

RED ROCK TRAILS PLANNING RESULTS 2013

EXECUTIVE SUMMARY

In 2013 the Red Rock Ranger District, with City of Sedona and other partners, undertook a public process to update the District trail strategy for nonmotorized trails surrounding Sedona and the Village of Oak creek. The process relied on a series of 12 public meetings. This document provides a summary of the process, the results, and recommendations for future actions. Through this planning process, Red Rock Trail program conditions, issues and recommendations for the future were identified and discussed.

Public opinion about trail use trends and preferences was gathered in meetings, through an on-line survey, mapping exercises, and small group discussions. Natural and cultural resource, economic and social information was presented and discussed at the meetings.

This public process sought to educate trail users and to identify a strategy to sustain and enhance the public trail system. A successful Red Rock District trail system depends on understanding specific challenges posed to sensitive resources and how to protect those resources, identifying sustainable locations for future trails, educating the community and trail users, and committed community partners and volunteers.

The primary influence on the future condition and value of the trail system is the ability of local governments and community to contribute. Federal budget reductions will continue to hinder Forest Service staffing, maintenance, and project planning and implementation for trails.

As trail use increases and federal resources for construction and maintenance decreases, working with partners and volunteers and non-federal funds will be essential. However, the reduced number of District personnel will lower the Forest Service ability to respond to these opportunities.

Based on foreseeable funding, future Forest Service trail programming will be limited to essential maintenance, addressing visitor safety, resource protection and trail projects that require little investment but provide a large benefit (such as connectors) and projects that are funded by others. In general, new trail additions or enhancements will be based on non-federal sources of funding such as grants, donations or opportunities presented by volunteers and service clubs.

Reduced attention to the trail program causes deteriorating trail conditions, reduced visitor safety and increased search and rescue. Trail deterioration is noticed most by local residents who use trails daily and quickly notice trail problems such as missing signs and trail damage. Participants who support an expanded trail system with features for their user type may see little progress in this regard. Because demand for trails will continue to rise, there may be more damage from expanded social trails in locations where the trail system is inadequate or poorly maintained.

The process revealed that participants trail demands far exceed the ability of the Forest Service staff and funding. The process also revealed the strong passion felt by participants regarding the local trails, and

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the areas of agreement and disagreement between user groups and between individuals within those user groups.

DESIRED OUTCOMES, RECOMMENDATIONS AND FINDINGS

The initial meetings were focused on what participants felt to be the desired outcomes and key issues that should drive the strategy. The participants listed the following as the key desired outcomes. Conditions and suggested actions linked to that topic are stated.

1. Maintenance and rehabilitation of damaged trails. A trail system that is ecologically and financially sustainable and benefits the local economy.

There are many trails that do not receive proper maintenance. There is a large backlog of trail maintenance due to insufficient budgets, erosive soil conditions, and high trail use. Some trails have been constructed in unsustainable alignment/methods. These trails cause resource impacts, do not sustain the current/future use, and offer an opportunity for improvement.

Federal budgets are declining and trail use and mileage is increasing. Current trends are unsustainable. The trail system was rated by local residents as their most valued recreation resource. Trails support a vibrant tourist economy. The trail system is an asset to the community for resident health and lifestyle and for the tourism dollars that it brings to the community. Local trails are heavily marketed on the internet. The local chamber markets the trail system world-wide. Without the resources for maintenance and resource protection this asset will deteriorate with negative effects to the tourism economy and residents lifestyle.

Forest Service has placed a regional emphasis on sustainable management practices (environmental, financial, and social). Basically if it is not sustainable Forest Service should not build it.

Suggested Actions -

- Stable funding from the Red Rock Pass Fee Program must continue to be used to maintain the 10 fee trailheads (Boynton, Huckaby, Bell Rock, Courthouse, Little Horse, Yavapai, Bear/Doe, Cathedral, Jordan, Baldwin) including toilet cleaning and pumping, signage, and basic parking area maintenance. However, other resources must be found to care for the more than 30 non-fee trail access locations.
- Nonfederal entities collaborate to fund a full time professional trail maintenance crew servicing the area's trails.
- Forest Service will continue to provide information to support efforts of local nonprofits (for example Verde Valley Cyclists Coalition, Friends of the Forest, National Forest Foundation, Sedona Trail Fund) focused on fundraising and grant seeking for trail maintenance needs.
- Residents can ensure that lack of trail funds/consequences is known by community leaders.
- City of Sedona and Forest Service can continue their active agreement under which the City assists with funding the Forest Service "Adopt-a-Trail" Program which provides trail maintenance while educating residents.

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- In 2014 Forest Service will seek Arizona State Parks RTP (Recreation Trails Program) grant funds for funding a trail maintenance crew in 2015.
- With available funding in 2014 and 2015, the FS will plan trail reroutes to make the current trail system more erosion resistant with a focus on the trails immediately adjacent to the city limits. In addition FS is completing the last of a series of trail additions that will allow for the restoration of several miles of “social” trail in areas around Sedona and VOC.

2. Active volunteerism.

The opportunity for volunteerism associated with trails in this community is tremendous. Current efforts include the “Adopt-a-trail” program, the Friends of the Forest volunteers, and VVCC trail efforts. In the course of this public process, several aspects of trail use were identified and discussed that are relevant to, but not fully the responsibility of the Forest Service.

For example, vehicle traffic congestion; promotion of Sedona as a tourism destination area and the resulting impacts; education about the outdoor recreation experience to visitors who are unfamiliar with weather conditions and day light hours; being prepared for trail use and other safety aspects necessary to have a successful vacation experience – each of these aspects is of concern to the community and the Forest Service but there are no clear roles or responsibilities. Community partnerships and leadership outside the Forest Service is critical to progress.

