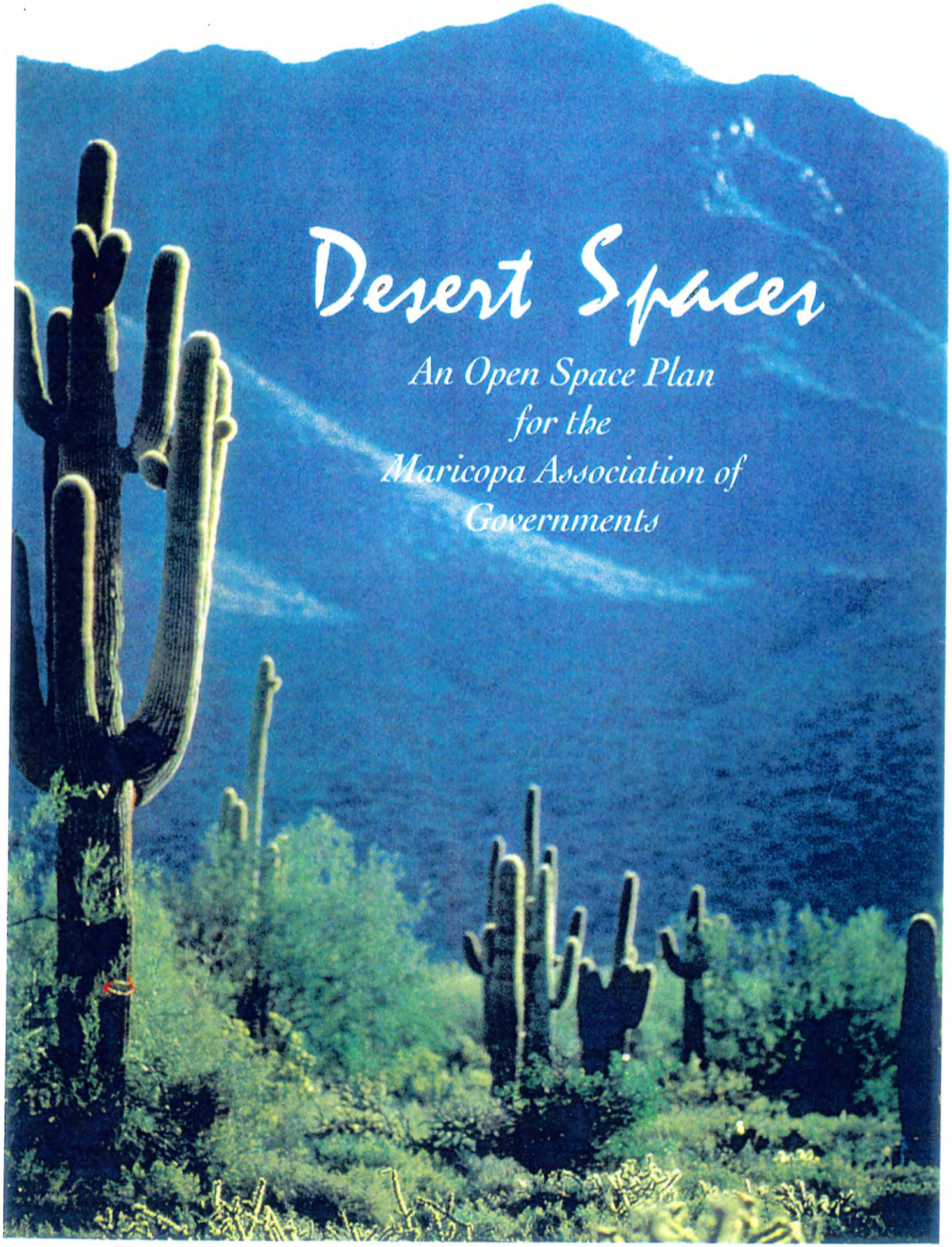

Desert Spaces
An Open Space Plan
for the
Maricopa Association of
Governments

DESERT SPACES

An Open Space Plan for

The Maricopa Association of Governments

FINAL REPORT
PREPARED FOR THE

MARICOPA ASSOCIATION OF GOVERNMENTS (MAG)

BY

DESIGN WORKSHOP, INC.
310 SOUTH MILL AVENUE, SUITE 201
TEMPE, ARIZONA 85281
(602) 966-5881

IN ASSOCIATION WITH

CORNOYER-HEDRICK
SWCA ENVIRONMENTAL CONSULTANTS
BBC RESEARCH & CONSULTING
RESEARCH ADVISORY SERVICES
STREICH LANG

Executive Summary

Desert Spaces

An Open Space Plan for the Maricopa Association of Governments

INTRODUCTION

The Desert Spaces Plan identifies and recommends conservation and management strategies for natural resources and open spaces critical to the quality of life in the Valley. The Maricopa Association of Governments Regional Council adopted the plan in 1995 because it recognized that valley residents are quickly losing sonoran vegetation, mountain access and views, and riparian areas which define the character of the Valley and are important to the desert lifestyle. Intended for use by federal, state, county, and municipal agencies, the Plan provides a non-regulatory framework for decision making and coordinating local and regional efforts directed toward establishing a viable open space system.

THE DESERT SPACES PLAN

The concept of the Desert Spaces Plan is to preserve, protect and enhance the mountains and foothills, rivers and washes, canals and cultural sites, upland desert vegetation, wildlife habitat, and existing parks and preserves. The plan establishes a network of protected open spaces that correspond to regionally significant mountains, rivers, washes and upland desert. Mountain areas in the system include the Usery, White Tank, New River, McDowell, Estrella, Hieroglyphic, Deem, Hedgepath, and Union Hills mountains. The foundation of the plan is existing parks and preserves. These are linked to mountainous areas, other areas recommended for protection in the plan, and each other by accessible trails which follow the edge of flood plains and use the easements of the Central Arizona Project, Arizona, Grand Western, Tempe, Eastern, South, and Consolidated Canals. The primary rivers and washes in the system are the Salt, Gila, Verde, Agua Fria, and New Rivers, and parts of the Cave and Skunk Creeks and Hassayampa River. Also established in the plan are trails which provide access into mountainous terrain.

Specific policies, developed for each major resource category, and two types of open space management categories, retention and conservation, are included in the plan. The major resource categories include mountains, rivers and washes, upland sonoran desert, historic and archaeological sites, canals and trials, and community buffer zones.

Policies for mountainous areas include protection of ridge lines and enclosed terrain and foothills that buffer mountains. These policies preserve the pristine character of state and privately owned mountainous areas that are contiguous to the Tonto National Forest and other regional parks, mountain preserves, wilderness, and wildlife areas.

River and wash policies include discouraging development within 100-year flood plains, maximizing wildlife habitat and native vegetation along waterways, and management to protect the endangered and natural riparian habitat of the region. The policies for this resource category also include provisions of recreational and non-motorized vehicle access which minimize negative impacts on wildlife habitats.

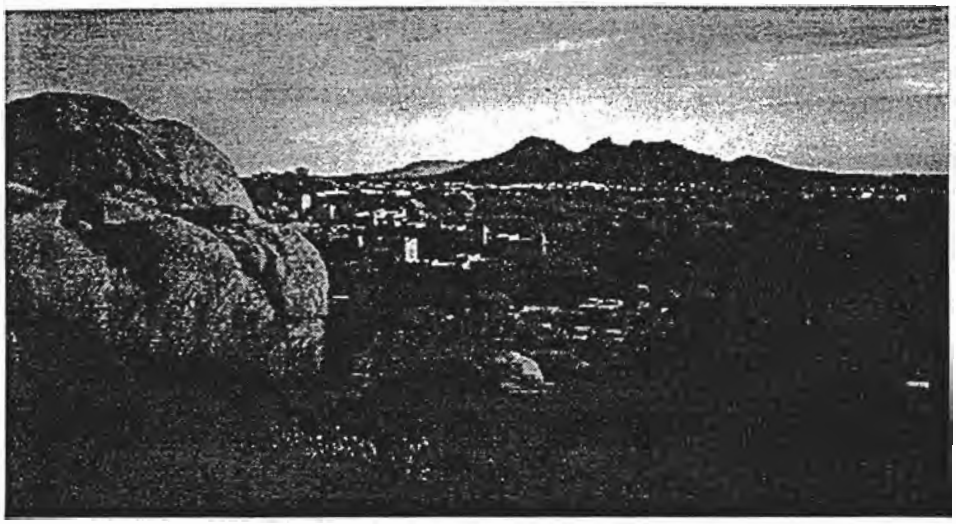
Upland Sonoran desert vegetation protection is recommended through sensitive development, encouraging projects which do not require mass grading, and the use of only native plant materials. Canals and trails are identified as resources for recreational and transportation opportunities. Community buffer zones should be maintained and remain undeveloped to maintain the rural landscape which defines the edge of many communities in the region.

Management policies are designed for two types of resource areas, Conservation and Retention. These areas are identified in Exhibit 2.8 - Management Approaches. **Conservation resources** are the most fragile and important with exceptional scenic value. These areas are mostly steep mountains or riparian and wildlife habitats and may contain valuable cultural resources. Conservation policies prohibit all types of development, and permit recreational uses only if the quality of the resources is not degraded.

Retention resources are usually upland Sonoran desert and hillsides. Only environmentally sensitive development is recommended for retention areas. These areas should be managed to retain the integrity of undeveloped hillsides and ridge lines, river and washes, native vegetation, wildlife diversity, and archaeologic and historic sites.

THE REGION

The MAG region is approximately 9,200 square miles. Twenty-seven jurisdictions, located in one county, exist in the region. The planning area lies at the confluence of four major rivers which drain nearly half of the state's land area. The region



is located in the Sonoran desert with a substantial amount of upland desert vegetation which is known for diversity of plant life, which increases with elevation and rainfall. Higher elevations are usually a few degrees cooler than the valley floor and offer better views. The combination of better scenery and a more comfortable climate create the conditions most desired by valley residents. As a result, the character of some of the region's most beautiful landscapes are being dramatically changed by development.

About forty percent of the land in the region is privately owned (this includes the State Land Trust, which owns 11% of the land in the region). Federal agencies manage approximately 53% of the land (this includes the Department of Defense Goldwater Air Force Range). Five percent of the region is occupied by Native American communities. Less than two-percent of the land in the region is set aside for mountain preserves.

From 1990 to 2020, approximately 344 square miles of undeveloped land will be converted to accommodate almost 2 million more Valley residents. Most of the growth and development is projected to occur at the periphery of the urbanized area.

PLAN IMPLEMENTATION

Four implementation options are included in the plan. These alternatives include MAG oversight with an advisory board, a decentralized series of Intergovernmental Agreements, a master Intergovernmental Agreement, or an independent authority.

- *The MAG oversight with an advisory board alternative would include establishment of a timetable to identify the exact boundaries of the system and bring land into public ownership by each jurisdiction.*

- *A decentralized series of Intergovernmental Agreements, or contracts between governments, would identify the boundaries of the system and the exact parcels that should be included in the system. The Intergovernmental Agreements could also include agreements on trail connections, maintenance of public open space, security, access,a nd acquisition methods and timetables.*

- *A master intergovernmental agreement would identify system boundaries, parcels for inclusion in the system, trails, maintenance, security, access, and acquisition methods and timetables.*

- *An independent authority could be formed to implement the Plan efficiently, inexpensively, and sensitively. The authority could be governed by elected officials or appointees and would have the authority to identify the exact boundaries of the system, purchase land, and take other actions to implement the plan.*

Access to the natural environment is an important ingredient in the quality of life for most Valley residents. As the Valley continues to grow, preservation of our most important natural resources will become increasingly needed to maintain our quality of life. The MAG Desert Spaces Plan is intended to support this preservation effort.

THE MAG REGIONAL COUNCIL

Mayor Wilburn J. Brown
Gilbert, Chair

Mayor Raymond Bedoya
Avondale

Mayor Joe Schettino
Buckeye

Mayor John Curtiss
Carefree

Vice Mayor Richard F. Bartholomew
Cave Creek

Mayor Jay Tibshraeny
Chandler

Mayor Maggie Reese
El Mirage

Mayor John M. Cutillo
Fountain Hills

Governor Mary Thomas
Gila River Indian Community

Mayor Elaine M. Scruggs
Glendale

Mayor William Arnold
Goodyear

Vice Mayor Frances C. Osuna
Guadalupe

Vice Mayor Richard W. Vasiloff
Litchfield Park

Linda Brock-Nelson
ADOT

Supervisor Tom Rawles
Maricopa County

Mayor Willie Wong
Mesa

Councilmember Sara Moya
Paradise Valley

Mayor Ken Forgia
Peoria

Mayor Skip Rimsza
Phoenix

Mayor Mark Schnepf
Queen Creek

President Ivan Makil
Salt River Pima-Maricopa
Indian Community

Mayor Herbert R. Drinkwater
Scottsdale

Mayor Joan Shafer
Surprise

Mayor Neil G. Giuliano
Tempe

Mayor Adolfo F. Gamez
Tolleson

Mayor Dallas C. Gant, Jr.
Wickenburg

Vice Mayor Daphne Green
Youngtown

The MAG Regional Council adopted the Desert Spaces Plan on October 25, 1995.

ACKNOWLEDGMENTS

Creation of the Desert Spaces Regional Open Space Plan represents the efforts of a number of individuals and groups who were assembled to assist with development of a regional open space system. The Desert Spaces Regional Open Space Plan assesses existing conditions and presents a future vision that stresses the importance of timely and thorough coordination among local municipalities, public agencies, interest groups and residents.

OPEN SPACE PLAN -- WORKING GROUP

Desert Spaces Regional Open Space Plan resulted from the hard work and dedication of the Desert Spaces Regional Open Space Plan Working Group members who gave their time, energy and enthusiasm to assist the Maricopa Association of Governments and Consultant Team. We would like to thank the following Working Group members:

Joy Mee
Phoenix, Chair

Councilmember Joyce Clark
Glendale, RDPC Liasion

Richard Bagley
Buckeye

Gary Jeppson
Fountain Hills

Scott Anderson
Gilbert

Anne Blech
Flood Control District of Maricopa County

Janice Miller
Maricopa County Department of Transportation

Atis Krigers
Tempe

Keith Kelly and Monica Pastor
Arizona Department of Agriculture

Greg Keller
Arizona State Land Department

Larry Soehling and Carl Taylor
Tonto National Forest Service

Jill Herberg-Kusy and Joel McCabe
Maricopa County Planning and Development

Gary Lane
Avondale

Dave McDowell
Chandler

Shirley Berg
Surprise

Ray Jacobs
Glendale

Bill Van Ausdale and Cynthia Donald
Maricopa County Recreation Services

Frank Mizner
Mesa

Don Meserve
Scottsdale

Russ Haughey
Arizona Game and Fish Department

John Reid and Kathy Pedrick
Bureau of Land Management

We also wish to thank all of the participants at the Desert Spaces Regional Open Space Focus Group meetings for providing input on the regional open space system as part of the public involvement process.

MARICOPA ASSOCIATION OF GOVERNMENTS

STAFF

John J. DeBolske Secretary of MAG	Dennis Smith Staff Coordinator
Project Coordination:	Terry Max Johnson Leslie Dornfeld Harry Wolfe Marjorie Bresnahan Don Worley
Administrative Support:	Marie Johnson Sandy Morari Angela Pocock Christine Smith-Humphrey Laura Stegall

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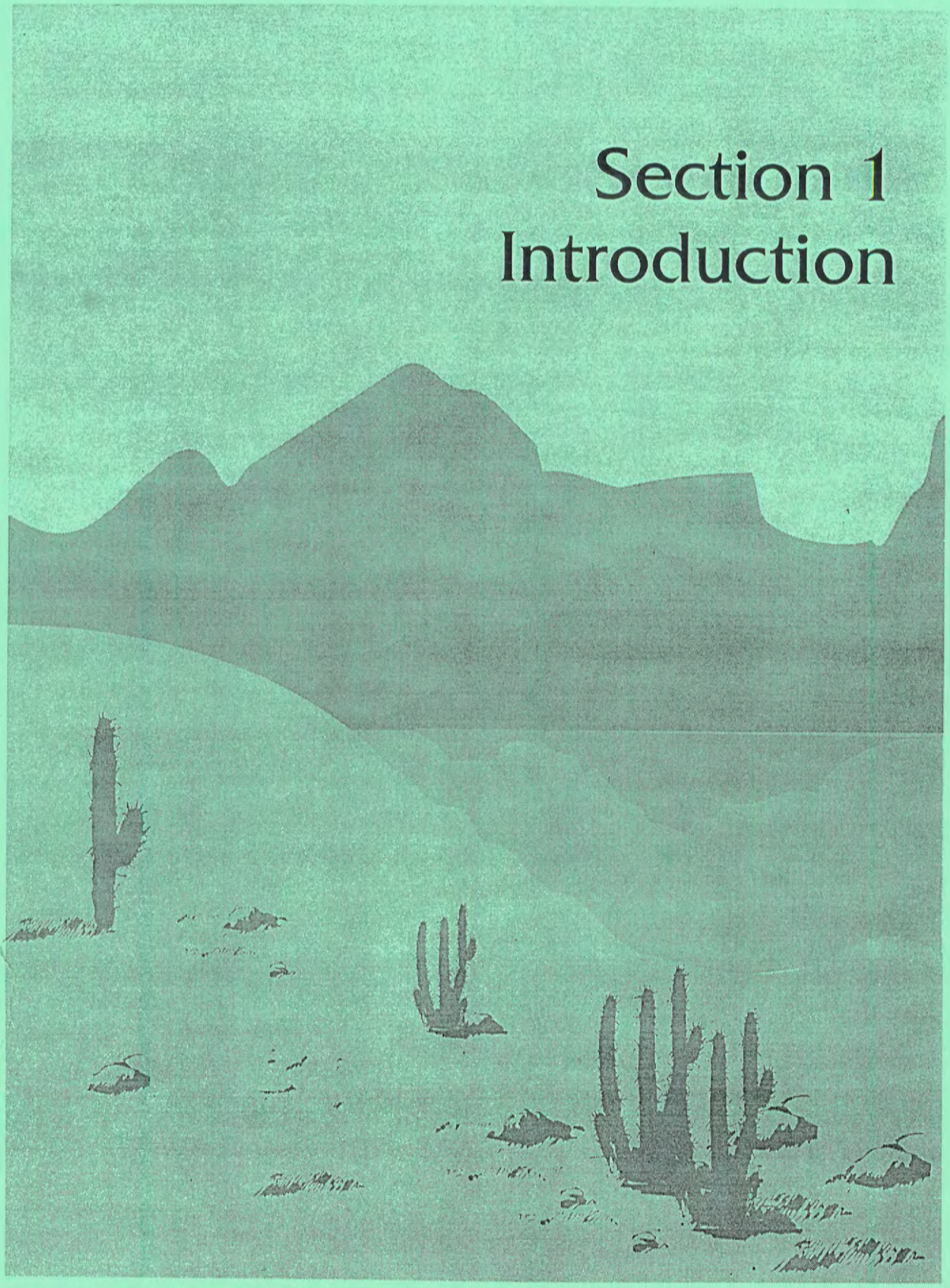
Section 1
Introduction



1.1 PURPOSE

In 1992, the Maricopa Association of Governments (MAG), in conjunction with the Maricopa Department of Transportation, and Flood Control District of Maricopa County, realized that valuable natural resources and open spaces in the region were in the path of planned and projected development. In an effort to identify areas that residents and visitors believed were important to the identity and quality of life of the region, these entities solicited the assistance and input of their members, state agencies, and other individuals and organizations committed to the conservation and preservation of natural areas and initiated an open space planning effort. The culmination of this effort is the Desert Spaces Plan.

Desert Spaces is a Regional Open Space Plan designed to guide the members of the Maricopa Association of Governments in protecting open space while allowing for future community growth and development. The Plan is intended to be used by federal, state, county and municipal agencies as a framework for decision making and coordinating local and regional efforts directed toward establishing a viable open space system.

This plan is not regulatory. This plan is a concept plan. MAG member agencies and the development community are encouraged to consider its recommendations in their land use decision-making processes.

1.2 ORGANIZATION OF THIS DOCUMENT

Section One defines the purpose of the Plan, outlines the organization of this document, lists the project goals, summarizes the planning process and describes the study area context. **Section Two** identifies and prioritizes the open space areas that should be included in the Plan, and recommends management policies for these areas. **Section Three** presents a range of implementation options related to governing and financing the Plan and discusses the tools available for protecting open space resources. **Section Four** contains the background information and demographic research which formed the basis for identifying important resources, growth trends, public opinion regarding open space protection and those open space and natural areas most likely to be affected by development over the next thirty years.

1.3 PROJECT GOALS

The project goals were developed from comments received from the public, MAG member agencies, and other private and government authorities at public workshops and meetings. The planning goals represent desired outcomes of the Desert Spaces Plan.

The overall goal of the Desert Spaces Plan is to identify a regional system of integrated open space and to outline various strategies for the establishment and management of the system. Furthermore, the plan is intended to develop appropriate policies to:

- ψ Conserve and preserve important natural and cultural resources.
- ψ Provide opportunities for inter-jurisdictional cooperation to develop a regional open space system that builds on the existing efforts of the public and private sectors.
- ψ Further regional goals of economic development and quality of life.
- ψ Identify compatibility and identify and resolve conflict between desired open space objectives and local, state and federal land management objectives.
- ψ Assist local government to evaluate the effect of private development on open space resources.

1.4 PLANNING PROCESS

MAG's Regional Development Policy Committee and a group of participating agency planners worked with MAG's staff and a team of consultants for over eighteen months to prepare the Desert Spaces Plan. The process included an extensive inventory of existing and potential open space areas in the study area. Information on topography, hydrology, flora and fauna, land use, ownership and demographics was mapped and analyzed to identify the relative importance and suitability of open space areas for inclusion in the Plan.

Preparation of the Desert Spaces Plan included solicitation of public comment at several key points in the planning process. A concerted effort was made to inform the general public about the project and about opportunities to participate. Early in the process, two public meetings were held, one in Mesa and one in Glendale. The general public was invited to these meetings using notices in newspapers and by a direct mailing of a newsletter. The mailing list prepared for the project contained the names and address of over 200 private individuals and representatives from groups representing environmental and development interests. The purpose of the public meetings was to provide information about the project goals and objectives and to solicit comment from the public on the issues to be addressed by the Plan.

The project was also publicized through the use of three mobile displays containing relevant photos, maps, general information, and a response card for comments and to obtain additional names for the mailing list. The mobile displays were set up in a selected location (city hall, library, etc.) in each of the participating jurisdictions for a period of two weeks.

A series of five focus group meetings were held in various locations throughout the valley. Participants in the meetings were carefully selected to ensure that a range of community interests were represented. Agency planners, recreational environmental and development interests attended these meetings. A summary of the input received during these meetings is included in Section 4.9.

After a set of five alternative concept plans were prepared, a series of six review sessions were held over a three-day period. Participants in this "planning charrette" were selected and personally invited to attend. Input was received from representatives of:

- Municipal, County, State, and Federal agencies
- Private land trusts
- Home builders and real estate developers
- Recreational and environmental special interest groups

1.5 THE SETTING

The study area, or the MAG region, corresponds to the area encompassed by Maricopa County. It is located in the central portion of the State of Arizona and is approximately 5.9 million acres in size. Twenty-four municipalities and three Indian communities, ranging in population from less than 2,000 to over 1 million, exist within the region. Most of the municipalities are located adjacent to or near the Phoenix urbanized area. Exceptions include the Town of Wickenburg and Gila Bend. Exhibit 1.1 shows the location of the study area and its surrounding context.

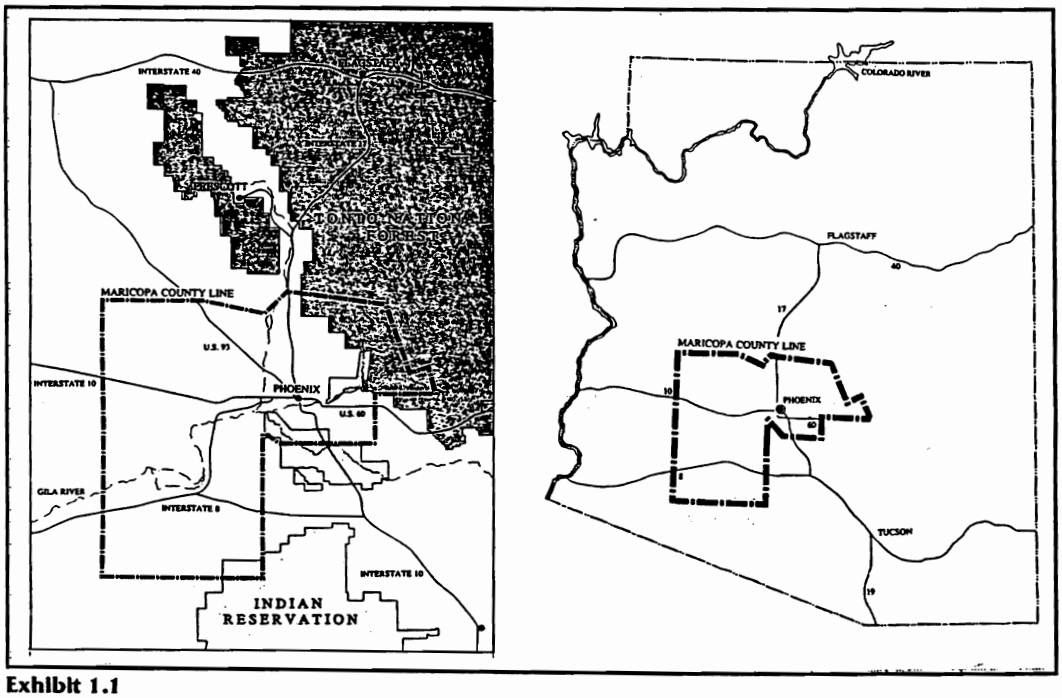


Exhibit 1.1
Regional Context

The region lies at the confluence of four major rivers: the Gila, Salt, Verde and Agua Fria Rivers. Exhibit 1.2 illustrates a portion of their watershed. These rivers drain nearly one-half of the state's land area as they flow through the region in a generally northeast to southwest direction. An extensive system of washes drain into the major rivers. In some areas, urban development has disrupted the natural drainage system occasionally causing serious flooding.

The presence of water and fertile soils supported settlements of the Hohokam from about 2000 years ago until about 1400 A.D.. These native people constructed a network of irrigation canals using water from the Salt and Gila Rivers. At one time there may have been over 250 miles of canals in the Valley. Evidence of the Hohokam civilization constitutes the most significant archaeological resources in the region.

The region lies in the Basin and Range physiographic province. The province is characterized by intense geologic activity that has resulted in numerous mountain masses that rise abruptly from the broad plains or dry stream valleys that lie between them. The mountain ranges contain peaks that vary in altitude from a few hundred feet to more than seven thousand feet above sea level. The highest peaks are located in the Mazatzal Mountain range which forms a portion of the northeastern boundary of the county. In this area, the mountains represent an important open space resource due to their scenic value and capability to support recreational uses and wildlife habitat.

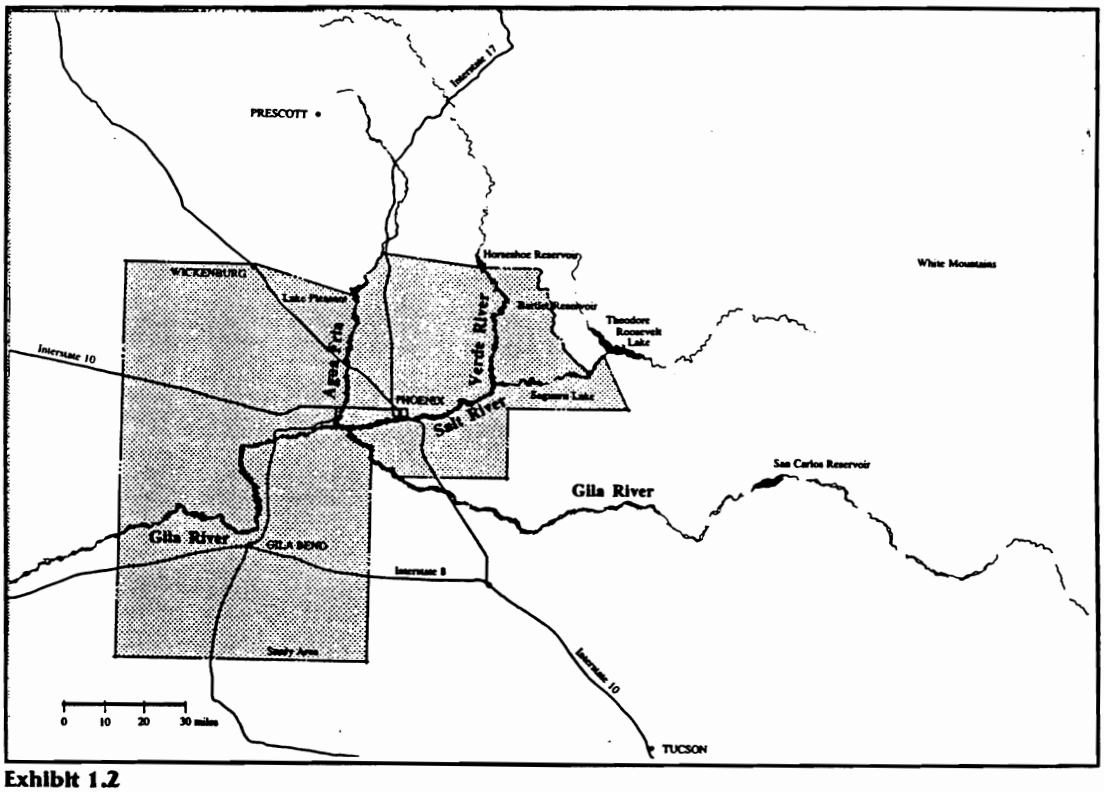


Exhibit 1.2
Portion of the Gila, Salt, Verde and Agua Fria Rivers Watershed

The region is also in the Sonoran desert with a substantial amount of upland desert vegetation which is known for its diversity of plant life. The Sonoran biseasonal pattern of rainfall promotes the existence of more plant species than in other deserts such as the Mojave and Chihuahuan. The diversity of plant life increases as elevation and rainfall increase. Higher elevations are usually a few degrees cooler than the valley floor and more extensive views can be obtained from the upper elevations. The combination of better scenery and a more comfortable climate create the conditions most desired by valley residents. As a result, the character of some of the region's most beautiful landscapes are being dramatically changed by development.

1.6 POPULATION GROWTH AND OWNERSHIP

According to the 1990 U.S. Census, the population of Maricopa County was 2.1 million persons and is projected to nearly double to 4.1 million in the year 2020. By the year 2020, the total extent of developed land is projected to increase by 220,200 acres, or 344 square miles.

Phoenix, Chandler, Mesa, and Gilbert are projected to have the greatest number of new residents while Goodyear, Gilbert, Surprise, Litchfield Park, and Buckeye are projected to have the highest percentage increase in population. Table 1.1 lists the 1990 population and the projected population for the year 2020 for each of the MAG Member Agencies.

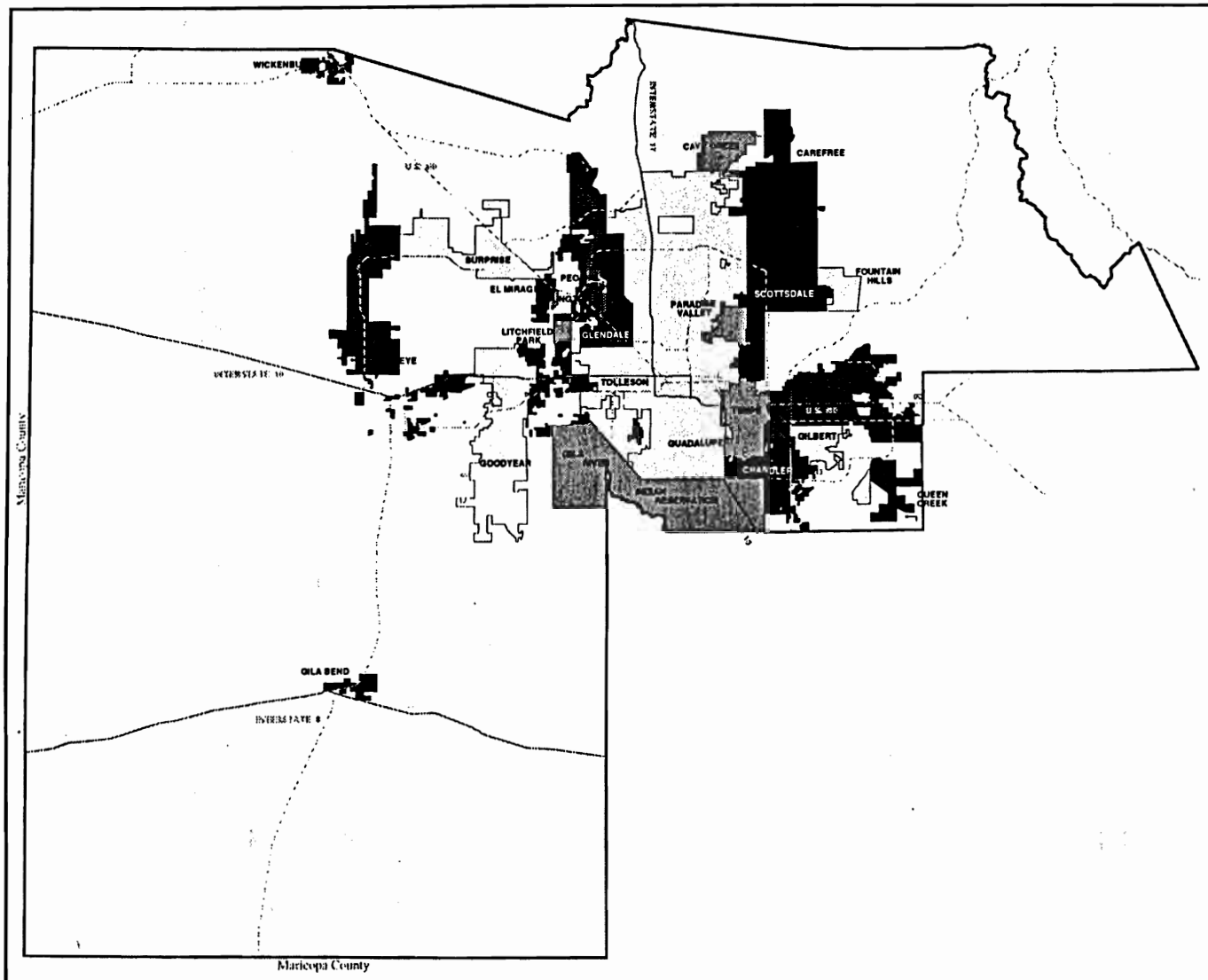
About twenty-nine percent of the region is privately owned. Fifty-three percent is managed by either the U.S. Forest Service, Bureau of Land Management, or the Department of Defense. Native American communities occupy about five percent of the region. Over eleven percent of the region is part of the State Land Trust. Less than two percent is currently set aside as a public park or mountain preserve.

Table 1.1
Municipal Planning Area
(MPA) Population Projections to 2020*

Municipal Planning Area	1990 (July 1)	2020 (July 1)
Avondale	19,651	74,318
Buckeye	9,336	37,727
Carefree	1,669	2,815
Cave Creek	2,430	7,419
Chandler	96,187	344,241
County Areas	79,598	140,672
El Mirage	5,034	13,309
Fountain Hills	10,119	29,115
Gila Bend	1,817	2,679
Gila River	2,679	2,915
Gilbert	35,706	198,008
Glendale	159,068	282,785
Goodyear	7,707	78,141
Guadalupe	5,458	7,299
Litchfield Park	3,312	14,648
Mesa	323,442	538,582
Paradise Valley	12,259	15,491
Peoria	53,825	180,858
Phoenix	1,000,580	1,613,992
Queen Creek	3,198	5,842
Scottsdale	132,452	275,041
Surprise	9,140	45,316
Tempe	142,684	172,024
Tolleson	4,445	17,442
Wickenburg	6,049	12,779
Youngtown	2,555	3,212
Maricopa County Total	2,132,390	4,118,690

**MAG Update of the Population and Socio-economic Database for Maricopa County, March 1993.*

Exhibit 1.3 is a map of the municipal boundaries in the region. The participating agencies that do not represent cities or towns are listed in the legend for Exhibit 1.3.



Maricopa Association of Governments

DESERT SPACES PLAN

Maricopa County, Arizona

Exhibit 1.3

PARTICIPATING AGENCIES

ADDITIONAL PARTICIPATING AGENCIES INCLUDE:

Maricopa County Planning and Development
Maricopa County Flood Control District
Maricopa County Parks and Recreation
Maricopa County Department of Transportation
Arizona Department of Agriculture
Arizona Game and Fish Department
Bureau of Land Management
Tonto National Forest Service

DESIGNWORKSHOP
In association with:

Cornoyer - Hedrick
SWCA Environmental Consultants
Browne, Bortz & Coddington, Inc.
Research Advisory Services
Streich Lang

Date: 10/21/94
Road information supplied by Maricopa County Department of Transportation
Jurisdiction boundary information supplied by Maricopa Association of Governments, Transportation Planning Office

Scale in miles: 0 2 5 10

North

Exhibit 1.3
Participating Agencies

1.7 THE CONCEPT

The concept for the Desert Spaces Plan is to preserve, protect and enhance the mountains and foothills; rivers and washes; canals and cultural sites, upland desert vegetation, wildlife habitat, and existing parks and preserves. The Plan builds on these principal features to create an interconnected system of regionally significant scenic, biological, archaeological, and recreational lands. Environmentally sensitive areas of upland Sonoran Desert, flood plains of major rivers and washes that thread through the region and provide valuable wildlife habitat, and the most scenic landscapes are included in the Plan. The Plan also consists of a regional network of trails which primarily follow rivers, washes, and canals and allow the public to traverse the region and enjoy a diversity of open spaces. The following paragraphs summarize the key elements of the Plan.

The Desert Spaces Plan is a network of protected open spaces that correspond to the regionally significant mountains, rivers, washes and upland desert. Mountain areas in the system include the Usery, White Tank, New River, McDowell, Estrella, Hieroglyphic Mountains as well as the Deem, Hedgepeth, and Union Hills Mountains. The primary rivers and washes in the system are the Salt, Gila, Verde, Agua Fria, and New Rivers, parts of Cave and Skunk Creeks and the Hassayampa River.

Trails provide access into mountainous terrain, follow along the edge of flood plains and use the easements of the Central Arizona Project, Arizona, Grand Western, Tempe, Eastern, South and Consolidated Canals.

The existing parks and preserves in the region (secured open spaces) are the foundation of the system. Proposed trails and future protected areas integrate these existing pieces of open space into a coordinated system.

The Plan protects important natural areas that support valuable wildlife habitat and open space linkages which allow wildlife to move freely between the larger preserves. The system is designed so that biodiversity and sustainable populations of flora and fauna can coexist with development.

The Plan establishes policies for conservation of the most important open space resources and for retention of and access to critical open space resources that are located in areas that are likely to be developed. Development is restricted in "Conservation Areas." Development is acceptable in "Retention Areas" if it is carried out in a manner that does not degrade the quality of the open space resource and if public access to significant open space resources is maintained.

The Plan encourages infill development in urbanized areas to reduce the need to develop undisturbed open lands.

1.8 IMPLEMENTATION

The primary means of implementing the Plan will be increased cooperation and coordination among local, county, state and federal jurisdictions. Since one of the principal objectives of the Plan relates to protecting regionally significant resources, many of which cut across local boundaries, effective cooperation between adjacent communities is critical. In Section Three: Implementation, the Plan presents a "menu of options" for governing, financing and protecting open space. The feasibility of each option and the tools it would require is discussed in Section Three. Four general categories of implementation are explored. They range from the most stringent - the creation of an independent authority, to the least stringent - the creation of an advisory board with MAG oversight.

One option suggests the Plan could be implemented through voluntary cooperation. The physical configuration of the Plan would stay conceptual and each jurisdiction could identify exact parcels and bring land into the system based on its own timetable. Funds could be raised and managed by either population based "dues" from each jurisdiction, or through regional levys.

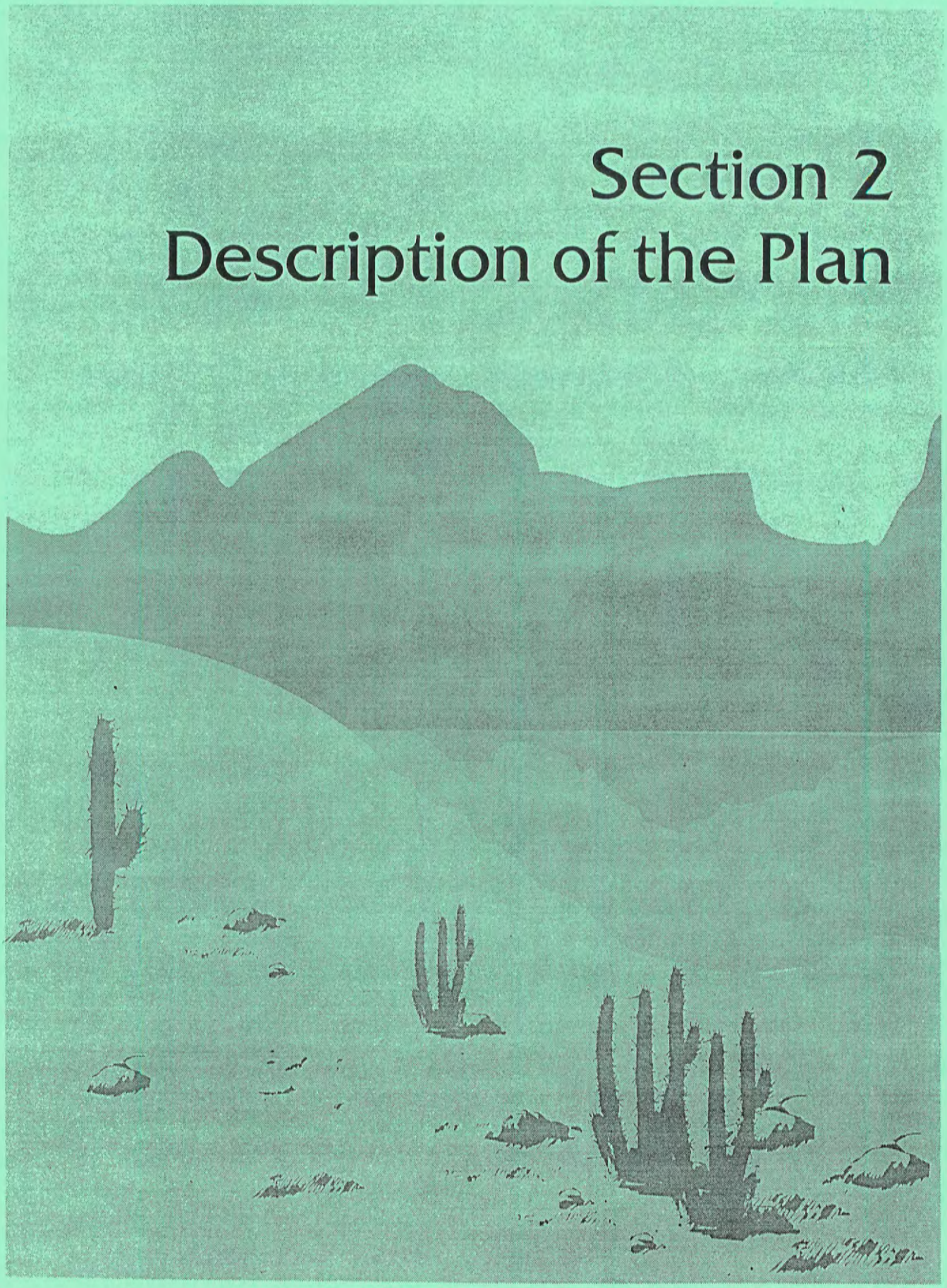
Another implementation scenario uses a series of intergovernmental agreements (IGA's) between participating jurisdictions. The IGA's would identify the parcels that would be included in the system, as well as agreements on trail connections, maintenance, security, access and egress, and acquisition methods in the IGA's. Funding could be raised in the same fashion as the previous alternative.

A third approach is to establish a master IGA, which would insure consistency in implementation throughout the region, could be implemented by a regional authority composed of the signatories or a county-wide governmental organization.

A fourth option could be an open space special district with the mandate to implement the open space plan efficiently, inexpensively, and sensitively. As with most regional authorities, a district would have a committee funding source.

No single implementation alternative is recommended in the Plan, and one will not be chosen without significant public comment and additional study and review. Extensive deliberation about the options should take place before the final decisions regarding governance, financing and open space protection techniques are made.

Section 2
Description of the Plan



2.1 INTRODUCTION

Section 2: Description of the Plan, discusses the planning objectives, concept, and management recommendations. It includes a conceptual illustration of the proposed open space system and identifies broad categories of regionally significant resources that make up the system and a map of areas which are prioritized for inclusion in the open space system. The areas are prioritized based upon the number of resources occurring in a given area, population projections, and land ownership. This section also includes a description of the management approach policies that are necessary to protect regionally significant open space resources. These policies are intended to be implemented using the specific implementation tools and techniques discussed in **Section 3: Implementation.**

2.2 PLANNING OBJECTIVES

The following planning objectives describe the actions that are necessary to meet goals stated in Section 1.3.

- **Regional Network of Resources.** Create an interconnected system of open space and linkages derived from the existing regionally-significant physical, biological and cultural resources. Regionally significant resources include the mountains, rivers and washes, upland Sonoran Desert vegetation, historic and archaeological sites, agricultural lands, canals, and existing regional parks and mountain preserves.

- **Regional System of Trails.** Develop a trail system along regionally significant rivers and washes. Provide primary trail connections to outlying mountain preserves and regional parks. Locate trails along canals to create loops (such as the Sun Circle Trail) that connect to the rivers, washes, preserves and parks.

- **Foundation of Existing Parks and Preserves.** Build the system on existing regional parks and mountain preserves. Keep current developed parks under local and county control. Keep current mountain preserve areas and future mountain preserve areas and regional parks acquired with local or county funds under local control. Where appropriate, expand the boundaries of the existing parks and preserves to encompass the full extent of the open space resource.

- **Accessibility.** Create a system so that it is readily accessible to all residents and public of the region. Both urban and suburban residents should have access to open space within five miles of their homes.

- **Sustainable Habitats.** Maintain habitats for native flora and fauna. A measure of success for an open space system is the extent to which it supports a viable population of biologically diverse native plant and animal species.

- **Sonoran Desert Vegetation Transition Zone.** Protect the band of upland Sonoran Desert vegetation along the northern edge of the Salt/Gila River Valley and create a zone of environmentally sensitive land uses between the developed urban core and the relatively pristine lands managed by the United States Forest Service, and Bureau of Land Management.

- **Open Space Buffers.** Protect open space resources that separate outlying communities from the expanding Phoenix metropolitan area.

- **Infill Development.** Encourage infill development in built-up areas to minimize leapfrog-type development and its potential impacts on open space areas. Maintain urban open space areas such as mountains and drainage corridors that provide close-to-home recreational and educational opportunities for residents.

2.3 REGIONAL OPEN SPACE CONCEPT

The Regional Open Space Concept (Exhibit 2.1) illustrates an overall physical framework for accomplishing the goals and objectives described above. The Concept categorizes lands throughout the entire MAG region into open space types. Together, these areas and the resources they contain, comprise the open space system. This system could be integrated with whichever future urban form or development pattern exists in the MAG region.

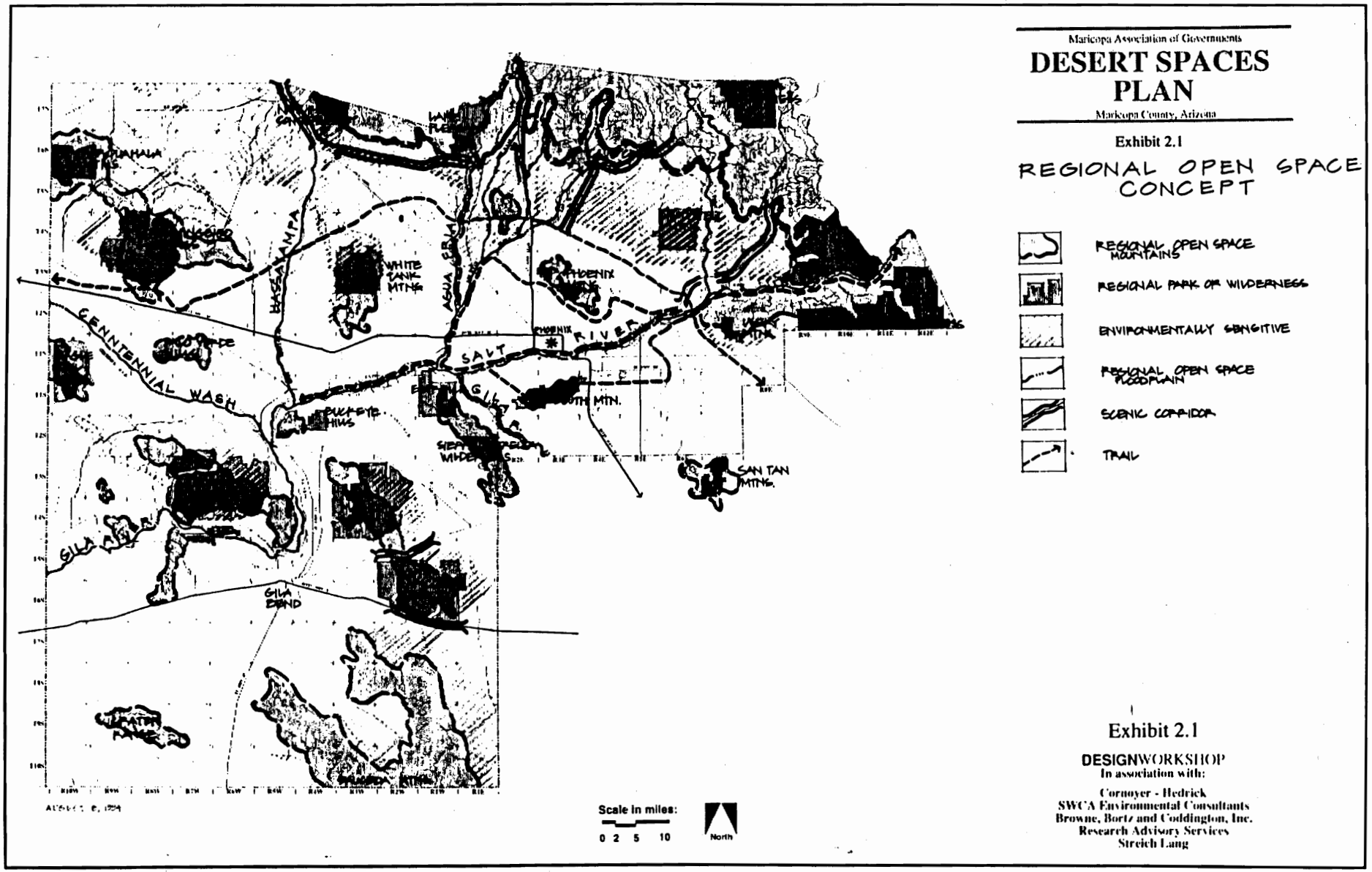


Exhibit 2.1
Regional Open Space Concept

The purpose of the Concept Plan is to illustrate:

- Connections between mountainous areas and existing parks, preserves and wilderness areas so they serve as the primary elements of an open space system.
- Links from environmentally sensitive areas, corresponding to the general location of upland Sonoran Desert vegetation, to the mountainous areas and existing parks and preserves which create a transition between urban areas and natural areas.
- Flood plains of the major rivers and washes that thread through the region, providing valuable habitat in rural areas and offering the potential to preserve, rehabilitate, or reestablish natural areas and wildlife habitats within the city.

Rivers and washes are essential to the connectivity of the system. Scenic corridors shown on the Plan highlight the location of major roads that pass through set picturesque landscapes characterized by the upland Sonoran Desert vegetation. Finally, a regional network of trails use the rivers, washes and canals as the primary access corridors, enabling the public to enjoy the open space system.

Exhibits 2.2 and 2.3 illustrate how the Concept Plan could be applied to a local open space planning situation. Exhibit 2.2 shows an example of a system of mountain preserves linked along minor washes to a regional trail that follows the edge of the flood plain. Potential expansion areas for existing regional parks and environmentally sensitive transition zones, buffers and enclosed terrain are also shown. Exhibit 2.3 provides an example of an area that has a high diversity of natural and man-made open space resources, many of them regionally significant. It shows existing protected and unprotected mountainous areas that are linked by open space corridors to the New River, Skunk Creek, the CAP Canal, Cave Creek and Cave Buttes Recreation Area. A system of regional trails is also shown.

A Conceptual Trails Plan, Exhibit 2.4, illustrates the existing and proposed system of regional trails. While local trails are not shown on the Plan, it is intended that they link to trails accessing the regional system. The pattern of trails that corresponds to the major rivers and washes and to the network of canals links to a major trail that follows the base of the mountains that encircle the Valley's north, central northeast and east sides. The system of trails reaches nearly all of the existing regional parks.

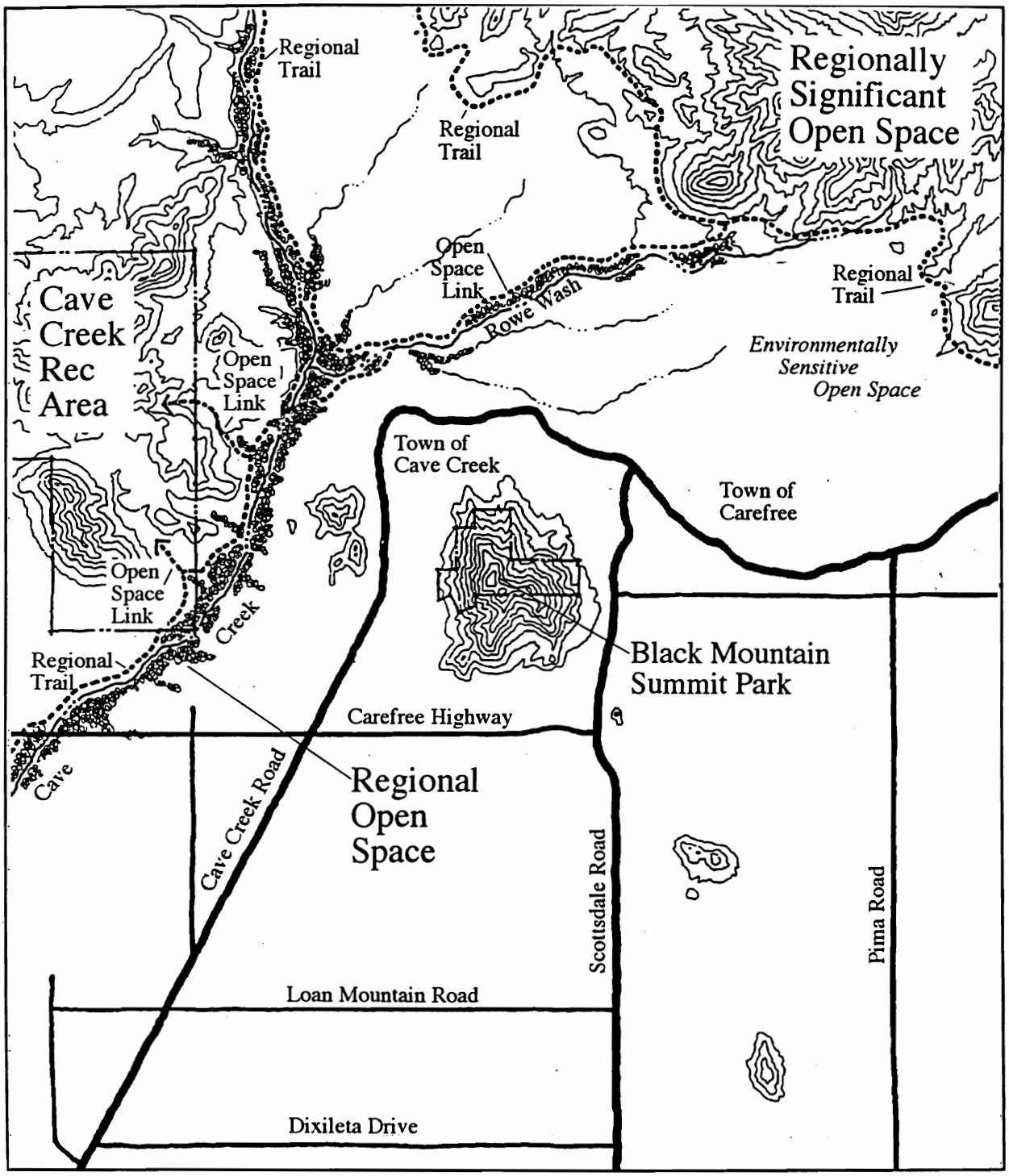


Exhibit 2.2
Regional Open Space Conceptual Diagram

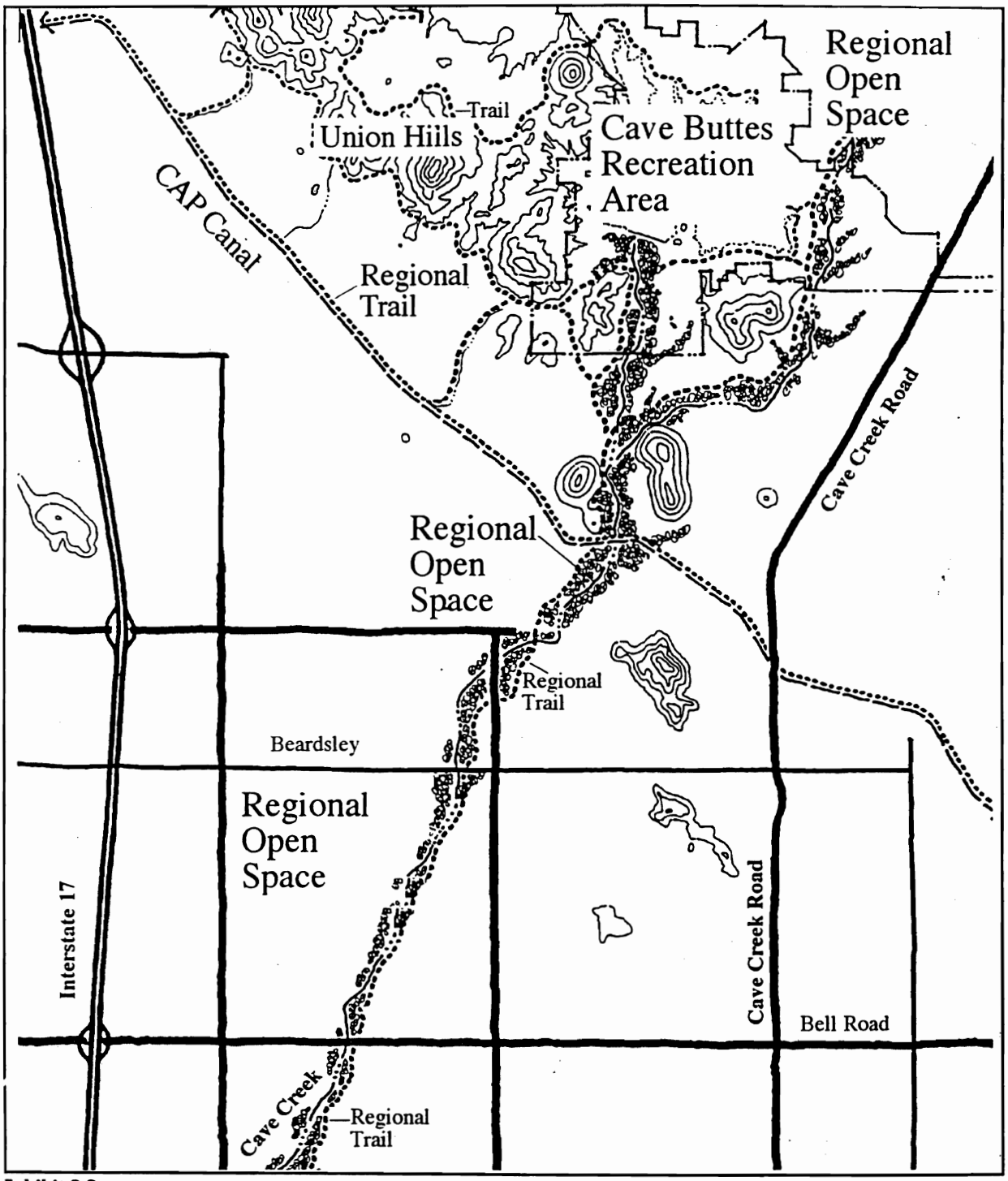


Exhibit 2.3
Regional Open Space Conceptual Diagram

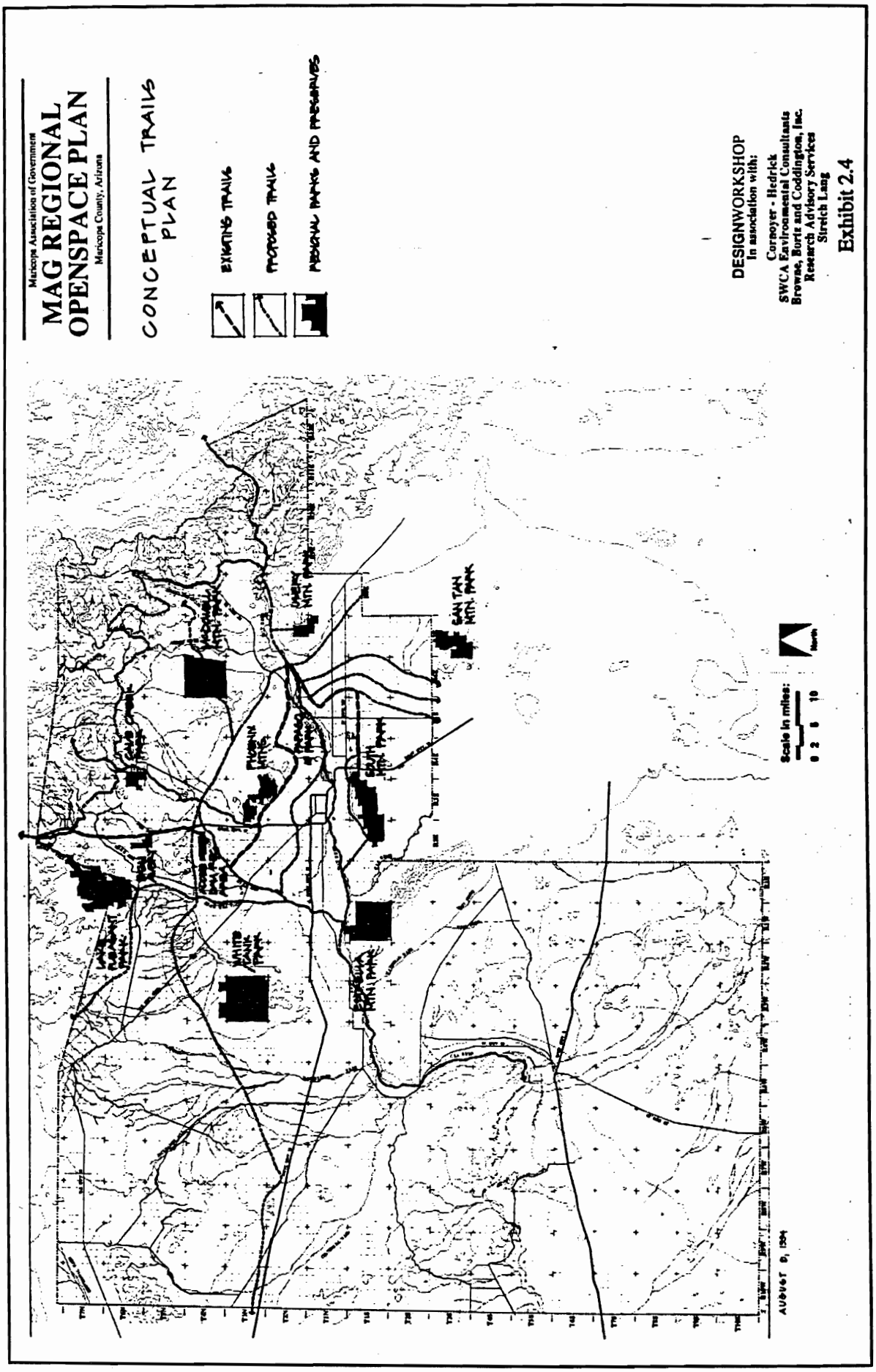


Exhibit 2.4
Conceptual Trails Plan

2.4 DESERT SPACES PLAN RECOMMENDATIONS

The proposed recommendations are organized in four parts:

1. Resource-based recommendations, describing general policy recommendations for the different types of open space resources in the region.

2. Prioritization, identifying general areas where protecting open space values are a high priority. Both publicly and privately owned priority lands are identified.

3. Management objectives defining the regional planning and policy objectives for managing the priority areas.

4. The Plan, explaining the recommended open space management strategy.

2.4.1 Resource-based Recommendations

Significant regional open space resources identified in the plan include: existing parks and preserves; mountains, rivers and washes; upland Sonoran Desert vegetation; sensitive/unique wildlife areas; historic and archaeological sites; canals and trails; agricultural lands; enclosed terrain, and urban growth buffers.

Agricultural Lands

This plan considers agricultural lands to be significant, however, recommendations related to their role as open space are not included because of the wide variation among local jurisdictions in the way farmland is perceived as an open space resource. Therefore, this plan leaves polices related to farmland protection up to local jurisdictions.

The Maricopa Farm Bureau Board identified the following concerns which they would like to be considered as each jurisdiction formulates its agricultural land conservation/ development policies:

1. If the use of agricultural land is restricted or limited to farming only, then the owners of the land expect to be compensated for the full market value of the land. In other words, agricultural land would have to be purchased by the public agency if development for non-farming purposes is not permitted.

2. Agricultural lands should not be protected from development because urban land uses require less water than most current agricultural practices. Converting agricultural lands to urban land uses rather than lands supporting desert vegetation helps meet one of the goals of the Desert Spaces Plan.

3. Protecting agricultural lands, especially near urban and suburban areas, from development is impractical because most agricultural practices are incompatible with residential land uses. Many regulations, such as the groundwater code, and pesticide and air pollution regulations limit the use of agricultural lands in order to minimize these conflicts. In addition, development tends to increase the property taxes on agricultural lands, making it difficult for farmers to continue farming.

4. Any large scale agricultural preservation policy should consider air quality impacts.

Proponents of agricultural land preservation identify the following benefits of maintaining farming activities especially on farm land surrounding urban areas:

1. Agricultural land helps defines the edges of existing urbanized areas. Protecting agricultural land will require communities to establish boundaries and limits on suburban sprawl. Community identity can be reinforced if agricultural lands are used to buffer growth in one community from another.

2. Agricultural land adds variety and diversity to the landscape. It helps maintain a rural character and a feeling of openness that is valued by many people.

3. Agricultural land uses are important to the economy of the region. According to the Arizona Department of Agriculture, in 1993 $6.3 billion was contributed to the economy when both direct and indirect expenditures are totaled.

4. Conflicts between urban land uses and agricultural practices do not result in nuisance suits because Article 2 of ARS Title 3 states "A. Agricultural operations conducted on farmland that are consistent with good agricultural practices and established prior to surrounding nonagricultural uses are presumed to be reasonable and do not constitute a nuisance unless the agricultural operation has a substantial adverse effect on the public health and safety. B. Agricultural operations undertaken in conformity with federal, state and local laws and regulations are presumed to be good agricultural practice and not adversely affecting the public health and safety."

5. Agricultural lands near airports such as Luke and Williams help maintain the value of airport facilities because farming is compatible with protecting airport operational requirements.

Existing Parks and Preserves

The inventory of existing, publicly accessible open space resources includes federally managed multiple-use and wilderness areas, State Game and Fish lands, Maricopa County regional parks and municipal mountain preserves. These lands provide recreation opportunities within close proximity to the urbanized area. However, the rapid expansion of the urban area has resulted in high demand for these linked areas, consequently, many are overused and abused. Financial resources for the maintenance and management of the county parks are not sufficient to keep pace with the level of use. In addition, existing park and preserve boundaries often do not encompass the full extent of the open space resources. Examples of such parks and preserves include: Tonto National Forest, McDowell Mountain Regional Park, White Tank Regional Park, Cave Creek Recreation Area, Lake Pleasant Regional Park, Estrella Mountain Regional Park, Phoenix Mountain Preserve and Buckeye Hills Recreation Area.

Policies:

1. Protect County and local management of the existing regional parks and mountain preserves by supporting funding to the level required for their adequate operation and maintenance.

2. Support local and County efforts to expand the boundaries of regional parks and mountain preserves to conserve and protect contiguous open space resources.

3. Support local and County efforts to protect public access and develop trails along rivers and washes, canals, and around the perimeter to link existing parks and preserves throughout the region to each other. Significant opportunities exist adjacent to Lake Pleasant Regional Park, Cave Creek Recreation Area, McDowell Mountain Regional Park, Estrella Mountain Regional Park and Buckeye Hills Recreation Area.

Mountainous Areas

Large mountain ranges such as the Mazatals, McDowells, Estrellas, White Tanks, Hieroglyphics, New River Mountains, San Tan Mountains, Superstition Mountains and South Mountain are the most prominent features in the metropolitan region and create a backdrop for the entire Salt River valley. These mountains provide recreational opportunities, visual landmarks and wildlife habitat. They define community character. The aesthetic value of surrounding mountains is also important to the tourist industry. Examples of the negative visual impacts of development on the scenic quality of mountains in the region can be seen on Mummy Mountain, Black Mountain and some portions of Camelback Mountain.

Mountains such as South Mountain, Papago, Phoenix Mountains, Union Hills, Hedgpeth Hills, and Deem Hills, located in the interior of the Valley, collectively establish a unique local identity, provide for wildlife and relief from urban development patterns.

Relatively flat lands (less than 15% slope) surrounded by mountain features, or located at the base of mountains, are important buffers or links from one mountainous area to other open space resources (other mountains, rivers, washes, canals, etc.). These areas are important because they can accommodate roads and parking areas, without extensive grading, making the adjacent mountains accessible to a large number of people.

Policies:

1. Conserve mountainous areas that contain important wildlife habitats, cultural resources and scenic areas (see Section 3: Implementation, for description of various open space protection tools).

2. Protect and maintain (through acquisition, regulation or other appropriate means) the nearly pristine character of State and privately owned mountainous areas that are contiguous to the current boundaries of the Tonto National Forest and existing regional parks, mountain preserves, wilderness or wildlife areas.

3. Discourage development from taking place on ridge or crestlines and on steep slopes.

4. Protect and improve public access to mountainous areas located in or near current and future urban areas.

5. Protect the relatively flat foothills and "enclosed terrain" that provide a buffer around mountainous areas, open space linkages, and accessible foothill areas from development.

6. Develop passive recreational opportunities such as hiking, wildlife viewing, picnicking, etc., which are appropriate for each particular area.

Rivers and Washes

Rivers and washes of the region provide a unique opportunity to build a regional open space system around resources that are required to convey flood waters and are highly suitable for trail corridors and promoting biological diversity. The Desert Spaces Concept Plan considers the Salt and Gila Rivers as the spine of the open space system and other regionally significant rivers and washes such as the Verde River, Cave Creek, Skunk Creek, New River, Agua Fria River, Hassayampa River and Centennial Wash as arms that reach out and connect major open space destinations.

Some significant rivers and washes require rehabilitation to improve adjacent land values and meet open space, public use and habitat objectives. Included within this are major stretches of the Salt and Agua Fria Rivers which have been mined, used as dumping grounds, striped of vegetation or channelized with major structures. The objective is the improvement of these rivers and washes as public amenities for trails, recreation, and community meeting areas as well as providing more favorable wildlife habitat where possible and appropriate. The Salt River floodplain through Phoenix and Tempe is not only a safe flood control structure, but also a significant opportunity for creating an attractive regional greenway amenity for trails, recreation and community events. This area is the potential main section of the regional trails system serving the entire regional area.

Smaller washes and the canals, especially those that are located within the metropolitan area, serve as the local connections, or fingers of the regional open space system. Examples of local washes include: Indian Bend Wash, Queen Creek, Camp Creek, Deadman Wash, Trilby Wash as well as many un-named washes that provide valuable riparian and xeroriparian habitat (habitats associated with an ephemeral water supply typically containing plant species also found in upland habitats, however, these plants are typically larger and/or occur at higher densities than adjacent uplands).

Policies:

1. Discourage new development within 100-year flood plains, especially major drainage corridors. Existing regulations such as the Federal Clean Water Act, the Executive Order on Floodplains and Local Flood Control Regulations regulate development within floodplains.

2. Flood control improvements should be designed to minimize loss of valuable wildlife habitat and loss of valuable native vegetation.

3. Manage the resources associated with the regionally significant rivers and washes to accomplish one or more of the following objectives:

   - Protect the valuable, limited and endangered natural riparian habitat of the region.
   - Provide an ecologically sound transition between riparian habitat communities and urbanized areas.
   - Promote the economic benefit to the region by providing the aesthetic, recreation and wildlife value of rivers and washes for the enjoyment of residents and public.
   - Develop trails that feed into an interconnected system and created trail connections from the Salt River to the primary "arms" of the system such as the Verde, and Agua Fria Rivers.
   - Promote natural erosion control.
   - Promote continuity of xeroriparian habitat.

4. Manage locally important washes to enhance wildlife and appropriate recreation values.

5. Rehabilitate the open space system as it passes through the urban core by revegetating the banks of the Salt River.

6. Provide access for recreation, non-motorized transportation and maintenance and security vehicles along the "edge" of the corridor as defined by the limits of the 100-year flood plain. Access improvements should minimize negative impacts on wildlife habitats.

7. Where appropriate, develop other "linear" improvements such as roads and utility corridors to run parallel to, but not in, the regionally significant rivers and washes.

8. Design all road crossings to accommodate trails and to minimize disturbance of the natural environment.

9. Choose and foster flood control methods that retain and maintain some level of natural flooding and riparian vegetation while minimizing damage to private property. These methods include designation of flood prone areas as open space management of lands by acquisition of flood easements, development of levees that allow a wide floodway to maintain the natural meander of streams and encourage the formation of riparian plant communities.

Upland Sonoran Desert Vegetation

At the higher elevations of the valley and the region, the topography, soils and rainfall support the rich diversity of unique plants that are referred to as upland Sonoran Desert vegetation. The rich saguaro, palo verde, ocotillo mixed cactus plant community that cover many of the low desert hills in and around the Phoenix Metropolitan area is actually Arizona upland subdivision of Sonoran Desert vegetation, and is a type of lower Sonoran desert vegetation. This plant community is one of our richest habitats for wildlife. As a result of their picturesque beauty and the scenic views that are often available from the mountain hillsides where this desert type occurs, these areas are attracting a significant portion of the current and proposed development in the region.

Policies:

1. Encourage development that does not require mass grading of the remaining areas of upper Sonoran desert vegetation to protect the region's "sense of place," wildlife habitat, drainages, and scenic quality.

2. Encourage development on relatively flat sites rather than on mountains and steep hillsides.

3. Protect upper Sonoran desert areas that serve as major links between regionally significant open space resources. Examples of open space links are illustrated in the Concept Plan, Exhibit 2.1. They include lands that connect:

   - Sauceda Mountains and the Maricopa Mountains
   - Woolsey Peak Wilderness area and Eagle Tail Mountain Wilderness
   - Harquahala Mountain Wilderness area and Hummingbird Springs Wilderness
   - Harquahala Mountain Wilderness area and the Hieroglyphic Mountains
   - Hieroglyphic Mountains and New River Mountains
   - The McDowell Mountains and the Mazatzal Mountains
   - White Tank Mountains and the Hassayampa River

4. Encourage the use of only plant materials that are native to the MAG region for all landscaping.

Historic & Archaeological Sites

The region supports a rich historic legacy resulting from evidence of historic activities and the Hohokam Indians. These resources are extremely valuable as educational opportunities and as attractions to the economically important tourist industry.

Policies:

1. Protect sites in areas that contain the ancient ruins and historical settlements through land acquisition or regulations on development.

2. Protect significant cultural resources on developable lands from degradation by encouraging sensitive development or public acquisition.

Canals and Trails

Canals and off-road trails serve two functions in the Desert Spaces concept. Both are generally in developed urban or agricultural areas and function as open spaces, providing visual relief from urban development, and they function to connect the various components of the open space system. On-road bicycle routes serve a narrow recreation purpose and as connectors in the system have little open space value. The integration of canals and existing trails into the open space system, and the development of new trails to create connections between open space resources where none currently exist are an essential element of the Desert Spaces concept.

The system of canals reflect the pattern established by the Indian settlements and serve the valley with a precious commodity — water. Using the canals for trails is an essential component of the plan. Canals are ideal trail links because of their orientation to the rivers and their at-grade connection to streets which contain on-road paths for bicycles. The plan completes the existing trail system by making connections to the drainage corridors and canals for off-road trails. Trail improvements, greater public use of the canals, safer facilities, and better security by local jurisdiction along the canals can alleviate problems associated with inappropriate uses, such criminal behavior, in and around the canals.

The Salt River Project (SRP) encourages the development of trails and other recreational facilities. For policies regarding SRP participation, maintenance and operation, refer to the SRP "Canal Multiple-use Guidelines" pamphlet dated May 1, 1989. Implementation of canal projects will require close collaboration with the Salt River Project and other irrigation districts in the valley such as the Buckeye Irrigation District and the Roosevelt Irrigation District.

Policies:

1. Use canals and trails to provide recreational opportunities in urban and developed areas.

2. Join the canals and trails to create a system that connects regional open space resources. In particular:

   - Complete the Sun Circle Trail and integrate it with the canal system to connect regional open space resources.
   - Use on-road bicycle paths to provide connections to Maricopa County Regional Parks and other major open space destinations when necessary.

3. Include a new trail that follows the base of the Hieroglyphic Mountains east to Lake Pleasant, into the National Forest, and eventually meeting the Salt River.

4. Encourage wildlife habitat development and enhancement along canals, wherever appropriate. In addition, encourage the development of a canal fishing program.

Community Buffer Zones

Several communities in the MAG region, such as Buckeye and Queen Creek are located outside the current sphere of urbanization and separated from urban development by rural, undeveloped or agricultural lands. These lands possess many aesthetic and ecological characteristics that make them valuable as open space and they also provide a source of revenue that sustains the rural life styles that is valued by the residents of these communities.

Policies:

1. Protect lands that contain natural resources, nearly pristine desert vegetation, agricultural land, and wildlife habitat that lie between rural communities, unincorporated areas, and expanding urbanizing areas.

2. Allow development of critical rural/agricultural lands only when it is sensitive to scenic values and open space resources of the area.

3. Encourage only low density or cluster development to separate Wickenburg, Cave Creek, Buckeye, New River and Queen Creek from the urbanized areas.

4. Protect and enhance the unique rural landscape character including agricultural land uses, canals, scenic views, and desert vegetation located on the north side of South Mountain and the citrus groves located in East Mesa.

2.4.2 Open Space Resource Priorities

Open space priorities are based on an analysis of the following criteria:

1. Proximity to projected population growth.

2. Location of the greatest number of natural and cultural resources.

3. Existing land use.

4. Visibility.

5. Overall importance for establishing an interconnected system.

The inventory and analysis maps were used to identify and prioritize open space system areas that possess the above-mentioned characteristics. The map entitled Unprotected Priority Areas (Exhibit 2.5) indicates the location of these areas and they are listed in Table 2.1. The Priority Areas formed the basis for the management approaches which are discussed in Section 2.4.3 and illustrated in the Management Approaches map (Exhibit 2.8).

The Projected Population Growth map (Exhibit 2.6) was used to graphically portray projected population growth in the region. The greatest amount of population increase is projected to occur in the darkest areas on the map, and the lightest areas are projected to receive the least amount of population increase. The map clearly illustrates the projected pattern of growth on the fringes of the existing urban area, spreading growth into previously undeveloped land rather than in areas that are already served by infrastructure, community facilities, and amenities. Open space resources and opportunities that are located in the urban core, in the high growth areas and in the area immediately outside the high growth areas were considered to be more important to the system and a higher priority than resources located in the areas that have little or no projected population increase.

Table 2.1 lists the priority areas and divides them into the following categories:

A. Federally owned, outstanding resource value and near future population growth.

B. Federally owned, outstanding resource value and not near future population growth.

C. Privately owned, outstanding resource value and near future population growth.

D. Various, outstanding resource value, needing rehabilitation.

E. Privately owned, outstanding resource value, and not near future population growth.

All of the areas in category "A" are in the Tonto National Forest except for a portion of the White Tank Mountains which is managed by the Bureau of Land Management. Federal lands in category "B" also include a portion of Sand Tank Wash which is managed by the United States Department of Defense.

The ten areas listed in category "C" represent important open space resources that are close to the urban core and are not in the public domain. The lower portions of Cave Creek and the Union Hills are noteworthy because they are particularly diverse in terms of their physical, biological, cultural and aesthetic characteristics.

Category "D" identifies three resource areas that need to be rehabilitated before they are able to meet their potential to provide recreational amenities and wildlife habitat.

Category "E" includes three outstanding resource areas that are relatively far from the urban core and future population growth. However, it may not be too early to begin efforts to protect these areas before land costs escalate to levels that are similar to lands located closer to existing urban areas.

Table 2.1
UNPROTECTED PRIORITY AREAS
MAG Desert Spaces Plan

#	Resource Area	Mountain	River or Wash	Vegetation	Biologically Important	Visually Important	Cultural Sites	Close to Canals
Federal, Outstanding Resources, Development Pressures								
A1	Upper Verde River		X	X	X		X	
A2	Upper Salt River		X	X	X		X	
A3	Usery Mountains	X		X	X	X		
A4	Upper Cave Creek		X	X	X			
A5	White Tank Mountains	X		X	X	X		
Federal, Outstanding Resources, No Development Pressures								
B1	New River Mountains	X		X	X	X		
B2	Humboldt Mountains	X		X	X		X	
B3	Sycamore Creek		X	X	X			
B4	Sand Tank Wash		X	X	X			
B5	Painted Rock				X		X	
Private, Outstanding Resources, Development Pressures								
C1	McDowell Mountains	X		X	X	X		
C2	Lower Verde River		X	X	X		X	
C3	Apache Peak	X		X	X	X	X	
C4	Lower New River		X	X	X			
C5	Cave Creek		X	X	X		X	
C6	Skunk Creek		X	X	X	X		X
C7	Lower Cave Creek and Union Hills	X	X	X	X	X	X	X
C8	White Tank Mountains	X		X	X	X		
C9	Estrella Mountains	X		X	X	X		
C10	S. Hieroglyphic Mountains	X		X	X	X		
Outstanding Resources, Needing Rehabilitation								
D1	Salt River		X		X		X	X
D2	Aqua Fria River		X		X		X	
D3	Lower Cave Creek		X		X			
Private, Outstanding Resources, No Development Pressures								
E1	Hassayampa River		X	X	X			
E2	Gila River		X		X		X	X
E3	N. Hieroglyphic Mountains	X		X	X			

An "X" indicates the resources that are associated with each Resource Area.

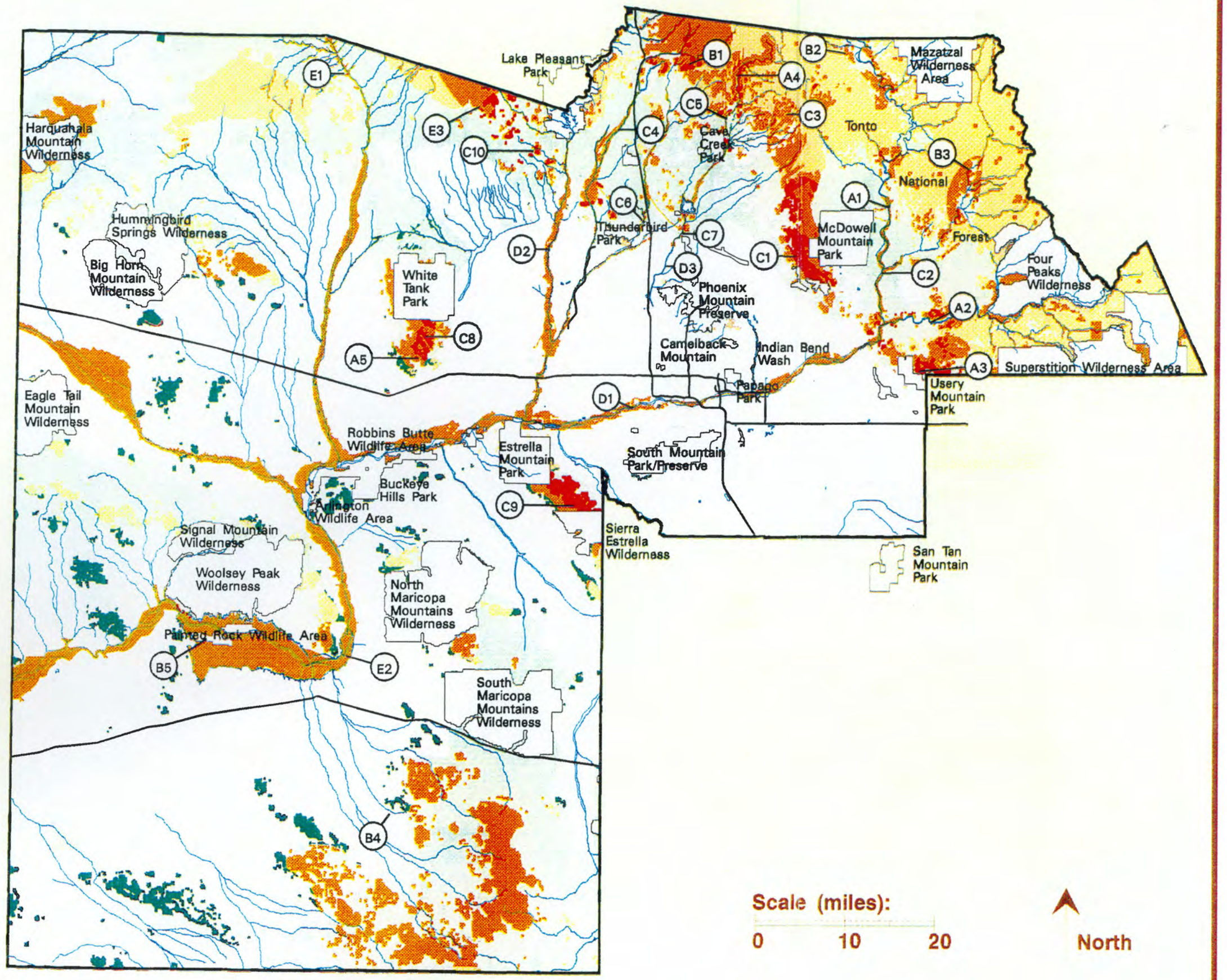
Maricopa Association of Governments

DESERT SPACES PLAN

Maricopa County, Arizona

Exhibit 2.5

UNPROTECTED PRIORITY AREAS



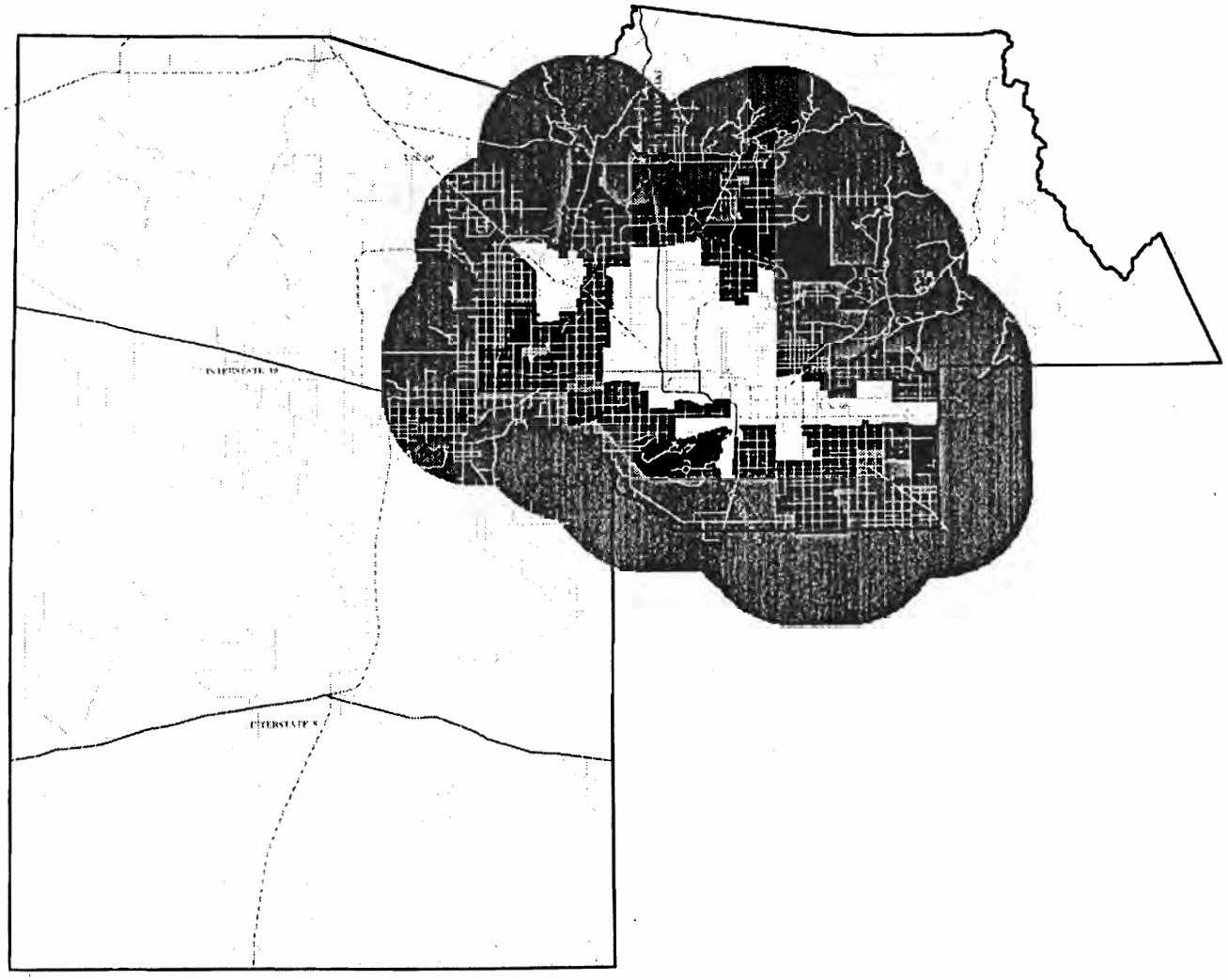
Legend:

Relative Priorities:	Acreage:
Low Priority	1,326,351
	92,914
Medium Priority	430,327
	499,651
High Priority	32,265

Scale (miles): 0 — 10 — 20

North

2/19/96



Maricopa Association of Governments

DESERT SPACES PLAN

Maricopa County, Arizona

Exhibit 2.6

PROJECTED POPULATION GROWTH

- Urbanized Area
- Low Growth Area
- Moderate Growth Area
- High Growth Area

Date: 10/21/94
The GIS analysis of this map was performed by Design Workshop, Inc.

Scale in miles: 0 2 5 10

North

DESIGNWORKSHOP
In association with:

Cornoyer - Hedrick
SWCA Environmental Consultants
Browne, Bortz & Coddington, Inc.
Research Advisory Services
Streich Lang

Exhibit 2.6
Projected Population Growth

The map of Critical Areas Not in Public Domain (Exhibit 2.7) evaluates the priority areas in terms of ownership to show only the critical open space lands that are privately owned or State Trust lands. These areas are highlighted because they are more likely to be developed than land owned or managed by public agencies.

2.4.3 The Management Approach

The Desert Spaces Plan identifies two basic management approaches for protecting priority areas and resources. The approaches address various levels of protection and include private and public lands that are not in danger of development as well as public and private lands that could be developed in the near and long term future.

Definitions

Based on public comment received at meetings and open houses, two basic open space management approaches were determined. These approaches are:

- Conservation - Land areas in this category shall be planned and managed to protect, maintain and enhance the intrinsic value of such lands for recreational, aesthetic and biologic purposes. Public access to these lands should also be protected. Development should be discouraged.

  This Plan recognizes that some State Trust and privately owned land within the Conservation Areas category may be developed unless it is added to the public domain or protected using techniques such as those discussed in Section 3.6. If these lands are ready to develop before they can be acquired or protected, then development shall occur according to Retention Area polices.

- Retention - Land areas in this category shall be planned and managed to allow development if it is sensitive and does not degrade the quality of the open space resources and values. Sensitive development is defined as any land use change that takes place while maintaining the character of the desert landscape and the natural and cultural resources that define that character.

Conservation Areas include all the highest priority public and private open space lands. Retention areas include all lands that have the capability to sustain some types of strictly controlled development without significant loss of scenic, recreational or ecologic value. The Management Approaches map (Exhibit 2.8) defines the management approaches for the region.

The Plan recommends the following policies to ensure the conservation and retention of open space in the region:

Conservation Areas

Policies:

1. **General**: Protect open space resource quality and minimize the impacts of development or land use activities. Conservation Areas that are currently undeveloped should remain nearly pristine and maintained in a nearly natural condition. Conservation Areas that have been altered from their natural condition should be rehabilitated in a manner that is compatible with this objective.

2. **Recreation**: Permit appropriate (minimal interference with natural conditions and processes) levels of recreational use in Conservation Areas while maintaining and/or conserving the integrity and diversity of biological systems.

3. **Scenic Resources:** Maintain scenic quality and the scenic value of open space resources in Conservation Areas. Forms, colors, and textures created by changes in the landscape should not create a high degree of visual contrast with the forms, colors and textures of the surrounding natural landscape.

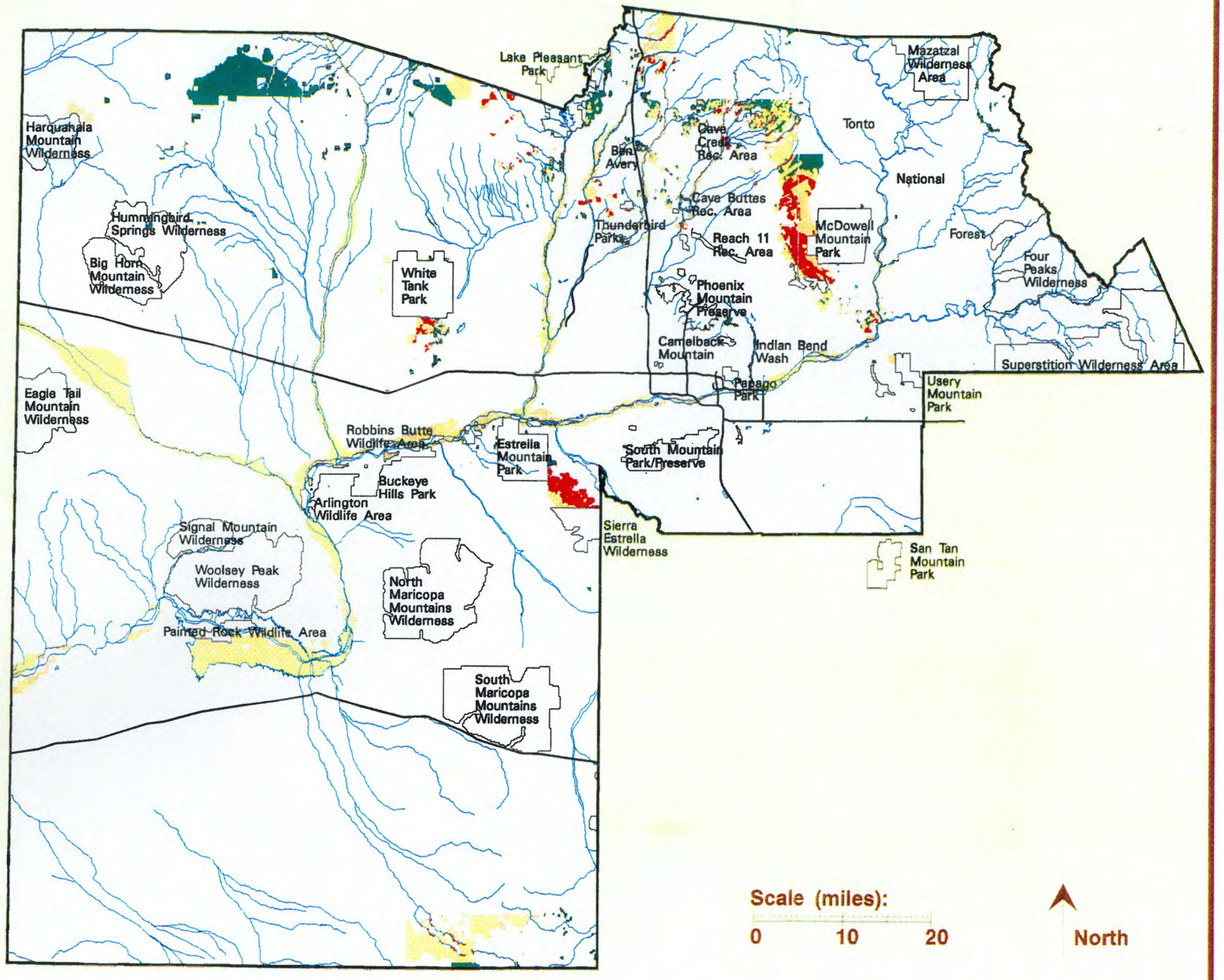
Maricopa Association of Governments

DESERT SPACES PLAN

Maricopa County, Arizona

Exhibit 2.7

CRITICAL AREAS NOT IN PUBLIC DOMAIN



Scale (miles): 0 10 20

North

Legend:

Relative Priorities:	Acreage:
Low Priority	68,948
Medium Priority	251,824
High Priority	20,552

NOTE:

Critical Open Spaces are private lands (including state trust land) with outstanding open space value.

2/19/96

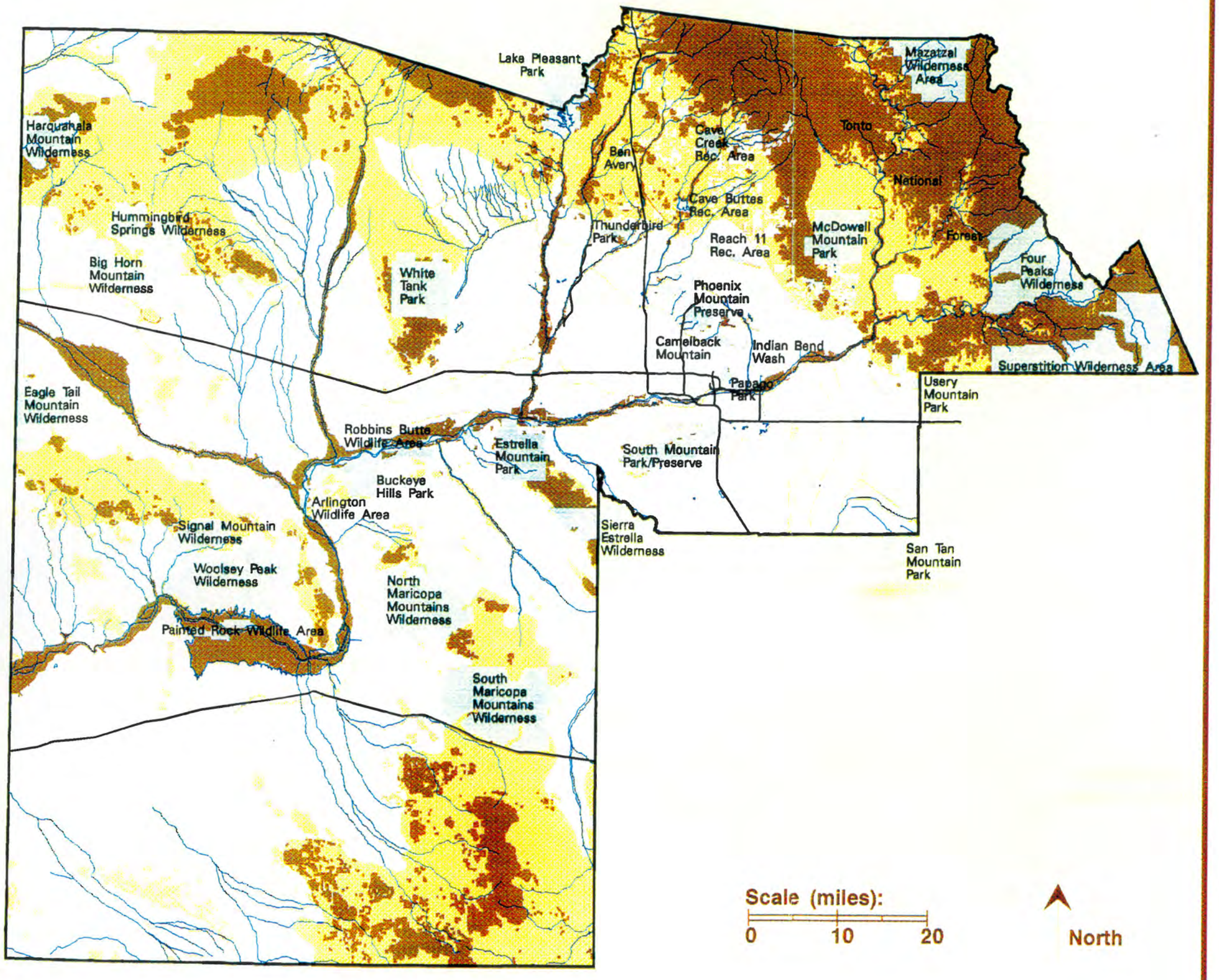
Maricopa Association of Governments

DESERT SPACES PLAN

Maricopa County, Arizona

Exhibit 2.8

MANAGEMENT APPROACHES



Scale (miles): 0 — 10 — 20

North

Legend:

Conservation Areas: 962,244 acres

Public and Private Lands with outstanding open space value. Recommended for protection from development and its effects through policy amendment, easements, restrictions, and/or acquisition.

Retention Areas: 1,419,265 acres

Public and Private Lands with high open space value. Recommended for sensitive development regulation.

Secured Open Space: 645,798 acres

Designated Parks, Wilderness, and Wildlife Areas.

2/19/96

4. **Vegetation/Wildlife Habitat:** Maintain and enhance existing and potential wildlife habitat. Species diversity as well as the overall population of wildlife should not be reduced. Properly manage grazing in areas with high wildlife value.

5. **Rivers and Washes:** Protect the free flow (unchannelized) of major rivers, washes and other natural drainage features. In urbanized areas, maintain the character of rivers and washes to the greatest extent possible while protecting surrounding areas from flooding. Leave effective buffers between development and all washes. Protect public access along all edges formed by major mountain ranges, floodways and parks and preserves.

6. **Urbanized Area Rivers and Washes:** Encourage repair and enhancement of the Salt River, Agua Fria, New River, Skunk Creek and Cave Creek flood plains that are void of viable native plant communities and native wildlife habitat. Develop an appropriate balance between recreational opportunities and wildlife habitat (recognizing that both cannot always be realized simultaneously). Work with sand and gravel mining operations to develop and implement a comprehensive reclamation plan for the above-mentioned flood plains.

7. **Cultural Resources:** Protect and conserve landmarks; historical places, structures and artifacts; archaeological sites; and significant locations of petroglyphs, and other use areas that provide a sense of history.

8. **Access:** Develop a regional system of multi-use trails to accommodate public use and enjoyment of Conservation Areas while minimizing negative impacts of such use on natural and cultural resources.

9. **Land Trades:** Cooperate with the U.S. Forest Service, Bureau of Land Management, and the State Land Trust to ensure retention of open space values and recreational opportunities, and to promote land exchanges beneficial to the goal of setting aside land for conservation purposes.

10. **Land Leases:** Encourage land leases and management to promote open space values.

11. **Project Review:** Encourage review of projects occurring in Conservation Areas by appropriate agencies/organizations throughout the planning phases.

Retention Areas

Policies:

1. **General:** Only allow development that retains the integrity of and public access to regionally and locally significant natural features, wildlife habitats, scenic resources and cultural sites. Ensure that protection of natural and cultural resources is integral to the project and that low impact construction technology is used during all phases of the development process - from initiation through site restoration.

2. **Sonoran Desert Vegetation:** Only permit the use of indigenous and compatible materials and plants and avoid the use of plants which are known to be invasive to indigenous vegetation. Develop programs and policies that will encourage property owners to leave significant areas of sensitive lands in their natural state. Prohibit livestock grazing in areas with high wildlife value such as upland Sonoran Desert vegetation. Discourage "mass grading" of parcels in favor of cluster housing or low densities that allow buildings, walls and fences within an "envelope" while the remaining portion of the lot is left undisturbed.

3. **Wildlife Habitat:** Recognize that many animal species are essential components of healthy ecosystems; conserve their existing habitat; recreate habitat where it has been destroyed and provide new habitats where appropriate.

4. **Cultural Resources:** Protect and conserve resources that give a sense of history such as landmarks; historical places, structures and artifacts; archaeological sites; and significant locations of petroglyphs, and other use areas.

5. **Rivers and Washes:** Retain the natural character of and public access to regionally significant rivers and washes.

6. **Scenic Resources:** Prohibit development that disturbs ridge and crest line or otherwise degrades the scenic integrity of visually sensitive (seen by large numbers of people from close range) mountains and washes.

7. **Resource Rehabilitation:** Rehabilitate natural and cultural resource areas that are in proximity to downtown areas and other population centers. Encourage infill development to revegetate rivers, floodways and washes, make pedestrian connections and accommodate public access.

8. **Project Review:** Evaluate the social, economic and environmental impacts of extending roads and utilities into undeveloped areas and the subsequent demand for publicly accessible open space resources and recreational opportunities. Only permit infrastructure to extend into undeveloped areas pursuant to local and regional land use and open space plans that protect critical private lands as identified in this plan.

9. **Project Review:** Encourage review of projects occurring in Retention areas by appropriate agencies/organizations throughout planning activities.

Undesignated Areas

The areas where regionally significant open space resources do not occur are the most suitable for development. These areas should be encouraged to accommodate future growth as an additional means of protecting the resources in the Retention and Conservation Areas.

Policies:

1. Encourage and promote infill development and redevelopment. Encourage development to locate within close proximity to existing infrastructure and population.

2. Acquire or seek private sector dedication of adequate land for ballfields, sport courts and other forms of "active" recreation. Encourage public/private partnerships that develop inner city recreation areas.

3. Create localized systems of open space linkages to the regional open space system along canals, sidewalks, trails, paths, and washes.

4. Restore and reclaim degraded locally significant ecosystems as part of the development process.

5. Promote community-based revegetation projects.

2.4.4 The Desert Spaces Plan

The Management Approaches Public and Private Areas map (Exhibit 2.9) and the Urbanized Areas map (Exhibit 2.10) synthesize information on land ownership, the location of priority areas, and open space management objectives. Conservation Area management objectives are recommended for critical and outstanding privately owned lands and for the critical and outstanding publicly owned lands. Retention area management objectives are recommended for the environmentally sensitive public and private lands. Open space resources are divided into five categories based upon management objectives and ownership.

Maricopa Association of Governments

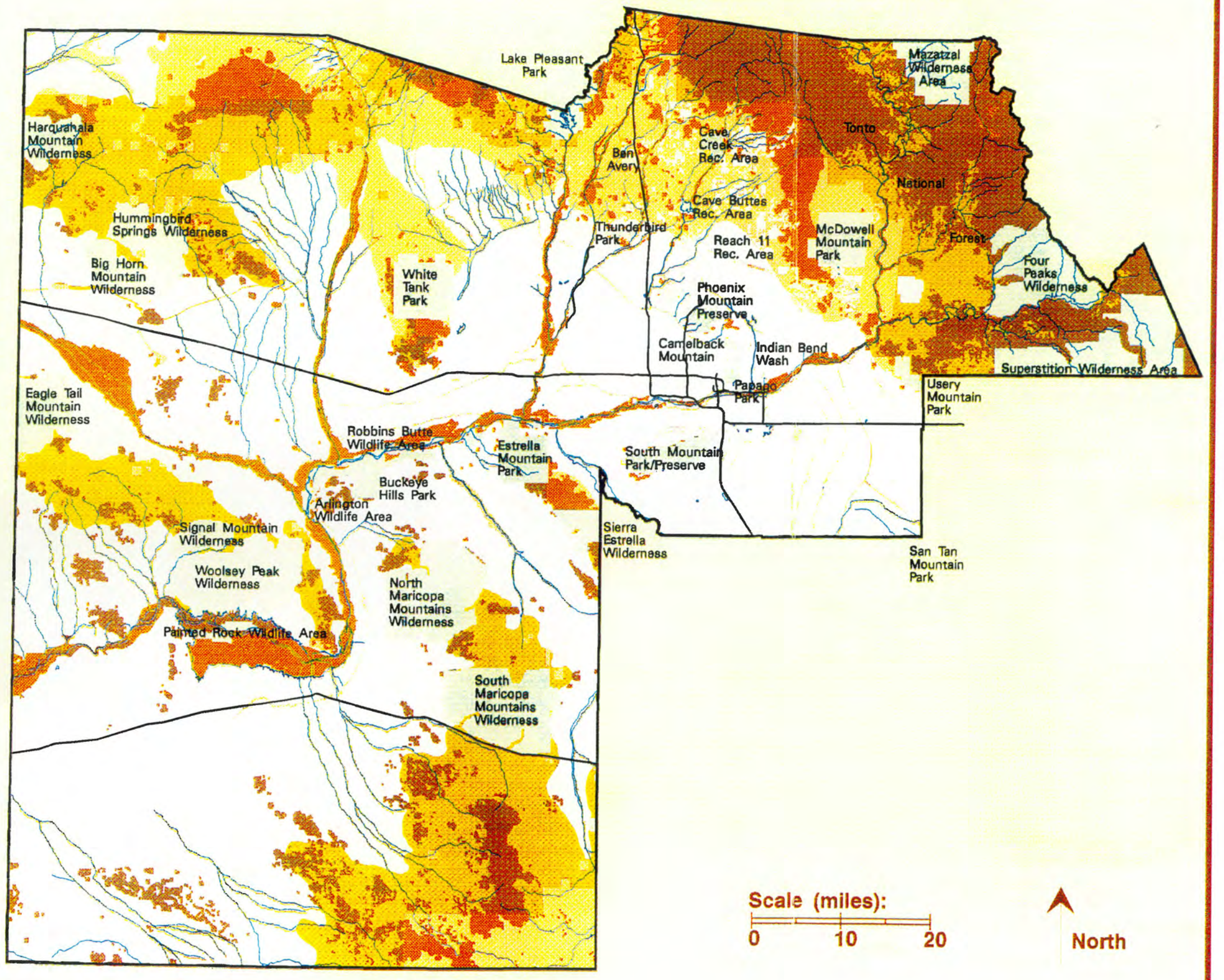
DESERT SPACES PLAN

Maricopa County, Arizona

Exhibit 2.9

MANAGEMENT APPROACHES

PUBLIC AND PRIVATE AREAS



Legend:

- Privately Owned Conservation Areas: 350,314 acres
  Private lands with outstanding open space value. Recommended for management as Conservation Area.
- Privately Owned Retention Areas: 566,643 acres
  Private lands with high open space value and highest priority for management as Retention Area.
- Publicly Owned Conservation Areas: 704,511 acres
  Public lands with outstanding open space value. Recommended for management as Conservation Area.
- Publicly Owned Retention Areas: 759,100 acres
  Public lands with high open space value. Recommended for management as Retention Area.
- Secured Open Space: 645,798 acres
  Designated Parks, Wilderness, and Wildlife Areas.

2/19/96

Maricopa Association of Governments

DESERT SPACES PLAN

Maricopa County, Arizona

Exhibit 2.10

MANAGEMENT APPROACHES

PUBLIC AND PRIVATE AREAS

(URBANIZED AREA)

Municipal Planning Area Boundaries

Legend:

Privately Owned Conservation Areas:

Private lands with outstanding open space value. Recommended for management as Conservation Area.

Privately Owned Retention Areas:

Private lands with high open space value and highest priority for management as Retention Area.

Publicly Owned Conservation Areas:

Public lands with outstanding open space value. Recommended for management as Conservation Area.

Publicly Owned Retention Areas:

Public lands with high open space value. Recommended for management as Retention Area.

Secured Open Space:

Designated Parks, Wilderness, and Wildlife Areas.

2/19/96

WICKENBURG
Lake Pleasant Park
Tonto National Forest
CAVE CREEK
Cave Creek Rec. Area
CAREFREE
Ben Avery
Cave Buttes Rec. Area
PEORIA
Thunderbird Park
McDowell Mountain Park
SURPRISE
White Tank Park
FOUNTAIN HILLS
Phoenix Mountain Preserve
SCOTTSDALE
PARADISE VALLEY
Camelback Mountain
Indian Bend Wash
GLENDALE
PHOENIX
AVONDALE
Usery Mountain Park
Papago Park
GOODYEAR
MESA
BUCKEYE
TEMPE
Robbins Butte Wildlife Area
Estrella Mountain Park
South Mountain Park/Preserve
GILBERT
Buckeye Hills Park
GILA RIVER INDIAN COMMUNITY
Arlington Wildlife Area
CHANDLER
QUEEN CREEK
Sierra Estrella Wilderness
North Maricopa Mountains Wilderness
San Tan Mountain Park

Scale (miles): 0 5 10

North

2.5 BENEFITS OF THE DESERT SPACES PLAN

Implementation of the plan provides regional environmental, economic, social, educational, and recreational benefits. Some benefits may be immediate, while others may occur with time. They are not always easy to quantify, but they can strongly influence the lives of present and future generations.

2.5.1 Environmental

Establishing an open space system incorporates environmental benefits and provides healthier living for county residents. The direct benefits of richly vegetated, including xeroriparian, open spaces include improved water quality and quantity, as well as healthy wildlife habitat.

Water

One of the most precious commodities in a desert environment is water — both its quality and quantity. In the developed areas of the region, storm water is predominantly piped underground or diverted into drainage structures. An alternative to these constructed landscapes is provided by this open space plan. A primary concept is to retain the existing pattern of rivers and washes and use the corridors as part of the open space system. In addition, appropriately designed on-site water drainage and retention can supply water to plant and animal life, and at the same time decrease the demand on the municipal disposal services. Recycling surface water at detention and retention basins improves water quality as well as recharges the aquifer. The plan protects natural areas which filter and clean the water passing through them in rivers and washes. Conservation of our water can ensure clean and safe supplies and protect downstream water quality. All these efforts make the urban environment more habitable for humans and wildlife.

Wildlife

In the desert environment, habitats along rivers, washes and wetlands are home to a greater diversity of wildlife than any other habitat type. A benefit of the plan is the provision for bringing wildlife habitat areas into the urbanized areas. The plan recommends retention of existing habitat areas identified by the biological informants on the inventory maps, as well as retention of potential areas for wildlife habitats that have been identified using existing maps of vegetation type and surface drainage features. These wildlife corridors can sometimes also function as paths for pedestrians and bicyclists to link open space areas.

Air Quality

Open space improves air quality by maintaining native vegetation that reduces the temperature of air reflected off the earth's surface when compared to the temperature of the air reflected from pavement and rooftops. This helps keep heat islands from forming in urban areas. Open space vegetation produces oxygen, absorbs carbon dioxide, and filters particulates.

2.5.2 Economic

The benefit of an open space system on the economy must not be underestimated. Retention of the regionally significant resources preserves the amenities that both residents and tourists seek. The mountain view in many parts of the region, is a million-dollar view, enhancing property values and attracting new homeowners and businesses. A study of property values near greenbelts in Boulder, Colorado, noted that, other variables being equal, the average value of property adjacent to the greenbelt would be 32 percent higher than those 3,200 feet away (Correll, Lillydahl, and Singell, 1978).

Tourism is one of the region's primary industries, and the mountain views and upper Sonoran Desert environment are also the attraction for visitors to the area. San Antonio Riverwalk is considered the anchor of the tourism industry in San Antonio, Texas. Tourism is the second largest economic sector in the city, accounting for $1.2 billion annually. An auto survey concluded that the Riverwalk is the second most important tourist attraction in the state of Texas (R. Hurd, San Antonio Department of Parks and Recreation). The plan recommends that open space be integrated with development to preserve natural features and provide for economic growth.

Productive uses of open space, such as agriculture, provide economic benefits through the production, processing, transport and sale of farm products. Plant nurseries and tree farms are other examples of productive open space.

2.5.3 Social

The affect of the Sonoran Desert environment and mountains on the quality of life is great. There is a physical and psychological connection to the natural environment that people seek in their lives. The plan fulfills the social need to provide access to open space areas. It includes park and recreation areas, trail systems, botanical and interpretive centers, and greenways and greenbelts that link open space areas and communities. The plan promotes retention of open space whose primary value is cultural or aesthetic, such as archaeological sites and scenic views. Thus, the preservation sites designated in the plan have the potential to add to the quality of life for residents in the region.

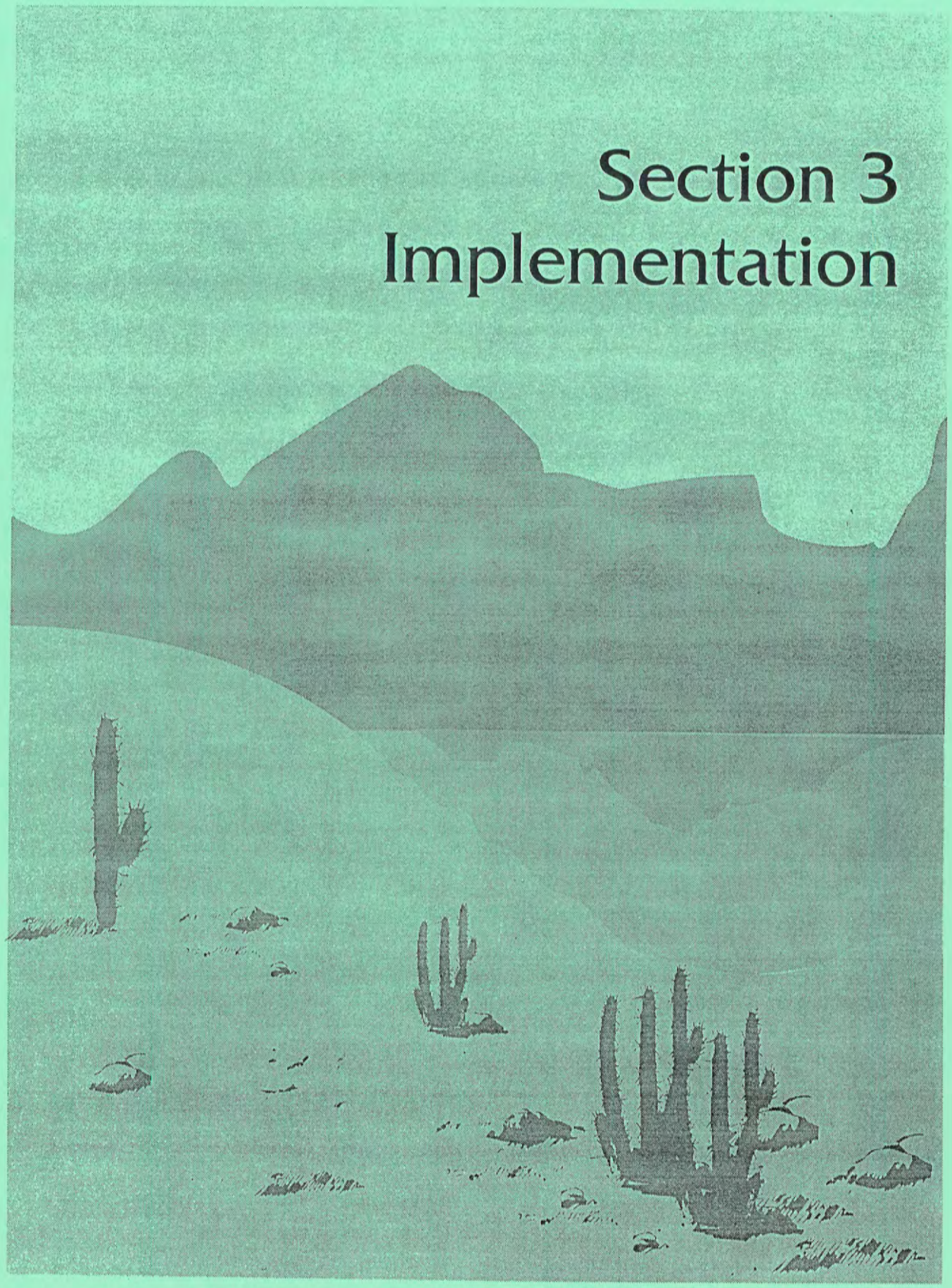
2.5.4 Educational

The diversity and richness of educational opportunities present in the region is astounding. The plan recommends retention and preservation of these qualities. Regardless of size, the regionally significant resources are dependent not only on their own interactions, but on their connections to the surrounding landscape. Learning about these areas can be an unending source of wonder and discovery for people of all ages. The plan provides open space areas in urban areas to increase awareness of the natural environment in the built environment. A healthy environment can only be achieved when open space programs, such as this one, play an integral part in educating the public about the intricate balances of the natural world.

2.5.5 Recreational

Providing open space which serves the passive and active recreational needs of the region's population is a benefit of the plan. Use of existing County Parks and Mountain Preserves in conjunction with natural environment areas (i.e., mountains, foothills and rivers) supports recreational needs. Corridors along rivers, streams, and washes provide for passive recreation activities. The plan recommends creation of a network of trails, bikeways, and pathways which connect origin points, such as regional parks, to major destination areas. Furthermore, the plan encourages the use of scenic viewpoints at trail heads and along major transportation corridors. To encourage multiple use of facilities, the plan recommends that active recreational facilities be developed in conjunction with other public facilities, such as schools, and retention basins and that flood control areas be utilized for passive recreation.

Section 3
Implementation



3.1 INTRODUCTION

Certain public policies have the power to fundamentally influence the nature of development and improve quality of life for citizens. The implementation of the **Desert Spaces Plan** could be one such powerful, public policy action. As summarized in Table 3.1 (below), the citizens and local governments of Maricopa County can reap substantial benefits from effectively implementing Desert Spaces. Without regional open space planning however, citizens and local governments will most likely experience a less desirable future.

Table 3.1
The Future of Open Space in Maricopa County

With Regional Planning	Without Regional Planning
Interconnected System	"Island" Preserves
Integrated Trails	Dead-end Trails
Wildlife Corridors	Low biodiversity
Convenient Access & Egress	Limited Access
Enhanced Property Values	Stagnant Tax Base
Floodplain Management	Flood Hazards
Viewshed Management	Obscured Views
Multiple Recreation Uses	Narrow constituency
Well Maintained & Policed	Rundown & Unsafe
A Regional "Signature"	Indistinguishable Development
Interpretive Opportunities	Unique History & Habitat Lost

In order to realize the benefits in the first column of Table 3.1 and at the same time prevent the occurrence of the second column, the Desert Spaces Plan identifies a regional system of open space which incorporates lands within governmental jurisdictions in the region. The primary means of implementing the Plan is increased cooperation and coordination among local, State and Federal jurisdictions to meet common objectives. The principal objectives of the Plan relate to protecting regionally significant land for open space, parks, passive recreation, wildlife and environmental protection, and visual purposes and providing a system of interconnected trails between communities and the open space resources. Since many of these resources, such as rivers, washes and mountains, cut across local boundaries, effective protection requires cooperation between adjacent communities to meet shared objectives. Where there are gaps in this system, all communities are affected.

Monitoring the implementation of open space management policies is an issue, whichever governance approach is eventually selected. The following are recommended as a means of monitoring implementation of the plan:

MAG or each member agency would inventory and map land cover/land use. Quantify various vegetation types, drainage patterns, land use types, roads, area served by utilities, zoning, general plan designations, etc., according to a standard methodology.

- Each member agency should be required to update inventory and indicate changes on a regular basis. An annual report should summarize the loss/gain of public access, desert vegetation, wildlife habitat, cultural resources, natural rivers and washes, scenic areas.
- Case studies should be evaluated. Successes and failures should be shared among member agencies. Evaluation criteria should include: visual impacts, impact on drainage patterns/runoff, impact on wildlife, impact on recreation and trails. Economic impacts should also be evaluated.
- Information sharing on topics such as new ordinances, funding strategies, educational efforts, voluntary efforts, etc., should take place.
- The development community should be made a part of the process as most people want to encourage quality development and realize that stopping development is not a viable option.

This portion of the regional open space plan contains six sections. Section 3.2 summarizes interviews conducted with representatives of entities which participated in developing the plan.

Sections 3.3, 3.4, and 3.5 present a "menu of options" for governing, financing and protecting the open space network respectively. Finally, Section 3.6 sets forth several consensus next steps in implementing the Plan.

3.2 INTERVIEW SUMMARIES

In order to ensure that this implementation section of the Desert Spaces Plan was sensitive to the concerns of the many participating entities, interviews were conducted with agency representatives:

Certain themes were reiterated in the course of these interviews:

- **Menu of Options:** Every interviewee asserted that the appropriate role of this regional open space plan was to present a "menu of options" for implementation rather than embrace one particular model for implementation. It was felt that there must be extensive elected official, civil servant and citizen deliberation about this menu before the final decisions regarding governance, financing and open space protection techniques are made. In light of this theme, subsections 4, 5 and 6 are presented as menus of options.

- **Public Climate:** Many interviewees asserted that the current public climate for regional program management, and especially regional funding is uncertain. There is widespread belief that recent controversies regarding highway and baseball stadium construction have left the public skeptical of new public sector ventures. This conclusion reinforces the above theme about extensive deliberation, and leads in well to the following theme.

- **Citizen Participation:** Many interviewees emphasized the need for strong citizen participation at every step in implementing the regional open space plan. For example, management approaches to the mountains, large river valleys, streams, intermittent drainages, Sonoran desert, wildlife habitat areas and corridors, and scenic vistas might be described and illustrated with cross sections of these areas which describe before and after implications of the management system. The objective is to create a number of images of the benefits of the open land system so that people can better understand the impact of such a system. Some interviewees discussed the need for MAG and or others to build a public constituency for the plan (e.g., Friends of the Desert Spaces Plan etc.). Others advocated the formation of a Citizens Advisory Committee (CAC) to monitor, or perhaps direct, the Plan's implementation. Proponents of citizen participation claim it might off-set perceived existing public skepticism (see above) about both regional program management and regional funding.

- **Local Control:** The participating entities realize that the Plan's current maps do not identify the "hard lines" of specific parcels within the designated open space areas. It was widely felt that this role should be reserved for the various participating entities at this time, unless they willingly lend it to MAG or an elected, regional authority. The political and real estate market ramifications of identifying parcels are potentially so significant that extreme caution should be exercised.

- **Information Sharing:** When asked about the appropriate role of a regional agency in implementing the Plan, many interviewees cited the importance of sharing information about funding opportunities, new open space protection techniques, land swap opportunities, progress of participating entities etc. This "sharing" might be conducted in a variety of innovative ways such as newsletters, public access cable, information kiosks and on-line bulletin boards in addition to the traditional town meeting format.

- **Land Exchanges:** There is widespread agreement that the land exchange practices of the U.S. Forest Service, BLM, other Federal agencies and perhaps the Arizona State Lands Trust (depending on election results) are critical to the successful implementation of the Plan. These practices must be understood, influenced, and utilized to fill gaps in the open space system when acquisition and land use regulation are not sufficient.

- **Security and Maintenance:** There is widespread recognition on the part of the interviewees and their agencies that open space expenditures do not stop with acquisition. The participating entities have a great deal of insight regarding the ongoing expenditures necessitated by a growing open space system. Although trail and access/egress maintenance is important, there is even more concern about the need for adequate security. Especially in urban areas of Maricopa County, interviewees would like to see regular law enforcement patrols in the open space network.

- **Non-Acquisition Strategies:** Acquisition of open space parcels by the public sector is not the only implementation option favored by the interviewees. There is also widespread interest in and support for less expensive and intrusive protection techniques. In light of this, Subsection 6 includes brief discussions of many regulatory land use strategies.

- **Need to Provide Connections to Urban Area Open Space:** Providing access to the system to the widest segment of the regional population was also important to interviewees.

The above themes are important, and should be prominently considered as MAG and the participating entities begin to implement the Desert Spaces Plan.

3.3 GOVERNANCE

Generally, regional open space systems are managed by a single entity such as Boulder's Open Space Board of Trustees and all the other regional entities identified in the beginning of this subsection. These entities are appointed or elected, and rely on the public for approval of funds for the system and are responsible to it for managing the system.

In the case of governing the Desert Spaces Plan, Federal, State, and local governments have a stake in the successful implementation of the plan. Consequently, implementation of the Desert Spaces Plan requires considerable intergovernmental coordination among the diverse parties at interest. A desirable governance system for implementing the plan would provide for:

- Coordinated planning and phasing of open space system expansion.

- Flexible regulatory authority.

- Clear delineation of financial responsibilities.

- Adequate and ongoing open space system maintenance using, but not limited to, any of the acquisition and maintenance funding sources listed in Table 3.3.

- Coordinated expenditures and potential involvement with financing and fund raising.

- Resolution of disputes between the various interests in the system, including Federal agencies, State agencies, local governments and local land owners.

- Efficient use of existing staff and administrative systems.

- Responsiveness to the users.

- Management agreements with the Maricopa County Flood Control District for lands which are under their jurisdiction.

During the course of interviews with representatives of the participating entities, it was widely acknowledged that practicality and political acceptability were of paramount importance. A functioning but imperfect governance system is acceptable; theoretical purity at the expense of practicality is less desirable.

The following four arrangements are an introduction to governing the implementation of the open space plan. They are certainly not the only alternatives; however, they a) appear the most likely, b) were mentioned most frequently by interviewees, and c) are useful in illustrating the spectrum of alternatives.

Arrangement 1: Special District with Elected Board

The Arizona Legislature has in the past created statutory authority for the formation of multijurisdictional districts with responsibility for financing and administering regional infrastructure (e.g., flood control districts). If the legislature granted similar authority for regional open space districts, such an entity in Maricopa County could span municipal boundaries and be run by elected representatives from within that district. These representatives would presumably speak for both development and conservation interests. The district could perhaps assess a mill levy and other fees to help finance land acquisition and ongoing system maintenance. It might also be granted the power of condemnation. Depending on the specific enabling legislation, this open space district would either own and manage open space in its own name or contract that authority to participating entity.

Arrangement 2: Master Intergovernmental Agreement (IGA) With Board Composed of Participant Representatives

Local governments nationwide and in Arizona have initiated intergovernmental agreements (IGAs) for a variety of land development issues. Sometimes the term "memorandum of understanding" (MOU) is used interchangeably with IGA; at other times, it implies a less formal arrangement. The various Federal and State agencies, and local governments involved in open space issues in Maricopa County could establish one master IGA dealing with the governance of the Desert Spaces Plan. Although IGAs typically have no established enforcement mechanism, the various jurisdictions could choose to establish a governing board as part of the agreement. Citizen and developer representatives, as well as council members and civil servants, could certainly be included in this board. The master IGA arrangement allows for greater local autonomy than the above special district (because control is not completely delegated to a newly elected board), but thus may not create an authority with sufficient power to implement the open space plan and resolve the myriad of remaining issues. Enforcement of the IGA, particularly if the Federal government is one party, is an issue. Establishment of an administrative authority is also an issue.

In the case of the Desert Spaces Plan, a master IGA (arrangement #2) or a decentralized series of IGAs (Arrangement #3) could encompass a wide variety of issues. For example, the various signatories could agree to:

- ψ Contribute specified funds towards open space acquisition and/or maintenance.
- ψ Purchase specified parcels in an agreed upon sequence.
- ψ Assume responsibility for improving, maintaining and/or policing open space parcels contiguous to their boundaries.
- ψ Connect currently misaligned trails.
- ψ Enact identical, or at least compatible, land use regulations.
- ψ Solicit public input through a series of public hearings.
- ψ Meet regularly to discuss progress in implementing the Desert Spaces Plan.
- ψ Set up an appeals process for private landowners whose land values have been adversely affected by open space acquisitions or regulations.
- ψ Appoint a study commission to identify and evaluate long-term funding mechanisms.
- ψ Draft a unified "position paper" on Federal land swaps and forward it to BLM and the Forest Service.
- ψ Assume responsibility for improving road access and parking lots at trail access and egress points.

In theory, the scope of intergovernmental agreements is limited only by the authority of its respective signatories. In practice, however, the scope of IGAs can be severely limited by disagreements over content among the signatories.

Arrangement 3: Decentralized Series of IGAs

This governance alternative would call for multiple IGAs; e.g., one between every jurisdiction in Maricopa County which shared a boundary that was transversed by land designated as open space in the regional plan. This multiplicity of IGAs would maximize local autonomy due to the complete absence of centralized authority. Rather, each trail connection, common security and maintenance policy, access and egress point etc. would be considered on an ad-hoc basis. This lack of a regional authority, however, raises concerns about adequate implementation of the entirety of the open space plan. This scenario could incorporate a variety of roles for MAG.

Arrangement 4: MAG Oversight With Participant Advisory Board

This governance arrangement would charge MAG with overall responsibility for implementing the regional open space plan. MAG hypothetically could be the "banker," scheduler of system expansion, and arbiter of disputes. MAG might draw upon a participant advisory board appointed by the various jurisdictions. As above, citizen and developer representatives could certainly be included in this board.

The appropriate role of MAG in the above governance arrangements ranges from staff and/or passive support to decision-maker and/or active participant. The one MAG role which seems to fit in every arrangement, however, is information disseminator (see Subsection 2, under References).

All of the above governance arrangements will require financial and administrative support from Maricopa County's community of non-profit organizations interested in open space preservation. Local land trusts, and local chapters of the Nature Conservancy, American Farmland Trust and the Trust for Public Land should be identified and contacted. In addition, opportunities to work with volunteer and civic groups should be emphasized for such activities as clean-ups, tree planting, interpretation, and junior ranger/youth programs.

In order to evaluate each of the above governance arrangements, four key questions were asked about each arrangement:

- ψ How would open space system expansion occur?[1]
- ψ How could funds for acquisition and maintenance be raised and managed?[2]
- ψ How would disputes be arbitrated?
- ψ Is the option acceptable to elected officials, developers and citizens?

No one of the four governance arrangements is put forth as the recommended model. In fact, it is likely that any arrangement will be modified after public review. MAG, the participating entities and citizens are only at the beginning of the screening process regarding these and other arrangements. The final outcome will be more influenced by the practical constraints of timing, the pace of development, political feasibility and financial feasibility than by the theoretical constructs discussed in this section.

3.3.1 Arrangement 1: Special District

How would system expansion occur? Although individual jurisdictions would still have a role in land use regulation and perhaps infill acquisition, the elected board of the special district would deliberate and prioritize parcels for acquisition or easements. The board's charge would be to implement the Desert Spaces plan as quickly, inexpensively, efficiently and sensitively (to citizens, developers and local governments) as possible. A potential MAG role would be as professional staff for the elected board.

[1] This question addresses the process of system expansion, not the technique (e.g., acquisition vs. regulation, etc.). A variety of potential techniques are profiled in Section 3.5.

[2] Federal and State grants are sources of funds for open space acquisition and/or maintenance that apply across all governance schemes. Several interviewees even felt that it would be worthwhile for MAG to employ a full-time grant writer to that end.

How could funds be raised and managed? One of the benefits of a regional authority is a concomitant regional funding source. If an interconnected system of open space is an amenity for all residents of Maricopa County, it follows that all should help pay for it. The individual financial condition of local governments should not affect the pace nor comprehensives of the system. The next subsection discusses a variety of financing techniques.

How would disputes be arbitrated? Disputes over funding might be reduced because the district would have independent fund-raising authority. Disputes over system expansion might be reduced because the district would have independent land ownership authority (or contracting ability). Nevertheless, when funding or phasing disputes did arise, the district's elected board would be the final authority.

3.3.2 Arrangement 2: Master IGA

How would system expansion occur? A Master IGA would require the various signatories to first identify their timetable and priorities for implementation. However, the governing board could be empowered to modify the initial plan as development pressure changed or funding became available.

How could funds be raised and managed? Like a decentralized series of IGAs (see below), the Master IGA would probably not specify how each jurisdiction would raise funds to pay for its share of open space acquisition and/or maintenance. However, the governing board would be a forum to pressure jurisdictions that were not meeting their obligations. The next subsection discusses a variety of potential financing techniques.

How would disputes be arbitrated? Before the Master IGA is ratified by the various signatories, disputes will be inevitable and even welcome as the participating entities weigh the merits of acquiring and/or improving a particular parcel. Once the agreement is signed, there would be no inherent dispute resolution mechanism unless one was stipulated in the agreement. As above, the governing board could be vested with this authority.

3.3.3 Arrangement 3: Decentralized IGAs

How would system expansion occur? Because a series of decentralized IGAs would create no regional authority, the jurisdictions would independently determine the exact parcels to be included in the open space system. Furthermore, for every IGA, the jurisdictions would have to mutually agree about trail connections, maintenance, security, access and egress, acquisition versus easement versus regulation etc. Although this type of advance planning is possible, it places a large burden on the planning and park staff at each jurisdiction. Some potential points of dispute will undoubtedly be overlooked. These problems, combined with the lack of a centralized authority, suggests that the IGAs might have to be amended often -- maybe even continuously. One alternative is to have a regional authority as a signatory to all the IGAs and its staff available to help arbitrate disputes.

How could funds be raised and managed? If the various jurisdictions chose to enter into separate IGAs to maximize local autonomy, those agreements would probably not detract from autonomy by detailing how each jurisdiction would raise its share of the required acquisition and/or maintenance funds. Consequently, the signatories would likely have wide discretion in how to raise funds. The next subsection discusses a variety of financing techniques.

How would disputes be arbitrated? Conflict resolution is a major weakness of this arrangement. Unless the IGAs initially stipulate an arbitration procedure, the various jurisdictions could fail to perform without fear of recourse. Nationally, many jurisdictions have signed and then ignored IGAs when new political or financial constraints arise.

3.3.4 Arrangement 4: MAG Oversight

How would system expansion occur? As in the two IGA-based arrangements, each jurisdiction would still express opinions about the timing and phasing of the open space system. If funds were controlled by one agency or jurisdiction, however, its decision making authority could be pre-eminent. The jurisdictions would still have a voice through the advisory committee and Regional Council.

How could funds be raised and managed? As in Arrangement #1, one of the benefits of a regional authority is a concomitant regional funding source. As the system's "banker," it could collect revenue directly from the citizens and businesses of Maricopa County or from "dues" paid by the participating entities. Each jurisdiction would then be responsible for paying its dues with whatever revenue source it deemed appropriate. The next subsection discusses a variety of financing techniques compatible with either approach.

How would disputes be arbitrated? As in Arrangement #1, disputes over funding might be reduced if one agency had independent fund-raising authority. Disputes over system expansion might be reduced if independent land ownership authority (or contracting ability) was vested with a regional organization. Nevertheless, when funding or phasing disputes did arise, decision-makers (with input from the advisory board) would be the final authority.

Finally, no matter what governance arrangement is eventually selected, dealing with Federal agencies will present unique opportunities and constraints. The opportunities will arise from these agencies' substantial inventory of land compatible with open space uses, and their level of interest and capacity to work with State and local jurisdictions. These lands consist of lands that are already within federal agency jurisdiction and include Forest Service, BLM and Air Force lands.

Constraints will arise due to land exchange policies and because Federal agencies cannot constitutionally be under the authority of local governments, and sometimes cannot even enter into IGAs or Memorandum of Understanding (MOU). While these lands are currently within Federal ownership, this does not mean that necessarily they will remain within Federal ownership or that they will be managed in a fashion to meet the objectives of this plan. The governance approach which may be necessary for these areas is the development of a Cooperative Management System (CMS). The typical elements of the CMS are the following:

- ψ Coordination in the development of land management objectives and plans.
- ψ Identification of agency and MAG contacts for conflict resolution and a process for resolving conflicts.
- ψ Coordination of land exchange policies and initiation of Land Ownership Adjustment (LOA) process in certain areas to create a desirable and predictable public boundary.
- ψ Initiate actions to create the regional trails system and to identify the trails design, funding and maintenance responsibilities of the various public entities.
- ψ Identify joint funding opportunities for common projects.

The Federal Land Management Policy act and numerous other Federal laws regulates how the BLM and Forest Service manage their lands and how they make decisions. Also, the National Environmental Policy Act (NEPA) mandates involvement from the public and interested parties in Federal decisions. All of the elements of the CMS listed above are currently available through existing law and regulations. Whatever governance arrangement is chosen will simply have to access these provisions.

3.4 FUNDING

This section summarizes the array of revenue sources that are or might be available to finance the acquisition and/or maintenance of open space in accordance with Desert Spaces Plan. Depending on which governance arrangement is chosen (see Subsection 3.4), these revenue sources may be implemented regionally or locally.

Fifteen local revenue sources are listed in Table 3.2 below and reviewed within this text. Each is defined, and its incidence discussed. Other more exotic revenue sources were identified during interviews but considered less viable than the items on this list.

Table 3.2
Potential Revenue Sources by Category

General Purpose Taxes:	Property Taxes Sales and Use Taxes Specialty Taxes
Excise Taxes:	Real Estate Transfer Taxes Lodging Tax Head Tax
Fees & Assessments:	Impact Fees (one-time) User Fees (recurring) Mandatory Dedications Assessments (one-time or recurring)
In-Kind Contributions:	Voluntary Donations of property, funds, or services for labor, management, staff and expertise
Grants:	Federal Grants* State Grants* Not for profit conservation organizations*

* Federal Grants:	ISTEA Land and Water Conservation Funds
* State Grants:	State Parks Heritage Grants Game & Fish Heritage Urban Gants

Debt financing of open space acquisition, through public sector bonding -- for example, either with revenue bonds or general obligation bonds -- is explicitly not encouraged as a revenue source in this subsection. This is because both types of bonds assume (revenue explicitly, general obligation implicitly) that the bonding authority has a sufficient and predictable revenue stream to service the debt.

Financial support options

Funding for open space acquisition is available from federal, state, county, municipal, and private sources. Maintenance funds should be included as part of any open space project. Public/private partnerships facilitate creative funding strategies and approaches. Table 3.3 lists 15 funding sources and the attributes of each source in categories shown across the top of the page. The paragraphs following Table 3.3 describes each funding source and the advantages and disadvantages of each. The most significant difficulty is incurred when funding depends upon voter approval and an election or vote is required. For example, for an open space project to obtain funds by issuing general obligation bonds, state enabling legislation requires an election to be required. This could add one to two years onto the time for the project to be implemented. Whereas if an open space project intends to obtain funding by creating a special improvement district, an election would not be required. Landowner and the appropriate government approvals would be required in this case.

Public comments showed a willingness to pay for open space, recreation, and conservation if the vision, programs, projects, and funding are well conceived and the benefits are fairly distributed throughout the community.

Table 3.3 and the following discussion include a variety of revenues sources which could be used to implement the Desert Spaces Plan.

Table 3.3
Open Space Acquisition and Maintenance Options Feasibility

Sources of Funding	Election Required	Landowner Approval Required	Gov. Body Approval Required	Existing City Legal Authority	Existing County Legal Authority	Long-Term Financing	Tax Exempt Financing	Substantial Transaction Costs	Restricted Use of Funds	Restrictive Implementation Criteria	Non-public Funding Source	Costs Spread Jurisdiction-Wide	Costs Spread Locally	Revenue Stream Required	Tax or Assessment Required	Likely/ Public Business Opposition	Limited Availability
General Obligation Bonds	Y	N	Y	Y	Y	Y	Y	Y	N	N	N	Y	N	N	Y	Y/N	Y
Revenue Bonds	N	N	Y	Y	Y/N	Y	Y	Y	N	N	N	Y	N	Y	N	N	N
Improvement Districts	N	Y	Y	N	Y	Y	Y	Y	N	N	N	N	Y	N	Y	Y/N	N
Community Facility Districts	Y/N	Y	Y	Y	N	Y	Y	Y	N	Y	N	N	Y	Y/N	Y	Y/N	N
Community Park Maintenance Districts	N	Y	Y	N	Y	N	N/A	N	Y	Y	N	N	Y	N	Y	Y	N
Increase Property Tax Within Levy Limit	N	N	Y	Y	Y	N/A	N/A	N	N	N	N	Y	N	N/A	Y	Y	Y
New Property Tax Over Levy Limit	Y	N	Y	Y	Y	N/A	N/A	N	N	N	N	Y	N	N/A	Y	Y	Y
Trans. Priv./Sale Tax	N/Y	N	Y	Y	N	N/A	N/A	N	N	N	N	Y	N	N/A	Y	Y	Y
Specialty Industry Tax	N	N	Y	Y	N	N/A	N/A	N	N	N	N	Y	N	N/A	Y	Y	N
Development Fees	N	N	Y	Y	Y/N	N/A	N/A	Y	Y	Y	N	Y	Y	N/A	N	Y	Y
Certificate of Participation	N	N	Y	Y	Y	Y	Y	Y	N	N/A	N	Y	N	Y	N	Y	N
Municipal Property Corp.	N	N	Y	Y	Y	Y	Y	Y	N	N/A	N	Y	N	Y	N	Y	N
Conservation Trusts	N	N	N	N/A	N/A	N/A	N/A	Y	N	N	Y	N/A	N/A	N/A	N	N	Y
Heritage Funds	N	N	Y	Y	Y	N/A	N/A	N	Y	Y	N	N/A	Y/N	N/A	N	N	Y
Private Grants Foundations	N	N	N	Y	Y	N/A	N/A	N	Y/N	Y	Y	N/A	N/A	N	N	N	Y

Key:
"Y" = Yes, the item does pertain to the source of funding.
"N" = No, the item does not pertain to the source of funding.

General Obligation

General obligation bonds, which are backed by the full faith and credit of the county or municipality (primarily via property taxes) may be issued by a county or municipality for any lawful or necessary purpose (A.R.S. § 35-451). Each county and municipality has a constitutionally set debt cap, which limits the bond issuance capacity. Prior to issuing general obligation bonds, the county or municipality must receive authorization by a majority vote of qualified electors at an election.

The primary advantage associated with general obligation bonds is the ability to use the bond proceeds for most any purpose and, if county general obligation bonds are used, the benefits and burdens of the funds and tax can be spread more uniformly county-wide. The disadvantages are that voter approval is required to authorize the issuance of bonds, and if the various municipalities within the county issue the bonds, rather than the county itself, the recreation and open space components of the planned areas will be subject to piece-meal implementation and control because the voters of each of the municipalities must vote separately on the authorization of bonds.

Revenue Bonds

Revenue bonds are bonds issued by the county or municipality and backed by a dedicated revenue stream. Improvements to existing sewer and water facilities are often made utilizing revenue bonds because there is evidence of a steady revenue stream from the utility users (rates) to attract bond buyers. Revenue bonds are attractive because they do not require voter approval, and the constitutional debt cap does not apply to the issuance of revenue bonds. However, counties do not have express statutory authority to issue revenue bonds for recreational facilities or open space (most counties may issue bonds to finance health care institutions, streets and highways, county buildings, and industrial plants) (A.R.S. §§ 11-271, 281, 307, 371). Municipalities with a population of 75,000 or less may issue revenue bonds for utilities and "recreational facilities," which include swimming pools, parks, playgrounds, municipal golf courses, and ball park (A.R.S. §§ 9-521, 522). However, municipalities with a population of greater than 75,000 are limited by state statutes to the issuance of revenue bonds only for utilities.

The advantage to utilizing revenue bonds is that the people who use the facilities pay for the facilities via park entrance fees or other charges. The disadvantages are that only municipalities with a population of 75,000 or less have express authority to utilize revenue bonds to finance recreational facilities, and it may be difficult practically to assess a user fee for open space recreation areas in order to back the revenue bonds.

Improvement Districts

Counties may form an improvement district to establish and maintain a park or recreational area for the benefit of the property within the district. However, the statutory list of improvements financed and constructed by a municipal improvement district does not include recreational facilities. Before the County's Board of Supervisors may establish an improvement district, it must receive a petition signed by a majority of property owners or by the owners of a majority of property within the proposed district. The improvement district funds improvements by making assessments against the property within the district, with each property owner receiving an assessment on the property in proportion to the benefits to be received by each lot. The improvement district may also fund the improvements with assessment bonds, which are repaid over a period of years by the assessments made on the property within the district.

The primary disadvantages associated with the use of county improvement districts are that approval by a majority of the landowners is required and an improvement district would need to be established for each benefit area of an open space improvement. It would be difficult to establish an improvement district on a county-wide basis due to the stringency of the landowner approval and benefit area requirements. The county would have a difficult time justifying the benefits of a proposed open space area to residents who live in an entirely different part of the county from the proposed area.

Community Facility Districts (CFDs)

CFDs, which may only be formed within municipal boundaries by a sponsoring municipality, may be used to provide for the acquisition, construction, operation and maintenance of a wide variety of public infrastructure, including open space areas for recreational purposes. There are two ways to form a CFD: by majority vote of landowners at a special election, or by a petition signed by all landowners in the proposed district.

The costs of improvements for the district may be funded by general obligation bonds, revenue bonds, property taxes, or assessment bonds and assessments made against the landowners in the district. The use of general obligation bonds or property taxes requires the approval of the qualified voters in the district. If the district funds the public improvements with general obligation bonds, such debt is repaid by taxes solely within the district boundaries and debt is not considered debt of the city and does not count against the city's constitutional debt cap. However, if the boundaries of the district are identical to the boundaries of the city (or even if the boundaries are slightly smaller than the city boundaries), the CFD bonds may be viewed as city debt.

There are several disadvantages associated with establishing CFDs for regional open space recreation areas. Each jurisdiction within the county must establish a benefit area district and receive landowner approval for district formation, and each CFD will have jurisdiction over its portion of the open space recreation area. Moreover, the CFD formation process is cumbersome for developed areas.

Community Park Maintenance Districts

The county may establish a community park maintenance district to acquire and maintain community parks within the district. The community park maintenance district may include property within an incorporated city or town with the consent of the governing body of the city or town, and must include contiguous territories located in more than one county. Maintenance and operating costs are funded by property taxes levied on property within the district.

The advantage of establishing a community park maintenance district is that one district could conceivably operate parks in several jurisdictions within and between counties; however, it could not be established solely for parks located within Maricopa County. Moreover, the district may only be established for the purpose of maintaining existing parks, rather than establishing new parks.

Increase Property Tax Within Levy Limit

Local governments may levy a property tax which is a percentage of the fair market value of property. The burden of the tax is greater on higher valued property. Local governments may levy taxes without a vote of the people so long as the tax does not exceed the levy limit established for local governments by the Arizona Constitution and state statutes.

The advantages to utilizing an increased property tax (within the limits) to fund open space recreation areas are that no election is required, and, if utilized by the county, the burden of funding open space recreation areas would be equitably spread over all benefited property owners within the county.

There are several difficulties associated with using a county-wide increase in property taxes to fund open space recreation areas. First, there is always voter resistance to raising the property tax rate. Second, Maricopa County is close to its levy limit. Third, even if the property tax is increased, funds are still subject to appropriation for other public uses and it is unclear whether the county can commit to set aside a portion of the tax rate for open space recreation areas without establishing a new tax. Finally, county-funded open space would most likely need to be owned and operated by the county, which creates some jurisdictional issues. Use of an increased property tax by the municipal jurisdictions within the county would result in similar advantages in the sense that the burden would be spread over the benefited property owners within each jurisdiction. However, each jurisdiction would have to adopt the tax and commit to its use, which creates multi-jurisdictional issues.

New Property Tax or Over Levy Limit

Municipalities do not have statutory authority to increase property taxes over the levy limit. Municipalities may levy "primary" property taxes to fund maintenance and operation of municipal government services. Primary property taxes may not exceed the municipality's levy limit. Costs associated with public infrastructure funding are funded by "secondary" property taxes, which are levied to back the general obligation bonds issued by a municipality. Secondary property taxes are not subject to the levy limit; however, the municipality may not issue general obligation bonds in excess of its constitutionally set debt cap. Thus, while municipalities may not set a primary property tax or create a new property tax over its levy limit, it can, once it receives voter authorization to issue general obligation bonds, levy property taxes that are not subject to the levy limit as necessary to cover the bond obligations.

Counties have specified statutory authority to levy a secondary property tax that exceeds the county's levy limit if 2/3 of the board of supervisors vote to increase the property tax and a majority of the voters approve the increase.

As discussed above, the primary advantage to an increased county-wide secondary property tax is that the open space recreation area costs are spread over all benefited property owners in the county. The disadvantages are similar to those discussed above for an increase of the property tax within the levy limit.

Transaction Privilege/Sales Tax

A municipality may impose a transaction privilege or sales tax within its jurisdiction to fund the costs of the open space recreation areas. However, all of the municipalities within the county would have to adopt the tax (or the open space plan would simply be carried out only in certain jurisdictions) and the open space areas would be subject to different jurisdictions' control.

Counties may not impose a county-wide transaction privilege without legislative authorization. Like an increased property tax, a transaction privilege tax would provide a secure funding source and spread the burden equally among all county residents. Maricopa County currently has a sales tax for the baseball stadium (which did not require voter approval prior to imposition) and for freeways (which did require voter approval). It is likely that the legislature would require voter authorization if it approved a transaction privilege tax for open space recreation areas.

Specialty Industry Tax

Specialty industry taxes have been utilized to fund the stadium district (rental car tax) and tourism (hotel bed tax). Municipalities do not need legislative authorization or voter approval to enact a specialty industry tax; counties must have legislative authorization.

The advantages to a specialty industry tax are that the local residents do not pay the tax, a vote of the people is not required, and, if the county receives legislative authorization, the tax can be levied county-wide to avoid any multi-jurisdictional issues.

Development Fees

Counties and cities may impose development fees on landowners in a "benefit area" to pay for a proportionate share of the public facilities required to serve a development. The county development fee statute defines public facilities to include only neighborhood parks intended to serve development within a one-half mile radius, but excludes regional parks; the statute applicable to municipalities allows development fees to be assessed for "necessary public services," which has been interpreted to include parks and open areas. A "benefit area" is a geographic area in which public facilities are of direct benefit to development within the area. Courts typically apply a "rational nexus test" when evaluating the constitutionality of development fees. For a development fee to be imposed, three standards must be met:

1. There must be a reasonable relationship between the cost of the public facilities for which the development fee is assessed and the service demands of the benefit area.

2. The development fees assessed must not exceed a proportionate share of the costs incurred or to be incurred in providing a public facility.

3. Development fees must be used and expended for the benefit of the benefit area that pays the development fee.

Due to these requirements, and because development fees are assessed at the time of issuance of building permits, the open space area or park planned is not located near any proposed development: (i.e., if the community already exists), then development fees will not be a viable mechanism to fund open space acquisition and maintenance because no fees will be collected. In addition, even in a growth area, the new development only has to pay its fair share; if others inside or outside the area will make use of the facilities, then the development does not have to pay more than its proportionate share. The development fee option probably is not viable for use by the County because the open space recreation areas would not be considered "neighborhood parks that serve development within a one-half mile radius." But each municipality could establish a development fee program for their growth areas.

Certificates of Participation (COPs)

Under this method for financing, private parties purchase COPs, which are the equivalent of tax exempt bonds, and which represent an ownership interest in property belonging to a local government. The property is then leased back to the local government, which makes "lease" payments to the COP holders to cover the bond payments.

The advantage to this financing mechanism is that the local government receives cash up front from the sale of the COPs which may be used for other purposes such as open space recreation improvements. The disadvantages are that the transaction costs are substantial, the local government must come up with an annual stream of revenue to pay to the COP holders, and the COPs may be difficult to sell if the property is not seen as essential to the local government (which could choose to default on its lease payments if the property was not essential to the local government).

Municipal Property Corporation

A so-called 63-20 Municipal Property Corporation (named after IRS Revenue Ruling Number 63-20) is a nonprofit corporation, the obligations of which are treated as issued on behalf of a political subdivision. The advantages of such an entity are two-fold. Bonds issued by the corporation do not have to be voted on by the people, and the bonds are not considered "debt" for purposes the debt limitations set by statute for counties. To ensure that the corporation complies with the requirements of the revenue ruling and that the bonds maintain their tax exempt status, several requirements must be met: (1) the corporation must engage in activities that are essentially "public" in nature; (2) the corporation may not be one organized for profit (except to the extent of retiring indebtedness); (3) the corporate income must not inure to any private person; (4) the political subdivision must have a beneficial interest in the corporation while the indebtedness remains outstanding and it must obtain full legal title to the property of the corporation with respect to which the indebtedness was incurred upon the retirement of such indebtedness; and (5) the corporation and the specific obligations issued by the corporation must have been approved of by the political subdivision.

The disadvantage of using a Municipal Property Corporation for open space recreation areas is that it may be difficult to ensure that the open space areas will generate a steady revenue stream to back the bonds.

Conservation Trusts

A national or regional non-profit organization may acquire property and hold it until the local entity is able to finance the purchase of the property. Conservation trusts usually are utilized for wildlife preservation rather than active recreation areas, and there are not many groups available with the funds available to acquire and hold property.

Heritage Fund

The Arizona State Parks Board Heritage Fund, which is administered by the Arizona State Parks Board, consists of money transferred from the State Lottery Fund (A.R.S. § 41-502). The Parks Board is required by statute to allocate the following percentages out of the Heritage Fund:

- 5% to local, regional and state trails (which are for non-motorized use, including urban, cross-state, recreation, interpretive and historic trails).
- 35% to local, regional or state parks, for outdoor recreation and open space.
- The funds are available as matching funds, and no entity receiving funds may receive more than 20% of the monies available in a category in any fiscal year.

The clear advantage to using Heritage Funds is that 50% of the costs associated with trail and/or open space acquisition is funded with a non-local source of income, and at no expense to the local taxpayer. The disadvantages to using Heritage Funds are that they are limited and may have strings attached.

Private Grants/Foundations

National public interest foundations and trusts can provide additional sources of funds for the acquisition and maintenance of open space areas. However, the funds are often provided on a matching basis or with strings attached, and have limited availability.

These financing tools are most useful in securing land for needed roads, detention ponds and parks or open space. When developer exactions are in place, the local governments can secure land prior to enhancing its value due to zoning. In order to be legally defensible, developer exactions -- like impact fees -- need to match infrastructure plans, which identify properties that are needed for infrastructure improvements.

The final category of potential revenue sources to fund the acquisition and/or maintenance of open space is grants -- either State or Federal. Two particular grants appear particularly relevant for the Desert Spaces Plan. First, the State of Arizona's Heritage Grant Program uses portions of lottery revenue to establish the Heritage Fund.

The Arizona State Parks Department can use its Heritage Fund money to acquire open space. The Arizona State Game & Fish Department passes through its Heritage Fund money in five different grant categories. The "Heritage - Urban Wildlife and Urban Wildlife Habitat" and "Heritage - IIPAM (Identification, Inventory, Acquisition, Protection and Management of Sensitive Habitat)" grants in particular could be used to acquire and/or improve open space in Maricopa County if it were tied to wildlife preservation or interpretive opportunities.

Second, the U.S. Bureau of Land Management can apply for Federal Land and Water Conservation Funds to acquire open space. However, the availability of funds on the Federal level is often limited and inconsistent.

A major feature of this Plan is the creation of a system of trail connections to the parks, natural areas, mountain ranges and canals from places where people live and work -- their neighborhoods and communities. The hierarchy of trials consists of the following: pedestrian, mixed-use (pedestrian, bike, equestrian) and commuter bicycle. The open space acquisition and maintenance financing techniques described in this subsection are equally applicable to the construction and connection of trails.

None of the potential revenue sources discussed above is likely to be wholly sufficient to implement the entirety of the Desert Spaces Plan. Whatever governance arrangement is chosen, will have to emphasize a broad based approach to funding the plan. The more sources of revenue that are accessed, the less dependent the implementation effort is on the stability of any one source.

The above menu of options presentation is attractive, but potentially misleading. In practice, the open space governance arrangement will most likely not dispassionately select funding options after careful analysis. Instead, opportunities and events will largely dictate the amount and nature of funding required.

For example, with rehabilitation, management of the Salt and Agua Fria River flood plains to provide primarily safe water conveyance and also public amenities for trails, recreation and wildlife habitat requires significant public investment through agencies such as the Flood Control District. It may also require the acquisition of private lands and creative interaction with private landowners. The creation of the public amenity in these areas should significantly enhance development potential adjacent to these lands. Capturing a portion of this value enhancement would assist in paying for these improvements. A variety of existing agencies and entities could be utilized to lead this effort as well as the creation of a redevelopment entity; a nonprofit, public purpose redevelopment foundation; and other possible public/private entities designed to attract a variety of public and private investment.

3.5 OPEN SPACE PROTECTION TECHNIQUES

A major objective identified in the open space plan has been the retention of the special landscape character of the region, primarily those areas of Sonoran Desert. Protecting lands with special resource, visual or recreational values requires a flexible menu of options to achieve protection goals. Acquisition by a public entity is not always the most appropriate strategy to protect land since it is costly, takes land off the tax rolls, and creates a permanent management burden. The techniques which are described in the attached Table 3.4 can be tailored to specific land protection objectives.

For example, if a community desired to protect a view corridor it could encourage design guidelines which minimize visual intrusion, accept or pay for a scenic easement, or encourage the clustering or transfer of development rights so that the views remain intact.

Table 3.4
OPEN SPACE PROTECTION STRATEGIES
EFFECTIVENESS/CHARACTERISTICS

Techniques	Protection Capability (high, med, low)	Cost to Public (high, med, low)	Leverage other, public or private $	Creates Public Management Requirement	Encourage Cooperative Landowner Actions	Significant Transaction Cost	Current City or County Authority	Requires high levels of governmental coordination
Government Acquisition								
Fee Simple	H	H		X		X	X	
Purchase development rights	H	M	X	X	X	X	X	
Purchase right-of-way easement	M	M		X	X	X	X	
Lease/use agreement	M	L	X	X	X	X	X	
Right of first refusal	L	L					X	
Donations and Gifts	H	L	X	X	X	X	X	
Installment purchase	H	H		X		X	X	
Bargain Sale	H	H	X	X		X	X	
Condemnation	H	H		X		X	X	
Governmental Coordination/Incentives								
Management agreements	M	L	X	X	X		X	X
Land Exchange	H	L		X	X		X	X
Preferential tax treatment	M	M	X		X			
Governmental Regulation								
Cluster/limited development	M	L					X	
PUD	L	L					X	
Enhanced Notification	L	L					X	
Natural resource overlay	M	L					X	
Slope/hillside ordinance	M	L					X	
Design Guidelines	M	L					X	
Performance based zoning	M	L					X	
Dedications	M	L			X	X	X	
Density Transfer	M	L				X	X	
Mitigation	M	L			X		X	X
Wilderness Designations	H	L						
Voluntary Landowner/Non-profits								
Conservation easements	H	L	X				X	
Preservation easements	H	L	X				X	
Restrictive covenants	M	L	X				X	

X = The strategy is effective or has this characteristic

The following text describes the variety of techniques which can be used to influence the pattern of development to protect landscape character. Each technique is defined, and its strengths and weaknesses are summarized.

- **Fee simple purchase.** Outright public or non-profit purchase of full title to land all rights associated with its use. Strengths include full new landowner control of land. Permanent protection and public access are thus allowed. Weaknesses include the cost of purchase, which may be beyond government's or non-profits' ability. Also, publicly-owned land is removed from property tax rolls.

- **Purchase of development rights.** Governments or non-profits organizations purchase the rights of more intensive land use from current owner. Strengths include landowner incentives **for** selling rights and lower residual property value. Weaknesses include the cost of purchase, which may be beyond government's or non-profits' ability.

- **Purchase right-of-way easements.** Provides the public with the right to access and use a parcel of land for a specified purpose. Strengths include avoiding the cost of outright purchase. Weaknesses include time limits, and the ability of landowner to exercise development rights.

- **Lease/use agreements.** Short and/or long term public sector rental of land with use agreement for open space. Strengths include low cost of leases, and landowner incentive to receive a regular income stream. Weaknesses include lack of equity and long term protection.

- **Right of first refusal.** Landowner agrees to provide first right of purchase to designated public sector or non-profit entity. Strengths include short term preservation of open space and low (or no) cost of rights. Weaknesses include no control over eventual asking price for land.

- **Federal Land Management.** Protect open space on federal lands through open space compatible land designation including wilderness, wild and scenic rivers designation or areas of critical environmental concern. Federal land management plans would include protection of open space through compatible land uses in areas of high wildlife or open space value.

- **Donations and gifts.** A donation by the landowner of all or partial interest in the property to a public sector or non-profit entity. Strengths include the permanent protection of open space without expenditures, and tax deduction incentives for the landowners. Weaknesses include the inability of some entities to "receive" donated land, and the removal of property from property tax rolls.

- **Installment sale.** Allows public sector or non-profit buyer to pay for property over time. Strengths include lower taxes for the seller. Weaknesses include the long term financial commitment to a mortgage and the owner's lien rights on the land.

- **Bargain sale.** Part donation and part sale at less than fair market value. Strengths include tax benefits to seller for donation. Weaknesses include willingness of seller and definition of "fair market value."

- **Condemnation/eminent domain.** The right of government to take private property for public purpose upon payment of just compensation. Strengths include using the power of the state as a last resort, if no other techniques are feasible. Weaknesses include cost of "just compensation" and ill will engendered by the technique. The legal environment for any measures related to "takings" is uncertain.

- **Management agreements.** Agreement between public sector and landowner for a specific purpose. Strengths include the avoidance of costs associated with purchasing land or rights. Weaknesses include potential revocation at any time.

- **Land exchange.** Swapping developable land for property with high open space value. Strengths include no "hard" cost for public or non-profit entity and avoidance of capital gains tax for landowner. Weaknesses include the potential unwillingness of landowner to swap, and complexity of "doing the deal."

- **Preferential tax treatment.** State or local government partial mill levy or fee abatement for developers who dedicate and/or preserve open space. Strength include the landowner's incentive to receive payments and no "hard" costs for the public sector. This is considered a "tax expenditure" because it reduces revenue but does not increase costs. Weaknesses include the temporary nature of the agreement. However, it is uncertain if this technique would sustain judicial scrutiny in Arizona.

- **Cluster/limited development.** Permits high density development in parts of subdivision to protect sensitive lands in other parts. Strengths include the potential reduction of infrastructure and site development costs (due to clustering). Weaknesses include the potential for open space islands which are not linked to a larger system.

- **Planned Unit Development (PUD).** A zoning concept which permits and encourages large planning areas to achieve a mixture and variety of land uses while establishing development control parameters and regulations. Strengths include compatibility with existing zoning and plan review process. Weaknesses include the potential for conflict over the appropriate amount and location of open space in PUD.

- **Enhanced notification.** Solicitation of public interest and comment on the sale or development of a specified property which has open space value. Comments can also be solicited from other affected jurisdictions. Strengths include the potential to mesh with MAG's existing general plan review process. Weaknesses include the lack of an enforcement mechanism if public comment is opposed to the particular development.

- **Natural resource overlay.** Districts within a specialized zoned area that allow for additional regulations and stipulations of development to preserve and maintain a certain character. Strengths include the potential precision of this technique; it can be narrowly tailored. Weaknesses include potential legal challenge over "takings."

- **Slope/hillside ordinance.** Ordinances which govern development on slopes and hillsides of a defined parameter. Strengths include the utilization of the state's ordinance power as opposed to regulatory or voluntary measures. Weaknesses include the potential for legal challenge.

- **Design guidelines.** A set of standards developed to establish a specific guideline for urban design which addresses topics on a project by project basis. Strengths include the potential to add value to development due to the aesthetic desirability resulting from the guidelines. Weaknesses include the difficulty of establishing flexible yet meaningful guidelines.

- **Performance based zoning.** Zoning defined by impact permitted (e.g., vehicle traffic, air quality, noise levels etc.) instead of permitted land uses. Strengths include the relationship of development to environmental standards. Weaknesses include the difficulty of establishing measurable standards, and the increased cost of preparing development plans.

- **Dedications/Exactions.** The national and local legal environment related to this technique is uncertain. As a condition of obtaining subdivision approval, local government requires developers to pay a fee or dedicate land for open space. Strengths include equity of development helping to finance the open space which it threatens. Weaknesses include the difficulty of calculating fair fee or dedication.

- **Density transfer.** Owner transfer of development rights from one property to another that is designated to support increased density. Strengths include no "hard" cost for the public or non-profit sector, and ability to manage technique in existing zoning process. Weaknesses include the designation of certain parcels for extra density.

- **Mitigation.** This process requires enhancement or creation of open space and environmental features in exchange for subdivision authority. Strengths includes no public sector "hard" costs. Weaknesses include the potential for disconnected open space and possible legal challenges regarding "takings."

- **Conservation easements.** Partial interest in property generally for expressed purpose of protecting open space. Strengths include low cost and landowner retention of non-conflicting development rights. Weaknesses include enforcement, lack of resale opportunities and potential public access restrictions.

- **Preservation easements.** Same as conservation easements with emphasis on historic landscapes. Strengths and weaknesses are same as for conservation easements.

- **Restrictive covenants.** A condition of sales which permits only certain uses on a property; the covenants run with the land and bind successor owner to the original stipulations. Strengths include long term preservation of open space and no public sector "hard" costs. Weaknesses include difficulty in implementation either voluntary or with State power.

As was the case with governance and financing, no single open space protection technique is likely to be sufficient to implement the entire Desert Spaces Plan. As demonstrated in Section 3.3, the best collaborative, regional open space management structures often rely on multiple protection techniques. Using a variety of approaches allows for real time case studies; the implementation effort can thus become a "living laboratory" to determine which strategies work and which do not. Multiple strategies also provides insulation from the failure of any one approach causing the entire implementation effort to collapse.

3.6 NEXT STEPS

The preceding subsections have provided a very diverse menu of options. There is a lot for the various jurisdictions and their publics to consider in terms of governance, funding, and protection techniques. While this evaluation occurs, it is important to remember that three elements of the Desert Spaces Plan are related. Governance will influence funding which will influence protection techniques. No decision can be made in a vacuum.

There appears to be several potential next steps based on interviews with participating entities:

- No matter which governance arrangement is eventually chosen to implement the Plan, a public advocate for the implementation of the Plan - particularly the creation of the **regional** open space system - is needed. Forms of outreach such as newsletters, public access cable, information kiosks, and on-line bulletin boards could be used to inform the public about the benefits of the system.

- Encourage the development of cooperative agreements to achieve the plan's objectives. On an ad hoc basis, until the final governance arrangement is chosen, local, state, and federal governments should develop a formalized process, such as the Enhanced Notification Process, to coordinate their internal regional trails planning and implementation.

- On an ad hoc basis, until the final governance arrangement is chosen, MAG can help participating agencies resolve outstanding disputes with regard to particular regional resources such as the mountains and rivers.

- Monitor and facilitate the process of local, state and federal land trades, and state trust land sales to implement the goals of this plan.

- Within eighteen months of adoption, a funding mechanism should be developed capable of raising sufficient funds over a ten to twenty-year period to achieve the principal objectives of the Plan, particularly the acquisition, protection and management of lands of regional significance.

- Create and circulate a regional model Environmentally Sensitive Lands Ordinance (ESLO) which respects the principles embodied in the Plan." If any participating entities chose to adopt such language, it would be one step toward either a Master IGA or decentralized series of IGAs (see Subsection 4).

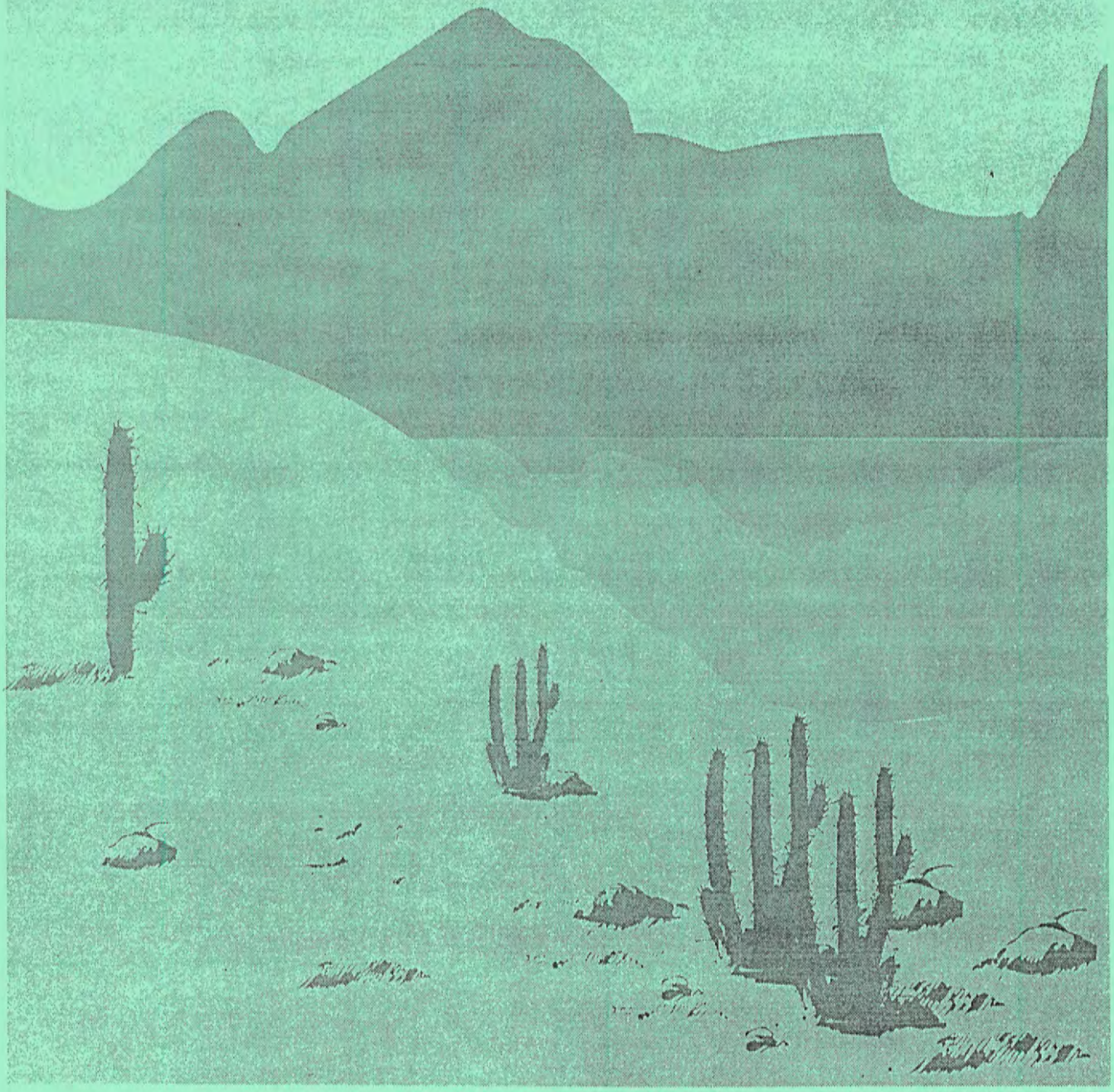
- Identify the range of costs associated with implementation of this plan. Begin to examine real boundaries for current Plan maps.

- Contact and work with adjacent counties to maintain system consistency between regional planning areas.

- Conduct a valley-wide education program about the value of maintaining natural areas for valley residents and visitors.

- Coordinate with Maricopa County comprehensive plan effort and work with local jurisdictions to achieve consistency between this plan and adopted general plans.

Section 4
Background Information



4.1 INTRODUCTION

This section summarizes the background information, inventory mapping and analysis that was conducted as part of the process designed to arrive at the Plan discussed in Section Two. The following topics are included:

a. Demographic trends and projections

b. Natural and cultural systems inventory

c. Inventory of designated public parks, preserves and wilderness areas

d. Open space opportunities

e. Current open space disposition and management goals

f. Community needs assessment

4.2 SIGNIFICANT FINDINGS

Projected population growth patterns for the MAG region were analyzed. This analysis found that:

- The 1990 population of Maricopa County is 2.1 million persons and is projected to nearly double to 4.1 million in the year 2020. By the year 2020, the total extent of developed land will increase by 220,200 acres, or 344 square miles.
- Phoenix, Chandler, Mesa, and Gilbert are projected to have the greatest number of new residents while Goodyear, Gilbert, Surprise, Litchfield Park, and Buckeye are projected to have the highest percentage increase in population.
- Overall, the northwest and southeast areas of the region area projected to have the greatest increases in population.
- The northeast region of the Valley will experience the most urbanization (measured by the amount of developable land per 1,000 population).
- An analysis of existing natural and cultural resources was also conducted in order to identify potential open space and natural resources. This analysis resulted in the identification of three general categories of areas within the region that should be addressed in the planning effort.
- Remote areas outside the metropolitan areas unlikely to be developed over the next thirty years.
- The "urban fringe" areas likely to be developed within the next thirty years.
- Areas in currently urbanized portions of the metropolitan area.

The projected development pattern of the region was then compared to the natural resource inventory. This comparison found that, existing open space resources in the north east and central west areas of the region would be threatened by development. The specific resources in these areas that could be affected include the upland Sonoran Desert adjacent to mountainous regions in the east valley northeast and northwest, including Hassayampa, Salt and Verde River floodplains, the Cave Creek Wash, cultural sites along Cave Creek and the Verde River, and agricultural land in the central west and southeast portions of the region.

4.3 DEMOGRAPHIC TRENDS IN MARICOPA COUNTY TO 1990

Incorporated in 1871, Maricopa County has twice more-than-doubled in population within a decade. For every Maricopa County resident in 1910, there were 2.6 residents just ten years later. During that decade, Maricopa County's share of the state population increased from 17 percent to 27 percent. As the following table shows, a doubling of the population happened again during the 1950s, as the Valley of the Sun coped with a post-WWII home building boom.

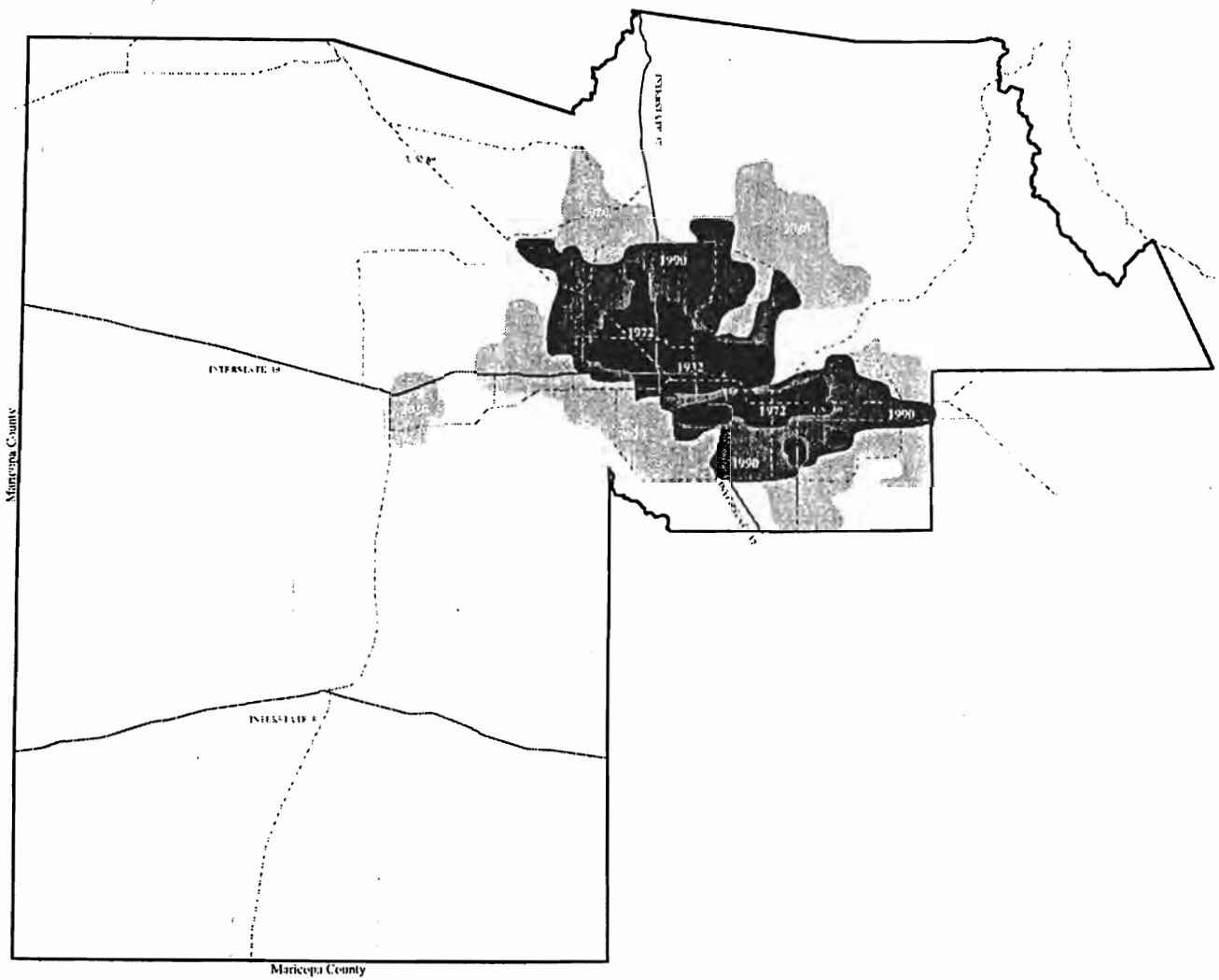
Table 4.1
Maricopa County Population, 1880 to 1990

Census Year	Population (April 1)	Percent increase during the decade	County pop. as percent of state total
1880	5,689	—	14.1%
1890	10,986	93.1%	12.4%
1900	20,457	86.2%	16.6%
1910	34,488	68.6%	16.9%
1920	89,576	159.7%	26.8%
1930	150,970	68.5%	34.7%
1940	186,193	23.3%	37.3%
1950	331,770	78.2%	44.3%
1960	663,510	100.0%	51.0%
1970	971,228	46.4%	54.7%
1980	1,509,262	55.4%	55.6%
1990	2,122,101	40.6%	57.9%

Source: "A Demographic Guide to Arizona 1985", Arizona Department of Economic Security, Population Statistics Unit. Report No. 14. 1990 figures from Census of Population and Housing, 1990, Bureau of the Census.

During the 1960s, the rate of growth slowed appreciably for Maricopa County, as well as for all of Arizona (which had a 36.3 percent increase). The energy crisis in the mid 1970s caused a pickup in home building as refugees from cold northern and eastern states moved to Arizona. During the early 1980s, however, Maricopa County experienced a downturn in-migration as home prices rose sharply in concert with a substantially inflated real estate market in California and the Pacific Northwest. Towards the end of the decade, the national economic recession continued to slow down population migration to Arizona, as fewer out-of-state households chose to brave the economic uncertainty of finding new employment and new housing in a new state. Even so, by 1990, eight out of every fourteen Arizonans lived in Maricopa County. In the last two decades, only Yavapai and Mohave counties have exceeded Maricopa County's rate of growth.

Maricopa County has urbanized almost exclusively in the Salt River Valley. The downtown areas of Glendale (est. 1910), Phoenix (est. 1881), Tempe (est. 1894), Mesa (est. 1883), Chandler (est. 1920), and Gilbert (est. 1920) formed a dispersed grouping along a northwest-to-southeast axis. Aerial photographs taken in 1932 and 1972 were recently analyzed by Arizona State University's College of Architecture and Environmental Design. The College's "Urban Open Space Networks" study contains a series of maps which show generalized limits of urbanization in 1932, 1972 and 1990. Those areas are all shown on Exhibit 4.1. The ASU study shows that, by 1972, the separate communities had expanded and started to merge, but still along the northwest-to-southeast axis. The development of the Sun City area extended the northwest reach. By 1990, all of the separate communities were part of a continuous urbanized whole.



Maricopa Association of Governments

DESERT SPACES PLAN

Maricopa County, Arizona

Exhibit 4.1

URBANIZATION TRENDS & PROJECTIONS

Year

- 1932 Areas delineated as "suburban landscape" on the "1932" map from the 1992 ASU College of Architecture study of urban open space networks.
- 1972 Areas delineated as "suburban landscape" on the "1972" map from the 1992 ASU College of Architecture study of urban open space networks.
- 1990 Generalized outer boundary of MAG Regional Analysis Zones containing 15,000 or more population in 1990, according to the 1993 MAGTPO Socio-economic database.
- 2020 Generalized outer boundary of MAG Regional Analysis Zones containing 15,000 or more population in 2020, according to the 1993 MAGTPO Socio-economic database.

Date: 10/21/94
Urbanization information taken from 1932 -1972 aerial photographs and demographic projections produced by Maricopa Association of Governments, Transportation and Planning Office.

Scale in miles: 0 2 5 10

North

DESIGNWORKSHOP
In association with:
Cornoyer - Hedrick
SWCA Environmental Consultants
Browne, Bortz & Coddington, Inc.
Research Advisory Services
Streich Lang

Exhibit 4.1
Urbanization Trends & Projections

4.4 DEVELOPMENT PROJECTIONS

4.4.1 Maricopa County Projections

Over the next thirty years, Maricopa County is projected to almost double in population. According to the latest adopted MAG projections, shown in Table 4.2, the total resident population in 2020 will be 1.93 persons for every Maricopa County resident in 1990.

Table 4.2
Maricopa County Population Projections to 2020

Year (July 1)	Projected Population	Percent increase during the decade	Percent increase since 1990
1990	2,130,400	—	—
2000	2,715,100	27.4	27.4
2010	3,362,685	23.8	57.8
2020	4,116,600	22.4	93.2

Source: Arizona Department of Economic Security, County Population Projections, approved by the DES Director, May 1993.

Maricopa County will continue to grow at a faster rate than the whole state average, and at a faster rate than eleven other counties. Only Mohave, Santa Cruz, and Yavapai counties are projected to exceed Maricopa County's rate of growth over the next thirty years. By 2020, Maricopa County residents will account for a full sixty percent of the state's population.

By 2020, the urbanized portion of Maricopa County will cover sixty-five percent more area than in 1990. Exhibit 4.1 shows the generalized urbanization boundary in 2020 overlaying the 1990 urbanization limits. Much of the increased area is projected to develop at lower residential densities than current development.

Table 4.3 showing developed, undeveloped and undevelopable acres for the whole MAG metropolitan area, indicates that the developed acreages increase from 23.5 percent of all land in the metro area, in 1990, to 38.9 percent by 2020. Note that, even by that time, 33.9 percent of the land will still be vacant and developable. However, that available land may not be located in places appropriate for the region's park or open space needs.

Table 4.3
Acreage Totals for MAG Planning Area

Acreage Category	1990	2000	2010	2020
Acres:				
Developed Residential	267,900	317,700	379,400	452,800
Developed Employment	70,700	84,000	96,200	106,000
Undeveloped Residential	508,000	458,400	396,600	323,000
Undeveloped Employment	199,100	185,600	173,500	63,900
Undevelopable	391,700	391,700	391,700	391,700
	1,437,400	1,437,400	1,437,400	1,337,400
Percent:				
Developed Residential	18.6	22.1	26.4	31.5
Developed Employment	4.9	5.8	6.7	7.4
Undeveloped Residential	35.4	32.0	27.6	22.5
Undeveloped Employment	13.9	12.9	12.1	11.4
Undevelopable	27.2	27.2	27.2	27.2
	100.0	100.0	100.0	100.0

Source: Acreage figures summed for all Regional Analysis Zones which have acreages, in the MAG Socio-economic database, Maricopa Association of Governments, adopted March 1993.

4.4.2 Municipal Projections

The following table shows population projections to 2020 for each jurisdiction's Municipal Planning Area, together with the percentage rate of growth for this decade and for the next thirty years.

Comparing the percentage change gives one measure of growth comparison between communities. But, percentage growth figures alone can be misleading when comparing cities which start small with those which are already large at the start of the analysis period. For example, even though Table 4.4 ranks Phoenix nineteenth in projected growth rate, over the next thirty years Phoenix will add more population than the present population of Glendale, Scottsdale, and Mesa, combined.

Table 4.4
Municipal Planning Area (MPA) Projections to 2020

					Thirty-year Population Change	
MPA Municipality	**(July 1)** 1990	**(July 1)** 2000	**(July 1)** 2010	**(July 1)** 2020	Percent	Persons
Avondale	19,651	31,964	48,179	74,318	278.2	54,667
Buckeye	9,336	11,472	13,380	37,727	304.1	28,391
Carefree	1,669	2,014	2,383	2,815	68.7	1,146
Cave Creek	2,430	3,789	5,045	7,419	205.3	4,989
Chandler	96,187	151,865	240,643	344,241	257.9	248,054
County Areas	78,598	97,272	117,167	140,672	79.0	62,074
El Mirage	5,034	6,041	8,928	13,309	164.4	8,275
Fountain Hills	10,119	15,230	20,276	29,115	187.7	18,996
Gila Bend	1,817	2,126	2,339	2,679	47.4	862
Gila River	2,679	2,781	2,856	2,915	8.8	236
Gilbert	35,706	91,541	142,591	198,008	454.6	162,302
Glendale	159,068	208,532	262,473	282,785	77.8	123,717
Goodyear	7,707	17,048	40,701	78,141	913.9	70,434
Guadalupe	5,458	5,882	6,602	7,299	33.7	1,841
Litchfield Park	3,312	5,024	8,776	14,648	342.3	11,336
Mesa	323,442	396,435	460,521	538,582	66.5	215,140
Paradise Valley	12,259	13,413	14,485	15,491	26.4	3,232
Peoria	53,825	89,717	133,580	180,858	236.0	127,033
Phoenix	1,000,580	1,183,964	1,374,082	1,613,992	61.3	613,412
Queen Creek	3,198	3,772	4,513	5,842	82.7	2,644
Scottsdale	132,452	186,091	236,263	275,041	107.7	142,589
Surprise	9,140	15,031	26,549	45,316	395.8	36,176
Tempe	142,684	158,276	167,197	172,024	20.6	29,340
Tolleson	4,445	5,709	10,646	17,442	292.4	12,997
Wickenburg	6,049	7,350	9,558	12,779	111.3	6,730
Youngtown	2,555	2,761	2,952	3,212	25.7	657
Maricopa County Total	2,129,401	2,715,101	3,362,686	4,116,671	93.3	1,987,270

Source: Resident Population Projections By MPA, Maricopa Association of Governments, adopted March, 1993.

Of all the growth projected for the next thirty years, Phoenix will accommodate about 31 percent; Chandler, about 12.5 percent; and Mesa, just over 10 percent. Municipalities with high projected population increases (Phoenix, Chandler, Mesa) do not necessarily correspond to municipalities with high percentage changes in population (Goodyear, Gilbert, Surprise). For example, Goodyear, Surprise, and Litchfield Park have high percentage changes but start with relatively low population bases. Other medium sized communities such as Gilbert, Peoria, and Chandler face similar percentage changes, but very large increases in total population. All of these rapidly growing communities will experience pressures on their remaining supplies of open space lands and their capacity to provide parks and open space unless they are proactive in their planning and implementation. This is particularly critical since many of these rapidly growing areas also contain the greatest amount of remaining open space.

4.4.3 Open Space Trends

Growth and development in the Valley resulted in a concern for open space conservation that began by establishing South Mountain as the largest municipal park in the country in 1924. In 1957, the Maricopa County recommended leasing 68,000 acres for four regional park sites. Today, the County park system amounts to over 115,000 acres.

Concern grew in 1950s when custom homes began to appear on the slopes of Camelback Mountain and inadequate zoning ordinances and subdivision regulations made it difficult to control such development. In the late 1960s interest increased in preserving Squaw Peak and the other Phoenix Mountains, and voters approved the first bond issue for purchasing mountain preserve land. To date, the City of Phoenix has spent over $71 million to save the mountains.

Other government entities have made efforts to conserve open space. The idea of an improved "Rio Salado " was discussed in a study issued by the County in 1970 that recommended "the County assist to make the Rio Salado Project a reality." Most recently, the City of Scottsdale residents approved a sales tax to purchase land and preserve public access to the McDowell Mountains.

Historic urban development patterns have resulted in a loss of scenic value in important open space areas such as Mummy Mountain and Black Mountain. Development has not been sensitive to runoff and drainage patterns, resulting in a loss of natural vegetation and the wildlife habitat it supports as in the case of portions of Cave Creek, the New River, Skunk Creek and other washes. Public access to mountains and trails along rivers and washes have been blocked by subdivision of land and walls on property lines. It appears that these trends will continue unless the region effectively coordinates development policies, continues to define long-range open space plans, and creatively uses all available funding sources.

4.5 NATURAL AND CULTURAL SYSTEMS INVENTORY

An inventory of regional natural and cultural resources was conducted to provide a basis for the Regional Open Space Plan.[1] More specifically, the information was used to:

- ψ Determine the location of significant open space resources.
- ψ Identify resources that are essential for establishing a regional open space system.
- ψ Prioritize the resources that would most benefit from acquisition or regulation by public agencies.

Natural resources are broadly defined to encompass a range of physiographic conditions such as topography, hydrology, botany, and zoology. Cultural resources consist of archaeologic and historic features. Collecting information related to these topics is a generally accepted methodology for identifying opportunities for recreation activities.

Information collected included topography, hydrology, soils, vegetation, wildlife, historical, and archaeological.[2]

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[1] Information on demographics, physiographic conditions (topography, hydrology, etc.), land use and land ownership was supplied by the Maricopa Association of Governments Transportation and Planning Office. The original sources for digital information include: Department of Economic Security, Arizona Land Resource Information System, Maricopa County Department of Transportation and Flood Control District of Maricopa County. Information on biologic and cultural resources was obtained form the Arizona Game and Fish Department and was solicited from approximately 30 individual experts in a range of disciplines. This information has been digitized and stored in a GIS compatible format.

[2] Spatial Data for the GIS was acquired by digital transfer from other databases, digitizing from paper maps, and analysis of remotely sensed data. Data, both spatial and non-spatial, have been obtained form MAG member agencies, County Flood Control, State Land Department, and the County Department of Transportation.

4.5.1 Biological Resources

The Arizona Game and Fish Department's Heritage Database of special interest species was transferred into the GIS system and was used to help identify areas of biological sensitivity. To supplement the quantitative data, professional biologists were asked to provide their qualitative assessment of the important biologic features in the region. The biologists contributed information on areas containing unique species assemblages, a high density of rare or special interest species, rare plant communities, etc.

4.5.2 Cultural Resources

The information on cultural resources includes:

- Properties and districts in Maricopa County that are on the National Register of Historic Places.
- National Historic Landmarks in Maricopa County.
- Administrative units that are defined by their cultural resources.
- Areas within Maricopa County that have been the subject of cultural resources overviews or of large-scale surveys.

Informed archaeologists were requested to contribute data on areas with cultural properties that might not be well documented in published literature. The informants offered a number of valuable suggestions pertaining to areas within Maricopa County where archaeological research has been or is being undertaken, including names of additional informants and areas whose cultural resources might enhance their suitability for preservation as open space.

A systematic overview of the site files at the Arizona State Museum was conducted, with the goal of identifying, first, areas with large numbers of recorded cultural resource sites and, second, areas with important sites. This research, along with a review of reports on projects has led to the initial finding that areas along major drainages possess cultural resources that are sufficiently numerous and important to preserve as open space. These drainages include the Gila River (everywhere in Maricopa County outside the metropolitan Phoenix area), the Verde, Agua Fria, and New River, and Skunk and Cave Creeks. The Salt River is not included in the list because most of this river is in the Tonto National Forest, and the Arizona State Museum has incomplete records on cultural properties in this jurisdiction.

The records search also showed that survey coverage away from the major drainages is, for the most part, insufficient for the task at hand. Therefore, for areas located away from the major drainages, it will be necessary to combine a range of data, including site records, archaeological reports, and informant data, to obtain data that can contribute to the ranking of areas for protection as open space. As one example, archaeological surveys conducted in the Crater Range and Sauceda Mountains on the eastern Barry M. Goldwater Air Force Range indicate that these localities contain archaeological sites that are important for their abundance, state of preservation, and information potential.

4.5.3 Land Ownership

The pattern of land ownership was used to determine which valuable open space resources were already in public ownership, and to project which resources could be threatened by private development. Privately owned lands generally correspond to the low-lying valleys while Federal lands occupy the uplands and other non-irrigable areas. Generally, mountainous areas at the fringe of the region area owned by Federal agencies and are currently managed for multiple purposes. There are no immediate plans to reexamine these management goals. Lands at the base of the mountainous areas, wash areas, and significant open space areas in the urbanized portion of the valley are generally under private or State Land Department ownership. These lands are not specifically managed to benefit the public as an open space resource, and could be developed in the foreseeable future. One of the best opportunities to manage development and thereby protect open space is through appropriate planning of the large parcels of State Trust Land.

The Land Ownership map (Exhibit 4.2) clearly shows the significant ownership pattern resulting from the distribution of federal, state, and Indian lands. The following table summarizes the information shown on the Land Ownership map:

Table 4.5
Maricopa County Land Ownership

Ownership	Acreage	% of County
Private	1,702,452	28.8
Wildlife Refuge	8,980	.2
State Trust Land	668,694	11.3
Indian Reservations	279,379	4.7
Parks & Recreation	103,998	1.8
Bureau of Land Management	1,661,950	28.2
U.S. National Forest	655,614	11.1
Military	820,970	13.9
Total	5,902,037	100.00

Source: Arizona Land Resource Information System (ALRIS), January 1993.

4.6 INVENTORY OF EXISTING DESIGNATED PUBLIC OPEN SPACES

Existing designated parks, preserves and wilderness areas were inventoried and classified in order to determine the current supply of different types of local and regional open space areas, and to develop projections for future open space needs.

4.6.1 Significant Findings

The residents of Maricopa County have access to a variety of park and open space lands including Federal lands managed for multiple uses, state wildlife areas, over 115,000 acres of County park land and various local parks and playgrounds. However, bicyclist and pedestrian oriented paths and trails that connect parks and open spaces to each other are not abundant. See Inventory of Existing Parks & Open Space map (Exhibit 4.3).

There is a wide range of park and open space classification systems in use by the various municipalities. Most classification systems are based on the hierarchy of park types recommended by the National Recreation and Park Association and focus on the variations in park types that serve local populations.

The system includes the following categories:

a. Neighborhood Parks

b. Community Parks

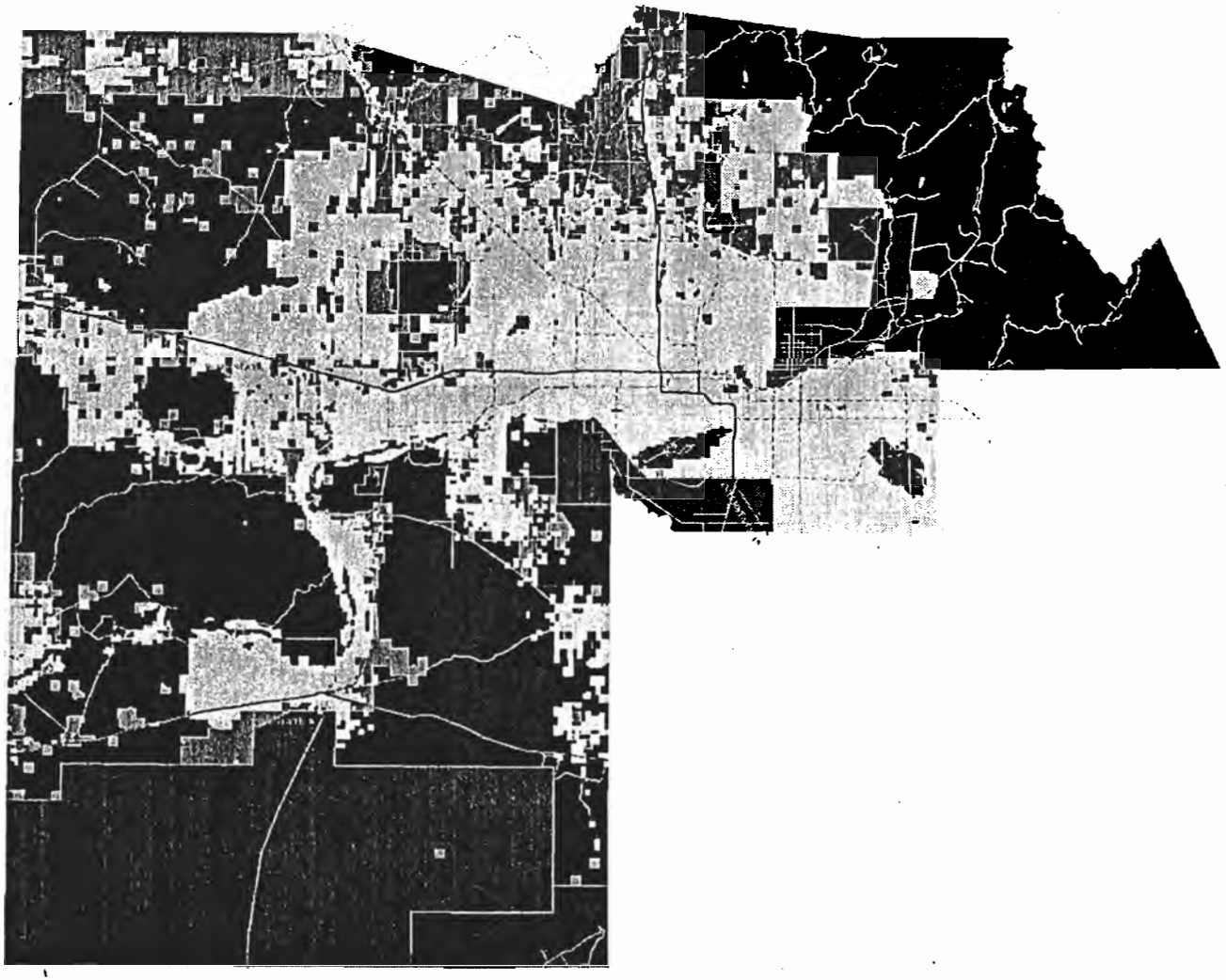
c. Trails

d. Special Use Parks

e. Regional Parks

f. Conservancy Areas of Federal or State Importance

g. Federal Lands Managed for Multiple Use



Maricopa Association of Governments

DESERT SPACES PLAN

Maricopa County, Arizona

Exhibit 4.2

LAND OWNERSHIP

- Private Land
- Wildlife Refuge
- State Trust Land
- Indian Reservations
- Parks & Recreation
- BLM
- National Forest
- Military

Date: 10/26/94
Land Ownership information supplied by Maricopa Association of Governments, Transportation Planning Office

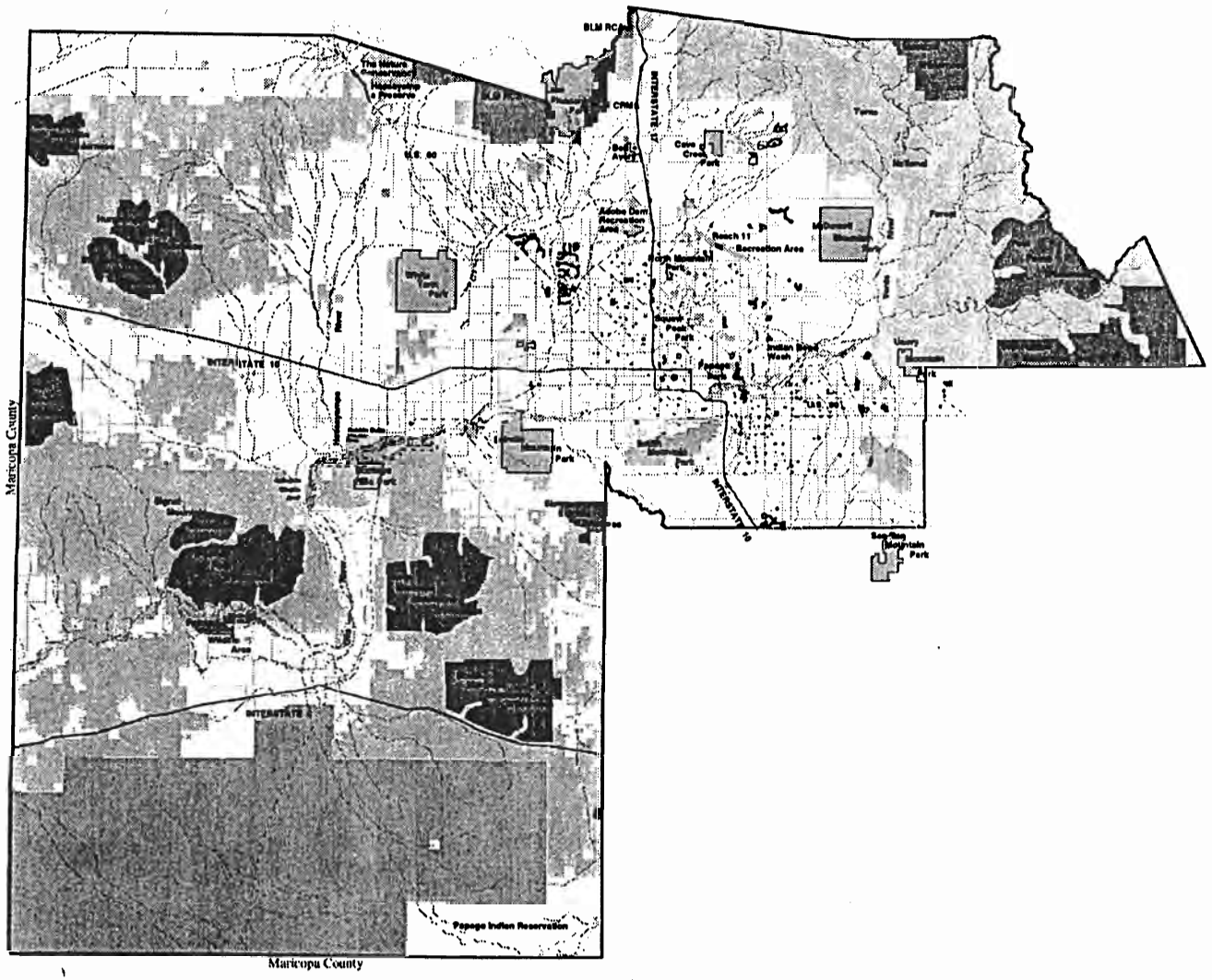
Scale in miles: 0 2 5 10

North

DESIGNWORKSHOP
In association with:

Cornoyer - Hedrick
SWCA Environmental Consultants
Browne, Bortz & Coddington, Inc.
Research Advisory Services
Streich Lang

Exhibit 4.2
Land Ownership



Maricopa Association of Governments

DESERT SPACES PLAN

Maricopa County, Arizona

Exhibit 4.3

EXISTING PARKS & OPEN SPACE

Legend

Symbol

- Neighborhood Park
- Community Park
- Regional Park & Open Space
  - City
  - County
- Conservancy Area (Federal or State)
  - *National Forest*
    - Historic Landmark
    - Wilderness Area
  - *Bureau of Land Management*
    - Wilderness Area
    - Wildlife Area
  - *Arizona Game and Fish*
    - Deeded Lands
    - Fred Weiler Greenbelt Land
    - PLO 1015 Land & Greenbelt Land
- Federal Lands Managed for Multiple Use
  - National Forest
  - Bureau of Land Management
  - Military
- Special Use
  - Golf Course (public/private)
  - Other Special Use (Botanical Garden, Zoo, Fairground, Outdoor Museum, Equestrian Park, Outdoor Amphitheater, Prehistoric and Historic Sites, Plaza, Civic Mall, Town Square)

Date: 9/19/95

Existing Parks and Open Space data supplied by MAGTPO and participating agencies. Additional data digitized by Design Workshop from 1:79200 Phoenix Mapping Service Maps.

Scale in miles: 0 2 5 10

North

DESIGNWORKSHOP
In association with:

Cornoyer - Hedrick
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Research Advisory Services
Streich Lang

Exhibit 4.3
Existing Parks & Open Space

An analysis of park acreage, current and projected population, and national standards for park acreage per 1000 residents shows that currently, there is a deficit in all categories of park land. Projected population growth of about two million people over the next thirty years will exacerbate the situation by creating a demand for three to five thousand more acres of neighborhood parks and ten to sixteen thousand more acres of community park land. The total acreage of this additional demand (13,000 - 21,000 acres) is equal to about seven to eleven percent of the amount of residential land that will be developed over the next thirty years (184,900 acres).

Regional parks, by definition, do not focus on providing active or developed recreation areas such as fields for various team sports, hard courts, etc. The primary purpose of regional parks is to conserve and protect natural and cultural resources that exist as a result of ecologic processes or the historical activities of people. It is, therefore, impractical to establish a standard for the amount of regional park acreage that should be provided per 1,000 persons because the park acreage is entirely dependent upon factors which are not possible to create or construct. For this reason, a comparison of regional park acreage to projected population as a means of establishing a guide for making recommendations on open space protection and conservation is not a part of this study.

4.6.2 Existing Open Space Classification System

In order to evaluate the existing open space system and develop recommendations, an open space classification data base and mapping system was developed. The data base modifies the National Recreation and Parks Association Classification System to accommodate categories that represent the full range of park, open space (excluding landfills, transmission easements, and extraction sites), and trail resources in Maricopa County.

The classification system defines seven broad categories of parks, open space and trails. Examples of the types of area, facility, or land form that would fall under each category are identified.[1] The designated parks, preserves, and wilderness areas listed in the inventory were then identified and grouped according to these classifications.

4.6.3 Inventory/Standards Comparison

The acreage of existing neighborhood and community parks were analyzed to determine if they met standards established by the National Parks and Recreation Association. The analysis found that from nine to sixteen thousand acres of community parks and from three to five thousand acres of neighborhood parks will be required to serve the increase in population projected between 1990 and 2020. This amounts to seven to eleven percent of the total acreage projected to be developed from 1990 to 2020.

Regional parks focus on conservation and protection of natural resources, and their size is determined by the resource, not population. Consequently, no standard size for regional parks s identified based on population. It should also be noted that there are no specific standards for how much conservation land a community ought to have. Instead it is dependent on the number and quality of natural resources in the area. Preservation and conservation of these resources cannot be constrained by ascribing arbitrary acreage or locational guidelines. The protection and management of these resources must, by their nature, be within the context of a community or regional open space systems plan and accompanying policies.

4.7 OPEN SPACE OPPORTUNITIES

Open space resources were mapped and compared with existing population projections to identify where there is the greatest need to protect existing open space and where there are opportunities to develop or enhance open space opportunities in areas that have already been urbanized. The synthesis of both man-made and natural open space resources begins to establish a framework for the future open space plan. An "open space opportunity" is defined as a natural or man-made feature that is of scenic, ecologic or cultural significance.

[1] Neighborhood, community, and regional parks were determined based on facility service areas and the time it takes to travel to the facility. Resources that included more than one category were grouped according the predominant feature or use.

Comparing the locations of various open space opportunities with a map that summarizes the projected increase in population for each Regional Analysis Zone (RAZ), open space opportunities that are located in the path of projected growth and development can be identified. The Summary of Projected Population Change: 1990-2020 map (Exhibit 4.4) depicts the relative magnitude of population change as projected by the Maricopa Association of Governments. Population growth for each RAZ is mapped according to the magnitude of the projected change. This information begins to identify where priorities for open space policies, land acquisition, and facility development need to be applied.

Based on this analysis, open space opportunities were divided into three general areas:

1. Protection of important rural open space resources that are unlikely to be developed in the next thirty years.

2. Conservation of open space resources, potential recreation land and trail opportunities in the urban fringe areas that are likely to be developed in the next thirty years.

3. Rehabilitation of urbanized open space opportunities, that have been degraded by urban development.

These areas are described below:

Rural Areas

The conservation of open space in rural areas has historically been the responsibility of Federal agencies and the County parks system. Historically, designation of public conservation and recreation areas has focused on mountainous rather than riparian areas. This is partially due to private ownership of irrigatable farm lands that have been developed along the river systems. Outlying river systems that are relatively pristine in character are a significant open space opportunity. Future development patterns threaten long term protection of National Forest lands nearest the growing communities of Scottsdale, Fountain Hills, Cave Creek and Carefree. Land adjacent to and within the National Forest possess characteristics that make them attractive to development such as, lush vegetation, scenic views, and cooler temperatures.

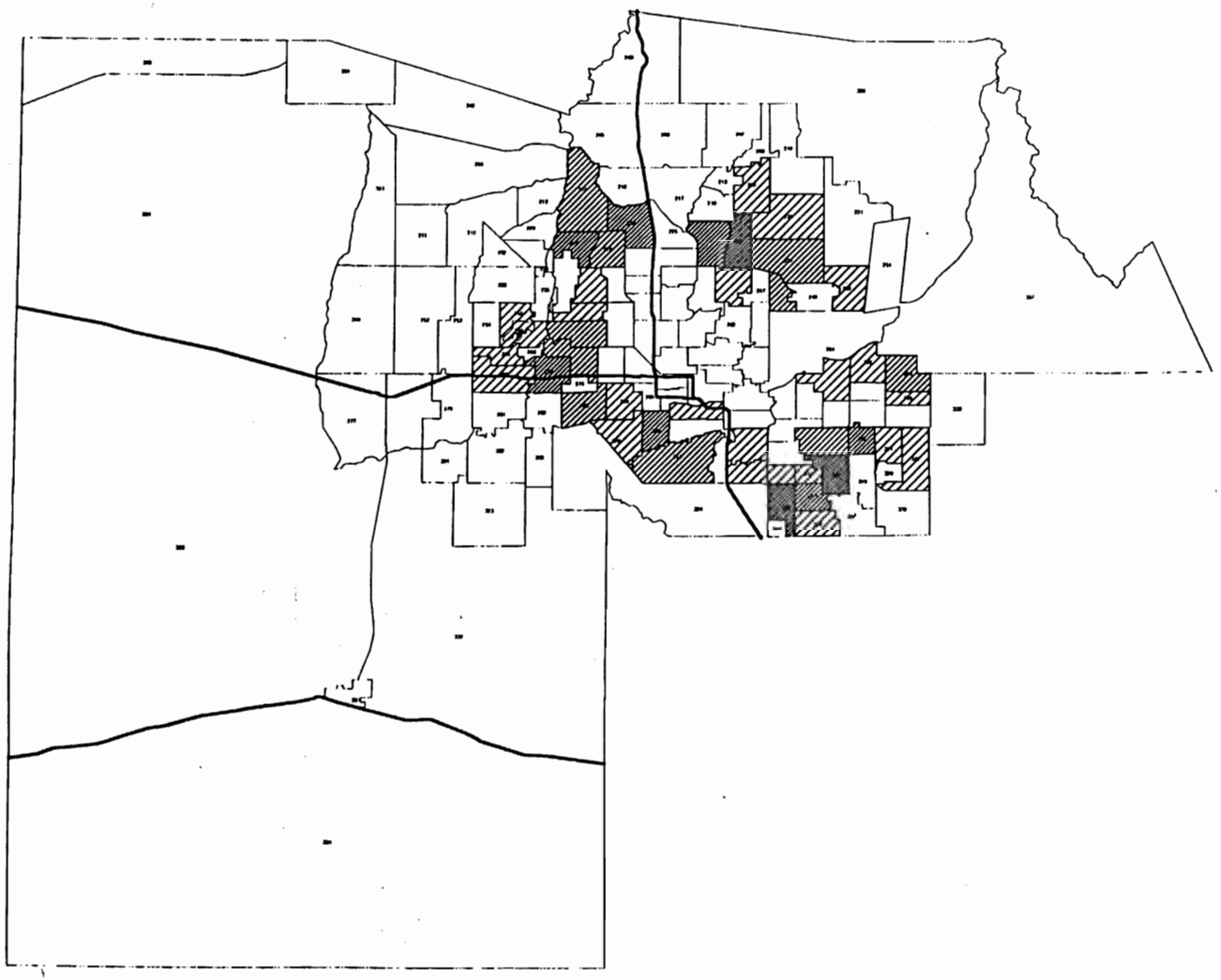
Urban Fringe

In the "urban fringe" future development represents both an opportunity and a potential threat to conservation of open space resources. It is an opportunity to ensure that as state lands and private lands are developed, valued open space and land for parks is preserved. At the same time, it is a threat because it may mean the permanent loss of open space if development takes place on valuable hillsides or riparian and xeri-riparian areas. The opportunities for active recreation uses may also be lost if developable park land is not acquired either as part of the development process or ahead of development.

Urbanized Area

Opportunities to rehabilitate areas that have been degraded by development include the Salt River and most of its tributaries that flow through urban areas. The banks of canals are also a significant urbanized resource for developing needed trails.

The Summary of Projected Population Change: 1990-2020 map (Exhibit 4.4) identifies where growth and urban development are most likely to take place. These changes will result in both positive and negative impacts on open space, scenic quality, wildlife habitat and recreation. Potential conflict exists if these lands develop before open space is protected or consolidated, permanently precluding the opportunity for their integration into an open space system. It is important to protect open space before development divides property into many small privately-owned parcels, and before the cost of the land makes acquisition by public agencies unfeasible.



Maricopa Association of Governments

DESERT SPACES PLAN

Maricopa County, Arizona

Exhibit 4.4

SUMMARY OF PROJECTED POPULATION CHANGE: 1990-2020

Legend

Symbol	Population
	0 - 15,000
	15,001 - 30,000
	30,001 - 45,000
	45,001 - 60,000
	60,001 +
	Regional Analysis Zones (RAZ)

Date: 10/21/94

Demographic information and RAZ boundaries provided by MAG TPO

Scale in miles: 0 2 5 10

North

DESIGNWORKSHOP
In association with:

Cornoyer - Hedrick
SWCA Environmental Consultants
Browne, Bortz & Coddington, Inc.
Research Advisory Services
Streich Lang

Exhibit 4.4
Summary of Projected Population Change: 1990-2020

4.8 CURRENT OPEN SPACE DISPOSITION AND GOALS OF MEMBER CONSTITUENCIES

This section identifies the current open space goals for the municipalities and agencies within the MAG region for the purpose of comparison and to identify common goals and where conflict exists.[1] Key elements and common goals are summarized in this section.

4.8.1 Open Space Plans

A standardized survey was distributed and collected by MAG to compile a library of existing open space plans and studies for areas within the MAG region. The various jurisdictions, as well as other known sources, were solicited in this collection of data. The purpose of the survey was to identify open space management policies throughout the region. A summary list of goals and objectives follows:

Trail Linkage

Using multi-purpose trails to connect open space is a common goal. Trails connecting areas within a community, i.e., urban with natural areas, schools with neighborhoods, and residential with employment areas is strongly supported. In addition, trails that provide a link between jurisdictional boundaries are a common thread. Several linear systems are mentioned as possible conduits including: washes, drainageways, rights-of-way, canals, freeway corridors, and public utility easements.

Bicycle Trail Development

The development of bicycle trail systems is a common goal with several jurisdictions. Various trail systems are desired to service different types of bicyclists including recreational, commuter, and competitor, as well as the off-road bicyclists. There is a desire to connect major activity areas with bike trails, as well as to provide bike path connections between jurisdictions.

Potential Uses of Canals

Several jurisdictions have goals to utilize and enjoy the canal systems for open space, recreational uses and as a means to interconnect communities throughout the region.

Park Development

Goals associated with parks center around a desire to provide a variety of recreational opportunities, specialty parks and adequate open space. Most jurisdictions encourage joint use of public school sites and parks. Parks that service children during the school day and the general community residents during the evenings and weekends are viewed as an efficient use of land and equipment and create a neighborhood focus.

Natural Resources and Drainage Corridors

Several goals related to the environment include: protection of the natural desert, washes, hillsides, riparian areas, mountains, wildlife habitat, flood plains, upland desert vegetation, archeological and historic sites. These goals focus on a common desire to maintain the natural systems that function to enhance the region's environmental resources.

Open Space Acquisition

Several communities have goals to provide neighborhood and community parks through open space acquisition. A variety of acquisition methods are utilized, including Federal, State and County grants, dedication, donations, fee simple purchase, and conservation easements, residential development tax, and redevelopment opportunities.

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[1] Disposition goals and management plans for Federal, State, and County agencies were identified. After identifying common goals and areas of conflict, several MAG member and non-member agencies were visited by members of the project team to discuss the common goals and identify critical open space concerns and/or opportunities for the community.

Regulation of Private Development

Several jurisdictions have goals that require open space dedications and/or improvements with the approvals of master planned developments, subdivisions, planned area developments and other residential and mixed use developments. Private residential developers are often required to participate in the provision of parks and trails through fees, dedications and construction.

4.8.2 Federal Agencies

All County, State and Federal agencies, to varying degrees, have management policies and/or mandates to protect/enhance wildlife and riparian areas, develop open space opportunities and cooperate with other agencies to accommodate recreational uses. The following paragraphs summarize a survey of the relevant policies of the various government agencies that directly or indirectly impact open space areas in the region.

U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service's primary role is to enforce the Endangered Species Act. If there was a National Wildlife Refuge in Maricopa County, the U.S. Fish and Wildlife Service would manage the refuge. No wildlife refuges are planned for Maricopa County at this time.

Any leases, land exchanges, development of trails, etc. on Federal land would be reviewed by the U.S. Fish and Wildlife Service for compliance with the Endangered Species Act, the Migratory Bird Treaty Act and the National Environmental Policy Act. USFWS' role in the development of a regional open space will be that of a regulatory agency and advisor.

The Bureau of Reclamation

The Bureau of Reclamation (BOR) is responsible for the management of Federal construction projects, i.e., the Central Arizona Project (CAP) Canal and dams. They have entered into several public purpose agreements with local jurisdictions for the use of the land adjacent to their projects. A good example of this is the City of Scottsdale's agreement with BOR to manage the Tournament Players Course on land north of the CAP.

The Bureau's primary responsibility in Maricopa County is the management of the CAP Canal and a limited amount of land holdings associated with dams and detention basins. It is the Bureau's policy to permit public use of all lands under its control providing the use is compatible with the Bureau's use of the land.

The Bureau plans for recreational activities and facilities in accordance with their development plans. In addition, these plans are designed to be safe for users and to protect the land and water resources from environmental degradation. The Bureau, by law, must consider any joint use opportunities for outdoor recreation, fish and wildlife enhancements in association with their multi-purpose water resource projects.

United States Department of Defense

The Department of Defense manages approximately 820,970 acres of land within Maricopa County. Their major land holdings include Luke Air Force Base, Williams Gateway Airport and a portion of the Barry M. Goldwater Air Force Range south of Gila Bend. Air Force policy is to manage resources, including land and facilities for maximum mission effectiveness while conserving natural resources and enhancing environmental quality.

United States Forest Service

The mission of the Tonto National Forest (USFS) is to meet stewardship responsibilities for natural forest lands and resources by: providing a continuing supply of quality water; a broad range of year-round outdoor recreational opportunities; archeological investigation and interpretation; promoting quality wildlife and fish habitat; preserving habitats; providing for domestic grazing; providing for the utilization of timber, minerals and special land uses; expanding public understanding of the environment; and coordinating activities with various governmental entities. (Tonto National Forest Plan - October 1985)

Management Policies

The U.S. Forest Service through the U.S. Department of Agriculture manages the Tonto National Forest which is the only Forest Service land in Maricopa County. The portion of the Tonto National Forest, located in the northeastern Maricopa County comprises 655,614 acres

USFS manages all of its resources (wood, water, forage, wildlife, and recreation) under the Multiple Use Sustained Yield concept. This policy provides for the greatest good to the greatest number of people over time.

Land Acquisition Disposition Mechanisms

Land ownership adjustments within and adjacent to local communities serve to significantly increase efficiency in resource management and to satisfy the needs of expanding communities. Privately owned land within National Forest areas can be acquired via land exchanges or through funds from the land and water conservation fund. In the past the Tonto National Forest has traded away lands along its western edge, near the cities of Scottsdale, Fountain Hills, Cave Creek and Carefree. Currently, the USFS has additional lands in these areas earmarked for future disposition.

A management goal of the Tonto National Forest Plan - 1985 states that the Forest Service is attempting to achieve a management situation that can respond to local or national demands for a wide mix of recreational opportunities, including wildlife related uses, that range from the primitive to the urban end of the spectrum. The Forest Service has several recreational related projects planned for Tonto National Forest such as trailheads, boating sites, and campgrounds.

Bureau of Land Management

The mission of the Bureau of Land Management (BLM) is to provide for orderly use and development of public lands and to preserve the land and its resources from destruction. (Lower Gila South - Resource Management Plan/EIS - 1985.)

Management Policies

The BLM periodically prepares plans to ensure that public lands are managed on a multiple use and sustained yield basis and that the quality of natural resources is preserved. BLM restricts or controls access to some properties to prevent environmental degradation. The Bureau of Land Management encourages a variety of recreational opportunities based on accessibility, location to urban areas and environmental sensitivity.

Land Acquisition Disposition Mechanisms

Land ownership adjustments within and adjacent to local communities serve to significantly increase efficiency in resource management and to satisfy the needs of expanding communities. Privately owned land within BLM areas can be acquired via land exchanges or through funds from the Land and Water Conservation Fund. In the past, BLM managed land has been sold to county and municipal parks and recreation agencies.

4.8.3 State Agencies

Arizona State Parks

The State Parks Department mission is to "select, acquire, preserve, establish, and maintain areas of natural features, scenic beauty, historical and scientific interest, zoos and botanical gardens, for the education, pleasure and health of the people, and for other such purposes as may be prescribed by law." In summary, 'To manage and conserve significant examples of Arizona's natural, cultural and recreational resources for the benefit of the people." The State Parks Board does not plan to acquire or develop park land within Maricopa County, nor does it manage any parks within the County. However, an analysis of the State Parks Department is included pending the outcome of this study which may address or recommend a role for the Arizona State Parks Department in implementing the policies included in this plan.

In general, the Parks Department strives for a balance between protecting recreational resources and making parks available to the general public. The State Parks Department controls access to parks and requires user fees. Fees are needed to manage, maintain and improve parks. Controlled access is necessary to protect the park from over use.

The State Parks Board may acquire land for State parks or monument purposes through purchase, lease-back agreements, donations, grant bequests, eminent domain, trades, exchanges, life-tenancy agreements, less-than-fee acquisitions, special use and conservation easements.

The State Parks Department has various funding mechanisms available for the acquisition, development and management of park land. The source of revenue for the State Parks Fund comes primarily from unconditioned gifts, donations, bequests, and endowments.

Arizona Department of Transportation

The Arizona Department of Transportation's (ADOT) mission is to serve the public by providing a quality transportation system with licensing and related revenue collection. ADOT does not directly manage any properties for recreational open space. They will lease land to governmental agencies for recreational uses provided the governmental agency manages the property. ADOT is receptive to working with local municipalities and joint use facilities.

Bicycles and pedestrians are allowed on all State highways and portions of the interstates outside the urban areas. ADOT does not have any bike paths (a separate paved area) along any of the State highways or the interstates, nor are they planning any. ADOT's policy regarding bicycles is to provide a wider shoulder on any new or reconstructed roads where physically and financially possible, and add a white edge line.

Arizona State Land Department

The State Land Department has a fiduciary responsibility to manage State Trust lands by maximizing revenues from the purchase, lease or sale of products of the land for the Trust's fourteen beneficiaries which are primarily the public schools and a few public institutions. Unlike other public lands, Trust land is to be managed to generate revenue for the school trust.

Trust lands were created by an act of Congress in 1863. Sections 16 and 36 of each township were reserved for the benefit of common schools. Later in 1910, the State Enabling Act assigned Sections 2 and 32 of each township for the benefit of common schools and a few public institutions. Today, there are approximately 9.5 million acres of State Trust land. In Maricopa County there are approximately 670,000 acres of State Trust land.

The State Land Department is required by law to ensure that all uses of Trust land benefit the Trust. This mandate is often at times in conflict with the desires of other public agencies and municipalities who want to utilize Trust land for recreational uses or other uses for the general public.

Recreational uses and the use of Trust land by the general public is not prohibited. Trust land utilized for these purposes, however, must be purchased or leased at fair market value. The Land Department has been cooperative with local municipalities and Federal and State agencies who want to plan, lease or acquire Trust land for use by the general public, provided the Department meets all its fiduciary responsibilities to the Trust.

Public Access/Use

Access to State Trust land by the general public is prohibited and would be considered trespassing unless permission had been purchased by the State Land Department. Access to trust land can be purchased via a lease or right-of-entry from the land department. Easements and rights-of-way can also be purchased by the land department.

Land Acquisition/Disposition Mechanisms

Prior to a 1990 State Supreme Court ruling which halted the State Land Department's land exchange program, the Department made numerous land exchanges with the Federal Government and private landholders to consolidate and improve the location of Trust land holdings. Numerous State Trust land holdings are intermingled with both private and Federal properties. The former land exchange program was extremely successful in not only consolidating land ownership, but also in placing environmentally sensitive Trust and private lands into the public land ownership system.

If the State Constitution is not changed to authorize the Land Department to conduct land exchanges, environmentally sensitive Trust land that is desired for public open space programs can only be purchased at public auction by the highest bidder or leased to State, local, or governmental agencies which could be very expensive.

Leasing and Purchasing State Trust Land

Trust land within the Phoenix Mountain preserve was purchased by the City of Phoenix. Recent sales to other governmental entities for park uses include approximately 320 acres near Usery Pass and land in the Santan Mountain Range near Tucson. The Land Department prefers to sell land for park/open space as opposed to leasing it to public agencies. This is usually the preferable method of acquisition by public agencies because lease rates can increase dramatically if land values increase. Some public agencies do lease Trust land. For example, Arizona Game and Fish Department leases approximately 100 acres on a ten-year lease near Arlington to grow crops.

The Land Department has the authority to grant easements and rights-of-way. Perpetual easements or existing Trust land easements must be auctioned at fair market value, which is based on the lands highest and best use. Existing utility corridors may also be used for trails. Easements for trails which may be located as necessary to maximize the long-term potential of trust lands may be the Department's preferred method of disposition.

Planning State Trust Lands

The State Land Department has a program to plan Trust lands called the Urban Lands Process. "Urban Lands" are defined as Trust lands which adjoin existing commercially and residentially developed lands and are either:

- Within or adjacent to the corporate boundaries of a city or town.
- Within one mile of the corporate boundaries of a city or town having a population of less than 250,000 people.
- Within three miles of the corporate boundaries of a city or town having a population of more than 250,000 people.

(Source: Planning and Developing Arizona's Urban Trust Lands - Arizona Sate Land Department [brochure]).

State Trust Urban Lands are planned in cooperation with local governmental authorities similar to privately held property. The Land Department typically participates in a municipality's general planning process and later will issue a planning permit to a developer or hire a consultant to plan and rezone the Urban Trust Land. During this planning process, if there are city or county trails, schools, parks, open space systems, etc., identified in the municipalities general plan, they are included in the Land Department's development plan. Since the State Land Department by law cannot give away State Trust land for any public use, provisions must be made for the acquisition of those properties designated for public purposes.

Typically trails, small neighborhood parks and sometimes school sites are included in the sale of a large master planned parcel of State Trust land with the requirement that those uses be dedicated to a public municipality or entity. This type of sale only works if the land value of these public uses can be borne by the overall price of the parcel. On State Trust land parcels with hillside areas, it is sometimes possible to transfer density from the hillside areas to the flatter lands thereby spreading the costs of the hillside areas throughout the larger parcel and providing an opportunity for a potential bidder for the trust land to dedicate the hillside areas for open space. One weakness in this policy is that density transfer cannot occur from one parcel to another. This makes it difficult to use this as a tool for encouraging development of high density infill projects on flat lands in lieu of increasing density of the least sensitive portions of hillside sites.

Navigable Stream Adjudication

The Arizona State Land Department is the lead agency responsible for coordinating a team of consultants who are studying various stream beds throughout the State to determine if they were navigable in 1912, then this land is considered "public Trust land." This type of Trust land is not the same as school Trust land, which the State Land Department manages to benefit public schools. Some land that is now designated as school Trust land may be determined to be actually "public Trust land" depending on navigability, and if the property was designated school Trust land after February 14, 1912.

Pursuant to A.R.S. 37-1123, a Commission is required to identify any property that may be public Trust land that may have been part of a navigable watercourse. Currently, a team of consultants which include historians, archaeologists, hydrologists and geomorphologists are gathering information to try to determine the navigability of various stream beds in the State. Four streams in Maricopa County have been identified for study which are the Gila, Verde, Salt and Hassayampa Rivers.

Arizona Game and Fish Department

The mission of the Game and Fish Department is to conserve, enhance and restore Arizona's diverse wildlife resources and habitats through aggressive protection and management programs, and to provide wildlife resources and safe watercraft recreation for the enjoyment, appreciation, and use of present and future generations.

Lands managed or owned by the Arizona Game and Fish Department are almost always open to the general public. Uses or activities such as camping, may be restricted however, on some properties. There are also definite restrictions on hunting in specific wildlife areas whereas other properties were acquired and are managed for hunting and fishing. As a policy, the Arizona Game and Fish Department does not charge user fees.

Land Disposition Mechanisms

The Arizona Game and Fish Department can sell or exchange land. This process is governed by A.R.S. 17-241. Typically, the Department does not sell property. They are, however, currently evaluating some of their small land holdings in the Gila River area to determine if the smaller isolated parcels should be sold or exchanged. In the unlikely event that the Arizona Game and Fish Department does sell property, they usually sell land subject to the reservation of mineral rights and may subject the project to public entry for hunting and fishing.

The acquisition of lands by the Arizona Game and Fish Department is governed by ARS 17-241. This statute provides the department with the authority to "acquire by purchase, lease, exchange, gift, or condemnation lands for use as fish hatcheries, game farms, shooting areas, firing ranges or other purposes." They also have the authority to condemn waters for use as fish hatcheries provided it is limited to 160 acres unless first approved by the legislature. Heritage Funds cannot be used for property acquired through eminent domain.

The Arizona Game and Fish Department owns and/or manages approximately 175,000 acres of land in the State - less than ten percent of which is in Maricopa County. The Arizona Game and Fish Department does not have any immediate plans for acquisitions in Maricopa County with the exception of lands in the Gila River area which now totals approximately 9,000 acres.

Funding

The Heritage Fund was created by the legislature and is administered by the Arizona Game and Fish Commission. Ten million dollars is allocated each year from the State lottery if funds are available. The use and the percent of funds for each use is specified by A.R.S. 17-298.

5%	Public access
60%	Identification, inventory, acquisition, protection and management of sensitive habitat containing endangered, threatened and candidate species
15%	Habitat evaluation or habitat protection
5%	Environmental education

4.8.4 Maricopa County Agencies

Parks and Recreation Services

The Department's vision is to be nationally recognized for excellence of service and contributions to the quality of life. The Mission Statement is: Dedicated to provide the public with positive leisure opportunities in a safe, accessible, and efficient manner through quality development and programming while conserving and protecting unique and environmentally sensitive areas.

Maricopa County manages in excess of 116,000 acres of land for public recreational purposes within the Phoenix metropolitan area. The County has several intergovernmental agreements to manage public land for park purposes, including an agreement with the Bureau of Reclamation to manage 24,500 acres at Lake Pleasant Regional Park.

Maricopa County controls access to its parks and often requires user fees. Fees are used to fund operations and maintenance. Park access is controlled to assist in protection and prevention of over-use.

Maricopa County Recreation Services currently has agreements with the Flood Control District and Salt River Project and various communities for the Sun Circle Trail. This involves construction, use, and management of a trail system circling the Phoenix Metropolitan area.

Land Acquisition / Disposition Mechanisms

Maricopa County has had the ability to buy and sell land for public recreation/open space uses for many years. The County can acquire land through grants, bonds, gifts, intergovernmental agreements, land leasing, management agreements, and through the Recreation and Public Purpose Act. Thousands of acres have been acquired through trades involving the State Land Department, although current legislation prohibits such trades. If legislation is changed in the future, this will again be a viable method of obtaining public land for parks and open space.

Flood Control District

The Flood Control District was established to provide flood and storm water management services for the benefit of the people of Maricopa County. These services are provided through regulatory activities, master planning, technical assistance, and structural projects such as dams, channels, and storm drains.

Maricopa County Flood Control District (District) manages its properties and projects to prevent loss of life or injury to residents and to eliminate or minimize damages to real and personal property from flooding. To accomplish this goal, the District uses a variety of structural (dams and channels) and non-structural (managing and regulating) tools. (General Policies Concerning the Allocation of Fiscal Resources to Accomplish the District's Functions and Responsibilities - July 11, 1988.)

The District discourages public access to its properties and facilities where public safety may be an issue unless another jurisdiction by written agreement accepts liability for such use and/or access. There are numerous project agreements with recreational sponsors involving District property where recreational uses are compatible with flood control purposes.

As a policy, the District encourages recreational uses in flood control projects to the extent that the uses do not interfere with the operation of the flood control facility, and the cost of maintaining the facility is not significantly increased. The District cannot provide funds to develop recreational amenities. They can, however, provide funds to upgrade elements of a flood control project such as an access road to make it desirable for recreational uses such as bike and hiking trails. Examples of joint use projects include the Indian Bend Wash in Scottsdale, the Arizona Diversion Canal that parallels the Arizona Canal from 40th Street to Peoria Avenue, and the 49-acre Crossroads Park / Detention Basin in Gilbert.

Land Acquisition / Disposition Mechanisms

The authority for the District to acquire property through eminent domain, purchase, donation, dedication, or exchange is provided by Arizona Revised Statutes 48-3603. The District has the authority under Arizona Revised Statutes 48-3603 to also dispose of property. Disposition of land and personal property can be accomplished by sale, exchange, or other lawful means.

Maricopa County Department of Transportation — Transportation Planning Division

Maricopa County Department of Transportation, Transportation Planning Division, has a vision to be a national leader and innovator in the development and operation of regional multi-modal transportation systems. Their mission: To plan and implement an environmentally balanced multi-modal transportation system that cost effectively serves the regional needs.

Lands under the jurisdiction of the Maricopa County Department of Transportation are managed and maintained by the department. Most of these lands within the jurisdiction include roadways, right-of-ways, and other lands associated with transportation corridors.

Public Access and Use

Public access and use of land managed by the Maricopa County Department of Transportation, particularly right-of-way areas, is allowed. The Real Estate Division is responsible for acquiring the necessary rights-of-way for road improvement projects. The Acquisition Section is responsible for, in conjunction with the Delineation and Appraisal Sections, coordinating the Real Estate activity for road improvement projects, acquiring right-of-way, verifying property ownership, reviewing legal descriptions, and reviewing appraisals.

Maricopa County Planning and Development

The mission statement of the Planning and Development Department is to professionally and efficiently perform mandated functions and provide quality planning and development services to the citizens of Maricopa County. The vision statement: A Department recognized for its ability to professionally and efficiently satisfy State mandates and provide quality planning and development to its citizens.

Unincorporated lands within the jurisdiction of Maricopa County are regulated by the Maricopa County Planning and Development Department, in addition to other governing departments. The Planning and Development Department develops and enforces regulations set by the Planning Department, in accordance to the public approval process. Ordinances and regulations adopted by the department set regulations and standards that allow public access and use of lands within the Maricopa County region.

4.9 CRITICAL CONCERNS

Several MAG member and non-member agencies in Maricopa County were visited by the project team members to discuss common goals and objectives and to identify critical open space opportunities and concerns in their communities. The following paragraphs are summaries of the critical open space issues and concerns voiced by various agencies visited.

Government land ownership and trade policies (i.e., USFS, BLM, State Lands) are jeopardizing potential open space. There are concerns that land held by the government and areas being sold or traded are subtracting from the potential open space opportunities. Lands held by the government which could serve as open space or recreation within the urban area are often traded or sold to the private sector in exchange for outlying properties. For instance, the USFS, for ease of management, disposes of individual parcels of land near urban area if they can trade it to obtain individual private parcels within large tracts of USFS property.

There is not enough concern about protecting the Sonoran Desert. MAG member agencies feel that the Sonoran Desert is an integral part of the open space within the regional and statewide area, but the regulations preserving the desert are not as intense as the protection of forested lands. There is a general feeling that a stronger emphasis should be placed on preservation of the Sonoran Desert.

The Maricopa County Flood Control District is concerned that the natural drainage patterns may be altered if development occurs without maintaining floodways major drainage features as open space. The district also expressed its interest in developing common open areas where environmental mitigation and restoration projects may occur.

The County has no authority to require private developers to make dedications or payments in lieu of providing open space and/or parks. A general consensus is that to preserve open space and create recreational opportunities within potential open space areas, dedication or payment in lieu should be required from developers. This allows development to occur while preserving open space areas and maintaining the natural integrity of the land. New enabling legislation may be required to provide the County with the legal authority to require open space dedications.

The County does not have any policies regarding preservation of agricultural lands, which includes 95% of land within the western and southern areas of the MAG region.

The Bureau of Land Management's policy is to trade lands to create even property lines and eliminate individual checkerboard parcels that could be otherwise utilized as recreational areas interspersed in the MAG region. Although this policy decreases maintenance costs for BLM, it contributes to the depletion of potential open space with our urban areas.

All State lands must be appraised and are disposed of at fair market value, through auction. Large park areas cannot be placed on State land parcels, without consideration of how the land would be purchased, although some communities feel it would be appropriate. MAG member agencies are concerned with the State mandate that State lands must be auctioned at the fair market value.

State Lands exchange authority was taken away two years ago, which would have allowed the potential for open space/preserve sites in urban areas. Member agencies would like to see the reestablishment of the exchange policy to preserve and maintain the open space potential that is available on select State lands.

Many washes traverse through private property and, although they provide a potential for trail systems, land owners do not want equestrian or other trails through their property. Agencies feel that this is a loss of potential open space systems. They feel policies and regulations should be developed to allow for the public use or dedication of washes for future preservation and use.

Liability issues are a concern when using canals for open space or trail systems, causing objections from the utility companies who own the canals. Agreements with utility companies and other agencies that control canals should be preserved allowing public use and reducing liability concerns. Maricopa County currently has agreements with the Flood Control District and Salt River Project for the Sun Circle Trail.

Some communities have little desire for open space or trail systems. (They prefer to develop at a lower density and let people recreate in their backyards or elsewhere - golf, tennis clubs, etc.) A major goal of most communities is to provide an interconnecting open space system between the communities and participating agencies. Creating a consensus among the agencies will determine the success of such a plan.

Some communities are not planning trail systems because their residents are not asking for them.

Communities are concerned that their parks are being used by non-residents. This is a valid concern in some communities where they are adjacent to communities that do not have the funding or desire to provide parks for their own residents.

Communities have expressed a concern that previously adopted plans have not been implemented, such as the Sun Circle Trail System in the 1978 County General Plan. The MAG Regional Open Space Plan will address past plans and coordinate them with other plans in the planning area, creating a consistent and overall plan among MAG member agencies.

Little cooperation from transportation engineers (ADOT) for necessary pedestrian and bicycle access when designing freeway improvements. Some agencies involved in transportation planning and design do not have the same goals or concerns regarding pedestrian and bicycle access as many of the MAG agencies do.

Sometimes the objectives of the County Flood Control District may be inconsistent with the concept of publicly accessible open space systems along rivers and drainage channels. A flood way designed to move water as efficiently as possible should be more consistent with the desire by communities to include open space, landscape, and recreational facilities within drainage ways. An excellent example where both goals were achieved, is the Indian Bend Wash in Scottsdale, Arizona.

Scottsdale, Phoenix, and Tempe are working together to link several destination areas with the Papago Trail. This will serve as an integral part of the connection among communities. It will provide an example system and a beginning network that the other MAG member agencies can develop towards.

4.10 COMMUNITY NEEDS ASSESSMENT

The community needs assessment solicited the general public's opinions and ideas about current open space related issues. Input on topics ranging from the need for neighborhood parks to implementation and funding strategies was received. This input was critical because the public will be the ultimate judge of the plan's viability.

The needs assessment was accomplished by holding a series five Focus Group meetings. A Focus Group is a meeting of about ten to twelve carefully selected people from the community who represent a variety of interests and geographic areas. The meetings were recorded on both video and audio tape. As a result of conducting five meetings, and asking the same questions at each meeting, common themes, attitudes, and approaches to open space issues were identified. The information received helped define the criteria used to evaluate proposed open space configurations and it to identify implementation methods. All statements made were the opinions of the participants, and that the participants were not officially representing any group or agency.

4.10.1 Preference Survey

Between May 18, 1993 and May 21, 1993, five Focus Group meetings were conducted with residents from various geographical areas within Maricopa County, business and civic leaders and representatives of various constituent groups. These focus groups were conducted with the goal of obtaining citizen perceptions and preferences for open space within Maricopa County. The information obtained from these lively sessions was extremely important in providing guidance to the development of the Regional Open Space Plan. The following are the key findings and conclusions obtained from these meetings.

Key Regional Issues

Respondents were asked to list the key issues facing the County today. Many different issues were identified as important community issues, but the one most often rated as most important was *"growth."* Included within this category were a number of items including, *"quality of life," "managing growth," "rapid development without consistent plans or zoning," "density and inappropriate development"* and *"too much traffic."* Although various types of open space and recreation were generally not identified as being in the top five regional issues, respondents often stated that open space was a key (if not the key) ingredient of *"quality of life."*

The second most commonly identified issue was *"improving economic conditions," "economic development"* or more simply, *"jobs."* There was clearly some tension between *"quality of life"* and *"jobs"* with several respondents indicating their frustration over the Phoenix area's inability to preserve its special quality of life and create economic activity; the two issues shouldn't necessarily be opposing. As one respondent stated, *"The biggest threat to open space is growth. On the other hand, having open space could be one of the major selling points in bringing people to Phoenix. So I think open space is an economic plus."*

Other community issues which were mentioned less frequently included: crime and gangs, pollution, and education.

Open Space Definition and Purposes

Open space was considered an important regional resource by every focus group and one respondent summed up his perception this way. *"Part of the reason people move to this state is the perception of what it's like to live in Arizona. Part of that is an outdoor-oriented lifestyle, an attitude that's free and open. And open space is important to that."* The term *"open space"* means a lot of different things to different people, but in each group there was a consistent list of what constitutes open space in Maricopa County. This list included:

- ψ Parks — with an emphasis on active or developed recreation
- ψ Natural preserves — *"save the Sonoran desert, its what makes us different from anywhere else," "retain the natural environment; not just putting grass everywhere"*
- ψ Undeveloped mountains
- ψ Canals
- ψ Washes, lakes, rivers
- ψ Trails, connections, linkages
- ψ Agricultural land — particularly in southwest area
- ψ Accessibility to public lands
- ψ Scenery
- ψ Wildlife
- ψ Outdoor education
- ψ *"Psychological Refuge," "Peace of Mind," "Solitude"*
- ψ Separation between communities and buildings — *"managing growth," "pressure from adjacent urban development"*
- ψ Geographic distribution of open land throughout County
- ψ Amenities — golf courses
- ψ Utility corridors

Neighborhood and Community Parks

The availability of neighborhood and community parks varies widely throughout the region, with the perception that there are more parks in older neighborhoods than in newer growing areas. As several respondents noted:

- ψ *"The community has not kept up with park needs as growth occurred."*
- ψ *"I think there might be a disparity in the quality and availability of parks in different areas of the region."*

In general, people in the more rural areas of the region talked less about developed parks and more about access to natural open space. *"The parks that we use as parks are really open spaces and privately held lands that we just use, because they haven't been closed off, yet some have."* In these areas there is a general perception of *"impermanence"* of access to open lands and new development often closes off access. *"Individual developments have internal parks, but they are servicing their own residents, they are not publicly accessible."* Moreover, in rural areas access to ballfields may be difficult with residents driving long distances for kids to participate in active recreation. *"From my house to the nearest ballfield it's at least ten miles."*

Many respondents stated that maintaining local and County parks is becoming more difficult with tight fiscal budgets.

- *"When the dollars get short, one of the first things that get short-changed is the parks department."*
- *"The budget for maintenance is totally inadequate; a big issue is funding of the existing facilities."*
- *"The parks aren't going to manage themselves; they need management plans and special attention . . . each County park needs to be looked at."*

Virtually all respondents indicated that they thought neighborhood and community parks were a local responsibility. It was noted that several jurisdictions choose not to provide any parks which put greater pressure on adjoining community parks.

Recreation

Most respondents thought that regional residents were more concerned with active recreation such as ballfields and organized sports than with hiking and biking which are traditionally characterized as passive recreation. Respondents own opinions reflected a need to provide both passive and active recreational activity (*"A good balance of both."*) and that the land itself should determine the appropriate type of activity. One focus group replaced the active/passive terminology with a *"developed/natural"* recreation differentiation which they felt was more accurate for Phoenix.

There was concern that the Mountain Preserves are *"being loved to death"* and that more passive areas are needed to meet demand, particularly near population centers. At the same time, a number of respondents indicated that most people don't know about the variety of parks in the County park system which is an underutilized resource. *"It is a lack of awareness, but a lot of the problem is that people don't like to drive."* At the same time it was pointed out that *"All of the regional parks are within about a half hour of the metropolitan area."* There was a great deal of appreciation for the County and Mountain Preserves as a unique resource. *"The regional park at the Phoenix Mountain Preserve is probably one of the best in the country. So in regard to open space, it's now more a question of protecting natural areas that are in the path of development, and the connections for the inner-city user."*

Many of the residents around County parks and Mountain Preserves view them as *"their"* parks and are not excited about seeing these parks improved so that more metro residents can visit them. A respondent expressed disappointment that *"wildlife viewing has become nonexistent in Phoenix."* Another stated that *"you take your life in your hands trying to get places on a bike"* and identified the need for more dedicated bike trails, lanes and paths.

- *"Our system is really fragmented when you combine the urban parks and the County parks, it's still not interconnected. Maybe a piece of the puzzle is to look at where we presently have parks, and where we desire to make linkages."*

Open Space Systems

The components of an open space system for Maricopa County which were consistently expressed in all the groups included:

- Parks near to where people live and work.
- A range of recreational opportunities — with a mix of active and passive.
- Interconnected System of Trails, Canals and Bikeways, connect major community and regional parks.

- Natural Areas — people varied in their opinions as to how accessible these areas should be, some stating that public areas should be accessible and others stating that wildlife characteristics might preclude human access, natural areas identified included riparian, wildlife, desert, and mountain areas.
- Flood Areas — these are great opportunities and they should be used for recreation and to preserve natural characteristics while mitigating floods.
- Public Access — open space should be equitably distributed around the region and openly accessible.
- Outdoor Education.
- Good Management, i.e., anticipate and resolve user conflicts, such as horses and bikes.

Consequences of Not Addressing Open Space Needs

The following comments were made when respondents were asked what the consequences of not addressing the open space needs of the region would be:

- *"Quality of life degrades."*
- *"A poorly managed city that people are not going to want to move to or visit."*
- *"We become Los Angeles."*
- *"Further decline of natural resources . . . loss of habitat."*

How to Create Open Space System

Although the respondents varied widely with regard to the emphasis they would place on components of the open space system, there was a general sentiment that there would be little public support until a clearly articulated vision of the system was created. The need for a strong, clear, and publicly beneficial vision was repeatedly stressed. *"We need a vision of what we're going to do and the wherewithal to do it."* In addition there was a recognition that open space is a regional issue requiring regional cooperation . *"You can't establish a mix of responsibility of all these groups without going through an organization like MAG or something. It's a regional issue."*

Role of MAG and Local Jurisdictions

There was general agreement that a regional focus is necessary and that the timing was right for MAG or the County to provide the leadership to create the vision for a regional open space system. Throughout the sessions there was skepticism of government's ability to effectively implement an open space program but at the same time optimism that progress could be made on open space issues.

