



CAMP VERDE TRAILS CONCEPT PLAN

CAMP VERDE, ARIZONA

October 2019

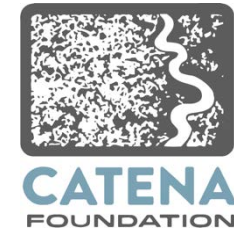
CAMP VERDE TRAILS CONCEPT PLAN



Prepared for: City of Camp Verde



Catena Foundation



Prepared by: International Mountain Bicycling Association
Trail Solutions
PO Box 7578
Boulder, CO 80306





Table of Contents

About IMBA Trail Solutions.....	2	Zone 3: Bike Canyon	15
Project Background.....	4	Zone 4: Beaver Creek	16
About the Town of Camp Verde and Surrounding Public Lands	4	Zone 5: Jackson Flat	17
Site Visit	4	Zone 6: Wikiup Mesa.....	20
Objective 1: Foster economic growth by creating a quality trail experience that attracts visitors from outside areas.	6	Zone 7: Lake Montezuma	21
Objective 2: Enhance community health and connect the population with the surrounding environment.	6	Zone 8: Horse Canyon	22
Objective 3: Refine the trail system in a way that helps to successfully manage different user groups.	7	Zone 9: The GCT.....	23
Objective 4: Use best practices to develop trails that are optimized for a range of mountain bicycling styles and skill levels.	7	Maps.....	26
Existing Conditions	9	A. Backcountry Zones.....	26
Coconino National Forest Red Rock Ranger District	9	B. Front country Zones	26
The Camp Verde Sports Complex	9	C. Zone 1	26
Jackson Flat and the Unified School District Center.....	9	Summary.....	31
The General Crook Trail.....	10	Next Steps.....	33
Trail Experience Zones	12	Appendixes	34
Zone 1: The Camp Verde Sports Complex	12	Appendix A: Rider and Trail Types.....	34
Zone 2: White Hills	14	Rider Types	34
		Trail Designations and Types	37
		Mountain Bike-Optimized Trails	37
		Community Bike Park Facilities.....	39
		Appendix B: General Trail Planning and Design Guidelines.....	42
		Trail System Design.....	42
		Appendix C: NICA Leagues.....	47



About IMBA Trail Solutions

IMBA Trail Solutions (TS) is the international leader in developing trails, with experience in over 500 projects in North America, Europe, and Asia. Our staff excels at planning, design, and construction of trail systems that provide high-quality experiences for local riders and destination visitors while simultaneously minimizing environmental impacts.

Trail Solutions is a fee-for-service based arm of the International Mountain Bicycling Association (IMBA), a 501(c)(3) nonprofit organization. IMBA's mission is to create, enhance, and preserve great mountain biking experiences. Based in Boulder, Colorado, and with staff distributed across the country and the world, IMBA meets its goal to create great mountain bike experiences through its Trail Solutions program. Trail Solutions employs approximately twenty professional trail planners and builders. In addition to being industry professionals and exceptional mountain bike riders, Trail Solutions staff hold a broad base of applicable skills and knowledge from planning, landscape architecture, and environmental sciences to GIS systems, CAD, and graphic design.

Our wealth of experience has allowed us to develop the gold standard guidelines for the creation of both sustainable and enjoyable singletrack trails. These guidelines have influenced all major federal land management agencies and a large number of state and local parks departments. We pride ourselves on the positive experiences we have provided to the millions of active trail users around the world and on the economic independence that communities have achieved through the development of destination trail systems.





Project Background

This trails concept plan provides guidance and recommendations for development of natural surface multiuse and mountain bike trails, as well as bike park facilities, within and surrounding the community of Camp Verde, Arizona. This improved trail system will capitalize on the growing demand in the region for trails, and specifically those that are optimized for mountain biking. It will serve the needs of the community by providing opportunities for a wide range of users to experience the outdoors.

About the Town of Camp Verde and Surrounding Public Lands

Camp Verde is the geographic center of Arizona, situated on the Verde River and Interstate 17. Both the Verde Valley and I-17 run predominately north to south, with Camp Verde as a stop-off point between the cities of Flagstaff and Phoenix. Running west to east from Camp Verde is state Route 260 that leads eastwards to the Mogollon Rim and eventually the city of Payson about 58 miles away. The nearest international airport is in Phoenix, approximately 95 miles to the south, with several regional airports within an hour away in Cottonwood, Flagstaff, Payson, Prescott, and Sedona. The population of Camp Verde is just under 11,000 people and is one of the five tribal communities for the Yavapai-Apache Nation. The Verde Valley is the ancestral home to the Yavapai and Apache people.

The Verde Valley has prehistoric and historical significance, as it has always been a source of fresh water, game and other food sources. The Fort Verde Museum in Camp Verde educates visitors on the fort's role during the early days of Arizona statehood and its importance in the American West. State Route 260 is also referred to as the General Crook Trail (GCT) as the modern highway parallels and uses former segments of the historic General Crook's U.S. Army Cavalry route.

Camp Verde is a jumping off point for a plethora of high desert, forest, and river canyon adventures. It sits on the border between the Coconino and Tonto National Forests, with the Verde River delineating the east-west boundary between the two United States Forest Service districts. Montezuma Castle National Monument, Montezuma Well National Monument, the Mogollon Rim, and various wilderness areas are all within a half- to a one-hour drive. The Verde Valley is ranked fourth on a national list of best wine regions in the United States.

Site Visit

In April of 2019, Joey Klein of IMBA Trail Solutions met with various officials from the town of Camp Verde regarding their overall plans for trails, pathways and park development. The seemingly infinite area of nearby public lands was narrowed down to a general area of interest (AOI), focusing on the region east of town, that would be made up primarily of Coconino National Forest, the town of Camp Verde, Yavapai County, and potential Arizona State Lands. Other possible areas for trails might include Montezuma Castle National Monument and parcels where Yavapai-Apache citizens and other willing public or private landowners are interested in offering easements or access. For this plan, the AOI can be considered from town center north to the unified school district center then north along Montezuma Castle Road and northeast towards the Lake Montezuma subdivision. The AOI would continue east until intersecting with forest service Road 618 and then following that south to the junction with state Route 260, and following that back west and finally north

CAMP VERDE TRAILS CONCEPT PLAN



back to Camp Verde town center. There would also be a swath of land encapsulating the General Crook Trail, from the trailhead eastward to the border of Coconino National Forest and the county line. During this short visit, there was little time for other meetings with public and private landowners.

Several days were spent at the construction site of the future Camp Verde Sports Complex (CVSC) with town planners, taking note of potential space available for cycling amenities and trail corridor placeholders. The sports complex will be a trailhead for new shared-use trails in the neighboring Coconino National Forest lands immediately adjacent to the eastern border of the Camp Verde Sports Complex.

Other nearby parcels of public lands were toured, including Jackson Flat, a popular ad hoc trails area directly northeast of the Camp Verde Unified School District center and just south of the Montezuma Castle National Monument. A quick tour was also taken along the General Crook Trail corridor of state Route 260 and existing trailheads north of town at Lake Montezuma.



Aerial view of Camp Verde with the White Hills and the future Camp Verde Sports Complex in the background.



Goals and Objectives

The goal of the following plan is to develop a progressive trail network of shared-use and bike-optimized trails that offers beginner to advanced level mountain biking as well as pedestrian and equestrian opportunities. As trails are developed and mileage increases, usage by residents and regional trail users will increase. The trail network can showcase Camp Verde's vital link to the past, present, and future of the American West, while bringing the town back to the center of attention for the state of Arizona.

This trails concept plan is crafted to ensure trails and features will be designed and built in a sustainable manner and meet recreation, conservation, and education objectives. The trail system will create a progression of experiences and challenges as trail users explore the system in more depth with each visit. Individual segments will provide consistent and expected experiences.

The design of this system is similar to that of a well-designed ski trail system, with a collection of easier/green, more challenging/blue, and most challenging/black trails. These characteristics will appeal to a broad cross section of off-road bicyclists, from family-oriented entry-level riders to highly skilled enthusiasts. Community bike parks will offer gathering places for families and groups, and provide entry level to expert level bike-specific features.

While the trail system is primarily intended to attract mountain bikers, hikers and equestrians will also use it. The new and improved system will offer more routes to distribute users and deliver a wider range of trail experiences. A mix of purpose-built trail loops close to the trailhead and expanded backcountry trails farther away from the trailhead will offer variety to the whole area. Trails close to neighborhoods and schools will provide easy and equitable access. Long-distance trails will connect communities and provide multiday adventures.

The following objectives are ranked in order of importance.

Objective 1: Foster economic growth by creating a quality trail experience that attracts visitors from outside areas.

Camp Verde is surrounded on all sides by excellent mountain bike destinations within an hour to two hours away, yet there isn't a single trail designated for mountain biking close to home. Developing shared-use trails here will boost health and economic growth first for the locals, then attract visitors from around the region. Mountain bikers enjoy travelling to other locations and Camp Verde sits at the center of it all. Trails can generate business in retail sales and services, support jobs, provide sustainable growth in rural communities, and produce tax revenue. Access to trails also correlates to a higher quality of life, thus making the community more desirable and capable of attracting new businesses and workers to an area.

Objective 2: Enhance community health and connect the population with the surrounding environment.

Several studies on physical activity have indicated that proximity to recreational facilities, such as trails, is a predictor for physical activity. Simply put, if there are walking and biking trails nearby, then residents are more likely to use them and therefore be healthier. Physical health and exposure to nature also benefit mental health, reducing stress and increasing happiness. In addition, individual and community health translate to economic benefits by decreasing healthcare costs. Public trails also provide outdoor community spaces that encourage public engagement. Connection to nature is paramount to maintaining



the health of the environment and making the outdoors relevant and accessible to all. Trails serve a diverse population and cultivate unity and stewardship in the community. A well-planned trail system in Camp Verde can help promote active and healthy lifestyles and improve social integration.

Objective 3: Refine the trail system in a way that helps to successfully manage different user groups.

In addition to a wider range of trail experiences, an increase in route options in Camp Verde will prevent user conflict by providing recreational opportunities that meet the needs of many different types of user groups. A well-planned system will promote a shared-use coalition of trail users while providing mountain bikers, trail runners, equestrian, hikers, and other appropriate users their desired experience in the outdoors. Roads in the study areas are currently open to motorized vehicles.



Objective 4: Use best practices to develop trails that are optimized for a range of mountain bicycling styles and skill levels.

The Camp Verde area has potential for trails that cater to a variety of riding styles and trail types that currently exist. One of the main objectives of this project is to diversify the trail system so it appeals to a wider range of mountain bike enthusiasts. This objective will be accomplished by creating a network of purpose-built trails that appeal to an array of ability levels. By taking the existing trails and improving upon the current offerings, more route options will be available to distribute riders of different interests and skill levels appropriately and deliver a greater variety of trail experiences. Options will range from challenging trails that have a gravity-oriented feel with technical descents to kid and beginner friendly skill building loops.

