Lake Elmo Park Reserve Single Track Trail Design Study

Prepared For:
Washington County Parks
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KAY-LINN

Project Scope Of Work

Washington County Parks has initiated the design process for a single track mountain bike trail system in Lake Elmo Park Reserve in accordance with the 2006 master plan for the park. An experienced consultant was sought to assist in this endeavor, and the county selected Kay-Linn Enterprises. The scope of work for the project included providing:

- An overall design of the single track trail system located within the area designated of Lake Elmo Park Reserve with a recommended trail length to be between 8 - 12 miles and include access to easy and intermediate loops, in conformance with design best practices and standards established by the International Mountain Bicycling Association, to avoid problems with soil erosion and minimize impacts on vegetation and natural resources;
- All necessary signage recommendations for the single track trail;
- Recommended implementation phasing of trail design;
- Recommendations for trail structure needs within the proposed design, including areas that may require bridging or armoring where water may be of concern;
- GIS shapefiles of each trail layout;
- Verified and flagged trail layout; and
- Cost estimate for the construction of the entire trail system, as well as costs for maintenance tools and equipment.

About Kay-Linn Enterprises

Project Contact: Scott Linnenburger, Principal

Kay-Linn Enterprises (Kay-Linn) was established in 2009 by Scott Linnenburger and Aaryn Kay and has been a Professional Trailbuilders Association Member in good standing since 2011. The company provides consultation services focused on strategic project and organizational sustainability in the parks, recreation, conservation, and environmental education fields. In total Scott has worked on more than 150 natural surface trail assessment, planning, design, and construction management projects, provided more than 100 sustainable trail development seminars. He has worked in every state in the country, as well as multiple Canadian Provinces, China, and the Philippines. He has served on the national boards of directors for American Trails (10 years) and the Professional Trailbuilders Association (3 years).

Scott Linnenburger has been a leader in the development of sustainable natural surface trails since 2002 when he was hired with his wife, Aaryn Kay, as part of the Subaru/IMBA Trail Care Crew program of traveling trainers. Following, he took on the role of developing the International Mountain Bicycling Association's Trail Solutions program. He fostered rapid growth of the program, developed IMBA's Ride Center program and played a significant role in developing IMBA's trail texts, *"IMBA Trail Solutions"* and *"Managing Mountain Biking"*.

Scott obtained a Masters of Environmental Management degree from Duke University with a focus on wetland and stream ecology and restoration.

The single track design process was initiated in February, 2021 with meetings between Kay-Linn and Washington County Parks staff to review the goals of the study, as well as reserve's facilities, landscapes, and programming. The team developed a schedule for outreach that would be initiated by Washington County Parks, including County website-based announcements and surveys, with a goal of completing outreach and prior to field-based planning and design. With expressed desires of Washington County Parks and the public delineated, Kay-Linn conducted a site visit in late April, 2021. This is the ideal time period for trail planning and design as it is prior to leaf-out for maximum visibility on the landscape, as well as and when groundwater levels are typically highest to avoid and minimize potential muddy trail locations and/or specify mitigation measures for unavoidable crossings.

Opportunities

Setting

Lake Elmo Park Reserve is a large, picturesque park with sweeping vistas of prairie and the shorelines of Lake Elmo, Eagle Point Lake, and numerous smaller ponds/wetlands. This setting provides a high-quality backdrop for trail experiences, providing visitors a sense of place related to the historic, pre-suburban development landscape. A key to a successful single track trail system will be to capture both this sense of place and accent the size of the conserved landscape. The park's rolling terrain provides moderate elevations and most of the steeper sloped topography is in forest cover. Both of these facets are conducive to the development of sustainable, natural surface single track trails that provide enjoyable riding experiences.

Location

Currently there are few mountain biking alternatives in the northeast portion of the Twin Cities region. A well-developed single track trail system will become an immediate draw for riders and enhance the existing riding opportunities on the park's wider, turf double track trails. With the proximity of the recently developed Sunfish Lake Park trails, a moderately sized trail system of six to twelve miles at Lake Elmo Park Reserve will become a regional draw on weekends on top of providing increased access to trail riding for residents in Washington County and the northeast portion of the metro area.

Facilities/Activities

The park hosts a broad diversity of facilities and unique activities in its suburban location, from campgrounds, a swimming pond, non-motorized boating on Eagle Point Lake, a paved trail, and lighted cross country skiing. These facets combine to make Lake Elmo a destination for a diverse spectrum of visitors. A single track trail system will further broaden the options for visitors and potentially lengthen the amount of time that visitors spend in the park.

Constraints

Setting

While the sweeping prairie vistas are picturesque, this land cover is very challenging for the development of low maintenance, natural surface single track trails. The prairie grass grows back in after a trail is cut into the slope, resulting in increased maintenance when use it not high enough to keep the grass at bay. When use is high enough to contain the grass, the sandy soils typical in prairie settings tend not to consolidate into a firm tread, resulting in trenching, especially where there is some gradient to the trail. While some trail development within the prairie at Lake Elmo is unavoidable, it should be minimized. The sandy loam soils present in the park's forested areas will create a sufficiently stable trail tread if the trails are developed to a relatively narrow specification. However, the low cohesion in these soil types are not conducive to the development of berms or jump features that are desired by some riders.

Location

The southwest area identified in the master plan for single track trail development is predominantly in prairie land cover and, at just over 100 acres, very small for the development of six to twelve miles of trails. Furthermore, much of the land not in prairie cover in this area is either restricted by an active oak savannah restoration program around Eagle Point Lake or is a narrow (less than 50' in many locations), forested corridor adjacent to and within view of the homes neighboring the park on the south and southwest. This constrains the higher quality trail development potential to two small pockets of forest, each five to ten acres, in this portion of the park. In order to develop a moderately sized trail system, forested corridors in the eastern portion of the park will need to be utilized. Fortunately, the terrain in this area of the park is conducive to a quality mountain biking experience, with steeper slopes and wider, forested corridors.