Current volunteer efforts make a substantial dent in the annual trail maintenance work. These efforts have values including education and community participation over and above the actual work completed. The City’s contribution to the Adopt-a-Trail Program will continue to benefit the trail program in this way. Much more can be done to enhance the volunteer contribution to sustain the trail system while educating and including people in the care of their public lands. However, these volunteer efforts do not substitute for professional trained trail maintenance and construction workers.

Suggested Actions -

- City of Sedona continues to fund the “Adopt a Trail” program.
- Forest Service will continue to play a role in training and collaborating with groups or individuals who want to help plan, maintain and enhance trails and signage. This role can be expanded if funds become available for additional FS staffing.

3. Protection of natural and cultural resources.

The area known as “red rock country” is ecologically diverse and fragile, containing many sensitive plant and wildlife species, highly erosive soils and extensive archaeological resources. Cross country travel by foot, horse and bike impacts these resources in some sensitive areas.

Turkey Creek area is receiving high impacts, primarily from horse use on non-system trails in sandy soils near Oak Creek, but also from cross country mountain bike travel. There is a need to plan and install a

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suitable trail system in this area to get the use off of the soft sandy soils which have high potential to be archaeologically significant.

The issue of “off trail travel prohibition” for various user groups was not discussed in the meetings, so no group conclusions were reached. In addition, the general issue of “social trail” proliferation was not addressed in the meetings. The Forest Service has no current plan to inventory all social trails.

There would be great value if businesses/trail use providers provided messaging about environmental sensitivities such as “don’t bust the crust”, “stay on established trails” and “do no harm to the trail”.

Suggested Actions –

- Local businesses such as bike and hike shops can provide “leave no trace” information to trail users in various venues, encouraging trail users to stay on trail and educating them about the soils, plants and archaeology of this area.
- USFS can keep in place the prohibition to cross country biking in sensitive locations of the District.
- USFS, working with the community, can continue to plan and implement an effective trail system that meets user needs and reduces the dependence on damaging social trails.

4. Effective access/trailheads/facilities/parking.

Trail users comment that some trailheads are too small for horse trailers, not enough parking spaces, lacking in sanitation and sign facilities, and more trail access is needed to support trail use in some locations. In some locations around the communities, residents are accessing National Forest by trespassing across vacant private parcels. This situation is not sustainable.

Numerous new trailhead locations and enhancements were suggested during the planning process. Suggestions include: finding an alternative to the Soldiers Pass Trailhead; development of a new “hub” trailhead on Verde Valley School Road; creations of “legal” links to trails from neighborhoods; and expansion of trailhead parking at some locations. Also, improved amenities such as toilets, interpretive signs, and trails designed for people with disabilities. The high cost of trailhead development is a hurdle to additional trailhead development. For example the recent Dry Creek Trailhead cost \$500,000 to complete. A typical toilet costs \$40,000. Toilets are needed at Yavapai Vista and at Cathedral Rock Trailhead. No funding is currently available.

A volunteer committee tasked by the City of Sedona is working to acquire several access points to the Forest. The City will be paving Airport Road and may be able to pave and stripe the Airport Saddle Trailhead in the process. The Forest Service is using a State grant to install a toilet at Midgley Bridge/Wilson Mountain trailhead.

Suggested Actions -

- The update of the City of Sedona Trails and Urban Pathways Plan (TUP) is recommended to address the “close in” forest access desired by the community. The TUP can provide the

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comprehensive view of where the trail system needs access improvements to serve the community.

- City of Sedona continues to support citizen engagement to address trailhead parking, and trail access issues and opportunities.
- USFS will enhance trail access amenities through the Red Rock Pass Fee Program, as funding allows, including development of additional trailheads as needed in popular locations.

5. Effective trail user information and education, trail signage and rating system.

With over 700,000 trail users each year, many of whom are from out of state, there is a challenge to provide information to keep them orientated, safe and “light-on-the-land”. Visitor search and rescue strains local agencies. Some people believe more signs are needed, others see “too many signs” that spoil their experience. There are many venues (web, signs, apps, publications, public service announcements, etc.) that remain untapped and offer an opportunity to expand the outreach to trail users.

Suggested Actions -

- Forest Service completes install of “Are you prepared to rescue yourself” signage at all trailheads; in addition the installation of trail junction markers and “you are here” signage with ratings and mileage is underway.
- A grant has been secured by FOF from Keen Shoes to improve trail user access to trail maps through I-phone applications and web maps. This could be shared with Chamber for their website and with local concierges.
- There is a need for improved signage to set expectations for behavior of trail user and reduce conflicts between users. Bike and hike shops should collaborate to present a unified message to all trail users regarding visitor safety, resource protection and trail sharing.
- The Forest Service will target the enhancement of short scenic vista trail loops from existing parking/amenities to accommodate most visitor needs/demands.
- The Citizens Engagement Process could initiate a Trails Safety Committee to address user conflicts/safety issues. Committee could include Sedona Fire, County SAR and local trail users and representatives from local bike and hike shops.

6. Purpose built trail system with diversity of character, challenge, experience, and mileage for hikers, bikers and equestrians. Trails that connect, link, and loop.

Much of the current trail system evolved as a result of the adoption of old roads, cattle trails and user-created trails without the benefit of resource surveys or current trail construction/planning standards. Some trails (for example, Deadmans Pass Trail) even with maintenance, will continue to deteriorate with use. Other trails do not go where people want, causing additional user-created routes to pop up around them. Users comment that there is a general lack of some trail categories such as beginner trails for bikers, short loop trails for tourists, and trails along Oak Creek.