Meetings with mountain bikers in the region showed that there is high demand for descending-direction shuttle friendly mountain bike trails. The existing system is limited in this type of trail and does not currently meet the needs of the user segment. The result is disproportionate usage on the South Mountain trail system near Tempe which currently is the only existing shuttle friendly mountain bike trail system. Trail Solutions' assessment shows that the study area has many of the key elements necessary to address this demand. The terrain, access to roads for shuttle vehicles, proximity to town, and strong user interest make this area an excellent candidate for a network of gravity fed trails. Creating a space that matches the demand of this group



will appropriately distribute the downhill segment, which will abate conflict between mountain bikers of different abilities and interests while creating enough variety to encourage the downhill segment to visit the trail system regularly.

Within the proposed network, there is also a need for beginner loops, kids' loops, and skills loops that offer technical features for skills practice and development. These loops will be easy enough for kids and still fun for more-experienced riders. This network of trails will be located near a proposed main trailhead and town center, offering easy access for families and mountain bikers that are new to the sport and may not have the skill or fitness level to reach outlying areas.

Through careful planning, design, and construction, a varied trail network can become a critical component that can attract a steady flow of different types of visitors to the area. Attracting and satisfying visitor's desires with the full range of experiences for which they are looking ensures repeat visits. Inexperienced or less physically fit visitors may be forced to turn back if they encounter a mandatory obstacle on an otherwise easy trail. Similarly, an advanced rider may not bother to visit a destination that lacks the physically challenging and technically demanding trails that an established location such as Sedona, Arizona, is famous for.

In order for this trail system to provide the varied riding experiences and skill progression that mountain bikers seek, the trails must be built to provide relatively specific challenges and riding characteristics. The trails outlined in this concept have been given a target skill level that will help to guide the construction of these features. The ridership within each category can be divided into the following groups: beginner, intermediate, advanced/expert.

The Camp Verde trail system should utilize a consistent rating system. This will provide for a safer and more predictable experience for users. The Trail Difficulty Rating System is a basic method used to categorize the relative technical difficulty of recreation trails and should be the basis for a rating system in Camp Verde.

The 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

Please refer to the appendixes for more information on the Trail Difficulty Rating System, rider types, mountain bicycle trail types, bike park elements, and skill levels.



Existing Conditions

Coconino National Forest Red Rock Ranger District

Central Arizona is rife with public lands and trails, though in Camp Verde few sanctioned or legitimate singletrack trails are offered to mountain bikers. Motorized users have huge amounts of double track, 4x4 roads, and other backcountry routes within the neighboring national forest lands. Hikers have thousands of acres of solitude and hundreds of miles of trail in the far reaches of three nearby wilderness areas and two national monuments. The Coconino National Forest (CNF) is Camp Verde’s predominant public lands neighbor to the north, east and south. The famous mountain biking town of Sedona is less than an hour away and shares the same Red Rock Ranger District land management policies. Sedona has over 250 miles of singletrack trails open to mountain biking, whereas Camp Verde has zero miles officially mapped, signed, or sanctioned.



The Camp Verde Sports Complex

The sports complex is a newly funded 110-acre sports center under construction with plans for soccer fields, baseball fields, and other outdoor family-oriented sporting activities. At the time of writing, the 1.7-mile perimeter bike path had just been surfaced as were some of the through roads and parking lots.

Nearly a dozen small parcels of undeveloped land lie along the perimeter of the park. These parcels could all be used for bike-optimized park features. The majority of public lands immediately east and north of the sports complex are managed by the Coconino National Forest District with a massive amount of open lands stretching eastward all the way to the Mogollon Rim and border with the Tonto National Forest. At the time of writing, plans were underway to create 5-7 miles of trail within a shared-use, stacked loop system. These trails would originate at the sports complex, repurposing segments of existing double-track, with a few miles of singletrack, bringing users into the canyons and rims at the base of the White Hills.

Jackson Flat and the Unified School District Center

The area comprised of the Camp Verde High School, middle, and elementary schools can be referred to as the Camp Verde Unified School District center. It is less than 2 miles north of town center with a designated bike lane along stretches of Montezuma Castle Highway. There is an open hill just north of



the high school with jeep trails and hiking trails used by cross-country runners. Directly across from North Montezuma Castle Highway is Jackson Flat, which is riddled with socially created singletrack trails that tour the west bank of Beaver Creek, run north along the rim to the Yavapai-Apache Community Center, and finally loop around towards the south fence boundary of the Montezuma Castle National Monument.

The General Crook Trail

Camp Verde was the historic hub for General Crook's route, linking Fort Verde, the Mogollon Rim, Payson, and other outposts of the American West in Arizona. Today, segments of the GCT are scattered along the north side of state Route 260, though the trail is nothing more than a suggested route, predominately made up of old double track that is hardly discernable from adjacent OHV and ATV routes. Where the trail can be found, it is often marked with metal chevrons on trees or posts.

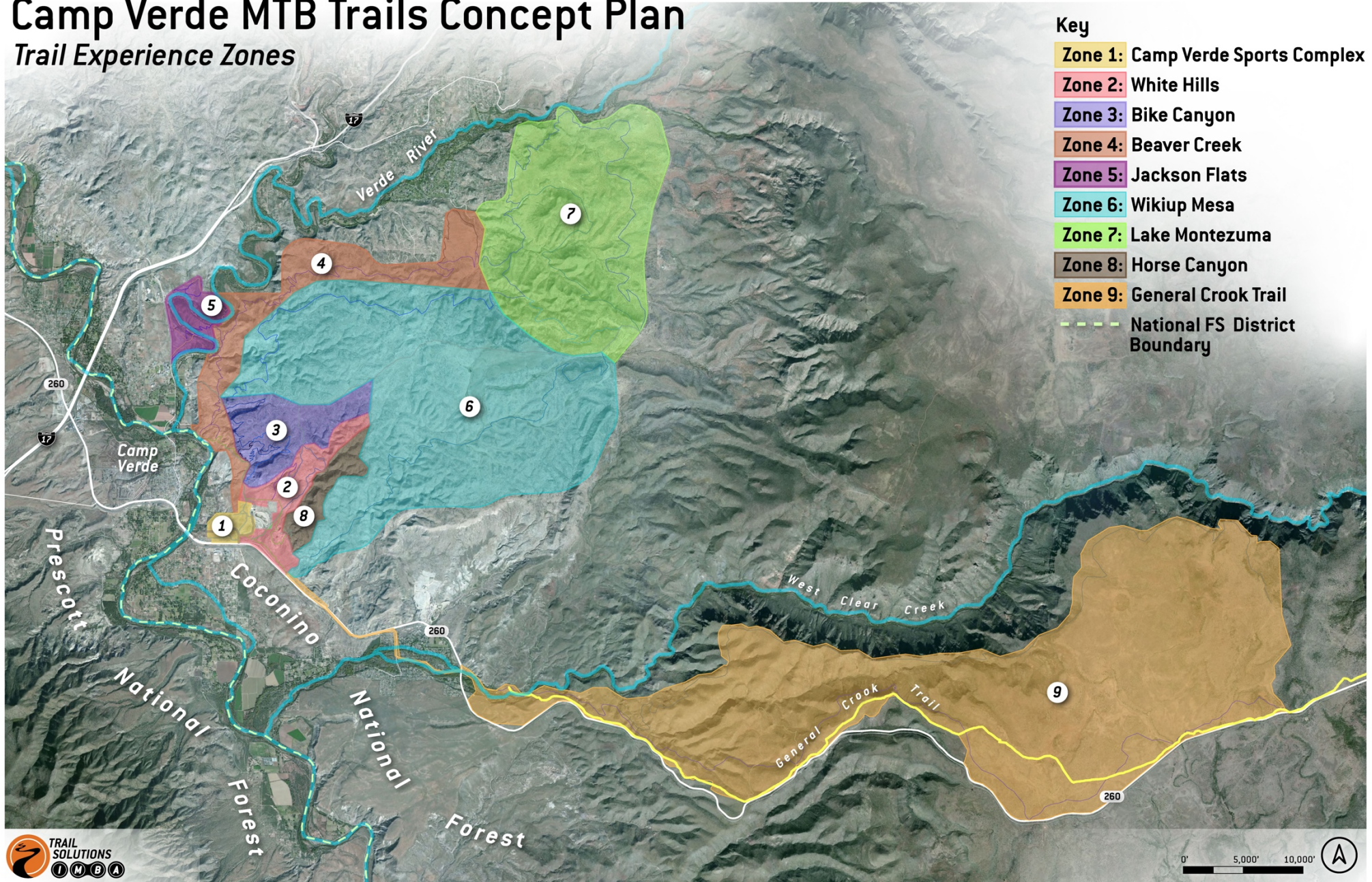
Trail users, stakeholders, and USFS land managers are in the process of breathing life into this forgotten route, hoping to make it a legitimate trail destination.





Camp Verde MTB Trails Concept Plan

Trail Experience Zones





Trail Experience Zones

Zone 1: The Camp Verde Sports Complex

The future Camp Verde Sports Complex will be an ideal facility and trailhead launch point for a close-to-home trail system. The location is just minutes by automobile from I-17 and a short bicycle ride from the town center. The town of Camp Verde has plans to upgrade the current pathways network with a multitude of pedestrian and bike-friendly lanes linking town to the sports complex. The facility has ample parking for daily trail use with overflow parking in case of larger events or races. Nestled directly up against the Coconino National Forest lands, the area offers vast trail potential.

Within the sports complex there are several small parcels or cells of town land that could contain a multitude of bike-specific amenities. Each cell could provide a wide range of technical features intended for skills progression.

The variety of gentle open slopes, nearby double track roads, and ample space for a large venue and staging area provide an optimal NICA race ready venue. The multitude of planned trails, existing pathways, and dirt roads means a racecourse can be devised in any fashion to meet the race type, objective,



Experience Goals

- Urban bike park amenities and front country directional trails
- Paved pathways and bike lane connections to town
- Family-friendly bike park features with access to front country and backcountry trail networks

Proposed Trail Mileage and MTB features

- 8-10 miles
- 7-12 cells available for MTB-specific park features
- Very high trail density

Appropriate Trail Types and Users

- Beginner to advanced skill level bike park features
- Beginner to advanced skill level gravity trails
- Majority of gravity trails with designated direction for MTBs
- Shared-use and dual-direction trail access to front country and backcountry trails
- NICA racecourse and venue potential

CAMP VERDE TRAILS CONCEPT PLAN



or distance. Designating loops adjacent to the sports complex specifically for mountain bike racing can also be used for a multitude of other money-making, trail-based events for the city, such as clinics and bike festivals.