Facilities/Activities

The Eagle Point Trailhead parking area will be challenged for space, especially on weekends, following the development of a mountain biking trail system. This has the potential to displace current visitors to this area. Additionally, if a sizable amount of the single track trail system within the park is developed east of the main park road, the number of road crossings made by mountain bikers could result in a level of vehicle-bike interactions that presents safety concerns.

The large footprint of existing turf double track trails within Lake Elmo Park Reserve constrains the potential location of a new single track trail system. Crossings of the existing trail system need to be minimized to reduce the potential for conflicts between pedestrian, equestrian, skiing, and snowmobiling visitors. Ideally, crossings should be located at existing, signed trail junctions where single track speeds and sightlines can be managed and additional trail system navigational signage can be minimized.

Conceptual Design Goals

Given the opportunities and constraints present for single track trail development in Lake Elmo Park Reserve, along with the expressed desires of park management and stakeholders, the following conceptual design goals were expressed through the ground-truthing, field flagging process.

Park Facility Connectivity

Single track trail-using visitors will be better served by a variety of access points to the trail system, arranged in an interconnected system of loops. The Eagle Point and Nordic Center Trailhead parking areas can host the majority of visitor spaces and trails can be developed in a manner that interconnects these parking areas so the lot overcrowding is minimized. However, a lack of single track connectivity to visitors utilizing the campgrounds, playgrounds, picnic areas, swimming pond, and fishing pier creates a barrier to entry for many visitors. Connecting kid-friendly single track facilities to these areas and their respective parking will better spread parking, add to accessibility of park amenities, and introduce new cyclists into riding on narrow, natural surface terrain.

Optimizing/Highlighting Landscapes

The most successful trail systems highlight their landscapes, allowing trail users to feel immersed in the park's setting. At Lake Elmo, this is best expressed by sweeping, low-gradient trails with views of the Reserve's many lakes and wetlands, narrow single track being "anchored" by, or with "gateways" between, large hardwoods, and "perched experiences" on some of the larger hills and steeper slopes.

Trail Diversity

Each trail loop within the overall system should have a distinct "personality" and aim to appeal to a subset of all the potential cyclists in the park. The shortest, most manipulated loops should be located in close proximity to multi-activity family gathering areas such as the playground and swimming pond. Shorter, slightly wider loops out of the main trailheads and campground should be accessible to the newest cyclists, yet not be so flat or unchallenging that these riders skills do not progress. Longer, narrow single track should provide a tour of the park landscape that appeals to more avid mountain bikers.

Management Conflict Avoidance

The single track trail system needs to work within the management mandates of the Lake Elmo Park Reserve. Natural resource management conflict avoidance will focus on active oak savannah restoration areas, direct wetland crossing, lakeshore setbacks, and prairie crossing minimization. Visitor management conflict avoidance will focus on minimizing overall single track trail junctions for ease in wayfinding, assuring appropriate sight lines and approach speeds with minimal road and turf/ski trails interactions, and more generally providing high-quality experiences that draws more cyclists off the turf/ski trails and lowers the number of interactions between faster moving cyclists and slower moving pedestrian and equestrian trail users.

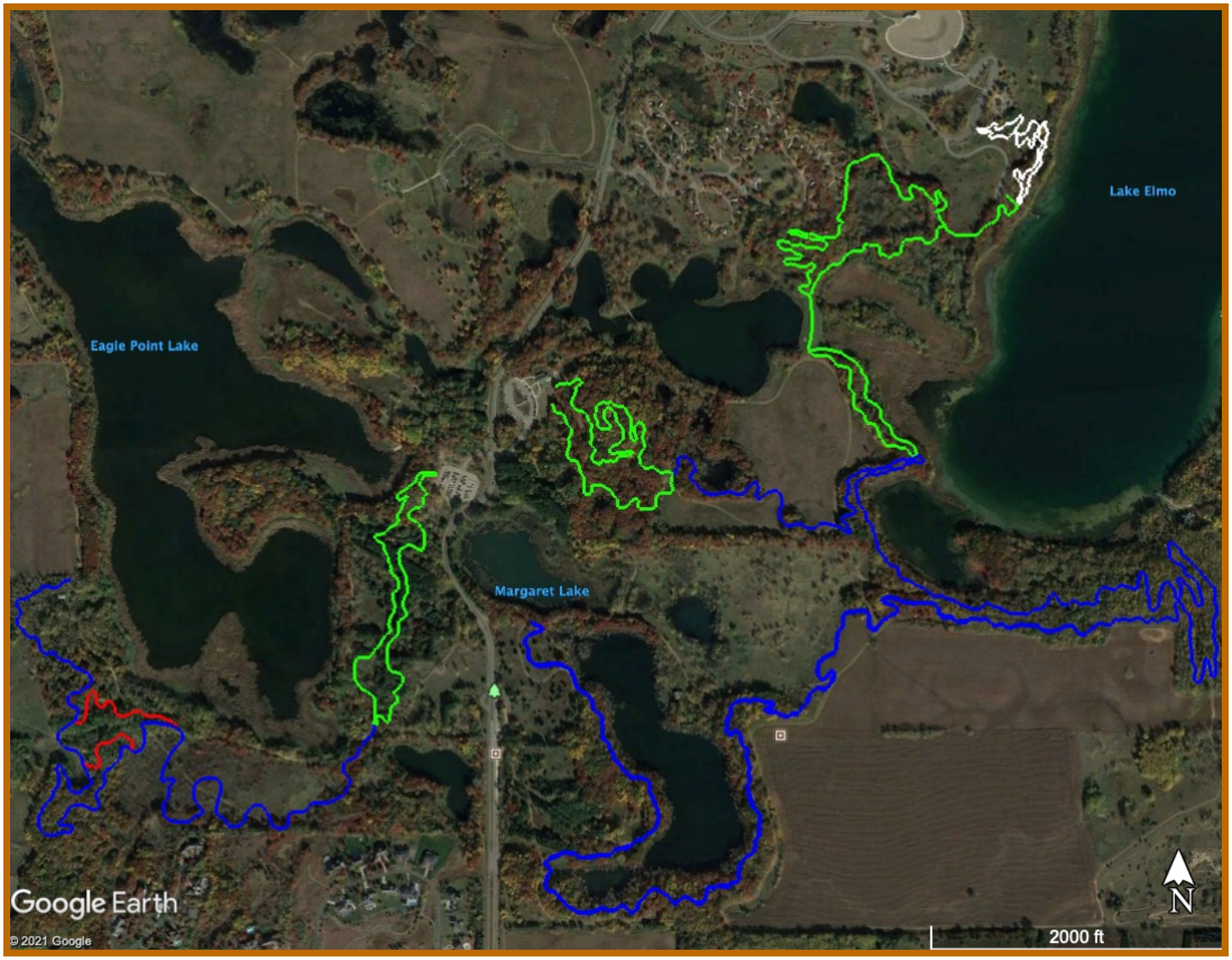
Recommended Overall Trail System- Location

