Powers Bluff County Park Trails Concept Plan

Arpin, WI
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Prepared For: Wood County Parks and Forestry Department

Prepared By: The International Mountain Bicycling Association – Trail Solutions Program

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1. Project Background

This trails concept plan provides guidance and recommendations for developing a comprehensive trail network at the Powers Bluff County Park in Wood County, 2.5 miles southwest of Arpin, Wisconsin. This trail system will capitalize on the growing demand in the Midwest region for trails that are optimized for mountain biking. It will serve the needs of all recreation users by adding upon the existing Powers Bluff Trail network with new multi-use trails and the creation of bike-optimized trails for all ages and ability levels.

Master Planning for Powers Bluff County Park (PB) has been ongoing since 2003, and was revitalized when Wood County acquired 223 acres of property directly north of the existing park. Since that time, planning has been done to include a multi-use shelter building, fishing pond, ice skating rink, northern entrance road with parking lots, improvements to the existing ski/tubing infrastructure, additional trail development, and support facilities.

About IMBA

The International Mountain Bicycling Association (IMBA) is a 501(c)(3) non-profit educational association whose mission is to Create, Enhance and Protect Great Places to Ride Mountain Bikes. Since 1988, IMBA has been bringing out the best in conservation-minded mountain bicyclists by encouraging low-impact riding, volunteer trail work participation, cooperation among different trail user groups, grassroots advocacy, and innovative trail management solutions. Based in Boulder, CO, and with staff distributed across the country and the world, IMBA meets its goals through programs, such as the Trail Solutions (TS) consulting team.

Wood County Parks and Forestry Department Vision for Powers Bluff

"Powers Bluff County Park is a unique natural, cultural and recreational resource. The long-term vision is to protect it for future generations of Wood County residents so they may enjoy the park for years to come."

2. Goals and Objectives

The goal of the following plan is to develop a trail network that offers trails for multiple uses including hiking, trail running, Nordic skiing, snowshoeing, and Beginner to Advanced level mountain biking. As purpose built trails are developed and mileages increase, so will visitation from residents, regional, and destination trail users. While planning and design of the new trails is being done in a bike-optimized manner careful consideration has been made for hikers, runners, Nordic skiers, and snowshoe'rs to be sure their needs will also be met.

This trails concept plan is crafted with the idea of developing an expanded network of multi-use paths, bike-optimized trails, and bike specific skills development area. Trails and features will be designed and built in a sustainable manner, and meet conservation, education, and recreation objectives. The trail network development will create a progression of experiences and challenges as trail users explore them in more depth with each visit. The design of this system is similar to that of a well-designed ski trail system, with a collection of easier/green, more challenging/blue, and most challenging/black trails. This network should be enhanced by efficient way-finding signage, and a variety of trail types. These characteristics will appeal to a broad cross section of off-road bicyclists, from family-oriented entry-level riders to highly skilled enthusiasts to those looking for race training/event opportunities.

The objectives of a high quality trails concept plan are:

- Provide a trail network for multiple uses including hiking, running, Nordic skiing, snowshoeing, mountain biking,
- Plan approximately 7 miles of beginner/family-friendly (green), intermediate (blue), and advanced (black) trails in the network,
- Provide the quality and quantity of experiences in the system to a level of a regionally significant trail destination that merits a half- or full-day drive to the area,
- Create a trail system that is environmentally and socially sustainable, and that best highlights the natural beauty of PB County Park and surrounding landscape,
- Develop a trail network and facility that is able to host events including the popular Wisconsin High School Cycling League, a program of the National Interscholastic Cycling Association (NICA).
- Create a trail system that can be implemented in a phased approach.

3. Benefits of Mountain Bike Trails

Promoting Active and Healthy Lifestyles

The benefits of mountain biking may start on the trails, but they don't end there. Learning to ride a bike is a rite of passage. Bikes and the sport of mountain biking provide a multitude of opportunities to teach children valuable lessons that will carry on into adulthood.

Obesity rates are at all time highs, while activity levels among Americans are plummeting. With its progressive nature and way of stimulating the senses, mountain biking is appealing, especially to youth, and provides an excellent form of recreation for reversing the trend away from negative health habits. Since riding a bike provides an excellent cardio workout, improves strength and coordination, and burns several hundred calories an hour, it is an activity as appealing to parents as it is to kids.

The unstructured play that mountain biking provides inspires people to explore and appreciate the natural world, leading to positive associations with outdoor activities and exercise. IMBA members donate nearly one million volunteer hours to trails throughout North America every year, making volunteerism a large part of mountain bike culture.

Mountain biking allows individuals to advance at their own pace, so kids looking for a challenge can have just as much fun as children who are more interested in exploring the scenery. Riding in nature provides an environment where children can work on their skills, have fun, and pedal their bikes without parents having to worry. Mountain biking is a cross-generational endeavor, accessible to all ages and levels of physical fitness. Going for a trail ride is an excellent way for parents to do more than support their children's activities, it's a way to share the experience. Every ride is an opportunity to create a healthy lifestyle and pass on lessons that are best learned through experience.

Benefits of Trails to the Local Communities

IMBA works to assist local communities in increasing mountain bicycling tourism as a sustainable, renewable source of economic development. A mountain biking destination is one that attracts tourists to an area for the benefits of the mountain biking trail experiences; provides visitors with all of the amenities needed to compliment, ease and enhance their visit; and in turn creates word of mouth about their community that will draw new and repeat visits.

While mountain bicyclists are certainly willing to travel to ride, they will only do so if their destination contains a key ingredient: high-quality trails. These trails must be of a sufficient length and contain a variety of experiences, such as; traditional singletrack, bike optimized singletrack, and bike parks components. The competition for these "destination-quality" locations is slowly increasing over time.

Mountain bicycle trail systems have benefits to local communities beyond economic development. Several studies on physical activity have indicated that proximity to recreational facilities, such as trails, is a predictor for physical activity. Simply put, if there are walking and biking trails nearby then residents are more likely to use them and therefore be healthier. Access to trails also correlates to a higher quality of life, thus making the community more desirable.

According to the Outdoor Industry Alliance (OIA), mountain bicyclists represent approximately 3.4% of the US population, or nearly 10.6 million participants. IMBA's own research indicates that enthusiasts, who represent a portion of this overall number, travel extensively within a four-hour range and will typically devote one week per year specifically to travel to reach mountain bicycling destinations. Same-day visitors spend approximately $35 per day in local communities while destination visitors spend closer to $193 per day (due in part to lodging and increased meal purchases).

Minnesota Department of Transportation 2016 Study
Assessing the Economic Impact and Health Effects of Bicycling in Minnesota

The study shows that in 2014, the bicycling industry generated $778 million of economic activity, which includes $209 million of labor income and 5,519 jobs. Nearly 80 percent of that economic activity came from manufacturing and wholesale business.

Minnesota community's host more than 100 bicycle events annually and bring an estimated 50,212 visitors to the state. Trail rides, races, mountain bicycling events and bicycle tours generated $14.3 million of economic activity, which included $4.6 million in labor income and 150 jobs, the study found.

A 2018 economic impact study released by the Walton Family Foundation describes in detail the $137 million benefit from Northwest Arkansas to the Arkansas economy in 2017, of which that $27 million came from tourism dollars.

