

Long Term Vision Plan
SpearFish, SD

SEPTEMBER 2023

ROCK SOLID TRAIL CONTRACTING, LLC

DESIGN. CONSTRUCTION. CONSULTING.

Prepared for: Black Hills Trails – Spearfish, SD Chapter

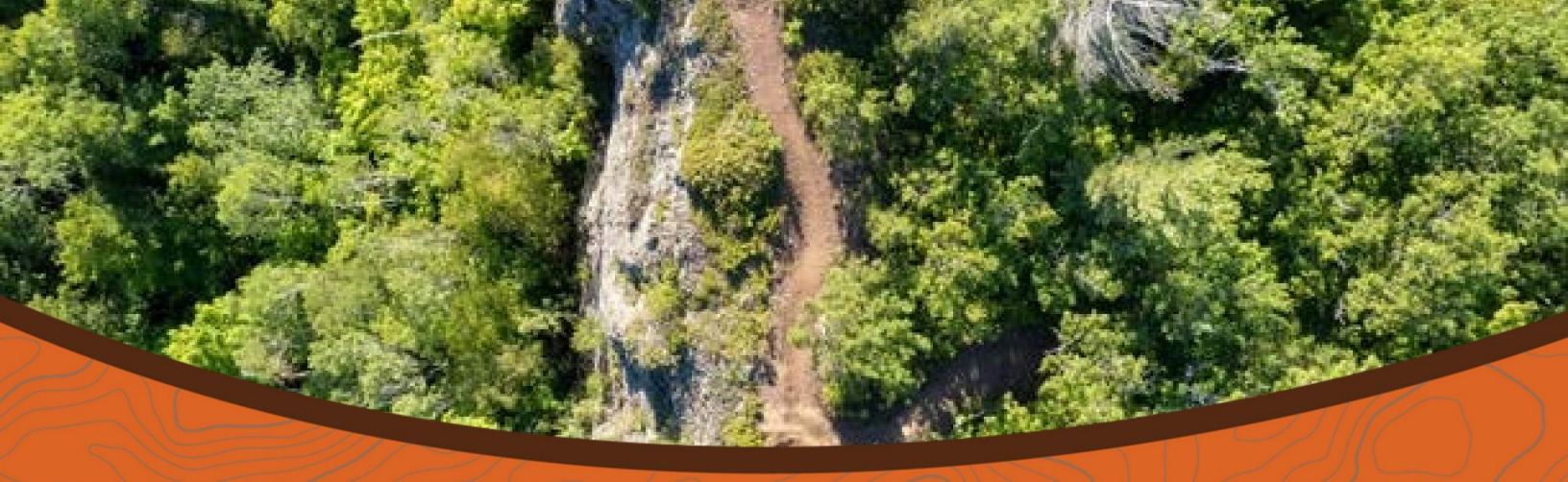
CONTENTS

Executive Summary	1
Goals & Opportunities	2
Spearfish, A Mountain Bike Town	3
Spearfish overview map	4
Zone 1: Forebay Area	5
Zone 2: Beginner Skills	7
Zone 3: Gravity Skills	8
Zone 4: Lookout Mountain	9
Zone 5: McGuigan Nature Area	12
Recommendation Summary	13
Future Zones: Expansion Opportunities	14
Trailhead Access & Accommodations	15
Community Engagement	16
Implementation	17
Rock Solid Phases of Trail Development	18
Trail Planning & Design	19
Funding & Construction	20
Maintenance	21
Conclusion	22
Appendix	

CONTACT US

8110 W Ford Springs Rd.
Bentonville, AR 72712

ROCKSOLIDTRAILS.COM



Highlands Trail
Keweenaw Peninsula, MI

EXECUTIVE SUMMARY

The City of Spearfish, SD has ample opportunities to be an exceptional outdoor community for its residents, along with a destination for travelers who are looking for a small mountain town feel, with the amenities of a larger city. Spearfish currently has a well-established paved recreation path that spans the length of the city, which has continued to grow as the city expands. This provides a great foundation for safe access to trails. Along with this, Spearfish boasts a vibrant downtown with a wide variety of shops and food establishments. Anchored just east of the downtown area is the start of the recreation path at the mouth of the iconic Spearfish Canyon. The recreation path leads users right into the City Campground and City Park, by generally paralleling Spearfish Creek as it passed through the city. This location provides an excellent basecamp for visitors of the community. Centrally located on the east side of Spearfish you will find Lookout Mountain which boasts 13 miles of existing multiuse trails with the potential of additional access to the surrounding neighborhoods. Just beyond the city limits of Spearfish to the west you will find unparalleled access Black Hills National Forest, which is a gateway to 1.2 million acres of public lands that spans into the neighboring state of Wyoming, and features a true mountain experience. As you travel north and west in Spearfish you will find additional neighborhoods and business expansion that yet again boasts access to north edges of Black Hills National Forest where you can find optimal access to forest gravel roads and trailheads. This long-term vision plan is aimed to assist Spearfish in realizing the already well-established outdoor spirit and expand upon this by providing increased access and more diverse trail experiences from beginner to advanced mountain bikers within the city limits of Spearfish and beyond.

PROJECT BACKGROUND

Black Hills Trails and its partners reached out to Rock Solid Trail Contracting with the goal of creating this Long-Term Vision Plan for the community of Spearfish and identifying the opportunities for mountain biking that exist within the City of Spearfish.

During the summer of 2023, staff from Rock Solid traveled to the City of Spearfish to meet with project stakeholders to gain a better understanding of the needs and desires of the community. During the visit to Spearfish there were multiple meetings hosted with both City staff and leadership, as well as with local stakeholders such as the Dakota 5-0 race promoter and local bike shop owners, to gain a better understanding of the history of trails in the community, the current trail offerings, and gain perspective on the direction that Spearfish desires for future trail development.

GOALS AND OPPORTUNITIES

Maximize the natural beauty found in Spearfish by taking advantage of the many vistas and ridge lines.

