionally significant trails that may pose an ongoing environmental risk due to their physical attributes. Often these trails are associated with higher risk (environmental or human safety) and the liabilities associated with the trails may preclude any trail agreement with a partner group. Further, modification or closure of the trails may diminish their value and result in a local backlash or lack of compliance

with closure. These trails should be identified and mitigation strategies developed to reduce the level of impact or risk.

It should be noted that trail de-activation is the least preferred option. Historically, de-activation of trails has proven difficult and largely unsuccessful. If trails are well established and well known, users will continue to use the trails despite clear indications of closure or deactivation. Rehabilitation and relocation is preferred and likely to be more successful.

Strategy #2

Establish environmental criteria for evaluation of future trail proposals.

All future trail proposals should be evaluated against an established set of environmental criteria. Evaluating proposals to meet minimum environmental criteria should not require extensive resources from decision making authorities. Baseline knowledge of the proposed area or route combined with assurances that proponents will adhere to well established industry guidelines (see *Trails Standards and Guidelines*) will help ensure environmental concerns are addressed.

In some cases, areas may be proposed for significant expansion of the existing trail network, possibly to address loss of trails to residential or forestry development. In those cases it may be appropriate for provincial officials to conduct base level environmental reviews to assess any potential impacts and facilitate pro-active management of the natural environment.

Strategy #3

Adopt Corridor wide guidelines for trail construction and maintenance that minimize impacts to the environment.

All trail construction, maintenance and rehabilitation, authorized by *FRPA*, must adhere to construction and maintenance guidelines as detailed in *Whistler Trail Standards*, *IMBA's Trail Solutions* and summarized in this document.

GOAL

Sustainable and Economically Beneficial Trail Network

The Sea to Sky trail network provides social, health and economic benefits to residents and visitors of the Corridor. The network increases quality of life for residents and recently has become a major attraction for people moving to corridor communities. The vast network of trails, increasingly viewed as a recreational facility is playing a vital role in the economic transition of both Pemberton and Squamish. As the international reputation for exceptional outdoor recreation grows, trails will play an increasing role in corridor communities.

The quality and diversity of the recreation experience offered by each trail within a region contributes to the character of that region. Each region in turn contributes to overall character of the Sea to Sky Corridor trail network. The impact to the network from the loss of a trail extends beyond the trail location itself and jeopardizes the sustainability of the entire network. Potential threats to the trail network therefore impact the social and economic well being of the immediate community and the region beyond.

The Western Canada Mountain Bike Tourism Association estimates that the Sea to Sky trails and associated mountain bike activity brought \$ 8.2 million in non-resident spending to Squamish and Whistler between June 4 and September 17, 2006 (WCMBTA, 2006). The popularity of mountain biking and the associated economic benefits directly or indirectly affect the entire Corridor.

As the agency responsible for public recreation on provincial Crown land, MTSA can play a critical role in ensuring the sustainability of the network. In order to achieve long-term success however, coordination amongst all trail stakeholders is essential. Threats to a sustainable trail network must be identified and coordinated action plans to address them put in place.

Challenges to the long-term sustainability to the trail network in the Sea to Sky Corridor include:

- Loss of trails or segments of trail to private land development (fragmentation).
- Loss of trails or segments of trails to forest development such as timber harvesting (degradation).
- A reduction in the quantity and quality of singletrack trails which exemplify the highest quality riding experience for most recreational trail enthusiasts.
- Loss of connectivity (trails or portions of trails that provide critical access to parts of the network including BC Parks).
- Lack of resources (funding, volunteers) to properly manage trails
- Liability concerns for private land owners, trail managers or partners.
- Loss of trail access points (trail heads) from existing neighbourhoods.

While some threats can be addressed at the Provincial level, many of them require involvement and cooperation with municipal and regional governments. Municipalities are able to address loss of trails to development by influencing the development approval process as well as instituting policies and by-laws. The Provincial government can work with local governments to identify solutions for lost trails that might include relocation to identified expansion areas. Sustaining and enhancing the existing trail network will

require all stakeholders in the area to identify the “tools” available to them and utilize them in a coordinated, systematic and integrated approach.

Objective

Develop coordinated, formal effort to address challenges to sustainability of trail network.

Strategy #1

Stakeholders in each region should conduct a strength, weakness, opportunities and threats (SWOT) analysis for the trail network in each region.

Each of the three regions within the Corridor are at different stages of developing trail management and planning strategies. As well, trails on Crown land outside district boundaries face different challenges from those within. It is critical therefore that each region and agency with jurisdiction over portions of the network identifies and addresses specific regional issues that affect their trail networks.

Strategy #2

Develop regional and local (municipal) action plans to address threats and weaknesses to trail networks.

Each of the three municipal regions in the Corridor have commenced, are currently conducting or have completed this strategic process. Through a comprehensive planning process, the RMOW has completed the Whistler Recreational Cycling Plan. The plan specifies timelines and responsibilities for undertaking strategic action to realize the identified vision. The Squamish Off Road Cycling Association (SORCA) in conjunction with the District of Squamish has completed the Squamish Mountain Bike Management Plan. The Village of Pemberton is currently considering trail planning issues in various municipal planning processes. However, it should be noted that most of the existing trails in the Pemberton area are located outside municipal boundaries in the SLRD.

Each region must ensure that all key agencies and user groups work cooperatively to carry out specific regional initiatives to ensure the sustainability of the network. Local trail coordination committees will be essential meeting this obligation.

Strategy #3

Identify strategic locations for establishment of network trail head staging areas on Crown land.

Trail head staging areas can play a crucial role in sustaining a world class network. Similarly the lack of designated, well managed network staging areas presents a significant threat. Staging areas provide parking and access for regional visitors, provides a venue for information sharing amongst stakeholders and users, and formalizes the trails as legitimate recreation facilities.

In some cases local communities have viewed recreational trails negatively due to their impacts on neighbourhoods when staging areas are not available. Parking issues, heavy traffic, noise, dogs, lack of facilities and litter are all examples of complaints commonly raised by residents living at the end of the road adjacent to a trail. Community members with negative perceptions of trails and trail users do not enhance sustainability of the network.

The Sea to Sky Trail provides an exceptional opportunity for integration and collaboration of the entire Corridor trails community. The Sea to Sky Trail forms the spine of the

network and a majority of the other trails in the Corridor will stage from various points along the Sea to Sky Trail. Trailheads are automobile accessible and generally include vehicle parking.

Objective

Ensure ‘no net loss’ of trails in the Sea to Sky Corridor

Strategy #1

Provincial, regional and local governments adopt and implement “no net loss” of trails policy in the Corridor.

Private land development constitutes the greatest threat to existing trails in the Corridor. Municipalities have mechanisms available to them, in the development permit approval process, to ensure existing trails are maintained within planned developments, re-routed around planned developments or reconstructed elsewhere as compensation. The RMOW and Whistler Off Road Cycling Association has had high levels of success working together with developers to ensure kilometres of threatened high quality trails are not lost.

MTSA has committed to goal of ‘no net loss’ of trails in the Sea to Sky Corridor. “No net loss” of trails implies that over time the quality and quantity of (legally established) trails in the Corridor does not diminish. This does not imply that all trails will be free from impacts including forest development, land development and other uses.

Achieving “no net loss” of trails can be accomplished by:

- (1) Re-establishment after harvesting activities;
- (2) re-location during forestry or residential development, or
- (3) compensatory re-construction in identified expansion areas (by application of integrated forest management principles, LRMP objectives and in consultation with MoFR).

The “no net loss” objective applies to the quality as well as the quantity of trails in the existing network. Resource managers, land managers and responsible authorities need to consider the quality of the recreation experience a trail provides when weighing the costs of re-establishment, re-location or construction against development planning.

Strategy #2

Identify potential trail network expansion and/or enhancement areas in each region that are consistent with integrated land use planning processes, regional and/or municipal plans completed or underway.

Fourteen percent of trails in the Sea to Sky Corridor are located on private land. Additionally, of the 562km of trail on Crown land, only 117 kilometres are authorized. Anticipated Crown land dispositions will result in trails on existing Crown land ending up on private land. It is reasonable to assume that over time, existing trails will be lost to residential and forest development. Identifying areas for future trail establishment in each region is critical to sustaining the network. Identification of expansion areas facilitates a pro-active approach to trail planning and management.

Squamish

The trail network in the Squamish Region includes numerous destination hiking trails providing access to the surrounding alpine from the valley as well as an intensive and complex network of multi-use recreation trails located in and around the Squamish communities. These recreation trails allow Squamish residents and visitors to access and enjoy forested front-country recreation experiences often from their front doors. This nearby “deep forest” recreation experience is highly valued by residents and an integral component to District of Squamish claim as the outdoor recreation capital of Canada.

Many of the network trails in the Squamish front-country have been constructed on private land. Additionally, expected Crown land dispositions and potential future resort development will likely result in significant portions of the trails currently located on Crown land ultimately ending up on private lands. As well, existing and newly granted forest tenures in the Squamish front-country have potential to further impact the integrity and availability of the “deep forest” recreation trail experiences.

Existing areas of Crown land that provide a “deep forest” recreation trail experience, such as the Brohm Interpretive Forest area will be managed to maintain and enhance the integrity of that experience. MTSA will work with other Provincial agencies, the District of Squamish, stakeholders and other local governments to identify other areas of Crown land that can be managed to preserve quality deep forest trail experiences.

Whistler

The Whistler regions’ many recreation trails are largely located on municipal park lands, Crown lands or the Whistler-Blackcomb controlled recreation areas (CRA). Development of private lands has less potential to impact the trail network in the Whistler area than in neighbouring Squamish. As well, the proposed Whistler Community Forest, if approved will encompass a large portion of the network and will allow the community the flexibility to balance resource and recreation uses of the forest lands..

The RMOW has identified expansion areas in their *Cycling Trails Master Plan* as a component of the *Whistler Recreational Cycling Plan*. Trail expansion areas have been identified in the *Squamish Mountain Bike Management Plan*. User groups, responsible agencies and trail coordination committees must establish support for expansion of their networks where trails are proposed on Crown land. All network expansion on Crown land must be authorized (section 57 *FRPA*) and eventually established (section 56 *FRPA*).

Pemberton

The Pemberton trail network, distributed amongst both private and Crown lands is fairly dispersed relative to the community center. The Village of Pemberton has expressed an interest in undertaking a recreation trail planning process. MTSA will work with the Village of Pemberton, stakeholders and other local governments to develop and implement the results of a trail process, consistent with existing land use plans.

MANAGEMENT ISSUES



Integrated Land Use

The Sea to Sky Corridor Recreation Trail Strategy outlines goals, objectives and strategies for the vast network of trails on Crown land. This strategy is based on the principles of integrated forest management (IFM) and does not intend to affect trail management at the expense of other forest resources. Integrated land use principles ensure that decisions affecting land use consider economic, environmental and social concerns. Integrated forest management aims to balance the diverse and complex uses of forest resources while ensuring the protection of ecological values.

In the Sea to Sky Corridor there is increasing pressure on the forest land base for a diverse range of uses including forest development (harvesting), recreation, mining, historic/cultural use by First Nations, hunting, sightseeing, commercial tourism and many others. While the requirement for forest development and associated economic and community benefits are often viewed as being in conflict with forest recreation values, and specifically trails, MTSA recognizes that the two activities can not only co-exist but in fact are mutually beneficial.

Financial benefits derived from a community trail network increase economic diversification and contribute to a sustainable local economy. A sustainable and diverse local economy benefits all industry sectors and ensures the forestry can become a stable and long-term contributor to the economy. Development of forest resources provides critical access to forested areas for recreation use and provides economic benefits to the community.

The Sea to Sky LRMP provides specific direction for achieving the balance between economic, environmental and social concerns. The LRMP was developed in consultation with government agencies, stakeholders and considerable public input. The LRMP, once approved, will provide guidance for resolving land conflicts that involve trails and other resource uses.

Issues:

- Increasing land use conflicts amongst recreation values and forest development.
- Need to ensure integrated forest management approach is applied to trail management decisions in the Sea to Sky Corridor.

Management Objectives:

1. Ensure trail management decisions are consistent with the LRMP.

The LRMP is based on an integrated balanced approach and was developed from input by stakeholders, public and government agents. The plan provides government decision makers with guidance that aims to ensure resource decisions consider social, economic and environmental values. In the case of irresolvable land use conflicts between competing forest resource values, the LRMP should provide the basis that guides final decision making.

2. Ensure Ministry of Forests and Range is involved in trail management decisions.

An effective integrated approach to resource management requires constructive, representative input from all stakeholders. What often begins as competing requirements for forest resources can evolve into a balanced approach that considers the needs of all users, meets the needs of the greatest number of users and results in a satisfactory, sustainable solution.

Risk Management

Risk management and liability is a primary concern amongst public agencies responsible for trail management. For the purpose of this strategy, the discussions regarding liability apply primarily to mechanized use of trails. While all trail use has the potential to result in injury and therefore create liability issues, it is the recent and dramatic rise of free-ride mountain biking and off-road motorized vehicle use that has brought liability and risk management to the attention of public agencies and trail stakeholders.



The term 'risk' as it applies to trail management has two meanings. The first describes the relationship of the trail user to the risks (both perceived and real) of traveling in an uncontrolled environment. The second and perhaps more important meaning in trails management is the risks incurred by land managers (and private land owners) of providing access to recreational trails for a variety of uses (Keen 2005). The practice of risk management does not intend to eliminate risks, but instead to identify, reduce and manage them in order to decrease both risk to the user and potential liability to land managers or partners.

The increasing popularity of free-ride mountain biking has led to the development of trails that incorporate natural or man made features intended to create exciting and challenging experiences. These 'technical trail features' (TTF's) and their associated risks are a primary concern amongst land managers and public agencies.

Free ride mountain biking is intrinsically linked to the perception of risk involved in the experience. While riders do not intend to injury themselves it is the challenge of overcoming the risks that make the experience enjoyable. The reduction or elimination of perceived risks to the user, particularly in the case of mountain bike trails, is counter productive to the purpose of the trail itself. Risk management therefore, should focus on eliminating unreasonable 'hazards' from the trail (including unsafe or unsound TTF's) and proactively reducing the exposure of land managers, partners or private land owners to liability arising out of lawsuits. A risk management strategy must identify the legal situation of the various land managers and then provide a framework for the reduction and management of their exposure to liability.

Provincial mountain bike policy establishes that proposals for the authorization and establishment of trails with TTF's will require the proponent to maintain \$2 million comprehensive general liability insurance, name the Province as an additional insured and indemnify the Province against losses.

Liability Insurance

Liability insurance for mountain bike clubs has recently become available from some insurance providers. Available policies can insure clubs for liability arising from events like club rides, trail maintenance, trail patrols and other club activities. It can also provide coverage for completed operations, which means that if a club builds a trail and is subsequently sued by a trail user on the basis of that trail building, the policy will cover defense of the suit (McKay 2006).

Recreation Trails and the Occupiers Liability Act

The *Occupiers Liability Act* of B.C. governs the obligations of a land manager towards anyone who comes onto that land in British Columbia. The *Act* imposes a duty on land managers to take reasonable care that anyone coming onto the premises will be reasonably safe. The law recognizes the risk taking nature inherent in sport and accepts that risk is "incidental to and inseparable from" sport. The recognition of an inevitable level of danger inherent in a sport is referred to as inherent risk. The law further recognizes that failure to remove inherent risk does not constitute negligence by the land manager. Participants are deemed to accept the risk of accidents that may be reasonably expected to occur due to the nature of the activity they are participating in (LRC 1994).

In assigning liability for accidents amongst the land manager or participant, the courts generally are identifying the line between inherent risk assumed by the participant and negligence by the land manager. In determining liability associated with an injury the courts will consider whether the land manager was responsible for increasing the degree of risk beyond what is inherent in the sport. Among the factors the courts will consider in determining if recreational premises are reasonably safe or whether they expose users to unnecessary risks are:

- the existence of an unusual danger;
- the cost and difficulty of avoiding a specific danger;
- the safety record of the premises;
- whether an unusual danger could be satisfactorily reduced or eliminated by adequate warning, and whether an adequate warning was given.

In British Columbia cases concerning occupiers liability legislation have generally acknowledged that facilities that adhere to the usual standards for the activity for which the facility is intended usually provides a good defence to a personal injury claim. Facilities having non-standard features are more exposed to occupier's liability than those which do not (LRC 1994).

There is no one simple solution to addressing liability concerns faced by trail managers. Managing and thus minimizing exposure to liability is accomplished by employing a multi-faceted approach to risk management. Key factors that must be incorporated to reduce exposure include development, implementation and adoption of standards, a comprehensive signage program and coordinated risk management efforts.

Issues:

- Exposure to liability for land managers, and public agencies from recreational trail use
- Provincial policy requirement for general liability insurance
- Need for established "facility" standards

Management Objectives:

1. Develop, adopt and implement trail standards particularly with respect to TTF's and signage.

Establishing and adopting broadly accepted standards is a core strategy for reducing exposure to liability. The Sea to Sky Corridor is uniquely positioned to support the development of internationally recognized standards for trail and TTF construction. The *Whistler Trail Standards* are becoming increasingly accepted as an industry standard. Corridor wide adoption and implementation will further support the recognition of this standard, thus strengthening the position of land managers with respect to liability exposure.

2. Evaluate implementation of Provincial Mountain Bike Policy.

Successful implementation of the Provincial Mountain Bike Trails Policy will partly depend on the response by local organizations, including municipalities, to undertake trail agreements and providing the required general liability insurance.

- 3. Encourage adoption of formal risk management programs by responsible land managers.**
Groups and public agencies responsible for management of trails will minimize their exposure to liability by pro-actively implementing risk management programs. The scope and complexity of programs will vary depending on the types and extent of trails being managed. Trail coordination committees can assist groups by developing guidelines, providing resources and fostering understanding about risk management programs.
- 4. Continue to assess position of land managers to risk associated with trail use.**
Trends in trail use and applicable legislation are constantly changing. Land managers, public agencies, clubs and committees will be required to continually assess and re-evaluate liability and risks associated with trail use on lands they are responsible for or enter into partnership agreements to manage.

Trail Use Conflicts

Conflicts arising amongst different types of trail users in the Sea to Sky Corridor are indicative of the value users place on the recreation experience and the trails themselves. Conflict can be attributed to perception about activity style (mode of travel, level of technology), focus of trip, expectations, attitudes toward and perceptions of the environment, level of tolerance for others and different norms held by different users (Moore 1994). While various types of conflicts can arise in trail settings, this discussion refers primarily to conflicts between different user types.

The increased demand for unconfined, relatively unstructured outdoor recreation experiences is not specific to any one user group or type of use. Hikers, bikers, equestrians and motorized off-highway enthusiasts all hold expectations for use of Crown land. Increasing availability and advances in equipment technology have contributed to a proliferation of both motorized and non-motorized mechanized users, thereby increasing opportunities for contact amongst the different users and potential for conflict. It should be noted however, that contact is not always a pre-requisite for conflict.

Singletrack trail use is the most valued trail experience amongst all types of experienced trail users. The popularity and world renowned reputation garnered by the nearby “North Shore” and Sea to Sky Corridor can largely be attributed to the quality and quantity of the vast singletrack network. Often trail use conflict in the Sea to Sky Corridor can be attributed to competition over this resource.

The most common conflict is amongst non-motorized users and dirt bike riders; however conflict can and does exist between, hikers and mountain bikers, equestrians and mountain bikers or any other combination of users. Conflict is often asymmetrical where negative perception is held by one group towards another but the reverse is not true (Moore 1994).

Land managers are increasingly faced with addressing user conflicts over trails under their jurisdiction. It is increasingly important to employ a coordinated and multi-faceted approach to the issues. It may not be possible to completely eliminate conflict, however a pro-active approach to trail management can largely reduce the potential for conflict as well as provide a framework for addressing it if and when it arises.

Issues:

- High demand for limited recreation resource (high quality single-track).
- Increasing conflict between motorized and non-motorized users.
- Providing equitable access to Crown land for all users.
- Maintaining ability of users to achieve desired recreation experience.

Management Objectives:

1. Establish motorized and non-motorized use areas

The Summer Backcountry Recreation Forum provided management recommendations for motorized and non-motorized use of the Strategy area through the LRMP process. This Strategy proposes designation of non-motorized and motorized areas largely based on those recommendations with some modifications based on local trail use as determined appropriate by the District Recreation Officer. An overview of recommended recreation use zones is provided in Figure 4.

Non-motorized Areas

- Motorized use is restricted to FSR's (subject to the BC Motor Vehicle Act) and all permitted forestry roads in the Corridor unless restricted by other regulations, the Minister or designated official.
- Motorized use is not permitted 'off-road' including inactive and non-permitted forestry roads.
- All non-motorized use permitted.
- All trail construction, maintenance and rehabilitation must be authorized according to *FRPA*.

Motorized Areas

- All types of motorized and non-motorized activities are permitted unless restricted by the Minister, a designate or other responsible authority.
- All trail construction, maintenance and rehabilitation must be authorized according to *FRPA*.

2. Identify and maintain key access routes for motorized users.

Non-permitted, inactive forest roads located in 'non-motorized use' areas may provide access to motorized recreation areas. Trails, deactivated or inactive roads or double-track trails in non-motorized areas may be designated to provide access for motorized users. The Mashiter Connector providing access to Alice Ridge and Ring Creek is an example.

3. Identify non-motorized and motorized-permitted trail expansion areas.

Areas identified for potential expansion of motorized-permitted and non-motorized trail networks are listed in Table 4 and shown in figures 3.1-3.3. These areas do not match recommendations by the Summer Backcountry Forum, however by encouraging expansion areas based on usage type, MTSA is able to minimize potential for trail use conflict amongst motorized and non-motorized users, while meeting the needs of all groups.

Table 4. Potential Motorized and Non-motorized Expansion Areas.

Region	Motorized Expansion Area(s)	Non-motorized Expansion Area(s)
Squamish	Skookum - Raffuse	Ring Creek North - Alice Ridge
	Evans Lake/Levette Lake Area	
Whistler	Soo Valley	Identified in Whistler Trails Master Plan
	Rutherford Valley	
Pemberton	Rutherford Valley	All Crown lands as identified by the LRMP Process.
	Birken-Devine	

4. Adopt and employ a hierarchy of management tools to reduce potential for conflict.

The following management “tools”, listed in order of preferred use, applied pro-actively, have the potential to reduce trail use conflict. It is important for trail managers to respect the unconfined and unstructured nature of recreational trail use and use the ‘least intervention necessary’ principal when implementing various strategies.

i. Code of Conduct

Conflict amongst user groups is often a result of one group’s perceptions of attitudes towards another group. In many cases both groups are avid users of the same trails and recreation areas in the same community. A code of conduct provides a baseline for acceptable behaviors and demonstrates a willingness by all parties to cooperatively share the resource. Appendix 2 provides a suggested Code of Conduct for trail use in the Sea to Sky Corridor.

ii. Signage

Users’ expectations play a critical role in how they view their recreation experience. If a user does not expect to encounter other users of a particular type (ie. a hiker encountering ATV riders), once they encounter that user, they may not feel as though they achieved their objective and their recreation experience will be negative. If on the other hand, users know what to expect at the outset there is less likelihood of a negative encounter. Signage should be used at all trail heads and locations where user restrictions change to identify and inform users of appropriate use. See Trail Standards and Guidelines for more detailed specifications.

iii. User group involvement

Involving local user groups in trail management planning and decisions making provides a venue for each group to understand other users perspectives, attitudes and objectives. Actively involving groups in common tasks forces them to work together and often highlights similarities while eliminating misconceptions and stereotypes.

iv. Education

Uninformed, unintentional, unskilled and careless actions by users are often cited as the causes of many problems in outdoor recreation areas (Roggenbuck 1992). Trail user education can address many or all of these oversights. Delivery of educational information must be strategic and not overwhelming. Suggested methods include trail head signage, text on local area maps, websites hosted by local clubs and dissemination of information through trail coordinating committees to local clubs.

v. Designate trail use

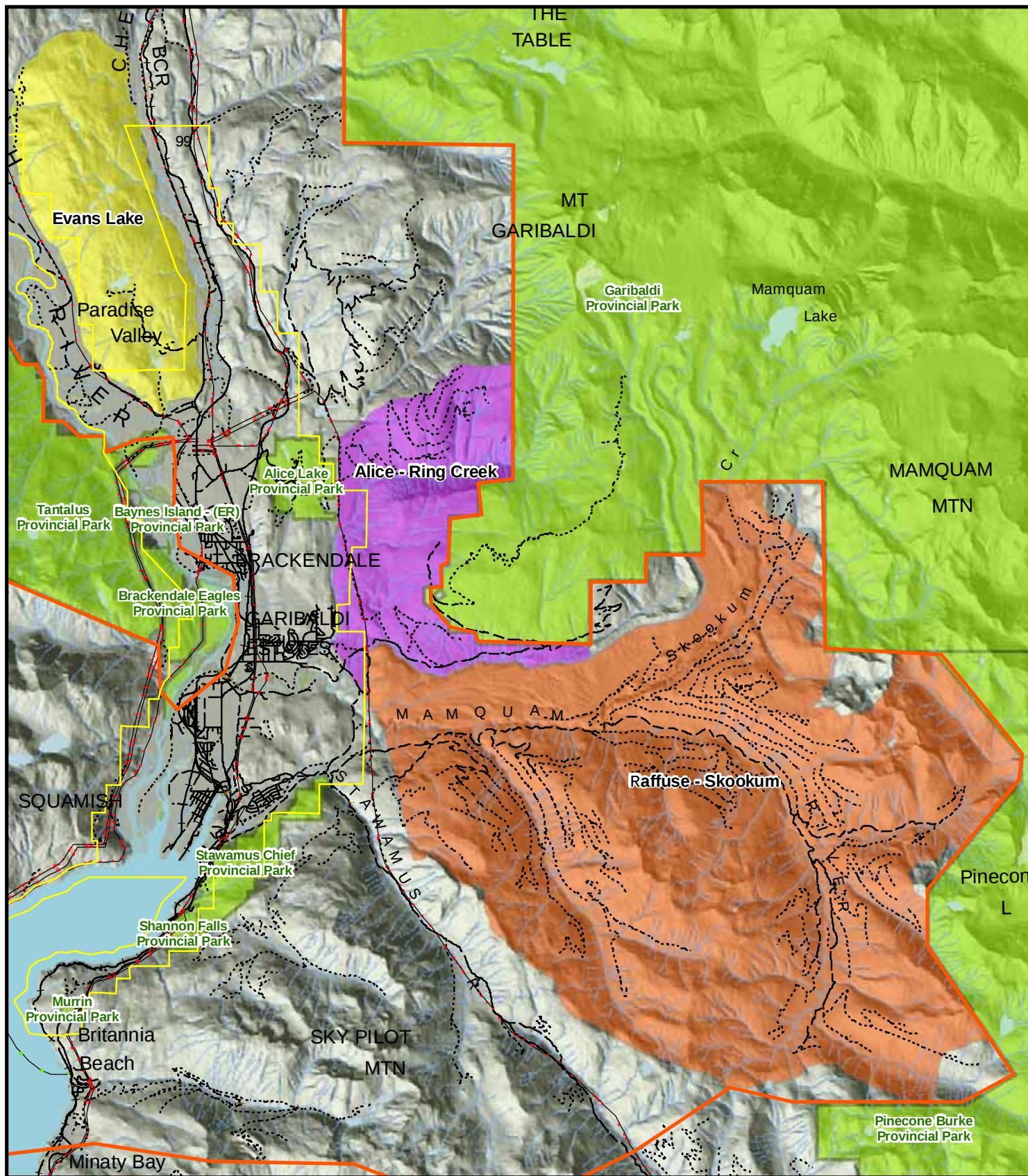
In some cases, trail use by different user types will prove incompatible for some areas. This could include areas close to residential development, areas within municipal boundaries or environmentally sensitive areas. Trail managers should consider designating appropriate trail uses in these areas. Recommended trail use designations are included in the Trail Inventory to accompany this Strategy.

vi. Enforcement of Regulations

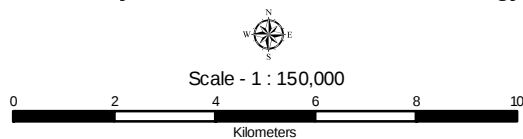
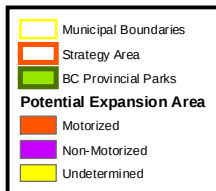
Enforcing regulations requires expending already limited resources and has the potential to spoil recreation experiences for trail users. While enforcement of regulations is a necessary component of any trail management plan it should be used in consort with other available tools, most notably education and user involvement. Users are more likely to accept regulation and cooperate with enforcement activities if they understand the reasons for regulations in the first place. Trail managers should respect the unstructured nature of trail based recreation and apply the “least intervention necessary” principal when undertaking enforcement of regulations.

5. Establish framework for resolving trail use conflicts or disputes

Trail use conflicts may arise from time to time despite implementation of management tools listed above and cooperation through trail coordination committees. Trail use conflict will be resolved in a civilized manner and within the context of this Strategy or mediated by the designated official of the Ministry of Tourism, Sport and the Arts. If mediation does not result in compromise and consensus the MTSA designated official may impose temporary or permanent conditions to resolve the conflict.



**Figure 3.1 - Squamish Potential Expansion Areas
Sea to Sky Corridor Recreation Trail Strategy**



Date : January 8, 2007
 CERF File : 015-11-01
 Projection : UTM Zone 10 N
 Datum : Nad 83
 GIS Cartographer: Todd Hellinga

Prepared by:
CASCADE ENVIRONMENTAL
 RESOURCE GROUP LTD.