OAI also suggests that 60 million adult Americans ride a bike each year, and bicycling creates major economic growth in the United States:

- Contributes $133 billion annual contribution to the U.S. economy
- Supports nearly 1.1 million jobs across the U.S.
- Produces $53.1 billion annually in retail sales and services
- $6.2 billion in bicycling gear sales and services
- $46.9 billion in bicycling trip-related expenditures
- Generates $17.7 billion in annual federal and state tax revenue
- Provides sustainable growth in rural communities

4. Present Day Mountain Bicycling

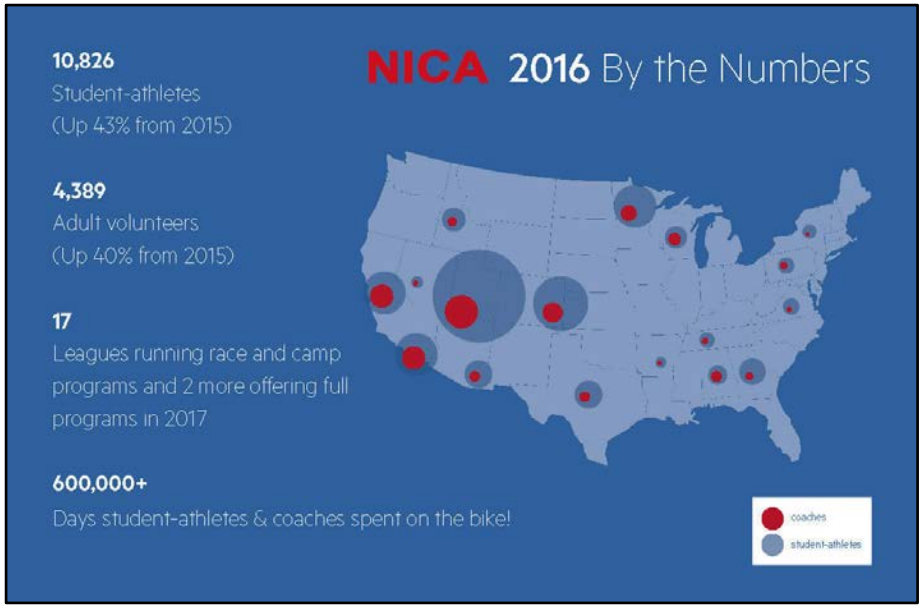
The sport of mountain bicycling has evolved radically since its recognized birth in the mid 1980s. Bicyclists began tinkering with fat tires to hybridize bicycles so that they could leave the paved roads to explore dirt roads, routes, and singletrack trails. Lower gearing, powerful brakes, and lightweight frames allowed riders to get further in a single backcountry outing than by hiking or running.

Mountain bikes and riders continue to evolve, with dozens of types of mountain bicycling alternatives. Purpose-built trails, bike parks, and amenities have improved to accommodate any skill level from beginner to expert. Until recently trails in Wisconsin were rocky, steep, and technical, limiting the range of difficulty choices.

Today's rider is sophisticated, desiring every possible choice from being able to take young children on gently groomed trails to the rider who seeks intense experiences with higher consequences.

Not only has the sport grown in popularity to meet the needs of extreme riders, but it has widened to accommodate the gentler side as well. When the sport began, there was no allowance for children or youth. Trails were very difficult and bikes were not "kid friendly." Both issues have now been solved in the development of modern trail systems and bike park facilities.

Wisconsin's own high school mountain bicycle league, an affiliate of the National Interscholastic Cycling Association (NICA), gives youth immediate access to mountain bicycling. As of 2017, the Wisconsin NICA league had nearly 40 teams with 750 total students and five races on their schedule. The closest teams to Wisconsin Rapids are in Stevens Point and Marshfield.



Modern Trail Network Components

Purpose Built Singletrack Trails

Singletrack is defined as a dirt path narrower than double-track or fire road, usually 12 to 36 inches wide. Singletrack trails are not typically accessible by ATVs or other four-wheeled vehicles. Singletrack may be smooth or rocky, flat or steep, among many other attributes and building techniques.

Maintainable trails have grades that average 3 – 10% and do not exceed half of the grade of the sideslope, also called the "fall line." Keeping trail grades within certain ranges ensures both positive trail experience by users and proper stormwater drainage without erosion. Mountain bikers have become sophisticated, longing for purpose-built trails that offer a wide range of difficulty levels, terrain diversity, and genre types. Purpose-built trails are constructed with specific users in mind in order to optimize their experience with features and design.

These trails meet users' needs and provide meaningful recreation experiences that highlight natural features and view sheds while minimizing environmental impacts of trails and trails-based recreation. Looking to the future, understanding what users may look for and providing it before off-trail travel begins increases the sustainability of the trails and the overall trail system.

- Beginner (Green) trails have smoother and wider tread, lower trail grades, and less exposure.
- Intermediate (Blue) trails can be steeper, and contain more technical difficulty or longer experiences.
- Advanced (Black) trails offer a combination of difficult trail tread and long distances for those looking for technical challenge and/or endurance-oriented experiences.
- Expert (Double Black or Red) trails will be the most difficult and challenging in skill level difficulty.

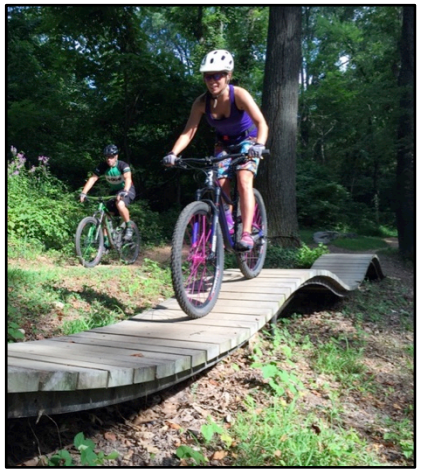
The ridership within each category can be divided into the following groups: novice, intermediate and advanced. Using a basic bell curve distribution it can be assumed the majority of mountain bicyclists in any category and as a whole are intermediate riders. Novice riders correspond with (GREEN) rated trails, Intermediate with (BLUE) rated trails and Advanced with (BLACK) rated trails. More Advanced trails, Double Black, are typically required by a relatively small but very passionate contingent of ridership at any one trail system. A reasonable percentage of Black trails should be built as Double Black as follows demand.

Skills Loop/Beginner Trail

Users looking to practice beginner to intermediate level technical riding skills in a low- consequence environment can learn on a skills loop. This trail can feature numerous optional skill stations (x-small, small, and medium), where users can practice on features designed to teach basic mountain bicycling skills.

Technical Challenge Trail or Area

Users looking to practice intermediate to advanced level technical riding skills in a low-consequence environment can utilize the technical challenge area. This trail can feature numerous optional skill stations (medium, large, and x-large in size), where users can practice on natural and/or man-made features designed to teach advanced mountain bicycling skills.



Technical Trail Features (TTFs)

If wide open areas are not available for the above mentioned Technical Challenge Trail or Area, TTFs can be placed along trails to provide a feature that riders can practice bike handling and balance skills.

Bike-Optimized Flow Trails

Bike-optimized flow trails are purpose-built or modified singletrack trails, the majority of which contain a high density of specific features to enhance the experience and provide challenge, such as berms, rollers, consistently wide turn radii, technical features, rock gardens, jumps, and drops. These trails are directional, in order to promote optimal circulation patterns and maximize the user experience. Directional trails maximize flow and experience in one direction, rather than compromising design by having to consider riders traveling in both directions.

The descending trails are designed to provide a "roller coaster" sensation to users by maximizing the efficiencies afforded by a bicycle and by counteracting forces that direct a user off of the trail. Berms and cambered tread surfaces, for example, promote traction, safety, sustainability, and enjoyment. These trails are never extreme, dangerous, or steep; challenge is provided by rewarding progressive skills development and incorporating features that can always be rolled but may be jumped. While a flow trail is singletrack, the tread surface itself should be wider in areas where it is that anticipated less-experienced visitors may need a greater margin of error.

The climbing trails, that access flow trails, are designed to provide a variety of optional technical climbing challenges while maximizing elevation gain and minimizing user exertion to allow riders to conserve energy for the descents. Typically, the maximum density of bike-optimized singletrack is one mile per ten acres of suitable terrain.

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 through addition of man-made technical trail features (TTFs). Bicycles move differently along a trail than other modes – the movement of the wheel, the use of gravity and friction, the transfer of energy from the rider to the wheel – 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 provided at any scale, from beginner friendly "Flow Trails" to extremely difficult race-oriented downhill trails. Riders cherish the "feeling of flight" that a bicycle gives 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 to subsequent sections. This aspect is a hallmark of flow trails and can be particularly important for beginner trails, as wells as for higher speed and/or gravity features, such as jumps and drops, on more advanced trails.

As trail systems grow and become congested, one-way trails help to take the pressure off of popular shared-use trails. Riders looking for speed, thrill, and challenge will have their own designated areas, and fewer user interactions with all users traveling in the same direction. 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.