Arizona has long been known for mountain bike racing. NICA leagues are strong in Tucson, Phoenix, Prescott, and Flagstaff. Camp Verde could provide a centralized racecourse venue second to none for the state. A typical state championship racecourse loop is anywhere between 4-6 miles, with 300-600 feet of elevation gain and will often attract several thousand people. For more information on NICA leagues, see Appendix C.



Opportunities

- Connections to downtown and nearby neighborhoods
- Proximity to I-17, minutes from Exit 285, and town restaurants, lodging, food, and fuel
- Existing parking, restrooms, drinking water, and amenities at future sports complex
- Recreational vehicle parking and camping at sports complex
- Scalable bike park features
- Small MTB gravity trails zone
- Potential access to CNF front country and backcountry trails
- Excellent venue, parking and staging area for NICA or other trail-based events

Constraints

- Private property and adjacent Arizona Trust Lands immediately to the north may restrict or provide some trail access
- Park operators will need to be cognizant of all events so as to minimize scheduling conflicts between different user groups



Zone 2: White Hills

The Coconino National Forest has proposed a 3.5-mile shared-use trail loop. It would be accessed from the CVSC or from the future equestrian center. This loop has been designed as a traditional cross-country trail using portions of existing double track and some new trail construction. It will be a good initial offering of mileage to a community that is lacking front country singletrack. There is plenty of available terrain for additional trail legs or clusters to increase looped outings. Equestrians, hikers, and mountain bikers will benefit from this proposed loop and any other future trails in this vicinity.



Experience Goals

- Front country, rolling hills, gentle desert rims, gullies and canyons
- Stacked loops with designated skill levels for MTBs
- MTB racecourse and other multiuse event-ready courses

Proposed Trail Mileage and or MTB features

- 7-9 miles
- High trail density

Appropriate Trail Types and Trail Users

- Intermediate skill level shared-use trails
- Shared-use and dual-direction trail access from front country to backcountry trails
- Potential for additional beginner to advanced skill level MTB trails

Opportunities

- Connections to sports complex, downtown, and nearby neighborhoods
- Access to proposed CNF backcountry trails
- Terrain and location well suited for NICA high-school or junior-league XC mountain bike racecourse

Constraints

- The town water treatment plant sits at the base of the canyon
- Plans for a new equestrian center at base of canyon just northeast of the town water treatment plant



Zone 3: Bike Canyon

This canyon is several drainages north of the future equestrian center and is riddled with rocky ledges, shady coves and outcroppings. This zone would make for an excellent non-motorized dual-use area, open to hikers and trail runners, though primarily aimed at today's experienced mountain biker. This zone would not be open to equestrians and there may even be some bike-only descents intended to minimize trail conflict while improving the trail user experience. The majority of existing trails open to mountain bikers in Arizona are shared use and there are very few purpose-built trails intended or designed solely for mountain biking. The terrain of this zone could absorb a plethora of trails for both intended user groups and from intermediate to advanced mountain bike skill levels.



Experience Goals

- Front country proximity with a backcountry experience
- Rolling hills, cliff bands, steep gullies, and deep canyons
- A hub and cluster MTB trail network with bike-optimized singletrack descents

Proposed Trail Mileage and MTB features

- 12-18 miles
- Moderate trail density

Appropriate Trail Types and Experience

- Intermediate to advanced skill level biking and hiking trails
- Dual-use trail access from front country to proposed backcountry trails
- Designated climbing trails for MTBs can be dual direction for hikers
- Potential for MTB-specific singletrack descents
- Enduro or XC trails approved for racing and events
- No equestrians or motorized users

Opportunities

- Close proximity to sports complex, downtown, and northern Camp Verde neighborhoods
- Access to proposed CNF backcountry trails
- Potential for additional beginner to advanced skill level MTB trails

Constraints

- Difficult desert rock and steep canyon terrain



Zone 4: Beaver Creek

This zone encompasses a narrow strip along the east side of Beaver Creek and the base of the White Chalk Hills, the namesake of the bleached white rims and slopes directly east of Camp Verde. Since much of this zone is the visual backdrop to town and contains several private properties, few new trails will be planned. Several historic double-track roads and old routes may be repurposed to provide necessary connections. The primary links proposed are those that connect the CVSC, Camp Verde, Lake Montezuma, Beaver Creek, and the mesa tops above. Currently the Verde River, Beaver Creek, and Arizona State Trust Lands act as a barrier, separating town from the White Chalk Hills. For entrance to areas beyond Beaver Creek, Jackson Flat may provide one of the best access points or crossings of the valley floor while respecting private property owners.



Experience Goals

- Front country, with views of the Verde Valley and Beaver Creek canyons
- Stacked loops with designated skill levels for MTBs
- Mountain bike racecourse

Proposed Trail Mileage

- 12-15 miles
- Low trail density

Appropriate Trail Types and Trail Users

- Beginner to advanced skill level shared-use trails
- Shared-use and dual-direction trail access from front country to proposed backcountry

Opportunities

- Connections to Lake Montezuma, CV Sports Complex, Camp Verde, and nearby neighborhoods
- Crossings of the Verde River and Beaver Creek
- Access to proposed CNF backcountry trails
- Historic or archeological sites for interpretation
- Views of Montezuma Castle, the Verde Valley, and Beaver Creek

Constraints

- Proximity to private property.
- Trail development should be kept low to minimize visual impact
- Potential need to avoid archeological sites



Zone 5: Jackson Flat

Jackson Flat is a vital zone for trail development as it is directly across the road from the Camp Verde Unified School District. The Camp Verde High School, Middle school, and Elementary School all occupy the same area just west of North Montezuma Castle Highway with several other schools to the south. A thoughtful trail system would provide immediate access for student cross-country runners, hikers, and mountain bikers, as well as other resident recreationalists. Bike parks could provide fun outdoor activities close to the schools for people of all ages. Visiting trail users, especially those staying at the nearby Yavapai Apache owned Cliff Castle Casino Hotel would have just a short walk or ride to trail access.

This zone has the largest number of established ad hoc singletrack trails in the AOI, and with some organization, improvements, and additions, it would make for an attractive trail network, especially if paired with MTB-specific amenities at the school and shared-use trail crossings of Beaver Creek into the natural terrain of the White Chalk Hills. This trails plan has identified looped outings that showcase outstanding views of Montezuma Castle and take trail users along the lush green valley of Beaver Creek.



Experience Goals

- Urban bike park amenities near the centrally located Camp Verde School District
- Front country, rolling hills, rocky cliffs, gullies, sand flats, river canyons, and riparian zones
- Appropriate and managed access to certain riparian zones along Bear Creek
- Shared use stacked loops with designated skill levels for MTBs
- Provide vital connections between the Camp Verde schools and nearby land agencies
- Cross-country running and MTB racecourse and training loops

Proposed Trail Mileage and MTB features

- 8-12 miles
- Moderate trail density
- 2-3 cells of MTB skills progression amenities

Appropriate Trail Types and Trail Users

- Beginner to advanced skill level shared-use trails
- Shared-use and dual-direction trail access from front country to proposed backcountry trails



The casino hotel is directly off I-17 on Exit. 289. It has a large paved parking area for guests and another dirt lot across the street closer to the existing rim trail. Either of these would be prime for a trailhead, especially as tribal members currently use the lots for the selling of fry bread, snacks, refreshments, jewelry, and souvenirs. Trail users tend to be parched after a good outing, and the food trucks would get a noticeable increase in hungry customers.

Montezuma Castle National Monument is a little further northeast of the casino hotel, and it also has an existing infrastructure ripe for an increase in tourism. Visitors are charged an entrance fee, giving them access to the hiking trails and paved walkways touring the ancient ruins of Montezuma Castle. New trails could showcase more of the Beaver Creek valley with the amazing contrast between the lush river bottom and the harsh desert cliffs that envelope the castle ruins.

Jackson Flat holds the key to potential trail access from the Yavapai-Apache Community Center and Montezuma Castle National Monument. Even though Jackson Flat is not heavy on trail mileage, it is rich in natural wonders and geologic features. With the closest access from I-17, it stands to be the most popular front country zone to the north, especially if the school district, the Yavapai-Apache Community Center, and Montezuma Castle National Monument



Opportunities

- Parking near schools
- MTB skills progression zones near schools
- Proximity to Unified School District Center provides immediate student access to trails, with potential for running or mountain bike racecourses or training.
- Connections from the central Camp Verde schools to Beaver Creek, the Yavapai Apache Community Center, Montezuma Castle National Monument, and CNF lands to the east
- Links the northern end of town to the trail zones east
- Crossings of the Verde River and Beaver Creek
- Access to proposed CNF backcountry trails
- Historic or archeological sites for interpretation
- Views of Montezuma Castle, the Verde Valley, and Beaver Creek

Constraints

- Sandy slopes
- Seasonal high-water levels of Beaver Creek
- Existing social trails may need reroutes or closures
- Unsanctioned off-road motorized use



all come on board as trail partners. The town of Camp Verde, the Coconino National Forest, Yavapai Apache organizations, and Montezuma Castle National Monument all stand to reap economic benefits with Jackson Flat as the prime motivator for that partnership. Currently, there is evidence of unsanctioned motorized use along Beaver Creek, the surrounding flats, and former double-track roads. If Jackson Flat became a developed and managed trail system, it would help deter illegal off-road motorized use.



Zone 6: Wikiup Mesa

This is the largest backcountry zone directly accessible from town and the sports complex. Trail users will have a feeling of remoteness after getting just a few miles from any access point. This zone brings users along the tops of the White Chalk Hills, Wikiup Mesa, Schroeder Butte, and other interesting natural formations between Beaver Creek and Road 618 to the east. This zone is rich in historic routes and sites, providing excellent content for interpretation. High rolling hills with deep canyons and rugged rim country provide a perfect environment for flowing singletrack. The terrain could hold a vast amount of shared-use or single-use directional trails. Trail density will depend on land manager and stakeholder input. Either way, this zone lends itself to a unique backcountry experience.



Experience Goals

- Backcountry, rolling hills, high mesa tops, desert rims, gullies, and canyons
- Shared-use hubs and clusters or stacked loops
- Backcountry traditional singletrack

Proposed Trail Mileage

- 22-28 miles
- Low trail density

Appropriate Trail Types and Trail Users

- Intermediate to advanced skill level shared-use trails
- Shared-use and dual-direction trails with some directional or single-use trails

Opportunities

- Longer distance outings accessible from the south, west, north, and east access points
- Majority of drop is from east to west, several legs could be designed to maximize rolling descent for bikes

Constraints

- Existing off-road motorized use
- Livestock grazing, fences, and cattle trails



Zone 7: Lake Montezuma

Lake Montezuma is the northernmost zone in the trails concept plan, serving the communities of Lake Montezuma, Rimrock, and McGuireville. These communities and Beaver Creek provide the approximate western and northern boundaries, with Road 618 used as the eastern boundary. This zone provides at least one existing USFS trailhead southeast of town at the corner of East Redrock Lane and North Forestglen Road. This trailhead is already a popular launch point for motorized OHV users and could easily hold increased parking for a multitude of resident trail visitors. The rolling hills above Lake Montezuma could absorb any blend of nonmotorized trail types. Family skill level MTB trails near the trailhead will give neighbors immediate kid-friendly excursions into nature. This zone could support long distance, shared use singletrack trails and certainly links to Camp Verde with views of Beaver Creek and Verde Valley.