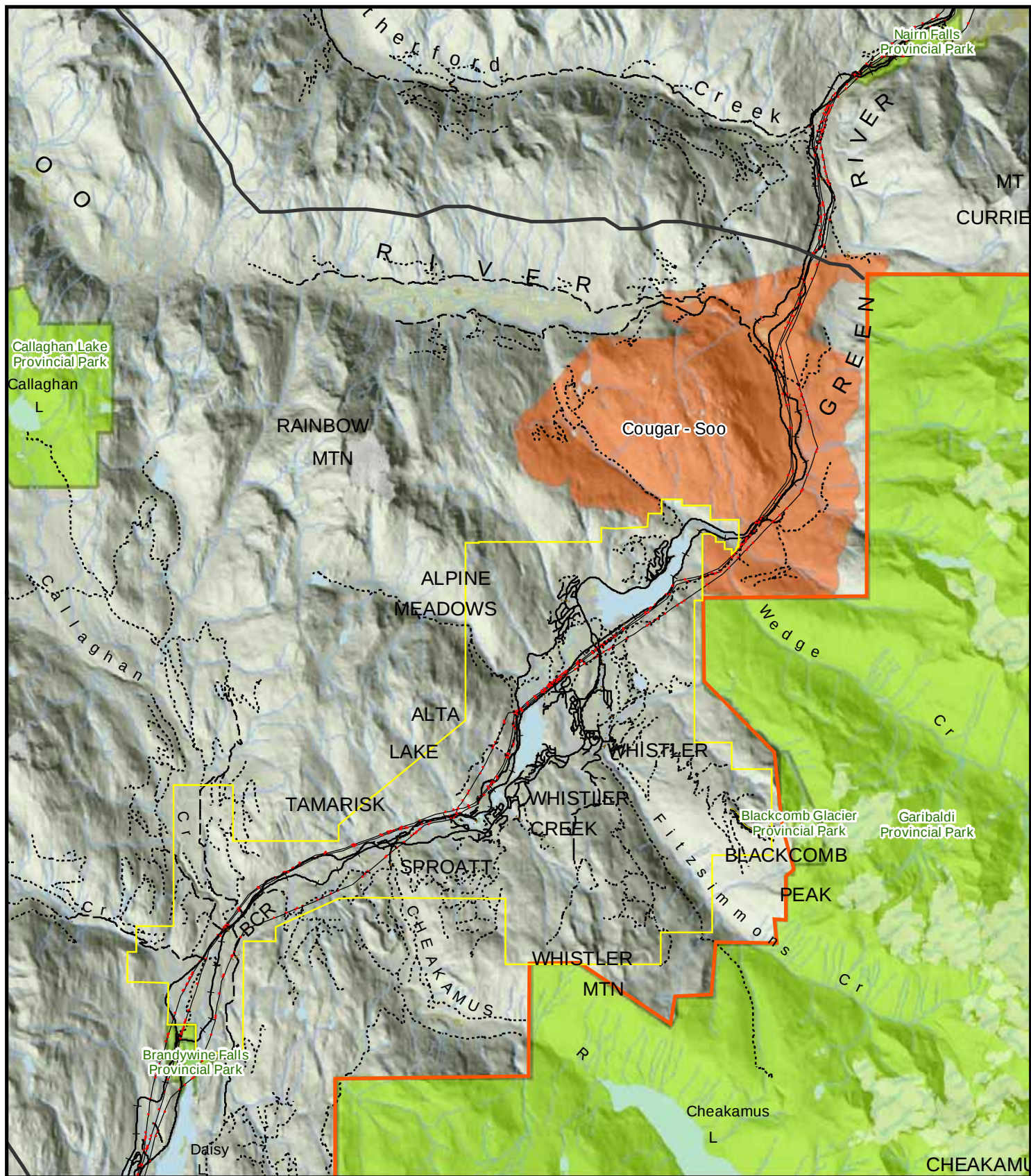
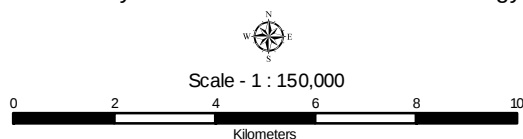
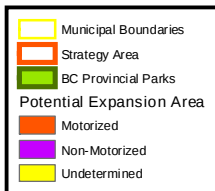
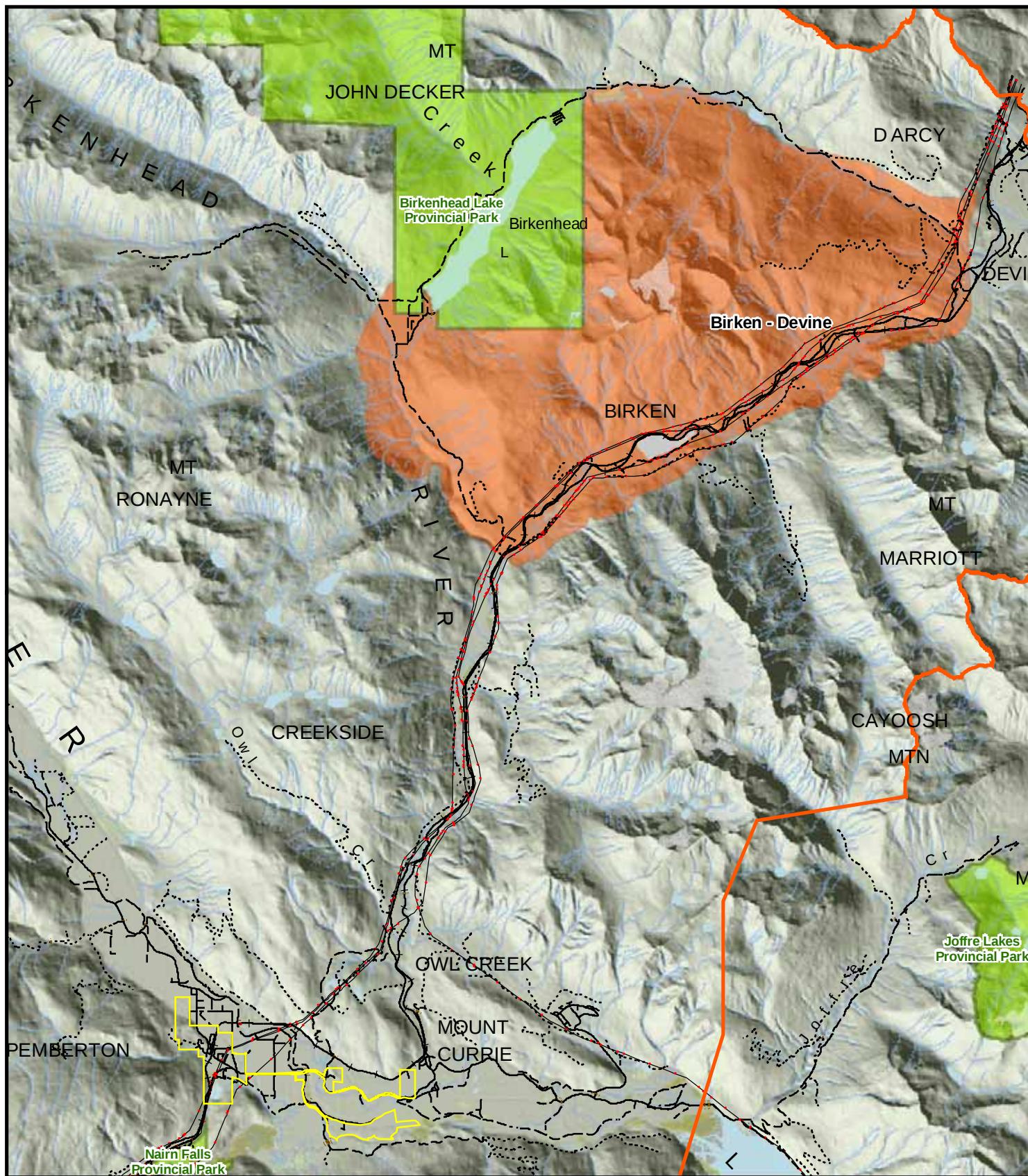


Figure 3.2 - Whistler Potential Expansion Areas
Sea to Sky Corridor Recreation Trail Strategy

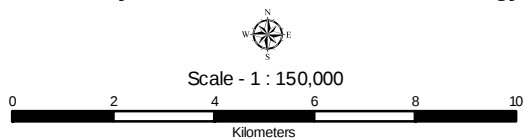
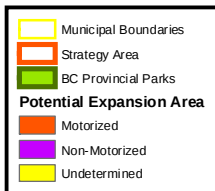


Date : January 8, 2007
CERG File # 015-11-01
Projection : UTM Zone 10 N
Datum : Nad 83
GIS Cartographer: Todd Hellinga

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RESOURCE GROUP LTD.

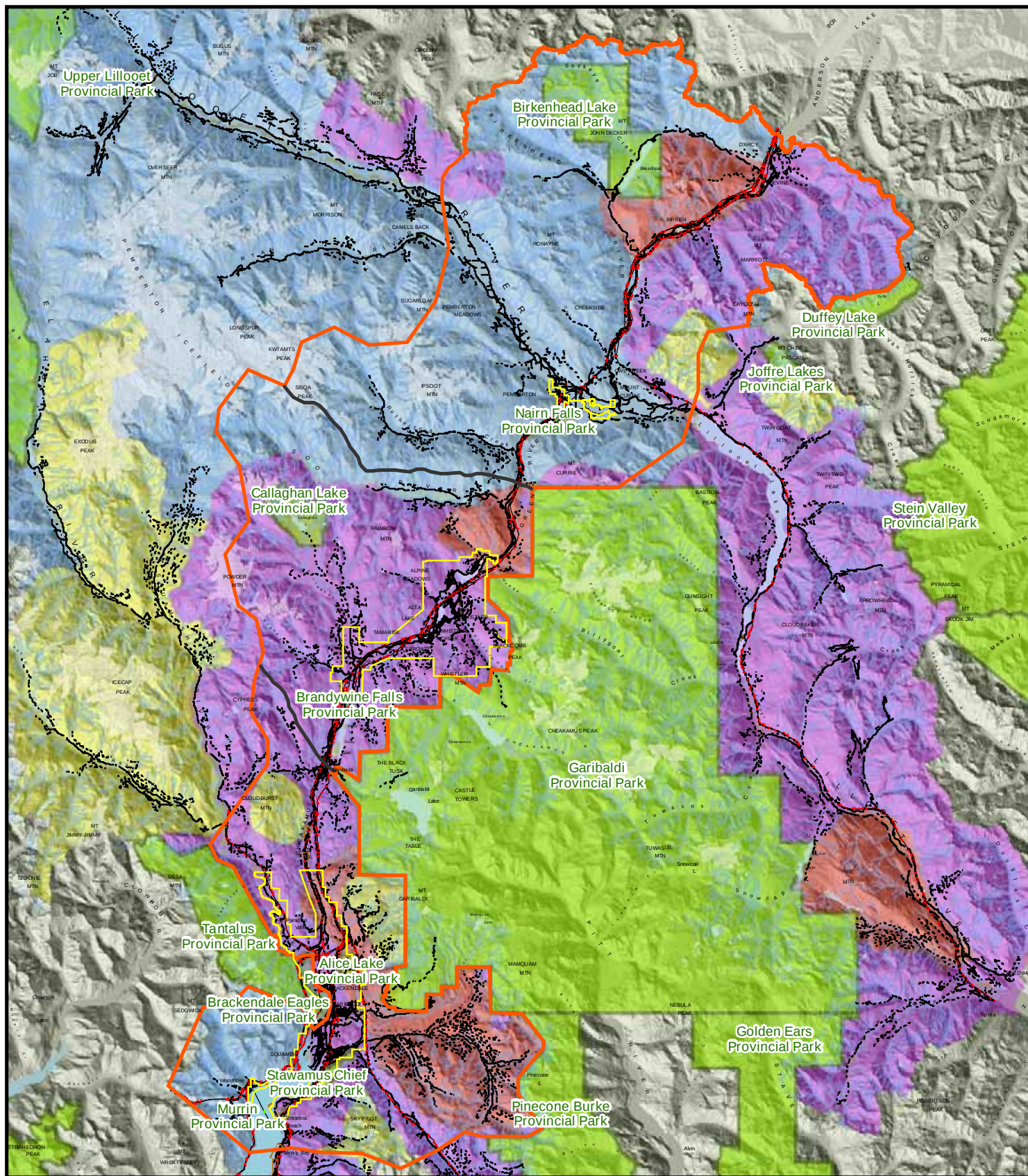


**Figure 3.3 - Pemberton Potential Expansion Areas
Sea to Sky Corridor Recreation Trail Strategy**



Date : January 8, 2007
 CERF File : 015-11-01
 Projection : UTM Zone 10 N
 Datum : Nad 83
 GIS Cartographer: Todd Hellinga

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- Figure 4 -

Recommended Summer Backcountry Recreational Use Zones Sea to Sky Corridor Recreation Trail Strategy

Scale - 1 : 550,000

0 10 20 30 40 50
Kilometers

Date : January 8, 2007
CERG File # 015-11-01
Projection : UTM Zone 10 N
Datum : Nad 83
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- Municipal Boundaries
- Strategy Area
- BC Provincial Parks
- CLASS
- Motorized
- Non-motorized
- Non-motorized A
- Unresolved

Funding and Resources

Trail managers, local governments, clubs and volunteers often cite lack of funding and resources as one of the biggest challenges facing trail planning, development and maintenance. Many trails in the Sea to Sky Corridor have been built by volunteer labour over many years. To sustain these extensive trail networks with necessary amenities that include such things as signage, building materials and trail head facilities, substantial funding is required. As municipalities take on increasing responsibility for trail management and clubs begin to consider formal risk management programs, greater funding is required just to maintain minimum trail standards. Trail managers, clubs and the local municipalities will need to become increasingly creative to acquire the funding needed to maintain trails.

Trail networks provide a recreational amenity to community residents. They provide social, economic and health benefits to communities, not unlike sports fields and arenas. As the perception of trails as municipal facilities continues to evolve (as has happened in Whistler and taking place currently in Squamish and Pemberton) municipalities will inevitably be called upon by local tax payers to provide funding and resources for trail management.

Clubs, user groups, associations and committees can provide funding for trail construction and maintenance by two primary methods; in-kind volunteer labour and direct money from fundraising or membership dues. The Sea to Sky Corridor experienced an unprecedented level of singletrack trail building, mostly by club members, during the early to mid nineties that reached a peak towards the end of the decade. Since that time, clubs have struggled with “volunteer burnout” as the enthusiasm for trail building has dwindled and the original generation of trail builders is increasingly focused on family and careers. In-kind volunteer labour is becoming increasingly scarce (while number of riders is ironically increasing) and membership dues are not increasing proportional to the increased users. Changes to community demographics, general trends and high demand for volunteer effort all indicate an unstable and fluctuating supply of volunteer and club resources. Clubs will need to look at additional fund raising and grant opportunities to secure funds for trail management.

In order to sustain the existing network and adequately plan for future trail development, all stakeholders will be required to address funding requirements in a formal and coordinated manner. Acquisition and management of appropriate funding will be a primary focus for the Sea to Sky Corridor Trail Coordination Committee.

To ensure adequate resources for trail management stakeholders will be required to pursue a number of different funding mechanisms:

Grants

The social, economic and health benefits of trails, and the contribution they make to healthy communities is becoming increasingly apparent. Recognition of trail building and maintenance as a legitimate activity critical to the sustainability of the networks and therefore beneficial to communities has fostered the availability of grants for various groups including municipalities.

Seeking out, identifying and applying for available grants requires a dedicated and consistent effort. Funding initiatives by government, non-profit and private enterprise are constantly being initiated or dissolved. A formal, coordinated effort to identify and seek funding through available grants will be a primary focus for trail coordination committees.

Provincial Funding

In June of 2005, the Ministry of Sport, Tourism and the Arts assumed responsibility for the management of recreational trails on Crown land. MTSA has adopted a mandate to double tourism revenue in British Columbia by 2015. The Ministry has committed to making targeted improvements to recreational trails to support tourism and improved health and fitness for all British Columbians. As one of the highest profile and most intensive trail use areas in the Province, an authorized and established trail network in the Sea to Sky Corridor will be well positioned to advocate for funds from the Ministry.

Through the Squamish Recreation District, Recreation Officer, funds have been and will continue to be made available for funding of trail related projects throughout the District.

Commercial Recreation Operators

Many commercial recreation operators rely on trails that have been built or maintained by clubs, municipalities or local individuals. The trails are a fundamental component of their tour operations. Operators are required to maintain commercial land use tenures. However in many cases for-profit operators use trails on Crown land in the Corridor without valid tenures. This type of use occurs in trespass and is a source of potential conflict and liability to the Crown. Illegal commercial operators do not have a contractual agreement with the Crown to pay fees and maintain trails in accordance with an approved Management Plan. There is a perception that exists with the public that this is the case of all commercial operators. As a result, conflicts can and do exist between commercial operators who gain financial benefit from the extensive trail network and the communities struggling to acquire resources to maintain them. Conflicts seldom occur between existing tenured operators and the public because their Management plans require conflict avoidance and resolution.

Through authorization of the network, tenures and permits can be issued to commercial operators who otherwise are operating illegally. Tenures and permits issued to commercial operators utilizing trails require them to support trail management efforts through in-kind contributions, trail or network sponsorship or re-allocation of collected fees. Additionally, fees paid to the Province by these operators could be allocated directly to trail management efforts rather than being received into general revenue.

Adopt a Trail

Local businesses and non-profit organizations may consider “adopting” a trail or trails. Adopting a trail may entail financial contributions to local trail clubs for maintenance or management, contributions to trail amenities such as signs or provision of labour. Recognition for organizations adopting trails can be given on trail signage, web based mapping, local trail or any number of ways. Adopt a trail programs should not be confused with trail agreements entered into with MTSA.

Issues:

- Expanding network with increasing usage requires increased resources (funding).
- Provision of funding/resources by clubs alone is inconsistent and inadequate.
- Municipalities looked to for larger role in providing resources.
- Commercial Operators currently use unauthorized trails without tenure and therefore do not formally support trail management and maintenance.
- Need for coordinated, formal fund raising efforts.

Management Objectives:**1. Establish formal fund raising committee(s).**

A formal, coordinated approach to acquiring and allocating funds on a priority basis throughout the network will be a key role of trail coordination committees. Terms and mechanisms for determining allocation of resources will be critical step to ensure Corridor wide support. Fund raising committees will function as a component of the Corridor or regional trail coordination committees.

2. Work with local Commercial Operators to ensure they are involved in the trail management processes. Local clubs, trail coordination committees and land managers can work with Provincial officials to ensure the Commercial Recreation Regulations are enforced in their trail networks. Additionally all licensed and tenured commercial recreation operators that use trails should be required to participate in trail management through committee processes. This will provide the basis for coordination of resources between commercial operators, MTSA and local clubs.**3. Trail coordination committee(s) to explore concept and establish framework for trail ‘adoption’ programs.**

Trail coordination committee(s) in conjunction with municipal trail managers and the District Recreation Officer should explore the viability and interest amongst local businesses for trail adoption programs. Terms, conditions and program requirements can then be developed.

TRAIL CLASSIFICATION

Trail classification is an important management tool that provides responsible authorities with a baseline from which to evaluate and plan trail management activities. Consistent trail classification also provide trail users with a clear understanding of what can be expected on a particular trail. This is increasingly important for mountain bike trails where risks may be present and liability concerns exist.

For the purpose of this strategy, trails can be classified according to two separate but loosely correlated criteria. Trail type classification is a description of trail tread characteristics and associated clearing specification. Trail difficulty ratings address the need to describe and present the degree of challenge a trail poses to certain types of users such as cyclists, dirt bikers, equestrians or hikers. Although trail difficulty ratings associated primarily with singletrack trails generally correlate with certain trail types, difficulty ratings are not necessarily dependant or based on trail type classifications.

Trail Type Classification

Trail type classification is a critical step in establishing trail construction objectives as well as providing managers with a baseline in which to evaluate management and maintenance requirements. In an effort to maintain consistency throughout the Corridor, this Trail Type Classification System has been developed using guidelines as described in the *Whistler Trail Standards* (2003) and the *B.C. Ministry of Forests, Recreation Manual*, Chapter 10 (2000).

