



INVENTORY AND ANALYSIS

LAND USE

This chapter of the **New River Area Plan** identifies the intended use of the plan as a guide to future development. The plan's relationship to environmental protection, transportation, public facilities, and services is discussed. This discussion is presented in the following four sections:

- Community Issues
- Planning Area Growth and Development Needs
- Land Uses
- Facilities and Services

Community Issues

A number of issues related to land use were identified in "Inventory and Analysis," as a result of the community participation process that began in September 1997. The major issues identified by the residents of the area included:

- ◆ Maintain the rural character of the area
- ◆ Address environmental concerns, conservation of hillsides, washes, and trails
- ◆ Allow for commercial development at appropriate locations
- ◆ Preserve the scenic qualities of the I-17 corridor
- ◆ Maintain and encourage equestrian use in the planning area

A more detailed list of issues is presented the *Issue Identification* section.

In 1996, the County prepared the *Carefree Highway Scenic Corridor Study*. This Study was adopted as an addendum to the **New River Area Plan**. During the process, area residents expressed a desire for additional commercial opportunities. The highway has been carefully designed to move traffic through the area efficiently. The plan calls for and will approve only well designed commercial properties in order to avoid excessive strip commercial development from occurring.

Planning Area Growth And Development Needs

In 1992, using the population projections presented in the "Inventory and Analysis," a reasonably accurate prediction of the amount of land needed for residential, commercial and industrial development was prepared.

In 1992, the estimated population of the New River planning area was expected to grow from a 1985 population of 3,318 persons and 1,239 housing units to a year 2010 population of 9,208 persons and 3,092 housing units (**Table 1a**). As shown in **Table 1b** "Projected Resident Population 1990-2020," this revised growth estimate represents a population increase of 130 percent during the 30-year period. The projection includes



additional residents to be added in the Del Webb Anthem Development Master Plan (DMP).

TABLE 1a Projected Resident Population 1985-2010

	Census		Projected			
	1985	1990	1995	2000	2005	2010
New River	3,318	5,719	6,022	7,084	8,146	9,208
Maricopa County	1.8	2.1	2.5	2.7	3.0	3.3

(In millions)

Source: *New River Land Use Plan*, April 1992

TABLE 1b Projected Resident Population (Revised) 1990-2020

	Census	Projected					
	1990	1997	2000	2005	2010	2015	2020
New River	5,719	6,995	11,852	21,219	35,625	53,260	75,027
Maricopa County	2.1	2.5	2.9	3.3	3.7	4.1	4.5

(In millions)

Source: Maricopa Association of Governments (MAG), *Socioeconomic Projections, Interim Report*, June 1997

Assuming residential development takes place at an average density of one dwelling unit per acre—which is consistent with the desire of many of the existing residents—the 1992 New River Land Use Plan predicted that 1,853 acres of additional land devoted to residential development would be necessary by the year 2010. In 1998, projected build out of the remaining 15,337 acres of privately-owned land (using the existing zoning regulations and the state average of 2.57 persons per household) the New River planning area could have nearly 40,000 more residents. These figures do not include projected residents in existing, approved development master plans.

Land Use Map

The Land Use map (**Figure 1**) shows the proposed density and use of land for the different parts of the planning area. This is the proposed pattern of development for the New River planning area. The plan does not reflect the intended zoning of individual parcels, but generalizes desired future land uses.

In some instances the Land Use map designates land use for properties that are located in the General Plan Development Area of an adjacent community. The municipal general plan will be used as a guideline for development in these areas as specified in *Eye to the Future 2020*. The related policy in the Comprehensive Plan states: “Use the adopted general plan and standards of municipalities as a guideline for development in the General Plan Development Area contingent upon such plans having been updated or



reviewed within five years and with evidence that the affected residents, property owners, and improvement districts have been involved in the process to update the general plan. (Policy L1.6)” Review of requests for development in those areas will be coordinated between the County and the adjacent municipality.

The land use boundaries, shown on the Land Use map, are intended to represent natural or man-made demarcations where possible. Where boundaries are not readily distinguishable, transitions may be allowed, provided the intent of the Plan is not violated. With proper buffering and site planning techniques, transitions may be allowed without diminishing the intended purpose of the Area Plan.

The most notable features of the Land Use map are: the designation of a Commercial and Natural Scenic Corridor along I-17; the Carefree Highway Scenic Corridor; the Anthem DMP; the area designated as the proposed Town Center; an area designated as Large Lot Residential to the west of Daisy Mountain with the intention of preserving the mountain; and the re-designation of the southwestern corner of the Area Plan to Small Lot Residential. Discussion of these land use changes may be found in the *Issue Identification* section of the Plan.

Land Uses

The following definitions are included to better understand land use discussions found in the Area Plan. For each land use designation, the corresponding definition is to be used to assure consistent interpretation of the designated land use in the Area Plan. Land use categories in the **New River Area Plan** are compatible with the *Eye to the Future 2020, Maricopa County Comprehensive Plan* and the system of regional land use standards.

Discussion related to land use development patterns in the New River planning area follow each definition. Portions of the **New River Area Plan** were prepared using the inventory and analysis of both natural and man-made features. While the goals, objectives, and policies form the basis of the desired land use patterns for the area, the ultimate development pattern is tempered by recognition of existing development activities and established patterns. This includes consideration for land uses and features outside the area that might affect the desired future development patterns within the planning area. Adopted land use plans of adjacent cities were considered while developing land uses within the planning area.

Consistency in zoning for specific areas or parcels of land within the New River planning area must be evaluated in terms of overall furtherance of plan goals and policies. Guidelines following the land use definitions have been formulated to help insure that the intent and integrity of the Area Plan is retained over the life of its use.

Residential Land Use Definitions

The “Land Use Categories” which permit residential development in the New River planning area are found in one of three designations based upon the availability of



urban services (sewer, water, law enforcement, fire protection, schools, parks, etc.). Those categories in which some or all of these services do not exist and are not anticipated to be provided have been defined as rural, while those categories in which these services exist or are anticipated to be provided have been defined as large lot and small lot residential. Permitted uses in all residential use categories include schools and churches. Special attention to the location of these uses should be given with regard to access, traffic and proximity to arterial streets.

Development Master Plans, provided they meet specific criteria, are allowed in all residential districts. The *Eye to the Future 2020, Maricopa County Comprehensive Plan* outlined 24 land use categories with 5 allowable residential land uses. The ***New River Area Plan*** designates only the following 3 land use categories unless they are within an area designated as a DMP, which allow for development at higher densities. In the design of residences, hotels, and resorts, care should be given to ensure the appropriate preservation of hillsides, washes, and desert character in general.

Rural, (0-1.0 Dwelling Units per Acre)

The Rural category denotes areas where single family residential development is desirable but urban services (sewer, water, law enforcement, fire protection, schools, parks, etc.) are limited. Suitability is determined on the basis of location, access, existing land use patterns, and natural or man-made constraints. Densities greater than 1.0 du/acre may be permitted in a new development, but only if areas of lower densities offset the increase such that an average of no more than 1.0 du/acre is maintained. Uses in this category include agricultural and single family residential.

Large Lot Residential, (greater than 1 and less than or equal to 2.0 Dwelling Units per Acre)

The Large Lot Residential category denotes areas where single family residential development is desirable and urban services (sewer, water, law enforcement, fire protection, schools, parks, etc.) may only be partially available or be required as an improvement district. Suitability is determined on the basis of location, access, existing land use patterns and natural or man-made constraints. In a development, densities greater than 2.0 du/acre may be permitted, but only if areas of lower densities offset the increase such that an average of no more than 2.0 du/acre is maintained. A community sewer and water system will be required for developments above 1.0 du/acre and may be required for those below 1.0 du/acre depending on the underlying conditions.

Small Lot Residential (greater than 2.0 and less than or equal to 5.0 Dwelling Units per Acre)

The Small Lot Residential category denotes areas where increased density residential development is appropriate and all urban services (sewer, water, law enforcement, fire protection, schools, parks, etc.) are available or will be provided. Single family development may be permitted, provided overall development densities do not exceed 5.0 du/acre. Within any particular development densities greater than 5.0 du/acre may



be permitted, but only if areas of lower densities offset the increase such that an average of 5.0 du/acre or less is maintained. A community sewer and water system will be required for development at these densities.

Hotels, Motels, and Resorts

Hotels, motels and resorts may be stand-alone facilities or part of a DMP.

Residential Land Use Discussion

The overriding principles behind the ***New River Area Plan*** are the preservation of hillsides and floodplains, and the continuance of the existing rural lifestyle. Therefore, only residential development at very low densities (1.0 du/acre or less) is intended for most of the planning area unless part of a development master planned community. Some areas have higher density land use designations to reflect the adjacent land uses (Large Lot Residential) or, in those areas projected for further urban development by adjacent cities (Small Lot Residential).

The rural designation on the Land Use map is applied to land currently zoned at 1.0 du/acre (Rural-43). This is the predominant land use designation found in the New River planning area. Hillside slopes may exceed 15 percent in many places in the planning area. Due to the steep slopes in these areas, densities probably should not exceed 1 du/5 acres.