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Many trail users seek improved connections between residential neighborhoods and National Forest. Trail users also want more links between existing trails and state that there is a lack of loop trails, both short and long. Forest Service is re-engineering some trails for better sustainability and has added about 50 miles of trail in the past 4 years to the official system. There are more additions that were supported by some participants. These include: trails just west of the Cultural Park, and various connectors. These trails require larger public scoping, route planning and clearances before a decision can be made about adding them to the official trail system.

Suggested Actions -

- City of Sedona and Coconino Co. develop bike skills parks
- Red Rock District continues to work with trail users and local governments for expansion of trails in new areas. The Forest Service will focus on connector trails and reroutes that will help improve and enhance the current trail system and achieve some of the goals of nested loops, longer distance options. When new trails are added to the system, they will be well planned “purpose built” trails.

7. Clear, efficient process to improve existing trails and to add new trails and facilities.

The process that the Forest Service uses to assess and make decisions regarding new or adopted trails and trail facilities is perceived to be slow and hard to understand or participate in.

The process is required by the National Environmental Policy Act. The Red Rock area is complex in terms of natural, cultural and social elements. This often complicates the decision making related to trails. Other District priorities can cause delays in the progress of trail planning. The trail system is large and projects are numerous.

Suggested Actions –

- Red Rock District becomes more transparent with the trail planning and maintenance process by using FS web to keep more current information for those who want to know about planning or maintenance or who want to participate.

Summary of participant comment -

There was a wide diversity of ideas expressed through each of the venues provided to participants in this planning process. Here is a summary of what each user group indicated as most important and some common themes:

The highest priority rating by participants was given to “protect resources”, “add more trails”, and “maintain existing trails”. Respondents seem nearly evenly divided. The next most important item was “access improvements”.

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Equestrian focus – Develop trail system in Turkey Creek area; enhance trailhead parking and access from “equestrian” neighborhoods; enhance connectivity of existing trails; improve information available to equestrians.

Mountain Biker focus – Add user created trails in the Twin Buttes area (aka Hogs), and trails west of the Cultural Park and linking to the Girdner Trail (aka “Western Civilization”, “Last Frontier”); create some trails that are suitable for beginner riders; make more trails for very advanced riders; designate play/jump areas; enhance/create connections between existing trails; keep the unique character of existing trails.

Hiker focus – Adopt the user created trail known as “Transept”, and the trail between Bell Rock and Courthouse Butte and trails west of Girdner (mentioned above); create trails to destinations with views; enhance/create connections between existing trails.

There is a common theme to enhance/create connections between existing trails.

The need for signage improvements did not rate very high by respondents.

PURPOSE AND NEED FOR A TRAIL STRATEGY

In 1998 the Forest Plan for National Forest land in “red rock country” was updated including new direction for the trail system. The plan update recognized the importance of trails to tourists and residents and provided a strategy to increase the trail system capacity, address education and resource protection and visitor safety. Many of the objectives of the plan were completed in the intervening years including the construction/addition of over 70 miles of trail and 16 trailheads. Some goals and objectives have not been completed and are still relevant to today’s conditions, notably related to visitor safety and interpretation and addressing social trails and social conflicts.

In 2009 the Forest Service recognized that the trail system was inadequate and increased actions to update the trail system. A multi-year effort began to evaluate and add trails into the official trail system, to curtail illegal trail construction, close and restore unsustainable user created trails, improve trail signage and strengthen community relationships to benefit trails. Between 2009 and 2013 the District Ranger allocated substantial funding and staffing to these aspects of trail system enhancement. The District added over 45 miles of trail to the official system and two trailheads (Dry Creek and Mescal). The District also convicted 5 individuals for illegal trail construction and implemented a prohibition on cross country mountain biking in some sensitive areas. During this time Forest Service resource specialists and the public increasingly raised issues that could only be addressed through a “big picture” comprehensive look at the most heavily used trail area.

Changes in trail use in the past decade that motivated a need for an updated strategy for trails include: an increase in the amount of unauthorized trail construction and “social trail” development on National Forest around Sedona and Village of Oak Creek; 30% increase in the number of trail users over the last decade; crowding on trails and insufficient trailhead parking; a lengthening trail use season; increased

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911 calls from trail users; and increased use of, and demand for, mountain bike trails, trails that access water and trails that connect local residents with the National Forest.

This planning process aimed to educate participants about environmental sensitivities, and gather information about participant trail use preferences for Forest land surrounding the City of Sedona and Village of Oak Creek (VOC).

This process was facilitated through a National Park Service Rivers Trails and Conservation Assistance Program (RTCA) grant for FY 2013. The RTCA program exists to assist communities and land managers in collaborative public planning for rivers and trails. The Forest Service and co-sponsors (City of Sedona and International Mountain Biking Association) requested assistance from the RTCA program, to facilitate a public participation process. The public process consisted of 12 public meetings, mapping exercises, field trips and discussions to gather input from participants.

BACKGROUND

The project area is the most intensively used part of the District trail system and includes approximately 50,000 acres of National Forest land surrounding Sedona and Village of Oak Creek (VOC), containing over 250 miles of system trails.

The trail system is set within an extraordinary environment: erosive soils, high densities of cultural resources and unique plants and wildlife. It is estimated that over 3 million people visit this area of the National Forest each year; and of those, over 700,000 people hike, ride and bike on these trails each year. A functioning trail system is essential to facilitate this use while protecting the values that attract it. With 3.2 million people two hours away, trail use is expected to continue to increase over the next decade.

The natural, cultural and historic resources on the Red Rock District are vulnerable to trail user impacts. There is strong public pressure to build new trails or adopt user-built trails into the National Forest system. Often, public understanding and patience for the NEPA process is lacking.

