

I. RESPONDENTS SUGGESTED PARK IMPROVEMENTS

In reviewing the Park User Survey Response Evaluations compiled by the Maricopa County Parks and Recreation Department (299 returned questionnaires) for the periods August 5, 1984 - September 3, 1984, and February 17, 1985 - May 27, 1985, Sunregion Associates, Inc. decided to combine the results of its analysis of 350 more recently completed survey questionnaires for the period from April 11, 1987 - July 6, 1987 and January, 1988 with the earlier survey findings. This has been accomplished in part by combining some categories of overlapping suggestions, thus yielding a fuller picture of desired park improvements that have been suggested by users.

The combined survey data includes responses provided during seven months of the year, both winter and summer, but the surveys are slightly skewed toward the spring and summer months. The results are shown in Table 27, and are based on a total of 650 returned survey questionnaires.

A few general observations about the survey results are in order.

1. Readily available, good-tasting drinking water and clean restrooms are especially important; 26.2 percent of the suggestions dealt with these needs. The quality of the drinking water at the park must be improved.
2. Some type of water-based recreational facility seems to hold particular interest for the respondents, with nearly 21 percent (20.8) of the suggestions falling into this general category. These included suggestion for a swimming pool, wading pool, lake (or pond, with paddle boats, fishing, and ducks), and even a waterslide.
3. Court and playing field activities that might be in a full-featured sports complex made up 89 (13.7 percent) of the 650 suggestions. Many respondents commented simply that there was a need for more recreational facilities for both children and adults.
4. Eighty-four of the 650 suggestions (12.9 percent) called for more and a greater variety of children's' play equipment.

Table 27
Estrella Mountain Regional Park
Suggested Park Improvements

<u>Suggested Improvement</u>	<u>Number</u>	<u>% of Total</u>
More Playground Equipment	84	12.9
Lake (Boats, Ducks, Fishing)	78	12.0
More Shade Trees/Ramadas	72	11.1
More/Better Restrooms	65	10.0
Better Drinking Water	60	9.2
Swimming Pool	50	7.7
Softball/Baseball/Sports Fields	33	5.1
More Drinking Fountains	22	3.4
More Restroom Servicing	20	3.1
Basketball Courts	16	2.5
Volleyball Courts	14	2.2
Tennis Courts	13	2.0
Overnight Campground	13	2.0
Racquetball Courts	11	1.7
Bicycle Path	11	1.7
More Tables & Grills	10	1.5
Horse Stables	9	1.4
Telephone Facilities	8	1.2
More Trash Cans	8	1.2
Beach/Wading Pool	7	1.1
More Lighting	6	.9
Convenience Store	6	.9
Hiking Trails	5	.8
Horseshoe Pits	5	.8
Better Trail Markers & Maps	5	.8
Other	5	.8
Shooting/Archery Range	4	.6
Model Airplane Facility	3	.5
Open the Closed Restrooms	3	.5
Multi-use Courts	2	.3
Miniature Golf	1	.2
Jogging Trail	1	.2
Raise Picnic Table Seats	1	.2
Total	650	100.0 ¹

Source: Maricopa County Parks and Recreation Department; and, Sunregion Associates, Inc. ¹Table does not equal 100% due to rounding.

Table 28 following is intended to show the types of features available at a cross section of competitive park and comparative recreation facilities in the Primary Market Area. The differences between features found in urban parks and those found in the County's regional parks is dramatically reflected in this table. Generally speaking, it can be expected that as the Phoenix Metropolitan Area grows, and as the population adjacent to the regional parks increases, there is likely to be increasing pressure for more urban park features in the County's regional parks. Indeed, this is already being reflected in the results of user surveys. This is clearly becoming and important policy issue which the County will need to address more frequently in the future.

Table 28
Estrella Mountain Regional Park
Selected Market Area Competitive and Comparative Facilities

<u>Features:</u>	P i c n i c T' s	G r i l l s	P l a y g' r n d	S w i m m i n g	H o r s e s	C a m p i n g	T r a i l s	S p o r t s	W a t e r	E l e c t r i c	G o l f	T e n n i s	L a k e	R e s t r o o m	R a m a d a s
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Recreational Facility:

County

Buckeye Hills	+	+	-	-	-	-	-	-	-	-	-	-	-	+	+
Estrella Mtn.	+	+	+	-	1	2	+	-	+	3	+	-	-	-	+
Underdown	+	-	+	-	-	-	-	+	-	-	-	+	-	-	-
White Tank	+	+	-	-	-	4	+	-	-	-	-	-	-	+	+

Phoenix

Alvord	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Cielito	-	-	+	-	-	-	-	+	+	-	-	+	-	+	-
Desert West ⁵	+	+	+	-	-	-	-	+	+	-	-	+	-	+	-
El Oso	-	-	-	-	-	-	-	+	+	-	-	-	-	+	-
Encanto	+	+	+	+	-	-	-	+	+	-	+	+	+	+	-
Falcon	+	-	+	-	-	-	-	+	+	-	-	-	-	+	+
La Pradera	+	+	+	-	-	-	-	+	+	-	-	-	-	-	-
Marivue	-	+	+	+	-	-	-	+	+	-	-	-	-	+	+
Maryvale ⁶	+	+	+	+	-	-	-	+	+	+	-	-	-	+	+
Maryvale GC	-	-	-	-	-	-	-	-	+	-	+	-	-	+	+
South Mtn.	+	+	+	-	7	-	+	-	+	+	-	-	-	+	+
Sueno	-	-	+	-	-	-	-	+	+	-	-	-	-	+	-
Villa de Paz GC ⁸	-	-	-	-	-	-	-	-	+	-	+	-	-	+	-
Washington	+	-	+	+	-	-	-	+	+	-	-	-	-	+	+

Glendale

Bicentennial	-	-	+	-	-	-	-	+	+	-	-	-	-	-	-
Bonsall	+	+	+	-	-	-	-	+	+	-	-	+	-	+	+
O' Neil ⁹	+	+	+	+	-	-	-	+	+	-	-	-	-	-	-
Rose Lane ⁹	+	+	+	+	-	-	-	+	+	-	-	-	-	+	-

Table 28 (Continued)
 Estrella Mountain Regional Park
 Selected Market Area Competitive and Comparative Facilities

<u>Features:</u>	P i c n i c	G r l l s	P l y g' r n d	S w i m e n g	H o r s e s n g	C a m p i n g	T r a i l s	S p i l t s	W a t e r	E l e c t r i c	G o l f	T e n n i s	L a k e	R e s t r o m	R a m a d a s
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Recreational Facility:

Avondale

Campbell	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+
Lorenz	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Mtn. View ¹⁰	-	-	+	-	-	-	-	+	-	-	-	+	-	+	-	-
4th Street	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-

Goodyear

Loma Linda	+	-	+	+	-	-	-	-	+	-	-	+	-	+	-	-
Palmateer	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-
Parque de Paz	+	-	+	-	-	-	-	+	+	-	-	-	-	-	-	-

Tolleson

Cowden	+	+	+	-	-	-	-	+	+	-	-	-	-	-	+	+
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Source: Sunregion Associates, Inc.

- 1 A horse arena with bucking and roping facilities is available.
- 2 Group and tent camping available; no utilities or facilities.
- 3 Seven picnic ramadas available with electricity.
- 4 A group campground and 40 campsites.
- 5 A newly-developed district park; Phase I is a sports complex, and Phase II will be the green area.
- 6 Has a community center.
- 7 Horses available for rental just outside park entrance.
- 8 Private golf course, open to non-residents with payment of applicable fee.
- 9 Each of these two parks also has a recreation building.
- 10 Park has snack bar.

In addition to these surveyed facilities, two additional parks, one 5 acres and the other 10 acres, are being planned in Avondale. The 5-acre park will be located southeast of SR 85 and Dysart Road, and the 10-acre park will be located on a former landfill site northeast of 8th Street and Western along the Agua Fria River. Both parks will have conventional urban park facilities without water features.

It is also understood that both the City of Goodyear and the Town of Buckeye are in the early stages of planning new municipal parks, however, in early 1988 no details were available.

J. PRIVATE RECREATIONAL VEHICLE PARK CONCESSION MARKET ANALYSIS

In this section the recreational vehicle park market in the Phoenix Metropolitan Area and in the Primary and Immediate Market Areas is evaluated for the purpose of assessing the demand for a privately operated recreational vehicle facility at Estrella Mountain Regional Park.

The results of the analysis in this section indicate that a privately operated recreational vehicle park concession at Estrella Mountain Regional Park has market feasibility.

Moreover, the analysis indicates that a 250 space Phase I development should be in operation by the fall of 1990, and that by the fall of 1993 the projection indicate that an additional 200 units could be placed on the market provided that the Phase I projections are realized.

The information and analysis in this section, as well as the remainder of the report should serve as a useful guide to recreational vehicle park developers when considering the development of a project at Estrella Mountain Regional Park. It is also recognized that additional micro-economic analysis will have to be completed by developers. As a result, it is recommended that a Request for Proposals along with a copy of the plan be distributed to recreational vehicle park developers by the fall of 1989.

1. Estrella Mountain Regional Park Site

A privately operated recreational vehicle park concession within Estrella Mountain Regional Park should have a strong competitive position in the market. Not only is the park in a scenic location, it is also not suffering from congestion and highway pollution found in other recreational vehicle park locations in the Valley. Moreover, the site is located adjacent to future growth corridors, and has excellent access situated as it is in proximity to both I-10, State Route 74, and the future Cotton Lane Expressway, the Agua Fria Expressway (99th Avenue from Buckeye Road to the Black Canyon Freeway).

A privately operated long-stay recreational vehicle park also offers patrons amenities which a developer will not have to construct such as a golf course, trails, and other planned facilities such as a lake, fishing and even swimming facilities. In addition, the park is close to community shopping facilities, medical services and other personal services facilities in Goodyear and Avondale.

The package of features available at Estrella Mountain Regional Park will make Estrella Mountain Regional Park an extremely attractive long-stay recreational vehicle destination.

2. Recreational Vehicle Park Market Areas

In the tables which follow, reference is made to the Phoenix Metropolitan Area (Maricopa County and Apache Junction), the Primary Market Area (defined previously in the report), and what is identified as the Immediate Market Area which is an area bounded by Oglesby Road on the West, by Southern Avenue on the South, Bell Road on the north, and on the east by 115th Avenue between Bell Road and Camelback Road, and then by 83rd Avenue between Camelback Road and Southern Avenue. In this analysis, the Immediate Market area is extended into Estrella Mountain Regional Park. The Immediate Market Area is the competitive market area in which an Estrella Mountain Regional Park facility would operate.

3. Private Recreational Vehicle Park Demand Analysis

Table 29 provides a summary of the growth of recreational vehicle spaces in the Phoenix Metropolitan Area and the Immediate Market Area. The information in the table is for the month of December in each year and consequently does not reflect occupancy rates or vacancy rates in the peak month of visitation each year which is February. Occupancy estimates for February 1985-1988 are provided later in Table 30.

Table 29
Recreational Vehicle Park Space Inventory, Vacancy Rates and
Absorption from 1982-1987 in the Phoenix Metropolitan Area,
the Primary Market Area and the Immediate Market Area

<u>Year</u> <u>End</u>	<u>Phoenix Metro.</u>		<u>Primary Mrk. Area</u>		<u>Immediate Mrk. Area</u>	
	<u>Spaces</u> ¹	<u>% of</u>	<u>Spaces</u>	<u>Phx.Metro.</u>	<u>Spaces</u>	<u>% of</u>
1982	14,722		451	3.1	103	.7
1983	27,427		698	2.5	136	.5
1984	33,480		1,831	5.5	1,243	3.7
1985	38,335		2,757	7.2	2,098	5.5
1986	41,739		2,758	6.6	2,098	5.0
1987	43,264		2,839	6.6	2,098	4.9

<u>Year</u> <u>End</u>	<u>Vacant</u> <u>Spaces</u>	<u>%</u> <u>Vac*</u>	<u>Vacant</u> <u>Spaces</u>	<u>% of</u> <u>Phx.Met.</u>	<u>%</u> <u>Vac</u>	<u>Vacant</u> <u>Spaces</u>	<u>% of</u> <u>Phx.Met.</u>	<u>%</u> <u>Vac</u>
1982	na	na	na	na	na	na	na	na
1983	768	3	87	11.3	12	29	3.8	21
1984	5,524	17	812	14.7	44	746	13.5	60
1985	13,034	34	1,637	12.6	59	1,574	12.1	75
1986	10,435	25	604	5.8	22	56	5.4	27
1987	13,412	31	832	6.2	29	692	5.2	33

<u>Year</u> <u>End</u>	<u>Inv. &</u> <u>Absorp**</u>	<u>Inv. &</u> <u>Absorp</u>	<u>% of</u> <u>Phx.Metro</u>	<u>Inv. &</u> <u>Absorp</u>	<u>% of</u> <u>Phx.Metro</u>
1983-87					
Inventory	+15,837	2,141		1,962	
Ave. Ann.	+3,959	535	13.5	491	12.4
Occupancy	+3,193	1,396		1,299	
Ann.Ave.	798	349	43.7	325	40.7
CPA % Change	2.89	34.6		90.4	

* Vacancy rates are rounded to nearest whole number.

** Change in Occupied Units from year-end 1983 to year-end 1987.

Source: Phoenix Metropolitan Housing Study; and Sunregion Associates, Inc. Note: Includes spaces in Apache Junction. "na" means not available.

As shown in Table 29, the Immediate Market Area has not added additional recreational vehicle spaces since 1985. This, in part, has resulted in strong absorption in the Immediate Market Area from 1983-1987 (change in occupied spaces) in spite of some softening appearing in the market in December, 1987.

Absorption of recreational vehicle spaces in the Phoenix Metropolitan Area from year-end 1983 to year-end 1987 has not been as rapid as that in the Immediate Market Area. Nevertheless, recent estimates from February, 1985 to February, 1987, indicate that absorption in the Phoenix Metropolitan Area has been strong. In February, 1987, the typical month of peak occupancy, the Phoenix Metropolitan Area occupancy rate increased to 89 percent from 75.5 percent in February, 1986 and 77 percent in 1985. It is estimated that the occupancy rate in the Immediate Market was about 85 percent in February, 1987.

Preliminary indications in February, 1988 are that the occupancy rate since February, 1987 has decreased somewhat in the Phoenix Metropolitan Area as well as in the Immediate Market Area. Phoenix Metropolitan Area and Immediate Market Area absorption estimates from February, 1985 to February, 1988 are presented in Table 30.

Table 30
Phoenix Metropolitan Area and Immediate Market Area Peak
Month Inventory, Occupancy and Absorption from 1985-1988

<u>February</u>	Phoenix Metropolitan Area			
	<u>Spaces¹</u> <u>Est.</u>	<u>Occupancy</u> <u>Rate</u>	<u>Occupancy</u>	<u>Absorption*</u>
1985	33,480	77.0	25,780	--
1986	38,335	75.5	28,943	3,163
1987	41,739	89.0	37,148	8,205
1988	43,264	85.0	36,774	-374
Est. Feb. 1985-88				
Ann. Ave. Inc.	3,261	82.0		3,665
Immediate Market Area				
1985	1,243	54.0	671	--
1986	2,908	40.0	1,163	492
1987	2,908	85.0	2,472	1,309
1988	2,908	82.0	2,385	-87
Est. Feb. 1985-88				
Ann. Ave. Inc.	555	67.1		571
% of Phx.Metro.	17.0			15.6

Source: Sunregion Associates, Inc., Phoenix Metropolitan Housing Study, and Arizona Business. ¹Note: the space inventory estimates in February represent the inventory of recreational vehicle spaces in on December 31st of each preceding year. *Change in occupied spaces from February, 1985 to 1986, February, 1986-87 etc.

As a point of information, past research by the consultant indicates that recreational vehicle park occupancies during the winter season (November through April) typically range between 55 and 70 percent, and about 15-30 percent in the summer months (May through October). Annual occupancies range between 35 and 55 percent for more established locations. Newer parks typically experience lower annual occupancies during their first three years of operation than the ranges noted above, as do parks with shorter operating seasons in colder climates.

4. Projected Privately Operated Recreational Vehicle Park Absorption

Projections presented in Table 31 are based on analysis developed in Tables 29 and 30 and the assumptions and notes outlined below.

Contacts with the City of Goodyear, Avondale, and Tolleson as well as other sources did not identify planned additions to inventory in the Immediate Market Area. Nevertheless, as noted below it is anticipated that new spaces will be added to the Immediate Market Area supply during the forecast period.

The projections for the period from February, 1989 through February, 1995 are based on the following assumptions and notes:

- a. Table 31 adjusts the absorption estimates (change in occupied spaces) from February, 1988 to February, 1990 to make allowance for a projected slowing of economic growth in both the national and local economies in 1988, 1989, and into 1990. A slowing of the economy typically translates into slower growth in demand for all types of travel accommodations. Therefore, to be conservative, Phoenix Metropolitan Area annual absorption of 1,800 spaces per year is projected from February 1988 to February 1990. This is less than half of the 1985 to 1988 experience. Table 31, Site Capture estimates are cumulative.
- b. From February, 1990 to February, 1995 Phoenix Metropolitan Area absorption is projected to return to the historic 1985-1988 level of 3,665 occupied spaces per year.
- c. Although no planned projects were identified in the Immediate Market Area, based on the area's improving occupancy rates it is projected that additional spaces will be brought to the market from 1989-1995. In 1989 and 1990 the Immediate Market Area is projected to represent 6.5 percent of the occupied spaces in the Phoenix Metropolitan Area, unchanged from 1988. However, an increase from 6.5 percent to 7 percent of Phoenix Metropolitan Area occupancy is conservatively estimated from 1991 through 1995 as a result of the Immediate Market Area's increasing attractiveness for recreational vehicle park development stemming from the completion of Pagago Freeway, projected population growth, available services and amenities, and lower land prices than many other areas in the Phoenix Metropolitan Area. Again, the Immediate Market Area capture estimates should prove conservative in view of the fact that average annual absorption from 1985-1988 in the Immediate Market Area was over 570 units per year.

- d. Although the inventory of spaces is not provided in Table 31, this may be estimated for the Phoenix Metropolitan Area by multiplying occupied spaces by a factor of 1.20 and in the Immediate Market Area by a Factor of 1.22.
- e. No privately operated recreational vehicle park development is projected within the park prior to February, 1990. Capture rates within the park from the Immediate Market Area are estimated at 20 percent from 1990-1991 and 25 percent from 1991-1995.

Table 31 indicates that during the February, 1989 to February, 1995 period, the rate of absorption of occupied recreational vehicle spaces will be slower in both the Phoenix Metropolitan Area and the Immediate Market than from 1985-1988.

Nevertheless, based on the Immediate Market Area and Estrella Mountain Regional Park capture projections noted in Table 31, a privately-operated recreational vehicle park appears to be feasible at Estrella Mountain Regional Park. Moreover, the estimates indicate that Phase I should contain 250 spaces, with expansion potential for an additional 200 spaces. Phase I, ideally should be developed by the fall of 1990 followed by development of Phase II by the fall of 1993, provided that the Phase I absorption experience signals moving forward (also see section S-1).

Table 31
Projected Phoenix Metropolitan Area and Immediate Market
Area Absorption of Recreational Vehicle Park Spaces from
February 1987 to 1995

<u>From Febr. to February</u>	<u>Phoenix Metropolitan Area Occupancy Absorp.</u>		<u>Immediate Market Area Occupancy Absorp.</u>		<u>Site Space Capture Potential</u>
1987	37,148		2,472		
1988	36,774	(374)	2,385	(87)	np*
1989	38,574	1,800	2,510	125	np*
1990	40,374	"	2,625	115	np*
1991	44,039	3,665	3,085	460	90
1992	47,704	"	3,340	255	65
1993	51,369	"	3,595	255	65
1994	55,034	"	3,850	255	65
1995	58,699	"	4,110	260	65

Source: Sunregion Associates, Inc. *np means none projected.

Privately Operated Recreational Vehicle Park Amenities Survey of Selected RV Parks in the Primary Market Area

Table A-1 in Appendix A provides amenities offered by privately operated recreational vehicle parks located in the Primary Market Area.

K. COUNTY OPERATED CAMPING FACILITY ANALYSIS

In addition to a privately operated recreational vehicle park concession, Estrella Mountain Regional Park should continue to provide County-operated short-stay facilities intended to primarily serve Phoenix Metropolitan Area residents. These facilities would serve both family recreational vehicle campers and family tent campers, as well as recreational vehicle groups and group tenters.

These family and group campground facilities would be operated by the County, and would be short-stay facilities (up to 14 days). Although these facilities would be improved, they would not offer the range of amenities provided at the privately operated recreational vehicle park concession.

1. Camping Facility Demand Analysis

The family and group campground analysis summarized below in Table 32 and discussed in more detail in Appendix A is based on: a./ the consultant's judgment; b./ the Maricopa County Parks and Recreation Department's Estrella Mountain Regional Park Weekly Visitation Reports for 1986; c./ the 1986-87 fiscal year revenue report and Group Reservation forms for 1986 and 1987; and, d./ discussion with park managers and other park personnel at Estrella Mountain Regional Park, McDowell Mountain Regional Park and Utery Mountain Regional Park.

In 1986, it is estimated that campers at Estrella Mountain Regional Park represented just over 2 percent of total park visitation. In 1987, based on the 1986-87 fiscal year revenue report, campers represented under 2 percent of the total park visitation because of the rapid increase in overall attendance from 1986 to 1987. Nevertheless, given the fact that Estrella Mountain Regional Park does not currently have improved facilities, this level of visitation indicates a strong demand for such facilities at the park.

Table 32
Projected Publicly Operated Family and Group Campground
Site Demand from 1988 through 2005

<u>Add 3rd-4th Quarters</u>	<u>Improved Family Campground Sites</u>	<u>Improved Group Campground Sites</u>
1988	40	60
1991	40	
1993		60
1995	40	
1998	40	
1999		60
2002	40	

Source: Sunregion Associates, Inc. based on data in Table A-2 in Appendix A.

2. Family Campground Sites

The analysis indicates that there is an immediate demand for at least 40 improved family campground sites and an additional 40 in 1991, 1995, 1998, and 2002. However, excluding those facilities recommended for development in 1988, it is not recommended that additional sites be developed in the other target years unless occupancies at existing sites are at least in the 18-25 percent range, based on a 210-day (7 month) operating cycle. On the other hand, if any occupancies are in the 40-50 percent range prior to the targeted expansion dates, the next 40 spaces should be developed ahead of schedule.

With respect to the family campground operating cycle, it is recommended that the sites be open from October through May (except December), and closed from June through September and in December. If a break in operation is not desired in December, the park could remain open in that month, although the level of usage is expected to be only about 1/2-1 percent of annual usage. Further, it is also recommended that the campground remain closed from June through September, campground demand during these months represents only about 2 percent of annual useage.

Data evaluated indicate a higher occupancy experience at Black Canyon in the summer months than at Estrella Mountain Regional Park. However, the summer occupancy rate is modest. There is no doubt that the higher occupancy experience at Black Canyon is partly due to the availability of improved facilities. Nevertheless, family campground facilities should be closed in the summer months noted above and in December. During the months when the family campground facility at Estrella would be closed, the privately operated recreational vehicle park as well as an overflow facility (described below) would be open.

All sites should have a water tap, electricity, a picnic table, grill, fire ring, and adequate parking space for 2 vehicles. With respect to restrooms, it is recommended that properly spaced central restroom facilities be developed with hot and cold running water and private showers. A per-night site fee of \$8.00 in 1988 is recommended, with built in increases of 5 percent per year subject to market acceptance.

3. Group Campground Sites

The analysis indicates that a 60-unit group site should be developed at this time. The site would be developed on a 5 acre parcels with two large ramadas serving each location. Individual units would provide the same amenities as identified for the family campsites without electric or water hook-ups. It is further projected that there will be demand for an additional 60-unit group site in 1993, and another 60 units at year end 1999. Furthermore, the 60-unit improved site targeted for 1999 could be developed on 5 of the 15 acres designated below as an overflow facility.

However, the additional sites projected in the target years should not be developed unless a minimum occupancy of 14-20 percent is achieved. This occupancy range threshold is somewhat lower than for family campground facilities since group facility occupancies at the County facilities surveyed are lower. Moreover, it is recommended that the group campground facilities operate 6 months a year (180 day operating cycle).

The group campground operating cycle should extend from October through April (excluding December). Group rates should be \$.00 per night in 1988 and increase at 5 percent per year assuming that there is market acceptance.

4. Overflow Facility

It is also recommended that a 15 acre overflow facility be developed to accommodate the very large groups which frequent the park in February, March, and October. Although our projections factored in peak weekend and peak month visitation, analysis of the Estrella Mountain Regional Park visitation records indicates that when occasional large groups visit the park there will continue to be a need for an overflow facility. This overflow facility is simply another typical group campground or an enlarged group campground.

L. GOLF COURSE MARKET ASSESSMENT

The golf course market assessment is intended to provide a general indication of the market timing for the development of additional golf course facilities at Estrella Mountain Regional Park. Although, the analysis indicates that an additional 18 holes should be planned, and that a market will exist for an additional 9 holes by mid-1994, further market research work should be completed as early as 1992 to help confirm this projection.

At a minimum, the population projections identified in Table 34 should be evaluated to determine if they are on target. Further, plans for any additional golf courses will also affect the demand projections and should be taken into account. Also, Primary Market Area residents should be surveyed concerning their views on the type of course that should be developed, expected levels of patronage, and acceptable fee structures.

Finally, prior to new facility development, the operator of existing golf course facilities at Sierra Estrella should affirm its belief that the level of utilization at existing courses in the area warrants the addition of new facilities. As shown in Table 1, the fact cannot be overlooked that usage of the Sierra Estrella Golf Course has not increased substantially since 1982.

1. Immediate Market Area, Population and Demand Projections

The Immediate Market Area is defined as the area within an 8 mile radius of Estrella Mountain Regional Park measured from Bullard Road and Southern Avenue. This area is within approximately 15 minutes driving time of the park.

The Immediate Market Area population projections in Table 33 are high-growth projections, and include projections for the Estrella Planned Community area that are significantly higher than MAG's 1987 projections. MAG's projections were made when very little information about the Estrella Planned Community was available.

Table 33
Sierra Estrella Golf Course
Immediate Market Area High Growth Population Projections

Distance	1985	1990	1995	2000	2005
8 Mile Radius	32991	53952	106635	166022	229108

Source: Sunregion Associates, Inc.

Although very strong growth is projected in the Immediate Market Area in future years, Sunregion Associates, Inc. anticipates that during the 1990-1995 period, most of the projected growth will occur after 1993.

Moreover, although Table 33 does not show the specific population projections for the Estrella Planned Community, in 1990 its population is projected at 1,800, rising to 9,000 in 1995, 19,000 in 2000, and 28,000 in 2005. Thus it can be seen that the projected population growth to 1995 would clearly not support either of the golf courses now contemplated for the Immediate Market Area (the Estrella Planned Community Golf Course and a new Sierra Estrella Course). Considerable additional patronage would have to be drawn from outlying areas to support these new courses.

To illustrate, over the past several years about 20 percent of the adult population of the Phoenix Metropolitan Area plays golf each year. Further, in 1986 about 75 percent of the population in the Phoenix Metropolitan Area was 18 years and older (adult). Based on the assumption that 75 percent of the 1995 population in the Estrella Planned Community will be adults, and that 20 percent of these adults will play 4-6 rounds per person each year, between 5,400 and 8,100 rounds will be played. Further, assuming that a standard 18 hole golf course will accommodate 500 rounds per day, the 1995 Estrella Planned Community's population would support from 11-16 of 360 golf days.

Viewing potential demand in the entire Immediate Market Area using the same analytical approach shows a demand for 63 days in 1990, and 128 days in 1995. Much of this demand will be accommodated by existing courses in the area, and it would be necessary to generate considerable additional patronage from outside the Immediate Market Area to support a new facility at Estrella Mountain Regional Park by 1995. This is discussed in more detail later in the report in the Primary Market Area section.

