

Lake Havasu City

TRAILS PLAN

MAY 2006



PREPARED FOR



PREPARED BY



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EXECUTIVE SUMMARY

The Lake Havasu City Trails Plan is a supplement to the Lake Havasu City Transportation Study, examining existing and potential recreational trails in Lake Havasu City and surrounding areas. The purpose of the Trails Plan was to provide an area wide, interconnecting trails network enhancing Lake Havasu's recreational lifestyle.

The Lake Havasu City Trail Plan details the process of reviewing existing conditions, assessment of needs, and review of policies and procedures. The Executive Summary summarizes the process, findings and final recommendations of the Trails Plan.

PURPOSE AND NEED

The benefits of trails are numerous. Trails contribute to the recreational opportunities of a region; help with traffic and air quality concerns by presenting a viable alternative to driving a car; and promote a healthful lifestyle. By doing all these things, trails may also contribute to economic vitality of an area by providing an attractive place to live and visit.

As the General Plan recognizes, Lake Havasu is a city oriented towards recreation and tourism, and many residents are regular walkers and bicyclists. Developing an extensive and complete formal trails system that would connect neighborhoods, downtown, and the lake is a popular concept among the community and essential to achieving the vision of the City General Plan.

VISION, GOALS AND OBJECTIVES

The trails system of the City of Lake Havasu provides a network of non-motorized, multi-use, off-road pathways that encourages a healthy and active lifestyle for visitors and residents by taking advantage of the City's natural beauty and exceptional recreational opportunities. This network contributes to the City's economic well-being by providing connectivity between neighborhoods, recreational centers, sightseeing activities, and shopping areas.

The trails system was designed to conform to the goals and objectives as established in the Trails Plan. These goals include:

- *Recreational:* Provide access to hiking, biking, parks, shopping and cultural activities, as well as capitalizing on the natural resources and existing tourism infrastructure of the area.
- *Connectivity:* Create a complete network across jurisdictional boundaries, linking a variety of recreational opportunities in a clear and comprehensive manner, while providing for growth in the future.
- *Safety and Accessibility:* Provide safe recreational opportunity that is accessible to a variety of users, while ensuring users are aware of trail conditions and difficulty level.
- *Feasibility:* Ensure that the lifecycle costs of a trail are identified, identify potential funding sources both for initial construction and maintenance, and promote

coordination and cooperation between public agencies, private organizations, community members, and trail users.

- *Awareness and Discovery*: Promote trails system, including rights and responsibilities of users, as well as natural, historical, and cultural sights in the area.

RELATED PLANNING EFFORTS

Trails planning is not done in isolation; other city departments and agencies outside the city are constantly engaged in planning efforts of their own. To varying degrees, these other planning efforts affect how the trails network should and will be created. Other plans that were reviewed in this process include:

- Lake Havasu City 2002 General Plan (City of Lake Havasu, August 2002; revised December 2004)
- “Arizona Trails 2005” Statewide Motorized and Non-motorized Trails Plan
- MCC Regional Park Site Preliminary Master Plan & SARA Regional Park – Parks Master Plan (City of Lake Havasu, August 2005)
- State Route 95 Landscape Master Plan (City of Lake Havasu, June 2002)
- Draft Resource Management Plan & Draft Environmental Impact Statement (Bureau of Land Management – Lake Havasu Field Office, September 2005)
- Pedestrian & Bicycle Plan (City of Lake Havasu, September 1998)
- 2005 Small Area Transportation Study (City of Lake Havasu, March 2005)

TRIP ATTRACTORS

People use recreational pathways for different reasons. A major influence on the trip purpose is what lies at the end of the trip – the “trip attractor.” Employment destinations, schools, recreation facilities, and commercial areas draw people for different reasons. This, in turn, affects the amenities people expect along the way and at their destination.

Various trip attractors and activity centers were identified in this process, consisting of parks (existing and planned; regional, state, and neighborhood), commercial centers, tourism sites, recreational landmarks, cultural sites, and schools.

EXISTING TRAILS NETWORK

Lake Havasu City’s current trail network consists of paved and unpaved trails that are managed by public agencies, and unpaved ‘social’ trails in undeveloped areas of the city. The paved trails are used both for recreation and for transportation by pedestrians, bicyclists, skateboarders, and roller bladers. The social trails are unofficial trails, neither owned by nor maintained by any organized group, but known to and used by the community. Lake Havasu City’s social trails are used for recreational purposes, primarily by hikers, mountain bikers, and equestrians.

Lake Havasu City currently enjoys different types of paths serving a variety of purposes, but the City currently has no official standard design for multi-use pathways or

recreational trails. Classification of the trail system provides a basis for determining right-of-way, improvement needs, design characteristics, and costs. Trails are classified by type, design, usage, access, facilities served, amenities, and ownership.

PROPOSED TRAILS NETWORK

A complete multi-use trail system will provide safe, accessible recreation opportunities, connectivity, and mobility throughout the city. This Trails Plan suggests a variety of trail concepts to serve the City of Lake Havasu, but the trails also work in concert to provide an integrated trail network. The proposed trails are:

- Powerline Trail
- Lakeshore Trail North
- Pima Wash/El Dorado Wash Trail
- Havasupai/Palm Tree Wash Trail
- Chemehuevi Wash Trail
- Recreational Beltway
- SR95-to-SARA Park Connector Trail
- SR95-to-Airport Connector Trail
- Lakeshore South/SARA Park Trail
- Dedicated Pathway to Island (2nd Bridge Crossing)

TRAIL DESIGN

Not all trails are the same. Some are short and well developed and designed to accommodate high numbers of less-experienced users. Others are longer, more challenging and less developed, featuring less improved infrastructure. Different trail 'types' have different design and construction requirements.

Type I: "Urban mixed-use trail"

Urban mixed-use trails are multi-purpose trails that can accommodate a variety of trail users including walkers, joggers, recreational bikers, commute bikers, and roller-bladers within the same trail corridor. The main trail tread is a single, ten-foot to twelve-foot-wide (or more) trail paved with concrete or asphalt, with a two-foot-wide soft shoulder on either side of the main trail. The soft shoulder generally consists of crushed gravel or equivalent.

Type II: "Fringe mixed-use trail"

Fringe mixed-use trails function as "feeders" for the Type I trails, and are located in the outlying areas of town. Type II trails consist of a single, ten-foot to twelve-foot-wide pathway with a graded natural surface.

Type III: "Outlying mixed-use trail"

Outlying mixed-use trails are generally located in the mountains or foothills, and are less improved than a Type I or II trail. Type III trails are typically a four-foot to six-foot-wide natural surface with no shoulders. Most users are hikers, mountain bikers and equestrians.

The surfacing of a trail is very important; not only does it reflect the needs of the trail's intended users, but it can help deter unintended or undesired users. (For example, gravel pathways encourage walkers but discourage road bikes.) Analysis of surface types is included in the Trails Plan.

Other design elements that are discussed include:

- Grade requirements per type of trail;
- Landscaping;
- Lighting;
- Fencing;
- Trail maintenance;
- Traffic control;
- Safe crossings; and
- Restricting motorized vehicle access.

Trail amenities that were considered important and outlined in the document were:

- Seating;
- Shade;
- Waste;
- Dog waste;
- ADA accessibility; and
- Signage.

ARIZONA STATE TRAILS SYSTEM

The Arizona State Trails System is a collection of trails around the state, monitored and promoted by the Arizona State Parks and the Arizona State Committee on Trails. While the State Trails System program is under the oversight of the Arizona State Parks Department, the trails themselves remain within the purview of individual local agencies. The State Trails System was created “to recognize and promote non-motorized trails that are of special interest or significance to both Arizona's residents and visitors” and currently comprises more than 600 trails.

Currently, none of the trails in Lake Havasu City are part of the State Trails System and, until standards are established, none may be considered for inclusion. However, once standards are put in place, several existing trails may be good candidates for the state system.

PROPOSED TRAILS NETWORK



I. PURPOSE & NEED

The benefits of trails are numerous. Trails contribute to the recreational opportunities of a region; help with traffic and air quality concerns by presenting a viable alternative to driving a car; and promote a healthful lifestyle. By doing all these things, trails may also contribute to economic development of an area by providing an attractive place to live and visit.

This Trails Plan is guided by the vision for Lake Havasu City as stated in the 2002 General Plan:

Lake Havasu City is a lakeside community unlike any in the world. Its spectacular desert setting is complemented by its attractive, well-planned built environment. Areas have been preserved within the community to maintain an open space feel and free access to Lake Havasu for future generations. (Section 2.5 of General Plan.)

As the General Plan recognized, Lake Havasu is a city oriented towards recreation and tourism, and many residents are regular walkers and bicyclists. Developing an extensive and complete formal trails system that would connect neighborhoods, downtown, and the lake is a popular concept among the community and essential to achieving the vision of the City General Plan.

In addition to the benefits of trails and city improvement goals, the 2002 General Plan specifically called for a trails network as an Open Space and Recreation objective:

Creation of Comprehensive Trail System. Opportunities to create new equestrian and pedestrian uses should be supported. A trail system should connect activity centers and parks throughout the planning area. (Section 6.3 of General Plan.)

The General Plan also identified the need for environmental preservation, improved transportation alternatives, lakeshore preservation and access. Trails planning complements Lake Havasu City's recreation-oriented lifestyle. By formalizing its trails program, the city will be able to systematically inventory the existing trails network, recognize popular informal (social) trails, and design a network that takes advantage of the recreational opportunities and the needs of citizens for an active outdoor lifestyle. Formalizing the trails system will also allow the City to qualify for additional funding options, such as the Arizona State Trails System.

In addition to supporting a general goal of increased recreational opportunity for residents and visitors, the City's Parks and Recreation Department has long had a goal of creating a lakeside pathway that connects the existing trails along the shoreline and extends to existing and planned parklands within the city limits as well as to recreational attractors on Bureau of Land Management (BLM) controlled land to the north and south. This shoreline trail would, ideally, link recreational opportunities with downtown. There is also community interest in neighborhood connector trails – perhaps including a trail along the Western Area Power Authority (WAPA) power line easement.

For general benefits, specific goals of city departments and the citywide planning process, a trails plan is considered necessary. The needs that the City has identified provide the framework in which this Trails Plan was developed.

II. TRAILS SYSTEM VISION, GOALS, AND OBJECTIVES

In order to guide the development of a Trail System, the City of Lake Havasu established a precise vision, supporting goals and objectives for its network of recreational trails.

Vision

The trails system of the City of Lake Havasu will provide a network of non-motorized, multi-use, off-road pathways that encourage a healthy and active lifestyle for visitors and residents by taking advantage of the city's natural beauty and exceptional recreational opportunities. Consequently, this network will contribute to the city's economic development by providing seamless connectivity between neighborhoods, recreational centers, sightseeing activities, and shopping areas.

