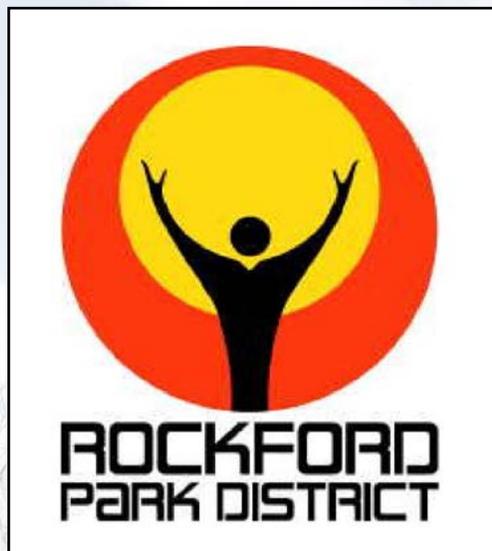


ROCKFORD PARK DISTRICT

SILENT SPORTS MASTER PLAN

February 2016



PROPOSAL BY:

PROGRESSIVE TRAIL DESIGN



INTRODUCTION



A group of Rockford Park District citizens and silent sports enthusiasts – hikers, runners, cyclists, and skiers – seeks to expand recreational opportunities at Atwood Park. The vision of the silent sports stakeholders has been realized in the following master plan prepared by Progressive Trails Design. Progressive Trail Design was retained due to the stakeholders’ fundraising efforts. Progressive Trail Design is a trail building and outdoor recreation development company that specializes in the design and construction of all types of Soft Surface Trails. This master plan was developed to include all design elements requested by the stakeholders and RPD staff, with a focus on sustainability. This plan incorporates two sites within the District that are well suited for silent sport activities: Atwood Park and Alpine Hills Adventure Park.

Atwood Park presents unique opportunities and topography that allows for the high quality trails system and regional attraction envisioned by this group. Atwood Park is a large natural park located at the Park District’s southern boundary. Atwood Park is situated along the beautiful Kishwaukee River and boasts 334 acres of diverse natural area, including forest, marsh, and prairieland. Previously the Camp Grant artillery range, Atwood Park contains remnant structures that are still accessible today. It is also home to the Park District’s award winning Birds of Prey facility, and offers recreation and education fieldtrips to schools and groups year round. The vision for Atwood Park includes the development of 20 miles of safe and sustainable multi-use trails, as well as trailhead and infrastructure development. While Atwood Park’s large area and natural setting made it the ideal site considered by the stakeholders, another Park District site had long been identified as an outdoor adventure park and home for silent sports activities. Alpine Hills Adventure Park is a 52-acre urban facility that features year-round activities for all ages, including ziplining, a snow park, and a five-hole golf course that is home to the Rockford Park District’s Junior Golf Program. Trail development and mountain biking have long been discussed as complementary activities to the currently programmed year round outdoor recreational activities at Alpine Hills Adventure Park. The proposed Alpine Hills Bike Park will offer a short beginner level trail, downhill trails for various skill levels, and focus on skills development.

The development of silent sports amenities at two Park District sites, as outlined in this master plan, will provide citizens and visitors additional recreation amenities that are unique to the region. The activities will be similar at the two sites but the context and planned programming will allow for the activities to complement each other rather than compete with each other. This master plan will be a guide for fundraising, design, construction, and long term maintenance.

ATWOOD PARK



Atwood Park is an outdoor educational facility, home to the birds of prey exhibit along with a trail system, used for a variety of recreational activities. A number of citizens representing various user groups--hikers, runners, cyclists and skiers approached the Rockford Park District to expand recreational opportunities at Atwood Park. Through their fundraising efforts, a consultant was retained to develop a Silent Sport Master Plan multi-trail system.

One of the main priorities of the planning process is to develop a multi-use trail system that embraces the existing Park activities and satisfies the users in a more functional and exciting way, while respecting all historical elements in the Park with sensitivity to environmental impacts. Many of the existing trails are poorly aligned, resulting in erosion and sediment run-off, while other trails are in good condition. The goal of this Plan is to utilize as much of the existing trail system as possible, and restore the poor quality trails back to a natural state. This Plan improves the sustainability of the existing prairie area as well.

The Atwood Park Silent Sports Master Plan illustrates a diverse multi-trail network experience for citizens and tourists to enjoy nature and recreational activities. Through professional design, stakeholder and public input, the Plan identifies an environmental friendly multi-trail network that meets the needs of the community. This is intended to be a multi-year project. The Plan will be developed in phases, to coincide with fundraising efforts and minimal tax supported dollars. Way-finding signage—for educational and directional purposes will be a key design element in the Plan. The trail design philosophy centers around both single use and multi-use trails in an effort to enhance the user experience. Trail intersections will be minimized and sport proper signage. Trail materials will be selected based upon low maintenance requirements.

MASTER PLAN

For ease of comprehension, the Plan is divided into 2 big areas, the North (north of river) and the South (south of river), and 6 zones within these two areas. Below is an explanation of each of these zones;

North Area:

Programmed for educational opportunities for youth groups, hiking, and some biking. Predominately a trailhead for hikers, bikers would be encouraged to park in the South Area.

1. Atwood Lodge Zone - This zone is highly programmed with children activities and many educational exhibits. It is proposed to be an isolated trail system for "hikers only". The poorly aligned trail will be restored to a natural state and the well-aligned trail will remain with new trail added to organize the system in a more sustainable and functional way.

2. East Zone - This zone has approximately 3 miles of multi-use contour flow trail (Blue) with a connection to the neighborhood to the North and down to the bridge, leading to the South Area. There is also an old paved path due west of the lodge that would be reopened to act as a paved loop for walkers/runners/ cyclists. This loop is completely separate from the Atwood Zone.



South Area:

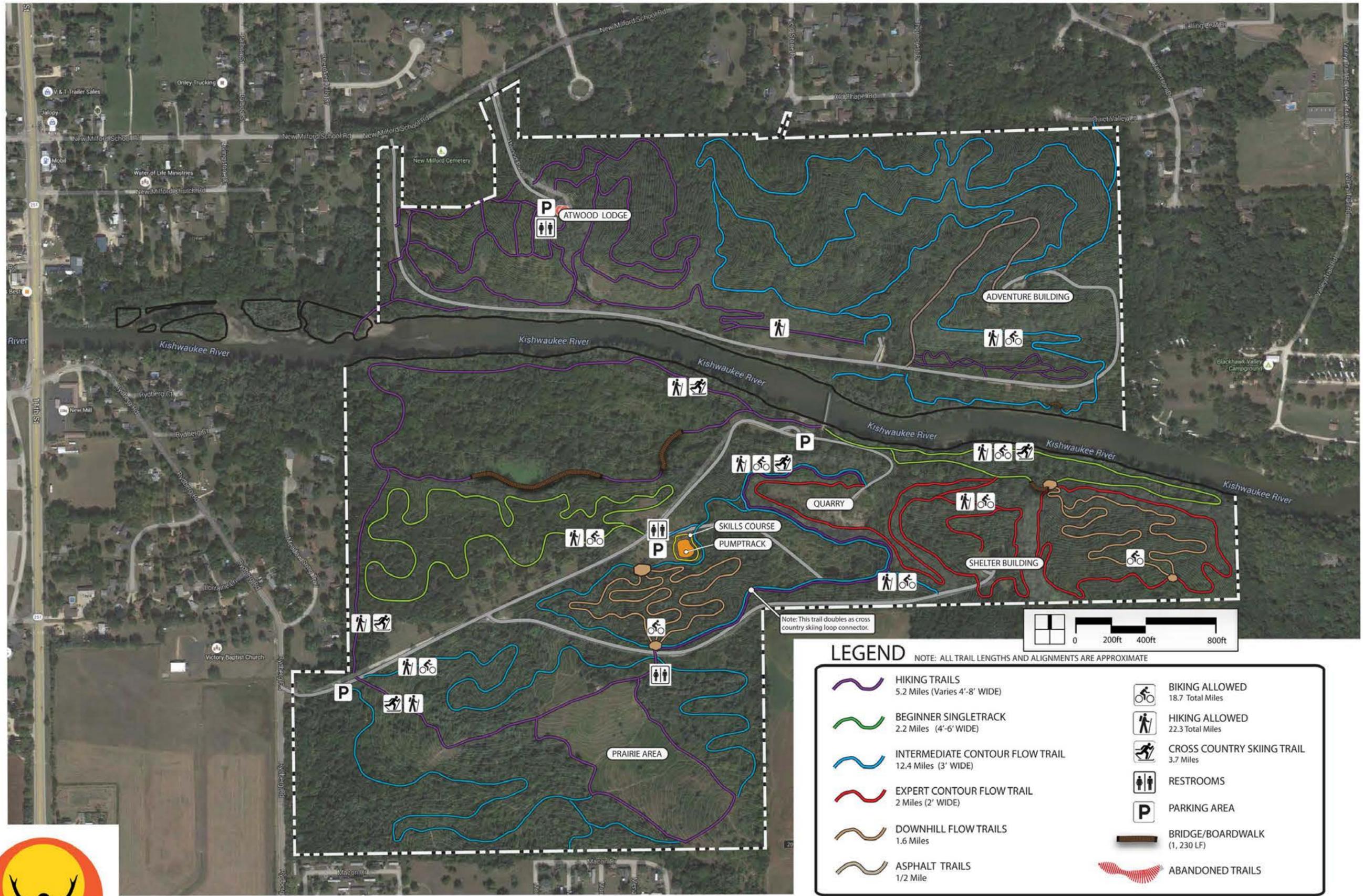
3. Marsh Zone (West Side) - An 8-10' wide hiking only interpretive nature trail is proposed that would run along the river and circles back through the wetland through a series of boardwalks. This trail will be a great educational opportunity. It could also be used as part of the Cross-Country Ski Loop. There is also a beginner multi-use loop on the high ground.

4. Prairie Zone - There are two trails proposed here. The first is a 10' wide hiking only trail that uses the asphalt path and circles around the prairie. This would double as a Cross Country Ski Loop in the winter. The second trail is an 2 mile intermediate level single track loop.

5. Trailhead Zone - This zone includes the main parking lot for the trail system and a small bike park. The bike amenities include a pumptrack, skills course, and 3 directional downhill flow trails. This area also has an approx 1.5 mile single track loop that extends out to the quarry and back. One part of this loop acts as the "return trail" to the top of the downhill ow trails. This zone is meant to be a skills-building area for beginner and intermediate level riders.

6. East Expert Zone - This zone is intended to be more of an expert-level riding area for mountain bikers. Though all the singletrack (red trail) is multi-use, these trails would be bike-optimized. In addition to the 3 miles of singletrack, there are also 2 intermediate to expert level downhill flow trails in this zone. At the base of the hill, along the river is a 1 mile beginner loop that could also be used for XC Skiing.