An alternative way of projecting the demand for golf courses is through the use of population standards. For example, the standard of one 18 hole course within a 15 minute drive of 35,000 to 50,000 population is a planning standard used by the City of Phoenix. When the Immediate Market Area population is evaluated by this standard it is apparent that in 1990 one 18 hole course would be sufficient to serve the projected population. In 1995, from 2 to 3 courses would be required, and this would increase to 3-5 courses in 2000, and 5-7 courses in 2005.

At present, the Sierra Estrella Golf Course and three 18 hole courses at the Wigwam Inn (opened to the public in the Summer of 1987) lie directly within the Immediate Market Area. In close proximity is the 18 hole course at Villa de Paz. In effect then, there are 5 courses available to the Immediate Market Area population at this time. These courses should serve the projected population growth in the Immediate Market Area to the year 2000. In summary, based on this alternative projection methodology, it is seen again that additional demand must be generated from outside the Immediate Market Area to support a new course at Estrella Mountain Regional Park.

Based on the foregoing analysis, it is not surprising that the April, 1987 golf survey conducted at Sierra Estrella Golf Course showed that over 80 percent of the current patrons to Sierra Estrella Golf Course are from outside the Immediate Market Area. As noted, it will continue to be necessary to draw considerable patronage from outside the Immediate Market Area to support a new course at Estrella Mountain Regional Park in the near term. This patronage will be drawn primarily from the area identified below as the Sierra Estrella Golf Course Primary Market Area. This area includes the Immediate Market Area identified above.

2. Sierra Estrella Golf Course Primary Market Area

In Section B it was noted that the Primary Market Area for Sierra Estrella Golf Course extends to Pinnacle Peak Road on the north, the Patterson Road alignment on the south, 339th Avenue on the west, and 48th Street on the east. These roads extend to the most distant points within 25 highway miles of the golf course market area and are within a 30-45 minute driving time of the Sierra Estrella Golf Course (See Appendix C for a detailed description of these boundaries). The Primary Market Area population projections shown in Table 34 below are high growth resident and seasonal projections and include estimates for AMCOR's Estrella Planned Community which are substantially above those developed by MAG in 1987.

Table 34
Sierra Estrella Golf Course Primary and Secondary Market
Areas, Resident and Non-Resident Population Growth
1985 to 2005

<u>Area</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>	<u>2005</u>
Primary Market	642,917	762,904	950,493	1,130,619	1,279,772
% of Phx. Metro.	35.0	33.7	34.1	34.5	35.1
% Increase	-	18.7	24.6	19.0	13.2
Secondary Market	1,195,037	1,499,118	1,840,819	2,121,644	2,365,087
% of Phx. Metro.	65.0	66.3	65.9	65.5	64.9
% Increase	-	25.2	22.8	15.3	11.5
Phx. Metro.	1,837,954	2,262,022	2,791,312	3,252,263	3,644,809

Source: Same as previous table.

3. Primary Market Area Golf Course Supply

In early 1988 there were nine standard 18 hole courses within the Sierra Estrella Golf Course Primary Market Area. In addition there was one executive 18 hole course, and there were two 9 hole courses that are open to the public. Further, there were fourteen private, members-only 18 hole golf courses in the Primary Market Area. All of the latter group are located in Sun City and Sun City West.

The public 18 hole courses are:

1. Encanto Municipal Golf Course, 2705 N. 15th Ave., Phoenix;
2. Hillcrest at 2002 Star Ridge Drive, Sun City West;
3. Maryvale Municipal Golf Course, 5202 West Indian School Road, Phoenix;
4. Pueblo El Mirage, 11201 North El Mirage Road, El Mirage;
5. Sierra Estrella Golf Course, Goodyear;
6. Villa de Paz, 4220 North 103rd Avenue, Phoenix; and,
7. The Wigwam (3 courses), 4344 North Litchfield Road, Litchfield Park.

The private 18 hole courses in Sun City are:

1. Palm Brook Country Club, 9350 West Greenway Road;
2. Quail Run Golf Course, 9774 Alabama Avenue;
3. Sun City Country Club, 9433 107th Avenue;
4. Sun City Lakes East/West, 10433 Talisman Road;
5. Sun City North, 12650 N. 107th Ave.;
6. Sun City Riverview, 16401 Del Webb Boulevard;
7. Sun City Willow Creek, 10600 Boswell Boulevard;
8. Sun City Willow Brook, 10600 Boswell Boulevard; and,
9. Union Hills Country Club, 9860 Lindgren Avenue.

The private 18 hole courses in Sun City West are:

1. Briarwood, 21200 N. 135th Ave.;
2. Echo Mesa Golf Course, 20349 Echo Mesa Drive;
3. Grandview Golf Course, 14260 Meeker Boulevard;
4. Pebble Brook Golf Course, 18836 North 128th Ave.; and,
5. Stardust Golf Course, 12702 W. Stardust Boulevard.

The public executive 18 and 9 hole courses:

1. Country Meadows, (executive 18), 8411 North 107th Avenue, Peoria;
2. El Caro Golf Course (executive 18), 2222 West Royal Palm Road, Phoenix;
3. Encanto Park, (9 Hole) 2300 N. 17th Avenue, Phoenix;
4. Happy Trails at 17200 Bell Road (9 hole), Surprise;
5. Glen Lakes Municipal Golf Course (9 holes), 5450 West Northern Avenue, Glendale; and,
6. Palo Verde (9 hole), 6215 North 15th Avenue, Phoenix.

Based on a standard of one 18 hole golf course for every 50,000 population and a population of 25,000 for a 9 hole course within 30-60 minutes drive (National Recreation & Parks Association) as well as for executive 18, the public courses alone would support a current and future Primary Market Area population of at least 600,000. In addition, 9 private membership golf courses located in the Primary Market Area serve Sun City residents and 5 private membership courses serve residents of Sun City West. Sun City will have about 50,000 permanent and seasonal residents in 1990, and 55,000 in 1995. Sun City West will have about 16,000 such residents in 1990, and 22,000 in 1995.

The boundaries of the Primary Market Area are also in very close proximity and served by nine other standard 18 hole courses, one executive 18 hole course, and one 9 hole golf course. These courses are the:

1. Arizona Biltmore Golf Courses (2 courses), 24th Street and Missouri, Phoenix;
2. Arrowhead Ranch, 19888 North 73rd Avenue, Glendale;
3. Bellair, (Executive 18), 17250 N 45th Avenue, Phoenix;
4. Cave Creek Golf Course at 15202 North 19th Avenue, Phoenix;
5. Moon Valley Country Club, 151 West Moon Valley Drive, Phoenix;
6. Papago Municipal, 5959 East Moreland, Phoenix;
7. Thunderbird Country Club, 701 East Thunderbird Trail, Phoenix; and,
8. Westbrook Village, 19260 North Westbrook Parkway, Peoria.

These public courses could serve a population of another 425,000 based on the standards noted previously. Provided that half the present and projected population which these courses will serve are residents of the Primary Market Area, these courses will be positioned to serve 212,500 permanent and seasonal Primary Market Area residents.

In total, the existing public courses serving the Sierra Estrella Golf Course Primary Market Area could support a population of about 812,000 (600,000 plus 212,500 rounded). In addition, an 18 hole course is planned in the near-term within the Estrella Planned Community, and in 1989 the City of Phoenix plans to construct an 18 hole course at Alvord Park at 35th Avenue and Baseline Road. In total then, the existing and planned public golf courses serving the Primary Market Area could serve a population of about 912,000. With another 9 holes contemplated at the Sierra Estrella Golf Course, facilities could be provided for a population of at least 937,000.

Moreover, as noted, there are 14 private membership courses in the Primary Market Area serving residents of Sun City and Sun City West. These two communities had a combined projected permanent and seasonal population of 58,000 in 1985, and are projected to reach 66,000 in 1990 and 77,000 in 1995.

4. Projected Demand For New Golf Course Facilities in the Primary Market Area

Adjusting (lowering) the projected population (Table 34) to be served by eliminating the residents in Sun City and Sun City West, the Primary Market Area population in 1990 would be about 697,000, and 873,000 in 1995 (mid-year).

Further, as noted earlier, existing and planned public golf courses serving the Primary Market Area can serve a population of nearly 937,000. As a result, an additional 9 hole facility at Estrella Mountain Regional Park could be placed on the market in mid-1994 to take advantage of the window of opportunity which appears to be opening at that time. Of course, it can be expected that other golf courses will be brought to the market in the early part of the 1990's and the extent of such competition must be evaluated in the future.

If 9 holes are to be placed on the market in 1994, planning and design work would have to be completed in 1992. However, it is strongly recommended that in early 1992 additional market research work be completed to determine if the course should be developed as projected. This work should determine if the market area population projections presented in this report are on target, identify new courses planned and their target market, and survey Primary Market Area residents' course preferences and acceptable fee structures.

M. SWIMMING FACILITY MARKET ASSESSMENT

Sunregion Associates, Inc. has surveyed planning/recreation personnel from the cities of Goodyear, Avondale, Buckeye, and Tolleson regarding the demand for swimming facilities in their communities. This analysis along with the User Survey data indicates that there is a need and market for swimming facilities at Estrella Mountain Regional Park. Based on population projections in the area, it is suggested that the pool be planned for development beginning in late 1990 so as to be on the market by May, 1991.

1. Market Analysis Approach

The National Recreation and Parks Association's swimming pool standard indicates that there should be one swimming pool within 15-30 minutes driving time of every 20,000 residents. Previous research in the City of Phoenix has shown that the longer the travel time to a pool from population centers, the less usage it will receive. Accordingly, the analysis below is based on assessing swimming pool demand at Estrella Mountain Regional Park within a 15 minute service area, or within an approximate 8 mile service radius measured from Bullard Road and Southern Avenue.

Also, to generate conclusions regarding the level of usage that could be expected at the pool, analysis of the usage of swimming pools within West Phoenix has been evaluated along with the User Survey data discussed earlier.

2. Existing and Planned Swimming Pools

At present, the only public swimming pool within the market area is at Loma Linda Park in Goodyear. However, the City of Phoenix has a pool planned just outside the market area at 107th Avenue and Indian School Road. Phoenix also has another pool planned somewhat further outside the market area in Desert West Park at 67th Avenue south of Thomas Road.

3. Swimming Pool Demand

Based on the high growth population projections for the market area, found in Table 33, there would be sufficient population base to justify the construction of a swimming pool prior to 1990. However, recent market area population analysis completed by the consultant suggests that the high growth population projections to 1990 may prove to be too aggressive in light of the residential home absorption experienced in the area from 1985 through 1987. In addition, the Phoenix Metropolitan Area's economic growth is projected to be slow in 1988, 1989, and early 1990. A slower economy typically translates into a slower rate of population growth.

As a result, our conclusions have been tempered and it is recommended that a pool be developed at Estrella Mountain Regional Park in late 1990 so as to be on the market by May, 1991.

4. Swimming Pool Attendance

In an effort to form a reasonable estimate of the attendance which could be expected at a new pool at Estrella Mountain Regional Park, Park User Survey data has been evaluated in addition to attendance statistics at selected West Phoenix swimming pools from 1983 through 1987. These attendance statistics are provided in Table 35.

As the table shows, attendance has increased over the long-term at the Falcon, Roosevelt, and Maryvale pools, and has declined at Starlight and Marivue pools. Falcon Pool located at 35th Avenue and Roosevelt, experienced the greatest usage in 1987, with attendance of just over 44,000 during the May through September season. Each of these pools is located within proximity of very high population concentrations.

Table 35
Attendance at Selected West Phoenix
Swimming Pools 1983-1987

Pool	# 1983	# 1985 ¹	# 1986	# 1987	% Chg. 1983-87	% Ave. ² Ann.
Falcon	39,205	38,996	48,135	44,248	12.9	3.1
Roosevelt	22,927	26,160	30,248	35,359	54.2	11.4
Starlight	21,360	22,268	18,919	20,125	-5.9	-1.5
Marivue	30,923	32,151	27,789	28,522	-7.8	-2.0
Maryvale	36,310	28,572	37,407	39,040	7.5	1.8
Holiday	Closed	Closed	1,163	5,301	355.8	46.1
Total	150,725	148,147	163,661	172,595	14.5	3.4
Prog. ³ Att.		27,268	62,169	53,474		
Reg. ⁴ Att.	na	120,879	101,492	119,121		
Ave. Ann. Attend.	30,145	29,629	27,277	28,766		# 28,954

Source: City of Phoenix Parks, Recreation and Library Department, January, 1988; and, Sunregion Associates, Inc.

¹1984 statistics not shown. ²Compound Annual Average.

³Programmed Activities. ⁴General Admissions.

Marivue Pool at 55th Avenue and Osborn Road, Maryvale Pool at 51st Avenue and Campbell, and Falcon Pool at 35th Avenue and Roosevelt each served an average 188,000 people within an 8 mile service radius in 1985. In 1985, attendance at these four pools averaged 30,500 or just over 16 percent of the service area population. As shown in Table 35, these Phoenix pool population densities are much greater than in the service area for Estrella Mountain Regional Park.

Nevertheless, based on previously identified population estimates and standards, there will be sufficient population by mid-year to late 1990 to support a swimming pool in the Park.

Additionally, Estrella Mountain Regional Park has a built in population/attendance base resulting from the variety of activities offered in the Park. As reported in Table 27, in recent years nearly 8 percent (7.7) percent of the visitor respondents to a suggested park improvements survey question have expressed an interest in a swimming pool in the Park. If it is assumed that this percentage is representative of the universe (park users), and to be conservative, if it is further estimated that 6 percent of these respondents, or a family member, would be pool users, there would have been about 25,000 pool patrons in 1987 (based on total park attendance of 410,000). In 1990, based on a park attendance projection of about 480,000, pool attendance would be 29,000. Thereafter, a conservative estimate would indicate a 5 percent increase in visitation per year up until at least 1995 when attendance may level off.

5. Phoenix Aquatics Task Force Concerns

The following information is presented because it represents a considerable amount of time and energy expended by private and public sector representatives in the City of Phoenix concerning approaches to increasing pool attendance and generating additional revenues to help finance pool operations. The consultant feels that the implementation of many of these concepts at Estrella Mountain Regional Park will help assure the development of a successful pool facility.

On March 25, 1987, the City of Phoenix Aquatics Task Force made a number of recommendations to the Phoenix City Council concerning the operation of the entire aquatics program. The Task Force was charged with making recommendations to improve programs, facilities, and participation; and, to evaluate fee structures including new sources of funding. Several of their recommendations made are noted below:

- a. Develop an aquatics marketing plan that would improve publicity for the programs. Use water bills as a means of advertising aquatic programs. Hire a staff person to develop corporate sponsorships, fundraising, grants, and to oversee the promotional program.
- b. Develop programs directed to all age groups, such as teen special events, water basketball leagues, lap swimming programs, and water aerobics.
- c. Improve the water play and family atmosphere at the pools by providing items such as rental sports equipment.
- d. Extend the dates selected pools are open from mid-February to mid-November.
- e. Increase transportation opportunities to the pools.
- f. Encourage rental of aquatic facilities year-round.

N. SPORTS COMPLEX MARKET ANALYSIS

Sunregion Associates, Inc. has undertaken a complete survey of sports complex facilities in the immediate market area, as well as the availability of individual facilities which are frequently found adjacent to sports complex operations. This element of the survey activity included lighted ballfield, tennis court, racquetball/handball court, and basketball court facilities. Data gathered includes sports complex facilities in Phoenix, and selected Tempe location(s).

Data gathering has included extensive interviews with municipal as well as school district officials responsible for the operation of the existing and planned facilities in Avondale, Buckeye, Goodyear, and Tolleson. Interviews were also carried out with Parks & Recreation officials responsible for the operation of sports complex facilities in

Phoenix and Tempe. Thus, the findings and conclusions are based not only on Sunregion Associates' projected population growth and development patterns, but also the views and opinions of area officials as well as the results of an extensive citizen needs survey process.

1. Supply of Existing Facilities

The most extensive sports complex facility in the immediate market area is located at Tolleson High School. It includes four (4) lighted ballfields, as well as eight (8) tennis courts, four (4) racquetball/handball courts, and two (2) basketball courts directly adjacent to the ballfield facilities.

In the entire immediate market area there are just fourteen (14) lighted ballfields (the majority located at schools), eleven (11) tennis courts, four (4) racquetball/handball courts, and at least five (5) basketball courts. While one additional lighted ballfield is planned for Avondale's new municipal park at 10th Street & Western, there will be no net increase since a ballfield at Avondale Elementary School will be lost soon.

2. Demand at Existing Facilities

The Tolleson High School facilities are heavily used, and the ballfields in particular receive patronage from the little leagues, churches, recreational leagues, seniors, and others. Six to eight tournaments a year are held at these facilities, and it has been estimated that during Tolleson's 1987 "Whoopee" Days, there were at least thirty (30) teams participating in the weekend's tournament. At present the District charges no fees for facility use, and keeps no attendance records. Nevertheless, Sunregion Associates, Inc. has been told that during the season the facilities are stretched to their limit.

Certainly the same is true of the Phoenix sports complexes, including Papago, Cave Creek, and the new facility at Desert West Park (67th. Avenue & Encanto). These facilities operate virtually year-round, with three (3) seasons a year for leagues, plus tournaments. They are closed for only 6-7 weeks a year to allow for necessary maintenance. In 1987, an average of 250 teams each, utilized the three complexes. This represented approximately 3,500 "participating (or user) units" during each of the three seasons, plus an additional 78,000-116,000 spectators annually at each facility.

At Tempe's Kiwanis Park, where league play does not generally occur, 1,150 reservations were registered in 1987 for the maximum 2-hour blocks of time at its four-field lighted sports complex.

The recreation professionals with whom Sunregion Associates, Inc. has discussed these issues, as well as local officials in the immediate market area, believe that fewer sports complex facilities exist than can be supported by the level of demand for such facilities. This conclusion is also borne out by the findings of user surveys discussed earlier in this analysis. A sports complex pod is clearly a feature which should be incorporated in the Estrella Mountain Regional Park Master Plan.

The pattern of population growth and development projected earlier in this analysis, as well as our user survey findings and interviews, also support a recommendation for additional urban park amenities, including: 1./ racquetball/handball; 2./ volleyball; 3./ basketball; 4./ batting cages; 5./ additional playground equipment; and, 6./ soccer fields. The mix and phasing of these facilities is recommended above in Section A.

O. SHOOTING RANGE FACILITY ANALYSIS

Sunregion Associates, Inc. has discussed the potential market for a public shooting range at Estrella Mountain Regional Park with the Arizona Game & Fish Department's Information and Education Division and industry representatives. A shooting range, to be developed in conjunction with such a facility to serve the training needs of the Maricopa County Sheriff's Department, would serve a regional market for which no facility now exists.

At present, there are only two ranges, at Black Canyon and Rio Salado in Mesa. Both are heavily used. The State is participating in an effort to install a range at McDowell Mountain Regional Park, and a similar facility is being contemplated as a part of the Master Plan for Santan Regional Park. A shooting range in the western Phoenix Metropolitan Area would balance the need for a good geographic distribution of facilities.

It is estimated that approximately 25% of the Valley's shooting clubs are located in the west Valley. Present shooting facilities are far removed. A shooting range at a site such as Estrella is sorely needed and would be well received. Ideally, the facility would include: 100 and 200-yard rifle ranges; several pistol ranges [practical, silhouette, and 25 yard basic]; and, a trap & skeet combination facility.

The public range facility could be controlled by the County, but contracted with a non-profit shooting club to operate it on a day-to-day basis (such as Rio Salado). A major advantage of this approach would be the opportunity for the shooting club operating the facility to request and receive capital funds for development of facilities from the State's Game & Fish Department. The Maricopa County Sheriff's Department would not be an eligible applicant for such funding.

P. ARENA FACILITY, TRAIL RIDES, AND STABLES

The current concessionaire at the horse arena facility utilizes that facility from approximately November 1 to April 1 each year. During this time a typical week might be booked as follows:

Monday: Timed Events (bulldogging, calf roping)

Tuesday: Rough Stock (bareback, saddlebronc, bulls)

Wednesday: Team Roping

Thursday: Barrel Racing

Friday through Saturday: Rodeo

A full rodeo does not occur every night of the weekend. Saturday is usually the longest.

If the concessionaire does not schedule a weekend event the Southwest Rodeo Association will frequently schedule or put on an event.

One time annual events include:

- Junior Rodeo, a one day event with about two hundred contestants with 1,000 attendance.
- High School Rodeo with similar numbers of contestants and attendance.
- Estrella Mountain Rodeo, a two to three day event with approximately two hundred contestants and two thousand attendees. Extra bleachers are brought in for this event.
- Gay Rodeo Association Rodeo or gymkhana.

Other events include:

- Occasional equestrian events and gymkhana events.
- Estrella Rodeo Riders Drill Team practice. This group opens weekend rodeo events.
- The Australian Shepard Club rents the arena for working dog competitions or shows. The dogs work cattle, sheep and geese.
- The Southwest Truck Pull Association uses the arena for truck pull competitions.

Due primarily to insurance cost and availability the concessionaire does not operate a trail ride concession. The consultant believes there is a market for trail rides and further believes that upon the expiration of the current concession a concessionaire who would operate regular trail rides should be sought. The County could assist the feasibility of trail rides by constructing stables for rentals to individuals. Stables would provide additional revenues to a concessionaire to allow it to operate trail rides. As the American Continental Corporation development at Estrella is built, demand for stables will increase since horses are not allowed to be kept in those homes even though there are trails.

Q. OTHER POTENTIAL DEVELOPMENTS

The possibility of developing a resort hotel facility at Estrella Mountain Regional Park has been considered and space has been allocated

for such a use in the master plan. At present, there is an oversupply of all types of lodging accommodations in the Phoenix Metropolitan Area. This oversupply has been reflected in the long-term decline in the average Phoenix Metropolitan Area lodging industry occupancy rate. In the consultant's view, given the present oversupply of resort lodging accommodations and in recognition of the fact that several new large resort facilities are planned in the established resort communities of Phoenix and Scottsdale, there will not be a market to support a resort facility within Estrella Mountain Regional Park prior to the year 2000.

Based on park user survey data, public meeting input and the consultant's recommendations, several other types of facilities are recommended for development or expansion within Estrella Mountain Regional Park. These facilities include: 1./ a Lake (lagoon) with an Urban Fishing Program and Paddle Boat Concession; 2./ Bike Path/BMX Facility; 3./ Hiking Trails; 4./Radio Operated Model Airplane Site; 5./Scenic Auto Drive/Loop; 6./Trailride Concession; 7./Additional Picnic Tables; 8./Convenience Store; and 9./a new Ranger/Contact Station. Additional discussion concerning certain of these facilities is included in Appendix D.

R. DEVELOPMENT, OPERATING AND FINANCING APPROACHES

1. Private Recreational Vehicle Development, Operating and Financing Approaches

In this section, approaches to developing, operating and financing the R.V. park as well as recommended design elements are included. The analysis indicates that the private R.V. facility should be designed and developed in such a way as to afford a different experience from that of a normal R.V. or KOA facility on a major arterial or off a freeway. The information and analysis in this and following sections also indicates that the County-constructed and operated camping facilities should not be designed or operated in such a way so as to be unnecessarily competitive or duplicative of privately-owned facilities, but rather should offer a more secluded, spread-out, camp site design with more than usual spacing between camp sites or clusters of camp sites, taking advantage of terrain to visually separate sites from each other.

This section also recommends that the County absorb the costs of grading and paving the loop system which serves the R.V. park as well as providing adequate water and electrical service in that roadway to service all of the facilities adjacent to it. Sewer facilities may well need to be built on individual sites although development of a single system to serve the northern loop should be explored.

Recommended R.V. Park Amenities

The private R.V. facility should provide all of the amenities of comparable facilities in the valley. These include:

- Paved roadways and pads
- Full hook-ups including electric meters

- Dump station
- Security
- Showers
- Restrooms
- Laundry
- Store
- Swimming pool
- Shuffleboard
- Playground/recreation area
- Lounge/recreation hall
- Pay phones
- Possibly a food cooking facility

Some of the amenities or features may not need to be as large or elaborate as other commercial facilities, depending on the timing of construction or nature of similar facilities elsewhere in Estrella Mountain Regional Park. For instance, the operator of the sports complex will likely have a fast food and beverage concession. The sports complex concessionaires or other concessionaire may also wish to operate a convenience store which would serve all park visitors. If these types of facilities were to be available within a reasonable period of time, the R.V. park concessionaire may wish to limit the size of its store or food concession. The R.V. park operator may wish to, and should be allowed the opportunity to design its facilities in such a way as to serve all Estrella Mountain Regional Park visitors. A store, fast food and beverage facility, for instance, could be quite popular with campers, hikers and horseback riders, while providing some added revenues to the private R.V. park operator.

Private R.V. Park Design and Development Considerations

While the private R.V. park will have to have amenities comparable to other R.V. parks in the market area it should differentiate itself somewhat from these parks by taking advantage of its more remote park setting as well as terrain. This implies a slightly less dense design approach (greater spacing between pads or between clusters of pads). Similarly it implies more sensitive site layout to take advantage of changes in elevation to give some areas a more secluded experience. The County should set aside enough land to allow this to occur on a cost effective basis and require designs and commitments to this general approach in its Request for Proposals and concession agreements. The concessionaire should not be required, however, to provide an overly dispersed site plan since that would be cost prohibitive and place the concessionaire at a competitive disadvantage to other parks in the market area.

The County on the other hand should design its camping facilities to provide the widely separated, secluded, environmentally sensitive camp sites. There is a strong segment of the population that desires the more remote "wilderness experience". The National Forest Service (NFS) has been developing a long range master plan for its 200 million acres of forests. One aspect of this plan includes the establishment of full service, privately operated R.V. parks at selected locations. A commentary in the May 16, 1988 edition of R.V. Business describes a

survey of 600,000 Good Sam Club members conducted in cooperation with the NFS about the proposed private R.V. parks. The survey uncovered a great deal of concern over "commercialization" of the parks and the potential for damaging a more natural experience and the ability to enjoy the wilderness and undeveloped areas. The commentary notes that for R.V. owners going to National Forests "less is more" and calls for a balanced approach. With the great amount of land available in Estrella Mountain Regional Park, the County has the capability to provide the full range of camping experiences from remote and minimally improved to full commercial services in the private R.V. park.

Operating and Maintaining the Private R.V. Park

The concession agreement should include detailed language on operating and maintenance standards to ensure that the facility is an asset to the park and to allow the County to enforce standards. This type of language is made more important by the anticipated long length of a concession agreement due to the magnitude of required investments.

Buildings should be kept in good repair and painted. Restrooms, laundries, and other public areas should be kept clean. Grounds, vegetation and paving should be maintained. Signage should be controlled.

While the private facility is intended to be the more "long term" facility it should not become a permanent home to anyone outside of an on-site manager. Maximum stay should be limited to several months. Initially, the majority of campers at the facility will be one or two nights. The number of monthly campers could be expected to increase as the area around the park becomes more developed and establishes a reputation as a destination for longer term visitors.

Private R.V. Park Financial Considerations

The private R.V. parks in the West Valley do not experience the same proportion of longer staying patrons (persons renting by the month for periods up to six months or longer) as those in Mesa and Apache Junction. The nearest R.V. facility, Citrus Grove at Citrus and Van Buren has been open for a little over two years. The major portion of its business is daily business. It has also experienced a low occupancy rate, estimated by its owner/manager as optimistically in the twenties. Citrus Grove has excellent facilities, is well maintained and managed. The facility, a KOA franchise, is estimated by its owners to draw up to 80 percent of its campers from KOA patrons through the KOA directory.

This experience implies that a private R.V. concessionaire at Estrella Mountain Regional Park should have extensive financial resources to last through the initial years' low occupancy rates. It also implies that a great deal of advertising both in R.V. magazines and on billboards is required. To attract repeat customers the facility will have to provide a unique and pleasant experience for campers. To that end, careful attention will have to be given to design of the R.V. park; the facility must be kept in top condition; and service must be excellent.

