

**FINAL**  
**ENVIRONMENTAL ASSESSMENT**

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**CENTRAL ARIZONA PROJECT**

**WATER ASSIGNMENT**

**FROM**

**BHP COPPER, INC. AND LITCHFIELD PARK SERVICE COMPANY**

**TO**

**CITY OF SCOTTSDALE**



**Prepared by:**

**U.S. Department of Interior  
Bureau of Reclamation  
Lower Colorado Region  
Phoenix Area Office  
Phoenix, Arizona**

**June 2000**

**A888.906**



# United States Department of the Interior

## BUREAU OF RECLAMATION

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PO Box 81169  
Phoenix, Arizona 85069-1169

IN REPLY REFER TO:  
PXAO-1500  
ENV.6.00

JUN 22 2000

To: All Interested Persons, Organizations, and Agencies

From: Carol Lynn Erwin  
Area Manager

Subject: Finding of No Significant Impact (FONSI) and Final Environmental Assessment (EA) for the Proposed Water Transfer of Portions of BHP Copper, Inc., (BHP) and Litchfield Park Service Company (LPSCO) Central Arizona Project (CAP) Water Entitlements to the City of Scottsdale, Maricopa County, Arizona

We have determined that the proposed water transfer of a portion (1,300 acre-feet [af]) of BHP and a portion (1,200 af) of LPSCO CAP entitlements to Scottsdale will not significantly impact the environment. A copy of the FONSI and final EA are attached.

A Public Scoping Notice was sent to more than 35 individuals, agencies, and organizations for a 15-day review and comment period (September 10 - 24, 1999) to determine public concerns associated with the proposed water transfers. Seven respondents provided written comments on the Scoping Notice. The draft EA was mailed to more than 60 individuals, agencies, and organizations on November 1, 1999, for a 30-day public comment period. A news release was also sent to the news media regarding the availability of the draft EA. Five respondents provided written comments on the EA.

Comment letters received during the public review period and the responses are included in Appendix C of the final EA. Additional project related information has also been incorporated into the final EA.

Thank you for your interest in this project. If you have any questions regarding this matter, please contact Mr. Shane Brady, Environmental Protection Specialist, at 602-216-3863.

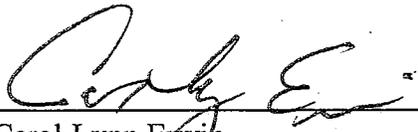
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United States Department of Interior  
Bureau of Reclamation  
Lower Colorado Region  
Phoenix Area Office

FINDING OF NO SIGNIFICANT IMPACT

CENTRAL ARIZONA PROJECT - WATER ASSIGNMENT  
FROM  
BHP COPPER, INC.  
TO  
CITY OF SCOTTSDALE  
MARICOPA COUNTY, ARIZONA

Approved: \_\_\_\_\_

  
Carol Lynn Erwin  
Area Manager, Phoenix Area Office  
Bureau of Reclamation

Date: \_\_\_\_\_

6/6/00

FONSI No. PXAO-00-4

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, we have determined the two proposed Central Arizona Project (CAP) water transfers will not result in a significant impact on the human environment. This is based upon the analysis presented within the attached Environmental Assessment (EA) titled "Central Arizona Project Water Assignment from BHP Copper, Inc. and Litchfield Park Service Company to City of Scottsdale."

This Finding of No Significant Impact (FONSI) covers the BHP Copper, Inc., (BHP) water transfer exclusively. The Litchfield Park Service Company (LPSCO) water transfer has been excluded based on the Arizona Department of Water Resources (ADWR) preliminary recommendation to reallocate the LPSCO CAP entitlement among other entities. Under this recommendation, the city of Scottsdale (Scottsdale) would not receive any portion of the LPSCO allocation. Should ADWR decide to modify their recommendation in the future and provide Scottsdale a portion of the LPSCO CAP entitlement, a supplemental FONSI would be prepared.

### BACKGROUND

The EA evaluated the impacts of the Bureau of Reclamation's (Reclamation) approval of both CAP water transfers. The proposed assignment of 1,300 acre-feet (af) of BHP and 1,200 af of LPSCO CAP water entitlements would result in Scottsdale receiving an additional 2,500 af of CAP water annually. Scottsdale has a current annual CAP entitlement of 49,029 af. The ADWR has indicated it will not formalize its recommendation until the BHP transfer is approved. Therefore, Scottsdale will only receive the BHP water transfer (1,300 af) at this time which will result in a new CAP water entitlement total of 50,329 af annually.

In addition to the transfer to Scottsdale, BHP plans to transfer its remaining CAP entitlement to the Carefree Water Company (900 af) and Tonto Hills Utility Company (71 af) and terminate its water service subcontract. If approved, Scottsdale's water service subcontract would be amended to identify its new annual CAP entitlement.

The Central Arizona Ground Water Replenishment District (CAGR) submitted a letter to the ADWR during ADWR's public review and comment process regarding the proposed LPSCO transfers. CAGR protested the proposed LPSCO water transfers to Avondale, Carefree, Goodyear, and Scottsdale. CAGR indicated its desire to acquire LPSCO's entire CAP entitlement. According to CAGR, it is entitled to this CAP allocation based on the priority procedures established in the 1996 ADWR Policy Regarding Process for Transfers of CAP Municipal and Industrial (M&I) Water Subcontracts (Policy).

ADWR used its policy guidelines, assessment of existing hydrological conditions, and expected future water supply requirements for the west Salt River valley to conduct its analysis. The ADWR's recommendation is that the LPSCO CAP entitlement be distributed among the cities of Avondale, Carefree, and Goodyear, with the remaining entitlement being assigned to CAGR. Therefore, Scottsdale does not receive a portion of the LPSCO CAP entitlement. After the BHP water transfer is approved, Scottsdale may request that the ADWR reevaluate its original reallocation plan and allocate a portion of the LPSCO entitlement if some becomes available.

#### PURPOSE AND NEED

Scottsdale has a need to acquire additional water supplies to meet the future demands of the population within its service area due to accelerated growth. It was this need that the original CAP allocation was intended to meet. Although Scottsdale is already a CAP subcontractor, Scottsdale has limited water resources, which are insufficient to provide a long-term renewable water supply for all anticipated future development within its water service area. A recent update to Scottsdale's Water Resources Master Plan has identified significant increases in future water demand.

#### FINDING OF NO SIGNIFICANT IMPACT

Reclamation has determined that the proposed BHP water transfer would not significantly impact the environment. Therefore, preparation of an Environmental Impact Statement is not required. The decision is based on the following considerations.

1. No direct impacts are anticipated from the proposed BHP water transfer since no construction is associated with this action. The additional CAP water would be transported to, treated, and distributed through Scottsdale's existing facilities prior to delivery to its customers. Although indirect impacts would result when future development occurs within the Scottsdale service area, the specific areas to be developed, and timing of those developments have not been identified; therefore, the impacts cannot be assessed at this time.
2. Surveys for the endangered cactus ferruginous pygmy-owl were conducted in the Scottsdale project area (the area within which the water would be used) during 1998 and 1999, using accepted Fish and Wildlife Service (FWS) protocol. The FWS recommends that surveys be conducted if the following apply (FWS 1997): (a) The project area is below 4,000 feet in elevation; and (b) the area contains saguaro greater than 8 feet tall or with woodpecker cavities, and/or ironwood, mesquite, or palo verde trees greater than 6 inches in diameter are present. No cactus ferruginous pygmy-owl were observed during the surveys.

3. SWCA, Inc., environmental consultants, prepared a Biological Evaluation (BE) to assess impacts to threatened and endangered species in Maricopa County, Arizona (Appendix A of the EA). No federally-listed species or designated critical habitat will be impacted by the proposed BHP water transfer to Scottsdale. The BE concluded "no effect" to federally-listed species. Reclamation concurs with this finding.

4. Scottsdale requires archaeological surveys for proposed developments on lands that have a high potential for archaeological resources. Identification of impacts and any mitigation measures would be a local jurisdictional responsibility. In the event that prehistoric human burials are encountered during development, the developer must comply with A.R.S. § 41--865.

Documents related to this action are listed below.

SWCA, Inc., January 2000. Draft Environmental Assessment Central Arizona Project Water Assignment from BHP Copper, Inc. and Litchfield Park Service Company to Town of Carefree.

SWCA, Inc., January 2000. Draft Environmental Assessment Central Arizona Project Water Assignment from BHP Copper, Inc., to Tonto Hills Utility Company.

SWCA, Inc., January 2000. Biological Evaluation Town of Carefree, Maricopa County, Arizona

Bureau of Reclamation. December 1999. Biological Assessment Tonto Hills - BHP Water Exchange Agreement.

SWCA, Inc., October 1999. Biological Evaluation City of Scottsdale, Scottsdale, Maricopa County, Arizona.

Bureau of Reclamation. 1982. Final Environmental Impact Statement (INT FES-82-7) - Water Allocations and Water Service Contracting: Central Arizona Project. Lower Colorado Region. Denver, Colorado. Record of Decision dated February 10, 1983.

**PREFACE**  
**TO THE**  
**FINAL ENVIRONMENTAL ASSESSMENT**  
**CENTRAL ARIZONA PROJECT - WATER ASSIGNMENT**  
**FROM**  
**BHP COPPER, INC. AND LITCHFIELD PARK SERVICE COMPANY**  
**TO**  
**CITY OF SCOTTSDALE**

The Arizona Department of Water Resources (ADWR) is required to conduct a public process to allow other entities an opportunity to comment on proposed Central Arizona Project (CAP) water transfers prior to making its recommendation to the Bureau of Reclamation's Regional Director. During this process, the Central Arizona Groundwater Replenishment District (CAGR) requested Litchfield Park Service Company's (LPSCO) entire entitlement. In addition, other municipal and industrial users in the west valley besides those requesting a portion of the LPSCO entitlement indicated concerns associated with the water transfer. They believe any water transfer outside the original or adjoining water service area(s) would eventually impact future west Salt River valley water supplies.