Yavapai County led the completion of the Verde Valley Regional Trails Concept Plan in 2011. That inventory and planning effort had substantial public involvement. The effort resulted in an inventory or trail "wish list" for the area near Sedona and VOC, an MOU between local municipalities, and practical trail system recommendations and priorities.

The City of Sedona has a Trails and Urban Pathways Plan (TUP) dated 1996. Many of the recommendations in this plan remain vital to meeting the public's desired outcomes. The City of Sedona has 10,000 residents and is surrounded by National Forest. On any day, there may be more than 20,000 people visiting Sedona, many of whom use the trail system, City parks and open spaces. In 2012 the City revised their Parks and Recreation Master Plan. Community surveys show that the management and development of trails near Sedona is one of the highest recreation priorities for residents.

The Sedona City staff and Council recognize the need to place a focus on community trails and how trails continue to support resident quality of life and economic wellbeing. The City has an agreement with the

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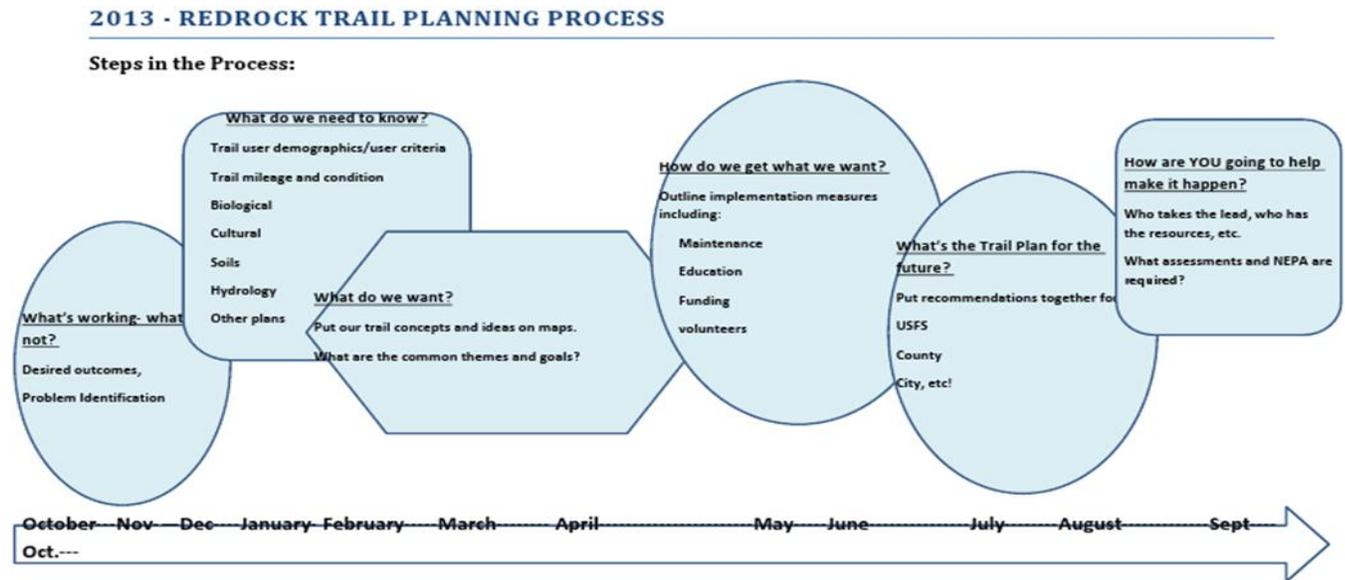
USFS to fund the “Adopt-a-Trail Program” to involve citizens in trail maintenance and enhance their understanding of trail management.

The City Parks and Recreation Department would like information to better prioritize future funds in regards to trails in the urban interface. The City Council and staff see the need to plan for trails in the land at the urban interface, where there is the need to connect existing recreation facilities, pathways, and neighborhoods.

The Coconino national forest is currently in Plan revision. The current trail plan for the Sedona area is dated 1998. This project could directly influence the trails element of this revision, scheduled for completion in 2014.

COLLABORATION PROCESS

The Forest Service collaborated with the City of Sedona, members of the Big Park Council, International Mountain Bike Association (IMBA), Verde Valley Cyclists Coalition (VVCC), Sedona Westerners, the Back Country Horsemen of Arizona (BCHA), residents and regional trail users to host monthly public trail planning meetings facilitated by NPS-RTCA staff. The meeting agendas and topics were also reached through agreement with participants. The general process sequence is shown in Figure 2. Meeting notes and presentations were posted each month on the Forest Service website <http://www.fs.usda.gov/main/coconino/landmanagement/planning> and VVCC website www.vvcc.us . Most pertinent notes are included in the Appendices.



EXISTING CONDITIONS

The existing conditions of trails, trail users, and associated resources were discussed at several meetings with presentations from Forest Service, City of Sedona, Sedona Chamber of Commerce, Sedona Fire District, International Mountain Biking Association, Back Country Horseman of America and others. This information is summarized below. The full presentations are provided in the Appendix.

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Social Aspects

Trail Use and Marketing –

Red Rock area trails receive extraordinarily high use. Trail register data puts use at 700,000 uses/year On 250 miles of trail. Most use is concentrated on a half dozen trails that are located in the heart of the Red Rocks including the four trailheads along State Route 179, and consists of out of town visitors taking a less than ½ mile hike to view scenery.

Local visitor center staff tries to spread use out to lesser used trails to relieve crowded conditions at popular trailheads. This has limited effectiveness. A high percentage of trail users are determined to go to a certain trail and will take no substitute. For example visitors come from Korea specifically to hike Boynton Canyon Trail. The parking capacity of local trailheads and available roadside parking restricts numbers, but not until all legal roadside parking is also filled up. Roadside parking and people walking down the road to get to the trail is common at some locations in spring and fall.