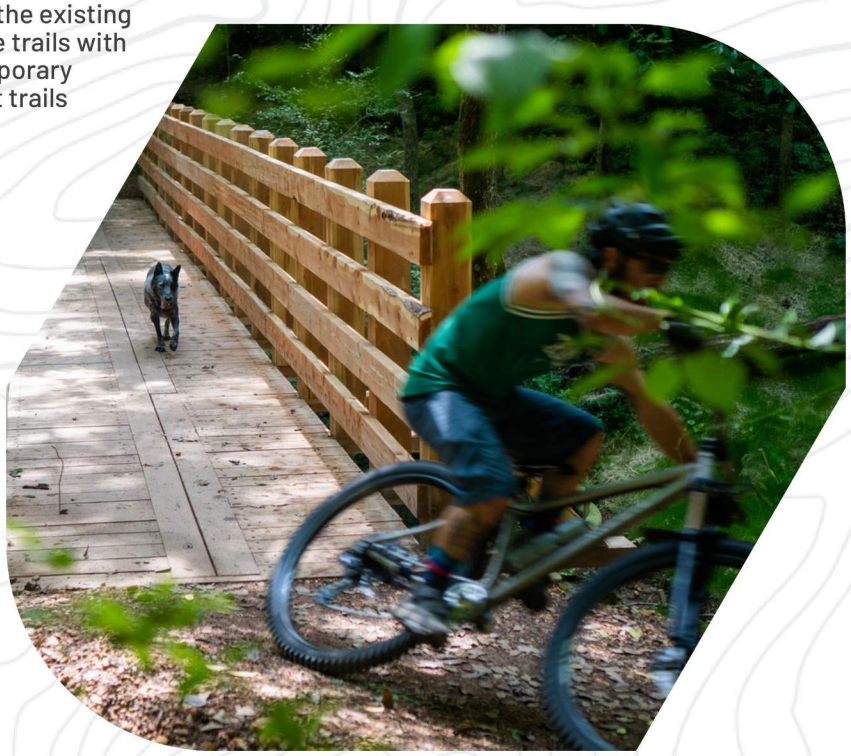
Diversify the current offering of trail experiences by adding Beginner, Intermediate, and Advanced Level machine-built trails.

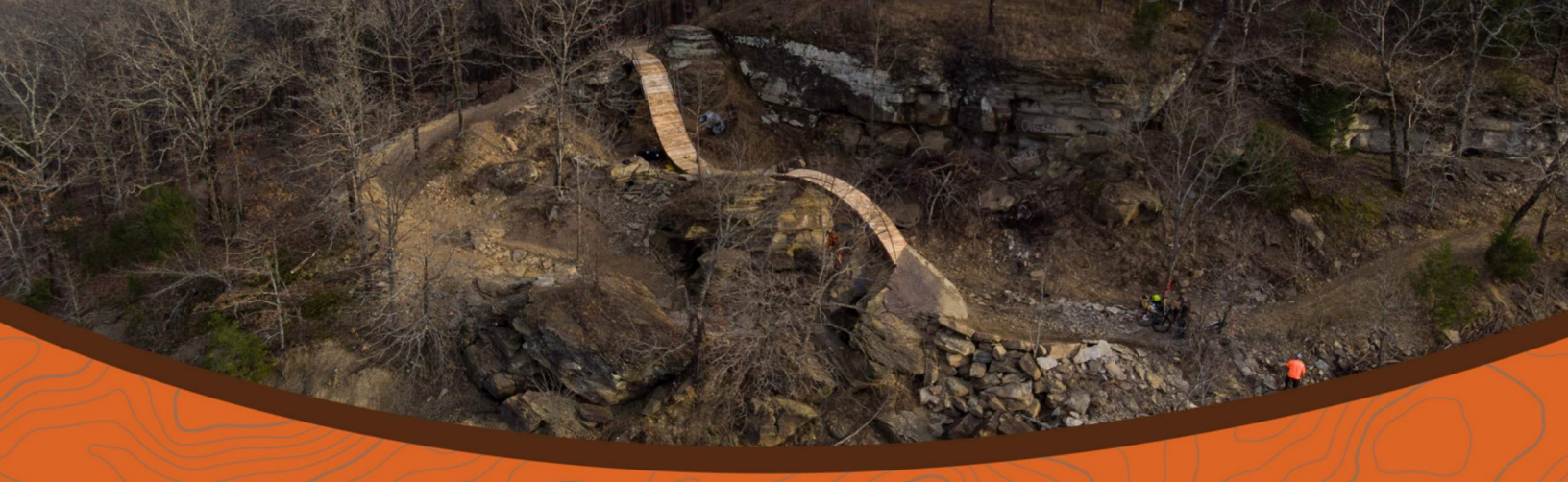
Create new opportunities and locations for bike optimized trails and access.

Complement the existing mountain bike trails with more contemporary machine-built trails

Make Spearfish a Mountain Bike and Trail Community Destination.

Create more "Ride to Ride" trail experience opportunities for local residents to increase the livability and attractiveness of the City of Spearfish.





Pontiac Power
Lake Vian, OK

Spearfish, A Mountain Bike Town

Many conversations had during our visit to Spearfish focused on a desire to improve the quality of life in Spearfish through trails, as well as develop a status as a trail destination community. In recent decades, cities like Copper Harbor, MI; Cedar City, Utah; Crosby, MN; and Bentonville, AR have all reinvented themselves as mountain biking towns. Thoughtful planning and community engagement has allowed these communities to improve outdoor recreation opportunities for local and out-of-town users, with significant economic impacts.

Our recommendations focus on creating more "Ride to Ride" trail experiences. A Ride to Ride experience can be characterized as having high quality singletrack trails within a short riding distance of one's home or place of work. This type of riding experience provides for an authentic and grounded experience for the community, because it removes the reliance on a vehicles to access trails.

Diversifying and Expanding Opportunities for Trail Users

A common theme that was communicated by the various stakeholders and community leaders was that there is sufficient trail built for riders who enjoy an intermediate and advanced level hand-cut or "legacy" trail experience. There is consensus across the community that diversifying the trail offerings and expanding opportunities for less experienced riders are primary goals of any new trail development.