Table 5. Trail Type Classification Table

	Type I	Type II	Type III	Type IV	Type V
Tread Surface	Concrete or asphalt	Surfaced with compacted aggregates	Unsurfaced	Unsurfaced	Unsurfaced
Tread Width	2-4m	2m for double-track trails; 1m for single-track trails	50-70cm	30-50cm	30-50cm
Clearing Width	Tread width plus 1m on each side	5m for double-track trails; 1.6m for single-track trails	1.1m - 1.3m	1m	n/a
Typical Use	Non-motorized multi-use	- Pedestrian - Biking - Equestrian - Limited Motorized	- Hiking - Mountain biking - Trials riding - Equestrian - Limited Motorized	- Hiking - Mountain biking	- Pedestrian - Mountain bike
Tread Type	Paved double track	Double-track or single-track	Single-track	Single Track	Single Track
Typical Mountain Bike Difficulty Rating	n/a	Green circle	Green Circle Blue Square Black Diamond Double Black Diamond	Blue Square Black Diamond Double Black Diamond	Black Diamond

Singletrack Trail Difficulty Ratings

A singletrack trail difficulty rating is required for the expansive and intensively used network of singletrack trails on Crown land. This rating system is used to describe trails specifically designed to provide a riding experience,

Singletrack trails used predominantly by mechanized riders (and in some cases equestrians) are by nature quite different from traditional hiking, commuting, walking and most equestrian trails. Hiking trails generally strive to reach certain points of interest via the route of least resistance, i.e., low grade and wide, or steep with less regard for terrain features. These singletrack trails are constructed to maximize the aesthetic appeal of the terrain. Soil, logs, lumber, and rock are sometimes used to enhance and create new landforms. Trails meander through a landscape from one feature to the next; the most successful and popular trails “flow” through the landscape in this endeavour. Trails and man-made technical features have evolved with these technological advances to encompass astoundingly creative and sometimes extremely difficult trails and structures. For this document singletrack trails are not grouped by function but rather by degree of challenge or difficulty.

Classification is accomplished according to the green circle, blue square, black diamond, double black diamond system used predominantly in the ski industry and adopted by the International Mountain Bike Association (IMBA). Trail widths and standards generally match the difficulty of the trail, i.e. a narrower steeper trail will be rated as more difficult, a wider gentler trail as easier.

A difficulty rating has been applied to all trails in the Corridor where riding, whether on a dirt bike, horseback or mountain bike, can reasonably be expected to occur. Difficulty ratings associated with trails should not be considered as trail use designations for a particular type of use. Hikers, trail runners, equestrians and other users may very likely use trails of any difficulty rating. Singletrack Trail Difficulty Ratings details are provided in Table 6.

Pedestrian Trail Difficulty Ratings

Trails used almost exclusively by backcountry hikers and unlikely to be ridden on a regular basis are designated as hiking trails in this strategy. An obstacle or trail feature will pose a significantly different challenge to a hiker versus a cyclist. For example, a tight switchback with rock steps may be viewed as challenging to a mountain bike rider traveling down hill where as a hiker walking uphill will view the same feature as no more difficult than a stair case. Therefore hiking trails are rated according to the BC Parks *Trail Difficulty Definitions* as applied to Garibaldi Park trails.

The BC Parks *Trail Difficulty Definitions* are determined based on length of the trail section, change in elevation and trail type for the average user.

Trail Difficulty Rating

E = Easy; M = Moderate; S = Strenuous; D = Difficult.

Pedestrian Trail Difficulty Ratings can be combined with *Trail Type Classifications* to provide users with a clear understanding of what to expect on the trail. For example, *E -Type II* will offer an easy walk on a surfaced 1.5-2.5 meter trails, whereas a *S - Type III* indicates to the user that a strenuous narrow trail with grades greater than 15% lies ahead.

	GREEN CIRCLE 	BLUE SQUARE 	BLACK DIAMOND 	DOUBLE BLACK DIAMOND 
APPROPRIATE USER	Beginners and Recreational Riders. Mountain Bikes recommended. Safety equipment required (including helmets).	Intermediate Riders. Mountain Bikes required. Increased challenges and difficulty. Full safety equipment required.	Advanced/Expert Riders. Difficult and technical challenges. Full safety equipment required. High level of fitness required.	Expert Riders only. Most difficult and technical challenges. Highest risk level. Full safety equipment required. Do not bike alone. Recommend carrying a cell phone with you.
TRAIL DESCRIPTION	Gentle slopes and easily avoidable obstacles such as rocks, roots and pot-holes.	Challenging riding with steep slopes and/or obstacles, narrower trails with reduced traction. Requires riding experience.	Mixture of long steep climbs and descents, loose trail surfaces, numerous difficult obstacles to avoid or jump over, drop-offs and sharp corners. Some sections easier to walk than ride.	Exceptional bike control skills and balance essential to clear many challenging obstacles. Higher risk level. Only a handful of riders will enjoy these rides. Some sections easier to walk than ride.
FEATURES	Embedded trail obstacles up to 10 cm. high.	Embedded trail obstacles up to 20 cm. high	Embedded trail obstacles may exceed 20 cm.	Same
MINIMUM WIDTH	1 metre	50cm	30cm	.3 m. or less
TRAIL SURFACE	Primarily soil and small loose rock, occasional compacted aggregates.	Rough natural terrain and increased rock and root debris. TTF's (see below)	Rugged natural terrain. See TTF's below.	Same
AVERAGE GRADE	8%	10%	15%	May exceed 15%.
MAXIMUM GRADE	15%, except rock faces at 25%	Climbing – 25%, Descending – 35%, Rock Surface - 45	Climbing – 35%	May exceed 35%
MINIMUM CURVE RADIUS	2.4 m.	1.8 m.	Sharp Corners	Same
EXPOSED NATURAL OBSTACLES (MAX. HEIGHT)	10 cm. max. height. Occasionally higher height for highly visible, easily avoidable obstacles.	20 cm. max. height	Various heights, some exceeding 20cm.	Same
BRIDGES (MIN. WIDTH)	Min. 1.0 m.	Minimum width of 50 cm. Flat decking is minimum one-half the height above surface.	Various widths. Minimum 30 cm. Flat width of decking is one-quarter the height above surface. Elevated bridges less than 3 m. high above surface.	Most difficult, exceeds Black Diamond.
TECHNICAL TRAIL FEATURES (TTF'S)	Small roots and logs to cross, embedded rocks to avoid.	TTF width to height ratio of 1:2. Small bridges (flat, wide, low and rollable from section to section). Small rollable drops. Small teeter-totters, less than 60 cm. high. Small jumps. Medium sized logs.	TTF width to height ratio of 1:4. Elevated bridges and teeter-totters with maximum deck height. Connected Bridges. Larger Jumps. Steep descents with sharp transitions.	Most difficult, exceeds Black Diamond TTF's.
ROCK FACE OR RAMP DESCENTS (MAXIMUM ANGLE)	Rock face descents not to exceed 25% grade.	45%	Not to exceed 120%	May exceed 120%
DROPS (MAX HEIGHT)	None	Drops up to 30 cm., with exit cleared of all obstacles	Drops greater than 30cm. Some mandatory air.	Mandatory air.
JUMPS (MAX HEIGHT)	None	45 cm. No jumps with consequences for lack of speed. Table top jumps max. 40 cm. high.	Table tops, no maximum height. No gap jumps.	Same, except may include gap jumps.

TRAIL GUIDELINES AND STANDARDS

Trail standards and guidelines must be broad enough to accommodate the multi-use nature of trails and at the same time be specific enough to provide clear direction for the design, construction, maintenance and management of the specific trails.

General guidelines can be applied to the broad spectrum of trails and uses expected throughout the Corridor. Guidelines provide overall direction for trail design, construction and management. Guidelines provided in this document should be applied as practically as possible but remain flexible enough to meet site specific or regional needs. Standards, on the other hand provide a minimum baseline that should be adhered to as closely as possible. Establishing and maintaining standards allows trail managers to effectively evaluate progress and can provide a framework for reducing exposure to liability. Design and construction of trails according to established guidelines and standards is a critical step in realizing a sustainable, environmentally responsive trail network.

Seventy percent of trails on Crown land in the Sea to Sky corridor are singletrack. While surfaced, machine built, type I and II trails are constructed, they typically are undertaken by municipal or region authorities, adhere to adopted construction specifications and are associated with lower risk use. The Ministry of Forests *Recreation Manual* provides standards and guidelines on constructing type I and II trails. For the purpose of this strategy, construction guidelines and standards focus primarily on singletrack, non-surfaced trails.

The International Mountain Bicycling Association (IMBA) guide *Trail Solutions: IMBA's Guide to Building Sweet Singletrack* (2004) provides an invaluable guide to trail construction techniques and drainage solutions for trail builders. Based on frequency and intensity of use, mountain/dirt biking constitutes the highest potential for trail damage. Since cycling can be expected on almost any trail and since IMBA's guidelines are also applicable to hiking trails, they should be adopted as a comprehensive set of guidelines for trail construction.

The Sea to Sky Corridor is primarily a rain forest ecosystem with a maritime influenced climate. It must be recognized that water erosion is the largest detrimental force for trails throughout the Corridor. Trails located on steep slopes with shallow bedrock are especially prone to turning into drainages when not properly constructed. Care must be taken, especially on steeper trails, to provide for proper water management. All trail design and construction must be completed in consultation with an experienced trail builder familiar with local conditions.

Trail Design and Construction Guidelines

The following general guidelines should be adhered to in the planning and construction of trails:

1) Minimize environmental impacts

- Avoid environmentally sensitive areas or features including wetlands and critical habitat areas.
- Avoid historic, cultural or archeological sites.
- Avoid sensitive plant communities.
- Avoid constructing trails parallel to watercourses within riparian areas. Trails should approach streams and creeks at right angles to minimize potential for erosion.

2) Resist erosion

- Avoid highly erodable, steep slopes prone to erosion.
- Plan trail grades to avoid fall lines and flat spots; utilize grade reversals.
- Ensure trails have “outslope” to direct water off the surface.
- Understand soils you are working with and construct accordingly.

3) Blend with existing environment

- Plan contours and “flow” appropriately for trail type and expected use.
- Utilize existing natural features where possible including view points, rock outcropping, forest features.
- Plan trail networks to consider all users; easier trails located in proximity to trails heads relative to more difficult trails.

Trail Construction Standards

1. Single Track Trails

Refer to *Trail Solutions: IMBA's Guide to Building Sweet Singletrack* (2004).

2. Type I and II Trails

Refer to *BC Ministry of Forests, Recreation Manual, Chapter 10* (2000).

3. Technical Trail Features (TTF's)

These design and construction standards are based on TTF Construction Standards as detailed in Whistler Trail Standards.

Man-made Technical Trail Features (TTF) must exceed a minimum strength and stability standard. Poorly built features are a potential source of injury and increase the need for

maintenance. Design, proposed location and construction of TTF's must be authorized and approved by the responsible government official to ensure compliance to construction and safety standards.

TTF Design Principles

Construction of technical trail features should adhere to the following design principles:

Visibility

By making the most difficult section of the TTF visible from the entry, riders can make an informed decision if they wish to proceed or not. By placing a narrow or difficult section at the beginning of a longer TTF, where it is low to the ground, less skilled riders will dismount early where the consequences of a fall are the choice of the rider.

Strength and Stability

The Structure must be capable of supporting a centered vertical load of 225 kg and a horizontal load of an 80 kg adult leaning against the constructed feature with less than 5 cm of displacement. Every single rung should be capable of supporting a rider/bike and gear weight.

Height and Width

Maximum height and width are dependant on the trail, and the feature's difficulty rating. Difficult features should be located on difficult trails, and vice versa. Bridges on green, blue and black trails that exceed height standards as noted in Mountain Bike Trail Difficulty Ratings should be equipped with a railing for safety. Please note that handlebars can be as wide as 75 cm. Minimum distance between railings should be at least 1m.

TTF Materials and Construction Standards

The following construction standards must be adhered to when constructing TTF's:

- When possible, native materials should be used. Sills should be cedar or treated wood. Douglas fir is the preferred material for weight-bearing members (stringers, purloins, beams), split cedar rails are the preferred material for surfacing. Dimensional lumber may be used, it should be noted that standard SPF (spruce pine, fir) materials are not very durable when exposed to weather. Treated lumber is preferable.
- Weight bearing members should be notched and cross-braced where they join.
- Whole logs should be peeled to slow the onset of rot, and increase joint strength and fastener penetration.
- Acceptable fasteners are, in order of structural integrity:
 1. Galvanized Carriage Bolts and Nuts (with galvanized washers)
 2. Galvanized Lag Screws and Washers
 3. Galvanized Ardox Spikes and Nails (spiral spikes for their superior holding strength)

- Lag Screws and Nails should be of adequate length to allow for 2/3 penetration of the member being screwed or nailed into.

Bridge Rung Spacing and Surfacing

- Deck rungs shall be spaced 1-2 cm to allow for water and mud drainage.
- Rungs shall not overhang stringers by more than 5 cm.
- Rungs shall be securely fastened with a minimum of 2 or more (preferably 4, if practical) large bolts, lag screws, or ardox nails (see above).
- It is recommended that wood surfaces, particularly those with a grade, have an anti-slip surface. Expanded diamond lath or granular roofing materials are both acceptable. Chicken wire is not acceptable, as it wears quickly. The anti-slip surface should be fastened every 15 cm. square.

4. Fall Zone Standards

Fall Zones are areas adjacent to TTF's (Trail Technical Features), sharp corners, and steep descents which provide a reduced risk area for riders to deviate into. Fall zones cannot eliminate the potential for injury; however, a common-sense approach to establishing safer trails through the minimization of trailside hazards will be used to mitigate the potential for injuries. Fall zones will be cleared of the following materials:

- Large shrubs with hard woody branches
- Stumps cut flush with ground or pulled out
- Tree branches trimmed to branch collar
- Non removable hazards covered with mulch or decayed wood
- Rocks with pointed or sharp edges should be dulled, or removed

Not all ground covering vegetation should be removed from the fall zone. Moss, grasses, herbaceous and small shrub cover should be left to avoid soil erosion and to deter riders from enlarging the trail into the fall zone.

Fall zones shall be considered especially important on blue and black trails, where less experienced riders may be honing their riding skills and the opportunity of falling is increased.

Fall Zone Locations and Size

Fall zones will be established in the following locations according to size:

- Outside of steep corners -1.5m
- Bottom of steep descents – 1.5m
- Adjacent to TTF's - <30 cm – 1m; >30cm – 1.5m

Sign Guidelines

Signs are a critical component of a coordinated trail strategy. Signs ensure users have the information they need to make informed choices about their recreation experience. Adequate and informative signage also constitutes a necessary component of a comprehensive risk management program. By clearly explaining risk associated with a trail and adequately marking those risks on the trail, managers minimize their exposure to potential liability.

Each municipality within the Corridor has municipal signage standards. Whistler and Squamish have also adopted signage standards specific to trails. This strategy provides signage guidelines that meet the needs of Crown land trails while optimizing opportunities for integration with the adopted standards.

Signage Hierarchy

A comprehensive signage program must establish standard of signage for the entire recreation trail experience. Adequate signage must be provided at network entrances, trail heads and at strategic points along the trail, namely junctions or as a warning of an approaching difficult section or feature. Each type of signage must balance the need for the appropriate amount of information while respecting the need to maintain the integrity of outdoor recreation experiences by minimizing signs.

Network / Entrance Signs

Network entrance signs, typically associated with parking lot kiosks, provide trail users with a variety of information about the trail network, individual trails and additional information about the surrounding community's relationship to the network. The signage must provide at a minimum, enough information for a prospective trail user to make an informed choice about the trails they are going to use based on degree of challenge, length of trail and permitted or expected use. Entrance signage can also provide information about the network including current issues, community involvement, trail stewardship or provide recognition to trail sponsors.

Network / entrance signage should include:

- Topographical map of network area
- Locations of trail heads, junctions and other network entrances
- Trail ratings
- Trail tread types (singletrack, doubletrack, access)
- Map scale
- Trail etiquette / rules
- Safety Information
- Permitted use(s)
- Environmental considerations (dogs in streams, fish-bearing streams)
- Emergency Contact Information
- Trail community information

Trailhead Signs

Trailhead signage is used to mark the entrance to a particular trail and provides users with adequate information to make an informed decision about using the specific trail.

Trailhead signage must include:

- Trail name
- Technical difficulty (Defined using Sea to Sky Corridor Trail Standards)
- Map of Trail occupying of 30-40% of the sign area. The map should also have a 'you are here' marker.
- Length of trail indicated by scale of map and/or in words.
- Elevation gain and loss indicated by profile, contour lines on map and/or % gradient.
- Type of user groups allowed on the trail (e.g. Mountain bikers, hikers, horseback riders, dirt bikes etc)
- Use at your own risk disclaimer.
- Warning of TTF's if present
- Applicable logo(s).
- When to avoid this trail (e.g. Please avoid use of trail during muddy conditions. Or Please avoid during September-October because of rutting season.)