The trails system will be designed to conform to the principles, goals, and objectives below:

Recreation

Goal 1: Provide access to a variety of recreational opportunities, including hiking, biking, and horseback riding, visiting parks, and shopping/cultural activities.

Objective: Focus on off-road pathways for non-motorized, recreational use.

Goal 2: Take advantage of the natural resources and existing tourism infrastructure of the Lake Havasu area.

Objective: Expand the existing lakeside/downtown trails, including the SR-95 path and the Pima Wash path.

Connectivity

Goal 1: Create a complete network that links a variety of recreational opportunities in a clear and comprehensive manner.

Objective: Inventory existing trails and identify desired attractions/destinations and the opportunities for new trails to connect them.

Goal 2: Provide a seamless user experience across jurisdictional boundaries.

Objective: Work with State Parks, the Bureau of Land Management, and private groups to identify and jointly develop trails.

Goal 3: Support development of new trails and trail access as the community grows.

Objective: Develop database of information on trails.

Objective: Consider trail use options when roads or utility corridors are designated for abandonment, change of use, or shared use.

Safety & Accessibility:

Goal 1: Provide safe recreational opportunity that is accessible to as many potential users as possible.

Objective: Establish general trail design, maintenance, and signage standards.

Objective: Identify opportunities for accessibility improvements.

Goal 2: Ensure trail users are aware of trail conditions and level of difficulty for each trail.

Objective: Develop guidelines for signage to educate users about trail use.

Feasibility

Goal 1: Ensure that the entire lifecycle of a trail is considered to avoid unanticipated costs.

Objective: Develop estimates for trail development, accounting for land acquisition, initial construction costs, and ongoing maintenance costs.

Goal 2: Identify potential funding sources both for initial construction and ongoing maintenance.

Objective: Recognize and explore funding and partnership opportunities and the guidelines for each.

Goal 3: Promote coordination and cooperation between public agencies, private organizations, community members, and trail users.

Objective: Develop a community trail support program, such as “Adopt-a-Trail” programs targeted at different user groups.

Awareness & Discovery

Goal 1: Promote awareness of the trail system – and the recreational and health opportunities it affords – to Lake Havasu City residents and visitors.

Objective: Promote use of trails through signage and publicity.

Objective: Create and distribute trails brochure.

Goal 2: Make trail users aware of their rights and responsibilities as trail users.

Objective: Develop trail etiquette education program.

Goal 3: Provide information to trail users about the natural, historical, and cultural importance of a trail to enhance their understanding of the area and their enjoyment of the trail system.

Objective: Identify interpretive opportunities.

III. REGIONAL CONTEXT & CITY DESCRIPTION

1.1 Location

Lake Havasu City is located in Mohave County on Arizona's western border, across the Colorado River from California, in roughly the midpoint between Mexico and Utah. (Figure 1 shows the study area.) The manmade Lake Havasu forms the city's western edge; the Mohave Mountains border it on the east. Lake Havasu City's nearest neighbor is Parker, AZ, 39 miles to the south. Table 1 shows Lake Havasu City's proximity to other cities in Arizona and neighboring states.

Table 1: Distances to Selected Cities

City/Town	Distance from Lake Havasu City
Parker	39 miles
Kingman	60 miles
Flagstaff	207 miles
Phoenix	193 miles
Bullhead City/Laughlin (NV)	65 miles
Las Vegas, NV	133 miles
Needles, CA	43 miles
Blythe, CA	96 miles

Despite being relatively isolated, Lake Havasu City is within reach of major population centers in Arizona, California, and Nevada.

1.2 Environment

Because the natural and built environments greatly influence the alignment, design, construction, and maintenance of trails, the next section gives a brief description of each.

1.2.a Topography

Lake Havasu City lies in the Chemehuevi Valley, between the Colorado River and the foothills of the Mohave Mountains. With Lake Havasu as its western border and the mountains its eastern border, the city rises steeply in elevation from a low of 450 feet above sea level (at the edge of the lake) to 5,148 feet at Crossman Peak, in the Mohave Mountains.

The topography of the City has implications for trail planning since the city, on average, sits on a 5% slope, is crossed by many washes, and is generally very hilly.

1.2.b Washes

Washes serve to convey large amounts of rainfall flow from the mountains at the eastern border across the City into the Colorado River and the reservoir that forms Lake Havasu. Since they cross the city in fairly direct paths, these major and minor washes provide excellent opportunities for trail alignments, but the implications for trail maintenance must be recognized.

Figure 1: Study Area



1.3 Lake Havasu

Lake Havasu forms the western border of the City. It was created in 1938 by damming the Colorado River downstream in Parker.

1.3.a Vegetation

The vegetation of Lake Havasu City is generally sparse and typical of Mohave Desert habitat, with more lush vegetation along the lakeshore.

1.3.b Weather

Apart from its exceptionally hot summer months, Lake Havasu City enjoys a beautiful, dry climate. In May and October, average temperatures are in the mid-80s to mid-90s. From November through April, temperatures are ideal, averaging from the mid-60s in January to the low 80s in April. In the summer months, average temperatures hover above 100 degrees. Even in its wettest month, Lake Havasu receives only about an inch of water; but downpours mean that much of that precipitation is received in short time periods, resulting in flash flooding that moves rapidly through the city's washes.

1.4 Built Environment

The City of Lake Havasu was incorporated in 1978 as a master-planned community developed by the McCulloch Company, with the lake serving as the focal point for the residential, industrial, and commercial development.

The 2002 General Plan calls for commercial development, along with high-density residential development, to be clustered along SR-95 between Mulberry and Kiowa, and in the downtown area along McCullough, between SR-95 and just east of Acoma. Low-density housing will continue to comprise the greatest proportion of the city's built environment.

1.5 Socio-economic Description

Trails can be used by people from all walks of life, but specific user groups may have specific needs. In order to illustrate the socio-economic characteristics of Lake Havasu City, this section presents a brief overview of the people of Lake Havasu City.

Table 2 summarizes information from the 2000 census for the State of Arizona, Mohave County, and Lake Havasu City.

Table 2: Age and Income

	Lake Havasu City	Mohave County	Arizona
Median age (in years)	47.5	42.9	34.2
Median household income (1999)	\$36,499	\$31,521	\$40,558
Per capita income (1999)	\$20,403	\$16,788	\$20,275
Average household size	2.32	2.45	2.64
In labor force	50%	53%	61%

Compared to Mohave County or the State of Arizona as a whole, Lake Havasu City is slightly older, slightly wealthier, and has smaller households. Fewer Lake Havasu City

residents participate in the workforce compared with Mohave County and the state. This information correlates with the perception of Lake Havasu City as a place to vacation or to retire.

However, Lake Havasu City is experiencing very rapid growth. Population estimates from the Arizona Department of Economic Security indicate that Lake Havasu grew at a quicker pace than either Mohave County or the State as a whole (see Table 3).

Table 3: Population Growth, 2000-2004

	Lake Havasu City	Mohave County	Arizona
2000 census	41,938	155,032	5,130,632
2004 estimate	52,205	180,210	5,833,685
Percent change	24.5%	16.2%	13.7%

In light of this rapid growth, Lake Havasu City may be undergoing a demographic shift; in fact, the 2002 General Plan identified a trend of more families moving into the area in addition to active retirees.

A final piece of census information has a strong implication for trails planning, and that is the city's disabled population. Information from the 2000 U.S. Census indicates that while Lake Havasu's disabled population is relatively lower than that of Mohave County, the disabled residents make up more than 1/5 of the city's population (see Table 4).

Table 4: Disability Status (population 5 years and older)

	Lake Havasu City	Mohave County	Arizona
Disability status	21%	26%	19%

In light of the socio-economic information presented, any trails plan should reflect the needs of multiple user groups.

IV. RECREATIONAL TRIP ATTRACTORS

People use recreational pathways for different reasons. A major influence on the trip purpose is what lies at the end of the trip – the “trip attractor.” Employment destinations, schools, recreation facilities, and commercial areas draw people for different reasons. This, in turn, affects the amenities people expect along the way and at their destination.

1.1 Lake Havasu City Attractors

Probably the most important recreational attractor within Lake Havasu City is the lake itself. Forty-five miles long and three miles wide, Lake Havasu offers visitors and residents water-based recreation opportunities including boating, swimming, waterskiing, fishing, and sailing. Other recreational benefits include lakeside hikes and camping. The famous London Bridge spans the channel between the mainland and the 2 ½ square-mile Island.

Other destinations attractive to recreational trail users in Lake Havasu City include parks, tourism sites, shopping districts, schools, and regional landmarks. In addition to providing a final destination, parks offer amenities such as restrooms and drinking fountains, or simply places to rest after a hike. Schools also provide many such amenities.

Given the limited nature of the existing recreational trail and pedestrian/bicycle system, there is currently little empirical data about where recreational trail users travel in Lake Havasu City. Therefore, the attractions listed below represent anecdotal evidence and attractions typical in other cities. (Figure 3 shows some of these attractors grouped together as “activity centers.”)