Trails are marketed relentlessly by internet, magazines, guide books, and local hotel and time-share venues. Websites like “Everytrail” and Mtbr.com show the routes of all trails and postings do not always distinguish between official maintained trails and user created trails. Local concierges are generally poorly informed, distributing low quality maps with outdated information to visitors. Time share outlets posing as official visitor centers also offer inadequate trail information to visitors. Local bike and hike shops struggle to provide up to date and inexpensive information to their clients. Forest Service is equally challenged to provide sufficient visitor trail information in evolving venues. Forest Service has marginal trail information on the official Forest Service website. All of this combines to confuse and frustrate visitors seeking high quality trail experiences. It also places a growing burden on search and rescue personnel and the sensitive forest environment.

User created and social trails -

The study area contains a spider web of unplanned “user created” and “social” trails. “User created” trails are defined as routes that were constructed without authorization and usually involve vegetation clearing and tread construction and a route actively constructed with tools. Over 45 miles of illegally constructed user created trail has been inventoried.

“Social” trails are defined as routes created without the use of tools, through the repetitive passage of people across the ground. Social trails are common on Forest land near residential neighborhoods and in Forest locations where use is very high and there is a lack of official trails, for example the spider web of social trails near Bell Rock or north of Uptown Sedona. Social trails go to rock climbing routes, to archaeological sites, to Oak Creek in numerous locations, to the back of residential areas and connect to vacant private lots used by neighbors for Forest access. There is no complete inventory of “social” trails.

Cross country travel (off of an official trail), while discouraged because of its impact, is legal and common. In 2013 the Forest Service, responding to the increasing impacts of off-trail mountain biking, implemented a mandatory “stay on trail” policy for bikes in some sensitive areas around Sedona.

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Lack of adequate trails, and adequately marked trails, is thought to be one cause of social or user created trails. These routes can have substantial impacts on natural and cultural resources, and can lead to decreasing visitor safety and quality of recreation experience. In addition to resource damage, the unofficial, unmaintained and unsigned trails confuse visitors and cause numerous 911 calls from lost trail users each year.

Search and Rescue (SAR) -

Yavapai and Coconino Counties' sheriff's offices assist with SAR efforts on the Red Rock District. When there is a need for medical assistance, the Sedona Fire District is involved. In the past 4 years, new trail signage has helped to reduce 911 calls from lost trail users. The predominant emergency call continues to be from unprepared trail users or from highly experienced trail users who get in over their heads. There is on average, one call-out each week of the year. During a busy spring or fall weekend there may be as many as 4 medical rescues on Bell Rock alone.

Search and Rescue personnel have identified lack of trail signage and "social" trails as the reason for many 911 calls. Specifically, the Doe Mountain, Highline and Bear Mountain trails are repeated problem areas. In 2011, signage was installed at Highline Trail and on Doe Mountain and the number of calls dropped. In 2012, 31 people needed help from SAR and no trail related deaths were reported. In 2011, 40 people needed help and 2 deaths were reported. In 2010, 80 people needed help and 6 deaths were reported. More trails may require more SAR response.

Most trail users are visitors from outside the area and unfamiliar with the desert and many are novices in the outdoors. Due to the high turnover of the Sedona population, many residents also are unfamiliar with desert conditions.

City and County tax payers bear the bulk of SAR costs. Search and rescue operations are costly, especially if they require medical expertise (usually this involves leg injuries and hypothermia, but can be more serious). Rescue personnel have suggested placing GPS markers along the trail, and the installation of trail rating signs and maps in convenient locations for visitors.

Trail user types

By far the predominant trail use is hiking. Surveys of trail users show 82 percent hikers, 17 percent bikers and 1 percent equestrian use within the study area. Surveys show that some areas have higher or lower amounts of the user types. For example bikers make up from 44 to 61 percent of trail users in the Dry Creek trail system, while hikers make up from 80 to 98 percent of trail users in the Airport Loop and Little Horse trail areas. The total amount of use and relative use by type is documented from Forest Service trailhead registration boxes in place since 1995. In addition, Forest Service has collected user type data from a sampling project since 2012.

Trail use peaks in spring, but is high all year due to the areas good weather and ample trailhead access. Use dips only in mid-summer when temperatures exceed 100 degrees, and during mid-winter snow/rain storms. Trail users are from all states and other countries with Arizona residents the primary user, followed by California residents. Foreign visitors are a minority.

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In 1995 trail use was estimated at 175,000 uses; 2005 saw 325,000; and in 2013 use was measured at 675,000 users, a 140% increase in two decades. Many visitors report that trails are one of the prime reasons for their visit to Sedona. Sedona residents, surveyed in 2011, stated that trails are the most valued community parks and recreation facility. The Forest Service emphasizes shared trail use on all non-Wilderness trails unless safety or resources require otherwise. Of the 250 miles of trail in the study area approximately 25 miles is located within Wilderness and closed to biking. Approximately 222 miles of trail are open to mountain biking. Several trails are closed to equestrian use due to steep slickrock side slopes and narrow tread.

Hikers: Hikers come in all abilities but most who visit are characterized as beginner and intermediate. Forest Service observations indicate that the largest numbers of hikers are residents out for a short daily walk and tourists seeking a short hike to a scenic vista for photography. There are also avid hikers seeking challenging off-trail adventure and long distance trail hikers. The rough trail surface characteristic of Red Rock trails does not discourage hikers, as evidenced by the number of hikers climbing to Cathedral Saddle. Six “hiking” stores exist in the area to support this activity.

