

# Trails & Urban Pathways Plan 1996



**Division of  
Parks and Recreation**

**CITY OF SEDONA  
ARIZONA**

Adopted by the Sedona City Council  
on March 26, 1996.



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## **ACKNOWLEDGMENTS**

## **GLOSSARY**



*This Urban Trails and Pathways Master Plan  
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# 1.0

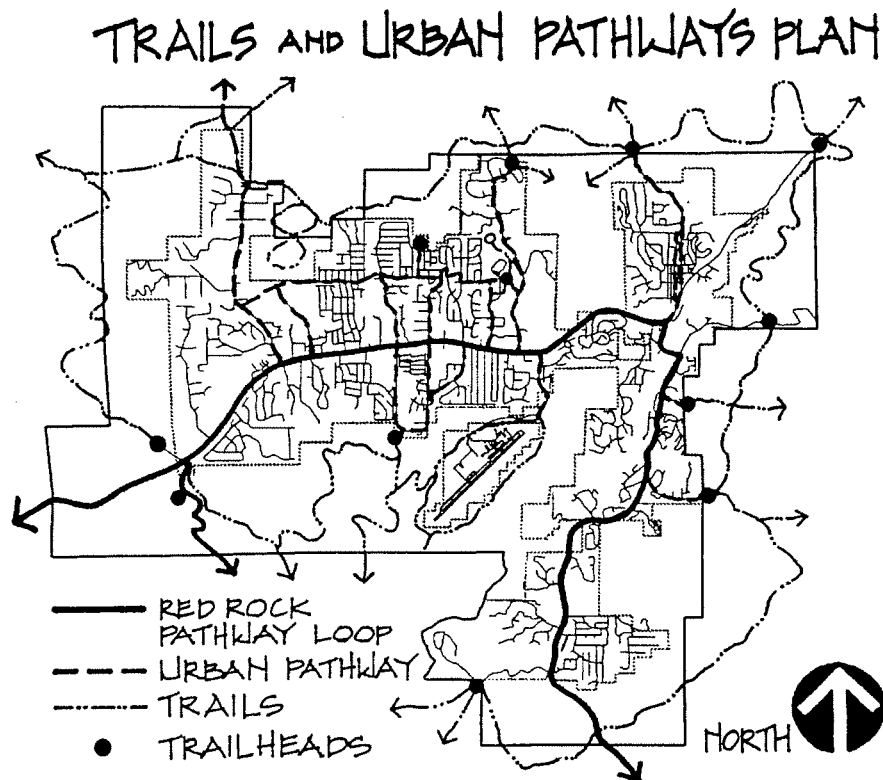
## EXECUTIVE SUMMARY



# 1.1 OVERVIEW

In 1991 the Sedona City Council adopted the Sedona Community Plan. The plan's Parks, Trails, and Non-Motorized Bikeways Element recommends that a system of pedestrian trails and non-motorized bikeways be developed in order to provide increased recreational opportunities and reduce the dependence on the automobile. Since 1991 the Parks & Recreation Department and Parks & Recreation Commission have been striving toward developing a Sedona Trails and Urban Pathways Plan in order to create an integrated system of trails and pathways for walking, hiking, equestrian use, and non-motorized mountain and road bicycling.

It is important to distinguish between the trails and urban pathways components of the proposed system. The proposed trails plan provides for direct access to and through Coconino National Forest Lands and encircles the City. The urban pathways component consists of planned bicycle and pedestrian routes that will help to move people through the City to commercial and public facilities. The trails system is primarily for recreational use while the urban pathways component is intended for both transportation and recreational uses.



## 1.2 ORGANIZATION

The primary goal of the Sedona Trails and Urban Pathways Plan is to provide a framework and guidelines that the City and other local agencies can use in constructing trails and pathways facilities for non-motorized modes of transportation and recreation in and around the City. In order to implement this Plan the City should designate appropriate staff to coordinate the building of trails and non-motorized bikeways with state, county, and federal agencies and non-profit organizations having an interest in trails and urban pathways development in the greater Sedona region.

## 1.3 URBAN PATHWAYS - BICYCLE AND PEDESTRIAN FACILITIES

Bicycling and walking are clean, efficient, and practical forms of transportation that promote personal health, reduce our dependency on oil, minimize automobile traffic congestion and contribute to improved air quality and quality of life in Sedona.

Implementing bicycle facilities and programs will place bicycle transportation on more equal ground with other modes of transportation and remove many of the hazards associated with pedestrian paths and bicycle use in Sedona today.

The urban pathways system, which will include bike and pedestrian paths, bike lanes and shared routes, should be maintained and expanded to provide safe and convenient access to destinations throughout the City.

The urban pathways system will provide continuity of routes throughout the City.

All new construction or reconstruction of city roadways must address the impact on bicycle and pedestrian accessibility, and the impact on the city-wide urban pathways network. Bicycle and pedestrian facilities should be developed, where appropriate, according to the design guidelines and alignments proposed in this plan.

The City will develop and use a consistent city-wide system of signs that include named or numbered routes, and destination and distance information.

Private as well as public facilities development should be encouraged to provide bicycle parking facilities. Frame-securing parking racks should be provided close to destination points.

Urban pathways should be maintained on a regular schedule in order to be kept clear of cinders, snow, debris, and vegetation. Surfaces should be maintained and repaired in an acceptable manner for safe use.

## 1.4 TRAILS

Trail corridors preserve open space, and while providing people with an array of outdoor recreation opportunities, serve to create refuges for wildlife and native plants. Trails shall be for non-motorized uses only. In most cases trails shall be used for multiple uses--hiking, equestrian, and mountain biking. Sedona has a great number of informal footpaths that are damaging soils and native vegetation. The trails component will strive to eliminate a number of informal paths in order to protect those natural resources while at the same time expanding the number of trails opportunities. While the majority of trails will be located in the Coconino National Forest, the City will initiate the development of both major and neighborhood trailheads strategically placed around the city in order to organize and direct ingress and egress.

Where appropriate, small pocket parks should be constructed in conjunction with trailheads to provide neighborhoods with a broader spectrum of recreational facilities.

The trails system will provide continuity of routes around the city and be linked with the urban pathways.

The City will develop and use a consistent city-wide system of signs, include named or numbered routes, and destination and distance information on all trails and at all major trailheads.

Trail surfaces must be maintained and repaired in an acceptable manner in order to provide safe and pleasurable experiences.

Trailheads are a major component of the total trail system. There are very few adequate trailheads in the Sedona area. The construction of trailheads with amenities such as parking with proper drainage, directional signage, vehicle barriers, and toilets should be given high priority.

All trails located on the Coconino National Forest must be approved in advance, by the District Ranger after environmental analysis according to the National Environmental Policy Act. Coordination must occur between the Coconino National Forest and the City to ensure that all proposed trails receive the proper clearances before construction takes place. Trails will be coordinated with the Sedona Ranger District's Five-Year Trail Plan.

Advocates of the Trails and Urban Pathways Plan should actively participate in the Sedona Red-Rock Ecosystem Management planning effort to assure the needs of the Trails and Urban Pathways Plan are met.

## 1.5 TRANSPORTATION

The absence of safe and convenient bicycle and pedestrian routes is obvious in Sedona. Building bicycle and pedestrian related improvements, policies, and programs into the transportation planning process will cause land use and transportation systems to grow in ways that expand the range of choices available. The use of existing potential corridors for bicycle and pedestrian facilities will do much to alleviate transportation pressures and provide our citizens and visitors safe routes to travel either on two wheels or on foot. The system should ultimately provide safe routes by providing residential areas with connections to all schools and other public, recreation, and commercial service centers.

## 1.6 RECREATION

The Trails and Urban Pathways system will be open for multi-use. Hikers, equestrians, and bicyclists must learn to co-exist on the system. The system should accommodate a variety of traditional as well as new and emerging recreational pursuits. The system's design should also provide accessibility and be free of barriers and obstructions in order to be usable by people with disabilities. Ultimately the system should provide linear connections to all public recreation areas and facilities in and around the City. Commercial hiking guides already use many of the trails in the Sedona area to show visitors the National Forest.

## 1.7 ADVOCACY

Promoting trails and pathways related activities must be on-going. Bicycle commuting should be encouraged. The City should promote bike-to-work and bike-to-school days as well as other related events. Additionally, both the City and Forest Service (USFS), and Arizona State Parks should develop and promote brochures which will include local and federal laws, registration information for bicycles, Wilderness information, minimum-impact information, a map of routes and trails, events, techniques for safe hiking, equestrian use, bicycling, and a list of local organizations dedicated to the implementation, maintenance, and use of trails and pathways.

## 1.8 EDUCATION

A comprehensive education program must be developed focusing on both adult and child populations. This program should include special events, bicycle registration, publications, traffic classes, and coordination with various groups such as schools, the Chamber of Commerce, Sedona Business Association, and the Red Rock Pathways.

The City, USFS, and Arizona State Parks should work together to provide the following information and services:

- Bicycle safety classes as an alternative to fines for bicycle traffic violations
- Bicycle and pedestrian safety information materials to the public
- Promoting the use of helmets for bicyclists.
- Education to trail users regarding safety, low-impact use, etiquette, and consideration of other users.

## 1.9 ENFORCEMENT

Unsafe and illegal acts on trails and pathways ruin the users' experiences and can intimidate others from using them. Trails and pathways rules and regulations will be effective only if they are enforced. Both the City and USFS must develop programs to enforce established rules and regulations. As the system grows both agencies should expand their staffs to provide patrol and enforcement efforts. Programs such as bike and trails patrols should be considered. Signing is the key to good enforcement. Trailhead entry points with attractive sign and poster kiosks should be constructed in heavy-use areas.

## 1.10 REGISTRATION

Many cities implement a bicycle registration program in which vendors are required to register a bicycle upon sale. The buyer pays a nominal fee to have the bicycle registered and in turn it is registered with the Police Department. A registration program is useful in cases where a stolen bicycle's owner can be identified. Some communities use the registration fee to subsidize bicycle education programs. Registration could be an attractive feature if offered as a security service with fees commensurate with the benefit.

## 1.11 IMPLEMENTATION

Trails and pathways funding should be provided through the City's General Fund. Additional sources of funding should be sought from local trails and pathways groups. The USFS should also provide funding for trail and trailhead planning, construction, reconstruction and maintenance.

Grants and outside funding sources should be sought for facility and program development. Funding sources will be more evident if the roles and responsibilities of governmental entities are defined and agreed upon.

Right-of-way projects should be evaluated for inclusion of trail and bikeway opportunities.

All proposed City projects and State Heritage Fund applications should be evaluated for inclusion of trails and pathways objectives.

The "Friends of the Forest" trails committee of the Coconino National Forest can assist with volunteer recruiting, labor, technical expertise, and signage.

The plan does not reflect the specific roles and responsibilities of each governmental entity. As each segment of the Trails and Urban Pathways Plan is brought forward for implementation, these roles and responsibilities will be defined.



# 2.0

## INTRODUCTION



## 2.1 TASK TEAM

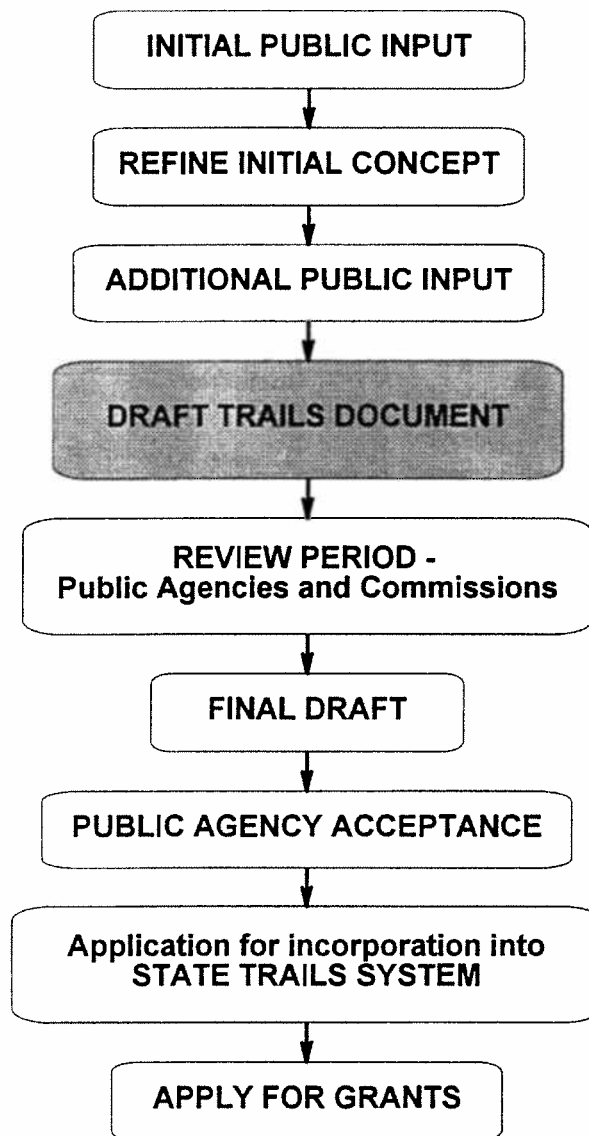
In November of 1993 the City initiated and formed a task team to organize the trails and urban pathways planning process. Staff from the City, U.S. Forest Service, Arizona Game and Fish Department, Arizona State Parks, and a member of the Parks & Recreation Commission met several times to review proposed route corridors, identify issues, establish planning goals, and provide feedback to the City's Parks & Recreation Director who served as the project manager.

From 1990 through 1994 a tremendous amount of time was spent on assessing and mapping trails. City Parks & Recreation Commissioner Norm Herkenham walked and mapped over 26 miles of trails running through and around Sedona. City staff spent many hours identifying potential bicycle and pedestrian routes throughout the City for possible inclusion in the pathways element of the plan.

Based on feedback from the task team, the project manager and City staff developed a conceptual trails and urban pathways map. The map depicted a number of possibilities for both trails and pathways.

The current stage of the development of the Trails & Urban Pathways Plan is highlighted in the flow chart below. The next phase will consist of a review period by public agencies and commissions via meetings and public hearings.

## TRAILS AND URBAN PATHWAYS PLAN Planning Process Flow Chart



## 2.2 ISSUE IDENTIFICATION

Upon reviewing the conceptual map, the team developed a comprehensive list of major issues including the need for recreational opportunities, homeowner privacy, safety, private property rights, environmental damage, cost, open range, funding, fire, law enforcement, and trails and pathways design. These issues provided some guidance in narrowing down the possibilities of choices among a great number of possible trails and pathways corridors.

## 2.3 PUBLIC INPUT

Between March and September of 1994 three open houses were held for citizens to review and comment on the conceptual map and to raise any issues and concerns they had with the proposed plan. Copies of the conceptual trails and urban pathways plan map were posted at the public library, Sedona Ranger Station, Sedona City Hall, and the Parks and Recreation Department for the public to review and comment on prior to the open houses.

While most of those attending the open houses strongly supported the creation of a trails and urban pathways system for Sedona, some were opposed to any routes coming through or near their properties. The predominant concerns raised by those attending the meetings had to do with private property rights, privacy, and a sense of safety in their homes. Two groups attending the meetings represented home owners along private roads and strongly objected to any trail or pathway alignment coming near their properties. Based on their objections and after a more careful analysis of the proposed routes and their importance to the overall system, three proposed alignments in question were removed from the conceptual map.

Opposition to routes near residences will be a significant issue if not addressed early. The City and enthusiasts of this plan should work with potential opponents to seek their support and make routing adjustments where possible.

## 2.4 COMMUNITY NEEDS

The Sedona Community Plan discusses a number of reasons why the City needs to develop a trails and urban pathways system. The Transportation and Parks, Trails, and Non-Motorized Bikeways elements of the Plan indicate a framework in which to eventually develop a system of interconnected routes throughout the city.

