

LITTLE SAND CREEK WATERSHED

CONCEPTUAL TRAILS PLAN

SANDPOINT, IDAHO

MAY 2023



Photo Courtesy of E. Mickelson

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ACKNOWLEDGMENTS

Prepared for:

City of Sandpoint, Idaho



Prepared by:

International Mountain Bicycling Association
Trail Solutions Program



Special Thanks to:

The National Park Service – Rivers, Trails, and Conservation
Assistance program (NPS-RTCA)



We acknowledge that the trails we use exist on the ancestral homelands of many sovereign tribal nations. Many of those nations are still present today, working to preserve tribal sovereignty, history, culture, and the corresponding health of land, water, and native flora and fauna despite the violence enacted on their communities over generations. We share our gratitude for the past and current stewards of our lands, waters, and trails.



We are also grateful to the following agencies, organization, and individuals for their contributions: The Pend Oreille Pedalers, Sandpoint Nordic Club, Kaniksu Land Trust, Schweitzer Mountain Resort, The United State Forest Service, The Bureau of Land Management, The Kalispell Tribe Inland Forest Management.

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A young child wearing an orange helmet and a black Prevelo jacket is riding a mountain bike on a forest trail. The child is looking down at the trail ahead. The background is a lush green forest with ferns and trees.

EXECUTIVE SUMMARY

LITTLE SAND CREEK WATERSHED CONCEPTUAL TRAIL PLAN

Figure - 1. Photo Courtesy of E. Mickelson

In August of 2020, the City of Sandpoint published the *Parks and Recreation Master Plan*. The master plan identified the communities desire for additional walking and biking trails. A recommendation from that plan was to develop a site specific recreation master plan as a component of a broader watershed master plan within the Little Sand Creek Watershed.

Pursuant to the goals outline in the 2020 *Parks and Recreation Master Plan*, *The Little Sand Creek Watershed Management Plan* was published in January of 2021. The purpose of that document was to provide best management practices for various activities within the watershed. With the management plan in place, the City of Sandpoint is developing the *Little Sand Creek Watershed Recreation Plan*. This plan - the *Little Sand Creek Watershed Conceptual Trail Plan*, provides guidance and recommendations as it relates to trail-based recreational opportunities within the watershed. It is a component of the overall watershed recreation plan, and will be included in that living document as an appendix. Through the aforementioned planning efforts, trails have been identified as a primary recreation goal and opportunity within the watershed, so a closer look at the feasibility and conceptual development of trail infrastructure has been prepared in this document.

This document includes a zone based conceptual trail design with proposed trail corridors to illustrate connectivity, style, and ability level goals. While these trail corridors are drawn accurately and with user experience in mind, in order for these trails to move forward a robust and field-based design process will need to take place before being proposed for construction and implementation per instruction outlined in *The Little Sand Creek Watershed Management Plan*. This document also includes the analysis used to develop the concept, the definition of terms used to describe the concept, an opinion of cost for implementation, recommendations on phasing and implementation, and trail construction best management practices (BMPs).

Achieving the Goals of the *Little Sand Creek Watershed Conceptual Trail Plan* will require strong partnerships and seamless coordination to effectively fund, implement, and steward sustainable trail-base recreation within the watershed. Key partnerships, agreements, and operational guides will need to be developed between land managers, plan stewards, and stakeholders to realize this vision for the community.

INTRODUCTION

IMBA Trail Solutions

IMBA Trail Solutions (TS) is the international leader in developing trails, with experience in over 750 projects in North America, Europe, and Asia. Our staff excels at planning, design, and construction of trail systems that provide high-quality experiences for local riders and destination visitors while simultaneously minimizing environmental impacts.

Trail Solutions is a fee-for-service based arm of the International Mountain Bicycling Association (IMBA), a 501(c)(3) nonprofit organization. IMBA's mission is to create, enhance, and protect great places to ride mountain bikes. Based in Boulder, Colorado, and with staff distributed across the country and the world, IMBA meets its goal to create great mountain bike experiences through its Trail Solutions program. Trail Solutions employs approximately twenty professional trail planners and builders. In addition to being industry professionals and exceptional mountain bike riders, Trail Solutions staff hold a broad base of applicable skills and knowledge from planning, landscape architecture, and environmental sciences to GIS systems, CAD, and graphic design.

Our wealth of experience has allowed us to develop the gold standard guidelines for the creation of both sustainable and enjoyable singletrack trails. These guidelines have influenced all major federal land management agencies and a large number of state and local parks departments. We pride ourselves on the positive experiences Trail Solutions has provided to the millions of active trail users around the world and on the economic independence that communities have achieved through the development of destination trail systems.



Figure - 2. Community Engagement Event, Photo courtesy of NPS-RTCA



Figure - 3. Community Engagement Event, Photo courtesy of NPS-RTCA

The City of Sandpoint

The City of Sandpoint encompasses 4.8 square miles and sits along Lake Pend Oreille, Idaho's largest lake, and is surrounded by exceptional outdoor recreational opportunities. Data collected before 2020 showed that the population of the City of Sandpoint sat just above 9,500 residents. U.S. Census modeling indicated that Sandpoint was experiencing a five percent growth in population designating it as the 7th fastest growing micropolitan area in the U.S. The cities surrounding Sandpoint and Bonner County were also experiencing population growth of three-to-four percent. We know that the effects of Covid-19 pandemic dramatically inflated the population growth of cities and towns adjacent to natural amenities and outdoor recreation - Sandpoint included.

The City of Sandpoint Parks and Recreation department manages recreational opportunities not only for the resident of Sandpoint but also those living in the adjacent cities of Dover, Ponderay, Kootenai, greater Bonner County, and a significant number of tourists that visit the area each year.

The National Park Service – Rivers, Trails, and Conservation Assistance program (NPS-RTCA)

The National Park Service, through the Rivers, Trails and Conservation Assistance program (NPS-RTCA), has supported locally-led conservation and outdoor recreation projects across the United States for more than 30 years. NPS-RTCA assists communities in developing or restoring parks, conservation areas, rivers, and wildlife habitats, as well as creating outdoor recreation opportunities and programs that engage future generations in the outdoors. Through an annual application process, community groups, nonprofit organizations, tribal governments, national parks, and local, state and federal agencies can apply for NPS-RTCA technical assistance



PROJECT APPROACH

Site Visit and Community Engagement

Trail Solutions was contracted by the City of Sandpoint to perform site reconnaissance and to ground truth zone-based trail concepts and alignments. This specific field-based effort took place in the fall of 2022. While in town Trail Solutions in collaboration with project partners conducted in community engagement and feedback session at Matchwood Brewery to introduce the effort and collect insights from both existing and prospective recreationists within the watershed.

Extra effort and attention was paid to the “Lower Basin” or the area of the watershed east of Schweitzer Mountain Road as this area has the highest density of existing recreational activities being home to the popular Lower Basin trail system. The Lower Basin is also seen to have the highest potential for near-term implementation considering its stewardship from the local mountain bike organization, The Pend Oreille Pedalers (POP). All trail alignments shown shall be considered concepts and will require further field work and refinements through exhaustive future field design efforts. This TS assessment and planning effort has resulted in a plan that sets the foundation for a high-quality trail network that can advise the development of trail specifications, recommended construction methods and implementation, cost opinions for implementation, and suggested phasing.



Figure - 4. Community Engagement Event, Photo courtesy of NPS-RTCA



Figure - 5. Community Engagement Event, Photo courtesy of NPS-RTCA

Community Engagement Summary

The City of Sandpoint conducted a digital recreation survey, and the summary of that effort will be included in the overall recreation master plan. At the in-person community engagement boards presented at Matchwood Brewery, two general themes were identified to gather feedback: a better understanding of current use, and a vision for the kinds of recreational offerings the community was looking for in relation to trails.

The survey found that most respondents were looking for increased access to the watershed in general. They wanted different ways to engage with the landscape beyond what is currently offered, specifically trail experiences for different skill levels. More experienced trail users were seeking opportunities to challenge themselves, while less experienced users were looking for more opportunities to feel safe and competent while in the watershed. Overall, all respondents wanted more user-specific trail offerings.

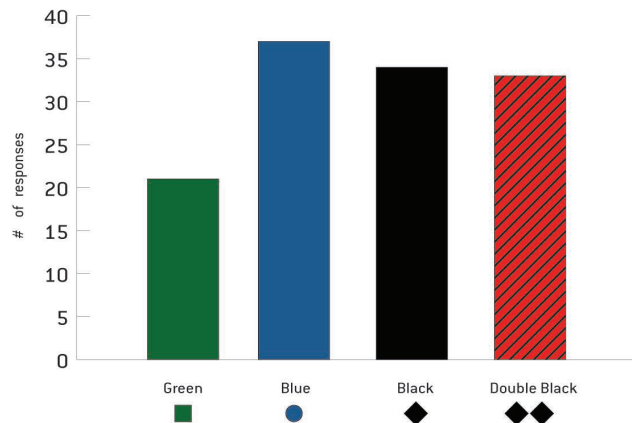


Figure - 7. Community Engagement Summary



Figure - 6. Community Engagement Board Results

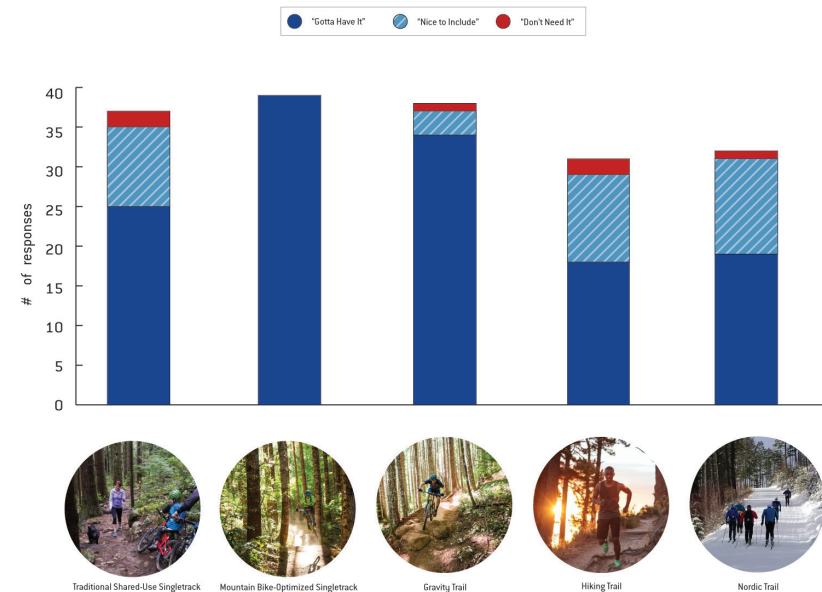


Figure - 8. Community Engagement Summary

EXISTING CONDITIONS & ANALYSIS

Little Sand Creek Watershed

The Little Sand Creek (LSC) Watershed is located northwest of Sandpoint and Lake Pend Oreille in Bonner County, Idaho, between Bald Mountain and Schweitzer Mountain. The basin drains to LSC, a tributary to Sand Creek, which empties into Lake Pend Oreille near the Sandpoint City Beach Park. The Watershed is defined in the Little Sand Creek Watershed Management Plan, which includes all the drainage areas above the City of Sandpoint's Drinking Water Treatment Plant located 0.83 miles up Schweitzer Mountain Road from the intersection with N Boyer Rd. The road is the main access point for the Watershed and travels west to the approximate mid-point, then north before leaving the Watershed near the entrance to the Schweitzer Mountain Resort.

Three major physical conditions influenced the boundaries and initial decision making for the conceptual development analysis. These were

1. The watershed boundary (the ridges or high points that determine what subbasin surface water will collect in).
2. Schweitzer Mountain Road as it bisects two distinct areas within the watershed - The Upper Basin and the Lower Basin.
3. The Little Sand Creek. Preserving and improving water quality is the top priority of the overall recreational master plan so understanding the boundaries around development adjacent to the Little Sand Creek and its tributaries was top of from the beginning.

Little Sand Creek Watershed

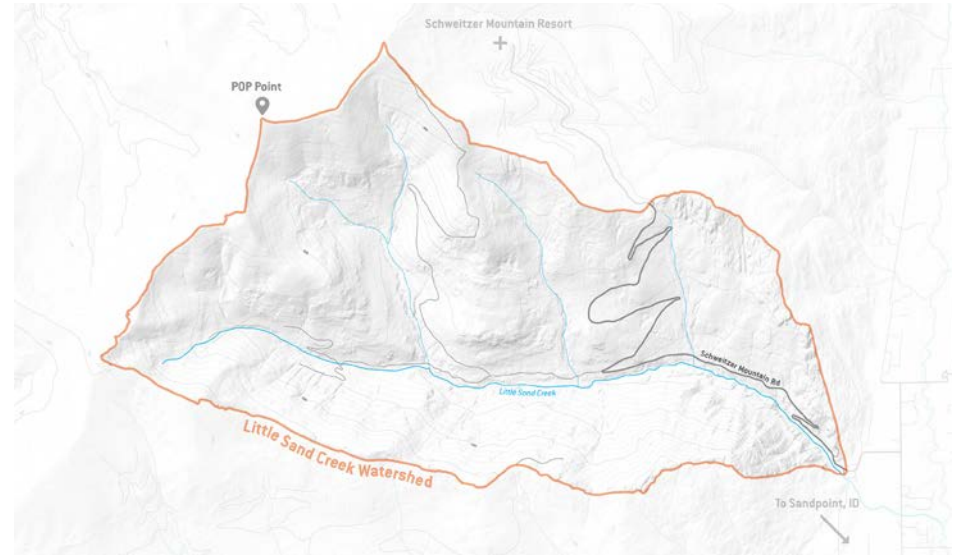


Figure - 9. Diagram Courtesy of IMBA

Upper Vs. Lower Basin Diagram

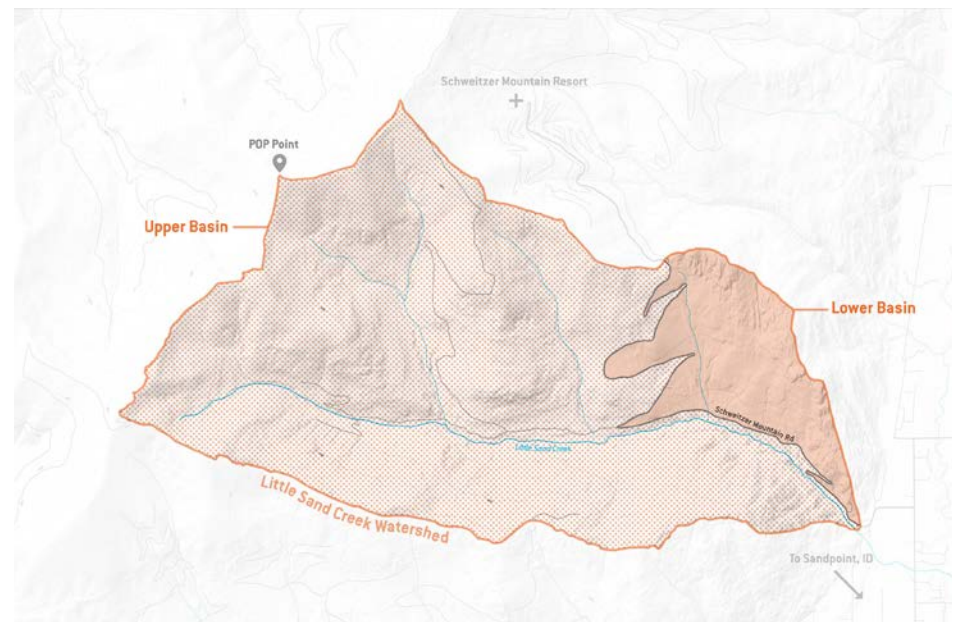


Figure - 10. Diagram Courtesy of IMBA

Land Ownership and Access

The total acreage of the Watershed, which is owned by various entities including the City of Sandpoint, Bureau of Land Management, State of Idaho, Schweitzer Mountain Facilities, US Forest Service, and private parties, is 7,413 acres, with 3,921 acres under City ownership. The Watershed serves as a transportation corridor for Schweitzer Mountain Resort, a utility corridor connecting power, natural gas, and telecom from the valley to Schweitzer, and for recreational activities such as mountain biking, hiking, and skiing. The hydrology of the Watershed is comprised of Little Sand Creek, its tributaries, and associated seeps and wetland, which flow through natural channels and courses down to the drinking water treatment plant reservoir.

Access to most areas of the Watershed is owned by the City of Sandpoint, with two primary access points for trails in the Lower Basin known as Switchback 2 and the Roundabout. Switchback 2 is the bottom of the trail network and is used by most riders who are not shuttling, while the Roundabout is the top of the network and is used by riders who plan to shuttle the trails or access the trails on Schweitzer Mountain Resort property. There are also pullouts and social trails derived from shuttling at Switchback 4 and Switchback 6, but there are plans to formalize access and consolidate the trail network.

Land Ownership Within the Watershed

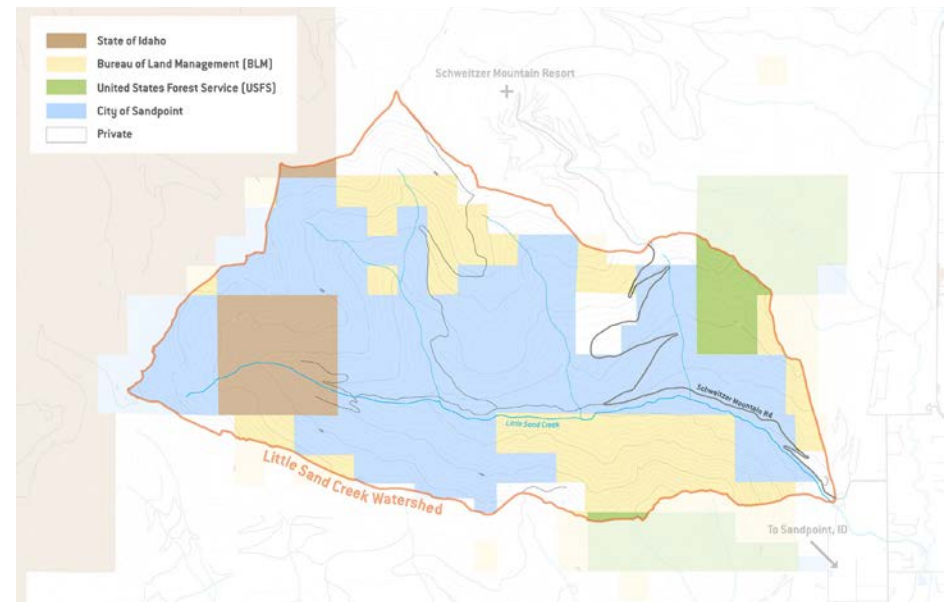


Figure - 11. Diagram Courtesy of IMBA

Key Access Points

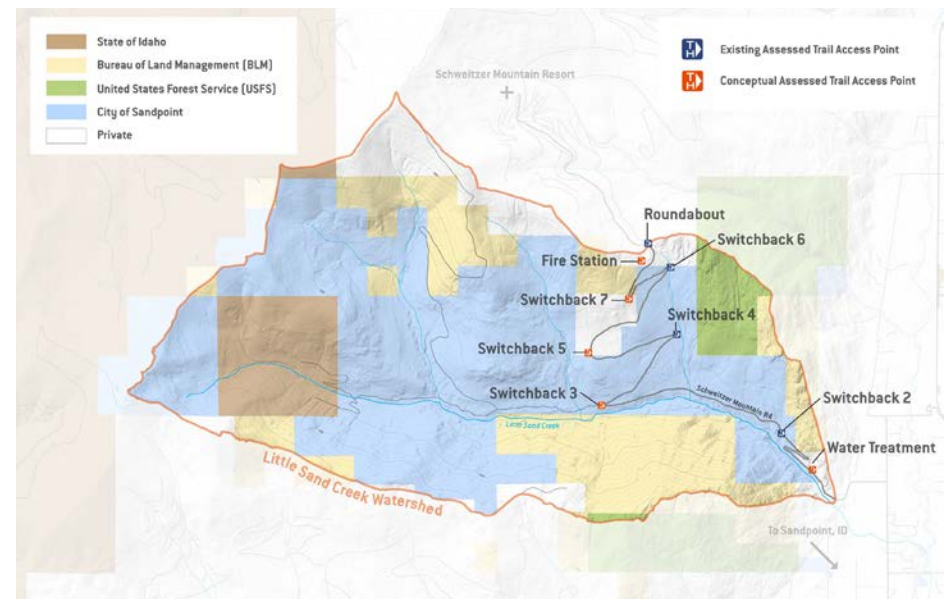


Figure - 12. Diagram Courtesy of IMBA

Terrain

A significant portion of the Watershed is very steep, but gentle slopes occur in some areas. Elevation on the City property ranges from approximately 2,320 feet at the lowest point on the eastern boundary to 6,193 feet at the top of Bald Mountain on the western boundary. Most of the property lies between 3,500 to 4,500 feet. The lower elevations occur mostly in the eastern portion of the Watershed, with the highest elevations found mainly on the western side and around the perimeter of the Watershed. Granite slabs and outcroppings were observed on-site, which lend themselves to a multitude of recreational opportunities like a hiking trail destination or a technical trail feature for a more bike-optimized trail.

According to the Soil Survey of Bonner County Area, Idaho, there are 13 soil types located on the City of Sandpoint property within the Little Sand Creek Watershed. All of these soils have a granitic component, and the majority formed in glacial till from granite, gneiss, and schist material. All but two are described as having a mantle (top layer) of volcanic ash and loess. These soil types, within the context of trails, can be thought of as moderately erosive. While on-site, we observed that the higher the elevation, the higher the density of decomposed granite (DG) was in the soil matrix. Soil compositions higher in DG are limited in their ability to compact and form the shapes necessary for more bike-optimized trails while also being highly erosive. Near the bottom of the Lower Basin, pockets of clay and more compactable soils were observed.

Terrain Diagram - Slope Angle

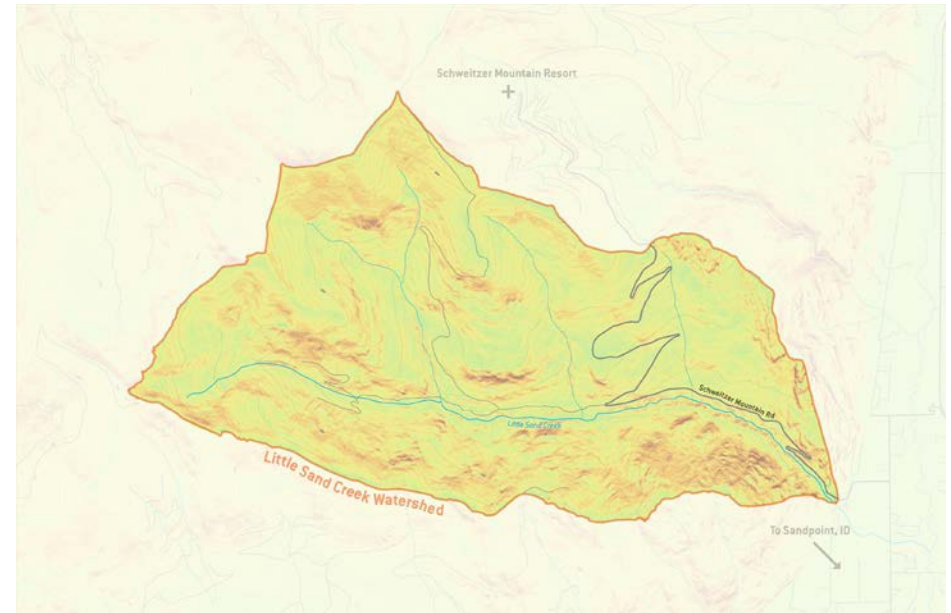


Figure - 13. Photo Courtesy of IMBA

Existing Users

Hikers / Trail Runners

As you explore the Lower Basin Trail Network, you'll discover a diverse array of landscapes, including lush forests, clear streams, and rocky outcroppings. The trail network is known for its spectacular views of the surrounding mountains and valleys, and you may even catch a glimpse of some local wildlife, such as deer, elk, moose or even bear.

While there are no trails specifically for hiker only within the Lower Basin, good sight lines and the construction of a new preferred direction trail for mountain bikers limits the amount of conflict with other trail users. The being said, most trail runners and avid hikers prefer to use the Mickinnick Trail (a hiking only trail just south of the system) to have a more rugged and secluded trail experience. Scenic viewpoints, connection with nature, escape, and exercise are what hikers are looking for in new trail opportunities in the Lower Basin. This was a consideration in the development of our conceptual plan.

Mountain Bikers

Because stewardship of the adopted rogue trails within the watershed was undertaken by a mountain bike-focused local organization (POP), all trails within the Lower Basin are open to bikes. Many of the trails are optimized for trail users on bikes. Most of the trails are for intermediate riders, except for a couple of downhill trails that the City of Sandpoint has requested be decommissioned due to safety and water quality concerns. Replacing these experiences while introducing a more diverse suite of trail experiences for mountain bikers was top of mind while preparing our conceptual plan.



Figure - 14. Photo Courtesy of IMBA



Figure - 15. Photo Courtesy of IMBA

Nordic Skiers

The Sandpoint Nordic Club was a critical and collaborative stakeholder throughout the development of this conceptual plan. While formalized nordic skiing activities are not present in the Lower Basin at this time, a small number classic cross county and back country skiers will explore the old logging road beds that scar the landscape within the watershed.

Wide trails and classic touring are two different styles of Nordic skiing. Here's a breakdown of the differences:

- Trail width: Wide trails are wider than classic trails, typically around 6-8 feet wide, while classic trails are narrower at around 2-3 feet wide.
- Grooming: Wide trails are usually groomed with a machine that creates a flat, wide surface suitable for skating-style skiing. Classic trails, on the other hand, are groomed with tracks that are set into the snow to allow for forward stride skiing.
- Technique: Wide trails are designed for skating-style skiing, which involves pushing off the snow with the edges of the skis and gliding on a flat surface. Classic trails, on the other hand, are designed for diagonal stride skiing, which involves a forward motion with a glide and kick motion with alternating legs.
- Terrain: Wide trails tend to be found in flatter terrain, while classic trails can be found in a variety of terrain, including rolling hills and steeper inclines.
- Equipment: The equipment used for wide trail skating-style skiing is different from that used for classic touring, with different types of skis, boots, and poles.

Overall, the main difference between wide trails and classic touring in Nordic skiing is the type of technique used and the equipment needed. Wide trails are suited for skating-style skiing and are typically found in flatter terrain, while classic trails are designed for diagonal stride skiing and can be found in a variety of terrains.

When we take into consideration the impacts on the landscape to create wide trails conducive for skate-style skiing and the maintenance and grooming associated with that activity, the Little Sand Creek Watershed is not the appropriate venue. The steep terrain would require significant earth moving efforts, similar to that of building a new road. That ultimately is inconsistent with the primary goal of preserving and improving water quality within the watershed and for that reason we have not proposed this activity in our conceptual plan.

New trails being proposed within the watershed can be designed with classic cross country touring in mind during the design phase of some specific conceptual alignments. Ultimately the decision about grooming and maintenance will be undertaken in a later phase between the Sandpoint Nordic Club and the City of SP, and/or other land owners within the Watershed such as the USFS, BLM or Schweitzer



Figure - 16. Photo Credit Bear Cieri

Existing Uses

Drinking Water

The primary use of the City's property in the Little Sand Creek Watershed is as a domestic drinking water source for the Sandpoint area. Consequently, all activities within the Watershed fall under the U.S. Environmental Protection Agency and the Safe Drinking Water Act Amendments of 1996. To meet requirements, strict adherence to regulations must be observed regarding many facets of the Watershed, including recreation, new construction and maintenance of utilities, roads, and trails. It is imperative that these critical areas also be protected to preserve their use by fish and wildlife, which rely on them for spawning, breeding, feeding, and reproduction. See the [*Little Sand Creek Watershed Management Plan*](#) (2021) for more information

Forestry Operations

Timber resources are managed by each property owner individually but continuity in forestry planning has been executed by consulting foresters with Inland Forestry Management since the 80's. At the higher elevations, subalpine fir dominates the forest landscape. Most of the higher elevation areas show no evidence of previous logging activity. Western hemlock and western red cedar are often the primary tree species at lower elevations, particularly along Little Sand Creek. A portion of the lower elevation forest has been heavily harvested in the past, resulting in major impacts to current forest conditions. For example, most of the western white pine has been removed from the landscape over the last seventy years. In addition to logging, white pine blister rust has played a major role in reducing the prevalence of this species. As a part of the watershed management plan, a [*Timber Management Plan*](#) was prepared and identifies opportunities for future forestry treatment areas. For more details on forestry, please reference that document.

There are opportunities for the implementation of trails to work harmoniously with the implementation of the proposed forest treatments. The praxis of those strategies will largely be dependent on which program element (forest treatment or trail development) is the driving force. The value in pursuing these kinds of partnering efforts could be found in the reduction of permitting efforts, shared and reduced landscape impacts, and access for construction or harvest phasing.