Due to slow early year build-ups of occupancy, the County should anticipate low or nominal rental payments in these years. The County should at the same time satisfy itself that a proposed concessionaire has sufficiently strong financial resources to cover possible early year deficits.

2. County-Constructed Camping Facilities Development and Operating Approaches

The amount of land available and terrain allows the County to develop a low density, more natural campground featuring visual separation of campground sites due to distance between campsites and due to use of terrain features. The high amenity and higher density experiences will be provided by the private facility. Higher densities would be provided by the County group and overflow facilities. It is important that this campground offer a more natural, wilderness experience. Since its principal target market is more localized than the privately run facility. It is also important for the financial reliability of the R.V. facility that the County not offer a similar facility for a significantly lower price.

Design and Development Considerations for the County-Constructed Camping Facilities

Costs as high as \$10,000 per space have been estimated to allow the County to provide a high quality of camping experience in the family campgrounds. These costs allow for paving and wide separation of camping spaces. Costs could be reduced significantly by reducing paving and spacing.

Operating and Marketing the Family, Group, and Overflow Camping Facilities

Based upon projections of occupancy, (see Appendix B), total receipts as illustrated below will not be to large for the first 5 years.

Table 36
Operating and Marketing Camping Facilities

<u>Year</u>	<u>Family Campground Receipts</u>	<u>Group Campground Receipts</u>	<u>Total Campground Receipts</u>
1989	10,960	6,160	17,120
1990	15,130	7,565	22,695
1991	18,450	8,820	27,270
1992	21,830	10,212	32,042
1993	25,745	11,257	37,002

Source: Sunregion Associates, Inc.

Once a private R.V. park is established at Estrella Mountain Regional Park, the County may want to consider allowing the private concessionaire to operate and maintain the family, group and overflow camping spaces for a fee.

3. Development and Operating Approaches to the Swim Facility

The market research indicates the need to increase water play opportunities of all varieties. To provide this variety, a number of physical features have been suggested and a variety of programming. The physical features mentioned earlier in this report include wave and slide features, fountains, rafts and water toys, tot pool, with a central spiral tot slide, bath house with rooftop observation deck and off season bumper boat concessions. Programming features include special programs for all age groups such as water basketball leagues, lap swimming programs, water aerobics, and group rentals.

To accommodate these different activities a large pool is necessary. A free form shape has been recommended because of the recent popularity of this type of pool across the country. The consultant recommends a pool size of up to 25,000 square feet, with a sand bed feature provided as part of the pool if it can be incorporated with the wave feature. In the event budgeting constraints preclude building the full facility, the consultant recommends reducing the size of the pool before cutting back significantly on the activity features. The minimum pool size, however should be kept at approximately 12,500 square feet (the size of the new Kiwanis Park pool in Tempe). There should be a minimum of two slides which can be used when the wave machine is shut off. The added features allow for significantly increased revenues. Falcon Pool, the most heavily attended pool in the city of Phoenix had total revenues in June 1987 of \$7,449.75 on attendance of 13,941. The Tempe Kiwanis pool with wave and slide features, opened in April of 1988, had revenues of \$40,000 between June 1 and June 26. Attendance was not specified although the average ticket is expected to be around \$2.00.

Operating and Maintaining the Swim Facility

The swimming pool represents a departure for the County from its normal facilities and puts it into more of an aquatic recreation mode. As a result, staffing up to manage this facility could become fairly costly. Operating and maintaining a pool with all of the recommended physical features and programs as well as extending the season will involve more staff costs. For instance, the consultant concurs with the City of Phoenix Aquatics Task Force which recommended an aggressive marketing program to be handled by a staff member specifically hired for that purpose. The City of Tempe Community Services Department has similarly realized that it needs to aggressively market its new Kiwanis Park facility. Tempe is currently using nine lifeguards at the Kiwanis facility compared to seven at a normal facility.

Added expenses for marketing and providing added programs can be more than offset by added revenues if strategically planned. Water aerobics, water basketball leagues and equipment rentals can bring in additional revenues.

If the tot pool is effectively designed to include a spiral slide with adjacent area for parents to sun bathe, additional patronage will be obtained. An example of such a facility can be seen at Raging Waters in Frank Bonelli County Regional Park in the Los Angeles area. The tot area could be complemented with rope climbing features similar to those found at Sea World.

Since the swimming facility will experience a significant operating deficit if run by the County, it is recommended that the County request proposals from private concessionaires to run the facility. The request for proposals should be issued before design work commences so that if the County chooses to use a concessionaire, that concessionaire can give input to design considerations. Since it will be in the same general vicinity as the sports complex it could be added to that concession agreement since some savings in total personnel needs could be achieved. A private concessionaire would be heavily motivated to market the facility extensively. If, after receiving proposals the County determines that it is preferable to run the facility itself it should do so. Since the Request for Proposals will have been sent out before design commences the County will have sufficient time to "staff-up".

4. Development, Operating and Financing Approaches to the Sports Complex

The consultant recommends that the sports complex be built, operated and maintained by a private concessionaire. The sports complex concessionaire will want to construct as many softball fields as it thinks it has demand for. Initially, this will be between four and six. As many as six fields can be accommodated around a common core. With four fields, playing four games per field per night, five nights a week a concessionaire can accommodate 160 teams per season. Seasons vary from ten weeks to 14 weeks and there may be three, three and one half or four seasons per year. The capacity can be increased by playing five games per field per night and five and one half or six nights per week. A six night per week schedule could interfere with weekend tournament play which may need to run Friday night through Sunday. Typically tournaments accommodate 20 to 24 teams playing three times each over a 16 hour period. Team charges per season vary from \$300 to \$600 and tournaments cost \$125 per team or fields are rented at \$20 to \$30 per team. A food and beer concession provides major cash flow to a concessionaire. On a capacity night with 32 teams playing, 12 to 15 members per team and an average of 5 spectators approximately 600 people may be in attendance. Each person has to pay a \$1 minimum to enter the sports area. If each actually spends \$2.00 the gross revenue for the evening from the concession would be \$1,200.

Sand volleyball courts are currently popular for league play and would contribute to the viability of a concession.

Recommended Sports Complex Features and Amenities

Section A of Chapter V. detailed the various features that are desirable to have in a sports complex. Due to the revenue generating potential, a concessionaire will be naturally inclined to build softball fields,

volleyball courts and batting cages. For the first phase, the concessionaire should also be required to construct three lighted soccer fields and two baseball fields. This does not require construction of separate fields since the outfield can simply be deepened for baseball and a soccer field can be designed which utilizes much of the same space as a softball field. If all of the softball fields are not being used, the concessionaire can receive field rental receipts for soccer or baseball. As demand for either of these sports increases additional fields can be added. The concessionaire could also be required to build, operate and maintain the children's playground. The concessionaire should be allowed to build other compatible concessions within the same general vicinity.

5. Development, Financing and Operating Approaches to the Shooting Range

An advantage of developing a shooting range is that it should be possible to construct some basic ranges with relatively low expenditures. The initial ranges should include at least one general range, 200 meters in depth that can accommodate rifles, pistols and small bore rifles. In addition, if funds were available, specialized ranges for pistol, and small bore could be developed. The pistol range at the Rio Salado Gun Club is experiencing a great deal of use.

The Sheriff's department has proposed to orient its ranges towards the ridge to the west, leaving the southerly ridge as a backdrop for the public ranges. The Sheriff's Department will make its general range available when not in use. An examination of the site selected for the ranges suggested that it could be difficult to accommodate a full variety of ranges, particularly a deep range of over 600 meters. As a result, the consultant recommends that before major construction occurs, the Sheriff's Department and Maricopa County Parks & Recreation Department mutually design a master plan for all possible ranges anticipated in the future. This should be done with the help of such experts as the range master from the Black Canyon Range and Rio Salado Gun Club, representatives from the State Rifle and Pistol Association and gun clubs. The Rio Salado Gun Club range master attributes the awkward layout of some of the ranges at that facility to failure to develop a master plan early. Among other things this failure to plan results in uneven firing lines. The Sheriff's Department and the Maricopa County Parks & Recreation Department can share classroom facilities and a building to house offices.

Shooting Range Operating and Maintenance Considerations

The consultant believes that the County can save operating and maintenance expenses by allowing a club to run the shooting ranges, particularly in the early years when the number of ranges is smaller. However, the County should take responsibility, at least initially, for the capital expenditures to get an initial facility constructed. The start-up of the facility would be much slower if responsibility for capital costs fell on a gun club, since such clubs typically are not heavily funded. Once a basic facility is constructed, clubs can rely on the skills of their members to add features. For instance, at the Rio

Salado ranges, members rented heavy construction equipment to grade new ranges and create new berms. The range master who lives on-site is constructing concrete block shooting stations. Members have constructed functional stools to sit on. Buildings have been constructed by members.

The County should be prepared to contribute sums to further capital improvements if it believes that it is important for the public to have the additional facilities. The operating agreement with the gun club should require that the facility be fully open to the public at reasonable and nondiscriminatory rates. Other clubs should be allowed to participate in the facility. If the County cannot obtain this commitment to an open facility it may have to run it itself.

6. Development, Operating and Financing the Lake (Lagoon)

The Gila River affords the opportunity to provide an expanse of water and recreational opportunities on a cost effective basis. The park user survey indicated a strong demand for water.

The consultant has explored the feasibility of temporarily "borrowing" water flowing down the Gila River without actually using it. The Director of the Buckeye Irrigation District (BID) has discussed four alternatives for developing a lagoon in the river bottom. BID has a dam on park property at its easterly edge in the Gila River. BID owns a similarly sized piece of property at the westerly edge of park property which the District would like to trade. Such a trade may be beneficial to the County if the County also obtains a lagoon in an appropriate location and preferably as part of BID's water retention area by moving BID's dam westerly.

BID believes the trade could be accomplished if issues relating to water rights can be resolved. To obtain water from Buckeye Irrigation District the County needs stock certificates. There is one stock certificate per acre of land. The District does not know if the County has any rights. This would have to be researched by the District and County. Another complicating factor revolves around whether effluent water in rivers is considered "river water". This issue is currently being adjudicated in courts.

If the land exchange and related water rights issues cannot be resolved the District will work with the County to provide water down stream from their dam which can be routed back into the canal systems. Under this approach there may be little or no water in three of the summer months. The ideal solution from the County point of view would be to work with BID to move their dam further to the west and take advantage of the resulting lagoon on Park property.

The strategy for obtaining water for the lagoon feature then could be accomplished through three different alternatives. The first three alternatives assume that the BID will allow the park to share or hold water before entering the canal. The fourth alternative keeps the park water feature separate from the BID, but the issue of the park holding water may have to be negotiated with the Arlington Canal Company, a downstream water rights holder which is extremely sensitive to any potential use of its water rights.

Alternative 1

The BID keeps their current dam structure but allows some surface flow to bypass or be diverted around that structure. This flow would be trapped in the park for a recreation feature, then pumped or channeled into the canal system.

Alternative 2

The BID dam structure would be relocated within the current park boundaries to the west, and water trapped behind this dam would then be used for recreation purposes before entering the canal system. This alternative is the most cost effective for the County since the BID needs a dam and at times when flooding destroys the dam the BID would need to reconstruct the dam and lagoon.

Alternative 3

The BID keeps the current dam structure location. However, the park could work agreements with the BID and other land owners to manage or acquire property upstream from the current dam structure to utilize the water trapped behind this dam.

Alternative 4

This alternative keeps the BID and the park lagoon separate. According to the BID Director, since the water treatment plants upstream have had a consistent discharge into the Salt River, there has been a constant surface flow year-round at the point the Gila passes through the park. There is apparently now sufficient recharged groundwater to maintain at least a small amount of surface flow year-round. According to the BID Director there should be no problem keeping a water feature at least partially full of water year-round in the bottom of the Gila if recent conditions continue. Furthermore, only a minimum amount of excavation in the Gila River bottom should be necessary to achieve an adequate lagoon or water feature within the park because of the high water table. This alternative is less desirable from the County point of view since water levels would be lowest during summer months when the water feature is most desired.

The water treatment plants contributing to this condition include plants located at 23rd Avenue, 91st Avenue, at Tolleson andavondale. This is in addition to the water that will be available to the park from Goodyear.

The quality of water available in the Gila even from shallow groundwater, may be questionable for some kinds of human contact such as swimming, but should probably be of sufficient quality to support fishing activities. Water cannot be discharged by the water treatment plants without a quality sufficient to support fish. Utilizing this water would mean the Parks and Recreation Department would have to post warnings limiting human contact with the water feature. However, this strategy would be the least complicated and expensive to achieve an attractive water feature, even without recirculating water.

The BID usually collects and channels all water from normal flows of the river in all months of the year, to ensure their rights to this water. On occasion when there is an unusually large flow or when SRP discharges large amounts of water upstream, then BID must divert or sluice this excess water through their spill structure. Normal flow is all fed through their canal system and any excess is only returned to the river at the end of their canal system.

However, during the winter months, November through May, according to the BID Director, the BID does not use all the water they direct through their canal system. Agreements might be made to gain access to some of this excess water for use in the park during these winter months.

There is also a potentially significant amount of water that currently leaks through the BID spill structure. The BID Director estimated a steady flow of 10-15 cfs leaking past the gates of this structure. This water could be available to the park and would be sufficient to help maintain a water feature in winter months. The State Department of Water Resources has adjudicated all surface flow in the Gila to various users. Any use of water by the park that would consume water or lessen the surface flow may have to be approved by this department. Increased evaporation caused from ponding, needs to be investigated for implications concerning water rights downstream.

Design and Development Consideration for the Lagoon

Since the lagoon will be subject to being washed out in a major flood, no major construction is proposed. The Flood Control District will not want any major plantings which would have the effect of damming the river flow in the event of a flood. The District has been clearing select trees in its 1,000 foot wide clearing project, in cooperation with the Corps of Engineers. There are a number of existing cottonwoods, however, which can provide shade for park patrons.

A downstream irrigation company, the Arlington Canal Company will be extremely sensitive to the project and if not satisfied that the project would not use any of their water rights they could be anticipated to sue to stop the project. As a result they must be a part of the project from its inception. The Arlington Canal Company has water rights dating to 1886. It is hostile to the State Game and Fish Department and has a lawyer to assist it. The State Game and Fish Department is currently being sued by a downstream water rights owner over a project where the Department tried to provide a lagoon in a river bottom for water fowl. One of the ways the County might obtain support for the project from the Arlington Canal Company would be to contract to clear away salt cedars and keep them cleared to compensate for the increased evaporation from the lagoon surface. Salt cedars transpire water at an extremely high rate which could frequently be higher than the evaporation rate from a lagoon. The other way to keep Arlington from contesting the lagoon would be to move the BID dam further to the west and make joint use of their storage facility.

The project if completed properly should be appealing to all parties. Keeping salt cedars cleared would assist the Arlington Canal Company to preserve water over and above evaporation rates. The lagoon would provide a habitat for water fowl, a high priority of the State Game and Fish Department and environmentalists and keeping within the 1,000 foot clearing project should meet the goals of the Flood Control Project and Corps of Engineers.

Operating and Maintaining the Lagoon

The lagoon should require minimal maintenance unless floods destroyed portions of the facility. The urban fishing program should attract substantial numbers of people. Paddle boat concessions should be operated by a concessionaire, preferably one which had another facility nearby, such as the sports complex or swimming pool concessionaire.

7. Convenience Store Development

Since the private R.V. park will have its own store it might be the logical concessionaire to operate a convenience store for the park. An alternative concessionaire for a facility closer to the river would be the sports complex concessionaire.

8. Equestrian Arena, Trail Rides and Stables

While a number of events take place at the horse arena under the current concessionaire, regular trail rides do not take place. When the current contract expires the County should insist on organized trail rides. To assist in this effort the County should finance and construct stables for area residents. By operating these stables the concessionaire should be able to derive sufficient revenues to justify operating trail rides since a barrier to date has been the availability or cost of insurance to operate trail ride concessions.

S. FINANCIAL FEASIBILITY ANALYSIS OF CONCESSIONS AND OPERATING PROJECTIONS OF FACILITIES

The following analysis provides projected capital costs and operating revenues and expenses for key concessions and facilities. Due to Estrella's relatively remote location (currently on the edge of the metropolitan area) some facilities are recommended which will place an early financial burden on the County because they are not feasible for private concessionaires to build, but are extremely important to the park, the County, and cities that use the park. These facilities include the swimming pool, initial capital contribution for construction of the shooting range, lagoon construction, family campground and other features.

While Sunregion Associates, Inc. determined that there is substantial demand for a swimming pool, there is not a sufficient populace to support a privately built and operated water park such as Oasis Water Park. It is the consultant's opinion that a privately constructed water feature is probably not feasible within the planning horizon, given the park's location. Since water is very high on the list of needed facilities,

this study recommends that the County finance and build the pool. This report also recommends that a private concessionaire operate the facility due to probable efficiencies that could be realized by this approach as well as increased attendance.

The shooting range should receive at least an initial infusion of capital construction funds from the County since private clubs would likely take years to develop enough money for a significant facility to serve the public. The County would be well advised to first determine how much capital a club could invest through the RFP process.

The lagoon, campgrounds, interpretive and educational centers simply cannot pay for capital expenditures but are very important.

1. Private R.V. Park Feasibility Analysis

The private R.V. park will take two to three years to establish its reputation and to start to generate repeat business. To achieve growth it will have to advertise extensively in R.V. magazines and on billboards. The owners of Citrus Grove at Van Buren and Citrus own the KOA franchise rites to the park. Depending on the success of their facility they may be interested in expanding or adding to their franchise. KOA charges 8 percent to its franchisees but gives them a very strong boost through its directory listing. In the early years most of the R.V. campers will be short stay patrons. As the west valley and facility become better known the percentage of long stay patrons should increase.

The revenue and expense projections indicate that the facility will not be able to cover debt service in at least the first three years. Investors therefore must have strong financial statements and have enough cash available to contribute to the project in early years. As a result, the concession payments to the County in the first three years should be relatively low to allow the facility to successfully start up.

Private R.V. Park Capital Costs

Costs per camping space in R.V. parks can range from \$6,500 up to \$11,000 for the most elaborate east valley facilities. The consultant believes that to be competitive the facility must have amenities comparable to the best parks in the area as shown in Appendix A. The roadways and pads should be paved and clusters of camping spaces should be dispersed. For security purposes the concessionaire may want to build a wall around the facility. Due to the lack of a centralized sewer system the concessionaire will have to build its own self-contained system. Taking all of the above into consideration, the consultant has estimated the per space costs at \$9,000. A 250 space campground then would cost \$2,250,000. If a concessionaire were to borrow funds to build the park it could expect to borrow 75 percent of project costs. Project costs could include the capitalized early year operating deficits. The pro forma shown in this report, anticipates the early year operating deficits coming from the investors. Seventy-five percent of costs would be \$1,687,500. If the loan had an interest rate of 10.5 percent and a twenty-five year term, annual debt service would be \$191,362. Investors would have to provide \$562,500 plus cumulative annual deficits after making debt service payments. A few entities are able to finance the

improvements themselves. The Citrus Grove is self-financed according to an owner's representative. With that kind of financial strength an investor can afford to be patient until the operation is profitable.

Private R.V. Park Operating and Maintenance Expenses and Revenues

Since the R.V. business is extremely seasonal with peaks in the winter months staffing levels fluctuate dramatically. In the peak months full-time as well as part-time personnel are increased. The increase is primarily related to maintenance and service. Restrooms and other buildings as well as swimming pools must be kept clean and in good repair. The front desk and convenience store must be staffed. In the initial three years expenses as a percentage of gross revenues will be very high since a minimum number of staff will have to be available regardless of occupancy. Heavy advertising expenses must be expended to increase business. As occupancy and rate levels increase, expenses as a percentage of revenues will decrease. Industry sources and consultant research indicates that at a high stabilized level of occupancy, expenses exclusive of debt service should level off at approximately 55 percent of revenues.

Revenues come from space rentals for recreational vehicles and tenters, from the convenience store and laundry, and from charges for electrical and water hook-ups. Expenses are incurred for personnel for maintenance and operations, for repairs to facilities, for maintenance expenses including the swimming pool, for the cost of goods sold in the convenience store and costs of supplies, and costs for utilities and property and sales taxes.

Operating Statement Pro Forma for the Private R.V. Park

Five year operating projections have been developed to provide an understanding of revenues and expenses during the early years. By year five the facility is not anticipated to be up to its achievable average occupancy level. It is anticipated that occupancies and income will continue to increase after year five proportionately faster than expenses. The pro forma is quite conservative and reflects the current softness of the market. By the time the facility comes on line it may be able to outperform the pro forma. The first three years reflect a substantial after debt service deficit.

Total average receipts per camper night include space rental as well as charges for hook-ups and purchases in the convenience store and laundry payments. The stated 1987 rates in the KOA Directory for Citrus Grove are:

Base rate camp site, 2 adults	\$13.00
Base rate tent site, 2 adults	\$13.00
Base rate rental of on-site facility owned R.V.	\$31.00
Additional children, age 17 and under	\$1.50
Additional persons, age 18 and over	\$1.50
Water	N.C.
Electric hook-ups	\$2.00
Sewer hook-ups	\$1.00
Air conditioners or electric heaters	\$1.00

Some KOA campgrounds rent what are called "Kamping Kabins", small portable wooden cabins sleeping 4 people at a rate of \$16 to \$22 per night. The City of Glendale would not allow these cabins in Citrus Grove alleging that they would attract "transients." Monthly rentals at Citrus Grove are \$195. Rates at Leaf Verde are \$10 per night and \$125 per month. A higher percentage of monthly campers will have the effect of reducing revenues per camper night somewhat.

Table 37
Operating Statement Pro Formas
Private Recreational Vehicle Park

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
Average Receipts Per Camper Night	\$14.00	\$15.00	\$15.25	\$16.00	\$16.25
Average Annual Occupancy Rate	15%	20%	30%	35%	40%
Gross Revenues	183,750	262,500	333,594	490,000	568,750
Operating Expenses	190,000	215,000	230,000	279,000	320,000
Net Operating Revenue Before Debt Service and Taxes	(6,250)	47,500	103,594	211,000	248,750
Interest On Debt Service	176,493	174,873	173,074	171,077	168,859
Revenue (Deficit) After Interest On Debt Service and Before Taxes	(182,743)	(127,373)	(69,980)	39,423	79,891

Concessionaire Fees Analysis, Private Recreational Vehicle Park

The Pro Forma Operating Statement indicates that the early years are likely to be difficult for a concession operator. As a result, it is recommended that fees be kept low or nominal in early years. It would be appropriate to raise rates after the fourth year unless the park was experiencing significant financial problems. Based upon the location (currently on the edge of the metropolitan area) it would be appropriate to keep concession percentages down in return for the risk and high capital investment.

A high end percentage is represented by Los Angeles County which charges a 400 space park in Frank Bonelli Regional Park ten percent of space rentals; five percent of convenience store items; and 4 percent of laundry receipts. This percentage is against a minimum of \$93,000 per year. The Park is grossing over \$2.0 million and has a high annual occupancy in a densely populated area.

It is recommended that the Estrella facility pay approximately 2 percent in the first four years or until gross receipts reach \$750,000 whichever comes first. Rates could be increased to 4 or 5 percent after the fourth year and increased to 6 to 7 percent when receipts reach 1.5 million. Proposals from interested R.V. operators will result in negotiations that will establish the rates. It is more important to the County in selection of the concessionaire that the proposing entity have the financial resources to build and operate the facility in the early difficult years rather than basing it upon proposed payments to the County.

2. Free-Form Lagoon-Type Swimming Pools Feasibility Analysis

The swimming pool concept as proposed by the consultant is designed to provide a wide range of experiences to the public. It can be designed to have a sandy beach area and areas for quieter recreation. It could be divided into more than one pool area. It should be master planned to be expanded either by the County or private concessionaire and also designed to have more features added such as water slides, fountains and water falls to sit in. The added features and variety will allow for higher revenues and lead to higher attendance. The Phoenix swimming pools average slightly above or below fifty cents per attendee including all revenue sources. Based upon its first month in operation the facility at Tempe Kiwanis Park with a wave machine and two slides appears to be averaging \$2 to \$3 per attendee. That 12,500 square foot pool accommodates lap swimming also.

Since municipal swimming pools typically operate at a deficit this report recommends that operations of the facility be awarded to a private concessionaire after a competitive request for proposals process.

Although the consultant does not believe that it is feasible for a private concessionaire to bear the capital cost of building the initial swimming pool facilities it recommends testing the level of interest in paying for such a facility through an RFP process. Ideally the swimming pool should be included in the RFP for the sports complex since some economies could be achieved by having a single operator.

Swimming Pool Capital Costs

The following costs are based upon a 12,500 square foot pool with features similar to the Kiwanis pool except for the enclosure, gymnasium and other non pool features and with the addition of an irregular shape, sandy beach area and tot pool and slide.

Swimming Pool Electrical and Mechanical	725,000
Wave Machine and Slides	280,000
Locker Rooms, Concession and Offices and Exterior Fencing and Landscaping	250,000
Parking	<u>42,000</u>
	1,297,000
Contingency @ 20%	<u>259,400</u>
Total	\$1,556,400

Swimming Lagoon Operating and Maintenance Expenses and Revenues

The consultant reviewed experiences of municipal pools in the valley in deriving projected operating revenues and expenses if the lagoon is operated as a County facility. Personnel costs would be higher due to the recommended extended season and due to staffing for the added features such as the wavemaker and slides. Maintenance, chemicals and equipment would be higher because of the extended season and required heating of the water.

The following are estimated operating and maintenance expenses for the free form swimming pool:

Personnel	\$100,000	-	100,000
Maintenance	25,000	-	30,000
Chemicals	12,000	-	15,000
Utilities	18,000	-	25,000
	<u>\$155,000</u>	-	<u>\$170,000</u>

Revenues would come from snack bars, entry fees, swim team fees and lessons as well as rental of equipment such as inner tubes. Revenues from all of these sources in year 1 with an attendance of 29,000 would be \$60,000 to \$100,000 leaving an operating deficit range of \$55,000 to \$110,000 per year.

If the Maricopa County Parks and Recreation Department operates the facility it may also find that it is forced to add additional management staff since the pool represents a type of recreation facility which the Department does not currently have.

Concessionaire Operated Swimming Lagoon

A private concessionaire is expected to operate the swimming facility more efficiently and more effectively than the County. Costs for employees would most likely be lower and the concessionaire would market the facility more aggressively. The concessionaire could also be allowed to add to the initial features by expanding the water area and by adding slides and other amenities.

If the County financed the initial facility concession it could expect to charge higher fees. If the facility were financed by a private concessionaire fees should be minimized.

3. Sports Complex Feasibility Analysis

A privately constructed and operated sports complex with an emphasis on softball should meet the needs of a number of softball leagues and softball players as well as volleyball and soccer players.

While the consultant recommends a four field complex a concessionaire should be allowed to propose as many fields in an initial phase as it deems feasible. The concessionaire proposing to build and operate the complex may very well view the early years as break even or low return years until the population builds up substantially around Estrella and more fields can be added.

To save costs, the concessionaire may wish to overlay soccer and baseball fields on the softball diamonds rather than have independent fields. This should be allowed by the County. As usage increases it may be appropriate for the County to require more independent fields. The County should require the children's playground in the first phase.

Sports Complex Capital Costs

A breakout of costs for individual components of a sports complex is contained in Appendix E. By overlaying soccer fields on softball fields the concessionaire can save substantial capital expenses over those shown.

The consultant believes that the concessionaire can develop the basic first phase complex for \$800,000. This would include four softball fields, two baseball fields, 3 soccer fields, four sand volleyball courts, the children's' playground and concession and office areas as well as parking, and landscaping. If 75 percent of this amount were financed at 10.5 percent, at a 25 year term, debt service annually would be \$67,981.

Sports Complex Operating and Maintenance Expenses and Revenues

Revenues are derived principally from charges per team per season, charges per team per week and tournaments, field rentals and concession revenues which are enhanced by the sale of beer.