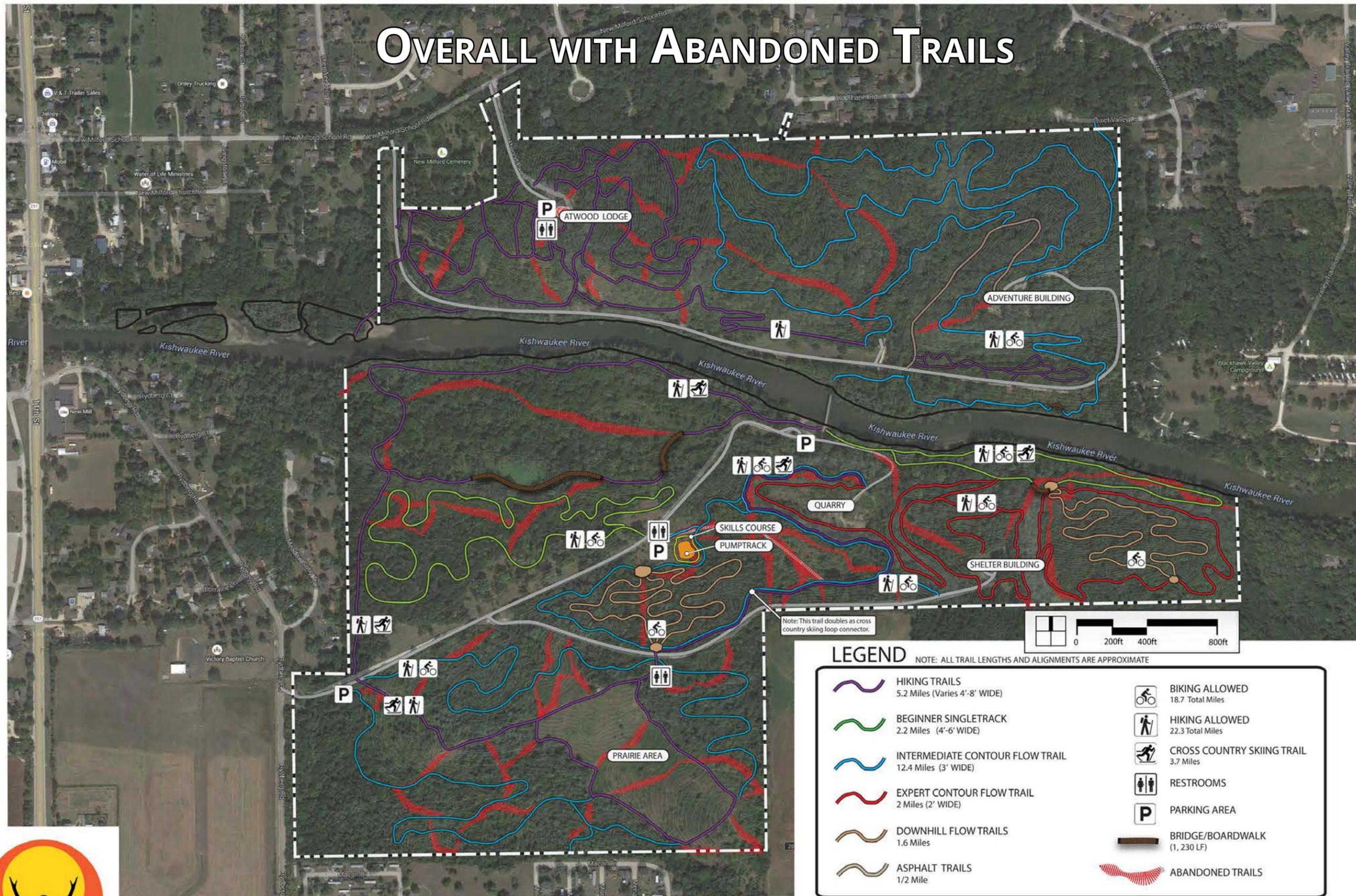


CONCEPTUAL MASTER PLAN

December 2015

ROCKFORD ILLINOIS

OVERALL WITH ABANDONED TRAILS



Note: This trail doubles as cross country skiing loop connector.

0 200ft 400ft 800ft

LEGEND NOTE: ALL TRAIL LENGTHS AND ALIGNMENTS ARE APPROXIMATE

	HIKING TRAILS 5.2 Miles (Varies 4'-8' WIDE)		BIKING ALLOWED 18.7 Total Miles
	BEGINNER SINGLETRACK 2.2 Miles (4'-6' WIDE)		HIKING ALLOWED 22.3 Total Miles
	INTERMEDIATE CONTOUR FLOW TRAIL 12.4 Miles (3' WIDE)		CROSS COUNTRY SKIING TRAIL 3.7 Miles
	EXPERT CONTOUR FLOW TRAIL 2 Miles (2' WIDE)		RESTROOMS
	DOWNHILL FLOW TRAILS 1.6 Miles		PARKING AREA
	ASPHALT TRAILS 1/2 Mile		BRIDGE/BOARDWALK (1, 230 LF)
	ABANDONED TRAILS		



NORTH AREA TRAILS:

ATWOOD LODGE ZONE

This zone is highly programmed with children activities and many educational exhibits. It is proposed to be an isolated trail system for “hikers only”. The poorly aligned trail will be restored to a natural state and the well-aligned trail will remain with new trail added to organize the system in a more sustainable and functional way.

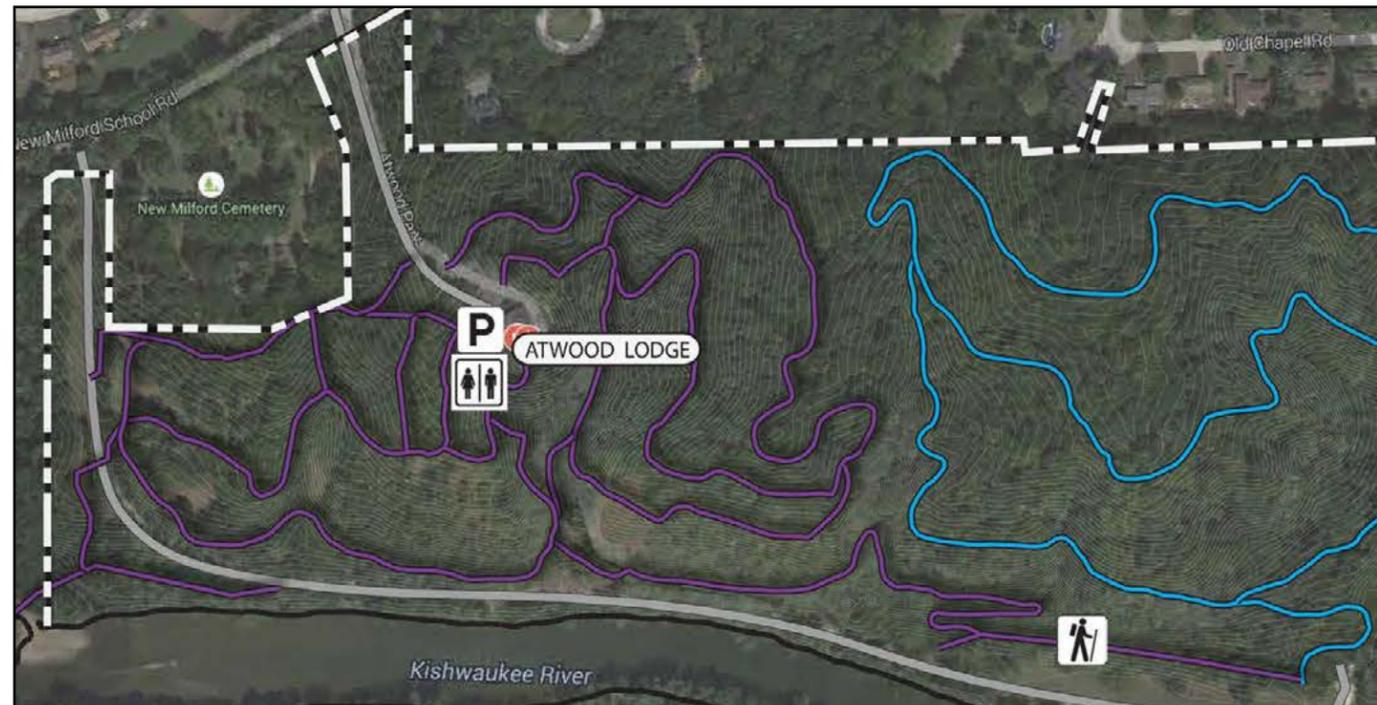
Educational Hiking Trail

Trail Type: Natural Surface Trail

Difficulty Level: Beginner

User Group: Hikers

Length: 2.3 Miles



EAST ZONE

This zone has approximately 3 miles of multi-use contour flow trail (Blue) with a connection to the neighborhood to the North and down to the bridge, leading to the South Area. There is also an old paved path due west of the lodge that would be reopened to act as a paved loop for walkers/runners/ cyclists. This loop is completely separate from the Atwood Zone.

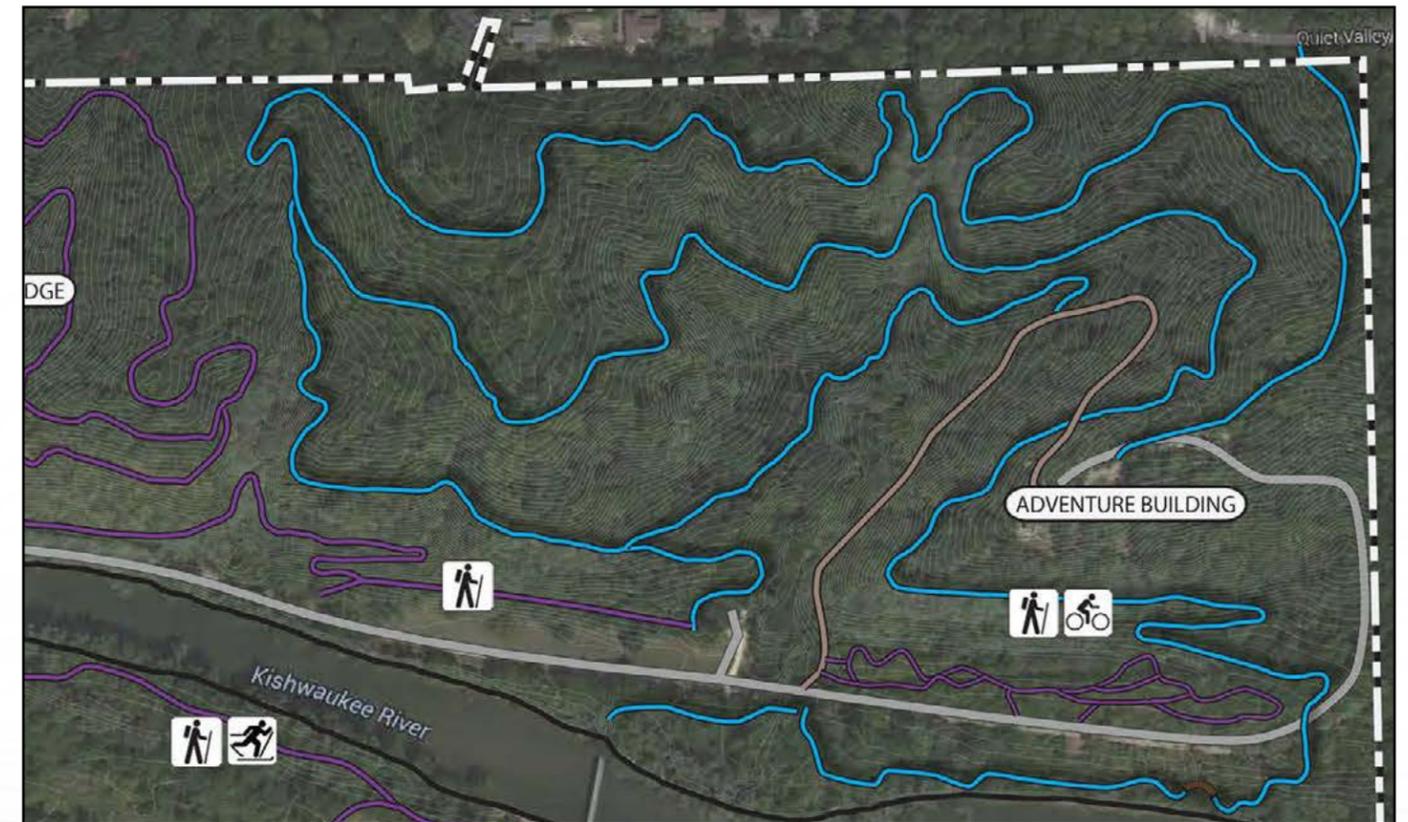
East Side Contour Flow Trail

Trail Type: Contour Flow Trail (See appendix A for trail explanations)

Difficulty Level: Beginner

User Group: Hikers

Length: 3.3 Miles



SOUTH AREA TRAILS:

MARSH ZONE

An 8-10' wide interpretive nature trail is proposed that would run along the river and circles back through the wetland through a series of boardwalks. This trail will be a great educational opportunity. It could also be used as part of the Cross-Country Ski Loop. There is also a beginner multi-use loop on the high ground.