Experience Goals

- Suburban neighborhood access
- Front country to backcountry, rolling hills, gentle desert rims, gullies, and canyons
- Stacked loops and hubs and clusters with designated skill levels for MTBs
- Potential for small MTB-specific loops or family flow trails near trailhead

Proposed Trail Mileage and MTB features

- 15-20 miles
- Moderate trail density
- Potential for MTB-optimized skills zones near neighborhood access

Appropriate Trail Types and Trail Users

- Shared-use and dual-direction trails with some directional or single-use trails
- Potential for MTB gravity trails with varying skill levels

Opportunities

- Connections from neighborhoods in the Lake Montezuma region
- Northernmost trail zone with access to backcountry
- Terrain is suitable for any skills level

Constraints

- Existing off-road motorized use
- Livestock grazing, fences, and cattle trails



Zone 8: Horse Canyon

A small canyon just above the proposed equestrian center would be a great zone to set aside just for equestrian trail use. No biking or motorized use would be allowed. It would provide immediate access for equestrians to the long-distance trails to the east and to shorter outings for training rides. There are more people using trails than ever before, so as a means to reducing user conflict, it makes sense to have some mileage of directional or single-use equestrian trails, especially with this zone's proximity to the proposed equine center.

This plan has no specific directives for the area as it will be up to the equestrian groups, land managers, and other stakeholders to follow through with proposed trail development. The zone indication merely represents a general area that has excellent access to and from the proposed equestrian center. A significant number of shared-use trails are planned, and this zone intends to give equestrians some of their own single-use trail experiences.



Experience Goals

- Front country, rolling hills, gentle desert rims, and canyons
- Intermediate skill level equestrian trails
- Terrain and acreage is well suited for progressively more difficult trails as users ascend to the east

Proposed Trail Mileage

- 8-10 miles
- Moderate trail density

Appropriate Trail Types and Trail Users

- Intermediate skill level equestrian
- No bikes and minimal hiking allowed

Opportunities

- Provides an equestrian specific corridor from the proposed equine center and the backcountry to east

Constraints

- Existing 4x4 access roads in poor shape from flood damage



Zone 9: The GCT

The General Crook Trail is a historic trail, with the midsection paralleled by State Route 260 and dozens of access points that link the two routes. The GCT runs from west to east mostly atop the Mogollon Rim. At one time, this U.S. Army supply line, well over 200-miles long, linked Fort Whipple of Prescott; Fort Verde of Camp Verde; the western outposts of Payson, Showlow, and Pinetop-Lakeside; and finally, Fort Apache in the Apache Indian Reservation. In 1978 the General Crook Trail was officially recognized as Arizona’s first National Recreation Trail. The GCT has fallen into poor shape as it was never intended for modern-day recreational trail use, and it hasn’t kept up with current users’ desire for singletrack trail types. Both motorized and nonmotorized trail users hope for its repair and rebirth as a long-distance route.

Not far from the General Crook Trail is a similar long-distance corridor known as the Black Canyon Trail (BCT). Approximately 30 miles southwest of Camp Verde is the northern terminus of this very successful Black Canyon Trail. The Black Canyon is known for its prehistoric significance and was more recently a Basque shepherd route in the 1800s. Today the entire route has been preserved as a shared-use trail corridor, used by mountain bikers, hikers, wildlife enthusiasts, equestrians, livestock, and OHV users. Thanks to thoughtful design and good management, all these users have come together to enjoy this historic route.



Experience Goals

- Backcountry, rolling hills, high mesa tops, desert rims, gullies, and deep canyons
- Shared-use hubs and clusters or stacked loops
- Backcountry, traditional shared-use singletrack, paired with a parallel MTB-optimized descending trail
- Utilize the existing GCT corridor to create loops and outings for a wide range of user groups
- Long-distance historic route with smaller looped outings

Proposed Trail Mileage

- 25-30 miles
- Moderate trail density

Appropriate Trail Types and Trail Users

- Intermediate to advanced skill level shared-use trails
- Shared-use and dual-direction trails with some directional or single-use trails



The BCT runs from south to north, beginning just north of Phoenix to just southwest of Camp Verde near Highway 69. The trail runs along the west side of Interstate 17, following the hidden Black Canyon, with highway exits leading to trailheads and immediate access points from the communities along the route. The parallel legs of dirt roads and singletrack trails create loops for certain users. These same legs of 4x4 road provide loops for motorized users when paired with Interstate 17 and its adjoining frontage road. Both motorized and nonmotorized trail users desire similar experiences: looped outings, historic interpretation sights, sense of place, access to water, trailhead parking, camping, iconic views, terrain challenges, and proximity to I-17 all while in a desert backcountry setting.

The General Crook Trail is poised to have similar success, with its proximity to State Route 260 and its significant vertical drop from east to west. Clear Creek Campground and Trailhead near Camp Verde mark the low point of this slope. This provides a possibility of a 12- to 15-mile rolling descent that could be shuttled with vehicles using the adjacent State Route 260.

If certain legs of the General Crook Trail were repurposed into singletrack, it would offer one of the longest bike-optimized descents with shuttle access in the area, attracting mountain bikers from all corners of the region. Parallel legs of trail could be developed for shared-use or cross-country trails designated as climbs or dual-directional routes. Existing double-track segments would continue to be open to off-road motorized vehicles if deemed appropriate. The General Crook Trail would remain a historic U.S. Army route, though with several parallel legs that serve different user groups while providing loops within the designated corridor.

This zone would also support bikepacking, a bike activity that is growing in popularity in which participants camp and travel long distances on bikes. The famous Arizona Trail has a constant stream of bikepackers testing their endurance and equipment, traveling long passages or the entire 800-mile route that traverses the state from the Utah border south to its terminus at the Mexico border.

Currently the GCT and BCT are only a few miles from intersecting each other near the towns of Dewey-Humboldt. If these trails converged, Camp Verde would become a major hub for both long-distance routes. In addition, some of the eastern General Crook Trail segments actually make up officially designated passages of the Arizona Trail. Improvements to the GCT and especially its connection

Opportunities

- Majority of proposed corridor is managed by Coconino National Forest-The Red Rock Ranger District
- Numerous existing 4x4 roads may provide access, trail heads and launch points from SR260.
- Existing 4x4 roads can be used as trail segments, short term, long term or for motorized users if deemed appropriate
- Rolling descent from near Yavapai and Coconino county line eastward towards the Verde Valley
- Potential for backcountry camping
- SR 260 provides excellent access and shuttle route
- Iconic views into the nearby West Clear Creek Wilderness Area
- Connections from Camp Verde to the Mogollon Rim
- Big picture link from the Black Canyon Trail to the Arizona Trail

Constraints

- Private property between the sports complex and Clear Creek CG on the north side of SR 260
- Livestock grazing, fences, and cattle trails



to Camp Verde, provides connectivity to the iconic Arizona Trail and increases mileage for bikepackers, hikers, and equestrians looking for alternate long-distance tours or loops in the Central Arizona Region.

This would also be an attractive trail zone for electric mountain bike (eMTB) users. EMTBs are a new phenomenon in the mountain bike world, providing riders motorized power to go farther and faster than regular mountain bikes. In Arizona, eMTB regulations can vary depending on locality, but in general, more areas are opening up for e-biking. For more information on bikepacking and eMTB's, see Appendix A.



Maps

A. Backcountry Zones

B. Front country Zones

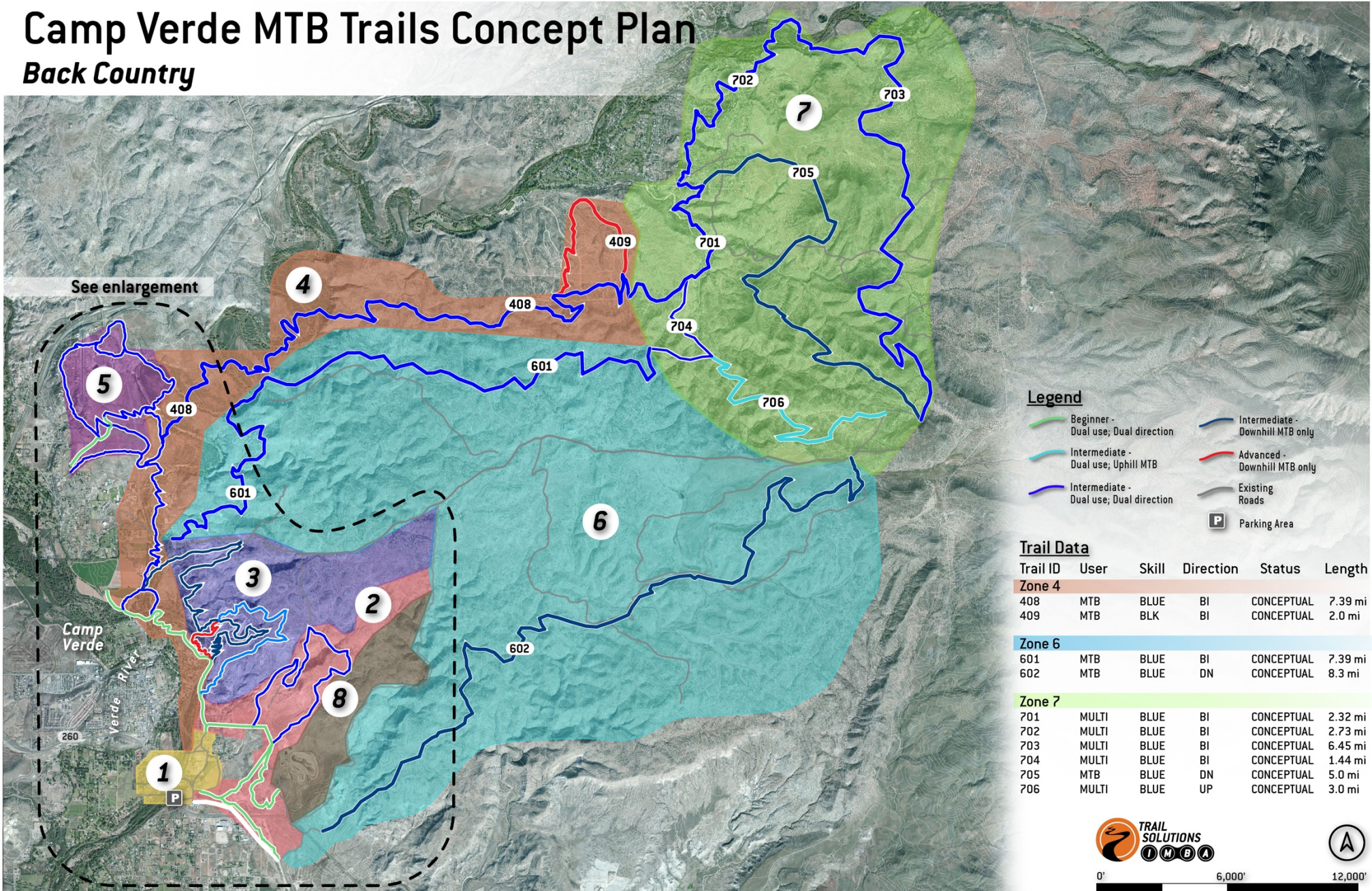
C. Zone 1

D. Zone 9



Camp Verde MTB Trails Concept Plan

Back Country



Legend

- Beginner - Dual use, Dual direction
- Intermediate - Dual use, Uphill MTB
- Intermediate - Dual use; Dual direction
- Intermediate - Downhill MTB only
- Advanced - Downhill MTB only
- P Parking Area

