

Beck Lake Recreation Area Bike Park Conceptual Plan

Summer 2011



PREPARED FOR: Shoshone Recreation District

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Conceptual Plan

The Shoshone Recreation District retained IMBA Trail Solutions to locate and design bike park facilities and shared-use trails within the Beck Lake Recreation Area expansion property and adjacent City and Bureau of Land Management (BLM) lands. This plan, in combination with the 2010 feasibility study provide needed planning steps in the development of a model recreational facility. The primary deliverables for the concept plan are maps (included in this document) and GIS layers (as separate files) locating the specific facilities and trails within the planning area. Additionally, cost estimates and recommended phasing for construction are given



Trail Details

Proposed system trails are a combination of new routes and existing trails to create a series of loops and diverse trail experiences within the setting. Total proposed trail system mileage is approximately 8 miles, made up of ~5 miles of new routes and ~3 miles of existing trails. Also proposed are 0.9 miles of trail closure (see *Table 1*).

Proposed routes were designed to create loops, reduce reliance on doubletrack, minimize erosion, and provide diverse experiences. Additionally, the Flow Trail is proposed as a bike-optimized trail and is intended to be ridden in the descending direction.

Existing trails proposed as system trails were selected based upon several criteria, including: route in a sustainable or maintainable alignment, route provides logical trail connection, and route provides desired experience.



Doubletrack routes are not ideal for system trails, but are often needed for utility access. Park users can still access them, but they are not proposed to be signed or improved as part of the system.

Route ID	Route Name	Type	Status	Proposed Skill Rating	Estimated Length (ft)	Proposed Phase	Comments
1	Flow Trail	Flagged	New	Intermediate	6930	1	pink flagging & green pin flags; 4-5% avg grade
2	Bike Park perimeter	Flagged	New	All	0	1	pink pin flags
3	Bike Park connector	Proposed	New	Beginner	1375	1	crosses wet area- ~100lf boardwalk
4	TH loop	Proposed	New	Beginner	1430	1	
5	Reroute connector	Proposed	New	Beginner	902	1	reroute to avoid private ppty
6	Flow connector	Proposed	New	Intermediate	187	1	
7	Windy Ridge	Proposed	New	Intermediate	4675	1	4-5% avg grade, okay to have pitches up to 8%
8	Windy Ridge	Proposed	New	Intermediate	649	1	4-5% avg grade, okay to have pitches up to 8%
9	Potato Chip	Proposed	New	Intermediate	1397	2	chip shale zone; 4-5% avg grade, okay to have pitches up to 8%
10	Sandstone Ridge	Proposed	New	Advanced	1540	2	winding route thru sandstone outcrop, 5-20% grades over rock
11	Potato Chip	Proposed	New	Intermediate	3036	2	chip shale zone; 4-5% avg grade, okay to have pitches up to 8%
12	East side	Proposed	New	Intermediate	1606	2	
13	East TH connector	Proposed	New	Beginner	2035	2	
14	Canal Trail	Proposed	Existing	Beginner	1650	1	improve, add RGDs, armor low spots
15	Warmup loop	Proposed	Existing	Beginner	2200	1	define route
16	Oly's Trail	Proposed	Existing	Advanced	1320	2	need to mark and define route
17	Warmup Loop	Proposed	Existing	Beginner	2156	1	mark & define, armor bentonite sections
18	Lower Sandstone	Proposed	Existing	Intermediate	2068	2	mark and define route
19	East Side	Proposed	Existing	Beginner	2090	2	mark and define route
20	Hanging Rock	Proposed	Existing	Intermediate	2310	1	mark and define route
21	Hanging Rock	Proposed	Existing	Intermediate	1892	1	improve, mark & define route
22	South BLM Connector	Proposed	Existing	Intermediate	110	1	existing rd, connect off lease area
25			Close		2024	1	private property
26			Close		1958	1	poor location, soils, fenceline
27			Close		231	1	confusing
28			Close		693	1	confusing, leads off lease area

Route Design

The Flow Trail was flagged and GPS'd on site during the planning visit June 1st-3rd.

Additional trail routes, as proposed here, will be flagged by trained volunteers using sustainable trail design principles, GPS tracks, and site-specific guidance provided by Trail Solutions. These volunteers will create GPS tracks for the final flagged routes. Trail Solutions will confirm sustainable track alignment and revise tracks as needed.