Trailhead signage can include:

- Topographical map of trail
- Warning to inspect TTF's
- Organization(s) responsible for maintaining the trail.
- Sponsors or donors
- General description of the technical trail features found on the trail.
- Any designated camping, picnic, or look out spots can be marked on the map.

Trailhead Sign Specifications

Component	Description
Size:	140 mm x 370 mm
Background colour	Green: CMYK (100-0-100-0)
Mounting	- wood post measuring 100mm x 100mm - pre-treated or western red cedar - top of post 1.0m above ground
Fonts Type /Size	Large Fonts: IMPACT Small Fonts: Franklin Gothic Medium
Icons	Difficulty Rating Symbol User Groups Clubs/Partners/Sponsors Province of BC
Font Colour	Yellow Text: CMYK (0-13-100-0) White Text: CMYK (0-0-0-0)



En Route Signs

En Route Signs provide users with trail specific information at junctions. These signs indicate the technical difficulty rating, the name of the trail and direction of travel. En route signs may also be placed along the trail where the route is difficult to follow.

En Route Sign Specifications

Component	Description
Size:	Trail Name: 90 mm x 38 mm Difficulty Rating: 90 mm x 76 mm Direction Arrow: 90 mm x 38 mm Trail Users: 90 mm x 76 mm
Background colour	White: CMYK (0-0-0-0)
Mounting	- wood post measuring 100mm x 100mm - pre-treated or western red cedar - top of post 1.0m above ground
Fonts Type /Size	Tahoma
Icons	Difficulty Rating Symbol Green Circle Blue Square BlackDiamond DB Diamond Directional Arrows Users
Font Colour	Black



TTF Warning Signs

TTF Warning signs warn users of a technical trail feature of higher difficulty than the overall trail rating. If the feature cannot be walked an alternate by-pass route will be signed.

TTF Warning Specifications

Component	Description
Size:	90 mm x 140
Background colour	Yellow: CMYK (0-0-65-0)
Mounting	· wood post measuring 100mm x 100mm · pre-treated or western red cedar · top of post 1.0m above ground
Fonts Type /Size	Tahoma
Icons	Caution Symbol
Font Colour	Black



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LIST OF ACRONYMS

CERG - Cascade Environmental Resource Group Ltd.

CRA - Controlled Recreation Area

FRPA - Forest and Range Practices Act

IMBA - International Mountain Bike Association

LRMP - Land and Resource Management Plan

MTSA - Ministry of Tourism, Sport and the Arts

PVTA - Pemberton Valley Trail Association

RMOW - Resort Municipality of Whistler

SAS - Squamish Access Society

SDBA - Squamish Dirt Bike Association

SLRD - Squamish Lillooet Regional District

SORCA - Squamish Off Road Cycling Association

STS - Squamish Trails Society

SWOT - Strength, Weaknesses, Opportunities and Threats Analysis

TTF - Technical Trail Features

WORCA - Whistler Off Road Cycling Association

Appendix 1. Prioritized Trails on Crown Land by Region

Appendix 1. Prioritized Trails on Crown Land by Region (>80% on Crown land)* .

Table A1.1 Squamish Crown Land Trails Prioritized for Authorization

Region	Trail Name	Difficulty Rating	Length (m)	% on Crown Land	TTF (Yes/No)	Primary User Group
Valleycliffe	5 Pt. Hill - East	Black Diamond	498	100		Mountain Bike
	5 Pt. Hill - Southside	Black Diamond	985	88		Mountain Bike
	Glosettes	Black Diamond	927	100		Mountain Bike
	Lacking Head	Black Diamond	459	100		Mountain Bike
	Labour of Love	Double Black Diamond	345	89	Yes	Mountain Bike
	The Dope Slope	Double Black Diamond	614	680	Yes	
	Co-Crumpit	Black Diamond	758	100		Trials Bikes
	Ring Creek Rip	Green Circle	6447	100		Mountain Bike
	IMBA Smart	Blue Square	1414	100		Mountain Bike
	Lower Powersmart	Blue Square	1122	93		Mountain Bike
Mashiter West	Skookum	Blue Square	2662	100		Mountain Bike
	Flat Alley	Blue Square	837	100		Mountain Bike
	Re-Cycle	Blue Square	1519	100		Mountain Bike
	Pseudo-tsuga	Blue Square	906	100		Mountain Bike
	Powerhouse Plunge	Black Diamond	3236	100		Mountain Bike
	Another Man's Gold	Black Diamond	291	100		Mountain Bike
	G.K. Ripper	Black Diamond	535	100		Mountain Bike
	Home Brew	Black Diamond	313	100		Mountain Bike
	One Man's Garbage	Black Diamond	772	100		Mountain Bike
	Upper Power Smart	Black Diamond	1976	100		Mountain Bike
	Another Roadside Attraction	Double Black Diamond	278	100		Mountain Bike
	Blow Out Your Candles	Double Black Diamond	506	100		Mountain Bike
	High and Dry	Double Black Diamond	272	100		Mountain Bike
	19th Hole	Double Black Diamond	1666	100		Mountain Bike
	Wiggle's Bum	Double Black Diamond	339	100		Mountain Bike
	Cakewalk	Double Black Diamond	1477	100		Mountain Bike

* Based on best available geo-spatial data available at time of report.

Region	Trail Name	Difficulty Rating	Length (m)	% on Crown Land	TTF (Yes/No)	Primary User Group
Brohm / Cat Lake	Alder Trail	Green Circle	1453	100		Dirt Bike /MTB
	Cat Lake Loop	Green Circle	1701	70		Dirt Bike /MTB
	Promenade Loop	Blue Square	1897	100		Dirt Bike /MTB
	Bridge Trail	Blue Square	1276	90		Dirt Bike /MTB
	Cheakamus Loop	Blue Square	2569	100		Dirt Bike /MTB
	Cheshire Cat	Blue Square	3139	60		Dirt Bike /MTB
	Here Kitty Kitty	Blue Square	346	100		Dirt Bike /MTB
	High Trail	Blue Square	2047	100		Dirt Bike /MTB
	Catwalk	Black Diamond	875	100		Dirt Bike /MTB
	Catnap	Double Black Diamond	100	100		Dirt Bike /MTB
	Follow Your Nose	Green Circle	1565	95		Mountain Bike
	Cracked Humorous	Blue Square	654	99		Mountain Bike
	Dump Express	Blue Square	771	100		Mountain Bike
	Dweedle Dee and Dweedle Dum	Blue Square	2275	100		Mountain Bike
	Larry's Link	Blue Square	117	100		Mountain Bike
Brackendale	Larry's Loop - Dump Trails	Blue Square	1947	100		Mountain Bike
	Reefer Rip	Blue Square	549	100		Mountain Bike
	Rusty Bucket	Blue Square	1209	100		Mountain Bike
	Rusty-Reefer Link	Blue Square	35	100		Mountain Bike
	Sweet Judy	Blue Square	880	100		Mountain Bike
	Two Cycle	Blue Square	1292	99		Mountain Bike
	Two Fist	Black Diamond	350	100		Mountain Bike

Table A1.2 Whistler Crown Land Trails Prioritized for Authorization

Region	Trail Name	Difficulty Rating	Length	% on Crown Land	TTF (Yes/No)	Primary User Group
Emerald	Burnt Stew		1645	100		Mountain Bike
	Little Whistler Way		2154	100		Mountain Bike
	Peak Road		881	100		Mountain Bike
	27 Switchbacks		618	100		Mountain Bike
	Gargamel	Dbl black diamond	3967	80		Mountain Bike
	No Girlie Man	Black diamond	2032	100		Mountain Bike
	Shit Happens	Black diamond	4414	77		Mountain Bike
	Anal Intruder	Black diamond	1627	96		Mountain Bike
	White Knuckles	Black diamond	764	87		Mountain Bike
	Big Kahuna	Black diamond	1630	94		Mountain Bike
	Rick's Roost	Blue square	2590	100		Mountain Bike
	Billy Epic	Black diamond	1129	100		Mountain Bike
	Brandywine Meadows Trail		3215	100		Mountain Bike
	Bungee Trail		759	100		Mountain Bike
	Crater Rim Trail		1534	100		Mountain Bike
Alpine	Glacier Lookout		935	100		Mountain Bike
	Harmony Lake & Loop		1014	100		Mountain Bike
	Harmony Meadows		1179	100		Mountain Bike
	Harmony Ridge		1985	100		Mountain Bike
	Helm Creek		3388	100		Mountain Bike
	Bob's Rebob	Blue square	2544	81		Mountain Bike
	Cat Scratch Fever	Black diamond	635	100		Mountain Bike

Region	Trail Name	Difficulty Rating	Length (m)	% on Crown Land	TTF (Yes/No)	Primary User Group
Village	Roam in the Loam	Blue square	502	100		Mountain Bike
	Jane Lakes Trail		5536	100		Mountain Bike
	Kayak Trail		150	100		Mountain Bike
	Musical Bumps		6289	100		Mountain Bike
	Mini Spearhead	Blue square	4522	100		Mountain Bike
Creekside	Old Binty's	Black diamond	1228	100		Mountain Bike
	Peanut's Trail		593	100		Mountain Bike
	*Rainbow Lake Trail		5798	100		Hiking
	*Rainbow/Madely Trail		16132	100		Hiking
	*Singing Pass		10421	100		Mountain Bike
	*Wedgemount		3201	100		Mountain Bike
	Northwest Passage	Blue square	2535	100		Mountain Bike
	Yoda's Playground	Black diamond	435	100		Mountain Bike
	Cheap Thrills	Dbl black diamond	1503	94		Mountain Bike
	B.C.'S	Black diamond	1303	96		Mountain Bike
Function	Trainwreck Extension	Black diamond	1298	81		Mountain Bike
	Trash	Blue square	2815	100		Mountain Bike
	Farside	Blue square	3422	100		Mountain Bike
	Interpretive Forest Loop	Green circle	243	100		Mountain Bike
	*Brew Lake Trail		6657	99		Mountain Bike
	Highline	Blue Square	1046	100		Mountain Bike
	Ridge	Blue square	4988	100		Mountain Bike
	Ridge Lookout	Blue square	346	100		Mountain Bike
	Tunnel Vision	Black diamond	2230	100		Mountain Bike
	Babylon by Bike (lower)	Blue square	2544	100		Mountain Bike
N. of Emerald	Riverside	Blue square	8782	99		Mountain Bike
	Rainbow-Sproatt Flank	Blue square	29234	95		Mountain Bike
S. of Function	Cheakamus Lake	Green circle	7148	100		Mountain Bike
	Brandywine Trail	Blue square	2998	96		Mountain Bike

Region	Trail Name	Difficulty Rating	Length (m)	% on Crown Land	TTF (Yes/No)	Primary User Group
Eastside	Young Lust	Black diamond	1131	100		Mountain Bike
	Babylon by Bike (upper)	Dbl black diamond	1966	100		Mountain Bike
	Khyber Pass	Black diamond	4829	100		Mountain Bike
	Ride Don't Slide	black diamond	2783	100		Mountain Bike
	*Cal-Cheak Hiking Trail		3583	71		Mountain Bike
	Comfortably Numb	Black diamond	21808	93		Mountain Bike

Table A1.2 Pemberton Crown Land Trails Prioritized for Authorization

Region	Trail Name	Difficulty Rating	Length (m)	% on Crown Land	TTF (Yes/No)	Primary User Group
Mosquito South	Main Vein	Black diamond	133	133	100	Mountain Bike
	Chair Traverse	Blue square	642	642	100	Mountain Bike
	Sadies	Green circle	410	410	100	Mountain Bike
	Log and Rock	Blue square	294	321	91	Mountain Bike
	Meat Grinder	Black diamond	1961	2209	88	Mountain Bike
	Jim-Jam	Blue square	503	584	85	Mountain Bike
	Wolfs Trail	Blue square	509	644	79	Mountain Bike
	Connector	Blue square	615	615	100	Mountain Bike
Mackenzie	Bathtub Trail	Green circle	878	878	100	Mountain Bike
	Overnight Sensation	Black diamond	2684	2687	99	Mountain Bike
	Blood, Sweat & Fear	Black diamond	937	939	99	Mountain Bike
	Cop Killer	Dbl black diamond	1794	1794	100	Mountain Bike
	Gravitron	Dbl black diamond	4824	4824	100	Mountain Bike
	Upper Mackenzie Cruise	Dbl black diamond	2686	2782	96	Mountain Bike
	Riverside Park	Blue square	550	550	100	Mountain Bike
	Tower of Power	Black diamond	1378	1378	100	Mountain Bike
One Mile Lake	K2	Black diamond	1835	2128	86	Mountain Bike
	Naim/One-Mile	Blue square	1950	1950	100	Mountain Bike
	Lumpy's Epic	Black diamond	4748	4813	98	Mountain Bike
Pemberton Valley Regional	Tour de Soo	Black diamond	2892	3035	95	Mountain Bike
	Lake Loop	Green square	1066	1149	92	Mountain Bike
	Valley Loop	Green square	6088	6659	91	Mountain Bike
	Lizzie Lake	Hiking	2524	2524	100	Hiking
Regional	Tenquille/Owl Lakes Trail Syst	Hiking	49899	49899	100	Hiking

Appendix 2. Code of Conduct



Sea to Sky Trail Strategy Code of Conduct

(To be replaced by Code of Conduct created by S2S TS Workgroup)

All participants in the Sea to Sky Trail Strategy (S2S TS) agree to establish, maintain and promote standards of practice, professional relationships and a code of ethics and to oppose any influences which would tend to lower such standards and ethics.

- **Vision-** "A well coordinated trail system managed for the enjoyment of the full range of user groups."
- **Respect-** for other participants, their ideas, their associations and for the S2S TS process.
- **Behavior-** will behave in a professional cordial manner pertaining to S2S TS process, both internally and externally.
- **Honesty-** all communications will be honest and forth-right both internally and externally.
- **Conflict-** Trails use conflict will be resolved in a civilized manner and within the context of the S2S TS or mediated by the designated official of Ministry of Tourism, Sport and Arts (MTSA). If mediation does not result in compromise and consensus the MTSA designated official may impose temporary or permanent conditions to resolve the conflict.
- **Encourage-** All participants will encourage their respective association's members to adhere to this code of conduct.
- **Spokesperson-** All participatory associations will elect or appoint a member to be the designated spokesperson for their group. The spokesperson will be the main contact and sole representative for the group pertaining to all matters regarding S2S TS both internally and externally.

Minutes of meetings-will be posted and available to the public.

Appendix 3. Whistler Trail Standards



WHISTLER

4325 BLACKCOMB WAY, WHISTLER BC CANADA V0N 1B4
TELEPHONE (604) 932-5535 FACSIMILE (604) 935-8109

www.whistler.com/rmow



WHISTLER

TRAIL STANDARDS



ENVIRONMENTAL AND TECHNICAL TRAIL FEATURES

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 DeBoer
Whistler Cycling Committee
Summer 2003



DAVID DIPLOCK PHOTO

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DAVID DIRLOCK PHOTO

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 2002: 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.

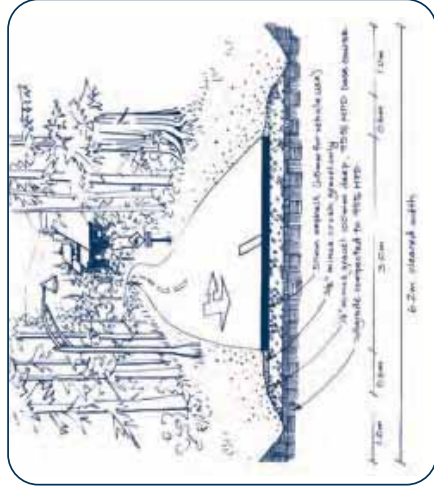
Appropriate management of our on- and off-road trail network is intended to elevate Whistler’s status as a cycling destination with minimal environmental impact.



BONNIE MAKAREWICZ PHOTO

TRAIL TYPES

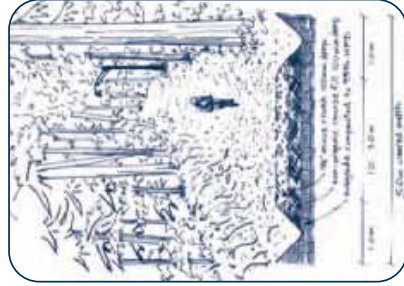
Trail Types⁸ are a description of non-motorized trail tread characteristics. Trail Type I has the highest amount of traffic and the most impact on the environment of the trail types. Conversely, Trail Type V has little traffic and the trail tread is minimal.