Forestry Treatment Areas

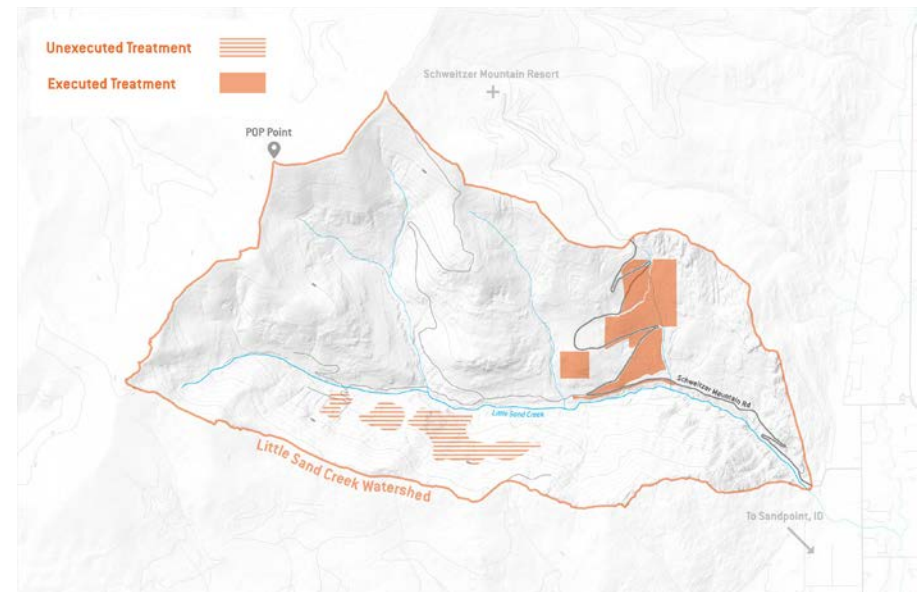


Figure - 17. Diagram Courtesy of IMBA

Recreation

Existing Trails within and adjacent to the Little Sand Creek Watershed

Trail use in the watershed began long ago as this site is the ancestral home of the Kalispell tribe. At the turn of the twentieth century, the Civilian Conservation Corps was documented to have developed trails within the watershed. Over many years, various unauthorized trails have been constructed through the Watershed and remain today with heavy use between June and October. In 2015, the City entered into an agreement with the Pend Oreille Peddlers (POP) to maintain the existing trails. These 13.15 miles of existing trails are dubbed the “Lower Basin Trails”. This trail system consists of user created trails from the highest elevation point at the Roundabout on Schweitzer Mountain Road, to their lowest elevation point at a trailhead parking area near “Switchback 2” on Schweitzer Mountain Road. Of the 13.15 miles of trails, 2.69 miles (20%) are labeled as green [beginner], 8.4 miles (64%) are labeled as blue [intermediate], and 2.06 miles (16%) are labeled as black [advanced]. Currently the City of Sandpoint is refining their MOU with POP as a part of the overall recreation master planning effort. POP’s license agreement with City is scheduled for an annual renewal on June 1, 2023 and is scheduled for the same timeline this year, with expiration June 1, 2024.

The newest trail to be built in the Lower Basin network is the new 2.7 mile, multi-user (hiker and biker), multi-directional “Green XC” trail to the east of the existing trail below switchback 4 with an average gradient of ~6%. The main goal of this uphill-friendly trail is to incentivize more users to travel uphill in the Lower Basin, reducing dependence on vehicle shuttles and assuring a safe route for hikers and bikers. The trail was completed just days before TS’s site visit so member of our team had the privilege of test riding this new trail.

While we were not on site to conduct a formal assessment of existing trails, our team made some observations about existing trail design and construction methodologies that influenced our conceptual development. Most notable is

Trail Use Heatmap

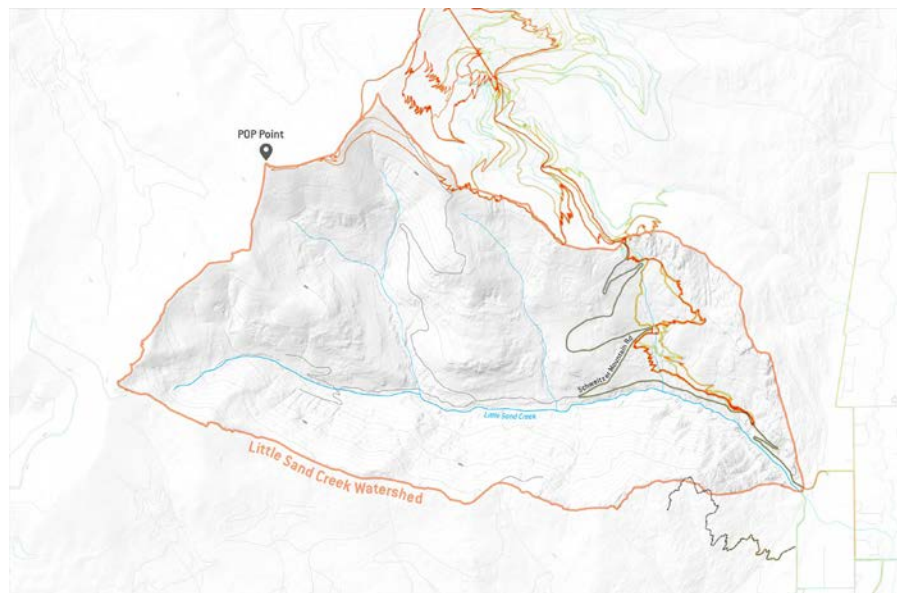


Figure - 18. Diagram Courtesy of IMBA

Trail Use Circulation and Typology

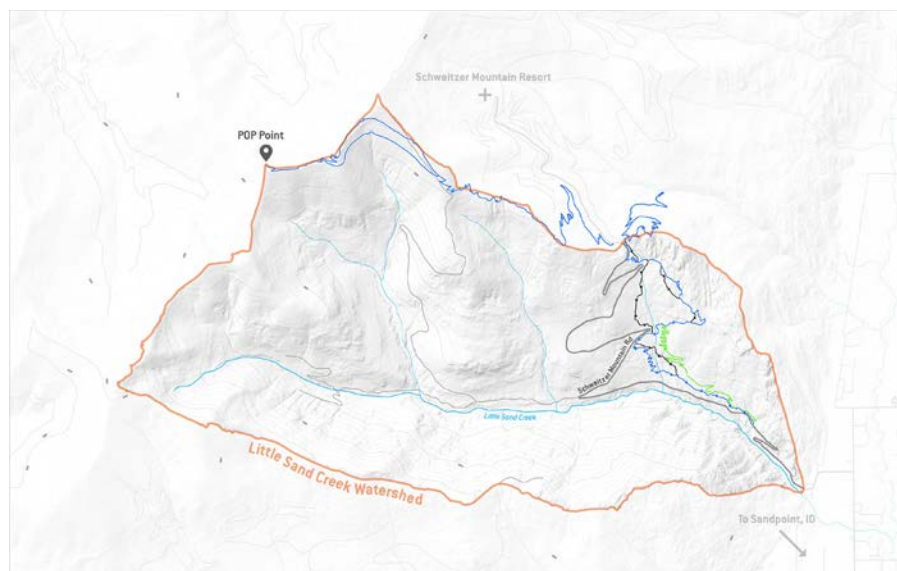


Figure - 19. Diagram Courtesy of IMBA

lack of a truly beginner experience trail experience. As noted previously, the site is steep and is host to many physical and regulatory constraints. The new green XC trail exceeds the typical guidelines for an average grade of <5%, and contains stretches of trail that exceed +15% for sustained distances (more than just a few pedal strokes to get through an obstacle). Along the 2.7 mile trail there are several points where the trail is aligned through steep cross slopes that introduce an unpalatable amount of exposure for beginner riders. Because of the constrained nature of alignment to stay on City property through generally steep terrain, creating a true beginner experience would have been dependent on construction details. Details like wider turn platforms, limiting steeper trail grades to slopes with less exposure, reducing the number of unavoidable trail features/texture that require riders to move towards the downslope edge of trail tread, etc. Green trails are often the most complex builds because of the required attention to detail to ensure a great experience for new riders to give them an enjoyable introduction to the sport that encourages them to keep trying. As of Spring 2023, this trail is now appropriately re-rated as a “more difficult” or blue trail. For the purposed of this report, we will continue to refer to this alignment as the “Green XC” trail.

Also of note were the observed drainage strategies on new machine built sections of trail. Steep in-sloping of trail tread for long stretches paired with trenching on the in-slope edge were already becoming incised from the creation of channelized water rather than dispersed sheet flows. This widely accepted practice is often observed in a bike park setting where paid, regimented maintenance supports the clearing and rebuilding of these trenches and monitoring the efficacy of grade reversals. The impacts of this construction method is a trade-off to support the desired user experience. The stark in-sloping is also usually seen on bike park trails where the high speed use of the trail requires the in-slope to hold riders into the trail. Trail experience is prioritized over trail sustainability. This construction strategy also creates a condition where water both channelizes in the trench, and creates a pseudo water table that

percolates under the trail tread keeping it perennially saturated. Both of these conditions create a disproportionate amount of dispersed sediment that will impact water quality over time and contribute to disproportionate maintenance needs. Considering the speeds of use, soil composition, and the strict imperative to prioritize water quality for these trails - this drainage method should be used sparingly within the lower basin. Reference [Guidelines for a Quality Trail Experience](#) for the industry standard in managing drainage during trail construction.

Nearby Schweitzer Mountain Resort owns and operates approximately 40 miles lift-served mountain bike trails on their property, which connects directly to the lower basin via the High Point and Solar Ecstasy trails. The newest trail, “Terraflow”, was built by a regional stand-out trail contractor for whom the trail is named - Terraflow. It is a dynamic blue jump line featuring unique boardwalk features and an excellent utilization of terrain features to support trail shapes where soil composition alone would fail. Contextually this style of trail is appropriate for a bike park with a regular maintenance regime.

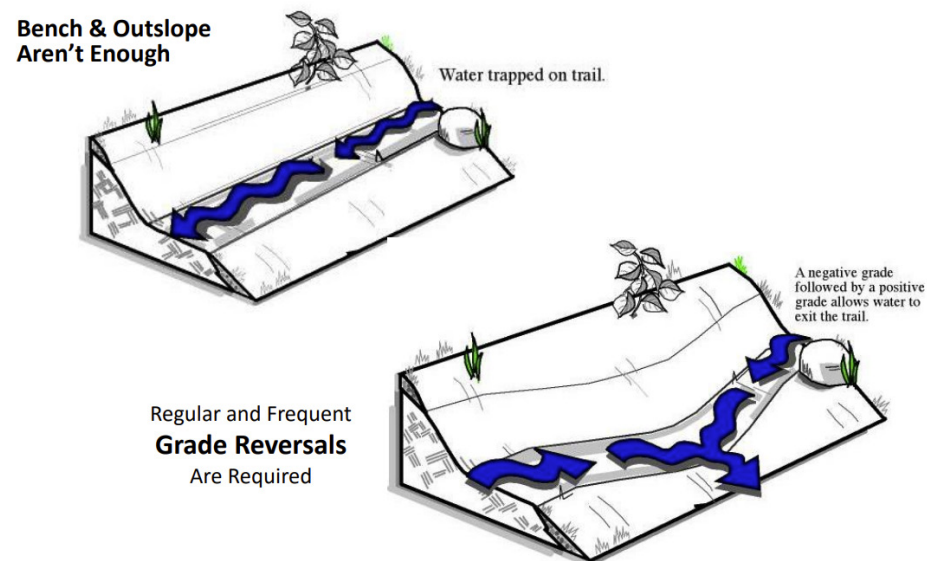


Figure - 20. Diagram Courtesy of IMBA

The community is fortunate to have access to the Syringa Trail System, which consists of 3 different private properties that each permit public access for non-motorized use over a combined 412 acres just outside of Sandpoint. Two of the three properties have been permanently conserved and plans are in process for the third to be so as well. These trails are managed in partnership by POP, Kaniksu Land Trust, and Sandpoint Nordic Club and provide a system of multi-use trails that are enjoyed by mountain bikers, trail runners, hikers, and school groups during the warmer months, while also supporting POP's youth programming. During winter the trails are groomed for nordic skiing and fat tire biking but also welcome hikers, snow-shoers, and dog walkers while hosting numerous youth nordic programs facilitated by Sandpoint Nordic Club. This system is a tremendous community asset. Similar observations about construction, drainage and appropriate skill level rating were made while riding the trails in the Syringa Trail System



Figure - 21. Photo Credit POP

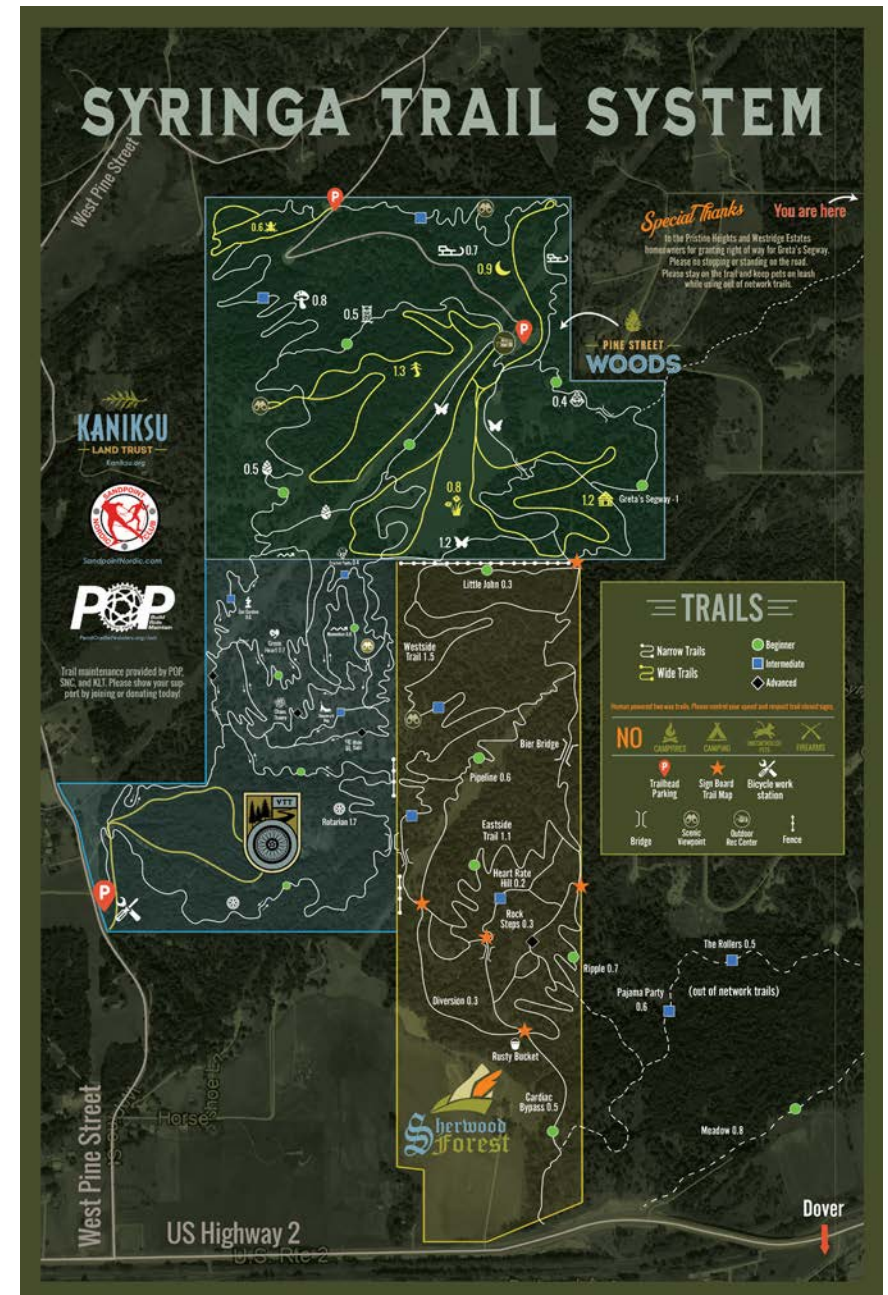


Figure - 22. Photo Credit POP

CONCEPT DEVELOPMENT

This conceptual trail plan is zone based with conceptual corridors being illustrated as tools for communicating intended connectivity, experience objectives and potential project scale. Ten unique zones (1-10) subdivided among three sections (A,B,C) work together to achieve the goals outlined by the client and derived from community feedback.

Project Goals

1. To protect or enhance the water quality in Little Sand Creek.
2. Provide sustainable access and desired experiences for community members to connect with their watershed.
3. Develop a trail network that appeals to all ability levels.
4. Incorporate both shared-use and bike-optimized trails.

The City of Sandpoint is in a unique position as majority landowner to facilitate the planning for public access to their municipal watershed. This conceptual plan introduces a mix of trail types that balance the recreational and water quality goals. The planning of these trails will have a positive social impact on the community. It will foster healthy lifestyles and water stewardship for generations to come. This planning effort envisions 40-50 miles of new singletrack trails that provide a mix of trail types and experiences.



Figure - 23. Photo Courtesy of IMBA



Figure - 24. Photo Courtesy of IMBA

SANDPOINT, IDAHO

Proposed Conceptual Zones

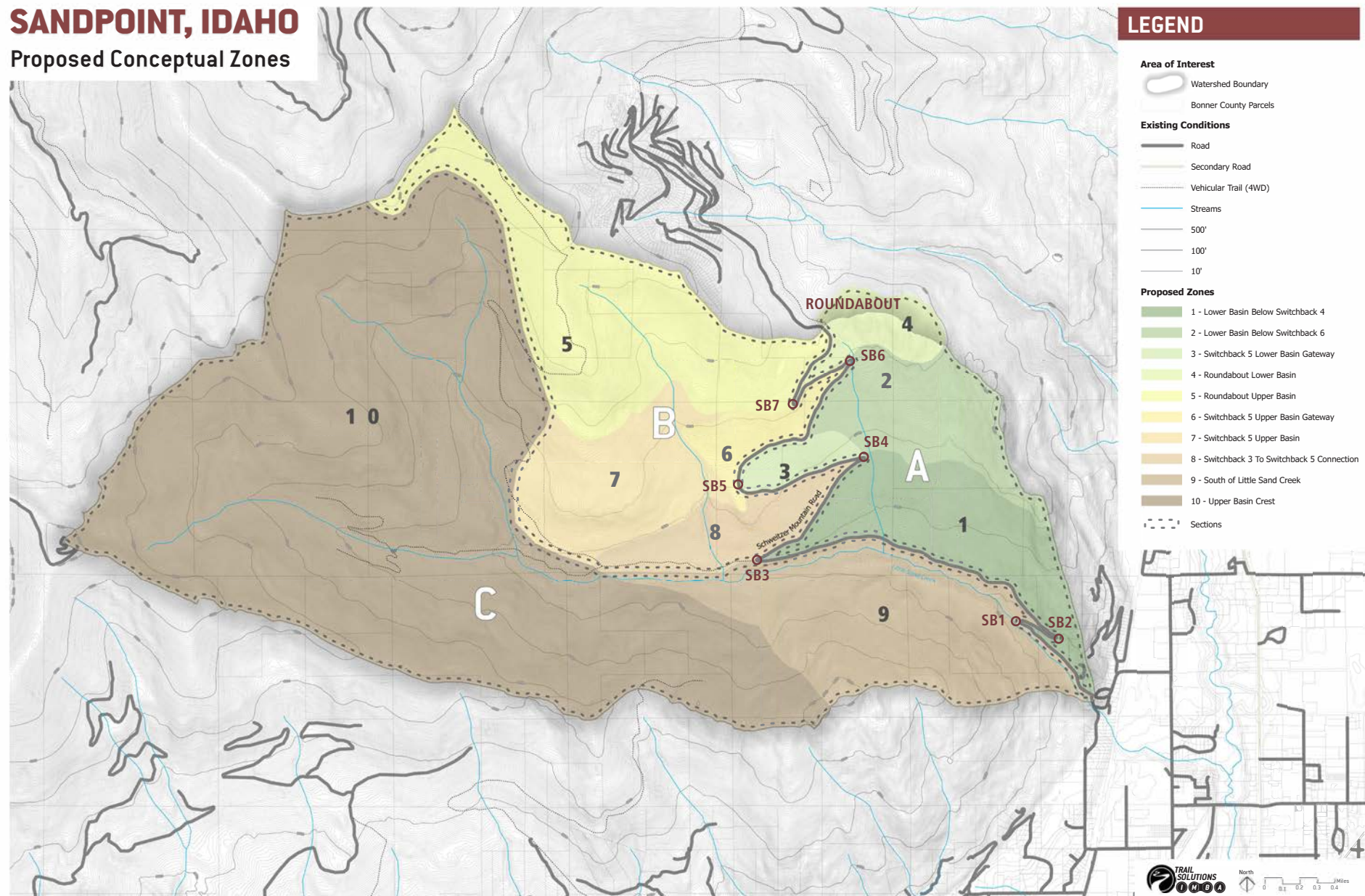


Figure - 25. Proposed Trail Alignment Map Over Land Ownership Base

SANDPOINT, IDAHO

Proposed Conceptual Zones And Trail Alignments

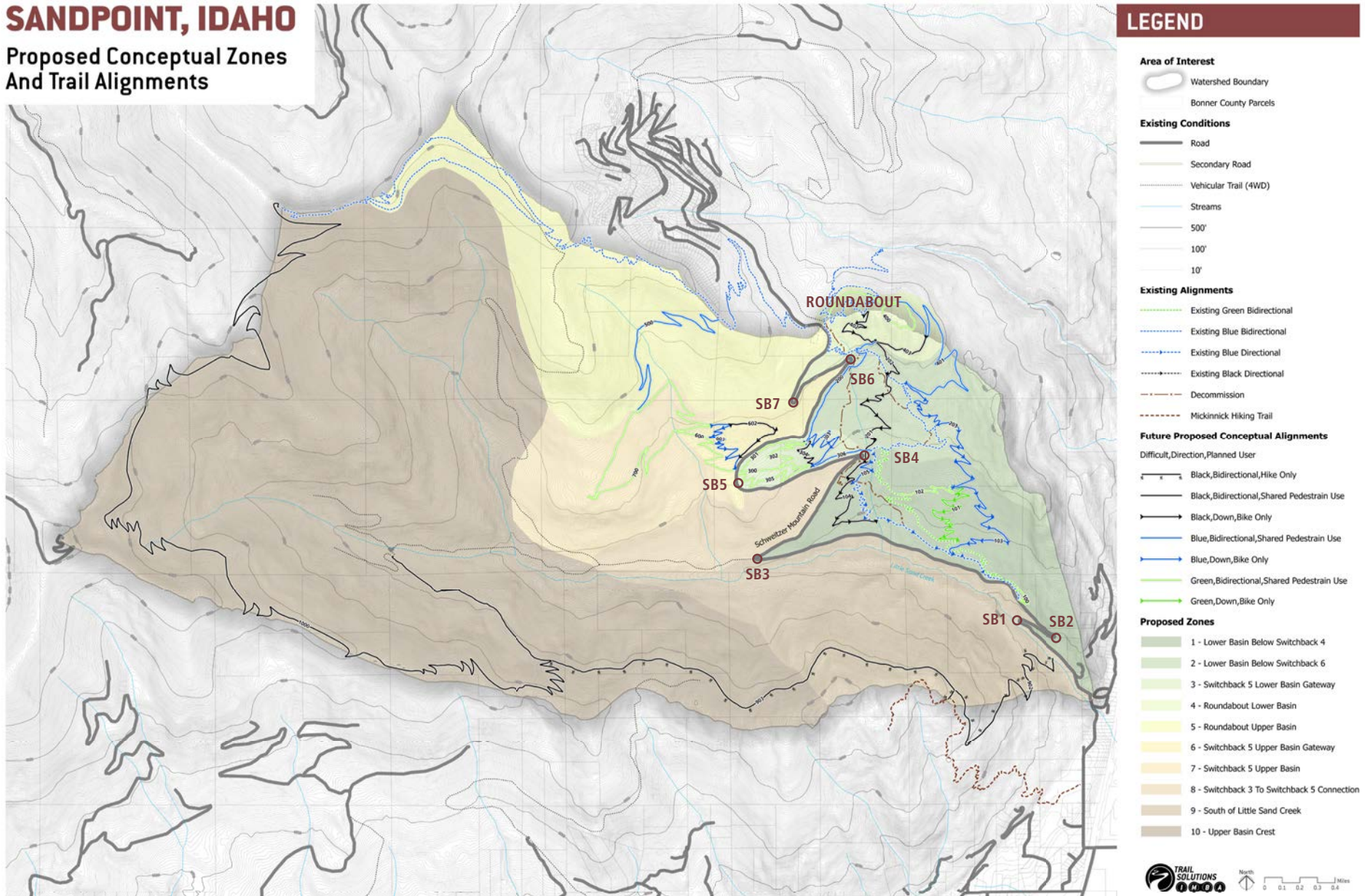


Figure - 26. Proposed Trail Alignment Map Over Land Ownership Base

SANDPOINT, IDAHO

Proposed Trail Alignments

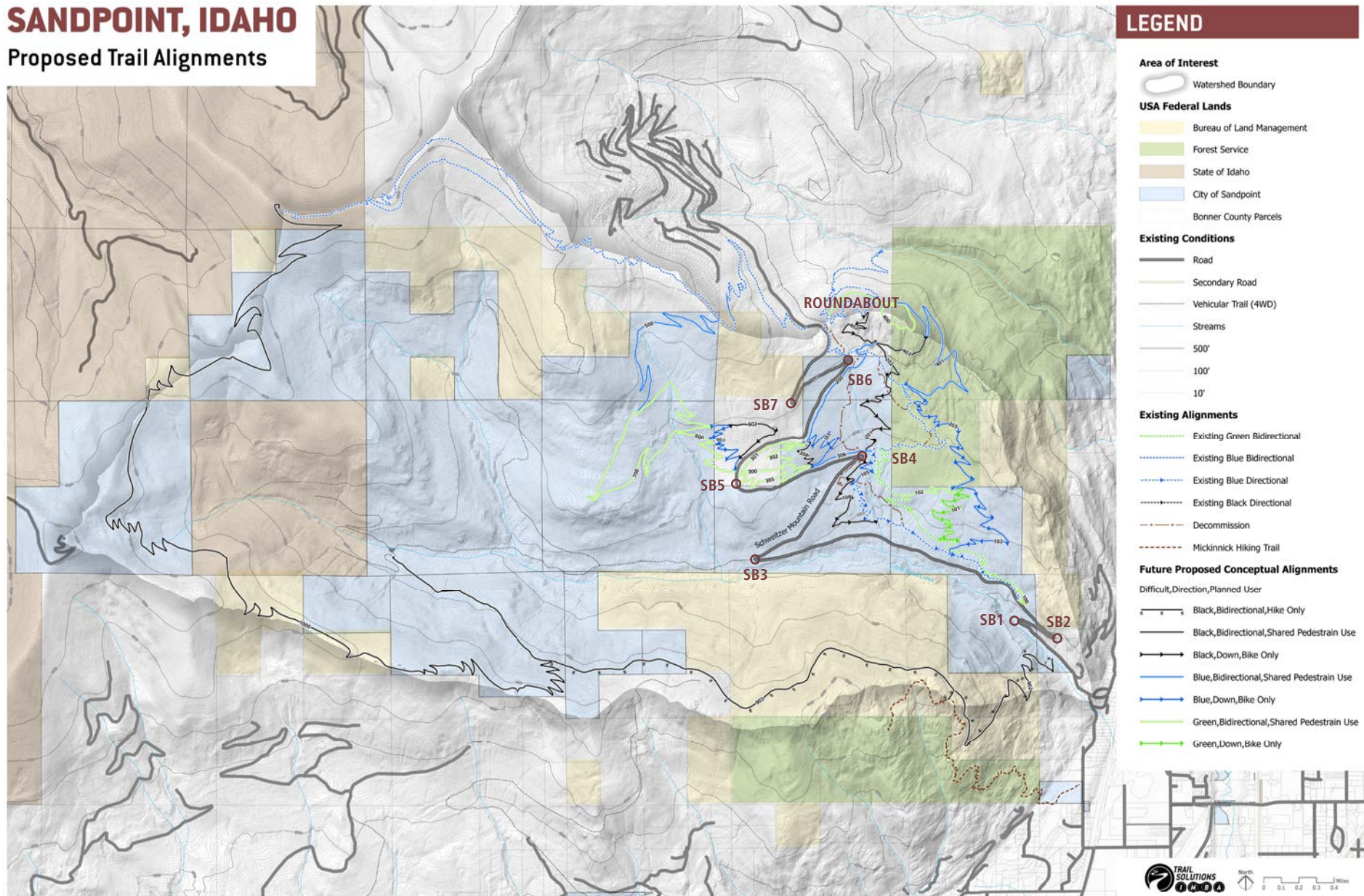


Figure - 27. Proposed Trail Alignment Map Over Land Ownership Base

SANDPOINT, IDAHO

Proposed Trail Alignments

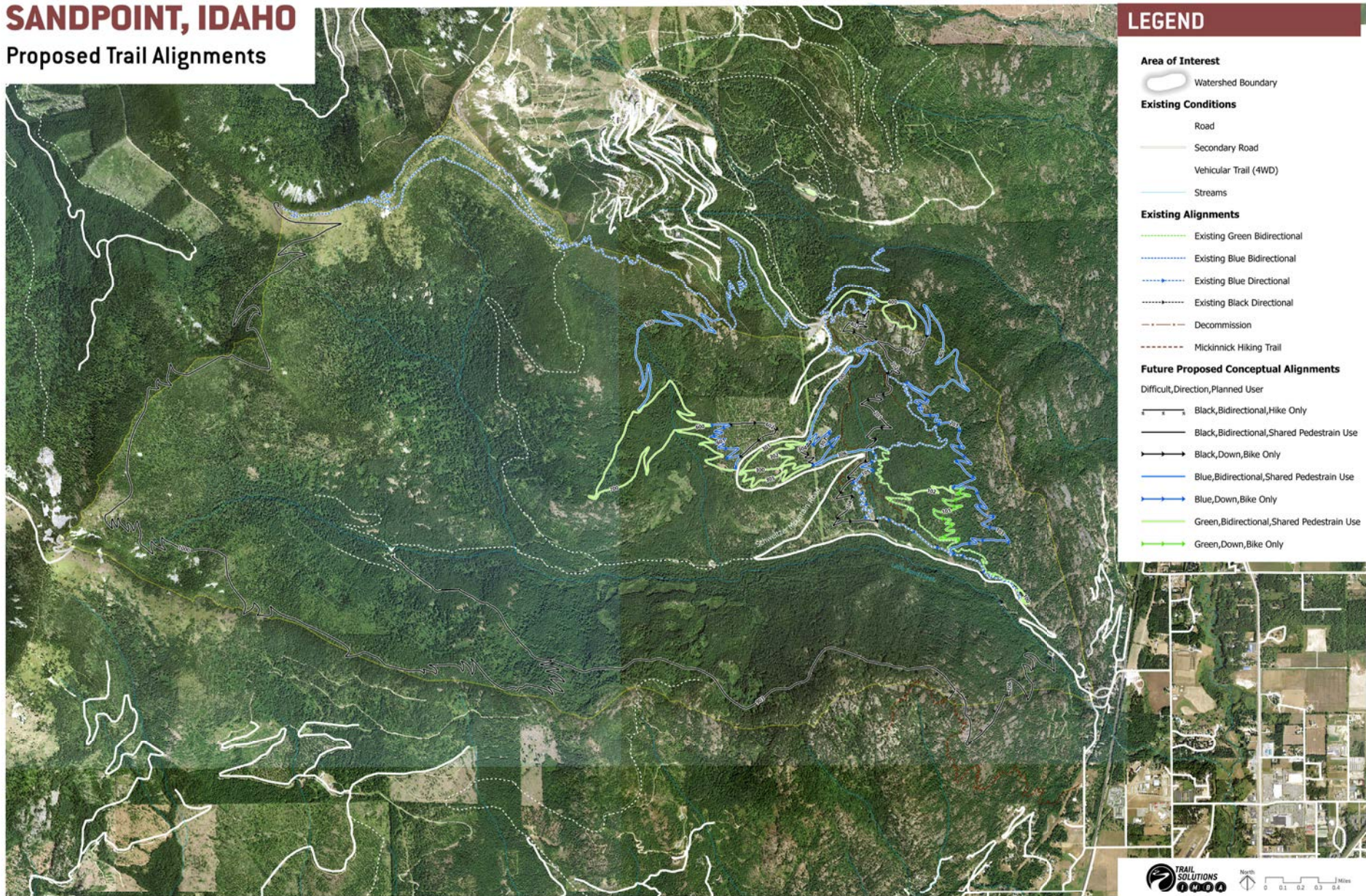


Figure - 28. Proposed Trail Alignment Map Over Aerial Imagery Base

Upper vs. Lower Basin and Wildlife Considerations

As land managers seek to accommodate recreational demand, it's important to recognize how trails can function as a tool to manage where people go on the landscape. Trail design should minimize the impacts that people have on the natural resources of a given landscape, including both wildlife and their habitat. Good trail design also enhances the visitor experience and provides opportunities to enjoy the natural world, which includes viewing wildlife. Formal studies will be done to better understand the potential impacts specific to the watershed, but we use the same guiding principals to ensure we making educated decisions within this conceptual design. The guiding principals can be found in [Colorado's Guide to Planning Trails with Wildlife in Mind](#).