Lifted and Tilted Tread Type

Traditional rolling contour trails are constructed with an out-sloped tread to allow cross-slope drainage. However, not all proposed trail locations have enough side-slope for drainage and frequent trail use may eradicate that out-sloping within a short time.

A new trail construction method, "Lift and Tilt", is a way of raising the tread above the natural grade. This enhances tread drainage while increasing the fun factor for mountain bikers. Borrow basins are dug to harvest good mineral soil to "lift and tilt" the tread. Woody debris is used to replace the soil taken from the borrow basins, then masked and blended with organics to create natural-looking low points for drainage. This technique holds the rider on trail while directing water off tread into the basins.

This method can be implemented at any scale, using smaller machines to provide a single-track feel or larger machines for that true bike park capability. Visitor numbers, rainfall, and soil type may require the use of culverts and sumps to intensify ride-ability while providing drainage. The trail type can have an increased emphasis on fun, flow, and airtime depending on the designated trail user.

For beginner riders or shared-use the "dial" can be turned down low with mellower grades, less undulation and frequency. For advanced mountain bikers the dirt features can be more dynamic… raised higher, creating banked turns, rollers and jumps to dance the vertical plane.

Flatter areas that may have been avoided in the past can now be an exciting riding experience. The Lift and Tilt method is often used for pump tracks, flow trails, jump trails and other bike optimized amenities. Community Bike Park Facilities

Bike Parks

Community bike parks are more intensely designed than singletrack trails. They offer a small area where users can practice their skills, progress, and have fun in a safe manner. Bike parks are typically located in an existing park or similar area.

Tot Track

A tot track is a pump track designed for smaller bicycles and users. It features reduced-sized rollers as well as lower-angle bermed turns. It has features that can accommodate strider-type bicycles as well as smaller-wheeled bikes with short wheelbases. The tot track is designed for the least skilled of riders.

Pump Track or Pump Park

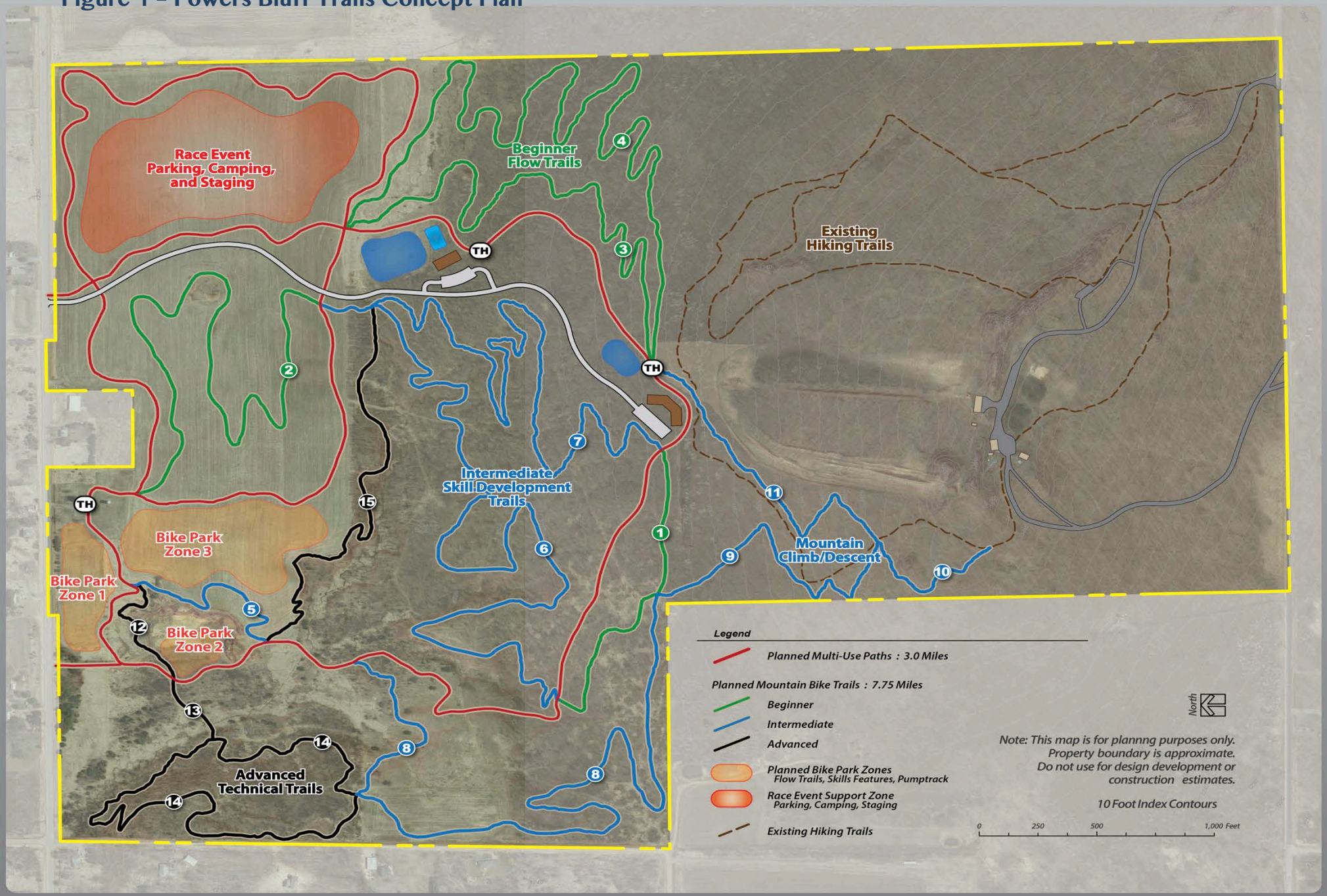
A pump track or pump park is designed to allow cyclists of all skill levels to learn and perfect their riding skills. Pump parks are multi-directional and allow users to create their own routes through the rollers, berms, and jumpable features, while pump tracks generally have a direction of use. A pump park will foster more organic and creative riding that stimulates skilled riders. Rather than build a separate dirt jump park, it is recommended the pump park design incorporate progressive jumping elements normally found in a dirt jump park, due to the site's space limitations. Riding a pump park is an extremely anaerobic activity, so it is recommended that suitable seating and or shade structures be installed for users to rest between sessions.

Dirt Jumps

A bike park component, not currently proposed at PB, consist of jumps ranging in height from 3 to 6 feet, spaced in a manner that maximizes a riders ability to flow from one jump to the next without having to pedal. Dirt jump areas are designed so that the start hill is the highest elevation point that provides sufficient gravity to propel riders into the jump lines.

Powers Bluff County Park Trails Concept Plan

Figure 1 – Powers Bluff Trails Concept Plan



5. Existing Trail Network

The existing developed trail network at Powers Bluff County Park is comprised of narrow singletrack hiking trails and wide nature walk paths on the historically owned property. The trails and paths are used for Nordic Skiing and snowshoeing in the winter. These trails total 2.5 miles. Several buildings are currently located around the top of Powers Bluff that provide space for shelter, winter sports operations, restrooms, storage, and maintenance with numerous small locations for parking.

On the recently acquired northern portion of the park property, there's a series of grassy paths mowed throughout the summer that provide for casual hiking and exploration of the property. Some singletrack trail reconnaissance has been done along where the concept plan shows the Advanced Technical Trails loop. *Additionally there are maintenance access roads, downhill ski trails, and tubing lanes that are not under review in this planning document.*

6. Park Planning

In 2003, Wood County engaged Schreiber-Anderson Associates Inc. to complete a Long Range Master Plan (LRMP) for Powers Bluff County Park that was finalized in 2005. The plan focused on the existing park, at the time, and provided recommendations for park expansion and facility development on the, now park property, 225 acres to the north. The planning considerations for the northern acreage now includes a new lodge and snowmaking pond to support the winter ski and tubing operations; a shelter further north with a fishing pond, ice skating rink, and associated parking; and an access road entering the property from the north off of County Highway N. Both of the shelter areas will also serve as trail head facilities.