TRAIL TYPE I

TYPE I

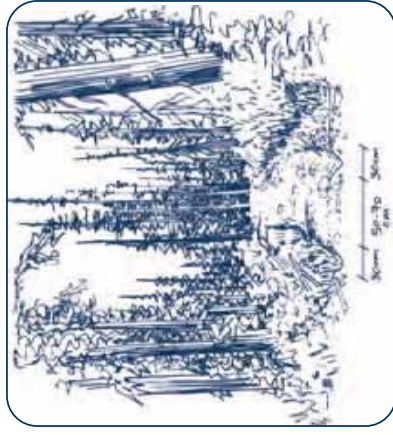
- plan as paved double-track trail for smooth, all weather use to provide access to village, parks and subdivisions
- use asphalt or chip-seal coat surfacing
- clear width to tread width plus 0.6 m gravel shoulder and adequate drainage on each side
- clear height to 3.0 m
- provide 2-3 m tread width
- provide illumination for night use if appropriate
- provide interpretive and directional signs, benches, viewing areas where appropriate



TRAIL TYPE II

TYPE II

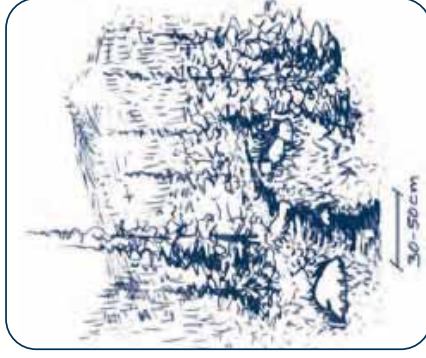
- plan as surfaced double-track or single-track trail
- machine built
- remove all embedded trail obstacles
- use crushed limestone with fines, well-compacted gravel, or existing old roadbeds
- clear width to 5.0 m for double-track and 1.6 m for single-track trails
- clear height to 2.4 m
- provide 2-3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



TRAIL TYPE III

TYPE III

- plan as unsurfaced single-track trail
- may be machine built
- clear width to 1.1-1.3 m
- clear height to 2.4 m
- provide 30-70 cm tread width on native soil



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

⁸ Sources for these classifications are: BC Parks; BC Forest Service and RMOW P-4 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 description 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.⁹

DETAILED

- Maximum grade: 10%
- Preferred average grade: no 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.¹⁰

DETAILED

- Maximum grade: 15%
- Maximum sustained climbing grade: 8%
- Curve radius: 2.4 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 (±15°)
- Bridge minimum 90 cm wide, handrail required if height of bridge above surface exceeds 60 cm
- Rock face descents not to exceed 25%
- No drops
- No jumps

⁹ Paul Kennett: Classic New Zealand Mountain Bike Rides; 1996

¹⁰ Paul Kennett

¹¹ Paul Kennett



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.¹¹

DETAILED

- Maximum climbing grade: 25%
- Maximum sustained climbing grade: 10%
- Maximum descent grade on non-rock surface: 35%
- Curve radius: 1.8 m minimum
- Usually associated with Trail Type III or IV

EXPECTED TECHNICAL TRAIL FEATURES

GENERAL

- TTF width to height ratio of 1:2
- Small bridges (flat, wide, low and rollable from section to section)
- Small rollable drops
- Small teeter-totters
- 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 bisecting angle between each connected section must be large enough to allow the bicycle to complete transition without requiring any wheel lifting techniques
- Teeter-totter: 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 30 cm high with exit cleared of all obstacles
- Jumps
 - No jumps with consequences for lack of speed (for example, coffin jumps or gap 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.¹²

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 teeter-totters 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
- Teeter-totter: 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 (3.3') vertical
- Rock or ramp descents not to exceed 120%
- 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, widths 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

¹² Paul Kennett

¹³ WCB requires "...that a fall protection system is used when work is being done at a place (a) from which a fall of 3m (10ft) or more may occur, or (b) where a fall from a lesser height involves an unusual risk of injury." Occupational Health & Safety Regulation Book 2, section 11.2, page 11-2

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.¹⁴

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.

¹⁴ Sources for these classifications are: Ministry of Forests, Range and Wildlife Management, Near Aquatic Areas, A Guide to Sensitive Planning, Design and Management, Province of BC.



DAVID DIERCKX PHOTO

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

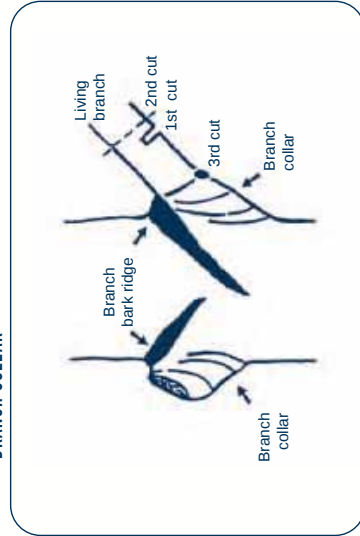
- Avoid cutting down live trees.
- Tree branches must be cut at the collar, both longer or shorter are likely to cause infection to the tree (figure 1).¹⁵
- Cover exposed roots.
- If pretreated wood has been selected for structures being placed in the ground, the structure should be isolated in poly 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 underinflated, 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



¹⁵ "Pruning Basics and Tools" [<http://wwwext.vt.edu/pubs/nursery/430-455/430-455.pdf>] [April 7, 2009]

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 heaviest 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 may 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).

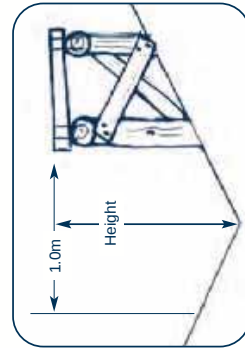


FIGURE 2 MEASUREMENT OF TTF HEIGHT

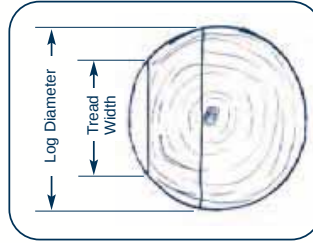


FIGURE 3
TREAD WIDTH
MEASUREMENT

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.

CONNECTED MEMBERS

The methods for joining members in order of preference is: nuts and bolts; lag bolts; wood screws or ardox 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.

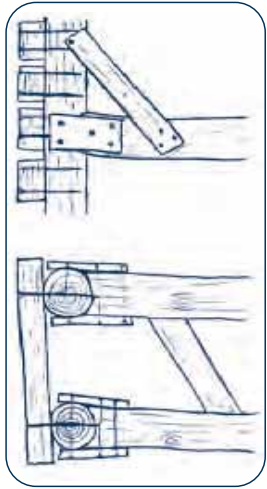


FIGURE 4 BRIDGE STRINGER SUPPORT AND CROSS BRACING

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).

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 roofing 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 braking 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.

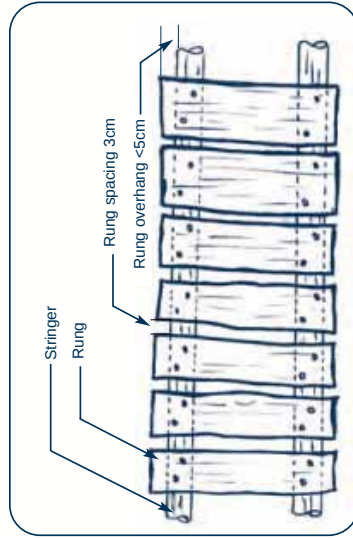


FIGURE 5 BRIDGE RUNG SPACING, RUNG OVERHANG

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
- Dulling 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 TTfTs and their fall recovery may not be perfected.



BONNIE MAREWICZ PHOTO

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 kiosk that 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 difficult 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 spook 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 foil 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 370 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 TTfTs if present
- Conditions subject to change
- Inspect TTfTs prior to riding
- Time range to complete
- Trail profile
- Disclaimer – most trails will be a level or two harder to ride when slippery

MANAGEMENT GUIDELINES

EN ROUTE SIGN

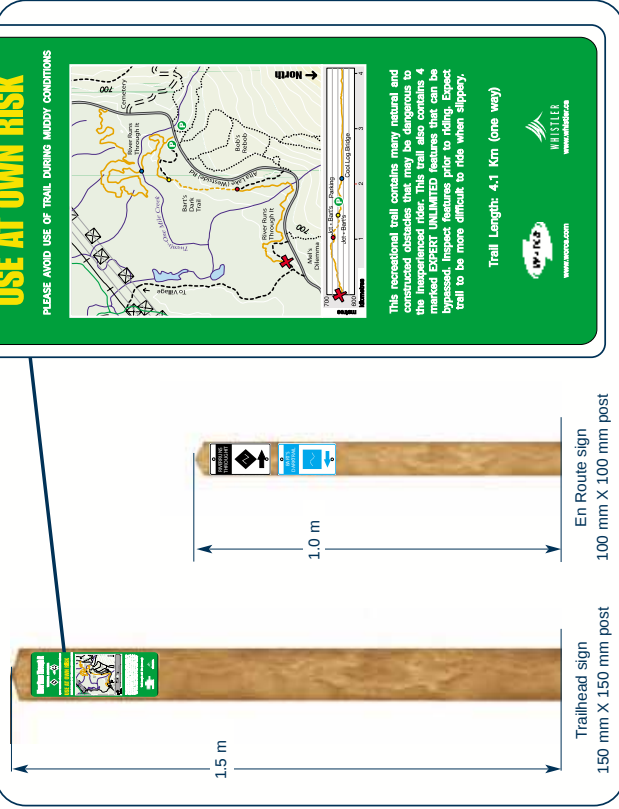
Located along the trail indicating to the user they are still on the desired trail and/or give warning of the higher difficulty of an upcoming TTF. En route signs express difficulty in three ways: shape of sign, color of sign and trail profile symbol on the sign. The signs are labeled with the trail name to distinguish between different trails.

- En route signs to be placed at junctions with alternate trails giving clear indication of each trail's direction. Use difficulty symbol and trail name with a reflective white border.
- For TTFs rated a higher difficulty than the trail rating, en route signs to be posted as warning. Use difficulty symbol and trail name with a reflective yellow border, if feature can not be safely walked, an easier signed bypass route must be provided (figure 6).
- If appropriate, signs may be placed at intervals to guide user.
- Consider reflective signs for night use.

DETAILS

For en route signs marking higher difficulty features, it is important for the sign to be highly visible. Place sign approximately 1.0-1.5 m above tread.

FIGURE 6 TRAIL HEAD & EN ROUTE SIGNS



CONSTRUCTION

For new trails, the RMOW will use an experienced trail builder for the trail alignment and follow the supporting guidelines and standards.

TRAIL RATING

The trail and each feature along the trail is reviewed and measured to determine its difficulty. The details and difficulty level of each feature need to be recorded. The trail may be rated as low as the average feature difficulty or as high as the highest feature's difficulty, bearing in mind all features rated at a higher difficulty than the trail's rating must be individually signed. If the feature can not be safely walked, the feature must have an easier, signed bypass route. The trailhead sign must also inform the user that there are higher difficulty features.

TRAIL MAINTENANCE

Trail maintenance is an integral part of managing trails. In general, high use trails and trails in environmentally sensitive areas require a greater level of maintenance and an expedited response to trail deterioration. Trails with man-made TTFs also require more frequent inspection.

MAINTENANCE PRIORITIES

The RMOW will inspect municipal trails as follows:

- **HIGH PRIORITY TRAILS** will be inspected twice a year (April and July). These include all Type I trails, all trails in PAN 1 environments and trails with known constructed TTFs.
- **MEDIUM PRIORITY TRAILS** will be inspected in the spring of each year or prior to the start of the trail use season. These include all trails in PAN 2 and PAN 3 environments and all Type II trails.
- **LOW PRIORITY TRAILS** will be inspected in the spring of each year or prior to the start of the trail use season. These include all remaining mountain bike trails.

All inspections and maintenance must be documented.

INSPECTION TO INCLUDE

Review of the trail;

- for safety;
 - to verify difficulty designation.
- Review of signs;
- for presence and condition.
- Review of constructed features;
- for structural integrity.

MAINTENANCE TRIGGERS

Triggers for trails requiring additional maintenance:

- TTFs deteriorating.
- Short-cutting of climbing turns and/or switchbacks.
- Trail drifting or sliding down the hill.
- Vegetation cover loss.
- Trail proliferation (widening or braiding).
- Trail incision and soil loss (ruts exceeding 15 cm depth).

GRANDFATHER CLAUSE

In the case of valued existing trails in protected areas where trail deactivation is unlikely to succeed, trail management becomes the preferred option. When considering the Grandfather Clause as an option, evaluate the continuing cost of maintenance to manage the trail. A trail deactivation/closure may not be successful if the trail has been established, is well used, and no alternative route is proposed. The resulting damage may be worse than had the trail remained open and effectively managed.

TRAIL DEACTIVATION

There may be a number of reasons for deactivating an existing trail.

When considering deactivation of a trail, take into account:

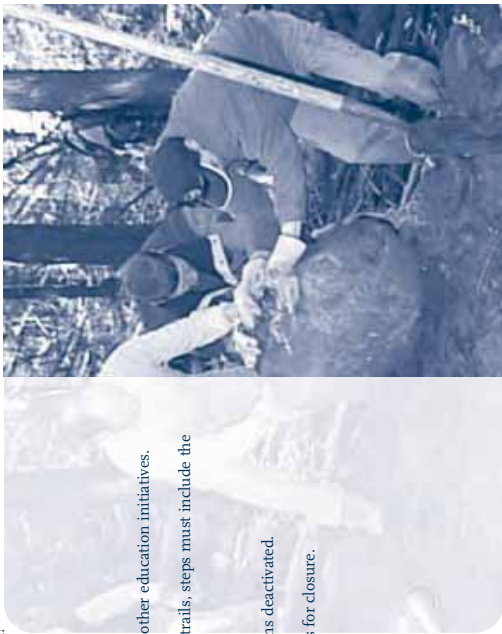
- Is the trail popular?
- Is the level of impact acceptable or can it be made acceptable by management?
- Can the trail or part of the trail be rerouted to improve the situation?
- Are there suitable alternatives for users if the trail was deactivated?
- Is the trail historically significant?

Alternates to trail deactivation:

- Management of trail use.
 - Temporary closures
 - Reroute sections of trail
 - Exclusion of damaging users
- Education of users with signs or other education initiatives.

When considering deactivation of trails, steps must include the following:

- Consult user groups.
 - Public notice.
 - Monitoring to ensure trail remains deactivated.
- And may include:
- Signs informing users of reasons for closure.
 - Fences.



BONNIE MACKREY/IC PHOTO

TERMINOLOGY

A-FRAME – two ramps (approach and exit) placed together with no level section at the apex. Typically used to bridge deadfall across the trail.

BERM – built up bank on the outside of a corner to improve cornering.

BOARDWALK – raised walkway made of boards; used to traverse sensitive areas; similar to bridge.

BRIDGE – a structure that is built above and across a river or other obstacle allowing passage across or over obstacle.

DANGER – likely to cause harm or result in injury.

DROP-OFF – a drop in the trail, possibly at the end of a log or off a rock; may require a technique depending on the vertical drop and/or the angle of descent.

EN ROUTE – on the way.

EXPOSURE – placing a rider in the position or location that an error in balance or maneuvering may result in an injury; for example, a narrow bridge above rocks would be exposure and the greater the elevation of the bridge above the rocks, the greater the level of exposure.

FACE – the steep exposed side of a rock.

FALL-AWAY – a drop-off which incorporates a turn in the trail.

GAP JUMP – two ramps placed back to back with a space between them; the rider must travel with enough velocity to cross the space and land on the second ramp.

GATEWAY – a qualifier placed before a trail or TTF; for example, a 2x4 placed before an elevated bridge or a difficult corner. If the rider can successfully negotiate the more difficult gateway, then they will likely be able to negotiate the TTF.

GRANDFATHER CLAUSE – provision exempting certain pre-existing trails from the requirements of a new regulation.

JUMP – a wedge shaped feature built with the intention of sending the rider airborne.

LADDER – a TTF with rungs attached to sides (stringers) made of metal, wood or rope, used for climbing up or down.

LOGJAM – a pile of logs placed near perpendicular to trail to make a ramp, usually placed in front of and behind deadfall to ease passage.

MACHINE BUILT – constructed with the use of an excavator.

MANDATORY AIR – a TTF requiring a wheeled drop or other advanced technique to exit due to a steep or undercut exit.

MANUAL – technique used to lift the front end of a bike up without the use of a pedal stroke; can be used off mandatory airs, etc.; generally requires more forward momentum than a wheeled drop.

PAN – Protected Area Network, sometimes know worldwide as greenways, environmental corridors, landscape linkages, wildlife corridors or riparian buffers.

RAMP – any inclined structure, typically used as an approach to or exit from a TTF. A ramp can also be a jump.

RHYTHM SECTION – series of gap jumps placed end to end. Most technical form of jumping due to skill, timing, technique and failure consequence.