In general, it was felt that local jurisdictions are the most appropriate level to implement most of the open space improvements. *"The local jurisdiction is the only one that can make the effective tradeoffs with the private sector."* However, these efforts need to be coordinated through the regional vision with either MAG or the County taking a leadership and coordinating role. *"There needs to be a trust developed between the participating municipalities."* It was stated by one respondent that *"this issue requires regional cooperation and establishment of a new partnership with the locals."* There was also the feeling that there are numerous good plans sitting on shelves and many *"broken promises."* *"Government needs to be straight with people."* One respondent indicated that if there is no follow-through, *"this will be just another plan gathering dust"* and could actually be counterproductive.

Acquire vs. Manage

Respondents were torn between whether it was more important to acquire more open space before it disappears or whether it would be more responsible to better manage what we've got first. A number of respondents expressed a concern that more open space is not necessarily better. Parks and open space resources are currently not receiving an appropriate level of management and perhaps we should take care of what we have before adding anything new. Others stated that when open space is acquired, funds should be identified and set aside for appropriate management. Others felt that open space was being lost rapidly and that it was necessary to take advantage of opportunities to preserve open space even if management funds were not immediately available.

Willingness-to-Pay

There was a great deal of discussion about whether people would be willing to pay more to create open space and recreation areas. Most agreed that people would be willing to pay more if there was a well-developed vision of the open space system, if the types of lands and activities were well identified, and if they thought government could deliver in an equitable and honest fashion. One respondent noted that the County bond vote for County parks failed several years ago mostly because the economy was in bad shape. People would be willing to pay more if the right package is presented to them.

- *"We've had an awful lot of broken promises. Any bond issue that goes before the public has to specify what it's going to do."*
- *"People voted for the Heritage Fund. People support parks. It's elected officials who don't support parks, because they have so many (other) priorities."*
- *"People are willing to pay more for parks if they know that's where it's going."*

However, it is clear that smaller, manageable projects are the way to approach people. The Rio Salado project was mentioned several times as a project which was grandiose in scale and was *"more real estate than open space protection."*

- *"Rio Salado didn't pass, not because people weren't interested in the Rio Salado, but because it was an overly big, bad project. A smaller, more appropriate package that people feel they have a part in developing, that might go."*
- *"Rio Salado was very difficult to grasp. We have to have jurisdictional buy-in to specific projects that will come on line at a certain time."*

Implementation Techniques

The following techniques and funding sources were mentioned by respondents as feasible alternatives to acquire or protect open space:

- Heritage Funds
- Lottery
- Taxes; sales, real estate, and property
- Conservation easements and donations
- User fees
- Bonds
- Nature Conservancy and other land trusts

- ψ Density Transfers
- ψ Hillside and sensitive lands regulations
- ψ Retention of natural drainage
- ψ Urban growth area boundaries around communities
- ψ Joint flood control and recreation/open space projects
- ψ Linking open spaces between developments
- ψ Partnerships between schools and parks
- ψ Park dedication

The theme of *"success breeds success"* and incremental steps to achieving success was a popular notion. The idea of a County pool of funds raised through bonding for use by local jurisdictions received support in several sessions. Another issue with regard to implementation on which there was a great deal of agreement was that development should be managed better.

- ψ *"The reality is, through the development process, we can create a lot of the system we're talking about."*
- ψ *"I'd like to see a lot more done in the way of private and public partnerships and developers being involved in the process of achieving a lot of these goals. They may even save the City money and still accomplish some of the means."*

While there are a number of developers who are developing sensitively, many people stated that local governments do not demand high enough quality and protection of special natural areas. The need to coordinate various developments so that washes and drainages could be used for more natural drainage and trails was frequently identified. Several people stated that Tucson does a much better job of managing development, particularly with regard to environmental controls and in the manner in which washes are addressed. *"Tucson has a lot more passive recreation available right on the outskirts of town. A lot of the areas around Phoenix, you have to drive to."*

Many respondents felt that no one entity or jurisdiction was the answer to creating the open space system. Rather they believed that a coordinated package of public, private and non-profit approaches would be most successful. This package will work most effectively if the vision for the open space system is strongly shared and understood. In addition, the need for more effective public involvement was frequently stated.

Flood Control

Flood control was often mentioned as a source of great opportunities as well as controversy. The need to provide flood protection was not disputed; however, the manner in which flood control measures are implemented is of concern. For example, one respondent objected to the structural solutions which are being implemented in many places. Another respondent at the same meeting stated that in the recent floods if that system had not been in place over 6,000 people would have been washed out. In general, most respondents thought that a better job could be done of preserving the natural flood retention characteristics of rivers, washes and wetlands which could also be utilized for trails and types of recreation. It was pointed out by several respondents that acquiring more land to preserve natural flood retention characteristics was often far cheaper than costly structural solutions, particularly in newly developing areas. These natural corridors could be utilized to connect people and wildlife throughout the community with proper planning. It was mentioned that a great deal of money will be spent on flood control and mitigation in the next few years and that it would be a shame if the structural solutions of the past were repeated without greater consideration to more natural solutions which preserved opportunities for wildlife and trails and provided attractive amenities to local communities.

State Trust Lands

In every focus group the issue of the State Trust lands was raised. The following comments were typical:

- *"One of the things that has a big impact on open space in the County is the State land. Right now the State Land Department is charged with the responsibility to bring the most economic benefit from the land, not necessarily to the benefit of the people. Legislative leaders and the attitude of the State Land Department have to make some changes. The local jurisdictions don't have any control over it."*

- *"If MAG were to put together a plan and get buy-in, then you would have something to take to the legislature and say, 'As a matter of policy, we ought to change the laws because we place a high value on open space'. If you did identify some State lands and said the desirable thing for open space would be to preserve those lands for various kinds of activities and you had it as part of an integrated plan, then it seems like you would have a tool to give to the legislature to say, 'Let's give the Land Department a new mandate."*

- *"(The state land referendum) was defeated in Maricopa County worse than all other counties."*

- *"The BLM is much easier to deal with than the State Land Department. They are very receptive to recreational use."*

- *"There's a lot of open space land around this valley that is owned by the State and BLM, and if you want to get it, now's the time. We can't wait until the State sells it to a developer."*

4.10.2 Regional Differences in Preferences

The people selected to participate in the five focus groups were asked to attend sessions with other people who lived in the same geographic region. As a result, some of the comments reflect different priorities and a different emphasis on certain issues depending upon the region represented by the participants. At times, respondents were asked about their perceptions for the entire region and as they apply to their specific area so that regional differences could be identified. The meetings generally covered the following regions:

Meeting Number One: Central

Meeting Number Two: Southeast

Meeting Number Three: Northeast

Meeting Number Four: Northwest

Meeting Number Five: Southwest

The following is a brief summary of the comments that reflected concerns that were unique to the geographic region represented by the participants.

Central area residents often raised the issue of trail connections between parks and open spaces as opposed to the need for the destinations themselves. There also appeared to be a recognition that parks and open space means different things to different people and that no one type of park or one kind of activity should take precedence over another. The most appropriate use of a specific area should vary according to the particular circumstances.

Many comments from residents in the southeast area were similar to comments made by northwest residents, especially when they related to problems of rapid growth, and inconsistent implementation of plans. It appears that park acquisition and development has not kept pace with the rapid growth and annexation of land in several westside communities. Acquisition of parks and open space through negotiations with developers is a concern. People feel that their communities may be requesting too little from developers compared with other communities in the valley.

Residents in the northeast portions of the MAG region believe that most of their traditional park needs have been adequately met but large desert preserves are needed. Controlling the quality of development and acquiring Federal and state land before it is sold to developers are also specific concerns.

Northwest residents clearly focus on the availability of parks and how the problem may be solved by working with developers. Getting the proper plans in place and implementing them is a major concern. Many other comments are similar to the comments heard in the meeting of the southeast area residents.

Southwest residents talk about economic development and the potential trade-offs between open space conservation and development. They feel that in the past, money for development has been unequally distributed over the valley. Another concern that is not unique to the southwest but it appeared to generate more discussion is the preservation of agricultural land.

State Comprehensive Outdoor Recreation Plan (SCORP)

In addition to conducting the Focus Group meetings, public attitudes and preferences were reviewed by referring to other existing needs assessments and surveys. This process serves as a way of checking the validity of the ideas and opinions expressed by the focus group participants.

The following is a review of the recreation needs assessment conducted as part of the State Comprehensive Outdoor Recreation Plan (SCORP) and the surveys of local park and recreation needs conducted by the cities of Chandler, Gilbert and Glendale.

1992 Arizona Outdoor Recreation Needs Assessment

The purpose of the needs assessment was to provide information to assist State Parks in administering the Heritage Fund (approximately $5 million for grants to local communities throughout the state).

The survey consisted of a telephone and mail survey to find out what Arizonans think about the state's outdoor recreation opportunities. The following are excerpts from the final report:

- ψ *"An overwhelming majority (almost 94 percent) of Arizonans said that parks and recreation areas are important to their lifestyle."*

- ψ *"Arizonans expressed dramatic support for issues related to preserving our outdoor recreation heritage. More that 94 percent believe that protecting the natural environment is important for outdoor recreation, and almost 70 percent think that we need more open space parks in our cities."*

- ψ *"Survey results showed that hiking or walking activities have the highest participation rate. More than 68 percent of Arizonans enjoy hiking or walking as a recreation activity."*

The survey asked respondents to state their priorities for funding. The three outdoor activities chosen most often were visiting historic places, fishing in a natural setting and visiting archaeological sites.

The overall state needs list considered the interest of Arizonans in participating, their unmet demand, support for public funding and existing participation rates. The analysis resulted in a prioritized overall demand list for outdoor recreation activities. The top five statewide needs are:

1. Facilities for visiting historic places
2. Picnicking
3. Visiting outstanding scenic areas.

4. Fishing in natural settings

5. Visiting zoo/botanical gardens

An Evaluation of the Chandler Parks and Recreation Department, The City of Chandler, November 1992.

Ninety-five percent of Chandler's residents said they were either very (30 percent) or generally (65 percent) satisfied with the parks. Sixty-three percent said there were enough parks.

Gilbert Parks & Recreation Department Community-wide Survey, Fall 1990

The majority of respondents indicated the most important type of park is the large "District Park." The traditional activities of walking, picnicking, and swimming were at the top of the list of most enjoyed recreational pursuits. The highest priority for expenditures is improving existing parks, followed by neighborhood parks.

Glendale Parks Master Plan 1985-1995

Eighty percent of respondents use the park closest to their residences and eighty-five percent say it is important to have a park near their home regardless of its size or the recreational facilities offered.

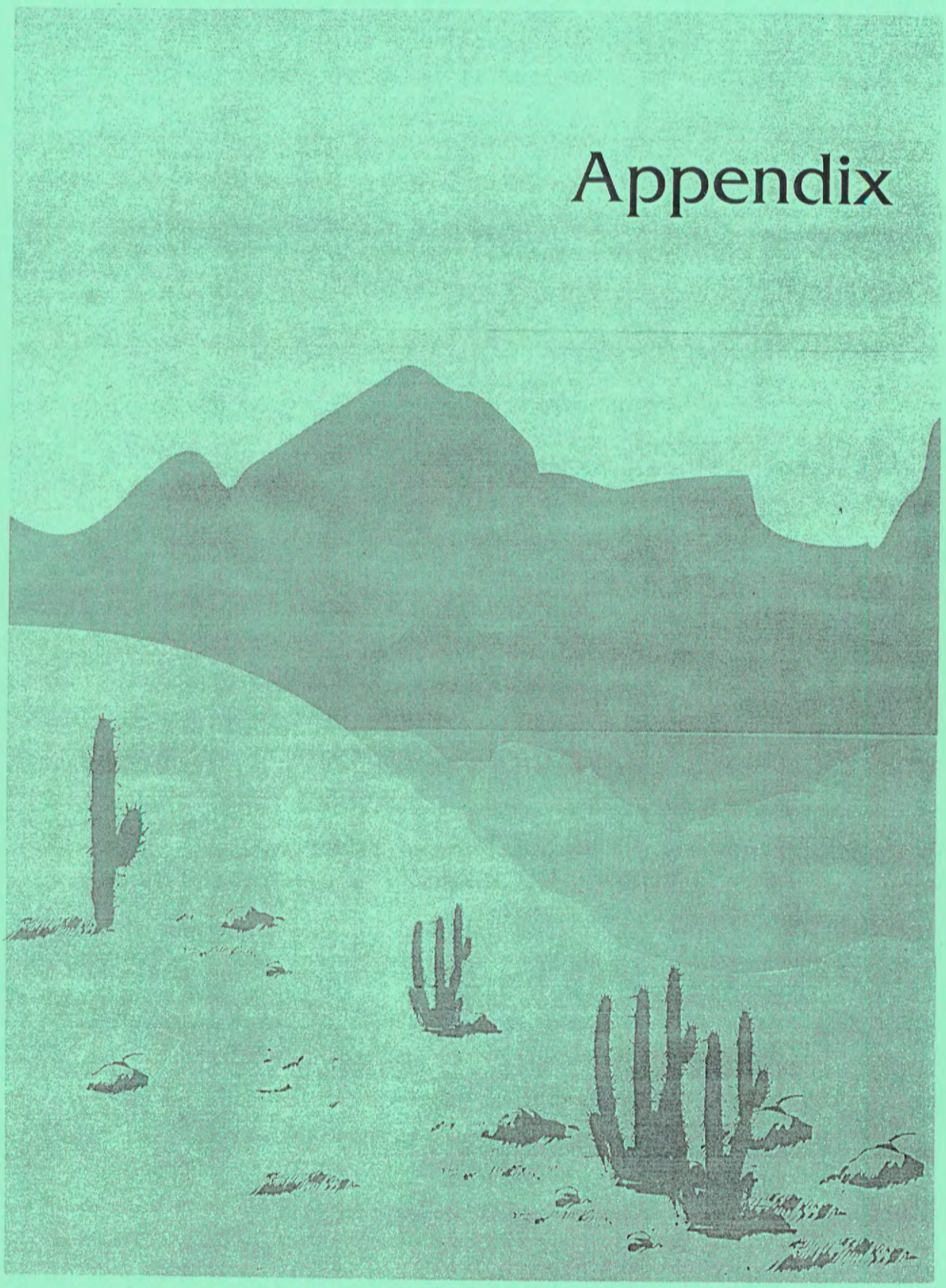
The state needs assessment confirms many of the statements made by participants in the Focus Groups. The state's assessment reinforces the fact that the general public is concerned and interested in protecting the natural environment and in developing recreation areas in the cities. The Focus Groups and the state assessment both indicate that people think we need more open space and parks in the cities. People feel that a small park or at least a trail leading to a park should be located close to their homes. This corresponds to the state survey results that showed hiking and walking as the activities with the highest participation rate.

Local parks and recreation surveys reflected residents general concern about the availability of parks within walking distance of their homes and at the same time, residents in Gilbert felt that the most important type of park is the large "district park." This agrees with many statements made by Focus Group participants.

4.11 SUMMARY

The process used to survey public attitudes and preferences has produced valuable information on the full range of issues related to parks and open space in Maricopa County. The process was able to take advantage of the expertise of approximately fifty individuals with a wide variety of experience. Overall, the general tone of the discussions was one of concern about the importance and the severity of the problem but people were also optimistic and hopeful that in the future, we will do a better job of providing parks, trail systems and conserving natural desert landscapes.

Appendix



CASE STUDIES

The following section summarizes key aspects of major regional open space systems across the country, which can be considered representative case studies for the Desert Spaces Plan. Most of these comparable systems consist of a regional or county jurisdiction with numerous local jurisdictions within its boundaries. These systems vary widely with regard to the amount of land included within the open space system. The focus of this section is to discuss alternative implementation approaches and identify factors which have led to success in the development of regional open space systems. This analysis is drawn from the open space and park systems listed below:

Name	Jurisdiction	Acres
Phoenix Mountain Preserves	City of Phoenix, AZ	26,000
Pima County Parks	Pima County, AZ	27,504
Mid peninsula Regional Open Space District	Santa Clara County, CA	33,000
Forest Preserve District of Du Page County, Illinois	Dupage County outside Chicago	21,000
Marin County Open Space District, California	Marin County, CA	10,000
Jefferson County Open Space	Jefferson, County, CO	17,410
Boulder County Parks and Open Space Department	Boulder, CO	10,000
City of Boulder Open Space Department	Boulder, CO	24,000
East Bay Regional Park District	Alameda and Contra Costa Counties, CA	70,000

In addition, reference is made to other efforts in smaller jurisdictions in the Rocky Mountain west where there are specific programs which may be relevant to the development of an implementation system for the MAG region.

Overview

Like Maricopa County, many of these counties and jurisdictions with open space management plans are either in rapidly growing metropolitan areas or their programs were instituted during times of rapid growth and conversion of open space lands to development. The Colorado jurisdictions contain a mix of federal, state, and local public lands similar to Maricopa County. The other jurisdictions have less federal and state ownership within their boundaries, reflecting a different history of settlement.

The open space management systems vary widely in many aspects but share a number of common parameters. Most of these systems are mature (two have been in existence for over sixty years), while the remaining majority have been in operation for ten to twenty-five years. For the purpose of this study, we have focused on those systems which have had enough experience to evaluate their operations and for which there is available information.

Typically, newer systems require three to five years to define objectives, begin to protect more than four or five properties, and establish a management system. Due to the long time that many comparable systems have been in existence, they are now managing large areas averaging between 15,000 and 30,000 acres. On an annual basis they may be protecting several hundred to several thousand acres, but over a continuous period of time they have established systems with significant acreage. In all cases, the primary focus of the program initially was to acquire or control for public benefit as much priority open space as practical. Management of those lands received less priority than the actual acquisition or protection of important lands.

Collectively, the experience and lessons learned from the establishment and operation of these systems is of enormous value to the Desert Spaces Plan. Open space protection and management is not a new issue and as such, these systems have useful information which can assist in guiding the Plan implementation process. Few metropolitan areas in the U.S. are protecting and managing open space resources very effectively. The comparable systems previously mentioned have all been more successful in preserving open space than jurisdictions which have no organized public efforts. Some comparable systems have utilized limited resources more effectively than others; some are managing lands more cost effectively and with better results; and, some have been more creative in their interactions with landowners and cooperative arrangements among jurisdictions. It is difficult to rate degrees of success for the open space systems because of the differences in land values, management and system objectives, degree of public access and types of uses, landowner cooperation and other variables. However, one critical measure of success was public support for the open space program in public referenda, bond issues, and funding elections.

For many of the counties in which open space management programs are active, the open space system becomes the key element in defining the community and its quality of life. For example, in Boulder, Colorado, citizens have repeatedly voted to increase funding to accelerate the pace of establishing the open space system because of the perceived benefits to the community's quality of life.

Phoenix Mountain Preserve

A local example of an organized open space management effort is the Phoenix Mountain Preserves. The City of Phoenix Mountain Preserves include over 26,000 acres of land including South Mountain, Camelback Mountain, Squaw Peak, Papago Park, North Mountain, Shaw Butte, Lookout Mountain and Shadow Mountain. The effort to protect the mountainous terrain began in the early 70's with a grass-roots campaign that was motivated by the sight of scars created by roads and residential development on the mountain slopes. Another motivating factor was the potential loss of public access to these areas. In 1971 citizen pressure on the City Council resulted in a moratorium on all building not previously approved on 15 square miles of proposed preserve and the approval of a master plan for preserving the mountains as a "wilderness park within the city." In November of 1972, voters of the state passed a constitutional amendment allowing cities to pass bond issues to buy land for mountain preserves and other open space for parks. In 1973, 1979, 1984 and 1988 Phoenix voters approved bond issues to buy land for the preserves. The total amount spent to date on land acquisition is approximately $71 million, about $12 million of which came from federal revenue sharing. Today the preserves are visited by over 5 million people annually. Management of the Mountain Preserves is the responsibility of the City of Phoenix Parks Department, the Parks Board and the nine-member Mountain Preserve Advisory Committee.

The Phoenix experience highlights three important principles relating to open space management:

1. Planning and protecting of valuable open space resources should occur significantly ahead of the time when development pressures on those resources are felt. Protection strategy, especially acquisition of land, is generally less expensive when purchases are before development speculation increases land values.

2. Open space protection should not be limited to the acquisition of isolated areas of mountainous terrain. Mountainous areas should be linked to each other via open space corridors that correspond to drainage corridors that support native vegetation.

3. Open space protection should not be the sole responsibility of the public sector. It is essential that the private sector be encouraged through incentives and regulations to play a significant role in the protection of open space and public access to that open space. Well planned and designed urban and suburban areas take advantage of the increased land values that result from integrating open space and trails into the development.

Pima County Parks

The Open Space System administrated by the Pima County Parks and Recreation Department contains about 27,504 acres. These lands are located in and around Tucson and are managed primarily for the conservation of natural and cultural resources in their pristine state. Efforts to protect the natural and cultural resources in Pima County began in the 1970's by local citizen groups, and has since grown to gain wide-spread citizen support.

Lands in the open space system have been acquired through a variety of techniques. In 1986 a bond issue worth $18 million was approved by voters. Another bond issue is currently in the planning stages.

The Cienega Creek Natural Reserve Area is a 3,974 acre preserve that is owned by the County Flood Control District but the district pays the Parks Department to manage the area for conservation and recreation. Another preserve on the system was acquired from the State Trust using $500,000 worth of Heritage funds. The Parks Department has given the maintenance and operations responsibility to a private non-profit group.

The current comprehensive open space plan for the County includes a collaborative effort with the Bureau of Land Management, and the Forest Service to preserve over 157,000 acres of land for flood control, habitat and recreation uses.

Current plans also include a long-term strategy to acquire about 1,500 miles of trails. In many areas, trail heads have been constructed by private developers. In some cases, zoning amendments, and density credits have been granted to private developers in return for land or trail dedications to the Parks Department.

Recently, innovative guidelines for protection of mini washes have been initiated by the Flood Control District. The guidelines include the ability to offer private land owners incentives for keeping their drainage features in a natural condition.

The Parks Department is also raising funds for open space acquisition by selling surplus urban park land. Sales are projected to generate about $1.5 million that will be used to acquire large tracts of land located in rural areas of the County before land values escalate.

Purpose and Function of Open Space Lands

All of the systems establish a range of objectives which the protection of open space is designed to meet. The more benefits or uses of a particular open space parcel, the higher its priority for protection. The following functions of open space are commonly addressed:

- ψ Protecting scenic beauty
- ψ Providing habitat for wildlife
- ψ Protecting water recharge areas for public water supply
- ψ Shaping urban form and preventing sprawl
- ψ Protecting natural vegetation patterns and reducing erosion
- ψ Providing opportunities for environmental education and interpretation
- ψ Providing opportunities for low intensity or intensive recreation

Most of the systems focus on balancing public access and use with maintaining or restoring natural processes. In general there is a preference for passive or low intensity usage and a number of systems manage their lands as a system of preserves designed to protect the natural character, as opposed to treating these lands as "active or passive parks."

Land Protection and Acquisition

The primary focus of most open space systems is upon the acquisition of lands for incorporation into the open space system. In even the most mature systems, a major portion of annual budgets is spent on land acquisition or protection. Many of the open space systems have criteria for determining acquisition priorities and some have translated those into ratings systems for potential acquisition sites. The Mid-peninsula Open Space District for example has the following generalized criteria for determining which lands to acquire:

- ψ Composite open space importance, how many district objectives met, i.e., scenic, urban shaping, agricultural, natural vegetation, wildlife habitat, recreation, etc.
- ψ Amount of public support for acquisition
- ψ Costs of acquisition

- Net costs of maintenance
- Degree of threat of loss to development
- Location relative to other publicly owned open space
- Willingness of landowner to negotiate
- Opportunities for joint action with other agencies

In reality, each system incorporates a mix of priority and opportunity into it's acquisition and protection program. As a result, if a landowner with a property that contains open space values is highly motivated to sell on very favorable terms, a district might accelerate its acquisition over another property which might be higher on the priority list. Acquisition is generally handled by the open space department's staff, although a number of the systems utilize a county real estate office to complete the transactions. While most open space systems possess condemnation authority, they use it sparingly since a cooperative relationship between the county and landowners is critical to the success of the protection and acquisition program.

Many open space systems acquire fee title to properties, although a number are very creative in defining the specific interests they will acquire for a particular property. For example, if a property is identified for its scenic qualities, the county may acquire a conservation easement or the development rights to the property to restrict development in the scenic area, rather than the full fee. As a result, open space funds can be stretched further and the land can stay on the tax rolls and in private management. A number of open space systems work cooperatively and flexibly with land owners to develop land protection solutions which meet landowner financial and conservation objectives, through techniques such as donations, bargain sales and conservation easements. The extent to which these more creative and less than fee acquisition techniques are utilized depends upon the clarity of open space objectives, availability of funds, the land management capability of the open space program, and the capability of the open space staff.

Many open space systems work with local or regional land trusts such as the Nature Conservancy or the Trust for Public Land to acquire lands on their behalf. Such arrangements can result in greater efficiencies for the open space system by minimizing the need for acquisition staff, lowering overhead, lowering land costs through use of tax benefits and donations, and increasing the flexibility in structuring land transactions. Many land trusts are expert negotiators and some landowners are more comfortable negotiating with a non-governmental entity for property transactions. In the case of the Mid-peninsula Regional Open Space District, Marin County and the Town of Crested Butte, Colorado, the open space program helped create a local land trust to work with the open space department and maximize the land saving options available to landowners.

Land Management

Open space systems are budgeting more and more for land management in recognition of the fact that open space resources do not manage themselves and require active management to maintain their natural character or to restore those natural characteristics. One county open space jurisdiction stated that the passive protection practices of the past must be replaced with active management to meet stewardship objectives. While management on a per acre basis is a crude measure of management effectiveness, a study of open space systems done for Boulder, Colorado showed that typical management costs per acre ranged from $100 to $200 per acre. This figure is considerably more than costs for management of National Forests or National Parks, but less than costs for more active parks and recreation areas.

Many open space systems develop area management plans for specific sections or preserves within the system which establish the management objectives and policies for the area and determine the management resources required on an annual basis. Open space systems which have sizable land holdings have rangers to patrol the lands, provide educational interpretation, and enforce the regulations for use of the system. In addition, there is normally a maintenance and construction crew responsible for maintaining trails, buildings, and facilities. Virtually all the open space jurisdictions report that the primary management issues relate to vandalism, weed and pest management, crime, educational outreach, and user conflicts as visitation increases. Since open space systems are adjacent to urban areas, it is only natural that urban problems influence management. The most successful systems are those that involve the community in the management and stewardship of their systems. For example, systems such as Boulder and Jefferson County have junior ranger programs, volunteers, and docents that lead hikes and interpretive walks. Where the community is more actively involved in stewardship of these special areas, less maintenance problems are encountered.

Funding

Virtually all of the open space systems which acquire and manage open lands are funded by dedicated funding sources such as sales or property tax revenue. Many of the programs were established after citizen initiated referenda led to the establishment of the programs. In most cases where property taxes and sales taxes are utilized, bonds are issued based on the projected revenue stream so that the size of funds available are relatively large. For example, some of the larger systems have budgets in the $10 to $20 million range, with most of these funds going to acquisition. In some cases, other taxes are utilized such as a land or real estate transfer tax, which has the benefit of generating funds for open space acquisition based upon the volume of real estate activity. Telluride and Vail, Colorado both utilize real estate transfer taxes to fund open land purchases. In many jurisdictions, however, transfer taxes are a politically difficult issue.

Many of the more recently created programs are funded for specific periods of time related to the amounts and time required to acquire identified areas and resources. For example, the open space acquisition program established two years ago in Ft. Collins, Colorado, is funded by an increase in sales tax for a five year period. The five year sunset and limited annual spending (approximately $5 million per year) place continuous pressure on the city to spend limited funds as creatively as possible. Experience has shown that a well developed rationale and vision for an open space system can receive substantial public financial support. Moreover, the real estate community in places like Boulder actively endorses the open space program since it has seen the advantages of the open space program in increased attractiveness of the community, appreciated land values, and improvements in the quality of life.

Alternative Implementation Options

The following section briefly identifies a number of techniques in addition to the open space programs previously identified, which have been utilized in various jurisdictions around the country to protect open space. As will be discussed later, the types of options that are pursued relate to the varying definitions of the open space program and objectives.

Purchase of Development Rights (PDR)

A number of states and counties have established programs which purchase development rights or easements on lands such as agricultural lands so that they stay permanently open. These programs are primarily on the East and West coasts and are aimed at farmland retention in rapidly growing areas. PDR programs keep land in private ownership and management, keep land on the tax rolls, and ensure that the land will be kept open permanently. Approximately twenty states and counties have PDR programs, particularly in the northeast.

Transfer of Development Rights (TDR)

While transfer of development rights is a concept which planners have discussed for years, it has only been successfully implemented in Montgomery County, Maryland. The concept works by transferring development rights from lands which should stay in open space to areas where increases in density are encouraged. Those landowners wishing to develop to higher densities in the "receiving" areas purchase the development rights from landowners in the "sending" areas to be protected. The virtue of the system is that it establishes a free market system of moving development to publicly identified desirable locations. In the West where land use regulation is often controversial and more flexible, TDR will generally not work.

Regulation

There are numerous regulatory techniques which have been utilized to protect open lands. These relate to open space and agricultural zoning, resource conservation or agricultural districts, establishment of urban growth area boundaries, density bonus for conservation of a portion of land, limitations on extension of utilities, mandatory clustering and other techniques. In general, regulation alone is not an effective open space protection technique. In many jurisdictions, open space designations are merely holding zones for future development with no assurance of long term protection.

Open Space Bonds and Referenda

Many states (including California, Vermont, Iowa, Colorado, Florida), cities (Boulder; Ft. Collins, Colorado), and counties (Pima, Arizona) have enacted special bond issues to fund the establishment, purchase, and management of open space. Where these initiates result from a extensive public discussion, definition of the proposed system, and the monies are perceived as necessary to do the job they have passed. In California where many open space bonds have passed, the most recent statewide initiative, Big Green, was turned down because it was perceived as excessive. The City of Ft. Collins, Colorado (pop. 70,000) on the other hand adopted an increase in sales tax to fund the establishment of a natural areas system. The vote was the result of three years of effort to identify important natural lands throughout the community.

Land Trusts

Land trusts are nonprofit public interest conservation organizations dedicated to utilizing voluntary, cooperative techniques to protect open lands. They vary from small local groups dedicated to protecting particular resources such as the McDowell-Sonoran Land Trust to groups like the Trust for Public Land and the Nature Conservancy which are national organizations with regional offices throughout the country. Many land trusts work with public programs to acquire lands for public entities, often at less cost than the public, and often they provide bridge financing when the timing or availability of public funds is a problem. They can serve as partners in the acquisition, protection and management process. For example, the nonprofit Greenway Foundation in Denver has not only worked to create a greenway along the Platte River, but is under contract to several jurisdictions to provide maintenance and patrol to sections of the greenway system. High school youth on bicycles are hired to provide patrol and information to users. The foundation relies on support from local jurisdictions and its charitable fundraising efforts.

Limited Development

Lands which have high public values, but which cannot be acquired can often be developed to preserve the open space or scenic qualities with a sensitively planned development. If such development is combined with permanent protection of the open land through conservation easements, the adjacent development value will be enhanced. As a result of the reduced requirements for infrastructure and the value enhancement from the adjacent open space, limited development can be an economically viable conservation and development technique for particular kinds of properties.

Property Tax Relief

Numerous jurisdictions around the country provide property tax relief to landowners, particularly farmers and ranchers, who voluntarily agree to restrict development on their properties for certain periods of time. For example, the Williamson Act in California gives landowners in productive agricultural regions substantial tax relief if they agree not to develop their properties for a ten year period. If the property is developed during this period the landowner pays a penalty and taxes are recaptured. In most instances tax relief by itself is not enough of an inducement to keep land open.

Interjurisdictional Cooperation

In many areas where there is a patchwork of federal, state and locally owned public lands, agreements have been crafted to meet common management issues and resolve management conflicts between adjacent parcels or between agencies with conflicting mandates. For example, the Metro Mountain Park Coordinating Council, covering the mountainous area from Denver to the continental divide, includes a variety of federal, state and local agencies which have developed a common agreement to work out management issues and promote cooperation and understanding between agencies. The mission of the coordinating council is to "foster information sharing and cooperation among agencies. Such coordination is needed to meet public demand for recreation and promote good stewardship of the area's recreation, biological, and open space resources." The council has been in operation for six years and has performed the following activities and accomplishments: cooperative park and trail projects, publication of a recreation and open space guide, coordination of law enforcement and emergency response, construction of access for the disabled, publication of an events calendar, information sharing and the development of understanding among neighboring agencies.

A plan recently prepared for Clear Creek Canyon near Denver calls for and identifies a Cooperative Management System to develop a partnership between public and private entities to provide stewardship to the special resources of the area. The Town of Vail, Colorado recently completed a Comprehensive Open Lands Plan which involved an extensive interaction with the U.S. Forest Service to develop a common boundary between the two jurisdictions. This project, called the Land Ownership Adjustment (LOA) process, was developed because a number of Forest Service land trades were proposed which the town felt were detrimental to maintaining its quality of life. As a result, a set of land exchanges between the two jurisdictions is taking place to create the common boundary and agreements have been developed to maintain that boundary. Both jurisdictions feel that the process produced significant improvement in relations. In addition, a new trail system on National Forest land has been defined with joint management responsibilities defined. A key goal of this new circumferential trail is to relieve pressure on trails to the nearby Eagle's Nest Wilderness Area.

Common Factors for Success

Listed below are a number of factors which are common to those areas which have active open space programs:

Multiple Factors

Those areas which have a variety of organizations and techniques focused on open space protection have greater capability than those which utilize only one technique. For example, a mix of regulation, priority acquisition, land trust assistance, and tax relief to private landowners which are combined to create an integrated system will be more effective than focusing exclusively on any one of these. Public entities which establish partnerships with land trusts, constituent organizations, and civic and business leadership can be very productive.

Clear Vision

A public interaction process which defines a clear vision of an open space system will produce support for its implementation. The more focused, connected and inclusive that vision, the greater the potential for implementation.

Quality of Life

To the extent that the preservation of open space is viewed as being essential to maintaining and enhancing quality of life, it will gain public support. This is particularly true when that vision is related to the concept of passing a legacy onto the next generation.

Connect with Other Public Objectives

Several jurisdictions have realized that open space alone cannot achieve public consensus for new tax or funding initiates. However, when combined with other important public initiatives it can succeed. For example in Boulder, a sales tax increase was passed which funded both open space and transportation projects, thereby combining constituencies which generally were at odds with each other.

In Vermont, a Housing and Conservation Trust was established as a result of the combined efforts of conservationists and affordable housing advocates. The Trust funds 50% open space and 50% affordable housing projects. In both Boulder and Vermont, the formation of these unusual coalitions has led to better understanding and response to these issues.

Open Space is Multipurpose

Jurisdictions which utilize open space areas for a variety of uses and activities generally receive greater public support. For example, an open space utilized for trails, wildlife habitat, water quality improvement, urban shaping and scenic enjoyment will be more interesting to more of the public than one which protects only habit areas. Open space should connote areas which are performing many valuable public functions. Public access is a key ingredient of most open space programs but should be planned in a manner which does not degrade the resources which are being protected. When acquiring new properties, management implications of public access should be evaluated prior to permitting the public to establish historical patterns which will be extremely difficult to modify latter.

Public Involvement in Management

Those open space programs which involve local constituencies in aspects of managing and interpreting the open space system create a greater sense of ownership of the system by the public and stretch limited public funds. For example, a number of jurisdictions utilize junior ranger programs utilizing high school students to repair trails and structures. Many programs utilize volunteers to lead interpretive walks and provide outdoor environmental education programs. Finally, there are volunteer nonprofit organizations and business groups which can provide funding and volunteers to perform management and improvement projects. For example, Colorado has an organization called Volunteers for Outdoor Colorado which plans and organizes projects which provide volunteers for building trails and tree planting projects.

Open Space Requires Active Management

Managing public open space in a major metropolitan area requires a significant commitment in management resources. Contrary to popular belief, open space does not manage itself. Many lands which are acquired by open space systems require restoration, have liabilities attached to them, and may attract urban problems. Issues such as weed and pest management can become controversial and costly. The management objectives of the system and the management resources necessary to address them should be clearly understood and the resources necessary to meet these objectives identified. The public will judge the success of the system by whether it is maintained in as natural a condition as possible. Meeting those objectives and accommodating public usage can be difficult.