Trail Construction

Trail construction should follow IMBA guidelines, as described in IMBA's *Trail Solutions* and *Managing Mountain Biking* texts and current best management practices in the construction of bike-optimized trails, shared-use trails, and bike-park features. In order that the park best meets the needs of users, it is strongly recommended that trails and facilities be constructed under the guidance of a

qualified professional trail contractor, experienced in bike-specific facilities *and* shared-use trail construction. The *Professional Trailbuilders Association* (www.trailbuilders.org) is the best source for finding qualified trail and bike park contractors.

Trail Improvements

Existing trails will need some improvements to be brought up to IMBA guidelines for sustainable trail construction, and so that trail experience is consistent as users travel from existing trails to new routes. Detailed descriptions of guidelines and construction techniques are described in IMBA’s *Trail Solutions* and *Managing Mountain Biking* texts.

Trail Closure

Many existing trails and roads exist within the planning area that will not be made part of the system nor recommended for closure. These routes range from doubletrack utility roads to cattle trails. It is not feasible or desirable to close all of the existing routes in the planning area. Utility and maintenance access needs to be maintained along many of the doubletrack routes. Cattle will continue to traverse the area; indeed, keeping these minor trails may encourage cattle to use these routes rather than traveling along system trails. Closures are recommended only for routes that are on or lead to private property, that will cause undo confusion to users, and/or are in a particularly unsustainable alignment. Closures should follow best practices given the setting, including scarification of compacted surfaces, placement of woody and other organic debris to disguise the corridor, and temporary signs to alert trail users.

Trail Facilities

Bike Park

A bike park is a discrete developed facility for bike-specific skills development in a controlled setting. Bike parks usually include a variety of natural obstacles such as rocks and logs, imaginative constructed features like ladder bridges, along with pump tracks and dirt jumps—all collected in a compact setting. Bike parks make introduction to and progression within mountain biking more readily available to the public—especially to kids. The proposed bike park facilities for Beck Lake are discussed below; table 2 shows dimensions for each feature (park and feature locations are shown in *Appendix B*).

Skills Area

Purpose: To provide an area for skill development.

Description: A skills area provides a place for riders to test and assess their skills before hitting the trails. Skills areas typically contain progressive challenge elements with low risk in a discrete area. Elements may include log rides, ladder bridges, “skinnies”,



drops, rock features, and other challenge elements focused on technical skill.

Pump Track

Purpose: The sequence of rollers and berms in a pump track allow riders to learn how to maintain momentum and balance in a slow-speed, low-risk setting. Anyone can have fun on a pump track. More advanced riders can float through a full lap or several laps with minimal pedaling, challenging themselves to manual or jump through and over rollers, transition across lines, and other maneuvers focused on style and finesse.

Description: Pump tracks are a dedicated bike facility in miniature, usually of ¼ acre or less, constructed of packed mineral soil. They are extremely popular with both trail and park riders and provide a high use facility with a small footprint. A well-built pump track can be ridden without pedaling as “pumping” the bike up and down earthen swales creates forward momentum. As pump tracks have gained in popularity during the last few years they have been recognized as very efficient in improving fitness and bike handling skills. As with skills areas, a well-built pump track can be an effective risk management tool as it provides a high thrill, yet low risk, area for riders to warm up and practice on before heading out on the trails.



Gravity Pump Line

Purpose: Provide a track for riders to focus on rhythm and efficiency of bicycle motion and momentum. Learn to “surf” the lines and carry speed through gravity dips and turns. Skills gained here in balance, maintaining momentum, timing, body positioning, and speed translate into skills for singletrack and for other bike park features, such as dirt jumps.

Description: Like pump tracks and dirt jump lines, pump lines provide a heavily manipulated trail experience that appeals to many bicyclists. The key component of a pump line is essentially a linear flow line with a bermed turn at the end, which ties into a return track. Specifically, the routes are collections of insloped turns and exaggerated rolling features, similar to those found in a pump track but on a larger scale. Depending on the suitability of soils and nature of the site, these features are constructed from imported or locally harvested material. A single return route allows visitors to “session” the area; making repeated passes through the track.



Dirt Jumps

Purpose: Allow users to learn to jump and progress to larger jumps in an area designed for that purpose.

Description: Dirt jump lines have been popular since the first BMX bike was made. Dirt jump lines have rollers and berms like pump tracks and flow lines, but these rollers have lips and transitions, unlike these other features. These features make the lines specific for jumping and are typically not suitable for other types of riding. Jump lines should be in parallel, with beginner, intermediate, and advanced lines. Lines are preceded by a ramp roll-in, so that riders can generate speed needed to make the jumps; and end in a large berm, which guides all riders in the same direction, towards the return track.