Hiking has been popular in Sedona for well over 50 years. The Sedona Westerners is a local Hiking Club with a strong presence on the Red Rock trail system and over 350 members. The Club offers multiple levels of group hiking experiences, from easy to challenging to educational. Hikes are led by experienced hikers and educators. The Club website: www.sedonawesterners.org lists Club rules, meetings and hike schedules.

Equestrians: Equestrians in the Red Rocks area are a low percent of total use. Some ride from their homes, some trailer to trailheads and others ride from local stables or schools: for example Verde Valley School and Southwest Academy offer riding for their students. Riders generally ride cross country on National Forest land. Riders all seek a safe trail experience, scenic looped rides, and sufficient amenities. In the past decade equestrian use in the Red Rocks has not increased. Economic conditions caused some individuals to stop riding; local trail crowding and trailhead parking limits and rocky conditions discourage some from riding the area; and alternative options for riders outside the area may offer better opportunities in uncrowded conditions, with better trailer parking.

For more than a decade Forest Service has relied on the Backcountry Horsemen of Arizona to assist with trail service projects in remote areas. This skilled volunteer group hauls tools and water to remote worksites, often in Wilderness.

Mountain Biking: Mountain biking is a rapidly growing sector of local trail use. The majority of mountain biking in the Red Rock area is beginner and intermediate skill level with a smaller number seeking advanced riding. Geologic and climatic conditions have created conditions that favor advanced riding. Feedback from riders suggests that they value the unique character of the local trails. It is the unique trail character of the area with rocky narrow tread, challenging slickrock ledges and unique vegetation that contributes to the challenge and quality of experience for this user group.

Several bike clubs promote enhanced opportunities for local mountain biking. The Verde Valley Cyclists Coalition (VVCC) is an IMBA affiliated cycling advocacy group, with the mission to “improve the bicycling

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environment and thereby the quality of life in the region by promoting bicycle safety, education and facilities, and by encouraging use of the bicycle as an energy-efficient, economical and nonpolluting form of transportation and as a healthful and enjoyable form of recreation". For information go to www.VVCC.us . VVCC has an agreement with the Coconino National Forest to assist with projects that "enhance trail experiences for all non-motorized trail users."

Flagstaff Biking Organization (www.FBO.org) has many members who regularly use Red Rock trails. FBO is an IMBA affiliated regional cycling advocacy group, with the mission of "promoting bicycling as a safe and attractive means of transportation and recreation in Northern Arizona." FBO has agreements with the Coconino National Forest, the City of Flagstaff and Coconino County, to develop non-motorized trails for great commuter and recreational opportunities, and access points into the surrounding National Forest lands.

There are also 4 local bike shops which cater to bikers with rental, repairs, trail info and group rides. The Forest Service generally relies on these shops to provide the most up-to-date trail information for bikers.

Local mountain biking has evolved from the days of "secret" trails for local riders to an official trail system marketed worldwide that includes miles of well signed and mapped trails for a range of mountain bike skills. IMBA and bike industry leaders have taken notice, assisting with local trail building workshops and grants and bringing equipment testing/riding to the area, further marketing the Sedona "biking scene". Some local riders have fervently marketed the local trails to the dismay of other local riders who wish that the areas biking would remain low-key and unknown. The Forest Service has taken a proactive role in increasing the opportunities for mountain biking and recognizing this type of use as legitimate on area trails.

The red rock area is one of the best winter riding destinations in the West due to the mild climate and convenient trails. Bikers from Flagstaff, Fruita, Moab, and Durango frequent the area during their off-season. Another reason that riding is so popular can be tied to the convenient location of many trails/trailheads within minutes from the heart of Sedona and the Village of Oak Creek. The on-line trail training application known as STRAVA is used by some riders. This application may increase on-trail conflict between those timing their ride and other users who seek a more tranquil experience.

While the average demographic of a mountain biker is a young male, there are a substantial number of middle aged mountain bikers, male and female, who call Sedona and the VOC home and treasure the local riding.

Metaphysical/spiritual trail users: Metaphysical and spiritual trail users are an important population in Sedona. They seek a contemplative or spiritual experience in the outdoors and trails get them there. Sedona bills itself in some marketing venues as a tranquil landscape of spiritual power and healing. There are several vortex locations that attract international attention. Trails are used to access vortex locations near Bell and Cathedral Rock, Airport Mesa and Boynton Canyon. Trails are used by "healers" to access ceremonial sites. The trails themselves are part of a "walking meditation" done by some visitors. Many trail users, whether they are biking, hiking, riding, or sitting near a trail to experience the landscape, claim a spiritual aspect to their outdoor experience.

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Trail runners: Trail runners are a growing segment of the trail user and Sedona is gaining a reputation as a good trail running place. The Sedona Marathon, an event sponsored by the Sedona Chamber that takes place in late January each year, is typically sold out and growing in popularity each year.

Trail Conditions

A review of trail ratings on a commonly used trail map (Beartooth) shows 26% of the trail system is rated “Easy”; 45% is rated “Medium”; and 29% is rated “Strenuous”. Observations and interviews indicate that most trail users are seeking trails rated easy to moderate. Sedona area trails are rocky and have an inconsistent character that does not readily support easy or moderate trail use.

The ratings can be misleading. Local topography and soil conditions cause trails to be highly inconsistent in tread width, surface (soil or rock), and incline. It is typical of the local trail system to have easy segments of trail interspersed with strenuous segments on the same trail. This poses less of an issue to hikers and runners than to bikers seeking easy to moderate trail conditions. Many bikers seek a trail that “flows” with consistent character. Red Rock trails typically have an inconsistent character and can be frustrating and difficult for some novice to intermediate skilled bikers.