This conceptual plan prioritizes the utilization of already impacted areas with precedent for recreation and improving, diversifying, and expanding upon those opportunities. This will reduce the overall impact to the landscape and the wildlife that inhabit the watershed. The Upper Basin, or the land within the watershed west of Schweitzer Mountain Road has increasingly complex terrain, and more prominent perennial drainages the present heightened water quality and wildlife concerns.

Based on feedback during the scoping of this effort, more detailed analysis and recommendations are being made for the Lower Basin. Momentum, recreational impact precedent and fewer coordinating parties make trail development more feasible in the short-term. All trail alignments shown shall be considered concepts and will require further field work and refinements through exhaustive future field design efforts.

Upper Vs. Lower Basin Diagram

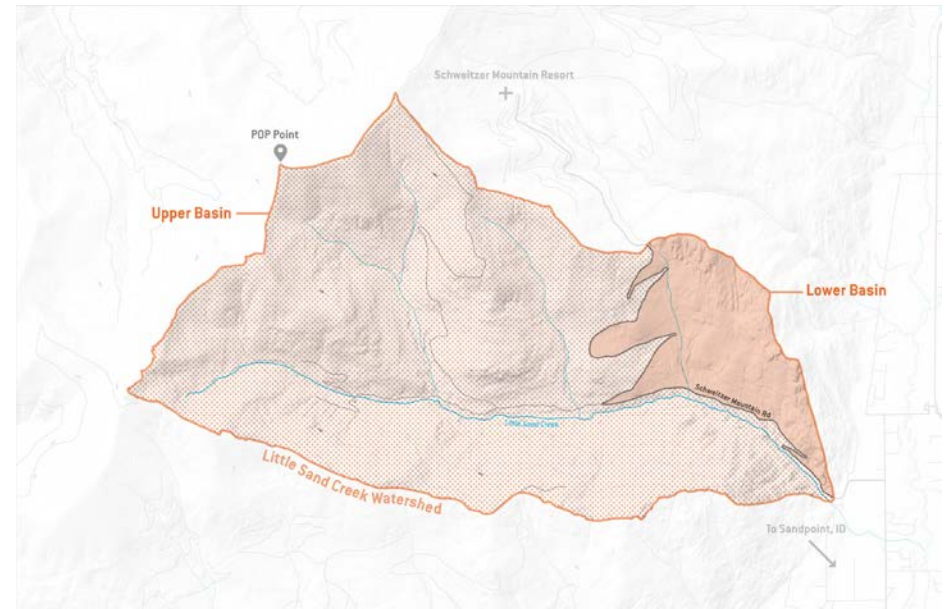


Figure - 29. Diagram Courtesy of IMBA

The spatial component of trail density.



Figure - 30. These two images have identical trail densities. The image on the left shows how consolidating trails can be an important consideration to achieve the goal of minimizing habitat fragmentation

Zones 1-4 (Section A)

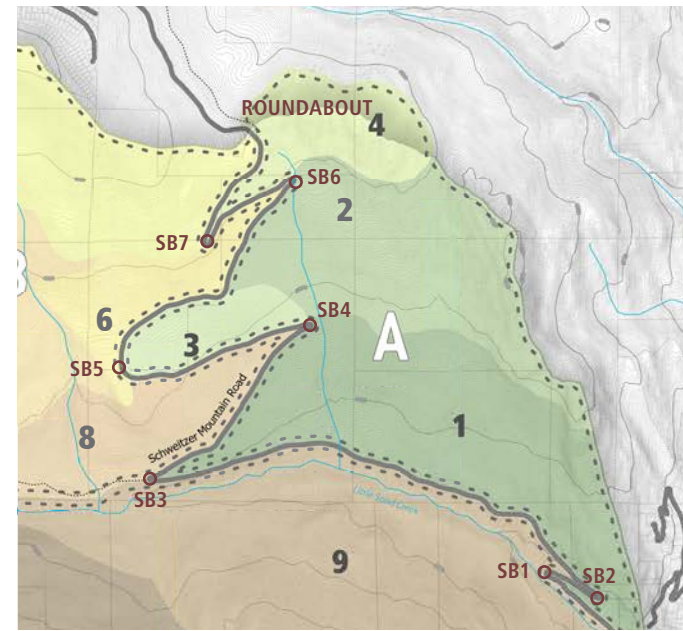
Zone 1 - See Appendix B to Reference Large Scale Maps

Section A is also the area of land that in this document we have been referring to as the Lower Basin. Zone 1 begins with access from the existing trailhead at Switchback 2. Following along from bottom to top, a new and separated shared-use climbing trail (segment 100) is proposed to mitigate the conflict on the dual directional trail that exits onto Schweitzer Mountain Road. The old alignment will continue to serve riders exiting the system while the new trail will be a skill level appropriate entry to completely separate directional users on these trails. Improvements to the existing trail will take place during the summer of 2023 under a previously approved and RTP funded effort by POP.

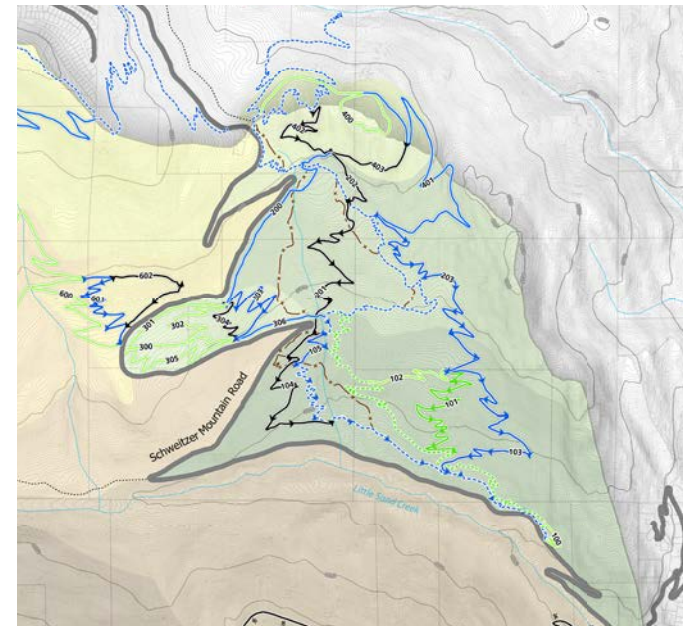
Proposed segment (102) is a bidirectional shared-use green trail that brings riders to the highest point in the vicinity while remaining on City land where riders can choose from a directional bike-only beginner trail (101) or an intermediate directional bike-only trail (103). This creates two progressive, south-facing loops less than 3 miles long that riders can session starting in early spring. These loops will reduce pressure on the upper sections of the system while those trails dry out. These loops will also provide true beginner riders with a short, optimized trail experience that they can lap to gain confidence before exploring the rest of the system. As coordination with the USFS moves ahead simultaneously with design development there is an opportunity for these trails to move north and extend the loops beyond the City's property line..

Proposed segment (105) is an alignment that reroutes the existing blue trail to bring it away from the road and open up a corridor for proposed trail (104) with fewer intersections. These two proposed segments enable the decommissioning of the existing downhill alignment that is impacting water quality and creating safety concerns.

Zone Reference Map



Zone and Alignment Reference Map



Zone 2 - See Appendix B to Reference Large Scale Maps

Access to zone 2 is either up the trail system from Switchback 2, or across from the proposed trailhead at Switchback 5 through zone 3. Proposed trail segment (200) is conceptualized to bring trail users deeper into the watershed from zone 3. Users can choose to connect up to the Roundabout or take proposed black, directional, bike-only segments (202) and (201) that make up the middle two thirds of the black gravity trail that runs from the top of the lower basin to the bottom. Proposed segment (203) is accessed from the existing trail on USFS land and is the top half of the blue gravity trail that runs from two thirds up the lower basin to the bottom. These proposed segments on USFS lands have been introduced to the land manager to potentially include in a National Environmental Policy Act (NEPA) Categorical Exclusion (CE). Those conversations are ongoing.

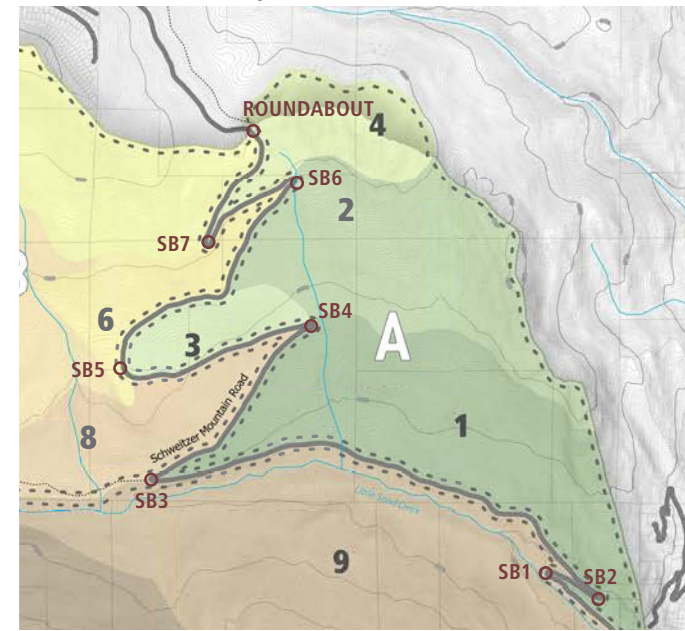
Zone 3 - See Appendix B to Reference Large Scale Maps

Access to zone 3 is either across the road from the proposed trailhead at Switchback 5, or up the trail system from Switchback 2. All proposed segments in this zone are conceptualized to create a progressive loop system so beginner trail users accessing the watershed from Switchback 5 can build confidence and skills to take them further into the trail system. Proposed segments (300,301,302,303,and 305) all have the potential to support fat biking and nordic skiing activities.

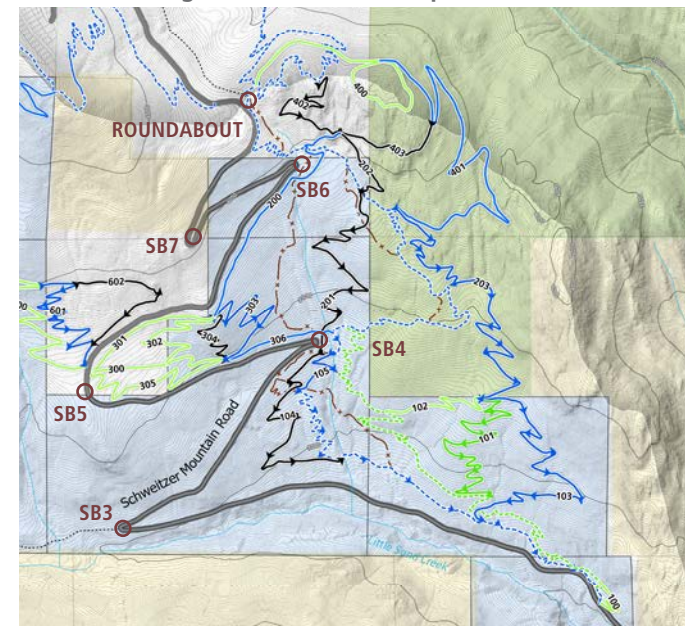
Zone 4 - See Appendix B to Reference Large Scale Maps

Access to zone 4 is from the Roundabout. Proposed trail segment (400) is a lollipop loop envisions for beginner trail users to capitalize on the panoramic views from the knob just beyond the existing Viewski Trail. It also has the potential to support nordic programming in the winter. Proposed Segments (402 and 403) are two different launch points for the start of the black gravity trail. Proposed segment (401) provides a bidirectional trail that brings users to a scenic and unique ridge, down into the watershed. A reroute of the existing blue bidirectional trail should be explored in the design phase of this zone.

Zone Reference Map



Zone and Alignment Reference Map



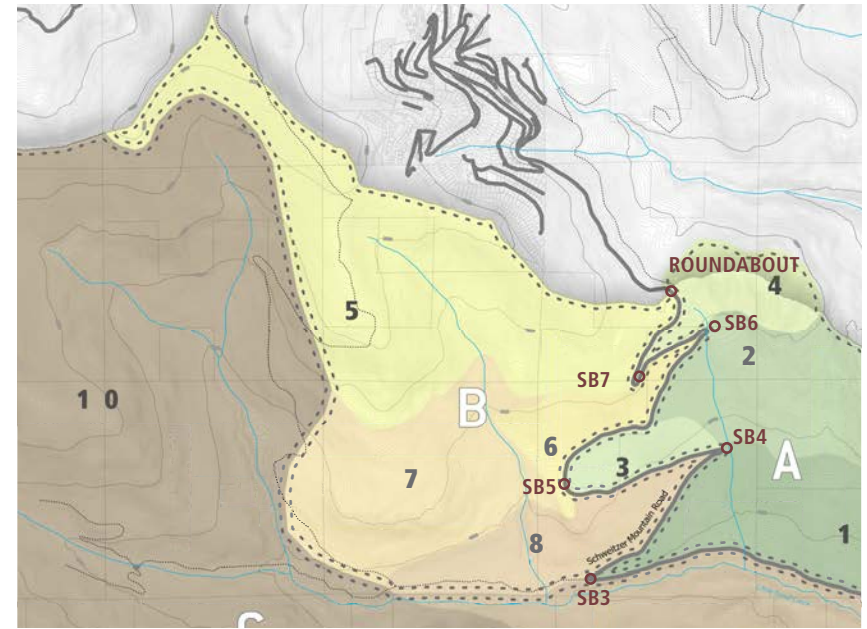
Zones 5-8 (Section B)

Section B expands trail use into what this document refers to as the Upper Basin, or lands west of Schweitzer mountain road. The proposed trails in this section are significantly less dense and prioritize shared use trail experiences when compared to the trail proposed in Section A. This is due to the lack of existing trail impacts and the desire to minimize wildlife fragmentation.

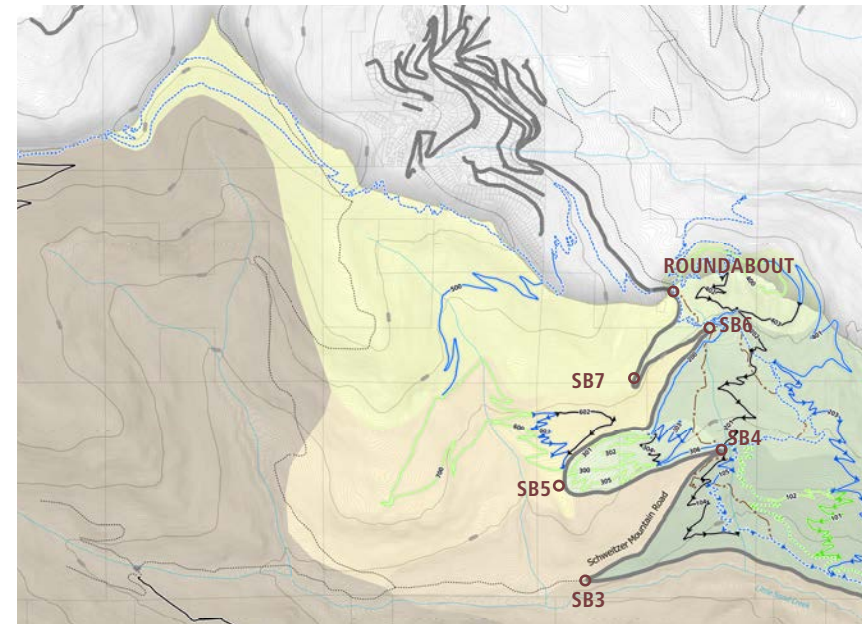
Zones 5, 6, and 7 - See Appendix B to Reference Large Scale Maps

Trail segments proposed in zone 5 prioritize connecting trail users from the existing Highpoint and Solar Ecstasy trails down to the proposed trailhead at Switchback 5. Proposed segment (500) is shown to strategically avoid routing on BLM lands for coordination and permitting simplicity. Bringing a downhill specific trail through section B was considered but ultimately ruled out in an effort separate experience goals. Maintaining the existing use pattern of downhill bike traffic on existing trails and bring high-speed users down to the Roundabout where the continuation of a more gravity fed bike optimized experience is offered. A new pattern of use is established here where riders looking to access POP Point from the midpoint trailhead can climb through zones 5,6, and 7, rather than the bottom of the lower basin up the same trails they come down. This would be a slightly shorter loop and would reduce the number of high speed users at the bottom of the lower basin. Proposed segments (600,601, and 602) are conceptualized to create a progressive loop system so beginner trail users

Zone Reference Map



Zone and Alignment Reference Map



accessing the watershed from Switchback 5 can build confidence and skills to take them further into the trail system.

Zone 8

This zone does not currently have any alignment shown due to concern about water quality impact and recreational use of the currently closed service road spurring west off of switchback 3. The timeline to implement this entire plan is long. Activating this zone with a trail or trails that connect proposed segment (700) to the aforementioned service road may prove valuable and less impactful than initially assumed. These connections would only be necessary when the Watershed Crest Trail is completed - which because of permitting, funding, and terrain constraint is later in the proposed phasing.

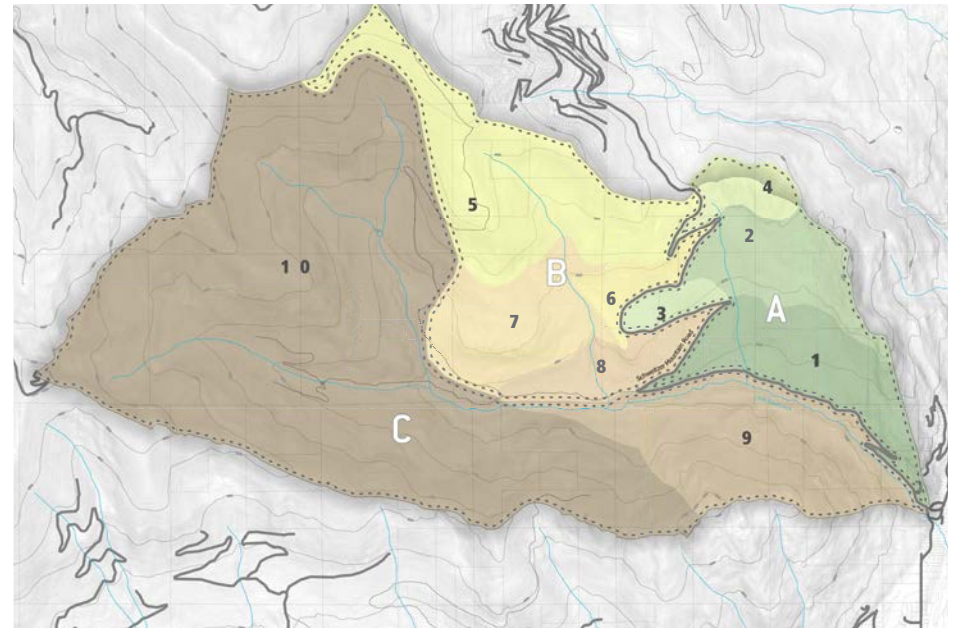
Zones 9 & 10 (Section C)

Section C expand into the furthest western extents of the watershed and is the least dense conceptually of all 3 sections. This is due to the lack of existing trail impacts and the desire to minimize wildlife fragmentation and impacts to water quality considering this section's proximity to Little Sand Creek. There are two major trail system goals for this section :

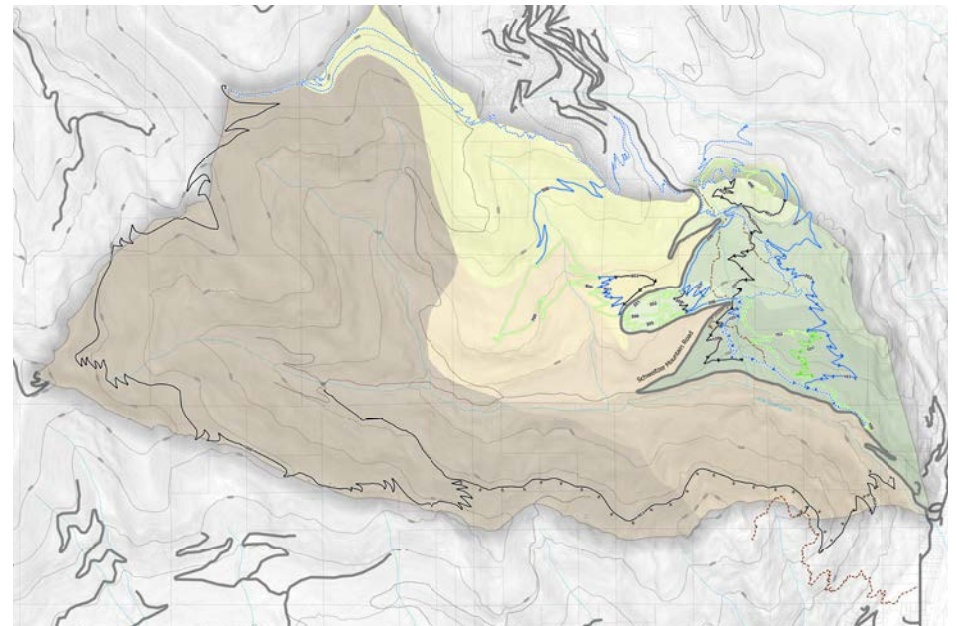
- To realize the Watershed Crest Trail (WCT)
- To offer a hiking specific connection from the watershed to the Mickinnick trail to activate the beautifully rugged north facing slopes south of Little Sand Creek.

Currently the WCT is drawn on primarily public lands. It does however cross onto private land in one section where the avoidance of the property corner put the alignment into significantly compromised terrain. The cost to route through or around said terrain necessitates an easement or similar agreement be pursued first with the private land owner. Future decisions will need to be made about how the WCT Crosses the Little Sand Creek and Connect back in to the system to Switchback 5. This should be addressed in future design phases.

Zone Reference Map



Zone and Alignment Reference Map



Proposed segment (902) illustrates a connection from Mickinnick Trail and proposed trail (903) to the water treatment facility. Spanning Little Sand creek will be a significant effort, likely involving bridge engineers. Because of the potential impacts to water quality, the siting of this crossing is extremely important. This is why we are proposing the crossing downstream of the treatment facilities. This can also be a strategic opportunity to improve supporting infrastructure around the facilities and utilize them as an educational venue. This location from a terrain perspective is one of the best to put a crossing of Little Sand Creek until you get to switchback 3.

Watershed Crest Trail (WCT)

In February of 2015, the City provided its first formal support for recreation in the Watershed by resolution (15-16), envisioning a “Watershed Crest Trail” that would wrap around the Watershed, connecting the Schweitzer recreation area, Baldy Mountain, and Mickinnick to the east, totaling approximately 20 miles.

This version of the Watershed Crest trail follows the same visions and at a conceptual level utilizes the most realistic terrain possible. This will minimize the future design and build costs. It prioritizes minimizing permitting constraints that could further slow the process while upholding the overall goal set forth by the watershed recreational master plan being developed by the city. The WCT requires more study and it’s eventual design alignment is contingent on information we do not yet have.



Figure - 31. Photo Courtesy of IMBA

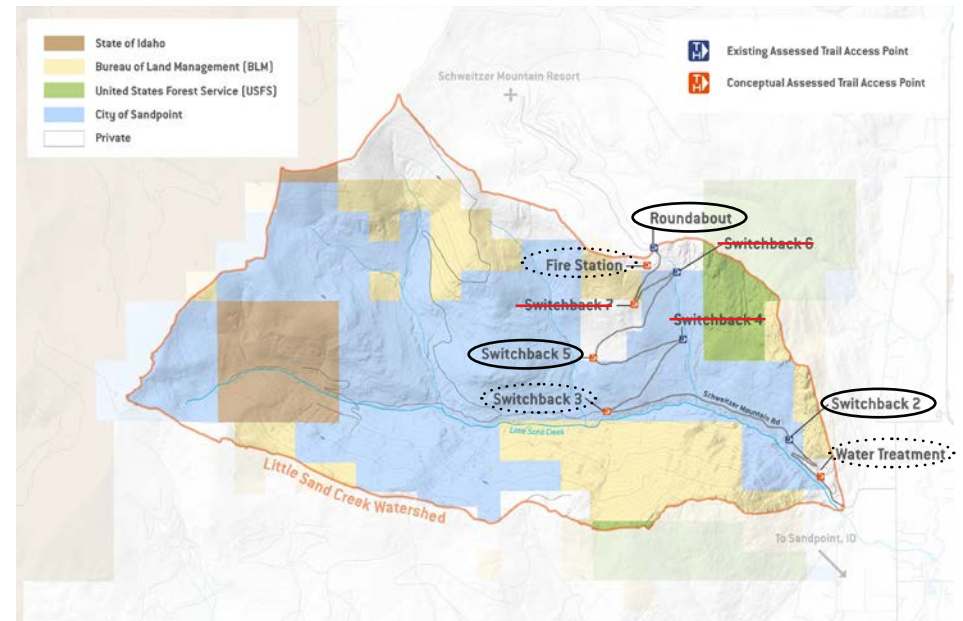
Access Point

As mentioned above, the City of Sandpoint owns most access to the watershed except for the land surrounding Switchback 5 and the Roundabout on Schweitzer Mountain Road. While on site we identified the need to establish a primary trailhead with ample space, relatively safe options for ingress/egress from Schweitzer Mountain Road and appropriate grades for all skill levels. The best location for this primary trailhead is at Switchback 5 on the west side of the road. Throughout the development of this plan, we have engaged in open dialogue with several representatives from Schweitzer Mountain Resort about the potential of developing the land around Switchback 5 as a trailhead. During our last formal stakeholder meeting in February, the desire to see a more detailed design of that trailhead was communicated by Chief Development Officer. Since then ongoing coordination between Schweitzer and the City of Sandpoint on what a partnership or agreement at the location could look like.

More formalized access should be pursued at the Roundabout to organize shuttle traffic and staging. Traffic calming measures should be pursued at the existing access point at Switchback 2 in order to create a safe experience for trail users. These three locations will formalize access at the highpoint, midpoint and lowpoint of the primary system. This will spread users base on ability level and desired experience as these points were used as cruxes to develop the conceptual design for the rest of the plan. Recommended trailhead amenities would include a parking area, trail signage, restrooms, a bicycle repair station, and wildlife safe trash receptacles among other elements to be decided during a future design phase.

Further study is need in conjunction with the Highway District to better understand informal access at Switchback 4,6, and 7. Consolidating use was identified as a priority for safety and to limit impacts to resources. Further conversations should be had around smaller scale access points at the fire station, Switchback 3 and the water treatment plant.

Key Access Points



Cost Opinion

Note that this cost opinion is for trail construction ONLY. It is intended to set broad and generalized expectations for the cost of professional trail construction. This does not include any other supporting infrastructure like the development of trailheads or a comprehensive signage package. This also does not include costs for design or permitting. It is our recommendation that all trail design be done professionally and by individuals with experience working with federal land managers and the nuanced expectations and documentation that accompany that process. A general rule of thumb is to budget 5-10% of the cost of a professionally built trail for the design and design documentation of the project.