Subdivision developments which include areas of steep slope or have floodplain restrictions may be allowed areas of higher density if the gross density conforms with the underlying Rural-43 zoning.

The New River planning area is one of the few remaining communities located at the urban fringe to have hiking and equestrian access to trails, open range, and unimproved parks. As has been the experience of other communities in Maricopa County, development at higher densities may reduce or prohibit equestrian facilities and access. Future subdivision design should attempt to preserve the natural terrain and access for hiking and equestrian use.

Continued development of scattered single family homes will have a critical effect on the environmental quality and character of the New River planning area. Current constraints will not be sufficient to stop development in floodplains, steep-sloped areas, and in areas that lack the proper public services (i.e. sewer, water, and streets).

Residents choosing a rural lifestyle should not expect urban services in the unincorporated areas. Portions of the New River planning area rely on wells and on-site septic system and may never be annexed into a municipality that would provide even basic urban services. By concentrating development in certain locations, environmental mitigation is more easily obtained, less area is affected, and growth can be accommodated.



Residential Land Use Guidelines

The following guidelines shall aid in governing the development of land designated as residential in the Area Plan.

Allowable Residential Densities

Rural	0 to 1.0 dwelling unit/acre
Large Lot Residential	1.0 to 2.0 dwelling unit/acre
Small Lot Residential	2.0 to 5.0 dwelling unit/acre

Please note: residential densities within any given development project will be calculated based upon the gross acreage of the project.

Development Master Plans

Master planned communities have long been a preferred type of residential development in Maricopa County. The County encourages the use of DMPs to allow flexibility in the master planning of large tracts of land located outside of municipal boundaries. Master planned communities may be initiated by property owners and should consider having the following features:

- Creative and innovative designs
- Mixed land use opportunities and a range of housing types
- A mix of housing intensities which are transitional with spatial, structural, and visual buffers
- Multi-modal transportation choices to reduce dependency on automobiles
- Flexible standards for roadway design, transit facilities, pedestrian circulation, and bike lanes
- Employment opportunities in the DMP
- Open space preservation to provide recreation, visual character, wildlife, vegetation and a greater quality of life
- Public facilities and services including police, fire, schools (except in age restricted communities), water, sewer, parks and libraries (if needed and not available).

Commercial Land Use Definitions

The following are commercial land use categories allowed in the New River planning area. Their use provides varying intensities of commercial activities on a community scale. Direct frontage on an arterial street or a freeway frontage road is an essential element for each commercial category.

Neighborhood Retail Center – NRC

The Neighborhood Retail Center category denotes convenience commercial areas for the location of small shops and services that benefit local residents. This category permits developments with a total building area of less than 100,000 sq. ft. Neighborhood Retail Center locations are designated in areas having a more rural character. Urban level services are not required, however uses allowed should be appropriate for the services available.



Community Retail Center – CRC

The Community Retail Center category denotes areas where general neighborhood/community based commercial uses may take place. This category permits developments with a total building area of 100,000 to 500,000 sq. ft. The Community Retail Center provides for the sale of convenience goods and personal services which meet the daily needs of an immediate neighborhood trade area. Such a trade area shall serve a minimum population of approximately 5,000 people. A limited number of permitted activities should be provided. A market analysis may be required. A community sewer and water system will be required for development. All uses within this category are subject to plan review and approval.

Employment Centers

The “Employment Center Categories” denote areas for the concentration of major employers. In recognition of the diverse nature of major employers, two land use categories have been developed which attempt to group uses by their impacts on the surrounding area.

Office

The Office land use category includes professional office environments.

Mixed-Use – MU

The Mixed-Use Center category denotes areas for the location of major employment centers that have minimal impacts on surrounding areas outside of increased traffic demands. Uses permitted in this category would include offices, light industrial parks, business parks, research parks, government facilities, post secondary educational facilities, hospitals and major medical facilities, and residential and integrated residential/retail uses. Access to a principal arterial or freeway will be required. On-site creation of noise, vibration, smoke, dust, odor, heat or glare shall be mitigated to reduce off-site impacts. Urban services are available or will be provided. A community sewer and water system will be required for development. All uses within this category are subject to plan review and approval.

Commercial Land Use Discussion

The only new areas specifically established for commercial development are along I-17 from Carefree Highway to New River Road. This commercial land use designation coincides with the I-17 Scenic Corridor. New commercial zoning and development is encouraged in only those areas designated as such on the Land Use map. The intersection of Carefree Highway and Seventh Street is designated a CRC in the Carefree Highway Scenic Corridor Overlay. Neighborhood Retail Center (NRC) uses would be permitted at the intersection of Carefree Highway and 24th Street and Carefree Highway and 40th Streets.



In earlier iterations of the *New River Area Plan*, the relatively low intensity of development in the New River planning area limited commercial development to the southern area and within areas previously zoned commercial in the northern areas. Projections for the area show that this amount of commercial development may not be adequate to serve the existing and future population of the area.

There are some areas designated residential on the Land Use map that are currently zoned commercial. These areas are encouraged to develop with residential uses. A landowner's right to develop property with commercial uses in accordance with the existing zoning is not disputed. It should be recognized, however, that these isolated commercially zoned properties should not be used as reasons or precedents to achieve additional commercial zoning in the immediate area.

Commercial development along Carefree Highway shall be carefully planned and designed. There are recommendations in the *Carefree Highway Scenic Corridor Study* concerning design criteria for commercial development. The size and design of the commercial node located at the intersection of Carefree Highway and Seventh Street has been carefully studied in the *Carefree Highway Scenic Corridor Study*. This study recommends that the intersection be designated as a Community Retail Center (formerly Multi-Neighborhood Commercial—MNC) and allow a maximum of 20 acres of commercial. This amount of commercial should meet the needs of the area in the near term. Commercial development in the area will be served by a sewer improvement district; septic tanks are not acceptable.

As the *New River Area Plan* is updated, careful consideration will be given to the amount of commercial zoning needed to serve the area. While at this time, only a minimal amount of commercial acres are designated, it should be noted that any future commercial land in the Seventh Street and Carefree Highway area, if needed and justified, will be directed westward to Third Street and away from the Desert Lake wash. Any additional commercial would have to be serviced by a loop road system to minimize curb cuts on Carefree Highway. Only high quality commercial development would be allowed.

During the *New River Area Plan* update citizen participation process, residents strongly responded to placing commercial development in locations along the I-17 corridor and not on the interior of the planning area. The Land Use map reflects this and delineates a Scenic Commercial Overlay along I-17 from Carefree Highway north to New River Road. Development standards similar to those adopted in the *Carefree Highway Scenic Corridor Study* are used to guide commercial development along the I-17 frontage roads and the freeway corridor (**Appendix D**). Since conditions along the frontage road are different from Carefree Highway, setback standards have been modified to protect property rights. Commercial development in this area will be encouraged to serve the New River community; projects that maintain a "rural character" will be preferred.



Commercial Land Use Guidelines

The following guidelines shall aid in governing all land use planning pertaining to the development of land designated as Commercial.

1. Commercial activities in designated areas include appropriate service, retail and professional office uses. These uses may be permitted in neighborhood retail centers, but only at a scale compatible with adjacent residential development.
2. All commercial development should be landscaped utilizing consistent landscaping themes that will tie adjacent projects together. Landscaped easements along public rights-of-way using shrubs, trees and/or earth berming will be provided and installed at the time of street construction. Signs should be controlled in terms of placement and maximum size.
3. All commercial development on Carefree Highway shall follow the development standards outlined in the *Carefree Highway Scenic Corridor Study*.
4. Commercial development in the I-17 corridor shall follow the development standards outlined in Appendix D of this document. Develop new commercial in the NRC designation at the New River interchange as a Planned Development.

Employment Center Land Use Guidelines

The following guidelines shall aid in governing all land use planning pertaining to the development of land designated as employment centers on the ***New River Area Plan***.

1. Proposed uses must be appropriate for the type of employment center in which they are located.
2. Heavy industrial uses and warehousing activities should be located away from arterial streets, allowing garden-type light industrial and business park uses to buffer the general view of heavy industrial activities. Industrial development may also be required to landscape and/or to screen unattractive uses from public view.

Open Space, OS

The Open Space category denotes areas best suited for open space and recreation. Development of residential uses up to one (1) dwelling unit per acre is permitted in the Open Space Category provided development of environmentally sensitive areas, like steep slopes and floodplains are in compliance with the Hillside Development Overlay District and Floodplain Development Regulations. Additional uses in this category include parks, recreation areas, drainage ways and scenic areas.

Open Space Land Use Definitions

The *Eye to the Future 2020, Maricopa County Comprehensive Plan* further defines two types of Open Space, Dedicated and Proposed Open Space.



Dedicated Open Space

Dedicated open space areas are areas under public ownership— except State Trust land— with unique environmental and physical qualities. These qualities include mountains and foothills, rivers and washes, canals, significant desert vegetation, wildlife habitat, and cultural resources. In Maricopa County, dedicated open space exists in the form of regional parks, wilderness areas, wildlife areas and the Tonto National Forest. These sources of open space, nearly 2,000 square miles, provide recreation and visual resources for the residents of Maricopa County.