Trail Data

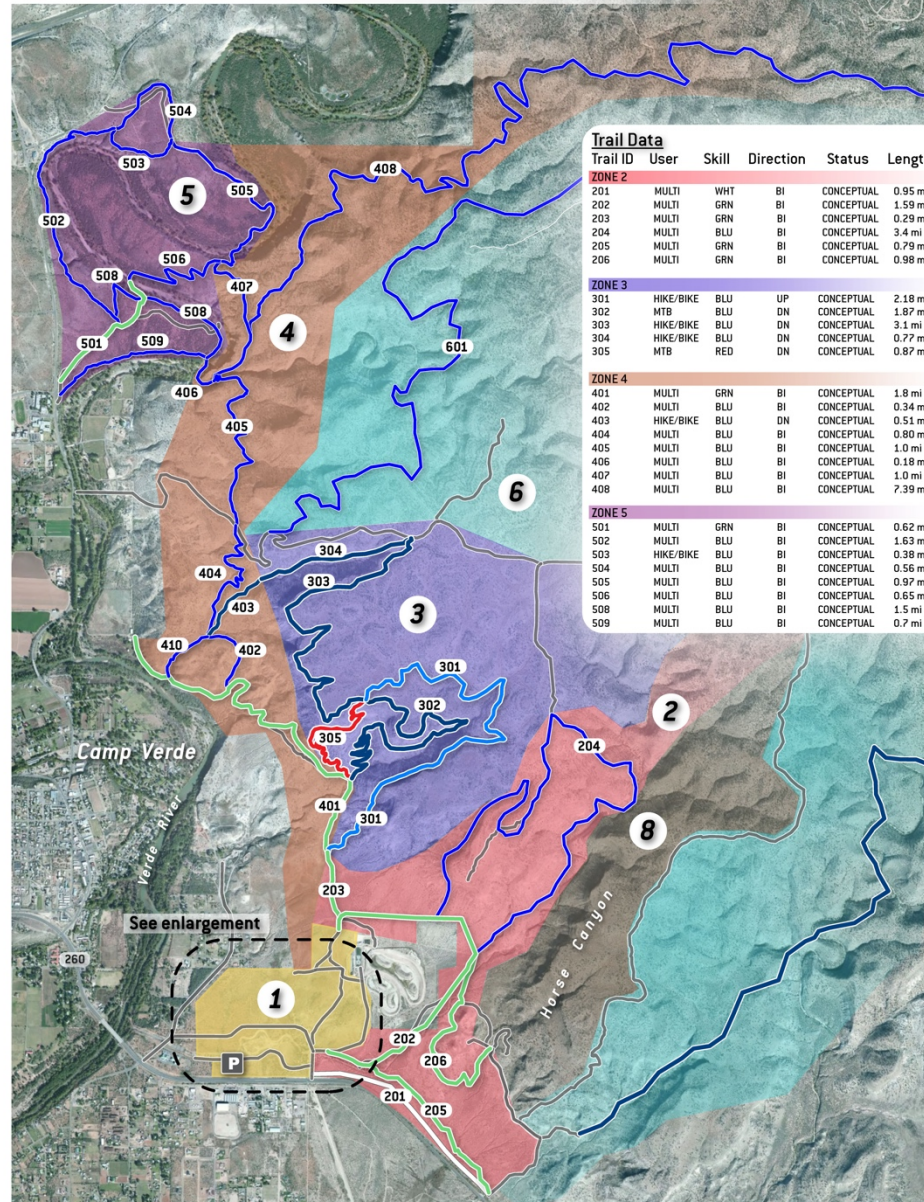
Trail ID	User	Skill	Direction	Status	Length
Zone 4					
408	MTB	BLUE	BI	CONCEPTUAL	7.39 mi
409	MTB	BLK	BI	CONCEPTUAL	2.0 mi
Zone 6					
601	MTB	BLUE	BI	CONCEPTUAL	7.39 mi
602	MTB	BLUE	DN	CONCEPTUAL	8.3 mi
Zone 7					
701	MULTI	BLUE	BI	CONCEPTUAL	2.32 mi
702	MULTI	BLUE	BI	CONCEPTUAL	2.73 mi
703	MULTI	BLUE	BI	CONCEPTUAL	6.45 mi
704	MULTI	BLUE	BI	CONCEPTUAL	1.44 mi
705	MTB	BLUE	DN	CONCEPTUAL	5.0 mi
706	MULTI	BLUE	UP	CONCEPTUAL	3.0 mi





Camp Verde MTB Trails Concept Plan

Front Country



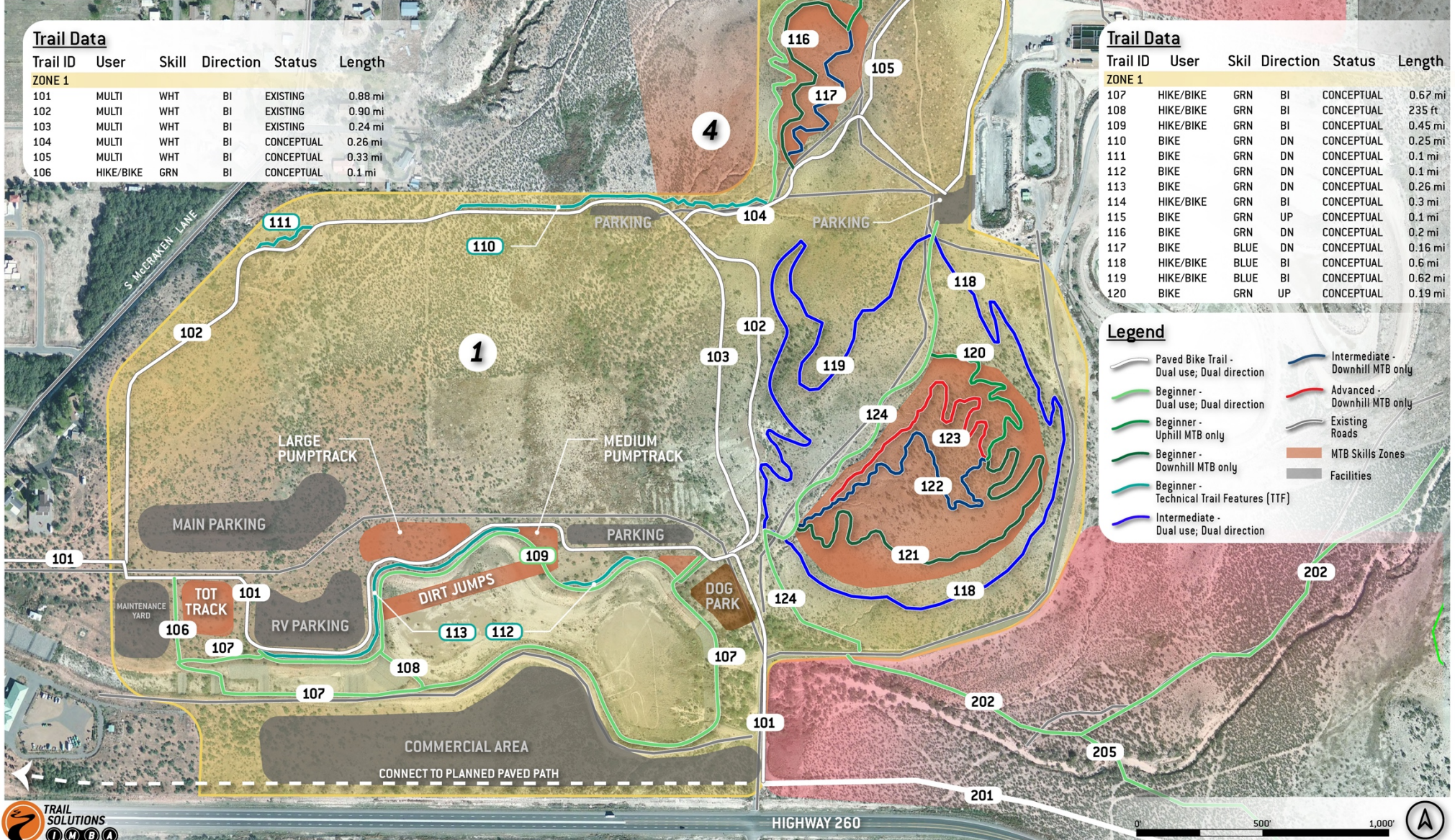
Trail Data						
Trail ID	User	Skill	Direction	Status	Length	
ZONE 2						
201	MULTI	WHT	BI	CONCEPTUAL	0.95 mi	
202	MULTI	GRN	BI	CONCEPTUAL	1.59 mi	
203	MULTI	GRN	BI	CONCEPTUAL	0.29 mi	
204	MULTI	BLU	BI	CONCEPTUAL	3.4 mi	
205	MULTI	GRN	BI	CONCEPTUAL	0.79 mi	
206	MULTI	GRN	BI	CONCEPTUAL	0.98 mi	
ZONE 3						
301	HIKE/BIKE	BLU	UP	CONCEPTUAL	2.18 mi	
302	MTB	BLU	DN	CONCEPTUAL	1.87 mi	
303	HIKE/BIKE	BLU	DN	CONCEPTUAL	3.1 mi	
304	HIKE/BIKE	BLU	DN	CONCEPTUAL	0.77 mi	
305	MTB	RED	DN	CONCEPTUAL	0.87 mi	
ZONE 4						
401	MULTI	GRN	BI	CONCEPTUAL	1.8 mi	
402	MULTI	BLU	BI	CONCEPTUAL	0.34 mi	
403	HIKE/BIKE	BLU	DN	CONCEPTUAL	0.51 mi	
404	MULTI	BLU	BI	CONCEPTUAL	0.80 mi	
405	MULTI	BLU	BI	CONCEPTUAL	1.0 mi	
406	MULTI	BLU	BI	CONCEPTUAL	0.18 mi	
407	MULTI	BLU	BI	CONCEPTUAL	1.0 mi	
408	MULTI	BLU	BI	CONCEPTUAL	7.39 mi	
ZONE 5						
501	MULTI	GRN	BI	CONCEPTUAL	0.62 mi	
502	MULTI	BLU	BI	CONCEPTUAL	1.63 mi	
503	HIKE/BIKE	BLU	BI	CONCEPTUAL	0.38 mi	
504	MULTI	BLU	BI	CONCEPTUAL	0.56 mi	
505	MULTI	BLU	BI	CONCEPTUAL	0.97 mi	
506	MULTI	BLU	BI	CONCEPTUAL	0.65 mi	
508	MULTI	BLU	BI	CONCEPTUAL	1.5 mi	
509	MULTI	BLU	BI	CONCEPTUAL	0.7 mi	