Bike Park Features	Comments	Area (acre)	Dimensions (ft)
Total park area	maximum area of disturbance	3.44	300'x500'
Beginner skills area		0.39	100'x170'
Intermediate skills area	width ranges 80' to 100'	0.33	90'x160'
Pump track		0.41	100'x180'
Jump lines	3 lines: beg, int, adv	0.36	70'x225'
Gravity pump line		0.22	35'x270'

Proposed Special Use Areas

In addition to trails and a bike park, several other facilities for park users are planned:

- Off-leash Dog Area – a discrete location for dogs to engage in pack play and socialize off-leash. Two proposed options are shown; agencies and stakeholders will need to decide which site is best for development. This area should be fenced or otherwise screened (thru distance and/or topography) from other popular use areas. Waste bags and receptacles are needed.
- Disc-Golf Area – one or two areas for 9 to 18-hole disc golf. Area needs vary, depending upon terrain. Avoid placing baskets too close to high trail use areas or intersections.
- Paintball Area – paintball requires a relatively large area, and needs to be away from trail use and trailhead areas. The proposed location is outside of any proposed system trails to avoid user conflict. Ample space is available for associated structures, as desired.

Proposed locations for these features are shown in *Appendix A*. These are recommended locations based upon input from City Staff and public input; in some cases, more than one location is proposed. This document reflects best available locations given known constraints and desires. Agencies and stakeholders may decide that other locations are preferable to those proposed.

Facility Improvements

Canal Bridge

The most commonly used canal-crossing must be replaced. This bridge location represents the primary existing and proposed crossing of the canal for trail system access. Access across the canal needs to be permitted by the managing body (presumably the Canal Irrigation District).

Water and Tools for Bike Park

Convenient access to water is necessary for jump construction and regular maintenance. A possible water storage option is a small tank located just below the bike path and immediately adjacent to the bike park. Water can be pumped periodically into the tank from the reservoir, then be gravity-fed for use in the park.

With water, tools are needed for routine maintenance of dirt features. A storage shed with tools, accessible by bike park users, is ideal to create a culture of care for features. Without tools and water, dirt features will rapidly fall into neglect and disuse.

Signs: Maps and Wayfinding

Signs are an important part of a successful trail system. Signs help users to navigate and interpret the environment. In combination with a stacked loop style trail system, signs guide users to the trail experience that meets their expectations based upon abilities and interests. Large trail maps at the trailhead, along with smaller maps at major intersections (e.g. top of the Flow Trail), are helpful in orienting users to the system and assuring that they have an experience that meets their expectations.

Wayfinding signs along trails help users navigate the system without maps, and reassure users that they are on their intended route. Wayfinding signs or cairns will be particularly important where trails intersect, there are other uses (e.g. near disc golf), and/or there are other existing non-system routes (e.g. utility roads or cattle trails).

Wind and Sun Shelters

Steady winds and sun can make park experiences uncomfortable, particularly for beginners and families. Consider adding small wind and sun shelters above the bike park and at the top of the Flow Trail. These are great locations for park users to rest, put on protective equipment, watch others enjoy the facilities, or simply have a snack.

Phased Implementation

Phase I

- Flow Trail, Hanging Rock, and Windy Ridge. Sustainable trail climb and bike-optimized descent combine to create a loop. Creates experience very different than currently available on park trails, particularly for bicyclists.
- Warm-up Loop and Bike Park and Trailhead connectors. Loop for beginners, provides primary trail access from bike park and trailhead to system trails across canal bridge.
- Pump Track, Jump Lines, and Skills Areas. Bike Park facilities are a great way to draw a wide range of existing cyclists and new users to the park. It is expected that pump track and jump lines will be the most popular facilities. Skills areas provide essential skill development for users wanting to tackle obstacles they may find on the park's trails.

Phase II

- Oly's Trail. This sandstone ridge has several existing trails and presents a great opportunity to provide technical challenge for hikers, runners, and bicyclists. This trail will require significant route delineation and armoring to minimize impacts to non-rock surfaces (prevent vegetation and soil loss). There can be several routes to provide advanced and expert lines.
- East Side Trails and Potato Chip Trails provide additional beginner and intermediate level loop options, and connect to Oly's Trail to provide loops. Existing routes in these areas can be used in the interim.



Rock outcropping currently enjoyed by more advanced bikers and cyclists

Costs and Funding

Costs are broad estimates based upon site visits and development potential and assume all design and construction by a professional trailbuilder. Engaging a professional in trail planning, design, and construction will generate the best park conditions for the long term. However, trail and facilities development can be undertaken in phases and volunteers can greatly offset costs for construction and maintenance. Generally, some sort of hybrid model works well for cost-conscious communities – where a professional is engaged in design, then leads/trains local volunteers and Parks staff during construction.