Trail development was considered in the LRMP, but mountain bike trails were not specifically included. The plan did outline guidance on sustainable trail design, construction, and maintenance; much of which is still relevant today. Since 2005, the Wood County Parks and Forestry Department recognizes the increase popularity and benefits of mountain bike trail systems. While funding is being secured for park facility development here, the trail network is seen as a project that could be realized sooner than later resulting in higher utilization of the park and increased visibility to potential donors of the fundraising effort.

7. Conceptual Trail Network

As mentioned previously, the purpose of this trails plan is to develop a comprehensive trail network design that serves multiple uses for all ages and ability levels. The planning area is focused on the recently acquired northern portion of the park property, but does consider improved connections to the existing trail network and facilities.

Multi-use Pathways

Consider the multi-use pathways as the framework that the entire trail system will build upon. These pathways provide pedestrian and bike access to the park from the north, circulation between planned trailheads, parking and shelters, and multiple options for trail loop experiences. In the winter, these alignments will be used for Nordic skiing and due to the gentle slopes in the existing fields additional ski trail could be groomed with ease (per adequate snow depth). Pathways are to be constructed at a minimum 8-feet wide and up to 12-feet wide at the most. In the short term, the paths can be developed as mowed grassy trails. Long term, the paths will serve multiple uses better if they are formally constructed with sub-base and surfaced with crushed limestone or even asphalt if budgets allow.

As shown in Red on Figure 1, the multi-use paths total 3 miles that can be experienced in loops of various configurations and lengths.

Ability Level: All ability levels including never ever riders.
Direction/Use: Dual direction and multiple uses (hike, trail run, bike).
Trail Width: 8-12 feet
Trail surface: Long term, crushed limestone or asphalt.
Trail Grades: less than 5% average
Sideslopes: 2-10%
Drainage Armoring: May have to locate one or two culverts once full construction of the pathways is implemented.
Construction: Short term – brush hog/mowing paths, Long term - machine build exactly like recreation path construction.

Beginner Mountain Bike Trails

The beginner mountain bike trails are planned in a manner that they are easy to access off of the multi-use paths and provide a non-intimidating introduction the mountain bike experience on natural surface trails. The trail grades are gentle, trail widths are comfortable, and the trail tread is smooth. Due to the slow speeds of beginner riders and gentle slopes not encouraging fast speeds for more advanced riders, these trails will also be comfortable for hikers and trail runners.

Trails 1 and 2, as shown on Figure 1, are the first trails in the beginner progression. Rolling contour design without any steep slopes. Trails 3 and 4 are meant to be the first steps in experience gravity-influence trails that are bike optimized for flow that equates to a roller coaster sensation. These trails total 2.7 miles of trail.

Ability Level: Beginner (Green)
Direction/Use: Trails 1 and 2 – Dual direction and multiple uses; Trails 3 and 4 – Bikes in the downhill direction with hiking/running uphill.
Trail Width: 3-4 feet
Trail surface: Natural surface, with additional clay/loam material and compaction to ensure a smooth and predictable tread.
Trail Grades: 3% average
Sideslopes: 2-10%
Drainage Armoring: Rock armoring may be needed along flat, possibly wet sections of Trails 1, 2, and 3.
Construction: Machine build with Mini-x and Vermeer with hand tool finishing. Trails 3 and 4 should have some "Lift and Tilt" to promote drainage and flow trail experience for beginner riders.

Intermediate Mountain Bike Trails

As beginner riders improve their skills, an offering of intermediate trails (detailed in 7 separate segments) will provide a progression from low intermediate (light blue) to advanced intermediate (dark blue) ride experiences. The intermediate trails range from smooth/wide flow style trail to traditional singletrack to downhill only bike-optimized with alternative advanced features.

Trail 5 is designed to be similar to the beginner flow trails 3 and 4, just with slightly steeper trail grades. Trails 6 and 7 "turn up the spice" with more turns and additional technical features with Trail 6 being bi-directional and Trail 7 designed to be bike-optimized for downhill bike traffic with advanced trail features built as options adjacent to the intermediate trail tread. Trail 8 is meant to have a traditional singletrack feel with a narrower tread than seen so far in the progression.

Trails 9 and 10 is where the athletes and those who like to push themselves will head to take on the "climb to the top"; riders can take various routes to get themselves to the climb. Trail 9 will be uphill only and Trail 10 will be bi-directional, with Trail 11 being the technical descent for downhill traffic only. Since there is an existing nature trail nearby, Trails 9 -11 will be bike only.

The planned Intermediate Trails total 3.7 miles.

Ability Level: Intermediate (Blue)
Direction/Use: See appendix A for individual trail details.
Trail Width: 2-3 feet
Trail surface: Natural surface, with additional clay/loam material and compaction to ensure a smooth and predictable tread on Trails 5 and 7.
Trail Grades: 5-7% average
Sideslopes: 5-20%
Drainage Armoring: Rock armoring may be needed along flat, possibly wet sections of Trails 6, 7, and 8.
Construction: Combination of machine and hand build. Trails 5, 7, and sections of 8 should be of "Lift and Tilt" construction to promote positive drainage and the next level of flow trail experience for intermediate riders.

Advanced Mountain Bike Trails

Trails 12 through 15 will provide the most difficult trails at Powers Bluff. The seamless ability level progression and skills development will have local riders on the advanced trails in no time, and at the same time, regional/destination riders will be traveling to Powers Bluff to experience the wide range of trails.

Trail 12 can be designed and built to be the steepest flow trail at PB with appropriately sized jump features in or along the trail tread that may be up to 4 to 6 feet wide. Trail 13 not only acts as a singletrack connector to the Trail 14 loop, it can be built in a manner that is a "skills filter" making sure riders know what is ahead on Trail 14. Trails 14 and 15 will provide the most rugged experience with Trail 14 having a backcountry feel and Trail 15 feeling near "mountainous" with sharper sideslopes and steep "punchy" climbs. These rugged trail treads may be as narrow as 12" with exposed roots/rocks and trees/boulders acting as choke points adding to the difficulty of navigating the trails.

The planned Advanced Trails total 1.4 miles.

Ability Level: Advanced (Black) to Expert (Double Black)
Direction/Use: See appendix A for individual trail details.
Trail Width: 1-2 feet
Trail surface: Natural surface. Trail 12 may need additional clay/loam material and compaction to ensure a smooth and predictable tread for the progressive flow trail experience. Trails 13-15 should have exposed rocks and roots.
Trail Grades: 7-15% average
Sideslopes: 15-40%
Drainage Armoring: Rock armoring may be needed at some sections of Trails 13 and 14.
Construction: Machine build using Mini-x and Vermeer for Trail 12. Hand build and possibly some machine build for Trails 13-15.

Bike Park Zones

Zone 1 – Beginner and Intermediate Gravity Trails

This zone has the perfect downhill gradient, 5-15% slopes, and vertical relief to develop a "session-able" progressive bike park zone. "Session-able" in bike park terms refers to a set of trails that can be descended and climbed over and over again. This location could have a set of beginner and intermediate trails with progressive pre-fabricated rideable features that descend the hill slope and then riders climb up the multi-use path as the return to the top.

Zone 2 – Pumptrack

Located at the "sand pit", a flat site appropriate for development of a pump track. The design should include a cell of kids/beginner level sized rollers and berms that progress to a connected cell of intermediate/advanced sized features. TS recommends pumptrack be of asphalt construction to greatly reduce maintenance requirements and should be a designed/built by experienced asphalt pump track builder.

Zone 3 – Skills Development Loops

This zone Trail and Park features will need to be lifted and tilted to provide fun features and promote drainage.

Alternative Technical Trail Features

Technical Trail Features (TTFs) could be placed along the multi-use paths as a first phase of skill progression opportunities as singletrack trails are being developed. TTFs could be prefabricated Progressive Bike Ramps type features, dirt formed, or rock/boulder features.

Winter Use

During the season of snow cover the multi-use trails can be groomed for Nordic skiing (classis and skate) with additional grooming routes throughout the open fields. The singletrack trails can be groomed specifically for fatbike use and/or snowshoeing depending on demand for either sport. Classic/Touring XC skiers would also be welcome on the singletrack trails.