Legend

- Beginner - Dual use; Dual direction
- Intermediate - Dual use; Dual direction
- Advanced - Downhill MTB only
- Paved Bike Trail - Dual use; Dual direction
- Intermediate - Dual use; Uphill MTB
- Intermediate - Downhill MTB only
- Existing Roads
- Parking

Camp Verde MTB Trails Concept Plan

Zone 1



Trail Data

Trail ID	User	Skill	Direction	Status	Length
ZONE 1					
101	MULTI	WHT	BI	EXISTING	0.88 mi
102	MULTI	WHT	BI	EXISTING	0.90 mi
103	MULTI	WHT	BI	EXISTING	0.24 mi
104	MULTI	WHT	BI	CONCEPTUAL	0.26 mi
105	MULTI	WHT	BI	CONCEPTUAL	0.33 mi
106	HIKE/BIKE	GRN	BI	CONCEPTUAL	0.1 mi

Trail Data

Trail ID	User	Skill	Direction	Status	Length
ZONE 1					
107	HIKE/BIKE	GRN	BI	CONCEPTUAL	0.67 mi
108	HIKE/BIKE	GRN	BI	CONCEPTUAL	235 ft
109	HIKE/BIKE	GRN	BI	CONCEPTUAL	0.45 mi
110	BIKE	GRN	DN	CONCEPTUAL	0.25 mi
111	BIKE	GRN	DN	CONCEPTUAL	0.1 mi
112	BIKE	GRN	DN	CONCEPTUAL	0.1 mi
113	BIKE	GRN	DN	CONCEPTUAL	0.26 mi
114	HIKE/BIKE	GRN	BI	CONCEPTUAL	0.3 mi
115	BIKE	GRN	UP	CONCEPTUAL	0.1 mi
116	BIKE	GRN	DN	CONCEPTUAL	0.2 mi
117	BIKE	BLUE	DN	CONCEPTUAL	0.16 mi
118	HIKE/BIKE	BLUE	BI	CONCEPTUAL	0.6 mi
119	HIKE/BIKE	BLUE	BI	CONCEPTUAL	0.62 mi
120	BIKE	GRN	UP	CONCEPTUAL	0.19 mi

Legend

- Paved Bike Trail - Dual use; Dual direction
- Beginner - Dual use; Dual direction
- Beginner - Uphill MTB only
- Beginner - Downhill MTB only
- Beginner - Technical Trail Features (TTF)
- Intermediate - Dual use; Dual direction
- Intermediate - Downhill MTB only
- Advanced - Downhill MTB only
- Existing Roads
- MTB Skills Zones
- Facilities

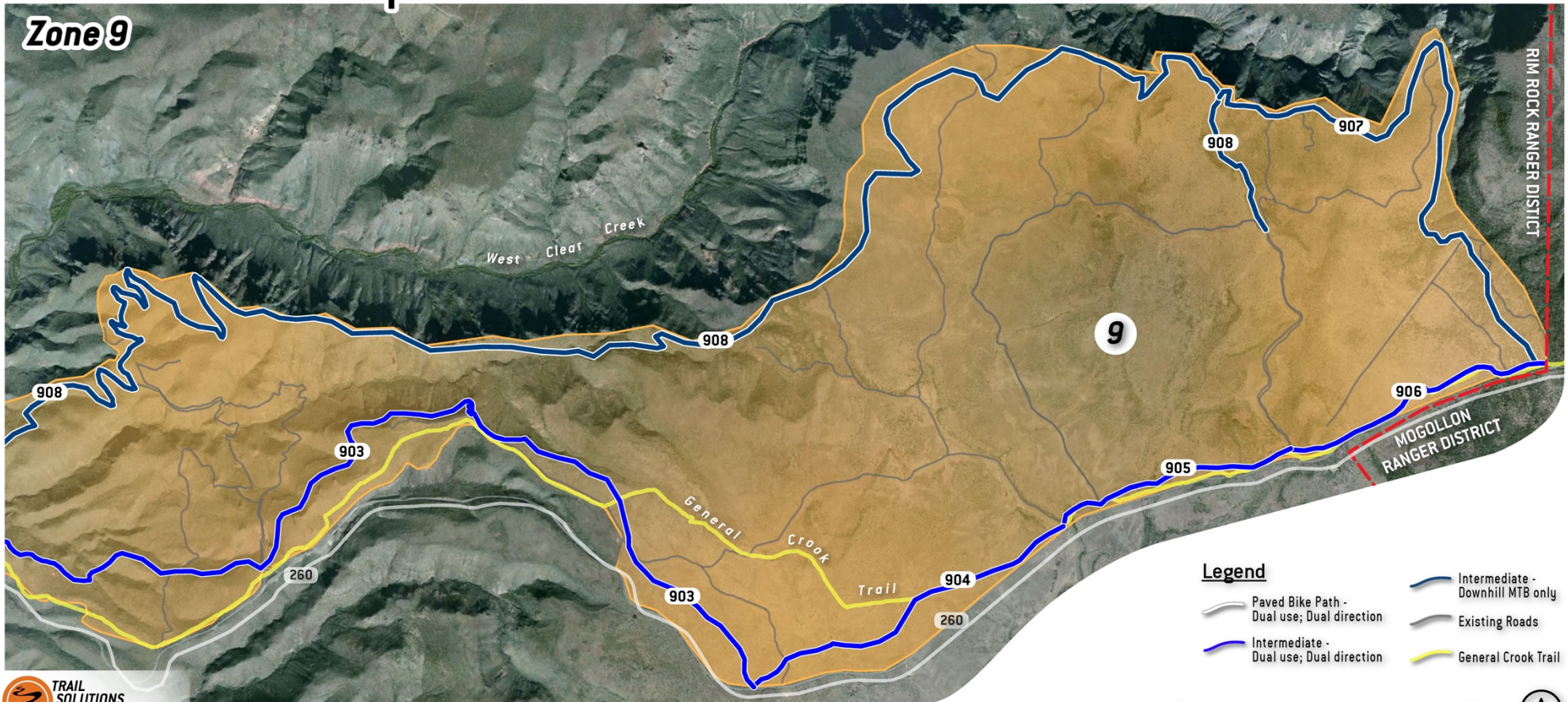
CAMP VERDE TRAILS CONCEPT PLAN



Camp Verde MTB Trails Concept Plan

Trail Data

Trail ID	User	Skill	Direction	Status	Length
Zone 9					
901	MULTI	WHT	BI	CONCEPTUAL	0.85 mi
902	MULTI	WHT	BI	CONCEPTUAL	2.78 mi
903	MULTI	BLU	BI	CONCEPTUAL	11.5 mi
904	MULTI	BLU	BI	CONCEPTUAL	2.73 mi
905	MULTI	BLU	BI	CONCEPTUAL	1.87 mi
906	MULTI	BLU	BI	CONCEPTUAL	2.13 mi
907	MULTI	BLU	DN	CONCEPTUAL	5.27 mi
908	MULTI	BLU	DN	CONCEPTUAL	18.6 mi



Legend

- Paved Bike Path - Dual use; Dual direction
- Intermediate - Dual use; Dual direction
- Intermediate - Downhill MTB only
- Existing Roads
- General Crook Trail

0' 6,000' 12,000'





Summary

Arizona is one of the American West’s most iconic mountain bicycling destinations, and Camp Verde could become the center of it all. During the winter months, riders from around the globe flock to the southern trails of Phoenix and Tucson, soaking up the Sonoran Desert sun. As the desert heats up, mountain bikers shift their gaze north to the red rock country of Sedona and the cooler rides in Flagstaff. Camp Verde is the halfway point between great singletrack in Prescott to the west and the Mogollon Rim/Pine-Strawberry trails to the east. Long distance trails like the Arizona Trail and the Black Canyon Trail are becoming more popular as the bikepacking and eMTB phenomena ignite. Arizona is neighbored to the west by the incredibly popular trails of Boulder City and Las Vegas, Nevada. To the east, New Mexico has its successful purpose-built trails in Santa Fe, with lift-served gravity trails at Taos and Angel Fire ski resorts.

Southern Arizona is known for its spectacular desert riding, second to none for visitors to escape winter in the northern climates to enjoy excellent riding temperatures or conditions in the Sonoran Desert during November to April. In Central Arizona, places like Sedona have a longer season of mild temperatures due to the cooler climates of the higher elevations along the edge of the Colorado Plateau and the inspiring red rock canyon country. In both cases, Arizona desert riding is known for technical, rocky, rolling desert terrain, but it does lack longer gravity descents like those in the neighboring mountain states. Riding destinations in the higher mountainous regions of Colorado and Utah boast longer sustained vertical drops, which attract riders from all over the country.

Today’s mountain bikers are more sophisticated, often seeking directional, purpose-built trails that end in long rolling descents, whether for beginner, intermediate, or expert level riders. Trail systems that can offer long downhill experiences are in high demand. With modern-day enduro racing, expert-level descending riders seek technical downhill rides. Some riders are ok with pedaling up to earn their descents, and some prefer vehicle shuttles. Trail networks with optional road or highway shuttles attract these types of downhill riders. The General Crook Trail descends from east to west from atop the Mogollon Rim, with a potential rolling vertical drop of 3,000 vertical feet down to the Verde Valley. This descending drop is sure to attract riders from all corners of the region.