Expenses are incurred for management, maintenance employees, security employees, ticket takers, concession employees, umpires and officials. Costs of goods sold in the concession and utility expenses are also incurred.

League umpires typically cost \$12 to \$15 per game.

Concessionaires operate a variable number of seasons, typically 3, 3 and one half or 4 seasons per year with seasons varying from ten to fourteen weeks in duration. Charges per team per season vary from \$350 to \$600 per season. Weekend tournaments frequently cost \$125 per team for three games. In lieu of team charges, fields are sometimes rented out at \$20 to \$30 per field per hour.

If a four field complex were operated four hours per night (four games per field) for five nights a total of 160 teams per season could be accommodated. More teams could be accommodated at five hours of play per night, five and one half nights per weeks. The number of players per team could be expected to run 12 to 15 with up to 5 spectators. Each attendee is likely to spend about \$2.00 for food and drink.

Sports Complex Operating Pro Forma

For purposes of projecting pro forma revenues and expenditures the following assumptions were used:

Capacity for the four fields at four hours per night, per five day league play week, ten week season is 160 teams. Three and one half seasons were projected at \$400 per team per season and \$250 per team

per one half season. One hundred volleyball teams each of three seasons was assumed. Tournaments of sixteen hours each for 20 teams, 40 weekends per year was projected. Charges for volleyball teams were set at \$150 per season.

There are no industry guides for operating statements for this type of operation. But after consulting Robert Morris and Associates' Annual Statement Studies on facilities having elements of this type of facility, the consultant has very conservatively estimated an operating profit before debt service and taxes of approximately 12 percent.

Table 38
Operating Statement Pro Formas
Privately Operated Sports Complex

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
Average Percentage Occupancy	40%	55%	60%	65%	70%
Gross Revenues	326,800	494,258	620,512	739,441	875,954
Operating Expenses	294,120	444,856	558,460	665,447	762,080
Net Operating Revenue Before Debt Service and Taxes	32,680	49,429	62,052	73,943	113,873
Interest On Debt Service	62,753	62,177	61,537	60,827	60,039
Revenue (Deficit) After Interest On Debt Service and Before Taxes	(30,073)	(12,748)	(575)	13,116	53,834

Sports Complex Concessionaire Fees Analysis

Fees for these types of facilities vary from 3.5 percent to 7 percent. Due to the location of the facility it is recommended that 2 percent for the first four years is an appropriate rate. After that and until the facility grosses \$1.0 million a fee of 4.5 percent is recommended, stepping up to six percent thereafter.

4. Shooting Range Feasibility Analysis

The consultant believes that if possible the County should contribute up to \$200,000 to build the initial range facilities. It should certainly not do this if a private club has the financing to build a strong initial development. The County should secure as much voluntary work and equipment as possible for grading and construction of facilities.

Before any work is commenced by the Maricopa County Parks and Recreation Department, County Sheriff or private club a master plan showing all planned ranges should be carefully laid out so that ranges do not interfere with each other.

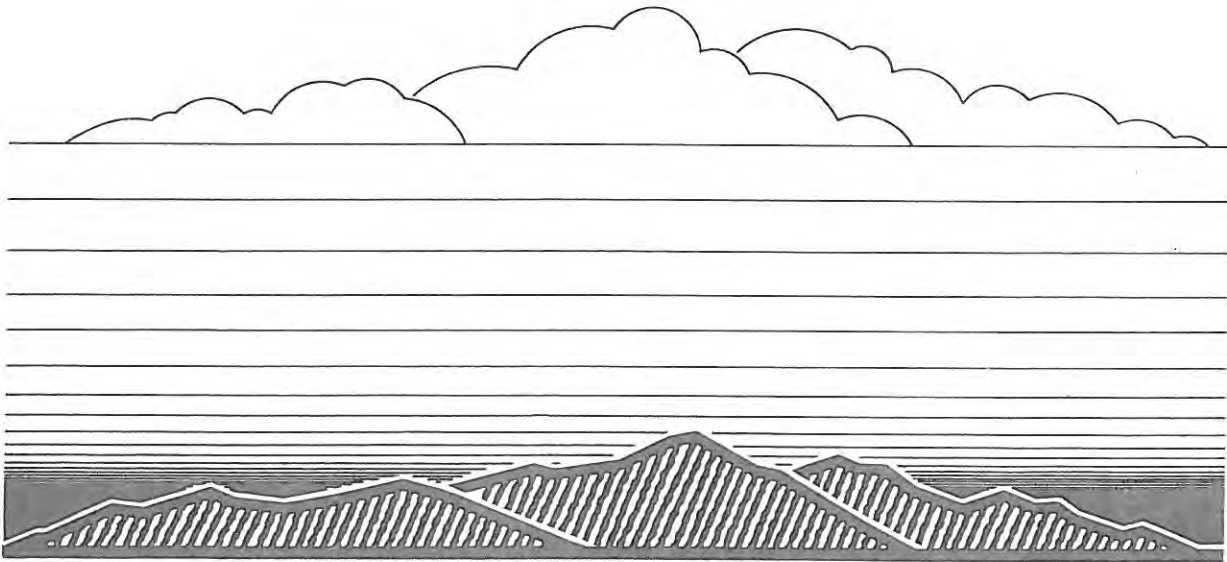
As much volunteer labor and equipment as possible should be used to keep costs down. Concession fees should be nominal.

5. Lagoon Feasibility Analysis

Appendix F contains development cost estimates for the lagoon. The County should endeavor to secure complimentary work and equipment from other governmental agencies and from persons and companies to keep costs down since the lagoon may be washed away in a major flood.

VI

Appendix



Estrella Mountain Regional Park
Long-Range Master Plan

APPENDIX A
MARKET ANALYSIS

Recreational Vehicle Park Amenities

Table A-1
Primary Market Area Recreation Vehicle Park Survey
January, 1988

<u>Sites/ Amenities</u>	<u>Leaf Verde</u>	<u>Parks Casa Del Sols</u>	<u>The Grand Inn</u>	<u>Leon's Prk. West</u>	<u>Mich. Trl. Pk.</u>
# Sites:.....	400g	40g	82p	72g	104g
Tents:.....	No	No	No	No	No
Amenities					
Full Hookups....	400	40	82	72	104
Dump Station....	Yes	No	-	-	-
Security.....	Yes	Yes	Yes	Yes	Yes
Cable TV	Yes	No	No	No	No
Tables/Grill....	Yes	Yes	Yes	Yes	Yes
Showers.....	Yes	Yes	Yes	Yes	Yes
Restrooms.....	Yes	Yes	Yes	Yes	Yes
Laundry	Yes	Yes	Yes	Yes	Yes
Store.....	Yes	No	No	No	No
Restaurant.....	No	No	Yes	No	No
Pool.....	Yes	Yes	Yes	Yes	Yes
Shuffleboard....	Yes	No	No	No	Yes
Tennis.....	Yes	No	No	No	No
Golf.....	No	No	No	No	No
Playground.....	Yes	No	Yes	No	No
Lounge/Rec.Hall.	Yes	Yes	Yes	Yes	Yes
Pay Telephones..	Yes	Yes	Yes	Yes	Yes
Location.....	1	2	3	4	5

Source: Sunregion Associates, Inc.; Mt. Bell Telephone Directory; and, Trailer Life, 1986. ¹1500 South Apache Road, Buckeye, 386-3121. ²6960 West Peoria Ave., Peoria, 979-6621. ³8955 NW Grand Avenue, Peoria, 979-7200. ⁴12939 West Elm Street, Surprise, 583-9505. ⁵3140 West Osborn Road, Phoenix, 269-0122.

Table A-1 (Continued)
 Primary Market Area Recreation Vehicle Park Survey
 January, 1988

	<u>Green Acres</u>	<u>KOA Citrus Grove</u>	<u>Sunflr. RV.Rst.</u>
# Sites:.....	54p	281	1107
Tents:.....	No	Yes	No
Amenities			
Full Hookups....	Yes	Yes	Yes
Dump Station....	Yes	Yes	Yes
Cable TV.....	No	No	No
Security.....	No	Yes	Yes
Showers.....	Yes	Yes	Yes
Restrooms.....	Yes	Yes	Yes
Laundry	Yes	Yes	Yes
Store.....	No	Yes	No
Restaurant.....	Yes	No	No
Pool.....	Yes	Yes	Yes
Shuffleboard....	Yes	Yes	Yes
Tennis.....	No	No	Yes
Golf.....	No	No	No
Playgr./Rec.Area	No	Yes	No
Lounge/Rec.Hall.	Yes	No	Yes
Pay Telephones..	Yes	Yes	Yes
Age Restricted..	Yes	No	Yes
Location.....	1	2	3

Source: Sunregion Associates, Inc.; and, Trailer Life, 1986. ¹2605 W. Van Buren Street, Phoenix, 272-7863. ²1440 North Citrus Road, Goodyear, 853-0537. ³16501 N. El Mirage Rd., Surprise, 254-3150.

APPENDIX B

Family and Group Campground Demand Projections Methodology

1. 40 improved family campground sites and 60 group campground sites will be developed during 1989 and reach the market in 1990.
2. Family and group camp-nights also may be viewed as the number of individual camps within the year. To arrive at the total camp user nights, camp nights are multiplied by the average family party size of 3.2 or group party size of 3.5.
3. Family and group camp-night estimates at Estrella Mountain Regional Park in 1988 are based on family and group camp nights in 1986. These estimates indicate that there were about 2400 camp nights in 1986, of these about 1055 were family camp nights and 1345 group camp nights. In fiscal year 1986-87, it is estimated that there were 2168 camp nights at Estrella Mountain Regional Park.
4. Family camp-night estimates in 1988-1989 and 1989-1990 are based on a 30 percent annual increase. Beyond that, annual increases of 15 percent are assumed from 1990-1991 through 1995, 10 percent from 1995-1996 through 2000, and 5 percent from 2000-2001 through 2005. From 1980 through fiscal year 1986-87, family campground nights at McDowell Mountain increased by about 30 percent per year. A similar experience was achieved at Utery Mountain Park from 1982 through 1987. It is assumed that during the first two years after the development of improved sites, Estrella Mountain Regional Park will expand at the pace of these parks. However, from 1991 through 2005, a slower growth rate is projected. Between 1991 and 1995 a privately operated long-stay recreational vehicle park with an extensive variety of amenities should be operating in the park. This facility would undoubtedly capture potential short-stay site demand throughout the projection period. In addition, population growth to the Phoenix Metropolitan Area will not be as rapid as in the period from 1970-1985, and this also has been considered in the estimates.
5. Group camp nights are not projected to expand as rapidly as family camp nights over the projection period. However, the projections are still very robust. From 1989 through 1990, a 15 percent annual increase is projected; followed by 10 percent from 1991 through 1995, and 5 percent from 1996 through 2005.
6. The formula shown below was used to develop the peak month site estimates. This formula is a derivative of a formula developed by the U.S. Army Corps of Engineers to assist in assessing cost/benefit analysis of recreational projects.

$$\text{Formula: } U = \frac{\begin{matrix} \% \text{ of} \\ \text{Peak Month} \\ \text{Use on} \\ \text{Weekends} \end{matrix} \times \begin{matrix} X \\ \text{Sites} \\ \text{Per} \\ \text{Acre} \end{matrix} \times \begin{matrix} X \\ \text{Ave. \#} \\ \text{Persons} \\ \text{Per Party} \end{matrix}}{\begin{matrix} \% \text{ of} \\ \text{Annual} \\ \text{Use in} \\ \text{Peak Month} \end{matrix} \times \begin{matrix} X \\ \text{Turn} \\ \text{-over} \\ \text{Rate} \end{matrix}} \times \frac{\begin{matrix} X \\ \text{Max.} \\ \text{Ann.} \\ \text{Rec. Days/} \\ \text{Nights} \end{matrix}}{\begin{matrix} X \\ \text{Number of} \\ \text{Weekend Days} \\ \text{in Peak Month} \end{matrix}}$$

The variables used in the formula are identified below. These variables are based on analysis of Weekly Visitation Reports to Estrella Mountain Regional Park in 1986, the Maricopa County Park's and Recreation Department's Fiscal Year 1986-1987 Revenue Report, and Group Reservation data for 1985, 1986, and for part year 1987, as well as the consultant's estimates.

**Table B-1
Formula Variables**

<u>Variables</u>	<u>Family Camping</u>	<u>Group Camping</u>
1. U means acres. Acres times sites per acre = total sites		
2. Peak Month	February	February
3. % of Peak Month Use on Weekends ¹	58.0%	58.0%
4. % of Annual Use in Peak Month	37.5%	53.0%
5. Maximum Recr. ² Nights	See Table B-2	See Table B-2
6. Sites Per Acre ³	6	12
7. Ave. Number Persons Per Party	3.2	3.5
8. Turnover ⁴	1	1
9. Weekend Days in Peak Month	8	8

Notes: ¹Based on peak weekend visitation for both family and group camps. Specific data was not available for each. ²Table B-2 contains the rounded values for maximum recreation nights based on family camp nights multiplied by 3.2 persons per party. Group camp nights were

multiplied by 3.5 persons per party. ³A different units per acre factor may be utilized but this will result in a change in acreage not in the number of sites. ⁴A turnover factor such as .5 could also have been used in the denominator which would indicate 2 days per average party visit. This would also require a corresponding adjustment in the numerator for the maximum recreation days variable in the formula but would not alter the column 3 results in Table B-1. For example, based on a two day per party stay assumption, in 1989 the 1370 family camps would represent 685 different parties (1370 divided by 2 representing two nights per party rather than 1370 parties using a 1 night turnover rate). Continuing, 685 parties times 3.2 (average family group size) equals 2,192 annual recreation days in the numerator and .5 (representing 2 days in the denominator) equals 4390 annual recreation days, (all results in Table B-1 have been rounded) the same result as shown in Table B-1 for maximum annual family recreation nights.

Table B-2¹
Projected Demand For Family and Group Campground Sites at
Estrella Mountain Regional Park from 1990 through 2005

<u>Year</u>	<u>Ann. Family Camp Nights</u>	<u>Max. Ann. Family Rec.Nights</u>	<u>Family Site Demand</u>	<u>Ann. Group Camp Nights</u>	<u>Max. Ann. Group Rec.Nights</u>	<u>Group Site Demand</u>
1990	1,370	4,390	36	1,540	5,410	60
1991	1,780	5,710	48	1,780	6,220	72
1992	2,050	6,570	54	1,960	6,850	76
1993	2,360	7,550	66	2,150	7,530	83
1994	2,710	8,680	72	2,370	8,280	91
1995	3,120	9,990	84	2,600	9,110	96
1996	3,590	11,480	96	3,010	10,520	115
1997	3,950	12,630	108	3,160	11,050	120
1998	4,340	13,890	120	3,310	11,600	132
1999	4,780	15,290	132	3,480	12,180	133
2000	5,490	17,580	150	3,650	12,790	142
2001	6,040	19,340	162	3,840	13,430	148
2002	6,340	20,300	174	4,030	14,100	155
2003	6,660	21,320	180	4,230	14,820	163
2004	6,990	22,260	192	4,440	15,560	170
2005	7,340	23,500	198	4,670	16,340	179

Source: Sunregion Associates, Inc. ¹Numbers in all columns except site demand columns have been rounded to the nearest 10.

APPENDIX C

Sierra Estrella Golf Course Primary Market Area Definition

The boundaries of the Sierra Estrella Golf Course Primary Market Area are based on the area which could be served within approximately 25 highway miles of Estrella Mountain Regional Park as measured from Bullard Road and Southern Avenue. The eastern most boundary is the intersection of Buckeye Road and 48th Street, from the latter point the boundary extends northwest to the intersection of Lake Pleasant and Deer Valley Roads and then northwest to the intersection of Pinnacle Peak Road and Grand Avenue also known as Highway 60/89. From the latter point the boundary extends to the southwest, and in recognition of the fact that there are few roads in this southwestern area, the boundary simply extends southwest to the intersection of the Salome Highway and 339th Avenue. From the latter point the boundary extends southeast to the intersection of Patterson and Rainbow Valley Roads and then northeast to the intersection of Buckeye Road and 48th Street.

APPENDIX D

Urban Fishing Program

The Arizona Game and Fish Department completed an urban fishing survey in 1986. The purpose of the survey was to determine how many people were fishing in the urban lakes, how often, and with what results. In the Phoenix Metropolitan Area, Chaparral Park Lake in Scottsdale and Kiwanis Park Lake in Tempe were two of the three urban lakes included in the survey. Although both these lakes are located in parks which are in more heavily populated areas than Estrella Mountain Regional Park, the projected population within 8 miles of Estrella Mountain Regional Park (the average distance traveled by urban fishermen) indicates an urban fishing program at the Estrella lake would result in several thousand fishing trips each year.

For example, the survey indicates that during 1985, just over 74,000 fishing trips were made to Chaparral Lake for rainbow trout and catfish and about 34,000 to Kiwanis Park (10 month period at Kiwanis Park).

A new urban fishing program survey is projected to be completed by the Arizona Game and Fish Department, Fisheries Branch Directed by Bill Watt in mid-year 1988.

Picnicking

Currently, there are 210 picnic tables in Estrella Mountain Regional Park. In an effort to project the future number of tables required, visitation projections were prepared for 1990, 1995, 2000, and 2005. These projections have taken into consideration the rapid growth in visitation which has occurred at Estrella Mountain Regional Park in recent years and are closely tied to projected population growth trends in the Phoenix Metropolitan Area. One assumption made concerning the visitation projections to Estrella Mountain Regional Park is that the rate of increase in annual visitation to the park will increase each year but at a decreasing rate.

In addition, it is assumed that during each projection period, 1988-1990, 1991-1995, 1996-2000, and 2001-2005 that the rate of growth in visitation to Estrella Mountain Regional Park will exceed the comparable population growth rate in the Phoenix Metropolitan Area. Phoenix Metropolitan Area growth rates are projected at 23.5 percent from 1985-1990 (compound annual average rate of 4.5%); 23.5 percent from 1990-1995 (compound annual rate of 4.5%); 16.6 percent from 1995-2000 (compound annual rate of 3.1%) and, 12.1 from 2000-2005 (compound annual rate of 2.3%). Estrella Mountain Regional Park visitation is projected to increase faster than these rates as a result of the new activities such as the lake and lake related activities, swimming pool, softball and other activities which will be introduced into the park over the projection period.

As a result, from 1988-through 1995, the annual growth rate is assumed to be 5.5 percent resulting in total visitation of 480,000 at year-end 1990, and 628,000 in 1995. From 1995-2000 the annual growth rate is assumed to be 4.0 percent with visitation reaching 764,000 in 2000, and 930,000 in 2005.

Further, based on park user survey data in recent years, just over 80 percent (83 percent) of the visitors to the park, picnic. During the projection period it is assumed that picnicking will continue to receive this level of participation. Moreover, of the 80 percent who picnic while visiting the park, 10-12 percent are estimated to be group picnickers. Groups are defined as a party which has 15 or more people.

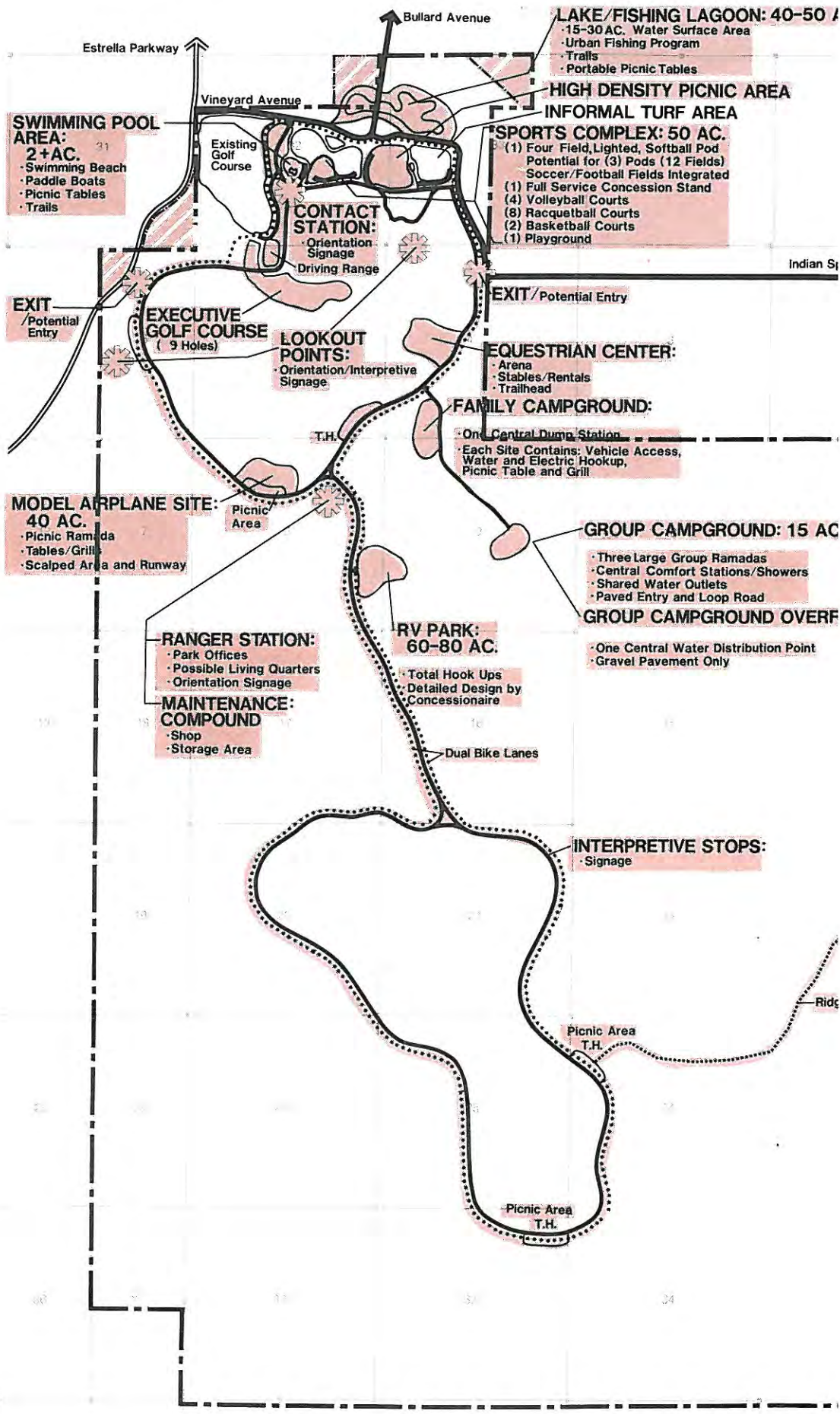
The formula utilized in Appendix B has been used to make the family picnic table estimates identified below. In addition to the formula variables noted above, peak month park visitation in 1986 and 1987 was in March, and averaged 11.7 percent of annual park attendance. March had 9 weekend days. Further, based on 1987 data, the weekends represent 55 percent of the visitation in March. A turnover rate of 2 is utilized in the calculations along with an average picnic party size of 6. Group demand is calculated at 10-12 percent of family table demand.

Accordingly, in 1990 it is projected that there will be a demand for 220 family picnic tables, 280 in 1995, 340 in 2000, and, 410 in 2005. Although it is expected that groups will periodically have a need to utilize family picnic facilities, a large group facility with an additional 50 tables should accommodate over 90 percent of the of groups (in terms of group size) which are projected to visit the park. Moreover, it is recommended that 30 group tables be developed as part of the first phase of park development with another 10 tables in each additional phase.

It should be noted that the picnic table projections do not include tables within the campgrounds, these tables would be additions to inventory. Moreover, to the extent that future visitation projections are under or overstated the phasing recommendations should be adjusted.

APPENDIX E

MASTER PLAN PHASING MAPS



LAKE/FISHING LAGOON: 40-50 AC.
 • 15-30 AC. Water Surface Area
 • Urban Fishing Program
 • Trails
 • Portable Picnic Tables

HIGH DENSITY PICNIC AREA
INFORMAL TURF AREA

SPORTS COMPLEX: 50 AC.
 (1) Four Field, Lighted, Softball Pod
 Potential for (3) Pods (12 Fields)
 Soccer/Football Fields Integrated
 (1) Full Service Concession Stand
 (4) Volleyball Courts
 (8) Racquetball Courts
 (2) Basketball Courts
 (1) Playground

SWIMMING POOL AREA: 2+ AC.
 • Swimming Beach
 • Paddle Boats
 • Picnic Tables
 • Trails

CONTACT STATION:
 • Orientation Signage
 • Driving Range

EXECUTIVE GOLF COURSE (9 Holes)

LOOKOUT POINTS:
 • Orientation/Interpretive Signage

EQUESTRIAN CENTER:
 • Arena
 • Stables/Rentals
 • Trailhead

FAMILY CAMPGROUND:

• One Central Dump Station
 Each Site Contains: Vehicle Access, Water and Electric Hookup, Picnic Table and Grill

MODEL AIRPLANE SITE: 40 AC.
 • Picnic Ramada
 • Tables/Grills
 • Scalped Area and Runway

GROUP CAMPGROUND: 15 AC

• Three Large Group Ramadas
 • Central Comfort Stations/Showers
 • Shared Water Outlets
 • Paved Entry and Loop Road

GROUP CAMPGROUND OVERVIEW

• One Central Water Distribution Point
 • Gravel Pavement Only

RANGER STATION:
 • Park Offices
 • Possible Living Quarters
 • Orientation Signage

RV PARK: 60-80 AC.

• Total Hook Ups
 • Detailed Design by Concessionaire

MAINTENANCE COMPOUND
 • Shop
 • Storage Area

Dual Bike Lanes

INTERPRETIVE STOPS:
 • Signage

Picnic Area
 T.H.

Picnic Area
 T.H.

Ridge

Estrella Parkway

Bullard Avenue

Vineyard Avenue

Existing Golf Course

EXIT/Potential Entry

EXIT/Potential Entry

Indian St

T.H.