Several factors contribute to the trail maintenance challenges faced by today’s managers.

Poor alignment/design: Trail experts agree that the key to a sustainable trail and reduced maintenance is to place the trail on a proper alignment that avoids erosive soils. Many of the areas trails or segments of trails are former 4x4 motor vehicle tracks or utility line easements or user created trails adopted into the official system. These routes are, in general, not aligned with sustainability or recreation quality as a primary goal. They may have been adopted as trails because it was an expedient way to make a trail. Today we can see the result of this in the constant maintenance needs of trails such as Dawa, Jordan, Old Post, Deadman’s Pass, and Thunder Mountain. More recently built and adopted trails have been designed or substantially rerouted to ensure a sustainable trail alignment, for example Aerie, Chuckwagon, Mescal, and Easybreezy trails.

Predominance of erosive soils and intensive use: Red Rock Country is characterized by highly erosive soils. Without proper trail alignment these soils either wash away in monsoon rains or turn to powder and blow away, leaving trails cupped and gullied. Even with adequate drainage design, the extremely high use on some trails can pulverize trail tread, leaving it vulnerable to wind and rain, especially with lack of maintenance. Mt bike use, in general, will compact a trail surface, increasing bulk density such that the tread will tend to resist wind and water erosion. However, at steep “down the fall line” locations, in these erosive soils, novice riders tend to brake and skid, displacing soil and rutting the surface, creating conditions for tread damage. The combination of steep segments, the erosional soils and novice riders has created trail tread damage in numerous locations. This can be addressed with maintenance, reroutes and rock armoring.

Lack of regular and skilled maintenance: The Forest Service has no regular trail crew that maintains trails. Forest Service depends on volunteer trail maintenance work and on infrequent grant funded trail work. This “hit or miss” approach to maintenance has created a trail system that is poorly maintained,

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has a large backlog of light and heavy maintenance, and widely varying quality standards. Other challenges include unauthorized maintenance by untrained trail users, and users who remove rocks from the tread surface, thinking they are improving the tread.

Natural and Cultural Resources

Soils and Hydrology on the Red Rock District -

Forest Service is mandated to improve, protect and enhance natural resources on the watershed and the associated drainage systems. Forest Service uses the “Terrestrial Ecosystem” mapping method to determine landscape features of concern. The entire forest has been evaluated and mapped for these features. That takes into account slope, erosion hazard, condition rating, trail limitation rating and K value (soil erosion factor based on combined effects of soil properties influencing erosion rates). The Forest Service also uses the Revised Universal Soils Loss Equations (RUSLE) which considers estimated annual soils loss based on rainfall/runoff impact, soil erosion, slope factors, vegetation cover, and land practices impacts.

Important soil conditions exist on the Red Rock District such as desert pavement – the rocky rubble that sits on the surface of the ground and protects the soil from blowing or washing away. Most areas around Sedona and VOC have moderate to severe soil hazard ratings because of a high K factor, high amount of biological soil crust, high rainfall intensity, low vegetative cover, steep slopes, high usage and fragile desert pavement.

Related to the NEPA process, for any trail review or assessment there must be a determination if the action will accelerate erosion, if the soils can recover and replenish without undue struggle, and if the remaining soil crust can support the natural life forms (micro to macro). The resulting information is then paired with design criteria that can include recommendations to locate a trail on the contour, avoiding trails that run down the “fall line”, armoring steep segments with rock, avoiding any trail on steep slopes, and to ensuring proper drainage.

In addition to soil conditions, the Forest Service must comply with several water quality regulations including Section 319 of the Clean Water Act specific to nonpoint source pollution control, Executive Order No 11988 Floodplain management, PL 92-500 Federal Water Pollution Control Act, and Arizona Department of Water Quality Standards. Oak Creek is an Outstanding Arizona Water and has strict water quality anti-degradation standards tied to sedimentation.

To stay within compliance of various environmental regulations, the Forest Service employs recommended best management practices such as location, alignment, sustainable grades, attention to drainage, out sloping, designing to soil texture, minimizing soil displacement, preventing user-made trails, and good maintenance. Because there are such steep slopes on the RR District, the Forest Service uses rock armoring to stabilize slopes, as well as minimizing stream crossings by trails, elevating stream crossings, reducing cross country travel, closing and rehabilitating user-created trails, avoiding disturbance to biological soil crust which helps to hold the soils in place.

The Forest Service mission is to “sustain the health, diversity, and productivity of the Nation’s forests and grasslands to meet the needs of the present and future generations” When considering additional trails into the system, the Forest Service has to weigh sustainable use, available trails budget, very erosive landscape conditions and sediment flows downstream into Oak Creek. Given all these factors,

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the cumulative effect of trails on the system has to be considered, as does the question “how much is enough for the RR trails system?”

Archaeology on the Red Rock District -

The Red Rock District, and much of the Coconino Forest, is rich with artifacts of human presence, some dating back about 12,000 years to the Clovis culture and stone tools era. The Red Rock District especially, is home to cultural sites from the Early Sinagua village pit houses and pottery chards from about 0 - 900 AD, the Late Pueblo rock house period from about 1200 - 1425 AD, and more current Yavapai/Apache period from about 1200 AD to the present.

Archaeologists look for signs on the surface and just below the surface, but can be overlooked and disturbed by casual users. A proposed trail is reviewed for possible disturbance to a known site, and to consider how a trail drainage, for example, may impact a site downhill from the trail tread or carry away artifacts from the trail site through erosion. Without intending to, trail users can pick up artifacts from a site to bring home, crush artifacts or damage sites by disturbing a rock wall that does not appear to be important, or by gathering rock from around the area to help delineate the trail. Intentional looting of sites happens and is damaging and illegal.