The ADWR used its 1996 "Notice of Policy Regarding Process for Transfers of CAP M&I Water Subcontracts" (Policy), an assessment of existing hydrological conditions and expected future water supply requirements of the west Salt River valley, for its analysis. It then followed the priority ranking guidelines in its Policy to establish each entity's needs and requirements. ADWR staff's evaluation indicates LPSCO's entitlement should be reallocated to Avondale, Carefree, and Goodyear, with an allocation provided to CAGR. Under the ADWR evaluation, Scottsdale would not receive any portion of the LPSCO CAP allocation.

Because the ADWR recommendation has not been finalized or forwarded to the Regional Director for approval, Reclamation will proceed with the National Environmental Policy Act process. The Environmental Assessment will be finalized under the premise that Scottsdale would receive both water transfers. It is likely, however, that the final agency action will only be a transfer of the BHP Copper, Inc., water to Scottsdale.

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ATTACHMENT A - Biological Evaluation for the City of Scottsdale Project Area

## I. PURPOSE AND NEED

This Environmental Assessment (EA) is prepared to describe and assess the environmental consequences that may result from the Bureau of Reclamation (Reclamation) executing water service contract amendments to assign a portion of BHP Copper, Inc. (BHP), and Litchfield Park Service Company (LPSCO) Central Arizona Project (CAP) water contract entitlements to the city of Scottsdale (Scottsdale). BHP plans to transfer its entire CAP entitlement to other municipal and industrial (M&I) users and terminate its water service subcontract in the near future. The LPSCO and Scottsdale water service subcontracts would be amended, with LPSCO's subcontract amended to reduce its annual CAP water allocation, and Scottsdale's subcontract amended to increase its CAP water allocation. The EA is prepared in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality Regulations (40 CFR 1500-1508), and Reclamation's NEPA Handbook.

The proposed assignment of 1,300 acre-feet (af) of BHP, and 1,200 af of LPSCO CAP water contract entitlements would result in Scottsdale receiving an additional 2,500 af of CAP water annually, to add to its existing annual CAP entitlement of 49,029 af. Thus, Scottsdale's annual CAP water entitlement would total 51,529 af annually, if these water transfers are approved. Of the 1,200 af of LPSCO entitlement, 760 af would be used exclusively for the Sanctuary Golf Course (formerly known as WestWorld Golf Course), with the remaining 440 af available for other M&I use. Scottsdale's use of CAP water, so long as it is consistent with its CAP water service subcontract, would not be subject to future Federal approvals or environmental reviews.

If Scottsdale does not receive the LPSCO allocation, its annual CAP entitlement would be increased by only 1,300 af, and total 50,329 af. Under this scenario, Scottsdale would use the entire BHP allocation (1,300 af) for M&I use, and the Sanctuary Golf Course would have to acquire water to irrigate its course from another source.

### A. Background

The CAP was authorized as part of the Colorado River Basin Project Act of 1968 (Public Law 90-537). The primary purpose of the CAP is to provide water for irrigation and M&I use in central and southern Arizona and western New Mexico through importation of Colorado River water and conservation of local surface waters. The CAP delivers Colorado River water to Arizona water users through a system of pumping plants, aqueducts, dams, and reservoirs. The CAP aqueduct system is operated and maintained by the Central Arizona Water Conservation District (CAWCD) under an agreement with Reclamation.

In 1982, Reclamation prepared an Environmental Impact Statement (EIS) to address the potential environmental impacts associated with the Secretary of the Interior's (Secretary) proposed allocation of CAP water to M&I water users, non-Indian agricultural users,

and Indian Tribes (Reclamation 1982). The EIS included a description of each water user's preliminary plans for delivery and use of CAP water along with a general description of the resulting environmental impacts.

In his Record of Decision, based upon the EIS, dated February 10, 1983, the Secretary established initial allocations of CAP water to various Indian and non-Indian water users within the State of Arizona. In order to contract for CAP water, each water user given a CAP allocation is required to enter into a three-party water service subcontract with both Reclamation and the CAWCD. Reclamation, as part of its procedures for approving these water service subcontracts, includes a second level of environmental review for each CAP water user.

For this second level environmental review, Reclamation requires each water user to provide specific plans for taking and using its CAP water allocation. These plans are compared against the scenarios described in the 1982 EIS to determine if the plans are consistent with their original proposal, or additional environmental review and documentation is required.

Water service subcontracts have been executed with all three entities (BHP, LPSCO, and Scottsdale).

1. History of BHP CAP Subcontract - By order of the Secretary of the Interior published in 48 Federal Register 12446, 12448 (March 24, 1983), City Services Company (CITCO) was allocated a CAP entitlement of 2,271 af, which is currently held by BHP. As successor-in-interest to CITCO, Magma Copper Company executed a Water Service Subcontract dated August 20, 1993. Several years later Magma Copper Company merged into BHP.

The CAWCD requested that BHP identify its plans for using its CAP water allocation by December 31, 1999. BHP indicated its desire to transfer the rights to its entire CAP entitlement and terminate its water service subcontract. In return, BHP would be reimbursed for certain subcontract charges it has incurred in accordance with, and to the extent provided by, CAP requirements. Due to the short timeframe to implement the BHP water transfers, BHP applied for an extension to its water service subcontract in December 1999. The extension was approved by Reclamation and the CAWCD with a new termination date of December 31, 2000.

BHP operates two copper production facilities near the town of Miami, Arizona, referred to as the Pinto Valley Operation (PVO). The two operations consist of the Pinto Valley Unit (PVU) located in upper Pinal Creek 8 miles west of Miami, and the Miami Unit (MU) adjoining the town of Miami in the Pinal Creek Basin. At the PVU, ore is extracted from the open pit mines and classified into two categories, ore and leachable waste. The higher grade mill ore is crushed into fine particles, and copper and molybdenum are extracted with an agitation flotation process. The concentrate is thickened, solids are settled out and made into a slurry for dumpng. Molybdenum is then separated from the copper and placed in 55 gallons

barrels for sale. The copper slurry is pumped 11 miles to a filter plant located at the MU. At the filter plant, additional water is separated, and the concentrated material (now about 30 percent copper) is transported to San Manuel for smelting. The leachable waste initially extracted from the open pit is transported to leach pads; the pregnant leachite solution is gathered at the bottom of the leach pads and pumped to the Pinto Valley SX-EW plant (U.S. Department of Agriculture - Forest Service, Carlota Copper Project Environmental Impact Statement, 1997 [USFS 1997]).

Since February 1998, the mine and concentrator facilities at the PVO have been in care and maintenance mode, due to low copper prices. These facilities are expected to continue production subject to market conditions. During this period, BHP continues to analyze all options for the two units, including start-up, sale of assets, and closure.

BHP's subcontract for 2,271 af was originally considered for a number of other BHP mining operations in addition to the PVO. Due to subsequent fluctuations in the copper market and water rights issues at other mining operations, it was determined that using CAP water at these operations was either not feasible or not required. Therefore, the BHP PVO was selected as the mining operation most likely to use BHP's CAP water allocation.

When BHP signed its subcontract for CAP water, it did not have the infrastructure in place to deliver CAP water to the PVO. The preliminary plans for taking and using CAP M&I water allocations by the original copper company (CITCO) indicated they would attempt to negotiate an exchange agreement with the Salt River Project (SRP). Under this scenario, CITCO would have traded its CAP M&I allocations for SRP water from Roosevelt Lake. It is assumed BHP would do the same to conduct future mining operations. Thus, BHP has never used any of its CAP allocation (Reclamation 1982).

2. History of LPSCO CAP Subcontract - On January 9, 1985, a water service subcontract was entered into among Reclamation, CAWCD, and LPSCO for 5,580 af of CAP water. The LPSCO service area is located within the Phoenix metropolitan area and covers approximately 20 square miles. The service area includes portions of the cities of Avondale, Glendale, and Goodyear, in addition to Litchfield Park.

LPSCO was incorporated in 1954 to provide water and in 1955 was granted a Certificate of Convenience and Necessary (CC&N) by the Arizona Corporation Commission. Since the original granting of its CC&N, LPSCO has modified its boundaries by adding some areas and relinquishing others. In 1998, LPSCO had approximately 4,000 customers with more than 85 percent consisting of single family residences.

When LPSCO signed its water service subcontract, it did not have the infrastructure in place to receive CAP water. The most likely scenario envisioned for receiving CAP water at the time involved agreements with the Maricopa County Water Conservation District (use of Beardsley Canal) and the Arizona Water Company (joint water treatment facility

in the White Tank service area). The water transport line between the White Tank and LPSCO service areas was never constructed, and LPSCO continues to rely on pumped ground water to meet the demands of its service area. Therefore, LPSCO has never used its CAP allocated water.

3. History of Scottsdale CAP Subcontract - Scottsdale's water service subcontract was executed on October 25, 1984, and the city was initially allocated 19,702 af of CAP water annually. Scottsdale submitted its plans for taking and using this initial assignment to Reclamation for review. In October 1984, Reclamation determined these plans were substantially the same as that described in the 1982 EIS. These plans included construction of a water treatment plant on 40 acres of land, and construction of a pump station and pipelines to deliver the CAP water to the treatment plant. The treatment plant had an original maximum treatment capacity of 22 million gallons per day (mgd). A recent plant expansion, placed in service in May 1999, has increased the plant capacity to 50 mgd, which equates to approximately 56,000 af per year.

Since approval of its original water service subcontract, Scottsdale has acquired all or a portion of a number of private water company service areas within its municipal planning area. In these situations, Scottsdale replaced these private water companies as the water provider for those water service areas. Amendments were made to Scottsdale's water service subcontract to transfer the CAP assignments of these private water companies to Scottsdale. In addition, Scottsdale has acquired CAP water from several entities located outside the CAWCD boundaries. Currently, Scottsdale is allotted 49,029 af of CAP water annually for M&I use.

This EA is tiered from the 1982 EIS on CAP Water Allocations and Water Service Contracting, in accordance with Council on Environmental Quality Regulations for implementing NEPA (40 CFR Part 1502.20). The 1982 EIS analyzed the environmental consequences of allocating CAP water for M&I, non-Indian agricultural, and Indian uses. This EA describes the impacts anticipated to result from Reclamation's approval of the proposed assignment of portions of BHP and LPSCO CAP water entitlements to Scottsdale.