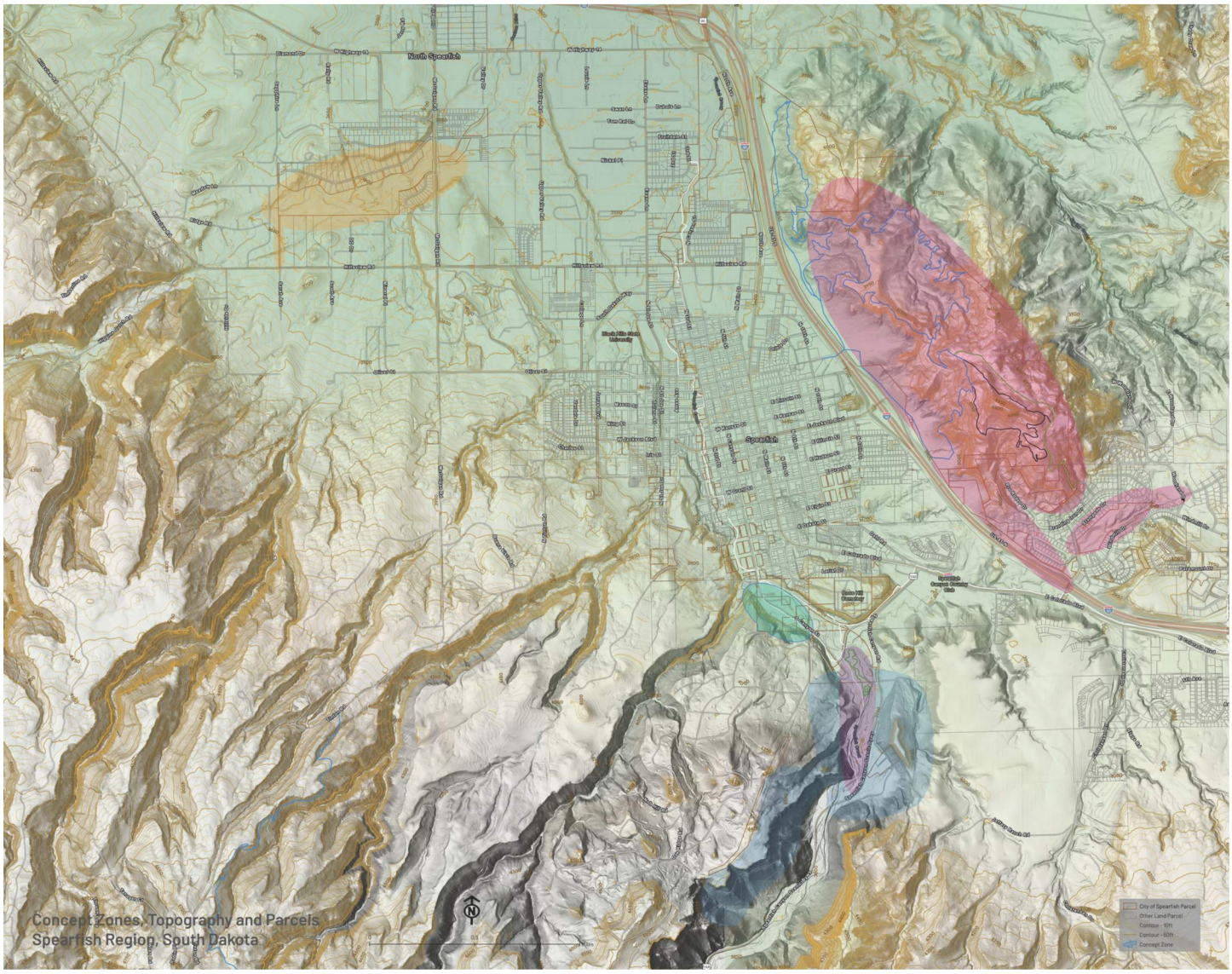
To diversify the trail styles in Spearfish, stakeholders would like to see modern, machine-built beginner through advanced level trails built as part of any new development. To complement this, and add further trail diversity, consideration may be given for planning flow trails within Spearfish or the greater Black Hills region.

Opportunities to capture all the desired experiences based on the existing topography and landscape are plentiful. A key component to all of this will be to organize the layout of any new trails in a way that they blend into existing trails where present and that new trails are routed in ways that minimize wayfinding confusion and maximize positive user experiences.



Spearfish Canyon
South Dakota

Speafish Overview Map





Zone 1:
Forebay Area

Mt.
Dar





Mt. Nebo S.P.
Dardanelle, AR

Zone 1: Forebay Area

Status: City Leased, State Owned Lands without Existing Trail Development

This zone is comprised of parcels owned by the South Dakota Game, Fish and Parks Department, but leased for recreation purposes by the City of Spearfish. This zone is located on both sides of Spearfish Canyon Road.

The western slopes of the Forebay Area present an opportunity for the creation of a stand-alone trail system. The goal for this system would be a contemporary machine-built trail system leaning towards directional gravity style trails with hubs as starting points and ending points, along with at least one climbing return trail. It is recommended that all of the proposed concept trails be directional in nature for the purposes of safety, functionality and wayfinding. The concept of a connection from this land south to U.S. Forest Service lands should also be explored, either by connecting to existing establish side roads or by the creation of natural surface trails. This connection would require coordination with the U.S. Forest Service, along with other property owners in this area. A 27-hole Disc Golf Course is also located in this zone, and trails would likely need to route around the south and west sides of the disc golf course.

Within this zone on the east side of Spearfish Canyon Road there is the potential for a contemporary machine-build XC style flow trail that would contour and compliment the existing landscape. Long term there would be potential to expand trails off of this land to U.S. Forest Service lands with the goal of connecting to Spearfish Mountain. Trail Concept planning in this zone should also include the possibility of future expansion onto other neighboring properties if those opportunities arise. The Spearfish Rifle and Pistol Range is located on this side of Spearfish Canyon Road as well, considerations should be made in terms of trails only being developed on the back side (east) of the ridge for safety purposes.

Trailhead access and accommodations should be explored in this zone for long term viability as this zone has the potential of being a main point of entry to a much larger scale trail system if the right opportunities for access were to align. Additionally, the proximity to the City Park, City Campground and other public amenities, along with the short distance to downtown, and stunning views and scenery that Spearfish Canyon provides, this location could easily serve as the central recreational hub for the City of Spearfish.

Zone 2:
Beginner Skills



Status: City and State-Owned Land with Existing Beginner Trail

This zone is comprised of Individual parcels that are either owned by the City of Spearfish or the South Dakota Game, Fish and Parks Department. Currently there is a beginner skills area near the Spearfish Hydro Electric Plant, along with existing beginner trails identified by stakeholders and city staff as Phase One Beginner trails.