Picnic Area

19

18

17

16

15

14

13

12

11

10

9

8

7

6

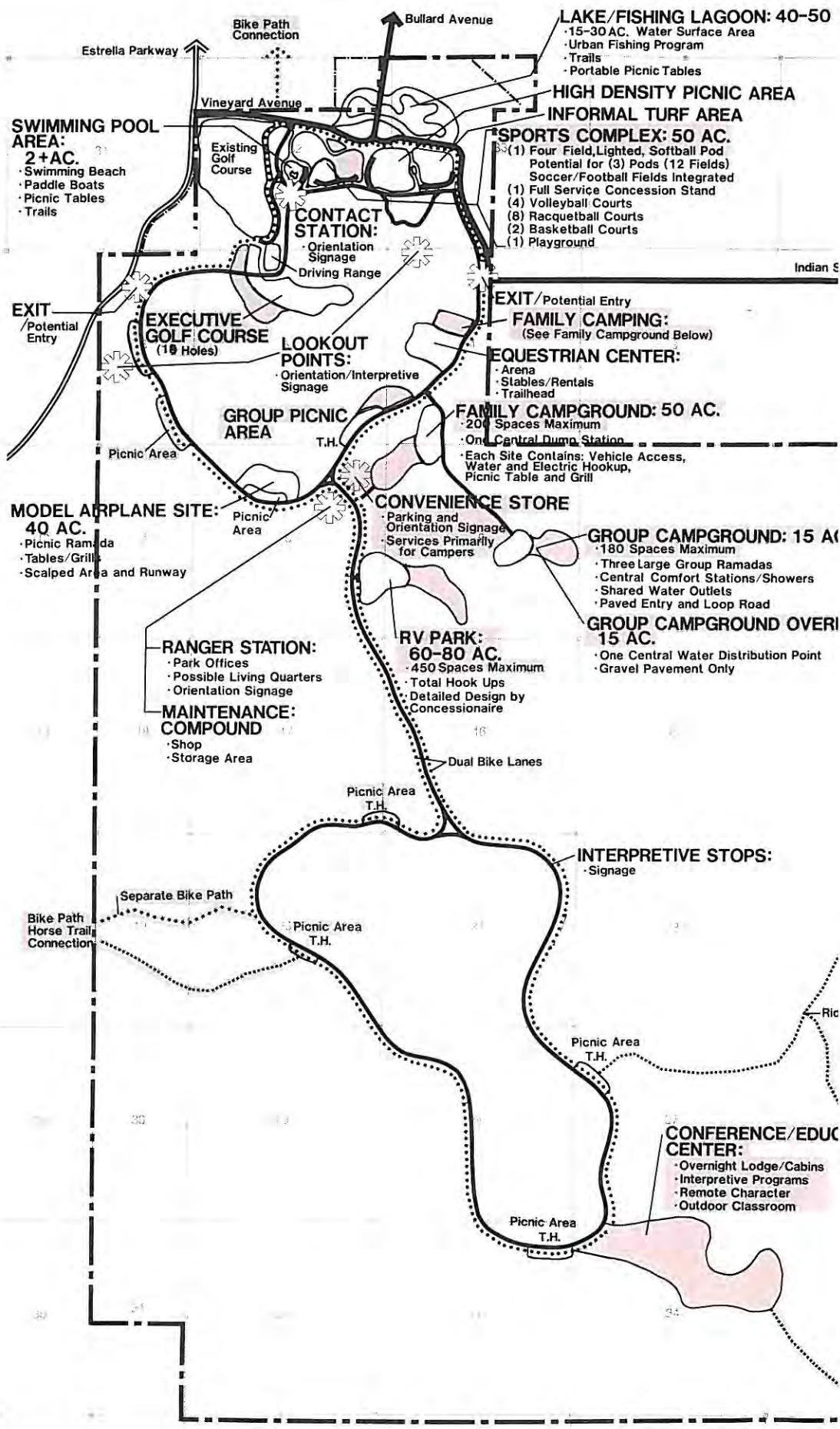
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4

3

2

1



LAKE/FISHING LAGOON: 40-50

- 15-30 AC. Water Surface Area
- Urban Fishing Program
- Trails
- Portable Picnic Tables

**HIGH DENSITY PICNIC AREA
INFORMAL TURF AREA**

SPORTS COMPLEX: 50 AC.

- (1) Four Field, Lighted, Softball Pod
- Potential for (3) Pods (12 Fields)
- Soccer/Football Fields Integrated
- (1) Full Service Concession Stand
- (4) Volleyball Courts
- (8) Racquetball Courts
- (2) Basketball Courts
- (1) Playground

**SWIMMING POOL AREA:
2+AC.**

- Swimming Beach
- Paddle Boats
- Picnic Tables
- Trails

**CONTACT STATION:
· Orientation Signage
· Driving Range**

**EXECUTIVE GOLF COURSE
(18 Holes)**

**LOOKOUT POINTS:
· Orientation/Interpretive Signage**

EXIT/Potential Entry

**FAMILY CAMPING:
(See Family Campground Below)**

**EQUESTRIAN CENTER:
· Arena
· Stables/Rentals
· Trailhead**

EXIT/Potential Entry

GROUP PICNIC AREA

FAMILY CAMPGROUND: 50 AC.

- 200 Spaces Maximum
- One Central Dump Station
- Each Site Contains: Vehicle Access, Water and Electric Hookup, Picnic Table and Grill

**MODEL AIRPLANE SITE:
40 AC.**

- Picnic Ramada
- Tables/Grills
- Scalped Area and Runway

CONVENIENCE STORE

- Parking and Orientation Signage
- Services Primarily for Campers

GROUP CAMPGROUND: 15 AC

- 180 Spaces Maximum
- Three Large Group Ramadas
- Central Comfort Stations/Shower
- Shared Water Outlets
- Paved Entry and Loop Road

GROUP CAMPGROUND OVER 15 AC.

- One Central Water Distribution Point
- Gravel Pavement Only

**RANGER STATION:
· Park Offices
· Possible Living Quarters
· Orientation Signage**

**RV PARK:
60-80 AC.**

- 450 Spaces Maximum
- Total Hook Ups
- Detailed Design by Concessionaire

MAINTENANCE COMPOUND

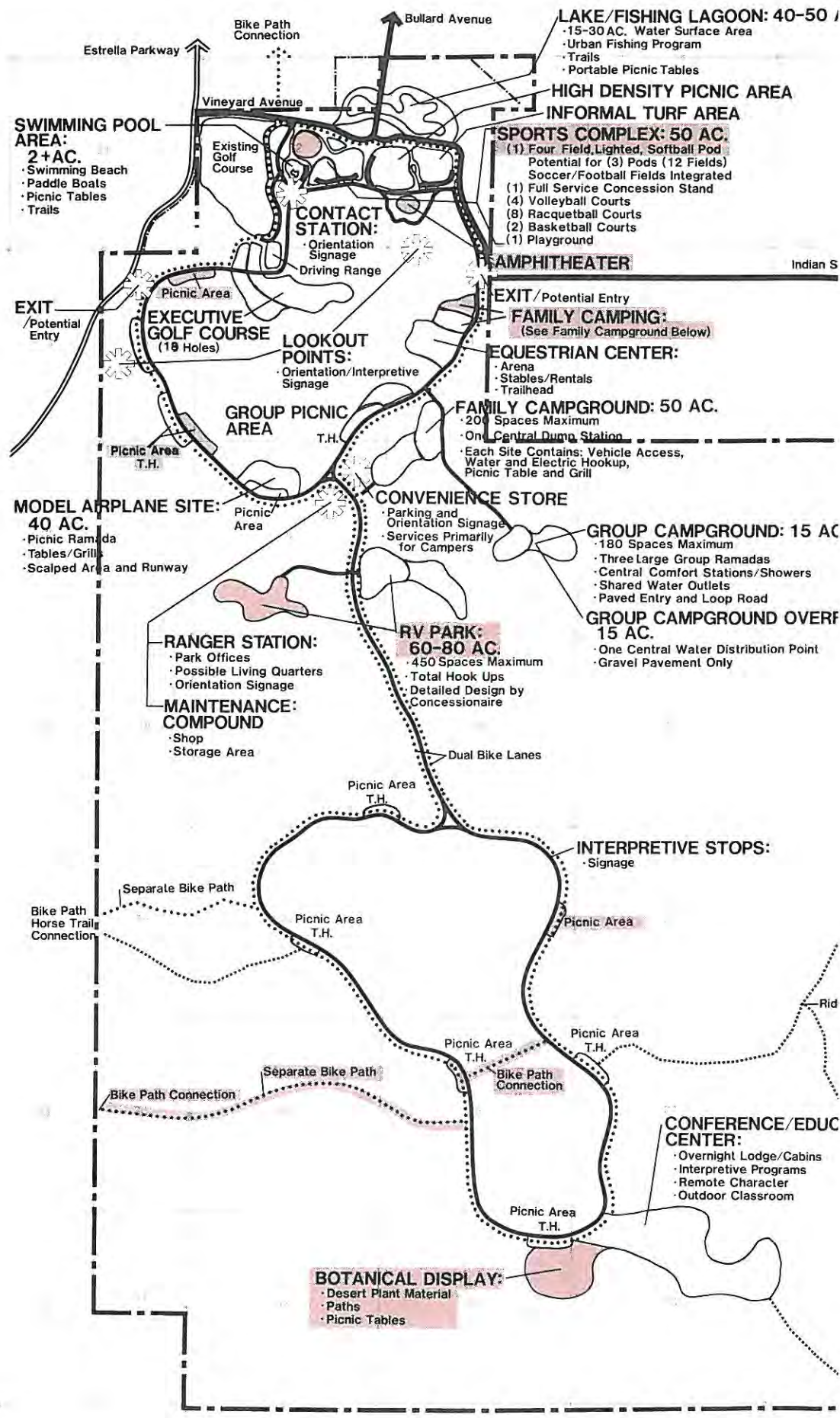
- Shop
- Storage Area

**INTERPRETIVE STOPS:
· Signage**

**Bike Path
Horse Trail
Connection**

CONFERENCE/EDUC CENTER:

- Overnight Lodge/Cabins
- Interpretive Programs
- Remote Character
- Outdoor Classroom



APPENDIX F

CAPITAL IMPROVEMENT COSTS
ESTRELLA MOUNTAIN REGIONAL PARK

- NOTE:
- All figures based on 1988 dollars, all phases should calculate 4% ± inflation per year for costs beyond 1989 construction.
 - As discussed in text, phasing subject to feasibility and Maricopa County's ability to pass corresponding bond issues.

	TOTAL	PHASE 1	PHASE 2	PHASE 3
1. <u>ROAD CONSTRUCTION</u> All roads 28' pavement with 8' shoulders, 2" asphalt/4" base with pull-off for two parking spaces				
• Vineyard Road Improvements 2,750 LF @ \$36.50	\$ 100,000	\$ 100,000		
• North Picnic Loop (10 pull-offs) 12,000 LF @ \$36.50	\$ 438,000	\$ 438,000		
• Connector Road (32' pavement, 18 pull-offs) 11,000 LF @ \$39.50	\$ 424,500	\$ 424,500		
• Southern Scenic Drive (30 pull-offs) 38,000 LF @ \$36.50	\$1,387,000	\$1,387,000		
* recommended in phase 1 with flexibility to be implemented at later date				
• Shooting Range Access Road 3,500 LF @ \$30.00	\$ 105,000	\$ 105,000		
• Subtotal	\$2,454,500	\$2,454,500		
Add 20% Contingencies/Fees	\$ 491,000	\$ 491,000		
TOTAL	<u>\$2,945,500</u>	<u>\$2,945,500</u>		

	TOTAL	PHASE 1	PHASE 2	PHASE 3
2. <u>BIKE PATHS</u> All paths 8' asphalt pavement with 4" base				
• North Path (Parallel to Golf & Road) 9,000 LF @ \$10	\$ 90,000	\$ 90,000		
• North Connector from Scenic Drive 6,500 LF @ \$10	\$ 65,000		\$ 65,000	
• South Connector from Scenic Drive 7,500 LF @ \$10	\$ 75,000			\$ 75,000
Subtotal	\$ 230,000	\$ 90,000	\$ 65,000	\$ 75,000
Add 20% Contingencies/Fees	\$ 46,000	\$ 18,000	\$ 13,000	\$ 15,000
TOTAL	\$ 276,000	\$ 108,000	\$ 78,000	\$ 90,000
3. <u>WATER DISTRIBUTION SYSTEM</u>				
• 6" PVC Extension to Campgrounds 17,000 LF @ \$25	439,000	\$ 439,000		
• 4 Pump Stations @ \$50,000	\$ 200,000	\$ 200,000		
• 6" PVC Extension to Conference Center from Proposed Goodyear Water Treatment Plant 18,500 LF @ \$25	\$ 462,500		\$ 462,500	
• 4 Pump Stations @ \$50,000	\$ 200,000		\$ 200,000	
• Subtotal	\$1,301,500	\$ 639,000	\$ 662,500	
Add 20% Contingency Fees	\$ 260,000	\$ 128,000	\$ 132,000	
TOTAL	\$1,561,500	\$ 767,000	\$ 794,500	

	TOTAL	PHASE 1	PHASE 2	PHASE 3
4. <u>ELECTRICAL SERVICE</u> Underground conduit extensions from arena				
<ul style="list-style-type: none"> • Campground Areas 3.2 miles @ \$80,000 	\$ 256,000	\$ 256,000		
<ul style="list-style-type: none"> • Conference Center 4.0 miles @ \$80,000 	\$ 320,000		\$ 320,000	
<ul style="list-style-type: none"> • TOTAL 	<u>\$ 576,000</u>	<u>\$ 256,000</u>	<u>\$ 320,000</u>	
5. <u>TELEPHONE SERVICE</u> 25-pair underground cable extensions from existing Golf Club House				
<ul style="list-style-type: none"> • Campground Areas 3 miles @ \$2,500 	\$ 7,500	\$ 7,500		
<ul style="list-style-type: none"> • Conference Center 4 miles @ \$2,500 	\$ 10,000		\$ 10,000	
<ul style="list-style-type: none"> • TOTAL 	<u>\$ 17,500</u>	<u>\$ 7,500</u>	<u>\$ 10,000</u>	
6. <u>PERMANENT CONTACT STATION</u>				
<ul style="list-style-type: none"> • Structure 	\$ 7,500	\$ 7,500		
<ul style="list-style-type: none"> • Gate/Access 	<u>\$ 2,500</u>	<u>\$ 2,500</u>		
Subtotal Add 20% Contingencies/Fees	\$ 10,000	\$ 10,000		
	<u>\$ 2,000</u>	<u>\$ 2,000</u>		
TOTAL	<u>\$ 12,000</u>	<u>\$ 12,000</u>		
7. <u>RANGER STATION</u> * Costs include all utilities on site				
<ul style="list-style-type: none"> • Office/Living Quarters 2,000 SF @ \$50 	\$ 100,000	\$ 100,000		
<ul style="list-style-type: none"> • Maintenance Building 	\$ 100,000	\$ 100,000		
<ul style="list-style-type: none"> • Site Improvements 	<u>\$ 40,000</u>	<u>\$ 40,000</u>		

	TOTAL	PHASE 1	PHASE 2	PHASE 3
Subtotal	\$ 240,000	\$ 240,000		
Add 20% Contingencies/Fees	\$ 48,000	\$ 48,000		
TOTAL	\$ 288,000	\$ 288,000		
8. <u>SPORTS COMPLEX</u>				
* Costs include all utilities on site				
• Softball/Soccer Fields with Lighting 4 Ea. @ \$90,000	\$1,080,000	\$ 360,000	\$ 360,000*	\$ 360,000*
			*Constructed based on first phase demand experience	
• Handball/Racquetball Courts 8 Court Complex @ \$32,000	\$ 32,000	\$ 32,000		
• Volleyball Pits 4 @ \$6,000	\$ 24,000	\$ 24,000		
• Basketball Courts 2 @ \$12,000	\$ 24,000	\$ 24,000		
• Playground 1 @ \$35,000	\$ 35,000	\$ 35,000		
• Parking Area (300 cars) 300 spaces @ \$280	\$ 84,000	\$ 84,000		
• Concession Building (Office, Administration, Storage)	\$ 125,000	\$ 125,000		
Subtotal	\$1,404,000	\$ 684,000	\$ 360,000	\$ 360,000
Add 20% Contingencies/Fees	\$ 281,000	\$ 137,000	\$ 72,000	\$ 72,000
TOTAL	\$1,685,000	\$ 821,000	\$ 432,000	\$ 432,000

	TOTAL	PHASE 1	PHASE 2	PHASE 3
9. <u>SHOOTING RANGE</u>				
* Costs include all utilities on site				
• Complex @ \$18,000	\$ 50,000	\$ 50,000		
• Water Service (On-site well)	\$ 25,000	\$ 25,000		
Subtotal	\$ 75,000	\$ 75,000		
Add 20 % Contingencies/Fees	\$ 15,000	\$ 15,000		
TOTAL	<u>\$ 90,000</u>	<u>\$ 90,000</u>		
10. <u>LAKE CONSTRUCTION</u>				
* Potential for cost reductions by utilizing donated/training resources				
• Excavation (10' depth, 15 acres) 242,000 CY @ \$4	968,000	968,000		
• Trails (6-8' Gravel/Gunite) 2,000 LF @ \$7.50	\$ 15,000	\$ 15,000		
• Tables/Receptacles	\$ 7,500	\$ 7,500		
• Tree Planting	\$ 7,500	\$ 7,500		
• Turf Areas 2 acres @ \$3,000	\$ 6,000	\$ 6,000		
Subtotal	\$1,004,000	\$1,004,000		
Add 20% Contingencies/Fees	\$ 200,000	\$ 200,000		
TOTAL	<u>\$1,204,000</u>	<u>\$1,204,000</u>		
11. <u>SWIMMING POOL</u>				
* Costs include all utilities on site				
• Pool Facility/Equip.	\$ 725,000	\$ 725,000		
• Wave Machine & Slides	\$ 280,000	\$ 280,000		
• Parking (50 cars) 150 spaces @ \$280	\$ 42,000	\$ 42,000		

	TOTAL	PHASE 1	PHASE 2	PHASE 3
• Bathhouse/Concession Building, Exterior fencing and landscaping	\$ 250,000	\$ 250,000		
• Picnic Ramadas 4 @ \$12,500	\$ 50,000	\$ 50,000		
Subtotal	\$1,347,000	\$1,347,000		
Add 20% Contingencies/Fees	\$ 269,500	\$ 269,500		
TOTAL	<u>\$1,616,500</u>	<u>\$1,616,500</u>		
12. CONVENIENCE/CONCESSION BUILDING				
* Costs include all utilities on site				
• Building 1,000 SF @ \$75	\$ 75,000		\$ 75,000	
• Site Improvements	\$ 25,000		\$ 25,000	
Subtotal	\$ 100,000		\$ 100,000	
Add 20% Contingencies/Fees	\$ 20,000		\$ 20,000	
TOTAL	<u>\$ 120,000</u>		<u>\$ 120,000</u>	
13. FAMILY CAMPGROUND				
* Costs include all utilities on site				
* Beyond Phase I development, camping facilities subject to minimum occupancy levles noted in this report.				
• 200 Sites @ \$10,000	<u>\$2,000,000</u>			
Subtotal	\$2,000,000	\$ 800,000	\$ 800,000	\$ 400,000
Add 20% Contingencies/Fees	\$ 400,000	\$ 160,000	\$ 160,000	\$ 80,000
TOTAL	<u>\$2,400,000</u>	<u>\$ 960,000</u>	<u>\$ 960,000</u>	<u>\$ 480,000</u>
14. GROUP CAMPGROUND				
* Beyond Phase I development, camping facilities subject to minimum occupancy levles noted in this report.				
• 15 Acres @ \$2,500 (Clear and Grub)	\$ 37,500	\$ 24,500	\$ 13,000	

	TOTAL	PHASE 1	PHASE 2	PHASE 3
• Lighting	\$ 7,500	\$ 5,000	\$ 2,500	
• Comfort Stations	<u>\$ 125,000</u>	<u>\$ 62,500</u>	<u>\$ 62,500</u>	
Subtotal	\$ 170,000	\$ 92,000	\$ 78,000	
Add 20% Contingencies/Fees	<u>\$ 34,000</u>	<u>\$ 18,400</u>	<u>\$ 15,600</u>	
TOTAL	<u>\$ 204,000</u>	<u>\$ 110,400</u>	<u>\$ 93,600</u>	
15. GROUP CAMPGROUND OVERFLOW				
• 15 Acres @ \$2,500 (Clear and Grub)	\$ 37,500	\$ 24,500	\$ 13,000	
• Water Distribution Point	<u>\$ 12,000</u>	<u>\$ 12,000</u>		
Subtotal	\$ 49,500	\$ 36,500	\$ 13,000	
Add 20% Contingencies/Fees	<u>\$ 10,000</u>	<u>\$ 7,400</u>	<u>\$ 2,600</u>	
TOTAL	<u>\$ 59,500</u>	<u>\$ 43,900</u>	<u>\$ 15,600</u>	
16. RV PARK				
* Costs include all utilities on site				
• 450 Sites Total -250 sites @ \$9,000 (1990)	\$2,250,000	\$2,250,000		
• -200 sites @ \$9,000 (1993)	<u>\$1,800,000</u>	<u>\$1,800,000</u>		
Subtotal	\$4,050,000	\$4,050,000		
Add 20% Contingencies/Fees	<u>\$ 810,000</u>	<u>\$ 810,000</u>		
• TOTAL	<u>\$4,860,000</u>	<u>\$4,860,000</u>		

	TOTAL	PHASE 1	PHASE 2	PHASE 3
17. <u>PICNIC/RAMADAS</u>				
• Existing Picnic Loop				
- 25 Picnic Sites with Table and Grill @ \$1,500	\$ 37,500	\$ 7,500	\$ 15,000	\$ 15,000
- 1 Large Ramada Structure (15-20 Tables, Grills Included) @ \$45,000	\$ 45,000		\$ 45,000	
- 4 Small Ramada Structures (2-4 Tables), Structures Only @ \$7,500	\$ 30,000	\$ 15,000		\$ 15,000
Subtotal	\$ 112,500	\$ 22,500	\$ 60,000	\$ 30,000
Add 20% Contingencies/Fees	\$ 22,500	\$ 4,500	\$ 12,000	\$ 6,000
(Existing Picnic Loop) TOTAL	<u>\$ 135,000</u>	<u>\$ 27,000</u>	<u>\$ 72,000</u>	<u>\$ 36,000</u>
• North Picnic Loop				
- 50 Picnic sites with Table & Grill @ \$1,500	\$ 75,000	\$ 22,500	\$ 30,000	\$ 22,500
- 2 Large Ramadas Structures (15-20 Tables, Grills Included) @ \$45,000	\$ 90,000	\$ 45,000		\$ 45,000
- 4 Small Ramada Structures (2-4 Tables), Structures Only @ \$7,500	\$ 30,000	\$ 15,000	\$ 7,500	\$ 7,500
- 4 Ramada Structures (4-8 Tables), Structure Only @ \$10,000	\$ 40,000		\$ 30,000	\$ 10,000
- Group Picnic Area 50 Tables @ \$1,000	\$ 50,000	\$ 30,000	\$ 10,000	\$ 10,000

	TOTAL	PHASE 1	PHASE 2	PHASE 3
Subtotal	\$ 285,000	\$ 112,500	\$ 77,500	\$ 95,000
Add 20% Contingencies/Fees	<u>\$ 57,000</u>	<u>\$ 22,500</u>	<u>\$ 15,500</u>	<u>\$ 19,000</u>
(North Picnic Loop) TOTAL	<u>\$ 342,000</u>	<u>\$ 135,000</u>	<u>\$ 93,000</u>	<u>\$ 114,000</u>
• South Loop				
- 50 Picnic Sites with Table and Grill @ \$1,500	\$ 75,000	\$ 22,500	\$ 22,500	\$ 30,000
- 5 Small Ramada Structures (2-4 Tables), Structures Only @ \$7,500	<u>\$ 37,500</u>		<u>\$ 15,000</u>	<u>\$ 22,500</u>
Subtotal	\$ 112,500	22,500	\$ 37,500	\$ 52,500
Add 20% Contingencies/Fees	<u>\$ 22,500</u>	<u>\$ 4,500</u>	<u>\$ 7,500</u>	<u>\$ 10,500</u>
(South Loop) TOTAL	<u>\$ 135,000</u>	<u>\$ 27,000</u>	<u>\$ 45,000</u>	<u>\$ 63,000</u>
• SUMMARY				
- Picnic Loop	\$ 135,000	\$ 27,000	\$ 72,000	\$ 36,000
- North Picnic Loop	\$ 327,000	\$ 126,000	\$ 81,000	\$ 120,000
- South Loop	<u>\$ 135,000</u>	<u>\$ 27,000</u>	<u>\$ 45,000</u>	<u>\$ 63,000</u>
TOTAL	<u>\$ 597,000</u>	<u>\$ 180,000</u>	<u>\$ 198,000</u>	<u>\$ 219,000</u>
18. <u>DIRECTIONAL AND INTERPRETIVE SIGNAGE</u>				
• Major Entry Monuments 3 @ \$5,000	\$ 15,000	\$ 15,000		
• General Identification Signage	<u>\$ 20,000</u>	<u>\$ 20,000</u>		
Subtotal	\$ 35,000	\$ 35,000		
Add 20% Contingencies/Fees	<u>\$ 7,000</u>	<u>\$ 7,000</u>		
TOTAL	<u>\$ 42,000</u>	<u>\$ 42,000</u>		

	TOTAL	PHASE 1	PHASE 2	PHASE 3
19. <u>EDUCATION/CONFERENCE CENTER</u>				
• Education Center 6,000 SF @ \$75	\$ 450,000		\$ 450,000	
• Cabins/Dorms 3,000 SF @ \$40 * could be built earlier if demand dictates	\$ 120,000			\$ 120,000*
• Site Improvements/ Utilities	\$ 120,000			\$ 120,000
Subtotal	\$ 690,000		\$ 450,000	\$ 240,000
Add 20% Contingencies/Fees	\$ 138,000		\$ 90,000	\$ 48,000
TOTAL	\$ 828,000		\$ 540,000	\$ 288,000
20. <u>AMPHITHEATER</u>				
• Rehabilitation and Reconstruction	\$ 50,000			\$ 50,000
Subtotal	\$ 50,000			\$ 50,000
Add 20% Contingencies/Fees	\$ 10,000			\$ 10,000
TOTAL	\$ 60,000			\$ 60,000
21. <u>EQUESTRIAN CENTER</u>				
• 20 Stall Barn	\$ 100,000	\$ 100,000		
• Site Improvements	\$ 25,000	\$ 25,000		
Subtotal	\$ 125,000	\$ 125,000		
Add 20% Contingencies/Fees	\$ 25,000	\$ 25,000		
TOTAL	\$ 150,000	\$ 150,000		
22. <u>MODEL AIRPLANE SITE</u>				
• Shade Structure 2,000 SF @ \$10	\$ 20,000	\$ 20,000		

	TOTAL	PHASE 1	PHASE 2	PHASE 3
<ul style="list-style-type: none"> • 1 Large Ramada Structure (15-20 Tables, Grills Included) @ \$45,000 	\$ 45,000	\$ 45,000		
<ul style="list-style-type: none"> • Runway Area and Site Improvements 	\$ 50,000	\$ 50,000		
Subtotal	\$ 115,000	\$ 115,000		
Add 20% Contingencies/Fees	\$ 23,000	\$ 23,000		
TOTAL	<u>\$ 138,000</u>	<u>\$ 138,000</u>		
23. EXECUTIVE GOLF COURSE * Subject to feasibility study				
<ul style="list-style-type: none"> • Golf Course Construction 	\$1,000,000	\$1,000,000		
<ul style="list-style-type: none"> • Clubhouse and Equipment 	\$ 135,000	\$ 135,000		
<ul style="list-style-type: none"> • Site Improvements 	\$ 100,000	\$ 100,000		
Subtotal	\$1,235,000	\$1,235,000		
Add 20% Contingencies/Fees	\$ 247,000	\$ 247,000		
TOTAL	<u>\$1,482,000</u>	<u>\$1,482,000</u>		
TOTAL ESTIMATED COST	<u>\$21,227,500</u>	<u>\$16,090,800</u>	<u>\$3,573,700</u>	<u>\$1,563,000</u>

APPENDIX G
NEWSLETTERS AND MAILING LIST



Estrella Mountain Regional Park

Volume One

Newsletter

October 1987

FIRST ISSUE OF THE ESTRELLA MOUNTAIN REGIONAL PARK NEWSLETTER

This is the first and introductory edition of a series of newsletters that the Estrella Mountain Park Design Team will distribute. Future newsletters will be prepared to inform interested residents, area property owners and municipalities of upcoming meetings and agenda, and the status of the master planning process.

ESTRELLA MOUNTAIN REGIONAL PARK

Estrella Mountain Regional Park, which is managed by the Maricopa Parks and Recreation Department, contains approximately 19,000 acres of unique desert mountain terrain ranging in elevation from 900 feet to nearly 3,700 feet at the highest peak.

Within the park spectacular vistas and excellent recreational opportunities exist. Currently the park is primarily utilized for picnics and hiking, and includes the Sierra Estrella Golf Course.

The Park is bordered on the east by the Gila River Indian Community and on the south by Little Rainbow Valley, federal and state lands. The growing communities of Goodyear and Avondale share the Park's northern border.

American Continental Corporation is developing plans for Estrella, a planned community which borders the Park on the west.