Powers Bluff County Park Trails Concept Plan

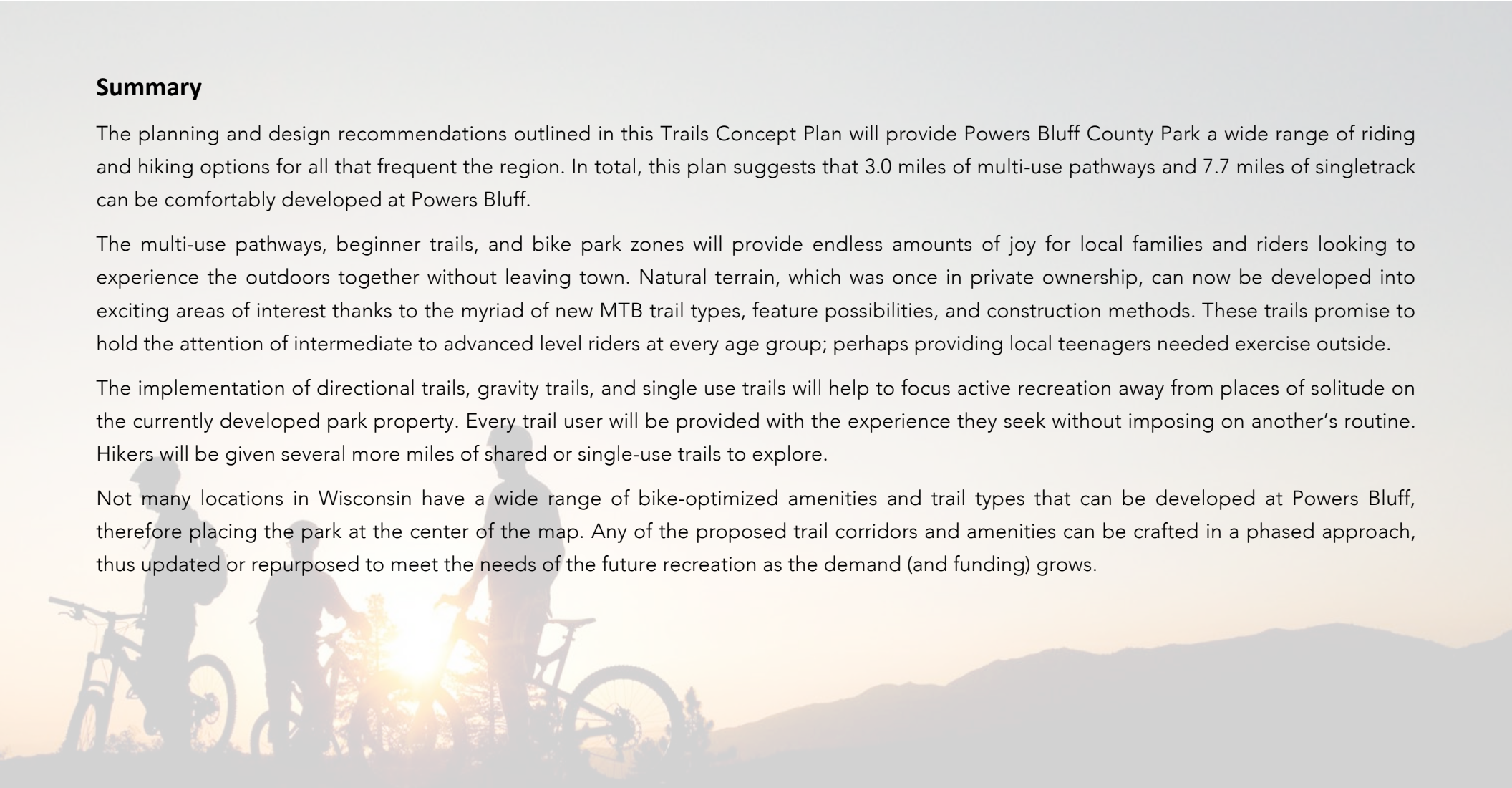
Summary

The planning and design recommendations outlined in this Trails Concept Plan will provide Powers Bluff County Park a wide range of riding and hiking options for all that frequent the region. In total, this plan suggests that 3.0 miles of multi-use pathways and 7.7 miles of singletrack can be comfortably developed at Powers Bluff.

The multi-use pathways, beginner trails, and bike park zones will provide endless amounts of joy for local families and riders looking to experience the outdoors together without leaving town. Natural terrain, which was once in private ownership, can now be developed into exciting areas of interest thanks to the myriad of new MTB trail types, feature possibilities, and construction methods. These trails promise to hold the attention of intermediate to advanced level riders at every age group; perhaps providing local teenagers needed exercise outside.

The implementation of directional trails, gravity trails, and single use trails will help to focus active recreation away from places of solitude on the currently developed park property. Every trail user will be provided with the experience they seek without imposing on another's routine. Hikers will be given several more miles of shared or single-use trails to explore.

Not many locations in Wisconsin have a wide range of bike-optimized amenities and trail types that can be developed at Powers Bluff, therefore placing the park at the center of the map. Any of the proposed trail corridors and amenities can be crafted in a phased approach, thus updated or repurposed to meet the needs of the future recreation as the demand (and funding) grows.



Appendix A: Trail Specifications Table

Table will be included as spreadsheet attachment.

Label ID	Difficulty Rating	Symbol[1]	Summer Use	Winter Use	Trail Type	Direction	Approx. Trail Distance (Ft)	Constructed Tread Width[2, 3]	Ave Trail Grade	Max Trail Grade: climbing[4]	Max Trail Grade: descending[5]	Tread and trail features	Approx. Construction Cost per Linear Foot[6]	Recommended Phasing Approach
Multi-Use Paths	n/a	n/a	Hike, Bike	Nordic Ski	Multi-Use Paths	Two-way	15,576	96-144"	<5%	5%	3%	Crushed limestone firm and stable, or Asphalt surfacing	$15-20	Phase 1 - may be mown grassy paths, Buildout should be surfaced trail.
1	Beginner	Green Circle	Hike, Bike	Fat Bike, Snowshoe, and Ski Touring	Traditional Singletrack	Two-way	1,500	36-48"	3%	10%	10%	Firm trail surface. May include rock armored section.	$6-8	Phase 1
2	Beginner	Green Circle	Hike, Bike	Fat Bike, Snowshoe, and Ski Touring	Traditional Singletrack	Two-way	3,825	36-48"	3%	10%	10%	Firm trail surface. May include rock armored section.	$6-8	Phase 1
3	Beginner	Green Circle	Hike, Bike	Fat Bike, Snowshoe, and Ski Touring	Flow Trail	Hike (uphill), Bike (downhill)	3,325	36-48"	3%	10%	10%	Firm trail surface. Rollers and berms. May need rock armored section. Include optional Intermediate trail features.	$7-10	Phase 1
4	Beginner	Green Circle	Hike, Bike	Fat Bike, Snowshoe, and Ski Touring	Flow Trail	Hike (uphill), Bike (downhill)	5,650	36-48"	3%	10%	10%	Firm trail surface. Rollers and berms. May need rock armored section. Include optional Intermediate trail features.	$7-10	Phase 2
5	Intermediate	Blue Square	Bike	Fat Bike	Flow Trail	One-Way (downhill)	4,375	36-60"	7%	15%	20%	Firm trail surface. Rollers, roller doubles, tabletops, berms, and trail features. Include optional Advanced trail features.	$10-12	Phase 2
6	Intermediate	Blue Square	Hike, Bike	Fat Bike, Snowshoe, and Ski Touring	Traditional Singletrack	Two-way	5,250	24-36"	5-7%	15%	20%	Modest rough tread is expected with some exposed rocks/roots no taller than 6" above tread.	$8-10	Phase 1
7	Intermediate	Blue Square	Hike, Bike	Fat Bike, Snowshoe, and Ski Touring	Flow Trail	Hike (uphill), Bike (downhill)	1,025	36-48"	5-7%	15%	20%	Firm trail surface. Rollers and berms should be added for bike-optimization. May need armored sections. Include optional Advanced trail features.	$10-12	Phase 2
8	Intermediate	Blue Square	Hike, Bike	Fat Bike, Snowshoe, and Ski Touring	Traditional Singletrack	Two-way	4,825	18-24"	5-7%	15%	20%	Modest rough tread is expected with some exposed rocks/roots no taller than 6" above tread.	$8-10	Phase 1
9	Intermediate	Blue Square	Bike	Fat Bike	Traditional Singletrack	One-Way (uphill)	1,600	24-30"	5-7%	15%	20%	Modest rough tread is expected with some exposed rocks/roots no taller than 6" above tread.	$8-10	Phase 1 - if only parking available is upper lots. Phase 2 - if adequate parking is
10	Intermediate	Blue Square	Bike	Fat Bike	Traditional Singletrack	Two-way	725	24-30"	5-7%	15%	20%	Modest rough tread is expected with some exposed rocks/roots no taller than 6" above tread.	$8-10	Phase 1 - if only parking available is upper lots. Phase 2 - if adequate parking is
11	Intermediate	Blue Square	Bike	Fat Bike	Flow Trail	One-Way (downhill)	1,625	24-36"	7-10%	15%	20%	Firm trail surface. Rollers and berms should be added for bike-optimization. Include optional Advanced trail features. Rocky areas may exist and should be sought out for optional Advanced lines.	$10-14	Phase 2
12	Advanced	Black Diamond	Bike	Fat Bike	Flow Trail	One-Way (downhill)	675	36-60"	7-15%	25%	40%	Firm trail surface. Rollers, roller doubles, tabletops, berms, and trail features. Include optional Expert trail features.	$10-14	Phase 3
13	Advanced	Black Diamond	Hike, Bike	Fat Bike, Snowshoe, and Ski Touring	Traditional Singletrack	Two-way	375	18-24"	7-15%	25%	40%	Rough tread is expected with some exposed rocks/roots no taller than 20" above tread.	$8-10	Phase 3
14	Advanced	Black Diamond	Hike, Bike	Fat Bike, Snowshoe, and Ski Touring	Traditional Singletrack	Two-way, a prefferred direction for bikes may come to light.	3,725	12-24"	7-15%	25%	40%	Rough tread is expected with exposed rocks/roots no taller than 20" above tread.	$8-10	Phase 3
15	Advanced/Expert	Black Diamond	Bike	Fat Bike	Traditional Singletrack	Two-way, a prefferred direction for bikes may come to light.	2,350	12-18"	7-15%	25%	40%	Rough tread is expected with exposed rocks/roots no taller than 6" above tread. Include optional Expert level features.	$8-10	Phase 2