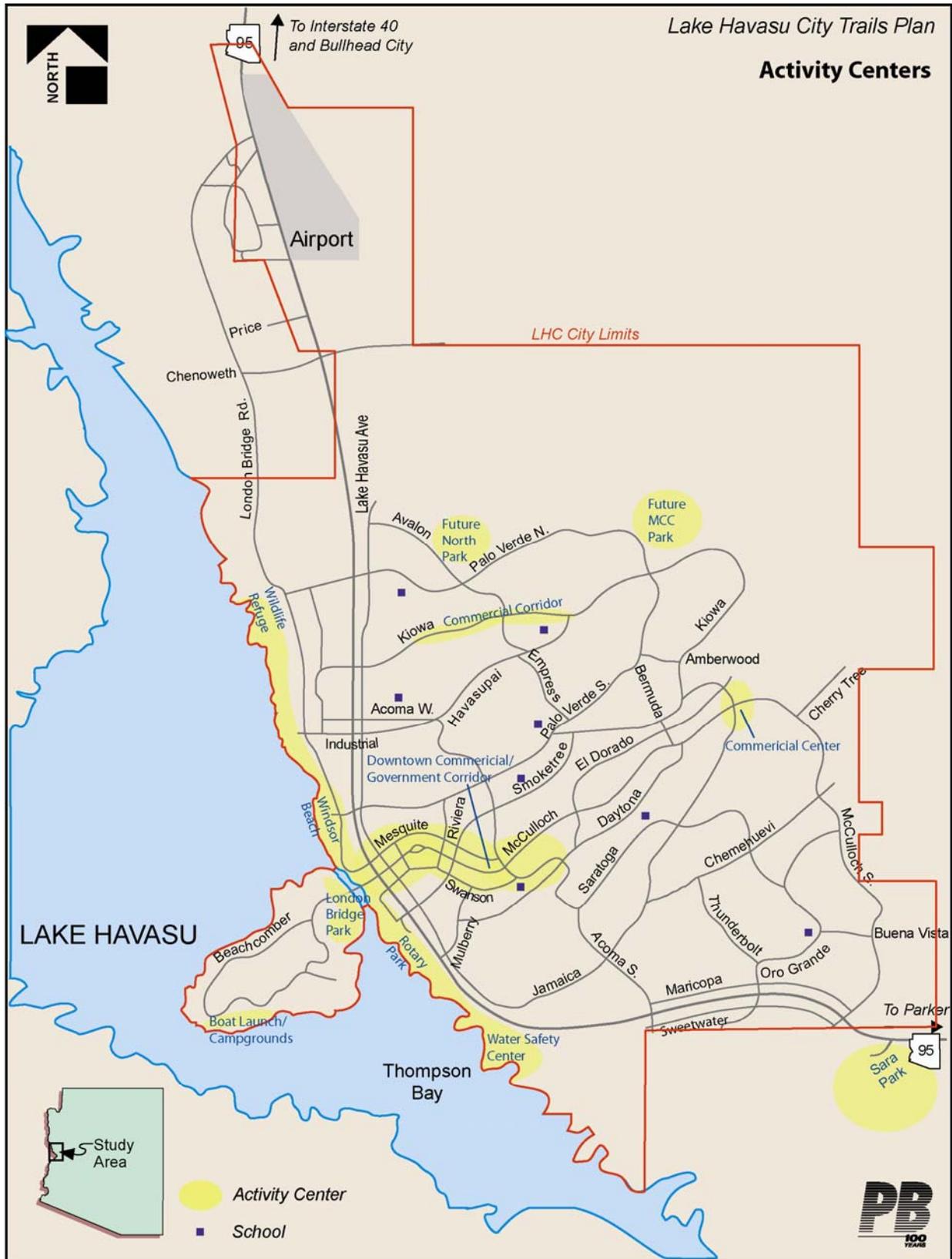
1.1.a Parks

- SARA Park, Highway 95
- Lake Havasu State Park
- Windsor Beach (Part of Lake Havasu State Park)
- Jack Hardie Park – neighborhood park between Baron Drive and Bunker Drive
- London Bridge Beach – 1340 McCulloch Boulevard
- Rotary Community Park – 1400 S. Smoketree Boulevard
- Yonder Park – Between McCulloch and Cherry Tree Boulevards
- Lions Dog Park – 1340 McCulloch Boulevard
- Daytona Cypress Park – neighborhood park at corner of Daytona Avenue and Cypress Drive
- Avalon Park – 1294 Avalon Avenue
- Site Six Launch Ramp – 591 Beachcomber Boulevard
- Island Sports Field – 1150 McCulloch Boulevard



Figure 2: London Bridge and Marina

Figure 3: Activity Centers



1.1.b Planned Parks

- Rotary Community Park Extension – to the south of Rotary Park
- MCC Regional Park – at the end of Desert Rose Street (north of Kiowa)
- North Regional Park – off Avalon Street

1.1.c Commercial Centers

- Downtown
- Kiowa corridor
- McCullough and Jamaica intersection
- Airport commercial/industrial complex

1.1.d Tourism Sites

- London Bridge & English Village
- Pittsburgh Point Island

1.1.e Recreational landmarks

- Lake Havasu Shoreline
- Crossman Peak (5100' – northeast of Lake Havasu City)
- Crack-in-the-Mountain (south of Lake Havasu City)



Figure 4: View of Shoreline from Island

1.1.f Cultural sites

- Lake Havasu Museum of History

1.1.g Schools

Elementary Schools

- Havasupai Elementary School – 880 Cashmere Drive
- Jamaica Elementary School – 3437 Jamaica Boulevard
- Nautilus Elementary School – 1425 Patrician Drive
- Oro Grande Elementary School – 1250 Pawnee Drive
- Smoketree Elementary School – 2395 Smoketree Avenue
- Starline Elementary School – 3150 Starline Drive

Junior High

- Daytona Middle School – 92 Swanson Place
- Thunderbolt Middle School – 695 Thunderbolt Avenue

Senior High

- Lake Havasu High School – 2675 Palo Verde Boulevard

Charter

- Telesis Preparatory Academy – 2598 Starlite Lane (K-12)
- Lake Havasu Charter School – 1055 Empire Drive (5-12)
- Desert Technology High School – 2818 Sweetwater Avenue (9-12)

College

- Mohave Community College – 1977 West Acoma Boulevard

1.2 Regional attractors

The region around Lake Havasu City provides additional recreational opportunities. Working with other agencies to ensure that the trails network serves not just local areas but also regional attractors is a key principle of this plan. (Figure 5 shows ownership of land in and around Lake Havasu City.)

Attractors to the south of Lake Havasu City include the following:

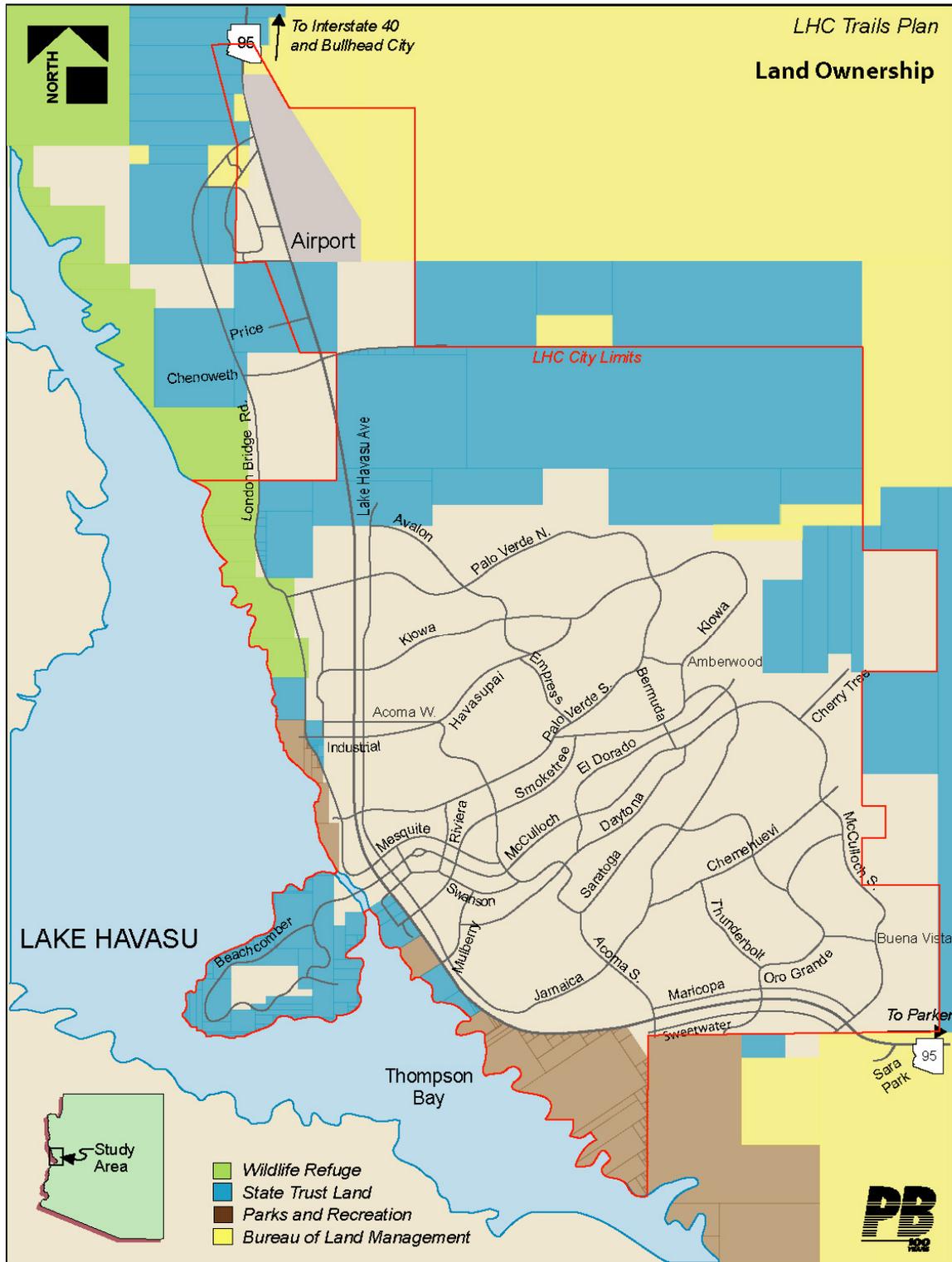
- Bill Williams River National Wildlife Refuge;
- Standard Wash Open Off-Road Area;
- Lake Havasu Boat Campsites (on state or Bureau of Land Management land) – currently water-accessed only; and
- Cattail Cove State Park – 15 miles south of downtown Lake Havasu City.

To the north of Lake Havasu City are major recreational destinations such as:

- Black Mountain;
- Buck Mountain;
- Dutch Flat;
- Havasu National Wildlife Refuge and;
- Topock Gorge.

A network of regional trails would link residents and visitors to recreational, commercial, and other activity centers. The existing trail system serves the core of the city. A trail system that runs cross-town and that connects the hills to the lake and to the center of town would maximize access to the city's and the region's facilities. A complete trails network will provide access to residential neighborhoods, tourist areas, schools, commercial development, and recreational opportunities.

Figure 5: Land Ownership in Study Area



V. RELATED PLANNING EFFORTS

Trails planning does not operate in a vacuum; other city departments and agencies outside of the city are constantly engaged in planning efforts of their own. To varying degrees, these other planning efforts affect how the trails network should and will be created. This section summarizes various planning efforts and their relation to a Trails Plan.

1.1 Citywide Planning

Lake Havasu City 2002 General Plan (City of Lake Havasu, August 2002; revised December 2004)

The Lake Havasu City 2002 General Plan forms the vision for the growth and development of the City of Lake Havasu, and provides guidance for other planning efforts. In addition to calling specifically for a comprehensive trails plan, the 2002 General Plan listed several other city goals that a trails network can help fulfill, among them air quality concerns; formulating a complete bicycle and pedestrian network; protecting public access to the Lake Havasu shoreline; promoting central area revitalization; and providing access to the Island.