A keen eye will notice that there are line items in this cost opinion for trail segments that do not appear on the map. Lines on a map can be nonstarters for some individuals. In an effort to maintain the vision setting goals of this plan we worked with our partners at the City to identify segments that navigate contentious areas and made the conscious decision not to show them on the map. Instead, they are discussed as desired connections above. These alignments have been drawn and exist on project spatial files to be held by the city and used as steps are taken towards implementation. They are included in the cost opinion to provide the most accurate number associated with this conceptual design.

Phasing

The following table with phasing recommendations is developed with achieving the goals of the plan top of mind. The phases are broken out to appeal to trail contractors and to consider potential fundraising efforts. They also prioritize maintaining access to the system while construction is happening to maintain continuity of use for the community in the watershed. There are still many unknown factors at this point in the planning process that have the potential to dramatically shift the phasing of implementation.

These phasing recommendations don't necessarily imply construction is happening every year for the next 8 years. Several of these phases could be tackled in one build season by coordinating multiple construction team's effort across several zones. Trail construction could pause for several years to execute design efforts, demonstrate good stewardship and build relationships with land managers. The overall timeline will depend on fundraising efforts, permitting processes, and the continued demonstration of good trail stewardship.

Cost Opinion

Section A - Zones 1-4

Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion	High Cost Opinion
100	1	Proposed	Green	Mountain Bike Optimized	Bidirectional	Design	Shared Use	Unlikely	0.25	1342	\$ 21,726.58	\$ 24,013.58
101	1	Proposed	Green	Gravity	Down	Design	Bike Only	Unlikely	1.23	6476	\$ 116,522.25	\$ 128,787.75
102	1	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Unlikely	0.48	2549	\$ 22,930.01	\$ 25,343.69
103	1	Proposed	Blue	Gravity	Down	Design	Bike Only	Unlikely	1.21	6368	\$ 114,574.75	\$ 126,635.25
104	1	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.92	4860	\$ 87,450.07	\$ 96,655.34
105	1	Proposed	Blue	Gravity	Down	Design	Bike Only	Unlikely	0.28	1497	\$ 26,940.58	\$ 29,776.43
200	2	Proposed	Blue	Traditional	Bidirectional	Design	Shared Use	Unlikely	0.86	4521	\$ 40,672.87	\$ 44,954.23
201	2	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.99	5231	\$ 94,117.36	\$ 104,024.45
202	2	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.32	1669	\$ 30,022.66	\$ 33,182.94
203	2	Proposed	Blue	Gravity	Down	Design	Bike Only	Unlikely	1.48	7790	\$ 140,152.55	\$ 154,905.45
300	3	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	0.23	1195	\$ 10,749.58	\$ 11,881.12
301	3	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	0.44	2339	\$ 21,039.94	\$ 23,254.67
302	3	Proposed	Green	Mountain Bike Optimized	Bidirectional	Design	Shared Use	Maybe	0.83	4393	\$ 71,139.85	\$ 78,628.25
303	3	Proposed	Blue	Gravity	Down	Design	Bike Only	Maybe	0.75	3968	\$ 71,389.27	\$ 78,903.93
304	3	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.38	2023	\$ 36,398.97	\$ 40,230.44
305	3	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	0.72	3790	\$ 34,095.03	\$ 37,683.98
306	3	Proposed	Blue	Traditional	Bidirectional	Design	Shared Use	Unlikely	0.36	1893	\$ 17,025.47	\$ 18,817.63
400	4	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	1.02	5363	\$ 48,242.90	\$ 53,321.10
401	4	Proposed	Blue	Traditional	Bidirectional	Design	Shared Use	Unlikely	1.70	8988	\$ 80,860.20	\$ 89,371.80
402	4	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.61	3232	\$ 58,152.83	\$ 64,274.18
403	4	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.36	1920	\$ 34,552.83	\$ 38,189.97
Total									15.42	81,406	\$ 1,178,756.51	\$ 1,302,836.15

Section B - Zones 5-8

Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion	High Cost Opinion
500	5	Proposed	Blue	Mountain bike Optimized	Bidirectional	Design	Shared Use	Unlikely	1.80	9481	\$ 153,520.38	\$ 169,680.42
600	6	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	1.80	9501	\$ 85,474.35	\$ 94,471.65
601	6	Proposed	Blue	Mountain bike Optimized	Down	Design	Bike Only	Unlikely	0.95	5039	\$ 81,602.91	\$ 90,192.69
602	6	Proposed	Black	Mountain bike Optimized	Down	Design	Bike Only	Unlikely	0.55	2900	\$ 46,959.42	\$ 51,902.52
700	7	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	1.63	8614	\$ 77,491.03	\$ 85,647.98
701	7	Proposed	Blue	Mountain bike Optimized	Bidirectional	Design	Shared Use	Unlikely	2.25	11860	\$ 192,050.10	\$ 212,265.90
800	8	Proposed	Blue	Mountain bike Optimized	Bidirectional	Design	Shared Use	Unlikely	1.72	9106	\$ 147,449.03	\$ 162,969.98
Total									10.70	56,500	\$ 784,547.21	\$ 867,131.13

Section C - Zones 9 & 10

Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion	High Cost Opinion
900	9	Proposed	Blue	Traditional	Bidirectional	Design	Hike Only	Unlikely	2.63	13898	\$ 125,029.98	\$ 138,191.03
901	9	Proposed	Blue	Traditional	Bidirectional	Design	Hike Only	Unlikely	0.37	1975	\$ 17,768.99	\$ 19,639.41
902	9	Proposed	Black	Traditional	Bidirectional	Design	Hike Only	Unlikely	1.77	9348	\$ 84,099.23	\$ 92,951.78
903	9	Proposed	Black	Traditional	Bidirectional	Design	Hike Only	Unlikely	2.65	13977	\$ 125,738.68	\$ 138,974.33
1000	10	Proposed	Black	Mountain Bike Optimized	Bidirectional	Design	Shared Use	Unlikely	10.40	54921	\$ 889,336.80	\$ 982,951.20
Total									17.83	94,119	\$ 1,241,973.67	\$ 1,372,707.74
Grand Total									43.94	232025.17	\$ 3,205,277.39	\$ 3,542,675.01

Figure - 32. Cost Opinion Table

Phasing Recommendations

Phase 1 - System Circulation												
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion	High Cost Opinion
100	1	Proposed	Green	Mountain Bike Optimized	Bidirectional	Design	Shared Use	Unlikely	0.25	1342	\$ 21,726.58	\$ 24,013.58
105	1	Proposed	Blue	Gravity	Down	Design	Bike Only	Unlikely	0.28	1497	\$ 26,940.58	\$ 29,776.43
104	1	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.92	4860	\$ 87,450.07	\$ 96,655.34
201	2	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.99	5231	\$ 94,117.36	\$ 104,024.45
Total									2.45	12,930.36	\$ 230,234.57	\$ 254,469.79
Phase 2 - Lower Progressive Loops												
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion	High Cost Opinion
102	1	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Unlikely	0.48	2549	\$ 22,930.01	\$ 25,343.69
101	1	Proposed	Green	Gravity	Down	Design	Bike Only	Unlikely	1.23	6476	\$ 116,522.25	\$ 128,787.75
103	1	Proposed	Blue	Gravity	Down	Design	Bike Only	Unlikely	1.21	6368	\$ 114,574.75	\$ 126,635.25
Total									2.92	15393	\$ 254,027.01	\$ 280,766.69
Phase 3 - USFS Managed Trails												
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion	High Cost Opinion
202	2	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.32	1669	\$ 30,022.66	\$ 33,182.94
203	2	Proposed	Blue	Gravity	Down	Design	Bike Only	Unlikely	1.48	7790	\$ 140,152.55	\$ 154,905.45
401	4	Proposed	Blue	Traditional	Bidirectional	Design	Shared Use	Unlikely	1.70	8988	\$ 80,860.20	\$ 89,371.80
403	4	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.36	1920	\$ 34,552.83	\$ 38,189.97
400	4	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	1.02	5363	\$ 48,242.90	\$ 53,321.10
Total									4.87	25729	\$ 333,831.14	\$ 368,971.26
Phase 4 - Switchback Five Connection												
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion	High Cost Opinion
200	2	Proposed	Blue	Traditional	Bidirectional	Design	Shared Use	Unlikely	0.86	4521	\$ 40,672.87	\$ 44,954.23
301	3	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	0.44	2339	\$ 21,039.94	\$ 23,254.67
305	3	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	0.72	3790	\$ 34,095.03	\$ 37,683.98
306	3	Proposed	Blue	Traditional	Bidirectional	Design	Shared Use	Unlikely	0.36	1893	\$ 17,025.47	\$ 18,817.63
303	3	Proposed	Blue	Gravity	Down	Design	Bike Only	Maybe	0.75	3968	\$ 71,389.27	\$ 78,903.93
Total									3.13	16510	\$ 184,222.58	\$ 203,614.43
Phase 5 - Upper Basin Connection												
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion	High Cost Opinion
500	5	Proposed	Blue	Mountain bike Optimized	Bidirectional	Design	Shared Use	Unlikely	1.80	9481	\$ 153,520.38	\$ 169,680.42
600	6	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	1.80	9501	\$ 85,474.35	\$ 94,471.65
700	7	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	1.63	8614	\$ 77,491.03	\$ 85,647.98
302	3	Proposed	Green	Mountain Bike Optimized	Bidirectional	Design	Shared Use	Maybe	0.83	4393	\$ 71,139.85	\$ 78,628.25
300	3	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	0.23	1195	\$ 10,749.58	\$ 11,881.12
304	3	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.38	2023	\$ 36,398.97	\$ 40,230.44
Total									6.67	35207	\$ 434,774.15	\$ 480,539.85
Phase 6 - Fill In												
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion	High Cost Opinion
402	4	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.61	3232	\$ 58,152.83	\$ 64,274.18
601	6	Proposed	Blue	Mountain bike Optimized	Down	Design	Bike Only	Unlikely	0.95	5039	\$ 81,602.91	\$ 90,192.69
602	6	Proposed	Black	Mountain bike Optimized	Down	Design	Bike Only	Unlikely	0.55	2900	\$ 46,959.42	\$ 51,902.52
Total									2.12	11171	\$ 186,715.16	\$ 206,369.38
Phase 7 - Watershed Crest												
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion	High Cost Opinion
1000	10	Proposed	Black	Mountain Bike Optimized	Bidirectional	Design	Shared Use	Unlikely	10.40	54921	\$ 889,336.80	\$ 982,951.20
902	9	Proposed	Black	Traditional	Bidirectional	Design	Hike Only	Unlikely	1.77	9348	\$ 84,099.23	\$ 92,951.78
903	9	Proposed	Black	Traditional	Bidirectional	Design	Hike Only	Unlikely	2.65	13977	\$ 125,738.68	\$ 138,974.33
Total									14.82	78246	\$ 1,099,174.70	\$ 1,214,877.30
Phase 8 - Final Connections (alignments in data only)												
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion	High Cost Opinion
900	9	Proposed	Blue	Traditional	Bidirectional	Design	Hike Only	Unlikely	2.63	13898	\$ 125,029.98	\$ 138,191.03
901	9	Proposed	Blue	Traditional	Bidirectional	Design	Hike Only	Unlikely	0.37	1975	\$ 17,768.99	\$ 19,639.41
701	7	Proposed	Blue	Mountain bike Optimized	Bidirectional	Design	Shared Use	Unlikely	2.25	11860	\$ 192,050.10	\$ 212,265.90
800	8	Proposed	Blue	Mountain bike Optimized	Bidirectional	Design	Shared Use	Unlikely	1.72	9106	\$ 147,449.03	\$ 162,969.98
Total									6.98	544521	\$ 482,298.09	\$ 533,066.31
Grand Total									11.91	62888	\$ 3,205,277.39	\$ 3,542,675.01

Figure - 33. * Note that Segment numbers with a yellow highlight represent alignments that we identify as good candidates for hybrid or volunteer builds.

TRAIL STYLES

Trail Styles

Modern trail systems use specific trail types as a way of managing users and providing them with the best possible visitor experience. Visitors desired experiences have evolved significantly in the last two decades with the advancement of mountain bike technology. One major trend observed in the industry suggest that some riders are looking for climbs that are efficient yet tolerable. Other trends include the preference of flow style descending trails that maximize the amount of fun descending for the price of the climb vs. old school fall line trails. One thing will always remain is that mountain bikers will demand a variety of trail types and difficulties. A modern trail system that has the goal of best serving the communi will need to check all the boxes in appropriate quantities and proportions.

Various types of trails and trail planning strategies are explained below. These narratives are meant to provide a brief description of the experience created by each type of amenity, the intended user, and general construction considerations.

Traditional Shared Use Singletrack

These trails can serve walkers, hikers, runners, cyclists, and equestrians. They are constructed and maintained according to sustainable trail construction practices and employ techniques that minimize user conflict. As all user types travel these routes, care should be taken to avoid obstacles such as jumps, rollers, or water bars which may lead to an undesirable trail experience for an allowed user type, particularly in areas with limited sight lines. Turns are constructed sustainably but are not highly cambered like bike-optimized turns that dramatically improve cornering traction. Keeping trail grades within certain

ranges ensures both a positive trail experience for users and proper stormwater drainage with minimized erosion. Depending on soil conditions, these trails may need surface hardening techniques to provide a durable four-season trail.

- Approximate Construction Costs: \$30,000-\$60,000 per mile



Figure - 34. Photo Courtesy of IMBA

Mountain Bike Optimized Singletrack / Flow Trails

These trails are purpose-built to optimize the experience of riding a mountain bike, but are still considered share use trails, allowing hikers and equestrians particularly when they occur on USFS lands. The trails can either be unidirectional or bidirectional depending on the type of trail, preferred circulation of users, and management decisions. This type of trail is constructed with features such as rock gardens, berms, grade reversals, cambered turns (typically wider than turns on traditional singletrack trails), and modest jumps. These trails should make use of gravitational forces and, where possible, be managed to enhance trail flow for descending riders. These trails may need surface hardening to provide a durable four-season trail. They should be designed for a range of users from beginner to advanced skill levels. Optional advanced features can be located along the side of the trail to provide challenges for intermediate and advanced riders. This allows many skill levels to experience the full trail mileage, while providing for skill progression within a smaller trail footprint. These trails are typically machine built.

- Approximate Construction Costs: \$50,000-\$100,000 per mile



Figure - 35. Photo Courtesy of IMBA

Gravity Trails (GRV)

Gravity singletrack is purpose-built for mountain bike users only. These natural surface trails are built using sustainable trail construction techniques. These trails are usually steeper than MBO trails and have features that require more developed skills such as jumps, drops, rocks, and technical sections are a key feature of these gravity-powered trails.. This type of trail should be wider, up to 80 inches, in segments that have jumps or technical features but can be narrower, as little as 12 inches, in other segments. Bikes geared to this type of trail can handle more abuse. These trails are typically machine built, often requiring extensive soil import or implementation of borrow pits, or basins.

- Approximate Construction Costs: \$90,000-\$110,000 per mile



Figure - 36. Photo Courtesy of Active at Altitude



Figure - 37. Photo Courtesy of Active at Altitude

Trail Difficulty

The IMBA Trail Difficulty Rating System is a basic method used to categorize the relative technical difficulty of recreation trails.

The IMBA Trail Difficulty Rating System can:

- Help trail users make informed decisions
- Encourage visitors to use trails that match their skill level
- Manage risk and minimize injuries
- Improve the outdoor experience for a wide variety of visitors
- Aid in the planning of trails and trail systems

This system was adapted from the International Trail Marking System used at ski areas throughout the world. Many trail networks use this type of system, most notably resort-based mountain biking trail networks. The system applies to mountain bikers best, but also is applicable to other visitors such as hikers and equestrians.

IMBA Trail Difficulty Rating System					
	 EASIEST WHITE CIRCLE	 EASY GREEN CIRCLE	 MORE DIFFICULT BLUE SQUARE	 VERY DIFFICULT BLACK DIAMOND	 EXTREMELY DIFFICULT DBL. BLACK DIAMOND
TRAIL WIDTH	72" or more	36" or more	24" or more	12" or more	6" or more
TREAD SURFACE	Hardened or surfaced	Firm and stable	Mostly stable with some variability	Widely variable	Widely variable and unpredictable
AVERAGE TRAIL GRADE	Less than 5%	5% or less	10% or less	15% or less	20% or more
MAXIMUM TRAIL GRADE	Max 10%	Max 15%	Max 15% or greater	Max 15% or greater	Max 15% or greater
NATURAL OBSTACLES AND TECHNICAL TRAIL FEATURES (TTF)	None	Unavoidable obstacles 2" tall or less Avoidable obstacles may be present Unavoidable bridges 36" or wider	Unavoidable obstacles 8" tall or less Avoidable obstacles may be present Unavoidable bridges 24" or wider TTF's 2' high or less, width of deck is greater than 1/2 the height	Unavoidable obstacles 15" tall or less Avoidable obstacles may be present May include loose rocks Unavoidable bridges 24" or wider TTF's 4' high or less, width of deck is less than 1/2 the height Short sections may exceed criteria	Unavoidable obstacles 15" tall or greater Avoidable obstacles may be present May include loose rocks Unavoidable bridges 24" or narrower TTF's 4' high or greater, width of deck is unpredictable Many sections may exceed criteria

Figure - 38. IMBA's Trail Difficulty Matrix

Adaptive Mountain Bike Trails

Adaptive mountain bike trails are natural surface trails that feature specific design parameters to accommodate adaptive mountain bikes (aMTBs) while providing a high-quality experience for riders with disabilities. Adaptive mountain bikes are equipped with the proper positioning and geometry to allow millions of Americans with a mobility disability to enjoy the outdoors. The bikes have three wheels (trikes) or four (quads) and may position the riders in a laid back, recumbent position for most cross-country style bikes or face-forward with the riders back to the sky which is common for all-mountain style bikes. The style and make of the bikes vary, but all are wider, larger, and heavier than traditional mountain bikes which affects acceleration, deceleration, and the ability to change direction and corner.

Adaptive mountain bike trails combine an appropriate combination of width, radius, and grade to create an accessible layout and design of the trail. In general, the adaptive mountain bike trails must be wider, uphill gradients decreased and less abrupt, turning radius increased, bridges and trail features widened, and access to trails must be barrier free. Riders are positioned lower to the ground which must be accounted for when creating clear sight lines. When a trail traverses steep slopes, the tread width should be increased and tread outslope must be decreased or removed to uphold clear passage in landscapes with high exposure. Rollers and undulations in the trail must be gradual and require adequate spacing between each to allow riders to coast through without pedaling. Pull-outs along the side of the trail should be installed to allow riders to rest along the trail and allow other riders to pass. Trails must be free of obstacles for easy (green) aMTB trails, but can feature obstacles, such as rocky sections, on more advanced trails. Adaptive guidelines are ever evolving and care should be taken to consult with experts on the subject to ensure appropriate and current considerations are implemented.

Planning and designing for these trails at the beginning of a project is necessary to create trail specifications and a layout that delivers the intended experience. Due to the tread width of aMTB trails, terrain cross slopes must be considered and the most feasible way to build these trails is with the assistance of machines.

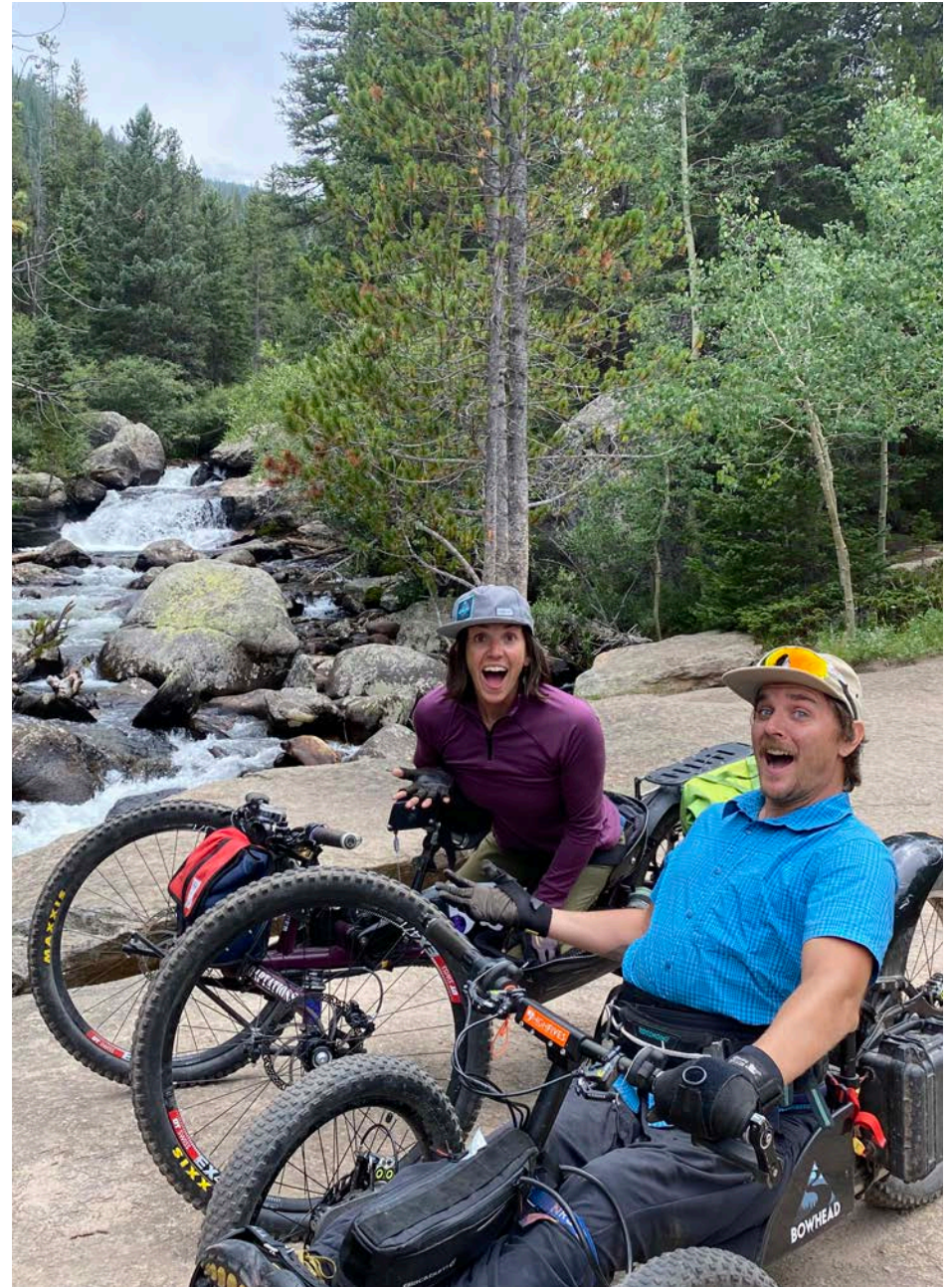


Figure - 39. Photo Courtesy of Active at Altitude

Class 1 E-Bike Access

In the ever-evolving world of outdoor recreation, Class 1 Ebikes have quickly become very common amongst natural surface trails users of all fitness levels and abilities. Reasons for their use vary greatly, but the overwhelming sentiment is that there is a place for them on natural surface trails in the National Forest, on BLM and other lands, where their use is deemed appropriate, and no overriding conflicts are identified.

On March 31, 2022, the USFS issued a new Ebike rule ([see the official news release here](#)) that gave the decision making control regarding the designation to local jurisdictions. The rule outlines the process for local land managers to propose new trails that allow Ebike use as well as to determine which existing trails are appropriate for Ebike use. The rule goes on to outline the approval process which involves environmental analysis and public outreach.

IMBA supports the inclusion of class 1 Ebikes where appropriate and supported by the public input process. There is substantial evidence that their use is compatible with other trail users and does not result in more damage to trails than traditional bikes or hikers. Furthermore, class 1 Ebikes dramatically lower the physical entry threshold to mountain biking and allow a much more diverse group of user's access to recreation and the outdoors, this includes people with disabilities, health conditions and/or other impairments.

IMBA sees this project as an opportunity to work with USFS land managers and utilize the process laid out in the new Ebike rule to create a modern, regional destination trail network that balances all uses, including Class 1 Ebikes. This project will likely serve as a precedent that goes through the newly adopted USFS rule and may or may not identify areas for improvement and potential future revisions to the rule in this quickly evolving arena.

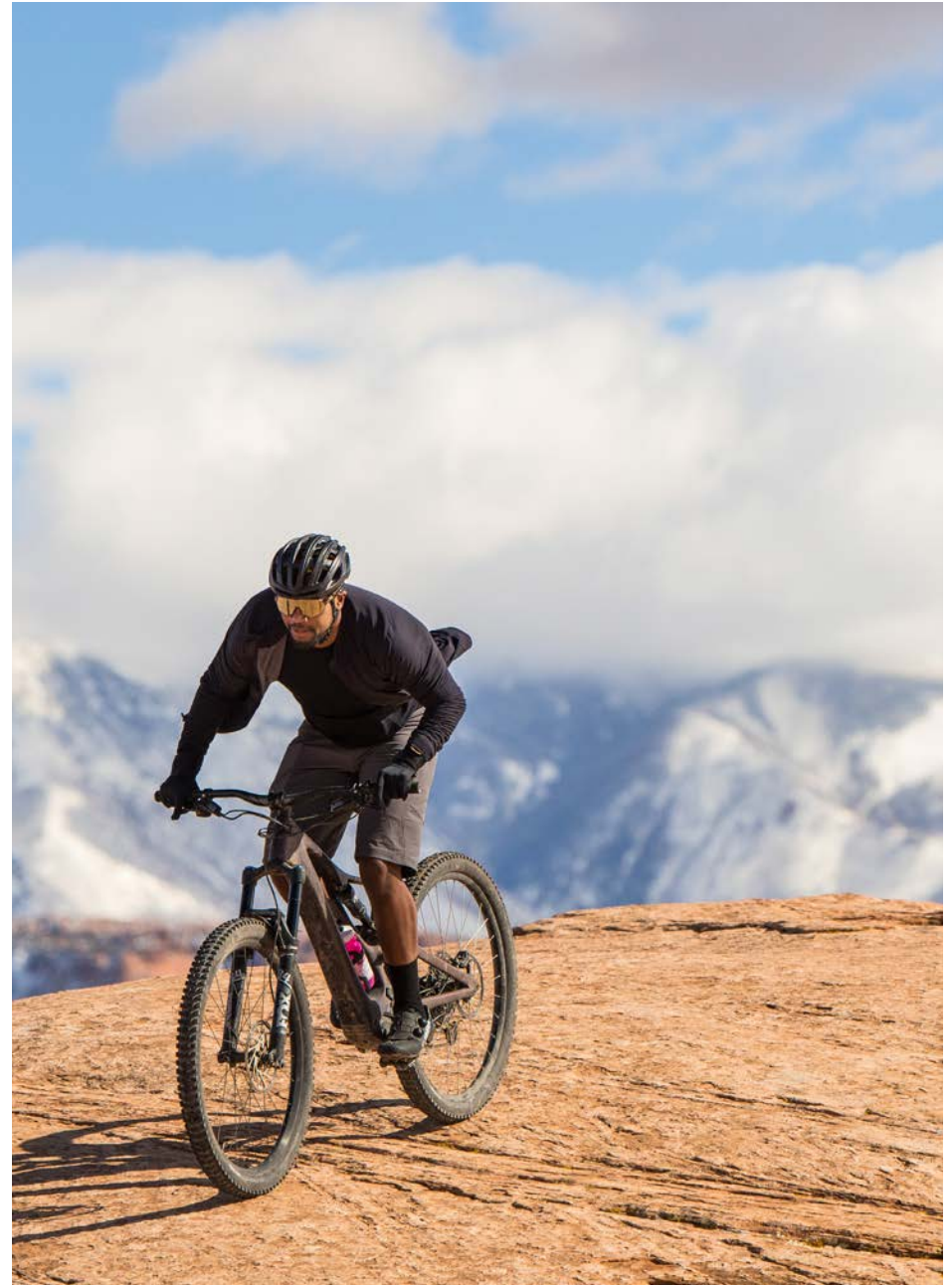


Figure - 40. Photo Courtesy of Active at Altitude

Nordic Trails and Fat Biking

Winter fat biking is enjoyed on frozen ground or a groomed/packed snow surface over existing natural surface trails, frozen lakes and ponds, or other winter trail network used for Snowshoeing and Nordic skiing. Fat Bikes use wide tires and low tire pressure to distribute a riders weight over a larger surface area that allows them to travel across soft surfaces such as snow and sand. Wide forks are used to accommodate the oversized rims and tires. Tires are typically 3.5 – 5 inches wide and run with lower tire pressure, usually under 8 psi and at times during very loose conditions riders have pressures set at 2-3 psi.

Winter Fat Bike trails offer similar riding experiences to those found on other traditional cross country and bike optimized trails. Trails can be gravity oriented

and include features such as berms, rollers, and jumps. Not all singletrack trails are optimal for winter use, additional considerations are needed to accommodate the type of grooming equipment being used to set the track. Tread width, turning radii, bridge widths, tree spacing, steep grades, and off camber sections all factor into the design. Beginner singletrack and bike optimized trails with their wider tread and gentle grades often make good winter trails. Trails can be constructed specifically for winter use only or they can overlap with existing singletrack or other winter trail networks. Winter trail systems often function best with trails dedicated to fat bike use or shared bike/snowshoe options. Shared-use access to Nordic trails has had mixed success as user conflicts can arise. Thoughtful layout of shared corridors, parallel trails, and carefully located intersections have made for successful Nordic trail network use by Winter Fat Bike operations.



Figure - 41. Photo Courtesy of Active at Altitude

Ideal conditions are generally cold and dry with consistent temperatures and snowfall, the ground needs to be frozen with only a few inches of fresh snow to begin creating a base of compacted snow. A compacted trail surface is important to keep tires from sinking in too far. Wallowing in deep fresh powder, plowing through wet slushy snow, or on an unconsolidated base is an incredibly challenging experience and is generally frowned upon as it creates ruts in the trail surface. General guidelines are if your tire is sinking more than an inch the snow is too soft to ride or the riders tire pressures are too high (reduce pressure and reassess).