Proposed Open Space

These areas, if acquired for the public domain, are intended to be planned and managed to protect, maintain, and enhance their intrinsic value for recreational, aesthetic, and biological purposes. Within proposed open spaces, public access should be protected and preservation encouraged. All privately-owned and State Trust land considered for open space conservation may be developed unless it is added to the public domain or protected using other techniques that respect property rights.

The proposed open spaces, when combined with existing Dedicated Open Space, provide guidance for the establishment of an interconnected system of protected natural open spaces.

The degree to which open space can be added to the public domain, or be otherwise protected depends on the use of specific preservation techniques (actions that can be used to acquire and protect open space) and the public commitment to financial support for such actions.

Techniques that could be utilized include:

- | | |
|--|-----------------------------|
| Fee simple purchase | Dedication/donations |
| Conservation easements | Preservation easement |
| Purchase of development rights | Hillside ordinance |
| Purchase of right-of-way easements | Density transfers |
| Lease/use agreements | Cluster development |
| Right of first refusal | Arizona Preserve Initiative |
| Transfer of property to HOA | Performance based zoning |
| Environmentally Sensitive Land Ordinance | |

The suitability of any of these techniques to preserve a specific parcel in the New River planning area would be evaluated on a case by case basis. The application of preservation techniques must not infringe on the property rights of any landowner.

Open Space Land Use Discussion

A significant amount of the New River planning area is designated for use as open space. These open space areas, comprised mainly of Arizona State Trust land (95.5 sq.



mi.), are available for sale or lease. A portion of the State Trust land is currently held in grazing or mineral leases. The Bureau of Land Management (BLM) is the next largest public landowner with 22.7 sq. mi.

To emphasize the importance of promoting preservation of the area's scenic beauty and the existing rural lifestyle, some lands held in public ownership are retained as open space. In much of the planning area, the open space category is intended to protect mountainsides—where slopes exceed 15 percent—and floodplains from development. It should be noted that State Trust land may be acquired and set aside for conservation purposes, otherwise the lands may be purchased privately and developed.

The ***New River Area Plan*** encourages the preservation of these hillsides as permanent open space due to the slope constraints. These constraints are severe in some of the northernmost areas of the planning area. In the event that development is allowed in these areas, the permitted uses should conform with the underlying Rural-43 zoning category (see Appendix A). Some areas of State Trust land are zoned as Rural-190 by default as they fall outside the areas designated as Rural-43. These areas are located in the northern portion of the planning area. Additionally, specific requests should be reviewed by the County to insure that adequate safeguards are used to offset any negative impacts associated with steep slope development.

Land in the area directly west of Daisy Mountain has been designated with a potential density of 2du/ac. The Large Lot Residential land use designation will be allowed only in conjunction with a process for preservation of mountainous areas adjacent to the site. If a preservation process does not occur, the underlying land use designation will remain Rural. The increased density is meant to encourage the eventual development of the area with the end result of preserving Daisy Mountain.

This Area Plan designates the I-17 Corridor from Carefree Highway to the Yavapai County line as a Scenic Corridor Overlay. From just north of the New River Road interchange much of the adjacent land is publicly owned and/or designated as open space. It is the intention of the citizens of New River to preserve as much of this area of pristine Sonoran Desert as possible. Preserving this as a scenic corridor will insure that entry or exit from Maricopa County is a memorable experience.

Buffering and Transitional Land Use Guidelines

When any two different land use types are shown on the ***New River Area Plan*** or are approved as part of a Development Master Plan, buffering or a transitional land use between the two uses may be necessary. Buffering may consist of the placement of open space between two incompatible uses, transitional densities, walls, berms, landscaped setbacks, or other methods of transitioning use. These will be required of the more intensive use where a less intensive use already exists, or where the ***New River Area Plan*** shows that a less intensive use is intended adjacent to the more intensive use. The use of transitional land uses consists of placing uses of intermediate intensity between incompatible uses.



INVENTORY AND ANALYSIS

Situations necessitating transitional land uses may include:

Low density; single family development adjacent to multi-family development.

Single or Multi-family development adjacent to commercial.

In cases where buffering is proposed, the following examples or others may be considered:

- ◆ Areas of landscaped open space
- ◆ Arterial and collector streets with landscaping
- ◆ Major transmission line easements, if landscaped
- ◆ Block walls, landscaping, earth berms, or
- ◆ Combinations of the above

Facilities and Services

For much of the development within the New River planning area, a full compliment of facilities and services will not be required and is usually not expected by the prospective resident, with the exception of education, law enforcement, and fire protection services. This situation will generally apply to development where densities remain less than 1.0 du/acre as in the Rural land use category. The County will continue to review major developments where densities exceed 1.0 du/acre and are more urban in nature. In these situations, community sewer and water service is required and other facilities expected, depending upon the actual character and magnitude of the development. Although each development must be considered on its own merits, **Table 2** provides guidelines that may be used as a reference when determining and sizing necessary facilities for a given development.



TABLE 2 Facilities Space Standards

Type	Space Requirements	Source
<i>Parks and Recreation Facilities:</i>		
Minimal Park Standards	6 ¼ to 10 ½ acres/1,000 persons ¹	<i>National Recreation and Parks Individual Park Type Standards, National Recreation and Parks Association (NRPA)</i>
Playlots	.1 to .3 acres/1,000 persons	
Neighborhood Playground	2.0 acres/1,000 persons	
Neighborhood Park	2.0 acres/1,000 persons	
Community Playfield	1 acre/1,000 persons	
Major Community Park	5 acres/for 1,000 to 10,000 persons	
Open Space	.75 to 1 acre /1,000 persons	
Baseball (Youth)	1.2 acres/ 5,000 persons	
Basketball	7,280 sq.ft./5,000 persons	
Swimming Pool	2.0 acres/ 20,000 persons	
<i>Library:</i>		
Regional	40-50,000 sq.ft./80-125,000 persons	<i>Planning for Implementation for the Maricopa County Library District, 1990</i>
Community	15-20,000 sq.ft./30-50,000 persons	
Neighborhood	3-5,000 sq.ft./10-20,000 persons	
<i>Education Facilities²:</i>		
Elementary School	8-12 acres, 1 school/1,500-5,000 persons	U.S. Department of Health Education and Welfare; <i>Urban Planning and Design Criteria, 3rd Edition</i>
Junior High School	20-25 acres, 1 school/1,000-16,000 persons	
Senior High School	30-45 acres, 1 school/14,000-25,000 persons	

¹ Using the NRPA standard applied to the existing New River Population—a park system, at a minimum, is composed of a total acreage of 6¼ to 10½ acres developed open space per 1,000 persons.

² Note: These standards are provided as a base reference for the Area Plan. The Deer Valley School District determines standards for all facilities within the school district.



EXISTING LAND USE AND DEVELOPMENT

In describing land use and zoning in the New River planning area, the following six sections are presented:

- ◆ General Pattern of Land Development
- ◆ Public Land Ownership
- ◆ Public Facilities and Utilities
- ◆ Special Development Concerns
- ◆ Policy Implications
- ◆ Transportation

The purpose of this section of the area plan is to document existing land uses and zoning regulations, to note public land ownership, locations of special concern, and to describe public facilities and transportation in the New River planning area.

General Pattern of Land Development

Figure 1 illustrates the land use pattern within the planning area. As a review of this map indicates, the majority of the area remains undeveloped and undisturbed. Public recreation areas cover a significant portion of the planning area. These include Lake Pleasant Regional Park, The Ben Avery Shooting and Recreation Area, and the Bureau of Land Management Lake Pleasant Resource Conservation Area.

A significant amount of low-density residential development exists along New River Road in the east central portion of the planning area. The majority of the homes are located on sites of 5 to 10 acres. A few areas of commercial development have occurred in scattered locations along arterial highways and at major intersections. Currently, little industrial development exists within the planning area (no industrial zoning is currently located in the New River planning area).

Zoning

Maricopa County enforces a zoning ordinance to regulate land development. Established Zoning District categories are found in Appendix B-Generalized Existing Zoning.

Public Land Ownership

Figure 2 –Land Ownership illustrates the public property ownership in the New River planning area. The public landowners in the area consist of:

- Federal Government
- State of Arizona
- Maricopa County

22 square miles (14,000 acres) of BLM land is in the northwest portion of the planning area. Most of the land is undeveloped and in its natural state with mining and grazing claims found in some areas.

The Arizona State Land Department oversees 95.5 square miles (61,000 acres) of State Trust land throughout the planning area. Development could occur if the State Land



Department provides lease contracts or sells the land. All of the State Trust land in the New River planning area is subject to the 1996 Arizona Preserve Initiative (API).

The API is designed to encourage the preservation of select parcels of State Trust land in and around urban areas for open space to benefit future generations. The law lays out a process by which Trust land can be leased for up to 50 years or sold for conservation purposes. Leases and sales must both occur at a public auction.