In addition to the Scottsdale water transfers, BHP plans to transfer its remaining CAP water entitlement to the Carefree Water Company (900 af), and Tonto Hills Utility Company (71 af). LPSCO also plans to transfer a portion of their CAP water entitlement to the Carefree Water Company (60 af). SWCA Inc., an environmental consulting firm, is preparing the NEPA documents to assess the environmental consequences associated with these water transfers.

During preparation of the draft EA, LPSCO envisioned it would likely transfer its remaining CAP water entitlement to the communities of Avondale and Goodyear. The details and timing of these additional transfers was unknown at that time. It should be noted, however, under the preliminary ADWR recommendation, LPSCO's entitlement would be reallocated among Avondale, CAGR, Carefree, and Goodyear exclusively. Reclamation's current policy is to endorse ADWR's final recommendation related to water transfers.

#### B. Purpose and Need

Scottsdale has a need to acquire additional water supplies to meet the future demands of the population within its service area, due to accelerated growth. It was this need that the CAP allocation was intended to meet.

Although Scottsdale is already a CAP subcontractor, Scottsdale has limited water resources, which are insufficient to provide a long-term renewable water supply for all anticipated future development within its water service area. A recent update to Scottsdale's Water Resources Master Plan has identified significant increases in future water demand throughout its water service area, primarily in the area north of the CAP aqueduct. These estimated demand projections are based upon existing development patterns, current water consumption rates for land use categories, and anticipated future urban development as identified and periodically updated in Scottsdale's General Land Use Plan. Therefore, Scottsdale is seeking to increase its long-term renewable water supply through assignment of portions of both BHP and LPSCO CAP entitlements, as well as through other CAP assignments.

#### C. Project Location

There are three distinct project areas - the BHP PVO, and the LPSCO and Scottsdale service areas. A regional map is provided to identify the location of all three project areas in relation to each other (Figure 1).

The BHP PVO is located in western Gila County in the overall Pinto Creek watershed near the Gila-Pinal County line. BHP owns the land where current PVO mining operations occur which comprises an approximately 4.7 square mile area within the Tonto National Forest boundaries (Figure 2). Other private lands are also located adjacent to BHP's property.

The LPSCO service area is located in the west Salt River Valley between the White Tank Mountains and city of Phoenix. The approximate boundaries of the service area are Cotton Lane to the west, Dysart and El Mirage roads to the east, Camelback and Maryland roads to the north, and McDowell and Van Buren roads to the south (Figure 3).

# ARIZONA

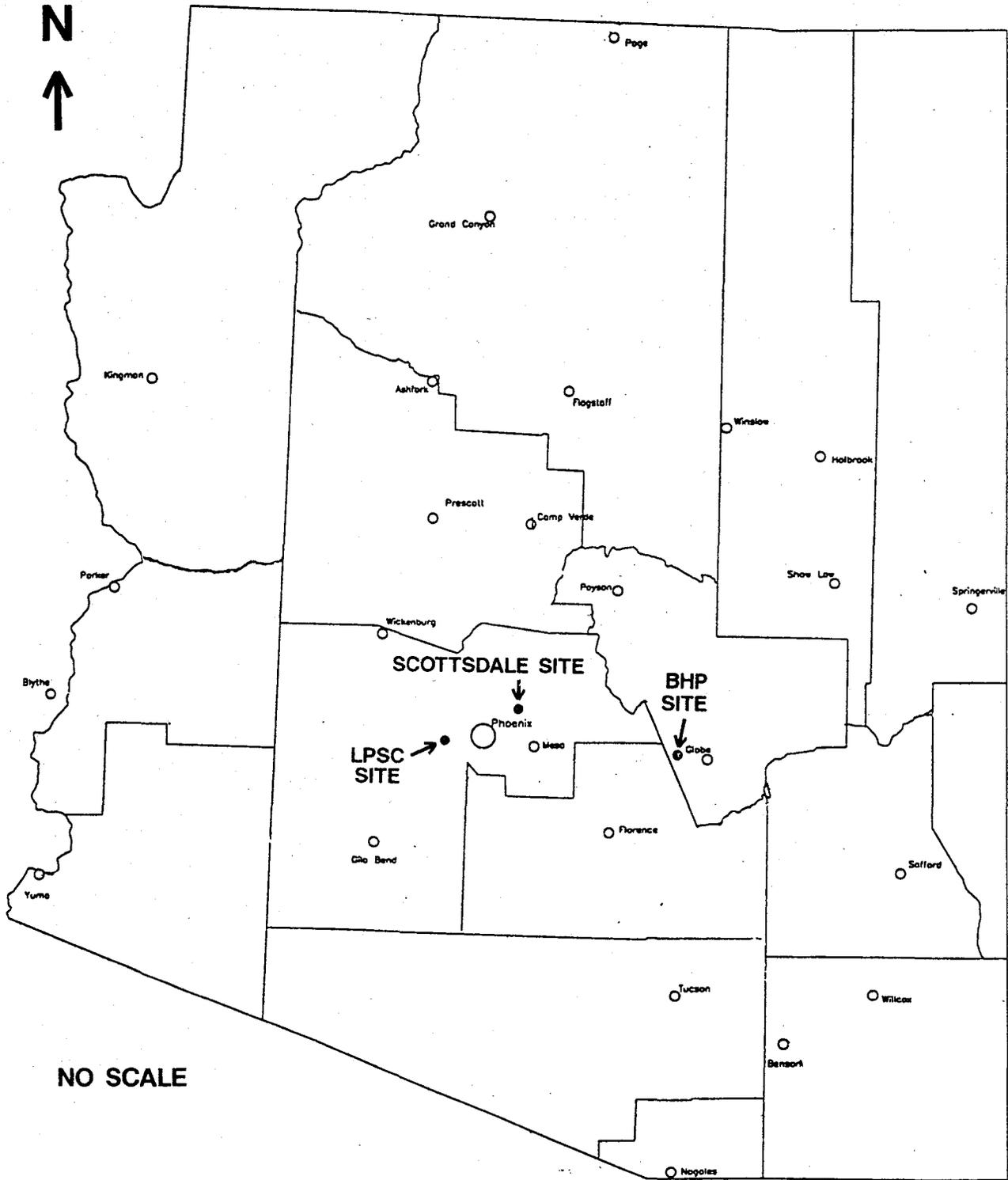
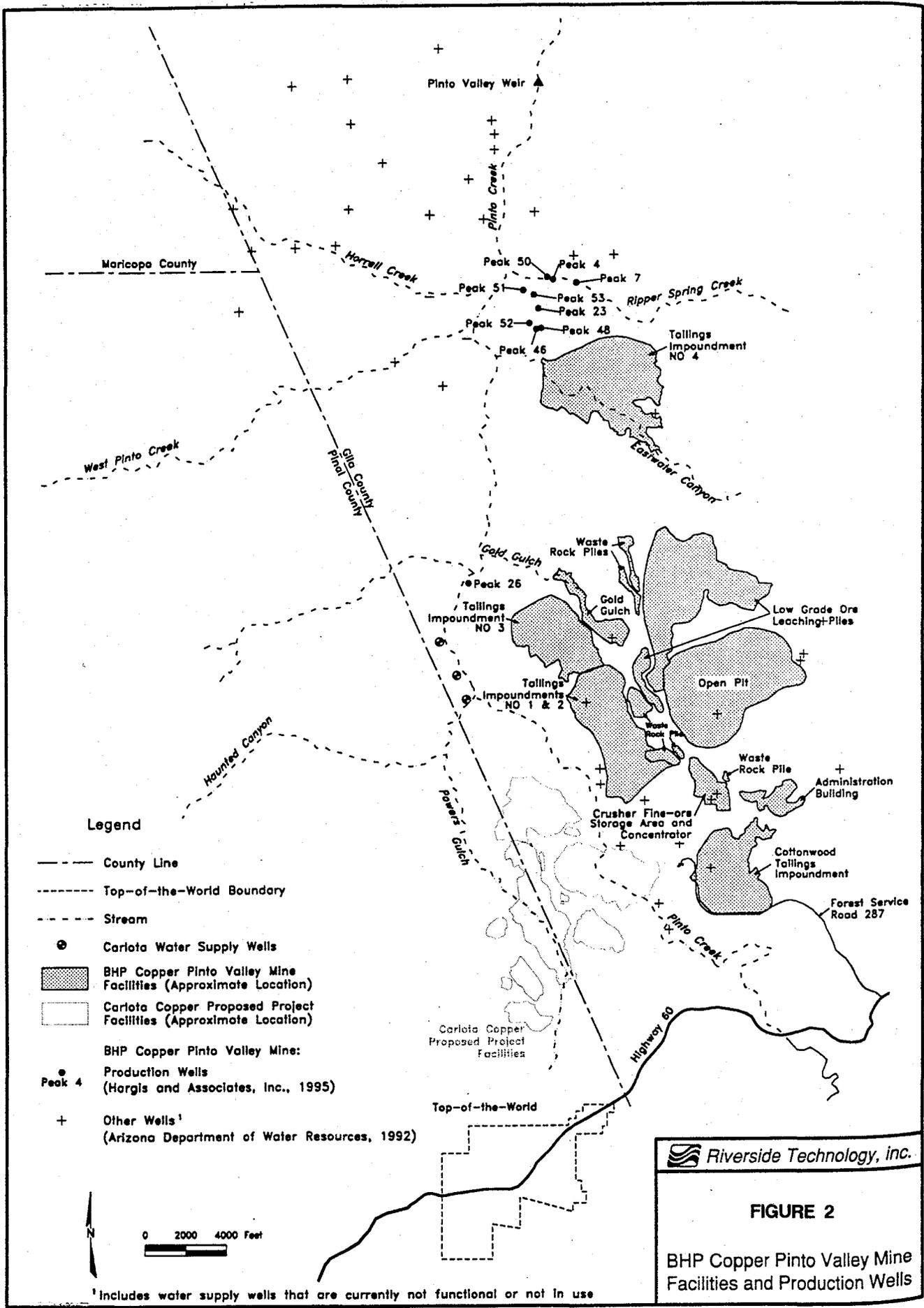
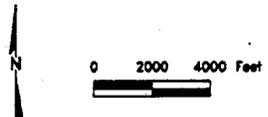