Per discussions onsite, there is a Phase Two beginner skills area approved for expansion. Phase Two beginner trails would still need to be designed before being built. Another opportunity for this zone would be to expand upon and enhance the existing beginner skills area to so user capacity could be increased as well and more diverse skill development features added.

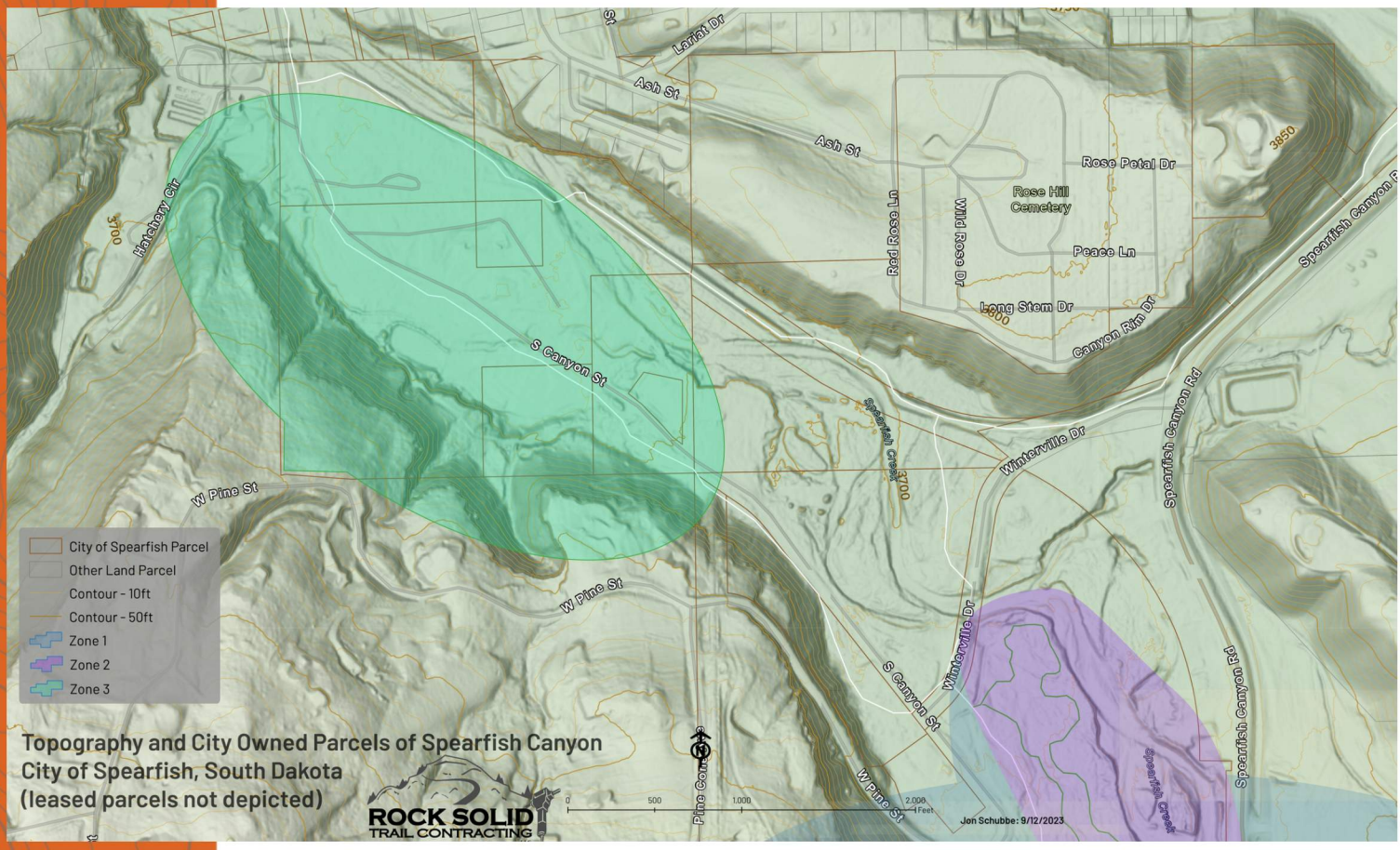




Zone 3:
Gravity Skills

Status: City Owned Land with Existing Rogue Trails

This zone is comprised of parcels that are owned by the City of Spearfish and located within the Spearfish City Campground. It was observed during the site visit that there are some existing rogue trails located within this zone as well as some small and primitively built jumps. Moderate erosion was observed onsite due to a heavy rain event earlier in 2023. Recommendations for this zone would be to plan, design and build gravity-based skills features. Drainage considerations would be a top priority for this zone in terms of long-term function and maintenance needs. This could include using durable materials such as rock armoring known low spots or areas where water would be expected to drain across, yet would double as rock gardens. Larger rock should also be considered for feature construction within this zone to mimic what a rider might find in both established bike parks, along with on more primitive or remote trails. Jumps within this zone could be built using manufactured ramps, with dirt landings which would lessen the need for long term maintenance, and increase the predictability of the features.