In 1993 the City commissioned a mail survey of Sedona residents to assess what they desired the City to develop in the way of parks, trails, non-motorized bikeways and recreation facilities. Respondents indicated that walking, jogging, hiking, and road cycling were among the top ten activities they would participate in more if additional facilities were made available. Among the top six facilities residents prioritized as needed in Sedona were pedestrian and bicycle paths, hiking and nature trails, and trailheads leading into the Coconino National Forest. When asked to rate on a five-point scale the relative importance of various trail/pathway proposals, residents indicated the following priorities listed in order:

- Develop pathways linking residences with schools and recreational areas
- Develop pathways linking residences with other residential areas
- Develop pathways linking residences with commercial areas
- Develop a continuous trail system encircling Sedona
- Develop more formal trailheads leading into the Coconino National Forest
- Provide more equestrian trail use opportunities

According to a 1994 study conducted by the U.S.D.A. Forest Service and the University of Georgia, walking for pleasure ranks highest among all recreation activities on the National Forest. Additional State and regional planning indicate the growing interest in trail and pathway related activities. The Arizona State Parks 1994 State Comprehensive Outdoor Recreation Plan indicates strong support state-wide for the development of multiple-use trails. The Verde Valley Transportation Plan conducted in 1993 shows a regional bicycle network connecting Sedona to the rest of the Verde Valley's communities.

Upon completion of the Sedona Community Plan, the City Parks & Recreation Commission decided additional information was needed from Sedona citizens before formal recommendations could be made to the City Council regarding priorities for trails and non-motorized bikeways.

Finally, the much publicized Red Rock Pathways Plan, which calls for 55 miles of bicycle and pedestrian routes around the greater Sedona region, has received support from the U.S. Forest Service, the State of Arizona, Yavapai and Coconino Counties, the City of Sedona, and the Village of Oak Creek Association.

## 2.5 GOALS OF TRAILS AND URBAN PATHWAYS

- Improve safety and convenience for bicyclists and pedestrians in Sedona.
- Promote public awareness and recognition of walking and cycling opportunities.
- Provide ease of movement, clarity of route, and safety for auto, bicycle, pedestrian, and equestrian modes of transportation and recreation.
- To minimize the number of trips made by automobile, make Sedona safe, pleasant, and convenient for bicyclists and pedestrians.
- Establish a safe and predictable system of pedestrian and bicycle routes throughout the City to serve as a secondary transportation system and for recreational purposes.
- Connect neighborhoods with schools, parks, commercial centers and outlying USFS lands with bicycle and pedestrian paths.
- Protect the livability of the community by assuring that other activities do not become subordinate to automobile transportation.
- Promote safe and convenient access to shopping, schools, and other services from residential areas by providing pedestrian and bicycle paths.
- Provide and expand safe and environmentally sensitive opportunities for hiking and equestrian activities.
- Provide complimentary facilities (e.g. restrooms, bike racks, trash containers, drinking water, signs, etc.) to accommodate the needs of trails users.





# 3.0

## EXISTING CONDITIONS



## 3.1 EXISTING FACILITIES AND POLICIES

### 3.1.1 EXISTING TRAILS AND TRAILHEADS

There are a great number of informal trails and trailheads within Sedona. For many residents, it is easy to access the Coconino National Forest from their homes. Over the years, residents have created their own networks of foot and mountain bike paths leading through Sedona and onto the National Forest. While well-intentioned, these informal uses have damaged soil and vegetation, and have led to considerable erosion in some areas. Damage to natural resources is a major concern of the USFS.



Typical soil erosion found at the City - National Forest Service interface.  
A detailed map of existing conditions can be found on the *Existing Conditions Map* located in the back cover of this report.

Only two formal trail access points within the Sedona city limits are provided and maintained by the USFS:

**Soldier Wash Trailhead** is located north of Highway 89A at the end of Canyon Shadows Drive in West Sedona. The trailhead has parking, trail information, and garbage facilities. The trailhead provides jeep and hiking access onto the Coconino National Forest, and is heavily used. In 1995, the USFS, with the help of Friends of the Forest and others, built another trail leading out of the trailhead in order to separate motorized from non-motorized uses. Because of high use, the trailhead is in need of redevelopment.

**Airport Saddle Trailhead** is located on Airport Road. The trailhead was constructed by the City during re-construction of the Airport Road. Vehicle barriers were constructed by the USFS to prevent 4x4 off-road vehicles from accessing the Saddle. The heavily used trailhead is used by the New Age community and visitors in order to reach the Saddle and two small knobs. Damage to soil and vegetation is a major problem in the area. This trailhead is also an important gateway for the proposed trail around Airport Mesa. A kiosk is needed with directional signing and minimum impact information.

Three other USFS-maintained trailheads are located close to City boundaries but outside:

**Midgley Bridge Trailhead** is near the east end of the bridge, about 500 feet from the northeast corner of the City. One of the trails originating here is a USFS system trail to Wilson Mountain. Another route is the old predecessor to Highway 89A which the USFS plans to upgrade for all trail users. This will become a USFS system trail (see Brins Mesa trailhead below).

**Morgan Road Trailhead** is located half a mile east of State Route 179. The trailhead is used primarily to provide access to the popular Chicken Point. This access point is heavily used by hikers, jeeps, and mountain bicyclists. The USFS recently constructed an alternate trail to separate jeeps from other trails users. Inadequate parking is a major problem in this area. Residents near the trailhead complain of noise, excessive traffic, and litter from trail users. Trailhead redevelopment is needed.

**Back-O-Beyond Trailhead** is located on a bend in the road bearing the same name where it briefly leaves City limits before re-entering. This parking facility is about two-thirds of a mile west of State Route 179. The trailhead is popular with hikers to the Cathedral Rocks and vicinity.

**Brins Mesa Trailhead** will be developed at the end of Jordan Road on Forest Road 633, probably just outside City boundaries. It is currently located at the gate of the Sedona Sportsmen's Skeet and Trap Shooting range. This is a very important access to not only the Brins Mesa Trail but also the Wilson Mountain Trail. A new access is being approved by the USFS for the Wilson Mountain Trail #10 using the old road that follows the Wilderness boundary along the base of Steamboat Rock. Hikers and mountain bikes use the route between this trailhead and the Midgley Bridge. This will also provide an important horse access for the Wilson Mountain Trail. A trailhead for horses will be constructed by the USFS during fiscal year 1995-96. There is heavy use by hikers, joggers, and walkers on these trails. The USFS is concerned that the Jordan Park subdivision will block access to this important trailhead. Concerns at this trailhead include the need for directional, Wilderness, and minimum-impact signing, the need for one or more kiosks, the proliferation of trails, and the relocation of the shooting range. Adequate space needs to be provided for horse trailers to turn around and old rotten vehicle barriers need to be replaced. A restroom would also be a welcome addition for visitors to this site.

Another trailhead receiving considerable use, lying just inside City limits and not maintained by the USFS, is on **Sombart Lane** about 1000 feet east of State Route 179. It provides access to the Munds Mountain Wilderness by way of the broad basin popularly known as Marg's Stable. The trailhead lies on private land and needs to be secured by acquisition of at least an easement. Planned private development near this access point will create additional pressure on the trailhead, which will require redevelopment to mitigate conflicts between users and land owners.

There are no formal USFS system trails in Sedona other than the very short corridor leading from the Soldier Wash Trailhead.

In 1990 the City of Sedona was granted an equestrian trail easement by the North Slopes subdivision. The easement is located on the west side of Dry Creek Road 1.6 miles north of Highway 89A and provides continued access to the National Forest for many of the horse owners residing off of Dry Creek Road.

### **3.1.2 EXISTING URBAN PATHWAYS**

The City currently has no organized system of bicycle and pedestrian routes within its boundaries. A sidewalk on Highway 89A provides the only pedestrian link between Uptown and West Sedona. Another sidewalk connects the sidewalk on Highway 89A with West Sedona School by running along Posse Grounds Road and through the Posse Grounds Community Park.

The absence of an organized and well-marked network of pedestrian and bicycle pathways has led to a number of dangerous situations pitting pedestrians and bicyclists against each other on narrow sidewalks. Numerous cross-streets, driveways, and vehicular turning movements present problems along Highway 89A for non-motorized travelers. The absence of continuous sidewalks in the Uptown area creates a less-than-ideal situation for pedestrians. Bicyclists traveling on the two highways do not have adequate room to share with automobiles. Without alternatives, pedestrians and bicyclists are often forced to choose other forms of transportation.

## **3.2 POLICIES, LAWS AND REGULATIONS**

Currently, the City has no policies to guide the development and administration of a comprehensive trails and urban pathways system. Once adopted, this plan will provide the City with a mechanism to create its own policies, laws, and regulations.

# 4.0

## URBAN PATHWAYS





## 4.1 PROPOSED SYSTEMS AND PROGRAMS

The Urban Pathways System will consist of a network of bicycle and pedestrian routes located to achieve the following objectives:

- Linking residences with schools and recreational areas and facilities
- Linking residences with other residential areas
- Linking residences with commercial areas
- Enhancing the convenience and appeal of bicycling and walking
- Improving bicyclist and pedestrian safety
- Increasing recreational opportunities for bicyclists, walkers, joggers and skaters
- Providing continuation of the Red Rock Pathways corridor
- Implementing the Verde Valley Regional Transportation Study

## 4.2 RECOMMENDATIONS

### 4.2.1 ORGANIZATIONAL RECOMMENDATIONS

The City should provide continuing attention to bicycle and pedestrian route issues and concerns. The City should establish a permanent standing Trails & Urban Pathways Committee and assign a City employee to carry on the work recommended in this plan. The Committee and staff member's job should include:

- Advocate bicycling and walking as legitimate forms of transportation and recreation.
- Act as liaison with the Community Development Department, Engineering Department, Parks & Recreation Department, schools, bicycle shops, volunteer organizations and citizens interested in bicycle and pedestrian issues.
- Work with the Community Development Department to insure urban pathways are designed and installed according to adopted City plans and standards for both public and private development projects.

- Work with City Engineering and Community Development staff, ADOT and others to ensure that maintenance and hazard reporting are properly addressed.
- Develop adult and children's education programs focusing on bicycle safety. Also encourage the involvement of local service organizations and clubs, businesses, and school organizations in implementing the programs.
- Write grant proposals for a variety of urban pathways related facilities and programs, along with searching for other sources of outside funding for urban pathways advocacy and safety programs.
- Oversee and provide direction for urban pathways program expenditures.
- Encourage the Trails & Urban Pathways Committee to organize and advertise a variety of bicycle related events throughout the City to promote greater use and safe operation of bicycles.
- Develop and distribute a detailed trails and urban pathways map. Seek financial assistance from local businesses to underwrite the costs.
- Work with the Police and Public Works Departments to recommend policies, laws, and regulations to manage the use of urban pathways in Sedona.

#### 4.2.2 URBAN PATHWAYS FACILITIES RECOMMENDATIONS

The Sedona Community Plan recommends the City develop a circulation system that provides a safer and more friendly environment for bicyclists and pedestrians.

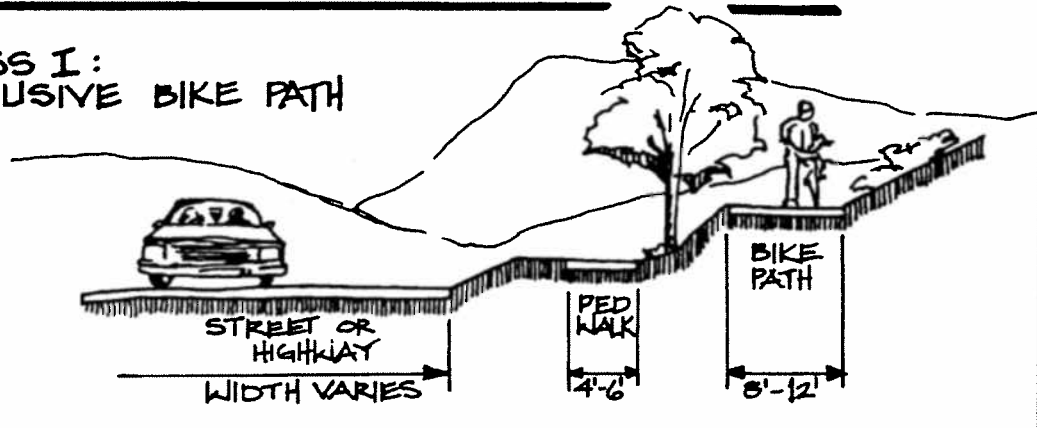
A well-designed system will reduce the incidence of bicycle related accidents, encourage bicycling and walking as a means of transportation and recreation, contribute to energy conservation and better air quality, and enhance the quality of life in Sedona. As an urban amenity, the system will provide an incentive to promote bicycle and pedestrian-related tourism.

Several different types of routes are recommended, some solely for use by bicyclists, some by pedestrians, and others jointly. Below are definitions of the different pathways classifications adopted from: *Manual on Uniform Traffic Control Devices*, 1988 Edition.

- **Bikeway** - Any road, street, path, or way which in some manner is designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

# BICYCLE PATH DESIGN STANDARDS

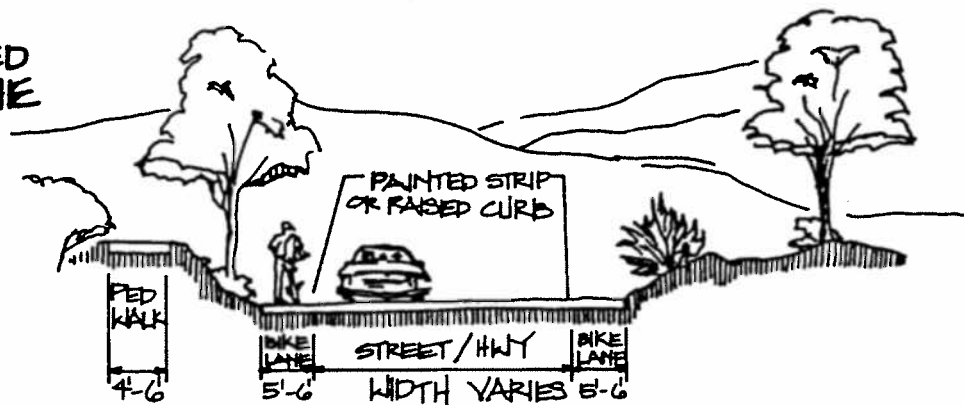
## CLASS I: EXCLUSIVE BIKE PATH



Class I Exclusive Bike Path

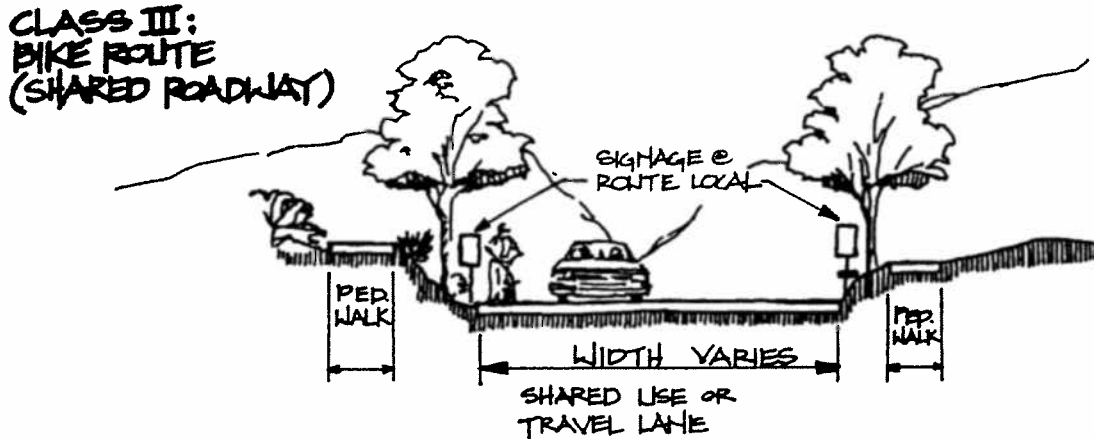
- CLASS I (Bicycles/Pedestrian Trail or Path)** - A separate trail or path from which motor vehicles are prohibited and which is for the exclusive use of bicycles or the shared use of bicycles and pedestrians. Where such trail or path forms a part of a highway, it is separated from the roadway and vehicular traffic by an open space barrier.