Appendix B: General Trail Planning and Design Guidelines

The following are guidelines for the construction and maintenance of future 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.

Stacked Loops

Stacked loops enable users to share many different levels of trail. In a stacked-loop system, the loops that are closest to the trailheads are more inviting to new users, beginners, or families. This allows users of all levels to enjoy the park and improve their fitness and skill while enjoying the natural world.

Bi-directional loops offer a trail experience that can be ridden in either direction, thereby essentially doubling the trail options and allowing users to complete a loop and avoid an "out and back." These new loops will vastly increase the trail opportunities for beginner to expert mountain bikers, including families and groups.

Progressive Hubs and Clusters

All shared-use trails are to be created with skill level progression in mind. With progressive trail features, a mountain biker may become a better rider by gradually moving up in trail difficulty. It is proposed that this trail system offer features of varying skill levels so that riders may find a trail that meet their skills and progress accordingly.

Hubs and clusters give the users more trail options for varying skill levels at each hub, allowing for progressive skill level diversity. A trailhead or major trail intersection is usually a hub. A rider may start out on a beginner trail and then graduate on to a more difficult trail at the next hub. At many intersections, there is the option to change the trail difficulty, or continue on the same difficulty level trail.

This practice spreads out visitation and helps reduce trail user conflict. Signage includes difficulty scales at every hub, and wherever necessary in the trail system, to inform users of which type of trail to choose based on their skill levels and desired experience. A "cluster" is a concentration of trails with all levels of difficulty.

A design priority is to provide consistent climbs and extended descents. In most cases the trails contour gently up or down for consistent lengths to maximize climbs and descents, known as rolling contour design. All shared use trails should be of rolling contour design to minimize impact and sedimentation in the watershed.

The most challenging trail and terrain will be further away from the proposed parking hubs, rewarding those willing to travel longer distances. This is also a proven risk management tool. Putting the difficult segments further out of reach of beginners, and giving riders time and distance to warm up before reaching those technical segments, provides a level of safety in the system.

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. Mountain bikers prefer to exert themselves the fullest on the first half of an outing, and enjoy a descent back to their vehicle on the second half. Trailheads should offer information useful for the trail users, including trail maps, location information, emergency contact details, and volunteer information.

Develop Sustainable Trails

A sustainable trail balances many elements. It has little impact on the environment, resists erosion through proper design, construction, and maintenance, and blends with the surrounding area. A sustainable trail also appeals to and serves a variety of users, adding an important element of recreation to the community. It is designed to provide enjoyable and challenging experiences for visitors by managing their expectations and their use 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.

Trail Design and Sustainability

The specific alignment of a trail tread should be built to accommodate mountain bicyclists, as this user group obtains speeds greater than a hiker or runner. Comprehensive trail design, construction guidance, and bike park planning can be found in Trail Solutions: IMBA's Guide to Building Sweet Singletrack, Managing Mountain Biking: IMBA's Guide to Providing Great Riding, and Bike Parks: IMBA's Guide to New School Trails, all published by IMBA. Another recently published resource is Guidelines For A Quality Trail Experience, jointly authored by IMBA and the Bureau of Land Management (BLM).

The following excerpts outline some basic trail design sustainability guidelines as described in the above-mentioned books.

A trail's location, alignment, grades, and soil texture are some of the most critical factors affecting design. One of the most sustainable trail designs is the "rolling contour trail," characterized by a sidehill location, a gentle trail grade (<10% average), grade reversals, and an outsloped tread. A sustainable trail sheds water off of the trail while keeping users on the trail. When applied collectively, the nine principles below create trails that are low maintenance, fun to use, while helping to manage risk, environmental impact, and user conflict.

- The best location for trails is on sidehills, as opposed to flatter terrain like ridge tops, meadows, or valley floors.
- Trails should gently traverse the slope, rather than traveling directly up or down it. Trails that directly ascend/descend the hillside are known as fall line trails.
- To ensure a stable alignment, a trail's grade should never exceed half the grade of the sidehill it is located on.
- The average slope of the trail should generally average no more than 10%.
- Typically, the maximum sustainable trail grade for short (<50 feet) distances is 15%. Grades can be as low as 3% or 4%, or as high as 25% depending on various factors.
- A grade reversal is a location at which a trail briefly changes elevation, dropping subtly before rising again. This change in grade encourages water to run off the trail at the low point of the grade reversal.
- The downhill or outer edge of the trail tread should be slightly lower than the inside edge. This is called outslope, and it encourages water to sheet across and off the trail in a gentle, non-erosive manner instead of funneling down the trail's center. Most trail should be built with a 5% outslope.
- Some soils are durable and drain well while others are fragile, and erode quickly. Trail design and maintenance should be adjusted to site specific soil types.
- Proper trail design with gentle grades and sidehill location can minimize soil displacement. In areas with loose soils or high traffic, consistent flow, insloped turns, and tread hardening are also frequently necessary.

As in planning and design, it is strongly recommended that a trail building professional play a significant role in construction and improvements of the natural surface trails. It is also strongly recommend that the consultant/contractor understand the specific needs, materials, and techniques associated with trailbuilding. The use of contractors primarily experienced in road or general construction is not recommended, as these companies and individuals are not versed in the needs of trail users.