The most successful trail networks are those with the most collaborative partnerships between land managers and trail users. Camp Verde is surrounded by public lands, especially those to the east managed by the Red Rock Ranger District of the Coconino National Forest. Camp Verde’s proposed sports complex offers a perfect launch point into those lands, which can easily support a large network



of hiking, equestrian, and mountain biking trails. Trail users and city stakeholders should reach out to neighboring land agencies. Partnerships between the Yavapai Apache, Montezuma Cliffs and Montezuma Wells National Monuments, the Camp Verde School District, the Arizona State Trust Lands, and private landowners would ensure that Camp Verde would have a unique trail system, catering to various trail-based outings.

Since Camp Verde was one of the original hubs for the General Crook trail, emphasis should also be placed on rejuvenating that corridor into useable trail. Partnerships can continue between organizations located farther east along the corridor, with the Mogollon Ranger District and the Tonto National Forest, connecting the Mogollon Rim all the way home to Camp Verde. The trail can continue west, linking back towards the Prescott National Forest, and southwest, making a new circuit into the Bureau of Land Management's Black Canyon Trail route. Camp Verde has no lack of opportunity for trail development. With its proximity to Interstates 17 and 40, the vast amount of surrounding public lands, nearby iconic trail routes, and many potential partnerships, a model trail system in the area has the potential for great success.



Next Steps

This plan has already identified potential development zones. The next step will be to verify exact access points, trailheads, parking areas, staging areas, shuttle stops, campgrounds, viewpoints, and other points of interest.

Once these hubs are pinpointed and defined, trail corridor design begins, typically by mapping, collecting GPS data points, and finally flagging corridors deemed acceptable by the land manager. The designed and flagged corridor lines further the permitting progress. Any new trail construction on the Coconino National Forest will typically include archaeological and environmental studies before leading to approval.

It is optimal to flag the corridors just before the review team is available to physically tour the flag line, so as not to lose flags from sunlight, wind, animal, human, and other natural elements. Design and flagging costs will depend on conditions, accessibility, terrain, time of year, and other factors.

As the Camp Verde Sports Complex parking areas are constructed, the priority bike park amenities and trails on city land can be identified. Family and beginner skill level bike-park features will help add life and activity to the sports complex while it is still new to visitation. Planned trails and loops on the neighboring USFS lands will need to be flagged, approved, and then constructed sometime thereafter. A target mileage of 10-18 miles of initial trail clearances are a good goal for the first few seasons of trail design and construction.

Focusing on a wide variety of family and beginner level bike park features and traditional, shared use singletrack trails is a good way to start. The sports complex will provide an optimum venue for high-school mountain bike racing or training. Partnering with NICA can help expedite the creation of a short, 4- to 5-mile beginner racecourse loop. The multitude of double-track roads with a few miles of attached singletrack would suffice for an interim NICA racecourse. Camp Verde has a very few existing MTB trails, and so any new trail will be welcomed; however, enticing mountain bike-optimized and gravity trails will guarantee a unique destination, drawing riders from afar while giving local families and residents exhilarating outdoor activities close to home.

Appendixes

Appendix A: Rider and Trail Types

Rider Types

Cross-country

Characterized by the lightest-possible bicycles with a focus on pedaling efficiency over comfort or control, cross-country riding is primarily the domain of racers who compete on less-technical trails and for whom physical fitness is just as important as riding skill. This user type prefers traditional singletrack (TR) that is often multiuse but will also make use of mountain bike-optimized trails.

Trail

Trail riders utilize bikes with increased amounts of front and rear suspension (4–5 inches). Pedaling efficiency is marginally sacrificed for more stability and comfort. Riders in this category frequently travel long, backcountry routes where solitude, challenge, and self-sufficiency are key. They prefer narrower traditional singletrack that is often multiuse but are not averse to mountain bike-optimized trails.

All Mountain and Enduro

Typically sporting between 5 to 7 inches of suspension travel in both the front and the rear of their bicycles, all-mountain and enduro riders prize descending but expect to use their own power to gain all or some of the necessary elevation. The trails most frequently used by all-mountain bicyclists include both traditional singletrack and mountain bike-optimized trails that enhance the fun and efficiency of a bicycle, particularly undulating, serpentine trails. These user types will also make use of gravity trails that are not beyond the capabilities of their bikes. This is currently the largest portion of the mountain bicycle market by volume of sales.



Freeride

With growing amounts of front and rear suspension, typically between 6 and 8 inches, freeride mountain bikes focus on control and maneuverability in technically challenging conditions, including man-made and natural jumps, drops, rocky areas, and steep terrain. Almost all of the trails ridden with freeride bikes are gravity fed as the bikes are not designed for uphill trail riding efficiency. Freeriders most often use chair lifts or vehicle shuttles to reach the top of trails. Generally, these users prefer gravity trails but will also use mountain bike-optimized trails and traditional singletrack trails if they are descending.

Downhill

A longer wheelbase and up to 10 inches of suspension provide downhill bikes with stability at high speeds on steep technical trails. Terrain features can be naturally occurring or man-made. Downhill riders most often use chair lifts or vehicle shuttles to reach the top of trails. Generally, this user prefers gravity trails but will also use mountain bike-optimized trails and traditional singletrack trails if they are downhill, steep, and technical.

Bikepacking

Bikepacking combines mountain biking with minimalist backpacking. Generally, bikepackers load their bikes and backpacks with only the necessary gear for self-supported travels and have lighter bags and more rugged bikes than traditional touring cyclists. Typical bikepacking gear includes a frame bag, handlebar roll, seat pack, and backpack instead of racks and panniers. Bikes for bikepacking often have wide tires, suspension, and other components that help bikers ride on natural surface,





singletrack trails. Participants can enjoy simple overnights in the backcountry or multiday trips to remote destinations. Bikepacking is rapidly growing in popularity.

Electric Mountain Bikes

Electric mountain bikes (eMTBs) are a new phenomenon in the mountain bike world, providing benefits that regular mountain bikes can't. With the extra power from an eMTB motor, riding requires less effort, making bicycling accessible to more people. EMTBs allow a slower rider to keep up with a faster one so that cyclists of different abilities can ride together. They help riders reach more remote locations and travel on longer trails. They can close gaps in fitness or training and assist injured people to continue riding through rehabilitation. Those who are focused on downhill rides can climb faster and get more laps in, which can also eliminate the need for shuttle-serviced riding.

Laws governing e-bikes are trying to catch up with growing use, and regulations vary from state to state. Some areas have adopted a three-tier classification system for eMTBs. Class 1 e-bikes are equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the e-bike reaches 20 mph. Class 2 e-bikes are equipped with a throttle that ceases to provide assistance when the e-bike reaches 20 mph. Class 3 e-bikes are equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the e-bike reaches 28 mph.

Other Categories

Other styles of mountain bicycling with varying degrees of participation include dirt jumping, slopestyle, four-cross, and dual slalom. These riders tend to prefer the purpose-built terrain of bike parks. Bike parks may include pump tracks, dirt jumps, slopestyle courses, and skills features, such as log rides or rock obstacles. Adaptive mountain biking encompasses several types of riding for those who typically cannot ride a standard mountain bike and require adapted equipment and trails to suit their physical, intellectual, neurological, and sensory abilities. These riders may use off-road handcycles or adaptive bikes of other styles. The continued evolution of mountain biking ensures that categories will combine as well as mutate, driven by the symbiotic combination of improved technology, bicycle-specific trails, and athletes pushing the boundaries of what is possible on a bicycle.



Trail Designations and Types

User Designations

Trails can be shared-use or single-use. Shared-use trails, also known as multiuse, are designed for hikers, mountain bikers, equestrians, or other nonmotorized recreational trail users. Single-use trails are constructed to meet the needs of one kind of user. Tailored trail construction ensures that the trail is both usable and enjoyable for intended user groups. For instance, switchbacks on a bike-only trail may be shaped into platforms to make turning easier and faster, while hiking-only trails may have steeper turns. Riders looking for speed, thrill, and challenge will have their own designated areas, and users travelling at slower speeds will have their own trails. Clear signage should convey allowed uses.

Directional Trails

Each type of trail can have a directional designation. A trail may be one-way or bidirectional for *all* users or only for *certain* users. For example, a steep downhill trail may be ideally designated as a downhill-only, bike-only trail so that advanced riders can enjoy high speeds and avoid collisions with other users. A gently undulating loop may work well for hikers and bikers traveling both ways. Because bidirectional trails can be traveled in either direction, they make efficient use of space, essentially doubling the trail options since the trail will provide a different experience in each direction. As trail systems grow and become congested, one-way trails help to take the pressure off popular shared-use trails. Directional trails can also be called dual direction or single direction.

Preferred-direction trails are not limited to travel in a certain direction but signal the intended use of the trail. For instance, a gentle slope may be easier for users to climb up and not as fun for bikers to ride down, but the trail can be used in any direction. Designating trail direction helps to minimize user conflict and make the best use of trails.

Mountain Bike-Optimized Trails

Mountain bikers have become sophisticated, seeking purpose-built trails that offer a wide range of difficulty levels, terrain diversity, and genres. Mountain bike-optimized trails, also called purpose-built trails, are designed and constructed to enhance trail experiences specifically for mountain bikers. Mountain bike-optimized trails might differ from traditional trails in several ways: enhanced tread shaping, one-way travel, and the addition of man-made technical





trail features (TTFs). Bicycles move differently along a trail than other modes of transportation, offering both opportunities and constraints for trails and trail features that may differ from those of other users.

One-way, mountain bike-optimized trails that harness gravity are a growing area of interest for mountain bikers. These trails can be designed and built at any level, from beginner friendly flow trails to extremely difficult race-oriented downhill trails. Riders cherish the feeling of flight that a bicycle provides while cruising through a succession of bike-optimized features from top to bottom. Well-designed, mountain bike-optimized trails are exciting for mountain bikers but are also designed to help manage risk and minimize user conflict.

Traditional Singletrack (TR)

These natural surface trails are built using sustainable trail construction techniques. Routes are constructed and maintained to minimize user conflict and maximize a natural surface texture and trail corridor. This type of trail should be narrower than 30 inches to reduce speed. All user types use these routes so care should be taken to avoid obstacles that might exclude an allowed user type such as jumps, rollers, or water bars. Turns are constructed sustainably but are not cambered to optimize cornering traction. Keeping trail grades within certain ranges ensures both a positive trail experience for users and proper stormwater drainage with minimized erosion.



Mountain Bike-Optimized Singletrack (MO)

Mountain bike-optimized singletrack is purpose-built for mountain bike users. These natural surface trails are built using sustainable trail construction techniques. This type of MTB-optimized trail is constructed with features such as rock gardens, berms, larger grade reversals, wider cambered turns, and skill-level appropriate jumps. These trails make use of gravity to provide a more enjoyable experience for descending riders. This type of trail should be narrower than 40 inches.