## CLASS II: DELINEATED BIKE LANE



Class II Delineated Bike Lane

- CLASS II (Delineated Bicycles Lane)** - A portion of a roadway or shoulder which has been delineated for use by bicyclists. It is distinguished from the portion of the roadway for motor vehicle travel by a paint stripe, curb, or other similar device.



### Class III Bike Route (Shared Roadway)

- **CLASS III (Shared Roadway)** - A roadway which is officially designated and marked as a bicycle route, but which is open to motor vehicle travel and upon which no bicycle lane is designated.
- **Bicycle Route** - A system of bikeways designated by appropriate route markers and by the jurisdiction having authority.

### 4.2.3 GENERAL RECOMMENDATIONS

- Bicycles are a legitimate mode of transportation and should be allowed on all streets in Sedona. Bicyclists should be allowed to use the most convenient routes including all public streets unless there is an adjacent designated trail or path.
- The City should encourage new public and private development to incorporate bicycle and pedestrian facilities into construction plans where they are specifically identified in this document and other community development plans.
- The City should establish and support education, safety, enforcement and advocacy programs as necessary components of the urban pathways plan.
- The City should adopt the urban pathways system described in this plan and accompanying maps as the long-range urban pathways plan for Sedona. Implementation of the plan will require a coordinated commitment for the establishment of an ongoing permanent program for the development and maintenance of bicycle and pedestrian facilities in Sedona.
- The City should ensure that all City improvements incorporate the development of bicycling and pedestrian facilities. The City should support and encourage the State and other agencies to provide bicycling and pedestrian facilities.

## 4.2.4 SPECIFIC RECOMMENDATIONS

Completion of the urban pathways system will provide a safe environment for bicyclists and pedestrians for transportation and recreation. The plan intends to place bicycle transportation on more equal ground with motor vehicles while providing convenience and function for pedestrians.

The following specific recommendations should not be considered as a prioritized list. Scheduling of urban pathways projects should be flexible so as to allow coordination with related public and private development.

☞ A detailed illustration of the proposed routes can be found on the Trails and Urban Pathways Plan Map located in the front pocket of this report's cover.

### 1. RED ROCK PATHWAYS - MAIN PATHWAYS LOOP

Red Rock Pathways is a Kiwanis International sponsored project that has received support from the U.S. Forest Service, State of Arizona, Yavapai and Coconino Counties, and the City of Sedona. The heart of the Red Rock Pathways vision is a central thirty-mile loop connecting the City of Sedona via Highway 89A to the Red Rock State Park, and then on via Verde Valley School Road to the Village of Oak Creek. From the Village, the loop parallels Highway 179 back into Sedona and Highway 89A at the "Y".

The City's Urban Pathways Plan incorporates the Red Rock Pathways Plan via the following segments:

- a. **Chapel to the "Y" Section:** The path follows Highway 179 right-of-way from the City's southern incorporated boundaries to Highway 89A. Wherever possible, it will be separated from the roadway. In some cases, it will be necessary to join the highway as a striped bike lane on each side.

In order to move bicycle traffic off Highway 179, Justin Circle, Badger Drive, Bell Rock Drive, Susan Way, and Acacia Drive, all public streets should be designated as shared roadways. Further design of this route must be coordinated with ADOT planning for Highway 179 and future UpTown/Oak Creek Area specific plans.

- b. **Highway 89A through West Sedona:** The route follows the highway either as a striped bike lane or as an expanded, separate pedestrian/bicycle path. This will be used as a major commuting route, allowing easy access to businesses and shopping along Highway 89A. Further design should be coordinated with the next phase of the West Sedona Corridor Specific Area Plan.

- c. **High School to Lower Red Rock Loop Road:** This segment leaves Highway 89A at the Upper Red Rock Loop Road intersection and follows the right-of-way in front of the high school on the south side of the roadway. It travels along the north side of Schuerman Mountain on an old road alignment above 89A. Two alternate connections to Lower Red Rock Loop Road are currently being assessed by the USFS: one, a ramp down the last few hundred yards in the right-of-way to the intersection, and the other follows a rock bench leading away from the intersection and then winds down to the Lower Red Rock Loop Road. This section will require City, USFS, and Yavapai County coordination for further refinement and implementation.
- d. **High School to Upper Red Rock Loop Road:** This segment travels south from the highway intersection and should be developed as striped bicycle lanes on both sides of the Upper Red Rock Loop Road. The Arizona State Parks Department and ADOT are conducting a study of this roadway and considering roadway alignment and improvement options. The City has made its recommendations to accommodate bicycles along this route.

## 2. ALTERNATIVES TO HIGHWAY 89A

The absence of an alternate east-west route forces bicyclists and pedestrians to use Highway 89A as the main route for travel through West Sedona. Many conflicts occur between bicyclists, pedestrians, and motorists along the highway right-of-way. In order to avoid the dangers of riding on the highway, many bicyclists ride on the narrow sidewalks intended for the exclusive use of pedestrians. Increasing highway traffic, the number of driveways along the roadway, and the need for frequent left-turn movements by motorists add to the tensions between motorists, pedestrians, and bicyclists.

- a. **High School to Library:** This route, whether or not incorporated with any future road or constructed as a separate pedestrian/bicycle path, should be located north of the highway. This corridor will also provide access to the Sedona Cultural Park and the Medical Center and provide students and other users alternatives to the highway. A signalled Compactor Road/highway intersection and planned pedestrian overpass will complement this route.
- b. **Dry Creek Road to Coffee Pot Drive:** This route requires extension of Thunder Mountain Road to Dry Creek Road. Additional route development along the Sanborn Road corridor will need to be accomplished in order to accommodate multiple uses.
- c. **Coffee Pot Drive to Soldier Pass Road:** This route creates a vital linkage to the Posse Grounds Park and West Sedona School. The route will also require the acquisition of land through purchase or easement to connect Coffee Pot Drive with Mountain Shadows Drive, and Zane Grey Street with the Posse Grounds Park. Additional development will need to occur in the park in order to create a multiple-use route to Soldier Pass Road.

- d. **Soldier Pass Road to the "Y":** This segment provides an important link between Uptown and West Sedona. Sections of Soldier Pass Road along the park boundaries should be developed for pedestrian and bicycle use. A corridor through the Best Western Motel grounds near the Soldier Pass and highway intersection should be designated for pedestrian and bicycle use. Since a sidewalk exists in the highway right-of-way, a bicycle-only corridor should be developed between the motel and the "Y".

### 3. HIGHWAY 89A CONNECTIONS

A major component of this plan is connecting residential areas with commercial areas. Because of Sedona's pattern of commercial development along the highway, it is necessary to create a means in which pedestrians and bicyclists can also safely and more conveniently access these areas.

☞ Recommended routes are illustrated on the Trails and Urban Pathways Plan Map located in the front pocket of this report's cover.

- a. **Dry Creek Road:** While not currently designated as a bike route, Dry Creek Road is a popular roadway for bicyclists. Because motor vehicle traffic will continue to increase, it is important to develop Class II designated bike lanes and sidewalks along this road.
- b. **Thunder Mountain Road-Navajo Drive-Southwest Drive:** Private development off thunder Mountain Road will create increased pressures for a more direct linkage to the highway. A Class III shared roadway, with sidewalks, is recommended along this route.
- c. **Sanborn-Andante Street:** Because of the narrowness of this corridor, it is recommended that with any future road realignment, a sidewalk be constructed on one side or the other and that bicyclists be discouraged from traveling this route.
- d. **Sanborn-Rodeo Road - Rodeo Road Extension:** This route should be designated for both pedestrian and bicycle use. It is recommended that a Class III shared roadway and sidewalks be constructed in conjunction with any private development occurring along this section.
- e. **Sanborn-Coffee Pot Drive:** While heavily traveled by motorists, pedestrians and bicyclists do not currently have room to safely share the roadway. Future road improvements should include Class II designated bike lanes and sidewalks.

- f. **Soldier Pass Road:** Increasing residential development in the area will produce a much higher volume of motor vehicle traffic. Ideally, this route should be developed as a Class I bicycle/pedestrian path.
- g. **Shelby Drive:** High-density residential development in this area will dramatically increase motor vehicle traffic on the roadway. It is recommended that Class II designated bike lanes with sidewalks be developed along this route.
- h. **Sunset Drive:** A Class III shared roadway and sidewalk is recommended for this route.
- i. **Northview Road:** A Class III shared roadway and sidewalk is recommended for this route.
- j. **Airport Road-Saddle Back Parking Area:** Pedestrian traffic is not recommended on this route. This plan recommends Class II designated bike lanes along this route.
- k. **Jordan Road Corridor:** Two routes are recommended for this area. For pedestrians one sidewalk should run the distance between the highway intersection and parking entrance to Jordan Park. A Class III shared roadway should be signed on Van Deren Road between Forest Road and Navahopi Road. The type III shared roadway should then continue on both sides of Navahopi Road and Jordan Road to a planned USFS trailhead located at the end of Jordan Road.

## 4.3 DESIGN GUIDELINES

It is recommended that the City require all future pedestrian and bicycle facilities be constructed in accordance with the following general engineering guidelines:

- City of Sedona engineering and construction standards and specifications
- Maricopa Association of Governments Uniform Standard Specifications for Public Works Construction (MAG Specs) and Maricopa Association of Governments Uniform Standard Details for Public Works Construction (MAG Details)
- City of Sedona Addenda to the MAG Specifications and Details

The Arizona Bicycle Task Force published the Arizona Bicycle Facilities Planning & Design Guidelines (1988) which sets standards for bicycle facilities construction in Arizona. This is an excellent reference for bicycle facilities and should be adopted by the City.



### 4.3.1 SPECIFIC DESIGN GUIDELINES

In addition to general engineering guidelines, this plan recommends the following:

- All new construction of City roadways, and improvements to existing roadways, should address bicycle and pedestrian accessibility. Bicycle and pedestrian facilities should be included where appropriate, according to design guidelines.
- On new roadways where traffic speeds are expected to exceed 35 miles per hour, separate bike paths may be safer and more appropriate than on-street lanes. Design guidelines and location criteria (i.e. adequate right-of-way width, traffic volume, intersection and driveway conflicts) should be considered on high-speed streets.
- Construct bike lanes with directional arrows, diamond symbols, and/or words "Bike Lane" painted on the pavement surface. This technique alerts motorists that they are sharing the road with bicyclists. All bike lanes should receive this treatment and be incorporated into the City's traffic engineering standards.
- The installation of an 8-inch to 12-inch "rumble strip" of corrugated pavement along the stripe separating the traffic lane from the bike lane should also be incorporated into the City's traffic engineering standards. The strip alerts motorists and cyclists not to travel in the wrong lane.

### 4.3.2 SIGNAGE AND TRAFFIC SIGNALS

A consistent system of signage for urban pathways needs to be adhered to. Used to direct, inform, and warn of hazards, signs are an important component of a properly functioning pathways system.

All routes should have signs positioned frequently enough to enable pedestrians and bicyclists to determine whether or not they are on a bicycle route. Continuous routes should be named or otherwise designated for easy identification by cyclists.

Triggering mechanisms should be provided for pedestrians and bicyclists at all signaled intersections. If activation buttons are used, they should be easily accessible to bicyclists. If the pedestrian signal activator button is not readily accessible, a separate one should be provided for bicyclists. The location of the signal activator for bicyclists should be oriented for use from the on-street bicycle lane or route.

## RECOMMENDATIONS

- Develop and implement a consistent Citywide system of signs. Utilize the standards set forth by MUTCD, AASHTO, ADOT, ABTF, and City of Sedona Engineering Standards.
- Continuous routes should be named or numbered so that users can easily identify the route they need to reach a destination.
- Signs indicating destinations and major features should show direction and distance.
- Bike lanes and paved paths should use a consistent system of painted surface markings, such as diamond symbols, arrows, and the words "Bike Lane."
- At intersections where the traffic signal must be triggered, provide adequate mechanisms for bicyclists. Activator buttons should be located for easy access from bicycle lanes and routes.

### 4.3.3 BICYCLE PARKING

The availability of secure parking facilities close to destination points is an important feature of the urban pathways system. Location, convenience, security, availability, and demand are all factors to be considered in choosing sites for these support facilities.

## RECOMMENDATIONS

- Bicycle parking should be provided close to destination points, such as schools, public facilities, future transit stops, employment centers, and commercial areas.
- Bicycle parking facilities should be provided in convenient, visible, and secure locations.
- Frame-securing racks, rather than wheel-mounting racks, should be used.
- The City should encourage and provide incentives to develop bicycle parking in commercial developments in addition to required automobile parking.

#### 4.3.4 SURFACE MATERIALS

Around the country, multi-purpose off-road pathways are constructed from many different varieties of materials. The key to constructing a good surface for multiple uses is to provide a high quality of sub-grade and sub-base for the path. The City should prepare its pathways construction specifications standards to ensure that sub-grade, sub-base, drainage, and construction materials meet the demands of the intended uses of each off-road pathway.

There are many surface types available to construct pathways, including granular stone, asphalt, concrete, soil cement, wood chips, and natural surfaces. Surface materials are either soft or hard, defined by the material's ability to absorb or repel moisture. Hard surfaces include soil cement, crushed stone, asphalt, and concrete. Soft surfaces include natural earth, and wood chips.

Hard-surfaced materials are more practical for multiple-use pathways. They are more expensive to purchase and install but require less maintenance and can withstand frequent use. Hard surfaces also accommodate the widest range of pathways uses. The following is a description of hard surfaces, ranging from softest to hardest: (construction costs are based on material and labor costs as of March 1995)

- **Soil Cement** will support most user groups; however, bicyclists will have the greatest impact on the surface. Soil cement costs approximately \$55,000 per mile for a ten-foot-wide trail. The material requires a high level of maintenance.
- **Granular stone** is a popular surface for trails because it accommodates a wide variety of trail users and can be compacted into a firm surface. A variety of stones can be chosen, including limestone, sandstone, and granite. This surface is compatible with the natural environment and complements the aesthetic appeal of surrounding landscapes. It costs approximately \$75,000 per mile to construct a ten-foot-wide granular stone pathway. Maintenance is minimal, although spot repairs and grading are necessary, and stone replenishment is required every five to seven years.

Coconino County and the City of Flagstaff have been experimenting with different mixtures of stones supplemented with binding polymers. The City should monitor the success of these materials and consult with the two agencies when considering construction materials.

- **Asphaltic Concrete** is a very popular surface used in a variety of trails and pathways settings. It works particularly well on pathways used for bicycling or in-line skating. Asphalt is more expensive than granular stone, approximately \$125,000 per mile for a ten-foot-wide route. It requires minor maintenance, such as crack patching, and has a life expectancy of seven to fifteen years.

### 4.3.5 MAINTENANCE

Maintenance is essential for safe and enjoyable riding and walking. Urban pathways need to be free from cinders and debris and maintained at an acceptable standard.

#### RECOMMENDATIONS

- The City should regularly inspect urban pathways in accordance with a maintenance management plan and make repairs as necessary.
- Snow should be removed from on-street bicycle facilities at the same time as snow removal for automobiles.
- Cinders associated with snow maintenance should be removed from urban pathways as soon as possible.
- Urban pathways should be maintained free of litter and debris.
- Tree branches should be trimmed away from the pathways to ensure safe head room for cyclists and pedestrians. The vertical clearance for cyclists should be eight feet, while the clearance for pedestrians should be seven feet.
- Shrubs and other vegetation should be kept away from routes in a manner that provides for safe sight distances and unobstructed pathway surfaces.
- All dangers should be marked with the proper signage.

### 4.3.6 DRAINAGE GRATES

Drainage grate inlets and utility covers are potential problems to bicyclists. When a new roadway is designed, all such grates and covers should be kept out of bicyclists' expected paths. On new construction where bicyclists will be permitted, curb inlets should be used wherever possible to completely eliminate exposure of bicyclists to grate inlets.

Parallel bar drainage grate inlets can trap the front wheel of a bicycle, causing loss of steering control. Often, the bar spacing is such that narrow bicycle wheels may drop down into the grates, resulting in serious damage to the bicycle wheel and frame, and/or injury to the bicyclist. These grates should be replaced with bicycle-safe and hydraulically efficient ones. As a temporary solution, steel cross straps of bars can be welded perpendicular to the parallel bars to provide a maximum safe opening between straps.