Federal laws govern activity and protocols on federal land related to Native American sites and respect for Native American sovereignty. Yavapai and Apache tribal members still consider many sites and viewsheds on the Red Rock District sacred to their people and ancestors. Partnerships between the Forest Service and Native American tribes have been formed to reach agreements on how the federal mandates of multiple use can be fulfilled and Tribal beliefs and customs can be honored and protected. Some of the sacred sites are ceremonial gathering areas that can and have been impacted by trails and other uses.

For a proposed trail, a series of procedures, protocols and reporting are required, governed by the National Historic Preservation Act (NHPA), National Environmental Policy Act (NEPA), and prompts an archaeological analysis, including consultation with the Tribes involved. Final reports are submitted to the State Historic Preservation Office (SHPO). If all parties agree to the analysis findings, the proposed trail is submitted to the Forest Supervisor for approval of the archaeological clearance.

The Forest Service has a general map of extremely high to high site density areas that involves much of the greater Sedona area. Some areas are known to be sensitive but have not been surveyed for artifacts yet, other sensitive sites, such as the Schnebly Hill area, are currently being impacted by trails, especially social trails.

Archaeological surveys are expensive and conducted in response to a proposed action. Until a trail, or other disturbance activity, is proposed there is insufficient funding to do exploratory site survey work. Very little excavation is done purely for scientific purpose; it is mostly done for public good reasons such as infrastructure, recreation, or other necessary or desired activities. Otherwise it would be left alone, which is the preference of the Tribes – to have sacred sites be left to the natural process. The Wilderness areas on the Red Rock District are very dense artifact sites. One hundred percent of the surveyed illegally constructed trails on the District show impacts to archaeology sites.

Biology on the Red Rock District -

Most trails don't affect common species, however, the Red Rock District has an extraordinarily high number of sensitive plant and wildlife species and the amount of trail users on the District trails has

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resulted in patterns of impact and adverse effects. With any proposed trail, a biological analysis is conducted, of the threatened and endangered species, candidate species and indicator species, such as migratory birds. Design criteria are recommended to avoid or reduce impacts to biological resources (aquatic, invertebrates, avian, and plants communities) if the findings indicate an adverse effect from the action.

Aquatic habitats, also known as the riparian habitat, is less than 10% of the landscape and it supports more than 80% of the species on the Red Rock District. There are native fish in the system and twelve have special status. Fine, loose soils from land disturbance on upland areas (roads, parking, grazing, recreation, etc.) become embedded as sedimentation in the critical cobble spaces between the stream gravel that provide aeration, food and other contributors to the stream. This increases the incidence of flood events and the concentrations of ecoli and other pathogens. These spaces are also critical storage of nutrients to the whole food chain for Oak Creek, which has an Arizona outstanding stream status.

Invertebrates, such as snakes, eat and prey below the sedimentation level. Most snakes in this system are not poisonous, but are killed by visitors who fear that they are.

There are bald eagle sites along the Oak Creek stream bed on the District, as well as other avian nesters. Disturbance from trail use such as too much noise or human presence too close, for example, will cause a mating pair to abandon their nest (6 month nesting period), thus reducing that population. The Forest Service closes trails that are too close to bald eagle nesting sites during the nesting season. Black hawks also abandon nest sites because of disturbance. The Yellow-billed Cuckoo breeds in July in riparian areas and forages in adjacent mesquite bosques. Peregrine Falcons are upland species that nest high. Some of the Red Rock trails are at elevations that affect nests, especially when social trails are cut in those areas. Mexican Spotted Owls are typically in canyons and not usually disturbed by trails.

There are 18 bat species on the District, some are declining. Bats are sensitive to noise and other social disturbances. Research from 1972 and repeated in 1997, indicates that one species is gone, and some are missing from the research sites.

The Red Rock District is host to several sensitive plant species. Any proposed trail through a rare plant population area would be re-routed to avoid damage and impact to the vegetation. The new trail area will require monitoring for recreation impact over time, especially for signs of an outbreak of invasive species.

Specific studies have been conducted to measure impacts to streams from trails and other developments. For example, the Forest Service conducted riparian research after the Brins wildfire and found that fish populations moved away from areas where sediments built up, then came back after the system was flushed through from rains. Likewise, the Forest Service monitors impacts from new trails or other construction, or in the case of a social trail on a hill. There is always a slug of soil in the stream bottom that can be traced back. Sediments are accumulated from the whole watershed, especially where plant colonies are thin, trampled or strained. This is why it is critical to take a watershed-wide view of the system when considering new trail activity.

Information developed during the planning process

Appendix A TRAIL Impacts Literature Review

Appendix B – Trail Use Summary by User Type from Forest Service data

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Appendix C – Chamber Presentation, May 2013

Appendix D – Forest Plan Presentation, July 2013

Appendix E – Heritage Resources Supplemental Information

Appendix F – Red Rock Trail History Presentation

Appendix G – Heritage Resource Presentation

Appendix H – Watershed Resource Presentation

Appendix I – Wildlife Resource Presentation

Appendix J – Areas of Resource Concern Map

Appendix K – Forest Plan Management Areas Map

Appendix L – List of Trail Ideas from Map Exercise I

Appendix M – List of Trail Ideas from Map Exercise II

Appendix N – Trail Ideas Mapping Exercise Results

Appendix O – Trail Priorities Mapping Exercise Results

Appendix P – Visitor Center Trail Comment Summary

Appendix Q – Summary of Desired Enhancements

Appendix R – Trail User On-line Survey Results

Appendix S – Red Rock District Trail Program for 2014

Appendix T – Frequently Asked Questions about Red Rock Trails

Appendix U – Red Rock Trail List and Mileage

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