Interpretive Nature Trail

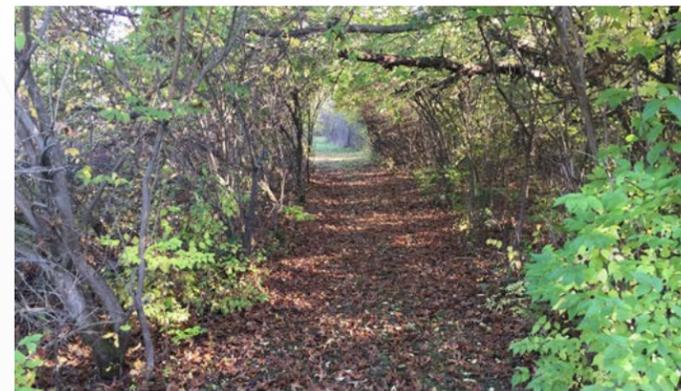
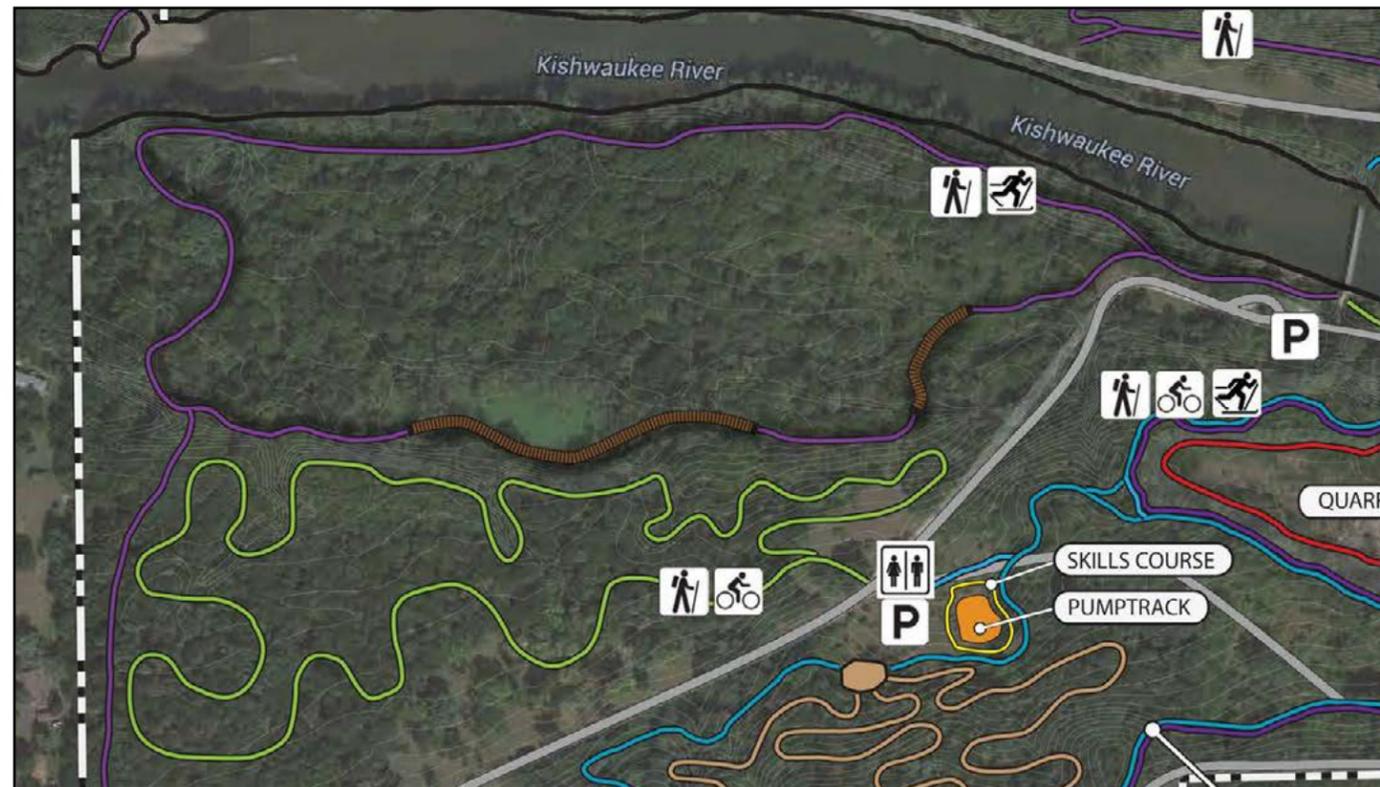
Trail Type: Natural Surface Trail (See appendix A for trail explanations)

Difficulty Level: Beginner

User Group: Hikers, Cross Country Skiers

Length: 1.2 Miles

Boardwalk Length: 1,030 Linear Feet



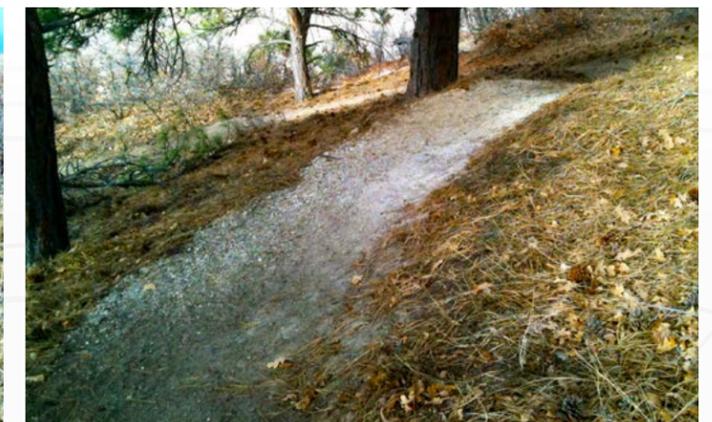
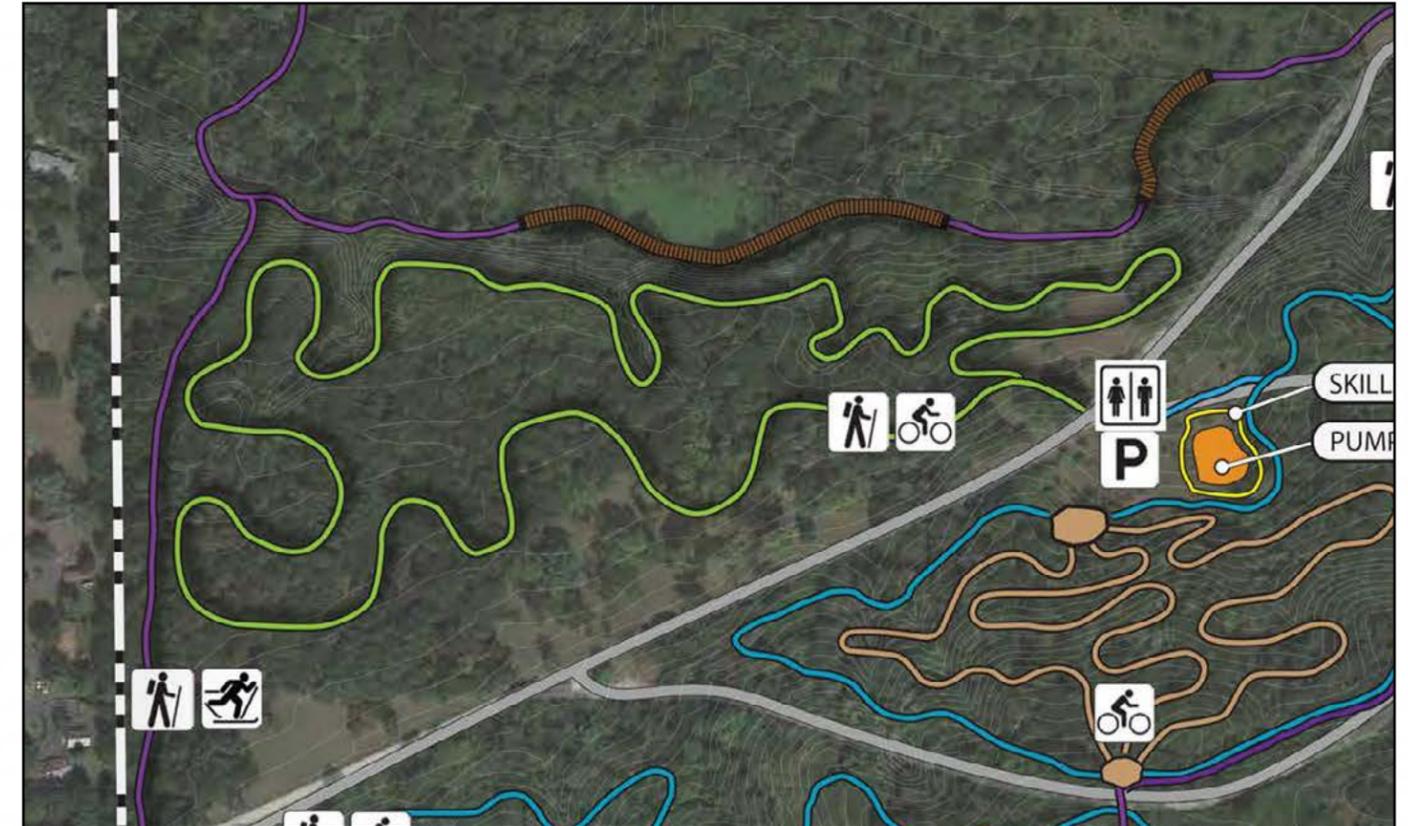
Beginner Multi-use loop

Trail Type: Natural Surface Trail (See appendix A for trail explanations)

Difficulty Level: Beginner

User Group: Hikers, Bikers.