Like ski and snowmobile trails, groomers are needed to maintain a consistent snow surface for a quality riding experience. The grooming equipment used will vary depending on the needs of the system and trail widths but are usually much smaller than the snowcats used on ski trails. Grooming equipment for narrow singletrack has evolved from simply packing out the trails with snowshoes and tire dragging to trail specific machines. Many types of equipment exist such as tow behind rollers and drag mats that can be hooked up to snowmobiles, ROKON's (small two wheel drive motorcycle), or ATV's. Custom machines like the SnowDog and Trail Tamer were designed specifically for fat bike trail grooming and are usable on trails that are too tight for most other machines.

It is not recommended to allow Fat Bike access on Snowmobile trails due to the large speed differentials.

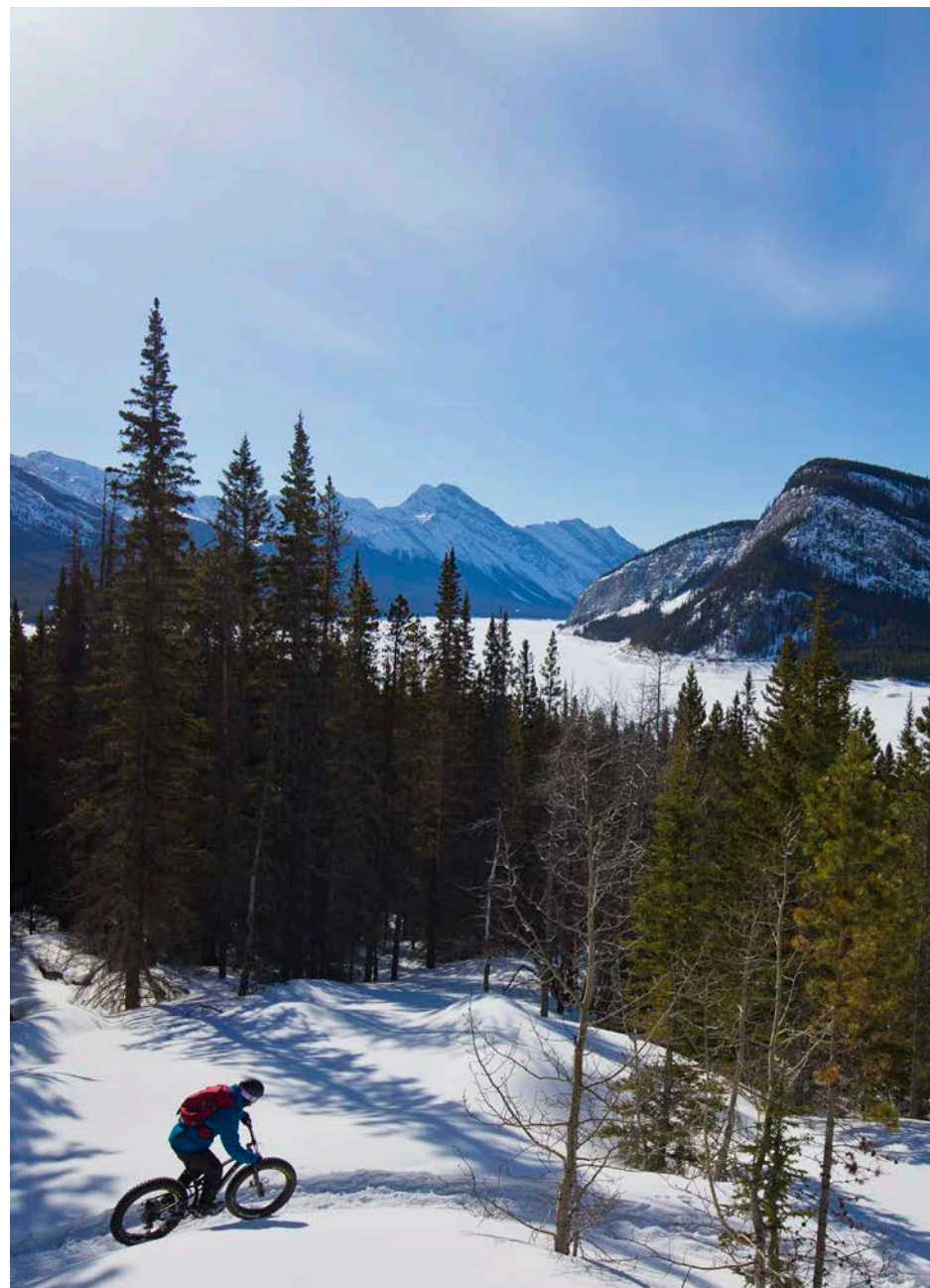


Figure - 42. Photo Courtesy of Active at Altitude

NEXT STEPS

Partnership building

It's true that some projects happen relatively quietly with the energy and advocacy of a few key folks, but taking the time to build a coalition around a project can pay off with a lot of long-term benefits. When a project has broad community support, it's easier to get approval, attract funding, and discover all the potential opportunities for your project to connect with other efforts and be a part of larger goals. The broader and larger the coalition that supports the project, the more perspectives can inform the initial design, the larger voice you'll have to counter any opposition, and the more people the project will ultimately serve.



Figure - 43. Photo Courtesy of Active at Altitude

Working with Agency Staff

Relationships are key. Understand the role of the agency staffer you work with, what they're responsible for, and what they're empowered to act on. You may find an internal champion or someone who can at least help you understand internal processes, agency structure, constraints, and opportunities. Sometimes staff turnover may occur and you'll need to invest in the relationship building process again. It's also important to note that while some agencies or local offices have staff dedicated to trails, recreation, bike and pedestrian planning, or to partnerships, others do not. Staff structure and individual positions can vary widely from forest to forest or county to county, and occasionally vacancies may persist for months or even years due to resource constraints. Additionally, agency culture and individual personalities also play roles in the relative ease or challenge of building partnerships. Some public agencies might have specific structures required to formalize partnerships such as federal agencies' use of Challenge Cost Share Agreements (CCSA). State and local agencies may not have a formal partnership model or their models might vary between management units, forests, parks, etc. Regardless of the presence of formal partnership structures and agreements, many of the most effective trail development partnerships involve groups that demonstrate commitment and maintain trust over the long term.

Working with Private Landowners

Many trail projects run across or adjacent to private property. It is essential to have a working relationship with these private landowners. However, there is even less of a clear formula for these relationships than with public agencies. As with all partnerships, a good place to start is to be curious about their goals, interests, fears, and concerns. Also consider turning to a local land trust to see what guidance or support they might be able to provide.

Working with Public Landowners

While much more common a relationship, the process for navigating trail implementation can be complex even when defined by specific processes. Developing a relationship with staff at the specific agency you are working with will translate to better success for your project. Again, with all partnerships, a good place to start is to be curious about their goals, interests, fears, and concerns. We have prepared a reference document that is helpful specifically for following the federal NEPA process: [The Trail Champions Introduction to NEPA](#)

Federal and state agencies have national, regional (such as by district, National Forest, or other management area), and/or state-level agency policies, priorities, and strategies that guide their decision making around trails as well as more local plans guiding their work. For example, the U.S. Forest Service has standards and priorities established at the national level that include guidance documents such as the National Strategy for a Sustainable Trails System. They also have forest level management plans that give more specific guidance about the constraints Federal Lands and State Forests: and priorities in specific ranger districts, drainages, timber stands, sensitive areas such as riparian conservation areas (RCA) and wildland-urban interfaces (WUI), etc. National documents set specific standards and definitions for trail specifications and maintenance levels (dependent on available funding). The BLM is federally mandated to “maximize opportunities for commercial, recreational, and conservation activities,” and has land-use plans, also known as Resource Management Plans (RMPs), in place to implement this mission.

Partnership Takeaways

- Seek out and join established groups/partners.
- Make a long-term commitment and maintain trust.
- Bring together different trail user groups.
- Partner in design, planning, seeking funding, and maintenance.
- Participate in public meetings and planning processes.
- Work with agency staff to understand specific roles, constraints, etc.
- Approach all potential stakeholders with curiosity about their goals, needs, and concerns. Everyone is a potential partner or at least someone who can increase your knowledge about the project context.

Design

Design is vital to a successful trail system. Beyond ensuring that sustainable trail principles are implemented in the trail layout, qualified designers will engage staff and the community to identify detailed management and visitor goals. Professional trail layouts will minimize resource impacts and maximize visitor experience. During design, a professional will identify all permitting and compliance needs, as well as provide a more detailed cost breakdown for construction.

Trail design should occur in a phased fashion like construction. Trail layout typically includes field flagging. These site markings will breakdown and disappear over time, so flagging should occur no more than two years before anticipated construction for most projects.

Trail design should also take into consideration the multiple objectives set forth by project partners. The trail corridors proposed in this conceptual design are aligned through land managed by the City to protect drinking water, as well as through some federally-managed land. It is important that the design considers the integrity of the natural resources stewarded by the land managers. Colorado Parks and Wildlife has produced a document outlining best practices for trail development to protect important wildlife habitat. Though this document is prepared with Colorado in mind, the principals outlined in this document are applicable to all federal lands in the United States. It is paramount that any new trails project directly engages with the land manager and implement the BMP's defined by their processes.

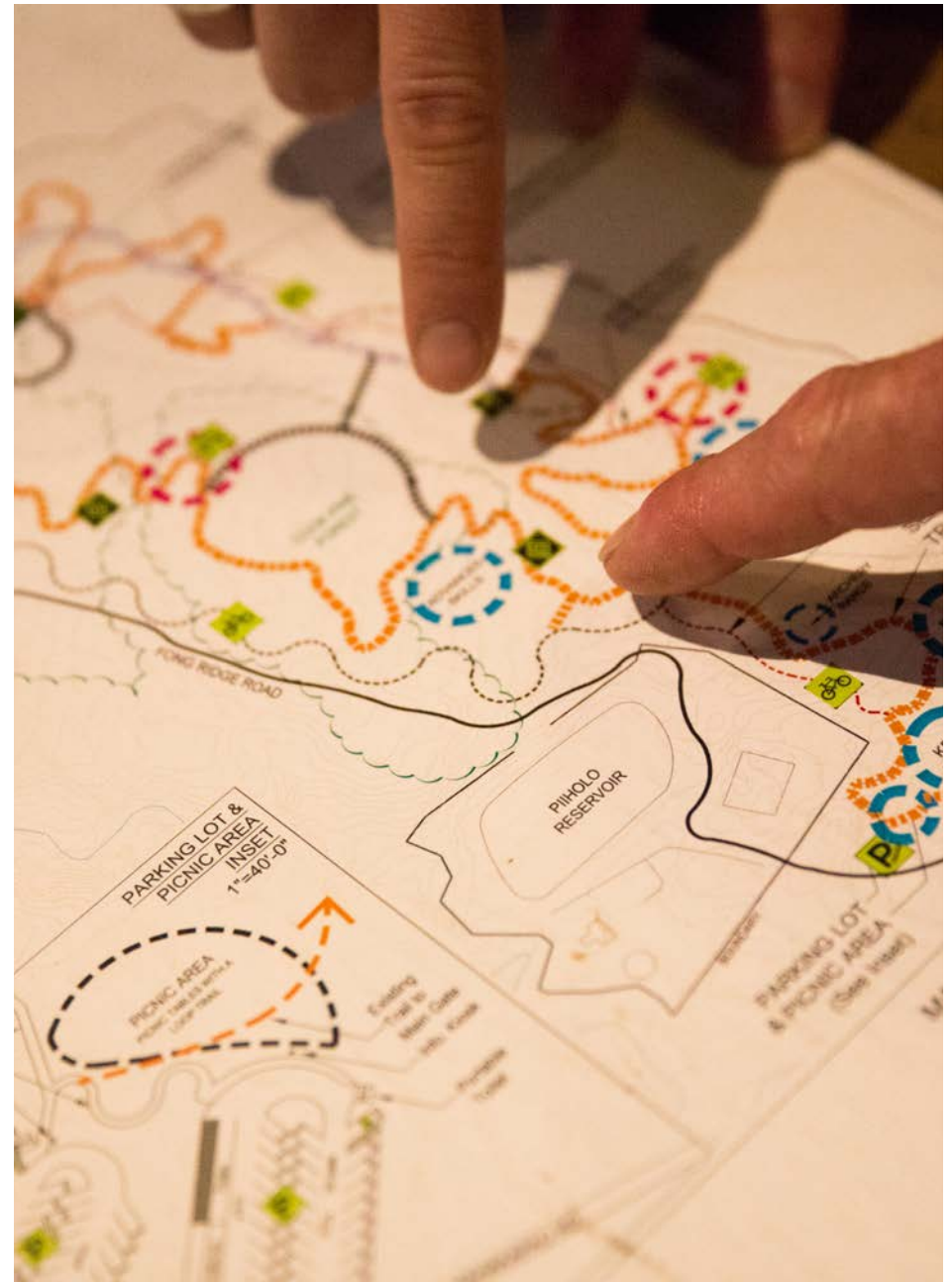


Figure - 44. Photo Courtesy of IMBA

Permitting and Compliance

All construction projects are subject to regulatory requirements. This section provides a brief breakdown of anticipated permitting needs to implement this plan. The list is general in nature and is intended only to provide high-level planning for future trail development phases.

Obtaining proper permits can ensure that work follows local, state, and federal laws as this trails concept plan is implemented. At least as important, working under permits can help trail builders – and visitors – to be good stewards of the land. Permitting needs can be affected equally by landscape features and funding sources. Both should be identified during the design phases to ensure relevant permitting is completed.

People use trails for all kinds of reasons – but a chief motivator among visitors is to enjoy the outdoors. Ground disturbance and uncontrolled erosion and sedimentation can negatively impact our environment, water quality, and flora and fauna. These impacts are also unsightly and, if not quickly mitigated, can rapidly increase maintenance costs and ultimately create trails that visitors no longer want to visit. This list is not exhaustive but represents typical permitting requirements at a federal level. Coordinating with appropriate local and state agencies will be necessary to assure compliance.

Stormwater Pollution Prevention Plan (SWPPP)

National Pollutant Discharge Elimination System (NPDES)

Construction General Permit (CGP)

Clean Water Act 404

Clean Water Act 401

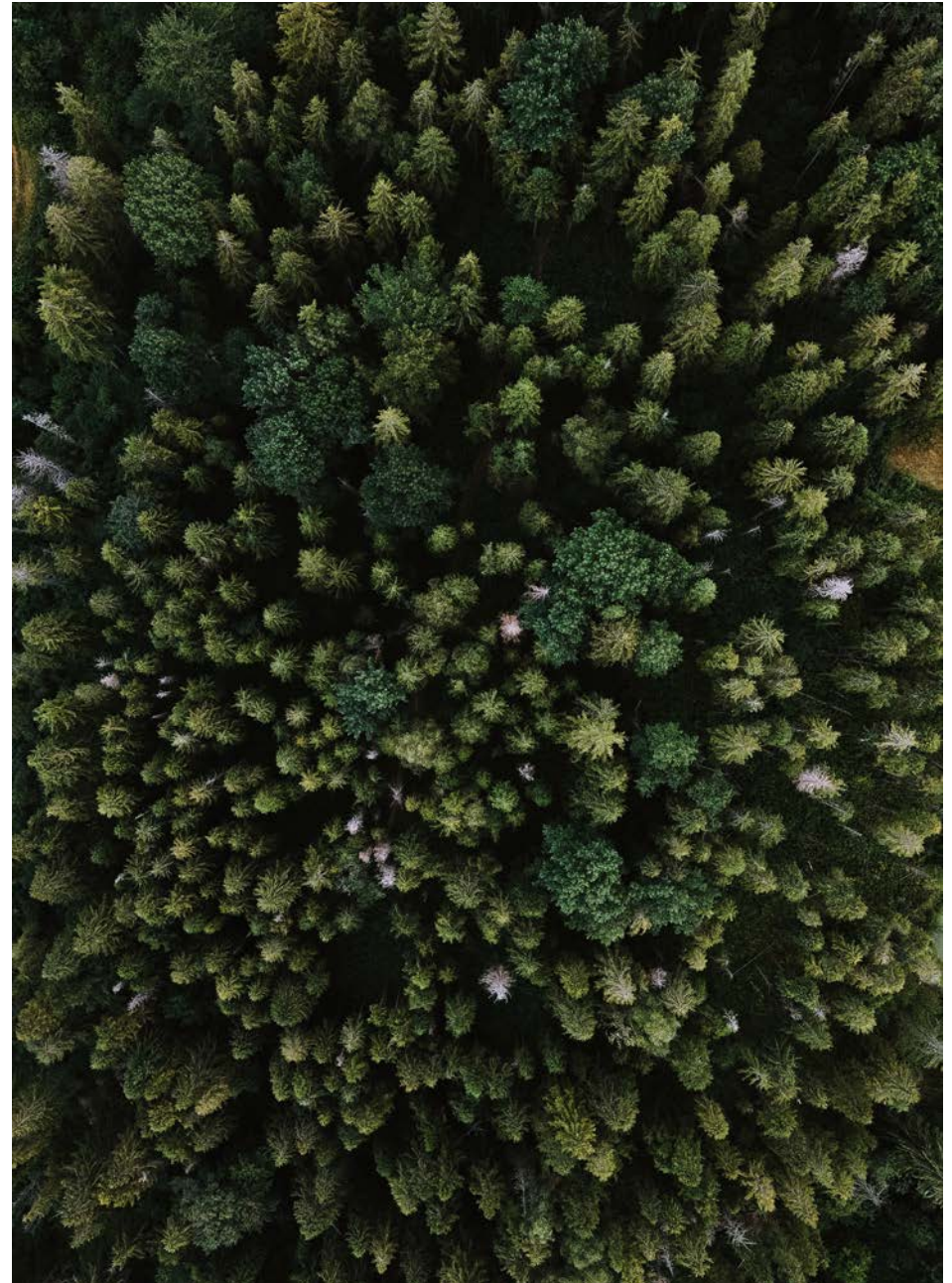


Figure - 45. Photo Courtesy of IMBA

Funding

The paths to funding different trail projects are almost as varied as the trails themselves. Small projects may be most easily community funded, or may fit easily within the constraints of an agency's current budget. Larger projects may require competitive grants, fundraising campaigns, inclusion in new funding measures, support from a large private donor, and/or specially earmarked public funding. Sometimes initial feasibility and basic design for a project must be funded before being able to even estimate what the final cost of construction might be. Unfortunately, the early stages of trail development can be the most difficult to fund. Many competitive grant programs don't fund earlier stages of project development, restricting their funding to final design and construction phases. It can also be difficult to raise community support for the early stages of project development when you can't promise a finished trail on a specific timeline.

Some Questions to Ask About Funding:

- Which stages of the trail project life cycle have costs associated with them?
- What fits within the land manager's or partner agency's budget?
- Is there a strategy for funding the feasibility, design, public engagement, and ongoing maintenance phases of the project?
- What can be provided in-kind?
- What can be crowd-, community-, or privately-funded?
- What competitive grant funding opportunities are available? Also, who can apply? For many public grants, a public agency will need to be the grantee. For many private grants, a nonprofit partner may need to be the applicant. Does the grant program require matching funds, and what kind of investments and labor can qualify as a match?

Make Your Case



Figure - 46. Photo Courtesy of Tahlequah Community Fund

Unless your organization has all the resources needed to fund a project and maintain it over time, you will likely need to make the case for the need of the proposed trail and the benefits it will provide to the community. A trail project doesn't need to have all of the benefits listed below to be successful. However, identifying the project's most poignant benefits will likely lead you to the funding models or funding opportunities that may hold the most potential for success.

- Community desire: The trail meets a need identified by a local user group with a lot of enthusiasm for the project.
- Public health benefits: Is the trail particularly well-situated to serve a target population like youth, seniors, people with disabilities, low-income community members, and/or those most likely to experience health disparities based on race or ethnicity?
- Economic benefits: Does the trail project create jobs in construction or tourism, or bring other community economic development benefits?
- Accessibility: Does the trail address a need for more ADA access to the outdoors?
- Transportation safety benefits: Does the trail provide valuable off-street connections to transit, residential neighborhoods, business districts, schools, parks, community centers, employment centers, etc.? Does it provide a safer alternative to people walking and biking on a high-traffic roadway?
- Equity and inclusion: Does the trail project have a focus on inclusive partnering and development? Is equity in race, disability, gender, sexuality, and identity central to the goals of the project?
- Access to nature: Does the trail project provide public access to green space, water, or crucial local habitat, especially where access is currently lacking?
- Stewardship education: Does the project offer environmental education opportunities?

Specific Funding Opportunities to explore



Figure - 47. Photo Courtesy of Photo Courtesy of Mary McIntyre

This is not an exhaustive list and is provided to illustrate how funding for trail projects can be leveraged from many different avenues.

Recreational Trails Program

The Recreational Trails Program (RTP) is a federally-funded grant program administered by Idaho Department of Parks and Recreation. Eligible applicants include local, state, federal, tribal, and other governments. Eligible projects include construction of new trails, major rehabilitation of existing trails, development or improvement of trailhead or other support facilities, acquisition of land or easements for the purpose of trail development, and safety and education projects. Eligible trail types include motorized (OHV, snowmobile), non-motorized (hiker, biker, equestrian), and water trails.

Land and Water Conservation Fund:

Land and Water Conservation Fund (LWCF) is a federal program that supports the protection of federal public lands and waters, including national parks, forests, wildlife refuges, and recreation areas. It also secures public access, improved recreational opportunities, and preserved ecosystem benefits for local communities through a state grant program. LWCF grants are available to either acquire land for public outdoor recreation or to develop or rehabilitate outdoor recreation facilities, including trails. Any site that has been acquired, developed, or improved, no matter how small the improvement, with funds from the LWCF grant program, must be open to the public and maintained in perpetuity for public outdoor recreation. LWCF is administered through Idaho Department of Parks and Recreation.

Federal Lands Access Program

The Federal Lands Access Program (FLAP) is administered by the Federal Highway Administration (FHWA) to improve transportation facilities that provide access to, are adjacent to, or are located within federal lands. Eligible applicants include public agencies working in close partnership with federal land managers.

Eligible projects are public highways, roads, bridges, trails, or transit systems located on, adjacent to, or that provide access to federal lands. Eligible projects include capital improvements, enhancements, surface preservation, safety, transit, planning, and research. (Minimum grant is \$100,000.)

USDA Rural Development Funding

The United States Rural Development Program supports a wide range of investments in rural communities. Trail projects potentially could be eligible for Community Facilities Grants or Economic Impact Initiative Grants. Eligible applicants include rural public agencies, nonprofit organizations, and tribes.

Private Grants

Private funding may come from family foundations, community foundations, and private companies. Many larger outdoor gear manufacturers and retailers have grant programs supporting conservation and/or outdoor recreation access projects. Eligibility varies, but generally nonprofit organizations are eligible applicants. Eligible projects also vary widely, but many will have a community engagement requirement.

Public - Private Partnerships (PPPs) on Federal Lands

Since its inception, the USFS has maintained a commitment to working with a variety of organizations and interests while fulfilling their motto of “caring for the land and serving people”. Strategic investments in partner focused efforts allow the agency to accomplish more across broad landscapes and through broader constituencies. Partnerships are essential to carry out today’s contemporary recreation visions. Engagement of stakeholders, communities,

private landowners, non-profit organizations, citizens, and private interests are each critical to develop long-range management plans, carry out conservation and stewardship projects, and provide natural resource goods and services. To be effective in this changing world, with declining budgets, staff attrition, and hard-hit economies, we must continue to develop effective partnerships where we invite and embrace stakeholder-based proposals, and successfully leverage our resources by working together.



Figure - 48. Photo Courtesy of IMBA

Trails Task Force and Trail Champions

The ideas presented in this plan are meant as big-picture visions to illustrate the potential for natural surface singletrack trails and bike-optimized features. To bring these ideas to fruition, the formation of a trail task force including trail champions and supporters, produces a community of stewards, organizers, and advocates to work in tandem to create a collective vision and implementation strategy. This task force with clear leadership and roles will provide structure and tasks that can be followed through by its members. This ensures natural surface trail and bike amenity projects are happening with an agreed upon approach and allows members to stay up-to-date on developments, communicate lessons learned, share resources, identify funding opportunities, and support each other.



Figure - 49. Photo Courtesy of IMBA



Figure - 50. Photo Courtesy of IMBA

Operations and Maintenance Plan

The purpose of an Operations and Maintenance (O&M) Plan is to provide land management agencies with guidelines and tools for day-to-day maintenance and weekly/monthly/annual inspections. The goal of the document is to ensure a consistent experience for trail and facility users. Successful operations will rely on a regular program of inspection and maintenance of the trails, tracks, and associated facilities. O&M documents will not only ensure a quality recreational experience for the trail user, but is also an essential ingredient of a risk management plan for all land managers. Sufficient staff/volunteer/contractor hours and resources must be devoted to a regular maintenance schedule in order to meet these goals. Trail maintenance is an important program that is related to trail safety, quality of user experience, attractiveness, and image. Agencies risk liability for accidents if maintenance is ignored or negligently executed.

O&M Plans cover topics on inspections, signage, trail/facility building materials, tools, maintenance frequency, risk management, incident/accident reporting, and emergency response. Each park will need their own O&M plan to cover the features specific to each park.

Trails should be managed according to recommended ability level guidelines, trail type guidelines, and respective trail experience narratives. Maintenance is an ongoing cost and should be planned for. Typical annual maintenance budgets for traditional and mountain bike-optimized trails are 5%-15% of the installation cost, and free-ride/jump trails can be closer to 10%-15% of the construction cost. Some of the annual maintenance for all trails can be performed by adequately managed and trained volunteers. These tasks will include corridor trimming, downed tree removal, general clean up (branches, leaf litter, etc.), and minor drainage work

Volunteer-assisted maintenance and professional contractor-based upkeep will be required. The frequency of this work will depend upon trail conditions, soil characteristics, weather patterns, and use. Professional contractors will be required every few years for small reroutes, major drainage work, structural modifications, or other large tasks. Free-ride trails can be expected to need a professional touch more often as trails wear through weather and use. This will typically come in the form of rebuilding large dirt features and upgrading trails to provide slightly new experiences which help continue to draw destination riders, give locals something new, and help all riders progress in their skills. Increasingly, destination mountain bike trail systems are funding and hiring part- or full-time staff to provide maintenance to trail systems. Ensuring a quality, consistent riding experience is key to attracting visitors and keeping a local riding community satisfied and growing.

Trail Maintenance Crew

Many communities and counties around the nation employ seasonal trail crews to protect, enhance, and maintain their trail investments. A seasonal trail crew can provide substantial maintenance on the existing trail system, while taking the burden off of volunteers.

Strengths to trail crew approach:

- Focused and consistent maintenance approach for natural surface trails and facilities
- Ease the burden of maintenance and construction off of volunteers
- Potential to engage Youth Conservation Corps crews

Challenges to trail crew approach:

- Acquiring consistent funding
- Finding a nonprofit or municipal managing partner to oversee crews and receive funds
- Need for consistent management, grant writing, and project management

Youth Programming

To activate the future natural surface trails and provide opportunities for community members to learn about these new amenities, establishing programming for youth and adults will allow community members to discover the fun and benefits of these new recreational features. Existing in-school and after-school bike programs have been great ways to introduce youth to bicycling. Many times, youth may not have a bike available at home or an environment to practice and learn introductory skills.

The All Kids Bike program as part of the Strider Education Foundation provides curriculum resources and grants to equip schools with bikes for kindergarten classes. <https://allkidsbike.org/learn-more>.

Other educationally focused programming opportunities should be leveraged to help foster the next generation of the land stewards. Events like naturalist hikes to introduce foraging curriculum, or plant identification field trips are great ways to encourage the youth to explore the natural beauty in their community. On low snow years, this site has the potential to help host current after-school programming being offered by Sand Point Nordic Club because of its higher elevation. The watershed is abundant in learning and programming potential.

Adult Programming

The trails could be programmed with guided and interpretive hikes and outdoor education. Mountain bike skills clinics and/or scheduled and guided rides can be provided to help introduce the sport to new riders and help them improve skills. Many times, local clubs and bike shops will schedule weekly rides that can be tailored for beginners, intermediate, or advanced riders. These rides encourage mountain bikers to connect with the local riding community. Additionally, having scheduled volunteer days keeps the community engaged, invested in their local trails, and helps improve the conditions of the trails while reducing the maintenance workload of land managers.



Figure - 51. Photo Courtesy of IMBA



Figure - 52. Photo Courtesy of Active at Altitude

GUIDANCE FOR CONSTRUCTION

Establishing a Construction Contract

There are three broad classes of contracts with professional design and construction firms:

- A contract based on hourly fees and the cost of materials, often referred to as a “Time and Materials” arrangement. Because of the complexity of this build, this may be the preferred contract style from a bidders perspective
- A contract that incorporates both designing and building the project in an integrated fashion by a single firm, known as a “Design-Build” approach.
- A contract that requires a design phase and a build phase, with the possibility that separate firms could be assigned to either phase—often referred to as a “Design-Bid-Build” arrangement. In some cases, the contract may stipulate that the design firm can not serve as the construction firm.

A time and materials (T&M) approach offers the most flexibility. A client identifies a builder and agrees on a rate for the work performed and for required materials (plus builder’s markup). This provides great flexibility for the builder and client to adjust and tweak the project midstream to create the perfect trail, but it does come at the expense of cost control. It is for this very reason, and the corrupt business practices it may engender, that many public funding sources do not allow T&M contracts.

The use of public funds often demands a form of fixed-cost contracting. One approach is a Design-Build arrangement. A Request For Proposal (RFP) details the project vision and solicits responses from potential builders on how they would realize the client’s requests, and a fixed budget for how much it will cost.

Successful Design-Build arrangements depend on a high level of trust from the client that the builder will ultimately provide a great product, even if the details of the project evolve during construction. For example, the original design may have called for three jump lines to be built, but once construction is underway the builder may see an opportunity to add a fourth line. Because the builder is charged with both the design and the build phases this adjustment is easy to make, though it may also expand the timeline.