1.2 Recreational/Parks Plans

“Arizona Trails 2005” Statewide Motorized and Non-motorized Trails Plan

In the Statewide Trails Plan, Arizona State Parks found that users of non-motorized trails had different priority recommendations:

1. Renovate and Maintain Existing Trails
2. Protect Access to Trails/Acquire Land for Public Access
3. Develop Signage and Support Facilities
4. Conduct Comprehensive Planning
5. Provide Trail Information/Maps
6. Provide Education and Trail Etiquette

This statewide planning effort can help Lake Havasu City identify other opportunities for improving the trails experience beyond the simple creation of a trails network.



Figure 6: Site of Future MCC Regional Park

MCC Regional Park Site Preliminary Master Plan & SARA Regional Park – Parks Master Plan (City of Lake Havasu, August 2005)

Since a primary goal of the trails network is to provide access to recreational opportunities, it is imperative to understand how regional parks are to be developed. Regional park development will affect trail destinations, trailheads locations, and the alignment of the specific pathway.

State Route 95 Landscape Master Plan (City of Lake Havasu, June 2002)

The Landscape Master Plan for State Route 95 includes information on the aesthetic design of SR95, the main artery of Lake Havasu City. These design elements impact – directly and indirectly – the paved multi-use pathway that runs along the road.

Draft Resource Management Plan & Draft Environmental Impact Statement (Bureau of Land Management – Lake Havasu Field Office, September 2005)

Lake Havasu City's recreational lands abut federal and state lands at several points. Awareness of the BLM's planning efforts allows the project team to take advantage of work that the BLM has already performed, and to ensure that planning efforts within Lake Havasu City borders mesh with planning outside of the borders. For example, the BLM has mapped many social (or "pioneered") trails outside the city borders. Knowing these locations allows Lake Havasu City to locate its own trails accordingly.

Lake Havasu State Park Planning Efforts

Although not part of a formal planning process, the Lake Havasu State Park is currently constructing a new multi-use trail that will run the length of the park, parallel to and east of the existing Mohave Sunset Trail (which serves hikers only), along London Bridge Road. The 10-foot-wide multi-use path will be paved to accommodate bikes, strollers, wheelchairs, and so on, along with walkers. The project is in the "grading" phase, pending identification of funding for construction.

Given that Lake Havasu State Park's new multi-use path will form a key link in any lakefront pathway, the City may wish to consider this project in the prioritization of its own projects, and to join forces with the State Park in pursuing funding.

1.3 Transportation Plans

Pedestrian & Bicycle Plan (City of Lake Havasu, September 1998)

This 1998 plan, adopted by the City Council, mapped the existing pedestrian and bicycle networks, and made extensive recommendations about extending and expanding that network. As recommended by this plan, the pedestrian and bicycle network in Lake Havasu City primarily consists of sidewalks and on-road bicycle lanes. Since trails form an additional layer of pedestrian and bicycle access, it is critical to understand the existing network for these users before adding layers of pedestrian and bicycle usability.

2005 Small Area Transportation Study (City of Lake Havasu, March 2005)

The 2005 Small Area Transportation Study focused primarily on automobile mobility in the City of Lake Havasu, but, because trails often cross the roadway network, it is important for a trails planning effort to recognize how roads are used, as well as future plans for the roadway network.

VI. EXISTING TRAILS NETWORK

In order to understand the gaps in the current trail system in Lake Havasu City, it is important first to document what the system currently looks like. This section describes the existing multi-use path system within Lake Havasu City limits, including jurisdictional ownership, standards, physical features, and safety. This section also includes an inventory of the existing trail system based on a series of classifications described below.

1.1 Existing Paths

Lake Havasu City's current trail network consists of paved and unpaved trails that are managed by public agencies, and unpaved 'social' trails in undeveloped areas of the city. The paved trails are used both for recreation and for transportation by pedestrians, bicyclists, skateboarders, and roller bladers. The social trails are unofficial trails, neither owned by nor maintained by any public or private group, but known to and used by the community. Lake Havasu City's social trails are used for recreational purposes, primarily by hikers, mountain bikers, and equestrians.



Figure 7: Shoreline Promenade in Rotary Park

condition depending on location. Within Rotary Park it is approximately 12' wide, concrete, and well-lit. Parts of the path are actually on the Park's sidewalk system. North of Rotary Park, the trail narrows.

- *Pima Wash Trail:* Beginning at the shoreline and extending to Magnolia Drive, the trail along Pima Wash begins in Rotary Park with a connection to the shoreline trail. This trail is concrete and runs along the western edge of the Pima Wash. The trail is approximately a 10-foot paved path with bollards, signing and crosswalk striping at street crossings.

1.1.a Trails Managed by City of Lake Havasu

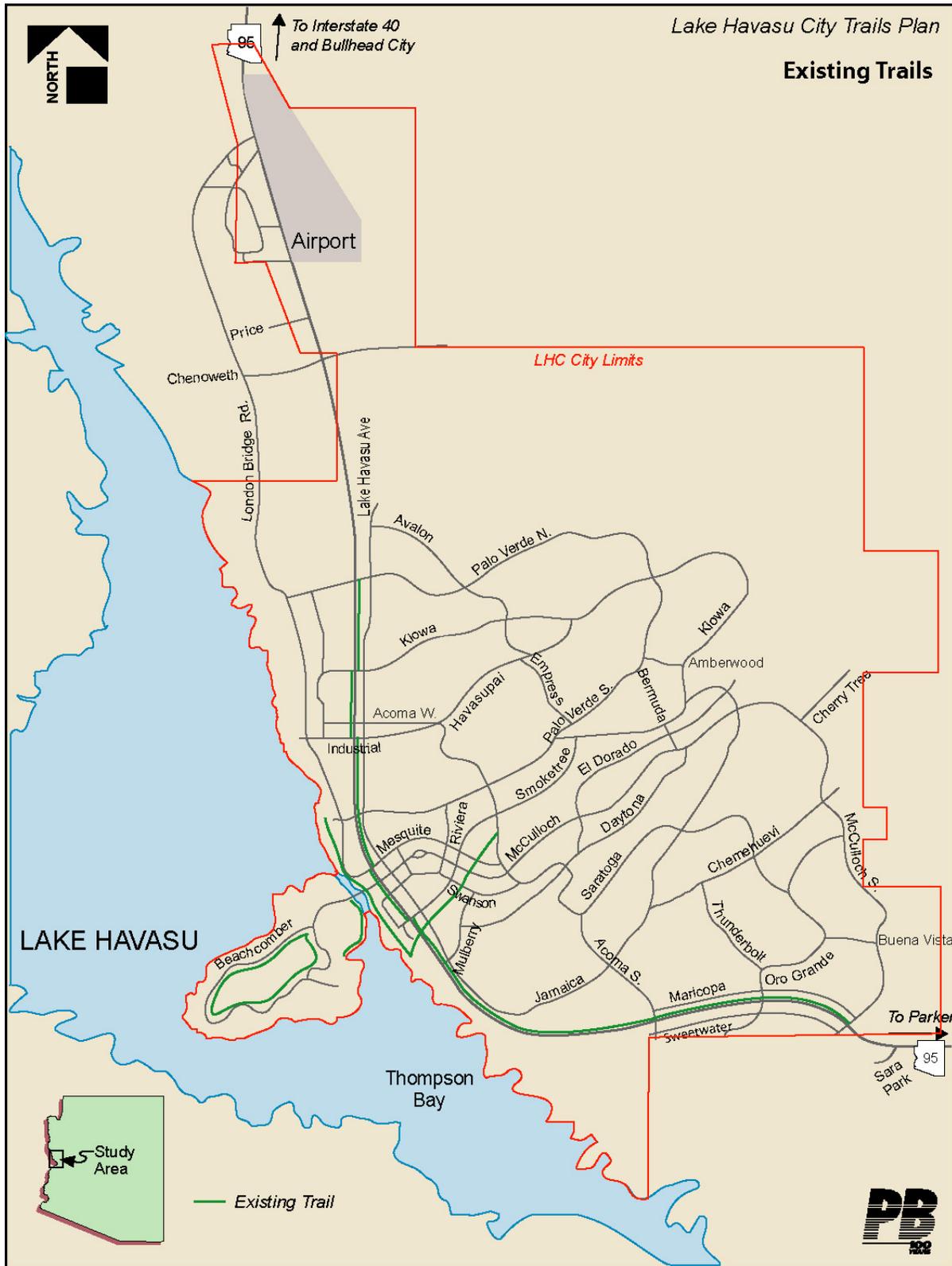
There are currently four trails within the city limits under Lake Havasu City management, all of which are paved. (Figure 9, on the next page shows a map of the existing trails.) These include:

- *State Route (SR) 95 Multi-use Trail:* Parallels SR 95 between N. Palo Verde and S. McCulloch. The path along SR 95 is a meandering 10'-12' paved path, offset from the roadway, with no striping. There is minimal signage along the path, and no accompanying landscaping.
- *Shoreline Promenade:* From Rotary Park in the south to just north of the London Bridge. The concrete pathway along the shoreline varies in size and



Figure 8: Pima Wash Trail

Figure 9: Current Trail System



- *Island Path*: Circular path in the interior of the island. The pathway around the island is approximately three and one-half miles long, paved with asphalt concrete, located on the interior of the roadway that circles the island. The pathway convention is signed for pedestrians to travel in a counter-clockwise direction and bicyclists to travel in a clockwise direction.

1.1.b Trails Managed by Arizona State Parks

Lake Havasu State Park, which is contained entirely within the city limits, contains two trails, both of which are in the Windsor Beach area of the park and are unpaved. These trails are:

- *The Mohave Sunset Trail*: A 1.5-mile-long pathway along the shoreline, roughly paralleling the southern parking lot areas.
- *The Arroyo-Camino Interpretive Garden Trail*: Extending from the Xeriscape Garden and Bird Care Facility northward through the natural area, terminating at the docks just south of parking lot 2.

1.1.c Desert Walks

There are 30 unpaved hiking and equestrian social trails, referred to as “Desert Walks,” as documented by the local recreation group, “The Lake Havasu Desert Walkers of the Lords and Ladies Club.” These are unofficial trails, neither maintained by any public agency nor designated on any map. In some cases, while the trail itself is informal, it may lead to a well-known or designated landmark, such as “Crack in the Mountain” or Crossman Peak. These social trails exist around the edges of the city, with trailheads clustered in the northern and eastern edges of the city on BLM and State Trust Land, on BLM land south of SR 95 between the lake and SARA Park, and on the island.

1.1.d Bicycle & Pedestrian Network

In addition to the paved and unpaved paths described above, Lake Havasu City has identified a transportation network for bicyclists and pedestrians in its 1998 Pedestrian and Bicycle Plan. This plan identifies sidewalks, multi-use pathways, and on-street bicycle paths and facilities, all of which are relevant to the recreational trail network because they provide means of accessing or connecting to the off-street trails. Particularly relevant in the 1998 plan is Acoma Boulevard, which runs cross-town from the northwest to the southeast. The parking lane along Acoma Boulevard is popular for bicyclists, and the sidewalk along Acoma provides safe pedestrian access.

1.2 Existing Classification and Standards

Lake Havasu City currently enjoys different types of paths serving a variety of purposes, but the City currently has no official standard design for multi-use pathways or recreational trails. Classification of the trail system provides a basis for determining right-of-way, improvement needs, design characteristics, and costs. Trails are classified by type, design, usage, access, facilities served, amenities, and ownership.

Table 5 summarizes the existing trails system; below the table is an explanation of the various classifications.

Table 5: Classification of Existing Trails

Trail Name	Users	Trailheads / Parking	Length	Destinations Served	Ownership	Type	Difficulty Level
Shoreline Promenade	Walkers, bikers	Rotary Park	2 miles	Parks, Lakeshore	City of Lake Havasu	I	Easy
Pima Wash Trail	Walkers, bikers	Rotary Park, downtown	1.5 miles	Downtown, Lakeshore	City of Lake Havasu	I	Easy – Moderate
Island Loop	Walkers, bikers	London Bridge	3.5 miles	Tourist site, Recreation	City of Lake Havasu	I	Easy
SR95 multi-use path	Walkers, bikers	Roadside	8.6 miles	Downtown, Sara Park	City of Lake Havasu	I	Easy – Moderate
Mohave-Sunset Trail	Walkers	Lake Havasu State Park	~1.5 miles	Park	Lake Havasu State Park	II	Easy
Arroyo Camino Interpretive Trail	Walkers	Lake Havasu State Park	Short, circular path	Park	Lake Havasu State Park	II	Easy
Desert Walks (social trails)	Hikers, equestrians, mountain bikers	Roadside	n/a	Back-country; Landmarks	BLM or State Trust	II, III	Varies – easy to very difficult

Users

Trails will be designed differently depending on the type of anticipated end user. People walking for exercise will very likely use different types of trails from mountain bikers looking for a challenging up- or downhill experience.

Access

The means by which trail users access a trail or trailhead will affect the type of amenities provided at a trailhead. For example, if trail users plan to drive to a trailhead, the need for parking will be a consideration.

Amenities

Trail amenities, from restrooms and drinking fountains to lighting and signage, are based on the type of trail and trail user.

Destinations served

Trails that serve different types of destinations may expect to have different types of users – a trail to a city park or school will attract children and families; a trail to a mountain peak will attract the recreational hiker.

Type

Trail type refers to the level of improvement a trail reflects, from a fully paved Type I trail to a natural surface Type III trail.

Type I: “Urban mixed-use trail”

Urban mixed-use trails are multi-purpose trails that can accommodate a variety of trail users including walkers, joggers, recreational bikers, commute bikers, and

roller-bladers within the same trail corridor. The main trail tread is a single, ten-foot-wide (or more) trail paved with concrete or asphalt, with a two-foot wide soft shoulder on either side of the main trail. The soft shoulder generally consists of crushed gravel or equivalent.

Type II: “Fringe mixed-use trail”

Fringe mixed-use trails function as "feeders" for the Type I trails, and are located in the outlying areas of town. Type II trails consist of a single, ten-foot to twelve-foot pathway with a graded natural surface.

Type III: “Outlying mixed-use trail”

Outlying mixed-use trails are generally located in the mountains or foothills, and are less improved than a Type I or II trail. Type III trails are typically a four-foot to eight-foot wide natural surface with no shoulders. Most users are hikers, mountain bikers and equestrians.

Ownership

Establishing trail ownership is important since design standards and guidelines may differ between jurisdictions.

VII. ARIZONA STATE TRAILS SYSTEM

The Arizona State Trails System is a collection of trails around the state, monitored and promoted by the Arizona State Parks and the Arizona State Committee on Trails. While the State Trails System program is under the oversight of the Arizona State Parks Department, the trails themselves remain in the purview of individual agencies. The State Trails System was created “to recognize and promote non-motorized trails that are of special interest or significance to both Arizona's residents and visitors” and currently comprises more than 600 trails.

Several trails in the Lake Havasu area are included in the State Trails System. Among these are Buckskin-Lighting Bolt Trails in Buckskin Mountain State Park; Whytes Loop Trail, Whytes Retreat Trail, and McKinney Loop Trail in Cattail Cove State Park; Rotary Park Trail System in Bullhead City. (For a definitive list, see the trail guides to the Arizona State Trail System.)

1.1 Inclusion in the Arizona State Trails System

Anyone may nominate any trail as long as the land owner or managing agency concurs with the nomination. Only non-motorized trails are included in the State Trails System. At the time of nomination, a trail may be an existing or proposed trail.¹ Only trails accepted into the state trails system are eligible to compete for state Trails Heritage Fund grants.

The State Trails System is not designed to be a competitive program, but rather a means of ensuring the quality of a trail. The trails board would tend to turn down trails that only serve a specific neighborhood; that have limited public access; that present safety hazards; or that serve to provide strictly transportation, rather than recreation. However, it does not matter whether a pathway is paved or unpaved.

Several different types of trails make up the State Trails System, those applicable to Lake Havasu City include Urban, Recreational, and Interpretive trails. (Other trail categories are Cross-State or Historic.) The designation applies to the entire length of the specific single trail. Regardless of designation, trails must be constructed, signed, and maintained to standards as set by the responsible agency to be included in the Trails System.

An Urban trail must be within the incorporated boundaries of a municipality, but must tie to an exterior trail system, providing access from developed areas to undeveloped areas. Alternatively, the trail must possess special interest or significance for the population of the urban area. Urban trails include trails that connect significant cultural or recreational facilities within a community or connect community to significant outlying recreational areas, such as regional parks.

A Recreational trail provides day use or extended opportunities for non-motorized recreation and is of sufficient length to provide appropriate access.

¹ A *proposed* trail must have a complete plan at the time of nomination, and will be de-listed from the State Trails System if significant progress toward completion is not made.

Interpretive trails are those with an educational element.

1.2 Lake Havasu City and the Arizona State Trails System

Currently, none of the trails in Lake Havasu City are part of the State Trails System and, until standards are established, none may be considered for inclusion. However, once standards are put in place, several existing trails may be good candidates for the State system. (See “Recommendations” section in this Trails Plan for suggested nominations for inclusion in the State Trails System.)

VIII. PROPOSED TRAILS NETWORK

A complete multi-use trail system will provide safe, accessible recreation opportunities, connectivity, and mobility throughout the city. This Trails Plan suggests a variety of trail concepts to serve the City of Lake Havasu, but the trails also work in concert to provide an integrated trail network. This section describes the suggested concepts, explaining the purpose of each specific trail and its particular classifications. Table 6 summarizes the trail concepts, and Figure 12 shows the proposed network of trails, along with the existing trails network and land ownership in the area to indicate where partnerships between agencies are key to trail development.

Table 6: Proposed Trail Concepts

Trail Name	Users	Trailheads/Parking	Length	Destinations Served	Ownership	Type	Difficulty Level
Powerline Trail	Walkers, bikers	Formalized parking lots; on-street parking	9.4 Miles	Neighborhoods/ Parks	City	II	Varies- Easy to Difficult
Lakeshore Trail North	Walkers, bikers	Lake Havasu State Park	3.8 Miles	Park, wildlife refuge, lake front	City, State Park	I	Easy
Pima Wash trail	Walkers, bikers	Rotary Park, neighborhood parking	1.6 Miles (New)/ 3.1 Miles (Total)	Park, downtown, neighborhoods	City	I	Easy-Moderate
Havasupai/Palm Tree Wash Trail	Walkers, bikers	On-street parking; parking along lakeshore	5 Miles	Mountains, lake front, neighborhoods	City	I	Moderate
Chemehuevi Wash Trail	Walkers, bikers	On-street parking; parking along lakeshore	5.6 Miles	Mountains, lake front, neighborhoods	City	I	Moderate
Recreational Beltway	Walkers, bikers, equestrians	MCC, North Parks, neighborhood parking	8.4 Miles	Parks, Mountains	City, State, BLM	I, II	Moderate-Difficult
SR95-to-SARA Park Connector Trail	Walkers, bikers	On-street parking; Rotary Park	0.7 Miles (New)/ 2.9 Miles (Total)	Parks	City	I	Easy
SR95-to-Airport Connector Trail	Walkers, bikers	Downtown; on-street parking	4.7 Miles	Commercial centers	City	I	Easy
Lakeshore South/SARA Park Trail	Walkers, bikers, equestrians	Water Safety Center; Commercial development at Body Beach	5 Miles	Park, campgrounds, beaches	State Parks, BLM	II	Easy-Moderate

1.1 Powerline Trail

Concept:

Taking advantage of the existing WAPA powerline right-of-way to provide a cross-town pathway, from the northwest corner to the southeast corner of the city.

Purpose:

In a sense, this is a multi-use recreational expressway, providing cross-town access and connections to other trails in the network. This would be a natural surface trail, with greenbelt areas at approximately one-half-mile to one-mile intervals. The greenbelt areas would provide shade trees, grass areas, and benches to be comfortable resting points along the trail.

Trailheads:

Since the Powerline Trail will cross the town, there would be many opportunities for entry to the trail from streets and washes. Thus, trailheads would not likely be formal entries, but simply signage along the street. If users needed to drive to the “trailheads,” parking along street is available. No formalized parking lots would be needed, though preferred locations would be identified to avoid neighborhood infringement.

Issues:

- **Street crossings:** The Powerline Trail would force trail users to cross many streets, so the City must address how users cross streets, especially the 10 urban collectors that the trail would cross. One portion of the trail, near Hound Drive, would be moved to the street, with a designated on street path or sidewalk as part of the Powerline Trail. The on-street path would be from Amberwood Avenue to Hound Drive, and then connect to Kiowa Boulevard South, where it would then again join the Powerline Trail.
- **Grade:** Although the trail would run along powerline right-of-way roughly parallel to the contours of the land, the grade varies across this narrow corridor. The northern portion of the trail would traverse several steep grades which may require switchbacks or steps. The southern portion of the Powerline Trail would have rolling, gradual grade changes.
- **Wash crossings:** If extended across the whole city, the Powerline Trail would cross 15 washes, raising the issue of safely conveying trail users down one side of the wash and up the other; and preventing trail users from descending into a wash when there are risks of flash flooding.



Figure 10: Powerline Trail Alignment



Figure 11: Powerline Trail Alignment (looking north)

1.2 Lakeshore Trail North

Concept:

A continuous lakeside pathway from the London Bridge through Lake Havasu State Park and into the National Wildlife Refuge.

Purpose:

The Lakeshore Trail North would provide a beautiful recreational path and the potential for interpretive opportunities within the Wildlife Refuge. This would be a paved pathway, and should be ADA compliant. This concept links several recreational activity centers and fills gaps between existing pathways. The eventual continuous pathway would be a unique recreational opportunity and would take advantage of the Lake Havasu shoreline, especially when combined with the proposed Lakeshore South/SARA Park Connector pathway.

Trailheads:

The Lakeshore Trail North would be served by parking lots in the Lake Havasu State Park, or by parking at London Bridge Shopping Center. By agreement, private parking lots at London Bridge are also nearby.

Issues:

- The Lakeshore Trail North would cross several jurisdictional boundaries and including private property. Obtaining approval acceptance from all parties will be necessary prior to completion.
- Use of Wildlife Refuge for recreational purposes may need to be tightly controlled to ensure users do not disturb wildlife.
- Lake Havasu City trail planners should ensure this concept matches recent trail planning within Lake Havasu State Park (as mentioned in Chapter V).

1.3 Pima Wash/El Dorado Wash Trail

Concept:

Extend the existing paved Pima Wash Trail to McCullough or Daytona. This would be a paved trail and should be ADA compliant. Since the Pima Wash ends without providing an adequate connection to the rest of the trails network, a connection to the El Dorado Wash would be provided to continue the trail along the El Dorado Wash to the Powerline Trail.

Purpose:

Provides a link from the center of the residential portion of the city to the major shopping and recreational destinations in the downtown and along the lakeshore.



Figure 13: Pima Wash - Future Trail Alignment

Trailheads:

Rotary Park would continue to serve as the western-end trailhead. Throughout the rest of the city, there would be many opportunities for entry to the trail from streets. Thus, trailheads would not likely be formal entries, but simply signage along the street, with signed parking available along neighborhood streets in designated areas. No other formalized parking lots are necessary.

Issues:

- Street crossings
- Safety during rain/flood season
- Maintenance

1.4 Havasupai/Palm Tree Wash Trail

Concept:

Create a paved trail along part or all of the Havasupai & Palm Tree Washes. (May be integrated with the sidewalks mentioned in the 1998 Pedestrian Plan and small

connector spurs to provide the cross-town connection, rather than placed entirely in the wash all the way across town.)

Purpose:

Provides an east-west, cross-town pathway for the residents of the northern portion of the city. By doing so, the trail would open up the Lakeshore and foothills/mountains to “city-center” residents. Links Recreational Beltway to Powerline, SR95, and Lakeshore North Trails.

Trailheads:

Throughout the city, there are many opportunities for entry to the trail from streets. Thus, trailheads would not likely be formal entries, but simply signage along the street. Street parking near the trail entry points is available if needed. No other formalized parking lots would be needed.

Issues:

- Street crossings
- Safety during rain/flood season
- Maintenance



Figure 14: Havasupai Wash/Palm Tree Wash Confluence

1.5 Chemehuevi Wash Trail

Concept:

Create a paved trail along the Chemehuevi Wash. (May be integrated with the sidewalks mentioned in the 1998 Pedestrian Plan and small connector spurs to provide the cross-town connection, rather than being placed entirely in the wash all the way across town.)

Purpose:

Provides an east-west connector path for the residents of the southern portion of the city. By doing so, the Chemehuevi Wash Trail would open up the Lakeshore and foothills/mountains to “city-center” residents. Links Recreational Beltway to Powerline, SR95, and Lakeshore South/SARA Park Connector Trails.

Trailheads:

Throughout the city, there would be many opportunities for entry to the trail from the street network. The trailheads will consist of signage along the roadway for trail entry and parking along neighborhood streets. No formal entry or parking area is necessary.



Figure 15: Chemehuevi Wash today

Issues:

- Street crossings
- Safety during rain/flood season
- Maintenance

1.6 Recreational Beltway*Concept:*

A mostly unpaved pathway winding along the northerly and easterly borders of the city. The paved pathway to be constructed in conjunction with the future bypass route (exact location to be determined).

Purpose:

Provides a new and unique recreational experience in the foothills of the city, thereby opening up the foothills to more users and providing another draw to Lake Havasu City. It links two regional parks (North Park and MCC Regional Park), allowing alternative access and providing trail users with amenities at parks (water, restrooms, other facilities), enhancing the safety of the recreational experience. Using regional parks' parking lots, the proposed trail provides alternative trailheads and parking for social trails into remote areas above the city. May promote more use of the interesting and unique social trails. The trail will be mostly unpaved, pending the completion of the SR 95 bypass, and topography will dictate the level of accessibility.

Trailheads:

Multiple trailheads are provided at different locations along the Recreational Beltway. MCC and North Regional Parks provide both destinations and trailhead services serve Beltway users. Other, less formalized parking sites and trailhead sites will be provided where the Desert Walk trailheads currently cluster, and where Recreational Beltway intersects with other trails (such as Powerline Trail, Palm Tree Wash Trail, and Chemehuevi Trail). Parking at these sites will be provided as graded, unpaved parking lots.

Issues:

- Difficult topography.
- Need to have neighborhood buy-in to the concept.
- Preventing motorized recreation vehicles from using the beltway.

1.7 SR95-to-SARA Park Connector Trail*Concept:*

Extend and upgrade the paved multi-use trail along SR95 to main entrance of SARA Park.

Purpose:

Take advantage of existing multi-use pathway and existing right-of-way to provide alternative access to SARA Regional Park. When combined with Recreational Beltway concept and SR95-to-Airport Trail, a complete multi-use trail encircling the city would be created.



Figure 16: View of SARA Park

Issues:

- Need to upgrade landscaping on existing multi-use path to create a truly attractive recreational experience.

1.8 SR95-to-Airport Connector Trail

Concept:

Extend the paved multi-use trail along SR95 north to the airport and the new activity centers being constructed south of the airport.

Purpose:

Take advantage of existing multi-use pathway and existing right-of-way to provide alternative access to the Airport and new commercial opportunities. Combined with the Recreational Beltway concept and SR95-to-SARA Park Trail. This trail would provide a complete multi-use pathway around Lake Havasu City.

Issues:

- Need to upgrade landscaping on existing multi-use path to create a truly attractive recreational experience.

1.9 Lakeshore South/SARA Park Trail

Concept:

A meandering, unpaved trail running south from the border of Rotary Park through Body Beach, and either along the Lakeshore or an inland route to a “back” entrance to SARA park. This trail would be the connector from Lake Havasu City to an eventual long-distance trail all the way to the Bill Williams River, currently under consideration with the Bureau of Land Management.



Figure 17: Opportunity for Shoreline Trail

Purpose:

Create a pathway between excellent recreational opportunities at Rotary Park, Body Beach, Aquatic Center, Water Safety Center, and SARA Park. Provide an interesting recreational experience either along Lakeshore or through brush, and connections to lakeside campground and beaches further south, as well as to unique social trails and landmarks such as Crack-in-the-Mountain. Take advantage of commercial development south of Aquatic Center to obtain potential funding and construction.

Issues:

- Potentially challenging topography
- Preventing motorized recreation vehicles from using the pathways
- Obtaining approval from all parties involved

1.10 Dedicated Pathway to Island (2nd Bridge Crossing)

Concept:

A bicycle lane and pedestrian path over the London Bridge Channel, to be included in the construction of the second bridge (just to the north of the London Bridge).

Purpose:

Creates dedicated bicycle and pedestrian linkage between mainland and island

Issues:

- Right of way and costs associated with bridge

IX. PUBLIC INVOLVEMENT/OTHER REVIEW

The Trails Plan project included public involvement to ensure that the plan benefits from community knowledge, and reflects and accommodates community needs and wants. A draft of the Trails Plan was presented to the Parks and Recreation Advisory Board in January of 2006, which yielded public comments. The Bicycle and Pedestrian Safety Committee also reviewed the Trails plan and provided comments in January of 2006.

X. TRAIL DESIGN GUIDELINES

The design of a trails network is as important as deciding where trails go and what destinations they serve. Design guidelines will:

- Provide a framework for consistent design of recreation trails within the city
- Provide a process for evaluation of the environment, landscape values, and potential impacts on these values within a proposed recreation trail route;
- Provide planning, construction and maintenance guidelines for recreation trails within the city

In addition, having a set of guidelines that trail design adheres to will allow the City to compete for funding in the Arizona State Trails System.

This chapter outlines what to consider when building trails, and how those trails should be designed. It is to serve as a tool to create user friendly trail facilities.

1.1 Assessment

The trail assessment process is the most important stage of trail planning, and includes the following questions:

- Who is the likely primary user group; where are users coming from and how will they access the trail?
- What is the location of the proposed trail within the city; e.g. is it along a wash, along a ridgeline, or along a road?
- Does the proposed trail provide a recreational link between one community and another and does it link into areas outside the urbanized area?
- What is the land ownership upon which the proposed trail is to be located?
- Are there cultural and/or historic sites/values that the proposed trail is to pass?
- What are the potential impacts of the trail?

1.2 Trail Class

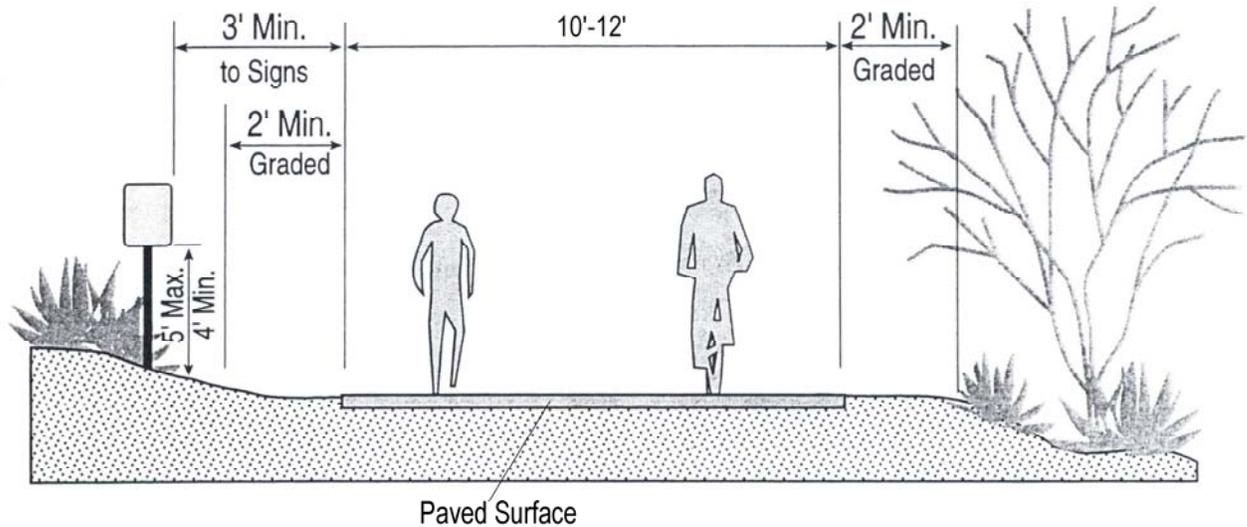
Not all trails are the same. Some are short and well developed and designed to accommodate high numbers of less-experienced users. Others are longer, more challenging and less developed, featuring less improved infrastructure. Different trail 'types' have different design and construction requirements.