Length: 1.3 Miles

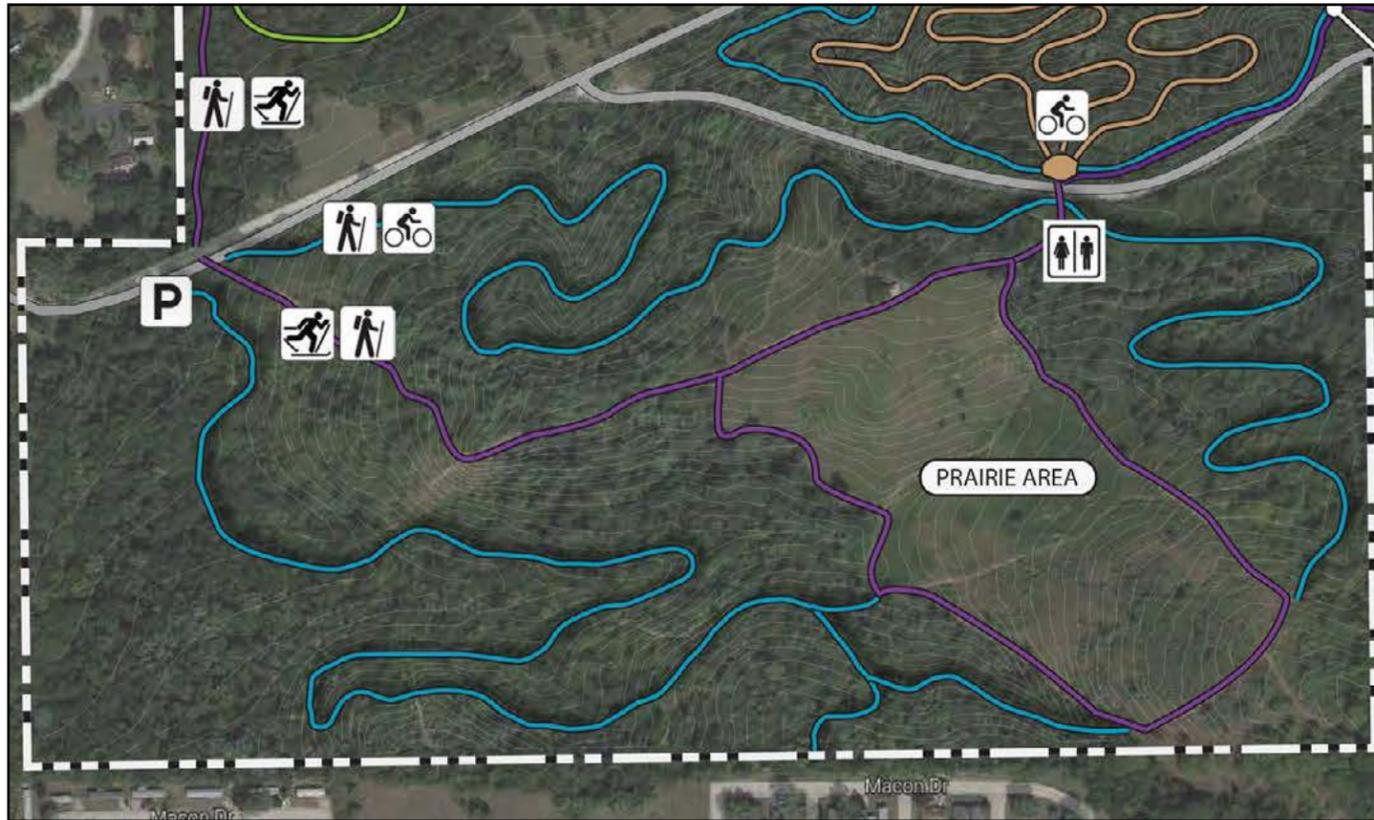


PRAIRIE ZONE

There are two trails proposed here. The first is a 10'wide hiking only trail that uses the asphalt path and circles around the prairie. This would double as a Cross Country Ski Loop in the winter. The second trail is an 2 mile intermediate level single track loop.

Intermediate Single Track Loop

Trail Type: Natural Surface Single Track
Difficulty Level: Intermediate
User Group: Hikers, Bikers
Length: 2 Miles



10' Wide Hiking Only Trail

Trail Type: 10' wide hiking trail
Difficulty Level: Beginner
User Group: Hikers, Cross-country skiers
Length: 0.5 Miles



TRAILHEAD ZONE

This zone includes the main parking lot for the trail system and a small bike park. The bike amenities include a pumptrack, skills course, and 3 directional downhill flow trails. This area also has an approx 1.5 mile single track loop that extends out to the quarry and back. One part of this loop acts as the “return trail” to the top of the downhill flow trails. This zone is meant to be a skills-building area for beginner and intermediate level riders.

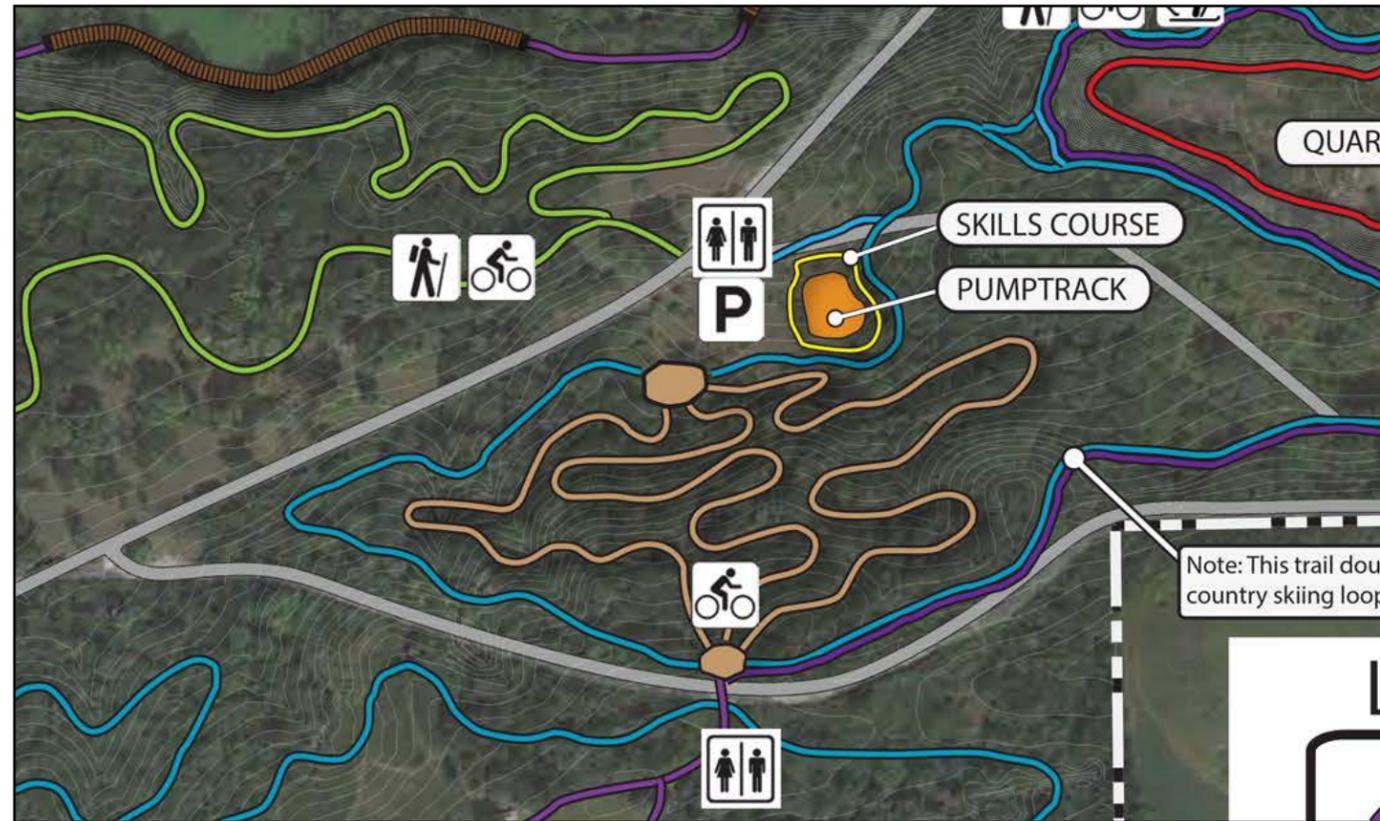
Bike Park

Trail Type: Bike Park (See appendix A for trail explanations)

Difficulty Level: Beginner and Intermediate

User Group: Bike Only

Length: 0.85 Miles total



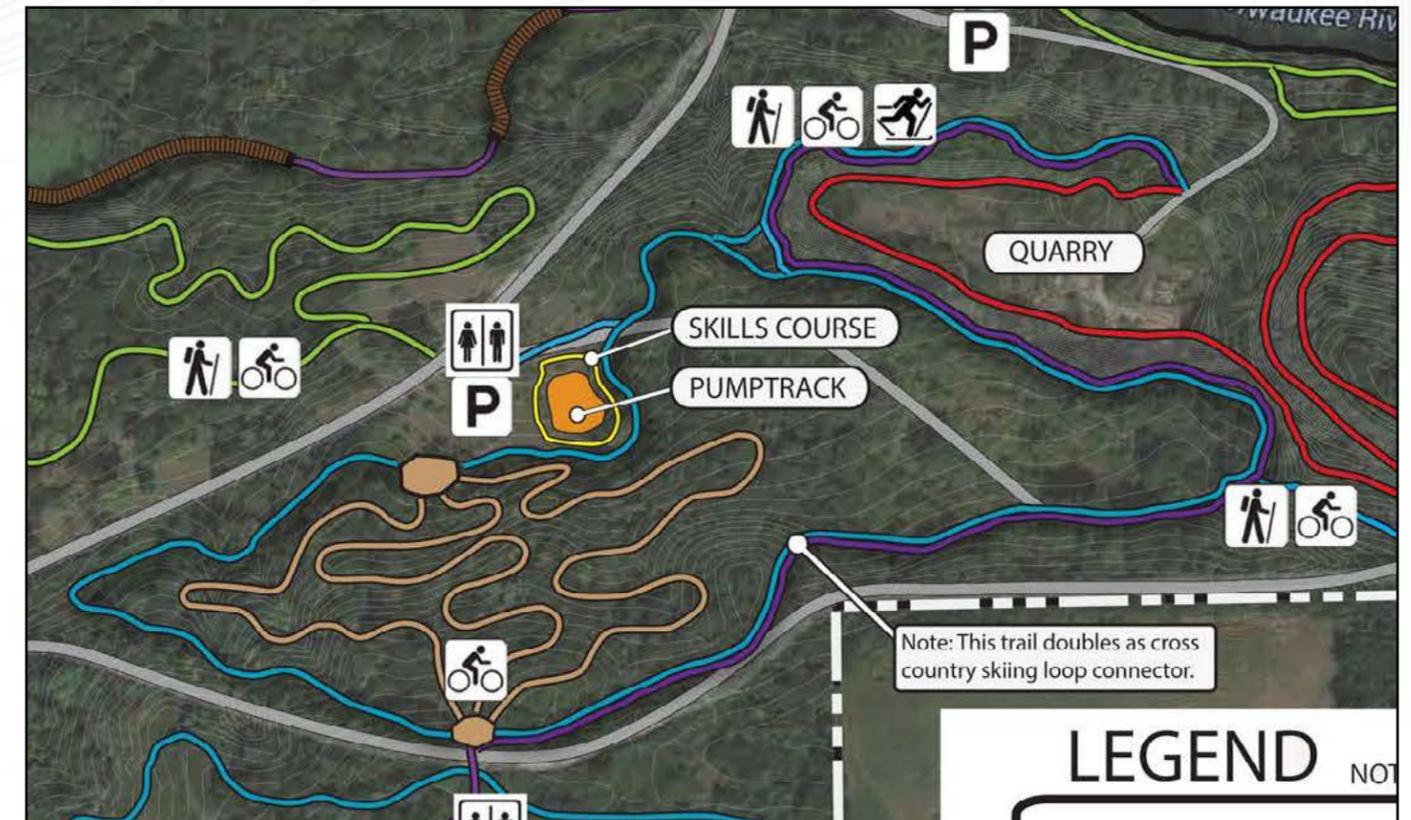
Intermediate Single Track and Return Trail

Trail Type: Natural Surface Single Track

Difficulty Level: Intermediate

User Group: Bikers, Hikers, part of the trail will be used as the XC Ski loop.

Length: 0.9 Miles



EAST EXPERT ZONE

This zone is intended to be more of an expert-level riding area for mountain bikers. Though all the singletrack (red trail) is multi-use, these trails would be bike-optimized. In addition to the 3 miles of singletrack, there are also 2 intermediate to expert level downhill flow trails in this zone. At the base of the hill, along the river is a 1 mile beginner loop that could also be used for XC Skiing.