Another form of fixed-price contracting is known as Design-Bid-Build. In this arrangement, the design portion is separated from construction, potentially via a separate bid process, in order to produce a detailed construction plan. Once this detailed plan has been settled, potential builders are invited to review it and respond to a Request For Quotation (RFQ). A client’s representative familiar with the design verifies that responding builders have the ability to implement the plan, and then selects the winning bid. A Design-Bid-Build approach provides ultimate cost control to the client. But, it also limits the builder’s ability to make in-field adjustments to the construction plan. Frequently, a Design-Bid-Build arrangement is a mandated procedure for large construction projects when a government agency is involved.

Which of these approaches to a fixed-cost contract is best? For a traditional trail project, the Design-Bid-Build process often works very well, since most clients have a good understanding of exactly what they need and have the ability to describe it in words for contract documents. With bike parks and bicycle-specific trails, the client may have a less clear idea of what the finished product will be. In this case, the Design-Build arrangement has advantages because it allows a client to identify a skilled firm and give them maximum flexibility to implement design changes and alter the construction techniques in ways that will ultimately produce the best facility possible.

Contracting Procedures

Regardless of contract format, be sure to investigate local regulations before considering hiring a contractor. Some jurisdictions require that builders be locally licensed in order to work. Depending on the locale, the burden of proof (and penalties) may be on either the contractor or the client.

Prevailing wage requirements have been established in some jurisdictions that mandate minimum compensation for select tasks and trades. Knowledge of such requirements are key to developing realistic expectations of how far your money will go: Is trail building considered a \$15- or \$50-per-hour trade? Like with licensing, the burden of proof for paying prevailing wages may be on the contractor or on the client.

Some bids refer to “fixed units,” which can be thought of as agreed-on definitions for various elements of the project. Defining these units ensures fair competition amongst bidders. For example, a unit for “singletrack trail” might define all the primary characteristics (like full bench or back slope) general characteristics, acceptable construction techniques (corridor clearing, distribution of spoils) and the measure for billing (linear feet).

Another suggestion to ease direct comparison is separating mobilization costs into their own unit. Again, it is likely for bike park bidders to come from outside the local region. While it doesn’t change the total cost, it can be easier to compare bids when not having to guess what percentage of the cost of each berm is the difference in travel cost between builders coming from Boston and Boise.

Local regulations and conditions on funds may impact the bid award criteria. In the ideal case, a client will have the flexibility to weigh cost and qualifications when reviewing proposals. The best value is not always the lowest bid. However, some jurisdictions and funding sources dictate that only the lowest bid be chosen when working on public works projects. In these instances it is important to have

the jurisdiction recognize the value of getting an experienced bike park builder by pre-qualifying only desirable firms to offer bids. For example, this can be based on mandating that bidders have completed at least three similar projects. If there

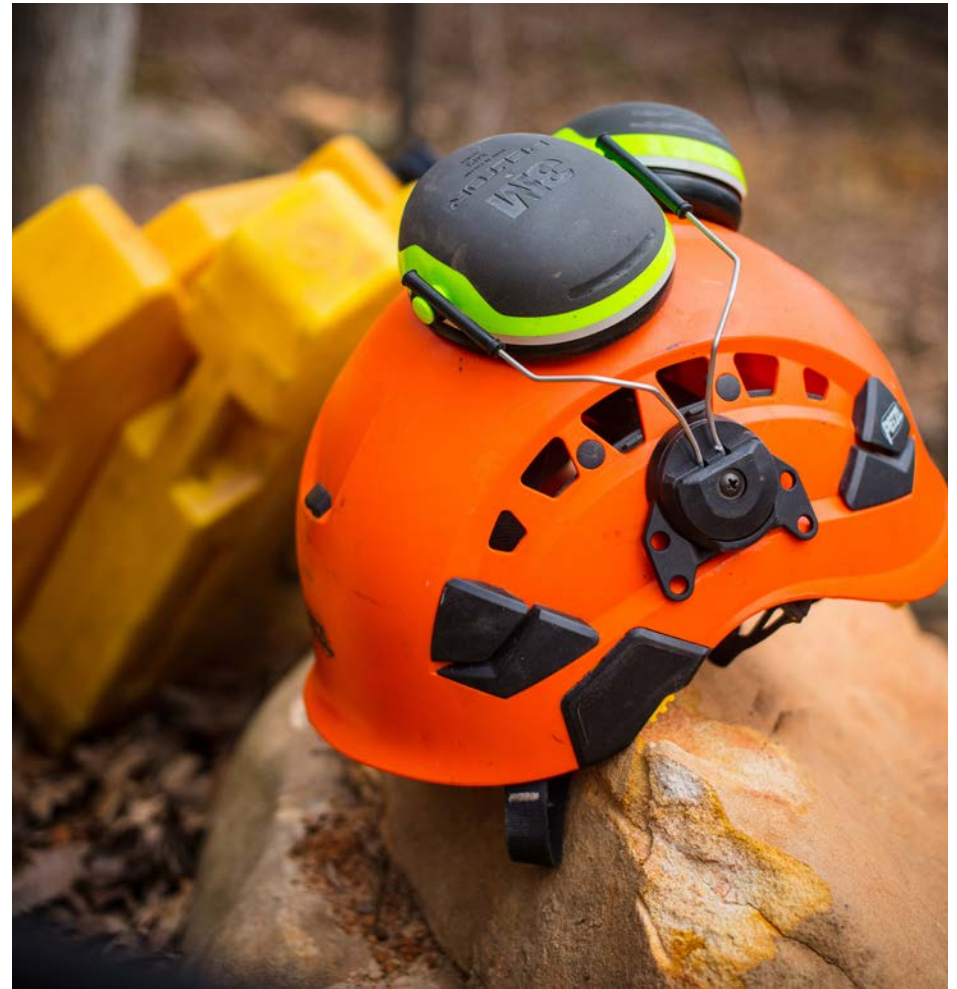


Figure - 53. Photo Courtesy of IMBA

is no pre-qualification standard, it is possible that Bubba's Backhoe Services will submit a lowball bid and you will be stuck with a substandard builder.

The Bid Process timeline

Once the RFP/RFQ documents are available, it might be understandable to think that awarding a contract and getting started on construction is just around the corner. Think again! Two months, from announcement to award, is usually an aggressive timeline for the bid process alone.

The bidding process is designed to offer free-market competition for a specified amount of work, providing the client with several options for getting the best product at a fair price. However, the number of skilled builders with specific bike park experience is fairly limited. For this reason, it is a big advantage to announce the bidding procedure well ahead of time, preferably in the winter, where you have the best chance of getting the attention of qualified builders. Also, if your locality has restrictive rules for out-of-state contractors, a long lead-time will allow distant contractors to obtain needed licenses to do business in your state.

A rushed bid process or a bid announcement during the high building season may eliminate many trail contractors from even considering the project just because they are too busy building to stop and work up the bid. On the other hand, if your location has a milder climate with a long build season, consider specifying a shoulder season build that will potentially allow for more bids from desired contractors that are booked through the peak season.

Five Steps for Bidding

The five steps in the bid process are: Announcement, Pre-Bid Meeting, Bidding Interval, Review of Bids, and the Award.

1. Announcement: Depending on local regulations, there may be specific requirements on how you announce the bidding opportunity. Potential

venues include a recognized agency procurement webpage, announcement in a recognized newspaper or inclusion in a regularly distributed bid book. An element of the announcement is the declaration of the bid process timeline. Local regulations may specify minimum intervals between steps. A digital bid package will help streamline the process and make it easily available to more potential builders.

2. Pre-Bid Meeting: A pre-bid meeting, preferably held on the selected site, is strongly recommended for bike-related projects. This helps ensure that bidders understand the vision for the bike park. Plus, the details of many projects are so complex that accurate bids are only possible when potential builders have physically examined the landscape. The pre-bid meeting should be held a minimum of three weeks after the bid process announcement so out-of-state builders can plan to attend. Even for a modest project, set aside a large time block for the pre-bid meeting. For backcountry projects, even a full day may not be sufficient. Be sure the RFP/RFQ package contains sufficient detail so bidders can find and fully explore the site on their own. Make sure the appropriate mix of client members attend the pre-bid meeting. This is your single best time to meet the prospective builders and answer their questions.
3. Bidding Interval: After the pre-bid meeting comes the bidding interval, when prospective builders assemble their proposals, price quotes, and overall budgets. The bidding interval is recommended to be at least two weeks, potentially longer for complex projects. A defined questioning period should be included in the bid interval: the client defines a time period when questions from bidders are accepted, and provides an exact mechanism for replies. It is important that the replies be made to the whole community of bidders, perhaps through an Internet portal or a group e-mail list. The bidding interval ends at a fixed date along the timeline that was established when the announcement describing how bids will be accepted was made. In some jurisdictions, there may be a requirement that all bidding materials be submitted in print form.
4. Review of Bids: Bids are often opened the same day they are due. Depending on regulations, the opening may be public. If requirements

demand that the low bid be chosen, this task is straightforward. If factors besides cost may be considered, be sure to set aside sufficient time to investigate not only the bids but also the bidders. Be systematic and thorough. The low bid format requires that the project provide more detailed specifications in design and performance expectations up front to protect the client and ensure a level of quality. In addition to cost and qualification, consider the proposed construction timeline with a critical eye. A small team of builders is not going to build 5 miles of heavily manipulated flow trail in two weeks. Obviously, this kind of evaluation requires a degree of expertise, but there is no harm in asking the builder about any assumptions that seem unrealistic.

5. Award: In the final phase, the winning builder learns that their bid has been chosen. Consider following up with the other builders to provide feedback on why their proposals were not chosen. The community of bike park builders is small and still maturing, so your feedback will be very valuable (and, simply, a polite gesture). An evolving firm might successfully bid on your park in a few years when you are looking to do a refresh. For the winning bidder, the award process includes ratifying a contract and implementing conditions for the contract, including submitting insurance documentation. Be sure all conditions are satisfied before any on-the-ground construction commences.



Figure - 54. Photo Courtesy of IMBA

Tips For Involving Volunteers

Here are some tips for planning successful volunteer efforts for a construction effort that is being led by a professional builder:

- Safety first! Carefully consider what equipment will be provided, what limitations will be put on the areas volunteers can access, instruction on handling tools, and other safety related concerns.
- Scheduling and coordination with the pro builder is vital. Having volunteers on the job site can create a sense of camaraderie and connection with the builders if all the details for a workday are well sorted, but a poorly planned volunteer workday can create serious frustration and tension for all parties.
- Encourage the pro builders and volunteers to think of workdays as educational opportunities. Once the facility has been built, volunteers may take on tasks like lip shaping and hand finishing during regular maintenance efforts. Workdays provide an opportunity to learn these skills from the pros.
- Treat volunteers with respect and give them meaningful work to perform. Poorly planned workdays often default to meaningless tasks like sweeping a half-built pump track or raking rocks from an area that will soon be graded. Keep the hours reasonable, generally a few hours to a half-day and make sure adequate water and snacks are available.
- Celebrate your volunteers and make them feel good about putting sweat equity into their facility. Tracking volunteer hours helps quantify people's efforts and makes them feel good about their contributions. Invite journalists to attend workdays and play up the community's involvement in the project.



Figure - 55. Photo Courtesy of IMBA

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APPENDIX A: GENERAL TRAIL PLANNING AND DESIGN GUIDELINES

The following are guidelines for the construction and maintenance of trails. The natural environment is dynamic and unpredictable. The nature of recreational trails and roads, the desired user experience, and the constant forces acting on natural surface trails and roads make strict standards untenable and undesirable. As such, the guidelines below are simply that: best management practices that should be followed within environmental constraints.

Trail System Design

Mountain Bike-Optimized Trails and Preferred Direction Trails

Mountain bike-optimized singletrack trails are designed and constructed to enhance trail experiences specifically for mountain bikers. Mountain bike-optimized trails might differ from traditional trails in several ways: enhanced tread shaping, directional or one-way travel, and the addition of man-made technical trail features (TTFs). Bicycles move differently along a trail than other modes of transportation. The movement of the wheel, the use of gravity and friction, the transfer of energy from the rider to the wheel – these offer both opportunities and constraints for trails and trail features that may differ from those of other users.

Mountain bike-optimized and one-way trails that harness gravity are a growing area of interest for mountain bikers. These trails can be designed and built at any level, from beginner friendly flow trails to extremely difficult race-oriented downhill trails. Riders cherish the feeling of flight that a bicycle provides while coasting through a succession of bike-optimized features from top to bottom. A consistent trail is not necessarily a boring or easy trail (though it can be), it's one that is designed such that a preceding section of trail prepares users for the subsequent sections. This is a hallmark of flow trails and can be particularly important for beginner trails, as well as for higher speed trails with gravity features, such as jumps and drops.

As trail systems grow and become congested, one-way trails help to take the pressure off popular shared-use trails. Riders looking for speed, thrill, and challenge will have their own designated areas, and users traveling at slower speeds will have their own trails. Well-designed mountain bike-optimized singletrack and gravity singletrack are exciting for mountain bikers but are also designed to help manage risk and minimize user conflict.



Rolling Contour Design

Providing consistent climbs and extended descents is a design priority. Trails may contour gently up or down for consistent lengths to maximize climbs and descents. This is known as rolling contour design. All shared-use trails should be of rolling contour design to minimize impact and sedimentation in the watershed.

Stacked Loops

A stacked-loop system is a series of loops somewhat like links in a chain. The loops can vary in length and difficulty. In a stacked-loop system, the loops that are closest to the trailheads are more inviting to novice riders, and the loops further out cater to more advanced riders. This creates a progression of experiences and challenges as users explore the trails in more depth.

Progressive Hubs and Clusters

A trail system of hubs and clusters looks more like spokes radiating out from a central junction and intersecting at various points. A trailhead or major intersection is a hub. A cluster is a concentration of trails radiating out from the hub. Like a stacked loop system, hubs and clusters are designed with skill level progression in

mind. Hubs and clusters give users more trail options for varying skill levels at each hub, allowing for skill level diversity. At many intersections, riders have the option to change trail difficulty or continue on the same difficulty level.

With progressive trail features, a mountain biker may become a better rider by gradually moving up in trail difficulty. This practice also spreads out visitors and helps reduce trail user conflict. This is also a proven risk management tool. Signage shows difficulty levels at every hub and wherever necessary in the trail system to help users choose trails based on their skill levels and desired experience. Giving riders the option to warm up before hitting more technical segments provides a level of safety in the system.

Loops and clusters are often favored over out-and-back routes because they offer variety. People love the adventure of starting down one path and returning to the same point by way of a different trail. With loops or clusters in a trail system, visitors can choose a short route, a combination of routes, or a long outer route.

Progressive design and construction also allow users of different levels to ride the trails in the same system, so families and groups can enjoy being together in one place and riders can find a trail that matches their skills and progress.



Trail Difficulty Rating System

In order for a trail system to provide the varied riding experiences and skill progression which trail users seek, the trails must be built to provide relatively specific challenges and riding characteristics. For the purposes of this conceptual trail plan, the difficulty rating system has been simplified into three levels:

- Easiest Trails, Green Lines (green circle) – For beginners, these trails have a smoother and wider tread, lower trail grades, and less exposure.
- More Difficult, Blue Lines (blue square) – For intermediate riders, these trails can be steeper, more technically difficult, or longer.
- Very to Extremely Difficult Trails, Red Lines (black diamond or double black diamond) – For advanced riders, these trails offer a combination of difficult trail tread, technical features, and long distances for those looking for challenge and endurance-oriented experiences. Generally, they have significant exposure and have less predictable surfaces.

This system was adapted from the International Trail Marking System used at ski areas throughout the world. Many trail networks use this type of system, most notably resort-based mountain biking trail networks. The system applies well to mountain bikers and is also applicable to other visitors such as hikers and equestrians. These ratings should be posted on trail signage and in all maps and descriptions. Following is a summary of criteria to be considered when implementing a trail rating system.

Tread Width

The average width of the active tread or beaten path of the trail.

Tread Surface

The material and stability of the tread surface is a determining factor in the difficulty of travel on the trail. Some descriptive terms include hardened (paved or surfaced), firm, stable, variable, widely variable, loose, and unpredictable.

Trail Grade (maximum and average)

Maximum grade is defined as the steepest section of trail that is more than approximately 10 feet in length and is measured in percent with a clinometer. Average grade is the steepness of the trail over its entire length. Average grade

can be calculated by taking the total elevation gain of the trail, divided by the total distance, multiplied by 100 to equal a percent grade.

Natural Obstacles and Technical Trail Features

Objects that add challenge by impeding travel. Examples of natural obstacles include rocks, roots, logs, holes, ledges, drop-offs. The height of each obstacle is measured from the tread surface to the top of the obstacle. If the obstacle is uneven in height, measure to the point over which it is most easily ridden. Technical trail features are objects that have been introduced to the trail to add technical challenge. Examples include rocks, logs, elevated bridges, teeter-totters, jumps, drop-offs. Both the height and the width of the technical trail feature are measured.



Trailheads

Well-placed trailheads and parking lots contribute to a successful trail system. Trailheads should be located in areas of lower elevation, as most trail users prefer outbound climbs with inbound descents back to the parking area. This also helps mitigate risk by allowing fatigued riders an easier route back to their starting point. This is especially true for mountain bikers, and necessary for families and beginners. Trailheads should offer information useful for the trail users, including trail maps, location information, emergency contact details, and volunteer information.

Sustainable Trails

A sustainable trail balances many elements and is designed to have little impact on the environment. Sustainable trails resist erosion through proper design, construction, and maintenance and blend with the surrounding area. A sustainable trail also appeals to and serves a variety of users over many years. It is designed to provide enjoyable and challenging experiences for visitors by managing their expectations effectively. Following sustainable trail design and construction guidelines allows for high-quality trail and education experiences for users while protecting the land's sensitive resources. For additional trail design, construction, and maintenance techniques, refer to Trail Solutions: IMBA's Guide to Building Sweet Singletrack. These guidelines are appropriate for any hike, bike, or equestrian trail.



Signage

The development of a mountain bike trail network requires the development of a comprehensive system of signs. Signs are the most important communication tool between land managers and trail users. A well-implemented and maintained signage system enhances the user experience by helping visitors navigate the trail network and providing information about the area. Signage also plays a critical role in managing risk and deploying emergency services.

Recommended signage for the trails should be simple, uncluttered, and obvious with a sign at every major intersection to help users stay on track. Signs should meet the needs of all users, from the daily trail user to someone who is experiencing the trails for the first time. In order to serve the variety of visitors, sign placement should be strategic and frequent. Because signs can intrude on the natural outdoor experience, too much signage can be unsightly. Balancing competing interests is key to developing a successful signage program.

Sign Types

A variety of signs can be created to help users identify trails and their location, select routes, remain confident in their trail choices, find destinations and key points of interest, and understand regulations and allowed uses. Signage can also be interpretive, helping visitors learn about responsible recreation, trail etiquette, and resource protection, as well as how to reduce risk and hazards.



Informational signs

Usually positioned at the trailhead and major intersections, informational signs provide details such as trail length and difficulty. These include signs that identify a trailhead from a road, signs at a trailhead kiosk, trail intersection signs, waymarks, difficulty rating signs, and trail length or elevation gain and loss signs.

Regulatory signs

These types of signs delineate rules, such as prohibited activities, direction of travel, or other restrictions.

Directional signs

Directional signs provide navigational information.

Warning signs

Often incorporating highly visible designs, these signs warn trail users of upcoming hazards or risks. These include visitor rules and regulations, allowed activities, road and trail intersections, and emergency signs.

Educational signs

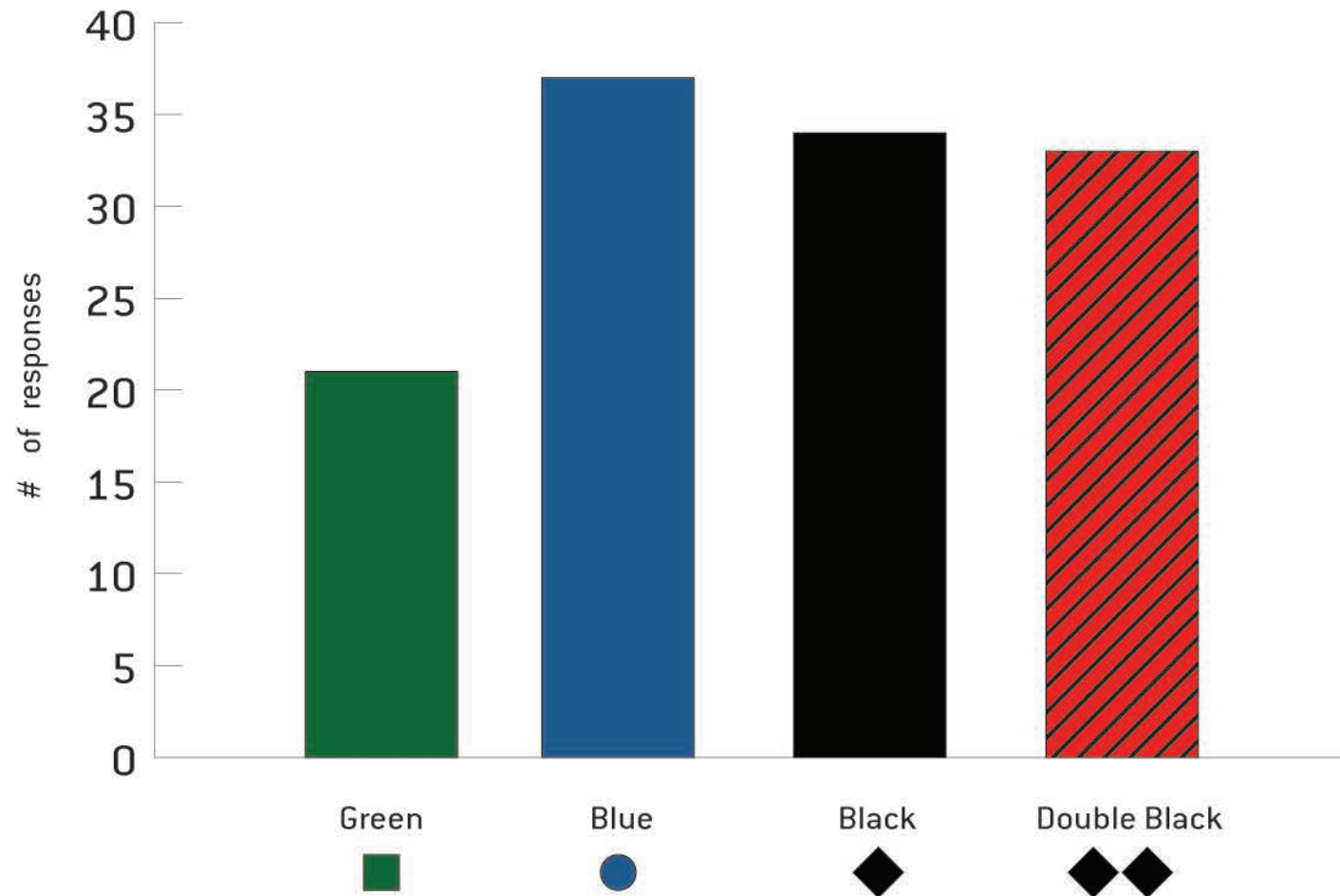
Educational signs can provide a variety of information for trail users, such as guidelines for responsible recreation, descriptions of natural or cultural resources, trail etiquette, and bike skills.



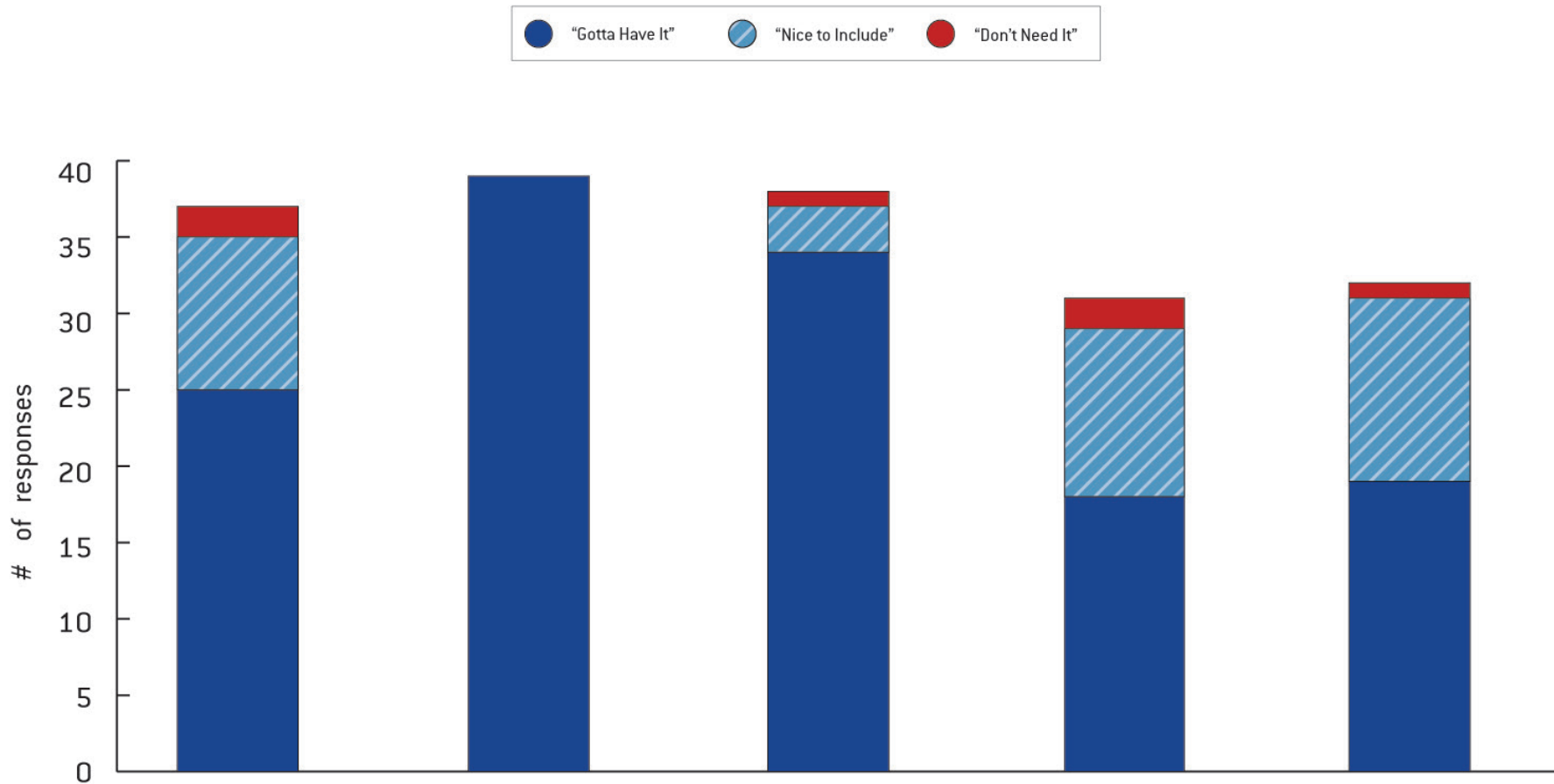
APPENDIX B: FULL SIZE MAPS FOR REFERENCE

Find downloadable files for all maps and tables included in the report at [this supported Dropbox link.](#)

What types of trail experiences would you like to see in the Little Sand Creek Watershed?



What types of trail experiences would you like to see in the Little Sand Creek Watershed?