Mountain Bike Gravity Singletrack (GR)

Mountain bike gravity singletrack is purpose-built for mountain bike users only. These natural surface trails are built using sustainable trail construction techniques. These trails are usually steeper than MO trails and have features that require more skill. Jumps and drops are a key feature of these gravity-powered trails. This type of trail should be wider, up to 80 inches, in segments that have jumps or technical features but can be narrower, as little as 12 inches, in other segments. Bikes geared to this type of trail can handle more abuse.

Community Bike Park Facilities

Community bike parks offer a small area where users can practice their skills, progress, and have fun in a well-managed manner. Bike parks are typically located in an existing park or similar area.

Tot Track

A tot track is designed for smaller bicycles and users. It features reduced-sized rollers as well as low-angle bermed turns. It has features that can accommodate balance bicycles as well as regular bikes with short wheelbases. The tot track is designed for the least skilled of riders. Tot tracks are essentially smaller versions of pump parks, and like pump parks, can be dirt or a hardened surface. Asphalt is the recommended surface material for tot tracks. Asphalt is more expensive to install but greatly reduces maintenance costs and importantly, provides a consistent high-quality experience for the users.

Pump Park

A pump park (also known as a pump track) is designed to help cyclists of all skill levels to improve their riding skills. Pump parks are multidirectional and allow users to create their own routes through the rollers, berms, and jump features. A pump park will foster more organic and creative riding that stimulates both novice and skilled riders. Riding a pump park is an extremely anaerobic activity, so it is recommended that suitable seating and shade structures be installed for users to rest between sessions.





Skills Area

Users looking to practice beginner to intermediate technical riding skills in a low- consequence environment can learn in a skills area. This trail zone can include numerous optional stations where users can practice on features designed to teach specific skills. Features may include skinny bridges, drops, rollers, and more. Typically, features are man-made, sometimes prefabricated.

Dirt Jumps

Dirt jumps consist of tabletops ranging in height from 3 to 6 feet, spaced to maximize a rider’s ability to flow from one jump to the next without having to pedal. Dirt jump areas are designed so that the start hill is the highest elevation point and provides sufficient gravity to propel riders into the jump lines. Dirt jumps are incredibly fun, a great workout, and an excellent practice area for building solid bike jumping skills. These areas are designed to be ridden in one direction, eliminating potential conflicts. Dirt jumps require soil with a high percentage of clay (60-70%) that compacts very hard, minimizing rolling resistance and standing up to heavy use and high shearing forces. Installing engineered structures for the jump takeoffs substantially minimizes maintenance and improves the consistency of the user experience. Structures, such as ramps with lips, can be fabricated with steel and wood or hardened with asphalt and at times with concrete.



Technical Challenge Loop

Users looking to practice intermediate to advanced level technical riding skills in a low-consequence environment can utilize the technical challenge loop. This type of trail can feature numerous optional skill stations such as drops, jumps, rock gardens, and rollovers that directly challenge technical riding skills. Users can practice on natural and man-made features designed to teach advanced mountain bicycling skills. Typically, these features mimic the skills areas features but to a higher degree of difficulty. Aesthetics can be important, as is matching natural trail conditions; therefore, dirt, wood, and rocks are the most commonly used materials.



Appendix B: General Trail Planning and Design Guidelines

The following are guidelines for the construction and maintenance of trails. The natural environment is dynamic and unpredictable. The nature of recreational trails and roads, the desired user experience, and the constant forces acting on natural surface trails and roads make strict standards untenable and undesirable. As such, the guidelines below are simply that: best management practices that should be followed within environmental constraints.

Trail System Design

Rolling Contour Design

Providing consistent climbs and extended descents is a design priority. Trails may contour gently up or down for consistent lengths to maximize climbs and descents. This is known as rolling contour design. All shared-use trails should be of rolling contour design to minimize impact and sedimentation in the watershed.

Stacked Loops

A stacked-loop system is a series of loops somewhat like links in a chain. The loops can vary in length and difficulty. In a stacked-loop system, the loops that are closest to the trailheads are more inviting to novice riders, and the loops further out cater to more advanced riders. This creates a progression of experiences and challenges as users explore the trails in more depth.

Progressive Hubs and Clusters

A trail system of hubs and clusters looks more like spokes radiating out from a central junction and intersecting at various points. A trailhead or major intersection is a hub. A cluster is a concentration of trails radiating out from the hub. Like a stacked loop system, hubs and clusters are designed with skill level progression in mind. Hubs and clusters give users more trail options for varying skill levels at each hub, allowing for skill level diversity. At many intersections, riders have the option to change trail difficulty or continue on the same difficulty level.





With progressive trail features, a mountain biker may become a better rider by gradually moving up in trail difficulty. This practice also spreads out visitors and helps reduce trail user conflict. This is also a proven risk management tool. Signage shows difficulty levels at every hub and wherever necessary in the trail system to help users choose trails based on their skill levels and desired experience. Giving riders the option to warm up before hitting more technical segments provides a level of safety in the system.

Loops and clusters are often favored over out-and-back routes because they offer variety. People love the adventure of starting down one path and returning to the same point by way of a different trail. With loops or clusters in a trail system, visitors can choose a short route, a combination of routes, or a long outer route.

Progressive design and construction also allow users of different levels to ride the trails in the same system, so families and groups can enjoy being together in one place and riders can find a trail that matches their skills and progress.

Trail Difficulty Rating System

In order for a trail system to provide the varied riding experiences and skill progression which trail users seek, the trails must be built to provide relatively specific challenges and riding characteristics. For the purposes of this conceptual trail plan, the difficulty rating system has been simplified into three levels:

- Easiest Trails, Green Lines (green circle) – For beginners, these trails have a smoother and wider tread, lower trail grades, and less exposure.
- More Difficult, Blue Lines (blue square) – For intermediate riders, these trails can be steeper, more technically difficult, or longer.
- Very to Extremely Difficult Trails, Red Lines (black diamond or double black diamond) – For advanced riders, these trails offer a combination of difficult trail tread, technical features, and long distances for those looking for challenge and endurance-oriented experiences. Generally, they have significant exposure and have less predictable surfaces.



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 applies well to mountain bikers and is also applicable to other visitors such as hikers and equestrians. These ratings should be posted on trail signage and in all maps and descriptions. Following is a summary of criteria to be considered when implementing a trail rating system.

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 of natural obstacles include rocks, roots, logs, holes, ledges, drop-offs. 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. Both the height and the width of the technical trail feature are measured.

Trailheads

Well-placed trailheads and parking lots contribute to a successful trail system. Trailheads should be located in areas of lower elevation, as most trail users prefer outbound climbs with inbound descents back to the parking area. This also helps mitigate risk by allowing fatigued riders an easier route back to their starting point. This is especially true for mountain bikers, and necessary for families and beginners. Trailheads should offer information useful for the trail users, including trail maps, location information, emergency contact details, and volunteer information.

Sustainable Trails

A sustainable trail balances many elements. It has little impact on the environment; resists erosion through proper design, construction, and maintenance; and blends with the surrounding area. A sustainable trail also appeals to and serves a variety of users over many years. It is designed to provide enjoyable and challenging experiences for visitors by managing their expectations effectively. Following sustainable trail design and construction guidelines allows for high-quality trail and education experiences for users while protecting the land's sensitive resources. For additional trail design, construction, and maintenance techniques, refer to *Trail Solutions: IMBA's Guide to Building Sweet Singletrack*. These guidelines are appropriate for any hike, bike, or equestrian trail.

Signage

The development of a mountain bike trail network requires the development of a comprehensive system of signs. Signs are the most important communication tool between land managers and trail users. A well-implemented and maintained



signage system enhances the user experience by helping visitors navigate the trail network and providing information about the area. Signage also plays a critical role in managing risk and deploying emergency services.

Recommended signage for the trails should be simple, uncluttered, and obvious; with a sign at every major intersection to help users stay on track. Signs should meet the needs of all users, from the daily trail user to someone who is experiencing the trails for the first time. In order to serve the variety of visitors, sign placement should be strategic and frequent. Because signs can intrude on the natural outdoor experience, too much signage can be unsightly. Balancing competing interests is key to developing a successful signage program.

Sign Types

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

Informational signs — Usually positioned at the trailhead and major intersections, informational signs provide details such as trail length and difficulty. These include signs that identify a trailhead from a road, signs at a trailhead kiosk, trail intersection signs, waymarks, difficulty rating signs, and trail length or elevation gain and loss signs.

Regulatory signs — These types of signs delineate rules, such as prohibited activities, direction of travel, or other restrictions.

Directional signs — Directional signs provide navigational information.

Warning signs — Often incorporating highly visible designs, these signs warn trail users of upcoming hazards or risks. These include visitor rules and regulations, allowed activities, road and trail intersections, and emergency signs.

Educational signs — Educational signs can provide a variety of information for trail users, such as guidelines for responsible recreation, descriptions of natural or cultural resources, trail etiquette, and bike skills.





Appendix C: NICA Leagues

NICA, the National Interscholastic Cycling Association, develops mountain biking programs for student-athletes and coaches across the United States. Over 19,000 student-athletes in junior high and high-school participate in 31 state and regional leagues supported by over 9,000 volunteer coaches and 10,000 additional volunteers. Participant numbers continue to grow. In the last ten years, student-athlete participation has averaged 48% annual growth, and coach participation has averaged 75% annual growth.

The league’s mission is to build strong minds, bodies, character, and communities through cycling with the values of fun, inclusivity, equity, respect, and community. Unlike some youth programs, there are no bench warmers. Every athlete can participate, and the league offers a multitude of benefits: getting kids outside; promoting healthy lifestyles; exposing kids to cycling and outdoor advocacy; and providing social interaction, leadership opportunities, and life lessons such as self-awareness, discipline, success, failure, empathy, humility, and sportsmanship. In 2018, NICA launched GRiT (Girls Riding Together), a program focused on engaging more girls and women as student-athletes, volunteers and coaches. They also updated their Teen Trail Corps advocacy program to promote stewardship of the trails. Some leagues include Elevate programs for student-athletes with mental and physical challenges, making the sport more inclusive and integrated than many other high school activities. NICA is also helping to fuel more collegiate varsity cycling programs and clubs.

Beyond the many benefits for student-athletes, NICA leagues provide significant economic stimulus to their communities. As participation grows, so does the demand for trails and bike amenities. Teams need trails for training and racing. NICA racecourses require 4- to 6-mile loops of combined singletrack and double track with 300–600 feet of climbing per lap. Throughout the country, communities are building NICA racecourses from scratch or modifying existing trails. Along with the trails, the racecourses require venues that can accommodate, in some cases, thousands of spectators and participants who generate business in lodging, travel, restaurants, bikes stores, and other retail sales and services. This economic activity can support jobs, provide sustainable growth in rural communities, and produce tax revenue. The bottom line: Growth in NICA leagues doesn’t seem to show any signs of slowing down, and that means an abundance of benefits for individuals and communities.