### 4.3.7 UTILITY TRENCHING

Excavations in roadways occur on a regular basis both for public utilities and for private development. All excavations in the roadway should be resurfaced smooth and flush with the existing surface.

With most repaving, there is some degree of settling and unevenness along the edge of a patch. Therefore, it is recommended that, when excavations occur within a designated urban pathway, the cut should be the full width of the route so as to avoid an uneven and dangerous surface condition from longitudinal joints and cross-cuts.



# 5.0

## TRAILS





# 5.1 PROPOSED SYSTEMS AND PROGRAMS

The trails system consists of a network of trails and associated trailheads and is intended to achieve the following objectives:

- To develop a continuous trail system encircling Sedona of approximately 25 miles length, plus several shorter routes within the City
- To provide safe and environmentally sensitive hiking, mountain biking, and equestrian opportunities
- To develop more formal trailheads leading into the Coconino National Forest
- To expand and enhance multiple uses on the trails
- To improve and expand the public's awareness of trail etiquette and environmental preservation
- To encourage the public to stay on system trails and protect fragile soil and vegetation. The proliferation of new trails without proper design and drainage is severely damaging the environment.

☞ Recommended routes are illustrated on the Trails & Urban Pathways Plan Map located at the beginning of this document.

## 5.2 RECOMMENDATIONS

### 5.2.1 ORGANIZATIONAL RECOMMENDATIONS

In order for the trails system to successfully evolve, the City and Forest Service must develop partnerships in which a commitment is made to develop and maintain trails facilities. In addition, it is recommended that both agencies establish a permanent standing trails committee and assign staff to carry out the work recommended in this plan.

The Trails & Urban Pathways Committee will be most effective providing assistance to the various governmental entities with the energy needed for appropriate advocacy efforts, doing research on funding sources, obtaining clearances, developing educational programs, providing technical assistance to planners, etc.; the idea being to provide assistance to the overtaxed governmental staff which has the responsibility but cannot keep up with the demands.

The committee and staff will be responsible to:

- Advocate trails activities as forms of recreation and to enhance local tourism.
- Act as liaison with City, County, State, and Federal agencies as well as businesses, volunteer organizations, and citizens interested in trails issues.
- Monitor the work of the City and Forest Service to ensure the trails are developed according to adopted plans and standards.
- Develop adult and children's education programs focusing on trail safety, minimum-impact techniques, and etiquette. Help spread the word that cross-country biking, horseback riding, ATV use, and mountain biking severely damages our natural environment. Encourage local trails-related organizations and businesses to implement programs for the maintenance, signing, construction and re-construction of trails and trailheads.
- Work with the City and Forest Service to ensure that maintenance and hazard reporting are properly addressed.
- Explore and write grant proposals for developing trails facilities along with searching for outside funding for trails advocacy and education.
- Oversee and provide recommendations to the City and Forest Service for trails program expenditures.
- Organize and advertise trails-related events throughout the City to promote trails education and volunteer programs to get involved in construction and maintenance of facilities. Once a year, program an event in conjunction with National Trails Day.
- Work with the Trails & Urban Pathways Committee to develop and distribute a detailed Trails & Urban Pathways map. Seek financial assistance from local businesses to underwrite the costs.
- Develop and recommend policies, laws, and regulations to the City and Forest Service to manage the use of trails facilities in Sedona.
- Apply for nomination of the trails system to the Arizona State Trails System to make local projects eligible for Arizona State Heritage Funds.

## 5.2.2 TRAILS FACILITIES RECOMMENDATIONS

The Sedona Community Plan recommends that a system of trails be developed in conjunction with parks and urban pathways that are accessible and meet the needs of both residents and tourists. The City and Forest Service should go to great lengths to design multiple-use trails and trailheads that are barrier free and accessible to people with disabilities who want to enjoy a trail experience with other people.

This plan attempts to accommodate three classes of non-motorized trails users: hikers, bicyclists, and equestrians. Yet, it is important to note that some trails corridors may not always be suitable for all three uses due to topography, sight distances, and soil conditions. In addition, biking is prohibited on USFS wilderness lands.

This plan recommends the construction of new trailheads as the trails system grows. The locations of major trailheads are depicted on the trails system map. When located near neighborhoods, trailheads should be sited to ensure buffer zones exist between them and adjacent residences. Ideally, each major trailhead facility should consist of adequate off-street parking, restrooms, garbage receptacles, drinking water, trail information kiosk, and public telephone service.

When planning each trailhead the City and Forest Service should study the feasibility of developing a pocket park. Up to 1/4-acre in size, pocket parks can provide small-scale recreational amenities such as children's playgrounds, grassy areas, benches, shade, and art work. Opportunities may exist for the City to develop these parks on the Coconino National Forest. This plan recommends the City and USFS work together to create pocket parks in conjunction with trailheads.

## 5.2.3 GENERAL RECOMMENDATIONS

- The USFS should formally add the trails system described in this plan to its system of trails in the Coconino National Forest.
- The USFS and City should require all new public and private development occurring adjacent to or within adopted trails corridors and trailheads to provide easements for future access in accordance with the trails system described in this plan.
- The USFS and City should establish and support education, safety, enforcement, and advocacy programs as necessary components of the trails system plan.

- The USFS and City should adopt the trails system described in this plan and accompanying maps as the long-range trails system plan for Sedona. Implementation of the plan will require a coordinated commitment for an on-going joint agency effort to develop and maintain trails system facilities and programs.
- The USFS and City should coordinate efforts to complete NEPA studies and environmental assessments to ensure there is no duplication of effort.

#### 5.2.4 SPECIFIC RECOMMENDATIONS

This plan recommends a trails system that will provide users with an array of outdoor recreation opportunities while preserving soils, vegetation, and animal habitats.

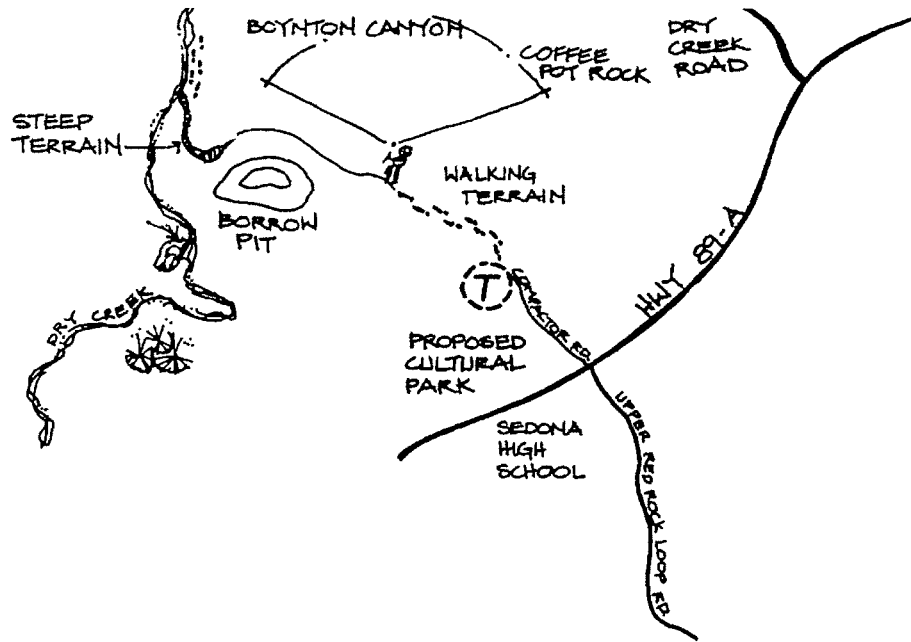
It is recommended that as trail system segments are completed that nearby non-system footpaths be obliterated. Several trails are proposed within wilderness areas. Where this occurs, alternate routes outside wilderness areas to accommodate bicycles should be considered.

☞ A detailed illustration of the proposed trails system can be found on the Trails & Urban Pathways Plan Map.

The following trail segments are proposed for the encircling loop system. The 25-mile-long loop is described in 14 sections and arranged clock-wise on the map. The entire loop is on the Coconino National Forest except for short portions in segments three and four.

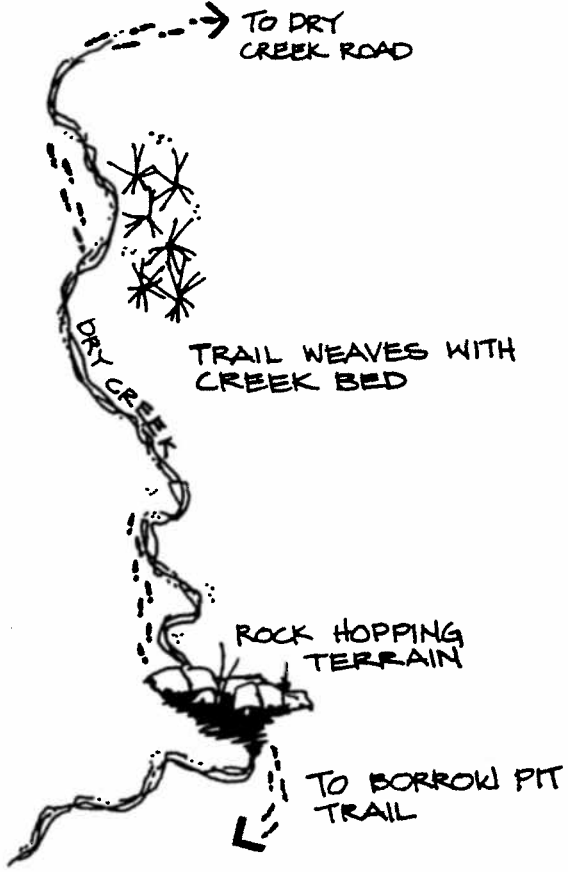
(The following list of trails facilities should not be considered as a prioritized list. )

- **The Borrow Pit:** This 1-mile route is planned to begin at a trailhead to be located on the future Cultural Park grounds off Highway 89A and proceed along a graded road as far as the borrow pit.



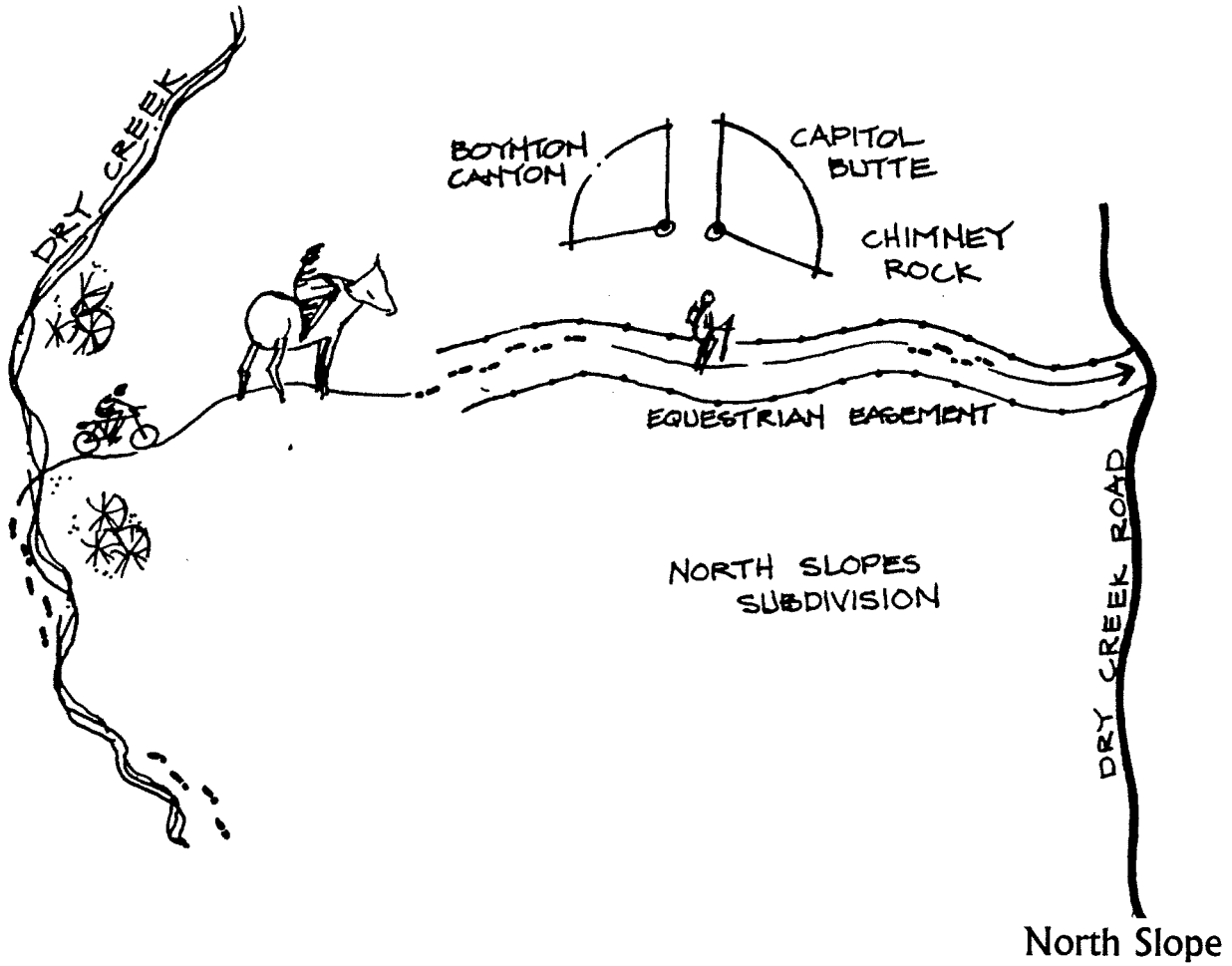
The Borrow Pit

- **Dry Creek:** After descending to Dry Creek, this 2.2-mile segment lies mainly along the bed of the creek. Portions of it are on old jeep roads, a short length of the buried natural-gas pipeline, and on open banks of the creek.

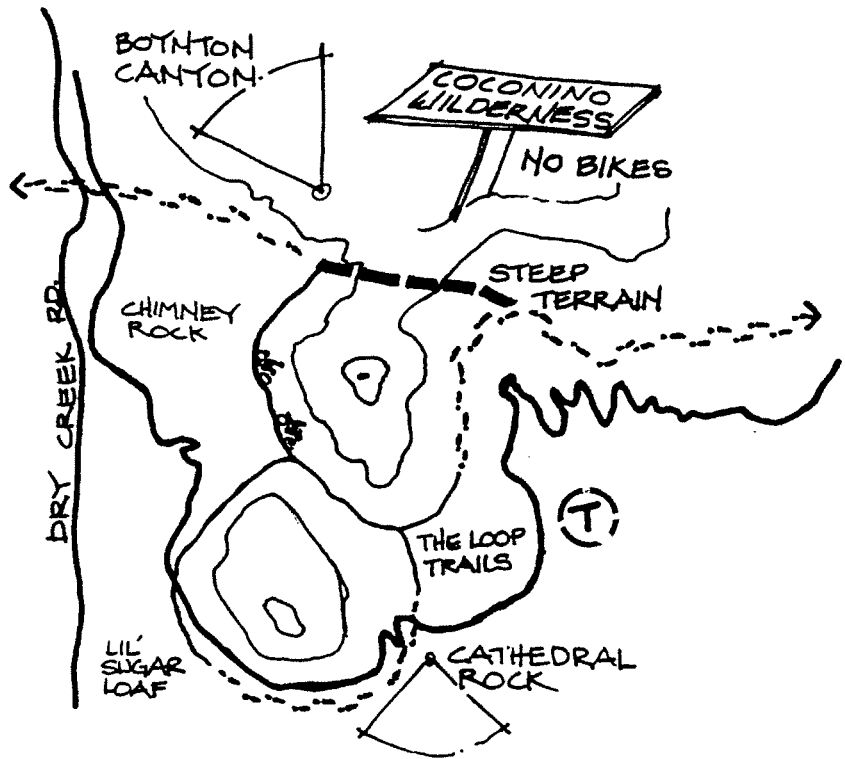


Dry Creek

- **North Slope:** Climbing gradually from Dry Creek to Dry Creek Road, this 1.5-mile segment is currently popular with horseback riders. The last 0.3 miles crosses private land, but an equestrian easement was granted to the City in 1990 by the North Slope subdivision.