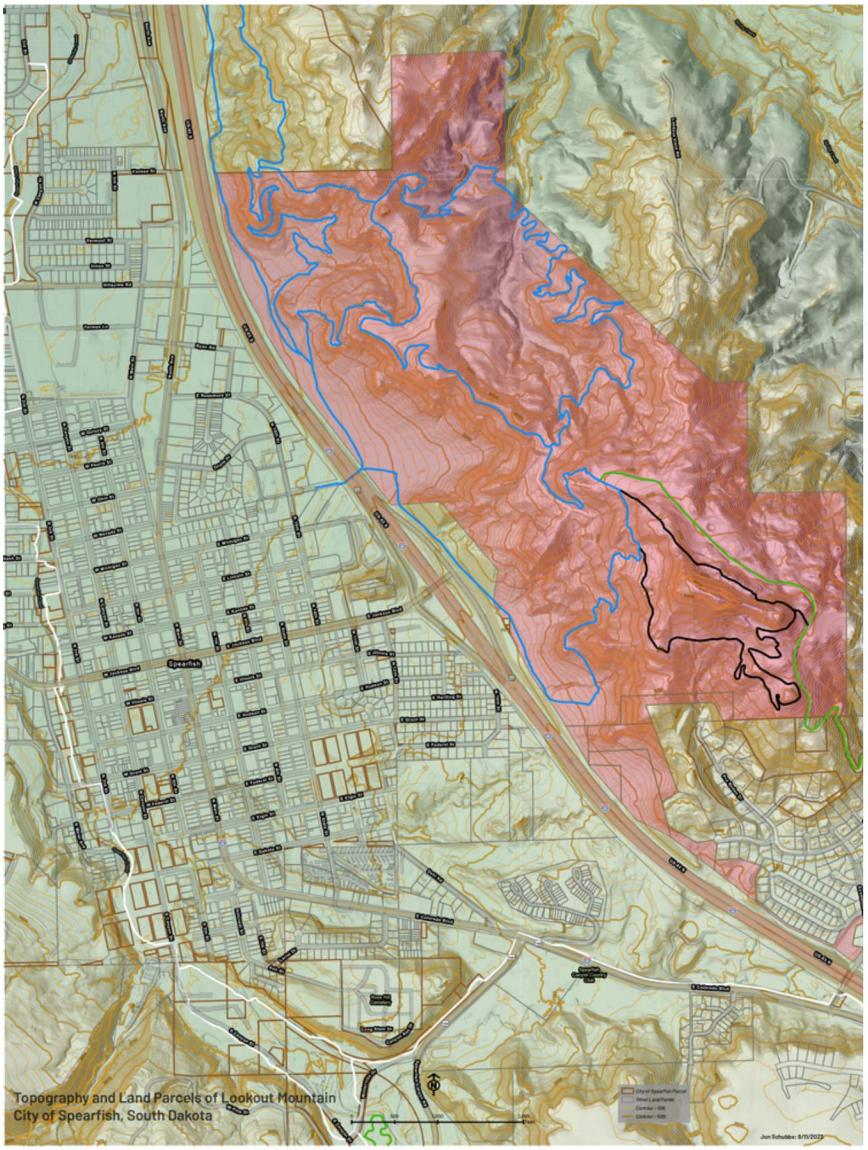


Zone 4: Lookout Mountain

Status: City Owned Land with Existing Legacy Trail

This zone is comprised of parcels that are owned by the City of Spearfish, but have a conservation easement and land management plan attached to them. All recommendations are subject to oversight and approval by parties associated with the land management plan and conservation easement.

Lookout Mountain currently provides mountain bike access on approximately 13 miles of hand built singletrack trails that are predominately intermediate in skill level. There is a small portion of advanced level trail located on this site, along with one trail that is categorized as beginner level trail. The one beginner level trail only meets the definition of beginner due to its width, and has a maximum grade in excess of 26%. The beginner trail currently serves as a two-track road that is predominately used for access to the top of the mountain where some communication towers are located. There is also a cattle grazing lease on this property, which is managed by the City of Spearfish.





Split Rock Wilds
Two Harbors, MN

Zone 4: Lookout Mountain

Based on conversations with local leaders and stakeholders the following recommendations for this site are as follows:

Create a beginner level machine-built flow trail

This trail would be adjacent to the existing beginner trail (Pony Express) that would meet all of the standards of a beginner level trail including: 36" minimum trail tread width, average grade of trail at 5% or less, with a maximum trail grade of 10%, and have a trail tread surface that is firm and stable. An alternative to this, which would provide a better overall trail user experience would be to create two trails that are parallel to each other meeting the standards as described above, but configured as a loop to offer a directional trail experience, where one side would be a climbing trail, and the other a descending trail.

Add a beginner connector trail between Sandstone Hills and the existing tunnel under I-90

This trail would be machine-built natural surface trail that meets the standards as noted above. This trail would parallel I-90 on city owned land. An alternative surface for this trail could be a chip seal, which would provide a more durable all-weather, year-round experience that would need minimal future maintenance.

Reroute a section of trail known as "Ridge Trail"

The "Ridge Trail" is currently not sustainable due to excessively steep grades. The reroute would include multiple climbing turns which would allow the effected section of trail to at least double in length for the purpose of creating a sustainable average trail grade of 10% or less. The style of trail recommended for this reroute would be machine-built intermediate trail flow trail with prescribed grade reversals for positive drainage.



Devils Den
Fayetteville, AR

Zone 4: Lookout Mountain

Explore the possibility of creating additional modern machine-built trails within this zone where trails don't currently exist

This would include intermediate level flow trail that would highlight the existing contours, and natural bowls found on this property as well as adding expert level trail that would take advantage of the abundance of larger rocks and boulders found within this zone. New trails at lookout mountain should be planned and designed in a way that maximizes wide greenspaces between trail alignments and minimizes impacts to the viewshed from the trails themselves and of the mountain from town. Design considerations of incorporating the existing trails found on site would be important so intersections and wayfinding is intuitive for positive user experiences. Providing directional trail experiences on this site would also aid in trail user safety, ease of wayfinding and positive user experiences. Consideration for this would be based on approval of adding trail to the property via the Land Use Plan.

Create a new hike only trail experience to the top of Lookout Mountain

This would be a more direct route to the point of interest at the top of Lookout Mountain. It has been observed that there are several rogue trails that are not sustainable in terms of trail grade that currently cut their way to the top of Lookout Mountain. These trails are not signed or mapped, as they are not official trails, which leads to confusion of users and people getting lost. By providing a new sustainable route different trail user type would naturally be segregated by the desired trail experience, and a more sustainable route would be created. A new design would likely include the placement of rock stairs, along with a hardened surface where necessary to provide a sustainable trail surface and minimize future erosion and maintenance. Consideration for this would be based on approval of adding trail to the property via the Land Use Plan.

Explore other opportunities to create connections to Lookout Mountain from nearby residential developments.

This would aid in the "ride to ride" or "my garage is my trailhead" experience for local residents. One example of this would be the connection of Woodlands Drive to Lookout Mountain Property. There are likely a number of other opportunities similar to this experience that exist within the community. These opportunities should be further explored in the concept phase of this plan.