Total Mileage: 9.76 miles

Component Parts:

- **0.3 miles:** Aggregate-surface, strider bike-friendly, mini pump track
- **0.3 miles:** Natural surface, beginner-friendly skills/features area
- **3.67 miles:** Family-friendly, wider single track
- **5.17 miles:** Narrow single track
- **0.32 miles:** Gravity-oriented single track

Recommended Overall Trail System- Difficulty



Total Mileage: 9.76 miles

Component Parts:

- **0.3 miles:** Aggregate-surface, strider bike-friendly, mini pump track (white)
- **0.3 miles:** Natural surface, beginner-friendly skills/features area (white)
- **3.67 miles:** Family-friendly, wider single track (green)
- **5.17 miles:** Narrow single track (blue)
- **0.32 miles:** Gravity-oriented single track (red)

Nordic Center Trail System

Total Mileage: 5.0 miles

Component Parts:

1.0 miles: Family-friendly, wider single track (green, not including northern loop)

4.0 miles: Narrow single track (blue)

Description:

Most difficult green trail in park, outbound leg (north) ascends 50 vertical feet prior to a .25-mile descent to the turf trail/blue trail junction with a rolling return to the nordic center. The blue trail winds through forest and prairie and then on steeper slopes around Brown's Pond with seven, 30-50 vertical foot climbs/descents over the first 3.5 miles before a rolling 0.5-mile finish at the turf trail overlooking Margaret Pond, and a return to the Nordic Center on the paved trail or a 0.25-mile connector across the main park road to the Eagle Point trail junction of green and blue trails.

Eagle Point Trail System

Total Mileage: 2.83 miles

Component Parts:

0.94 miles: Family-friendly, wider single track (green)

1.57 miles: Narrow single track (blue)

0.32 miles: Gravity-oriented single track (red)

Description:

Green outbound leg (west) provides short climbs and descents (~ 25 vertical feet) through old farmstead with inbound leg (east) stretching out the descents through the pine forest. Blue outbound leg winds through the prairie overlooking Eagle Point Lake with separate 50’ and 100’ ascents and a long, gradual descent to the lakeside turf trail. Southern gravity route to be technical option, with northern gravity route to be flow-focused with berms, rollers, and table top jumps.