Trail "Flow"

With good flow, the speed at which a rider travels on the trail should be fairly consistent, and the rider will not have to brake and accelerate frequently. Transitions between faster and slower speeds need to be gradual, with progressively increasing and decreasing turn radii and frequent uphill segments to reduce speed where needed. Steep downhill grades should not come right before tight turns. Adjusting the cross slope of the trail tread to match the flow also helps riders stay on the trail and allows higher speeds. Designing trails with flow in mind not only provides a high quality trail experience, it helps mitigate erosion issues from runoff and use.

Signage

The development of a mountain bike trail network requires 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, helps visitors navigate the trail network, and provides 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, balancing competing interests is key to developing a successful signage program.

A variety of signs can be created to help users identify trails and their location, select routes, remain confident in their trail choices, guide users to destinations and key points of interest, and provide information on regulations and allowed uses. Signage can also be interpretative; helping visitors learn about responsible recreation and trail etiquette, learn about resource protection, and reduce risk and hazards.

- Directional signs provide navigational information.
- Informational signs, usually positioned at the trailhead and major intersections, provide details such as trail length and difficulty. These include trailhead identification signs *(from a road)*, signs at a trailhead kiosk *(with a complete map and description of all the nearby trails and facilities, local regulations, emergency contact information, and educational messages)*, trail intersection signs, waymarks, difficulty rating signs, and trail length or elevation gain/loss signs.
- Regulatory signs delineate rules, such as prohibited activities, direction of travel, or other restrictions.
- Warning signs are used to caution trail users of upcoming hazards or risks. These include visitor rules and regulations signs, allowed activities, road/trail intersections, and emergency signs.
- Educational signs provide guidelines for responsible recreation and trail etiquette.
- Interpretive signs describe natural or cultural resources. These include education / responsible use signs, and interpretive signs.

Design Flagging

It is optimal to flag the corridors just before the permitting review team is available to physically tour the flag-line, so as not to lose flags from sunlight, wind, animal, human, and natural elements. Design and flagging costs will depend on conditions, accessibility, terrain, time of year, and other factors. For the GDT the next phase of design could be be Segments 6, 7,11,12, and 13 including the Jump Trail and Pump Park. Next target for design could be 9 ,10, and 8 with a choice of northern XC trails where much of the corridor has been flagged.

Construction

Creating the proposed trail network of traditional singletrack trails and mountain bike optimized trails, will guarantee a unique destination, drawing riders from afar while giving local families and residents an exhilarating outdoor activity close to home. Construction should be provided by a combination of skilled experience builders, especially for the mountain bike optimized trails., and a hybrid construction plan with volunteers providing much of the preparation and finishing work between machine operators. A phased plan of action will ensure continued enthusiasm for the Powers Bluff trails. Machines applicable to the landscape and style of trails include: mini-excavators, mini-skid steers, tracked haulers and plate compactors. When constructing trails, follow these guidelines:

Do not exceed the Half Rule — A trail's grade shouldn't exceed half the grade of the hillside or sideslope that the trail traverses. If the grade does exceed half the sideslope, it is considered a fall-line trail. Water will flow down a fall-line trail rather than run across it. Measure the sideslope with a clinometer, then be sure to keep the tread grade below half of that figure in order to ensure good drainage. For example, if you're building across a hillside with a sideslope of 20 percent, the trail-tread grade should not exceed 10 percent. There is an upper limit to this half rule: You must also apply knowledge about maximum sustainable grades. Very steep trails will erode even if their grade meets the half rule. For example, a trail with a grade of 24 percent that traverses a steep, 50-percent sideslope will be unsustainable even though it complies with the half rule.

Follow the Ten Percent Average Guideline — Generally, an average trail grade of 10 percent or less is most sustainable, average trail grade is the slope of the trail from one end to the other. Many trails will have short sections steeper than 10 percent, and some unique situations will allow average trail grades of more than 10 percent. A trail's average grade is calculated by dividing total elevation gain by total length, multiplied by 100 to convert to percent.

Do not exceed the Maximum Sustainable Grade — Maximum sustainable trail grade is typically about 15 percent; it is site-specific and fluctuates slightly based on several factors. The variables to be considered when setting your target maximum trail grade include:

Half Rule - Soil Type – Rock - Annual Rainfall Amount - Grade Reversals - Type of Users - Number of Users - Difficulty Level

Construct Grade Reversals — A grade reversal is just what it sounds like—a spot at which a climbing trail levels out and then changes direction, dropping subtly for 3 to 15 linear meters before rising again. This change in grade forces water to exit the trail at the low point of the grade reversal, before it can gain more volume, momentum, and erosive power. Grade reversals are known by several different terms, including grade dip, grade brake, drainage dip, and rolling dip.

Construct trails that Outslope about 5% — As the trail contours across a hillside, the downhill or outer edge of the tread should tilt slightly down and away from the high side. This tilt is called outslope, and it encourages water to sheet across and off the trail instead of funneling down its center. Outslope is one reason why contour trails last for years and years. IMBA recommends that all trail treads be built with a 5-percent outslope.

Avoid The Fall Line — Fall-line trails usually follow the shortest route down a hill, the same path that water follows. The problem with fall-line trails is that they focus water down their length. The accelerating water strips the trail of soil, exposing roots, creating gullies, and scarring the environment.

Avoid Flat Areas — Flat terrain lures many trail builders with the initial ease of trail construction. However, if a trail is not located on a slope, it will become a muddy wet basin full of water. The trail tread must always be slightly higher than the ground on at least one side of it so that water can drain off properly.

Appendix C:

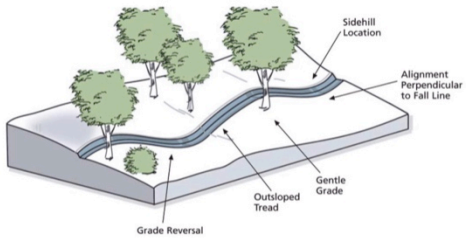
IMBA Trail Difficulty Rating System

	EASIEST WHITE CIRCLE	EASY GREEN CIRCLE	MORE DIFFICULT BLUE SQUARE	VERY DIFFICULT BLACK DIAMOND	EXTREMELY DIFFICULT DBL. BLACK DIAMOND
TRAIL WIDTH	72" (1,800 mm) or more	36" (900 mm) or more	24" (600 mm) or more	12" (300 mm) or more	6" (150 mm) 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" (50 mm) tall or less Avoidable obstacles may be present Unavoidable bridges 36" (900 mm) or wider	Unavoidable obstacles 8" (200 mm) tall or less Avoidable obstacles may be present Unavoidable bridges 24" (600 mm) or wider TTF's 24" (600 mm) high or less, width of deck is greater than 1/2 the height	Unavoidable obstacles 15" (380 mm) tall or less Avoidable obstacles may be present May include loose rocks Unavoidable bridges 24" (600 mm) or wider TTF's 48" (1,200 mm) high or less, width of deck is less than 1/2 the height Short sections may exceed criteria	Unavoidable obstacles 15" (380 mm) tall or less Avoidable obstacles may be present May include loose rocks Unavoidable bridges 24" (600 mm) or narrower TTF's 48" (1,200 mm) high or greater, width of deck is unpredictable Many sections may exceed criteria

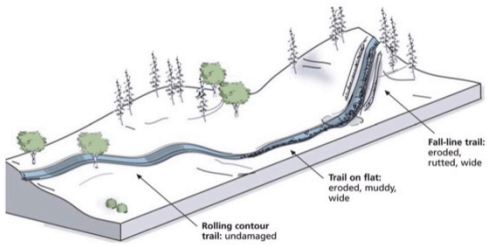
Powers Bluff County Park Trails Concept Plan