Conservation is defined in the law as “protection of the natural assets of State Trust land for the long-term benefit of the land, the beneficiaries, lessees, the public, and unique resources such as open space, scenic beauty, protected plants, wildlife, archaeology, and multiple use values.” Under the original legislation, only State Trust land within incorporated cities and towns, within one mile of incorporated municipalities of less than 10,000 persons, or within three miles of municipalities equal to or greater than 10,000 persons may be reclassified for conservation purposes.

One square mile (640 acres) of Arizona State Trust land lies near the center of the Desert Hills community. This parcel (designated as “Town Center on Figure 1) is currently unimproved and used for grazing. Since State Trust land is likely to be developed in the future, it is recommended that a project using this parcel accommodate a multi-use development to provide facilities for the area. These facilities may include a community center, a library, or other community-related services. Recreational facilities and open space areas should be used as buffers at the edges of the site to accommodate more intense uses at the center.

The Town Center designation provides the New River planning area a place to locate future community services in the rural community. A buffer of open space would be required at the exterior of the site to ensure a gradual transition from the Town Center uses to the neighboring residential land uses.

The core of the community services center could be arranged to create a sense of enclosure and defined space. In the center, care should be given to orient some of the buildings to streets leading into the center and along the major fronting streets. All buildings in the center should be in close physical proximity (to the extent allowed by site topography), well-connected by pedestrian walkways and not separated from one another by large parking areas.

To help maintain rural character, buildings in the community services center would be limited to two stories with a maximum height of 28 feet. Structures at the outer edge of the community services center bordering the open space buffer, should be comparable in height and mass with the surrounding community. Any residential development shall be appropriate to the nature of the existing community and respect the open space buffer.

The Town Center should maintain existing pedestrian, equestrian, and bicycle connections. Pedestrian-oriented public outdoor space may be incorporated as an element of the community services center. The public space may include a small park or



INVENTORY AND ANALYSIS

town green to act as a focal point for the community. A park or green should be integrated purposefully into the overall design of the center, and not merely be left over residual areas after buildings and parking lots are sited.

The Cave Creek Recreation Area, located in the southeast corner of the planning area, owned and maintained by Maricopa County is within the Town of Cave Creek. It is approximately four and a half square miles (2,992 acres) and is a regional park.

Maricopa County also owns and manages Lake Pleasant Regional Park. The new park boundaries encompass approximately 24,000 acres; 9,000 are in the New River planning area. This portion of the park is expected to remain undeveloped (14 square miles).

Public Facilities and Utilities

The “Public Facilities and Utilities” section reviews the various public and semipublic utilities, public safety facilities and semipublic facilities in the New River planning area. This section is presented in seven subsections:

- ◆ Water Distribution System
- ◆ Sanitary Sewer System
- ◆ Sheriff’s Department
- ◆ Fire Protection
- ◆ Educational Facilities
- ◆ Parks and Open Space
- ◆ Landfills

The purpose of this section of the area plan is to inventory and document present conditions and the use of community facilities and services. Assessment of the various community facilities and services presented is not intended to be an in-depth operation or program evaluation; it is an overview of existing physical plants in terms of how they currently, and can in the future, support increased development.

a) Water Distribution System

This section of the public facilities and services inventory discusses the quality of water and its use as well as the location of water distribution systems within the planning area.

Domestic Water Supply

Domestic water for the New River planning area is supplied by the following water companies as illustrated on **Figure 3 –Existing Facilities and Utilities**:

- ◆ Cave Creek Water Company
- ◆ McAdams Water Company
- ◆ Black Canyon Retreat Water Company
- ◆ Wranglers Roost Water Company
- ◆ Sabrosa Water Company



- ◆ Desert Hills Water Company
- ◆ Shangri La Association
- ◆ Citizens Water Services Company

Currently, 100 percent of the New River area's domestic water supply comes from the groundwater aquifer beneath the planning area and surrounding areas. Water is provided by the listed water companies or by individual wells. There are also residents who have no wells and rely on hauled water. The Anthem DMP will use surface water obtained from the Central Arizona Project (CAP) canal and treated at the site.

According to the Arizona Department of Water Resources: Groundwater Report, groundwater depths in the planning area range from less than 150 feet to more than 250 feet, as illustrated in **Figure 4 –Groundwater**. The New River area is growing and water availability will be very important to future development.

Most of the wells in the planning area yield low volumes of water. Uncertainty concerning water availability in this service area could present a severe constraint on future growth.

The quality of domestic water in the New River planning area remains good. The Cave Creek Water Company in the past found traces of arsenic in one well. Tests are run periodically by the water companies to test the quality of water being extracted from local wells. In addition to these tests, chemical analysis tests, as required by the State of Arizona, are conducted on a three-year basis.

Future Water Supply Alternatives

As the population grows in the planning area, the majority of the water companies plan to activate unused wells to supplement groundwater resources. Limited sources of groundwater may act to constrain higher intensity development in the future.

b) Sanitary Sewer System

Existing Sanitary System

Most residences in the New River planning area operate on individual septic tanks. Contamination problems with septic tanks exist because of the large amount of bedrock that inhibits filtration.

Future Sanitary Sewer System

Unless a sanitary sewer system(s) can be provided for the New River planning area, development intensities should be limited because some soils in the area lack the ability to absorb and filter effluent without contaminating groundwater sources. Development proposals at urban intensities should include plans for the construction of sanitary sewer service for residents.

The 7th Street Commercial District

Any development of a sanitary sewer system in the area should be geared towards future commercial growth.



c) Sheriff's Department

The Maricopa County Sheriff's Department, located at 102 West Madison Street, in downtown Phoenix, serves the unincorporated areas in Maricopa County. The District IV North sub-station is located at 7171 E. Cave Creek Rd. in Carefree. A site adjacent to the Arizona Factory Stores will be deeded to the Sheriff's Department to satisfy a stipulation of the Anthem DMP (includes a portion of the site for a MCDOT vehicle storage and maintenance facility).

d) Fire protection

The Daisy Mountain Fire District was formed to provide fire protection in the New River Area. The Fire District consists of twenty-six (26) full-time firemen, eighteen (18) reserve firemen and no volunteers. A program to add volunteers to the district will be started in the near future. Fire fighting equipment includes four (4) engines, one (1) 2,00 gallon water tender, one (1) brush truck, one (1) utility truck, and one (1) command vehicle.

The fire district currently is housed in a temporary station at Second Avenue and Desert Hills Road and a permanent station at 31st Avenue and New River Road. The temporary station will be moving to its permanent location at 7th Avenue and Desert Hills Road. A new permanent station is planned for New River Road and Oracle Mountain Road and will be open in July 1999. The Anthem DMP has contracted with the Rural/Metro Corporation for fire protection services.

e) Educational Facilities

The New River Elementary School in New River has been at its current site since 1964. It has expanded several times, with the most recent addition completed in 1982. The elementary school has approximately 519 students enrolled in kindergarten through the fourth grade. According to the Deer Valley District, the New River Elementary School will be phased out in either 1999 or 2000. Following the phase out, students will attend Desert Mountain School (currently Desert Mountain Middle School).

506 students in grades five to eight attend Desert Mountain Middle School. Ninth through twelfth graders attend Goldwater High School in north Phoenix. Students in all grades use the district bus service to travel to and from school. High school students have a longer commute to schools located outside the planning area.

The Anthem DMP will make land available for elementary, junior and senior high facilities. An agreement with the Deer Valley School District for specific facility types is stipulated in the Master Plan. The Del Webb company will dedicate a 50 acre site for a future high school and construct a \$7 million elementary school. Additionally, The Anthem master plan has committed to reserve two additional sites for 10 years, if needed to serve future student populations.

f) Parks and Open Spaces

The following describes park and open space facilities within the New River planning area as illustrated in **Figure 7**. The parks and open space facilities in and adjacent to the area include the following:



■ Tonto National Forest

Tonto National Forest, managed by the United States Department of Agriculture, consists of 2,873,370 acres and is adjacent the northeast portion of the New River planning area. Within the forest are 589,300 acres designated as wilderness areas. Available activities include hiking, picnicking, off-roading, mountain biking, canoeing, rafting, tubing, hunting, target shooting, horseback riding, and camping. Several lakes and streams in the forest provide for swimming, fishing, boating, and all types of waterplay.

■ Cave Creek Regional Park

Cave Creek Regional Park is managed by the Maricopa County Parks Department as a regional park and serves people from a wide area, usually within an hour's travel time. It includes 2,992 acres and has an extensive hiking and equestrian trail system that runs throughout the park. Campsites in the park have water and electrical service.

■ Lake Pleasant Regional Park

The Maricopa County Parks Department also manages Lake Pleasant Regional Park. Currently, the park includes 23,662 acres and an extensive system of recreational facilities including picnic tables, concessions, launching ramps, and hiking and riding trails.

Existing facilities include a marina at Lake Pleasant Harbor, and campgrounds including some with water and electricity.

■ Ben Avery Shooting Range and Recreation Area

The City of Phoenix's Ben Avery Shooting Range and Recreation Area covers 1,443 acres and has facilities that include public shooting ranges and a 100-space campground with electricity, water, showers, and restrooms. There is also an archery range with five miles of trails and a practice area. A trap and skeet range is lighted for night use.

■ Lake Pleasant Resource Conservation Area

The Lake Pleasant Resource Conservation Area is an assemblage of BLM property that has been created for more efficient management purposes. It is also designated for conservation and planning. While no restrictions have been placed on this area, uses that are a hazard to the environment, like mining, will be discouraged.

■ Emory Henderson Equestrian Trail

The Emory Henderson Equestrian Trail extends from north Phoenix through the New River planning area and north to Yavapai County. This former sheep trail is located approximately four miles west of I-17 and was deeded to the County from the BLM.



INVENTORY AND ANALYSIS

■ Anthem DMP

There are nine miles of dedicated hiking and equestrian trails in Del Webb's Anthem DMP along New River, Skunk Creek, and Deadman Wash.

g) Landfills

The following describes two landfill sites which were located either within, or adjacent to, the New River planning area.

The New River Landfill was located 3½ miles west of I-17 on New River Road from 1973 to 1998. The landfill was operated as a cut and fill operation. In 1986, disposal of liquid wastes began at the facility. Once the landfill reached its capacity, it was closed and became a transfer station. Operation of the transfer station was taken over by Waste Management, a privately-owned, Phoenix-based company.

The Cave Creek Landfill is located immediately outside the Planning area on Carefree Highway 3 miles west of Cave Creek Road. In November 1990, the site opened a recycling center that accepts paper, cardboard, aluminum cans, tires, glass and automobile batteries. The twenty-eight (28) remaining acres are being leased from the U.S. Government. When the final six (6) acres are filled this landfill and recycling center will be closed. In December 1998, this site was turned over to Waste Management for use as a solid waste transfer station.

Special Development Concerns

Consolidation of parcels of land into a large land holding or the transfer of large areas of public land (State/Federal) into private ownership may have major impacts on the planning area. When a large land holding is the subject of a Development Master Plan (DMP), population, housing, and land use projections and distribution for the area change dramatically. Approved DMPs in the county—including those areas covered by a new or existing area plan—become the controlling planning document and area plan for that property.

Master planned communities are a preferred type of residential development within Maricopa County. The *Eye to the Future 2020, Maricopa County Comprehensive Plan* encourages the use of DMPs to promote quality standards of prudent and sustainable land use for future master planned development in the unincorporated areas. DMPs provide opportunities for creative and innovative design and development techniques. These communities have the potential to provide mixed land use opportunities, a range of housing choices, open space and recreational opportunities, and an appropriate multi-modal transportation system connected to schools, parks, retail, and employment centers.

Historically, DMPs have been allowed throughout the county. While future DMPs can be developed at any location in the unincorporated county, appropriate development guidelines would vary depending on the land use as defined in the Comprehensive Plan.



The developer of a DMP must demonstrate how the project will impact the affected Area Plan at the plan's projected build out. Area Plans are generally more rural in nature while a DMP is urban in scale and use. Development agreements may be used to define appropriate standards and incentives, and aid in the implementation of Comprehensive Plan goals and policies in specific DMPs.

LOCATION

A DMP in the unincorporated county is required to establish urban level services; i.e., water, sewer, fire and police protection, and schools. Any owner/developer wishing to locate a DMP in a rural area will have to address provision of services before any large scale planning or development can occur.

Water supply and wastewater treatment are major challenges for developing a DMP in the New River planning area. The Arizona Department of Water Resources (ADWR) requires a 100 year assured water supply prior to the development of a DMP. If an adequate water supply is not obtained or sewage treatment is not available, a DMP cannot be realized.

Policy Implications

This section describes the key land use and zoning issues that should be addressed by the County when reviewing development projects in New River.

a) Public Land Ownership

The State of Arizona holds approximately 57 percent of the planning area in trust. The State Land Department's policies and decisions will guide the potential for development.

b) Public Facilities and Utilities

The County should address the need for public facilities in the more densely developed areas, especially in Desert Hills. Septic tank contamination is the foremost problem at present.

Water availability will become increasingly important as growth occurs. Due to the limited availability of domestic water, and because most of the wells are experiencing low yield problems, restrictions on new development should be considered.

c) Parks and Open Spaces

Maricopa County encourages the continued development of a multi-use trail system that connects the regional parks in the planning area. This system would connect all of the open space areas including floodplains and hillsides with developed recreation areas and regional parks, allowing for greater accessibility and use. It is recognized that the New River area is presently an equestrian-oriented community and that access to and conservation of existing trails is important to the community. To ensure trail conservation, funding and acquisition mechanisms would need to be developed to set aside easements, land, etc. These would include trails through both public and private land.



TRANSPORTATION

The existing street/highway system is shown on **Figure 5 – Transportation Facilities**. Average Vehicles per Day (VPD) counts are shown from 1996. Changes planned for the existing system are described in the *Northeast Valley Area Transportation Study*.

a) *Freeways*

In the functional classification hierarchy, freeways are at the top, serving through traffic for regional and/or inter-city travel. The Black Canyon Freeway serves the full north-south length of the planning area, including the New River Community near the interchange at New River Road. The Black Canyon Freeway provides the principal inter-city connection between the Flagstaff and Phoenix metropolitan areas to the north and south, respectively. The average ADT is presently more than 24,000 vehicles per day. The projected volume in 2010 is 35,000 vehicles per day north of the New River interchange to 43,000 vehicles per day north of the Carefree Highway interchange.

In July, 1998, the Arizona Department of Transportation (ADOT) completed the Phoenix-Flagstaff-Page Corridor Profile. The purpose of the Profile is to study the surface transportation needs of the I-17 and US 89 corridor from Phoenix to Page. The plan's goal is to improve and facilitate the north-south movement of people and goods in central Arizona.

The Profile determined that eight locations on the I-17 corridor in the New River area were deficient and would require improvement. The long range improvements included in the 20 year program would be additional lanes, new traffic interchanges, reconstruction of existing interchanges, pavement and safety enhancements, and improved transit service.

b) *Arterials*

The primary function of arterial streets is to provide traffic service for large areas. Access to adjacent property is a secondary function. The arterials shown on **Figure 5** include:

Carefree Highway

New River Road/7th Street

Lake Pleasant Road/New River Road

Carefree Highway provides a continuous east-west route through the southern portion of the planning area, extending from Lake Pleasant Road to Scottsdale Road (two miles east of the planning area). This route is projected to attract much higher future traffic volumes of both through traffic and trips from increased development within the planning area. In accordance with the Maricopa County Transportation Department (MCDOT) Capital Improvement Program (CIP) Carefree Highway is currently being widened to four-lanes. It is anticipated that, ultimately, Carefree Highway will expand to a divided six-lane highway to accommodate the projected increase in traffic associated with the expansion of Lake Pleasant.



The area's highest traffic count occurs on I-17 inside of the City of Phoenix— 34,693 vehicles per day— just south of Carefree Highway. This along with 9,400 vehicles per day at the western end of Carefree Highway indicates increased travel to and from Cave Creek and Carefree to the east. With the expansion of Lake Pleasant and its associated facilities, recreational travel along Carefree Highway has been increasing as development occurs in North Scottsdale, Carefree, and Cave Creek. Residential, as well as recreational access continues to be seen on New River Road.

Lake Pleasant Road connects Carefree Highway and the Morristown-New River Highway (Highway 74) and serves as a north-south arterial from the Phoenix urban area. The weekend traffic is expected to be significantly higher in the vicinity of Lake Pleasant.

To specifically address the issue of Carefree Highway, the County prepared the *Carefree Highway Scenic Corridor Study* in 1996/1997. The report was approved in 1997 and is an addendum to the New River Area Land Use Plan.

c) *Collector Streets*

Collector streets provide the connection between local streets (which provide property access) and arterial streets (which provide through traffic service).

In the New River planning area, frontage roads adjacent to the Black Canyon Freeway collect and distribute local traffic to about two and a half miles north of New River on the east side of the freeway and for three miles south on the west side.

Sparse development in the remainder of the planning area does not require an extensive collector and arterial roadway network. However, a number of local roadways are located within the planning area.

d) *Public Transit Service*

No public transit service exists in the New River planning area. The area currently does not have the population density to support a fixed-route transit service. Residents have expressed a desire for access to public transit.

The Anthem DMP does include a transit center in the plan and identifies several possible sites for the center near I-17 and Honda Bow Road (Desert Hills Interchange).

Regional Ride Share, a service of the Maricopa Association of Governments (MAG), provides Carpool matching assistance.

e) *Equestrian/Pedestrian Facilities*

There are many equestrian, off-road and hiking trails located within the New River planning area. The NEVTS addressed including trails in development plans and proposed a trail system in the southern end of the Area Plan (**Figure 6 –Recreational Trails**). The Emory Henderson Trail enters the planning area at its southern boundary two miles west of I-17 and crosses through the Ben Avery Shooting Range. It remains generally parallel to I-17 and extends north entering Yavapai County, northwest of the New River



Interchange. Other trails around the Cave Creek Recreation Area are used extensively; yet are unofficial and maintained by residents only. Further discussion of equestrian and conservation trails may be found in the *Issues Identification* section.

f) Proposed Arterials

Information on proposed transportation system changes are described in detail in the *Northeast Valley Area Transportation Study*.