Traditional Shared-Use Singletrack



Mountain Bike-Optimized Singletrack



Gravity Trail

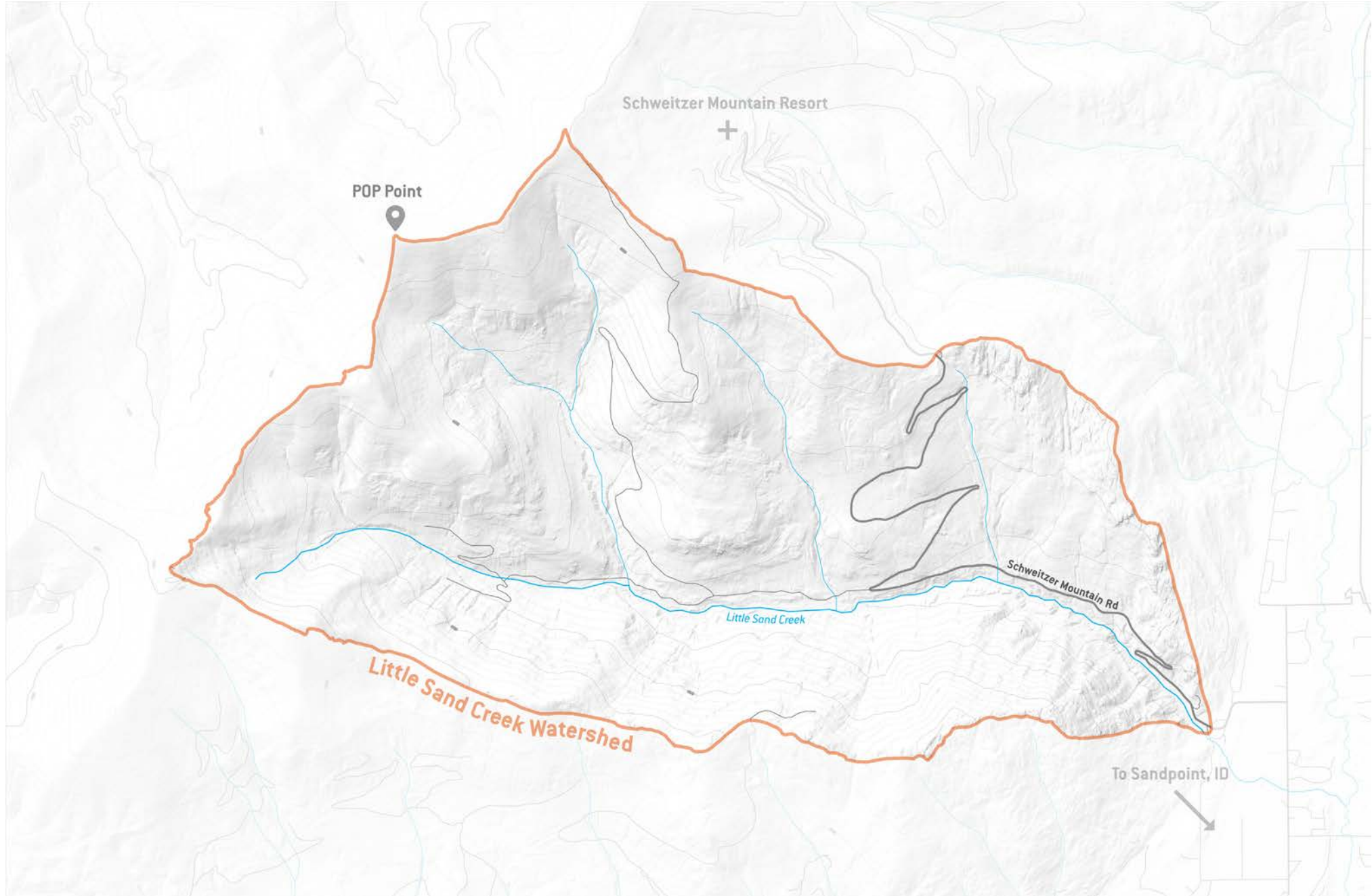


Hiking Trail



Nordic Trail

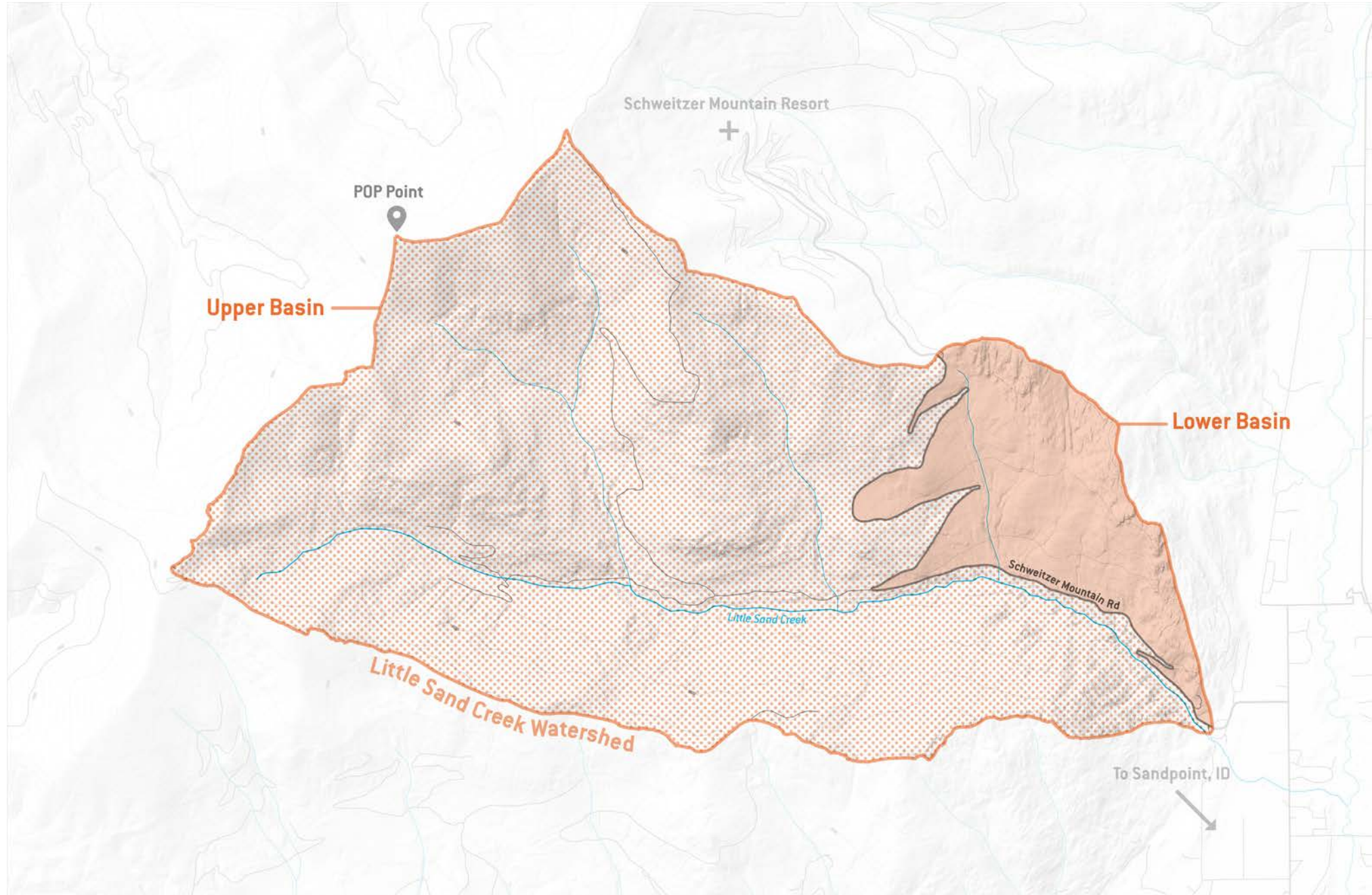
Little Sand Creek Watershed



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FEBRUARY 2023

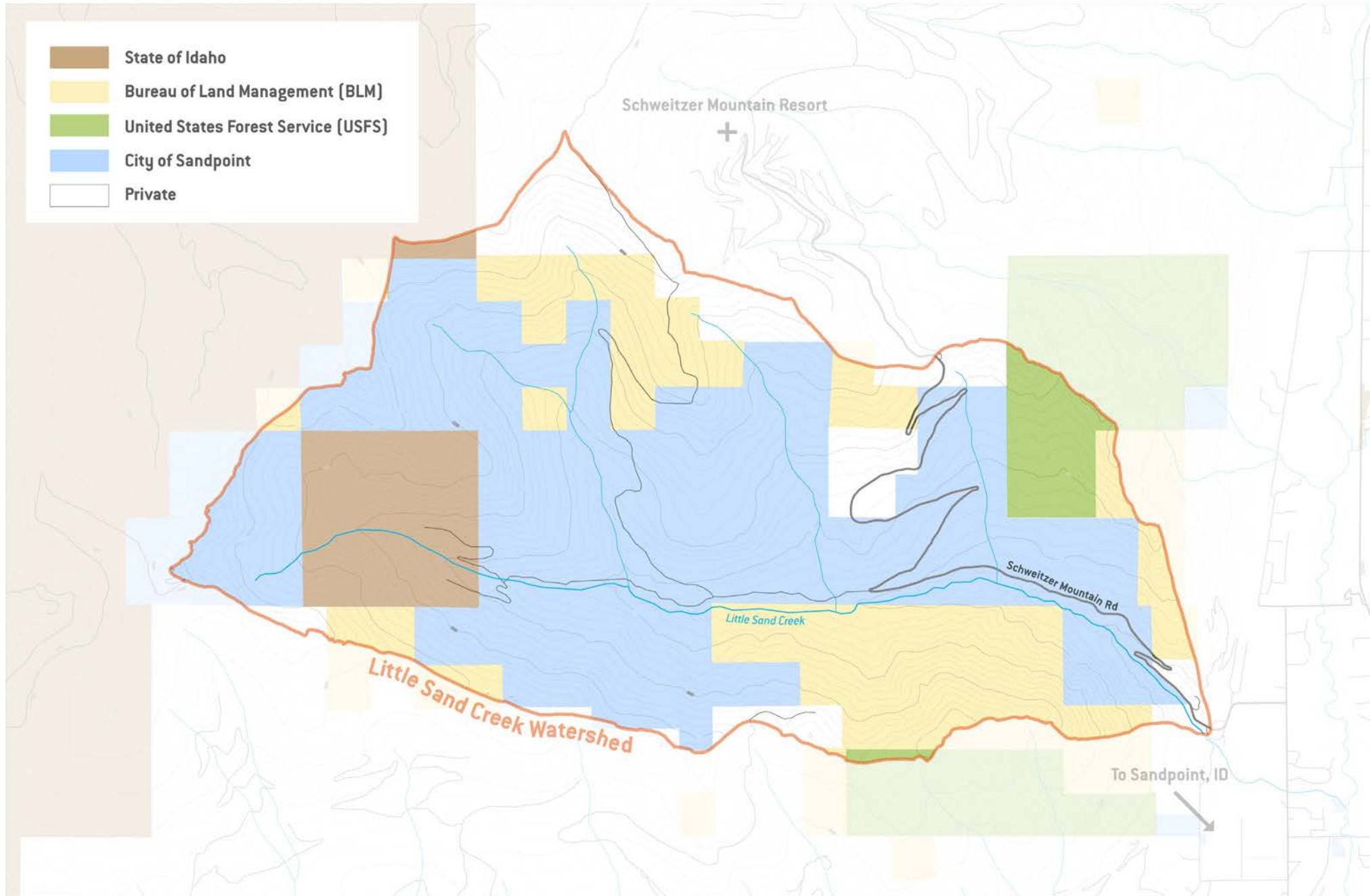
Upper vs. Lower Basin



SANDPOINT, IDAHO

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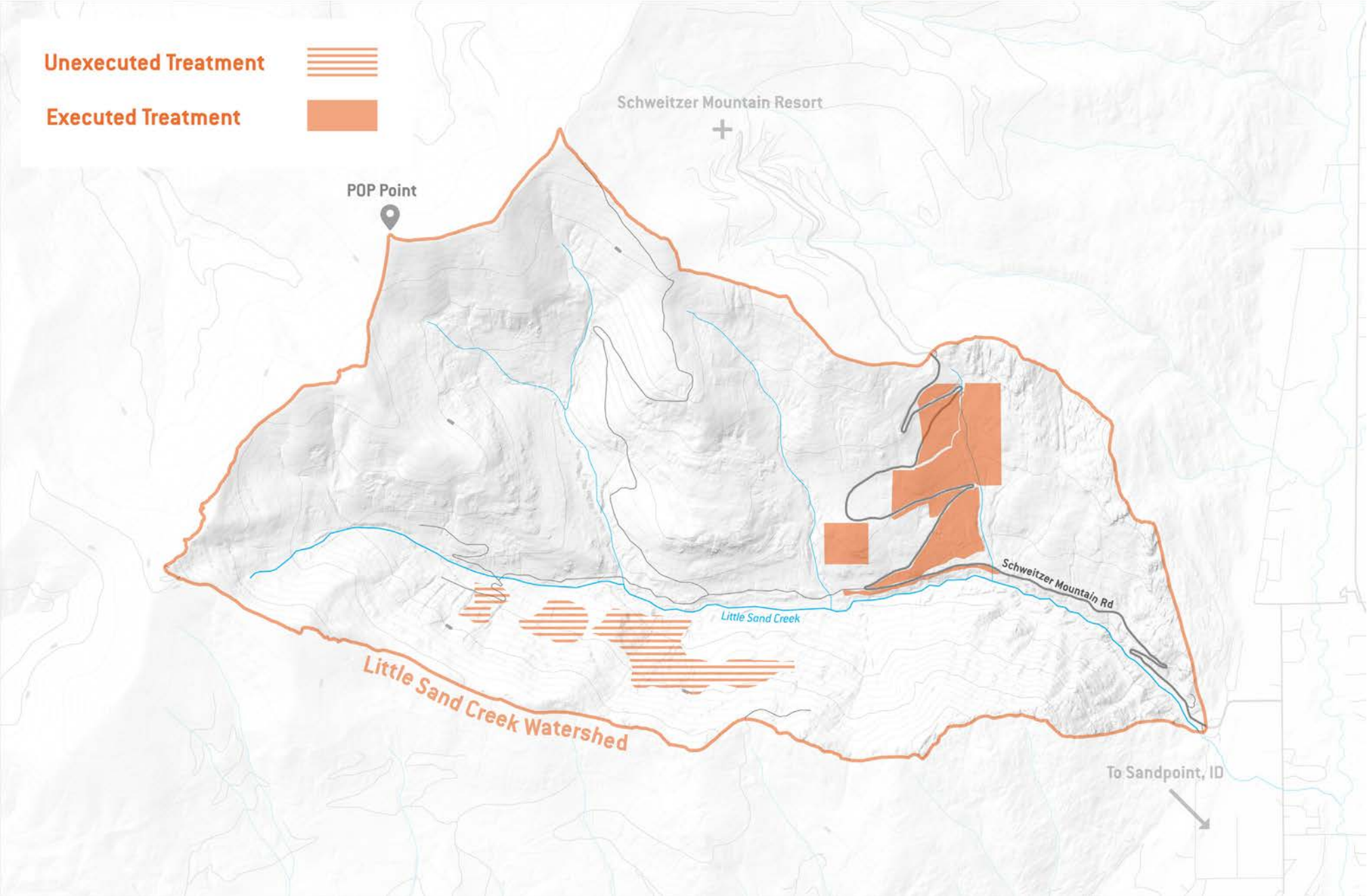
Land Ownership



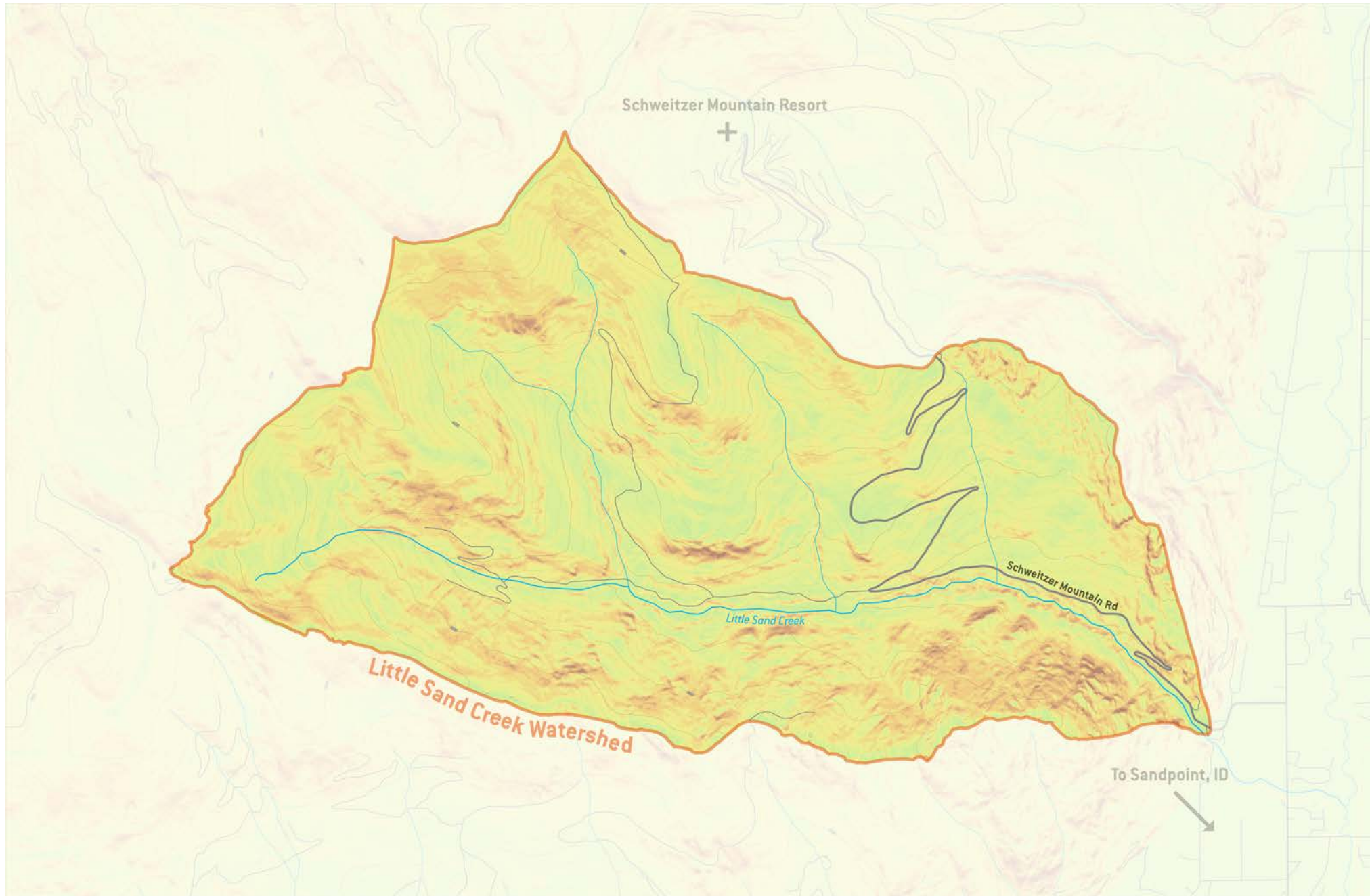
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Forestry Treatment Areas



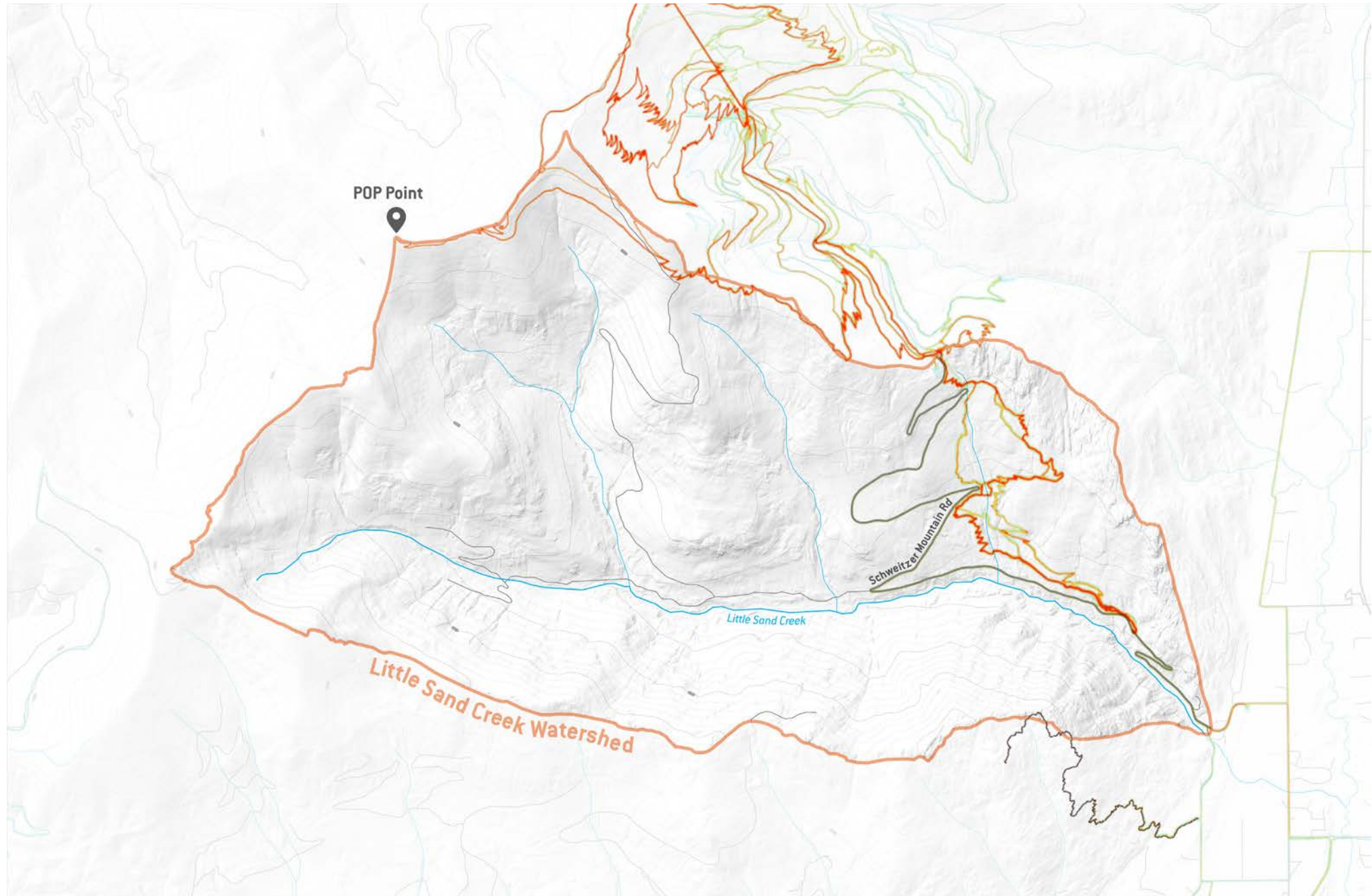
Terrain



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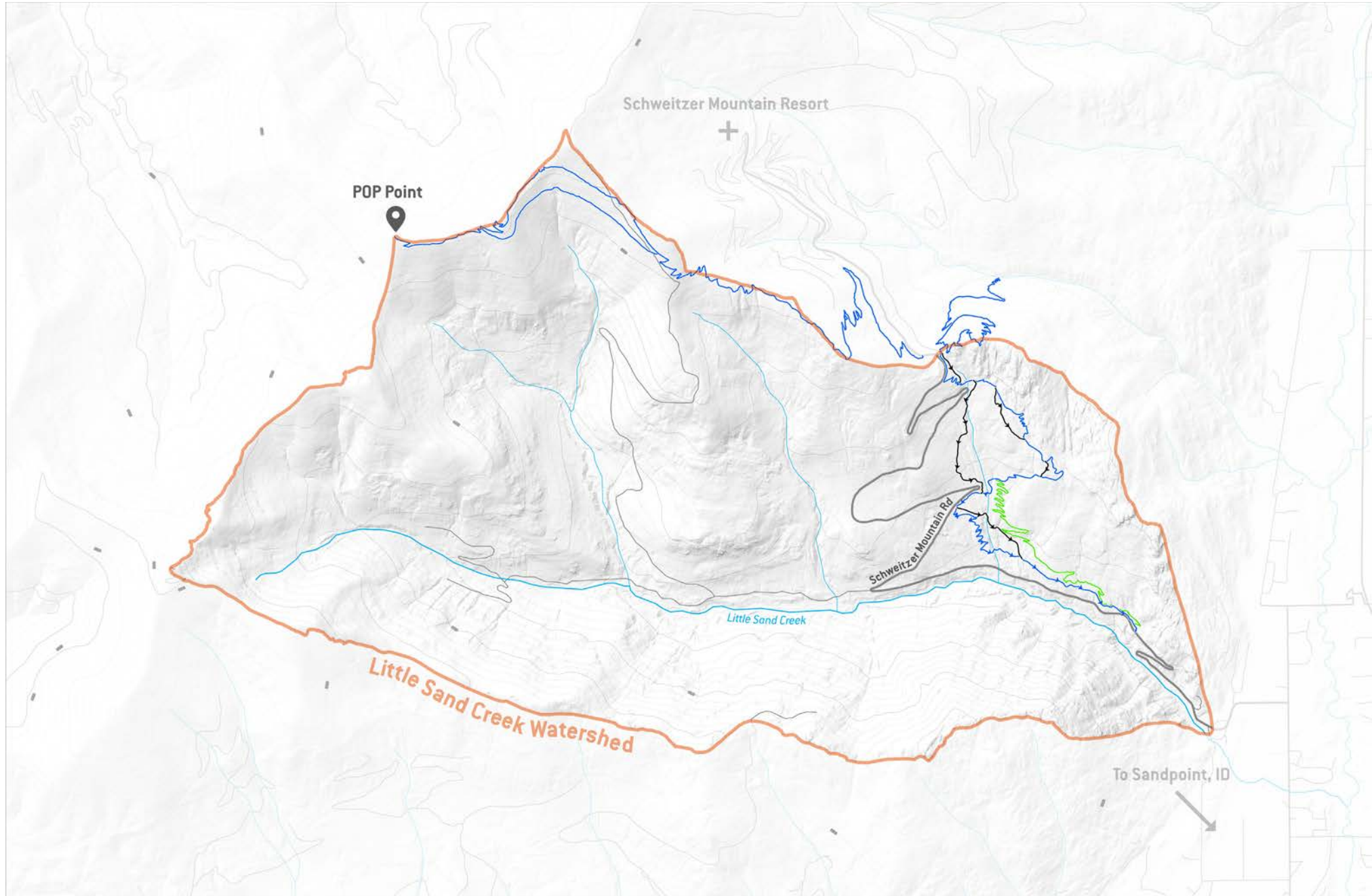
Trail Use Heatmap



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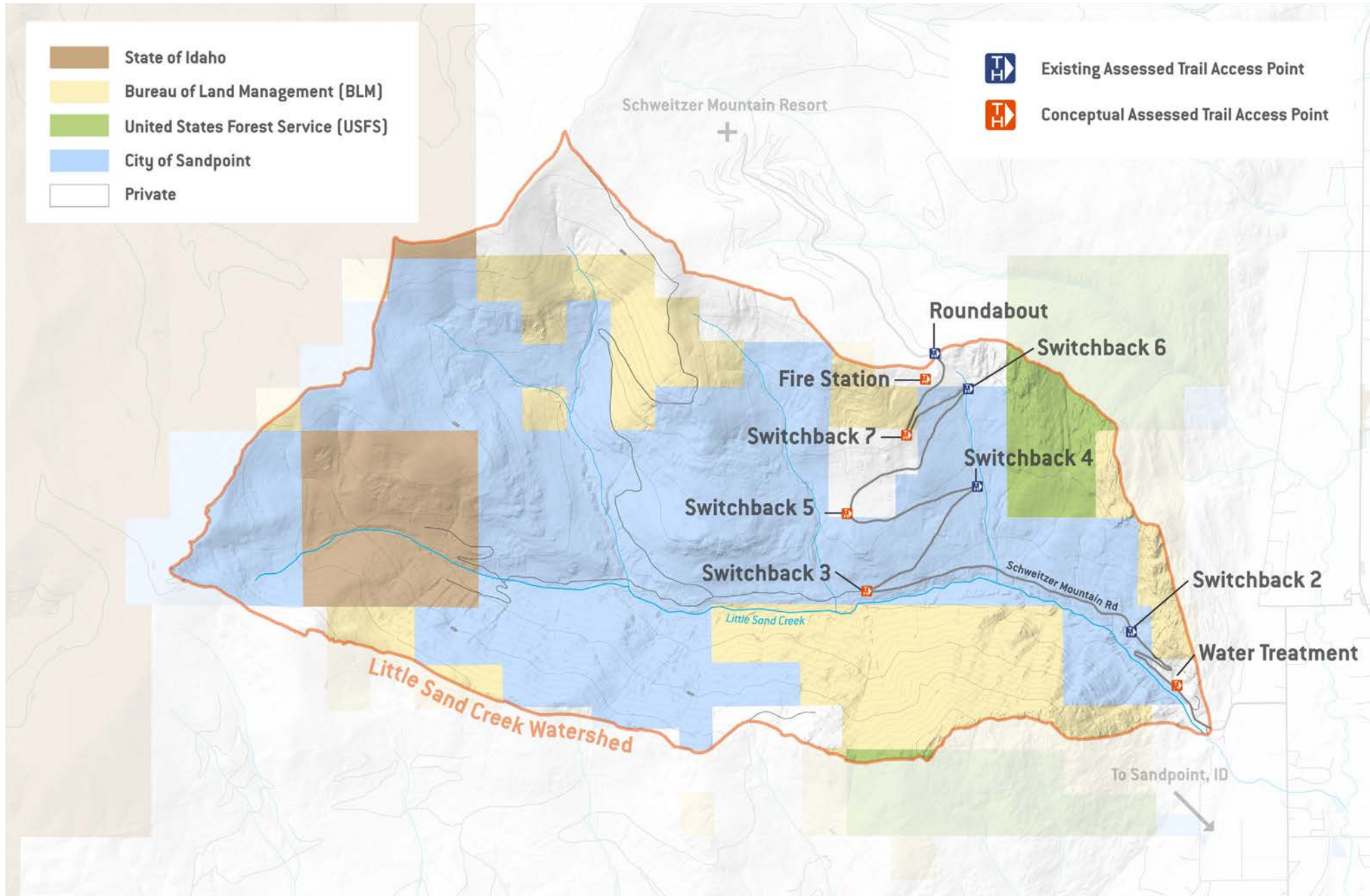
Trail Use Circulation and Typology