RIPARIAN ZONE/AREA – land between the water and the high water mark on the riverbanks. Riparian areas typically exemplify a rich and diverse vegetative mosaic reflecting the influence of water.

ROLLABLE – a section that can be ridden without requiring higher-level rider skills; for example, an elevated bridge intersection/corner that can be ridden without having to hop and rotate.

ROLL OVER – usually a rock that gets steeper the farther the rider advances, to the point where stopping may not be an option and the rider must continue despite not being prepared for what's ahead.

TABLETOP – two jumps back to back with the void between the jumps filled in with dirt, creating the tabletop.

TEETER-TOTTER – a TTF consisting of a long plank balanced on a central support for riders to cross over, providing an down motion as the rider passes over the pivot.

TONGUE – a steep ramp on the exit of a TTF, often as an easier alternative to mandatory air.

TOP-OF-THE-BANK – the highest elevation of land, which confines to their channel waters flowing in an intermittent or perennial stream or river.

TREAD – the traveled surface of the trail.

TTF – Technical Trail Feature – an obstacle on the trail requiring negotiation, the feature can be either man made or natural, such as an elevated bridge or a rock face respectively.

WHEELIE DROP – technique used to pedal off drops-off or logs with the back wheel landing before the front wheel.

NOTES

Appendix 4. Authorizing Recreational Mountain Bike Trails on Crown Land

Authorizing Recreational Mountain Bike Trails on Provincial Crown Land

Policy Statement

WORKING DRAFT – OCTOBER 16, 2006



Status of Working Draft Policy Statement

This policy was developed in 2005/06 with the assistance of key stakeholder representatives and interested government agencies. As a new MTSA policy initiative, it is intended that the policy will be implemented in several pilot project areas during the 2006-08 timeframe, as a basis for adapting the policy based on experience and learning. As such, the policy will be referred to as a “working draft” during the pilot project period, and input will continue to be welcomed from all parties.

If you would like to submit comments on the draft policy, please forward them to: Bill Marshall, Director of Recreation Sites and Trails Branch, Ministry of Tourism, Sport and the Arts (Bill.Marshall@gov.bc.ca). Thank you.



Ministry of Tourism, Sport and the Arts
Tourism and Resort Development Division
Recreation Sites and Trails Branch

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Preface

Recreational mountain biking offers significant health benefits and contributes to local economic development. The popularity of the sport is growing rapidly, particularly riding on ‘single-track’ trails in rural forest settings.

Mountain biking enthusiasts have developed a number of trails and related facilities on Crown land throughout BC. Most of these have not been authorized by the Province, which is a requirement under the *Forest and Range Practices Act*. In many cases, local groups take it upon themselves to maintain the unauthorized trails.

There is growing interest among a significant segment of mountain biking enthusiasts to create exciting riding experiences by developing trails that incorporate natural or man-made jumps, drops, elevated bridges and other ‘technical trail features’ (TTFs). Public safety and legal liability associated with these TTFs is a significant issue facing recreational mountain bike trail development and maintenance.

MTSA’s policy, as the agency responsible for public recreation on Crown land outside parks and settled areas, is to accommodate the demand for recreational mountain biking within BC’s existing network of multiple use recreational trails, and to authorize new trails, provided: (1) the trails and facilities are properly located, safe, and do not result in significant user conflicts or environmental damage, and (2) the proponent is willing to make a long-term commitment to manage the new trails.

This policy statement complements the ministry’s adventure tourism program of providing suitable opportunities for commercial mountain bike guiding on Crown land. Local governments also play a role in meeting demand for mountain bike riding opportunities (e.g., community mountain bike skills parks), as does the private sector (e.g., summer riding on commercial ski hills).

MTSA does not have the capacity to locate, maintain and manage all the mountain bike trails that have been built on Crown land. Accordingly, the main MTSA strategy for accommodating recreational mountain bike trail building activity on Crown land is to enter into partnership agreements with mountain bike clubs and other local organizations that allow them to use, maintain and develop trails on certain Crown lands. The agreements will contain terms that enable MTSA to achieve policy objectives regarding public safety, user conflict avoidance, and environmental stewardship. Unless these policy objectives can be achieved, MTSA will not authorize trail development and maintenance on Crown land, and known unauthorized trails and facilities will be removed.

MTSA has limited resources to fully enforce compliance with this policy throughout all regions of BC. The policy will be implemented in line with the ministry’s staff and budget levels, and will be piloted in several locations to enable learning by experience.

1. Policy Application

- (a) This document describes the MTSA policy and procedures for authorizing non-commercial, recreational mountain bike trail construction, rehabilitation, maintenance and use on Crown land, except for Crown land that is a provincial park or protected area.

Notes:

1. *Commercial* mountain bike guiding activities on Crown land (i.e., profit-oriented, fee-for-service operations) are managed by the Adventure Tourism Section of MTSA under the ministry's Adventure Tourism policy – see http://www.al.gov.bc.ca/clad/leg_policies/policies/com_rec.pdf.
2. Mountain bike activities within provincial parks and protected areas are managed by the Ministry of Environment (BC Parks), under that ministry's policy and procedures.

2. References

The following references provide context and more detailed information regarding recreational mountain biking on Crown land.

- (a) *Forest and Range Practices Act* (SBC 2002), Chapter 69 – sections 56, 57, 58, and 118. See http://www.qp.gov.bc.ca/statreg/stat/F/02069_01.htm.
- (b) *Forest Recreation Regulation* (BC Reg. 16/2004). See http://www.qp.gov.bc.ca/statreg/reg/F/ForRangPrac/16_2004.htm.
- (c) *Government Actions Regulation* (BC Reg. 17/2004). See http://www.qp.gov.bc.ca/statreg/reg/F/ForRangPrac/582_2004.htm.
- (d) *Whistler Trail Standards: Environmental and Technical Trail Features*, Edition 1. See http://www.ownthetrail.com/TrailStandards_Whistler.pdf.
- (e) *Trail Solutions: IMBA's Guide to Building Sweet Singletrack*. See http://www.imba.com/resources/trail_building/trail_solutions.html; and <http://www.imba.com/resources/freeriding/index.html#Building>.
- (f) *Best Management Practices for Recreational Activities on Grasslands in the Thompson and Okanagan Basins*. See http://wlapwww.gov.bc.ca/wld/document/bmp/grasslands_th_ok_bmp.pdf.
- (g) *MTSA Recreation Manual, Trail Section*. See <http://www.tsa.gov.bc.ca/publicrec/manual/index.htm>.

3. Definitions

- (a) *Established Recreation Trail* – A recreation trail that has been established by the minister or the minister's delegate under section 56 of the *Forest and Range Practices Act*. The main purpose of establishing recreation trails under section 56 is

to enforce rules concerning the use of recreation trails and ensure the trails are recognized and accommodated during forest development planning and operations.

- (b) *IMBA Guidelines* – The International Mountain Biking Association Guidelines for trail building, as documented in the IMBA publication, “*Trail Solutions: IMBA’s Guide to Building Sweet Single Track*”– see http://www.imba.com/resources/trail_building/trail_solutions.html.
- (b) *Mountain Bike Trail Construction* – Recreational mountain bike trail building activities that involve:
- ground disturbance (i.e., grubbing or excavating soils or rocks along a linear route to establish a visible, long-lasting tread way);
 - clearing or cutting vegetation (i.e., significant, continuous uprooting of shrubs or understory plants along a linear route, or cutting standing trees); or
 - construction of structures, such as water bars, bridges, TTFs and other structures, of a long-term or permanent nature.

The following is *not* considered to be trail construction and MTSA authorization is not required:

- Basic travel through/across Crown land, whether on a one-time basis or repetitive use of the same route;
 - Route-finding or marking using ribbons, cairns or other directional indicators;
 - Minor, piecemeal or incidental clearing of brush or downed trees on or off established trails;
 - Emergency repairs to a trail to prevent imminent damage to the environment or the trail; and
 - Emergency construction or maintenance of a trail when that is the only reasonable way of minimizing risk to personal safety.
- (c) *Mountain Bike Trail Rehabilitation and Maintenance* – Recreational mountain bike trail upkeep activities to enable/facilitate safe, enjoyable and impact-free mountain bike trail riding, such as grading and filling holes/ruts, armouring against erosion, improving drainage, removing hazardous roots or stones, trimming encroaching vegetation, and replacing deteriorated structures such as handrails, steps or bridging.
- (d) *Recreation Officer* – The MTSA District Recreation Officer.
- (e) *Technical Trail Features (TTFs)* – An obstacle on a mountain bike trail designed to add a degree of difficulty to a trail in order to challenge the skill of mountain bike trail users. Technical trail features can be either natural (e.g., rock face) or man-made (e.g., jump ramp). For the purposes of this policy, works constructed solely for the purpose of enhancing trail safety or access (e.g., a bridge across a stream or

gully), or to protect the environment (e.g., an elevated pathway over a wetland) will not be considered technical trail features.

- (f) *Trail Agreement* – The form of authorization issued to eligible parties by MTSA to enable recreation mountain bike trail construction, rehabilitation and maintenance on Crown land. Trail agreements are issued pursuant to section 118 of the *Forest and Range Practices Act* and may contain terms and conditions that are appropriate to individual situations for enabling MTSA to achieve public safety, and conflict and impact management objectives.
- (g) *Whistler Trail Standards* – The standards for mountain bike trail signage, fall zones, inspection and maintenance, and TTF design and construction that are specified in the publication developed by the Resort Municipality of Whistler titled, “*Whistler Trail Standards: Environment and Technical Trail Feature*”s. See http://www.ownthetrail.com/TrailStandards_Whistler.pdf.

4. Abbreviations

FRPA	<i>Forest and Range Practices Act</i>
IMBA	International Mountain Biking Association
MTSA	Ministry of Tourism, Sport and the Arts
TTF	Technical Trail Feature

5. Policy Goals

- (a) Recognize recreational mountain bike trail construction, maintenance and rehabilitation as legitimate activities on Crown land, provided they are authorized and sustainable in the sense that they occur in suitable locations and do not result in unacceptable safety hazards, user conflicts, or negative environmental impacts.
- (b) Provide appropriate recreational mountain bike opportunities on Crown land as a means of promoting healthy lifestyles and supporting local economic development.
- (c) Provide recreational mountain bike opportunities on Crown land that accommodate rider demand for various types of mountain bike trails, facilities and experiences, recognizing that user demand for new and varied types of riding experiences will continue to evolve over time.
- (d) Promote efficient Crown land use for mountain bike trail development by encouraging new trail authorizations to locate on/around existing, established multi-use recreation trail networks and infrastructure.
- (e) Manage safety hazards and risks associated with recreational mountain bike activity on Crown land, and associated legal liability for the Crown and other stakeholders.

- (f) Minimize potential conflicts on Crown land between recreational mountain bike riders and: (1) other recreational users, (2) other approved resource users, and (3) private property owners.
- (g) Minimize potential impacts of recreational mountain bike activities on environmental and other sensitive values.
- (h) Foster cooperative partnerships with local mountain bike clubs and other interests as a means of meeting public demand for mountain bike trail infrastructure and to address the issue of limited MTSA resources to supply, maintain and manage mountain bike trails in all locations where rider demand exists.
- (i) Recognize a role for other partners/participants in responding to demand for mountain bike riding experiences, including local governments and the private sector.

6. Recreational Mountain Bike Riding on Crown Land

- (a) Recreational mountain bike *riding* on Crown land (as distinct from mountain bike trail construction, rehabilitation and maintenance) is a permitted activity unless restricted or prohibited by a government order issued pursuant to section 58 of FRPA and section 20(3) of the Forest Recreation Regulation. This includes mountain bike riding on established recreation trails.
- (b) Orders that restrict or prohibit recreation activities on Crown land, including mountain bike riding, will normally result from a local planning process that has been undertaken to address user conflict and impact issues.
- (c) Orders that restrict or prohibit recreational activities, including mountain bike riding, on Crown land will be issued according to the provisions of Part 2 of the Forest Recreation Regulation, and this will normally involve publication of the order in a local newspaper and physically posting the area to which the order applies.
- (d) Persons that use established recreation trails must abide by the rules identified in Part 4 of the Forest Recreation Regulation to prevent user and resource conflicts and impacts. (See http://www.qp.gov.bc.ca/statreg/reg/F/ForRangPrac/16_2004.htm). Users that contravene these rules may be served notice by the Recreation Officer to vacate the recreational trail, and for certain contraventions, the offence provisions of the Forest Recreation Regulation may apply (i.e., ticket and fine).

7. Trail Construction, Rehabilitation and Maintenance

- (a) Recreational mountain bike trail construction, rehabilitation or maintenance on Crown land is not permitted unless authorized by the MTSA Recreation Officer.

- (b) Applications to construct, rehabilitate or maintain trails on Crown land for recreational mountain bike purposes should be submitted to the appropriate FrontCounterBC office. FrontCounterBC staff will guide proponents through the authorization process. Applications should contain the information described in Part 10 of this policy.
- (c) Authorization decisions will be made by the Recreation Officer on the basis of various information sources, including some or all of the following:
 - information submitted by the proponent in the application package;
 - land status reports;
 - relevant sections of land/resource management plans, including recreation management plans or strategies, if available;
 - referral comments;
 - site investigations;
 - consultation with stakeholders and the public; and
 - First Nations consultations.

8. Applicant Eligibility

- (a) Legally established groups and organizations are eligible to submit proposals for recreation trail construction, rehabilitation or maintenance, including:
 - Non-profit organizations established under the *Society Act* (e.g., mountain bike club or association);
 - Local government organizations;
 - Local economic development organizations;
 - First Nations organizations; and
 - Appropriate corporate organizations, as determined by the Recreation Officer (e.g., forest licensee, ski hill operator).
- (b) Individuals (or groups of individuals) are eligible to submit proposals only for short-term, 'one-off' trail maintenance or rehabilitation projects.

9. Type and Term of Approval

- (a) Where approved by the Recreation Officer, mountain bike trail construction, rehabilitation and maintenance is authorized by issuance of a Trail Agreement.
- (b) Trail Agreements may be issued for terms of up to 10 years, at the discretion of the Recreation Officer. The duration of Trail Agreements will be commensurate with the nature and scope of trail activities being contemplated. Trail Agreements that effect long-term trail management arrangements between MTSA and a partner organization will normally be issued for 10-year terms; Trail Agreements that

authorize short-term, small-scale trail works will normally be issued for one year or less.

- (c) Trail Agreements may be renewed where agreed upon by both parties.
- (d) Trail Agreement documents will be individually customized to contain terms and conditions that are appropriate to the nature and scale of the trail construction, rehabilitation and maintenance activities being approved – see Part 12, Special Requirements.

10. Content of Applications

- (a) Applications for Trail Agreements should be submitted using the ministry's application form – see MTSA's Recreation Manual, Trail Section, available at <http://www.tsa.gov.bc.ca/publicrec/manual/index.htm>.
- (b) Applications for straightforward, short-term trail works require inclusion of the following basic information:
 - Name, address and contact information of the applicant organization (or individuals);
 - Location of the proposed works, including a map showing the area of the proposed works, and names of existing trails, as appropriate;
 - General description of the proposed trail construction, rehabilitation or maintenance activities that will be undertaken; and
 - Timeframes when the work would occur.
- (c) Applications for multi-year Trail Agreements, where an ongoing trail management role by the applicant is envisioned, should include the above information as well as:
 - Demonstration of the capability, capacity and commitment of the organization to provide trail management and maintenance services over the longer-term;
 - An indication of other recreational users and resource users of the trail area under application, and measures proposed for preventing or minimizing user and resource conflicts;
 - Measures proposed for ensuring trails will be safe and durable;
 - Measures that will be employed to ensure trail work is environmentally sound; and

- If trail user fees are being contemplated to offset trail management costs, a rationale for the proposed fee level in relation to estimated trail construction, maintenance and rehabilitation costs.

11. Approval Process

The process for dealing with applications under this policy will depend on whether the area under proposal is already part of the ministry's system of established recreation trails, or the proposal is for new trails that are not established. Wherever possible, MTSA will encourage mountain bike use on the ministry's existing network of established multi-use trails to prevent a proliferation of uncoordinated and unplanned trail development on Crown land.

11.1 Proposals Involving Existing Established Recreation Trails

- (a) Subject to 11.1(c), proposals for mountain bike ***trail maintenance or rehabilitation*** on existing established multi-use recreation trails may be approved provided that public safety, user conflicts, and environmental issues can be successfully managed.
- (b) Subject to 11.1(c), proposals to expand/diversify an existing established trail by ***constructing new mountain bike trails*** that inter-connect with the existing trails will be approved, provided that:
 - (i) Public safety, user conflicts, and environmental issues can be successfully managed; and
 - (ii) The MTSA district, in the opinion of the Recreation Officer, has the resource capacity to adequately manage the expanded trail system. If MTSA management of the expanded trail system would not be possible within existing resource levels, the proposal will be entertained only if the proponent agrees to take on a long-term trail management role and the proponent can demonstrate the capacity to take on such a role.
- (c) Proposals to ***construct TTFs at existing established recreation trails*** will only be considered if the proponent agrees to enter into a long-term trail agreement.
- (d) In reviewing and adjudicating proposals involving existing established recreation trails, the district Recreation Officer will consider the various measures identified in Appendix 1 for addressing safety, user conflicts, and environmental impact issues.