FIGURE 1



**Legend**

- County Line
- - - - Top-of-the-World Boundary
- - - - Stream
- ⊙ Carlota Water Supply Wells
- ▨ BHP Copper Pinto Valley Mine Facilities (Approximate Location)
- Carlota Copper Proposed Project Facilities (Approximate Location)
- BHP Copper Pinto Valley Mine: Production Wells (Hargis and Associates, Inc., 1995)
- ⊕ Other Wells<sup>1</sup> (Arizona Department of Water Resources, 1992)



<sup>1</sup>Includes water supply wells that are currently not functional or not in use

**Riverside Technology, inc.**

**FIGURE 2**

**BHP Copper Pinto Valley Mine Facilities and Production Wells**

# LITCHFIELD PARK SERVICE COMPANY

## SERVICE AREA BOUNDARIES

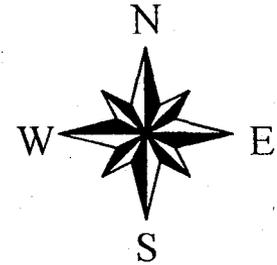
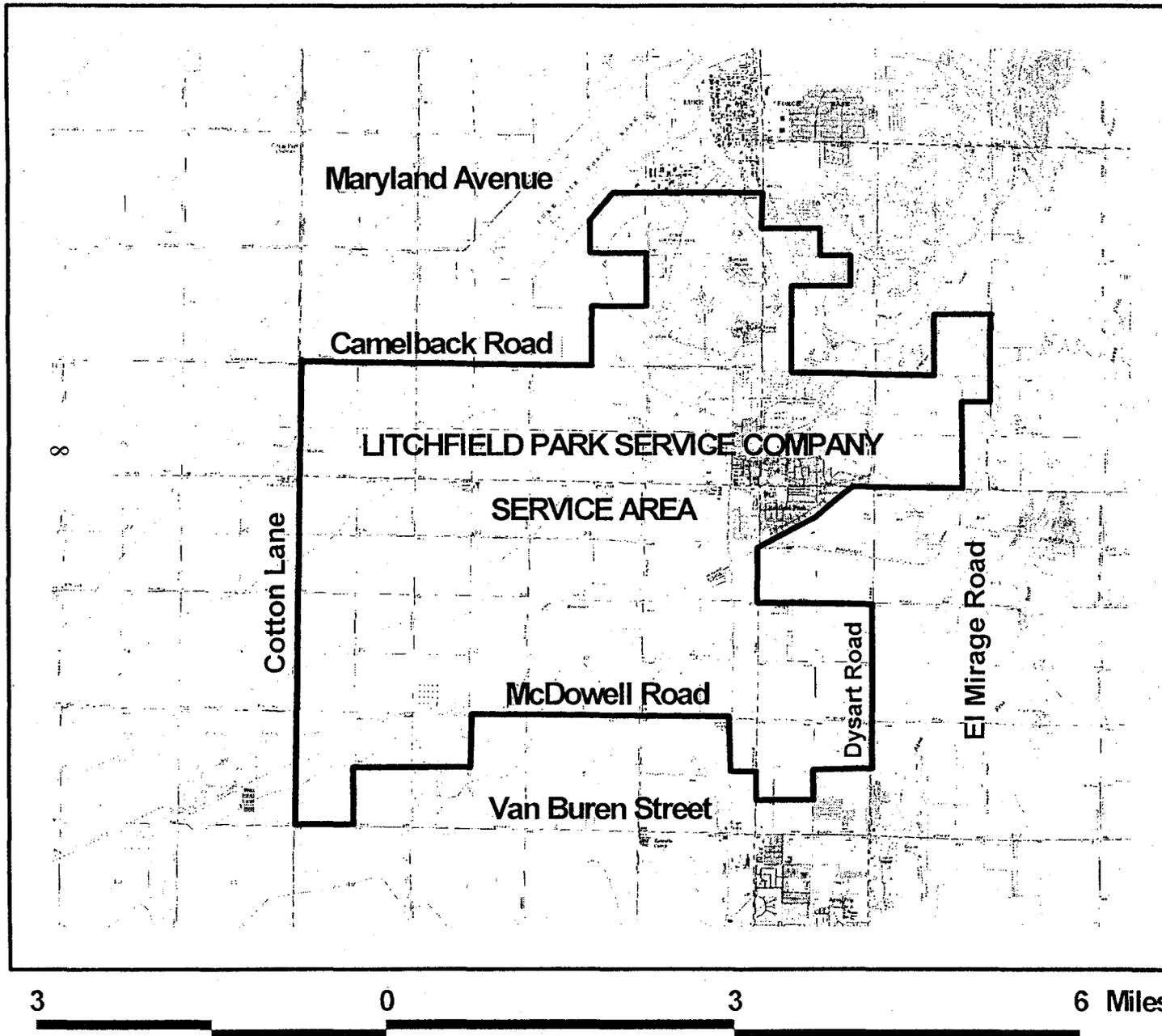


Figure 3

Avondale, El Mirage  
Perryville & Waddell  
USGS 7.5 Minute  
Quadrangle Maps

Maricopa County,  
Arizona

The Scottsdale service area is located in Maricopa County and is bounded by the city of Phoenix and town of Paradise Valley on the west; city of Tempe and Salt River Pima-Maricopa Indian Community (SRPMIC) on the south; SRPMIC, town of Fountain Hills and McDowell Mountain Park on the east; and Tonto National Forest on the northeast.

The Scottsdale project area encompasses a water service area of approximately 185 square miles within Scottsdale's 1997 corporate limits, and approximately 5 square miles of unincorporated county area (Figure 4).

The site within the Scottsdale service area within which the transferred water would be used (project area) is located east of Scottsdale Road and north of the SRPMIC (Figure 5). Some areas within the project area have already been developed, and other areas have been designated for special use, such as the Mountain Preserve in the McDowell Mountains, which restricts certain types of development. Therefore, the majority of the projected urbanization would occur on level terrain or near the foothills west of the McDowell Mountains. The current land use designation for these areas is low to medium density residential housing. The specific plans for the project area (approximately 9,200 acres) have not been identified to date, but it is anticipated that between 850 and 5,800 acres of undisturbed desert land would be converted to urban use.

## II. PROPOSED ACTION AND ALTERNATIVES

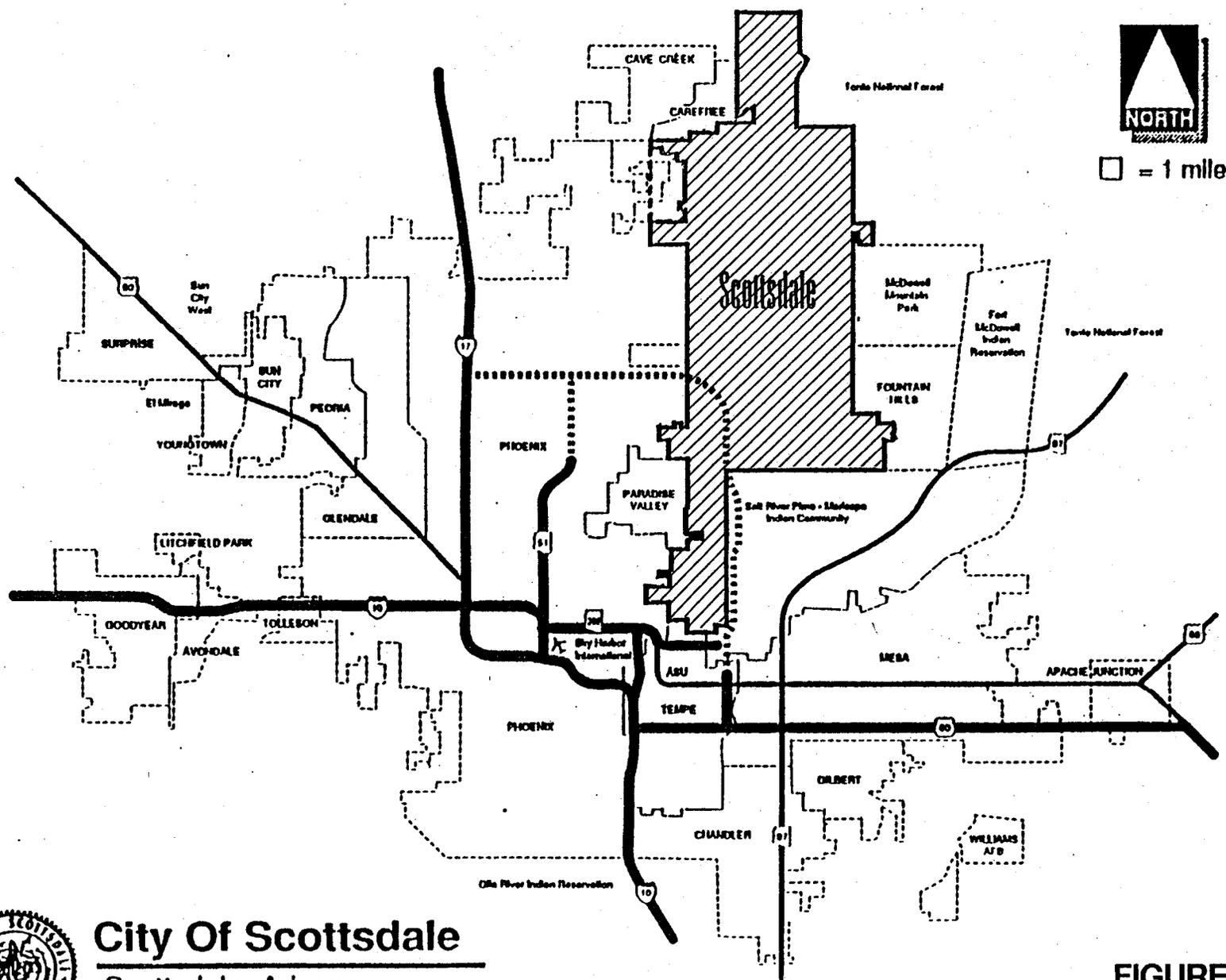
This chapter describes the "Proposed Action," and "No Action" alternatives. The "No Action" alternative describes the conditions presumed to exist in the absence of the Federal action, and provides a basis for comparison with the "Proposed Action."

