

Friends of the Bluff - Trail Plan and Maintenance Guide

Introduction

In March of 2011, a group met to formulate work priorities for the Friends of the Bluff (FoB). This group identified “sustainable trails” as their top priority – which is logical as people use trails to access the area called Spokane’s High Drive Bluff Park (the Bluff).

Currently there are over 30 miles of trails in the Park!

The steep topography of the Bluff, coupled with the fragile, sandy soil deposited on the hillside by ice-age floods, make it especially challenging to build and maintain sustainable trails.

This document is intended as a guideline for deciding when, where, and how trails should be built, maintained, or closed/decommissioned.

Trail Users

All trails are multi-use. The primary users of the Bluff trails are hikers, mountain bikers, dog walkers, and runners.

Given the topography and natural state of the Bluff, it is not possible to build traditional 3 ft.-wide trails in most areas. People are responsible to remain in control for their own safety and for that of other users at all times, but especially when meeting or overtaking.

The general rules of user etiquette apply;

- Bikers yield to pedestrians
- Downhill riders yield to uphill riders.
- Stay on the trails and don’t cut corners as this causes soil erosion

Please Be Courteous to All Other Trail Users and Leave the Trails as You Would Like to Find Them!

Criteria for sustainable trails

Existing trails should meet the following criteria. Trails that do not, and cannot be changed to meet these criteria (per consultation with the FoB Board), should be decommissioned.

New trails should meet these criteria from the initiation of planning and building phases.

The trail should:

1. Meet the needs and abilities of most users. However, given the overall steep topography of the Bluff, most trails are not suitable for Beginner mountain bikers or hikers.
2. Minimize soil erosion (especially during heavy rain events) by best available practices, e.g. avoiding vertical fall lines.
3. Require little maintenance: i.e. minimizes erosion (see *Designing Sustainable Trails* below).
4. Follow contour lines – but steeper trails are needed to ascend/descend the Bluff
5. Keep users on main trails avoiding multiple or redundant pathways.
6. Avoid critical wildlife or plant habitat.
7. Use natural building materials such as rocks or soil that do not deteriorate (logs are undesirable for this reason).
8. Use grade reversals for user interest and soil conservation.
9. Connect to trailheads, points of interest or views but avoid connecting to private property.

Criteria for Building a New Trail

Advocates for a new trail should work with the FoB Board to demonstrate need for a new trail that is not met by existing trails, and demonstrate that the proposed trail will meet the criteria listed above.

Trail Maintenance

Criteria for prioritizing trail maintenance on a specific stretch of trail include:

1. Identification of a problem per the criteria for sustainable trails listed above
2. Frequency of trail use
3. Availability of volunteers to do the work (e.g. special interest groups)
4. Accessibility for volunteers and their ability to carry in tools and resources (rocks)
5. If trail conditions change so that erosion increases, maintenance should be prioritized

Decommissioning Trails

Trails that clearly do not meet the criteria for sustainable trails (especially erosion, critical habitat, or redundancy), or those that have been superseded by a new or existing trail, should be decommissioned.

In closing a trail, substantial placement of rocks, logs, and branches along the trail is necessary. Frequently, berms (a ridge or mound) should be installed to direct running water off the trail and prevent continuing erosion

Volunteers

Volunteers from FoB or other special interest groups are welcome and encouraged to organize work events to maintain work on trails – with prior approval of the FoB Board.

FoB requests that all trail volunteers agree to abide by FoB's criteria and standards for trail building and maintenance (as defined earlier).

Guidelines to Designing Sustainable Trails

(Condensed from IMBA –International Mt Bike Association)

In order for a trail not to collect or channel water (resulting in soil erosion), a sustainable trail should conform to the following guidelines:

1. Outslope: The trail tread should be outsloped (sloped away from the hillside) by 5%. This will allow water that comes on to the trail to flow off downhill and not be channeled down the trail.

2. Grade Reversals: When a trail generally follows the contour of the land, it will also most likely either be climbing or descending slightly. However, a sustainable trail should also reverse its grade often (from down to up and vice versa, "surfing the hillside"). This will reduce the watershed of any given section of trail, prevent water from collecting and running down the trail, and reduce any erosion potential. Ideally, most trails should include grade reversals every 20 to 50 feet.

3. Half Rule: A trail's grade (percent slope) should not be any greater than half the grade of the hillside that it contours along. For example, if the slope of the hill the trail runs along is 16%, then the grade of the trail should be no more than 8%. This will allow water to flow across the trail, off the trail and continue down the slope.

4. Ten Percent Average Grade: An average trail grade of 10% or less will be most sustainable, on most soils and for most users. This does not mean that shorter sections can't be steeper.

5. Maximum Sustainable Grade: The maximum sustainable grade is the steepest grade the trail will attain, and should be determined early in the planning process. Typical maximum grades may vary from 15% to 25%, but this is site specific and depends on factors such as soils, rainfall, the half rule, grade reversals, user type, desired difficulty level, and number of users.

Notes

- *Water bars usually are not sustainable.* Use grade reversals, grade dips (small grade reversals) or de-berm the outslope instead.

- *Use full bench (not partial bench) trail construction on side slopes.* Full bench construction means that the full width of the tread is cut into the side of a hill. The entire tread is dug down to compacted mineral soil. Viewed in cross-section, the tread angles slightly downhill at 3-5%. This is known as outslope. (A partial or balanced bench means that part of the hill is cut away and the soil that has been removed is placed at the lower edge of the trail to try to establish the desired width. This is known as a fill slope.) A while after a trail tread has been properly cut in and outsloped, the tread will settle from compaction. This is normal. However, the lower edge of the tread will not compress as much as the center, creating a berm. Berms can also form from erosion. Fortunately the cure is simple and very effective. Using simple hand tools (McLeod, Pulaski, adz hoe, pick, etc.), remove the berm to create outslope, being careful not to disturb the already compacted center of the trail any more than necessary. Varying by soil types and climate, many trail segments will require another de-berming five or more years later. This is perhaps the most common maintenance needed on trails, but also the easiest and most effective (*Jan and Mike Riter, Subaru/IMBA Trail Care Crew*).
- *Fully close and reclaim unsustainable trails.* Brush piles at trail entrances don't work. Block entrances, but also try to reclaim the entire corridor of closed trails with large branch piles. Also install berms to redirect running water off the trail.

Trail Assessment and Repair Sheet (adapted from IMBA)

Site Number: _____

Crew: _____

Priority: _____

Location (Trail Name/GPS)

Length of Section: _____

Tools/Supplies: _____

Date for Completion: _____

Crew Leader: _____

Problem:

Repair:

Sketch Existing Trail:

Sketch Repair: