

Lake Pleasant Regional Park Master Plan

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Maricopa County
Parks and Recreation Department

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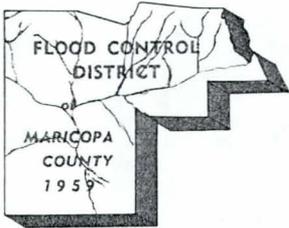
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of

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JUN 17 1994

MEMO TO: Bill VanAusdal, R.L.A.

FROM: Steven Tucker, P.E.

SUBJECT: Lake Pleasant Regional Master Plan

We have reviewed the Master Plan and have no comments. We would like to review the construction plans as the development occurs to make sure that local drainage is not diverted or impeded.

If you have any questions, please contact Felicia Terry at 506-1501.

SLT

Steven L. Tucker, P.E.

Stormwater Drainage Branch Manager

EAR/SLT/FT/lab

Copy to: Cellar Barr Associates

COORD:

INFO: EAR, RPH, CGE, AMM, LAB

FILE: Parks & Rec.

William C. Scalzo
Director



PARKS AND RECREATION DEPARTMENT

LETTER OF TRANSMITTAL

To Mr. Steven Tucker
Maricopa County
Flood Control District

Date June 9, 1994
W.O. Number 1185

Project: Lake Pleasant Regional Park Master Plan

We are sending you the following items: Attached Under Separate Cover
 Original Plans Specifications Copy of Letter Contract
 Copies Prints Shop Drawings Samples Survey Notes
 Other _____

Copies	Description	Status
1	Draft Final Master plan	

These are transmitted for your action:

For approval Approved as submitted Return corrected plans/specs
 For your use Approved as noted Resubmit ___ copies for approval
 As requested Returned for correction Send ___ copies for distribution
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Comments Please review and return any comments by July 8, 1994.

Sincerely, Bill VanAusdal, R.L.A. Copy to File

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1993

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LAKE PLEASANT REGIONAL PARK MASTER PLAN

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II. Executive Summary

A. County Mission Statement and Park Objectives

Maricopa County Parks and Recreation Department Mission, Vision, and Goals

The Maricopa County Parks and Recreation Department provides for the operation and maintenance of the county parks system, administration of community recreation programs and the planning and development of the parks system. This parks system consists of more than 94,000 acres which is one of the largest municipal systems in the United States.

The majority of the county parks within this system occur in natural settings and mountainous areas within a variety of towns that make up the Phoenix metropolitan area. Of the 12, designated regional parks and recreation areas, Lake Pleasant is by far the most popular and unique park site. Obviously the water related recreational opportunities provide the primary draw, however, the natural desert setting and fascinating flora and fauna of the area have also contributed to the interest in this park.

The development of this master plan is one more step in the ongoing process of County Parks in their effort to achieve their mission statement and objectives for the park system and in particular Lake Pleasant Regional Park. In order to direct their efforts, the County Parks Department has prepared a mission statement, a vision statement and a listing of goals and objectives for the various service groups within their organization. This master plan will define the future development and recreational opportunities provided at Lake Pleasant Regional Park. It is essential that the proposed facilities and programs of Lake Pleasant correspond to the County's mission and goals for their general Park system, where all of the County parks are unique in their own right. The management and sustainability of each park must fit under the umbrella of the resources and capabilities of the County parks system.

Simply stated the County Parks Departments mission and vision are as follows:

- Mission: To effectively and efficiently manage and provide unique and enjoyable recreational opportunities that respond to environmental considerations and enhance people's lives.
- Vision: To provide self-sustaining recreational services that exceed visitor's expectations.

The County Parks and Recreation Department has established a detailed listing of strategic issues and has identified goals and objectives for each of those issues. Because the Department has such a diverse role of responsibilities, many of the issues, goals and objectives do not pertain directly to design or master planning issues. CBA has reviewed the strategic plan and have listed the goals and objectives of the Department which will have an impact on the direction and planning associated with the

Lake Pleasant Master Plan. Similar to this Master Plan, these goals are dynamic and in response to the mission and vision statements. They will be modified as the desires of the public, the capabilities of the land and the resources of the Department change.

In order to provide some context and basis for how the decisions and recommendations of this Master Plan were derived, we have listed the following goals and objectives. These goals and objectives are not all inclusive of those identified by the County, but represent those which will impact the physical design of the Master Plan.

Strategic Issue 1 - Entrepreneurial Management

Strategic Issue Vision

To become a totally self-sustaining operation without being subsidized by the General Fund.

Goal 1.1 Continue to maintain and enhance the user fee and charges policy.

Objectives

1.1.2 Update the user fee and charges policy to require an economic impact statement for all Parks services - current and new by 9/93.

Goal 1.2 Establish and upgrade concession contracts so that they provide the best service to the public while maximizing the return to the Parks Department.

Objectives

1.2.1 Identify new Parks concessions opportunities throughout the Parks system by 1/94.

Goal 1.6 Develop and implement special events.

Objectives

1.6.1 Establish guidelines for special events use of parks, including: fees, security, special use needs of the events, cleanliness, insurance, etc. by 9/93.

1.6.3 Identify all potential sources of special events by 12/93.

Goal 1.7 Obtain corporate sponsors for facilities, services and special events.

Objectives

1.7.1 Identify facilities, services and special programs that are suitable for corporate sponsorship by 9/93.

1.7.5 Implement a recycling program within the parks in cooperation with the General Service Agency and services and equipment provided by the recycler, beginning 10/93.

Strategic Issue 2 - Construction and Maintenance Services

Strategic Issue Vision

To maintain safe and clean parks facilities, roads and grounds in a manner that consistently exceeds visitor's expectations.

Goal 2.1 Ensure that all parks grounds are kept clean, well maintained and safe.

Goal 2.2 Maintenance workers participate in the design of facilities and the purchase of equipment and supplies.

Objectives

2.2.3 Develop a mechanism for Parks Service Workers and Construction Worker to provide input to the pre-design and pre-construction process beginning by the next design project from 7/93 and on.

Goal 2.6 Standardize parts and network with other departments (e.g. Facilities Mgt.) to provide construction services in the most cost-effective manner.

Objectives

2.6.1 Investigate the possibility of creating an equipment pool in cooperation with the Transportation and Development Agency (TADA) and if feasible implement by 1/94.

Strategic Issue 3 - Ranger Services

Strategic Issue Vision

Goal 3.1 To protect the park from the people and the people from the people.

Objectives

- 3.1.1-12 Enforce park regulations and State Laws
- 3.1.13 Provide information about Parks rules and regulations to the general public, (i.e. brochures, signs, etc.) by 1/95.
- 3.1.14 Increase the visibility of enforcement personnel and equipment (i.e. appropriate vehicles with appropriate markings, light bars, etc.) by 1/96.
- 3.1.15 Provide appropriate air patrol based on its effectiveness by conducting an annual needs assessment and implementing the appropriate level of air patrol services beginning 7/93.

Goal 3.2 To protect the people from the Park.

Objectives

- 3.2.1-12 Provide emergency services.
- 3.2.14 Assess back-country patrol needs and appropriate methods of providing that service for implementation by 1/95.
- 3.2.17 Develop and implement a public education program designed to inform the public on safe and legal park usage by 7/96.

Strategic Issue 4 - Recreation Services

Strategic Issue Vision

To provide satisfying recreational experiences.

Goal 4.1 Provide structured and unstructured recreational opportunities that exceed visitor's expectations.

Objectives

4.1.1-12 Determine and implement appropriate structured and unstructured recreational opportunities.

Goal 4.2 Provide departmentally sponsored recreational opportunities that exceed visitor's expectations.

Objectives

4.2.1 Co-sponsor recreational events, on-going.

4.2.2 Based on citizen input, provide summer recreational programs on an on-going basis.

Strategic Issue 5 - Interpretive Services

Strategic Issue Vision

To understand and appreciate the diverse cultural heritage and natural resources of the county's parks.

Goal 5.1 Provide structured and unstructured interpretive services that exceed visitor's expectations.

Objectives

5.1.1-12 Determine and implement appropriate structured and unstructured interpretive programs.

5.1.13 Determine equipment and facilities needs for structured and unstructured interpretive programs

5.1.14 Identify and utilize other agencies to conduct structured interpretive programs.

5.1.16 Provide signs, maps and general information for use by park visitors and staff.

Goal 5.2 Provide technical services that support interpretive programs.

Objectives

5.3.1 Develop and/or acquire and use videos, publications, and other forms of media to support interpretive services.

5.3.2 Provide a mechanism for securing the technical/environmental information about the parks.

Goal 5.4 Protect the integrity of the natural and cultural resources of the parks.

Objectives

5.4.1 Review all future development for environmental compatibility

5.4.2 Inventory and monitor natural and cultural resources for all parks.

Strategic Issue 6 - Support Services

Strategic Issue Vision

To facilitate and support departmental operations to ensure that the Parks and Recreation's vision is attained.

Goal 6.3 Anticipate and be responsive to procurement needs.

Objectives

6.3.2 Provide warehouse services for Parks and Recreation, on-going.

Goal 6.4 Collect user fees at all parks.

Objectives

6.4.1-12 Collect and coordinate user fee collection.

6.4.13 Based on a cost/benefit analysis, install entry point collection stations and/or enhance ranger collection procedures.

Goal 6.5 Coordinate support services with other departments and entities.

Objectives

6.5.3 Coordinate security for the department

6.5.4 Coordinate special events equipment needs

Goal 6.6 Enhance customer communications.

Objectives

6.6.2 Prepare and distribute a Parks brochure.

Strategic Issue 7 - Planning and Development Services

Strategic Issue Vision

Innovative design and coordination of safe accessible park facilities responsive to the public's desires and sensitive to the environment.

Goal 7.1 Audit parks facilities.

Objectives

7.1.1-16 Inventory and analyze parks facilities for functionality and conformance to codes.

7.1.17 Assess all parks for ADA compliance and implementation.

Goal 7.2 Develop a master plan for each park and the entire park system.

Objectives

7.2.1-16 Develop an updated comprehensive master plan

Goal 7.3 Program development for kids.

Objectives

7.3.1 Identify/prioritize capital programs for parks district (or bond) development for all parks.

Goal 7.4 Manage development projects for all parks.

Objectives

7.4.1 Manage in-house development projects for all parks, on-going.

7.4.2 Procure/oversee consultant contracts for development projects for all parks, on-going.

7.4.3 Procure/oversee construction contracts for development projects for all parks, on-going.

Strategic Issue 8 - Management Services

Strategic Issue Vision

Manage the Parks and Recreation Department in a manner that is consistent with County Management's philosophy and aligned with the corporate strategic plan.

Goal 8.1 Maintain alignment with the corporate strategic plan.

Objectives

- 8.1.1 The Parks Department will annually manage and provide year round recreational facilities and services used by both local residents and visitors that impact the local economy through purchases of recreational equipment and clothing, services, entrance fees, lodging, transportation and meals.
- 8.1.2 The Parks Department, partnering with State Parks, State Department of Commerce and private leisure service providers will conduct a statewide economic impact study on the economic benefits of outdoor recreation (both public and private) to be completed in 1994.
- 8.1.3 The Parks Department, partnering with various universities and colleges, the Arizona Parks and Recreation Association will sponsor and/or participate in various continuous education programs to enhance the information and education available to parks professionals, lay commissions and leisure study students.
- 8.1.7 The Parks Department will work with organized groups and Travel and Tourism agencies and others to encourage national events and leisure programs to be held in Maricopa County parks to enhance economic growth and visitor participation, ongoing.
- 8.1.8 The Parks Department utilizing various resources will develop an infrastructure at Lake Pleasant Regional Park, conducive to private enterprise development.
- 8.1.9 In cooperation with MAG, County Planning and Development and other Maricopa communities identify unique sites and environmentally sensitive lands in the County's Comprehensive Open Space Plan.
- 8.1.11 Continue to acquire and set aside, by various means as identified in the Open Space Plan, lands which have been identified for park purposes.

B. Purpose of the Master Plan

This Master Plan has been prepared to establish guidelines for development of the newly expanded Lake Pleasant Regional Park. The Master Plan will provide for the development of numerous recreational facilities and site amenities while protecting the natural resources of the area.

It should be noted that this Master Plan is a dynamic document and that adjustment to the plan is not only possible, but necessary to fully respond to the changing needs of the public, park management, and the environment.

C. Master Plan Summary

Lake Pleasant Regional Park has provided residents of the Metropolitan Phoenix area with recreational opportunities for over 20 years. As the only water based park in the County Park system, it is the most visited, attracting 800,000 to 1,000,000 visitors on yearly basis. Activities have traditionally included boating, camping, fishing, waterskiing and picnicking which have made Lake Pleasant one of the most popular parks in the metro area.

The recent construction of the New Waddell Dam which provided increased storage capacity for CAP water has had a significant impact on the Park. The water level rose approximately 100 feet and the surface area of the lake increased from 3,000 acres to over 9,000 acres. These changes alone have increased recreational opportunities dramatically. However, water management requirements resulting in annual water level fluctuations of 60 to 100 feet will also create problems in the planning of facilities. In order to properly maintain not only the increased facilities, amenities, natural resources and water management, the need for a comprehensive master plan is essential.

The Master Planning Process performed by Cella Barr Associates is the culmination of not only new efforts, but the past contributions of many agencies. The initial study, titled "Plan 6", has been built upon and refined with the continued efforts of the Bureau of Land Management, Maricopa County Parks and Recreation, Bureau of Reclamation, U.S. Fish and Wildlife and Central Arizona Water Conservation District.

In preparing the Master Plan, the evaluation of the affected environment and natural resources provided critical information for assessing development within the Park. The following items were studied during the evaluation process:

- Water Resources
- Vegetation
- Wildlife
- Fisheries
- Cultural Resources
- Land Forms
- Geology
- Soils
- Climate
- Air Quality
- Acoustics
- Visual Resources
- Mineral and Water Rights
- Zoning
- Property Ownership
- Opportunities and Constraints

The most significant factors affecting development are landforms, access and water level. Of the over 24,000 acres of land within the park boundaries only approximately 1,000

acres are on buildable slopes (less than 15%). Limited access further restricts development to primarily the west and south portions of the lake. Water level fluctuations of 80-100 feet also create further challenges.

As well as the aforementioned factors, public input played an important role in the development of the master plan. Public input was solicited through several methods to determine user needs and requirements for development at Lake Pleasant Regional Park. Over the past 5 years, several public opinion surveys have been distributed to interested persons and groups through mass mailings and public meetings. Additionally, numerous presentations have been conducted to present information to the public and solicit comments back from them. Most recently, open house presentations were conducted throughout the Valley to provide the public with an opportunity to review and comment on plans developed.

Through an evaluation of user needs, site constraints and recreation requirements, land uses and preferred facilities were developed and incorporated with the Park development. The following uses and facilities were determined to be appropriate for the Park:

- Camping
- Picnicking
- Interpretation/Education
- Boating
- Fishing
- Hiking
- Equestrian Activities
- Visitors Center
- Conservation Areas
- Concession Areas

Areas designated for possible development were further divided into eight separate zones during the Master Planning Process to facilitate evaluation. These areas were then analyzed and land use options were developed for each. These options were evaluated and preferred alternatives were selected. The final mix of major facilities resulted in the following land uses and associated area allocations:

Camping	466 Acres
Picnicking	61 Acres
Marina	200 Acres

This conceptual Master Plan represents current user needs and requirements for development and facilities within the park. Future changes due to management issues, user needs or environmental concerns are encouraged to further achieve the goals and objectives for development of this unique recreational facility.

III. Introduction

A. Description, Location, and Setting

LOCATION: 35 miles northwest of metropolitan Phoenix, Arizona.

LAKE NAME: Lake Pleasant

PARK NAME: Lake Pleasant Regional Park

PARK AREA: 24,500 Acres

YEAR LAKE OPENED: 1927 Original Waddell Dam completed

LAKE SURFACE: Original: 3,528 Acres
New: 9,966 Acres (at 1702 elevation)

SURFACE FLUCTUATION: 80 - 150 Vertical Feet

LAKE OPERATOR: Central Arizona Water Conservation District under contract to the Bureau of Reclamation.

PARK MANAGER: Maricopa County Parks and Recreation Department

PROPOSED FACILITIES:

- Camping
- Picnicking
- Interpretive Center
- Fishing
- Boating
- Beaches
- Swimming
- Waterskiing
- Hiking
- Nature Study
- Marina
- Launching Ramps
- Boat Storage
- Boat Sales and Service
- Aid Station

VISITORS: Annual visitation 700,000 - 1,000,000

DAM NAME: New Waddell Dam

DAM CONSTRUCTION: 1992 Completed

DAM COST: \$450 million

STRUCTURAL HEIGHT: 440 feet

CREST LENGTH: 4,900 feet

EMBANKMENT DAM VOLUME: 16,200,000 cubic yard

Setting

Lake Pleasant is located on the Agua Fria River, at the point where the river begins to flow out of the Bradshaw Mountains and onto the flat floor of the Phoenix Basin.

Elevations surrounding the lake range from 1,300 to 2,957 feet at the top of Wild Burro Mesa to the north. The topography across the major portion of the area consists of gently rolling hills which are heavily dissected by numerous small arroyos and erosional channels. Some of the larger side tributaries include French Creek, Humbug Creek and Cottonwood Wash. A series of rugged, steep sided ridges and mesas rise on the eastern edge of the Lake.

B. Park History

Native American Habitation

Lake Pleasant Regional Park has a rich and varied history. From Native American habitation through pioneers and homesteaders to the Waddell Dam and early irrigation uses to modern recreation and irrigation use.

Early man was drawn to the Agua Fria River Valley by the agricultural potential. As early as A.D. 700, the Hohokam culture had expanded from the Gila and Salt River Valleys into the Agua Fria River Valley because of the availability of good farm land and a consistent water source. They established villages along the river and its tributaries. Today, architectural and agricultural evidence of their existence dots the area.

Pioneers and Homesteading

Early Irrigation

In 1888, a group of businessmen organized to develop the Agua Fria River Valley. Their plan was to store and divert the river's annual flow through construction of a permanent storage reservoir, a diversion dam, and a canal. In 1891 the group of businessmen, who named themselves the Agua Fria Water and Land Company, proposed to erect two dams on the agua fria north of the present dam. This project barely got through the planning stages.

William Beardsley, a major land owner in this area, tried to get the diversion dam and canal constructed between 1893 and 1895, but construction ceased because of monetary problems. Beardsley persisted, and in the early 1900's he received approval from the Secretary of the Interior for locating a dam across the Agua Fria River and for constructing the associated canals to provide the much needed water for agriculture.

Waddell Dam

The group originally associated with the dam and the canal system was called the Agua Fria Water and Land Company. After Arizona became a state in 1912, the name was changed to the Beardsley/Agua Fria Water Conservation Company. Later, the name was changed to its current name: the Maricopa County Municipal Water Conservation District No. 1 (MWD).

The year 1925 saw construction initiated on a new dam across the Agua Fria River. Principal players in the facility were: Carl Pleasant, an engineer; Don Waddell, a financier from New York; and Robert Beardsley (William's son), who was the general manager of MWD. Unfortunately, William Beardsley, who had pioneered the dam and water district, died before seeing his dream a reality.

Completed in 1927, Waddell Dam was the largest multiple arch dam in the country. The water stored behind the reservoir in Lake Pleasant did not reach early expectations for water quantity. A California dam collapse in 1929, while not directly related to Waddell Dam, caused a re-evaluation of dams across the country. As a result, Waddell was refurbished in the mid-1930's, and Lake Pleasant was in full swing.

Recreation

Lake Pleasant has always enjoyed some recreational activity. In the 1930's and 1940's, this use was limited by the distance from Phoenix and poor vehicle accessibility. As metropolitan Phoenix expanded, recreational use of the lake increased. MWD operated some concession activities on the old Lower Lake (recently renamed Hank Raymond Lake), including the Lake Pleasant Lodge - a private lodge for winter visitors.

In 1959, Hank Raymond, who was then director of MWD, felt that Lake Pleasant should be developed into a park and approached the Maricopa County Supervisors with the idea. Not accepted at first by Maricopa County (County), Raymond's idea was again broached in the early 1960's. This time the County shared Raymond's vision and Lake Pleasant Regional Park was born. Trailers were moved into MWD's operations area out of which the early park rangers operated on horseback. In the late 1960's, Lake Pleasant Lodge was purchased from the concessionaire, and the County moved from MWD's headquarters to the old lodge. In 1969, an operating agreement was signed by MWD and the County.

Modern Irrigation/CAP

During the 1960's, Congress authorized the Bureau of Reclamation to construct the largest, single water resource development project in the United States to date. The Central Arizona Project (CAP) officially began on September 30, 1963 and had as its goal the transportation of Colorado River water to cities, farms and Indian reservations in central Arizona and Western New Mexico. Plan 6 of the CAP involves the replacement of the existing Waddell Dam to provide increased storage capacity.

New Waddell Dam will have a significant impact on the existing Lake Pleasant Regional Park. The level of the lake will be raised approximately 100 feet with an increased surface area from 3,528 to 9,966 acres and with a shoreline of 75 miles. All existing facilities will be submerged. Construction of the dam was started in 1985 and completed in 1992. The lake will reach its new standard operating water level elevation in the spring of 1994.

Lake Pleasant Regional Park is the most visited park in the County system, logging attendance in excess of one million in 1985 and again in 1986. Attendance has decreased somewhat since then due to the current construction activity and the associated lowered water level. Figure 2 shows Lake Pleasant in the regional context with the Phoenix Metropolitan area and the County parks system.

C. Agencies Involved

Multiple governmental agencies play a varied role of involvement with Lake Pleasant. Listed below are the agencies involved.

Bureau of Land Management (BLM)
Bureau of Reclamation (BOR)
Maricopa County Parks and Recreation Department (MCPRD)
Arizona State Land Department (ASLD)
Arizona Game and Fish (A G&F)
Maricopa County Highway Department (MCDOT)
Corp of Engineers
Arizona Department of Transportation (ADOT)
Coast Guard
Yavapai County Highway Department
Yavapai County Sheriffs Department
Maricopa County Municipal Water Conservation District (MWD)
Central Arizona Project (CAP)
Central Arizona Water Conservation District (CAWCD)
City of Phoenix
City of Peoria
City of Peoria Police

Public Participation

Arizona Radio Control Society
Arizona Sailing Club
Arizona Yacht Club
Arizona Wind Surfers
Triathlon
Western Bass Club
Sailing Groups
Companies and Businesses
Boy Scouts
Hiking and Bicycle Clubs
Volunteer Groups
Outdoor Education Center Users
School Districts
Arizona Outdoor Ed. Workshop

Private Concessionaires

IV. Regional Project Analysis

A. Regional Context

General

The Lake Pleasant/New Waddell Dam and reservoir site is located within Maricopa County approximately 35 miles northwest of downtown Phoenix.

The site of the Park is in the natural growth pattern of the Phoenix Metropolitan area. Since people are attracted to Arizona by its pleasant climate, scenic beauty, and uncrowded lifestyle, the park will enhance those opportunities and natural features of the region by providing space for recreational activities. With its rolling terrain and highway accessibility, the site has potential to contribute to the quality of life for the area's growing population.

The following exhibits indicate the relationship of the Regional Park to nearby urbanized areas and some of the major physical features of the region. Existing urbanization is approximately 10 miles from the site. The nearest incorporated areas to the site are the Cities of Phoenix, Peoria and Glendale. Major natural and man-made physical features in the area geographically define the site. A few of these features are the Central Arizona Project Canal to the south, the Bradshaw Mountains to the north, the Hieroglyphic Mountains to the west, and the Ben Avery Shooting Range to the southeast. Also surrounding the site are predominantly Federally and State owned lands. These barriers will be an asset in defining the new park's boundaries and controlling growth.

Transportation

Lake Pleasant is currently accessed from the Metropolitan Phoenix area by routes from 99th Avenue (Lake Pleasant Road) and I-17 to SR 74 which adjoins the site on the south. Due to continued growth in the Northwest area, expansion and improvements of the transportation system servicing that area is planned for the following roadways:

- Northwest Loop
- Outer Loop
- SR 74
- SR 60 Grand Avenue
- 99th Avenue (Lake Pleasant Road)

This expansion will allow for easier access to the site from all parts of the Metropolitan area.

Land Use

Lake Pleasant Regional Park is located in the northern portion of Maricopa County. While the surrounding area is currently unincorporated, the Cities of Phoenix and Peoria are continuing to move further north in their annexation of additional land. The majority of land surrounding the park is open desert. Ownership of the adjacent land is primarily Governmental. State lands owns the majority of land to the North, East and South, with

the Bureau of Land Management controlling the bulk of the land to the west. Small areas of private land are scattered mainly to the south.

Development Trends

From the above described, contextual setting, it is evident that the developmental trends are continuing outward in the valley of the sun. The 1980's saw the growth explosion occurring in the southeast portion of the valley. In the latter half of the 80's and the early 90's, this focus has been shifting toward the west, northwest and southwest valley.

A number of factors have contributed to this emerging pattern.

1. Comparatively greater accessibility to the localized employment centers.
2. Continued proposed expansion of transportation systems in the Northwest area.
3. The activities of the State Land Department in terms of planning and auctioning of their land in the northwestern valley also contribute to these trends.

The continued migration to the valley and the emerging development trends in the Northwestern valley ensure that the new Lake Pleasant Regional Park will soon be within the Phoenix metropolitan area.

B. Recreational Demands

Lake Pleasant Regional Park lies approximately 30 miles north of Phoenix completing a chain of 11 recreation areas in the Maricopa County Park System, which encircle the Valley. See Figure 1.

As the only water based park in the County System, Lake Pleasant Regional Park has historically offered a wide variety of recreational activities including: camping, picnicking, fishing, waterskiing, and boating. Due to the proximity of the park to the metropolitan area and the popularity of water based activities in this region Lake Pleasant continues to be one of the most visited parks in the area.

MARICOPA COUNTY PARKS & RECREATION SYSTEM MAP

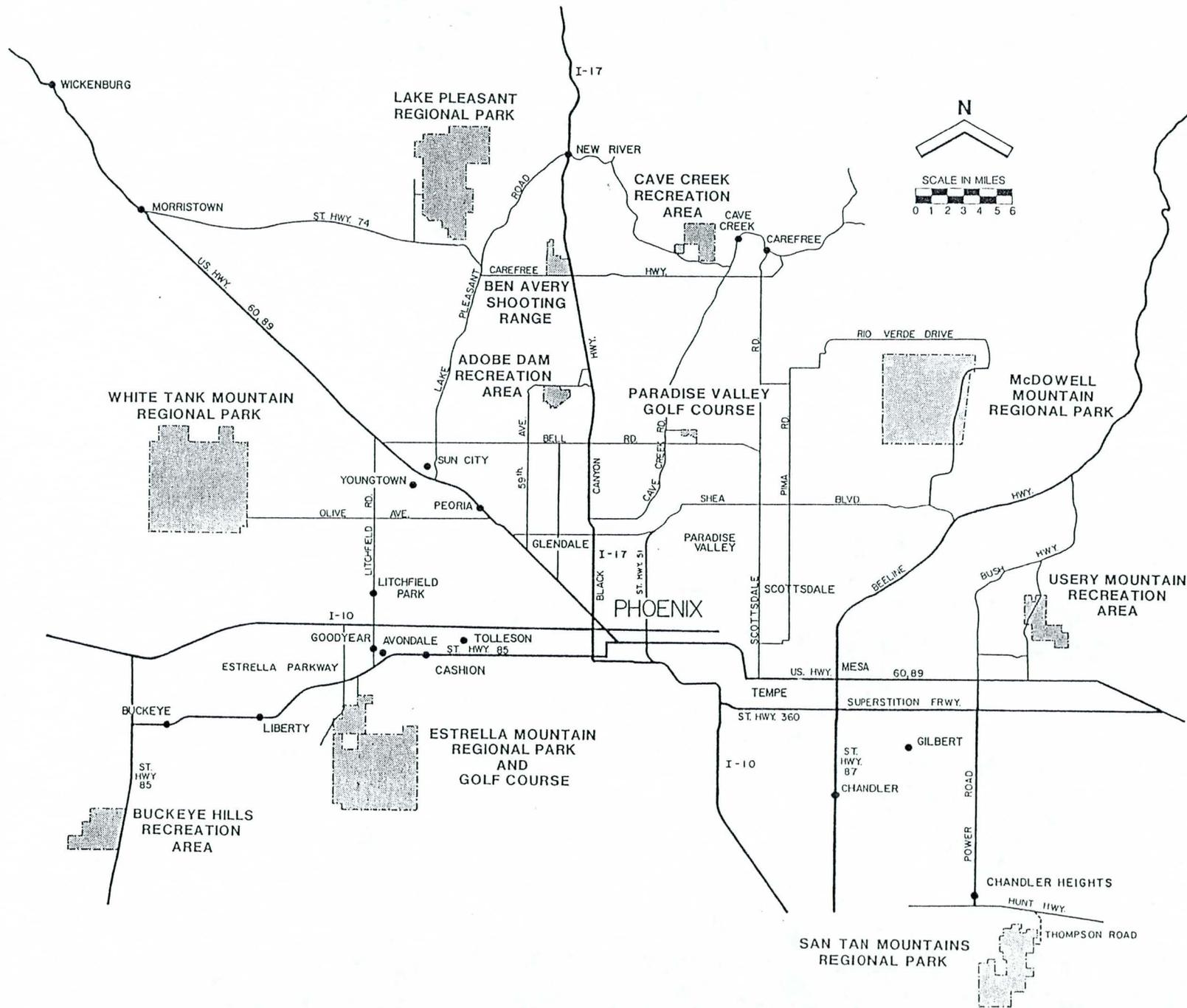


Fig. 1

V. Project and Site Analysis

A. Overview

Affected Environment describes the most dominant physical and biological features of Lake Pleasant Regional Park. An understanding of the resources in the park is essential for creating a development plan that effectively utilizes, enhances and conserves those resources. Each description includes a brief inventory of the resource and conservation recommendations to minimize disturbance of the resource and to properly integrate it with development and management of the park.

Features

- A. Overview
- B. Water Resources
- C. Vegetation (Biological Resources)
- D. Wildlife
- E. Fisheries
- F. Cultural Resources
- G. Land Form
- H. Geology
- I. Soils
- J. Climate
- K. Air Quality
- L. Acoustics
- M. Visual Resources
- N. Existing Mineral Rights and Mining Claims
- O. Existing Zoning
- P. Existing Property Ownership
- Q. Existing Man Made Conditions
- R. Opportunities and Constraints

B. Water Resources

The most outstanding feature of the park is Lake Pleasant formed by the construction of the New Waddell Dam across the Agua Fria River and the storage of water from the Central Arizona Project. The river drains an area of approximately 1,460 square miles. Depending on the demand for CAP water, the surface elevation of Lake Pleasant could fluctuate as much as 150 vertical feet each year. The minimum surface elevation behind New Waddell Dam is projected to be 1552. Water will be pumped into the lake via the Pumping and Generating Plant during the fall and winter months (October through March). From April through September, water will be released from the reservoir to satisfy CAP water demands. The release would normally occur through the CAP generators whenever the reservoir elevation is above 1645.0 feet. Whenever the reservoir is below elevation 1645.0, releases would occur through the CAP bypass. Because the lake will be used for regulatory storage, the actual surface area will typically vary from 3,528 acres to 9,966 acres depending on the time of the year. The reservoir will be operated between elevations 1552.0 (minimum water surface elevation) and 1702.0 (maximum conservation storage level).

Critical Elevations

- Elevation 1706.5 - This is the elevation of the crest of the spillway and represents the 100 year flood elevation based on the lake level being at 1694, or less, when the storm starts. With these conditions, the water will be contained.
- Elevation 1711 - This is the elevation of the pilot channel of the fuse plug and represents the 200 year flood elevation based on the lake level being at 1694, or less, when the storm starts.

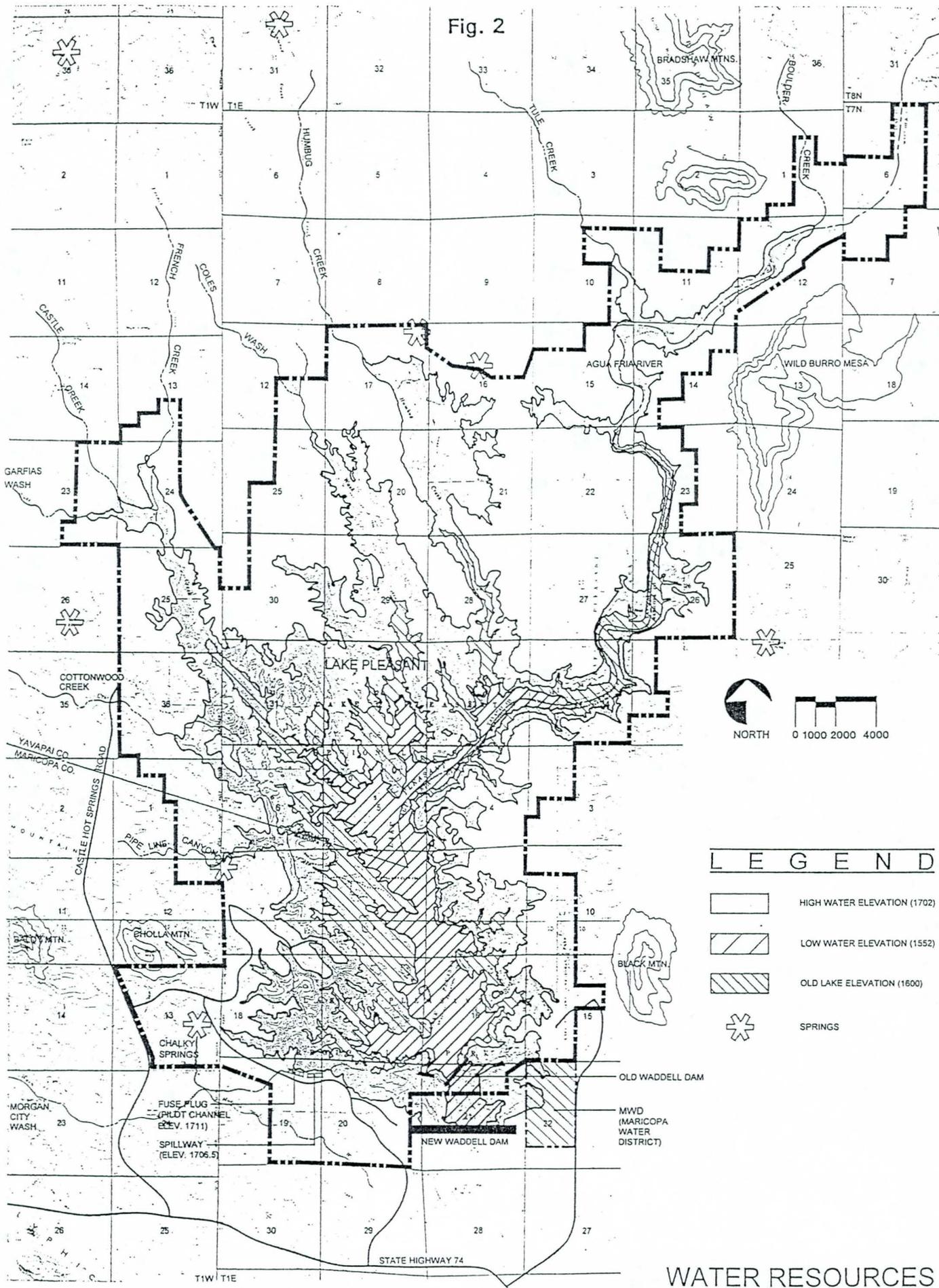
There are also several intermittently flowing creeks, washes and springs located within or immediately adjacent to the park boundary. Cottonwood Creek, Castle Creek, Humbug Creek and Coles Wash drain directly into the lake. Tule Creek (portions of which are perennial) and Boulder Creek drain into the Agua Fria River upstream of the lake. There are also numerous springs located west and north of the lake. The eastern shore is very steep and has minor surface runoff into the lake.

Lake Pleasant is the primary public attraction to the Park providing opportunities for water-oriented recreation such as sailing, power boating, water skiing, fishing and swimming. Land based activities such as hiking, camping, and picnicking are enhanced by the park's water resources. In addition, wildlife are attracted to the water, increasing the public's opportunities to view them. Water resources are shown in Figure 2.

Conservation Recommendations

- The extreme fluctuation in water surface elevation (150 vertical feet) caused by the use of the lake as a reservoir will make development of the park facilities very difficult. All development sites will be located above the maximum conservation storage level (1,702).
- Maintain active major washes as open space to facilitate flows, provide natural view corridors and buffer activity areas.
- Prohibit construction of buildings within the flood plains of major washes.
- Where appropriate and possible, leave undisturbed vegetative buffer areas 50-100 feet wide between the lake and structures such as roads and buildings.
- Construct wash crossings to blend into the natural terrain and minimize environmental impacts.
- Minimize construction impacts on the lake by careful disposal of construction debris.
- Minimize impacts on trail, picnic and camping development on the creeks, washes, springs, and lake by public education with signs promoting trash disposal and by providing trash containers in camping and picnic areas and in parking lots.

Fig. 2



LEGEND

-  HIGH WATER ELEVATION (1702)
-  LOW WATER ELEVATION (1552)
-  OLD LAKE ELEVATION (1600)
-  SPRINGS

WATER RESOURCES

LAKE PLEASANT REGIONAL PARK



061

C. Vegetation (Biological Resources)

Vegetation throughout much of the Park is typical of the Arizona Upland Subdivision of the Sonoran Desertscub Biome (Turner et. al. 1982). Trees and shrubs within this subdivision are generally small-leaved and attain an average maximum height of thirty feet. Most of the woody plants are spiny or possess aromatic oils that discourage use by plant eating animals. Dominant trees and shrubs include Blue Palo Verde, Foothill Palo Verde, Ironwood, Crucifixion Thorn, Bursage, and Brittlebush. Cacti are also dominant in this subdivision and include Saguaro, Compass Barrel Cactus, Ocotillo, Prickly Pear, Buckhorn Cholla, Teddy Bear Cholla, and Chain Fruit Cholla. See Figure 3 for vegetation map.

Along the valley bottoms, tablelands, and gently-sloping mesas adjacent to the Lake, the vegetation is more typical of the Lower Colorado River Valley Subdivision. The dominant perennial species include Blue Palo Verde, Creosote Bush, Snakeweed, Engelmann Prickly Pear, and Cat-Claw.

Desert Wash communities are scattered throughout the Lower Colorado River Valley Subdivision and contain distinct assemblages of plants which have higher moisture requirements than those in the surrounding desert. These include Blue Palo Verde, Ironwood, Cat-Claw, Mesquite, White Thorn Acacia, Desert Hackberry, and Chuparosea. Desert washes provide important habitat for breeding and migratory bird species.

Stands of riparian vegetation occur adjacent to perennial stretches of the Agua Fria River, washes, and areas along active springs. Vegetation includes Salt Cedar, Mesquite, Willow, Cottonwood, Cattails, Reeds, and Sedges. A list of species found at the park is included in Figure 4.

Development of lake facilities will require the removal of some plants. Recreational use of the park will damage and destroy some plants, particularly those along hiking trails and adjacent to recreational facilities.

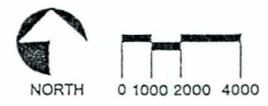
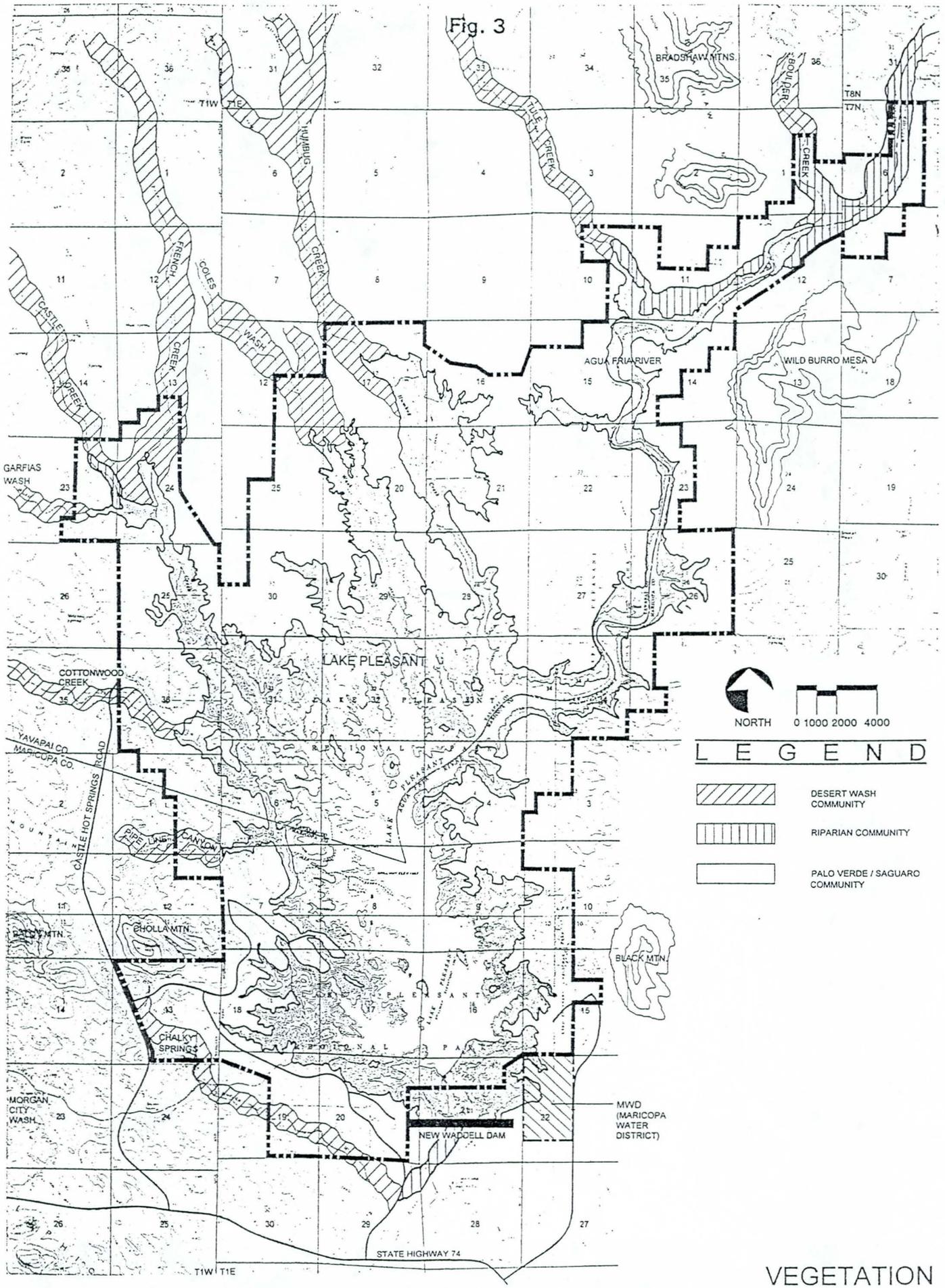
Special Status Species

The Hohokam agave, found in the park, was placed on the Candidate Category 2 list in January 1990. This classification means that the listing of the species is warranted but precluded by more important species. No impacts are expected to this species as a result of development. In a June 25, 1990 survey, five clones of the Hohokam agave were discovered. An additional two clones were discovered later that year, bringing the total to seven. Two of the clones were located below the proposed conservation pool level and were relocated to the overlook facility. The remaining clones are located in remote locations and are not expected to be impacted by park facilities.

Conservation Recommendations

- Provide signage to inform the public of the site's status as a regional park and to advise them that vehicular traffic is restricted to park roads.
- Inform the public of the Arizona Native Plant Law which states that all native plants and dead wood are protected from mutilation, destruction, and theft.
- Utilize the existing roads and trails as much as possible, and where appropriate, expand early in the park development to minimize the establishment of random tracks and trails that destroy vegetation and wildlife habitat. Close and revegetate existing roads and trails not selected for use.
- Remove existing litter by soliciting help from community organizations in order to discourage further littering and environmental degradation. Post signs prohibiting littering.
- Encourage preservation and reuse of existing plant material (especially trees) either by architectural integration or by transplanting.
- Only native plants shall be used in landscaping and revegetation work.
- Designate Morgan City Wash, Chalky Springs, Pipeline Springs Canyon, Cottonwood Creek, Castle Creek, and the north and east sides of the Park as conservation areas with limited access and development which will preserve riparian areas.

Fig. 3



LEGEND

-  DESERT WASH COMMUNITY
-  RIPARIAN COMMUNITY
-  PALO VERDE / SAGUARO COMMUNITY

VEGETATION

LAKE PLEASANT REGIONAL PARK



Figure 4

PLANT SPECIES FOUND AT LAKE PLEASANT REGIONAL PARK

Blue Palo Verde	<i>Cercicum floridum</i>
Foothill Palo Verde	<i>Cercidum microphyllum</i>
Ironwood	<i>Olneya testoa</i>
Crucifixion Thorn	<i>Canotia holacantha</i>
Bursage	<i>Ambrosia deltoidea</i>
Brittlebush	<i>Encelia farinosa</i>
Saguaro	<i>Cereus giganteus</i>
Compass Barrel Cactus	<i>Ferocactus acanthodes</i>
Ocotillo	<i>Fouquieria splendens</i>
Prickly Pear	<i>Opuntia phaeacantha</i>
Buckhorn Cholla	<i>Opuntia acanthocarpa</i>
Teddy Bear Cholla	<i>Opuntia bigelovii</i>
Chain Fruit Cholla	<i>Opuntia fulgida</i>
Creosote Bush	<i>Larrea tridentata</i>
Snakeweed	<i>Gutierrezia sarothrae</i>
Engelmann Prickly Pear	<i>Opuntia engelmannii</i>
Cat-Claw	<i>Acacia greggii</i>
Salt Cedar	<i>Tamarix pentandra</i>
Mesquite	<i>Prosopis veluntina</i>
Willow	<i>Salix sp.</i>
Cottonwood	<i>Populus fremontii</i>
Cattails	<i>Typha sp.</i>
Hohokam Agave	<i>Agave murpheyi</i>
Night Blooming Cereus	<i>Cereus Greggii</i>

D. Wildlife

Birds

Lake Pleasant is a large, permanent source of water that attracts a diversity of wildlife to the Park. The most diverse group of wildlife in regards to species composition is birds. Year round residents in the Park include Golden Eagle, Bald Eagle, Peregrine Falcon, Turkey Vulture, Red-Tailed Hawk, American Kestrel, Mourning Dove, Gambel's Quail, Greater Roadrunner, Gila Woodpecker, Ladder-Backed Woodpecker, Northern Flicker, Cactus Wren, Verdin, Common Raven, and Northern Cardinal.

The best time to go bird watching in the Park is during the winter and spring when the number of species is the greatest. A variety of waterfowl use the Park in winter months including Canadian Goose, Mallard, Common Pintail, American Pigeon, Northern Shoveler, Redhead, Canvasback, Ruddy Duck, Bufflehead, Ring-Necked Duck, Green-Winged Teal, American Coot, Eared Grebe, Pied-Billed Grebe, Western Grebe, White-Faced Ibis, and Common Gallinule. Great Blue Herons also use the lake and a Heron rookery is located just upstream of the reservoir on the Agua Fria River. Other commonly observed seasonal visitors to the Park include White-Winged Dove, Common Snipe, Black-Chinned Hummingbird, Anna's Hummingbird, Costa's Hummingbird, Osprey, and Cooper's Hawk. A list of birds that may be found at the Park is included in Appendix I.

Mammals

Mammals that may be seen in the park include Harris Antelope Squirrel, Black-Tailed Jack Rabbit, Desert Cottontail, Coyote, Javelina, and Mule Deer. Mule Deer seasonally move between the Hieroglyphic Mountains and Lake Pleasant in response to environmental conditions. During the dry months, deer restrict their movements to areas near permanent water such as Lake Pleasant. In the cooler months and after thunderstorms, deer tend to scatter throughout their range. Major drainages function as movement corridors for Mule Deer, providing thermal cover, hiding cover, and forage areas.

The Park lies within a federal burro grazing area of approximately 85,000 acres. According to the Bureau of Land Management (BLM), who is responsible for the welfare and protection of the burros, between 225 and 250 burros graze on the east, west, and north sides of the Lake. Wild burros are protected by the Wild and Free-Roaming Horse and Burro Act. the BLM is developing a herd management for these burros. A list of mammals that may be found at the Park is included in Appendix I.

Reptiles and Amphibians

A variety of reptiles and amphibians live within the Park area including Sonoran Desert Tortoise, Western Whiptail, Gila Monster, Horned Lizard, Couch's Spadefoot Toad, and Woodhouse's Toad. Several species of poisonous snakes also exist, such as Black-Tailed Rattlesnake, Western Diamondback, Sonora Gopher Snake, California King Snake, and Mohave Rattlesnake. A list of reptiles and amphibians found at Lake Pleasant is in Appendix I.

Special Status Species

There are several animals that use the Park that are protected by the Endangered Species Act of 1973 (ESA). The Bald Eagle and the Peregrine Falcon are two species that are listed as endangered under the ESA. The Sonoran Desert Tortoise is listed as a Candidate Category 2 species. This status indicates that insufficient information on the biological vulnerability of the species is available to conclusively support listing of the species. Although the species has no official protection under the ESA, special management recommendations are usually considered during planning and development. The Gila Monster and Sonoran Desert Tortoise are protected by the Arizona Game and Fish Department.

In 1979 a Bald Eagle nest was discovered in a live cottonwood tree along the Agua Fria River upstream of Waddell Dam. This nest, which has remained unoccupied since its discover, will be inundated by the new reservoir. Another nest was located in the same area in 1984, this time on a cliff on top of an old Raven or Red-Tailed Hawk nest. A full-adult female and a near-adult male laid eggs in 1984 and 1985, and, in both instances, the eggs failed to hatch. Eagles were observed in the area during the breeding seasons of 1986, 1987, 1988, and 1989; however, the nest was not used during this time. In 1991, a new pair, consisting of a banded female and a near-adult male, occupied the cliff nest but did not lay eggs. In 1992 a new unbanded female and a blue banded male occupied the territory and laid eggs, but the nest failed due to unknown causes. The 1993 breeding season turned out to be the first successful nesting at Lake Pleasant. In February a male chick was hatched. Although eagles mate for life, the Lake Pleasant territory has experienced considerable turnover. The exact cause for the increased mortality within the pair is unknown at this time. Presently, the 1994 pair (the same Blue Banded male and Unbanded female) have hatched two eaglets.

Eagles are known to forage along a 7.5 mile stretch of the Agua Fria River and Lake Pleasant including the lower lake. Early in the year, the eagles forage on the lake. Coles Wash and the mouth of Humbug Creek are particularly attractive forage areas because of their large, shallow coves and emergent vegetation. Forage activities shift to the river during the White Bass and Carp Spawns. White Bass have been known to begin spawning as early as February 24, ending in early March. Carp have been observed to spawn in the area of the cliff nest from March 5 to March 26. The Eagles also have been know to prey on Catfish, Crappie, Black-Tailed Jackrabbit, and on waterfowl such as American Coot and Green-Winged Teal. Foraging locations will likely shift with increases in water level and any subsequent elevation changes throughout the year.

Any impacts to Threatened or Endangered species would result in a re-initiation of Section 7 consultation. Although no consultations are required for species like the Desert Tortoise (category 2), mitigation measures are typically implemented. Some impacts to the Desert Tortoise may be caused by the construction of North Park Road (Phase 2).

Wildlife at the Park will be impacted by the loss of habitat caused by construction of new facilities, by increased disturbance due to higher recreational usage, and by construction activity.

Conservation Recommendations

- Conduct public education programs at the park to inform the public about the general habits of the Desert Tortoise and to direct them not to harass or collect wild tortoises (which is classified as a class 2 misdemeanor under state law) or to release captive tortoises.
- Conduct surveys to identify tortoise habitat areas and avoid known tortoise population centers during site selections.
- Avoid bisecting tortoise habitat with improved roads, wherever possible. Where unavoidable construct tortoise fence barrier.
- Design roads to allow safe crossings for Javelina, Deer, and Desert Tortoise. Control vehicle speeds and post signs at crossings.
- Restrict all activities within 1/4 mile of nesting birds of prey.
- Designate Morgan City Wash, Chalky Springs, Pipeline Springs Canyon, Cottonwood Creek, Castle Creek and the north and east sides of the Park as conservation areas with limited access and development which will preserve wildlife habitat.
- Close the nesting areas of the Bald Eagle and Peregrine Falcon during the breeding season from November through June when birds are in residence. Inform public through signs and handouts of area closures and note penalties for harassment of nesting birds.
- Insure that interpretation for park visitors, monitoring by nest watchers, and enforcement of closure areas are provided.
- Limit the drawdown rate to a maximum of 28" over any two week period from February through April 15, and longer whenever possible, to maintain a satisfactory prey base to support the eagles.

E. Fisheries

Lake Pleasant supports a self-sustaining warm water fishery, including the only white bass fishery in Arizona. The Lake Pleasant fishery is the result of past stocking by the Arizona Game and Fish Department (ADFD). Species of sport fish that were stocked include Largemouth Bass, Bluegill, Eastern Channel Catfish, Crappie, and White Bass. Threadfin Shad was also stocked as a food source. It is expected that for a number of years after the initial filling of the Lake that fish numbers will dramatically increase due to the increased capacity and nutrient levels. In order to assess the impacts of the increased lake levels on the fisheries a "pre-Lake study" was completed in May 1990 and the "post-Lake study" will be completed after the Lake equilibrates (probably around the year 2000). Depending upon the results of the latter study, additional fishery mitigation may be necessary.

As part of the "pre-Lake study" the AGFD interviewed anglers to assess the status of the Lake Pleasant fishery (AGFD 1990). A total of 18,969 anglers were interviewed regarding the species sought, the degree of angling success, the number of fish caught, and angler satisfaction.

Twenty nine percent of those interviewed indicated no species preference. When a preference was indicated, Largemouth Bass was the most sought after species. Approximately 53% of the anglers indicated that they were fishing for Largemouth Bass either exclusively or in combination with other species. Almost 7% indicated their preference for White Bass only, while 2% fished for White Bass in combination with other species. Next in order of preference were Channel Catfish, Crappie, and Sunfish.

Anglers that fished exclusively for Largemouth Bass or exclusively for Channel Catfish generally had the lowest catch rates among angler groups. Sunfish anglers had the highest catch rate followed by Whitebass anglers and Crappie anglers. Approximately 61% of the anglers rated their fishing experience as poor, with an average of 0.22 fish per hour of effort. Anglers that rated their experience as fair (23.7%) averaged 0.66 fish per hour. Less than 17% of the anglers interviewed felt their fishing experience was good or excellent. These anglers averaged about 0.8 fish per hour of effort. The average catch per hour of effort for all those interviewed was 0.39 fish.

In the same AGFD study, fish populations within the Lake were sampled using gill nets, trap nets, and electrofishing. Rotenone was also used to sample three coves. The Gila Sucker is the only native species that was found in the Lake. The remaining species were introduced to the waters of Arizona. Figure 5 lists each species sampled and the percentage of each species within the total sample.

Although Striped Bass have been documented from Lake Pleasant, the actual effect of Striped Bass on the Lake Pleasant fishery is currently unknown. It is anticipated that water quality and temperature differences between the Lake and the CAP canal will seriously limit the number of individuals in the reservoir. These individuals would attain maximum size and have little effect on the remainder of the Lake's fishery. If Striped Bass

populations within the reservoir were to become viable, the result could be catastrophic to the White Bass and Largemouth Bass fisheries. Other populations could be decimated by the aggressive and efficient predator. Under this scenario anglers could experience excellent Striped Bass fishing for the first few years. The voracious striper would eventually cause the prey species to become scarce, leaving only below-average sized Striped Bass available to the angler. This is theoretical and AGFD has indicated it feels the Striped Bass will not be able to form a viable population in Lake Pleasant.

Special Status Species

The Gila Topminnow is an Arizona native that is listed as endangered under the Endangered Species Act. This livebearing fish was once widespread throughout the southern part of the Gila River Basin. Introduction of predators and competitors and the elimination of much of its native habitat have driven the species to near extinction. It is currently known to exist in only a few scattered areas of the State. Although the species is not present in Lake Pleasant, it is known to occur upstream of the Lake within a tributary of the Agua Fria River. This population was introduced by the AGFD in 1982. The expansion of Lake Pleasant increases the risk of introducing predators and competitors to the topminnow habitat, so fish barriers will need to be installed within the tributary.

Due to the variable nature of the lake, it is important that the water levels be monitored and regulated carefully due to its effect on fish spawning. Past literature regarding the spawning success of centrarchid fishes (Largemouth Bass, Bluegill, Black Crappie, Sunfish) indicate that water levels dropping more than 3 inches per day have significant impacts on fish spawning success. The spring months of March, April, and May constitute the reproductive and spawning periods of the highly sought after fish species.

Impacts of Lake Pleasant development include the destruction of habitat and the lowering of water quality by increased water activities and construction activity.

Conservation Recommendations

- Minimize Lake level fluctuations during spawning periods.
- Build artificial reefs and spawning cover, as needed.
- Dispose of construction debris in a manner that prohibits its being blown into the Lake.
- Prohibit stormwater runoff from construction sites from entering the Lake.
- Complete a "post-Lake study" to assess the impacts of the increased Lake levels.

Figure 5

FISH SPECIES SAMPLED AT LAKE PLEASANT

Species	% of Sample
Threadfin Shad (<i>Dorosma petenense</i>)	36.7
Sunfish	33.8
White Bass (<i>Morone chrysops</i>)	11.6
Largemouth Bass (<i>Micropterus salmoides</i>)	10.3
Carp (<i>Cyprinus carpio</i>)	5.1
Crappie (<i>Pomoxis annularis</i> and <i>P. nigromaculatus</i>)	1.0
Eastern Channel Catfish (<i>Ictalurus punctatus</i>)	0.8
Goldfish (<i>Cyprinus auratus</i>)	<0.8
Golden Shiner (<i>Notemigonus crysoleucus</i>)	<0.8
Red Shiner (<i>Notropis lutrensis</i>)	<0.8
Gila sucker (<i>Catostomus insignis</i>)	<0.8
Yellow Bullhead (<i>Ictalurus natalis</i>)	<0.8
Mosquitofish (<i>Gambusia a. affinis</i>)	<0.8
Blue Tilapia (<i>Tilapia aurea</i>)	<0.8

F. Cultural Resources

Cultural resources are defined as significant historical, archaeological, architectural, scientific paleontological resources, which include buildings, objects, structures, sites and districts of historical and archaeological value. Not all cultural resources are equally important, but even the small, common sites can contribute to a better understanding of the past.

Prehistoric Resources

Limited archaeological investigations at Lake Pleasant were conducted before the 1960's and, although sporadic, they provided insight on the archaeological potential for the area. More extensive investigations took place in the early 1960's and continued throughout the 1980's. Significant data were recorded through two major studies conducted in the late 1970's and early 1980's by the Central Arizona Ecotone Project (CAEP) and the Central Arizona Water Control Study (CAWCS), a component of the Central Arizona Project.

Through these surveys and minor excavations, archaeologists have located and identified habitation sites, agricultural features, petroglyphs, villages, isolated artifacts, quarries, fieldhouses and farmsteads. These prehistoric resources appear to reflect an adaptation by small groups of Hohokam settlers who mixed agriculture with hunting and gathering. The Hohokam appear to have flourished in the Agua Fria River valley from A.D. 700 to A.D. 1450.

Different parts of the Agua Fria River valley provided different resources and reasons for the Hohokam to establish habitations. Various geological assets available to the prehistoric inhabitants of the area include the beds of siliceous limestone (a potential source for chert which was used to make projectile points), outcrops of andesite (a material used to manufacture metates and manos), and basalt (an igneous rock used for some categories of expedient tools).

In the north Agua Fria region sites are scattered along the river and its tributaries. Five sites, which have masonry structures and surface artifact scatters, are located in an area where several washes join a major bend of the river. One of these artifact scatters, along with a site located just to the east which may contain subsurface structures, could possibly be a pithouse village. The presence of petroglyphs, bone, a slate palette, numerous groundstones, and dense shard and lithic material suggest the village may have been a focus for activity in the area. A series of sites creating a terraced field system lies in the general vicinity.

Humbug Creek provided at least one quarry for the Hohokam. Since there are no habitational sites evident and six sites contain only artifact scatters, the area appears to have been used solely for mineral resource exploitation.

The Castle Creek area contained a variety of site types including a rock shelter, artifact scatters, a chipped stone quarry, a groundstone quarry, and a number of sites with masonry structures. The spatial relationship of the sites is interesting because the majority of the sites are within a two mile radius of the larger masonry structure sites.

Only a few prehistoric sites lie within the southern boundary of the park. A single room masonry structure, artifact scatters and petroglyphs have all been inundated with the breaching of Waddell Dam.

The majority of the 64 known prehistoric sites in the park's boundary are small, less well preserved, and of lower quality than other sites in Arizona, but each site played some role for the Hohokam. Of the sites recorded, more than 25% are the artifact scatters, including quarries which are indicative of the importance of lithic resources; about 25% appear to be pithouse villages; and approximately 33% contain masonry architecture. The masonry architecture sites tend to be small, usually have less than 20 rooms. Of these sites, more than 60% have only a single room and are probably fieldhouses. Some agricultural fields, as well as numerous check dams, rock alignments, and terraces, have also been identified.

Protohistoric Resources

The Protohistoric period for the Yavapai culture is between A.D. 1300 and A.D. 1583 and their sites are difficult to identify. With a highly mobile lifestyle, little material evidence exists to identify the Yavapai. To complicate matters, earlier prehistoric cultures of the area made similar use of the environment and left similar evidence of their occupation. Although there are presently no known recorded sites, their existence is quite possible.

During the summer and fall of 1993, Bureau of Reclamation archaeologists initiated a Class III (Intensive) inventory survey of Park land. (See Figure 6) The purpose of the survey is to supplement the earlier Plan 6 surveys due to the increased size of the Park. The current plan will produce a preliminary report during the summer of 1994 that summarizes the background, purpose, and plan for completion of the Lake Pleasant survey. It is anticipated that the intensive survey of the remaining Park area will be completed in December 1994. The inventory results will serve as the basis for developing a treatment plan to be integrated with the Master Plan for the Park. Once the inventory has been completed, a final survey report will be prepared and submitted to the State Historic Preservation Office (SHPO) for mandated consultation regarding site eligibility and any subsequent treatment pursuant to 36 CFR Part 800 (Regulations for Protecting Historic Properties, Advisory Council on Historic Preservation). Initial consultation with the SHPO has resulted in agreement regarding this approach.

Historic Resources

Prospecting and mining are the earliest evidence of historical activity in the Lake Pleasant area, with farming and ranching much smaller in comparison. The discovery of mineral wealth in the early 1860's lured prospectors and miners to the area. Mining activity brought the railroad into the region. The Santa Fe, Prescott, and Phoenix railway began

construction in 1892. Roads, such as the Phoenix-Prescott Road, were constructed to connect the railway stations to the Lake Pleasant area. Some traces of the wagon roads still exist just north of the park.

The demands of the miners and the military caused ranching and farming to become profitable. Ranches and farmsteads were established minimally throughout the park, much of which is now under water. Because farming and ranching were dependent on mining, when the mineral resources of the area became depleted in the 1880's, much of the farming and ranching died out. The desired resource then became the Agua Fria River because of its irrigation potential. The need to provide irrigation water to farmers led to the construction of the original Waddell Dam, its diversion dam, and canal in the 1920's.

Of the historic sites at the park, the most significant is Waddell Dam. New Waddell Dam has replaced and caused inundation of the original dam. The other historic sites include roads, ranches, homesteads, a hydraulic mining operation, and features related to the construction of Waddell Dam.

Conservation Recommendations

Although the resources in this area are not unique, they do represent a largely unstudied data base and have information potential for interpretive sites. Where cultural resources will be adversely affected by project implementation, measures can be taken to mitigate some of the loss. The identified mitigation measures include:

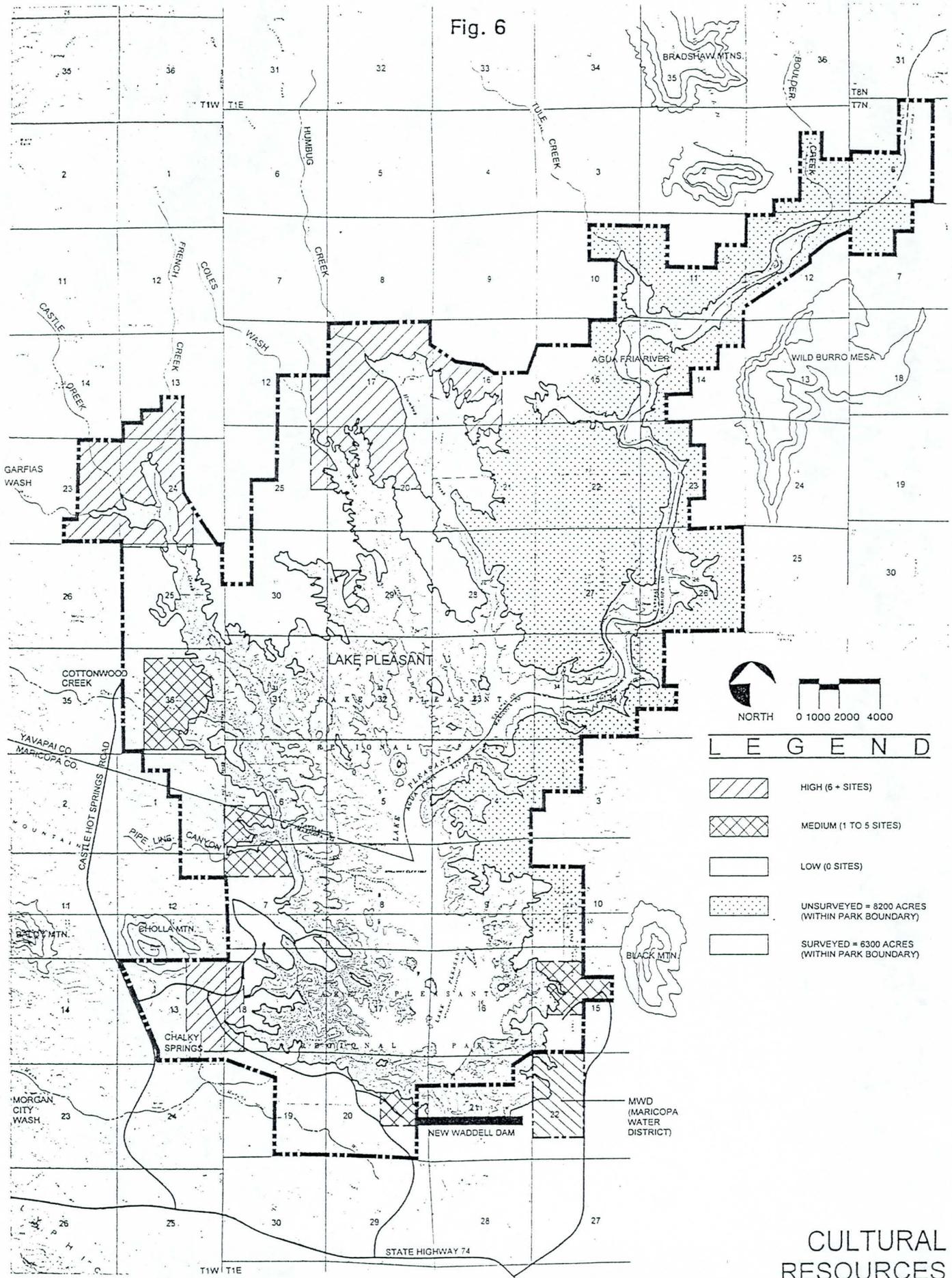
- Implement data recovery and research studies to recover the information in some of the archaeological and historical sites.
- Develop a program for monitoring, managing and studying those archaeological and historical sites at which data recovery studies are not undertaken.
- Develop a program for public distribution and interpretation of the study results so that the scientific and historic values can be appreciated by interested professionals and the general public.

Because some significant cultural resources have been identified, their inclusion in an interpretive and/or education center should be explored. Although such a facility cannot replace lost heritage values, it can use displays of photographs, pieces of equipment, and other artifacts to tell the public the stories of the prehistoric occupation of the area and of the water resource development and dam construction. Specific recommendations regarding educational opportunities relative to cultural resources include the following:

- Design hiking and equestrian trails to access major, well-preserved sites. Signs can be placed at convenient locations to explain the features and the types of activities that occurred there. Dependent on how the major roads in the park are designed, it may be possible to have close vehicular access to these sites for park visitors unable to use the hiking trails.

- Some of the recommended archaeological testing and data recovery can be conducted after the park has opened, providing an opportunity for visitors to observe the activities.
- Develop displays which feature the prehistory of the park in the Visitor and Education Centers. Place photographs and artifacts from the field work conducted in and near the park in the Visitor Center. A scale model of agricultural areas which illustrates the techniques of dry farming and water control used by the Hohokam could be an important component of the educational exhibit.
- Collections of artifacts will comply with all applicable regulations.

Fig. 6



NORTH



LEGEND

-  HIGH (6+ SITES)
-  MEDIUM (1 TO 5 SITES)
-  LOW (0 SITES)
-  UNSURVEYED = 8200 ACRES (WITHIN PARK BOUNDARY)
-  SURVEYED = 6300 ACRES (WITHIN PARK BOUNDARY)

CULTURAL RESOURCES

LAKE PLEASANT REGIONAL PARK



G. Land Form

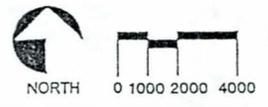
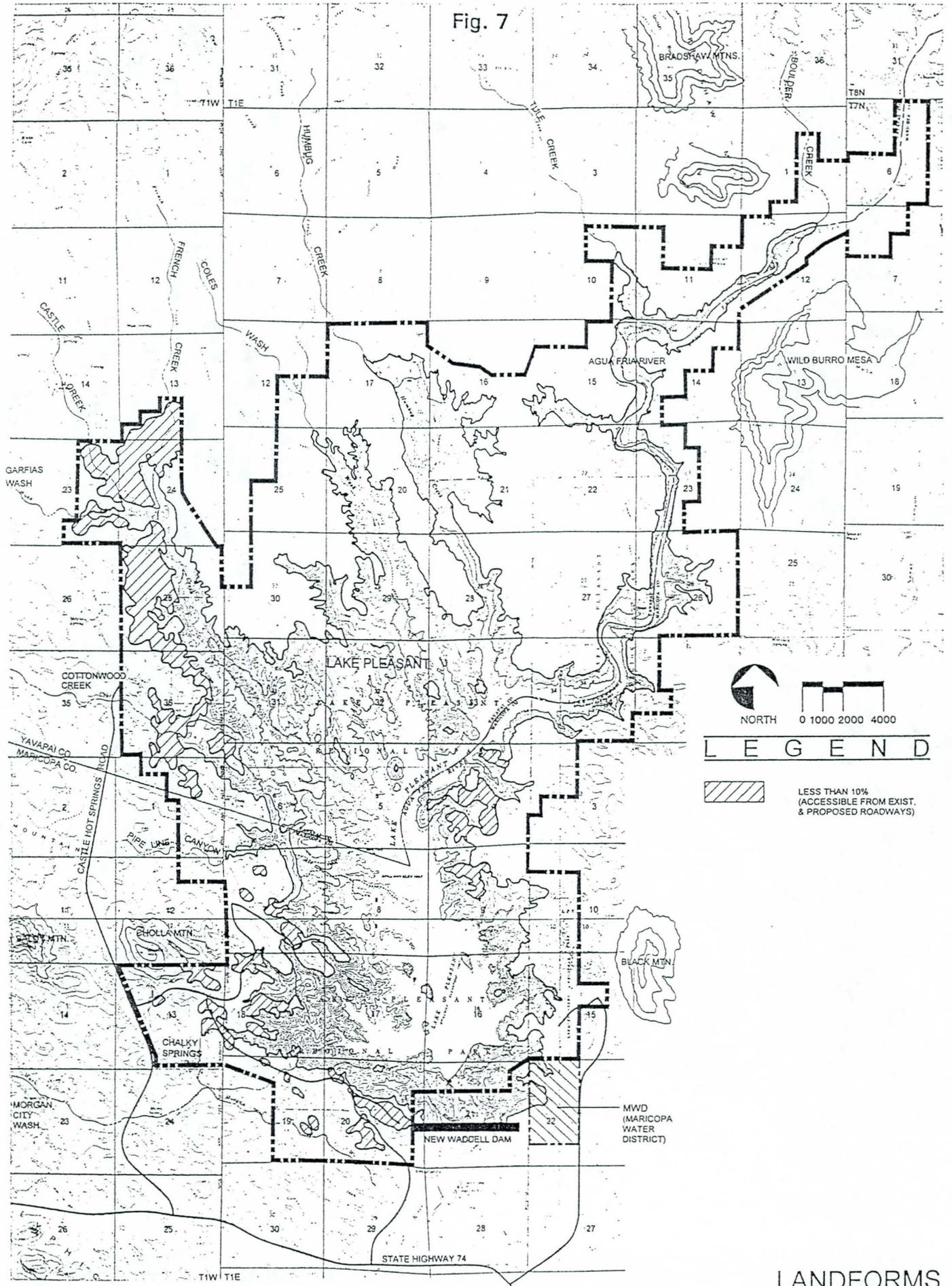
The 24,500 acre Lake Pleasant Regional Park site is located on the Agua Fria River about 35 miles upstream from its confluence with the Gila River. It lies in a transition zone from the Mountain Region to the Desert Region of the Basin and Range Province, where the Agua Fria River emerges from isolated mountain ranges onto a generally level basin floor.

Topography of the area has an important effect upon the views or areas of visual interest. Across the major portion of the area, the topography consists of rolling terrain incised by numerous small arroyos and channels. Some of the larger side tributaries include French Creek, Castle Creek, Humbug Creek, Tule Creek and Cottonwood Wash. A series of rugged, steep-sided ridges and mesas rise east of the lake, the Bradshaw Mountains lie directly north of the park. Prominent topographic features in the area include (Cholla Mountain (2,396 feet), Baldy Mountain (2,757 feet), Wild Burro Mesa (2,957 feet) and Black Mountain (2,490 feet). The terrain south and southeast of the park is relatively flat. Figure 7 indicates landforms and slope of the Park.

Conservation Recommendations

- Because construction must occur at elevations equal to or above 1706, much of the development will occur in areas having slopes up to 5 percent. Locate intensive land use development such as parking lots or building sites in areas with the least severe slopes to minimize the visual and environmental impact.
- Focus facility design on adapting the building to the site as opposed to grading the site to fit the building. The use of retaining walls, terraces, split level and platform structures can minimize the disturbances of the natural terrain. Hold site grading to an absolute minimum.
- Locate recreation sites in areas with slopes of 10 percent or less.

Fig. 7



LEGEND

 LESS THAN 10%
(ACCESSIBLE FROM EXIST.
& PROPOSED ROADWAYS)

LANDFORMS

LAKE PLEASANT REGIONAL PARK



1971

H. Geology

Underlying geologic conditions, in addition to different soil types and observable drainage patterns give an area its unique physical shape and characteristics. These characteristics provide the key to potential future development of any specific area. Geologic data allow predictions to be made concerning the types of problems that may be encountered during site work.

The geological data for Lake Pleasant Regional Park is based on research conducted by Townsend in 1964; the Bureau of Reclamation in 1966, 1975, and 1977; and by the U.S. Department of the Interior in 1979. The geology of the site includes Precambrian metamorphic rocks, Tertiary volcanics and sediments, and Quaternary alluvium. The northern part of the reservoir contains many tertiary lake beds, primarily between Castle Creek and the Agua Fria River, indicating a natural damming of water as a result of faulting or lavas (First Environmental Inventory, Vol. 11, 1979). For the most part, the rocks on the eastern portion of the lake consist of volcanics, mostly basalt and tuff. Conglomerates are found primarily along the western edge of the lake and channel deposits occur in many of the intermittent streams and washes (U.S. Department of the Interior, 1979).

Although there are numerous faults within the park, there have been no recorded earthquakes originating from it. The park is located in a low seismic risk zone on the Seismic Map of the United States (First Level Environmental Inventory, Vol. 11, 1979).

The area contains uranium-bearing strata and various precious metal deposits. Sand and gravel deposits occur along the Agua Fria River.

Conservation Recommendations

- Avoid development in areas of unstable geologic conditions.
- Rock outcrops and shallow depth to bedrock conditions require careful siting of activities. These rock foundations severely constrain the construction of trails, roads, leach fields, and structures due to increased site work costs or incompatibility with specific recreation uses.
- The complex geology of the park has significant educational potential through the use of interpretive programs and trails.

I. Soils

Soil properties such as texture, permeability, shrink-swell, corrosivity and bearing strength help determine the type of development that may be appropriate for an area. Several soils occur within the park and are identified as "soil map units" by the U.S. Department of Agriculture Soil Conservation Service (SCS) in the "Soil Survey of Aguila-Carefree Area, Parts of Maricopa and Pinal Counties" (April, 1986) and the "Soil Survey of Yavapai County, Arizona, Western Part" (March, 1976). A soil map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the classification of the dominant soils or miscellaneous areas. A more extensive description of soils classification and map unit identification are included in both of the soil surveys along with the soil maps. A list and descriptions, by soil survey, of the soils found within Lake Pleasant Regional Park follow. (See Figure 8 for a map of these soils.)

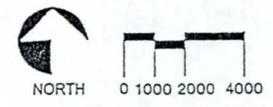
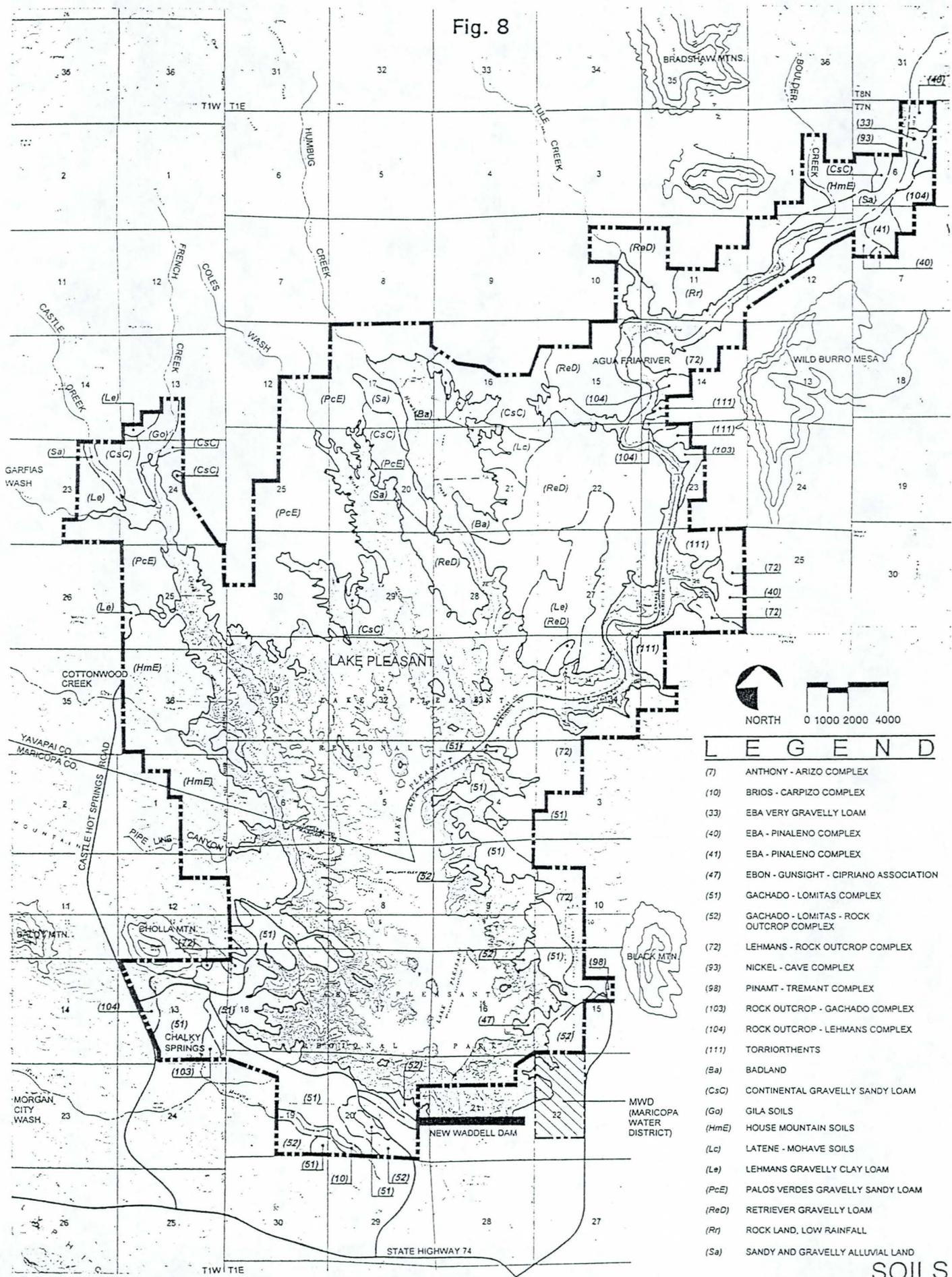
Soil Limitations

The SCS has determined the limitations of specific soils for such uses as septic tank absorption fields, sewage lagoons, sanitary landfills, excavations, ponds, reservoirs, dikes, levees, road construction, crop yield and irrigation practices. They also identify significant properties of these soils as they relate to urban growth and development and to soil management. Figures 10 and 11 show limitations of each soil type on selected types of development, as defined by the SCS. Figure 10 lists limitations from the Aguila-Carefree Area soil survey and Figure 11 lists limitations from the Yavapai County soil survey. In the table, limitations are rated as slight, moderate, or severe for the specified uses. A slight limitation means the soil properties are favorable and any limitations may easily be overcome. A moderate rating indicates limitations that may be overcome with careful planning, design and maintenance. A severe limitation will require extensive site modifications, intensive maintenance, and/or special designs to reduce or alleviate the soil constraints. Additional information may be obtained by referencing the appropriate soil surveys.

Conservation Recommendations

- Because the table presents only a general overview of site limitations, more thorough investigations and mapping of soils will be necessary before siting and design of recreational facilities are finalized.

Fig. 8



LEGEND

- (7) ANTHONY - ARIZO COMPLEX
- (10) BRIOS - CARPIZO COMPLEX
- (33) EBA VERY GRAVELLY LOAM
- (40) EBA - PINALENO COMPLEX
- (41) EBA - PINALENO COMPLEX
- (47) EBON - GUNSIGHT - CIPRIANO ASSOCIATION
- (51) GACHADO - LOMITAS COMPLEX
- (52) GACHADO - LOMITAS - ROCK OUTCROP COMPLEX
- (72) LEHMANS - ROCK OUTCROP COMPLEX
- (93) NICKEL - CAVE COMPLEX
- (98) PINAMT - TREMANT COMPLEX
- (103) ROCK OUTCROP - GACHADO COMPLEX
- (104) ROCK OUTCROP - LEHMANS COMPLEX
- (111) TORRIORTHENTS
- (Ba) BADLAND
- (CsC) CONTINENTAL GRAVELLY SANDY LOAM
- (Go) GILA SOILS
- (HmE) HOUSE MOUNTAIN SOILS
- (Le) LATENE - MOHAVE SOILS
- (Le) LEHMANS GRAVELLY CLAY LOAM
- (PcE) PALOS VERDES GRAVELLY SANDY LOAM
- (ReD) RETRIEVER GRAVELLY LOAM
- (Rr) ROCK LAND, LOW RAINFALL
- (Sa) SANDY AND GRAVELLY ALLUVIAL LAND

SOILS

LAKE PLEASANT REGIONAL PARK



Figure 9

SOILS LIMITATIONS FOR SELECTED DEVELOPMENT

(From "Soil Survey of Aguila-Carefree Area, Parts of Maricopa and Pinal Counties")

	Dwellings without basements	Local Roads and Streets	Septic Tank & Absorption Fields
12-Carefree Cobbly, Clay Loam, 1-8% Slopes	Severe	Severe	Severe
45-Ebon Very Gravelly Loam, 8-20% Slopes	Moderate	Moderate	Severe
48-Ebon-Pinamt Complex, 3-20% Slopes	Moderate	Moderate	Moderate to Severe
51-Gachado-Lomitas Complex, 8-25% Slopes	Severe	Severe	Severe
52-Gachado-Lomitas-Rock Out Crop Complex, 7-55% Slopes	Severe	Severe	Severe
72-Lehmans Rock Outcrop Complex, 8-65% Slopes	Severe	Severe	Severe

Figure 10

SOILS LIMITATIONS FOR SELECTED DEVELOPMENT

(From "Soil Survey of Yavapai County, Arizona, Western Part")

Soil Unit	Dwellings without basements	Local Roads and Streets	Septic Tank & Absorption Fields
Ba-Badlands	Severe	Severe	Severe
CmD-Cellar Very Gravelly, Sandy Loam, 8-30% Slopes	Severe	Severe	Severe
CsC- Continental Gravelly, Sandy Loam	Moderate	Moderate	Slight for slopes 0-8%, Moderate for slopes 8-15%
HmE-House Mountain Soils	Severe	Severe	Severe
Le-Lehmans, Gravelly, Clay Loam, 8-45% Slopes	Severe	Severe	Severe
PcE-Palos Verdes Gravelly, Sandy Loam, 8-40% Slopes	Slight for slopes 0-8%, Moderate for slopes 8-15%	Slight for slopes 0-8%, Moderate for slopes 8-15%	Slight for slopes 0-8%, Moderate for slopes 8-15%
ReD-Retriever Gravelly Loam, 2-30% Slopes	Severe	Severe	Severe
Rr-Rockland, Low Rainfall	Severe	Severe	Severe
Sa-Sandy and Gravelly Alluvial Land	Severe	Severe	Severe

J. Climate

The two dominant climatic features about Lake Pleasant Regional Park are the high summer temperatures and the small amount of annual precipitation. From June to August, daily high temperatures may exceed 110° F. Summer lows, from June through August, are usually in the 70's. From late fall until early spring, the climate is mild. Temperatures range from the high 30's or low 40's to the high 60's or low 70's. Freezing temperatures are rare.

The Park has a slightly wetter climate than metropolitan Phoenix. Most of the precipitation falls in winter and summer; spring is generally the driest season. Rains in the summer are frequently associated with thunderstorms which form over mountains during the afternoon and spread out over the adjacent valley in the afternoon. Precipitation may range from moderate to heavy, but generally does not last more than 30 minutes. Frequently, these seasonal storms, locally called monsoons, produce little more than gusty winds with light rain showers. The average annual rainfall for the last ten years as recorded by the Garfias Mountain and Columbia Hill rain gages are listed in Figure 12. These results were compiled by the Flood Control District of Maricopa County.

Lake Pleasant has the most dependable wind of any lake in Arizona. In the mornings, winds travel from the Bradshaw Mountains north of the park in a prevailing southerly direction. Around noon, the area is becalmed, but in the early afternoon, the wind picks up in a prevailing northerly direction, back towards the Bradshaws. In spring, winds associated with the passage of low pressure troughs are generally from the southwest and west. During the late summer, when thunderstorms are most prevalent, local winds are often gusty and flow in an easterly direction.

Conservation Recommendations

- Construct shade structures above some picnic tables.
- Orient buildings and shade structures with the primary axis slightly east of due south to minimize direct solar radiation.
- Construct building overhangs on the west and south faces.
- Avoid or minimize windows and openings on westerly exposures.
- Locate windows to encourage cross-ventilation.
- Use building material that is suitable to the southwest. It should be durable and require little maintenance. Where possible, use on-site materials, such as stone.

Figure 11

YEARLY RAINFALL TOTALS FOR GARFIAS MOUNTAIN
AND COLUMBIA HILL GAGES
(Precipitation Totals in Inches)

Year	Garfias Mountain	Columbia Hill
1992	23.90	23.74
1991	18.03	14.41
1990	16.54	13.35
1989	7.36	9.38
1988	13.50	11.88
1987	8.07 [1]	6.97 [1] [2]
1986	10.35 [5]	10.98 [3][4]
1985	12.47	12.12 [6]
1984	12.51	13.70
1983	18.29	11.57 [7]

- [1] Missing October 1987
- [2] Missing May 1987
- [3] Missing December 1986
- [4] Missing November 1986
- [5] Missing September 1986
- [6] Missing July 1985
- [7] Missing September 1983

L Acoustics

Lake Pleasant Regional Park is impacted by noise from various sources. Traffic (both land and water based), fly-overs from Luke Air Force Base, and gunfire are the primary sources for noise at the park. Sound becomes noise based on the subjective interpretation of the receiver. Distance, wind, atmospheric conditions, ground cover and topographic elements affect how sound travels and how the sound waves decay. Thick grass and heavy shrubbery attenuate sound to some extent, while hard surfaces, such as concrete or metal, do not. Wind affects sound in a direction manner. Sound waves travelling with the wind are forced toward the ground thus appearing louder than normal. Sound waves travelling against the wind are forced up, thus appearing softer than normal. Field tests at other park sites indicate that sound is channeled up canyons, with intervening ridges lessening the noise (Greiner 1990).

Human hearing ranges from about 0 decibels to about 140 decibels (dB). The human ear is more sensitive to sound at high frequencies than at low frequencies. Some examples of decibel levels for everyday sounds are: Average whisper, 20dB; Range of speech, 48 dB - 72 dB; Average office, 50 dB; Noisy urban street, 90 dB; and loud auto horn at 10 feet away, 100 dB. The typical day-night sound levels anticipated for the park are from the 15 dB to 45 dB, depending on the distance from the source to the receptor. Generally, each time the distance from source to receptor is doubled, the sound level is reduced by 6 dB.

Conservation Recommendations

- Allow hunting during limited hours and not at all during holiday periods. Limit hunting areas.
- Re-evaluate noise quality and abatement as increased residential development occurs near the park.

K. Air Quality

No air quality data are available from the vicinity of Lake Pleasant. Therefore, no accurate quantitative statements about the local air quality can be made at this time. However, a segment of the northwestern boundary end of the lake to Waddell Dam, coincident with the centerline of the Agua Fria streambed. Thus, a portion of the lake is included in the Maricopa County Urban Planning Area, which has been designated by the U.S. Environmental Protection Agency as a nonattainment area for total suspended particulates (TSP), carbon monoxide, and ozone. This means that in this designated area at least one national ambient air quality standard for each of these pollutants is being violated, as shown by monitored data or modeling. Any verification of such an occurrence or any distinguishing of difference in the air quality over one part of Lake Pleasant as compared to another part is not possible at this time.

Conservation Recommendations

- All major park roads will have asphalt paving to mitigate dust produced by traffic.
- Park roads will have paved or chip-sealed shoulders to mitigate dust produced by vehicles pulling off the roads.

M. Visual Resources

Lake Pleasant presents a unique visual setting, with its large body of water set in the midst of a desert landscape. The east side of the lake has visually unique steep cliffs. The Bradshaw Mountains form a rugged backdrop to the north and the Agua Fria River channel provides a steep canyon-like setting at the northeast end of the reservoir.

The topography of the area is varied with many small distinct hills and valleys rising and falling away from the lake. There are distant views of the mountains to the west, north, and east from almost any vantage point around the lake. Spectacular views of varying rock formations and cliffs, as well as the existence of several small islands within the lake enhance the area's scenic quality. Vegetation of the park is sparse, lacking dense compositions of tree and shrub cover native to the area.

Conservation Recommendations

- Avoid developing on peaks and ridges in order to preserve the highest quality scenic resources within the park.
- Fluctuating water levels will detract from overall visual quality in some areas. Orient facilities carefully to maximize aesthetic assets and minimize negative impacts.
- Because visual quality is primarily related to topographic features, give consideration to field-locating vistas and overview spots within all circulation elements, including hiking trails, equestrian trails and roadways. This will give all park visitors the opportunity to experience the visual quality found within the park.
- Mitigate areas impacted during construction, i.e., cut and fill, vegetation removal, etc. Utilize rock staining of cut and fills. Salvage desert plants and cacti and replant where feasible. Revegetate with native plant species in impacted areas.

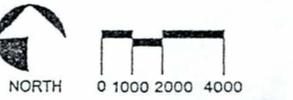
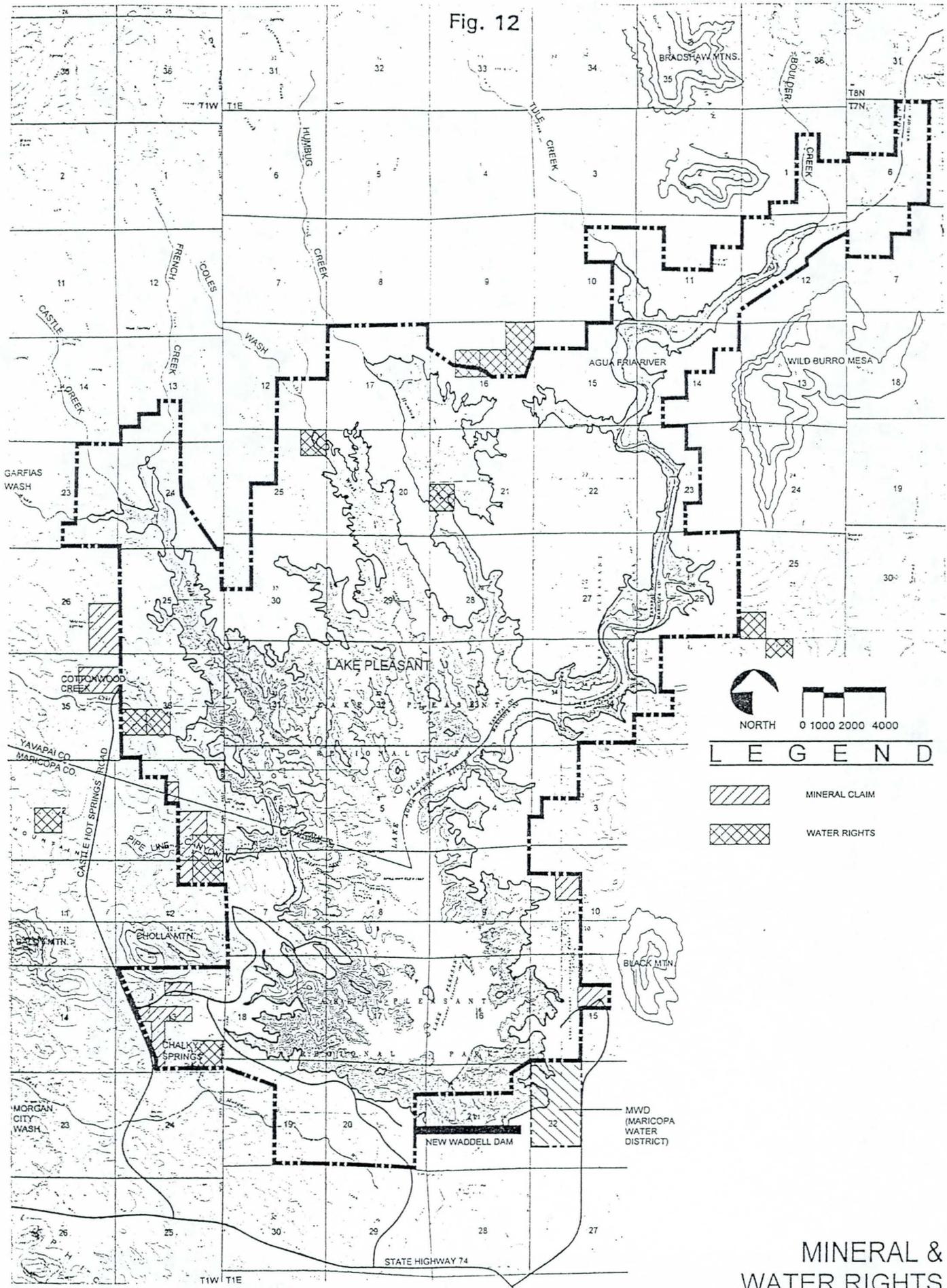
N. Existing Mineral Right and Mining Claims

Several existing mining claims lie within the boundary of the Lake Pleasant Regional Park. There are also gas leases and water rights within the Park boundary. Any development of these claims would result in destruction of vegetation and wildlife habitat. See Figure 12 for existing mineral and water rights within and adjacent to the park boundary.

Conservation Recommendations

- Work with the Bureau of Land Management, Bureau of Reclamation, Arizona Department of Water Resources, and State Lands to have all claims within the park abandoned by their owners.

Fig. 12



LEGEND

-  MINERAL CLAIM
-  WATER RIGHTS

MINERAL & WATER RIGHTS

LAKE PLEASANT REGIONAL PARK



O. Existing Zoning

Lake Pleasant Regional Park lies within two jurisdictional areas: Maricopa County and Yavapai County. Additionally, except for a small area within the City of Peoria limits adjacent to the south end of the park, the surrounding land is also within either Maricopa or Yavapai County. Existing zoning classifications for lands within and adjacent to the park are described in Figure 13.

See Figure 14 for a map of jurisdictional boundaries and zoning classifications within and adjacent to the park. A description of each zoning classification is included in Figure 15.

Figure 13

Zoning Classifications

Maricopa County

Rural - 43: Rural Zoning District - one (1) acre per dwelling unit.

Yavapai County

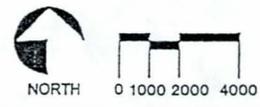
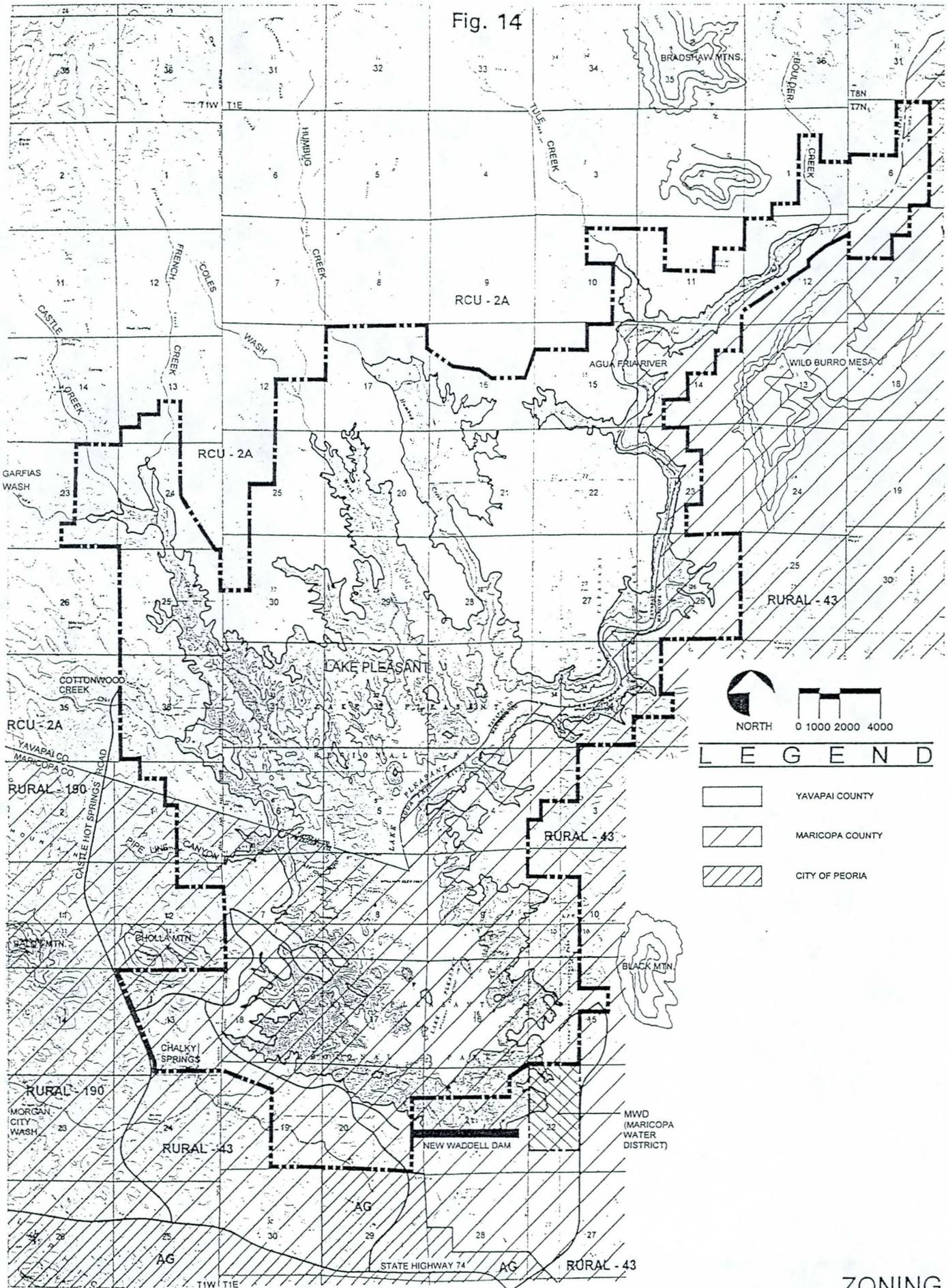
RCU - 2A: Residential Conditional Use - two (2) acres per dwelling unit.

City of Peoria

AG: General Agriculture - minimum lot size 5 acres.

SR - 43: Suburban Ranch - one (1) acre per dwelling unit.

Fig. 14



LEGEND

-  YAVAPAI COUNTY
-  MARICOPA COUNTY
-  CITY OF PEORIA

ZONING

LAKE PLEASANT REGIONAL PARK

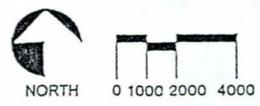
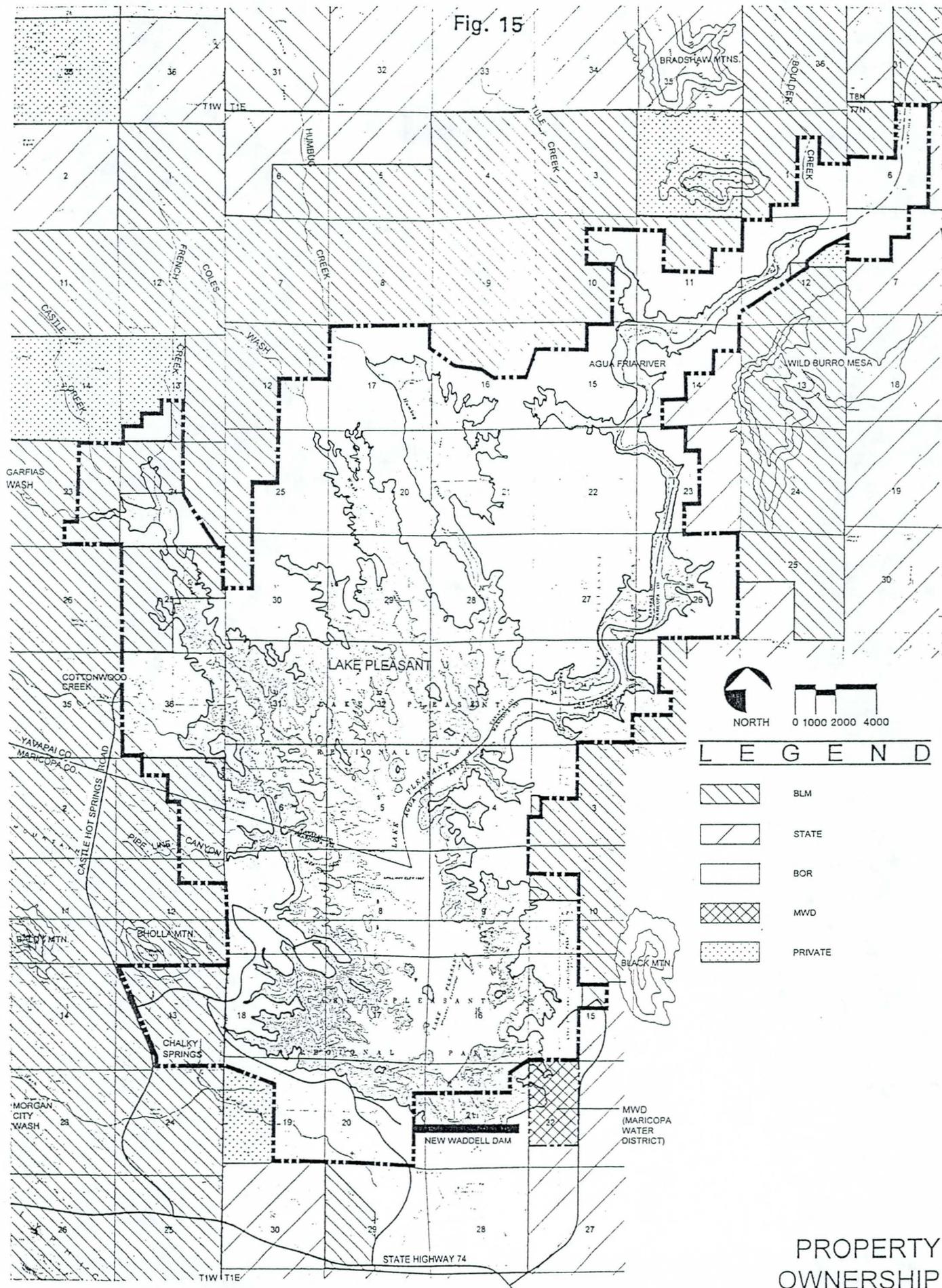


P. Existing Property Ownership

Currently the majority of the land within the boundary of Lake Pleasant Regional Park is owned or being transferred to the Bureau of Reclamation. Maricopa County Municipal Water Conservation District owns approximately 160 acres located just east of the New Waddell Dam, adjacent to the lake and park boundary.

The land surrounding the park is owned in a large part by State Lands (to the north, east, and south) and Bureau of Land Management (to the west). Smaller areas of privately held land occur mainly to the south. See Figure 15 for a existing property ownership.

Fig. 15



LEGEND

-  BLM
-  STATE
-  BOR
-  MWD
-  PRIVATE

PROPERTY OWNERSHIP

LAKE PLEASANT REGIONAL PARK



Q. Land Use Options, Opportunities and Constraints

Lake Pleasant will contain approximately 9.966 surface acres of water at its proposed normal operations water surface elevation of 1694. The attractiveness of this water for recreation uses will increase the demand for recreational facilities. Current use clearly shows that the water resources in the Phoenix metropolitan area are heavily used. Expanded use will impact the lake and the land around it. Opportunities for expansion of public recreational facilities offer these challenges:

1. Protect and replace current recreational facilities and opportunities at Lake Pleasant.
2. Provide new facilities and opportunities in the form of enhancement at the lake.
3. Develop plans to maximize the use of the water resources and still protect the environment of the area.

In developing these plans, extensive coordination with government agencies, public groups and individuals and potential recreational sponsors was necessary. Public interaction is described in Section B. The problem was (1) to identify a planned recreational development which addressed existing facilities replacement, new facilities development, and protection of a unique recreational and natural resource, and (2) to provide a solution which was viable and implementable.

Lake Pleasant fluctuates according to the needs for irrigation water. New Waddell will provide 660,000 acre-feet of storage. When the regulatory storage pool is filled with CAP water, the lake will have a surface area of approximately 9,970 acres at an elevation of 1702 feet. Seasonal fluctuations in the water level of the reservoir will create serious site location and design problems for all forms of water-oriented recreation. The predicted annual fluctuation in the water level at the lake will be approximately between elevations 1571 and 1694.

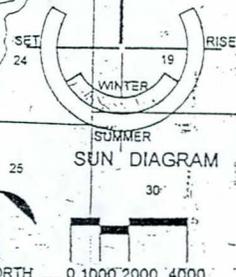
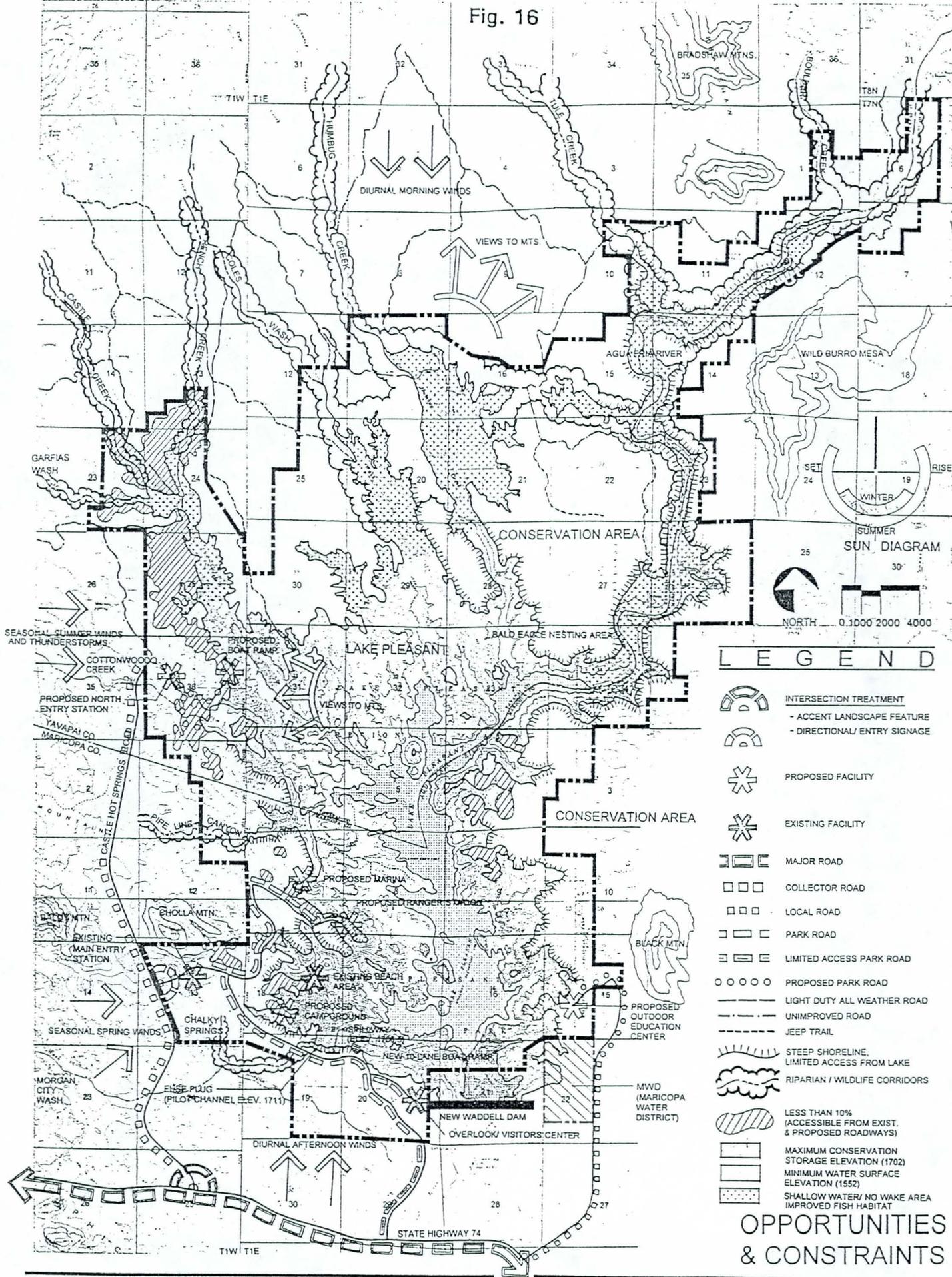
In early April the lake should be at its highest level. From April through early October, the reservoir will be lowered, with the period of greatest drawdown starting in late June. The reservoir level will remain fairly constant during the heaviest recreational use period, March to June. Recreation sites were situated to minimize the potentially adverse effects of the water level fluctuation for Lake Pleasant.

While the fluctuation in water level is a major consideration in the development of recreational facilities, several other factors will strongly influence the amount and extent of development. One of the main restrictions is the topography around the lake. The west side is relatively hilly terrain, punctuated by several arroyos and washes draining into the lake. However, there are limited areas of usable slopes (<10%) along the current shoreline (approx. 1,700 elevation). Additionally the west side has the only vehicle access at this time.

Conversely, the east side of the lake is characterized by rugged terrain and steep slopes making access and development prohibitive. Due to limited accessibility, steep slopes, and the preserve of prime riparian corridors to the north, both the east and north portions of the park have been designated Conservation Areas. Additionally, several riparian areas along the west side have also been designated Conservation Areas, further limiting development.

Figure 16 illustrates the current opportunities and constraints affecting the park.

Fig. 16



LEGEND

- INTERSECTION TREATMENT
 - ACCENT LANDSCAPE FEATURE
 - DIRECTIONAL/ ENTRY SIGNAGE
- PROPOSED FACILITY
- EXISTING FACILITY
- MAJOR ROAD
- COLLECTOR ROAD
- LOCAL ROAD
- PARK ROAD
- LIMITED ACCESS PARK ROAD
- PROPOSED PARK ROAD
- LIGHT DUTY ALL WEATHER ROAD
- UNIMPROVED ROAD
- JEEP TRAIL
- STEEP SHORELINE, LIMITED ACCESS FROM LAKE
- RIPARIAN / WLDLIFE CORRIDORS
- LESS THAN 10% (ACCESSIBLE FROM EXIST. & PROPOSED ROADWAYS)
- MAXIMUM CONSERVATION STORAGE ELEVATION (1702)
- MINIMUM WATER SURFACE ELEVATION (1552)
- SHALLOW WATER/ NO WAKE AREA IMPROVED FISH HABITAT

OPPORTUNITIES & CONSTRAINTS

VI. Public Participation

A. Overview

The public has been an integral part of the development of a plan for construction of recreation facilities at Lake Pleasant Regional Park. The Parks and Recreation Department publishes a periodic newsletter that contains interesting news about the park and updates the public about development. Copies are mailed to interested persons and groups and are also available at the park and the Parks and Recreation main office. The mailing list and copies of the newsletters are contained in Appendix II. Several public opinion surveys and numerous public meetings have been used to present information to the public and to solicit comments back from them. Additional public information meetings will continue to be held during the park's development. Planning for development of the park has been, and will remain, a dynamic process, relying on public interaction to determine the direction of park development.

B. Previous Master Plan Input

The results of a public opinion survey of park users and staff conducted in 1986, as well as projections for future park use and requirements, were used to generate the initial draft development plan. Highlights from that survey are:

- The recreational focus of the park is Lake Pleasant. The most frequent reason given for the visit was to be near water (57%). Fifty-two percent (52%) of the park's visitors were towing a boat.
- An important component of park use is family-oriented activities. Twenty percent (20%) of visitor parties included children between the ages of 6 and 3. The second most frequent reason given for people's visits was to spend time with their family (48%). Another important reason was bringing their children to play (29%).
- Relatively passive outdoor activities account for the majority of park use. This includes sunbathing (49%), fishing from a boat (38%), swimming (31%), fishing from shore (28%), sightseeing (21%) and camping (13%).
- Another major component of park use is active water recreation. This includes motor boating (23%), sightseeing (21%) and camping (11%).
- Although jet skis, four-wheelers and dirt bikes represent a very small level of park use, they tend to be the focus of complaints from visitors.
- Rejuvenation received from an outdoor experience is a primary motivator for people to visit the park. This includes being near water (57%), escaping the city (44%), relaxing (43%), getting fresh air and exercise (43%) and enjoying nature and the outdoors (42%).
- The social experience is another important aspect of recreational Lake Pleasant. This includes time with the family (48%), time with friends (38%), private time with a spouse or friend (24%), partying (17%) and meeting new people (9%).
- The largest percentage (47%) of park visitors would like to see the entry fee kept at its current level, with the caveat that revenues be applied to park maintenance and improvement. Twenty-eight percent (28%) would like the fee to be eliminated or reduced. Five percent (5%) want the fee increased.

C. Recent Public Opinion Survey

In December, 1992, a new questionnaire was developed and distributed by Maricopa County Parks and Recreation. The questionnaire was distributed through various use groups, the park mailing list, park users and the media. Questionnaires were distributed and collected until June, 1993. 2,619 surveys were collected. The survey was designed differently from the 1986 survey format, so the information gathered is different and not directly comparable. Highlights from the new survey include:

- Most of the people surveyed visited the park five times or less a year (34%). Over 70% of the park visitors stayed for one day or less, and most people indicated that they visited the park on both weekdays and weekends (53%). People visit the park year-round, but spring and summer are the most popular seasons.
- In the survey, the single largest age group was people over 50 years old (28%). This apparent change in user demographics from the previous survey may be due to the lack of some facilities during the survey period.
- The most popular facilities/activities continue to be those related to the lake. Out of 40 facilities/activity choices listed on the survey, swimming/sunbathing ranked #1, boat ramps (#3) and boat fishing (#5). Information and convenience facilities also ranked high as desired facilities, with convenience store (#2), visitors' center (#6), gas station (#7) and fast food (#9).
- Camping facilities are desired, with 52% of respondents indicating a need for family camping facilities and 45% indicating the need for shower facilities.

In addition to the straight numerical data on visitation and facilities preference, the survey also contained several open-ended questions designed to solicit written responses about user's feelings and preferences. The following is a summary of the feelings and preferences expressed most often in this section.

- One of the most frequently raised issues was the fee charged to enter the park or to use the boating facilities. Many people did not like paying the \$4.00 entry fee for, what is currently, very limited facilities. Personal watercraft users did not think they should pay the same fee as boats if they were to be confined to a limited area. Many older users requested some type of a long-term pass for seniors to help reduce the cost for them.
- There were many complaints in the survey about trash in the park, dirty restrooms and lack of police or ranger presence to control the antisocial behavior of others, both on the land and the water.
- There were numerous requests for a clothing optional bathing area. Several of the area sunbathing groups have been very involved in the planning process to date.

- The issue of personal watercraft or jet skis came up quite often, both for and against them. Many respondents complained about the noise and irresponsible behavior of some jet ski users, and were very much in favor of a limited, designated area to confine the use of these personal watercraft. An almost equal number of survey respondents defended the rights of the jet ski users to use the entire lake, especially if they are charged the same fee as boat users.
- Quite a few people expressed concern for their safety swimming in the lake, due to submerged or floating debris and cacti created by the new higher lake level.
- Most people expressed displeasure at the lack of facilities. Boating facilities, camping facilities, restrooms and picnic facilities were mentioned most often. There were comments calling for additional commercial development (i.e. restaurant, hotel, convenience store, etc.) and an almost equal number of comments calling for little or no development and the desire to keep the park as natural as possible.
- Several people were concerned about future plans to improve vehicular access from the north.
- More trees and shade was a very common request.

D. Input From Public Meetings

Numerous public meetings and speaking engagements have been held both in the past, as part of the previous master plan development, and more recently, by Maricopa County Parks and Recreation with various interest groups. The meetings were held to present information and solicit comments from the public. A list of the dates and groups from the most recent series of meetings is included in Appendix II.

A second part of the public participation program was to provide the public with an opportunity to review and comment on plans developed for Lake Pleasant. This was accomplished through open house type meetings which were advertised by mailings and media. A series of open houses were held throughout the Valley to solicit public input for the proposed Master Plan. Many of the agencies involved were available to respond to questions regarding their particular area of expertise. Comments were solicited through questionnaires and comment sheets distributed at the meetings.

E. Summary of User Profile and Recreation Demand

Although the conditions at Lake Pleasant have changed over the last seven years with the construction of the dam, the raising of the water level and the loss of many facilities, the projected typical user of the park should not change dramatically from what they have been in the past. The focus of activity in the park will be associated with the lake and water-based activities.

Most users will be visiting the park with family or friends. Facilities for family and small group-based activities are important to the users.

The park plan will need to be sensitive to balancing the needs of developing facilities with the preservation of the natural resources. Active uses will have to be developed in a way that is compatible with the passive uses in the park.

The fee structure which is imposed on users needs to be perceived as fair and a good value for the facilities provided. People want to see that the fees are going toward the maintenance and management of the park.

People will be attracted to Lake Pleasant for many reasons, and will continue to come back if the activities and facilities they want are provided, and the experience is a good one.

The various user surveys, public meetings and analyses have determined that the following activities and facilities have been consistently shown to be the most desirable and needed for the types of users anticipated at this park.

- Power boats
- Small unpowered boats
- Personal watercraft
- Water skiing
- Marina facilities and boat ramps
- Fishing from boats
- Fishing from shore
- Swimming/sunbathing
- Picnicking
- Restrooms
- Shower facilities
- Natural areas
- Hiking trails
- Convenience store
- Family camping
- RV camping
- Primitive camping
- Visitors center

VII. Park Development Facilities

A. Overview

This section of the Lake Pleasant Development Plan defines the land use goals, describes the public recreation facilities and infrastructure development, and discusses the phasing and funding involved in the capital program. This section of the Plan should serve as a development design guideline for future development. Also included in this section are accessibility standards and the Economic Analysis and Fee Study.

The Development Plan represents an opportunity to demonstrate sound recreation planning principles structured to protect the resource while providing for its use and enjoyment. At this time four land use goals are considered to be of primary importance:

Goal Number 1:

The identification of the highest and best public use of the area in relationship to conservation and enhancement of the integrity of the natural resource itself.

Basic to this goal is an understanding of the scenic, environmental, and cultural values inherent in the Lake Pleasant Regional Park area, their relationships to one another, and their sensitivity to external stresses. Section A - Affected Environment addresses the physical realities contained both in and adjacent to the Park and sets the stage for understanding the resources associated with the Park.

Goal Number 2:

The identification of current and long-term public needs and desires regarding the use and enjoyment of the resource, as well as the ability of the resource to respond to these needs.

Ideally, in addition to identification and protection of natural resources, a regional park will also incorporate both existing and future use trends into a master plan. Of the existing and future use trends into a master plan. Of the existing uses and recreational patterns identified on the site some are appropriate and some are not appropriate to continue as a Park use. The Public Participation Program contained in Section B identifies and prioritizes both current and anticipated future use patterns.

Goal Number 3:

The evaluation of the adequacy of the designated boundaries of the Park to protect its resources and its cultural and scenic values with recommendations for adjacent land use and acquisition of additional land parcels.

As it is currently configured, Lake Pleasant Regional Park allows for both the incorporation of park facilities and the protection of park resources. Recommendations made in Section A - Affected Environment, identify proposal for minimizing traffic - related impacts on adjacent land use. The Comprehensive Plans for Maricopa and Yavapai counties

recommend that development adjacent to this park be limited to low density. The majority of existing impacts from adjacent land use involves established roads and trails which connect the Park to adjacent properties. The proposed travel restriction on these road and trails will eliminate vehicular traffic on some and limit vehicular and pedestrian access to the Park except in designated areas.

Goal Number 4:

The generation of a comprehensive long range development plan based upon an assessment of the Park in relationship to the above goals, sound planning and design principles, and prior Parks and Recreation Department planning efforts.

The integration of the three prior goals led to the formulation of the fourth, and final, goal of the Park. A comprehensive, long range development plan is the framework upon which future decision will be made regarding Lake Pleasant Regional Park. This plan is more than a map showing designation land uses. The development plan is a source book of information and a set of policies guided by these specific goals. The development of this plan which delineates specific uses for Lake Pleasant and which contains specific policy guidelines carrying forth the intent of Goals 1, 2 and 3 will be used as a planning tool for the orderly and controlled development of the Park.

B. Public Recreation Facilities

The intent of this section is to outline the accessibility standards, to describe public recreation facilities and infrastructure development, and to establish general design criteria and design materials. Siting of all facilities is extremely important to the visual character of the park. In all cases, the scenic and natural qualities of each area must include appropriate buffer areas between different uses and activities. Each activity will have different buffer and spacing requirements, depending upon the existing terrain, views and vegetation.

Accessibility

All public areas and project buildings will be designed with the elderly and physically disabled visitor in mind. The Americans with Disabilities Act mandates that all public buildings be accessible to people with disabilities. All facilities at Lake Pleasant will meet the requirements spelled out in the Americans with Disabilities Act Accessibility Guidelines (ADAAG). Such requirements include designated parking stalls, building and facilities access, walks and ramps. Barrier-free facilities will include, but are not limited to, drinking fountains, telephones, barbecue or fireplace units, paved beach sections, and paved camping pads.

Within designated areas, paths or portions of paths will be designed to accommodate the blind. This will be accomplished through surface textures or guided trails. Interpretive signs will provide text in both braille and written formats. During the development of individual areas, continuing efforts will be made towards innovative ways of providing outdoor recreational facilities for all handicapped people.

The following accessibility classes were developed for signage and informational purposes. Each type of recreation facility will be classified according to the following:

- Class I: Facility has been developed to full accessibility standards and may be enjoyed without assistance of any kind.
- Class II: Facility is accessible but has a few areas where accessibility may require assistance from staff or companion.
- Class III: Facility access requires assistance from staff or companion. Terrain is rugged.
- Class IV: Facility is not accessible due to rough terrain.

Facilities

The selection of Public Recreation Facilities for Lake Pleasant Regional Park has been based on a number of factors including:

- Recreational goals and objectives of the County Parks and Recreation Department.
- Public input received from user surveys and public meetings.
- County standards for park and recreational planning.
- National trends in recreational development.

While this Master Plan has established a basic mix of the facilities. They will be continually evaluated in response to the changing needs of management and the public.

Parking Areas

Definition:

Relatively level areas intended for storage of vehicles for day-use activities (i.e. picnicking, boating, visitor center, etc.)

Preferred Site Location:

- 0-5% slope areas
- Near proposed facilities (overlook, boat ramps)
- Easily accessible from park roadways

Specific Needs:

- Size parking areas based on the average level of use for the facility.
- Delineate all parking stalls.
- Provide handicapped stalls and access as per ADA standards.
- Pave all day-use parking areas.
- Screen parking areas with vegetations and land forms.
- Terrace parking to minimize impact to the site where needed.

Boat Ramps

Definition:

A sloped stable surface at the waters edge to facilitate the launching and retrieval of boats.

Preferred Site Location:

- Areas of lake edge with 10 to 15% slopes which allow for water level fluctuation without excessive ramp distances.
- Protected area of shoreline not subject to frequent turbulent water.

Specific Needs:

- Hard surface with a minimum slope of 12-15%.
- Preferred surface (concrete) with V-grooves (1" deep and 1" wide) at 60° angle to ramp centerline.

- Minimum 4-15' wide lanes at each ramp.
- Head of ramp to be 12" minimum above high water level.
- Toe of ramp to be 3' minimum below low water level.
- Handicapped accessible as per ADA guidelines.
- Adjacent facilities to include: boat dock, fish cleaning area, ramadas, and restrooms.
- Provide adequate parking with proper clearances for vehicles and trailers.

Trails

Design of trails will depend on the level of usage and the type of recreational environment in which the trail is located. Trails will be signed to inform the public to stay on trails and to provide information about the trail including trail names, level of difficulty, length, and change in elevation. MCPRD will be developing trail standards for use during trail construction.

Definition:

Natural Trails - lead through unimproved areas of the park and away from development.

Improved Trails - general circulation and links between major use areas and facilities in the park.

Barrier Free - trails which are handicapped accessible as per current ADA standards.

Preferred Site Location:

- Natural Trails - unimproved, natural areas of the park.
- Improved Trails - near developed areas and facilities.
- Interpretive Trails - areas with geological, historical, or cultural significance.

Specific Needs:

Natural Trails -

- Construct of gravel, dirt, or natural material.
- Construct as per USFS or Boy Scout Guidelines.

Improved Trails -

- Construct of hard surface material.
- Construct as per USFS Guidelines.

Barrier-Free Trails -

- Construct of hard surface material.
- Maximum length--1 1/2 miles.
- Width--4' minimum.
- Grade--1%-8%.
- Meet all ADA Guidelines.

- Locate near a facility (i.e. overlook, picnic area, comfort station, etc.)
- Provide interpretive type trail markings.

Camping Areas

Many changes have occurred in camping patterns in recent years. Most notable are the changes and improvements in design of outdoor recreation vehicles and camping equipment. There are those campers who enjoy "roughing it" and other campers who prefer to drive to a camping ground and have certain facilities provided. Campgrounds must be planned to accommodate the needs of both groups. The needs of each group are different and thus each area must be designed accordingly. The two main types of campsites are primitive sites and improved sites. Primitive campsites differ from improved campsites by the spacing between campsites and the degree of improvement.

Definitions:

Primitive Campsites - remote campsites accessed only by foot, horseback, or boat. No facilities.

Unimproved Campsites - remote campsites accessed only by foot, horseback, or boat with limited facilities.

Improved Campsites - graded, well drained areas with vehicle access and individual parking.

Group Camping - camping areas intended to accommodate large groups for short intensive stays. May be improved or primitive.

Shoreline Camping - informal camping along the shore. These areas will typically expand as the water level recedes.

Preferred Site Locations:

- Primitive Campsites - away from development in natural remote areas.
- Unimproved Campsites - away from development in natural areas.
- Improved Campsites - near facilities and roadway access.
- Group Camping - large area near facilities but away from other campsites.
- Shoreline Camping - occurs as water recedes below high water elevation along shore.

Specific Needs:

Primitive Campsites -

- No utilities.
- No roads.
- No facilities.
- Pack-in only.
- Locate close to lake.

Unimproved Campsites -

- Provide one composting toilet for every 20 campsites.
- Space campsites a minimum of 50'-100' apart.
- No utilities will be provided.
- Campsite consists of a small cleared area with ramada, table, and grill.
- Locate water and trash facility at parking areas near park road.

Improved Campsites -

- Electricity and water hookups.
- Campsite consists of tent area, one vehicle parking space, 8' picnic table and grill.
- Campsites clustered in groups of four.
- Clusters approximately 100' diameter spaced 200' apart.
- One restroom building per 32 sites.
- Public telephones.
- Tot-Lot playground for every 32 sites.
- Additional parking near restrooms.
- Handicapped accessible as per ADA standards.

Group Campsites -

- Paved parking compound (may only be cleared area in primitive settings).
- Cleared tent area.
- Central ramada with water, electricity, picnic tables and grills for every 20-30 campsites.
- Restroom building for every 20-30 campsites.
- Tot-Lot playground.
- Open play areas.
- Handicapped accessible as per ADA standards.
- Close to water or with view of lake.

Shoreline Campsites -

- No facilities provided at camping areas.
- Portable picnic tables.
- Restroom facilities provided above high water level.

Picnic Areas

Definition:

Family Picnic Areas - picnic areas designed for family or individual picnics.

Group Picnic Areas - picnic areas designed for large groups.

Boat-In Picnic Areas - individual and group picnic areas accessible only by boat.

Preferred Site Location:

Family Picnic Area

- Remote from principal park road.

Group Picnic Area

- Similar to family picnic areas but able to accommodate 10-60 people.

Specific Needs:

Family Picnic Areas

- Day use only with controlled access.
- Accessed by a paved special purpose road.
- Each picnic facility to include:
 - Picnic Table with Shade Structure
 - Grill
 - Paved Parking Space
- Provide one (1) restroom facility for every 20 sites.
- Provide central trash dumpster.
- Provide overflow parking areas.

Group Picnic Area

- Central paved parking area.
- Large ramadas with multiple tables and grills.
- Accommodate groups of 10-60 people (on reserved basis).
- Central trash dumpster.
- One restroom facility.
- Electrical and water hook-ups.

Equestrian Staging Area

Definition:

Area designed for make-ready trail head for trail rides and an area for evening activities.

Preferred Site Location:

Near access road, away from intense activities, near access to natural areas.

Specific Needs:

- Minimum 5 acre site to accommodate unpaved parking and facilities for 100 vehicles with trailers.
- Facilities to include:
 - Paddock area with 20 (5 horse) hitching rails and 20 watering troughs.
 - Group ramada with tables, grills, electricity, and 20x40 concrete 'Dance' slab.
 - Restroom building.
 - Information kiosk.

Concession Areas

Several areas at Lake Pleasant have been set aside for concessionaires. They are the marina, the resort hotel, and the commercial area. The size and actual design of these facilities will be determined by the concessionaire. The following descriptions are estimations of what the facilities will include.

Marina

The marina facilities will include approximately 500 slips, dry-boat storage, high and low water launching ramps, boat rentals, approximately 1500 square feet of office space, 2700 square feet of retail store, a restaurant, a small laundry, and restroom facilities. The marina will have Class I accessibility.

Additionally there will be a 150 space RV/travel trailer park with a 4000 S.F. recreation center.

Resort

The resort hotel will have approximately 300 rooms and include a 200 seat restaurant.

Commercial

The commercial area is projected to include a small store, a restaurant, a laundry, and, possibly, a gas station. They will have Class I accessibility.

Buildings and Structures

The various types of buildings and service structures to be built throughout the park must be carefully designed to meet their required function and to be visually compatible with the natural character of the park. Key buildings, such as the entry stations, the outdoor education center, the visitor center, and the park headquarters should be clearly visible but still utilize natural materials. Other non-public usage buildings, such as the maintenance compound, should be unobstructive in design and as invisible as possible to park users. Utilities should be underground.

Other structures, such as ramadas and restroom buildings, will be designed and built from a consistent choice of wood, stone, concrete, or masonry. All facilities that receive heavy use must be durable.

Visitor Center

The Visitor Center will provide interpretive services for visitors. The center will have restrooms and parking. The facility will be designed to Class I accessibility standards.

North Entry Station

The North Entry Station will serve as an intermittent entry facility for use during peak park use and emergencies. The building will allow for public contact from a vehicle or by foot. It will have a restroom, heat, air conditioning, and an exterior public phone and drinking fountain. The building and entrance and exit lanes will be shaded by a canopy. The entry station will have Class I accessibility.

Conservation Areas

The following environmentally sensitive areas around the lake will be designated as conservation areas: Chalky Springs, Pipeline Canyon, Cottonwood Wash, and the majority of the north and east sides of the lake. Limited development will occur in these areas only with boat-in camping and picnicking primitive sites along the east shoreline. Some interpretative trails will be developed to allow visitors to experience the unique environments offered in the conservation areas. These areas will have Class III or Class IV accessibility.

Landscaping

Landscaping will be used to solve functional problems and to enhance the natural landscape. Plant material will be used to help define use areas and to direct pedestrian and vehicular movement. It will also be used for windbreaks and screening from the sun, both of which are particularly important during the summer months. Plant material will be used in informal or natural settings. There will be a minimum of clipping except in high traffic areas. Native or drought-tolerant species such as Acacia, Palo Verde, Mesquite, Ironwood, Saguaro and other Cacti, Creosote, Salt Bush, Desert Broom, and other native shrubs and grasses will be utilized throughout the park.

Signage

Major entry signage will be erected at key entry points to Lake Pleasant. These will serve to identify the park and establish a distinct image through design with natural materials and consistency with other park structures. Entrance signs provided at each recreation site will provide information about what activities the visitor can expect to find. The recreation area signs will also incorporate a locking gate which can be used to close the area.

Sign format, colors, and symbols will be standardized through the project. The signs will be constructed of natural materials such as wood, concrete, or stone. International symbols will be used because they are easy to understand. All symbol characters will be taken from Henry Dreyfus' "Symbol Sourcebook." The sign format will also be utilized in project signs placed along routes approaching the park.

Furniture and Equipment

A variety of furniture and equipment will be used throughout the park. Project unity will be achieved by the use of uniform design and materials. Standardizing materials and parts also reduces the variety of replacement parts required for maintenance. Trash

receptacles, benches, tables, information kiosks and bike racks will be standardized. Prototypes will be developed for all furniture and equipment.

Playgrounds will be included in all major intensive-use recreation areas. Each playground will be designed as an integral part of the site. Consideration will be given to placement and provisions for informal supervision. Areas and equipment will be designed for two age groups: pre-school (up to age 6) and school age (6-12 years old). Playground equipment will be prefabricated. The surface of playgrounds will be sand and accessible playground-approved surface treatment.

Information kiosks are an important element in the park. They will be located in strategic areas where the majority of park visitors will have access to them. They will be more than just bulletin boards attached to buildings; they will inform visitors of park rules and regulations and point out items of interest. They may display maps of the lake, hiking trails, and roads. All furniture and equipment will be designed for use by disabled persons.

Restrooms

Four restroom types are proposed for Lake Pleasant. Type 1 will be a remote site facility with four Clivus toilets and a photovoltaic power generation system. Type 2 will be the boat ramp facility. It will contain 4 to 10 toilets/urinals, wash basins, exterior foot showers, solar water heating and a photovoltaic power generation system. It will be connected to the park's water and sewer systems. A type 2 restroom without the exterior foot shower will be provided in the picnic areas. Type 3 will be the campground area facility. It will contain 4 toilets/urinals, wash basins, interior showers with dressing areas, solar water heating and a photovoltaic power generation system. It will also be connected to the park's water and sewer systems. Type 4 will be the beach area facility. It will contain 4 toilets/urinals, wash basins outside showers, interior showers with dressing areas, changing rooms, exterior foot showers, solar water heating and a photovoltaic power generation system. It will connect to the park's water and sewer systems.

Outdoor Education Center

The outdoor education center will be constructed on the east side of the lake and will be used to provide an extended educational experience for visitors, including school children. The facility will have a central building with an auditorium, a kitchen, and a dining area and several dormitories. These buildings will have Class I or Class II accessibility.

Amphitheaters

Open-air amphitheaters will be provided adjacent to several camping areas at the park in order to provide support for interpretive and educational programs presented by park staff and others. The amphitheaters will have approximately 200 seats, a stage with lighting, and a portable public address system. Each amphitheater will be sited to take advantage of slopes and to provide the best views. Limited parking will be provided for

the amphitheaters because it is assumed that attendees will walk or ride bikes from camping sites. Bike racks will be provided. A restroom building with water closets and sinks will be included in each amphitheater site. Amphitheaters will have Class I accessibility.

C. Park Infrastructure

Sewer

This section summarizes the recommendations contained in the Lake Pleasant Regional Park Sewer System Master Plan prepared by John Carollo Engineers in April of 1992. The purpose of this study was to review existing facilities and provide alternatives and recommended solutions to the collection, treatment and disposal of wastewater at Lake Pleasant Regional Park.

Existing Facilities

The existing facilities at Lake Pleasant include the following:

- 1) The Overlook Visitor Center
- 2) Entrance Road Contact Station and
- 3) Campground and picnic areas. The current facilities are served with holding tanks which are periodically pumped or pit toilets.

Disposal Options and Alternatives

After evaluating several methods of disposal three were selected as the most applicable to conditions at Lake Pleasant.

- Evaporation
- Groundwater Recharge
- Effluent Reuse

In addition, wastewater collection and treatment alternatives including wastewater treatment plants, septic systems, and compost facilities were also evaluated. The collection and treatment facilities will be constructed in places to correspond with the development of the park.

Recommendations

Following the evaluation of the disposal options and collection and treatment alternatives a final recommendation for effluent disposal is made along with a recommendation for collection and treatment.

The final recommendations are as follows:

1. Effluent disposal should be accomplished by means of landscape irrigation within the Park boundaries (Maricopa Irrigation District Facilities may be a possible alternative disposal location).
2. Long-term effluent storage should be provided in order to eliminate the need for an alternate disposal location. Approximately 5.8 million gallons of storage capacity would be required at the completion of Phase III.

3. The collection and treatment of wastewater will be accomplished by incorporating a combination of gravity sewers, lift stations, force mains and one centrally located treatment facility. The collection and treatment system is shown in Figure 5.1.
4. Septic systems with leach fields or evapo-transpiration systems will be constructed at those remote facilities with potable water service.
5. Compost facilities will be used at remote locations which have no potable water service, such as island picnic and camping facilities.
6. Maricopa County Parks and Recreation Department will contract with another agency for sludge disposal from the WWTP and septic systems.
7. Holding tanks will be provided for recreational vehicle and boat wastes. The County will contract the hauling and disposal of these wastes.

Water

With the completion of the New Waddell Dam the size and capacity of Lake Pleasant has been significantly increased. This expansion has provided the opportunity to develop many new facilities along the significantly increased shoreline. In response to the proposal expansion of facilities a Water System Master Plan was prepared by Standage and Truitt Engineering in April 1992. This section summarizes the results of that report which explores options available for supply, storage, and distribution facilities and will address the requirements to serve the components of the park with a dependable source of potable water.

Existing Facilities

Facilities including well, storage, and service mains which serviced the park prior to the construction of the New Waddell Dam were abandoned for two main reasons.

1. Most of the facilities were submerged upon the completion of the New Waddell Dam and the resulting higher lake level.
2. The existing facilities were not designed to provide for future demands.

Well Sites

There are currently four well sites identified within the park:

Well Site No. 1	Located at the maintenance compound the well has been drilled and encased to 700 feet. Produces 50 G.P.M. at 300 feet depth.
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Well Site No. 2	Located on the east side of the lake and will serve the proposed outdoor education center which will be a stand-alone system.
Well Site No. 4	Located northwest of the proposed Operations Center. The well has been drilled and encased to 1000 feet produces 400 G.P.M. at 278 feet depth.
Well Site No. 5	Located at the north end of the park near the proposed North Entry Station. Well not drilled. Test well indicates a supply of approximately 50 G.P.M.
Overlook Well Site	Located just south and west of the New Waddell Dam. This 5th well site was determined after the master plan by Standage and Truitt Engineering was prepared. It is intended to provide water for the CWCD Facility, the Pumping and Generating Station, the Overlook, and facilities east of the spillway. Initial indications suggest a possible supply at 200 G.P.M. If the yield is high enough it may be tied into the overall water system. If not, it will function as a stand-alone system.

Water System Options and Alternatives

In evaluating a water system which will provide for the needs of this project, a variety of system options were considered. These include three options which connect all the features of the park with one system of distribution mains. Two other development options proposed employ segregated water systems to serve the north and south areas of the park. The development options consider both ground storage and elevated storage alternatives.

Recommendations

After careful analysis of the different options based on cost, reliability, constructability, and maintenance the following water system was recommended:

- A single water system with elevated storage provided at the northern and southern end of the park reduced in size to reflect storage provided in the northern end.
- Development of well sites 1, 4, and 5. Drilling and testing of well site 5.
- Construction of a connecting water main between the northern and southern areas of the park.
- This option allows for the construction of this system to begin with a south system and a north system. These could then be connected at a later date

during construction as a part of roadways and other services for the final phase of development.

Further recommendations include:

- The water system wells and the discharge lines from the elevated storage facilities should be equipped with metering devices. These facilities should also be supplied with recorders at each site providing 24 hour data on flow rates.

Further discussion and detailed analysis of the water system can be found in the Lake Pleasant Regional Park Water System Master Plan, prepared by Standage and Truitt Engineering. This document is located in the Appendix.

Roads

Roads serving recreational sites and areas are unique in that they are also part of the recreational experience. The design guidelines are intended to provide safe, effective roadway design while protecting and enhancing the existing aesthetics as well as the ecological, environmental, and cultural amenities that form the basis for distinguishing each particular site or area. See map--for roadway system at Lake Pleasant Regional Park. The following information summarizes data in 'Standards for Lake Pleasant Regional Parks Roadway System' MCPRD, August 1992.

Park Roadway Types

- Primary Access Roads - Roads that allow through movement into and between access areas.
- Circulation Roads - Roads that allow movement between activity sites within an access area.
- Area Roads - Roads that allow direct access to individual activity areas such as campgrounds, picnic areas, boat launching ramps, and scenic sites.

Design Speeds

Design speed is selected primarily on the basis of the character of the terrain and the functional classification of the road.

- Primary Access Roads - Maximum design speed of 40 mph.
- Circulation Roads - Maximum design speed of 30 mph.
- Area Roads - Maximum design speed of 20 mph.

There may be instances where design speed will be less due to severe terrain conditions, type of use or major environmental concerns.

Design Vehicle

- Primary Access Roads - Utilize minimum turning path for bus and for a motorhome pulling a boat.
- Circulation and Area Roads - Dependent upon anticipated use for each roadway segment under consideration.

Grades

Recommended maximum grades.

- Primary Roads - 8%
- Circulation and Area Roads - 10%

Roadway Width

Proper roadway width is determined on the basis of numerous factors including existing and anticipated vehicular and non-vehicular traffic, safety terrain and design speed.

Primary Access Roads - 12' minimum lane width with 8' shoulders.

Circulation and Area Roads - Based on average daily traffic and design vehicle.

Turn Lanes - Minimum width 11'.

One Way Roads - Minimum width 20'.

Bicycle Lanes

Bicycling will be encouraged within the park. Separate bikeways are normally the safest alternative and should be considered. Where this is not practical and where a wider road section can be accommodated, shoulder areas should be improved to provide reasonable separation of bicycles from higher speed traffic. Shoulder areas intended for bicycle use will provide a minimum of 5 feet if width per direction of travel. Two-way bicycle traffic on the same shoulder shall not be allowed.

Further information on development of roadways in Lake Pleasant Regional Park can be found in the 'Standards for Lake Pleasant Regional Parks Roadway System' MCPRD, August 1992 (see Appendix).

Telephone

Current phone service is supplied by several microwave channels provided by the CAWCD Microwave Station and a temporary U.S. West line along the east side of the park. Several options are currently being evaluated for providing permanent phone service for the park. The most likely scenario will involve permanent U.S. West service being brought in to the park from the south.

Utilities

A master plan of the electrical service system for the park is currently being prepared by Arizona Public Service. Generally the service will be underground 3-phase power and will follow the alignment of the park roadways.

Maintenance Compound

The fully enclosed maintenance compound will include an office building with a restroom, storage buildings, outside storage areas, vehicle maintenance areas, and gas pumps. Five recreational vehicle host sites will also be within the compound. The RV sites will provide sewer, water, electric, and phone hookups. There will also be a host building with a meeting room, restrooms with showers, a kitchen, and a laundry. The maintenance compound will have Class I accessibility. A secondary maintenance compound with scaled back facilities will also be located at the north end of the park near the north entry station.

Operations Center

The Operations Center will serve as park headquarters for Maricopa County Parks Department (rangers), Maricopa County Sheriff's Department, Yavapai County Sheriff's Department, and the Arizona Game and Fish Department. The facilities will include: a ranger station with offices, bunk rooms, restrooms, lounge, and support area (jail); a first aid station with treatment rooms, office space and restrooms; a boat house and storage area; a helipad; and public and private parking. The center will be designed to Class I accessibility standards.

VIII. Economic Analysis

A. Overview

This section takes a look at some of the economic analysis which has been completed regarding Lake Pleasant and the master plan for the park. The information presented here is not intended to be comprehensive or definitive, since variables used in creating economic projections are constantly changing. However, review and analysis of the following factors has created a basic framework for evaluating future profit and loss possibilities at the park.

- Historic park visitation figures
- Historic revenue data
- Historic expense data
- Visitation to population ratios
- Similar market comparisons
- Projected facilities development
- Projected park visitation
- Projected park usage
- Projected park revenues
- Projected park expenses

Brief discussions relating to some of these factors are included in this section. This section summarizes some of the data and analysis contained in the Lake Pleasant Regional Park Economic Analysis and Fee Study, which was prepared by Sunregion Associates, Inc. in April of 1992. See Appendix V.

B. Historic and Projected Visitation

Visitation figures for the years 1979-80 through 1990-91 indicate that visitation reached 1,097,818 in 1980-81, and then declined somewhat until 1983-84 totaling 940,868. Visitation increased again until 1985-86 when 1,017,462 visitors were recorded. Park visitation has steadily declined since that time with 1990-91 figures of 791,287 total visitors. This decline can be attributed to the closure of many park facilities associated with construction of the new dam, and the weak economic conditions during this time.

It is anticipated that visitation will continue to decline until many of the new facilities such as drinking water, the marina, roads, picnic facilities, rest rooms and camping facilities are constructed.

As new facilities and services are available, visitation should increase rapidly. It is conservatively estimated that visitation should reach 1,451,857 by the year 2000, if the planned facilities are constructed.

C. Market Comparisons

Comparisons on various fee charges were made with the following state and county park systems which provide similar facilities and services within their parks.

Arizona State Parks	Navajo County Parks
New Mexico State Parks	Orange County Parks
Utah State Parks	San Bernadino County Parks
Montana State Parks	Idaho State Parks
Nevada State Parks	Minnesota State Parks

Entrance fee comparisons were made for the following categories:

Auto	Picnic Sites
Auto with Boat	Camping Sites
Bus	Annual Passes
Groups	

Additionally, camping fees for National Forest Service sites at the following locations were compared:

Bartlett Lake	Apache Lake
Horseshoe Lake	Burnt Corral Campground (Tonto Forest)
Canyon Lake	Cholla Campground (Tonto Forest)
Roosevelt Lake	Grapevine Campground (Tonto Forest)

After comparison with the other facilities, it was recommended that the following fee structure be used initially:

Auto	\$ 4.00	Bus	\$ 15.00
Auto with Boat	\$ 6.00	Group Picnic Site	\$ 35.00
Improved Campsite	\$ 8.00	Group Campsite	\$ 85.00
Primitive Campsite	\$ 2.00	Group Ramada	\$ 35.00

These figures are competitive with other comparable facilities surveyed and were utilized in the revenue projections.

D. Projected Revenues

The key to the park approaching a break-even point or even being profitable is, of course, the generation of revenue. Estimates of revenue generation were created through the year 2001. As mentioned, these projections are affected by many variables, but if facilities development is completed and other revenue-generating measures in the report are implemented, a break-even or profitable situation is projected. The key revenue-generating sources in order of potential revenue generated are:

- Entrance Fees, Car
- Entrance Fees, Boat
- Watercraft User Fees
- Concession Fees
- Camping Fees

The fees generated vary in each projected year and several scenarios include inflation adjustments for the fees. Concession revenue percentages going back to the County from the marina operator will also increase overtime.

Detailed analysis of the factors mentioned, as well as spreadsheet evaluation of three scenarios, are included in the economic analysis prepared by Sunregion Assoc., Inc.

This report is included in the appendix.

IX. Master Plan Development

A. Circulation

Primary access to Lake Pleasant Regional Park from the Phoenix area is from I-17 approximately, 15 miles north to Carefree Highway then approximately 11 miles west to Castle Hot Springs Road and two miles north to Main Park Entry on North Park Road.

North Park Road enters the park from the west through the main entry station and gradually curves to the north around Cholla Mountain providing access to camping, picnic, and beach areas along the west shoreline and finally ending at the junction of Peninsula Road.

Peninsula Road turns southeast towards the lake for a distance of approximately 3/4 of a mile along the peninsula and provides the main access to the Marina complex. At the end of the Peninsula Road, Ranger Station Road tees off to the east down a secondary Peninsula to the Operations Center and Ranger Station.

Much of the developable areas occur along the southwest shoreline and are accessed by a 2 1/2 mile roadway called South Park Road. South Park Road tees south off of North Park Road approximately 3/4 of a mile from the main entry. It follows the ridgeline along the south shore accessing camping, picnic areas, and a 10 lane boat ramp. Gradually climbing, it culminates at the Visitor Center/Overlook approximately 100 feet above the lake adjacent to the New Waddell Dam.

Access to the development areas at the north end of the park will be achieved through the North Entry Station and North Entry Road which tees off of Castle Hot Springs Road 2 miles north of Highway 74. The North Entry Road enters the park for the west and provides access to camping, picnic, and equestrian/hiking staging areas before coming down to the shore and a four lane boat ramp facility.

Development on the east portion of the lake is limited to improvements on the MND property and the Outdoor Education Center which occurs along the southeast shore. Access for these facilities is provided by 89th Avenue which extends north from Highway 74.

The remainder of east portion of the lake shore will remain largely inaccessible by vehicles due to its rugged topography and conservation area status.

The majority of the north portion of the lake is designated as conservation area with access limited to a few existing dirt roads and jeep trails.

B. Site/Use Relationship

Site/Use Matrix:

In evaluating the park and its suitability for development, it was important to analyze the proposed activities/facilities in relation to the site in terms of characteristics and requirements. The following matrix was developed to evaluate this relationship and rank the importance of a site characteristic to a particular facility. (See Figure 17).

Density Criteria:

The facility/space ratios for camping and picnicking have been determined by evaluating several sources including county standards and standards used in Plan 6 (prepared by the Bureau of Reclamation). The following chart illustrates the ratios used in preparing this Master Plan. (See Figure 18).

Master Plan Process:

To assist during the Master Planning process, the park was divided into eight areas of development. These areas were determined through the evaluation of the following items:

1. Existing facilities: These are facilities which were constructed (or are currently in the design stage) to replace ones which were destroyed when the lake level was raised.
2. Site Constraints: By evaluating the natural and man-made resources which affect the site. Areas can be determined which are suitable for the different levels of development.
3. Previous Master Plan Work: Previous work has evaluated many factors in determining proposed facilities and their location.

Conceptual Master Plan:

In developing the Master Plan, each area was analyzed and evaluated, and several options were developed for each area, which offered a different mix of facilities. The options were reviewed and discussed with county park personnel and a preferred option was selected for each area. (See Figure 19).

LAKE PLEASANT REGIONAL PARK

Site/Use Matrix

Figure 17

Rankings

- 1-High Importance
- 2-Moderate Importance
- 3-Low Importance
- 4-Not Desirable

FACILITY

	Near Proposed Facilities and Developed Areas	Individual Parking	Group Parking	0-5% Slope Areas	Access to Roadways	10-15% Slope	Protected Shoreline	Adjacent to Parking	Handicap Accessible	Paved Surface	Natural Surface	Locate in Improved Areas	Locate in Unimproved Areas	Rugged Terrain	Flat Terrain	View of Lake	Access to Lake	Utilities	Large Area Required	Small Area Required	Restrooms	Remote from Facilities	Remote from Main Road
Parking Areas	1			1	1																		
Boat Ramps	2	1	1	3	1	1	1	2	2	1	4	2	4	4	2	1	1	1	2	2	2	4	4
Natural Trails	3	4	2	2	3	2	3	3	3	3	2	4	1	2	3	2	3	3	3	3	3	1	1
Improved Trails	2	4	2	2	2	4	3	2	2	1	4	2	4	4	1	2	3	3	3	3	2	4	4
Barrier Free Trails	1	3	2	1	2	4	3	1	1	1	3	2	4	4	1	2	3	2	3	3	2	4	4
Equestrian Staging	2	3	1	2	2	3	3	2	3	3	2	3	2	3	2	3	3	2	1	4	2	2	3

LAKE PLEASANT REGIONAL PARK

Site/Use Matrix

Figure 17

Rankings

- 1-High Importance
- 2-Moderate Importance
- 3-Low Importance
- 4-Not Desirable

FACILITY

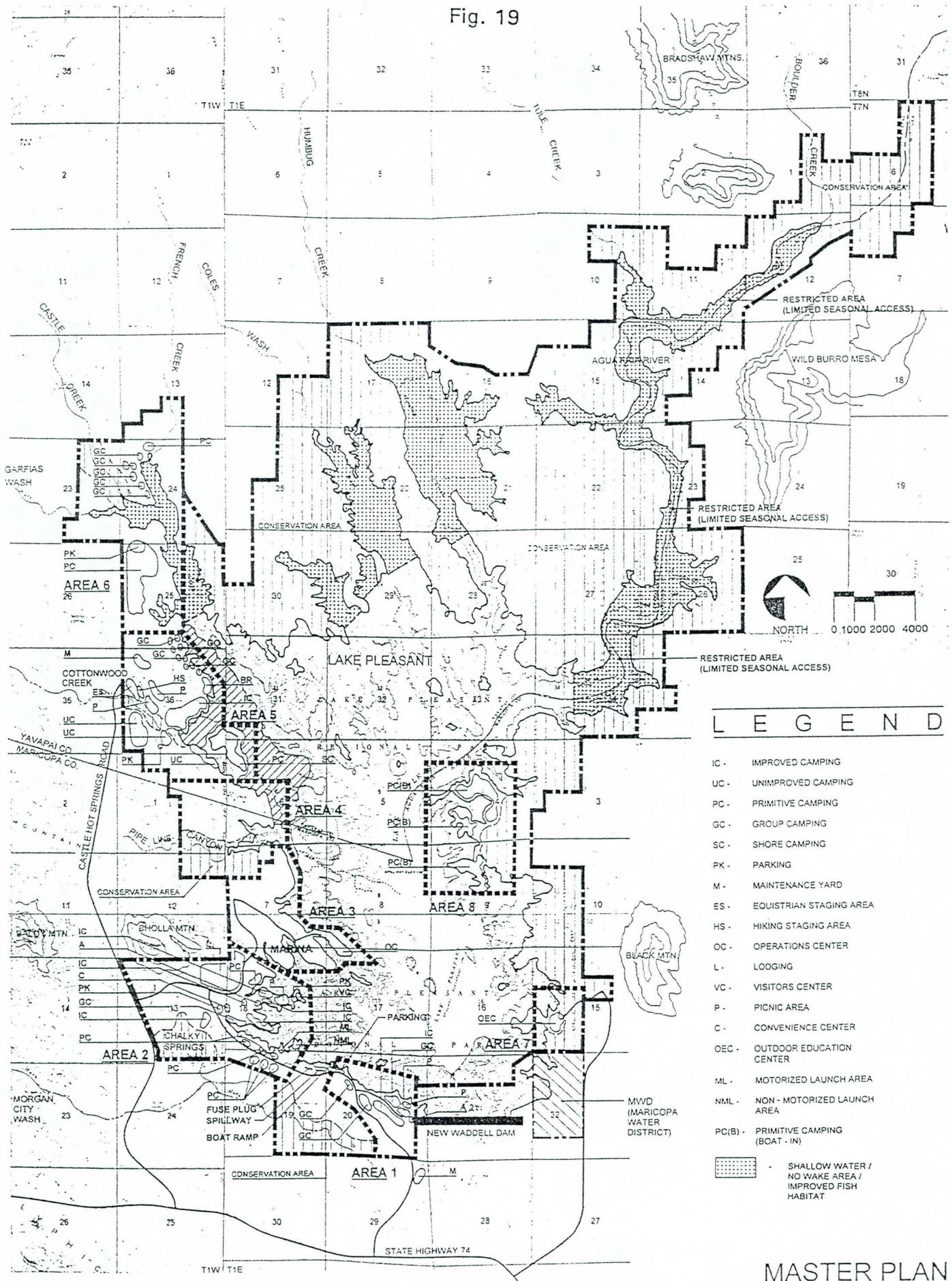
	Near Proposed Facilities and Developed Areas	Individual Parking	Group Parking	0-5% Slope Areas	Access to Roadways	10-15% Slope	Protected Shoreline	Adjacent to Parking	Handicap Accessible	Paved Surface	Natural Surface	Locate in Improved Areas	Locate in Unimproved Areas	Rugged Terrain	Flat Terrain	View of Lake	Access to Lake	Utilities	Large Area Required	Small Area Required	Restrooms	Remote from Facilities	Remote from Main Road
Primitive Camping	4	3	3	3	3	4	3	4	3	4	1	4	1	2	1	2	3	4	3	1	3	1	1
Unimproved Camping	3	3	2	2	2	4	3	2	3	3	1	3	2	3	1	2	2	4	3	2	4	2	3
Improved Camping	2	1	2	1	1	4	3	2	1	2	3	2	4	4	1	1	2	1	2	3	1	4	4
Group Camping	2	3	1	1	2	4	3	1	1	2	3	2	3	4	1	1	2	2	1	4	2	3	3
Shoreline Camping	4	4	4	2	4	3	2	3	3	4	1	3	3	3	2	1	1	4	3	3	4	3	3
Family Picnic	2	3	2	1	1	4	3	2	1	1	3	2	3	4	1	2	3	2	2	3	1	3	3
Group Picnic	2	3	2	1	1	4	3	2	1	1	3	2	3	4	1	2	3	2	1	3	1	3	3

**Facility/ Space Standards
Lake Pleasant Regional Park**

Facility	County Standards	Plan 6 Standards	Master Plan
Group Camping	75 Units/Site(8 Acre Site)	50 Units/Site	9 Units/Acre
Improved Camping	5 Sites/Acre	6 Sites/Acre	5 Sites/Acre
Unimproved Camping	3.5 Sites/Acre	3 Sites/Acre	3.5 Sites/Acre
Primitive Camping			3 Sites/Acre
Indiv. Picnic	6 Sites/Acre	4 Sites/Acre	6 Sites/Acre
Group Picnic		75 Units/Site (5 Acre site)	15 Units/Acre

Figure 18

Fig. 19



- IC - IMPROVED CAMPING
- UC - UNIMPROVED CAMPING
- PC - PRIMITIVE CAMPING
- GC - GROUP CAMPING
- SC - SHORE CAMPING
- PK - PARKING
- M - MAINTENANCE YARD
- ES - EQUESTRIAN STAGING AREA
- HS - HIKING STAGING AREA
- OC - OPERATIONS CENTER
- L - LODGING
- VC - VISITORS CENTER
- P - PICNIC AREA
- C - CONVENIENCE CENTER
- OEC - OUTDOOR EDUCATION CENTER
- ML - MOTORIZED LAUNCH AREA
- NML - NON - MOTORIZED LAUNCH AREA
- PC(B) - PRIMITIVE CAMPING (BOAT - IN)
- [Dotted Pattern] - SHALLOW WATER / NO WAKE AREA / IMPROVED FISH HABITAT

MASTER PLAN

LAKE PLEASANT REGIONAL PARK



C. Conceptual Development

Development within Lake Pleasant Regional Park has been determined by several major factors, including topography, access, lake level fluctuations, and natural conservation areas. The result of these factors is that of the 24,500 acres within the park boundary, 9,966 acres (at 1,702 elev.) are occupied by Lake Pleasant. Of the remaining 14,500 acres, approximately 1,000 acres are considered developable, occurring primarily along the south and west portions of the lake shoreline.

These areas have been identified for the various facilities which will occur in the park and occur in eight main locations:

(See Figure 19).

Area 1

Area 1 is located just northwest of the New Waddell Dam along the end of the South Park Road between the spillway and overlook. See Figure 20. The area is characterized by the following:

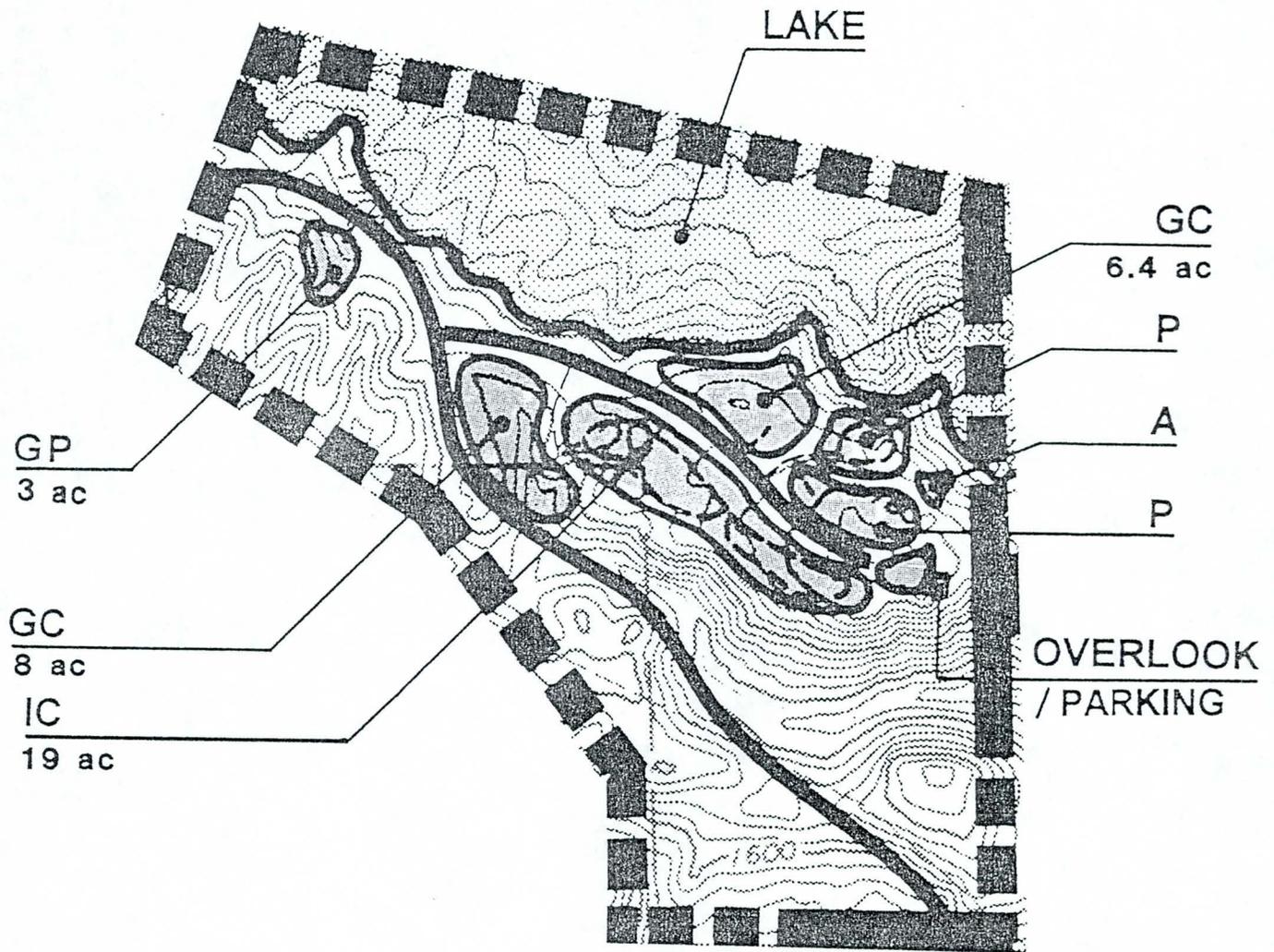
- Varied topography with areas of land less than 15% slope near water.
- Excellent view of lake to the northeast.
- Views to the south of Morgan City Wash (Conservation Area).
- No mineral or water rights in area.
- Vegetation is sparse; Palo Verde/Saguaro community.
- Sites along lakeside of ridge protected from afternoon winds from south and exposed to morning winds from north.
- Soil type limitations indicate severe restrictions for structures, roads, and absorption fields.
- Much of area near roadway and overlook have been distributed by construction.

The following facilities are currently built or have been designed and sited in this area:

1. 10 lane boat ramp - Built
2. Parking for 435 autos with trailers and 149 autos - Built
3. 3 restroom buildings - Designed
4. 1 ramada - Designed
5. 1 fish cleaning station - Designed
6. 70-80 improved campsites
7. 2 group campsites
8. Individual picnic sites with parking

Facilities will be located on both sides of the roadway offering both protected and exposed lake view sites and include group camping, improved camping, and unimproved camping, individual and group picnic areas, amphitheater, fishing bridge, and group ramada. The main feature of this area will be a 10 lane boat ramp facility consisting of

Fig. 20



LEGEND

- GC- GROUP CAMPING
- IC- IMPROVED CAMPING
- P- PICNIC AREA
- A- AMPHITHEATRE



AREA 1

L A K E P L E A S A N T
R E G I O N A L P A R K



061

10 concrete launch ramps, three courtesy dock lanes, parking for 500+ vehicles, three restroom buildings, large ramada, and fish cleaning station. The ramps will function between 1,702 and 1,598 elevations.

The preferred option develops Area 1 as follows:

	<u>AC</u>	<u># Sites</u>	<u>% of D.A.</u>
Improved Camping	19	95	41
Group Camping	14.4	2	38
Picnic	10.0	60	22
Group Picnic	3.0	1	12
Total Developed Area	46.4 AC		

Area 2

Area 2 is located along the upper portion of South Park Road and the southwest portion of North Park Road. The developable area is primarily along the lake edge with the majority characterized by two large peninsulas extending easterly into the lake. See Figure 21.

- Existing water rights may impact Chalky Springs area.
- Mineral rights adjacent to proposed lodging site.
- Chalky Springs conservation area impacts development area.
- Excellent views and orientation to the lake from shore and peninsulas.
- Vegetation is sparse; Palo Verde/Saguaro community.
- Sites along shore and peninsulas protected from NW winds by mountains to the north and west.
- Soil type limitations indicate severe restrictions for structures, roads, and absorption fields.
- Area around junctions of North and South Park Roads occurs in area of high (6+ sites) number of cultural resource sites.

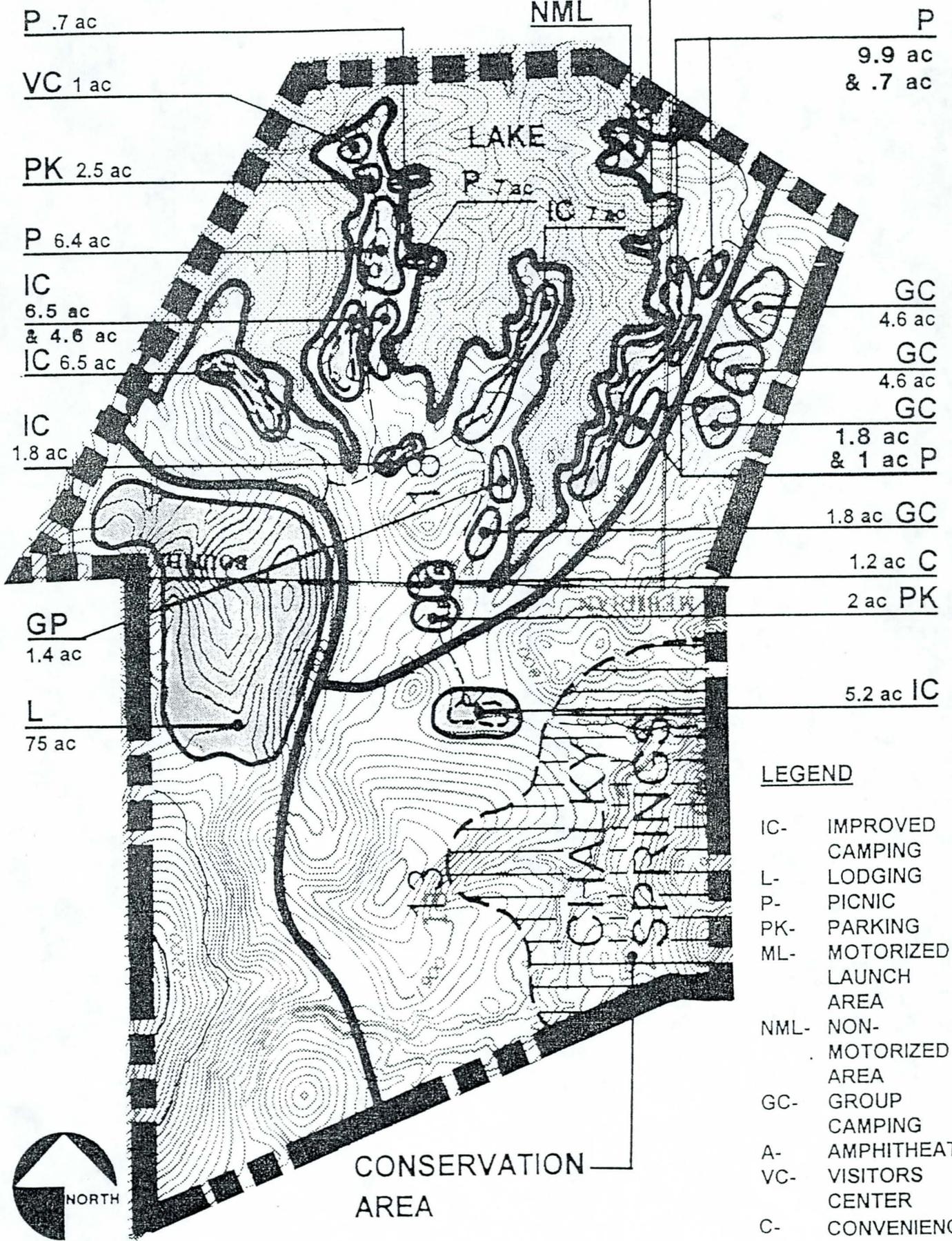
The following facilities are currently built or have been designed in this area:

1. 40 unit unimproved campsite facility (Desert Tortoise Campground)
2. North Park Road - Phase I

Facilities include group camping, picnic, and improved camping sites. A small commercial area will also be located near the junction of North and South Park Roads. The main feature of this area will be the Desert Tortoise Peninsula which will accommodate a 39 unit unimproved campground facility, picnic sites, and beach area all with lake frontage views.

This area also includes a 75 acre site located on the west side of North Park Road designated for lodging facilities.

Fig. 21



- LEGEND**
- IC- IMPROVED CAMPING
 - L- LODGING
 - P- PICNIC
 - PK- PARKING
 - ML- MOTORIZED LAUNCH AREA
 - NML- NON-MOTORIZED AREA
 - GC- GROUP CAMPING
 - A- AMPHITHEATRE
 - VC- VISITORS CENTER
 - C- CONVENIENCE CENTER

AREA 2

The preferred option develops Area 2 as follows:

	<u>AC</u>	<u># Sites</u>	<u>% of D.A.</u>
Improved Camping	27.4	137	19
Group Camping	13.8	3	12
Picnic Areas	21.2	127	14
Group Picnic	3.2	2	0
Resort Hotel	75	1	51
Visitors Center	1	1	.6
Parking	4.5	2	3
Commercial	1.2	1	.8
Total Developed Area	147.3 AC		

Area 3

Area 3 is located east of the junction of North Park Road and Peninsula Road along the lake edge. The dominant feature of this area is the large peninsula which will be the major feature of the Marina and Operations Center sites. See Figure 22. The following features characterize this site:

- Excellent orientation to the water.
- No mineral or water rights impact this area.
- Limited areas of less than 15% slopes.
- Vegetation is sparse Palo Verde/Saguaro community.
- Coves and inlets south of peninsula offer protected areas from winds and rough water.
- Mountains to the west provide protection from westerly winds.
- Soil type limitations indicate severe restrictions for structures, roads, and absorption fields.
- No cultural resources impact the area.

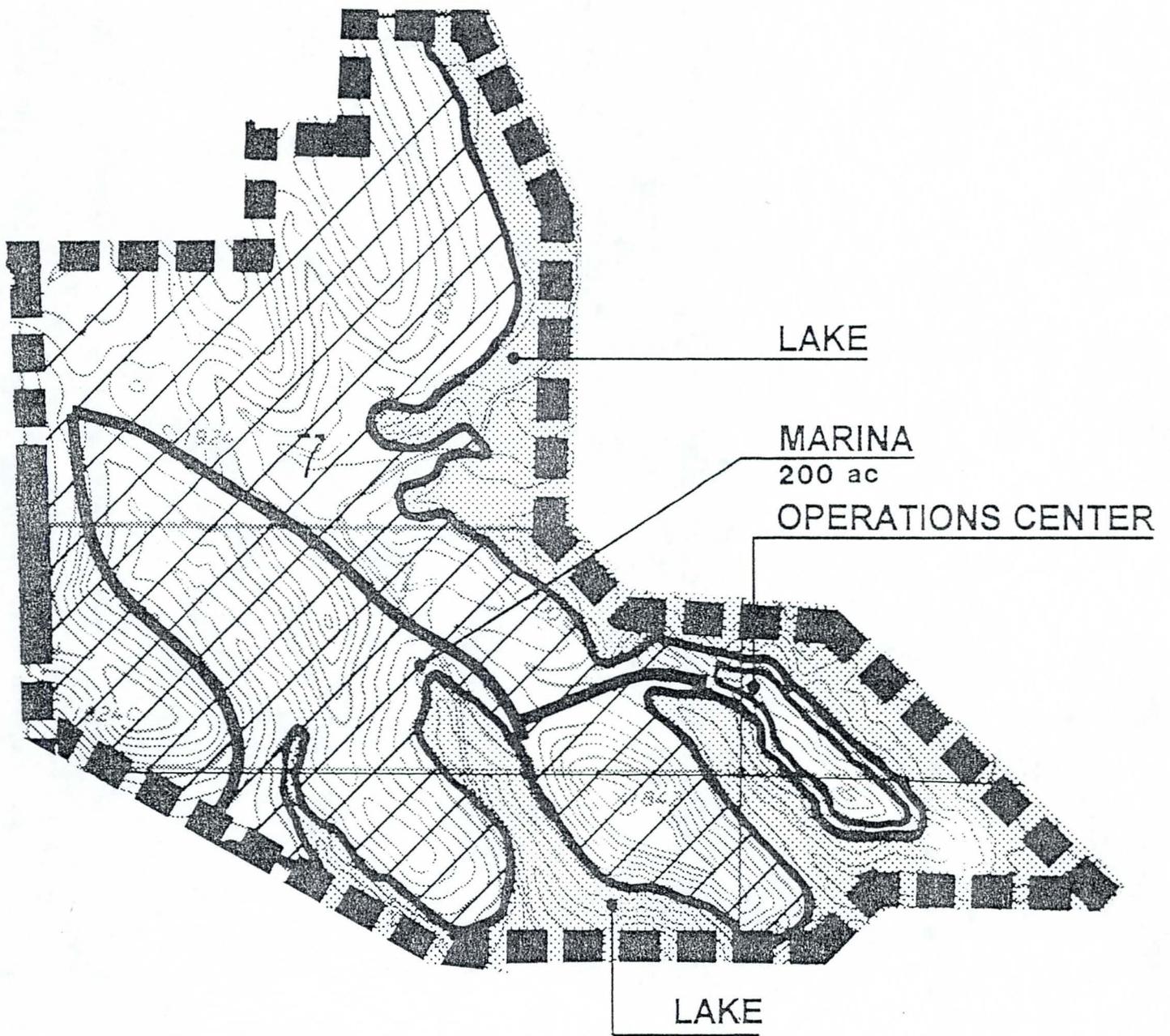
The following facilities are currently designed for this area:

1. 200 Acre Marina Facility

The dominant feature of this area will be the 200+ acre marina facility located primarily along Peninsula Road. Facilities within the marina site will include picnic and camping, lodging, swimming areas, recreation center, retail, and dining, boat ramps, rentals, and storage.

- 500 slips
- Dry boat storage
- High and low water launch ramps
- Retail store
- Offices
- Restaurant

Fig. 22



AREA 3

L A K E P L E A S A N T
R E G I O N A L P A R K



- Laundry
- Restrooms
- RV park with recreation center

2. Operations Center

The main peninsula is also the site of the 5,600 S.F. Operations Center which will provide office, communications, first aid, and support spaces for the Maricopa County Parks and Recreation Department, Maricopa County Sheriffs Department, and the Arizona Game and Fish Department. A 4,100 S.F. boathouse will also accompany this facility.

- 5,600 S.F. building with offices, first aid facilities, and support spaces
- 4,100 S.F. boathouse with 15,600 S.F. outdoor storage compound and fuel storage
- Helipad

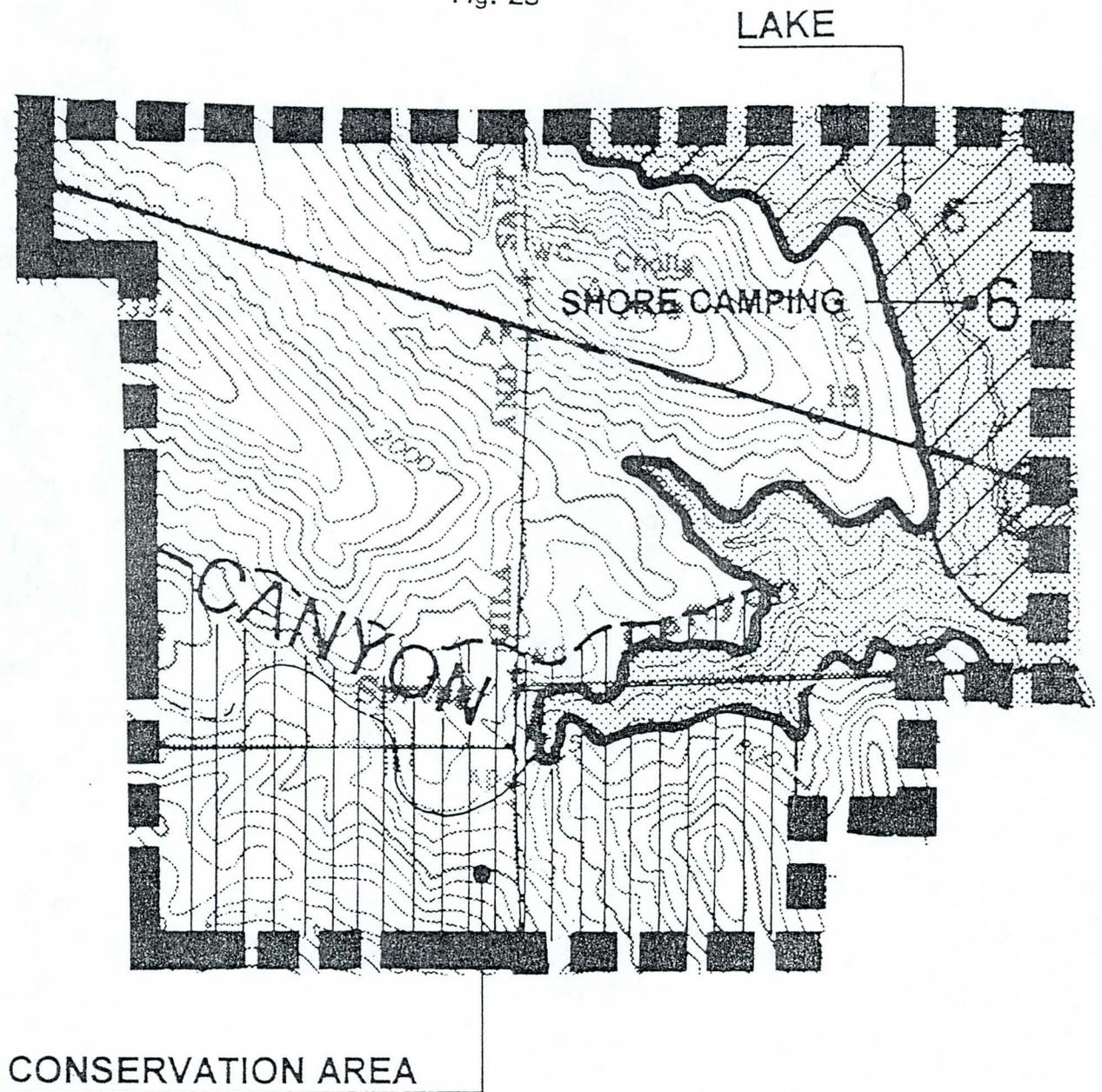
Area 4

Area 4 is located north of the marina site in the Pipeline Canyon area. (See Figure 23). The area is characterized by the following:

- Pipeline Canyon Conservation Area impacts area.
- Protected inlets off Pipeline Canyon offer good fishing habitat.
- Excellent views of lake.
- Very limited developable areas along shoreline.
- No vehicle access.
- Boat-in, equestrian and foot access only.
- Majority of area rated as medium (1-5 sites) in regards to incidence of cultural resource sites.
- Soil type limitations indicate severe restrictions for structures, roads, and absorption fields.
- Palo Verde/Saguaro vegetation type except at Pipeline Canyon where Desert Wash community dominates.
- Majority of land area over 10% slopes.
- West portion of area owned by BLM.
- Mineral and water rights occur on west portion of site in Pipeline Canyon.

There is no development currently planned for this area, except for possible low water shoreline camping.

Fig. 23



AREA 4

L A K E P L E A S A N T
R E G I O N A L P A R K



1969

Area 5

Area 5 is located at the north section of the lake adjacent to the North Entry Road. The area is characterized by the following:

- Significant areas of developable land (<15% slope) along shoreline.
- Soil type limitations indicate severe restrictions for structures, roads, and absorption fields.
- Occurs in area rated as medium density (1-5 sites) in regards to cultural resources.
- Existing water rights impact area.
- Cottonwood Creek Conservation Area impacts area.

This is the northernmost area of major improvements on the lake. It is accessed through the North Entry Station on the North Entry Road. Improvements in this area will include camping and picnic areas, equestrian and hiking staging areas, and a 4-lane boat ramp facility. See Figure 24.

The following facilities have been designed in this area:

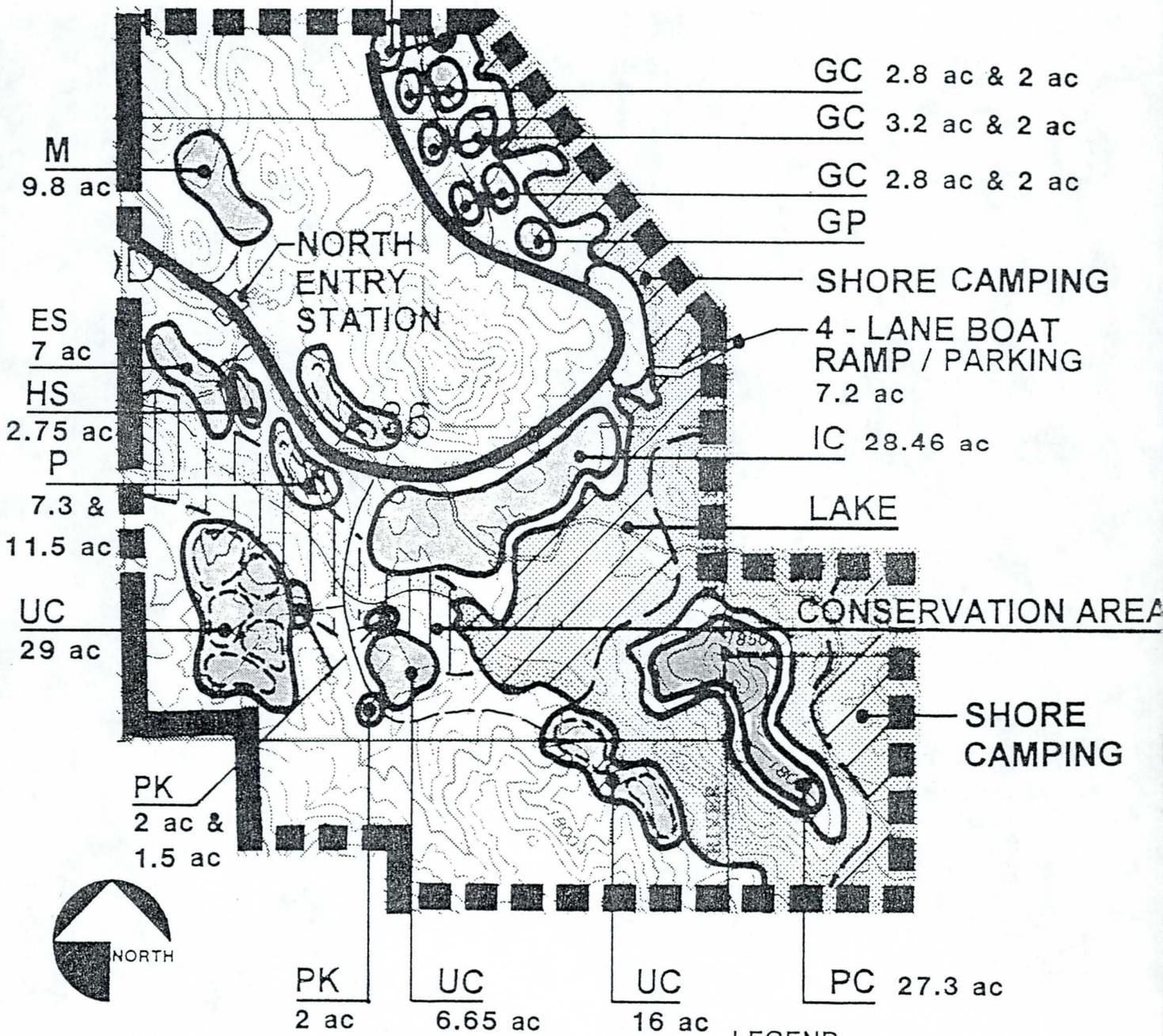
- 1-4 lane boat ramp facility with parking
- North Park Entry Road
- North Park Entry Station

The preferred option develops Area 5 as follows:

	<u>AC</u>	<u># Sites</u>	<u>% of D.A.</u>
Group Camping	21.2	8	12
Improved Camping	39.86	199	20
Unimproved Camping	51.65	181	27
Primitive Camping	27.3	82	14
Picnic Area	18.8	112	10
Group Picnic	5.5	1	0
Equestrian Staging Area	7	1	4
Hiking Staging Area	2.75	1	1
Maintenance Compound	9.8	1	5
Boat Ramp Parking & Fac.	7.2	1	4
Parking	5.5	3	3
Total Developed Area	194 AC		

Fig. 24

GC 3.4 ac & 3 ac



AREA 5

LEGEND

- GC - GROUP CAMPING
- PK - PARKING
- PC - PRIMITIVE CAMPING
- M - MAINTENANCE YARD
- SC - SHORE CAMPING
- UC - UNIMPROVED CAMPING
- P - PICNIC
- IC - IMPROVED CAMPING
- ES - EQUISTRIAN STAGING AREA
- HS - HIKING STAGING AREA



Area 6

Area 6 is located at the northwestern portion of the lake near Castle Creek area. See Figure 25. The area is characterized by the following:

- Large areas of slopes less than 15%.
- No mineral or water rights in the area.
- Very gradual slopes at water edge well exposed large areas of land as water recedes.
- Major wastes impact the northern position of the site.
- Access to lake is through Castle Creek inlet, designated as no wake zone/improved fish habitat.
- Vehicle access limited to dirt roads, no paved access.
- Large portion of land currently owned by BLM.
- Soils limitations vary from slight to severe in regards to restrictions for structures, roads, and absorption fields.
- Entire area is rated as high (6 + sites) in regards to incidence of cultural resource sites.

There have been no facilities designed yet for this area.

Preferred development for Area 6 includes the following:

	<u>AC</u>	<u># Sites</u>
Group Camping (primitive)	21.85	6
Primitive Camping	115.8	347
Parking	6	

Area 7

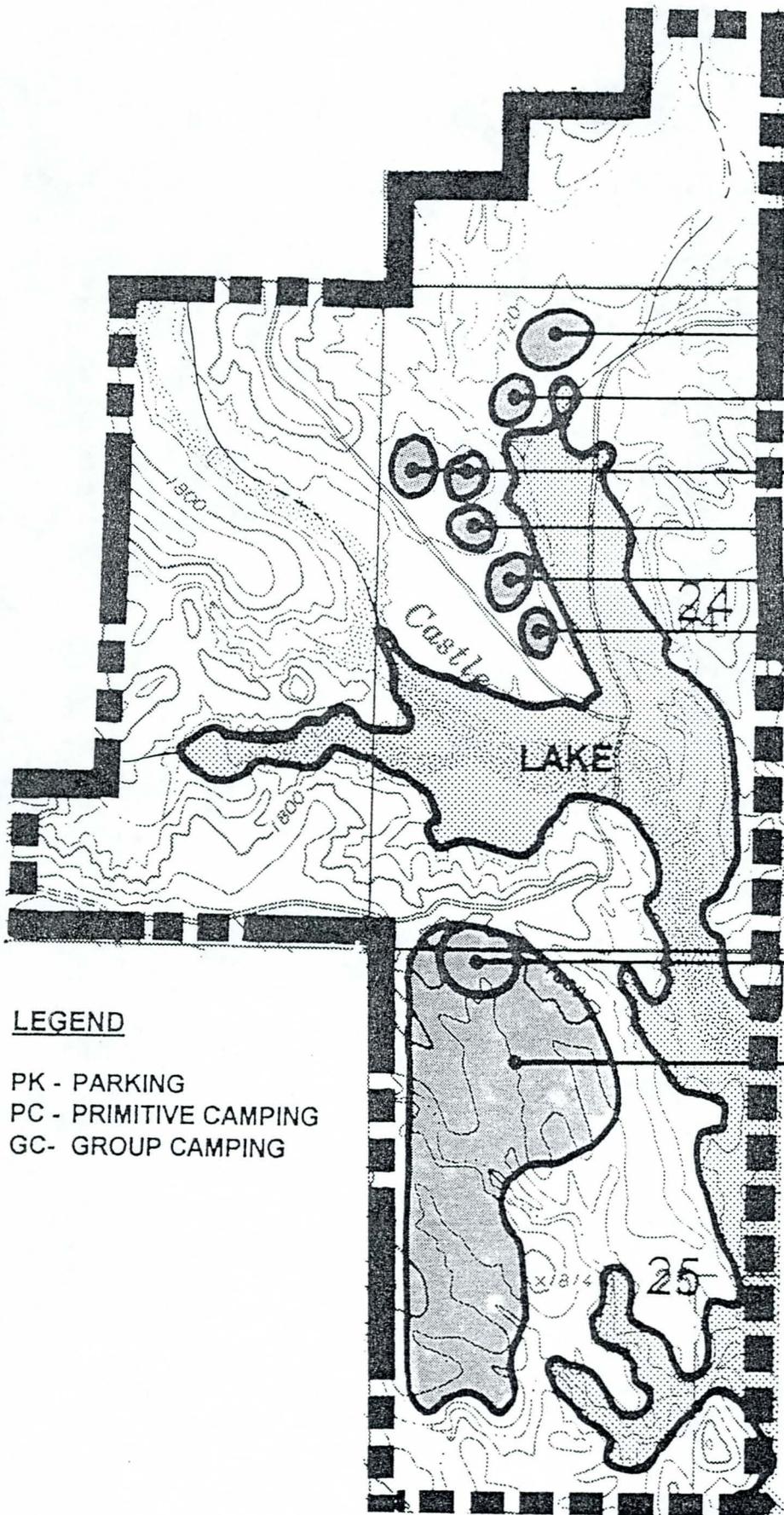
Area 7 is located on the east side of the lake northeast of the dam and west of Black Mountain. See Figure 26. The area is characterized by the following:

- Limited area of developable space surrounded by very rugged terrain.
- Protected and isolated site with excellent views of the lake.
- No mineral or water rights in the area.
- Palo Verde/Saguaro community vegetation type.
- Steep slopes along shoreline.
- Area surrounded by BLM, MWD, and state owned land.
- Soil type limitations indicate severe restrictions for structures, roads, and absorption fields.
- Occurs in area rated as medium density (1-5 sites) in regards to cultural resources.

The following facility has been designed and sited for this area:

- Outdoor Education Center
 - Two 6,000 S.F. dormitory buildings.
 - Main classroom/office building of 15,000 S.F.

Fig. 25



PC- 7.8 ac

GC- 2.9 ac

GC- 3.19 & 3.56 ac

GC- 4.6 ac

GC- 4.4 ac

GC- 3.2 ac

PK- 6 ac

PC-108 ac

LEGEND

- PK - PARKING
- PC - PRIMITIVE CAMPING
- GC- GROUP CAMPING



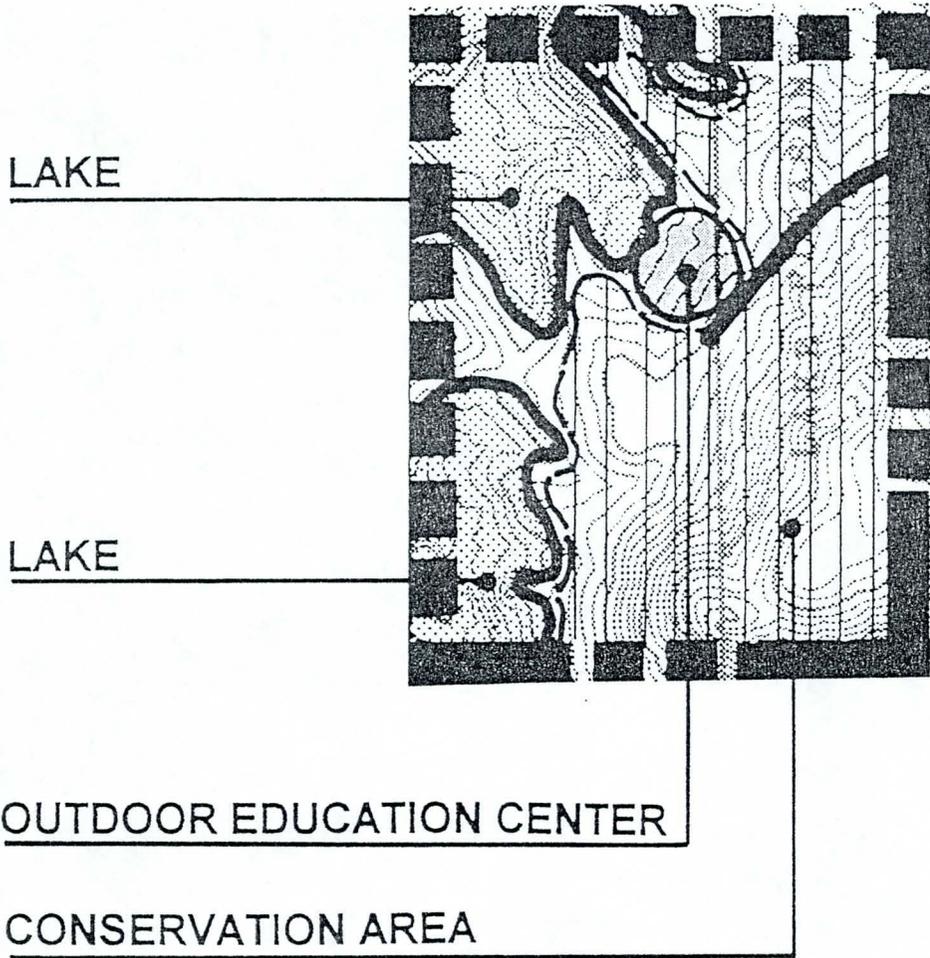
AREA 6

L A K E P L E A S A N T
 R E G I O N A L P A R K



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Fig. 26



AREA 7

L A K E P L E A S A N T
R E G I O N A L P A R K



CGA

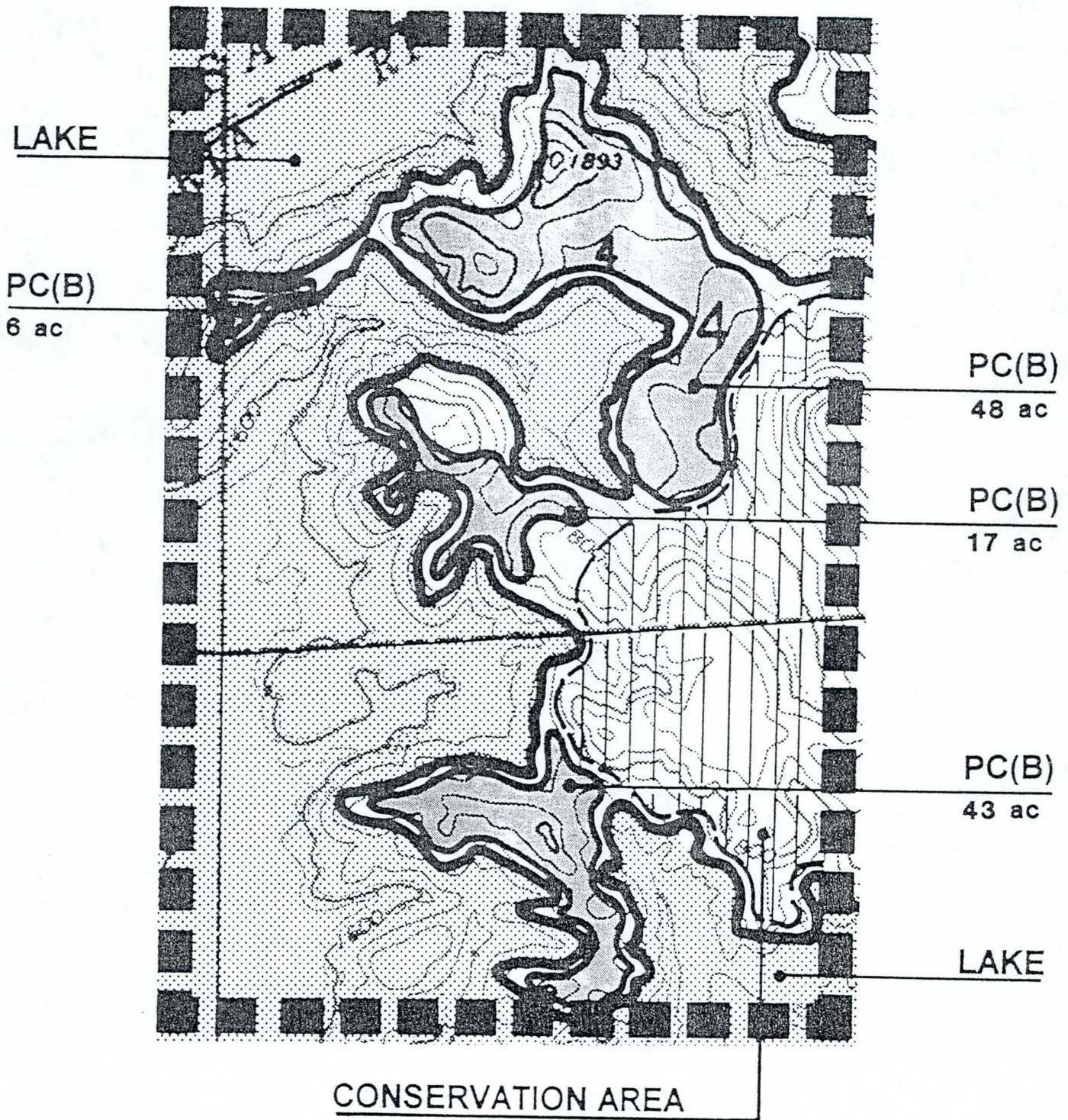
Area 8

Area 8 is located northwest of Black Mountain along the east shoreline of the lake. See Figure 27. The area is characterized by the following:

- Gently sloped areas near the water surrounded by rugged terrain.
- Area is inaccessible except by boat.
- Coves and inlets provide protected areas for recreation.
- No mineral or water rights in the area.
- Sparse vegetation in the Palo Verde/Saguaro community.
- Excellent views of the lake.
- Soil type limitations indicate severe restrictions for structures, roads, and absorption fields.
- Area not surveyed yet for cultural resources.

	<u>AC</u>	<u># Sites</u>	<u>% of D.A.</u>
Primitive Camping/Picnic	114	342	100

Fig. 27



LEGEND

PC(B) - PRIMITIVE CAMPING (BOAT - IN)



AREA 8

L A K E P L E A S A N T
R E G I O N A L P A R K



001

**LAKE PLEASANT REGIONAL PARK
RECREATION FACILITIES**

Recreation Facilities (# of Sites)

Areas	Improved Camping	Unimproved Camping	Primitive Camping	Group Camping	Picnic	Group Picnic
Area 1	95	0	0	2 (130 Units)	60	1 (75 Units)
Area 2	137	0	0	3 (246 Units)	127	2 (48 Units)
Area 3	0	0	0	0	0	0
Area 4	0	0	0	0	0	0
Area 5	199	181	82	8 (191 Units)	112	1 (82 Units)
Area 6	0	0	347	6	0	0
Area 7	0	0	0	0	0	0
Area 8	0	0	342	0	0	0
TOTALS	431	181	771	23 (567 Units)	299	4 (205 Units)

Appendix

APPENDIX I
COMMON WILDLIFE SPECIES
OF
LAKE PLEASANT REGIONAL PARK

Birds

Eared Grebe	<i>Podiceps nigricollis</i>
Western Grebe	<i>Aechmophorus occidentalis</i>
Pied-billed Grebe	<i>Podilymbus podiceps</i>
White Pelican	<i>Pelecanus erythrorhynchos</i>
Double-crested Cormorant	<i>Phalacrocorax auritus</i>
Great Blue Heron	<i>Ardea herodias</i>
Green-backed Heron	<i>Butorides striatus</i>
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>
Cattle Egret	<i>Bubulcus ibis</i>
Great Egret	<i>Casmerodius albus</i>
Snow Goose	<i>Chen caerulescens</i>
Mallard	<i>Anas platyrhynchos</i>
Gadwall	<i>Anas strepera</i>
American Wigeon	<i>Anas americana</i>
Green-winged Teal	<i>Anas crecca</i>
Cinnamon Teal	<i>Anas cyanoptera</i>
Redhead	<i>Aythya americana</i>
Ring-necked Duck	<i>Aythya collaris</i>
Lesser Scaup	<i>Aythya affinis</i>
Bufflehead	<i>Bucephala albeola</i>
C. Merganser	<i>Mergus merganser</i>
Turkey Vulture	<i>Cathartes aura</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Harris' Hawk	<i>Parabuteo unicinctus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Osprey	<i>Pandion haliaetus</i>
Golden Eagle	<i>Aquila chrysaetos</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Peregrine Falcon	<i>Falco peregrinus</i>
American Kestrel	<i>Falco sparverius</i>
Gambel's Quail	<i>Callipepla gambelii</i>
Common Moorhen	<i>Gallinula chloropus</i>
Sora	<i>Porzana carolina</i>
American Coot	<i>Fulica americana</i>
Killdeer	<i>Charadrius vociferus</i>
Greater Yellowlegs	<i>Tringa melanoleuca</i>
Spotted Sandpiper	<i>Actitis macularia</i>
Least Sandpiper	<i>Calidris minutilla</i>
Common Snipe	<i>Gallinago gallinago</i>
Ringed-bill Gull	<i>Larus delawarensis</i>
Rock Dove	<i>Columba livia</i>

White-winged Dove
Mourning Dove
Inca Dove
Greater Roadrunner
Great Horned Owl
Barn Owl
Western Screech Owl
Elf Owl
Lesser Nighthawk
Common Poorwill
White-throated Swift
Costa's Hummingbird
Anna's Hummingbird
Black-chinned Hummingbird
Belted Kingfisher
Northern Flicker
Gila Woodpecker
Ladder-backed Woodpecker
Vermilion Flycatcher
Western Kingbird
Ash-throated Flycatcher
Black Phoebe
Say's Phoebe
Horned Lark
Cliff Swallow
Violet-green Swallow
Northern Rough-winged Swallow
Tree Swallow
Common Raven
Verdin
Bewick's Wren
Cactus Wren
Rock Wren
Marsh Wren
Canyon Wren
Northern Mockingbird
Curve-billed Thrasher
Bendire's Thrasher
Black-tailed Gnatcatcher
Blue-grey Gnatcatcher
Ruby-crowned Kinglet
Water Pipit
Phainopepla
Loggerhead Shrike
European Starling
Bell's Vireo
Black-throated Gray Warbler
Lucy's Warbler
Orange-crowned Warbler
Yellow Warbler

Zenaida asiatica
Zenaida macroura
Columbina inca
Geococcyx californianus
Bubo virginianus
Tyto alba
Otus kennicottii
Micrathene whitneyi
Chordeiles acutipennis
Phalaenoptilus nuttallii
Aeronautes saxatalis
Calypte costae
Calypte anna
Archilochus alexandri
Ceryle alcyon
Colaptes auratus
Melanerpes uropygialis
Picoides scalaris
Pyrocephalus rubinus
Tyrannus verticalis
Myiarchus cinerascens
Sayornis nigricans
Sayornis saya
Eremophila alpestris
Hirundo pyrrhonota
Tachycineta thalassina
Stelgidopteryx serripennis
Tyachycineta bicolor
Corvus corax
Auriparus flaviceps
Thryomanes bewickii
Campylorhynchus brunneicapillus
Salpinctes obsoletus
Cistothorus palustris
Catherpes mexicanus
Mimus polyglottos
Toxostoma curvirostre
Toxostoma bendirei
Polioptila melanura
Polioptila caerulea
Regulus calendula
Anthus spinoletta
Phainopepla nitens
Lanius ludovicianus
Sturnus vulgaris
Vireo bellii
Dendroica nigrescens
Vermivora luciae
Vermivora celata
Dendroica petechia

Yellow-rumped Warbler
Wilson Warbler
Common Yellowthroat
MacGillivray's Warbler
Western Meadowlark
Red-winged Blackbird
Brewer's Blackbird
Great-tailed Grackle
Brown-headed Cowbird
Hooded Oriole
Northern Oriole
Summer Tanager
Northern Cardinal
Pyrrhuloxia
Blue Grosbeak
Black-headed Grosbeak
House Finch
Lesser Goldfinch
Green-tailed Towhee
Abert's Towhee
Lark Sparrow
Black-throated Sparrow
Chipping Sparrow
Brewer's Sparrow
White-crowned Sparrow
Lincoln's Sparrow
Song Sparrow
Rufous-crowned Sparrow

Mammals

Collared Peccary
Mule Deer
Coyote
Gray Fox
Ringtail
Raccoon
Badger
Striped Skunk
Mountain Lion
Bobcat
Harris' Ground Squirrel
Rock Squirrel
Round-tailed Ground Squirrel
Botta's Pocket Gopher
Arizona Pocket Mouse
Bailey's Pocket Mouse
Desert Pocket Mouse
Merriam's Kangaroo Rat

Dendroica coronata
Wilsonia pusilla
Geothlypis trichas
Oporornis tolmiei
Sturnella neglecta
Agelaius phoeniceus
Euphagus cyanocephalus
Quiscalus mexicanus
Molothrus ater
Icterus cucullatus
Icterus galbula
Piranga rubra
Cardinalis cardinalis
Cardinalis sinuatus
Guiraca caerulea
Pheucticus melanocephalus
Carpodacus mexicanus
Carduelis psaltria
Pipilo chlorurus
Pipilo aberti
Chondestes grammacus
Amphispiza bilineata
Spizella passerina
Spizella breweri
Zonotrichia leucophrys
Melospiza lincolnii
Melospiza melodia
Aimophila ruficeps

Dicotyles tajacu
Odocoileus hemionus
Canis latrans
Urocyon cinereoargenteus
Bassariscus astutus
Procyon lotor
Taxidea taxus
Mephitis mephitis
Felis concolor
Felis rufus
Amospermophilus harrisi
Spermophilus variegatus
Spermophilus tereticaudus
Thomomys bottae
Perognathus amplus
Perognathus baileyi
Perognathus penicillatus
Dipodomys merriami

Cactus Mouse
Deer Mouse
Southern Grasshopper Mouse
White-throated Woodrat
Desert Cottontail
Black-tailed Jackrabbit
Cave Myotis
Western Pipistrelle
Big Brown Bat

Peromyscus eremicus
Peromyscus maniculatus
Onychomys torridus
Neotoma albigula
Sylvilagus audubonii
Lepus californicus
Myotis velifer
Pipistrellus hesperus
Eptesicus fuscus

Amphibians

Tiger Salamander
Sonoran Desert Toad
Great Plains Toad
Red-spotted Toad
Woodhouse's Toad
Couch's Spadefoot Toad
Western Spadefoot Toad
Canyon Treefrog
Leopard Frog
Bullfrog

Ambystoma tigrinum
Bufo alvarius
Bufo cognatus
Bufo punctatus
Bufo woodhousei
Scaphiopus couchi
Scaphiopus hammondi
Hyla arenicolor
Rana pipiens
Rana catesbiana

Reptiles

Desert Tortoise
Sonora Mud Turtle
Spiny Softshell
Banded Gecko
Chuckwalla
Desert Iguana
Lesser Earless Lizard
Greater Earless Lizard
Collard Lizard
Long-tailed Brush Lizard
Zebra-tailed Lizard
Leopard Lizard
Desert Spiny Lizard
Tree Lizard
Side-blotched Lizard
Regal Horned Lizard
Great Plains Skink
Western Whiptail
Gila Monster
Western Blindsnake
Spotted Leaf-nosed Snake
Saddled Leaf-nosed Snake
Coachwhip

Gopherus agassizi
Kinosternon sonoriense
Trionyx spiniferus
Coleonyx variegatus
Sauromalus obesus
Dipsosaurus dorsalis
Holbrookia maculata
Holbrookia texana
Crotaphytus collaris
Urosaurus graciosus
Callisaurus draconoides
Crotaphytus wislizenii
Sceloporus magister
Urosaurus ornatus
Uta stansburiana
Phrynosoma solare
Eumeces obsoletus
Cnemidophorus tigris
Heloderma suspectum
Leptotyphlops humilis
Phyllorhynchus decurtatus
Phyllorhynchus browni
Masticophis flagellum

Striped Whipsnake
Western Patch-nosed Snake
Sonora Gopher Snake
Glossy Snake
Common Kingsnake
Long-nosed Snake
Checkered Garter Snake
Black-necked Garter Snake
Western Ground Snake
Western Shovel-nosed Snake
Banded Sand Snake
Night Snake
Arizona Coral Snake
Sonora Lyre Snake
Tiger Rattlesnake
Western Diamondback Rattlesnake
Sidewinder
Black-tailed Rattlesnake
Speckled Rattlesnake
Mojave Rattlesnake

Masticophis taeniatus
Salvadora hexalepis
Pituophis melonaleucus
Arizona elegans
Lampropeltis getulus
Rhinocheilus lecontei
Thamnophis marcianus
Thamnophis cyrtopsis
Sonora semiannulata
Chionactis occipitalis
Chilomeniscus cinctus
Hypsiglena torquata
Micruroides euryxanthus
Trimorphodon lambda
Crotalus tigris
Crotalus atrox
Crotalus cerastes
Crotalus molossus
Crotalus mitchelli
Crotalus scutulatus

Fish

Threadfin Shad
Carp
Goldfish
Golden Shiner
Red Shiner
Gila Sucker
Channel Catfish
Yellow Bullhead
Mosquitofish
White Bass
Largemouth Bass
Green Sunfish
Bluegill
Redear Sunfish
White Crappie
Black Crappie
Blue Tilapia

Dorosoma petenense
Cyprinus carpio
Carassius auratus
Notemigonus crysoleucus
Notropis lutrensis
Catostomis insignis
Ictalurus punctatus
Ictalurus natalis
Gambusia affinis
Morone chrysops
Micropterus salmoides
Chaenobryttus cyanellus
Lepomis macrochirus
Lepomis microlophus
Pomoxis annularis
Pomoxis nigromaculatus
Tilapia aurea

APPENDIX II

List of Presentations (1993) by Maricopa County Parks and Recreation Department

January

- | | |
|---------------------|---|
| 1/14 | Presentation to Glendale Realtor Board |
| 1/21 | BOS Tour of LP |
| 1/21
Church | Presentation at Sun City Faith Presbyterian |
| 1/23
Association | Meeting with Yavapai County Homeowners |

February

- | | |
|---------------------|---|
| 2/3 | Presentation to Kiwanis Club |
| 2/4 | Presentation to Sun City Men's Club |
| 2/6 | Presentation to BOS |
| 2/10 | Presentation to Royal Oaks Life Care Center |
| 2/11 | Presentation to Sun City Rotary Club |
| 2/17 | Presentation to BOS |
| 2/19
Association | Meeting with Yavapai County Homeowners |
| 2/22 | Presentation to Sun City High 12 Club |
| 2/27
Association | Meeting with Yavapai County Homeowners |

March

- | | |
|------|---|
| 3/9 | Presentation to Arizona Yacht Club |
| 3/10 | Presentation to Sun City AARP |
| 3/11 | Presentation to Willowbrook United Methodist Church |
| 3/31 | Presentation to Kiwanis Club of Glendale |

April

4/1

Presentation to Sun City Hikers

4/6

Presentation to Sun City RV Club

4/7

Presentation to Hobie Fleet 66

4/8

Presentation to Light Beams

4/20

Presentation to Wickenburg Rotary

4/22

Presentation to SMPS

May

5/4

Presentation to Sun City West Kiwanis

5/12

Presentation to AARP

5/13

Presentation to Sun City Optimist Club

5/20

Presentation to Phoenix Boating Squad

June

6/10

Presentation to Rotary Club

July

7/19

Presentation to Spin-Offs

7/20

Presentation to Estrella Rotary

August

8/10

Presentation to Sun City West Kiwanis

November

11/18

Disabilities Expo at America West Arena