Campground Trail System

Total Mileage: 1.73 miles

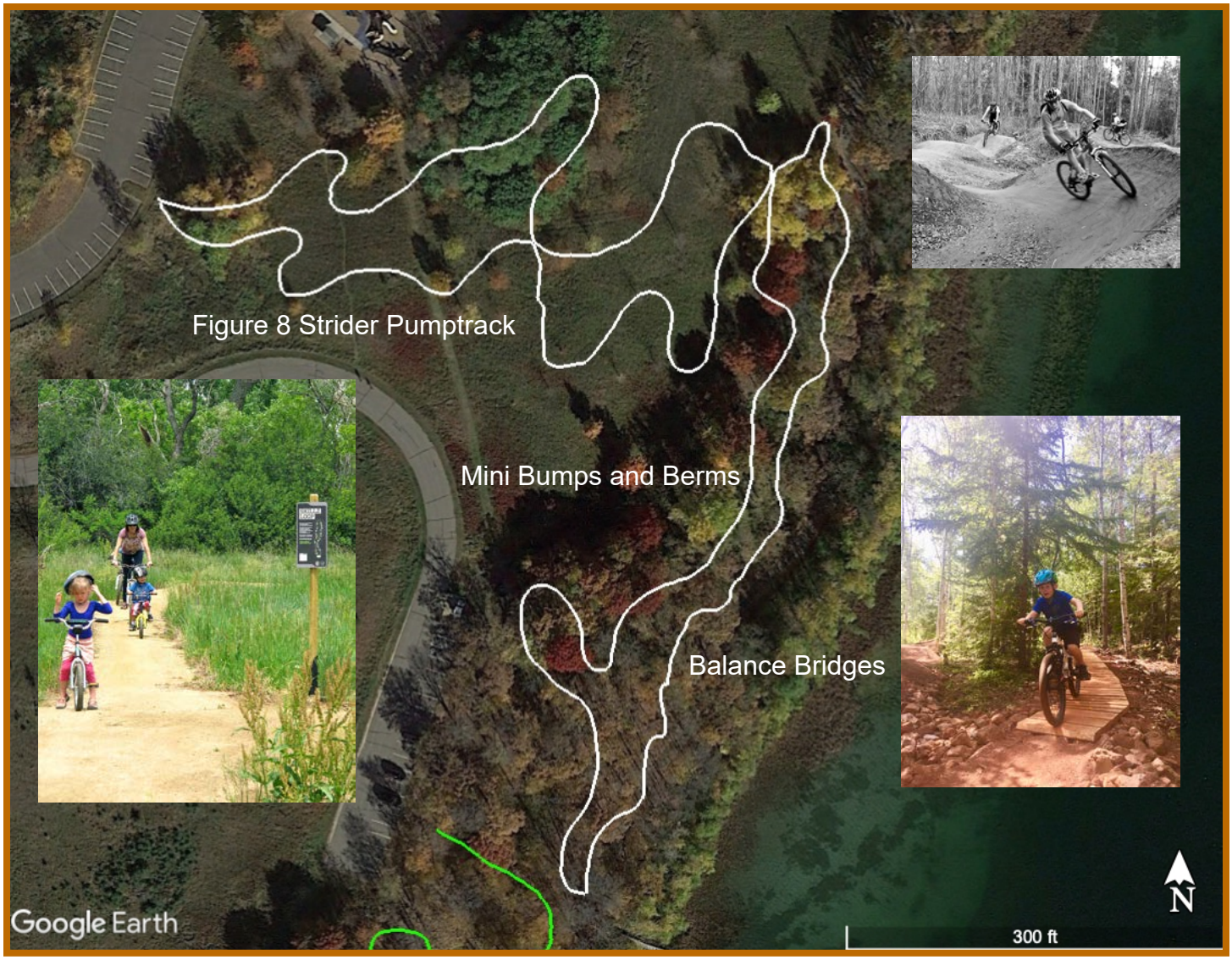
Component Parts

1.73 miles: Family-friendly, wider single track (green)

Description:

Accessed from the paved trail on the eastern portion of the campground or the fishing pier parking area, short trail segments break on and off the paved and turf trails to provide mixed groups to choose a desired trail and meet back further along. The northern, 1.19-mile campground loop (north leg outbound) has a few extended 30 vertical foot climbs and descents with a lowland, twisting return (south leg inbound) to the paved trail junction. The southern 0.54-mile loop is accessed from the turf trail on top of the earthen dam above Lake Elmo before a mellow, rolling loop highlighting the larger hardwoods in the bottomland forest.

Playground Trail System



Total Mileage: 0.6 miles

Component Parts

0.3 miles: Aggregate-surface, strider bike-friendly, mini pump track (white)

0.3 miles: Natural surface, beginner-friendly skills/features area (white)

Description:

This kid-focused zone, accessed from the fishing pier or playground parking lots, as well as the paved trail provides a variety of short length, gently sloped experiences intended to allow new riders to build bike handling skills in a self-paced or instructional setting. Three different skill zones, from an aggregate/asphalt surface, strider/scooter-friendly pump track to natural surface single track with small rollers and berms and an uphill return route with balance features (also accessible from the paved trail), aim to broaden the activity potential around the new playground and swim beach.

Specifications

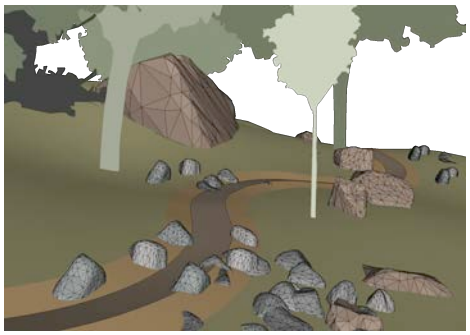
To assure that single track trails can be maintained by primarily volunteer stewards, it is imperative that new natural surface trail construction is developed in the most sustainable manner. The recognized best practice for the developed width of natural surface trails that have minimal natural resource impacts and are manageable by stewardship coalitions are relatively narrow (2-5' wide) rolling contour trails.

Trails are sited in a sidehill location to the greatest practicable extent. Along with a sidehill location, the trail should roll up and down, termed rolling contour trail (see 1.1), which breaks up potential stormwater drainage with frequent grade reversals (see 1.2) that act as drains during periods of high flow. These three aspects, along with moderate trail grades and regular maintenance are the keys to the development of a sustainable single track trails.

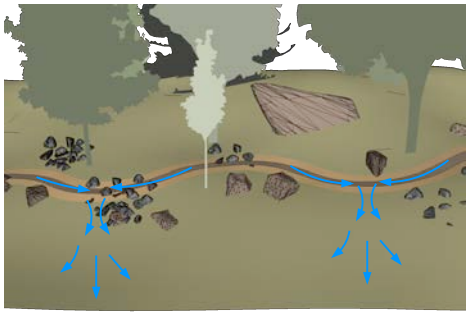
The trails are cut into the side of the hill in a full bench cut manner, rather than a partial bench cut with the outer half of the trail created with the excavated fill. Especially with soils that do not readily bind together, as are present at Lake Elmo Park Reserve, high use trails receives far too much sheer stress to maintain a level tread with a partial bench cut.

Grade reversals should be moderately outsloped (7-10%) to encourage any loose sediments to be carried off the trail tread during periods of storm flow. Over time, some these reversals will flatten and start to hold sediment. At that point the reversals should be cleaned and an out slope reestablished. If the reversals are excessively muddy, then they should be rock armored with a slight outslope to assist water off the trail tread.

Typical 1.1: Rolling Contour Trail



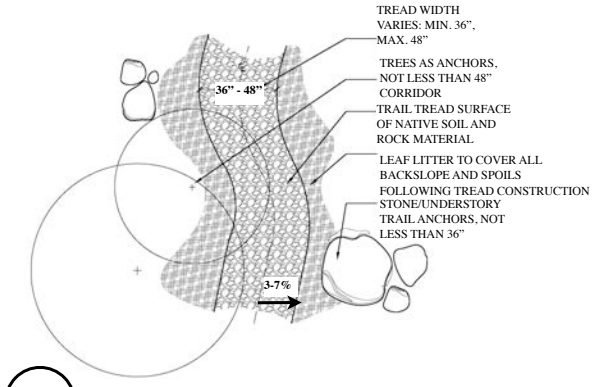
Typical 1.2: Grade Reversals



Trail Type Name: Frontcountry, Gateway, Family-Friendly
Difficulty Rating: Easy
Difficulty Symbol: Green Circle

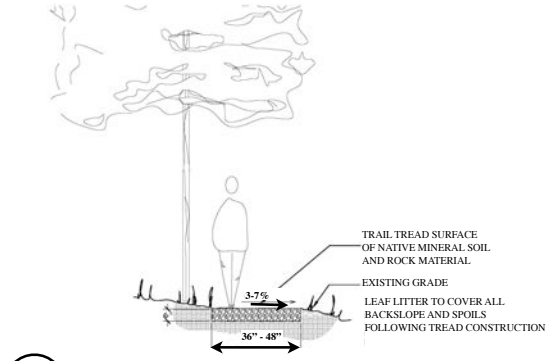
Typical Tread Width: 36” - 48”
Typical Corridor Width: 48” - 72”
Tread Rugosity: Smooth and even, no protrusions greater than 6”

Average Gradient: < 5%
Maximum Sustained Grade: 7%
Maximum Grade: 10%
Typical Tread Materials: Native mineral soil, amended with crushed aggregate where trail tread materials do not bind under bicycle forces
Sideslope Steepness: Flat to 45%



2.1 N.T.S
PLAN DETAIL: FRONTCOUNTRY TRAIL- TYP.

Turn Radius: Wide and open, 10+-foot radius, slightly unsloped with drains prior to and after turn
Trail/Structure Formality: Formal, 90” minimum width
Wet Area Crossing Formality: Formal bridges for minor/ major crossings
Duty of Care: Moderate



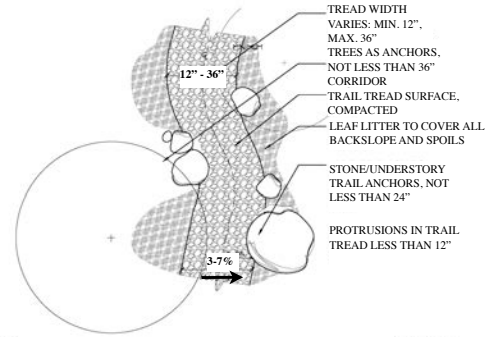
2.2 N.T.S
SECTION DETAIL: FRONTCOUNTRY TRAIL- TYP.

Intended Experience: The family-friendly gateway trail should provide a gentle rolling, minimally sinuous, low barrier trail experience that is narrower than a typical paved trail and instills an intimate feeling with the surrounding landscape. Mostly accessed directly from trailheads, these trails will provide short walks/rides, with loop lengths of a mile or two. Optional skills development features may be located adjacent to the trail, out of the direct flow of travel.

Trail Type Name: Single track, Backcountry
Difficulty Rating: More Difficult
Difficulty Symbol: Blue Square

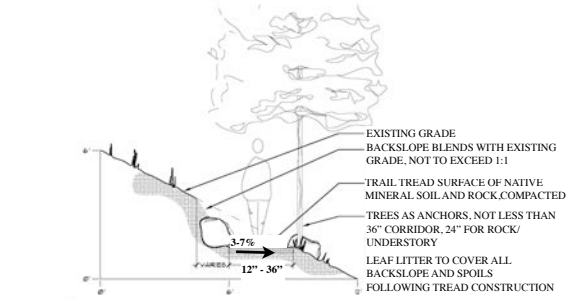
Typical Tread Width: 12” - 36”
Typical Corridor Width: 36”-48”
Tread Rugosity: Uneven, with regular protrusions, <12” above trail tread

Average Gradient: < 10%
Maximum Sustained Grade: 12%
Maximum Grade: 20%, with armored tread
Typical Tread Materials: Mostly natural surface (native soils) with some rock armoring, where available
Sideslope Steepness: Flat to 75%



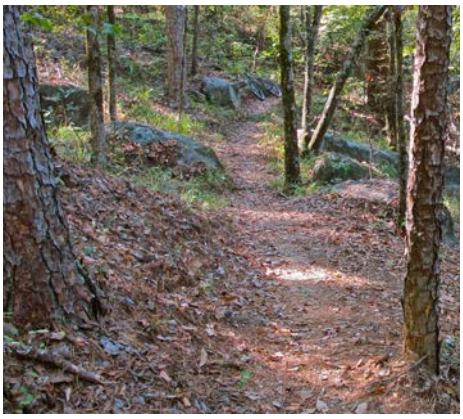
3.1 N.T.S
PLAN DETAIL: BACKCOUNTRY TRAIL- TYP.

Turn Radius: Tight turns, 6+-foot radius, with possible switchbacks but more ideally excavated inslope (not piled berm) turns
Trail/Structure Formality: Low formality, 36” minimum width
Wet Area Crossing Formality: Armored crossings at grade where possible, bridges less formal with low level engineering
Duty of Care: Low



3.2 N.T.S
SECTION DETAIL: BACKCOUNTRY TRAIL- TYP.

Intended Experience: The backcountry-style single track trail will provide a constantly reversing grade and moderate sinuosity. Tread will be moderately defined by the cleared corridor, bracketed by larger trees on the downslope trail edge and/or narrower gateways between trees. The intent is to create a very intimate trail experience where speed and turning are dictated by natural obstacles and narrow trail tread. Excavated material will be utilized to enhance access to and through existing features, but will used only minimally to create rollers, insloped tread or turns. Rather, the trail should be cut into the landscape to develop the rolling contour and sinuosity. Obstacles can be developed within the main line of bike flow, but a slower ride-around should be developed off the main line.



Trail Type Name: Mountain bike-optimized trail
Difficulty Rating: Most Difficult
Difficulty Symbol: Black Diamond

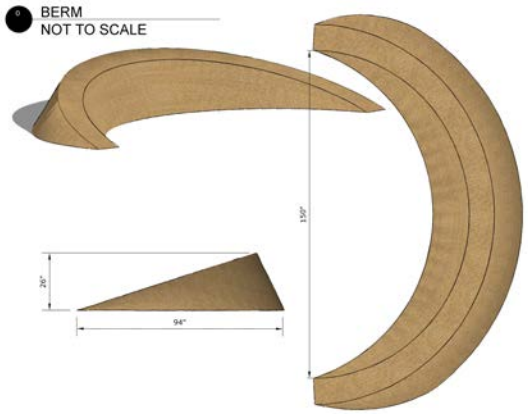
Tread Width: 48 - 72"+ (active tread, fill for features will be wider)
Corridor Width: 72" - 96"+
Tread Rugosity: Low with protrusions less than 3" in height, except for constructed dirt or alternative material features

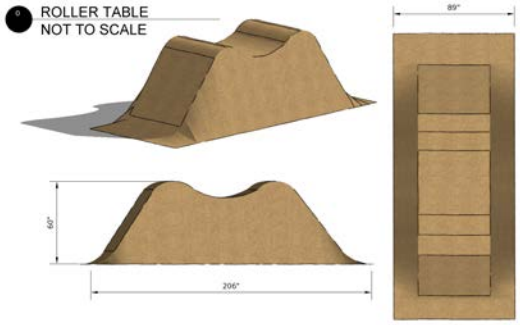
Average Gradient: 3-10%
Maximum Sustained Grade: 10%
Maximum Grade: 15%, Rock face riding features at natural grade

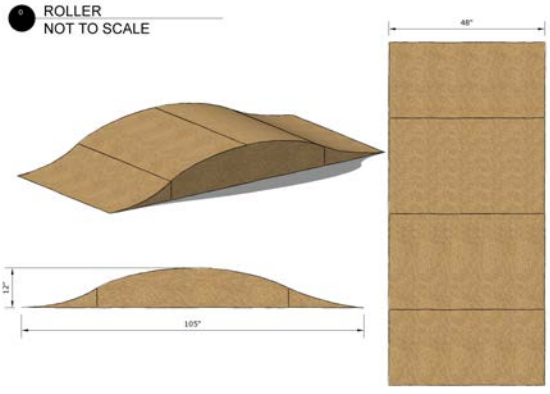
Typical Tread Materials: Natural surface, full bench cut. Maximum lift and tilt use of cut/spoil materials for trail feature development. Where adequate amounts or quality of soil are not present, borrow pits within 25' of the trail center line employed. Where on-site materials are not adequately compactible, clay/ sand material should be imported and compacted in 6" lifts for all features
Sideslope Steepness: Flat to 75%

Turn Radius: Broad radius, super elevated or insloped
Trail/Structure Formality: High formality, 36" minimum width, width minimum of 2X maximum height
Wet Area Crossing Formality: Armored crossings at grade, opportunity for constructed bridge riding feature
Duty of Care: High

Intended Experience: These mountain bike-optimized, one-way trails will be oriented for downhill directional use. Trail will be defined by constructed features located at intervals to maintain/enhance speed for the subsequent feature. Grade reversals will be larger and enhanced as rollers or roller tables with excavated or borrow materials. Sinuosity of the trail will be optimized for higher speeds. All turns will be insloped or superelevated to keep riders on the trail and sized accordingly. Trail features will all be rollable on main riding line and extend the full width of the trail. Optional features may be developed outside of the main line of bicycle flow.







Cost Opinion

A number of different factors are involved in the development of a single track trail system, including contractor availability, construction period and required completion dates, contracting mechanisms, size of project, equipment stipulations, and the use of staff or volunteers. The cost opinion expressed below is based on similar projects within the upper midwest over the last three years that were undertaken by professional trail contractors. An opinion is also provided regarding tasks that could be completed by staff and/or volunteers, along with an estimated per person productivity. Finally, the table is presented in an optimized implementation schedule to sequentially develop aspects of the single track trail system outlined above.

Task	Feet	Unit Price	Subtotal	Park Staff	Productivity	MTB Volunteer	Productivity
Family-Friendly Trail corridor clearing (1)	19,378	$1.50	$29,067	Yes	50 feet/person/ hour	Yes	25 feet/person/ hour
Family-Friendly Trail construction	19,378	$5.00	$96,890	No	N/A	No	N/A
Single track Trail corridor clearing (1)	29,410	$1.00	$29,410	Yes	75 feet/person/ hour	Yes	50 feet/person/ hour
Single track Trail construction (2)	29,410	$4.50	$132,345	No	N/A	Yes	10 feet/person/ hour
Skills Trail construction (3)	1,584	$20.00	$31,680	No	N/A	No	N/A
MTB-optimized gravity trail construction (4)	1,690	$15.00	$25,350	No	N/A	No	N/A
Pumptrack Construction-aggregate (5)	1,584	$30.00	$47,520	No	N/A	No	N/A
Pumptrack Construction-asphalt (5)	1,584	$47.50	$75,240	No	N/A	No	N/A
		Total:	**$354,742**				

(1) Assumes professional preparation for corridor flagging and additional cost of $3,000.

(2) Assuming a trained crew of 20 volunteers with 2-3 crew leaders working 4-hour periods, approximately 800 linear feet of trail could be constructed in a day and a mile of trail constructed over 6 or 7 volunteer events/year.

(3) Assumes 6 balance-focused wood or metal/wood features at $2,000/feature.

(4) Assumes import of 40 cubic yards of suitable clay-sand material for feature construction. Price not included in Total.

(5) Assumes import of approximately 60 cubic yards of suitable 3/8”-minus aggregate or milled asphalt. Price not included in Total.

Appendix A:
Natural Surface Trail Construction Best Practices

Best practices for the construction of natural surface trails include a variety of avoidance and minimization methods to prevent sediment from leaving the site, including pre-construction design considerations, low-impact construction techniques, and post-construction naturalization of the existing watershed hydrologic characteristics. The intent of the sum of these practices is to leave the forest in a minimally altered hydrologic condition.

Pre-construction design best management practices include:

- **Retaining an intact forest canopy.** The entire trail corridor, save for prairie locations, will retain an unbroken forest canopy, including all riparian corridors.