East Side Single Track

Trail Type: Contour Flow Trail (See appendix A for trail explanations)

Difficulty Level: Intermediate

User Group: Bikers, Hikers

Length: 2 Miles



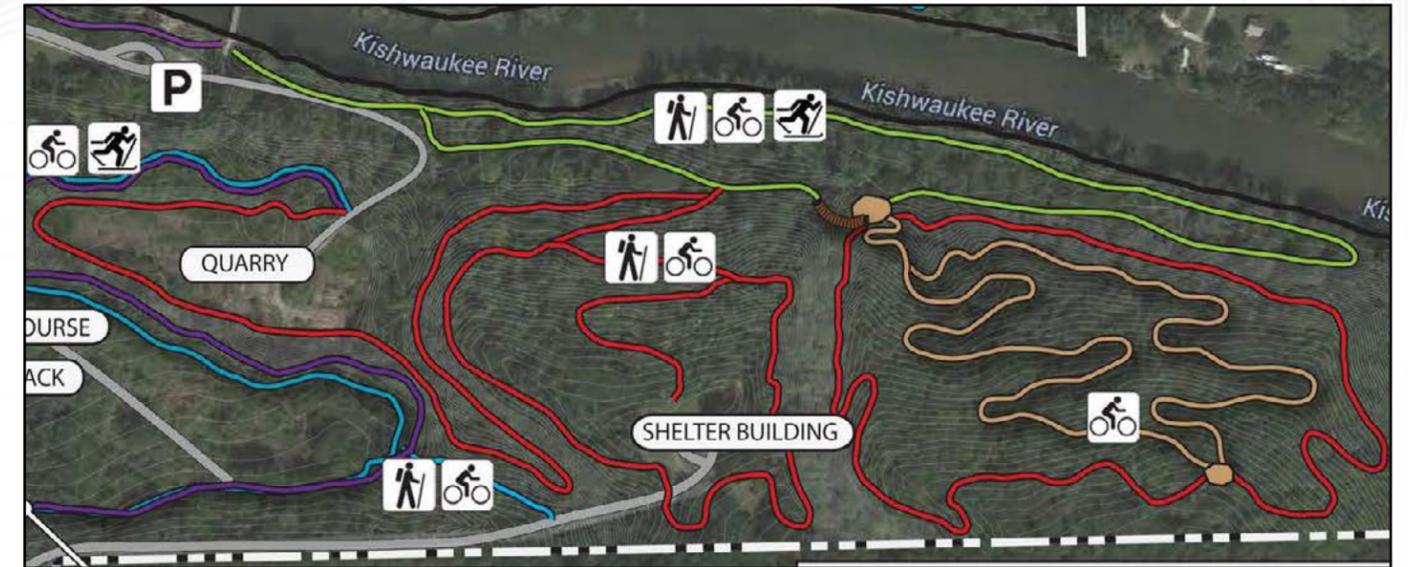
Downhill Flow Trails

Trail Type: DH Flow Trails (See appendix A for trail explanations)

Difficulty Level: Intermediate

User Group: Bike Only

Length: 0.75 Miles total



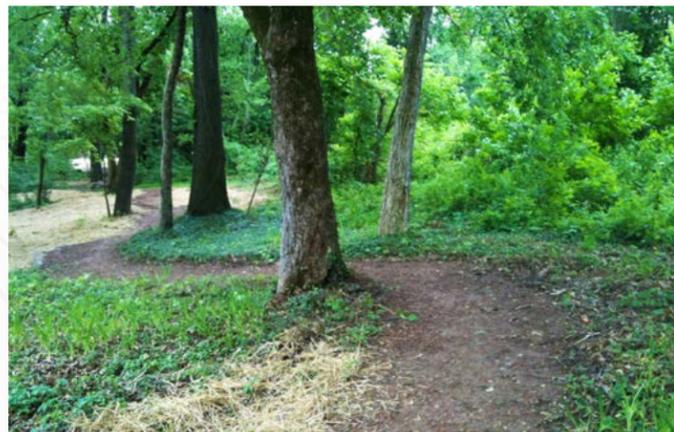
River Loop Trail

Trail Type: Natural Surface Single Track

Difficulty Level: Beginner

User Group: Bikers, Hikers, Skiers

Length: 0.8 Miles



PHASING & COST ESTIMATE

Phase 1:

- 6. Multi-use Beginner loop. Marsh Zone.
- 2. Multi-use Intermediate Trail. North Area Trails (East Zone).
- 4. Closed Trail. North Area Trails (East Zone).
- 11. Pumptrack. Trailhead Zone (Bike Park)
- 14. Closed Trail. Trailhead Zone.
- 1. Hiking Trails. Atwood Lodge Zone (Educational Hiking Trails).

Phase 2:

- 16. Multi-use Expert Trail. East Expert Zone (East side single track).
- 18. Downhill Flow Trails. East Expert Zone (1 of the 2 trails proposed)
- 15. Multi-use Beginner Trail. East Expert Zone (River Loop Trail).
- 10. Skills Course. Trailhead Zone (Bike Park)
- 13. Multi-use Intermediate Trail. Trailhead Zone (Intermediate Single Track and Return Trail).
- 12. Trailhead Zone Downhill Flow Trails (Bike Park).

Phase 3:

- 8. Multi-use Intermediate Trail. Prairie Zone Intermediate Single Track Loop
- 9. Closed Trail. Prairie Zone
- 17. Downhill Flow Trails. East Expert Zone (2 of the 2 trails proposed)
- 5. Interpretive Nature Trail. Marsh Zone.
- 7. Closed Trail. Marsh Zone.
- 3. Old Roadbed Restoration. North Area Trails (East Zone).



NORTH AREA TRAILS:				
Item #:	Description:	Unit:	Quantity:	Total:
1. EDUCATIONAL HIKING TRAILS (PURPLE - 1.1MI NEW TRAILS/1.2MI EXISTING)				\$85,000.00
1.1	New Trail (4'wide)	LF	5750	
1.2	Existing Trail To Be Improved	LF	6080	
1.4	Switchback Turns	EA	5	
1.5	Boardwalk Allowance	LF	50	
2. EAST SIDE MULTI-USE TRAIL (BLUE-INTERMEDIATE-3.3MI)				\$160,000.00
2.1	Contour Flow Trail	LF	17230	
2.2	Insloped Berm Turns	EA	10	
2.3	Boardwalk Allowance	LF	100	
3. OLD ROADBED RESTORATION (BROWN)				\$80,000.00
3.1	Crushed Stone Trail	LF	1000	
4. CLOSED TRAIL				\$30,000.00
4.1	Trail To Be Obliterated & Restored	LF	7300	
			NORTH AREA TOTAL:	\$355,000.00
SOUTH AREA TRAILS:				
Item #:	Description:	Unit:	Quantity:	
MARSH ZONE (area northwest of main road to bridge):				
5. INTERPRETIVE NATURE TRAIL (PURPLE-1.2MI)				\$555,000.00
5.1	New Trail (8'wide)	LF	4720	
5.2	Boardwalk (8'wide)	LF	1230	
6. MULTI-USE TRAIL (BEGINNER LOOP-1.2MI)				\$54,000.00
6.1	Contour Flow Trail	LF	6550	
6.2	Insloped Berm Turns	EA	5	
6.3	Boardwalk Allowance	LF	30	
7. CLOSED TRAIL				\$18,000.00
7.1	Trail To Be Obliterated & Restored	LF	4350	
			MARSH ZONE TOTAL:	\$627,000.00

PRAIRIE ZONE (area southwest of road to "shelter building"):				
Item #:	Description:	Unit:	Quantity:	
8. MULTI-USE SINGLE TRACK LOOP TRAIL (INTERMEDIATE-2MI)				\$95,000.00
8.1	Contour Flow Trail	LF	10260	
8.2	Insloped Berm Turns	EA	9	
8.3	Boardwalk Allowance	LF	50	
9. CLOSED TRAIL				\$32,000.00
9.1	Trail To Be Obliterated & Restored	LF	8100	
			PRAIRIE ZONE TOTAL:	\$127,000.00
TRAILHEAD ZONE (area around main trailhead/parking to top of quarry):				
Item #:	Description:	Unit:	Quantity:	
10. SKILLS COURSE				\$67,000.00
10.1	Progressive Bike Ramps Skills Course#4	LS	1	
10.2	Insloped Berm Turns	EA	2	
10.3	Custom Wood & Stone Features Allowance	LF	75	
10.4	Imported Cap Dirt Allowance	CY	128	
11. PUMPTRACK				\$115,000.00
11.1	Progressive Bike Ramps-"Sidewinder"-Mason	LS	1	
11.2	Imported Fill Dirt Allowance	CY	80	
12. DOWNHILL FLOW TRAILS (TAN-0.9MI)				\$315,000.00
12.1	DH Flow Trail Construction	LF	4700	
12.2	Insloped Berm Turns	EA	14	
12.3	Capping w/Imported Dirt	LF	4700	
12.4	Imported Cap Dirt Allowance	CY	1000	
12.5	Drainage, Cleanup & Rehab	LS	1	
12.6	Custom Wood & Stone Features Allowance	SF	800	
12.7	Progressive Bike Ramps Allowance	LS	1	
13. MULTI-USE SINGLE TRACK AND RETURN TRAIL (INTERMEDIATE-1.1MI)				\$45,000.00
13.1	Contour Flow Trail	LF	6000	
13.2	Insloped Berm Turns	EA	3	
14. CLOSED TRAIL				\$14,000.00
14.1	Trail To Be Obliterated & Restored	LF	3500	
			TRAILHEAD ZONE TOTAL:	\$556,000.00

EAST EXPERT ZONE (everything east of the quarry):				
Item #:	Description:	Unit:	Quantity:	
15. RIVER LOOP TRAIL. MULTI-USE TRAIL (BEGINNER LOOP-0.8MI)				\$45,000.00
15.1	Contour Flow Trail	LF	4250	
15.2	Boardwalk Allowance	LF	50	
16. EAST SIDE SINGLE TRACK. MULTI-USE TRAIL (RED-EXPERT-2MI)				\$160,000.00
16.1	Contour Flow Trail	LF	10050	
16.2	Insloped Berm Turns	EA	10	
16.3	Boardwalk Allowance	LF	100	
16.4	Custom Wood & Stone Features Allowance	LF	150	
17. DOWNHILL JUMP/FLOW TRAIL (EXPERT EAST-TAN-0.4MI)				\$68,000.00
17.1	DH Flow Trail Construction	LF	2000	
17.2	Insloped Berm Turns	EA	5	
17.3	Custom Wood & Stone Features Allowance	SF	500	
18. DOWNHILL FLOW TRAIL (EXPERT WEST-TAN-0.4MI)				\$75,000.00
18.1	DH Flow Trail Construction	LF	2300	
18.2	Insloped Berm Turns	EA	14	
18.3	Custom Wood & Stone Features Allowance	SF	400	
			EAST EXPERT ZONE TOTAL:	\$348,000.00
			SOUTH AREA TRAILS TOTAL:	\$1,658,000.00
TRAIL TOTALS:				
				NORTH SIDE TRAILS TOTAL: \$355,000.00
				SOUTHSIDE TRAILS TOTAL: \$1,658,000.00
				SIGNAGE ALLOWANCE: \$200,000.00
				SUBTOTAL: \$2,213,000.00
				3% ESCALATOR: \$66,390.00
				ATWOOD PARK TRAILS GRAND TOTAL: \$2,279,390.00

ALPINE HILLS BIKE PARK



What is a Bike Park? A Bike Park is a bike-specific recreational facility. They include a series of progressive-based elements (i.e. pumptrack, flow trails, skills areas) that are designed for skills building and recreation. The elements are defined by different skill-levels and strategically placed so that a rider can progress within their own comfort zone. Alpine Hills is the ideal location for a full-scale Bike Park. Situated in the middle of Rockford it would provide an ideal spot for riders of all levels to hone their skills. The Park is currently being used for a variety of outdoor activities and a bike park would be a perfect addition. The terrain, with its natural undulations, mellow slopes and vertical elevation, lends itself well to all the different elements of a bike park. There is enough elevation to incorporate gravity-fed trails and there's a small pockets of flatter terrain for skills-building areas.