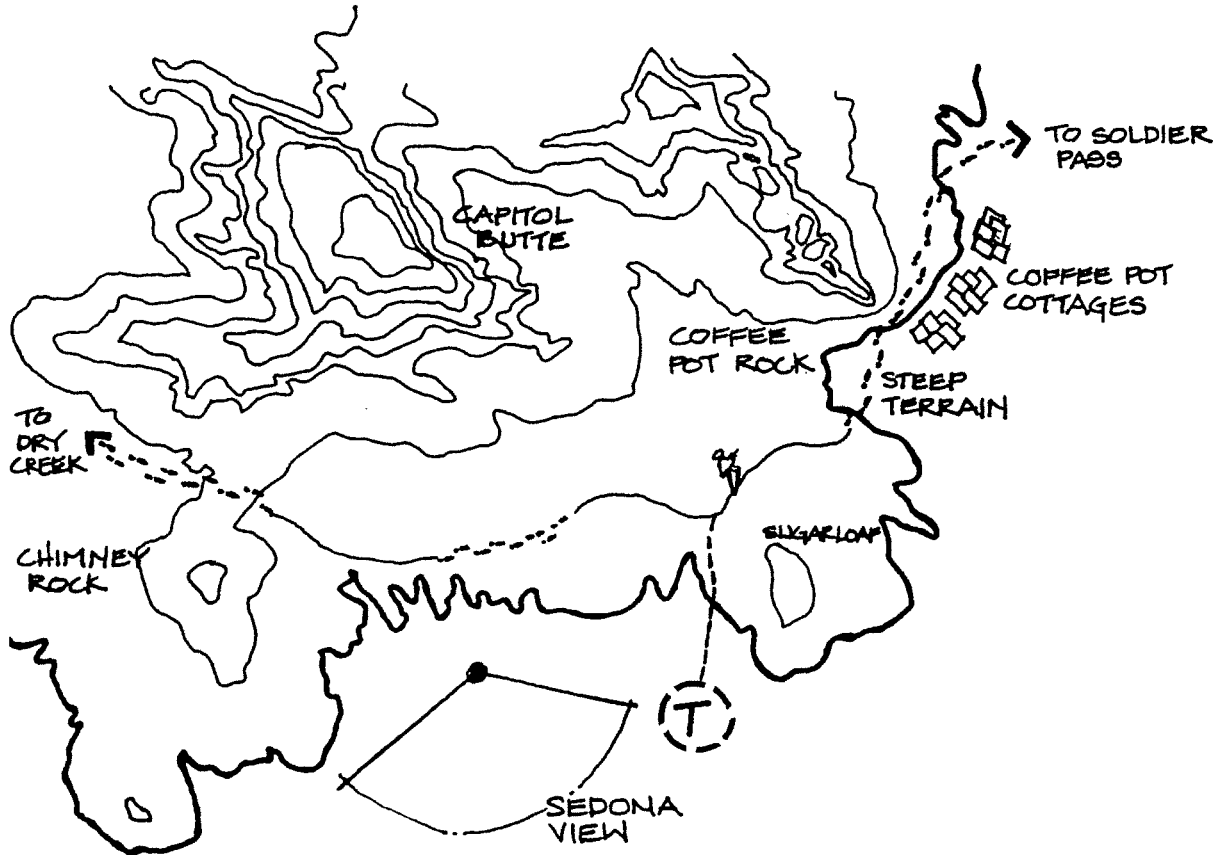
- Chimney Rock:** This 1-mile segment will require a 700-800- foot-long easement through a privately owned parcel that is of questionable suitability for development due to rough, steep terrain. Beyond, the route passes through the Chimney Rock extension of the Red Rock-Secret Mountain Wilderness, and is thus off-limits to bicycle use. The segment ends at a short access trail entering from the intersection of Andante Drive and Skyview Way.



Chimney Rock

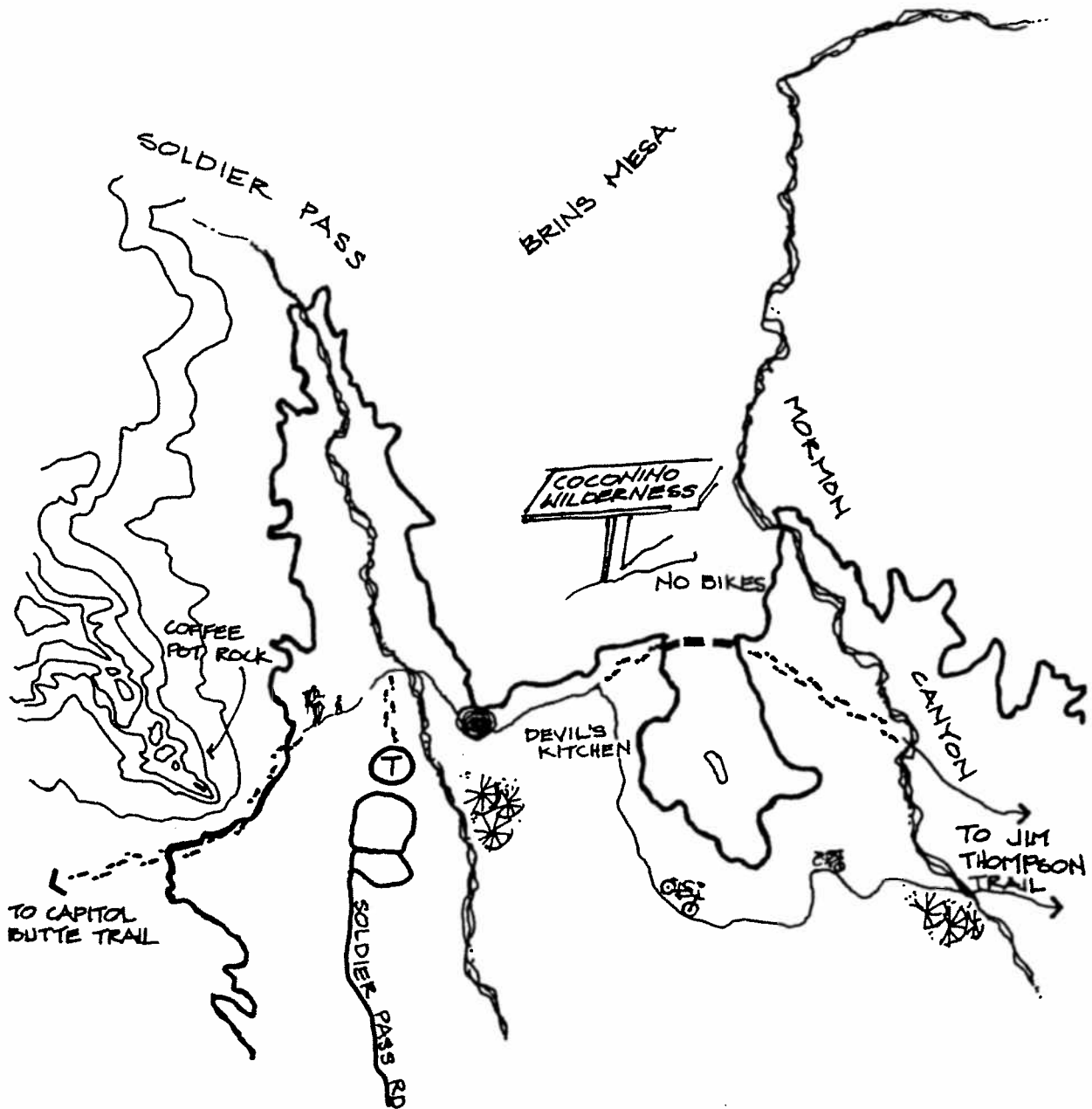


- Capitol Butte-Coffee Pot:** This is a 2-mile-long segment passing close to the base of these prominent landmarks and adjacent cliffs. En route it passes north of Sugar Loaf and the nearby City-owned property that provides a connecting access trail. The segment ends at the Soldier Pass jeep road, where another heavily used access link joins the loop from a USFS trailhead.



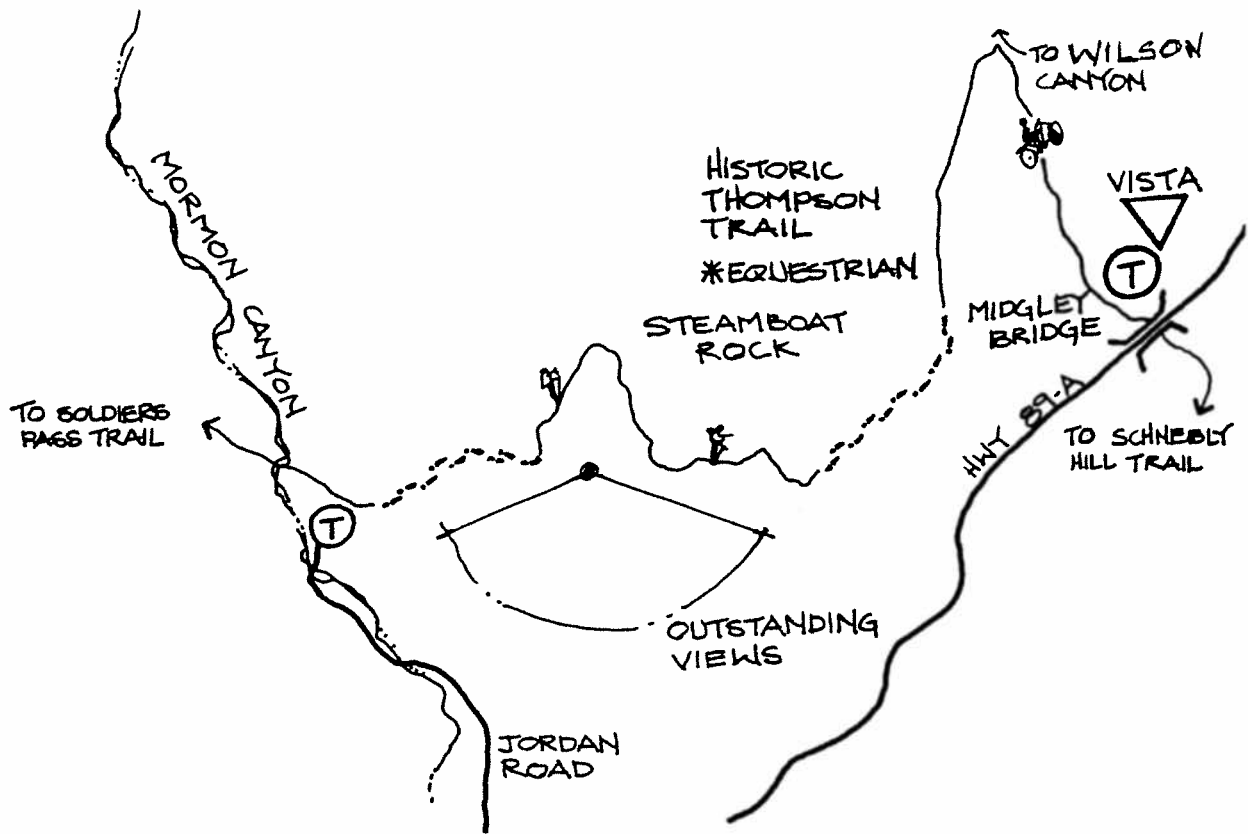
Capitol Butte-Coffee Pot

- Devil's Kitchen:** This is a 1.3-mile-long segment that passes the noted sinkhole by way of the jeep road east of Soldier Pass Road, then crosses the divide between Soldier Wash and Mormon Wash. En route the trail crosses another narrow extension of the Red Rock-Secret Mountain Wilderness, where bicycles are prohibited.



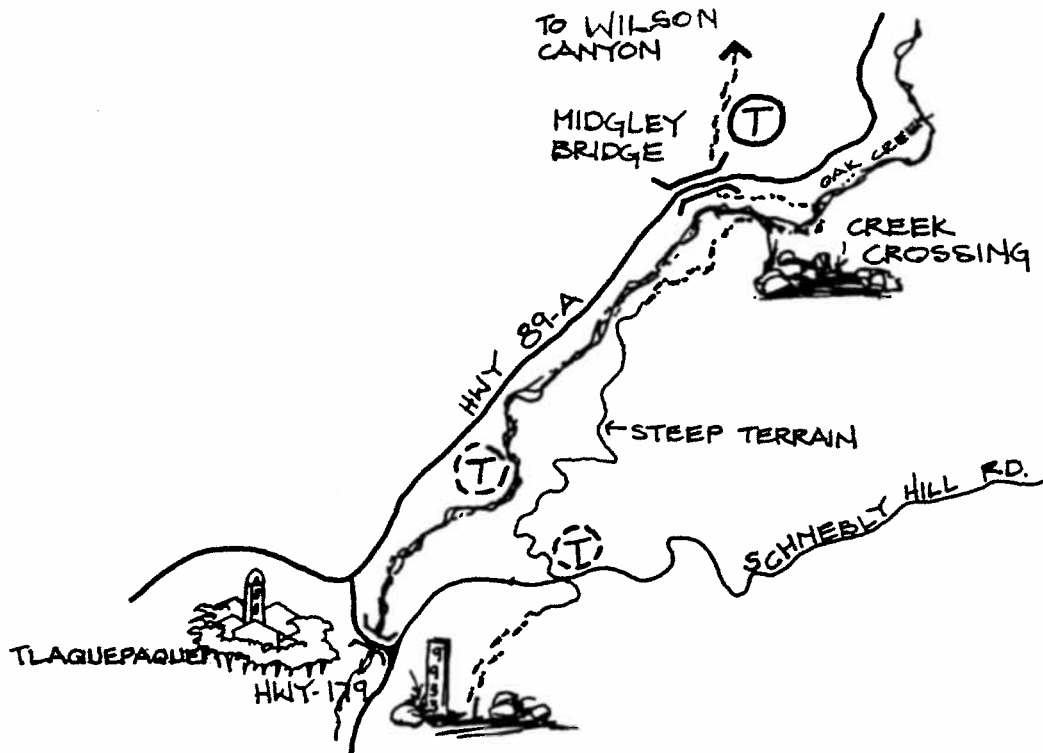
Devil's Kitchen

- Jim Thompson:** This is a 3-mile-long segment that lies entirely on former vehicular roads. Leaving Mormon Wash at a point south of the shooting range, it follows old road alignments until picking up the well-preserved predecessor of Highway 89A (Historic Thompson Trail), passing below Steamboat Rock and ending at Midgley Bridge. Being elevated above the adjacent countryside, the views along this segment are outstanding. The segment is especially suitable for equestrian use, bicycling, and hiking.