ENVIRONMENT

Development of the ***New River Area Plan*** hinges on a thorough understanding of the various physical and economic aspects of life in the immediate and surrounding area. This chapter of the area plan identifies and describes the following elements.

- ◆ Natural Resources
- ◆ Economic Characteristics

Natural Resources

In describing natural resources in the New River planning area the following five elements are identified.

- ◆ Physical Characteristics
- ◆ Hydrology
- ◆ Vegetation and Wildlife
- ◆ Archaeology
- ◆ Policy Implications

The purpose of this section of the ***New River Area Plan*** is to describe the physical setting, to identify existing groundwater supplies and flood control measures, to locate habitat areas, to note any archaeological resources and to identify policy implications.

Physical Characteristics

This section describes key features of the natural and man-made environment which affect growth and development in the New River planning area. "Physical Characteristics" are presented in the following six sections.

- ◆ Physical Setting
- ◆ Soils
- ◆ Topography
- ◆ Geology
- ◆ Visual Features
- ◆ Air and Noise Quality

The above factors may, to some extent, dictate the quality, character and direction of development in the planning area. The purpose of this section is to give an understanding of the environmental characteristics that affect growth and development in the planning area.



a) *Physical Setting*

The New River planning area, as illustrated in **Figure 7 –New River Planning Area**, is located in the north central portion of Maricopa County. The planning area extends north to the county boundary line. The area is bounded on the west by Lake Pleasant and the Agua Fria River, and on the east by Cave Creek Wash and the Tonto National Forest boundary. Part of the incorporated Town of Cave Creek lies within the eastern boundary of the planning area. Recent annexations by the Cities of Phoenix and Peoria have occurred to the south and west. The terrain within the planning area ranges from rock outcrops in the northern and central portions to old alluvium found in the southern portions of the planning area.

Typical Sonoran Desert scenes with intermittent rural development characterize the landscape. Much of the surrounding desert are foothills with plants of the Palo Verde-Saguaro Community. The planning area also has many mountain vistas that create impressive views. Climate in the planning area is similar to the rest of the Phoenix area with generally mild fall, winter, and spring weather and hot, dry summers.

Portions of the New River planning area are open range where cattle roam at will. Property owners must fence their land in order to keep the cattle out, as ranchers are not responsible for destruction of private property. A state statute that provides for the revocation of open range rights when the population reaches certain densities governs the open range issue.

b) *Soils*

Soil characteristics can play an important role in determining the quality and character of development in the New River planning area. For detailed information on soil types, their characteristics, and their locations in the planning area, refer to the U.S. Department of Agriculture Soil Conservation Service, "Soil Survey: Aguila-Carefree, Arizona." This survey is currently available from the Soil Conservation Service Office in Phoenix.

The characteristics of each soil association as related to development are illustrated in **Table 3**. Because of the locational variability of each soil type within the associations, soil testing should take place prior to actual development; particularly in any area that might contain soils which can pose problems for septic tank use or building and road foundation placement. **Figure 8 –Soils** shows the five major soil associations in the planning area.

Cipriano-Sun City-Carefree Association ranges from very shallow to deep soils that are well drained and exist from alluvium. Textures are very gravelly to cobbly loam, with hardpan in most areas from 5 to 20 inches (some are calcareous). Slopes range from 0 to 8 percent with 2 to 10 inches of rainfall.



INVENTORY AND ANALYSIS

The *Eba-Pinaleno Association* is deep, well-drained soil consisting of very gravelly, clay loam with a calcareous mixture below 60 inches in some areas. Slopes range from 1 to 20 percent, and rainfall 7 to 10 inches. Some soils have slow permeability.

Gachado-Rock Outcrop-Quilotosa Association consists of very shallow soils that are very gravelly and loamy. Volcanic rock is present 4 to 20 inches below the surface. Slopes range from 7 to 65 percent and rainfall is 7 to 10 inches.

TABLE 3 Development Constraints by Soil Association

	I	II	III	IV	V
	Cipriano-Sun City-Carefree	Eba-Pinaleno	Gachado-Rock Outcrop-Quilotosa	Gran-Rock Outcrop-Lehmans	Tremant-Ebon-Pinamt
Septic Tank Absorption Fields	Severe	Severe to Moderate	Severe	Severe	Severe to Moderate
Dwellings Without Basements	Severe	Moderate	Severe	Severe	Moderate
Dwellings With Basements	Severe	Moderate	Severe	Severe to Moderate	Slight to Moderate
Local Roads and Streets	Severe	Moderate	Severe	Severe to Moderate	Slight to Moderate
Small Commercial Buildings	Severe	Severe to Moderate	Severe	Severe to Moderate	Slight to Moderate
Lawns and Landscaping	Severe	Severe	Severe	Severe	Slight to Moderate

Source: U.S. Department of Agriculture, Soil Conservation Service Soil Survey

The *Gran-Rock Outcrop-Lehmans Association* consists of shallow to very shallow, well-drained soils existing on alluvial fans. Slopes range from 8 to 65 percent and annual precipitation from 8 to 12 inches. This association is characterized as a gravelly-clay loam with slow permeability. Subsoil may be clayey with shrink-swell tendencies.



Tremant-Ebon Pinamt Association consists of deep, well-drained soils with slow permeability and shrink-swell tendencies. Soils are gravelly loam with clayey subsoils (some calcareous present). Slopes range from 1 to 20 percent and annual precipitation from 2 to 10 inches.

The four general soil properties, which effect soil suitability for development, are permeability, available water capacity, shrink-swell potential, and corrosivity.

Permeability refers to the rate at which water moves through the soil and is usually determined by the texture of the soil. Soils with a slow permeability pose severe limitations for septic tank absorption fields. Soils with slow permeability do not allow adequate absorption of effluent from tile or perforated pipe into natural soil. All of the soils in the planning area pose severe or moderate-to-severe restrictions for the use of septic tank absorption fields.

Available water capacity is the amount of water a soil can hold which is available for plants. The ability of soil to hold water in part determines the type of plants that can be used for landscaping and lawns. All but the Tremant-Ebon-Pinamt Association have a low available water capacity. Soil limitations should not prevent the use of imported topsoil for landscaping purposes provided the topsoil has a high available water capacity.

Shrink-swell potential refers to the capacity of a soil to expand or shrink as the moisture content is increased or decreased. Generally, soils with a high percentage of clay have a tendency to have a high shrink-swell capacity. Soils with a high shrink-swell capacity can contribute to structural problems for buildings and roads. Both the Cipriano-Sun City-Carefree Association and Tremant-Ebon Pinamt Association have high shrink-swell characteristics. These soils account for approximately 30 percent of the planning area.

Corrosivity refers to a soil's capacity to induce chemical reactions that will corrode or weaken metals and concrete. All soils within the planning area are highly corrosive to uncoated steel and only slightly corrosive to concrete. Soils with a high corrosivity may create potential problems for underground utilities if installed unprotected.

c) *Topography*

The New River planning area encompasses portions of the New River Mountains that are located north of the planning area. The desert foothills slope towards the southwest to New River and Skunk Creek as they approach I-17. The highest point within the planning area is Elephant Mountain, elevation 3,926 feet, while the lowest point within the area is 1,340 feet at the Agua Fria River in the southwestern corner of the area.

The area generally slopes towards the southwest. Slopes, as illustrated in **Figure 9**, range from 0 to 2 percent in the southern portions of the area to 20 percent or greater in the mountains to the north. Approximately 40 percent of the area has slopes between 0 and 2 percent, 25 percent between 2 and 15 percent slope, and 35 percent more than 15 percent slope.



d) Geology

General geology within the planning area consists of sedimentary and igneous rocks. Sedimentary rocks (composed of silt, gravel, and conglomerate) are found in a majority of the areas in the western portion of the planning area and extend to the eastern boundary along the Carefree Highway. Some small amounts of andesite, which were formed during the Cretaceous time period, are found in both the Cave Creek area and the southwest corner of the planning area. Igneous rocks (composed of granite and related crystalline rock), which were formed during the old-Precambrian time period, are found as rock outcrops in the mountains and in the north central portion of the planning area.

e) Visual Features

The most significant visual aspects of the New River planning area are its northern mountains and foothills. The northern portions of the planning area contain impressive scenery that is characteristic of the Central Arizona mountainous areas. The nearby mountains have created a scenic character unique in the Phoenix metropolitan area. Lake Pleasant and the Agua Fria River provide scenic quality to the western portion of the planning area.

f) Air and Noise Quality

Air quality is affected in a number of ways as a result of a variety of activities. Sources of air pollutants may be mobile or stationary. One mobile source of air pollution results from motor vehicle use. Such vehicle-generated emissions include carbon monoxide, nitrogen oxides, and hydrocarbons. The pollutant of greatest concern is carbon monoxide because, under certain atmospheric and topographic conditions, concentrations may accumulate which are hazardous to health under prolonged exposure. Stationary sources of air pollution come from roads, agricultural fields, vacant lots, and construction sites where wind-borne particulates such as dust and microscopic debris originate. One pollutant, which comes from both mobile and stationary sources, is ozone.

