

BC Parks Mountain Biking Guidelines

The BC Mountain Biking Policy provides overall provincial direction on mountain biking in BC Parks. This guideline document provides more detailed advice and structure regarding the approval and management of mountain biking.

Definitions

“Cross-country mountain biking” means mountain biking on trails and roads located on gentle to moderately steep terrain and are comprised primarily of natural features, with difficulty levels ranging from beginner to intermediate.

“Downhill mountain biking” means mountain biking on trails located on steep terrain and a higher level of difficulty than that associated with cross country mountain biking.

“Engineered or Human-Made” means constructed structures: Includes ladder bridges, wooden ramps, teeter-totters, gap jumps, etc. These structures often require artificial materials such as processed lumber and fasteners.

“Enhanced Natural Feature” means manipulated natural materials: Moving rocks, logs to create drop-offs, rock gardens, boulder rides, log rides and other obstacles.

“IMBA standards” refer to 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”.

“Natural Feature” means incorporated natural features that are already in existence in the location. Makes use of rock slabs, boulders, rock gardens, and fallen trees as control points in the layout of the trail.

“Technical Trail Features (TTFs)” are obstacles or design elements on a mountain biking trail that improve trail flow or add difficulty in order to challenge the skill of trail users. TTFs are an important part of mountain biking trails and are meant to enhance the mountain biking experience. Typically, a mountain biker has the option to ride or bypass a TTF. Works constructed solely for the purpose of enhancing trail safety or access (e.g., a bridge crossing a stream) or to ensure ecological or commemorative integrity are not considered TTFs.

“Whistler Trail Standards” is the guidelines document used by the mountain biking community to manage trail design and use, signage, environmental considerations, and trail difficulty levels, accessible at http://cyclingbc.net/wp-content/uploads/2014/10/trail_standards_first_edition.pdf.

General Considerations

- Cross-country mountain biking trails that are of beginner to intermediate difficulty should be the principal form of mountain biking offered in provincial parks and protected areas. Higher difficulty trails with advanced Technical Trail Features, and/or downhill trails may be considered in some cases, but only if it can be demonstrated that the additional

environmental impacts, user conflicts, and liability challenges associated with these trails can be adequately addressed and managed.

- When choosing a location for a mountain biking trail, priority should be given to locations with existing related infrastructure and disturbed sites, and locations that will have the least impact to the natural and cultural values of the park. Development should, wherever possible, use existing roads to access areas where mountain biking is offered. Trail inventories, assessments and monitoring will inform trail selection and ongoing management of mountain biking as necessary.
- When evaluating mountain biking proposals, the Regional Director should consider the following factors that affect safety, user conflicts, and environmental impacts:
 - Whether the mountain biking proposal aligns with the management plan, if applicable;
 - Whether the trail system involves TTFs, either man-made or natural, and the corresponding safety and environmental issues associated with them;
 - Whether the trails, facilities and features are developed and managed according to guidelines/standards;
 - Linkages to other trail networks adjacent to the park and situations where the park users can take advantage of legal trail use on other jurisdictions;
 - 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 converting old roads into trails;
 - Potential for encounters with other trail users (e.g., hikers, equestrians, dirt bikers, etc.);
 - Potential for encounters with wildlife;
 - Potential to impact sensitive sites, such as species and ecological communities at risk, and archaeological sites;
 - Potential for trail and slope instability/deterioration and environmental damage (e.g., as a result of erosion);
 - Potential for habitat fragmentation and disruptions to wildlife movement;
 - Whether or not the proponent has demonstrated capacity and interest in developing, managing and maintaining the proposed trail in the long term;
 - Other factors that may influence safety, user conflict and/or environmental impacts, as identified by the Regional Director.

- Proposals should identify strategies to mitigate any safety risks, user conflicts and environmental impacts as much as possible. Suggested strategies are outlined in Appendices 2-4.
- Educational messaging related to the park and activity-specific etiquette and safety information will be incorporated into the mountain biking trail operation. Suggested messaging is outlined in Appendix 1.
- Mountain biking is prohibited within ecological reserves.
- Existing trails that have not been approved by the Regional Director should be put through the same process.
- If an existing trail is determined to be not allowable, it should be decommissioned or converted to a different type of trail, as determined by the Regional Director.