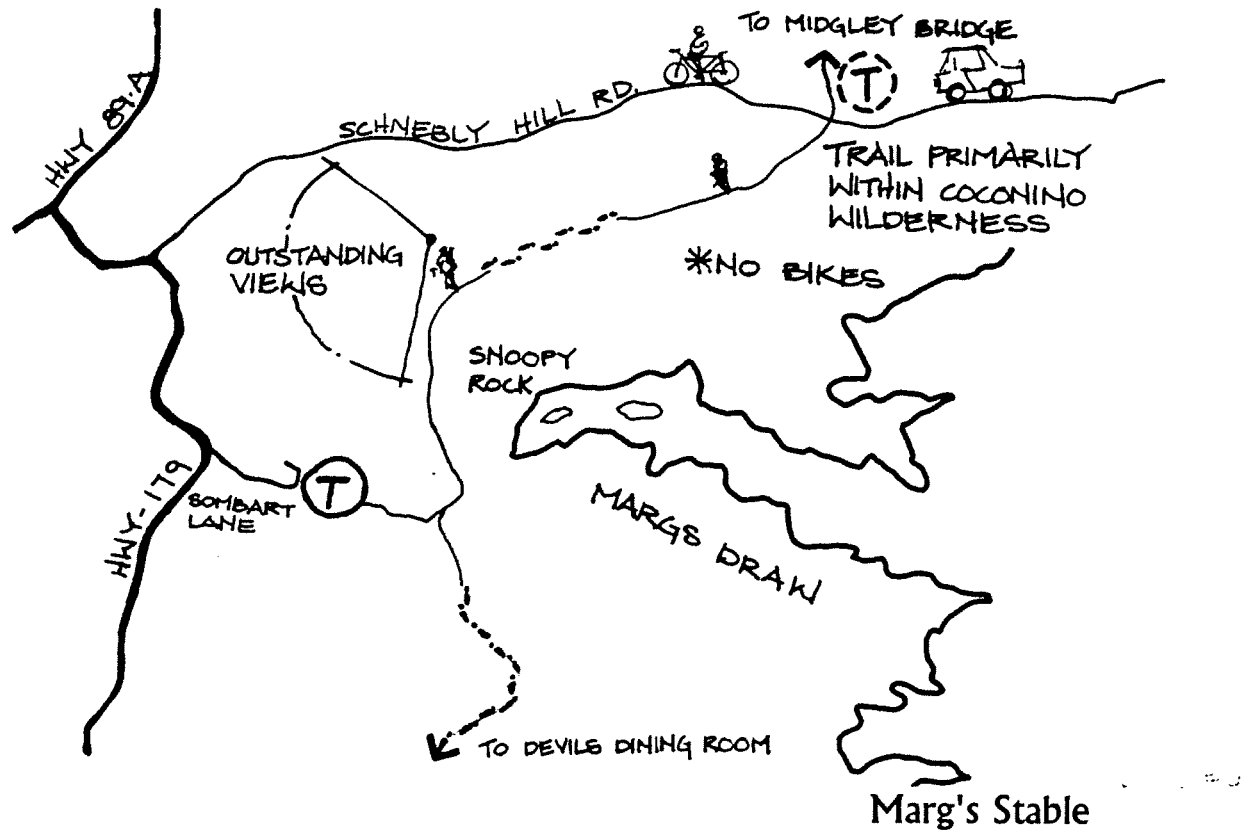
Jim Thompson

- Midgley Bridge-Schnebly Hill Road:** This is a 2.7-mile-long segment that crosses Oak Creek. From the parking lot at Midgley Bridge the segment descends on an old road to Oak Creek, which can be waded at this point most of the year. The route then follows the east-bank floodplain downstream for about 0.6 miles, then ascends out of the canyon and traverses along ridged slopes all the way to its emergence on Schnebly Hill Road at USFS Road 9933, an excellent trailhead location. Scenic views along this elevated segment are outstanding, but its use should be restricted to hiking.

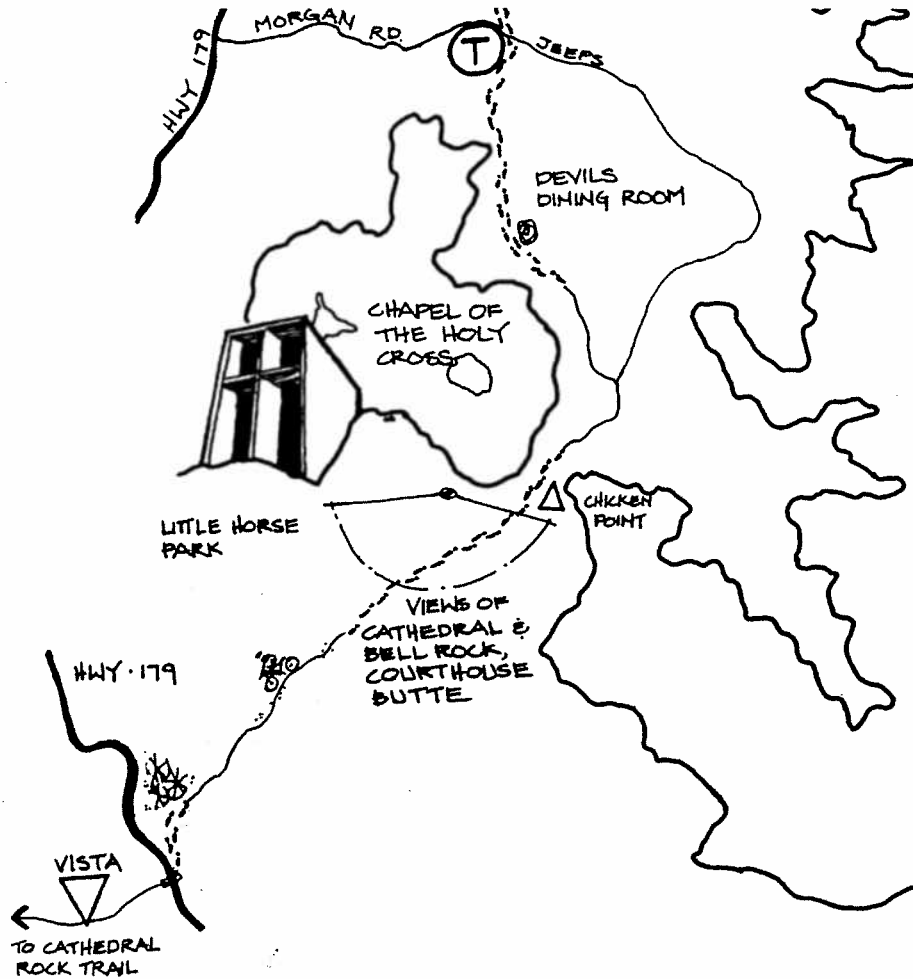


Midgley Bridge-Schnebly Hill Road

- Marg's Stable:** This is a 1.7-mile-long segment through some of the flattest, and most scenic, terrain of the loop. Almost all of it lies in the Munds Mountain Wilderness, making it off-limits to bicycles, but especially suitable for equestrian and hiking use. This trail is important because it links Schnebly Hill Road to Morgan Road and consolidates numerous non-system trails into one primary route. It provides a much-needed outside loop for trail enthusiasts to use the Munds Mountain Wilderness without causing excessive damage. About half-way along the segment the important Sombart Lane access trail comes in. The heavily used trailhead on Sombart Lane is on private land and needs to be acquired or incorporated into any future development.



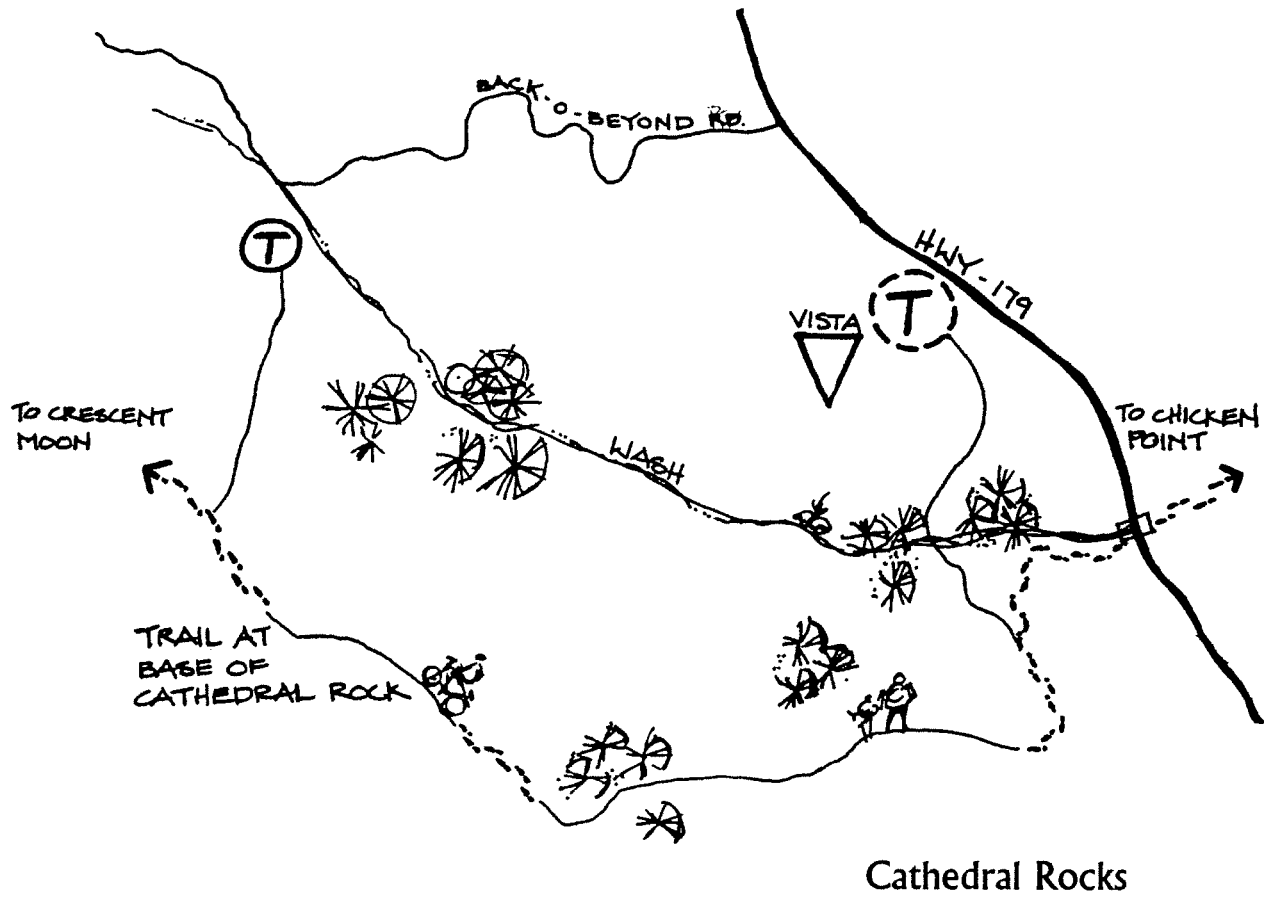
- Devil's Dining Room:** This is a 1.7-mile-long segment starting at the end of Morgan Road where a much-used jeep route takes off. Like that route, the segment passes the Devils Dining Room sinkhole and leads to Chicken Point, but is on a new alignment built by the USFS as an alternate for hikers. The segment continues past Chicken Point to an access trail entering from the Chapel of the Holy Cross.



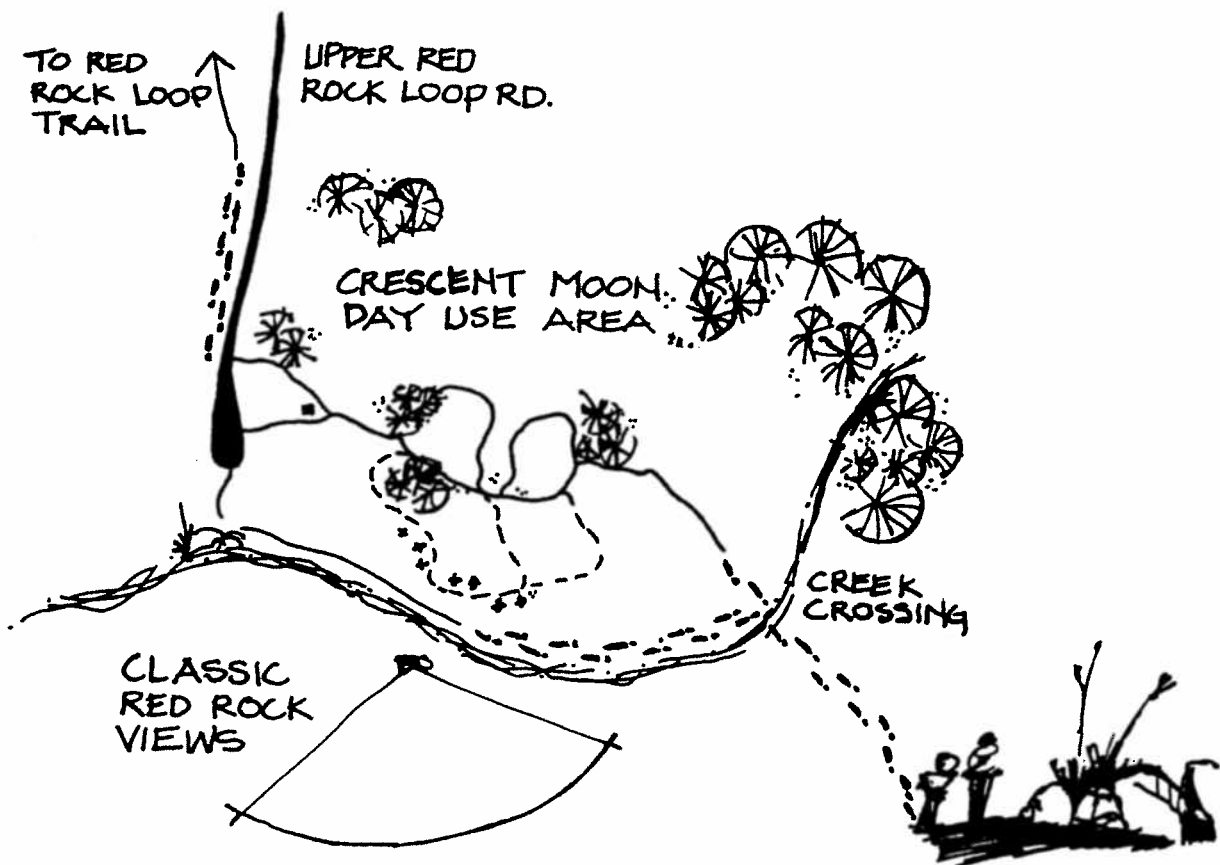
### Devil's Dining Room & Little Horse

- Little Horse:** This is a 1.5-mile-long segment that proceeds southwest until approaching the abandoned predecessor of Highway 179. There the route enters the bed of a wash, passes under the present highway through a large box culvert, and joins Back-o-Beyond Wash going upstream to intersect with an old borrow pit road coming in. This road provides a potential access to the loop.

- Cathedral Rocks:** This is a 2-mile-long segment leading to another crossing of Oak Creek. The first portion follows an abandoned road ending at the remains of an old homestead. From there the trail contours along ledges around the eastern and northern base of Cathedral Rocks, ending in a descent to Oak Creek which can be waded here most of the year. The segment can be accessed from a popular USFS trailhead off of Back-o-Beyond Road.