While carbon monoxide and wind-borne particulates usually comes from a known source, ozone originates from atmospheric chemical reactions between nitrogen oxides, hydrocarbons, and ultraviolet light.

For the New River planning area, motor vehicle emissions are not a major problem. With the extensive network of unpaved roads in the area, particulates are probably relatively high.

No known noise problems exist within the planning area boundaries, but as urban development continues to approach the planning area, some noise problems will increase, particularly along major arterial streets and I-17.



Hydrology

a) Surface Water

One-hundred-year floodplains within the planning area are illustrated on **Figure 10 – Surface Water**. These levels are designated by the Federal Emergency Management Agency and occur in a number of areas. The following is a list of the major waterways and their tributaries that are delineated or are currently under analysis for delineation:

Agua Fria River	Delineation from Lake Pleasant north along the County line for 12 river miles; and tributaries
Little Squaw Creek	Delineation for 4 river miles
Moore Gulch	Delineation for 5 river miles
Skunk Creek	Delineation for 19 river miles and tributaries
Cline Creek	Delineation for 5 river miles
Rodger Creek	Delineation for 8 river miles
New River	Delineation for 19 river miles
Cave Creek Wash	Delineation for 6 river miles

Southern portions of the planning area and property along the New River and Skunk Creek, where slopes are between 0 and 2 percent, could be susceptible to some flooding. The areas of Deadman's Wash and Apache Wash are in the 0 to 10 percent slope category and are susceptible to periodic flooding.

Presently, no flood control structures are located, or proposed for, the New River planning area. However, the U.S. Bureau of Reclamation built New Waddell Dam at Lake Pleasant, with most of the extra reservoir storage occurring in Yavapai County. New Waddell Dam is a multipurpose water resource development project that will store Colorado River water from the Central Arizona Project (CAP). Although the dam will chiefly be used for water supply, there may be reservoir space for flood storage. The level of flood protection will depend on the annual operation schedule of the dam. New Waddell Dam is fully operational.

The Maricopa County Flood Control District began an Area Drainage Master Study (ADMS) Program in the Apache Wash to analyze watershed for areas experiencing local flooding following rainstorms in the New River planning area. That study will be completed in 2001 with associated studies on New River and the Deadman Wash area to be completed by 2002. As plans are completed, provisions in the Area Plan and corresponding development regulations should consider the recommendations of both studies. The Phoenix Peripheral Areas "C" and "D" Plan includes areas south of Carefree Highway. Once the hydrology for these washes is complete, the 100-year-floodplains will be delineated.



b) Groundwater

Groundwater is described by depth to groundwater and the amount of recoverable groundwater. The planning area is composed mainly of bedrock with some relatively shallow areas of alluvial fill soils. As the depth to bedrock and depth of soils change, so does the level of groundwater compared to the ground surface. In the planning area, this causes groundwater levels to range from less than 5 feet along the Agua Fria River to greater than 250 feet in the southeastern portions of the planning area. Recoverable groundwater is the amount of groundwater in acre-feet per square mile. Within the planning area, this amount ranges from less than 30,000 to 60,000 acre-feet per square mile. These amounts appear sporadically throughout the area due to the extensive bedrock formations.

Vegetation and Wildlife

This section of the ***New River Area Plan*** describes the natural vegetation and wildlife in the planning area.

a) Vegetation

The New River planning area is located within the Sonoran Desert. Three native plant communities, Palo Verde-Saguaro, Creosote and Chaparral are found in the study area. **Figure 11 –Vegetation** illustrates the locations of these three plant communities. The Palo Verde-Saguaro community is found throughout most of the study area. It is the most scenic of the Sonoran Desert communities. This community is composed of small trees such as the Palo Verde, Acacia, and Mesquite; shrubs such as Creosote and Bursage; and cacti including the Giant Saguaro, Fishhook, Hedgehog, Prickly Pear, and several other species.

High concentrations of trees and shrubs can be found along the local drainage ways of the area. A unique concentration of Rayless Turpentine Bush, *Ericameria Brachylipsis*, has been identified in the central portion of the planning area by biologists of the Arizona Game and Fish Department.

As previously mentioned, the Palo Verde-Saguaro community is the most scenic of the Sonoran Desert plant communities, therefore, highly popular for development. The soil when disturbed, however, will usually be invaded by such plants as Desert Broom and some species of Mustard. Careful consideration should be given for all types of development so that they are compatible with the Palo Verde-Saguaro community.

The Creosote community is found in the southeast corner of the planning area and is considered to be the least scenic of the three plant communities. Creosote Bush is the dominant plant of this community with Palo Verde and Mesquite trees associated with the local drainage ways. This community is to be viewed without preference in terms of preservation except for attention given to preservation of local drainage ways.



The Chaparral community is found on the upper elevations of the planning area. Generally, the Point Leaf Manzanita and Scrub Oak are the dominant plants of the community. Lower amounts of Squaw Bush and Wait-A-Minute Bush can also be found.

During dry seasons, the Chaparral community is extremely susceptible to fire. Based on the high potential for fire and the uniqueness of this community, development associated with the Chaparral community should be avoided.

There may be plants within these plant communities which, by law (Arizona Revised Statutes, Title 3, Chapter 7, Article 1), can only be moved from one location to another after applying for a state permit, regardless of ownership.

For removal or destruction of protected species on private property, the Arizona State Agricultural and Horticultural Commission must be notified. The protected plants within this area are:

Cacti

Barrel	Cholla	Saguaro Mesa Verde
Beehive	Hedgehog	Prickly Pear (Opuntia)
Night Blooming Cereus	Pin Cushion	Needle "Mulee"

Trees and Shrubs

Agave (Century Plant)	Flannel Bush
Desert Holly	Ocotillo
Desert Spoon	Yucca

b) Wildlife

Big game typically found within the planning area include mule deer, which are found in sparse to low densities (0.5-4.0 animals per square mile) in the northern and western portions of the study area, and Javelina, in sparse to medium densities (0.5-3.0 animals per square mile) throughout the planning area. Bighorn sheep have been observed in the New River area over the past few years. These sheep are the remnants of a group transplanted in 1985. Predators and furbearers found in the area include coyotes and foxes. Important small game species include Cottontail rabbit, Gambel's quail, Morning and Whitewinged doves, and numerous non-game species such as raptors and migratory songbirds.

Desert washes in the planning area and the remnants of riparian vegetation along Skunk Creek, New River, and the Agua Fria River provide important habitat for a wide variety of wildlife species and should be preserved and rehabilitated wherever possible.

The only special status species which has been documented in the vicinity of the planning area is the Desert Tortoise (*Xerobates agassizi*). The Desert Tortoise is a candidate species on the state's Threatened Native Species list and is found principally in rocky foothills and less often on lower bajadas and semi-desert grasslands. The tortoise is also listed as



a candidate category two species on the U.S. Fish and Wildlife Service list of proposed and candidate species under the Endangered Species Act in Arizona.

Due to the habitat destruction caused by off road vehicles in this area, efforts should be made to preserve wildlife habitat by limiting developments, recreational use, and motor vehicle access.

Archaeology

Arizona, and especially Maricopa County, has a high concentration of archaeological sites. The State Historic Preservation Office (SHPO) has detailed information on file for site locations and surveys that have been conducted in the planning area. For the protection of the resource, private citizens cannot examine the files. Only members of federal, state, or local government agencies may view the files. If a federal or state agency is involved in a project, that agency should take the lead on consulting with the SHPO to determine if any historic or archeological properties exist in the project area or if a survey would need to be done.

No systematic reconnaissance field survey of the county has been conducted. It is assumed that unreported cultural resources, including historic resources, exist within the study area. The SHPO, in cooperation with federal, state, and other agencies, is developing a statewide electronic database (AZsite) to provide a comprehensive survey of all the historic sites in Arizona.

A number of small habitation sites have been identified in the New River Area. These include stone forts, special purpose sites, and cultivated fields.

Prior to development, excavation, or grading, an archaeological/historical review should be accomplished in order to determine the full archaeological potential so that preservation precautions can be implemented where necessary.

Policy Implications

This section concerning natural resources summarizes the key issues identified that should be addressed during the development of the New River planning area.

a) Physical Characteristics

All of the soils in the planning area have characteristics that limit the safe use of septic tanks.

Approximately 35 percent of the planning area is not well suited to development because of rugged terrain and steep slopes (over 15 percent).

Scenic views exist in much of the planning area, particularly in the northern mountains where there are several areas of pristine environmental quality.

b) Hydrology

Adequate amounts of potable groundwater in the planning area may be a problem for future development.



Major drainage areas cross the planning area such as Skunk Creek, New River, and several washes. Most of the adjacent land is subject to flooding and is not suited for development.