### A. The Proposed Action

1. BHP Transfer of a Portion of its Total CAP Water Entitlement to the City of Scottsdale - If this water transfer is approved, it would decrease BHP's total CAP entitlement by 1,300 af (57 percent) which would then be reassigned to Scottsdale. As stated previously, BHP is in the process of relinquishing its total CAP water entitlement. Since BHP has never used any of its CAP water to date, the only possible impact to BHP from the transfer to Scottsdale is elimination of a potential water supply for mining operations. BHP has determined that this water supply is no longer necessary to meet its needs.

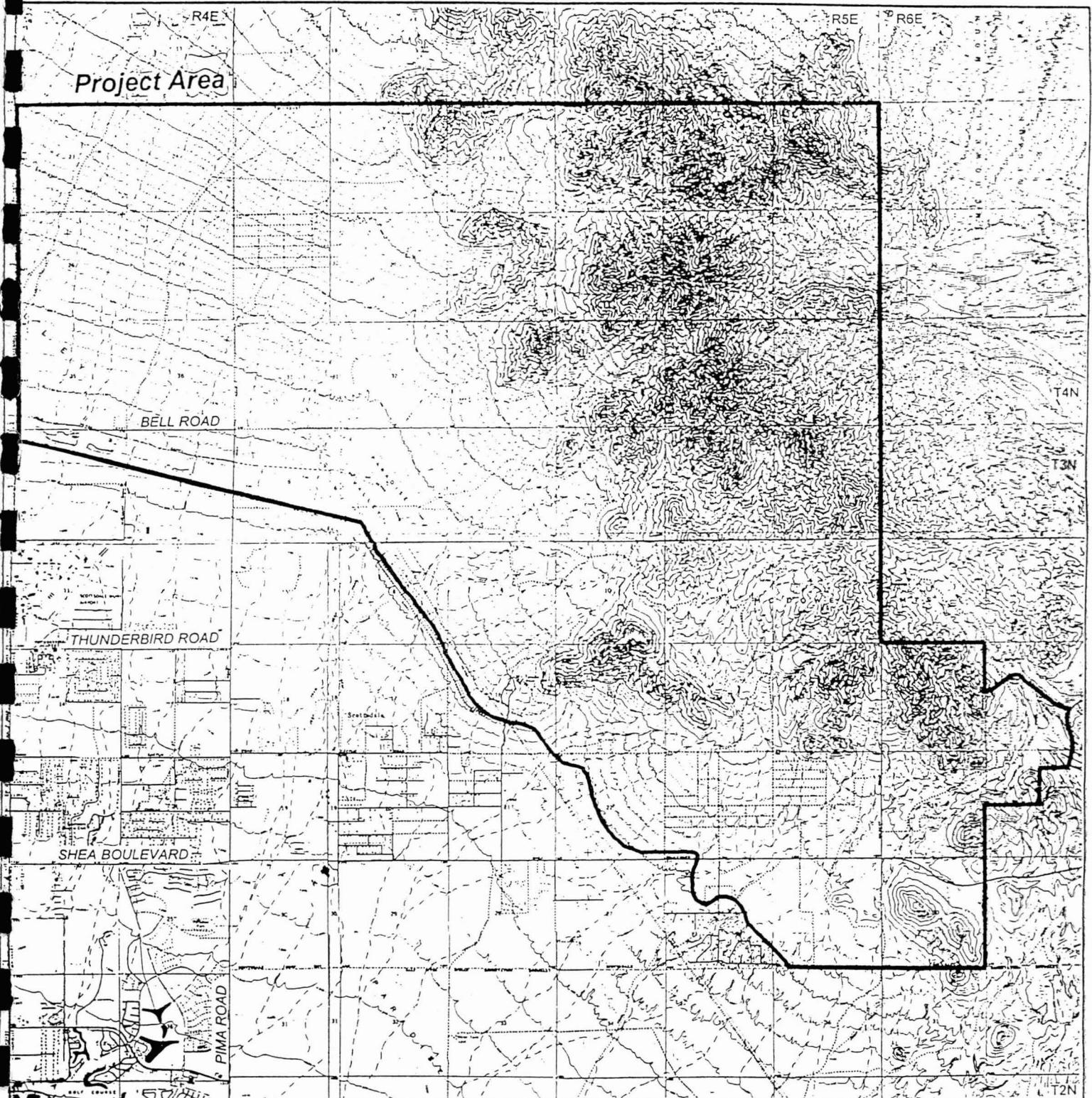
2. LPSCO Transfer of a Portion of its Total CAP Water Entitlement to the City of Scottsdale - If this water transfer is approved, it would decrease LPSCO's total CAP entitlement by 1,200 af (22 percent) which would then be reassigned to Scottsdale. Under the Proposed Action, LPSCO would continue to pump local ground water to meet the demands of its service area. LPSCO has never used any of its CAP water to date. As stated previously, LPSCO is contemplating assignment of its remaining CAP water entitlement to the communities of Carefree, Avondale, and Goodyear.

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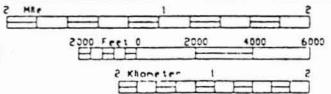
**City Of Scottsdale**  
 Scottsdale, Arizona  
 and neighboring communities

**FIGURE 4**



**SWA** Environmental  
*Inc.* Consultants

100 West Coolidge, Phoenix, Arizona 85013  
 phone: (602) 274-3831 fax: (602) 274-3938



Map Source: 7.5' USGS Quadrangles, McDowell Peak, Curry's Corner, Paradise Valley, and Sawik Mountain (all 1982)

City of Scottsdale

Figure 5 Project Location

06/07/99 dlm CWA Plan # 7187-1113

3. Additional CAP Water to Scottsdale - Under the Proposed Action, Scottsdale would take direct delivery of 1,740 af of the total 2,500 af of CAP water in the same manner and through the same facilities that are used to take, treat, and/or use its current CAP water supply. These facilities consist of an already constructed turnout structure located immediately west of the Greenway-Hayden Road loop on the CAP Hayden-Rhodes Aqueduct (HRA), a 2.25 mile-long, raw water pipeline and pump station at the aqueduct west of the Greenway-Hayden loop, and a conventional 50 mgd water treatment plant located on a 40-acre site north of Union Hills Road and west of Pima Road. Environmental review of these facilities was completed by Reclamation pursuant to the process described on page 2 of this EA.

The 760 af of CAP water to be used exclusively for the Sanctuary Golf Course would require that additional facilities be constructed. This would include facilities to deliver and use the 460 af to directly irrigate the golf course, and facilities needed to recharge and recover the remaining 300 af of CAP water. Facilities needed for direct irrigation include: a pump-out structure along the HRA; a pipeline that delivers water from the HRA to a small, water-storage lake on the golf course; and the golf course irrigation system itself. Reclamation considers these facilities to be associated with the golf course project, covered in the EA on the City's Golf Course, Thompson Peak Parkway, and Desert Greenbelt Flood Control Facilities, and for which a Finding of No Significant Impact was issued (FONSI No. PXAO-98-01, January 23, 1998). These facilities have been constructed.

Facilities needed for the recharge and recovery system include: a central filtration system to filter water prior to recharge; three recharge wells; one recovery well; and associated valving and piping. NEPA compliance was completed for the construction and operation of these facilities with preparation of a Categorical Exclusion Checklist (CEC No. PXAO-99-24). These facilities need to be constructed.

In the event Scottsdale's LPSCO water transfer is not approved, the remaining LPSCO entitlement would be reallocated to other M&I users per ADWR's recommendation. Reclamation does not plan to challenge this ruling. Under this scenario, Scottsdale would use BHP's entire allocation (1,300 af) for M&I use, and the Sanctuary Golf Course would have to acquire water from another source.

#### B. No Action Alternative

Under the No Action alternative, Reclamation would not approve the proposed assignment of CAP entitlements from BHP and LPSCO to Scottsdale. Under this scenario, the following conditions are assumed for these entities:

1. No Action for BHP - Without Federal approval of the transfer of CAP water to Scottsdale, BHP's current CAP water entitlement would remain under contract until relinquished by BHP. Currently, BHP does not have the conveyance system in place to receive its CAP water, and does not plan to construct this delivery system since it has a reliable water

supply on-site. Since BHP has already determined its plans for its CAP water entitlement (transfer its entire CAP allocation to other entities and terminate its subcontract), there would be no difference between the No Action and Proposed Action alternatives for BHP.

2. No Action for LPSCO - Without Federal approval of the transfer of CAP water to Scottsdale, LPSCO's current CAP water entitlement would not be reduced by 1,200 af, and LPSCO would not be reimbursed by the CAWCD for certain expenses related to its CAP allocated water to be assigned to Scottsdale. Under this scenario, LPSCO would seek other M&I users interested in this portion of its CAP entitlement.

3. No Action for Scottsdale - In the absence of Federal approval of these water transfers, Scottsdale would pursue acquisition of other CAP assignments. Other potential sources that have been identified by Scottsdale are long-term lease of Indian CAP M&I entitlements, or transfer or reallocation of other CAP water assignments. Transfer of other CAP water assignments would require review by the Arizona Department of Water Resources (ADWR). Implementation of any of these options would require Federal approval or an amendment to Scottsdale's existing water service subcontract, including NEPA clearances if necessary.

#### C. Alternatives Considered but Eliminated

1. BHP - There were no other alternatives considered for BHP's water transfer, since BHP plans to relinquish its entire CAP water entitlement and terminate its subcontract.

2. LPSCO - LPSCO does not have a delivery system in place to receive its CAP water and does not have the economic means to construct this conveyance system. In addition, it cannot afford to continue its CAP entitlement payments. LPSCO intends to assign its remaining CAP entitlement to the cities of Avondale, Carefree, and Goodyear sometime in the future. If the Scottsdale water transfer is not approved, LPSCO would attempt to find other M&I users for this portion of its CAP allocated water.