CONSULTANT TEAM AND OBJECTIVES

The Maricopa County Parks and Recreation Department has selected a design team led by, BRW, Inc., a Phoenix-based planning and landscape architectural design firm, to undertake a Long Range Master Plan for the Park. The Consultant Team will prepare a Master Plan focusing on five main objectives:

- Identify the highest and best public use for the park without destroying or detracting from the natural resources.
- Identify current and future public needs and the resources' ability to provide those needs.
- Identify the current adequacy of the park boundaries and determine if they are adequate to ensure the future of the park.
- Identify appropriate facilities which may first provide a needed resource, but must also be fully assessed as to what initial costs may be required from the County, what yearly maintenance costs may be involved, and what the possible return on investment may be. Also identify what the possible impacts of those facilities may be on the natural resources.
- Identify what the long term development costs, maintenance costs and operational costs are and how possible funding sources may correspond.

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BRW, Inc. has assembled an excellent multi-disciplinary Project Team for this Master Plan. The Project Team is composed of BRW staff in the areas of landscape architecture, recreation planning, land planning, urban planning and design, environmental planning, transportation planning, traffic engineering, and civil engineering. BRW has teamed with Horizon Research Southwest Ltd. of Phoenix for additional support in recreational and land use planning and environmental planning. Sunregion Associates and Forsberg and Associates will provide market feasibility and financial feasibility analyses.

Ideim Studio/The Graphic Studios Company of Tucson will provide computer based mapping, analysis and imagery while Kenney Aerial Mapping, Inc. of Phoenix will provide all aerial photography and mapping.

FIRST PUBLIC WORKSHOP

To ensure that the resultant Park Master Plan addresses the needs of the com-

munity and the Parks and Recreation Department, the BRW Project Team Workshop Program stresses active involvement by the various public agencies, adjacent property owners, community groups and the general public. Public workshops and newsletters will be utilized at various points in the study. The purpose of the first workshop will be to present the inventory and analysis information assembled to date and to solicit input from any and all interested parties as to what activities the Park should offer. This workshop will be held sometime in November. Its exact date and location will be forthcoming in future newsletters.

Participation in the November workshop will be important in developing a Park Master Plan that will provide the Valley with a facility that preserves and displays the unique, natural environment of the Estrella Mountain Range while providing those activities which best compliment the needs of the community and the Maricopa County Parks and Recreation system. Your attendance encouraged.

FOR MORE INFORMATION OR TO BE INCLUDED ON THE MAILING LIST
CONTACT: JIM WARD OR RUSS BERNDT,
2700 N. CENTRAL AVE., SUITE 1000, PHOENIX, ARIZONA 85004
(602) 234-1591



BRW

2700 N. CENTRAL AVENUE
SUITE 1000
PHOENIX, ARIZONA 85004



Estrella Mountain Regional Park

Volume Two

Newsletter

November 1987

SECOND ISSUE OF THE ESTRELLA MOUNTAIN REGIONAL PARK NEWSLETTER

A planning/design team lead by BRW, Inc. is currently involved in a long range master plan of Estrella Mountain Regional Park for the Maricopa County Parks and Recreation Department. This newsletter is the second edition to be distributed by the Estrella Mountain Park Master Plan Team. The following articles will update the reader on the status of this planning process and provide details of the public meeting slated for early December.

MASTER PLAN INVENTORY AND ANALYSIS NEARS COMPLETION

The Estrella Mountain Regional Park planning team is now finishing up the inventory and analysis portion of the master plan process. Included in this portion of inventory is a very precise and detailed mapping of the topography within the park. The latest survey and cartographic technology was utilized by BRW, Inc. and Kenney Aerial Mapping, Inc. to produce the topographic base maps. A satellite was used to determine precise location coordinates and elevation station points. This data along with aerial photography was mapped and put into a computer format to then be used as a more effective tool for resource inventory and analysis. A thorough site analysis is nearing completion. This involves mapping of vegetation, wildlife, soils, geology, hydrology, visual analysis, noise assessment. These maps will be included in the final document published at the end of the study.

Also included in this portion of the master plan process is an area wide analysis looking at land uses proposed by neighboring municipalities and other governmental entities. Meetings have been held with surrounding developers as well as with planning staff of neighboring municipalities to further access future direction, needs, and expectations. Population growth patterns and the projected development has also been considered for the possible effects they will have on parks and open space demands in the southwest valley.

A second major aspect of master plan process has also been started which includes a market and financial analysis which will be ongoing through most of the remainder of the planning process. Primary and secondary market areas for Estrella Mountain Regional Park have been identified and analysis is well underway. Park user surveys have been tabulated and thoroughly analyzed, revealing some specific strengths and weaknesses of the existing facility and possible improvements that are now being considered.

Other existing parks of similar size and with similar facilities have also been considered to help evaluate Estrella Mountain Park. Understanding the county park system as a whole will also help determine how Estrella Mountain Park can best be developed to compliment rather than compete with other similar facilities. The unique resources and opportunities of Estrella Mountain Regional Park which other parks can not offer need to be emphasized and utilized.

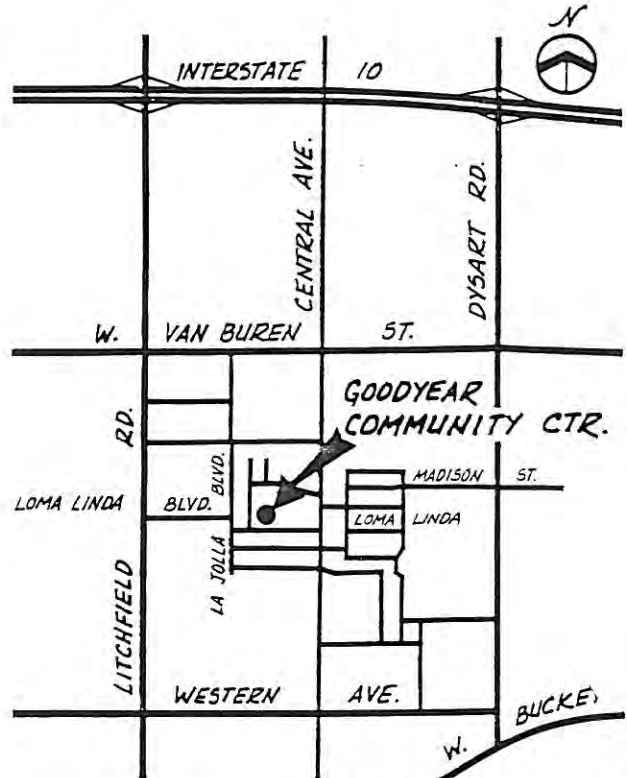
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ESTRELLA MOUNTAIN PARK CONSULTANT TEAM HOLDS PUBLIC MEETING

A public meeting will be held Wednesday, 2 December 1987 at 7:00 p.m. at the Goodyear Community Center. The community center is located next to Loma Linda Park on East Loma Linda Boulevard. This meeting is being held to provide an opportunity for the consultant team to explain in more detail both the work that has been done and the work remaining in the master plan process. Those interested individuals or representatives of interested groups are encouraged to attend to also share their ideas and thoughts on the needs and future direction of Estrella Mountain Regional park. The consultant team and County Parks and Recreation Department feel that this public input is very important to the ultimate success of the master plan. Please plan to attend and let your thoughts and opinions be known.

PUBLIC MEETING LOCATION



FOR MORE INFORMATION OR TO BE INCLUDED ON THE MAILING LIST
CONTACT: JIM WARD OR RUSS BERNDT,
2700 N. CENTRAL AVE., SUITE 1000, PHOENIX, ARIZONA 85004
(602) 234-1591



2700 N. CENTRAL AVENUE
SUITE 1000
PHOENIX, ARIZONA 85004



Estrella Mountain Regional Park

Volume Three

Newsletter

January 1988

SECOND PUBLIC WORKSHOP SCHEDULED: CALL FOR PUBLIC RESPONSE

Estrella Mountain Regional Park will be going through some significant changes in the near future. Plans will soon be formulated to decide where tax dollars should be spent in Estrella Mountain Regional Park. The Park is currently being studied by a planning/design team lead by BRW, Inc. which has the responsibility of producing a long-range master plan for Estrella Mountain Park.

The upcoming public workshop will be conducted to encourage and receive comments and suggestions from interested individuals and park users. At this point in the master plan process, comments and suggestions from individual or group representatives will have a significant effect on the activities and facilities considered for the park. Comments now, will also have the greatest impact on how public funds will be spent on the future development of the Park. The consultant team especially urge any individuals or groups who regularly use this park to have a representative at this important meeting to voice your concerns about the upcoming changes to Estrella Mountain Regional Park.

The consultant team is excited about the potential Estrella Mountain Park has to offer, and excited about the wide range of quality facilities and activities that could soon be provided within the Park. The Parks and Recreation Staff

and master plan consultant team want as many special interest groups as possible to be represented and to contribute at the upcoming meeting.

FIRST PUBLIC MEETING GENERATES WIDE VARIETY OF PARK DEVELOPMENT IDEAS

A public meeting was held 2 December 1987, in which a wide range of recreation activities and opportunities were discussed. A very frank and thorough discussion of future park facilities and activities resulted. To provide for additional input, a second meeting and public workshop has been scheduled for 13 January 1988.

Some of the facilities and more aggressive development ideas discussed thus far include a waterslide/wave pool a full golf/tennis/equestrian resort facility, conference center/lodge facility, rifle/pistol shooting range, large urban lake with fishing and boating, large R.V. campground, additional golf facilities, convenience store, and a fast food concession, and an off road vehicle/cycle area. Other less aggressive considerations discussed include: Lighted softball/baseball complex, batting cage concession, soccer field complex, swimming pool, tennis courts, racquetball courts, additional turf picnic areas, scenic drive auto loop, large group camping facility, horseback riding concession, public restrooms, improved drinking water, paved bike trails, new High School Cross Country course.

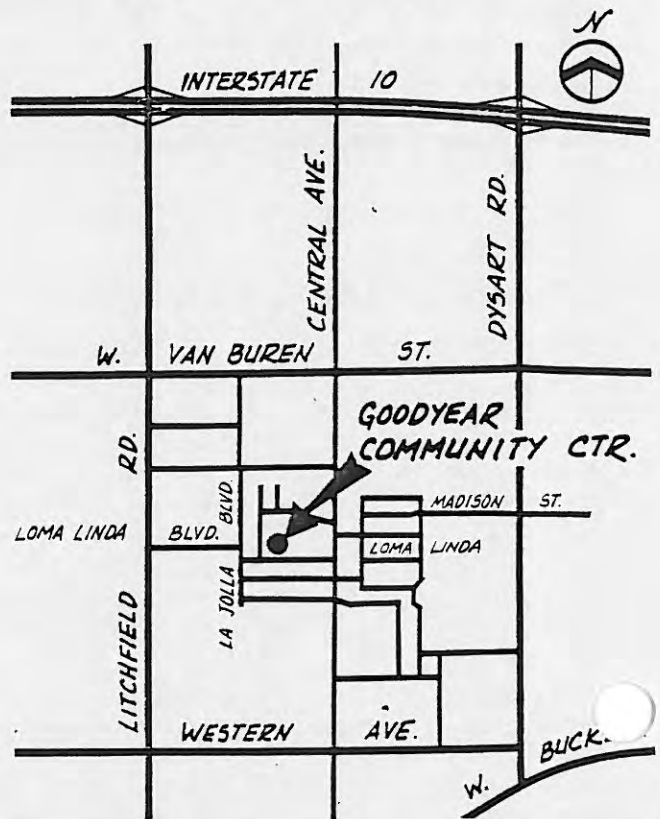
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THE MASTER PLAN: CONSULTANT TEAM HOLDS PUBLIC WORKSHOP

A public workshop will be held Wednesday, 13 January 1988 at 7:00 p.m. at the Goodyear Community Center. The community center is located next to Loma Linda Park at 420 East Loma Linda Boulevard. Those interested individuals or representatives of interested groups are encouraged to attend to also share their ideas and thoughts on the needs and future direction of Estrella Mountain Regional Park. The consultant team and County Parks and Recreation Department feel that this public input is very important to the ultimate success of the master plan. Please plan to attend and let your thoughts and opinions be known.

PUBLIC MEETING LOCATION



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CONTACT: JIM WARD OR RUSS BERNDT,
2700 N. CENTRAL AVE., SUITE 1000, PHOENIX, ARIZONA 85004
(602) 234-1591



2700 N. CENTRAL AVENUE
SUITE 1000
PHOENIX, ARIZONA 85004



Estrella Mountain Regional Park

Volume Four

Newsletter

March 1988

FOURTH ISSUE OF THE ESTRELLA MOUNTAIN REGIONAL PARK NEWSLETTER

A team of planning/design consultants led by BRW, Inc. of Phoenix is currently involved in a long range master plan of Estrella Mountain Regional Park for the Maricopa County Parks and Recreation Department. This newsletter is the fourth edition to be distributed by the Estrella Mountain Park Master Plan Team. The newsletter will update the reader on the status of this planning process and provide details of the next public meeting slated for mid-March.

THIRD PUBLIC WORKSHOP SCHEDULED IN MARCH

A public workshop has been scheduled in Avondale on Wednesday, March 16 to review the master planning process and solicit comments, ideas and concerns for development of park facilities. Past workshops have focused on the inventory and analysis studies and suggestions for the types of activities appropriate for Estrella Mountain Regional Park. Those suggestions have been utilized in creating alternative plans for future development of the park.

The alternatives offer varying degrees of development for future park facilities in combination with strong efforts for preservation of the natural resources of the park. At this stage of the

planning process, reactions and ideas from both individuals and group representatives will be very important in forming the "best" plan for development and preservation. Each alternative plan may have elements that can be combined to build a final Master Plan that meets the objectives of the study and the needs of the park users.

SECOND PUBLIC WORKSHOP GENERATES VARIETY OF IDEAS AND CONCERNS

A public workshop was held in Goodyear on January 13, where a number of issues and potential uses for Estrella Mountain Regional Park were discussed. There were concerns as to how development would affect the pristine and natural state of the park as it exists today, and preference for no change or only minimal development.

Other suggestions included a variety of activities, such as camping, picnicing, sports fields, radio controlled airplane activities and other family oriented uses. The Arizona State Horseman's Association, along with several individuals, expressed concerns for continued use of trails throughout the park and some provisions for camping for horse riders. Also noted were special events, such as the Junior Rodeo and the Society for Creative Anachronisms, that bring several thousand people into the park on a single weekend.

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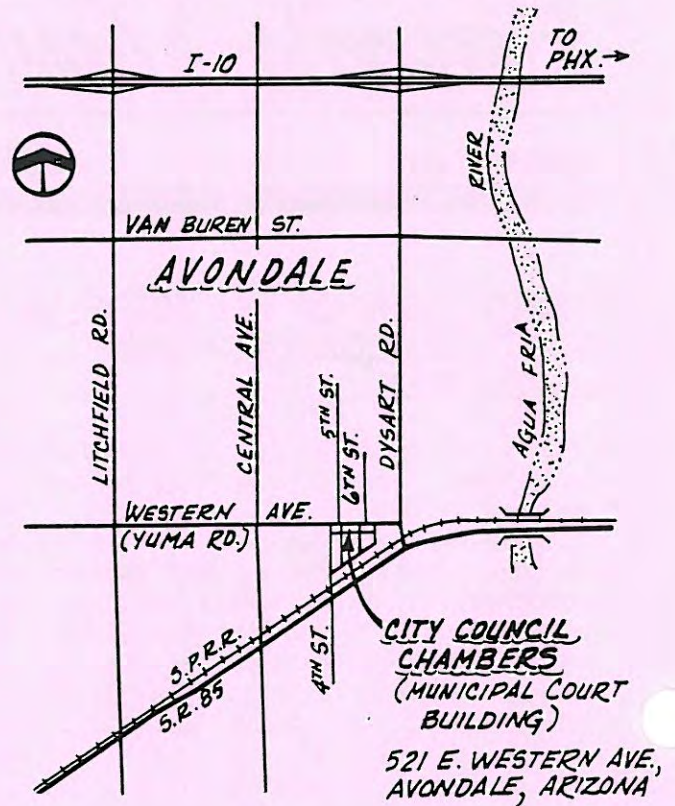
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**THE MASTER PLAN:
CONSULTANT TEAM HOLDS
PUBLIC WORKSHOP**

A public workshop will be held Wednesday, March 16 at 7:00 PM in the Avondale City Council Chambers and Municipal Court Building. The building is located at 521 East Western Avenue in Avondale.

Those interested individuals or representatives of interested groups are encouraged to attend to also share their ideas and thoughts on the needs and future direction of Estrella Mountain Regional Park. The consultant team and County Parks and Recreation Department feel that this public input is very important to the ultimate success of the Master Plan. Please plan to attend and let your thoughts and opinions be known.

PUBLIC MEETING LOCATION



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CONTACT: RUSS BERNDT, BRW, INC.
2700 N. CENTRAL AVE., SUITE 1000, PHOENIX, ARIZONA 85004
(602) 234-1591



2700 N. CENTRAL AVENUE
SUITE 1000
PHOENIX, ARIZONA 85004



Estrella Mountain Regional Park

Volume Five

Newsletter

May 1988

FIFTH ISSUE OF THE ESTRELLA MOUNTAIN REGIONAL PARK NEWSLETTER

A team of planning/design consultants led by BRW, Inc. of Phoenix is currently involved in a long range master plan of Estrella Mountain Regional Park for the Maricopa County Parks and Recreation Department. This newsletter is the fifth edition to be distributed by the Estrella Mountain Park Master Plan Team. The newsletter will update the reader on the status of this planning process and provide details of the next public meeting slated for mid-May.

FOURTH PUBLIC WORKSHOP SCHEDULED IN MAY

A public workshop has been scheduled in Avondale on Wednesday, May 18 to review the master planning process and solicit comments, ideas and concerns for development of park facilities. Past workshops have focused on the inventory and analysis studies, suggestions for the types of activities appropriate for Estrella Mountain Regional Park and preliminary alternative plans. Comments and suggestions from past meetings have been utilized in refining alternative plans for future development of the park.

The alternatives offer varying degrees of development for future park facilities in combination with strong efforts for preservation of the natural resources of the park. At this stage of the planning process, reactions and ideas

from both individuals and group representatives will be very important in forming the "best" plan for development and preservation. Each alternative plan may have elements that can be combined to build a final Master Plan that meets the objectives of the study and the needs of the park users.

PUBLIC WORKSHOPS GENERATE VARIETY OF IDEAS AND CONCERNS

Public workshops have been held in both Goodyear and Avondale this past January and March, respectively. A number of issues and potential uses for Estrella Mountain Regional Park have been discussed. Concerns have been expressed as to how development would effect the pristine and natural conditions that exist in much of the park today. Many attending workshops have also expressed a preference for no change or only minimal development within the park.

Other suggestions included a variety of activities, such as camping, picnicing, sports fields, radio controlled airplane activities and other family oriented uses. The Arizona State Horseman's Association, along with several individuals, expressed concerns for continued use of trails throughout the park and some provisions for camping for horse riders. Also noted were special events, such as the Junior Rodeo and the Society for Creative Anachronisms, that bring several thousand people into the park on a single weekend.

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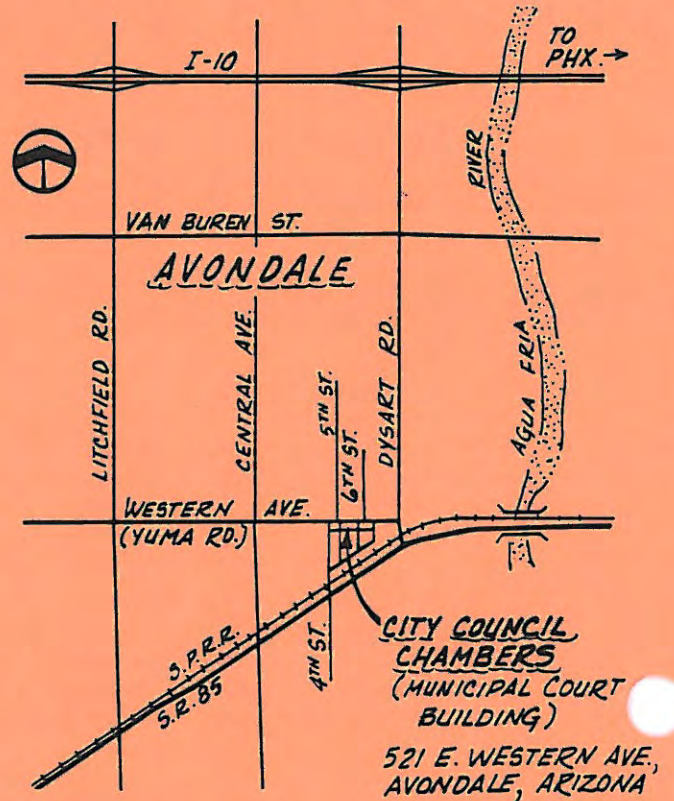
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THE MASTER PLAN: CONSULTANT TEAM HOLDS PUBLIC WORKSHOP

A public workshop will be held Wednesday, May 18 at 7:00 PM in the Avondale City Council Chambers and Municipal Court Building. The building is located at 521 East Western Avenue in Avondale.

Those interested individuals or representatives of interested groups are encouraged to attend to also share their ideas and thoughts on the needs and future direction of Estrella Mountain Regional Park. The consultant team and County Parks and Recreation Department feel that this public input is very important to the ultimate success of the Master Plan. Please plan to attend and let your thoughts and opinions be known.

PUBLIC MEETING LOCATION



FOR MORE INFORMATION OR TO BE INCLUDED ON THE MAILING LIST
CONTACT: RUSS BERNDT, BRW, INC.
2700 N. CENTRAL AVE., SUITE 1000, PHOENIX, ARIZONA 85004
(602) 234-1591



2700 N. CENTRAL AVENUE
SUITE 1000
PHOENIX, ARIZONA 85004

ESTRELLA MOUNTAIN REGIONAL PARK MAILING LIST

A-1 Manufacturing
3255 West Osborn
Phoenix, AZ 85007

Mr. Brian Abby
Sunregion Associates
5734 N. 10th Place
Phoenix, AZ 85014

Mr. James Accomazzo
3825 South 99th Avenue
Tolleson, AZ 85353

Landis Aden
Arizona State Rifle and
Pistol Association
17839 North 15th Drive
Phoenix, AZ 85023

Mr. John Alba
Westsider
P.O. Box 1088
Goodyear, AZ 85338

Mr. Cliff Alexander
3428 East Campbell
Phoenix, AZ 85018

Ms. Molly Alvarez
Box 1215
Buckeye, AZ 85326

American Youth Soccer Organization
4944 W. Northern Avenue
Glendale, AZ 85301

Mr. John Anderson
Post Office Box 37
Tolleson, AZ 85353

Mr. Cecil Antone
Gila Indian Reservation
Physical Resources
P.O. Box 398
Sacaton, AZ 85247

Arizona Desert Big Horn
Sheep Society, Inc.
P.O. Box 5241
Phoenix, AZ 85010

Arizona State Horseman's Assoc.
P.O. Box 1349
Phoenix, AZ 85001

Arizona Wildlife Federation
4330 N. 62nd Street/Suite 102
Scottsdale, AZ 85251

Mr. Louis Arrendondo
1825 S. 112th Drive
Cashion, AZ 85329

Ms. Candy Asmussen
Western Christian School
8601 West Monterey Way
Phoenix, AZ 85037

Ms. Roxie Bacon
Baughton, Hawkins & Bacon
3636 West Central Avenue
Suite 960
Phoenix, AZ 85012

Mr. Reginald M. Ballantyne, III
Phoenix Memorial Hospital Health
Resources, Inc.
Post Office Box 21207
Phoenix, AZ 85036

Mr. Bill Batting
Revlon, Inc.
4301 West Buckeye Road
Phoenix, AZ 85043

Beam Corporation
430 S. 3rd Avenue
Avondale, AZ 85323

Bechtel Power Corporation
5903 S. 379th Avenue
Buckeye, AZ 85326

Mr. R. W. Bill Bedoya
300 North 4th Street
Avondale, AZ 85323

Mr. Bill Belcher
Maricopa County Air Posse
P.O. Box 1486
Goodyear, AZ 85338

Ms. Patricia Bell
Sun City Post Office
16493 N. 67th Avenue
Peoria, AZ 85345

Ms. Cher Bethancourt
Post Office Box 35190
Phoenix, AZ 85069

Mr. Ron Bevilacqua
6601 West Roosevelt
Phoenix, AZ 85043

Ms. Debbie Bishop
6601 West Roosevelt
Phoenix, AZ 85043

Mr. Harold Branch
1007 S. Third Avenue
Avondale, AZ 85323

Branch Bible Church
5342 W. Camelback Road
Glendale, AZ 85301

Mr. Gary Brasher
333 West Holly
Phoenix, AZ 85003

Mr. and Mrs. Roy Brook
Route 5, Box 1219A
Phoenix, AZ 85043

Ms. Helen Brown
Sun City West Sheriff's Posse
12610 Butterfield Drive
Sun City West, AZ 85375

Ms. Barbara Capell
10253 East Quarterline
Apache Junction, AZ 85220

Mr. John Carr
Arizona Game and Fish
2222 West Greenway Road
Phoenix, AZ 85023

Mr. Rudy Castillo
Mini-Vice
4113 W. Encanto
Phoenix, AZ 85009

Central Arizona Hiking Club
1026 N. 9th Street
Phoenix, AZ 85006

Mr. Clay Chance
10848 West Broadway
Tolleson, AZ 85353

Mr. Roy Cheatham
5245 West Dobbins Road
Laveen, AZ 85339

Mr. Steve Cheseborough
Phoenix Gazette - S.W. Zone
P.O. Box 1950
Phoenix, AZ 85001

Mr. Bill Childress
Lower Gila Area Manager
3707 North 7th Street, #300
Phoenix, AZ 85014

Mr. Michael Church
Montgomery Elevator Company
2930 W. Willetta
Phoenix, AZ 85009

Mr. Steve Cleveland
City of Goodyear
119 N. Litchfield Rd.
Goodyear, AZ 85338

Ms. Tanya Clifton
Mixed Nut Bowling League
6509 N. 134th Dr.
Glendale, AZ 85307

Ms. Maggie Collins
525 North Central Avenue
Avondale, AZ 85323

Mr. and Mrs. Dale Colvin
1924 North 42nd Avenue
Phoenix, AZ 85009

Mr. and Mrs. Doc Colvin
Route 4, Box 73
Phoenix, AZ 85031

Mr. Gary Colvin
Buckeye Irrigation Company
Post Office Box 726
Buckeye, AZ 85326

Combustion Engineering
10010 N. 25th Avenue
Phoenix, AZ 85029

Con Agra, Inc.
421 S. 99th Ave.
Tolleson, AZ 85353

Mr. Kris Coplan
Glendale 6th Ward
5315 W. Mountain View
Glendale, AZ 85302

Mr. Tom Craig
5526 W. North Lane
Glendale, AZ 85302

Mr. Demont Crystal
Post Office Box 129
Goodyear, AZ 85338

Mr. John Cummings
Chem Research Company
1122 W. Hilton Ave.
Phoenix, AZ 85007

Mr. Gerald Daly
6298 West Minnezona
Phoenix, AZ 85033

Mr. Frank Danials
Realty Specialist
Bureau of Land Management
2015 W. Deer Valley Road
Phoenix, AZ 85027

Master Sgt. D. G. Dearing
405 EMS/CCQA
Luke AFB, AZ 85309

Mr. Jim DeNeese
5352 East Juniper Avenue
Scottsdale, AZ 85254

Mr. Wayne Des Combes
Agua Fria Union High School
530 E. Riley Dr.
Avondale, AZ 85323

Ms. Bonnie Dew
West Valley Assembly of God
215 West Madden
Avondale, AZ 85323

Mr. Jay Dewitt
Tolleson Church
11772 W. Thomas Rd.
Tolleson, AZ 85353

Ms. Lillian Diaz
Arizona State Lands
1624 West Adams, Room 417 West
Phoenix, AZ 85007

Ms. Jan L. Dodson
The Adams Group, Inc.
4520 North Central Avenue
Suite 500
Phoenix, AZ 85012-1814

Mr. Antonio Dominguez
Daniel E. Ortega, Jr. P.C.
1 West Madison
Phoenix, AZ 85003

Mr. Tim Dorn
Maricopa County Sheriff's Office
120 South 1st Avenue
Phoenix, AZ 85003