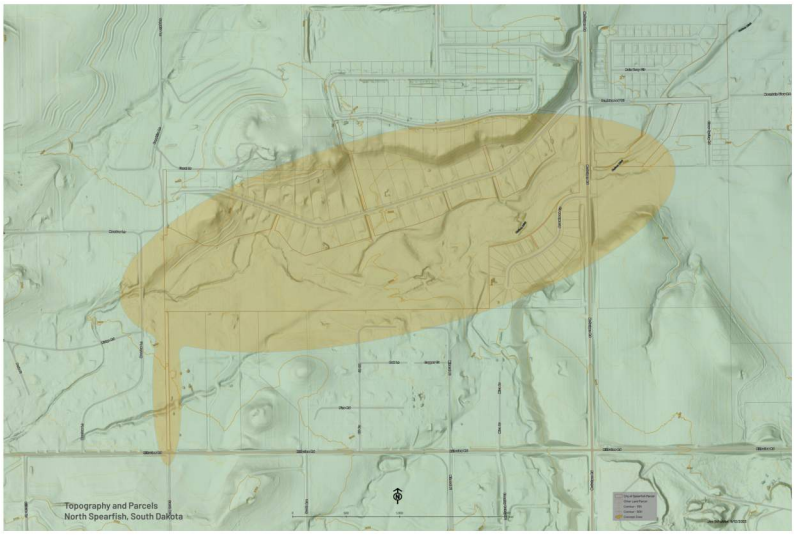
Zone 5:
McGuigan Nature Area

Status: Natural area without existing trail Development

McGuigan Nature Area is located at the corner of Mc Guigan Road and Tumble Weed Trail. This is predominately a drainage area for the adjacent residential developments, some of which is considered floodplain. The City Parks & Recreation Department already mows a grass path around the perimeter of this site, and some neighbors have mowed paths from their backyards to the path that the city owns.

Any trail development would need to fit within the existing contours of the property. It was noted by city staff and stakeholders attending this tour that it has been an exceptionally wet summer. There was standing water in one section of the existing mowed path. This section should get a small raised boardwalk.

Potential trail improvements to this site could include a perimeter low grade bike optimized flow trail, bicycle playground / skills area, along with a trail that would provide access to Hillsview Road. Access to Hillsview Road would provide a closer off-road access point to Higgins Gulch Road which is the gravel road leading into Black Hills National Forest. This serves as a starting point for much of the gravel riding outside of Spearfish into the National Forest, along with some trailhead access to the National Forest for Mountain Biking. It was also noted during the tour that there are many houses with families that have been built close to this site and continue to be built close to this site. The city Rec Path was also extended in summer of 2022 to across the road from McGuigan which provides additional off-road (paved) access to this location.





Coler Nature Perserve
Bentonville, AR

Recommendation Summary

Trail Zone	Current Status	Recommendations
Zone 1: Forebay Area	City leased, state owned lands without existing trail	Construct machine built gravity trails with start hubs and XC flow trail.
Zone 2: Beginner Skills Area & trails	City and state-owned land with existing beginner trails	Enhance & expand existing trails skills area, with more diverse skills features
Zone 3: Gravity Skills Area	City owned land with existing rogue trails	Create gravity-based skills features, with drainage considerations as a top priority.
Zone 4: Lookout Mountain	City owned land with existing legacy trail	Build new beginner & intermediate trails to existing system. Reroute Ridge Trail Create hiking only route to lookout vista Explore neighborhood connector opportunities.
Zone 5: McGuigan Nature Area	Nature area minimal existing trail development	Create a perimeter flow trail, bicycle playground / skills area & an access trail to Hillsview Rd.



Future Zones: Expansion Opportunities

As the City of Spearfish continues to grow, opportunities for both natural surface trails, along with hard surfaced greenways, and bike & pedestrian infrastructure should always be considered and planned for. The continuation of offering diverse multimodal transportation and recreation opportunities is paramount in aiding in the livability and attractiveness that the City of Spearfish has already built. Considerations towards zoning regulations that recommend trails are to be included in any future residential and business developments goes a long way ensuring that Spearfish is on the forefront of continuing to be a progressive outdoor based community.





Slaughter Pen
Bentonville, AR

Trailhead Access & Accommodations

Trailhead access and additional accommodations should be explored as a larger scale opportunity for long term viability. The combination of Zones 1, 2, and 3 as described within this document have the potential of being a main point of entry to a much larger scale trail system if the right opportunities for access were to align. On top of this, the proximity to the Spearfish City Park, City Campground and other public amenities, along with the short distance to downtown, and absolutely stunning views and scenery that Spearfish Canyon provides, this location could easily serve as the central recreational hub for the City of Spearfish.







Community Engagement

This Long-Term Vision Plan lays out what the future of the City of Spearfish could look like. Community engagement can play a pivotal role in the future success of this plan. A major component to all of this will be based on the organization and unification as a user group under a set of common goals. Public outreach through various means will also be an important step in the process. Some key outcomes from public outreach could include:

- Guide those unfamiliar with the importance of trail planning and design
- Guide those unfamiliar with the positive attributes of modern machine-built trails
- Generate excitement to move forward with the implementation of trail planning, design, and construction.
- Gather input, feedback, and concerns to help inform and shape the concept, planning / design, and construction phases of the process
- Generate long term stewardship and broaden the base of supporters to help instill a sense of ownership within the community
- Generate interest for future funding needs

Coordination and regular communication with city staff, local leaders and officials will also be key in the success of this plan.

Other organizations that could be vital to the implementation of this plan may include: Tourism Boards / Committees, Local Chamber of Commerce, Other community specific organizations related to business and community development, and any other groups that may have a stake in any or all of the zones and properties discussed within this plan.



Implementation

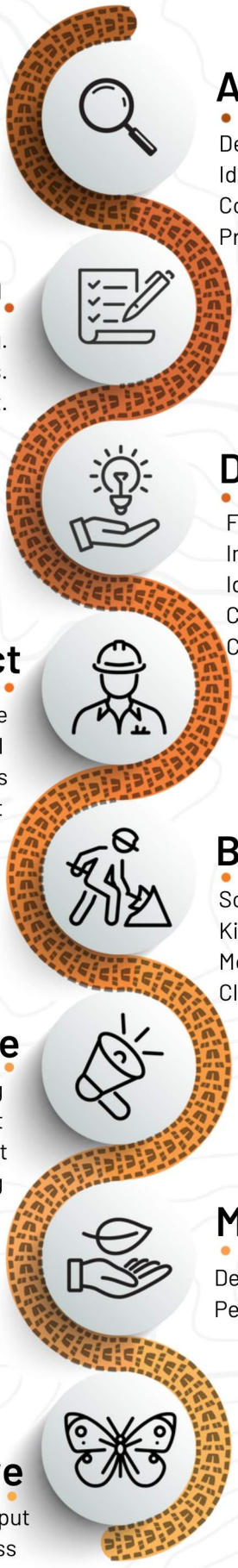
Prioritization of Recommendations

Moving forward, the list of recommendations provided in this plan should be ranked based on highest to lowest priority. This will help guide the next phases of this plan. There are many things to consider when ranking recommendations which may include: access and limitations associated with specific zones or properties, identifying highest needs of the community in terms of trail styles and types, access to funding sources specific to the recommendations in this plan, and which recommendation may create the most excitement or buy in from the community to gain support when looking to implement subsequent recommendations.