3. Scottsdale - Although participating in the Central Arizona Groundwater Replenishment District (CAGR) may be an option, and recent changes in State law make Scottsdale's joining the CAGR a more viable option than before<sup>1</sup>, Scottsdale does not currently consider this a viable alternative for meeting its future water supply needs.

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<sup>1</sup> Membership in the CAGR requires a showing of the physical availability of a 100-year water supply of ground water above 1,000 feet below the ground surface for the expected population of that member entity. Members are allowed to continue ground-water pumping as long as the required replenishment occurs anywhere within the CAGR service area. Recent changes in State law allows CAGR to provide physical availability of water for Scottsdale, thus making CAGR membership a more viable option to meet Scottsdale's assured water supply needs.

An alternative renewable water supply source available to Scottsdale is imported Planet Ranch water rights. Planet Ranch water rights consist of approximately 14,400 af of perfected surface water rights associated with Scottsdale's ownership of 8,389 acres of agriculturally developed land in west-central Arizona, known as the Planet Ranch. Planet Ranch has historically diverted surface water from the Bill Williams River for agricultural purposes. Scottsdale purchased the Planet Ranch in 1984 to acquire its water rights, with the intent of severing and transferring the water rights for M&I use within the Scottsdale municipal planning area to meet future water demands. After completion of the CAP, Scottsdale realized that obtaining unused CAP allocations was a more economical source of water. Scottsdale is in the process of trying to sell Planet Ranch. Therefore, this alternative has been eliminated from further consideration.

#### D. Potential Environmental Issues

For Scottsdale, there would be no direct impacts associated with amending its water service subcontract to increase its CAP water entitlement from 49,029 to 51,529 af per year. Additional diversion and treatment facilities are not needed for Scottsdale to take and use this additional CAP water. The recent water treatment plant expansion to 50 mgd occurred within the original 40 acre site reviewed by Reclamation as part of the original water service subcontract approval. Potential environmental issues identified for Scottsdale are as follows:

1. Would provision of additional CAP water to Scottsdale result in substantial land use or demographic changes?
2. Would current growth trends in Scottsdale, which include conversion of desert lands to residential uses, be different under the "No Action" scenario?

### III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the existing affected environment and likely environmental consequences of Reclamation's approval of the assignment of BHP and LPSCO CAP entitlements to Scottsdale. The impact to BHP and LPSCO from assignment of portions of their total CAP entitlements is described, as is the impact of providing Scottsdale with additional CAP water. A "No Action" scenario is also evaluated for each entity to provide a basis for comparison with the "Proposed Action."

Because BHP and LPSCO have never used their CAP water, and no construction is involved with these water exchanges, the impact analysis for these entities is limited to water resources (i.e., do they have sufficient water supplies to meet their expected needs in the absence of the CAP supply being transferred?). Since Scottsdale plans to use this additional CAP water to continue urban expansion of undisturbed desert lands west of the McDowell Mountains, additional analysis is included for the Scottsdale service area. This section of the document

examines the possible impacts of urbanization on land use, biological and cultural resources. Because delivery of CAP water is the most economically feasible alternative for Scottsdale to obtain its water supply, the land use section describes Scottsdale's expanded service area, projected population growth, land use changes, and planning and zoning process.

A. BHP PVO

1. Affected Environment/Existing Conditions

a. Water Resources - Three major drainages - Pinto Creek, Powers Gulch and Haunted Canyon, occur in the area of the PVU. The Powers Gulch and Haunted Canyon subwatersheds form part of the overall Pinto Creek watershed. Pinto Creek and Pinal Creek are sources of water in the area. Pinto Creek drains into Roosevelt Lake approximately 18 miles downstream from the PVU. Pinal Creek drains into Roosevelt Lake via the Salt River approximately 16 miles downstream from the MU. From 1973 - 1995, the PVO, at an elevation of 4,000 feet mean sea level, averaged about 24 inches of precipitation annually (USFS 1997).

The PVO obtains water from both ground water and surface water sources. The water is pumped from wells in both the Pinto Creek and Pinal Creek watersheds. On PVO properties, some surface water is collected in storm water impoundments and pits, and used in the system as needed. Approximately 12,000 af of water is used annually when the PVO is operated at peak capacity. Currently, 5,000 af of water per year is being used at the PVO.

2. Environmental Consequences/Proposed Action

a. Water Resources - Under the proposed action, 1,300 af of BHP's CAP water entitlement would be transferred to Scottsdale for use within its service area. In the absence of using its CAP allocation, BHP would continue its current practice of using a series of local water resources (ground-water pumping, water impounded in the BHP and other nearby open pit mines, and surface water diversions). According to BHP, an adequate water supply is available to meet current and future copper production, including a return to peak production (Tsiolis, Snell & Wilmer Law Offices representing BHP, personnel communication 1999).

Since the PVO is located outside an Active Management Area (AMA) and does not include subdivision developments, it does not have to show that it has an assured 100-year water supply. Therefore, it is not known if adequate ground-water supplies can sustain long-term copper production in the Pinto Valley area.

Since BHP has never used any of its CAP water allocation, and no construction is associated with this water exchange, BHP would continue to use the local water resources at its disposal. Because BHP would continue to use these water resources as they have in the past, no direct or indirect adverse impacts are expected.

It should be noted, however, that should the BHP transfer be approved, some benefits (water supply and water quality) to Pinal Creek would be lost since the BHP water allocation could not be exchanged or made up with Roosevelt Lake water through an agreement with the Salt River Project.

3. No Action

Under the No Action alternative, i.e., the water transfer is not approved, BHP's CAP water service subcontract would be terminated, and they would not receive reimbursement for a portion of costs they have incurred to date. Therefore, the environmental consequences associated with the proposed BHP water transfer would be the same for both the No Action and Proposed Action alternatives.

B. LPSCO Service Area

1. Affected Environment/Existing Conditions

a. Water Resources - The LPSCO service area is located in close proximity to three major river courses within the Salt River Valley. The Agua Fria River runs in a north-south direction parallel to, and less than 1 mile from the eastern boundary of the LPSCO service area. The Gila River runs in a east-west direction parallel to, and approximately 4 miles south of the southern boundary of the LPSCO service area. The Agua Fria - Gila River confluence is located about 4 miles south of LPSCO's southern boundary, and the Gila - Salt River confluence is located approximately 5 miles southeast of the LPSCO service area.

LPSCO uses five extraction wells to pump ground water for its service area. Four of these wells are located in the vicinity of Indian School and Dysart roads. The fifth well is located approximately 2 miles to the west, near Indian School and Ream roads. Currently, LPSCO pumps approximately 2,800 af of ground water annually to meet the demands of its service area. Ground water is found at static depths of 180 - 200 feet below the ground surface at these well locations. The pumped ground water is transported to a storage reservoir before undergoing a chlorination treatment process. The treated water is then ready for delivery to LPSCO customers.

LPSCO conducted a Physical Ability Demonstration Analysis to determine if its service area has an assured 100-year water supply. The analysis included a supply and demand component and revealed that LPSCO does indeed have this water supply. The analysis was approved by the ADWR. Therefore, LPSCO is in compliance with all Groundwater Management Act requirements. LPSCO decided not to obtain certification from the ADWR, but requires each developer obtain this certification prior to the development being approved (LPSCO, Ellis, personal communication 1999).

Although LPSCO has indicated its desire to have a CAP allocation as a backup water supply, they cannot afford to pay the costs associated with the CAP entitlement. Thus, LPSCO plans to either transfer its remaining CAP allocation or terminate its subcontract sometime in the future.

2. Environmental Consequences/Proposed Action

a. Water Resources - Currently, LPSCO relies on pumped ground water (2,800 af annually) to meet its customers needs, and is expected to depend solely on this water resource in the future. Upon approval of its water transfers to Scottsdale and the Carefree Water Company, the remaining CAP entitlement would total 4,320 af annually. As stated previously, LPSCO plans to relinquish its remaining CAP entitlement to the adjacent communities of Avondale and Goodyear.

LPSCO's existing hook-ups or connections within its service area totals 4,576. LPSCO estimates approximately 30,000 connections would be required at build-out. These would consist of approximately 22,300-single-family residences, 7,600-multi-family residences, 1,200-commercial and industrial properties, 415-county facilities, one 9-hole, and five 18-hole golf courses, with the remaining lands set aside for parks or open space. LPSCO has estimated that its service area would require 19,175 af at build-out.

The proposed water transfer would not impact LPSCO's existing water resources, because it has not used any of its CAP water. In addition, LPSCO has sufficient ground water in storage to meet its needs for the next 100 years.

3. No Action

Under the No Action alternative i.e., the water transfer is not approved, LPSCO's CAP water service subcontract would not be amended, and they would not receive reimbursement costs on this portion of the CAP entitlement they have incurred to date. Under this scenario, LPSCO would seek other M&I users interested in this portion of its CAP entitlement.

C. Scottsdale Service Area

1. Affected Environment/Existing Conditions

a. Water Resources - In 1998, Scottsdale's annual water consumption was 71,106 af, of which 34,291 af was pumped from Scottsdale-owned and operated wells, 7,528 af was delivered from SRP surface and ground-water supplies, and 29,258 af was CAP water. In addition, approximately 1,347 af of reclaimed effluent was reused.

Scottsdale's pumped ground water is chlorinated either at the wellhead or at storage reservoirs prior to delivery. Some ground water is also treated to remove volatile organic chemicals prior to disinfection and delivery. Surface water from SRP is currently treated and delivered to the Scottsdale delivery system by the city of Phoenix through an agreement. Scottsdale is considering constructing its own treatment plant to treat and deliver its SRP surface water, as well as additional Salt River water available in the "additional active conservation capacity" behind modified Roosevelt Dam, for which Scottsdale has obtained an appropriation. CAP water is treated at Scottsdale's CAP water treatment plant. This treatment plant has been expanded to increase its maximum treatment capacity from 22 to 50 mgd (an increase of roughly 31,400 af, for a maximum of 56,000 af on an annual basis). This expansion occurred within the existing 40-acre treatment facility grounds.