Ms. Angie DuBose
5236 South 99th Avenue, #60
Tolleson, AZ 85353

Ms. Jeanine DuBose
5236 South 99th Avenue, #60
Tolleson, AZ 85353

Mr. Robert Dummer
Army Corps of Engineers
3636 North Central Avenue
Phoenix, AZ 85004

Mr. Gary Ellars
Arizona Public Service
305 West Van Buren
Goodyear, AZ 85338

Mr. Wallace Etisdale
5236 South 99th Avenue, #79
Tolleson, AZ 85353

Ms. Judy Facinilli
Richardson Asphalt Paving
3022 S. 38th St.
Phoenix, AZ 85040

Mr. and Mrs. Dale Faulconer
5236 South 99th Avenue, #68
Tolleson, AZ 85353

Mr. Herb Fible
Maricopa Audobon Society
1225 E. Broadway Road/Suite 140
Tempe, AZ 85282

First Interstate Bank of Arizona
14636 N. Del Webb Blvd.
Sun City, AZ 85351

Mr. Michael R. Fitz-Gerald
Coldwell Banker
2346 North Central Avenue
Phoenix, AZ 85004

Mr. Jim Forsberg
Forsberg and Associates
341 E. Wagon Wheel Dr.
Phoenix, AZ 85020

Mr. and Mrs. Chuck Fradenburgh
201 North Third Place
Avondale, AZ 85323

Mr. Fulton
Agua Fria Union High School
530 E. Riley Dr.
Avondale, AZ 85323

Mr. Jack Gagen
4520 North Central
Suite 200
Phoenix, AZ 85012

Mr. Adolfo Gamez
9406 West Madison
Tolleson, AZ 85353

Garret Air Conditioning and Heating
4601 West Seldona Lane
Glendale, AZ 85302-5211

Mr. Jack Garretson
3521 East Rose Lane
Paradise Valley, AZ 85352

Mr. Bob Gathemann
Illinois State Club
12917 Rampart Dr.
Sun City West, AZ 85375

Mr. Richard Gerhart
Habitat Specialist
Arizona Game and Fish Department
7200 E. University
Mesa, AZ 85207

Mr. Howard Gibbs
Post Office Box 804
Avondale, AZ 85323

Mr. Brad Gilmore
4705 East Caballero, #1
Mesa, AZ 85205

Mr. Jack Gilmore
GSAS
300 West Clarendon, #400
Phoenix, AZ 85013

Mr. John Goodwin
2048 West Elm
Phoenix, AZ 85015

Mr. William Gordon
3819 North Wintergreen Way
Phoenix, AZ 85039

Mr. Don Graf
Director of Properties
Arizona Cactus Pine Girlscout Council
P.O. Box 21776
Phoenix, AZ 85036

Mr. Terence E. Guerrant
Properties Corporation of America
11801 North Tatum Boulevard
Suite 226
Phoenix, AZ 85028

Ms. Leslie Hall
Community Legal Services
P.O. Box 21538
Phoenix, AZ 85036-1538

Mr. Kerry Ham
Arizona Truck Pullers
6101 W. Hollyhock
Phoenix, AZ 85033

Mr. Rich Hanson
Outdoor Recreation Planner
Bureau of Land Management
2515 West Deer Valley Road
Phoenix, AZ 85027

Mr. Abraham Harris, Jr.
28913 West Cocopah
Buckeye, AZ 85326

Mr. David Harris
Arizona Game Breeders
3422 S. 107th Ave.
Tolleson, AZ 85353

Mr. Bruce Hazzard
Design Workshop Inc.
2701 E. Camelback/Suite 480
Phoenix, AZ 85016

Mr. Larry Heath
Tres Realty
820 East Van Buren, Suite 116
Goodyear, AZ 85338

Mr. Jack Henry
Arthur Anderson & Co.
101 North 1st Avenue/Suite 2100
Phoenix, AZ 85003

Mr. Bob Herring
3355 West Durango Street
Phoenix, AZ 85009

Ms. Rosemary Hester
Arizona Department of Water Resources
99 East Virginia Avenue
Phoenix, AZ 85004

Ms. Agnes Higgins
Beacon Light Church
4739 W. Pierson
Phoenix, AZ 85031

Mr. Michael Higgins
Westsider
Post Office Box 1088
Goodyear, AZ 85338

Mr. Gene Hill
1 BEW Local 387
5819 N. 7th St./#205
Phoenix, AZ 85014

Mr. and Mrs. Hal Hill
5216 West Olney
Laveen, AZ 85339

Ms. Judy Hohman
U.S. Fish and Wildlife Service
3616 West Thomas Road, Suite 6
Phoenix, AZ 85019

Mr. Jim Howell
10553 West Flower
Phoenix, AZ 85039

Mr. Ellis Hyde
Kenney Aerial Mapping
1130 West Fillmore
Phoenix, AZ 85007

Irby Construction Company
2050 S. 59th Ave.
Phoenix, AZ 85043

Mr. Bob Jackson
333 East Van Buren, #210
Avondale, AZ 85323

Mr. Joe Janish
Urban Fishing Program
Arizona Game and Fish Department
2222 West Greenway Road
Phoenix, AZ 85023

Mr. Len Johnson
1224 South McKemy Street
Tempe, AZ 85281

Mr. Rick Jones
111 West Lawrence Boulevard
Avondale, AZ 85323

Ms. Carole Joyce
The Bullet Trap
P.O. Box 459
Litchfield Park, AZ 85340

Mr. and Mrs. Erik Justesen
Route 5, Box 1204-D
Phoenix, AZ 85043

Mr. Max Kaufman
Aux. 6 R/C Flyers Club
4624 North 7th Avenue
Phoenix, AZ 85013

Mr. Brian Keegan
McKee Company
1408 N. Central/#137
Avondale, AZ 85323

Mr. Paul Kennedy
Wigwam Inn Resort
107 W. Honeysuckle St.
Litchfield Park, AZ 85340

Mr. Jim King
King Enterprizes
P.O. Box 1235
Goodyear, AZ 85338

Ms. Stefani Kinsey
5845 West Northview
Glendale, AZ 85301

Ms. Dorothy J. Kocher
5519 West State
Glendale, AZ 85301

Ms. Virginia Konia
Kachina Kennel Club
P.O. Box 838
Glendale, AZ 85301

Mr. C. A. Lakin
Lakin Milling Co.
Route 1, Box 110
Tolleson, AZ 85353

Mr. Mark Lansing
Estrella Mountain Park
P.O. Box 252
Goodyear, AZ 85338

Mr. Joel Latham
9023 South 134th Avenue
Goodyear, AZ 85338

Ms. Peggy Latham
Unidymanics
P.O. Box 584
Goodyear, AZ 85338

Ms. Ann Lessard
P.O. Box 636
Litchfield Park, AZ 85340

Alfred M. Lewis, Inc.
535 S. 59th Avenue
Phoenix, AZ 85043

Ms. Linda L. Lincoln
Cold Storage, Inc.
1301 S. Bullard Ave.
Goodyear, AZ 85338

Ms. Tere Lloyd
Burns International
4520 North Central Avenue
Phoenix, AZ 85012

Mr. Ron Long
Town of Buckeye
Post Office Box 157
Buckeye, AZ 85326

Mr. John Loving
Goldwing Road Riders Association
346 W. South Mountain Ave.
Phoenix, AZ 85041

Ms. Maxine Lucas
4218 West Latham
Phoenix, AZ 85009

Mr. Louis W. Lujano
7426 West Brown Street
Peoria, AZ 85345

Mrs. Anne Liady Lynch
7509 North 14th Avenue
Phoenix, AZ 85021

Mr. John Macicak
Chicago Cook County Club
13231 Ashwood
Sun City West, AZ 85375

Mr. Jack Magura
Coventry Homes
3875 North 44th St.
Suite 201
Phoenix, AZ 85018

Mr. Robert Maldonado
Waddell Wranglers Saddle Club
11449 W. Chambers
Tolleson, AZ 85353

Maricopa County Planning and
Development Department
111 S. Third Avenue
Phoenix, AZ 85003

Mr. Mel Martin
M & M Auto Storage Pool
2299 West Broadway Road
Phoenix, AZ 85041

Mr. Peter Martori
Chairman
Scion, Inc.
1 East Camelback Road, #550
Phoenix, AZ 85012

Ms. Marge McClanahan
6929 West Pioneer
Phoenix, AZ 85009

Mr. Jack McCormic
Land Sales and Exchanges
State Land Department
1624 W. Adams St./4th Floor
Phoenix, AZ 85007

Mr. Bryon McCurde
7221 N. 37th Ave.
Phoenix, AZ 85051

Ms. Connie McDonough
Eason, Lazarus, Dodge
& Lowry Ltd.
3636 North Central Avenue/Suite 1200
Phoenix, AZ 85012

C. Miller
5843 N. 22nd Dr.
Phoenix, AZ 85015

Ms. Elizabeth J. Miller
Department of Water Resources
2702 North 3rd Street, Suite 2010
Phoenix, AZ 85004

Ms. Jenny Miller
2808 West McDowell
Phoenix, AZ 85009

Mr. Norman Miller
Valley Bank Center
Suite 2300
Phoenix, AZ 85073

Ms. Ruby Miller
Honeywell - Mail Station C24
13430 N. Black Canyon Highway
Phoenix, AZ 85029

Mr. Thomas F. Morales, Jr.
1323 South Central Avenue
Avondale, AZ 85323

Mr. Thomas Mulhern
American Continental
2735 E. Camelback Rd.
Phoenix, AZ 85016

Mr. Jack Mullins
Arizona Republic - Metro Bureau
P.O. Box 50
Phoenix, AZ 85004

Mr. Dick Mulvaine
Director Sierra Estrella Golf Course
155 S. Bullard Avenue
Goodyear, AZ 85338

Mr. Eddie Myles
Ed. Myles, Accountant
1429 North 1st Street
Suite 2
Phoenix, AZ 85004

Mrs. David Nix
Rising Generation LDS Church
Route 4, Box 430
Phoenix, AZ 85031

Mr. Herman Orcutt
Western Gateway Team
501 W. Van Buren
Avondale, AZ 85323

Mr. Darrel Otis
Cornerstone Christian Center
19032 W. Lynwood
Buckeye, AZ 85326

Mrs. Myra Page
7630 West Villa Rita
Peoria, AZ 85345

Mr. Carlos Palmas
City Manager
City of Avondale Administration
525 N. Central Avenue
Avondale, AZ 85323

Mr. Bruce Palmer
Arizona Game and Fish Department
2222 West Greenway Road
Phoenix, AZ 85023

Parker Hanifan Aerospace Group
680 N. Litchfield Rd.
Goodyear, AZ 85338

Mr. Ed Paster
Maricopa County Board
of Supervisors
111 South Third Avenue
Phoenix, AZ 85003

Ms. Monica Pastor
Executive Director
Maricopa County Farm Bureau
455 Suth 48th Street #111
Tempe, AZ 85281

Mr. Richard Perreault
Maricopa County Flood
Control District
3335 West Durango
Phoenix, AZ 85009

Phoenix International Raceway
P.O. Box 13088
Phoenix, AZ 85002

Phoenix Trap and Skeet Club
Rural Route 1, Box 246
Litchfield Park, AZ 85340

Mrs. Millicent Piazza
5422 East Roadrunner Road
Paradise Valley, AZ 85253

Mr. Doug Plasencia
Maricopa County Flood
Control District
3335 West Durango
Phoenix, AZ 85009

Post Master
Avondale Post Office
Avondale, AZ 85323

Mr. Tim Quinn
Horizon Research
2828 N. Central Ave./Suite #755
Phoenix, AZ 85004

Ms. Irene Quinones
Santa Teresita Church
13914 N. Verbena St.
El Mirage, AZ 85335

Mr. James Raleigh
Loral Electronics Division
P.O. Box 204
Avondale, AZ 85323

Mr. Larry Ramirez
City of Avondale
1211 S. 4th Street
Avondale, AZ 85323

Ms. April Reiner
Post Office Box 172
Avondale, AZ 85323

Research Products
275 W. Lower Buckeye Rd.
Avondale, AZ 85323

Ms. Stephanie Richmond
815 Las Robles Drive
Goodyear, AZ 85338

Mr. Ron Ross
Senseman, McKisson, Ross
Insurance, Inc.
1412 North Central Avenue, Suite A
Avondale, AZ 85323

Mr. Jerry Rovey
Route 3, Box 447
Buckeye, AZ 85326

Mr. Dan Sagramoso
Maricopa County Flood
Control District
3335 West Durango
Phoenix, AZ 85009

Mr. Arnold Schwalb
Corporate Planning
Salt River Project
Box 52025
Phoenix, AZ 85072-2025

Mrs. L. Schweitzer
German American Club
10948 Tropicana St.
Sun City, AZ 85351

Ms. Libby Segovia
Farwest Pool League
724 S. 3rd St.
Avondale, AZ 85323

Ms. Jill Shackelford
Dodge Reports
5225 N. Central Avenue
Suite 202
Phoenix, AZ 85012

Mr. Joe Sharp
Maricopa County Parks and Recreation
3355 W. Durango St.
Phoenix, AZ 85009

Mr. Mark Shepard
Buckeye Valley News
P.O. Box 217
Buckeye, AZ 85326

Mr. Carl E. Showalter
13351 Aleppo Drive
Sun City West, AZ 85375

Skyway Baptist Church
6622 N. 134th Dr.
Glendale, AZ 85307

Mr. DeWayne Smith
Phoenix, Gazette - Outdoor Section
120 E. Van Buren
Phoenix, AZ 85004

Mr. James I. Sorrenson
Gillanders & Stark
Development Co. Inc.
2402 South Central Avenue
Phoenix, AZ 85004

Mr. Steve Sossaman
22200 South Sossaman Road
Higley, AZ 85236

Mr. Gary Spiker
19839 West Hilton
Buckeye, AZ 85326

Mr. Sam Spiller
U.S. Fish and Wildlife Service
3616 West Thomas Road, Suite 6
Phoenix, AZ 85019

Ms. Mary Sprague
U.S. Air Force Hospital
Luke SGN
Luke AFB, AZ 85309

Mr. James St. John
Bechtel Power Corporation
P.O. Box 49
Palo Verde, AZ 85343

Ms. Cynthia Standage-Beier
Standage-Beier Architects
6101 South Rural Road
Tempe, AZ 85283

Mr. A. Thyrlle Stapley, Jr.
Stapley Builders Appliance
1059 S. Country Club Drive
Mesa, AZ 85202

Mr. Gerald Starr
Route 5, Box 1219K
Phoenix, AZ 85043

Mr. and Mrs. James Starr
11439 West Hidalgo
Tolleson, AZ 85353

Mr. Barry Starr
Kort Development
4001 North 3rd Street
Suite 255
Phoenix, AZ 85012

Mr. LeRoy Starr
Route 5, Box 1219K
Phoenix, AZ 85043

Mr. Randy Stockton
P.O. Box 52034
Station 6775
Phoenix, AZ 85072

Mr. James Story
5919 W. Wolf
Phoenix, AZ 85033

Ms. Strasser
Ohio Club
12502 Ashwood Dr.
Sun City West, AZ 85375

Ms. Fran Streets
3036 West Almeria
Phoenix, AZ 85009

Ms. Paula Stringham
Christian Motorcycle Assoc.
6829 W. Wilshire
Phoenix, AZ 85035

Stanley Structures, Inc.
3319 W. Earll Dr.
Phoenix, AZ 85072

Ms. Bette Sullivan
79ers Lioness Club
16406 Desert Holly Dr.
Sun City, AZ 85351

Sun Land Beef Company
651 S. 91st Avenue
Tolleson, AZ 85353

Sun Valley Door & Supply Co., Inc.
101 N. 57th Ave.
Phoenix, AZ 85043

Ms. Laurie Taft
Phoenix General Hospital
P.O. Box 21331
Phoenix, AZ 85036

Mr. Wallace Tisdale
11437 West Hidalgo Street
Tolleson, AZ 85353

Tolleson Union High School
9419 W. Van Buren
Tolleson, AZ 85353

Mr. John Toomey
GTE Business Systems
2000 West 14th Street
Tempe, AZ 85281

Mr. Bob Town
Arizona State Association of
4-Wheel Drive Clubs
Post Office Box 23904
Tempe, AZ 85282

Mr. Jerry Tracy
1 BEW Local 640
5815 N. 7th St.
Phoenix, AZ 85014

Unidynamics
1001 N. Litchfield Rd.
Goodyear, AZ 85338

Mr. Phil Unwin
West Valley View
P.O. Box 1113
Goodyear, AZ 85338

Ms. Judy Van Houten
5110 North 40th Street
Suite 201
Phoenix, AZ 85018

Mr. Franklin Vasos, Sr.
4419 North Scottsdale Road
Scottsdale, AZ 85251

Mr. M. S. Vasquez
610 South 1st Street
Avondale, AZ 85323

Mr. Ralph Velez
City of Tolleson
9555 West Van Buren
Tolleson, AZ 85353

Mr. Randy Vinden
Department of Leisure Studies
Arizona State University
Tempe, AZ 85287-2302

Mr. Paul Walker
Planning Director
City of Goodyear
119 N. Litchfield Rd.
Goodyear, AZ 85338

Ms. Bea Warmoth
Goodyear Foreman Club
226 West Kinderman
Avondale, AZ 85323

Ms. Barbara Waton
8201 W. Montecito
Phoenix, AZ 85033

Mr. and Mrs. Gary White
3837 South Litchfield Road
Avondale, AZ 85323

Mr. Charles A. Whiting
Tristar Electric
3637 W. Roanoke Ave./Suit #9
Phoenix, AZ 85009

Mr. Ron Whitler
16420 W. Magnolia
Goodyear, AZ 85338

Ms. Joyce Valdez
Arizona Republic
120 E. Van Buren
Phoenix, AZ 85004

Mr. Paul Wichmann
Arizona State Lands
1624 West Adams
Phoenix, AZ 85007

Ms. Mary Rose Wilcox
City of Phoenix City Council
251 West Washington Street
Phoenix, AZ 85003

Mr. H. Allan Winter
Allwin Industries, Inc.
4250 East Camelback Road
Phoenix, AZ 85018

Mr. Ken Wolf
Arizona Public Service Company
305 West Van Buren
Goodyear, AZ 85338

Mr. and Mrs. Jerry Wuertz
5407 South 10th Avenue, #10
Tolleson, AZ 85353

APPENDIX H

SPECIAL STATUS PLANT & ANIMAL SPECIES INFORMATION

ROSE MOFFORD, Governor

Commissioners:

LARRY D. ADAMS, Bullhead City, Chairman
FRANCES W. WERNER, Tucson
THOMAS G. WOODS, JR., Phoenix
P. W. ASHCROFT, Eagar
G. K. WHITING, Klondyke

Director

TEMPLE A. REYNOLDS

Deputy Director

DUANE L. SHROUFE



ARIZONA GAME & FISH DEPARTMENT

2222 West Greenway Road Phoenix, Arizona 85023 942-3000

May 10, 1988

Mr. Russell Berndt
BRW, Inc.
2700 N. Central Ave.
Phoenix, Arizona 85004

Dear Mr. Berndt:

This letter is in response to your request for information regarding special status species of animals and plants which may be found within the vicinity of the Estrella Mountain Regional Park. Based on the information currently available through the Arizona Game and Fish Department's Nongame Data Management System, several special status species have been documented from your project area.

The Sierra Estrella Mountains provide habitat for the desert tortoise (Gopherus agassizii) and the Gila monster (Heloderma suspectum). Both species are included by the U. S. Fish and Wildlife Service in Category 2--species being considered for listing under the Endangered Species Act pending more information. The tortoise is also included in Group 3 of the state list of **Threatened Native Wildlife in Arizona** (copy enclosed). Arizona Game and Fish Commission Order 43 prohibits the take of both species. Within the Sonoran Desert the tortoise and Gila monster are generally found on rocky mountain slopes, foothills, canyons and bajadas. These species may be found in appropriate habitat throughout the Estrella Mountain Regional Park, especially within the east half of the park.

The Yuma clapper rail (Rallus longirostris yumaensis) has been recorded along the Gila River immediately north of the park boundaries. This species is Listed Endangered under the Endangered Species Act and is included in Group 3 of the **Threatened Native Wildlife in Arizona**. This rail lives in dense cattail and sedge marshes. The presence of the clapper rail along this portion of the Gila River is sporadic from year to year and dependent on local wetland conditions.

One special status plant species may be found within your project area. The night-blooming cereus cactus (Cereus greggii)

2 1988

Mr. Russell Berndt

-2-

May 10, 1988

occurs on desert flats and bajadas, often growing entwined with creosote bush or other desert shrubs. This species has not been recorded from the park, though likely occurs within the southwestern portion of the park. This cactus is included by the USFWS in Category 2.

For information regarding game species, please contact Richard Gerhart, Arizona Game and Fish Department Habitat Specialist in Mesa at (602) 981-9400.

If you have any questions or require further information, please contact this office at 942-3000 extension 366.

Sincerely,

A handwritten signature in cursive script that reads "Bruce K. Palmer". The signature is written in dark ink and is positioned above the typed name.

Bruce K Palmer
Nongame Habitat Specialist

BKP:bp

Enc.

cc: Rick Gerhart

THREATENED NATIVE WILDLIFE IN ARIZONA

Approved by the
Arizona Game and Fish Commission

10 December 1982

Citation: Arizona Game and Fish Commission. 1982. Threatened native
wildlife in Arizona. Ariz. Game and Fish Dept. Publ. 12 pp.

THREATENED NATIVE WILDLIFE IN ARIZONA

A list of threatened wildlife in Arizona was first developed by the Arizona Game and Fish Department in 1975. That list was revised in 1978, as new information was developed. The current list identifies animals generally characterized by: 1) small populations in Arizona that are often substantially reduced from historic levels, and 2) occurrence in threatened habitats. The importance of specimen collecting and setting of legal bag limits are addressed separately, through the setting of hunting and fishing regulations. The primary difference between Groups (1) through (4) is in degree of threat in and probability of extirpation from Arizona.

To ensure the continued presence of these native animals in Arizona, actions must be taken by wildlife and land management agencies. These actions must be oriented toward protection or restoration of the natural habitats occupied by each of the 93 species or subspecies listed. Habitat destruction is the most pervasive cause of decrease in kinds and individuals of animals. As habitats recover, so will populations, and species will be removed from this list.

Group (1) animals are those known or suspected to have been extirpated (eliminated) from Arizona but which still exist elsewhere (i.e. they are not extinct, or extirpated throughout their range, as the Monkey Springs Pupfish, Cyprinodon sp., has been).

Group (2) animals are those whose continued presence in Arizona is now in jeopardy and extirpation from the state is highly probable if no recovery efforts are made. This group includes some species for which there are no recent verified records; they, too, may have already been extirpated from Arizona (e.g. Black-footed Ferret).

Group (3) animals are those species whose continued presence in Arizona could be in jeopardy in the foreseeable future. Serious threats exist to the habitats they occupy and their populations (a) have declined or (b) are limited to few individuals in few locations (e.g. most of our native fish).

Group (4) animals are those for which there is a moderate threat to the habitats they occupy. Given an increase in the degree of habitat threat or documentation of population declines, these species will be good candidates for Group (3) (e.g. Desert Massasauga).

The revisions incorporated in this list were based on a systematic assemblage of information from many sources. Changes will be made as new information becomes available to the Department. Information that would improve our knowledge of the status of species now listed or that might be listed should be sent to the Endangered Species Coordinator at the Phoenix Office of the Arizona Game and Fish Department. All such information will be carefully evaluated and used in improving our efforts to manage our native wildlife. Keeping current on the biological status of Arizona's wildlife is difficult. Your assistance in helping us to do so is very much appreciated.

FISH

Group 1. Species and subspecies extirpated from Arizona since 1900 but which are not extinct.

*Colorado River Squawfish (Ptychocheilus lucius)--Formerly occurred throughout the larger rivers of the Colorado River system, including the Salt, Gila, Verde and San Pedro rivers. Essentially eliminated in Arizona by 1962, possibly because of habitat alteration, competition with nonnative fish or over-harvest. Captive-breeding populations are being held for reintroduction into suitable habitats.

Yaqui Shiner (Notropis formosus mearnsi)--Formerly occurred in Arizona only in the San Bernardino Valley in Cochise County. Fairly common until 1968 but last seen in 1970. Will be reintroduced from Mexico (where it is now threatened) when habitat is restored on the San Bernardino National Wildlife Refuge (NWR) by U.S. Fish and Wildlife Service.

Yaqui Sucker (Catostomus bernardini)--Formerly occurred in United States only in San Bernardino Valley in Cochise County. Last occurred in Astin Spring, which was destroyed about 1967. Sufficient populations exist in Mexico to permit reintroduction when habitat is restored on the San Bernardino NWR by U.S. Fish and Wildlife Service.

Yaqui Catfish (Ictalurus pricei)--Believed to have occurred in Arizona, at least sporadically, only in San Bernardino Creek, in Cochise County, just above the Mexican border. An introduced population near Monkey Springs, in Santa Cruz County, was destroyed when the pond was drained. When habitat is restored on the San Bernardino NWR, by the U.S. Fish and Wildlife Service, a population will be reintroduced from Mexico.

Desert Pupfish (Cyprinodon macularius macularius)--Formerly occurred throughout the lower Gila River Basin. Eliminated by habitat destruction and by competition with introduced, nonnative fish. Reintroduction efforts into suitable habitats from captive populations are now underway.

Group 2. Species or subspecies whose continued presence in Arizona is now in jeopardy because of substantial population declines. Extirpation from the state is highly probable without recovery efforts.

*Gila Trout (Salmo gilae)--Occurs in Arizona in only one locality, where it has been introduced. Apparently occurred in streams in the upper Verde River drainage and possibly in the San Francisco River system. Stock for reintroduction into suitable habitats will be available from New Mexico, when their recovery efforts are completed.

*Bonytail Chub (Gila elegans)--Formerly occurred in Arizona throughout the Colorado River and its major tributaries. Now restricted to mainstream Colorado River; populations are apparently still declining. Apparently threatened by habitat alteration and competition with nonnative fish. Captive breeding populations exist at Dexter FWS Hatchery in New Mexico. Reintroduction into selected areas in Arizona is planned.

*On Federal Endangered List

FISH, continued.

Group 2, continued.

*Humpback Chub (Gila cypha)--Occurs in Arizona only in the Colorado River in areas of swift currents, above the Grand Canyon and in the lower portion of the Little Colorado River. Apparently threatened by habitat alteration and by competition with nonnative fish.

Virgin River Roundtail Chub (Gila robusta seminuda)--Restricted to the Virgin River, which is threatened with habitat destruction.

Yaqui Chub (Gila purpurea)--Formerly occurred in Arizona only in Cochise County in a few tributaries of the Yaqui River. Only one native population persists, a few individuals in a spring on the San Bernardino NWR. Has been reintroduced into other ponds on San Bernardino NWR and in Leslie Canyon (Swisshelm Mountains).

Virgin River Spinedace (Lepidomeda mollispinus mollispinus)--Restricted to the Virgin River, which is threatened with habitat destruction.

*Woundfin (Plagopterus argentissimus)--Now restricted in Arizona to the Virgin River in extreme northwestern Arizona, though formerly occurred in larger streams and rivers of the lower Colorado River Basin as well. Plans are being made to reintroduce this species into areas of suitable habitat in the Gila River drainage.

Mexican Stoneroller (Campostoma ornatum pricei)--Known only from Rucker Canyon in the Chiricahua Mountains, Cochise County. Despite extreme habitat modification, this species apparently persists in small numbers. Additional stock for reintroduction exists in the Rio Yaqui in Mexico.

Yaqui Topminnow (Poeciliopsis occidentalis sonoriensis)--Restricted in Arizona to the San Bernardino Valley, with an introduced population in Leslie Canyon (Swisshelm Mountains). Populations have declined primarily because of habitat destruction.