Concept Planning

The Concept Planning phase will refine the vision as set forth here, and combine input gathered to create what conceptual opportunities may look like within the various zones, and locations identified in this plan. This would also include defining, and refining the right mix of trail styles, and types that would be planned for in the trail planning and design phase. Additional communication with local leaders, officials, along with more public outreach and community engagement to gather more input is another critical component of the concept phase. This information would be used to guide the next phase of Trail Planning and Design.

Rock Solid Phases of Trail Development



Assess

Define project vision, goals, & objectives
Identify properties & assess sites for feasibility.
Collect field & geospatial data.
Provide cost consideration& feasibility report

Plan

Perform desktop-based analysis & planning.
Conceptually plan the trail corridors.
Create index, plan map, & report.

Design

Flag corridors & collect data
Initiate environmental review & permitting process.
Identify equipment, material, & personnel logistics.
Create detailed design drawing/ construction documents.
Create construction cost estimates & trail design reports.

Contract

Create proposal package
Solicit proposal
review submissions
Award contract

Build

Schedule work
Kickoff Project
Monitor progress
Close contract

Promote

Develop community branding
Create and publish, trail maps & content
Host a grand opening event
Create trail-related programming

Maintain

Develop an operation & maintenance plan
Perform & document maintenance & repairs

Evolve

Obtain community input
Repeat Design Process



Trail Planning & Design

Once the concept plan phase is complete, the next phase to transition into will be Trail Planning and Design. This phase includes the following:

- Perform desktop-based planning and analysis of identified zones
- Create concept trail corridors and concept plans based on desk top analysis
- Identify Key Points of Interest within each of the zones listed in the Concept Plan
- Ground Truth the trail corridors for the purpose of designing sustainable trails and ensure that the trail types and styles identified during the concept phase are feasible for construction
- Identify the proposed locations of trail hubs and intersections
- Field Layout, Flagging and capturing GPS data that will be used during the construction phase of this project
- Identify any hydrological needs that may require special crossing feature such as bridges, boardwalks, or other forms of trail surface hardening
- Identify the locations of potential trail features such as: Jumps, Drops, Berms, Turns, Rock Gardens or anything else that may add to the user experience of any specific trail as desired by the client
- Identify any cultural resources and sensitive areas that would need to be monitored or avoided during trail construction and cataloging anything that would need to be included in the environmental and cultural review process, and initiate environmental and cultural review process
- Identify any needs for permitting or compliance through agencies that have controlling interest of the properties identified for future trail construction
- Create wayfinding, mapping and signage plans appropriate to each system or zone
- Identify additional non trail specific needs such as parking, trailhead facilities, or anything else unique to a site
- Inventory all trail quantities to develop construction project cost estimates
- Create construction and bid documents that include quantity estimates, contractor qualifications, and any other language / guidelines specific to trail construction to ensure a quality end product
- Create a long-term maintenance plan that would be implemented after trail construction is complete



Funding & Construction

Funding

A solid plan greatly increases the likelihood of securing funding needs for projects of all scales and sizes. Having a well thought out plan helps inform those who may be interested in help to fund projects understand what they may be funding. In most cases where grant funding is being sought out a plan detailing what the grant funding would be used for is necessary. Private donors can also be compelled to contribute by detailed plans and designs.

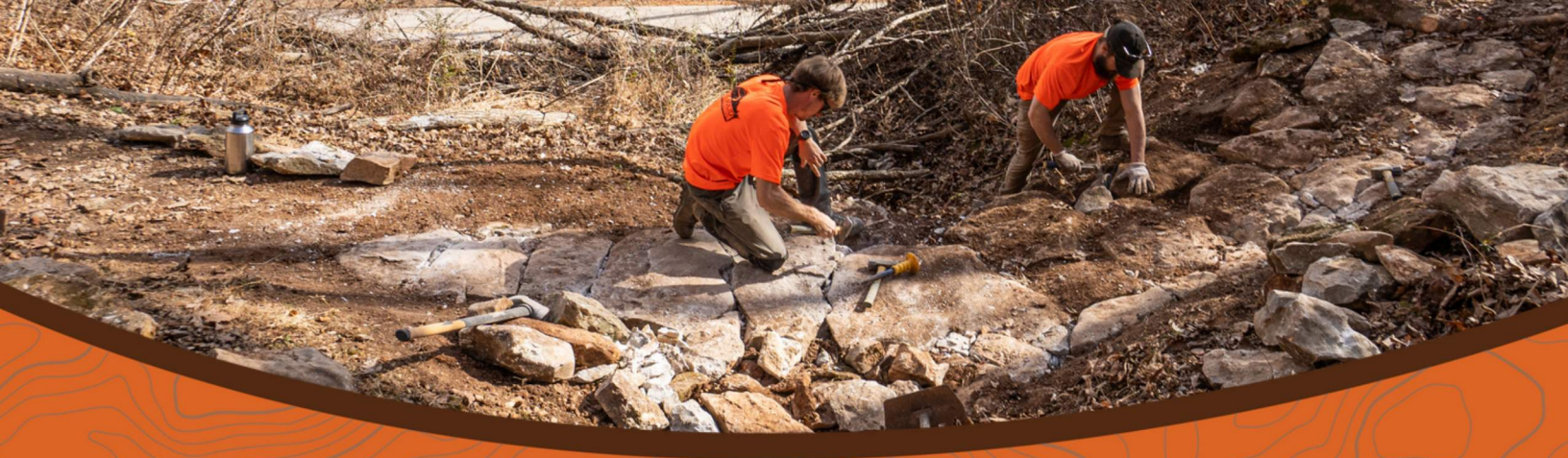
Each phase of this process includes the need for funding. Throughout the process various funding sources should be identified. Those funding sources could include: public funding through capital improvement budgets, grants, local philanthropists interested in investing in the community, local community foundations, securing donations by users and other interested parties, and creating capital campaigns targeted at funding specific projects or needs.