Our vision of the park is to provide a variety of amenities for all skill levels and a gateway trail that would navigate the park. In our design we were careful to work around and with the existing facilities. With the winter operations using the majority of the main slope we were careful not to place the Bike Park in an area the would interfere with the winter operations.

Bike Parks are a great addition to any community. They are a great place for kids and families to enjoy the outdoors and improve their bike skills in a controlled environment. They offer an alternative outlet to traditional sports and foster an active culture.

The bike park at Alpine Hills would be programmed at different times than the golf course to avoid conflict.

CONCEPTUAL MASTER PLAN DESIGN

View from the start of the slopesyle lines



ALPINE HILLS BIKE PARK



CONCEPTUAL MASTER PLAN
Issue 3 December 2015
ROCKFORD ILLINOIS



ROCKFORD, IL



ALPINE HILLS BIKE PARK

EXPERT LINE

- 1.1 JUMP CONSTRUCTION
- 1.2 PBR LADDER DROP
- 1.3 PBR SLANT WALL (20'L x 10'H)
- 1.4 PBR HAMMOCK
- 1.5 PBR CURVED WALL (25'L x 10'H)
- 1.6 PBR CONCRETE KICKER (6'H x 6'W)
- 1.7 CUSTOM WOOD FEATURES
- 1.8 PBR CONCRETE KICKER (4'H x 6'W)

INTERMEDIATE LINE

- 2.1 JUMP CONSTRUCTION
- 2.2 PBR TALLADEGA
- 2.3 PBR SLANT WALL (20'L x 10'H)
- 2.4 PBR WEDGE TABLE
- 2.5 PBR WIDE DOUBLE ROLLER
- 2.6 CUSTOM WOOD FEATURES

BEGINNER LINE

- 3.1 JUMP CONSTRUCTION
- 3.2 PBR NESSY 3 BUMPS (45'L x 36"W)
- 3.3 PBR STRAIGHT LADDER
- 3.4 PBR CURVED WALL (20'L x 8'H)
- 3.5 CUSTOM WOOD FEATURE

SKILLS COURSE & PUMPTRACK

- 4.1 PBR THE QUADRAGON
- 5.1 ROCK GARDEN
- 5.2 PBR ZIG-ZAG S CORNER
- 5.3 PBR 90 DEG TURN
- 5.4 ROCK CAUSEWAY
- 5.5 PBR SNAKE LADDER

GATEWAY TRAIL

- 6.1 BOULDER DROP
- 6.2 PBR SKINNY MOUNTAIN TOP 3'T
- 6.3 PBR DOUBLE ROLLER (2'P, 0'V)
- 6.4 ROCK GARDEN
- 6.5 PBR SPLIT DECISION
- 6.6 ROCK CAUSEWAY
- 6.7 PBR ZIG-ZAG 90 DEG CORNER
- 6.8 PBR STEP DOWN ROLLER
- 6.9 PBR SNAKE LADDER
- 6.10 CUSTOM WOOD FEATURES

GATEWAY TRAIL

BEGINNER LINE

INTERMEDIATE LINE

EXPERT LINE

SKILLS COURSE & PUMPTRACK



BIKE PARK DESIGN



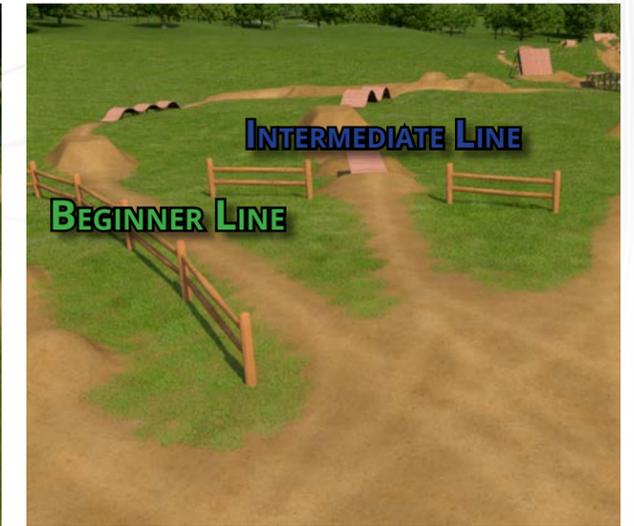
BIKE PARK AMENITIES:

SLOPESTYLE COURSES

These rhythm and flow oriented downhill trails feature a variety of man-made features. The courses are very similar to “Downhill Flow Trails”, but differ in that they are much shorter and have more stacked features. Features include dirt berms, rollers, jumps and a variety of man-made features such as wall rides or whales tails. The width of the trail can range from four to eight feet and distances up to 3000 feet. Comprehensive facilities commonly include multiple progressive lines with features increasing in size and challenge throughout the run. There is typically a line for each skill level. These amenities are perfect for areas with some elevation drop and terrain but little space.

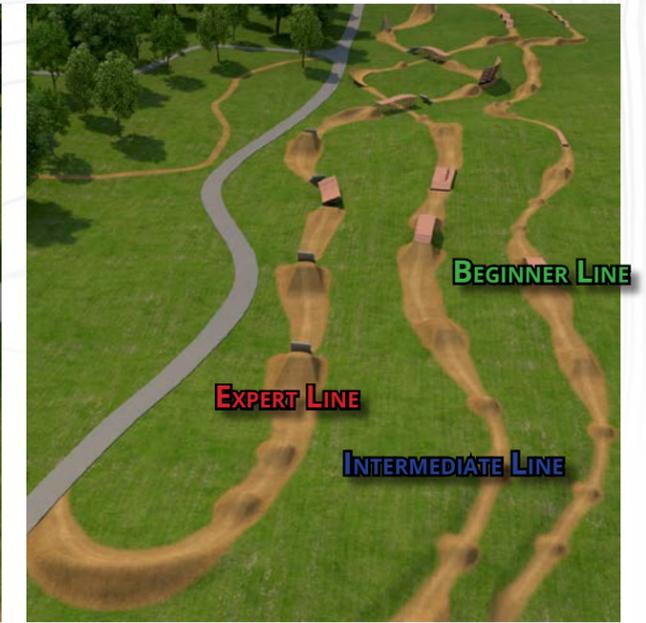
BEGINNER LINE

A downhill flow course designed for beginner riders. Course utilizes the natural contours and has a mix of rollers, berms, table-top jumps and wooden features. Trail Width: 4-6 feet. Table-top Jumps: 3-4 feet high, 8-10 feet long on the deck. Wood Feature Size: 3 to 4 feet high and 4-6 feet wide.



INTERMEDIATE LINE

A downhill flow course designed for intermediate riders. Course utilizes the natural contours and has a mix of rollers, berms, table-top jumps and wooden features. Trail Width: 4-6 feet. Table-top Jumps: 4-6 feet high, 12-15 feet long on the deck. Wood Feature Size: 4 to 6 feet high 4-6 feet wide.



EXPERT LINE

A downhill flow course designed for expert riders. Course utilizes the natural contours and has a mix of rollers, berms, table-top jumps and wooden features. Trail Width: 4-6 feet. Table-top Jumps: 5-6 feet high, 13-17 feet long on the deck. Wood Feature Size: 5 to 7 feet off the ground and 4-6 feet wide.



PUMPTRACK

A closed circuit track consisting of berms, rollers, and mounds that are spaced and shaped in such a way as to allow the rider to generate speed without pedalling. It is designed to be ridden in any direction.



SKILLS COURSE

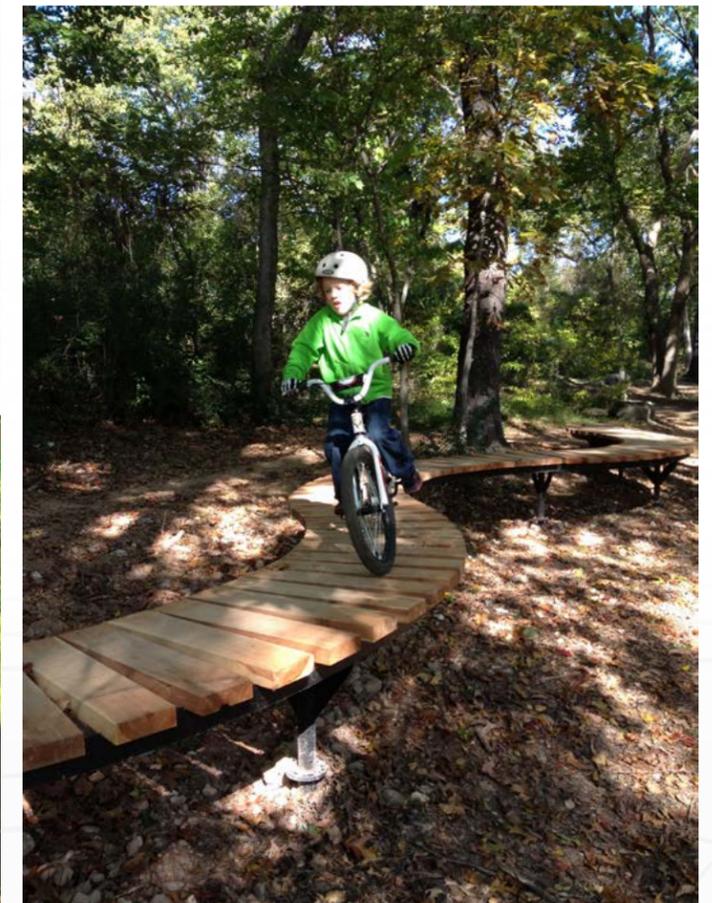
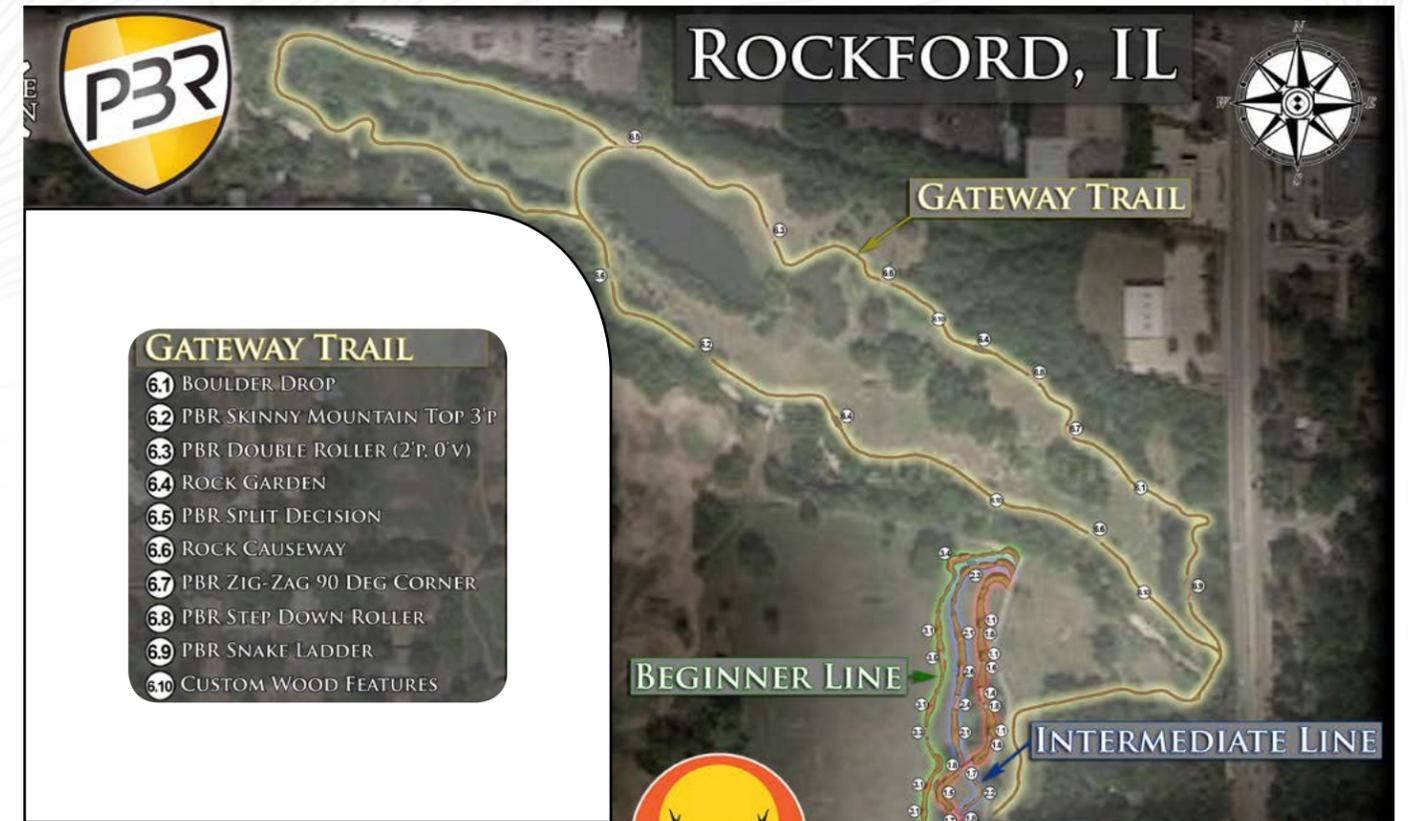
A Skills Course is an open flat area with a variety of elevated features, such as ladder bridges or skinnys, designed to teach balance and technical bike handling skills. This along with the pumptrack are the core amenities that teach the most basic bike handling skills necessary to ride other amenities within the bike park.