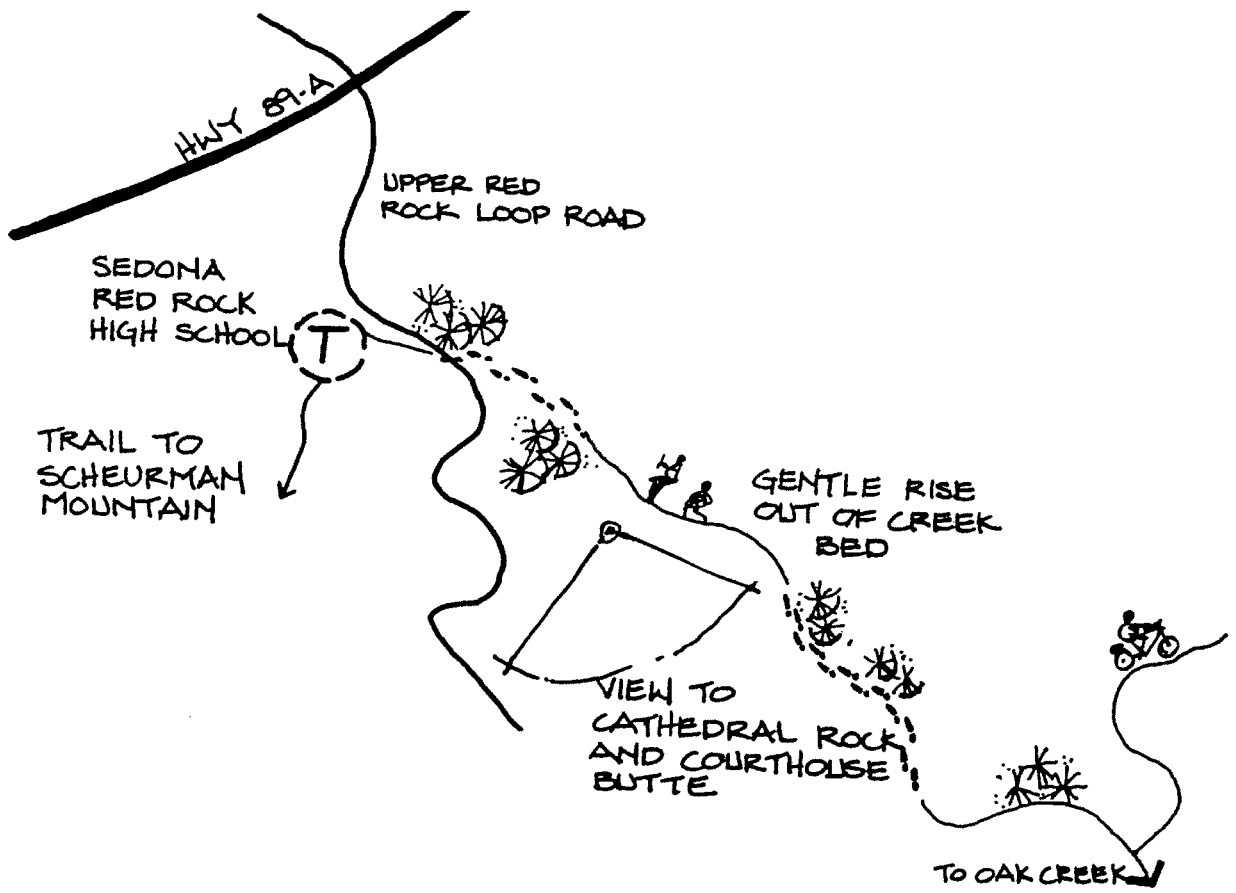
- Crescent Moon:** This is a 1.6-mile-long segment. The first half follows along the north side of Oak Creek within the USFS Crescent Moon Recreation Area. The rest of the route is on the paved roads used to reach Crescent Moon: Earl Drive, Red Rock Crossing Road, and Chavez Ranch Road as far as the start of USFS Road 9860.



Crescent Moon



- Upper Red Rock Loop Road:** This is a 1.8-mile-long segment that completes the loop by paralleling Upper Red Rock Loop Road and then coinciding with it for the final 0.2 miles to Highway 89A. The segment starts up USFS Road 9860 for about 0.7 miles, then jogs over to a prominent dry wash which is followed for nearly a mile to its emergence on Upper Red Rock Loop Road by the high school.



Upper Red Rock Loop Road

## 5.2.5 OTHER TRAILS WITHIN THE CITY NOT INCLUDED IN THE OUTER LOOP

- **Thunder Mountain Loops:** Accessed primarily from a trailhead to be located on Thunder Mountain Road, this segment consists of two 1-mile loops which are connected to the Chimney Rock segment. While not a segment in the continuous loop, it provides an alternative for mountain bike use.
- **Carroll Canyon:** This proposed 1-mile-long loop would provide a future connection to the Airport Mesa Loop. A trailhead would need to be developed west of Shelby Road and south of Stanley Steamer Drive. The trailhead site should also be considered for a pocket park.
- **Airport Mesa Loop:** This proposed 2.5-mile-long trail traverses the outskirts of the mesa and connects with three scenic overlook areas providing outstanding views.

## 5.2.6 TRAILHEADS

At least five sites not already described should be developed as trailheads to provide access to the perimeter loop trail, as follows:

- A site near the Sedona High School
- A site on Dry Creek Road about 1.6 miles north of Highway 89A (USFS land)
- The City-owned Sugar Loaf property
- Junction of Schnebly Hill Road and USFS Road 9933
- Crescent Moon Ranch Day Use Area (USFS)

## 5.3 DESIGN GUIDELINES

Proper trails planning and design will minimize both user conflicts and environmental impacts. A poorly designed trail will require more maintenance.

Since the routes on this plan traverse mainly through Forest Service lands, all trails development will need to comply with Forest Service guidelines. The Forest Service *Trails Management Handbook*, (FSH 2309.18), numbers nearly 200 pages and contains chapters on trail planning (with standards delineated for each type of user), trail development (including trails standards and difficulty ratings), trail preconstruction and construction, and trail operation and maintenance. The handbook also contains a myriad of illustrations including different types of waterbars and switchbacks.

Trails on National Forest lands will not be constructed or maintained without the proper clearances required by the Threatened and Endangered Species Act, the National Historic Preservation Act, and the National Environmental Policy Act.

In addition to USFS guidelines the plan recommends that the following features be included in trail construction:

- **Signs Identifying Trail Difficulty:** Trails should be identified by difficulty level using signs similar to the green circle, the blue triangle, and the black diamond symbols used to mark ski trails. The City and Forest Service should use experienced trails users to assist them in developing difficulty ratings on trails using the following features:
  - Grade (pitch, length, and turning radius)
  - Length and approximate time of trip
  - Clearing width and height
  - Tread width and surface
- **Erosion Control:** Great lengths should be taken to allow for multiple trails uses. Erosion control measures should be addressed before eliminating the bicycle from trail use. A number of products are available ranging from organic soil stabilizers to the traditional water bar. Both the City and USFS should explore all options for erosion control when designing specific trails segments.

## 5.4 HIERARCHY OF SOLUTIONS TO MULTIPLE USE IMPACTS

Mountain biking presents unique challenges to managing the trails system. Conflicts between cyclists and traditional trails users occur. The plan recommends the City and USFS coordinate efforts to mitigate these conflicts by considering the following measures:

- **Signing:** Signage should be used to indicate general trail guidelines, directional information, regulations, and proper trail etiquette. Information on multiple-use trails is helpful for voluntary self-monitoring. A hierarchy of trail use has been developed for bicyclists, hikers, and trail stock. A sign with graphic symbols indicating these relationships has been widely used around the country where bicyclists yield to trail stock and hikers and everyone yields to trail stock. This type of sign is highly recommended for multiple-use trails.

Signing will be necessary where trails enter Wilderness to inform users of special regulations pertaining to Wilderness. Such information would include restrictions on bicycles and motorized equipment, and minimum-impact Wilderness messages.

- **Education:** This plan recommends that the City, Arizona State Parks, and USFS work with various user groups to educate trails users of all ages about low-impact use, etiquette, and consideration of other users.
- **Design:** On new or reconstructed trails, include design features that restrict speed and enhance sight distances; also build wide or pull-out sections to facilitate safe passing of cyclists, horses and hikers.
- **One Way Only:** Designate the direction of travel on trails with very heavy use to avoid conflict. Travel may be limited to up-hill direction only in some cases; however, an alternate return route should also be indicated. A loop configuration works best for this solution.
- **Patrolling:** The City and USFS should ensure that the trails system is adequately patrolled. Both agencies should assign staff to enforce rules and regulations and educate the trails users. Both agencies should train volunteers to patrol the routes and talk with users. Groups such as the Friends of The Forest, Sedona Westerners, and Sedona Bicycle Club should be strongly considered for this function.
- **Restricting Cyclists Season:** Riding on wet trails during the rainy seasons creates ruts and possible erosion. Also, under these conditions the aesthetic qualities of the trail experience are negatively perceived by other trail users. It is recommended that seasonal restrictions be applied to cyclists and all other users where trails will be damaged due to inclement weather conditions.
- **Separate Sections:** Separate trail connections and by-passes for mountain bike use should be developed where congestion is great. This is highly recommended for trailheads.
- **Close Trail To Cyclists:** This option should be used only as a last resort after all other efforts have proven ineffective.

# 6.0

## OTHER PLANS FOR TRAILS AND URBAN PATHWAYS IN THE SEDONA REGION

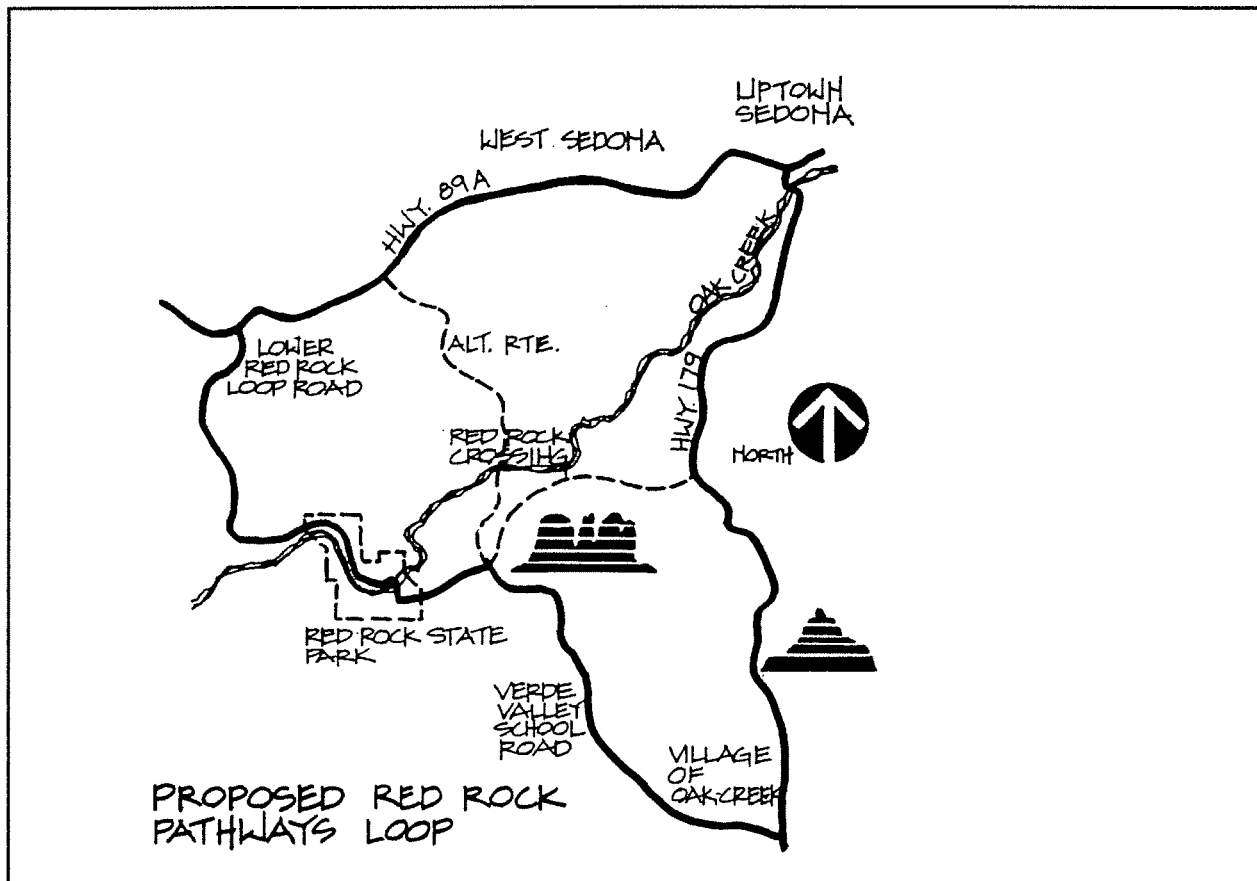


The City has conducted two studies focusing on the Uptown/Creek and West Sedona areas. Neither plan has yet been adopted by the City. It is recommended that, when the plans are completed, they are incorporated into this plan.

## 6.1 RED ROCK PATHWAYS PLAN

In 1993, the Red Rock Pathways, Yavapai, and Coconino Counties, and the City of Sedona pledged their support for this project by signing a Memorandum of Understanding. In 1994, these same entities were joined by the U. S. Forest Service and the Governor of the State of Arizona in signing a Letter of Intent, further committing to the goals of the Red Rock Pathways Plan.

The goal of the Red Rock Pathways is to provide non-motorized traffic and recreation corridors within the City of Sedona and surrounding areas in Yavapai and Coconino Counties. These corridors would provide alternate modes of transportation, hiking, jogging, and bicycling for residents and visitors. The heart of the Red Rock Pathways vision is a central thirty-mile loop connecting the City of Sedona via Highway 89A to the Red Rock Loop Road and Red Rock State Park, and then on via Verde Valley School Road to the Village of Oak Creek. From the Village of Oak Creek, the loop will parallel Highway 179 back to Sedona and Highway 89A at the "Y".



In 1994, the Red Rock Pathways organization obtained \$700,000 in Federal Intermodal Surface Transportation Efficiency Act (ISTEA) funds to begin construction of two segments of the pathway. One of the segments connects the City of Sedona and the Village of Oak Creek via a corridor running parallel with Highway 179. Construction was expected to be completed in 1995.

This plan strongly recommends that the City of Sedona work in partnership with the Red Rock Pathways organization to develop specific route plans. The City and Red Rock Pathways should also work together to secure funding for construction and maintenance of the portions of the Red Rock Pathways within the City.

## **6.2 VERDE VALLEY REGIONAL TRANSPORTATION STUDY BICYCLE ELEMENT**

The Sedona Trails and Urban Pathways Plan incorporates the recommendations of the Verde Valley Regional Transportation Study Bicycle Element. In 1993, the Verde Valley Transportation Organization commissioned BRW, Inc. to prepare a twenty-year regional bicycle plan encompassing the areas of Jerome, Cottonwood, Camp Verde, Village of Oak Creek, and Sedona.

The bicycle element emphasizes the enhancement of cycling as a travel mode for both utilitarian and recreational purposes. The regional bikeway network is designed to help fulfill the mandate of the ISTEA, which calls for a balanced multi-modal transportation system. The element recommends the following goals:

- Enhance the convenience and appeal of cycling as a regional transportation mode
- Improve safety for bicyclists in the Verde Valley
- Increase recreational opportunities for cyclists
- Promote public awareness and recognition of cycling opportunities



## 6.3 COCONINO NATIONAL FOREST TRAILS SYSTEM PLANNING

The City of Sedona is surrounded by the Coconino National Forest (CNF). The recreational use of bicycles in the CNF is a relatively recent activity, since mountain bicycles have only been available since the early 1980's, while hiking and equestrian activities have been occurring in the CNF for decades.

The popularity of all trails activities will continue to increase. In particular, mountain biking continues to show dramatic increases with advances in technology, allowing greater numbers of cyclists to access trails and backroad environments.

The City and USFS should continue to coordinate efforts to ensure that trails and urban pathways planning and construction are done using the guidelines set forth in this plan. Furthermore, it is recommended that both agencies designate staff liaisons and create an advisory body which would include pertinent City staff and commission members, USFS staff, Yavapai and Coconino Counties, ADOT, and representatives of local hiking, biking, and equestrian organizations.



# 7.0

## EDUCATION AND PUBLIC AWARENESS



## 7.1 ADVOCACY

The following programs and activities are recommended to promote trails and pathways activities in Sedona:

- The City Parks & Recreation Department should advocate cycling and walking through a variety of activities such as "Ride or Walk to Work Days"; bicycle rodeos, clinics, and workshops; and children's bicycle "Treasure Hunts" or "Scavenger Hunts".
- Employers should be encouraged to promote bicycle commuting as a healthy, cost-effective form of transportation.
- The Chamber of Commerce should promote Sedona as a destination for recreational hiking, bicycling, and horseback riding. A brochure should be developed to include a map of the trails and pathways system. The brochure should also include information on safety, rules and regulations, and registration information.
- The City should encourage new commercial and public development to provide bicycle parking for their customers and employees.
- The City, Arizona State Parks, and USFS should sponsor a "Sedona Trails Day" to bring attention to trails development.
- The City, Arizona State Parks, and USFS should promote an on-going "Adopt-A-Trail" program where volunteers can become involved in trails construction, maintenance, and education efforts.
- Co-Sponsors are needed to promote trails and pathways programs. The Sedona Westerners, Red Rock Pathways, Friends of the Forest, Sedona Bicycle Club, service clubs, scouts, businesses, Arizona State Parks, and both counties should be encouraged to participate in partnership with the City and USFS to promote safety and education programs.

## 7.2 EDUCATION

- Safety and information packets should be distributed with each new bike sold in Sedona. The packet should include information on regulations and laws as well as a map of local routes.