Construction

It was identified when meeting with all of the local leaders and stakeholders that modern machine-built trails are a top priority for future trail building in or around the City of Spearfish. In terms of expertise, it is recommended that Professional Trail Building Companies be considered for the construction of trails.

Professional Trail Building companies bring a deep knowledge of trail building that will help ensure a quality product is built in an efficient manner. Builders should be selected based on project / trail needs, and strengths of that particular builder. It is often important to consider working with companies that may have different crews based within that company to tailor the desires of a specific trail to that build crew. For example, if the desired outcome is a gravity-based trail experience, it would be best to select a build crew that has a deep knowledge and history not only building that style of trail, but also the ability to ride that style of trail.

When in the design phase of this project, general guidelines should be included with construction documents that list base qualifications for selecting professional trail building contractor. When working with a professional trail building contractor, it may be advantageous that a project manager is also utilized to assist any needs associated with trail construction such as: resource planning, scheduling of equipment and material deliveries, tracking of quantities used, ensuring that any permitting or compliance needs are being met, tracking the overall progress of construction and that the project is meeting the intent of the design.



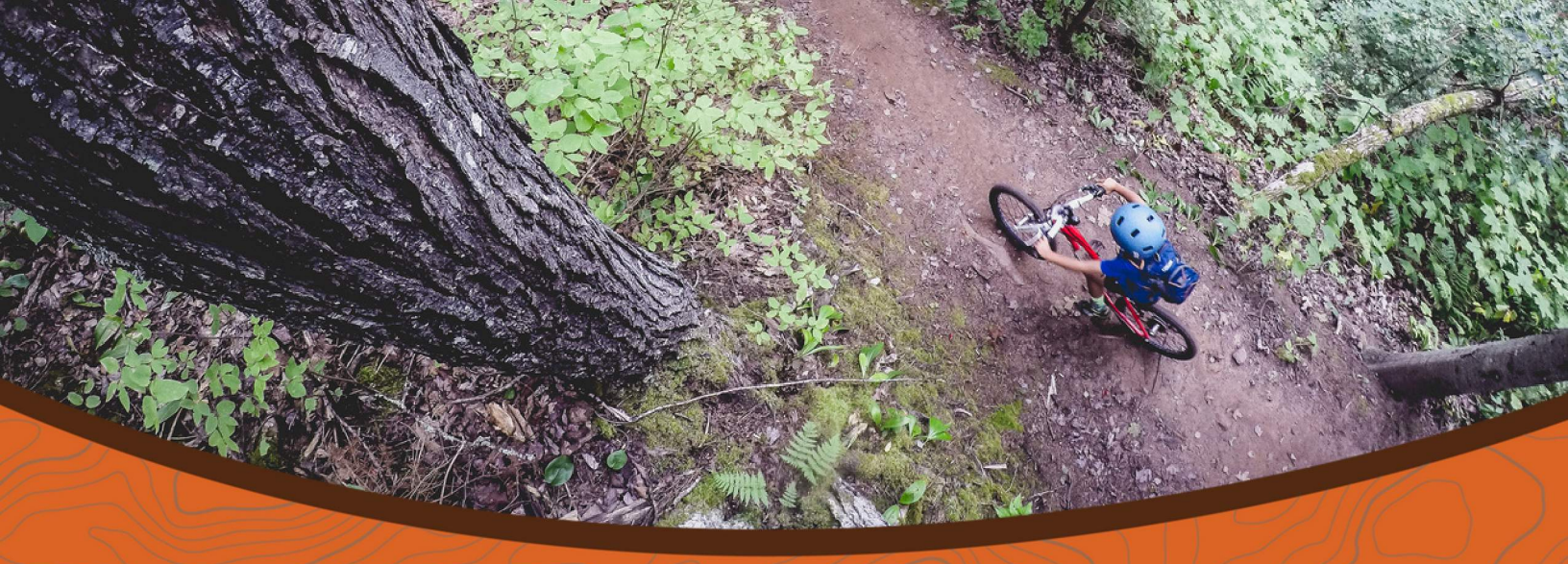
Maintenance

Maintenance is something that will be ongoing for the life of a trail / trail systems. Considerations for maintenance should be discussed and planned for from the concept phase through construction phase. Trails are not unlike other forms of recreational infrastructure and should have the same regular maintenance considerations. Proper planning, design, and construction can help reduce overall maintenance needs though. Some maintenance can be planned and completed through local volunteers and stewardship. Volunteer maintenance should not be the only consideration though, as some tasks may be beyond the skillset or time needed to complete tasks.

Annual maintenance costs, are often times estimated to be 5%-15% of the initial construction cost. Typical basic annual maintenance tasks often include: vegetation management, tree removal (blowdowns / deadfall), along with basic trail tread drainage maintenance needs. On trails that are more gravity or bike park focused, maintenance needs can be greater due to steeper grades of features such as larger jumps, berms, etc.

Hiring professional builders for these tasks are often the best way to handle heavier maintenance needs unless the local trail organization or maintaining authority has staff on hand that can handle these needs. The best trail destinations are not only defined by their unique trail experiences, but also how well the trails are maintained. Having staff on hand that are well versed in trail specific building and maintenance skills can greatly aid in the overall riding and trail use experience for both locals and visitors.





Conclusion

This Long-Term Vision Plan lays the groundwork on how to proceed into the next steps of concept trail planning, trail design, and trail construction. Spearfish South Dakota has incredible opportunities to provide and expand upon what is already a healthy mountain bike community. On a broader spectrum, Spearfish is poised to be the northwest bookend to the Black Hills Trails Region which has the potential to become an iconic world class mountain bike destination.







Appendix

Overview Map

Zones 1, 2 and 3 Map

Zone 4 Map

Zone 5 Map

CONTACT US

8110 W Ford Springs Rd.
Bentonville, AR 72712

ROCKSOLIDTRAILS.COM