GATEWAY TRAIL

This trail is designed specifically for beginner level riders and is meant to be an introduction or "gateway" to mountain biking. These types of trails have a unique natural flow by building undulation in the terrain and insloping corners to optimise the bike experience. The trails also has a variety of technical features such as log rides and boulder causeways. A 3'-4' wide trail designed for all levels of riders. The Gateway trail could also be used for fat bikes in the winter.

Length: 1.2 miles



PHASING & COST ESTIMATE

Phase 1:
Gateway Trail.

Phase 2:
Skills Course and Pumptrack.

Phase 3:
All Slopestyle Trails. Beginner, intermediate, and expert.

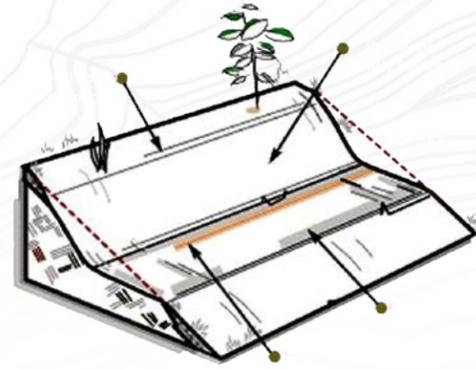
Item#	Item	Unit	Quantity	Total:	Notes
Slopestyle Courses:					
Expert Line				\$170,000.00	
	Final Layout and Initial Trail Grading	LF	800		
	Dirt Transport and Rough Grading	LS	1		
	Berm Construction	LS	4		
	Jump Construction	LS	5		
	Surfacing with Cap and Fine Tune shaping	LF	800		
	PBR Ladder Drop	LS	1		
	PBR Slant Wall	LS	1		
	PBR Hammock	LS	1		
	PBR Curved Wall (25'L x 10' H)	LS	1		
	PBR Concrete Kicker Ramp (6'h x 6' w)	LS	5		
	Custom Wood Features	LS	1		
Intermediate Line				\$90,000.00	
	Final Layout and Initial Trail Grading	LF	800		
	Dirt Transport and Rough Grading	LS	1		
	Berm Construction	LS	3		
	Jump Construction	LS	5		
	Surfacing with Cap and Fine Tune shaping	LF	800		
	PBR Talladega	LS	1		
	PBR Slant Wall (10'h x 20'L)	LS	1		
	PBR Wedge Table	LS	1		
	PBR Wide Double Roller	LS	1		
	Custom Wood Features	LS	1		
Beginner Line				\$80,000.00	
	Final Layout and Initial Trail Grading	LF	800		
	Dirt Transport and Rough Grading	LS	1		
	Berm Construction	LS	3		
	Jump Construction	LS	6		
	Surfacing with Cap and Fine Tune shaping	LF	800		
	PBR Nussy (3 bumps, 45' L x 35" W)	LS	1		
	PBR Straight Ladder	LS	1		
	PBR Curved Wall (20' L x 8' H)	LS	1		
	Custom Wood Features	LS	1		
Slopestyle Courses Total:				\$340,000.00	

Pumptrack:			\$56,000.00	
	PBR The Quadragon	LS	1	
Skills Course:			\$30,000.00	
	Trail Construction	LF	400	
	PBR Snake Ladder	LS	1	
	PBR 90 deg. Turn	LS	1	
	Rock Causeway	LS	1	
	PBR Zi-zag S corner	LS	1	
	Boulder Drop	LS	1	
	Rock Garden	LS	1	
Gateway Trail:			\$110,000.00	
	Trail Construction - 4' soft surface trail	LF	6200	Based on using natural soft surface. No dirt importing
	Boulder Drop	LS	1	
	PBR Mountain Top 3' Peak Skinny	LS	1	
	PBR Double Roller 2' H	LS	1	
	Rock Garden	LS	1	
	PBR Split Decision	LS	1	
	Rock Causeway	LS	1	
	PBR Zig-Zag 90 deg turn	LS	1	
	PBR Step Down Roller	LS	1	
	PBR Snake Ladder	LS	1	
	Custom Wood Features	LS	1	
Other Items:			\$190,000.00	
	Trailheads & Signage	LS	1	
	Imported Fill Dirt	TON	4,000	
	Imported Premium Dirt for capping	TON	1000	Custom Dirt Mix
	Erosion & Sediment Control	LS	1	
	Cleanup, ECB, Seed/Straw	LS	1	
			Slopestyle Courses Total: \$340,000.00	
			Pumptrack Total: \$56,000.00	
			Skills Course Total: \$30,000.00	
			Gateway Trail Total: \$110,000.00	
			Progressive Bike Ramps Shipping & Install: \$70,000.00	
			Other Items Total: \$190,000.00	
			Total Estimate: \$796,000.00	
Note: Other items that need to be addressed include; fencing, landscaping, E&S Plan, & maintenance plan.				

APPENDIX A: TRAIL TYPES

NATURAL SURFACE TRAIL

Natural Surface Trail is any type of trail utilizing native mineral soils as the primary final tread surface. Comprised of a “full bench cut”, these trails commonly follow the land contours and pass by or incorporate terrain features. Developing these trails with moderate grades, mild undulation and limited surface variation delivers a very sustainable resource. However, grades and surface may be adjusted to provide a variety of textures and experiences. Tread can range from 18 inch wide single track to five foot wide double track. This kind of trail can be produced to accommodate any type of user group.



CONTOUR FLOW TRAIL

This type of trail is the epitome of purpose-built singletrack trail for mountain bikes. “Flow Trails”, as they are commonly called, are heavily textured natural surface trails that incorporate berms, rollers, and constant undulation to create a “roller coaster-like” experience. As with traditional single track trails “Flow Trails” follows the contours of the land, have moderate grades, and are sustainable.



DOWNHILL TRAIL

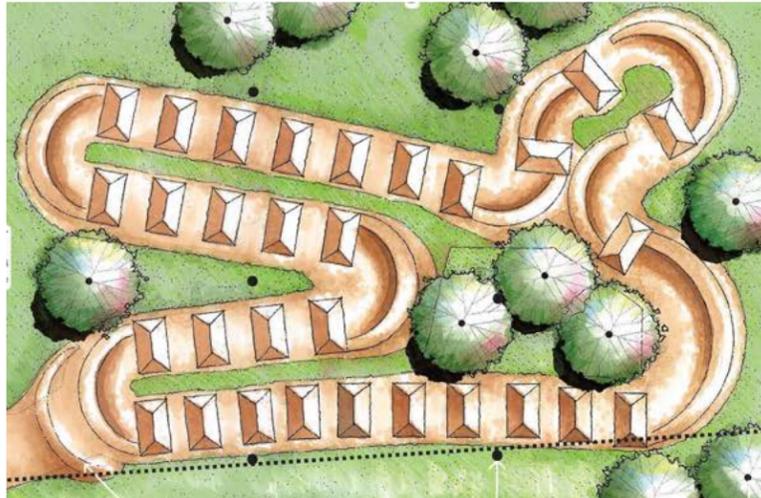
There are two primary subcategories of “Downhill Trail”. 1. Downhill Flow Trail - A smooth surface trail with rollers, berms, jumps, drops and some wood or stone features. Typically four to eight feet wide, these trails can provide experiences for beginner to expert level riders. 2. Technical Downhill Trail - A more advanced trail with many of the same features, only more extreme! Tighter and steeper! Navigating gnarly rock gardens and becoming airborne is a mandatory experience. Both trails are also commonly “one-way” downhill and usually have vehicle shuttle access, chair-lift access or return trails to the top.



BIKE PARKS:

PUMPTRACK

A closed circuit track consisting of berms, rollers, and mounds that are spaced and shaped in such a way as to allow the rider to generate speed without pedalling. It is designed to be ridden in any direction.



SKILLS COURSE

A Skills Course is an open flat area with a variety of elevated features, such as ladder bridges or skinnys, designed to teach balance and technical bike handling skills. This along with the pumptrack are the core amenities that teach the most basic bike handling skills necessary to ride other amenities within the bike park.



SLOPESTYLE COURSES

These rhythm and flow oriented downhill trails feature a variety of man-made features. The courses are very similar to "Downhill Flow Trails", but differ in that they are much shorter and have more stacked features. Features include dirt berms, rollers, jumps and a variety of man-made features such as wall rides or whales tails. The width of the trail can range from four to eight feet and distances up to 3000 feet. Comprehensive facilities commonly include multiple progressive lines with features increasing in size and challenge throughout the run. There is typically a line for each skill level. These amenities are perfect for areas with some elevation drop and terrain but little space.



APPENDIX B: MAINTENANCE & INSPECTION

Maintenance & Inspection (M&I) will vary depending on the facility you are maintaining. A bike park, for instance, requires much more M&I than a typical trail system. Therefore, there is no one single plan that can fit all facilities. It will be the land managers responsibility to determine what the best plan of action is.

Maintenance = Volunteers:

Hands down, the best approach to maintenance is to have the park adopted by a volunteer group - a local cycling club, hiking organization, nature club, etc... This the primary policy of IMBA and should be encouraged by every community. This type of community buy-in is priceless and integral to the success of the facility. However, it is important that the stewards of the facility are well organized and trained. They must be directed by at least one knowledgeable trail builder in order to properly maintain the facility. We also recommend that they keep a maintenance log and keep track of all their hours.

Inspection = Land Manager:

We recommend that the inspection is conducted by the managers of the facility (i.e. city staff) since it is ultimately their responsibility. We recommend that the inspector be trained by a professional trail builder and keep an inspection log. This is particularly important for the inspection of Technical Trail Features. They need to know what hazards to look for and how to repair them.