Currently all but 6 percent of Scottsdale's effluent is treated at the city of Phoenix's 91st Avenue wastewater treatment plant prior to being discharged to the Salt River. The 6 percent is used for turf irrigation. In 1999, the initial 12 mgd phase of Scottsdale's Water Campus was brought online to treat and reclaim a major portion of Scottsdale's wastewater flows. The Water Campus includes a water reclamation plant that would treat effluent for reuse on golf courses. When irrigation demand is low, the effluent would be further treated to drinking water quality standards and then recharged for later recovery. Raw CAP water would undergo a micro-filtered treatment prior to being recharged during off-peak periods. It is anticipated that a maximum of 23,998 af of effluent per year would be generated within the Water Campus service area. Through the Water Campus, all but 2.4 mgd (2,700 af/year) of effluent would be reused.

Scottsdale has also instituted a water conservation program which requires low flow plumbing fixtures for all new residential construction, and a goal billing program that establishes a monthly water use goal for all residential customers. The goal is based upon residential lot size and is printed on each monthly water bill, along with the actual monthly usage. The water conservation program also includes landscape conversion rebates, lawn water advice, fountain restrictions, large turf consumption monitoring, water management training for landscape professionals, and a citizen education program.

b. Land Use - As stated earlier, the Scottsdale water service area encompasses approximately 190 square miles. Approximately 12 square miles of area lies within the SRP service area (generally all the lands south of the Arizona Canal). The remainder of the water service area constitutes approximately 93 percent of Scottsdale's total land area, only about one-third of which is developed.

State law requires each municipality to adopt a comprehensive, long-range general plan for the development of that municipality. The plan should include community goals and development policies, and should establish objectives, principles, standards, and plan proposals (ARS Section 9-461.05). Scottsdale's General Plan consists of several elements including land use, transportation, environmental design, and public facilities.

It provides a guiding set of policies that establishes an intent and direction for the future growth and character of the community. As of 1995, Scottsdale was roughly half-developed toward the ultimate planned land uses and population based upon Scottsdale's General Plan.

Scottsdale has recently completed a comprehensive review of its General Plan, through an extensive citizen participation and involvement program. This process, called "CityShape 2020," was initiated in late 1994. In early 1996, a comprehensive final report was submitted to the City Council, which included recommendations for revising the General Plan consistent with extensive community input provided during CityShape 2020. This updated General Plan would continue to be revised and used to guide overall development within the Scottsdale water service area, especially north of the Arizona Canal.

Population growth within the Scottsdale water service area has greatly exceeded projections made in 1982, upon which CAP allocations were made. The 1982 EIS estimated that Scottsdale's population would be 68,800 by the year 2005, and 109,730 by the year 2034. With subsequent growth and annexations, Scottsdale's estimated population at the end of 1998 was 202,000. Even if the projected populations of the other CAP water service areas acquired by Scottsdale are taken into account, Scottsdale's 1998 population is already well over the EIS estimate for the CAP project life (year 2034).

c. Biological Resources - Both the Arizona Upland and Lower Colorado River Valley subdivisions of the Sonoran Desertscrub Biome are found in Maricopa County. Native vegetation within the project area to be developed is predominantly of the palo verde-cacti-mixed scrub series of the Arizona Upland subdivision (Brown 1994).

Vegetation on undisturbed lands differs depending on elevation and topography. The western one-third of the project area is characterized by nearly monotypic stands of creosote bush (*Larrea tridentata*) bisected by ephemeral washes vegetated with mesquite (*Prosopis* spp.), foothill palo verde (*Cercidium microphyllum*), ironwood (*Olneya tesota*), and desert hackberry (*Celtis pallida*). As one moves further to the east, or to the bajadas and foothills of the McDowell Mountains, creosote bush decreases and triangle-leaf bursage (*Ambrosia deltoidea*) increases. The vegetation also becomes denser and more diverse.

Other species associated with washes or found throughout the project area depending on edaphic conditions are globemallow (*Sphaeralcea* sp.), brittlebush (*Encelia farinosa*), jojoba (*Simmondsia chinensis*), canyon ragweed (*Ambrosia ambrosioides*), and turpentine bush (*Ericameria cuneata*).

Because these wash systems usually support denser and more diverse vegetative communities than adjacent habitats (e.g., creosote bush flats), they are occasionally referred to as xeroriparian communities (Johnson et al. 1981). Krausman et al. (1985) found that xeroriparian areas were important habitat components for desert mule deer (*Odocoileus hemionus crooki*) in Arizona when they provided forage, thermal cover, and travel

corridors. The size of the mule deer population in the McDowell Mountains is unknown. The washes within the project area, however, likely provide similar benefits to javelina, rabbits, and other species. No riparian habitat associated with perennial or intermittent waters occurs within the project area.

Vegetation becomes more diverse and generally denser as one moves up the immediate foothills and slopes of the McDowell Mountains on the eastern two-thirds of the project area.

Cacti are found throughout the project area and include hedgehog (*Echinocereus engelmannii*), barrel (*Ferocactus wislizenii*), and chollas (*Opuntia* spp.). Saguaros (*Carnegeia gigantea*) occur at a density of 0 - 4 per acre within the project area (SWCA, Inc., 1999).

No systematic surveys for birds, mammals, and herpetofauna have been conducted within the project area. Based on site visits and information from other locations in Maricopa County, the fauna is likely typical of that found within the Arizona Upland subdivision; Gila woodpecker (*Melanerpes uropygialis*), cactus wren (*Campylorhynchus brunneicapillus*), curve-billed thrasher (*Toxostoma curvirostre*), verdin (*Auriparus flaviceps*), mourning dove (*Zenaida macroura*), white-winged dove (*Zenaida asiatica*), Inca dove (*Columbina inca*), Gambels' quail (*Callipepla gambelii*), greater roadrunner (*Geococcyx californianus*), red-tail hawk (*Buteo jamaicensis*), Harris hawk (*Parabuteo unicinctus*), black-tailed jackrabbit (*Lepus californicus*), desert cottontail rabbit (*Sylvilagus audubonii*), javelina (*Tayassu tajaca*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), western diamondback rattlesnake (*Crotalus scutulatus*), chuckwalla (*Sauromalus obesus*), and several additional species of birds, mammals, and herpetofauna.

Special-Status Species - The Fish and Wildlife Service (FWS) lists fourteen threatened or endangered species as having potential to occur in Maricopa County (FWS 1999). SWCA, Inc., conducted a Biological Evaluation on the area which Scottsdale identified to be serviced with water contracted through the exchange with BHP and LPSCO.

Of special concern were potential impacts to the endangered cactus ferruginous pygmy owl (*Glaucidium brasilianum cactorum*). Listed as an endangered species in Arizona in March of 1997, the cactus ferruginous pygmy owl is one of the smallest owls in North America. Historically, it was not uncommon to see these owls in large numbers around stream side thickets, mesquite-cottonwood woodlands, and thorn and desert scrub in central and southern Arizona (FWS 1997). Recent observations have been restricted to Sonoran desert scrub habitats in southern Arizona characterized by braided-wash systems and dense vegetation including ironwood, palo verde, and mesquite. Recent nests have been in saguaro cavities, while historically they were documented in cavities of cottonwoods, willows, and mesquites (FWS 1998).

Since little is known about the habitat requirements of the owl in Arizona, the FWS has issued guidelines to determine whether surveys for the owl are necessary. These guidelines currently recommend that surveys be conducted if:

1. The project area is below 4,000 feet.
2. Contains saguaros greater than 8 feet tall or with woodpecker cavities, and/or ironwood, mesquite, or palo verde trees greater than 6 inches in diameter at breast height.

SWCA, Inc., conducted surveys for the pygmy owls in the project area in April and May of 1999. A list of the specific dates of the surveys is provided in the Biological Evaluation prepared by SWCA, Inc. (Attachment A).

d. Cultural Resources - An evaluation was made of cultural resources likely to be present in areas where urban and industrial expansion was anticipated to occur as part of the 1982 EIS. This evaluation was based upon existing site records available at that time. According to Appendix F, Volume II of the EIS, there were 36 known archaeological resource sites known in the vicinity of the Scottsdale service area, all within three restricted areas: Southwest of the Sawik Mountains, east of the Scottsdale Golf Course, and in isolated locales in the McDowell Mountains. In the northern portion of the water service area, survey information for areas adjacent to the Desert Ranch Water Company service area indicated the presence of a large number of small Hohokam agricultural villages and associated canal systems (Reclamation 1982). The Taliesin House is on the National Register of Historic Places as a National Historic Landmark, and the Cosanti House is on the State Register of Historic Places. Scottsdale also has an Historic Property Zoning District. Ten downtown buildings have qualified for this district (personal communication, Barbara Goldberg, July 10, 1996).

## 2. Environmental Consequences/Proposed Action

a. Water Resources - If this water transfer is approved, Scottsdale would increase its use of CAP water to supply the growing water demands of its service area. Since no new facilities would need to be constructed for Scottsdale to take and treat this additional CAP water, there would be no direct impacts from this additional assignment. However, there would be indirect and cumulative effects resulting from these transfers, because the water would be used to meet the needs of continued urban growth within the Scottsdale service area. These types of impacts were generally described in the 1982 EIS.

The intent of the 1982 CAP M&I allocation was to provide cities and water companies with a renewable water resource (CAP water) to meet their projected future M&I water demand without mining ground-water supplies. The 1982 CAP M&I allocations were based on future population projections for a projected 50-year period within each service area. The 1982 EIS evaluated five different allocation alternatives, and analyzed

whether projected population growth within each service area would be different under any of the allocation alternatives. For example, the 1982 EIS evaluated CAP allocations to Scottsdale ranging from 14,000 af annually to 19,702 af annually. The EIS then analyzed whether projected population growth for the Scottsdale service area (then estimated to be 109,730 by year 2034) would be different under any of these CAP allocations. The EIS concluded the projected population for Scottsdale would not be different under any of the allocation alternatives being considered - i.e., population growth would not be constrained by a lack of water under any of the alternatives.

The 1982 EIS also projected land use changes associated with this population growth that would occur within the service area. For example, within the 1982 Scottsdale service area, about 20,000 acres of desert lands were projected to be converted to urban use by the year 2034 under any of the alternative allocations. The EIS also provided descriptions of the general and cumulative environmental impacts to biological and cultural resources from such land use changes. No specific impact analysis was carried out (e.g., on-the-ground surveys for cultural resources), because the specific location of future urban growth within the service area was not possible to predict with certainty.