Group 3. Species or subspecies whose continued presence in Arizona could be in jeopardy in the foreseeable future. Serious threats to the occupied habitats have been identified and populations (a) have declined or (b) are limited to few individuals in few locations.

**Arizona Trout (Salmo apache)--Restricted to streams in the upper Salt, Gila, Blue and Little Colorado drainages in the White Mountains. Threatened primarily by hybridization and competition with nonnative trout. Hatchery brood stock exists and extensive recovery efforts are underway.

Colorado River Roundtail Chub (Gila robusta robusta)--Occurs in a number of streams from west-central to eastern Arizona but populations are declining. Threatened by habitat destruction and by competition with and predation by nonnative fish.

*On Federal Endangered List

**On Federal Threatened List

FISH, continued.

Group 3, continued.

Colorado River Roundtail Chub (Gila robusta grahami)--Restricted to a few drainages in central Arizona, all of which are threatened with habitat destruction or introduction of nonnative fish.

Gila Chub (Gila intermedia)--Formerly occurred in central and southern Arizona throughout the Gila River system. Now known to exist in fewer than 15 streams and apparently still declining. Threatened by habitat destruction and introduction of nonnative fish.

Sonoran Chub (Gila ditaenia)--Occurs in Arizona only in Sycamore and Penasco canyons in the Atascosa Mountains, Santa Cruz County. Threatened by competition with and predation by introduced sunfish.

Little Colorado River Spinedace (Lepidomeda vittata)--Occurs only at higher elevations of north flowing tributaries of the Little Colorado River. Threatened by habitat destruction and introduction of nonnative species.

Spikedace (Meda fulgida)--Formerly occurred in a number of streams throughout the Gila River drainage. Now known from only two localities, only one of which (Aravaipa Creek, Pinal and Graham counties) has a large population.

Loach Minnow (Tiaroga cobitis)--Formerly found in many streams in the Gila River system. Now known from only three localities; a large, healthy population known only from Aravaipa Creek, Pinal and Graham counties. Threatened by habitat destruction and introduction of nonnative fish.

Razorback Sucker (Xyrauchen texanus)--Formerly occurred in all the major streams of the Colorado River drainage. Reduced to small, senile populations in Lake Mohave and in Lake Mead. Apparently threatened by habitat alteration and competition with nonnative fish. Has been reintroduced into the Gila, Verde and Salt rivers.

Quitobaquito Pupfish (Cyprinodon macularius sonoytae)--Formerly occurred in Arizona only at Quitobaquito Spring, Pima County. Introduced populations that are apparently of this subspecies occur at a few locations in Pima and Santa Cruz counties.

*Gila Topminnow (Poeciliopsis occidentalis occidentalis)--Formerly occurred in low to mid-elevation streams throughout Gila River system. In recent years reduced to fewer than 10 sites. Threatened by habitat destruction, predation by and competition with nonnative fish, especially mosquitofish (Gambusia affinis). Reintroduced to more than 70 sites in 1982.

Group 4. Species or subspecies for which there is a moderate threat to the occupied habitats but where substantial population declines have not occurred.

None listed.

*On Federal Endangered List

AMPHIBIANS AND REPTILES

Group 1. Species or subspecies extirpated from Arizona since 1900 but which are not extinct.

None listed.

Group 2. Species or subspecies whose continued presence in Arizona is now in jeopardy because of substantial population declines. Extirpation from the state is highly probable without recovery efforts.

Huachuca Tiger Salamander (Ambystoma tigrinum stebbinsi)--Taxonomic status controversial. Known only from area near Parker Canyon Lake in extreme south-central Arizona. Numbers seriously reduced since 1950s; possibly extirpated. Major threat is genetic swamping by introduced bait-stock salamanders.

Tarahumara Frog (Rana tarahumarae)--Occurred along permanent streams in oak woodland of three mountain ranges in south-central Arizona. Numbers seriously reduced in late 1970s; nearly extirpated from Arizona. Last individuals known from south side of Santa Rita Mountains. Cause of decline unknown.

Group 3. Species or subspecies whose continued presence in Arizona could be in jeopardy in the foreseeable future. Serious threats to the occupied habitats have been identified and populations (a) have declined or (b) are limited to few individuals in few localities.

Relict Leopard Frog (Rana onca)--Restricted to springs and seeps along the Virgin River in extreme northwestern Arizona. River modification and concomitant habitat destruction are greatest threats to this species.

Yellow Mud Turtle (Kinosternon flavescens)--Occurs in widely scattered ponds and stock tanks in semidesert grassland in southeastern and south-central Arizona. Threatened by proposed introduction of game fish.

**Desert Tortoise (Gopherus agassizii)--Occurs in rocky foothills primarily, less often in lower bajadas and on flats. Habitat characteristically Sonoran desert and semidesert grassland. Population status controversial but believed to be declining. Major threats appear to be collecting (for pets), and habitat destruction.

Colorado Desert Fringe-toed Lizard (Uma notata)--Occurs on fine wind-blown sands in extreme southwestern Arizona. Habitat threatened by ORV activity and urban and agricultural development.

Mohave Desert Fringe-toed Lizard (Uma scoparia)--Occurs on fine wind-blown sands in extreme southwestern Arizona, near Quartzsite and Parker. Habitat threatened by ORV activity and urban and agricultural development.

**Only the Beaver Dam Slope, Utah population is on the Federal Threatened List. The Arizona population has not been listed as of this date.

AMPHIBIANS and REPTILES, continued.

Group 3, continued.

Flat-tailed Horned Lizard (Phrynosoma mcallii)--Occurs in sandy desert of Yuma County, south of Yuma and west of the Gila and Tinajas Altas mountains. Habitat threatened by agricultural and urban development and by ORV activity.

Narrow-headed Garter Snake (Thamnophis rufipunctatus)--Known from 11 localities with permanent streams draining the Mogollon Rim. Populations thought to have declined but status poorly known. Stream alteration appears to be greatest threat.

Mexican Garter Snake (Thamnophis eques)--Occurs primarily along permanent streams in desert to lower coniferous forests in south-central and southeastern Arizona. Formerly ranged to Tucson and northward along major rivers. Threatened by riparian habitat destruction.

Group 4. Species or subspecies for which there is a moderate threat to the occupied habitats but for which substantial population declines have not occurred.

Sonoran Green Toad (Bufo retiformis)--Occurs in desert and relictual desert grassland in south-central Arizona, primarily on the Papago Indian Reservation in Pima County. Apparently threatened by habitat destruction (clearing of vegetation) and over-drafting of water tables.

Burrowing Tree Frog (Pternohyla fodiens)--Occurs at only six localities in relictual desert grassland in extreme south-central Arizona on the Papago Indian Reservation in Pima County. Apparently threatened by habitat destruction (clearing of vegetation) and over-drafting of water tables.

Lowland Leopard Frog (Rana blairi)--Occurs only in Sulphur Springs Valley in riparian situations in desertscrub and grassland communities. Formerly more widely distributed but now restricted, due to habitat destruction resulting from loss of marsh and riparian habitat. Possibly threatened by introduction of bullfrogs (Rana catesbeiana).

Plains Narrow-mouthed Toad (Gastrophryne olivacea)--Occurs in seasonally or permanently wet and densely grassed areas in semidesert grassland and oak woodland in extreme south-central Arizona. Threats include habitat destruction due to stream and river modification, over-concentration of livestock and development of roads.

Mountain Skink (Eumeces callicephalus)--Occurs in canyons and on lower hillsides in oak woodland and pine forest from the Huachuca Mountains to the Baboquivari Mountains in extreme south-central Arizona. Apparently threatened by urban development and mining activity.

Arizona Gilbert's Skink (Eumeces gilberti arizonensis)--Occurs primarily in riparian habitats but also in evergreen woodland and dense chaparral in mountainous areas of west- to northwest-central Arizona. Threatened by grazing and destruction of riparian habitats.

AMPHIBIANS and REPTILES, continued.

Group 4, continued.

Desert Hook-nosed Snake (Gyalopion quadrangularis)--Known from only nine localities in oak-grassland and mesquite-grassland in extreme south-central Arizona. Population status unknown. Threatened by urban development and habitat destruction.

Vine Snake (Oxybelis aeneus)--Occurs in dense vegetation on hillsides and along stream bottoms in mountains of western Santa Cruz and southcentral Pima counties. Threatened by grazing, brush-clearing and wood-cutting.

Desert Massasauga (Sistrurus catenatus edwardsi)--Known in Arizona from only four areas (and two historic sites) in grasslands of southeastern corner of the state. Major threat is agricultural development.

Arizona Ridge-nosed Rattlesnake (Crotalus willardi willardi)--Occurs primarily in oak and pine-oak woodland and forests in canyons and on slopes of the mountains of extreme south-central Arizona; also in adjacent juniper-grassland and oak-grassland ecotones. Possibly threatened by mining, road development and illegal collecting.

BIRDS

Group 1. Species or subspecies extirpated from Arizona since 1900 but which are not extinct.

Aplomado Falcon (Falco femoralis septentrionalis)--Occurred in grasslands, primarily near Huachuca Mountains, prior to 1890. Recent visits are by transients only and are very infrequent.

Group 2. Species or subspecies whose continued presence in Arizona is now in jeopardy because of substantial population declines. Extirpation from the state is highly probably without recovery efforts.

*Southern Bald-Eagle (Haliaeetus leucocephalus leucocephalus)--Fewer than 15 nests known along the Salt and Verde rivers and one at Topock Marsh. Threatened by habitat alteration caused by construction of dams. Effects of pesticides (thinning of egg shells) appear to be decreasing.

Gray Hawk (Buteo nitidus)--Occurs in small numbers in riparian forests and woodlands of south-central Arizona. Threatened by habitat destruction due to clearing of large trees and livestock grazing of saplings.

*Masked Bobwhite (Colinus virginianus ridgwayi)--Extirpated from Arizona in early 1900s. Historical range was within grasslands of Altar and Santa Cruz valleys. Reintroduced to Altar Valley in 1970s, with a small population tenuously established. Threatened by moderate to heavy grazing of tall grass habitat.

*On Federal Endangered List

BIRDS, continued.

Group 2, continued.

Black Rail (Laterallus jamaicensis coturniculus)--Known from along the Colorado River since 1969. Not numerous and marshy habitat occupied is restricted. Threatened by river channelization and by drying of marshes.

Group 3. Species or subspecies whose continued presence in Arizona could be in jeopardy in the foreseeable future. Serious threats to the occupied habitats have been identified and populations (a) have declined or (b) are limited to few individuals in few locations.

Osprey (Pandion haliaetus carolinensis)--Primarily breeds in northern Arizona along the Black River but also at lakes above the Mogollon Rim and along the Colorado River. Threatened by loss of nest sites.

Mississippi Kite (Ictinia mississippiensis)--Recent natural immigrant to Arizona; breeding population established over last 10 years. Breeds in small colonies along San Pedro, Salt and Verde rivers. Threatened by loss of large riparian trees to agricultural development and loss of sapling replacements to grazing livestock.

Common Black-Hawk (Buteogallus anthracinus anthracinus)--Present along streams draining the Mogollon Rim (central Arizona); Big Sandy and Virgin River drainages (northwestern Arizona); and on Aravaipa, Bonita and Eagle creeks (southeastern Arizona). About 200 pairs estimated to occur in Arizona. Threatened by destruction of mature trees along riparian areas, construction of impoundments and livestock grazing of saplings.

*Peregrine Falcon (Falco peregrinus)--Recent estimates are of fewer than 20 breeding pairs in Arizona. Nests on steep cliffs in mountains and hunts widely in valleys below, nearly throughout the state. Threatened by human disturbance of nesting sites and by pesticides causing thinning of egg shells (latter threat appears to be diminishing).

*Yuma Clapper-Rail (Rallus longirostris yumaensis)--Occurs along Colorado River from Bill Williams Delta to Mexican border; on Gila and Salt rivers upstream to Granite Reef Dam; also at Picacho Reservoir. Threatened by destruction of habitat by stream channelization and by drying of marshes.

Northern Beardless-Tyrannulet (Camptostoma imberbe ridgwayi)--Breeds in riparian thickets of southeast Arizona south of the Gila River from New Mexico west to the west side of the Baboquivari Mountains. Threatened by land clearing and woodcutting of riparian vegetation, primarily mesquites.

Buff-breasted Flycatcher (Empidonax fulvifrons pygmaeus)--Present breeding range primarily limited to Huachuca Mountains. Former range from southeastern Arizona mountains north to Fort Apache and Prescott. Population declined sharply in past 50 years. Threats not identified.

*On Federal Endangered List

BIRDS, continued.

Group 3, continued.

Tropical Kingbird (Tyrannus melancholicus occidentalis)--Breeds in southeast Arizona, primarily in Santa Cruz River drainages. Estimated fewer than 15 pairs breed in Arizona. Threatened by destruction of riparian habitat.

Thick-billed Kingbird (Tyrannus crassirostris pompalis)--Breeds in southeast Arizona, mainly in Santa Cruz River drainages; also in Guadalupe Canyon. Threatened by grazing, urban development and ground water depletion.

Rose-throated Becard (Pachyramphus aglaiae richmondi)--Breeds in riparian habitats in southern Pima and Santa Cruz counties. Threatened by habitat destruction due to grazing, urban development and ground water depletion.

Veery (Catharus fuscescens salicola)--Breeds only at a single site on the Little Colorado River near Greer. Small population, restricted riparian habitat threatened by housing development, recreation and grazing.

Gray Catbird (Dumetella carolinensis)--Only three or four pairs known to nest in Arizona and only at two locations, both along the Little Colorado River. Small population and restricted riparian habitat threatened by housing and recreation development and grazing.

American Redstart (Setophaga ruticilla)--Breeds mainly along the Little Colorado River near Greer and (a single record) near Prescott. Limited population and riparian habitat threatened by development and grazing.

Five-striped Sparrow (Amphispiza quinquestriata septentrionalis)--Known to breed at only seven localities in Santa Cruz and southern Pima counties. Threatened by recreational development, grazing and woodcutting.

Baird's Sparrow (Ammodramus bairdii)--Winters in southeastern Arizona in the grasslands near Sonoita in the San Rafael Valley and near Douglas in the San Bernardino Valley. Much wider distribution historically. Threats are destruction of grassland habitat by grazing and urban development.

Group 4. Species or subspecies for which there is a moderate threat to the occupied habitats but for which substantial population declines have not occurred.

Great Egret (Casmerodius albus egretta)--Breeds in Arizona primarily along the lower Colorado River. Threatened by habitat destruction (loss of nest sites) due to river channelization and drying of marshes.

Snowy Egret (Egretta thula brewsteri)--Breeds in Arizona primarily along the lower Colorado River; also at Picacho Reservoir. Threatened by habitat destruction due to river channelization and the drying of marshes.

Black-crowned Night-Heron (Nycticorax nycticorax hoactle)--Breeds locally along major rivers, primarily the Colorado. Distribution greatly reduced in recent times; formerly found on Salt and Verde rivers. Threatened by river channelization, loss of marshes and flooding.

BIRDS, continued.

Group 4, continued.

- Black-bellied Whistling-Duck (Dendrocygna autumnalis fulgens)--Breeds in southeastern Arizona to Tucson and Phoenix. Dependent on man-made ponds, following destruction of natural habitat (marshes). Further depletion of ground water and loss of habitat is a threat to this species.
- Crested Caracara (Polyborus plancus auduboni)--Fewer than 10 pairs are believed to nest in Arizona, almost all on the Papago Indian Reservation, Pima County. Human disturbance appears to have caused some nest failures.
- Spotted Owl (Strix occidentalis lucinda)--Breeds locally and in low densities in wooded, steep mountain-canyons of northern and eastern Arizona. Threatened by cable-logging of forests.
- Berylline Hummingbird (Amazilia beryllina)--Known to have bred in Arizona once in Chiricahua Mountains and once in Huachuca Mountains. Observed irregularly in Huachucas. Threats include development of wooded canyons.
- Violet-crowned Hummingbird (Amazilia violiceps)--Known to breed in Arizona only in Huachuca Mountains (Ramsey Canyon), Mule Mountains (Dixie Canyon), Chiricahua Mountains (Cave Creek) and in Guadalupe Canyon. Dependent on riparian habitat; threatened by urban development, grazing.
- Blue-throated Hummingbird (Lampornis clemenciae)--Breeds commonly in only a few southeastern Arizona canyons with well-developed riparian vegetation. Woodcutting is the greatest potential threat to this species.
- Elegant Trogon (Trogon elegans canescens)--Breeds in four mountain ranges in southeastern Arizona. Total Arizona population estimated to be about 100 birds. Breeds only in high-quality riparian habitats. Threats are wood-cutting, grazing and recreation.
- Black-billed Magpie (Pica pica)--Breeds only in extreme northeastern Arizona in riparian habitat. Threatened by habitat destruction due to grazing.
- Black-capped Chickadee (Parus atricapillus garrinus)--Breeds in Arizona only in extreme northeastern part of state in riparian habitat. Threatened by habitat destruction due to grazing.
- Black-capped Gnatcatcher (Polioptila nigriceps)--Known to breed in Arizona only along Sonoita Creek and in Chino Canyon in the Santa Rita Mountains. Threatened by habitat destruction due to recreational development and grazing.
- Sprague's Pipit (Anthus spragueii)--Winters in Arizona only in the grasslands near Sonoita and in the San Rafael Valley. Threatened by habitat destruction due to heavy grazing of tall grasses.
- Pine Grosbeak (Pinicola enucleator)--Known to breed in Arizona only on the slopes of Mount Baldy, in the White Mountains. Threatened by logging.

MAMMALS

Group 1. Species or subspecies extirpated from Arizona since 1900 but which are not extinct.

Black-tailed Prairie Dog (Cynomys ludovicianus arizonae)--Formerly occurred in the plains grasslands of Cochise and Graham and possibly Santa Cruz counties. Extirpated by man because of conflicts with livestock.

**Grizzly Bear (Ursus arctos)--Occurred in mountains along the Mogollon Rim west to Camp Wood and also along major river courses. Last known record in 1935. Extirpated by man due to conflicts with man and livestock.

*Jaguar (Felis onca)--Occurred primarily in southeastern Arizona but records north to Grand Canyon. A few scattered recent records (up to 1971) of wandering animals. Never known to be common in Arizona. Extirpated by man because of conflicts with man and livestock.

*Mexican Wolf (Canis lupus baileyi)--Occurred over most of eastern and central Arizona in upper Sonoran woodlands and grasslands. Reports persist into 1980s but are considered to be of transients from Mexico. Extirpated by man because of conflicts with man and livestock. Other subspecies of wolf have occurred in Arizona but are now extinct.

*Black-footed Ferret (Mustela nigripes)--Formerly occurred widely in prairie dog towns of northeastern Arizona. Scattered recent but unverified records from same area. Threatened by prairie dog control programs.

Group 2. Species or subspecies whose continued presence in Arizona is now in jeopardy because of substantial population declines. Extirpation from the state is highly probable without recovery efforts.

Hualapai Mexican Vole (Microtus mexicanus hualpaiensis)--Known only from the ponderosa pine forests of the Hualapai Mountains. Habitat is severely damaged by livestock grazing.

River Otter (Lutra canadensis sonora)--Formerly occurred in Colorado and Gila rivers and their major tributaries. Never known to be common, their numbers have been greatly reduced. Unconfirmed sightings persist into 1970s. Stream modification and resultant habitat destruction appear to be major threats. A Louisiana subspecies (L. c. lataxina) has recently been introduced into central Arizona.

*On Federal Endangered List

**On Federal Threatened List. The Mexican Grizzly Bear (U. a. nelsoni) is on the Federal Endangered List.

MAMMALS, continued.

Group 3. Species or subspecies whose continued presence in Arizona could be in jeopardy in the foreseeable future. Serious threats to the occupied habitats have been identified and populations (a) have declined or (b) are limited to few individuals in few locations.

Western Jumping Mouse (Zapus princeps)--Known from moist, tall-grass meadows in a few localities in the White Mountains. Threatened by urban encroachment and over-grazing of livestock.

*Sonoran Pronghorn (Antilocapra americana sonoriensis)--A small population persists in arid desert-flats of southwestern Arizona. Has not been numerous in recent times. Historic habitat lost to grazing, agricultural development and human habitation. Habitat in Organ Pipe Cactus National Monument may be secure.

Desert Bighorn (Ovis canadensis mexicana)--Occurs in mountains of southern and southwestern Arizona. Some populations greatly reduced or extirpated. Active reintroduction into vacant historical habitat now underway. Threatened by disease, competition with livestock and urban encroachment.

Desert Bighorn (Ovis canadensis nelsoni)--Occurs in rugged areas of northwestern Arizona. Active reintroduction into historic habitat now underway. Threatened by livestock and human encroachment.

Group 4. Species or subspecies for which there is a moderate threat to the occupied habitats but where substantial population declines have not occurred.

Water Shrew (Sorex palustris)--Known from 3 specimens collected along streams in the White Mountains and the Blue Range in eastern Arizona. Current grazing and timber management practices threaten to destroy the aquatic habitat required by this species.

Mount Graham Spruce Squirrel (Tamiasciurus hudsonicus grahamensis)--Restricted to spruce-fir habitat at higher elevations of the Pinaleno (= Graham) Mountains. Threatened by habitat destruction due to recreational development, timber harvest or woodcutting.

*On Federal Endangered List

Number of species and subspecies listed in each Group:

	1	2	3	4	Total
Fish	5	9	11	0	25
Amphibians	0	2	1	4	7
Reptiles	0	0	7	6	13
Birds	1	4	15	15	35
Mammals	5	2	4	2	13
Total	11	17	38	27	93

APPENDIX I

APPLICATION FOR PERMIT TO APPROPRIATE
PUBLIC WATER OF THE STATE OF ARIZONA



ARIZONA DEPARTMENT OF WATER RESOURCES

99 East Virginia Avenue
Phoenix, Arizona 85004

APPLICATION FOR A PERMIT TO APPROPRIATE
PUBLIC WATER OF THE STATE OF ARIZONA

NO. _____

FILED _____

1. Name _____ Telephone _____
Address _____

2. Type of source and name, if any, _____
a tributary of _____ on the _____ watershed.
do not complete

3. Use of water

A. Domestic

1. No. of Persons _____ 2. No. Of Families _____

B. Municipal

1. Population to be served _____
2. Estimate of future population and water requirements _____

C. Irrigation

1. Location of the irrigated acreage
_____ 1/4 _____ 1/4 _____ 1/4 _____, Section _____, Township _____ N/S, Range _____ E/W
_____ 1/4 _____ 1/4 _____ 1/4 _____, Section _____, Township _____ N/S, Range _____ E/W
2. Number of acres to be irrigated _____
3. Describe type of crop to be irrigated _____

D. Stockwatering

1. Kind of stock _____ 2. No. of stock _____

E. Power - Describe the nature of the works by which power is to be developed, pressure head, points of release of water and the uses to which the power will be applied.

F. Mining

1. Kind of mining claims _____
2. Methods of supplying and using water _____

G. Recreation

1. Character of area to be used _____

H. Wildlife

1. Kinds of wildlife _____
2. Character of area to be served _____

I. Groundwater Recharge _____

J. Storage & Recovery _____

4. Amount of water

Use	Amount	Measure	Months of use
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

5. Legal description of point of diversion: County _____
_____ ¼ _____ ¼, Section _____, Township _____ N/S, Range _____ E/W, G&SRB&M.

6. Legal description of place of use: County _____
_____ ¼ _____ ¼, Section _____, Township _____ N/S, Range _____ E/W, G&SRB&M.
_____ ¼ _____ ¼, Section _____, Township _____ N/S, Range _____ E/W, G&SRB&M.

7. Description of method(s) by which water will be put to beneficial use: _____

8. Storage of water

A. Name of reservoir _____

B. Dam specifications: Height _____ feet

C. Reservoir behind dam

1. Maximum storage volume at spillway crest _____ acre feet

2. Capacity for each foot in depth in cubic feet _____

9. Construction of works will begin within _____ after approval of this application, will be completed within _____ thereafter, and the water will be applied to the proposed use(s) no later than _____.

10. Name of owner of the land _____

Does the applicant have legal access to the point of diversion and place of use? Yes _____ No _____

If no, explain _____

11. Is the water to be used supplementally with other water(s)? Yes _____ No _____.

If "Yes" identify other waters or water rights, and explain below:

12. Additional comments _____

13. Attach filing fee of \$25.00.

14. Attach United States Geological Survey quad map with point of diversion and place of use clearly marked on map.

DATED this _____ day of _____ 19_____.

Applicant

INSTRUCTIONS TO ASSIST IN PREPARING AN APPLICATION FOR A PERMIT
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF ARIZONA

1. Complete name of applicant, current mailing address including zip code and telephone number. If a corporation or business, give name and title of authorized agent.
2. Name of the direct source of water, and type of source that it is and its tributaries. This application is for obtaining a permit to appropriate "surface water", which is defined as meaning "the waters of all sources, flowing in streams, canyons, ravines or other natural channels, or in definite underground channels, whether perennial or intermittent, flood, waste or surplus water, and of lakes, ponds and springs on the surface." A groundwater right may not be acquired by means of this application.
3. Describe the proposed beneficial use(s):
 - A. DOMESTIC: The number of families and total number of persons which will use domestic water from this source.
 - B. MUNICIPAL: Population to be served and an estimate of future population and water use requirements. Exhibits may be attached to the application.
 - C. IRRIGATION: Complete quarter/quarter/section legal description, number of acres which will be irrigated (not the total acreage owned) and type of crop you intend to irrigate. Irrigated land must be identified as accurately as possible.
 - D. STOCKWATERING: The maximum, minimum and average numbers of stock, and the kind of stock which will use this source on a daily basis.
 - E. POWER: Nature of the works by which power is to be developed, pressure head, points of release of water and the uses to which the power will be applied.
 - F. MINING: The methods of supplying and using the water. If some water is to be returned to the stream, indicate what percentage is returned.
 - G. RECREATION: Location and character of the area to be used and the specific purposes for which such area shall be used.
 - H. WILDLIFE (INCLUDING FISH): Describe kind and number of wildlife and character of area to be used and the specific purposes for which such an area shall be used.
 - I. GROUNDWATER RECHARGE AND J. STORAGE AND RECOVERY: Describe the proposed project in general terms and provide any application or permit numbers for either type of project. Additional information on the requirements for a Recharge Project or a Storage and Recovery Project are available from the Department of Water Resources upon request.

4. Specify separately each proposed beneficial use, the amount of water for each separate use, the measure you are using and the number of months of the year that the use would occur. Irrigation should be listed in acre feet and other uses preferably in gallons per annum. There are 325,851 gallons in one acre foot of water.
5. Legal description of the proposed point of diversion. Provide a quarter/quarter/section, township and range description.
6. Legal description of the place(s) of use. Provide a quarter/quarter/section, township and range description.
7. Describe in detail the methods you will use to divert, store and put the water to beneficial use. Describe pumps, pipelines, canals, ditches, dams and reservoirs.
8. Provide name, if any, storage capacity of each proposed reservoir in acre feet, dimensions and description of the dam. Metal or masonry storage tanks must be located, capacities given and their function within the watering system explained.
9. Provide the amount of time required to begin construction of the project after the permit has been issued, the amount of time required to complete the project and the amount of time required to put the water to complete beneficial use.
10. Name and address of the person or agency which owns the land where the water source is located. Identify leases or permits by name, agency and terms.
11. Identify supplemental waters and describe how those waters will supplement the waters you are seeking an appropriation from. Your answer to question four should only include the amounts of water you are requesting an appropriation for on this application and should not include amounts received from supplemental sources.
12. This space is provided for continuation of answers and/or comments regarding this application.
13. Attach a check in the amount of \$25.00 for each application, payable to the Department of Water Resources, for the examination fee of the application.
14. Attach a United States Geological Survey quadrangle map with the point of diversion and place of use clearly marked and labeled on the map. Please make sure that the locations on your map match the legal descriptions provided in your application. This map must include the section number, township and range of the point of diversion and place of use.
15. Please date and provide an original signature on each application submitted.