General Trail Maintenance Recommendations:

1. Create a comprehensive Maintenance/Risk Management Plan.
2. Designate 1 land manager/city employee as - "Trails Supervisor". He/She will be responsible for executing the maintenance & risk management plan. This is not a full-time position. They will primarily perform routine inspections (weekly) on all features, conduct simple maintenance task, help facilitate events, and communicate with the local volunteer group.
3. Keep maintenance & inspection log with routine inspections of all features.
4. Create a partnership with the local club. Most local clubs become stewards of the park, therefore perform the overall maintenance of the facility under the guidance of the "Trails Supervisor". A well-organized club should be able to perform 90% of the maintenance.
5. All wooden trail features should have a life span of approx. 20+ years if built using the proper materials and techniques, and maintained properly (i.e. sealed annually). All wooden features should be inspected routinely and TTF's should be given extra care, specifically fall zones and approaches.
6. Trail tread should be groomed to ensure that it maintains 5% outslope. The most common problem is cupping of the trail due to displacement and compaction. In which case, you must de-berm the downside of the trail to ensure that water sheet flows across. Also, knick (open fan-like drainage) the troughs of all grade reversals.

7. Trim corridor regularly. Sight lines are especially important.

8. Estimated Maintenance Budget: \$5-20k annually (depends on length of trail and resources available). Professional maintenance services could range from \$.25/ft to \$1.00/ft for an overhaul (depends on length of trail and TTF's).

General Bike Park Maintenance Recommendations:

1. Create a comprehensive Maintenance/Risk Management Plan.
2. Designate 1 land manager/city employee as - "Bike Park Supervisor". He/She will be responsible for executing the maintenance & risk management plan. This is not a full-time position. They will primarily perform routine inspections (weekly) on all features, conduct simple maintenance task, help facilitate events, and communicate with the local volunteer group.
3. Keep maintenance & inspection log with routine inspections of all features.
4. Create a partnership with the local bike club. Most local clubs become stewards of the park, therefore perform the overall maintenance of the facility under the guidance of the "Bike Park Supervisor". This is ideal.
5. Annual Overhaul - At least one-time per year (spring in most locations), the entire bike park will require a large-scale effort to get it in shape for the summer. All wood features will need to be inspected and all dirt tracks or trails will need to be shaped and groomed. You will need a large stockpile of dirt in a centrally located area to supplement features where necessary. This could be contracted out by a professional or done through the City by a trained operator and supplemented by volunteers. Professional cost would range from \$5-20k per overhaul depending on size and location of park (US Only).
6. All wooden bike park features should have a life span of approx. 15+ years if built using the proper materials and techniques, and maintained properly (i.e. sealed annually). There should be a plan in place to replace or upgrade some of the wood features after 10 years or so. At this point, most people will be ready for something new anyway.
7. Routine mowing and general landscape maintenance is a must.
8. Access to water is crucial to the maintenance of any bike park. Dirt features cannot be reshaped and packed without water. There will need to be a water spigot near each element so that hoses can be run to every part of the park. This installation cost must be included in the overall budget.
9. Estimated Maintenance Budget: \$5-20k annually (depends on size of park and resources available).
10. Risk is managed through the execution of all above points. In addition, when bike parks are designed and built properly, risk is significantly reduced. One way to do this is to design a progressive-based park in which a rider has a variety of areas to build-up skills before he/she graduates to the next. This is just one of many example's of how risk is managed.

Different Bike Park Elements and their Maintenance:

1. Downhill Trails (i.e. Slopestyle Trails, Flow Trails, Skills Trails):

- When designed and built properly, trails are inherently self-maintained. However, downhill trails will require more maintenance due to the fact that they have technical trail features and steeper grades.
- By using more sustainable building materials and techniques, maintenance is reduced. For example, the use of stone as challenging riding features or when using wood, using only durable & naturally rot-resistant wood (i.e. cedar) and using big timbers and some timber framing techniques.
- General maintenance will consist of re-shaping lips of jumps, general grooming of the trail and routine inspections on any wood features.
- Wood features need to be sealed annually and approaches need to particular attention. They can become eroded through traffic and may need hardening or supplementation of dirt.
- All fall zones must be cleared regularly. Refer to page 6 *"Whistler Trail Standard"*.
- Drainages need to be assessed regularly. Rip-rap may need to be applied where water is channelling.
- ATV Drags work great for grooming of flow trails that do not have table-top jumps.

2. Dirt Jump Parks, Skills Areas, Pumptracks:

- The most ideal location for these 3 elements is in shaded areas under canopy. The advantage of being under the canopy is that all the dirt and wood features will be protected from the elements (wind, rain, sun). This will reduce maintenance significantly.
- General maintenance will consist of re-shaping lips of jumps, general grooming of the tracks and routine inspections on any wood features.
- Extra care must be given to Dirt Jump Parks. Any feature with a dirt "lip" or "take-off" must be shaped by an experienced rider/builder. If the radius of the lip is not shaped just right, it can cause the rider to take-off awkwardly which could result in injury.

APPENDIX C: SIGNAGE

International Mountain Biking Association Trail Difficulty Ratings and Signs:

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

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

This system was adapted from the International Trail Marking System used at ski areas throughout the world. Many trail networks use this type of system, most notably resort-based mountain biking trail networks. The system best applies to mountain bikers, but is also applicable to other visitors such as hikers and equestrians. These criteria should be combined with personal judgment and trail-user input to reach the final rating.

Trail Rating Guidelines:

1. Rate Technical Challenge Only:

The system focuses on rating the technical challenge of trails, not the physical exertion. It is not practical to rate both types of difficulty with one system. Consider, for example, a smooth, wide trail that is 20 miles long. The technical challenge of this trail is easy, yet the distance would make the physical exertion difficult. The solution is to independently rate technical challenge, and indicate physical exertion by posting trail length, and possibly even elevation change.

2. Collect Trail Measurements:

Use the accompanying table and collect trail measurements for each criteria. There is no prescribed method for tallying a “score” for each trail. Evaluate the trail against the table and combine with judgment to reach the final rating. It is unlikely that any particular trail will measure at the same difficulty level for every criteria. For example, a certain trail may rate as a green circle in three criteria, but a blue square in two different criteria.

3. Include Difficulty and Trail Length on Signs and Maps:

Trail length is not a criterion of the system. Instead, trail length should be posted on signs in addition to the difficulty symbol. A sign displaying both length and difficulty provides lots of information, yet it is simple to create and easy to understand. Likewise, elevation change is not a criterion. The amount of climbing on a trail is more an indicator of physical exertion than technical difficulty. Mountainous regions may consider including the amount of climbing on trail signs.

4. Evaluate Difficulty Relative to Local Trails:

Trails should be rated relative to other trails in the region. Don’t evaluate each trail in isolation. Consider all the trails in a region and how they compare to one another. This will help you rank the relative difficulty of each trail and will help trail users select an appropriate route. Trails will rate differently from region to region. A black diamond trail in one region may rate as a blue square in another region, but the ratings should be consistent locally.

5. Use Good Judgment:

Rating a trail is not 100 percent objective. Its best to combine tangible data with subjective judgment to reach the final rating. For example, a trail may have a wide range of tread surfaces - most of the trail is easy, but some sections are more difficult. How would you rate it? Use your personal experience to consider all elements and select a rating that best matches the style of trail.

6. Consider Other Trail Qualities:

Don’t forget to consider trail qualities beyond the objective criteria. A wide variety of features could contribute to a trails difficulty. For example, exposure - the feeling of empty space next to and below the trail tread - provides an added psychological challenge beyond the steepness or roughness of the trail. A 3-inch rock seems like a boulder when a 50-foot drop looms on your side! Other qualities to think about are corridor clearance and turn radius.

7. Use Common Sense and Seek Input:

No rating system can be totally objective or valid for every situation. This system is a tool to be combined with common sense. Look at trails with a discerning eye, and seek input from trail users before selecting the rating. Remember, a diverse trail network with a variety of trail styles is a great way to ensure happy visitors. Provide both easy and difficult trails to spread visitors and meet a range of needs. By indicating the length and difficulty of trails with a clear signage system, visitors will be able to locate their preferred type of trail easily.



Criteria to Consider:

Tread Width:

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

Tread Surface:

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

Trail Grade (maximum and average):

Maximum grade is defined as the steepest section of trail that is more than approximately 10 feet in length and is measured

in percent with a clinometer. Average grade is the steepness of the trail over its entire length. Average grade can be calculated by taking the total elevation gain of the trail, divided by the total distance, multiplied by 100 to equal a percent grade.

Natural Obstacles and Technical Trail Features:

Objects that add challenge by impeding travel. Examples include: rocks, roots, logs, holes, ledges, drop-offs, etc. The height of each obstacle is measured from the tread surface to the top of the obstacle. If the obstacle is uneven in height, measure to the point over which it is most easily ridden.

Technical Trail Features are objects that have been introduced to the trail to add technical challenge. Examples include: rocks, logs, elevated bridges, teeter-totters, jumps, drop-offs, etc. Both the height and the width of the technical trail feature are measured.

Signage: Trails

Main Trailhead:

- Trail Map/Kiosk
- Difficulty Rating System

Trail Access Points:

- Trail Map. Could be small plaque
- Location Indicators

Trail Name Markers:

- At all intersections.
- Possibly distance markers on multi-use urban trail systems.

Educational Signage:

- Historic Features
- Natural Features
- Wildlife & Wetland Areas

Technical Trail Features:

- Difficulty level sign at approaches and exits to all TTF.
- Signs must be placed at least 5'-10' before feature. In some cases further out depending on speed and sight lines.

Emergency Access:

- Safety Point sign at rescue/pickup locations
- Provide contact info. for emergencies.



Signage: Bike Parks

Main Trailhead:

- Trail Map/Kiosk
- Difficulty Rating System
- Warning Sign "This is a mountain bike challenge park... ride at your own risk..."
- Safety gear required

Bike Park Elements Access Points

(i.e. flow trail, pumptrack, dirt jumps, skills area, etc...):

- Trail Name and difficulty rating at entrance.
- Informative Sign/Plaque describing the element and its intended use (optional, but recommended).
- "DO NOT ENTER-ONE WAY DOWNHILL" at exit of element.

Technical Trail Features:

- TTF's are inherent in the park, therefore it is not totally necessary to sign each feature but rather inform users at the beginning of the bike park element.
- Recommendation: ONLY DROPS AND GAPS ARE SIGNED, such as, "GAP JUMP", "DROP". However, if you have an advanced trail or dirt jump line that is all gaps, it may not be necessary to sign each feature, but instead, inform users at the beginning of the line.
- The difficulty level sign is typically placed 10-15' before the TTF, depending on speed and sight lines.

Emergency Access:

- Safety Point sign at rescue/pick up locations
- Provide contact info. for emergencies.



APPENDIX D: FUNDRAISING OPPORTUNITIES

Corporate Grants:

- Sram - One of the largest bicycle component companies. Based out of Chicago, IL.
- Trek Bicycles - Large bike manufacturer. Based out of Waterloo, WI.
- Saris Cycling Group - Large bike rack manufacturer. Based out of Madison, WI.
- REI. <http://www.rei.com/stewardship/community/non-profit-partnerships-and-grants.html>

Governmental and Non-profit Grants:

- Recreational Trails Program (RTP). http://www.fhwa.dot.gov/environment/recreational_trails/. Local information on RTP grant for IL <http://dnr.state.il.us/ocd/newrtp2.htm>
- Illinois Bike Path Program. <http://dnr.state.il.us/ocd/newbike2.htm>
- People for Bikes. <http://www.peopleforbikes.org/>
- PEP Grants (U.S. Dept of Education, Carol M. White Physical Education Program). <http://www2.ed.gov/programs/whitephysed/index.html>

DESIGN BUILD RIDE