- A bicycle safety program should be developed. Both the City and USFS should devise a program to educate children about safe bicycle use both on and off the road. This program could include a "Safety Town" and skill station, bicycle registration, and distribution and explanation of bicycle safety and information packets.
- The School District should be encouraged to include safe bicycling in its curriculum.
- The City, USFS, and Arizona State Parks should work with local merchants to distribute trails maps, rules and regulations.
- The City should sponsor periodic campaigns to publicize safety tips for cyclists and motorists. Using newspaper ads, public service announcements, brochures and posters, and school handouts are effective methods of promotion.
- Bicycling education should be included in driver's education classes in the public schools.
- The City, USFS, and Arizona State Parks should develop a *Hazard Reporting System* to rapidly identify and correct situations dangerous to trails and pathways users. Phone numbers and contact individuals for this service should be publicized to the public.

## 7.3 ENFORCEMENT

Regardless of educational efforts, there are some individuals who will bend or break the rules. Effective rule enforcement and appropriate penalties must supplement the educational program.

- The enforcement of bicycle laws is the function of the Sedona Police Department. The goal of enforcement should be to affect, in a positive way, behavior and attitude changes among cyclists and motorists.
- The enforcement of trails rules and regulations will fall upon the jurisdiction on which the trails facilities are located. The City, USFS, and Arizona State Parks should coordinate their law enforcement efforts.
- A volunteer trails patrol should be developed by the City, USFS, and Arizona State Parks to help supplement those agencies.

## 7.4 REGISTRATION

The City should develop a system to register and license bicycles used by residents of Sedona.

Registering a bicycle facilitates the return of stolen bicycles recovered by the Police. Another advantage of registration is that it aids in identifying accident victims who may not be carrying identification, especially children. In addition, registration offers an excellent opportunity for distributing safety and regulations information, especially to adults. Finally, fees generated through registration can be used to help finance the production of route maps and safety and educational materials.





# 8.0

## IMPLEMENTATION



# 8.1 IMPLEMENTATION STRATEGIES

A comprehensive trails and urban pathways program should include education, enforcement, encouragement, and engineering. All aspects of the program should be evaluated and prioritized based on effectiveness.

This section will provide general examples of types of projects. Individual project costs may vary widely. Grants may be available for some projects. Other factors should be considered such as life-cycle costs, safety concerns, coordination with other projects, and changing community goals. The project types are grouped in general terms according to range of cost: Low Cost Projects (Less than \$15,000); Medium Cost Projects (\$15,000 to \$50,000); and High Cost Projects (\$50,000 or more).

## 8.1.1 LOW COST PROJECTS

Installation of signed routes is a relatively low-cost measure resulting in a high degree of return. Some existing roadways designated for bicycle use can easily be signed. Assessment, standardization, and installation of a city-wide urban pathways signage system on all proposed routes can be considered as a low-cost, high-impact project. Signs should include route numbers or names and include destination and distance.

A number of streets shown in the urban pathways map can receive striped bike lanes for the cost of painting lines. The primary cost will be staff time for design, installation, and coordination.

Bicycle racks could be installed in commercial and public facilities areas inexpensively.

Assign a staff person as a part-time coordinator of trails and pathways.

Create and staff a Trails & Urban Pathways Committee.

Constructing and maintaining trailhead kiosks at existing trailheads.

Development of educational and safety programs.

Application and nomination of the trails system to the Arizona State Trails System administered by the Arizona State Parks Board.

Coordinating volunteers to construct trails segments.

## **8.1.2 MEDIUM COST PROJECTS**

Install bicycle-activated mechanisms at traffic signals, such as buttons accessible from on-street lanes and pavement loop detectors. Include provisions for these mechanisms in all new traffic signal projects.

Production of maps or brochures will be beneficial to residents and visitors. Professional graphic design should be utilized in the production of a map/brochure.

Minor construction projects can provide continuity to the system. Examples are paving roadway shoulders, curb cuts, widening routes at intersections, or short sections connecting routes.

Plan specific trails and pathways segments. Segments could be designed by staff from the City and USFS to reduce direct costs.

## **8.1.3 HIGH COST PROJECTS**

Construction of new pathways and inclusion of adequate right-of-way for on-street bike lanes. A commitment is required to ensure that the City has an effective and fully functioning urban pathways system.

Develop major trailheads to include parking, restrooms, and other site amenities.

Develop pocket parks in conjunction with major trailheads.

# **8.2 FUNDING STRATEGIES**

A major concern will be finding adequate funding for trails and pathways development and maintenance. A number of potential funding sources are available:

## **8.2.1 FEDERAL**

**Intermodal Surface Transportation Efficiency Act (ISTEA)** of 1991 provides a variety of funding sources for the construction and maintenance of bicycle facilities. ISTEA provides several opportunities for funding of non-motorized transportation modes. The Verde Valley Transportation Planning Organization, Northern Arizona Council of Governments, and ADOT determine how federal monies will be spent in this area.

**Surface Transportation Program (STP) Funds** may be used for either the construction of bicycle transportation facilities or non-construction projects such as brochures, maps, and public service announcements related to bicycle use. Projects must be located and designed pursuant to the state's transportation plan. A proposed TEA ("Transportation Enhancement Activities" - see below) must have a direct relationship to the intermodal transportation system but not necessarily to a currently planned highway project. An off-street bicycle/pedestrian trail is an eligible TEA, provided that it functions as a component of the regional transportation system and provides connections with other transportation modes.

Ten percent of ADOT's annual STP funds are reserved for TEAs. Transportation enhancement funding is designed to encourage activities and projects that go beyond traditional transportation improvements. Any proposed non-ADOT enhancement projects for Sedona must be submitted to the Verde Valley Transportation Organization and adopted by NACOG in its Transportation Improvement Program. Eligible NACOG projects are referred to a state-wide Transportation Enhancement Review Committee and considered against established selection criteria. STP funds must be matched with non-Federal funds.

**Federal Lands Highway Funds** may be used to construct bicycle and pedestrian facilities in conjunction with roads, highways, and parkways on Federal lands. In the Sedona area this funding could be applied to USFS routes in the Coconino National Forest. Facilities must be located and designed pursuant to an overall plan developed by the State. In Arizona, ADOT and the USFS have established an agreement whereby each has control of these funds in alternate years.

**Scenic Byways Program Funds** may be used to construct facilities along the highway for the use of pedestrians and bicyclists.

**National Recreational Trails Funds**, also called "Symms Funds," may be used for a variety of trails programs to benefit bicyclists, pedestrians, and other non-motorized users. Unlike other funding sources, National Recreation Trails Funds are designated for recreational rather than transportation purposes. To be eligible for funding, projects must be designed consistent with the State Comprehensive Outdoor Recreation Plan that is published every five years by the Arizona State Parks.

**USFS Challenge Cost Share Program** is a successful example of stretching limited Federal dollars by attracting outside funding and support from potential partners. To participate, an organization or individual must enter into a Challenge Cost Share Agreement with the USFS. The "challenger" can match the USFS funds with funding, labor, equipment, supplies or technical skills. The match with USFS funds can be in any reasonable ratio ( i.e. 50:50, 20:80, etc.). The application process is done at the local ranger station.

## 8.2.2 STATE

In 1990 Arizona voters overwhelmingly supported the **Arizona Trails Heritage Fund** proposition. This program commits \$500,000 annually to trails development in the State and is administered by the Arizona State Parks Board.

**Arizona Conservation Corps (ACC)** provides employment, educational, and personal development opportunities for young adults ages 18 to 25 engaged in conservation and community service projects. Fifty percent of ACC projects have involved trail building along with revegetation and assisting in construction of campgrounds and parks. Administrative support for ACC is provided by the Arizona State Parks Board.

## 8.2.3 LOCAL

This plan strongly recommends the City include trails and urban pathways in its **Capital Improvements** budget. In addition, adequate general funds should be set aside annually to ensure that planning and maintenance efforts receive the proper level of attention. If no designated money is set aside, then trails and pathways efforts may pass by the wayside.

Issuing **Bonds** is another means in which to provide revenue for trails and urban pathways development.

**License or registration fees** are also sources of revenue but account for a small amount of funds.

**Gifts and Donations** provide temporary financial assistance but rarely can be relied upon as a source of continuing income. However, the City, USFS, and Arizona State Parks should work together to develop a charitable giving program to secure private funds.

Hundreds of miles of trails in Arizona have been constructed by the generous donations of volunteer labor. The City, USFS, and Arizona State Parks are strongly encouraged to pursue and develop a successful Adopt-A-Trail program for trails construction, education, and maintenance.

## 8.3 PLAN REVIEW AND AMENDMENT PROCESS

The Trails and Urban Pathways Plan outlines a policy for trails and urban pathways construction that is based on prevailing community needs and attitudes, existing land ownership, neighboring land uses, natural constraints, and accepted trails and urban pathways planning practices. Over a period of time, any of these variables are subject to change. Consequently, the plan must periodically be reviewed and amended if it is to remain effective.

Yet, amendments to the plan should never be allowed to occur in a haphazard manner. Amendments to the Trails and Urban Pathways plan should only occur after careful review and public hearing(s) by the Parks and Recreation Commission, Planning and Zoning Commission, and City Council.





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## REFERENCES

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USDA Forest Service and University of Georgia, Athens, GA, 1994 Survey on Recreation and the Environment

*Public Input from Open Houses*

Findings from the 1993 Parks, Recreation, Trails and Non-motorized Bikeways Needs Assessment

Results from the Arizona State Parks 1992 Outdoor Recreation Needs Assessment  
Verde Valley Regional Transportation Plan Bicycle Element

Typical pavement markings for bicycle lanes

Bicycle route signs

Bicycle route number sign

USFS Challenge Cost Share Application example

Criteria for Nominating Trails into the Arizona State Trails System

Supporting Goals

# RESOURCE ORGANIZATIONS



## RESOURCE ORGANIZATIONS

**American Hiking Society**  
P.O. Box 20160  
Washington, DC 20041-2160

National society involved in various trail issues; often credited with stopping the decline of trail miles through its lobbying and education efforts

**American Trails**  
P.O. Box 200787  
Denver, CO 80220  
(303)321-6606

Leads the nation in the creation of trail systems for all Americans by fostering communication and complementary action.

**Arizona Bicycle Task Force**  
c/o ADOT  
206 South 17th Ave., 340B  
Phoenix, AZ 85007-3213  
(602)255-8010

Advises Governor, ADOT, Arizona State Parks, and local jurisdictions on bicycle standards, planning, safety, education, and legislation.

**Arizona State Parks Board**  
**Arizona State Committee on Trails**  
1300 West Washington  
Phoenix, AZ 85007  
(602)542-7116

The Arizona State Committee on Trails (ASCOT), an advisory committee to the State Parks Board, comprised of 25 members representing trail user groups and land managing agencies from around the state, works with the State Trails Program staff to advance and promote non-motorized trail use.

**Arizona State Parks**  
**State Trails Program**  
1300 W. Washington  
Phoenix, AZ 85007  
(602)542-7116

Promotes, develops, and preserves non-motorized trail opportunities throughout the state through education, organizing conferences, producing publications, providing funding, and offering technical assistance.

**Bicycle Federation of America**  
**Bicycle Institute of America**  
**1818 R Street N.W.**  
**Washington, D.C. 20009**  
National lobbying group and clearinghouse for bicycling policy

**Friends of the Forest**  
**Mary Lee Dunning**  
**4111 Palisades**  
**Sedona, AZ 86336**  
Local volunteer organization dedicated to providing the Sedona Ranger Station staff assistance in preserving Coconino National Forest areas and facilities and implementing programs

**International Mountain Bicycling Association**  
**Route 2 Box 303**  
**Bishop, CA 93514**  
Membership group advocates off-road access for cyclists and promotes responsible off-road riding

**Red Rock Pathways**  
**P.O. Box 20711 V.O.C.**  
**Sedona, AZ 86341**  
Local Kiwanis Club-sponsored group devoted to creating a 55-mile-long system of multi-modal, non-motorized pathways in the Sedona region

**Sedona Bicycle Club**  
**50 Yucca Street**  
**Sedona, AZ 86351**  
Local club promoting involvement in all aspects of bicycling, promoting and defending bicycle access and cyclist's rights, providing bicyclist education

**Sedona Westerners**  
**P.O. Box 967**  
**Sedona, AZ 86339**  
Local club devoted to trails development and education, conducting group hiking, and advocating trails

**Sedona Saddle Club**  
**P.O. Box 3584**  
**Sedona, AZ 86340**  
Represents and advocates equestrian interests and rights

**Sierra Club**  
**Sedona Chapter**  
**Bennie Blake**  
**P.O. Box 2604**  
**Sedona, AZ 86339**



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Cindy Rovey, Vice-Chairperson  
Penny Burns  
Dick Canby  
Norm Herkenham, Trails Representative  
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# GLOSSARY



## GLOSSARY

**AASHTO** - American Association of State Highway and Transportation Officials.

**ABTF** - Governor's Arizona Bicycle Task Force. Advises ADOT and State Parks on bicycle issues.

**ADOT** - Arizona Department of Transportation.

**ALIGNMENT** - The layout of a trail in horizontal and vertical planes (bends, curves, uphill and downhill). The more the alignment varies, the more challenging the trail usually is.

**BICYCLE FACILITIES** - A general term denoting improvements to accommodate bicycling, including parking facilities, signage, all bikeways and routes.

**BICYCLE LANE (CLASS II)** - A portion of a roadway or shoulder which has been designated for use by bicyclists. It is distinguished from the portion of roadway for motor vehicle travel by a paint stripe, curb or other similar device.

**BICYCLE PATH (CLASS I)** - A separate trail or path from which motor vehicles are prohibited and which is for the exclusive use of bicycles or the shared use of bicycles and pedestrians. Where such trail or path forms a part of a highway, it is separated from the roadway, and from vehicular traffic, by an open space, grade separation, or barrier.

**BICYCLE ROUTE** - A system of bikeways designated by appropriate route markers and by the jurisdiction having authority.

**GRADE** - The slope the trail maintains in its direction of travel, measured in percentage (feet change in elevation for every 100 horizontal feet).

**LOOP CONCEPT** - Designing trail systems so that the routes form loops, giving users the option of not travelling the same section of trail more than once on a trip.

**MULTIPLE-USE TRAIL** - A trail that permits more than one user group at a time.

**MULTI-MODAL TRANSPORTATION** - Refers to trip events where an individual incorporates more than one mode of transportation, i.e. public transit, private automobile, walking, bicycling.

**OBSTACLES** - Physical objects that are large enough to impede or slow travel. Logs, roots, rocks, and ledges are common obstacles.

**PEDESTRIAN** - A person whose mode of transportation is on foot, including walking a bicycle, or person using a wheelchair or similar device.

**RIGHT-OF-WAY** - A general term denoting land, property, or interest therein, for transportation purposes, but with other associated uses such as utilities, water and sewer lines, or buffer zones.

**RUMBLE STRIP** - A linear strip at the edge of pavement or separating travel lanes, consisting of indentations formed perpendicular to the road surface, usually when asphalt is still hot, approximately 7/8 inch in depth, eight inches on center, one to two feet wide.

**SHARED ROADWAY (CLASS III)** - A roadway which is officially designated and marked as a bicycle route, but which is open to motor vehicle travel and upon which no bicycle lane is designated.

**SIGHT DISTANCE** - A measurement of the trail or pathway user's visibility, unobstructed by traffic, landscape, or buildings, along the normal travel path to the furthest point of the trail or pathway surface.

**TRAFFIC CONTROL DEVICES** - Signs , signals, or other fixtures, whether permanent or temporary, placed on or adjacent to a travelway to regulate, warn, or guide traffic.

**TRAILHEAD** - The beginning of a trail system; a staging area.

**TREAD** - The portion of a trail on which users actually travel.

**WATER BAR** - Low stone, log, earthen, cement block, or hardened rubber barriers designed to channel water from the trail tread.

**WIDE CURB LANE** - A portion of the roadway designated for shared use by bicycles and motorized traffic. Width of lane is typically 12 to 15 feet.