Cost Estimates - Trails

ID	ROUTE NAME	NOTES	STATUS	LF GIS	EST LF (x 1.15)	LOW COST LF	AVG COST LF	HIGH COST LF	LOW COST TOTAL	HIGH COST TOTAL	PHASE
1	Flow Trail	pink flagging & green pin flags	New	6,300	7,245	\$4.80	\$6.00	\$7.20	\$34,776	\$52,164	1
2	Bike Park perimeter	pink pin flags	New	1,600	1,840	\$2.40	\$3.00	\$3.60	\$4,416	\$6,624	1
3	Bike Park connector	crosses wet area- ~100lf boardwalk	New	1,250	1,438	\$4.40	\$5.50	\$6.60	\$6,325	\$9,488	1
4	TH loop		New	1,300	1,495	\$3.20	\$4.00	\$4.80	\$4,784	\$7,176	1
5	Reroute connector	reroute to avoid private ppty	New	820	943	\$3.20	\$4.00	\$4.80	\$3,018	\$4,526	1
6	Flow connector		New	170	196	\$4.80	\$6.00	\$7.20	\$938	\$1,408	1
7	Windy Ridge		New	4,250	4,888	\$4.00	\$5.00	\$6.00	\$19,550	\$29,325	1
8	Windy Ridge		New	590	679	\$4.00	\$5.00	\$6.00	\$2,714	\$4,071	1
9	Potato Chip	chip shale zone	New	1,270	1,461	\$4.00	\$5.00	\$6.00	\$5,842	\$8,763	2
10	Sandstone Ridge	winding route thru sandstone outcrop	New	1,400	1,610	\$4.80	\$6.00	\$7.20	\$7,728	\$11,592	2
11	Potato Chip	chip shale zone	New	2,760	3,174	\$4.00	\$5.00	\$6.00	\$12,696	\$19,044	2
12	East side		New	1,460	1,679	\$4.00	\$5.00	\$6.00	\$6,716	\$10,074	2
13	East TH connector		New	1,850	2,128	\$3.20	\$4.00	\$4.80	\$6,808	\$10,212	2
14	Canal Trail	improve, add RGDs, armor low spots	Existing	1,500	1,725	\$2.40	\$3.00	\$3.60	\$4,140	\$6,210	1
15	Warmup loop	define route	Existing	2,000	2,300	\$0.80	\$1.00	\$1.20	\$1,840	\$2,760	1
16	Oly's Trail	need to mark and define route	Existing	1,200	1,380	\$8.00	\$10.00	\$12.00	\$11,040	\$16,560	2
17	Warmup Loop	mark & define, armor bentonite sections	Existing	1,960	2,254	\$0.80	\$1.00	\$1.20	\$1,803	\$2,705	1
18	Lower Sandstone	mark and define route	Existing	1,880	2,162	\$0.80	\$1.00	\$1.20	\$1,730	\$2,594	2
19	East Side	mark and define route	Existing	1,900	2,185	\$0.80	\$1.00	\$1.20	\$1,748	\$2,622	2
20	Hanging Rock	mark and define route	Existing	2,100	2,415	\$0.80	\$1.00	\$1.20	\$1,932	\$2,898	1
21	Hanging Rock	improve, mark & define route	Existing	1,720	1,978	\$0.80	\$1.00	\$1.20	\$1,582	\$2,374	1
22	South BLM Connector	existing rd, connect off lease area	Existing	100	115	\$0.80	\$1.00	\$1.20	\$92	\$138	1

Cost Summary – Trails

	LOW ESTIMATE	HIGH ESTIMATE
Phase 1	\$87,910.60	\$131,865.90
Phase 2	\$54,307.60	\$81,461.40
Total	\$142,218.20	\$213,327.30

Cost Estimates – Bike Park Features

BIKE PARK FEATURE	NOTES	AREA (AC)	DIMENSIONS (FT)	AVERAGE COST	LOW COST ESTIMATE	HIGH COST ESTIMATE
Beginner skills		0.39	100'x170'	\$9,900.00	\$7,920	\$11,880
Intermediate skills	width ranges 80' to 100'	0.33	90'x160'	\$11,880.00	\$9,504	\$14,256
Pump track		0.41	100'x180'	\$19,800.00	\$15,840	\$23,760
Jump lines	3 lines: beg, int, adv	0.36	70'x225'	\$19,800.00	\$15,840	\$23,760
Gravity pump line		0.22	35'x270'	\$9,900.00	\$7,920	\$11,880
Total Park Area	max area of disturbance	3.44	300'x500'	\$71,280.00	\$57,024.00	\$85,536.00