Type I: "Urban mixed-use trail"

Urban mixed-use trails are multi-purpose trails that can accommodate a variety of trail users including walkers, joggers, recreational bikers, commute bikers, and roller-bladers within the same trail corridor. The main trail tread is a single, ten-foot to twelve-foot wide (or more) trail paved with concrete or asphalt, with a two-foot wide soft shoulder on

either side of the main trail. The soft shoulder generally consists of crushed gravel or equivalent.

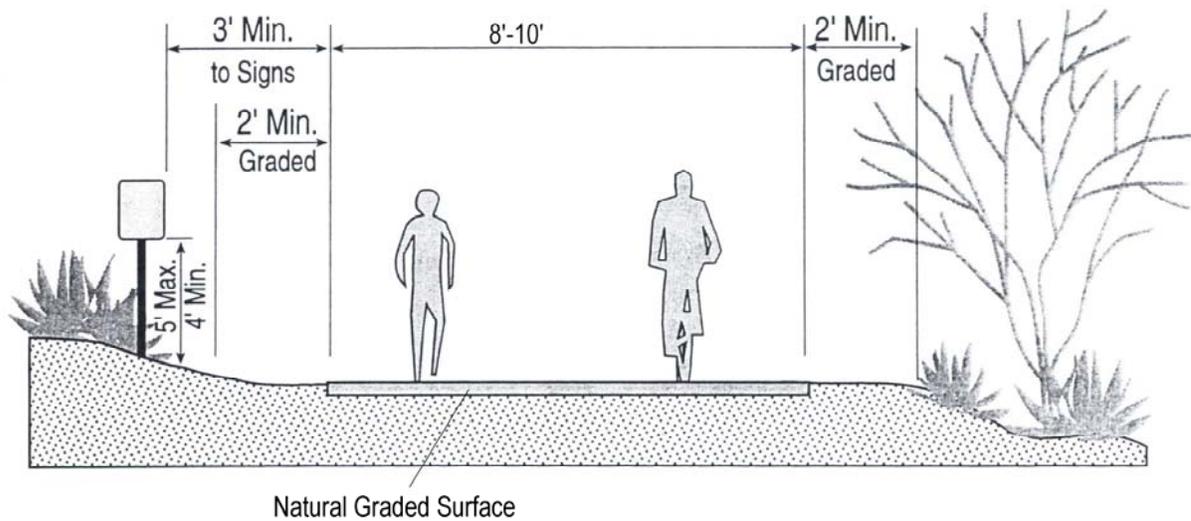
Figure 18: Type I Trail



Type II: "Fringe mixed-use trail"

Fringe mixed-use trails function as "feeders" for the Type I trails, and are located in the outlying areas of town. Type II trails consist of a single, ten-foot to twelve-foot pathway with a graded natural surface.

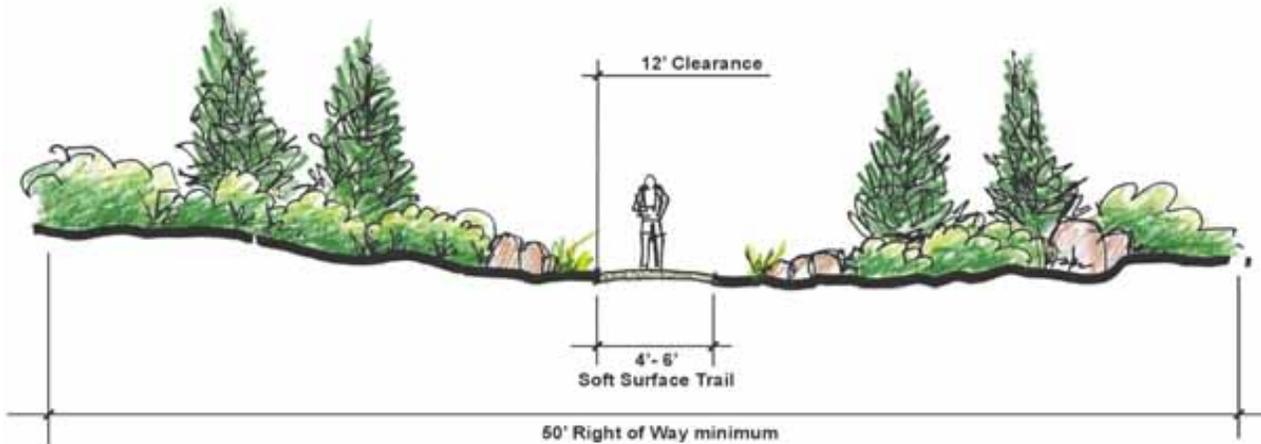
Figure 19: Type II Trail



Type III: “Outlying mixed-use trail”

Outlying mixed use trails are generally located in the mountains or foothills, and are less improved than a Type I or II trail. Type III trails are typically a four-foot to six-foot wide natural surface with no shoulders. Most users are hikers, mountain bikers and equestrians.

Figure 20: Type III Trail



1.3 Surface

The surfacing of a trail is very important; not only does it reflect the needs of the trail’s intended users, but it can help deter use by unintended users. (For example, gravel pathways encourage walkers but discourage road bikes.)

The pictures below show three surface types that Lake Havasu City may use on its trails network, and Table 7 shows the costs for each.



Asphalt



Concrete



Crusher Fines

Table 7: Surfacing Costs

Product	Description/Installation	Durability	Maintenance	Function	ADA	Cost per SF
Concrete	Prepared subbase, place geotextile, 6" agg. base, Portland cement, aggregate, sand, water 4" depth section	25 years	Periodic inspection for uplift and settlement, repair as needed	Bike, Ped, Rollerblade, Wheelchair	Yes	\$5.50
Asphalt	Prepared subbase, place geotextile, 6" aggregate base, emulsion, aggregate	10 years	Pothole patching	Bike, Ped, Rollerblade, Wheelchair	Yes	\$3.00
Crusher Fines/ Gravel	Prepare subbase, place geotextile, 6" aggregate base, place 2" depth ½" minus over base, roll and compact	2-5 years, depending on maintenance	Sweep to fill voids from dislodged fines	Bikes, Peds	No	\$2.75

1.4 Grade

The grade (or "steepness") of a trail has a great impact on who will be able to use the trail, and how it will need to be maintained. Table 8 shows the maximum allowable grade for mixed-use paths.

Table 8: Trail Grade

Grade	Allowable Length of Grade (in feet)
0 - 5%	Unlimited
5% - 6%	800
7%	400
8%	300
9%	200
10%	100
11+%	50

SOURCE: AASHTO Guide for the Development of Bicycle Facilities, AASHTO, 1999

1.5 Landscaping

Trail construction budgets should allow landscaping and revegetation concurrent with all trail projects. Vegetation included in Type I and Type II trails projects should provide frequent shade for trail users. Type III trails should primarily rely on preserving existing vegetation. Landscape and revegetation plans should include:

- Irrigation (temporary to establish xeriscapes, permanent for urban areas)
- Low maintenance (avoid or minimize mowing, place plant material so as not to interfere with the trail or to require trimming)
- An emphasis on native vegetation whenever possible

1.6 Lighting

Trail lighting helps users avoid conflicts along paths and at intersections and allows users to better observe trail direction, surface conditions and obstacles. Lighting can also increase the sense of security along a trail. The trail standards outlined above

include prescriptions for various types of lighting along city trails. These standards vary by the levels of use as well by safety and security needs. Standards vary from no lighting on outlying surface trails (Type III) to full coverage lighting in high usage areas (Type I).

Along fringe trails lighting is recommended at trailheads, destination areas and trail intersections. In the more heavily used urban areas, point-to-point lighting is recommended. In residential areas, the use of low rise or low light level lighting should be evaluated to avoid intrusion into the neighborhood.

1.7 Fencing

Trails should generally be designed and routed in a manner that eliminates the need for fences because the extensive use of fences can create ongoing maintenance obligations and visually constrain the trail experience by walling in trail users.

Where they are necessary, fences should be of the minimum height to achieve their purpose (e.g., screening). Dark colored fences tend to be less visible than light ones. Fences should be set back from trail edges to maintain horizontal clear zones.

Fences may be needed to provide privacy for landowners adjacent to a trail or to discourage trail users from entering a hazardous or sensitive area.

1.8 Trail Maintenance

Maintenance needs will vary based on many things, from the popularity of the trail, the annual weather, the expectations of trails users, and the use of city staff versus volunteers.

Regular maintenance should include:

1. Sweeping
2. Removing all dirt, graffiti, and pasted material
3. Displaying warning signs when water is present or flooding imminent
4. Cleaning up after flooding
5. Picking up litter
6. Removing weeds
7. Pruning to maintain proper clearances
8. Periodically removing silt to maintain low flow channels away from path

Adapted from Scottsdale "DESIGN STANDARDS & POLICIES MANUAL City of Scottsdale – 2004 Update":

1.9 Trail Traffic Control

Striping

Striping is not required, but may be useful along Type I Trails in high traffic areas.

Signage

Standard signage will be provided to provide users with trail information such as direction, type of trail, potential hazards and crossings, and trail difficulty.

1.10 Trail/Roadway Crossing Design

To ensure user safety, proper signing, striping, and lighting needs to be provided where a trail crosses a roadway. This will be especially important for Lake Havasu City's trails

network, as all the cross-town trails, including the Powerline Trail, traverse busy roadways.

The type of safety precautions vary per type of roadway. Figure 21 shows recommended intersection design, as recommended by the *Manual on Uniform Traffic Control Devices (MUTCD)*, to be used according to roadway traffic volume.

Trail signage

Signing along the trail needs to indicate an upcoming roadway crossing.

Crossings

Type 1 Crossings – Greater than 10,000 vpd

Trail crossings at roadways with an average daily traffic (ADT) volume greater than 10,000 vehicles per day (vpd) present safety concerns due to the high volume of cars. All trail crossings at arterials should have:

- Crosswalk striping
- Advance signing along arterial: requires a sign on the roadway indicating the crossing, as well as two advanced warning signs preceding the crossing.
- User signal actuation as necessary at high roadway volume crossings where safety concerns are present. This will be a pedestrian/bicyclist activated push button that will activate flashing yellow lights indicating for motorists to yield to pedestrians in crosswalk.
- Street lighting along the arterial needs to be provided at the trail crossing

Type 2 Crossings – 6,000-10,000 vpd

Trails crossing at roadways with an ADT volume between 6,000 and 10,000 vehicles per day.