- **Avoidance of water resources.** The trail has been designed to have avoided stream and wetland crossings. Where in proximity to water resources, the trail is designed with very low running gradients, perpendicular alignments to the water/wetland, and efficient ascents away from the water and/or riparian corridor.

- **Minimal trail grades.** The trails have been designed with gentle gradients, generally averaging 1-10%, below 15% for distances greater than 25 feet, and trail grades that do not exceed half the grade of the hillslope.

- **Contour trail location.** The trails have been located on sidehill locations, rather than areas that are flat. Combined with gentle trail gradients, this location allows for natural sheet flow surface runoff to be retained during and following the construction process.

- **Continual grade reversals.** The trails have been designed and construction specifications indicate changes from downhill to uphill grades (for short distances) at an interval greater than every 100 feet in linear trail distance. Termed “grade reversals”, this constant undulation of the trail tread prohibits runoff from increasing in volume and velocity along the natural dirt surface.

Low impact trail construction best practices include:

- **Construction corridor minimization.** The average disturbance width for the trails is 4-6 feet for clearing and grubbing. Machines undertaking the construction activities should be limited to track widths of 60 inches or less. Minimal egress outside the established trail corridor is necessary by machines, retaining uncompacted native vegetation outside the linear construction area.

- **Mature tree avoidance.** Trees greater than 4 inches in diameter (dbh) should not be cut, and the trail should be routed around trees of this size or greater to protect the integrity of the canopy and root system. As possible, the trail should be located upslope and near the trunk where root interaction is minimized, rather than at the drip line of the canopy where nutrient uptake could be hampered by compacted soils.

- **Minimal compaction.** The resulting trail surface should be composed of native mineral soil, retaining natural infiltration qualities.

- **Blended backslope.** The cut slope above the trail tread will be cut back to blend with the natural contour of the slope above the trail. This will allow surface runoff to remain in sheet flow as it approaches the trail.

- **Outsloped trail tread.** The trails will cant slightly (3-7%) down the hill, further encouraging surface runoff to retain sheet flow characteristics across the trail tread rather than allowing water to run down the trail.

- **Dispersed spoil materials.** The cut material created from trail construction should be broadcast off the trail tread and spread downslope of the trail at a depth not greater than 4 inches. This relatively uniform dispersal of materials will preserve natural forest understory vegetation by minimizing potential smothering while retaining the natural seed bank.

- **Limited disturbance.** Construction should be phased in a linear matter, laborers and machines are nearly always within 1,000 linear feet of trail. The construction process entails 1) trail corridor preparation by hand (manual and chain saws), 2) trail construction by machine and hand with soil moved minimally (1-4') beyond the downslope edge of the trail, 3) backslope and outslope development by machine and hand, and 4) spoils and natural mulch (gathered during the trail corridor development) dispersal implemented by hand crews. This process is completed in full on each day of construction, leaving a stabilized construction site that resists erosion.

Post-construction naturalization best management practices:

- **Vegetated filter strip.** Natural vegetation downslope of the trail tread is retained along the entire course of the trail with a minimum width of 25 feet from wetland or aquatic resources. Compaction of the corridor is minimized with only hand crew use in the area outside of the trail tread. Evenly dispersed soils/mulch with native seed stocks encourage rapid vegetative establishment following construction.

- **Backslope vegetation reestablishment.** With backslopes blended to the surrounding hill slope, not compacted following grading, and covered by native mulch and seed stock at the end of the daily construction process, vegetative reestablishment is encouraged. This reestablishment further reduces the area of exposed soil and further protects the trail tread from potential erosion through the creation of a narrow filter strip uphill from the trail.

Appendix B:
Volunteer Trail Stewardship Best Practices

(Adapted from IMBA: Managing Mountain Biking)

Benefits of Using Volunteers

Volunteers fulfill a huge need in land management - putting miles of trails on the ground, removing noxious weeds, cleaning up trash, interfacing with the general public, and building an engaged constituency of stakeholders invested in the success of public land management. Attaining efficiency and productivity, high performance, positive attitudes, and good morale from volunteers requires agency systems and staff time, and when effectively organized, a collaborative team of stewards and managers is a significant force multiplier.

Goals of Volunteer Stewardship Engagement

- Work is accomplished in a safe manner
- High quality work is accomplished by volunteers
- A sufficient quantity of work is accomplished
- The volunteer effort saves money for the agency
- The volunteer effort saves staff time for the agency
- The volunteer effort involves the community and other important constituencies
- The volunteers have a good experience
- The volunteers will help support agency activities

Managing Volunteers

Many public land agencies are not immediately prepared to manage volunteer projects or provide the necessary resources for project planning, design, and oversight. Systems must be created for the recruitment of volunteers, individual and group volunteer management, event organization, project planning/approval, volunteer recognition and rewards, and program evaluation. All of these items link directly to staff time. Internal agency assessment must optimize the direct benefits of volunteer labor (on the ground projects) and the indirect benefits of volunteer engagement (growing support network for agency) with staff time and agency costs.

Solidifying the Partnership

Clear and open communication is key to working with volunteers, maximizing efficiency and retention. Work with the main contact(s) at the partner organization to:

1. Identify one person who is the agency contact and one person who is the partner contact. Delineate the best means of communication (i.e. email, phone, meetings, etc.)

2. Clearly define agency volunteer policies (risk management, liability waivers, code of conduct, etc.).

3. Set mutual goals between the partner organization and the agency, using the agency stewardship needs chart to clearly match the *agency need* with the partner.

4. Consider creating a partnership document that defines the scope of a proposed project or ongoing stewardship role with clear agendas, responsibilities, and roles (i.e. a Memorandum of Understanding (MOU), a non-legally binding public statement of goals and duties).

5. Identify training needs: Do all the volunteers need to be trained or can the event be accomplished with project leaders who work with small groups of volunteers? What are the goals of the training? Do Agency or Project Leaders need additional training? What resources can you tap for the training? Do you have schedule and funding/staff/volunteers to ensure that the training can be accomplished?