11.2 Proposals for New Mountain Bike Trails

- (a) Proposals to develop new mountain bike trails on Crown land that are *not* part of or integrated with an existing established recreational trail system will be accepted for review only if:
 - (i) An approved, integrated land-use plan exists which recommends the area for mountain bike trail development/use; or
 - (i) The proponent is a local government, or has the written support of the local government; and
 - (iii) The proponent is willing to take on a long-term trail management role and can demonstrate the capacity to take on such a role.

This applies to mountain bike trails that have been built on Crown land without prior authorization.

- (b) Where applications are accepted for review, the Recreation Officer will assess the suitability of the proposal on its merits. This will involve reference to information from: a land status check; referral to other interest groups; referral to existing land-use plans, as appropriate; compliance with First Nations consultation requirements; and reference to the considerations and impact mitigation strategies identified in Appendix 1.
- (c) If approved, the Recreation Officer will formally establish the new trail, pursuant to section 56 of FRPA, as part of the MTSA inventory of recreation trails. If not approved, the application will be disallowed, and the proponent and the local government will be notified of the decision. If an application is disallowed that involved trails that had been built without prior authorization, the Recreation Officer may order removal of the illegal trail facilities.
- (d) If new mountain bike trail construction is approved, MTSA will negotiate the terms of a trail agreement with the proponent. The trail agreement will include appropriate provisions for addressing safety, conflict and impact issues (e.g., see Appendix 1), and any special requirements identified in Part 12 of this policy.

12. Special Requirements

- (a) Issuance of a trail agreement does not extend a right of exclusive control, use or possession of the authorized trails. All recreation mountain bike trails authorized under this policy will continue to be multi-use recreational trails that are open to all types of recreation, unless otherwise restricted or prohibited.
- (b) Where TTFs ARE NOT proposed:

- Agreement holders are *not* required to obtain third-party liability insurance. These agreements will be covered by the Province's liability insurance program.
 - These authorizations are, however, subject to the requirement for the agreement holders to follow the ministry's and IMBA's trail building guidelines.
- (c) Where TTFs ARE proposed, agreement holders will be required to meet the following provisions aimed at minimizing public safety and liability risks:
- Follow the IMBA Guidelines and the Whistler Trail Standards when planning, constructing, rehabilitating and maintaining trails.
 - Indemnify the Province against losses, claims, damages, actions, costs and expenses arising from any omission of the permit holder, its employees, volunteers, invitees or licensees.
 - Maintain a minimum of \$2 million comprehensive general liability insurance, inclusive per occurrence for bodily injury and property damage, and name the Province of British Columbia as an additional insured under the insurance policy.
 - Appoint a trail safety coordinator with specific responsibility to oversee and coordinate trail safety on behalf of the agreement holder.
 - Repair or eliminate known safety hazards.
 - Report annually in writing to the Recreation Officer on trail and TTF inspection activities and results, and any maintenance activities undertaken.
- (d) Trail Agreements will contain an operating plan schedule that describes, in appropriate detail, the trail construction, rehabilitation or maintenance work that the agreement holder is authorized to conduct.
- In the case of simple, one-off, short-term trail works proposals, the operating plan should be commensurately simple (e.g., sketch map and/or a few sentences describing the approved works.)
 - In the case of multi-year Trail Agreements, the agreement holder will be required to annually submit a proposed operating plan for approval by the Recreation Officer before the trail work may commence. Annual operating plans should contain a description of the location (map required at appropriate scale – e.g., 1:20 000), and the nature and timing of the proposed trail works. Operating plans should also identify measures that will be implemented for ensuring trail safety, preventing/minimizing conflicts with other trail and

resource users, and preventing/minimizing environmental impacts. Unless specifically required by the Recreation Officer, agreement holders are *not* required to submit detailed 'engineering type' drawings or sketches of proposed trails, facilities or TTFs. In reviewing and approving operating plans, the Recreation Officer may consider and apply the factors and strategies identified in Appendix 1 for addressing concerns about safety hazards, user conflicts, and environmental impacts.

- (e) MTSA acknowledges the need of trail agreement holders to acquire funds for undertaking sustainable trail management. However, the Recreation Officer will inform proponents of the occupiers' liability implications that are potentially associated with receiving a payment or other consideration from trail users. If MTSA approves the collection of user fees, they must be used only for constructing, rehabilitating or maintaining the authorized trails. Agreement holders that collect fees must record and report annually the amount of fee income received in the preceding year. Recreation Officers will assist multi-year permit holders, to the extent possible, with obtaining operating funds through other innovative means, such as obtaining grants, sponsorships or other forms of donation. Recreation Officers will ensure that provincial policy is observed in the event that a corporate sponsor wishes to place corporate logos or promotional material on trail signage on Crown land.

13. Authorization Decision Review

- (a) If an applicant is dissatisfied with a MTSA decision on a recreation Trail Agreement application, a review of the application may be requested. The general process is for the applicant to contact the Recreation Officer to first try to address the issue informally at the local level.
- (b) If that approach is unsuccessful, the formal FRPA procedure for administrative review and appeal of decisions may apply, as set out in the Act.

14. Monitoring and Enforcing Trail Agreements

- (a) Recreation Officers will, within available levels of resource capacity, monitor and inspect authorized trails and assess compliance with Trail Agreement terms and conditions, including the requirement to comply with the IMBA Guidelines and the Whistler Trail Standards. The Recreation Officer may retain independent technical expertise in mountain bike trail and TTF development to assess / audit compliance with the guidelines and standards.
- (b) If public safety, user or resource conflicts, environmental impact issues, or agreement compliance deficiencies are identified, the Recreation Officer will provide the agreement holder with verbal and written notice of the problem and a reasonable amount of time for the problem to be corrected. The Recreation Officer

may independently take action to correct an urgent public safety problem (e.g., close a trail section; repair or remove a structure).

- (c) Where disputes arise between MTSA and an agreement holder over compliance questions, the first level of dispute resolution will be at the district level. If disputes cannot be addressed locally, they may be referred to the Recreation Sites and Trails Branch Director for resolution, or an independent mediator may be appointed in efforts to achieve agreement. Ultimately, however, MTSA has the legal authority to vary or cancel trail agreements to address public safety, trail or resource user conflicts, or environmental impact issues.

15. Where Trail Agreements Are Not Possible

- (a) Where MTSA becomes aware of the existence of unauthorized mountain bike trails and there is *not* a local organization with the interest or capacity to assume an ongoing trail management role, the Recreation Officer will assess the trails from a public interest perspective. If the trails:

- Are in an appropriate location;
- Are popular with local mountain bike riders and/or other recreational users;
- Do not contain TTFs;
- Do not otherwise pose public safety, user/resource conflicts, or environmental impact concerns; and
- Can be managed by MTSA within existing district budget and staff levels...

...the Recreation Officer will establish the trails under section 56 of FRPA and the trails will become part of the Province's official network of recreation trails.

- (b) If the criteria in Part 15(a) above cannot be met, the Recreation Officer will take appropriate action, subject to the availability of resources, to address concerns. This action may include dismantling TTFs, environmental rehabilitation efforts, or posting an order prohibiting mountain bike use.

16. Recreation Planning

- (a) Where trail user or resource conflict issues emerge on multi-use trails, Recreation Officers may initiate a recreation trail planning process/strategy to work with local interests and identify solutions to issues (e.g., voluntary agreements among users on ways to meet users' interests and minimize trail use conflicts).
- (b) Recreation Officers will participate, to the extent possible, in inter-agency integrated land/resource planning initiatives to ensure that mountain biking trail opportunities are considered in the planning process, and identify areas with mountain bike trail potential/suitability.

17. Trail Authorization Pilot Projects

- (a) MTSA will test the effectiveness of this working draft policy through implementation of Trail Agreement pilot projects. Pilot projects will occur in several communities throughout the Province in the 2006-08 timeframe. The intent of the pilot projects is to enable learning through experience and policy adjustment before more widespread implementation.
- (b) Pilot project selections will be based on the following considerations:
 - Priority will be given to pilot projects that result in legalization of existing unauthorized trails;
 - Preference will be given to authorizing trails that are part of the MTSA existing system of established trails, or trails which meet ministry criteria for becoming established as part of the province's trails network; and
 - There exists a partner organization (e.g., local mountain biking club or a local government organization) with which MTSA may enter into a Trail Agreement and the organization has the overall capacity to successfully meet Trail Agreement requirements. (NB. If necessary, Recreation Officers will advise prospective groups to help them to become eligible to enter into a Trail Agreement. Also, staff will work with prospective partners to estimate trail management costs and explore options for meeting those costs.)
- (c) Recreation Officers will monitor pilot projects to assemble information to enable an informed assessment of the pilot projects and appropriate adaptation of this policy. Aspects of pilot projects that will be monitored include:
 - Implementation costs (for MTSA and partner organizations);
 - Level and nature of use of authorized trails;
 - Incidence and nature of safety issues and responses;
 - Agreement holder compliance with safety-related requirements / standards;
 - Incidence and nature of trail use conflicts and responses;
 - Incidence and nature of undesirable environmental impacts from trail use; and
 - Other observations about effectiveness of the policy and suggestions for policy improvement.
- (d) Inquiries made during the development of this working draft policy indicate that liability insurance, where required under this policy, should be available to

agreement holders from commercial insurers. However, in the event that implementation of trail authorization pilot projects reveals issues respecting insurance availability and / or affordability, MTSA will work with the interests in efforts to overcome impediments to obtaining liability insurance coverage in the insurance marketplace.

Appendix 1. Mountain Bike Trail Hazard, Conflict and Impact Reduction Strategies

This appendix describes strategies for mitigating safety, user conflicts, and impact issues that are potentially associated with mountain bike trail development and use. Depending on the specifics of individual trail situations, these may be adopted as provisions in trail agreements, proposed as voluntary measures, or put into action by MTSA as part of general implementation of the MTSA recreation sites and trails program.

A. REDUCING SAFETY HAZARDS

When processing applications and implementing agreements for mountain bike trail construction, rehabilitation and maintenance, MTSA Recreation Officers will consider the following factors that can influence public safety risks:

- Whether the trail system involves TTFs, either man-made or natural;
- Whether the trails, facilities and features are developed and managed according to guidelines/standards;
- Steepness of trails;
- Speed at which trails are/will be ridden;
- Adequacy of visibility/sight lines along trails;
- Volume of use that the trails receive;
- Degree to which trails are accessible/proximate to settled areas, and therefore receive a high volume of use by a wide cross-section of users;
- User profile (e.g., are riders experienced/skilled, novice, knowledgeable about the area, a combination thereof);
- Potential for encounters with other trail users (e.g., hikers, equestrians, dirt bikers, etc.);
- Potential for trail instability/deterioration and environmental damage (e.g., as a result of erosion);
- Whether or not the local mountain bike club has demonstrated capacity/interest in developing and managing safe trail systems; and
- Other factors that may influence hazard/safety levels, as identified by the Recreation Officer.

Strategies for managing public safety include:

Authorization of Appropriate Trails – Authorize trail works only if public safety (and other) issues can be sufficiently addressed.

Management Agreements – Enter into long-term trail agreements with qualified organizations to ensure appropriate trail development and upkeep.

Enforce Guidelines and Standards – Require conformance with the IMBA Guidelines and Whistler Trail Standards.

Remove Hazards – Close/dismantle all or a portion of a trail or TTF.

Mitigate a Hazard – Modify a trail or TTF to remedy a hazard situation.

Rider Education – Promote rider education/awareness of risk levels and safe riding techniques (e.g., through communication materials, safety workshops, etc.).

Rider Skills – Enhance rider skill levels/abilities (e.g., through skills camps).

Trail Builder Education – Educate trail building volunteers on skills and techniques for building safe and sustainable trails.

B. REDUCING RECREATIONAL AND RESOURCE USE CONFLICTS

Options for addressing conflict between mountain bike riders and other recreational users, and conflict with other resource users, are listed below in the general order of preference for implementation. (Note: For more information, see the IMBA document *The Minimum Tool Rule: A Hierarchy of Options for Managing Trail User Conflicts*, available at www.imba.com/resources/bike_management/hierarchy.html).

Post Signs – For example, advising caution; reminders of trail ethics/conduct; urging cyclists to stay on routes, slow down, limit party size, consider other users; identifying any local trail ‘rules’ that may be in effect; etc.

Self-Monitoring – Encourage cyclists to patrol their own ranks in a positive way.

Education – Work with local clubs, bike shops and others to educate riders about low impact and responsible trail use, riding etiquette (codes of conduct/ethics), and consideration for other users. Develop posters, brochures, and logos or trademarks as a reminder/symbol of considerate cycling. Educate local mountain bike groups about proper procedures/standards for designing and building sustainable trails.

Relationship Building – Encourage positive interaction among different trail users (e.g., joint trail maintenance projects, forming trail advisory committees).

Training – Develop and implement training programs on low impact cycling to be presented by clubs, organizations, bike shops, etc.

Trail Design – On new trails or trails that can be modified, include design features that restrict speed and enhance sight distance, and build wide or pull-out sections to facilitate safe passing (see Whistler and IMBA design standards/guidelines).

Barriers to Speed Control – Subject to safety considerations, leave or install barriers in the trail to control speed (e.g., rocks, roots, bumps, tight curves, down trees, speed barriers, water bars).

Requested Walking Zone – Signs that request or require cyclists to walk their bikes in certain areas where speed, recklessness or congestion are potential problems.

One-way Only – Designate direction of travel on trails with heavy use, to avoid the potential for collisions.

Post Speed Limits – Set maximum allowable or recommended speeds for cyclists. Encourage voluntary compliance or involve local cyclists in positive enforcement. Encourage speeds that allow a cyclist to stop in less than half the distance they can see.

Patrols – Use trained volunteer groups to patrol trails and talk with cyclists to dispense advice, and monitor compliance with trail rules and codes of conduct.

Restrict Cyclists by Time – Allow for mountain bike use only at certain times of the day, or on certain days when other use may be at lower levels (e.g., odd/even days or weekend/week day schedules).

Separate Sections – Construct separate routes for mountain bike use where there is the greatest congestion (e.g., at trailheads).

Construct Separate Routes – Construct separate routes for mountain bike use where there is strong user support and where other solutions are not feasible.

Zoning – Close certain areas to mountain biking (or other recreation uses) and encourage that use on other areas. This method depends on having other areas available and useable.

Closures – Close areas to mountain bike riding (by FRPA order) and enforce the closure. This option should be a last resort after other efforts have proven ineffective.

MTSA may also facilitate local *management planning processes* that bring together the affected interests to cooperatively identify solutions for addressing user conflicts (and possibly other) issues. The planning processes may identify any of the above, or other, solutions for addressing conflict and impact issues.

To help prevent potential mountain bike trail conflicts with other resource users (notably forest managers), MTSA will, as appropriate, designate mountain bike trails under FRPA (section 56), establish objectives for these trails, and/or establish trails as ‘resource features’ under the FRPA Government Actions Regulation.

C. REDUCING IMPACTS ON ENVIRONMENTAL AND RESOURCE VALUES

To address potential issues of mountain bike trail development and use impacts on environmental and other resource values, MTSA will apply the following strategies, as appropriate, to individual situations and as resources permit:

Proactive Planning – Ensure that areas appropriate and suitable for mountain bike trail development/use are identified through management planning processes that consider sensitive environmental and other resource values (e.g., wetlands, unstable soils, valuable habitats, cultural/heritage values).

Environmental Design – As part of the trail authorization process, encourage mountain bike clubs to work with land managers in a process to identify/map sensitive values, and design and construct trails accordingly. Apply the IMBA guidelines and Whistler standards for environmental design (e.g., stream crossings, drainage, habitat considerations, appropriate trail widths, environmentally sensitive construction materials and best practices).

Monitoring and Impact Mitigation – Monitor environmental impacts from trail development and use (e.g., erosion, water quality, vegetation disturbance, wildlife disturbance), and mitigate problems as they arise. Mitigation may involve the need to permanently or temporarily close or relocate a trail or trail segment (e.g., during wet periods, during wildlife breeding periods), rehabilitate an area, re-design a trail segment or feature, educate riders, etc.

Rider Education – Work with local mountain bike clubs and other interests to educate riders on ways to minimize environmental impacts (e.g., stay on the trail, ‘riding’ vs. ‘sliding’), and prevent the spread of noxious weeds. Use signage as appropriate.