- Crosswalk striping
- Minimal advanced signing. One sign indicating the trail crossing the roadway, and two signs in advance of the crossing.

Type 3 Crossings – Less than 6,000 vpd

Trails crossing at roadways with an ADT volume less than 6,000 vehicles per day.

- Crosswalk striping
- Minimal advanced signing. One sign indicating the trail crossing the roadway, and one sign in advance of the crossing.

Shade

Shade structures or shade trees should be provided accompanying benches along popular Type I paths.

Waste

Periodic trash cans at approximately 300'-600' spacing should be provided along Type I and Type II trails.

Dog Waste

Dog waste tends to be a problem on heavily used trails that are also used by persons walking their dogs. This waste needs to be removed because it is unsightly and can pose a health risk to dogs and trail users. The two options for controlling dog waste are: (1) the provision of dog waste bags and receptacles at trailheads, and (2) educating and requiring dog owners to remove and dispose of their dog's waste. The provision of dog waste receptacles and bags at trailheads requires regular maintenance to facilitate waste removal and bag restocking for the program to be successful. Educating trail users in dog waste removal requires interpretive signs at trailheads. This approach is more difficult for users because they may be required to take the dog waste into their automobiles.

ADA Standards

The Americans with Disabilities Act, passed in 1992, is a federal statute that promulgates design standards for disabled access. Although it is not required that all City trails conform with ADA standards, it is recommended that the Type I trails and sections of Type II trails be classified as ADA zones and trail designs in these sections should strive to meet applicable ADA standards.

Signage

Trail signage can serve many purposes, such as:

- Direction
- Trailhead (trail access points and parking lots)
- Information ("You are here")
- Guideposts (points of interest, distances, emergency response info)
- Regulatory (stop, yield, slow, dismount, dogs must be on leash)
- Interpretive/educational

Signage should be of a uniform design to convey information effectively, and to inform trail users that they are on public land.

XI. TRAIL PLAN COST ESTIMATE

A key objective of the Trails Plan is to account for costs of any new trails network. Trail costs should include not only the initial cost of construction, but other costs associated with the trails, such as landscaping and ongoing maintenance and operations costs. This section provides estimates for all of these types of costs.

Note: These are estimates to be used for budgeting purposes only. It is important to keep in mind that the cost for a specific trail at time of design and construction may differ significantly from figures used for budgeting.

1.1 Construction

Based on the design guidelines and the vision for the future trails network of Lake Havasu, the following tables describes the estimated cost of constructing each type of trail, and the cost of building each of the specific trails.

Trail Type	Cost (in 2005)
Washes	\$250,000 per mile
Other Paved	\$100,000 per mile
Powerline Trail	\$50,000 per mile
Unpaved	\$25,000 per mile

Trail	Distance	Paved (Y/N)	Cost/Mile	Total
SR 95 Extension North	4.7	Y	\$50,000	\$235,905
SR 95 Extension South	0.7	Y	\$50,000	\$32,765
Lakeshore North	3.8	Y	\$50,000	\$190,034
Lakeshore South	5.0	N	\$25,000	\$124,505
Island Trails	1.6	Y	\$50,000	\$78,635
Powerline Trail	9.4	N	\$100,000	\$943,618
Havasupai Wash	3.0	Y	\$250,000	\$753,584
Palm Tree Wash	2.0	Y	\$250,000	\$491,468
Pima Wash	1.6	Y	\$250,000	\$393,174
Chemehuevi Wash	5.6	Y	\$250,000	\$1,408,874
Recreational Beltway (constructed with bypass)	8.4	Y	\$25,000	\$629,079

The total cost to construct the complete trails network would be approximately \$4.8 million. This cost does not include land acquisition. As the trails vary in location, costs for land are not consistent. Planned trails are located on city land, BLM property, State Parks land, and State Trust land. The city will need to purchase new land or draw an agreement when trails are to be constructed.

1.2 Maintenance

Estimated average annual maintenance costs will vary based on the level of maintenance provided, as well as the current prices of materials and labor. Table 9

presents estimated costs for trail maintenance, as well as recommended maintenance cycles, depending on the type of trail.

Table 9: Maintenance Cost Estimates

Trail Classification	Cost/mile	Maintenance Cycle
Type I	\$1,820	Every 6 months
Type II	\$1,560	Every 6 months
Type III	\$1,300	Annually

Source: Adapted from City of Scottsdale Trails Master Plan, April 2003; adjusted to 2005 dollars using CPI

1.3 Street Crossings, Landscaping and Amenities

Landscaping:

\$5,000/mile

Signage:

\$250 each at approximately 1000' spacing and at trailheads

Furniture:

Benches \$600 each at approximately 300'-600' spacing

Trash Receptacles \$200 each at approximately 300'-600' spacing

Crossings:

With user activated push button signal: \$18,000

Without signal, lighted crossing \$6,000

Without signal, unlighted crossing \$2,000

XII. DEPARTMENT ROLES & RESPONSIBILITIES

Once completed, the Lake Havasu City Trails Network would cross boundaries between different public agencies, including City, State, and Federal agencies. This section provides information about the various departments and their involvement with the Lake Havasu City Trails Network.

Lake Havasu City Recreation Department

The Lake Havasu City Parks and Recreation Department was established in 1989 and plays an essential role in developing and providing quality programs. The Parks Maintenance Division was established in 1991 and is responsible for total maintenance for city parks, parkway vistas, medians, entry monuments, street tree programs, and Highway 95.

Lake Havasu City Council

Approves plans & city budget

Lake Havasu City Engineering Department

The Engineering Division is responsible for the design and management of the Public Works Department's Capital Improvement Program. The division also reviews, approves and issues all of the permits for work that is performed in the City right-of-way. The Division is involved with all facets of Public Works including, streets, drainage, water, sewer, traffic, etc. [They] provide technical assistance to all other departments in the city.

Lake Havasu City Development Services Department

The Development Services Department oversees the physical development of the community. Growth and development are guided by the goals and policies of the Lake Havasu City General Plan and specifically regulated by the city subdivision, zoning and uniform construction codes. The department coordinates the development review processes through the Permit Center and manages all land use requests building permit reviews and building construction inspections.

Lake Havasu City Planning Division The Planning Division is a resource for developers, property owners, business owners, citizens and other city departments and provides information to the public about General Plan policies, population growth, development trends and land use. The Planning Division provides professional support for the Planning and Zoning Commission, Board of Adjustment, and City Council and reviews all land use applications including lot alterations, abandonments, variances, conditional use permits, rezonings, planned developments, and subdivisions to assure compliance with the city's zoning and subdivision codes.

Lake Havasu City Police Department

Mission statement: The members of the Lake Havasu City Police Department, through a process of problem solving alliance, teamwork, and faithful adherence to legal and ethical principles are committed to the maintenance and enhancement of community peace, order, reducing crime and the fear of crime, and the delivery of quality police services to all our citizens.

Arizona State Parks/Lake Havasu State Park

The Arizona State Parks department develops and administers programs for the state's state park system, including Lake Havasu State Park.

Bureau of Land Management

The Bureau of Land Management (BLM), a federal agency, manages some of the land adjacent to Lake Havasu City. The BLM's mission is to sustain the health, diversity and productivity of the public lands for the use and enjoyment of present and future generations. The BLM would be responsible for constructing and maintaining trails on BLM lands. Opportunities for joint trail development exist where a trail would cross multiple jurisdictions, such as the Lakeshore South/SARA Park Trail.

Army Corp of Engineers

The Army Corp of Engineers is responsible for planning, designing, building and operating water resources and other civil works projects. In Lake Havasu City they control the washes to the ordinary water mark, which regulates all aspects of the wash and adjacent activity that could affect the flow of water in the wash.

XIII. FUNDING A TRAILS SYSTEM

State and federal programs provide potential sources of revenue for trail construction, trail maintenance, and land acquisition. This section details several of those programs.

1.1 Grant Programs for Trail Construction

Federal funding – Transportation Enhancement Program

The Federal Transportation Enhancement Program provides funding for trails through its program to support provision of facilities for bicycles and pedestrians, and landscaping and other scenic beautification of transportation facilities. Maintenance of transportation facilities is not included. The federal funding cap is \$500,000. In Arizona, the program is administered by the Arizona State Department of Transportation (ADOT).

Funding is provided in the form of reimbursement, rather than an up-front grant. The program requires 5.7% cash match. Because this is a federal grant program, grantees must follow applicable the National Environmental Policy Act (NEPA) planning and approval process – potentially, a 36-month process – along with any ADOT processes.

State funding - The Trails Heritage Fund Grant Program

The Trails Heritage Fund is a competitive grant supported by money from the Arizona Lottery. This program supports trail development and reconstruction activities. It applies only to hiking, biking, and equestrian trails, and requires a 50% local match.

To qualify for grant funding, a trail must first be included in the Arizona State Trails System. (See information in Section VII about inclusion in the State Trails System.)

Grant money may not be used for landscaping, and any pre-agreement work and design/ engineering work is limited to 10% of total grant amount. Annual applications are due at the end of February and are awarded in September.

This grant program is generally competitive, although the matching requirement means that local economic conditions can have an effect on whether localities feel able to contribute to their trails program and thus, whether they apply or not.

1.2 Grant Programs for Trail Maintenance

Federal funding - Recreational Trails Program Fund

Arizona State Parks administers the federal Recreational Trails Program fund. There is a motorized component and a non-motorized component to this program, but only information on non-motorized component is summarized below.

The Non-motorized Portion focuses on helping trail managers with their maintenance by utilizing the Youth Conservation Corps, rather than by awarding grant money. The program follows the maintenance priorities established in the 2005 Arizona State Trails Plan.

1.3 Grant Programs for Land Acquisition

State funding - Growing Smarter Act

The Growing Smarter land acquisition programs are administered by Arizona State Parks with monies provided from the state Land Conservation Fund for the acquisition of State Trust Lands. The goal of these grants is "to conserve open spaces in or near urban areas and other areas experiencing high growth pressures." Conservation may occur through permanent or temporary acquisitions, such as leases of up to 50 years in length, purchases of a parcel's development rights, or "fee simple" purchase of a parcel. Grants may be made by the Arizona State Parks Board for up to 50% of the appraised value of a land parcel. Lands eligible for acquisition through this program are defined in statute by the Arizona State Land Department, as authorized by the Arizona Preserve Initiative.