The opportunity exists to provide open space and parks along drainage ways. For example, various types of trails could be established to interconnect with the Agua Fria River and Lake Pleasant Regional Park.

c) Vegetation and Wildlife

The planning area includes the habitat of some threatened or rare animal species. The Chaparral habitat with its unique vegetation and the unique wildlife habitat is worthy of special concern.

d) Archaeology

Prehistoric sites have been identified in the planning area and additional sites may also exist in other areas.

ECONOMIC CHARACTERISTICS

Economic characteristics of the New River planning area are described in the following sections:

- ◆ Population, Age, and Gender
- ◆ Economic Characteristics
- ◆ Area-wide, Economy/Economic Base
- ◆ Economic Base Potential
- ◆ Residential, Commercial, and Industrial Demand
- ◆ Policy Implications

The purpose of this section of the area plan is to give a brief overview of population, economic characteristics, and existing economic conditions.

Population, Age, and Gender

This section of the ***New River Area Plan*** highlights historic and projected population and housing unit data to the year 2010. Comparative 1980, 1985 and 1990 U.S. Census data is also reviewed for age, and gender for the planning area and Maricopa County populations. Population projections have been derived from the Maricopa Association of Governments projections for the planning area. The estimates are based on present and historic census figures.

The 163 square mile New River planning area includes the unincorporated communities of New River and Desert Hills, and adjacent lands. Population and housing unit projections are for the entire planning area. The projected distribution of population in Maricopa County shows that much of new development in the unincorporated areas will occur in the New River/Desert Hills area.



Table 4 and **Table 5** show total housing units, and persons per housing unit. **Figure 12 –Residential Completions** shows areas of new construction from 1990 to 1997. During that period, there were 1,064 building permits for manufactured and single family housing units issued.

In 1970, the population of the New River planning area was about 1,176. From 1970 to 1980, the planning area population increased by 86 percent to 2,191. From 1980 to 1985, the planning area population increased 51 percent to 3,318 persons and 72 percent to 5,719 persons in 1990. Further, the population is projected to reach 35,625 persons by 2010 and 75,000 by 2020. In comparison, Maricopa County's population is projected to increase nearly 2 ½ times from 1990 to 2020 (**Table 1a**).

TABLE 4 Total Resident Housing Units

Census Area	Census			Projected		
	1985	1990	1995	2000	2005	2010
New River	1,239	1,863	2,019	2,377	2,734	3,092
Maricopa County	866,186	952,041	1,194,944	1,398,585	1,602,226	1,805,867

TABLE 5 Persons per Occupied Residential Housing Unit

Census Area	Census			Projected		
	1985	1990	1995	2000	2005	2010
New River	2.68	3.07	2.98	2.98	2.98	2.98
Maricopa County	2.12	2.23	2.10	1.93	1.86	1.81

Source: 1990 U. S. Census Bureau

In 1970, there were an estimated 399 resident households in the New River planning area with an average household size of 2.95 persons per household. In 1980, the New River planning area had 643 resident households and 3.41 persons per household (Note: A household is a family unit - a housing unit constitutes one dwelling structure and may contain more than one household). In 1990, there were 1,863 total housing units and approximately 2,100 units in 1995.

Table 6 indicates that the average age of New River residents is somewhat higher than the County's population. The median age of the planning area's population is 35.4, compared to 31.1 for Maricopa County.



TABLE 6 Population Distribution by Age and Gender (by percentage)

	Male	Female	Under 5	5-17	18-54	55-85	85+
New River	57.8	42.2	4.7	15.7	63.0	14.0	2.6
Maricopa County	50.2	49.8	7.7	19.2	53.1	14.3	5.6

Source: 1995 U.S. Special Census

Economic Characteristics

As shown in **Table 7**, median household income in the planning area is slightly higher than the comparable County average.

TABLE 7 Household Income Distribution and Median Income

Area	Less Than \$9,999	\$10,000-14,999	\$15,000-29,999	\$30,000-39,999	\$40,000-59,999	\$60,000 & over	Median Income
New River	6.8%	7.6%	21.3%	16.1%	26.4%	21.8%	\$35,956
Maricopa County	9.6%	9.2%	22.8%	15.0%	22.3%	21.1%	\$35,623

Source: 1995 U.S. Special Census.

AREA-WIDE, ECONOMY/ECONOMIC BASE

The economic base of this 163 square-mile planning area is quite modest. The area is characterized by scattered low-density residential development, large undeveloped areas due steep slope conditions, and other areas of open desert. 74% of the planning area is publicly owned by Arizona, the Bureau of Land Management, or Maricopa County.

About one-third of the businesses in the planning area are retail and two-thirds service establishments. Most are either adjacent to the I-17 or in the vicinity of New River Road.

RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL DEMAND

Using Countywide averages and basing land use demand on projected population, the following calculations have been made for land absorption in the unincorporated portions of the planning area:

a) Residential Demand

Based on residential housing unit projections for the period 1985-2010, it is estimated that there will be 3,092 residential housing units by the year 2010. It is assumed that 1,239 housing units existed within the planning area in 1985. Based on these figures,



1,853 additional units will be required by the year 2010. Most of this new development is projected to take place in the southern portion of the planning area.

TABLE 8 Recommended Commercial/Industrial Land Use Ratios

Land Use	Acres of Land	
	per 1000 people	
<i>Commercial</i>	10.5	
	Retail	5.5
	General	5.0
<i>Industrial</i>	8.0	

Source: Maricopa County Subdivision Regulations—Administrative Guidelines, 1990

b) Commercial Demand

The New River area has 177.7 acres of land zoned for commercial use (this figure includes special use permits). Some of this land can not be built on (located in floodplains or on slopes greater than 15%). About 70% of existing commercially zoned land represents buildable land. The existing commercial zoning can support a population of 11,850. The MAG 1997 population estimate for the Area is 6,995. MAG projects the population in the New River area to reach 11,850 by the year 2000 (this projection includes population from Anthem).

Table 9 describes the projected need for commercial land use to serve the residents in the planning area.

TABLE 9 Commercial Land Use Needs (based on population forecast)

Year	2000	2005	2010	2015	2020
Estimated					
Population	9,850	11,200	16,750	24,000	32,250
Acres	105	120	175	250	340

Acreage estimate based on 10.5 acres of Commercial per 1,000 persons, excluding future Anthem residents.

Source: Maricopa Association of Governments (MAG), *Socioeconomic Projections, Interim Report*, June 1997

c) Industrial Demand

Based on the 2010 population projection of 35,625 residents in the planning area (this projection includes population from Anthem), an estimated 285 acres of industrial land use will be needed (**Table 8**, 8.0 acres/1,000 people). Currently, a small portion of land in the planning area is used for industrial purposes (although no industrial zoning exists in the area).



ECONOMIC BASE POTENTIAL

Although the New River planning area has good north-south transportation access due to the I-17 Freeway, a portion of the planning area lacks improved roads and streets. Projected population growth, through the year 2020, will warrant additional commercial and industrial development.

Limiting factors continue to need to be overcome before the growth projected for the area is realized. They include: a) a number of natural development impediments like steep slopes, as well as floodplain and wash conditions; b) the lack of water and basic infrastructure to support any significant amount of new development; c) a medium size labor force; and d) the fact that the area may be subject to relatively higher energy costs.

It may be that commercial growth during the horizon of this planning effort will be limited to a small amount of convenience, retail, and service-related development. The potential exists for future hotel/motel development on publicly or privately owned lands adjacent to I-17. There is also some potential, over the long term, for resort development in the planning area because of its equestrian-based lifestyle, pristine desert, and nearness to Lake Pleasant. As Phoenix develops to the south of New River, increased pressures from urbanization will be felt. This will require updated plans and projections.

Policy Implications

During the analysis of the data collected on social and economic characteristics, a number of issues were identified that could be addressed as the County formulates the land use plan. The following social and economic issues should be addressed or resolved:

a) Economic Base

The expansion of the Lake Pleasant Regional Park, improvements to the freeway system, and adjacent large scale developments are accelerating population growth near and in the planning area. This in turn stimulates public land sales and leases, industrial growth, and the desire for mixed-use development. The amount, type, and location of economic/employment growth encouraged by the County will need to be determined.

b) Residential Development

Continued development of scattered single family homes has a critical effect on the environmental quality and character of the planning area. Current constraints will not be sufficient to stop development in floodplains, steep-sloped areas, and areas that lack the proper public services (sewer, water, and streets).

Policies and land use guidelines should be developed to encourage suitable locations for the new residences. One possible solution would be to allow urban residential development in selected portions of a site by transferring development rights from one portion of the property to another. Using transfer of development rights could protect endangered hillside, washes and trails. By concentrating development in certain locations, environmental mitigation is obtained easier and less area is affected.



INVENTORY AND ANALYSIS

c) *Commercial and Industrial Development*

Additional employment-related growth should be encouraged in the New River planning area. This will help develop a balanced land use and local economy and improve the jobs/housing balance. Creating local employment opportunities will also reduce the number and length of vehicle trips generated by residents. Types of development should be limited to office parks, resorts, and light manufacturing. These uses should be compatible with the environmental quality of the planning area.