Trail Construction, Maintenance and Management Considerations

- In parks and protected areas where mountain biking is approved, trail construction and maintenance may only be undertaken by BC Parks, by a third party with a formal partnership agreement, or by a park use permit holder with the Province.
- Management of mountain biking trails will preferably be assumed by a third party, who should obtain appropriate permits, licenses and adequate liability insurance. In the case of multi-use trails, maintenance should be shared between BC Parks and a third party.
- Third party operators offering mountain biking opportunities should have a working knowledge of BC Parks' mandate, and should work with BC Parks to provide necessary information and messaging to participants.
- All aspects of design, construction and management of trails should conform to the requirements set out by the IMBA standards, [Whistler Trail Standards](#) and other applicable industry standards and codes as necessary.
- Multi-use trails should also conform to BC Parks' Park Facility Standards.
- Trails will be designed and managed in a way that respect the park's natural, historic and cultural values
- Trails can be created using existing natural features, enhanced natural features or engineered/human-made structures. TTF will be considered in provincial parks and protected areas on a case by case basis.
- Seasonal closures of mountain biking trails should be employed when necessary to manage environmental impacts.

Consider the “Five Essential Elements of Sustainable Trails”

- **The Half Rule:** A trail's grade should not exceed half the grade of the hillside or sideslope that the trail traverses.

- **The Ten Percent Average Guideline:** Generally, an average trail grade of 10 percent or less is most sustainable.
- **Maximum Sustainable Trail Grades:** Maximum grade is the steepest section of trail that is more than about 3 metres in length. When designing a trail, it is essential to determine early in the process the precise maximum trail grades the trail will be able to sustain within the local conditions.
- **Grade Reversals:** These are simply dips in grade, dropping subtly for 3 – 15 metres before rising again to meet the overall grade whether uphill or downhill. This change in grade forces water to exit the trail at the lowest point of the grade reversal, before it can gain more volume, momentum and erosive force. Grade reversals also increase the riding experience and can make easy to moderate difficulty rated trails more fun for the users.
- **Outslope:** As a trail contours across a hillside, the downhill or outer edge of the trail tread should tilt slightly down and away from the high side. This tilt is called outslope and it encourages water to sheet across and off the trail instead of funneling down the center and length of the trail. Generally, most mountain bike trail treads should be built with a 5 percent outslope.

Appendix 1 - Educational Messaging

- **Be a mountain park steward, ride with care!** Riding non-designated or closed trails, building new trails, or riding off-trail displaces wildlife and destroys soil and vegetation. These activities are also illegal and violators may be charged under Provincial Regulations.
- **Be bear aware.** Cyclists are particularly susceptible to sudden, dangerous bear encounters because of the speed and silence of their travel. Slow down, stay alert, use a bear bell, carry bear spray and look ahead.
- **Ride designated trails.** It is your responsibility to know where you can and cannot legally ride.
- **Avoid riding during extreme conditions.** Wet, muddy or very dry, crumbly conditions are more likely to damaged trails.
- **Help preserve the quality of our trails.** Ride, don't slide— avoid skidding your tires by hard braking. Ride over obstacles, not around them. If obstacles are above your skill level, walk your bike.
- **Ride within your limits.** Inattention for even a moment could put you and others at risk.
- **Leave no trace.** Be sure to pack out what you pack in. Leave natural and cultural objects undisturbed for others to discover.
- **For the safety of wildlife, your pets and you,** keep your pets on a leash and pick up after them.
- **Yield appropriately.** Let your fellow trail users know you are coming. Make each pass a safe and courteous one. Cyclists travelling downhill should yield to ones headed uphill.

Appendix 2 – User Conflict Mitigation Strategies

Taken from Recreation Sites and Trails mountain biking policy.

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 a logo or trademark 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.

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 and the Five Essential Elements of Sustainable Trails).

Barriers to Control Speed – 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 and grade reversals.)

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, 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.

Appendix 3 – Environmental Impact Mitigation Strategies

A full discussion of the following strategies can be found at:

<https://www.imba.com/resources/research/trail-science/environmental-impacts-mountain-biking-science-review-and-best-practices>