Appendix D: Trail Design and Build Field Guide – available upon request

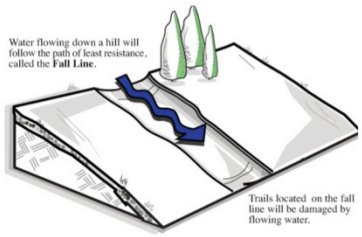
Rolling Contour Trail – The Ideal



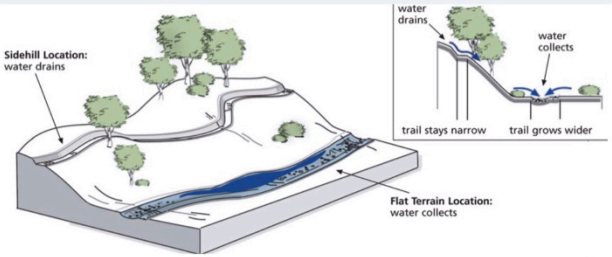
The Effect of Proper Trail Design



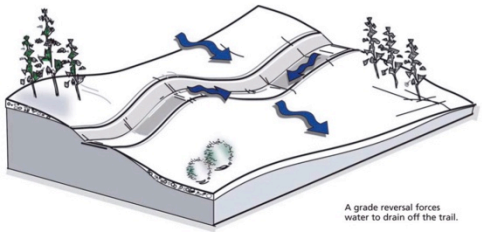
Fall Line Trail Defined



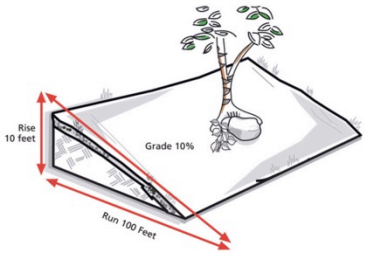
Trail Location: Sidehill Trails Are Best



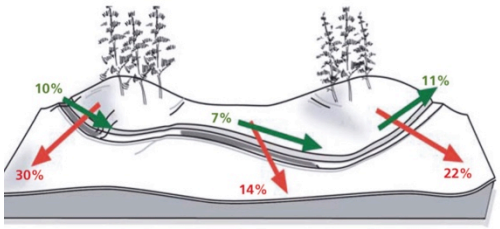
Grade Reversals



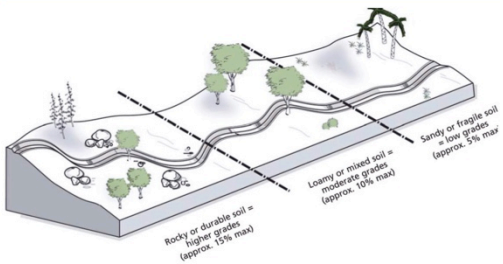
Determining Grade (Rise / Run x 100 = %)



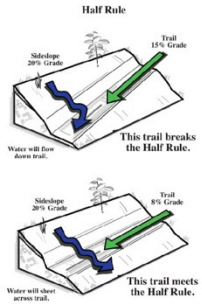
The Half Rule – Trail Grade < ½ Sideslope Grade



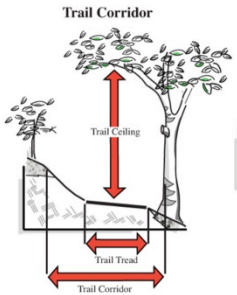
Maximum Sustainable Grade, 15% Dependent



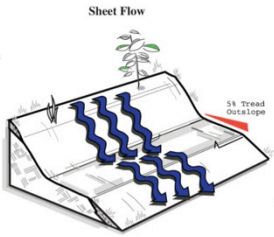
Half Rule



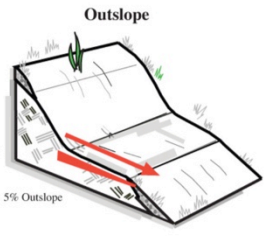
Trail Corridor



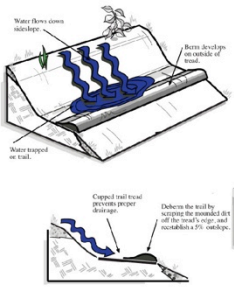
Sheet Flow



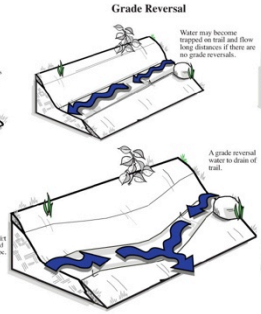
Outslope



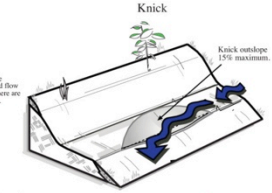
Berm



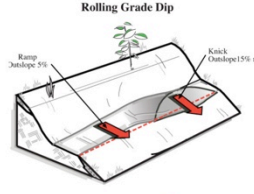
Grade Reversal



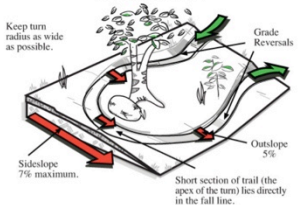
Knick



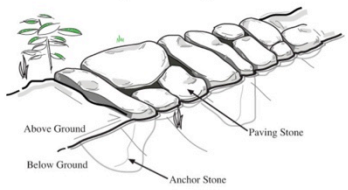
Rolling Grade Dip



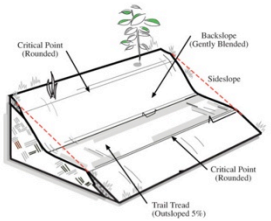
Climbing Turn



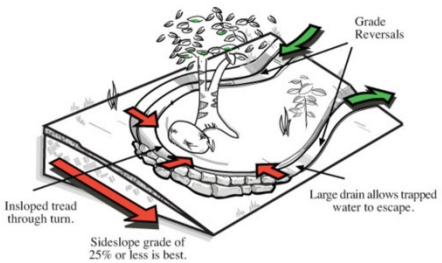
Flagstone Paving



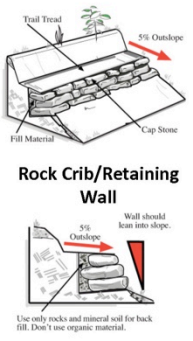
Full Bench Trail



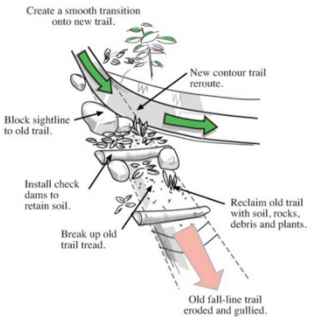
Raised Turn



Rock Crib/Retaining Wall



Trail Closure and Reclamation



Appendix E: NICA Races and Event Considerations

The trail network design outlined in this concept plan was done while considering how a NICA race could be held and organized at Powers Bluff County Park. Important design themes to point out include:

- Nearly all intersections are 4-way intersections allowing for multiple racecourse configurations and closures for specific uses (racecourse or spectators) that don't lead to a situation requiring two-way traffic on one trail segment.
- Segments of multi-use pathways can be used in the racecourse for passing areas or as spectator circulation.
- Open fields can be used for parking and camping. NICA WI race organizers have noted that they now plan for 750 racers, parking for 1,000 cars, and need 6 acres for camping.

The following considerations and questions are reviewed by NICA Race Directors when assessing a potential NICA racecourse:

- Route Length – 4-6 mile lap taking 18 minutes for Varsity riders is ideal.
- Elevation Gain – 100-700 feet per lap is recommended, should be similar to regional training trails.
- Length of Uphill Start – 0.25 mile uphill start (2 minute ride time) before entering singletrack.
- Length of Passing Before Finish – 0.25 mile uphill start (2 minute ride time)
- At Least 50-60% of Lap Allows for Passing – Consistent passable areas is ideal, good passing every 0.25-0.50 miles is required.
- What is the % of singletrack, % doubletrack (multiuse paths), % paved road?
- Are there any possibly dangerous man-made objects near the course?
- How fast are the downhills? Under 20 mph is the goal, over 20 mph should be limited to short sections of trail the don't involve high consequences if a rider would fall. There should be plenty of passing before any over 20 mph sections.
- Range of Difficulty Level (0-10) – A flat dirt road is a 0, a 10 is barely rideable by an experience technical rider. NICA courses should have a mandatory walk/hike portion if an area is rated over an 8.
- Number of locations on course where a beginner rider would need to dismount.
- Average trail grades, climbing and descending.
- Maximum trail grades, climbing and descending.
- How many off camber turns and/or loose sections?
- Any places a rider could be launched or catch air along the course?
- Are there water crossings? Is the water level predictable?