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Key Access Points

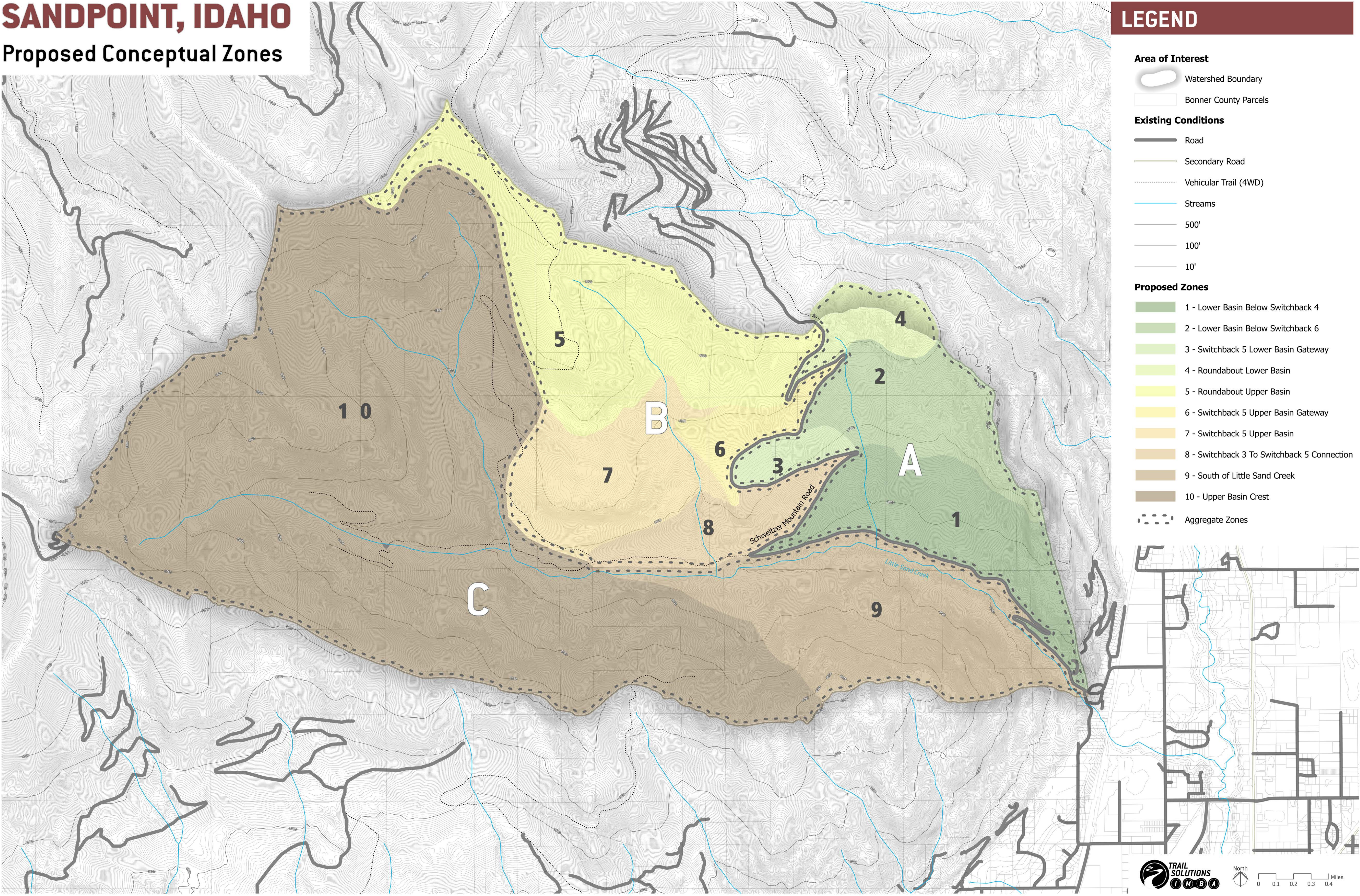


Section A - Zones 1-4												
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion	High Cost Opinion
100	1	Proposed	Green	Mountain Bike Optimized	Bidirectional	Design	Shared Use	Unlikely	0.25	1342	\$ 21,726.58	\$ 24,013.58
101	1	Proposed	Green	Gravity	Down	Design	Bike Only	Unlikely	1.23	6476	\$ 116,522.25	\$ 128,787.75
102	1	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Unlikely	0.48	2549	\$ 22,930.01	\$ 25,343.69
103	1	Proposed	Blue	Gravity	Down	Design	Bike Only	Unlikely	1.21	6368	\$ 114,574.75	\$ 126,635.25
104	1	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.92	4860	\$ 87,450.07	\$ 96,655.34
105	1	Proposed	Blue	Gravity	Down	Design	Bike Only	Unlikely	0.28	1497	\$ 26,940.58	\$ 29,776.43
200	2	Proposed	Blue	Traditional	Bidirectional	Design	Shared Use	Unlikely	0.86	4521	\$ 40,672.87	\$ 44,954.23
201	2	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.99	5231	\$ 94,117.36	\$ 104,024.45
202	2	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.32	1669	\$ 30,022.66	\$ 33,182.94
203	2	Proposed	Blue	Gravity	Down	Design	Bike Only	Unlikely	1.48	7790	\$ 140,152.55	\$ 154,905.45
300	3	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	0.23	1195	\$ 10,749.58	\$ 11,881.12
301	3	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	0.44	2339	\$ 21,039.94	\$ 23,254.67
302	3	Proposed	Green	Mountain Bike Optimized	Bidirectional	Design	Shared Use	Maybe	0.83	4393	\$ 71,139.85	\$ 78,628.25
303	3	Proposed	Blue	Gravity	Down	Design	Bike Only	Maybe	0.75	3968	\$ 71,389.27	\$ 78,903.93
304	3	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.38	2023	\$ 36,398.97	\$ 40,230.44
305	3	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	0.72	3790	\$ 34,095.03	\$ 37,683.98
306	3	Proposed	Blue	Traditional	Bidirectional	Design	Shared Use	Unlikely	0.36	1893	\$ 17,025.47	\$ 18,817.63
400	4	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	1.02	5363	\$ 48,242.90	\$ 53,321.10
401	4	Proposed	Blue	Traditional	Bidirectional	Design	Shared Use	Unlikely	1.70	8988	\$ 80,860.20	\$ 89,371.80
402	4	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.61	3232	\$ 58,152.83	\$ 64,274.18
403	4	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.36	1920	\$ 34,552.83	\$ 38,189.97
Total									15.42	81,406	\$ 1,178,756.51	\$ 1,302,836.15
Section B - Zones 5-8												
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion	High Cost Opinion
500	5	Proposed	Blue	Mountain bike Optimized	Bidirectional	Design	Shared Use	Unlikely	1.80	9481	\$ 153,520.38	\$ 169,680.42
600	6	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	1.80	9501	\$ 85,474.35	\$ 94,471.65
601	6	Proposed	Blue	Mountain bike Optimized	Down	Design	Bike Only	Unlikely	0.95	5039	\$ 81,602.91	\$ 90,192.69
602	6	Proposed	Black	Mountain bike Optimized	Down	Design	Bike Only	Unlikely	0.55	2900	\$ 46,959.42	\$ 51,902.52
700	7	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	1.63	8614	\$ 77,491.03	\$ 85,647.98
701	7	Proposed	Blue	Mountain bike Optimized	Bidirectional	Design	Shared Use	Unlikely	2.25	11860	\$ 192,050.10	\$ 212,265.90
800	8	Proposed	Blue	Mountain bike Optimized	Bidirectional	Design	Shared Use	Unlikely	1.72	9106	\$ 147,449.03	\$ 162,969.98
Total									10.70	56,500	\$ 784,547.21	\$ 867,131.13
Section C - Zones 9 & 10												
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion	High Cost Opinion
900	9	Proposed	Blue	Traditional	Bidirectional	Design	Hike Only	Unlikely	2.63	13898	\$ 125,029.98	\$ 138,191.03
901	9	Proposed	Blue	Traditional	Bidirectional	Design	Hike Only	Unlikely	0.37	1975	\$ 17,768.99	\$ 19,639.41
902	9	Proposed	Black	Traditional	Bidirectional	Design	Hike Only	Unlikely	1.77	9348	\$ 84,099.23	\$ 92,951.78
903	9	Proposed	Black	Traditional	Bidirectional	Design	Hike Only	Unlikely	2.65	13977	\$ 125,738.68	\$ 138,974.33
1000	10	Proposed	Black	Mountain Bike Optimized	Bidirectional	Design	Shared Use	Unlikely	10.40	54921	\$ 889,336.80	\$ 982,951.20
Total									17.83	94,119	\$ 1,241,973.67	\$ 1,372,707.74
Grand Total									43.94	232025.17	\$ 3,205,277.39	\$ 3,542,675.01

Phase 1 - System Circulation													
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion		High Cost Opinion
100	1	Proposed	Green	Mountain Bike Optimized	Bidirectional	Design	Shared Use	Unlikely	0.25	1342	\$	21,726.58	\$ 24,013.58
105	1	Proposed	Blue	Gravity	Down	Design	Bike Only	Unlikely	0.28	1497	\$	26,940.58	\$ 29,776.43
104	1	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.92	4860	\$	87,450.07	\$ 96,655.34
201	2	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.99	5231	\$	94,117.36	\$ 104,024.45
Total									2.45	12,930.36	\$	230,234.57	\$ 254,469.79
Phase 2 - Lower Progressive Loops													
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion		High Cost Opinion
102	1	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Unlikely	0.48	2549	\$	22,930.01	\$ 25,343.69
101	1	Proposed	Green	Gravity	Down	Design	Bike Only	Unlikely	1.23	6476	\$	116,522.25	\$ 128,787.75
103	1	Proposed	Blue	Gravity	Down	Design	Bike Only	Unlikely	1.21	6368	\$	114,574.75	\$ 126,635.25
Total									2.92	15393	\$	254,027.01	\$ 280,766.69
Phase 3 - USFS Managed Trails													
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion		High Cost Opinion
202	2	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.32	1669	\$	30,022.66	\$ 33,182.94
203	2	Proposed	Blue	Gravity	Down	Design	Bike Only	Unlikely	1.48	7790	\$	140,152.55	\$ 154,905.45
401	4	Proposed	Blue	Traditional	Bidirectional	Design	Shared Use	Unlikely	1.70	8988	\$	80,860.20	\$ 89,371.80
403	4	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.36	1920	\$	34,552.83	\$ 38,189.97
400	4	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	1.02	5363	\$	48,242.90	\$ 53,321.10
Total									4.87	25729	\$	333,831.14	\$ 368,971.26
Phase 4 - Switchback Five Connection													
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion		High Cost Opinion
200	2	Proposed	Blue	Traditional	Bidirectional	Design	Shared Use	Unlikely	0.86	4521	\$	40,672.87	\$ 44,954.23
301	3	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	0.44	2339	\$	21,039.94	\$ 23,254.67
305	3	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	0.72	3790	\$	34,095.03	\$ 37,683.98
306	3	Proposed	Blue	Traditional	Bidirectional	Design	Shared Use	Unlikely	0.36	1893	\$	17,025.47	\$ 18,817.63
303	3	Proposed	Blue	Gravity	Down	Design	Bike Only	Maybe	0.75	3968	\$	71,389.27	\$ 78,903.93
Total									3.13	16510	\$	184,222.58	\$ 203,614.43
Phase 5 - Upper Basin Connection													
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion		High Cost Opinion
500	5	Proposed	Blue	Mountain bike Optimized	Bidirectional	Design	Shared Use	Unlikely	1.80	9481	\$	153,520.38	\$ 169,680.42
600	6	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	1.80	9501	\$	85,474.35	\$ 94,471.65
700	7	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	1.63	8614	\$	77,491.03	\$ 85,647.98
302	3	Proposed	Green	Mountain Bike Optimized	Bidirectional	Design	Shared Use	Maybe	0.83	4393	\$	71,139.85	\$ 78,628.25
300	3	Proposed	Green	Traditional	Bidirectional	Design	Shared Use	Maybe	0.23	1195	\$	10,749.58	\$ 11,881.12
304	3	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.38	2023	\$	36,398.97	\$ 40,230.44
Total									6.67	35207	\$	434,774.15	\$ 480,539.85
Phase 6 - Fill In													
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion		High Cost Opinion
402	4	Proposed	Black	Gravity	Down	Design	Bike Only	Unlikely	0.61	3232	\$	58,152.83	\$ 64,274.18
601	6	Proposed	Blue	Mountain bike Optimized	Down	Design	Bike Only	Unlikely	0.95	5039	\$	81,602.91	\$ 90,192.69
602	6	Proposed	Black	Mountain bike Optimized	Down	Design	Bike Only	Unlikely	0.55	2900	\$	46,959.42	\$ 51,902.52
Total									2.12	11171	\$	186,715.16	\$ 206,369.38
Phase 7 - Watershed Crest													
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion		High Cost Opinion
1000	10	Proposed	Black	Mountain Bike Optimized	Bidirectional	Design	Shared Use	Unlikely	10.40	54921	\$	889,336.80	\$ 982,951.20
902	9	Proposed	Black	Traditional	Bidirectional	Design	Hike Only	Unlikely	1.77	9348	\$	84,099.23	\$ 92,951.78
903	9	Proposed	Black	Traditional	Bidirectional	Design	Hike Only	Unlikely	2.65	13977	\$	125,738.68	\$ 138,974.33
Total									14.82	78246	\$	1,099,174.70	\$ 1,214,877.30
Phase 8 - Final Connections (alignments in data only)													
Number	Zone	Status	Difficulty	Style	Direction	Action	Planned Trail User	Nordic Potential	Mileage	Linear Footage	Low Cost Opinion		High Cost Opinion
900	9	Proposed	Blue	Traditional	Bidirectional	Design	Hike Only	Unlikely	2.63	13898	\$	125,029.98	\$ 138,191.03
901	9	Proposed	Blue	Traditional	Bidirectional	Design	Hike Only	Unlikely	0.37	1975	\$	17,768.99	\$ 19,639.41
701	7	Proposed	Blue	Mountain bike Optimized	Bidirectional	Design	Shared Use	Unlikely	2.25	11860	\$	192,050.10	\$ 212,265.90
800	8	Proposed	Blue	Mountain bike Optimized	Bidirectional	Design	Shared Use	Unlikely	1.72	9106	\$	147,449.03	\$ 162,969.98
Total									6.98	544521	\$	482,298.09	\$ 533,066.31
Grand Total									11.91	62888	\$	3,205,277.39	\$ 3,542,675.01

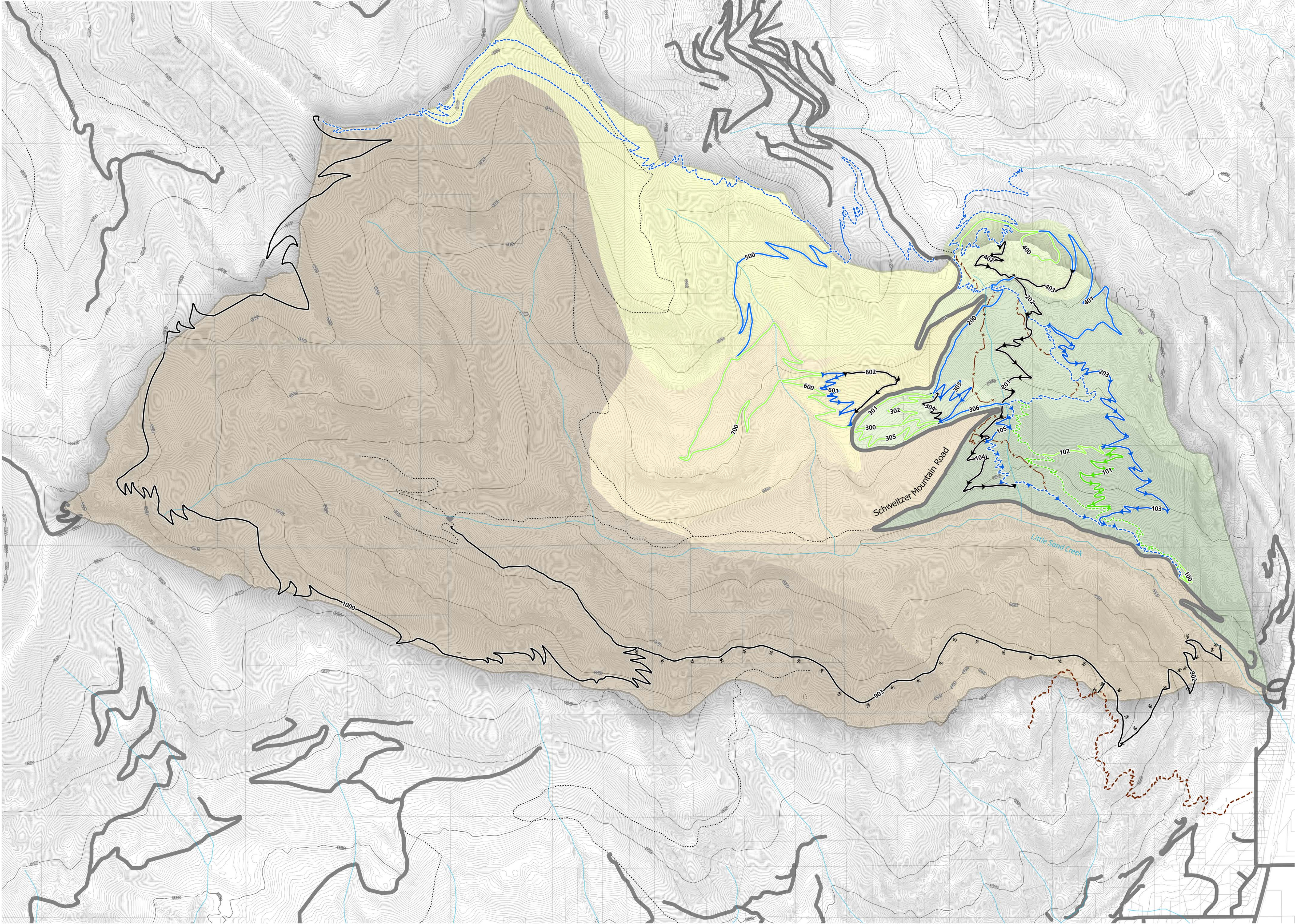
SANDPOINT, IDAHO

Proposed Conceptual Zones



SANDPOINT, IDAHO

Proposed Conceptual Zones And Trail Alignments

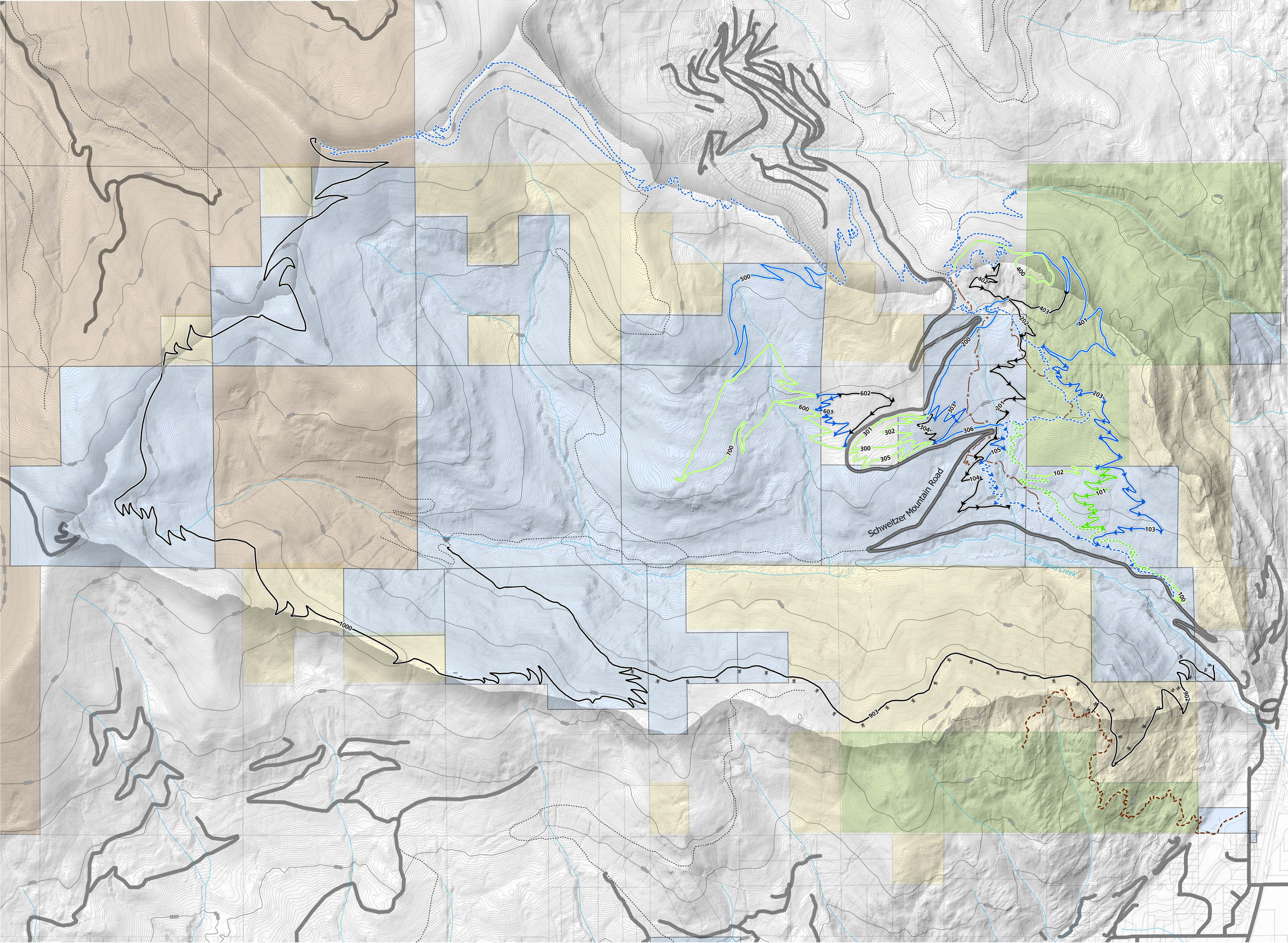


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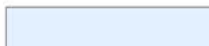
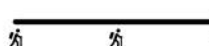
- Area of Interest**
- Watershed Boundary
- Bonner County Parcels
- Existing Conditions**
- Road
- Secondary Road
- Vehicular Trail (4WD)
- Streams
- 500'
- 100'
- 10'
- Existing Alignments**
- Existing Green Bidirectional
- Existing Blue Bidirectional
- Existing Blue Directional
- Existing Black Directional
- Decommission
- Mickinnick Hiking Trail
- Future Proposed Conceptual Alignments**
- Difficult,Direction,Planned User
- Black,Bidirectional,Hike Only
- Black,Bidirectional,Shared Pedestrian Use
- Black,Down,Bike Only
- Blue,Bidirectional,Shared Pedestrian Use
- Blue,Down,Bike Only
- Green,Bidirectional,Shared Pedestrian Use
- Green,Down,Bike Only
- Proposed Zones**
- 1 - Lower Basin Below Switchback 4
- 2 - Lower Basin Below Switchback 6
- 3 - Switchback 5 Lower Basin Gateway
- 4 - Roundabout Lower Basin
- 5 - Roundabout Upper Basin
- 6 - Switchback 5 Upper Basin Gateway
- 7 - Switchback 5 Upper Basin
- 8 - Switchback 3 To Switchback 5 Connection
- 9 - South of Little Sand Creek
- 10 - Upper Basin Crest

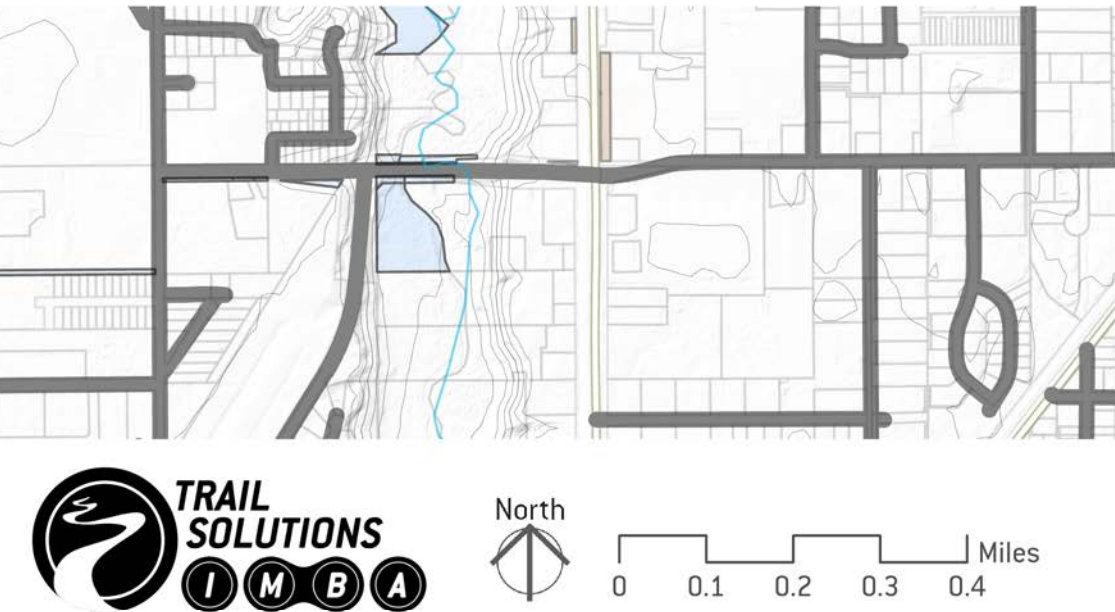
SANDPOINT, IDAHO

Proposed Trail Alignments



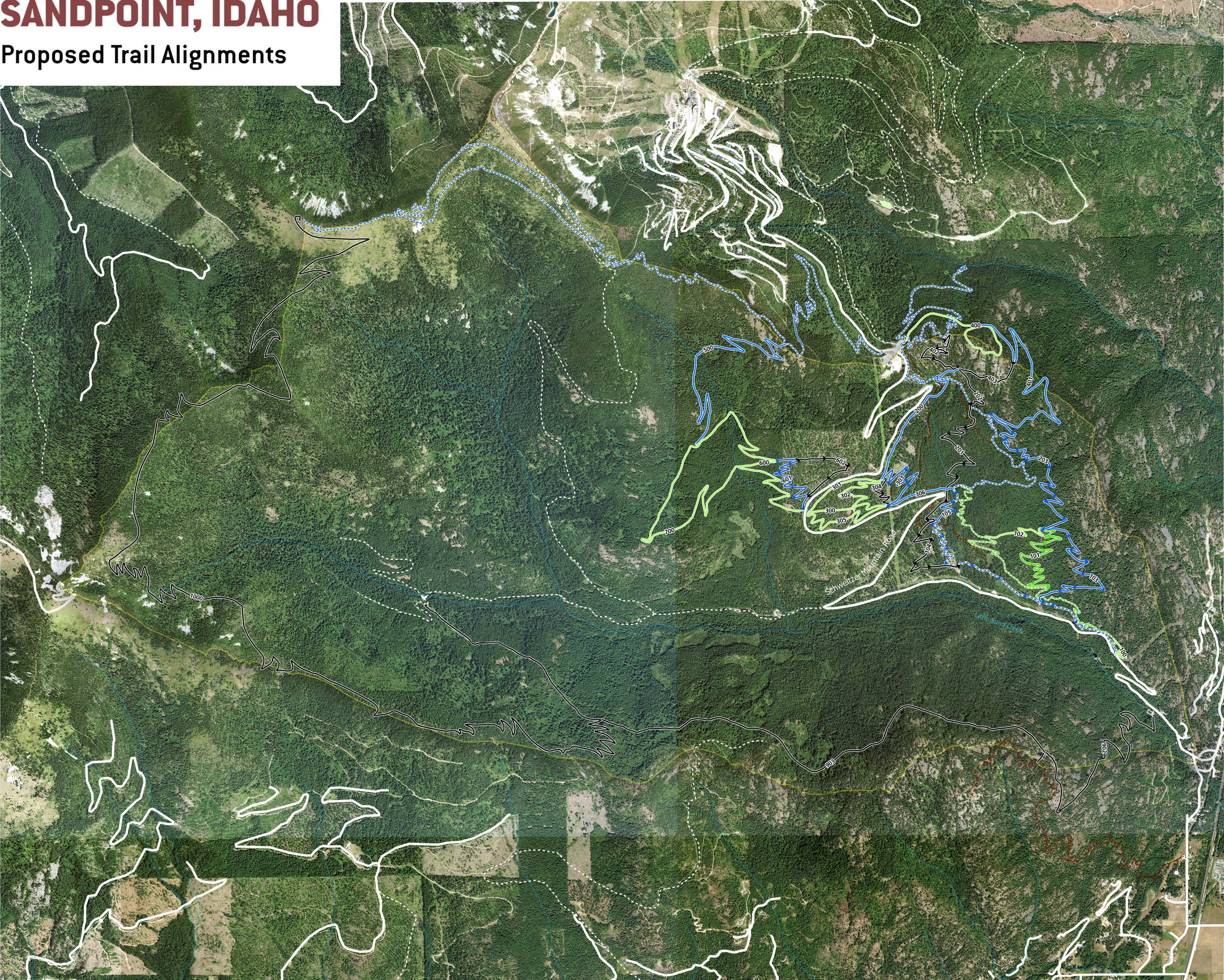
LEGEND

- Area of Interest**
-  Watershed Boundary
- USA Federal Lands**
-  Bureau of Land Management
-  Forest Service
-  State of Idaho
-  City of Sandpoint
-  Bonner County Parcels
- Existing Conditions**
-  Road
-  Secondary Road
-  Vehicular Trail (4WD)
-  Streams
-  500'
-  100'
-  10'
- Existing Alignments**
-  Existing Green Bidirectional
-  Existing Blue Bidirectional
-  Existing Blue Directional
-  Existing Black Directional
-  Decommission
-  Mickinnick Hiking Trail
- Future Proposed Conceptual Alignments**
- Difficult,Direction,Planned User
-  Black,Bidirectional,Hike Only
-  Black,Bidirectional,Shared Pedestrian Use
-  Black,Down,Bike Only
-  Blue,Bidirectional,Shared Pedestrian Use
-  Blue,Down,Bike Only
-  Green,Bidirectional,Shared Pedestrian Use
-  Green,Down,Bike Only



SANDPOINT, IDAHO

Proposed Trail Alignments



LEGEND

- Area of Interest**
- Watershed Boundary
- Existing Conditions**
- Road
 - Secondary Road
 - Vehicular Trail (4WD)
 - Streams
- Existing Alignments**
- Existing Green Bidirectional
 - Existing Blue Bidirectional
 - Existing Blue Directional
 - Existing Black Directional
 - Decommission
 - Mickinnick Hiking Trail
- Future Proposed Conceptual Alignments**
- Difficult,Direction,Planned User
- Black,Bidirectional,Hike Only
 - Black,Bidirectional,Shared Pedestrian Use
 - Black,Down,Bike Only
 - Blue,Bidirectional,Shared Pedestrian Use
 - Blue,Down,Bike Only
 - Green,Bidirectional,Shared Pedestrian Use
 - Green,Down,Bike Only