Impacts to Vegetation

- Design trails that provide the experience that trail users seek to reduce their desire to venture off-trail.
- Locate trails away from rare plants and animals and from sensitive or critical habitats of other species. Involve resource professionals in designing and approving new trail alignments.
- Keep trails narrow to reduce the total area of intensive tread disturbance, slow trail users, and minimize vegetation and soil impacts.
- Limit vegetation disturbance outside the corridor when constructing trails. Hand construction is least disruptive; mechanized construction with small equipment is less disruptive than full-sized equipment; skilled operators do less damage than those with limited experience.
- Locate trails on side-hills where possible. Constructing a side-hill trail requires greater initial vegetation and soil disturbance but sloping topography above and below the trail bench will clearly define the tread and concentrate traffic on it. Trails in flatter terrain or along the fall line may involve less initial disturbance but allow excessive future tread widening and off-tread trampling, which favour non-native plants.
- Use construction techniques that save and redistribute topsoil and excavated plants.
- While it is necessary to keep the trail corridor free of obstructing vegetation, such work should seek to avoid "day-lighting" the trail corridor when possible. Excessive opening of the overstory allows greater sunlight penetration that permits greater vegetation compositional change and colonization by non-native plants.
- An active maintenance program that removes tree falls and maintains a stable and predictable tread also encourages visitors to remain on the intended narrow tread. A variety of maintenance actions can discourage trail widening, such as only cutting a narrow section out of trees that fall across the trail, limiting the width of vegetation trimming, and defining trail borders with logs, rocks, or other objects that will not impede drainage.
- Use education to discourage off-trail travel, which can quickly lead to the establishment of informal visitor-created trails that unnecessarily remove vegetation cover and spread non-native plants. Such routes often degrade rapidly and are

abandoned in favour of adjacent new routes, which unnecessarily magnify the extent and severity of trampling damage.

- Educate visitors to be aware of their ability to carry non-native plant seeds on their bikes or clothing, and encourage them to remove seeds by washing mud from bikes, tires, shoes and clothing. Preventing the introduction of non-natives is essential, as their subsequent removal is difficult and costly.
- Educate visitors about low impact riding practices, such as those contained in the IMBA-approved Leave No Trace Skills & Ethics: Mountain Biking booklet (www.LNT.org).

Impacts to Soil

- Discourage or prohibit off-trail travel. Informal trails created by off-trail travel frequently have steep grades and fall-line alignments that quickly erode, particularly in the absence of tread maintenance. Exceptions include areas of solid rock or non-vegetated cobble.
- Design trails with sustainable grades and avoid fall-line alignments. When possible, build trails in dry, cohesive soils that easily compact and contain a larger percentage of coarse material or rocks. These soils better resist erosion by wind and water or displacement by feet, hooves and tires.
- Minimize tread muddiness by avoiding flat terrain, wet soils, and drainage-bottom locations.
- Use grade reversals to remove water from trail treads. Grade reversals are permanent and sustainable - when designed into a trail's alignment they remain 100 percent effective and rarely require maintenance.
- While the use of a substantial outslope (e.g., 5 percent) helps remove water from treads, it is rarely a long-term solution. Tread cupping and berm development will generally occur within a few years after tread construction. If it is not possible to install additional grade reversals, reshape the tread to re-establish an outsloped tread surface periodically, and install wheel-friendly drainage dips or other drainage structures to help water flow off the trail.
- If it is not possible to install proper drainage on a trail, consider rerouting trail sections that are most problematic, or possibly hardening the tread.
- In flatter areas, elevate and crown treads to prevent muddiness, or add a gravel/soil mixture in low spots.

Impacts to Water Resources

- Trails should avoid close proximity to water resources. For example, it is better to build a trail on a sidehill along a lower valley wall than to align it through flat terrain along a stream edge, where trail runoff will drain directly into the stream.
- It is best to minimize the number of stream crossings. Where crossings are necessary, scout the stream carefully to select the most resistant location for the crossing. Look for rocky banks and soils that provide durable surfaces.
- Design water crossings so the trail descends into and climbs out of the stream crossing, preventing stream water from flowing down the trail.
- Armour trails at stream crossings with rock, geotextiles, or gravel to prevent erosion.
- Include grade reversals, regularly maintained outsloped treads, and/or drainage features to divert water off the trail near stream crossings. This prevents large volumes of water and sediment from flowing down the trail into the stream, and allows trailside organic litter, vegetation and soils to slow and filter water.
- On some heavily used trails, a bridge may be needed to provide a sustainable crossing.
- Where permanent or intermittent stream channels cross trails, use wheel-friendly open rock culverts or properly sized buried drainage culverts to allow water to cross properly, without flowing down the trail.

Impacts to Wildlife

- Route trails to avoid riparian or wetland areas, particularly in environments where they are uncommon. Consult with fish and wildlife specialists early in the trail planning phase.
- For existing trails, consider discouraging or restricting access during sensitive times/seasons (e.g., mating or birthing seasons) to protect wildlife from undue stress.
- Store food safely and leave no crumbs behind - fed animals too often become dead animals.
- It is okay for wildlife to notice humans but humans are "too close" or "too loud" if an animal stops what it is doing and/or moves away.
- It is best to view wildlife through binoculars, spotting scopes, and telephoto lenses.
- All wildlife can be dangerous - be aware of the possible presence of animals and keep distance to ensure human and wildlife safety.

Appendix 4 – Safety Hazard Reduction Strategies

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.