6. Set up systems for tracking metrics, enabling the agency and the partner to measure success over time, to better plan future projects, and to track in-kind donations to the Agency that are often needed for matching funds for grants. Determine who will be the responsible party for tracking.

7. Assess communication systems (agency and partner) and determine a process for outreach/ publicity (i.e. volunteer group designs and prints the posters, but the agency logo must be on the poster).

8. Jointly, decide on a mechanism to recognize and reward volunteers.

Volunteer Event Planning and Implementation

Planning is essential for volunteer projects. Trained leaders, achievable tasks, and fun will create a sense of accomplishment that will keep volunteers coming back. Planning can start as much as one year in advance.

A volunteer event needs to be enjoyable so avoid scheduling projects during the hottest months/ time of day and don't work for more than four or five hours at a time. Tackle a reasonable project that can be fully completed with the volunteers and tools available. The quality of the finished work is more important than the quantity.

In addition to staff time, agencies must assess their equipment and resources to determine the maximum number of volunteers who can work at one time, as well as identify holes in volunteer-provided resources

Working with an established volunteer group is an efficient way to organize a project since many volunteer groups take ownership in recruiting and training their volunteer pools and choosing days that work within the schedule of their constituency. If the agency is organizing a general project with broad appeal, local volunteers can be found through the local (news, newspapers, local calendar postings), Agency, and volunteer media sources.

4-12 months before the event

1. Identify Goals and Develop a Plan: Write your goals and create a blueprint and timeline with your partners. The projects you tackle should be matched to experience level, manpower, need, and visibility.

2. Set Dates Early: Avoid conflicts with holidays, school schedules, popular local events, and races. Promote your schedule and cultivate supporters such as outdoor retailers, local businesses, bike shops, and other user groups. Feature the event dates prominently in your newsletter and on your website.
3. Designate Point People: Designate one or two people from the agency and participating volunteer groups. Team up to develop realistic options for different-sized groups, arrange liability waivers, and coordinate insurance and permitting.

Four Months to Two Weeks Before the Event

4. Secure Sponsorship: Attract a variety of sponsors to provide food, supplies, funding, or other benefits. Recognize sponsors generously in promotional materials and at the event.
5. Get the Word Out: Create materials to advertise the year's volunteer events. Include dates, times, locations, contact information, and logos of all supporters. Ask newspapers and television stations to publicize the event in a community calendar, or in a story. In interviews, convey the "who, what, why, where, when, and how" so interested people can get involved.
6. Pre-Register Volunteers: RSVP-ing can help with estimating the workgroup size, but it shouldn't be required. If you decide to use pre-registration, post forms on your website. Collect contact information so you can invite volunteers to future events.
7. Identify and Train Project Leaders: Identify a group of suitable volunteers and agency staff to lead different aspects of the event and provide appropriate training. Project Leaders allow for a safer and more effective event where you can break the volunteers into small groups. Make sure leaders know their responsibilities and action steps if an accident occurs.

Two Weeks Before the Event

8. Match Leaders and Project to the Expected Turnout: Finalize project specifications and make sure you have the right people and resources. Leaders should arrive early to prepare the site and answer questions.
9. Finalize Project Preparations: Assure the logistics have all been addressed. For trailwork, use tightly-spaced stake flagging where you'll be working to assure the final product matches the design. Where needed, write field notes directly on flags/stakes. Confirm that parking, gates, restrooms, and staging areas are ready and that the time and duration are agreed upon. Finalize the emergency plan including access/exit points.
10. Coordinate Social Aspects of the Event: Make sure food and beverages are ordered or prepared on time. Collect prizes and gifts. Leave time for a social event following the work.

Day of the Event- Guiding Principals: Be prepared, Emphasize Fun, Don't Waste Time

1. Start the Day with a Volunteer Safety Talk that includes tool safety (spacing, proper use of tools, safety gear needed, etc.) and what to do in an emergency. Let volunteers know how their work improves the trail. Explain how it aids drainage, restores damage, or improves sustainability. Volunteers perform better work when they understand its purpose, and you may inspire future crew leaders.. Introduce the Volunteer Leaders.
12. Schedule Water and Food Breaks - Read the volunteers' morale and be prepared to cut the work day short if necessary.
13. End on a positive note, touting the success of the day, at the end of the event.

Immediately following event
While you need to conduct a thorough evaluation and update your budget, there are post-event publicity, fundraising and member development opportunities that you can take advantage of with just a little pre-event planning. Here are some of the activities you might consider once the event is over:

1. Financial status: gather all receipts, documentation, final registration data, etc. and update budget

2. Send thank-you's and acknowledgement letters to:
   - Sponsors
   - Volunteers
   - Speakers/presenters
   - Donors
   - Media

   In your thank-you notes, be sure to remind the recipients of the event's success – and how they contributed (e.g., dollars raised, awareness - number of participants, etc.).

3. Post-event publicity- Post photos, statistics, etc. on agency and partner social media outlets

4. Follow-up Communication with Event Participants
   Reach out to event participants – thank them for participating, learn what people enjoyed about your event, and where you have room to improve. Include information on your ongoing programs and how they can support you throughout the year by joining, volunteering or making a sustaining donation.

Volunteer Retention Strategies
A well-planned and executed volunteer event that accomplishes a tangible product is key to volunteer retention.

Rewarding Volunteers
Thank volunteers throughout the event and after the event in newsletters, social media, and local print/television media. When possible, reward at the day of the event with T-shirts, hats, and/or prizes, and consider a reward program with incentives for volunteering a certain number of days.

Record Your Success
Tally the number of volunteers, the total number of hours logged, and the time put into planning. Capture "before and after" shots of the work. This information will help in planning future events and quantifies the volunteer service.

Follow-up
Have volunteers register - get their names, addresses, phone numbers, and email addresses, so you can keep them involved and inspired to volunteer again. Volunteers should feel welcomed and appreciated when they come, never shamed when they don't.