The provision of an additional 2,500 af of CAP entitlement would help Scottsdale meet its future projected water needs. As previously stated, LPSCO's water assignment of 1,200 af would be utilized for two separate activities. Approximately 760 af would be used to irrigate the Sanctuary Golf Course at WestWorld, with the remaining 440 af available for future development in north Scottsdale.

Capital Realty Corporation (Capital), under a concession agreement with Scottsdale dated December 30, 1996, would operate and maintain the Sanctuary Golf Course which is located within Reach 11, of the Hayden-Rhodes CAP Aqueduct. In addition, a water service agreement between Capital and Scottsdale for the Sanctuary Golf Course dated August 31, 1998, outlines the specific requirements and responsibilities of both parties regarding the provision and use of this water. As currently envisioned, Capital would provide Scottsdale with an annual supply of 760 af of water, 460 af of which would be used for irrigation purposes, and 300 af of which would be used for recharge. The recharged water would be banked to provide irrigation water for the golf course if, for any reason, water from the CAP canal is not available. Capital is responsible for designing and constructing the recharge and recovery facilities necessary to accomplish this, as well as obtaining all necessary permits to design, construct, and operate these facilities. Capital would then transfer ownership and operation of the system to Scottsdale.

Reclamation prepared an EA/Finding of No Significant Impact (FONSI) dated January 1998, which approved construction of the Sanctuary Golf Course (then known as the WestWorld Golf Course), in addition to other project features within the Paradise Valley Flood Control Detention Basin (Hayden-Rhodes Aqueduct, Reach 11, Dike 4) in north Scottsdale. The EA/FONSI were prepared to comply with NEPA requirements.

If the ADWR LPSCO reallocation plan is approved, Scottsdale would only receive the BHP allocation (1,300 af), and the water allocation used for M&I purposes exclusively.

The Scottsdale Water System Master Plan, which is updated every 2 years, projects future water supplies and demands. Based upon current water demand estimates of the various land use categories in the land use element of the General Plan, the ultimate water demand at build-out would be approximately 128,240 af per year. The eventual annual demand at final build-out of Scottsdale is an increase of approximately 57,100 af per year, compared to the 1998 demand of 71,106 af.

Scottsdale used 34,391 af of ground water in 1998. Arizona's 1980 Groundwater Management Code required cities in the Phoenix metropolitan area to stop mining ground water in 1998. The 2,500 af of CAP entitlement water would reduce Scottsdale's dependence on mined ground water, and help meet the assured water supply goals of the 1980 Groundwater Management Code by replacing present and future use of ground water with surface water supplies.

b. Land Use - The current proposal to assign an additional 2,500 af of CAP entitlement to Scottsdale is consistent with the original intent of the CAP allocations - to provide a renewable water resource to meet future population growth without overtaxing finite ground-water supplies. The present demographic situation and trends in the Scottsdale service area are substantially different from those anticipated in 1982, when the original allocations were made. First, Scottsdale's service area has increased significantly in size, primarily from annexation and acquisition of private water companies in the northern part of its planning area. In 1982, the total area of Scottsdale was 114.7 square miles. In 1997, the total incorporated area was 185.5 square miles, and the water service area 190.2 square miles, including approximately 5 square miles of unincorporated county area. Moreover, the rate of urban growth within Scottsdale's service area has greatly exceeded what was anticipated in 1982. In 1982, the number of building permits issued averaged approximately 2,500 per year. In 1998, that number averaged approximately 4,200 per year. So, while the nature of the CAP water allocation, and the impacts associated with its use are the same as those described in the 1982 EIS, the magnitude of the numbers (for both projected population and land use changes) has increased.

The 2,500 af of CAP water proposed to be transferred would be used to meet future water demands. This supply would accommodate additional population growth of between 4,100 to 15,000 people over the next 2 years. Based upon the representative range of land use classifications and corresponding water demand factors, an additional 850 to 5,800 acres of desert land would be converted to urban uses (personal communication, Scott Anderson). Should Scottsdale only receive the BHP allocation, it is assumed they would need to identify and obtain another water supply source in order to implement current development plans.

Land use planning within the Scottsdale service area is controlled by Scottsdale's General Plan and the planning and zoning process. Changes to the land use element of the General Plan or to zoning of a parcel of land requires review by Scottsdale's Planning Commission and by the City Council. In the early stages of planning for a development project, city staff are guided by the General Plan. Proposed General Plan amendments or changes in zoning are first reviewed by the Planning Commission. The Planning Commission solicits public comment prior to recommending approval or denial to the City Council. After a public hearing before the City Council (which must meet all requirements for posting and notification), the City Council gives final approval or denial of the changes.

c. Biological Resources - There would be no direct impacts from Federal approval of the water transfers, because no construction would be required for Scottsdale to take and use the additional CAP water that would be transferred. However, we anticipate this project would result in indirect impacts on at least three levels: permanent loss of Sonoran Desert habitat, isolation of the fauna in the McDowell Mountains, and degradation of native habitat adjacent to developed lands.

It is estimated between 850 and 5,800 acres of Sonoran Desert habitat and associated wildlife values would be lost as a result of increased urbanization. The magnitude of the impacts on wildlife and habitat values from urban development would be dependent, in part, upon the proximity of affected native habitats to existing urbanized areas. Depending upon the area affected, the loss of desert habitat could result in the elimination or diminished utilization of any existing wildlife movement corridors. Desert habitats adjacent to urbanized areas have likely experienced a prior loss of wildlife and habitat value. The impact of their destruction would be less than for larger contiguous patches of desert. Ultimately, the extent to which wildlife and habitat values are affected would be a function of existing, site specific biological values and future zoning densities, which are unknown at this time.

Urbanization within the project area would add to the increasing isolation of the McDowell Mountains fauna from the surrounding foothills and possibly other mountain ranges. This development is rapidly proceeding along the western, northern, and southern edges of the range.

On a more local level, expanded urbanization within the Scottsdale service area would negatively impact wildlife through increased vehicular losses, increased exposure to herbicide and pesticides, and increased predation by domestic animals (particularly cats). Harassment and collection of wildlife, and general habitat degradation of adjacent lands in the McDowell Mountains by hikers, dogs, and other recreational activities are likely to occur. Similar impacts have been documented at Pusch Ridge near Tucson (Krausman et al. 1995).

The expansion of nonnative species of wildlife such as European starlings, house sparrows, rock dove, and Mediterranean geckos would likely add to the degradation of adjacent native habitats. Resident species such as verdin, curve-billed thrashers, Gambel's quail, mourning doves, Anna's hummingbird, northern mockingbird, house finch, and several others are likely to persist in an urban environment. It is also likely that the flora of adjacent undisturbed habitats would be subject to invasion from exotic ornamentals used in landscaping. The impacts of these invasions are unknown, but we anticipate that it would be small due to the aridity of the project and surrounding areas.

Development, and its effects on habitat, would occur on private lands and would be privately funded. The specific location and nature of future urban growth within the Scottsdale service area would be controlled by local planning and zoning decisions. Scottsdale has adopted several local ordinances related to protection of natural habitats and the salvaging of native plants. Scottsdale's Environmentally Sensitive Lands Ordinance (ESLO) is designed to identify and protect areas with slopes 15 percent or greater, natural landmarks, watercourses, archeological sites, and/or undisturbed native vegetation. It provides incentives to reduce development densities or preserve undeveloped areas designated as environmentally sensitive. It also establishes design standards for development within these identified lands.

Special Status Species - Based on the results of surveys conducted by SWCA, Inc., within the service area and described in their 1999 Biological Evaluation (Attachment A), Reclamation concluded that the water exchange would have "no effect" on the cactus ferruginous pygmy-owl. This conclusion is supported by the lack of previous occurrence within the service area, poor suitability of habitat to support owls now and for future recovery, negative response to surveys conducted in 1998 and 1999, and no designation as critical habitat.

Habitat requirements for the other species, as described by the FWS, indicate that suitable habitat does not occur within the immediate project area. Most of the species require permanent water sources or habitat types that are not found within the service area boundaries.

d. Cultural Resources - The conversion of 850 to 5,800 acres of desert lands to urban uses may result in the destruction of archeological and historic resources, which may be directly impacted by land-disturbing activities such as grading and earth moving associated with residential home construction and other commercial and infrastructure developments. Formal on-the-ground archaeological surveys have not been carried out for most of the project area. Nonetheless, a variety of archaeological sites may be expected in the desert lands affected by development. These range from small sherd and lithic scatters to larger village sites with subsurface or surface architecture, or both. Pinnacle Peak Village (AZ U:5:3 ASU) is an example of the latter, located at the northern end of the McDowell Mountains. It is perhaps one of the largest Preclassic Hohokam village sites in the area, dating between A.D. 300 and 1100. Petroglyph (rock-art) sites may be present in areas where appropriate boulder outcrops are present, and evidence of prehistoric canals could be present in some areas along major

drainages. Historical resources that could be present include homestead sites, remnants of old road or other transportation corridors, mines, and mining related features, and irrigation features such as a segment of the Verde Canal, which has been determined eligible for nomination to the National Register of Historic Places.

The specific location of future growth within the Scottsdale service area cannot be predicted precisely, since it would be a function of private development trends, and local planning and zoning decisions. Accordingly, it is not possible to identify specific cultural resource sites that may be affected by such development. Since future development would typically take place on private lands, and would be privately funded, Section 106 of the National Historic Preservation Act would not apply, and mitigation of cultural resource impacts would not be required by Federal law. Scottsdale's ESLO, however, requires that archaeological surveys be completed as part of any proposed development review process on land that has a high potential for archaeological resources. The Arizona State Land Department (ASLD) also requires surveys be conducted under the Urban Lands Act as part of the Planning Permit process for any land ASLD is preparing for sale in Scottsdale.

### 3. No Action

No matter what other sources of water are developed by Scottsdale, the same indirect effects from urban growth would occur. Currently, Scottsdale's other alternatives all involve CAP water as an alternative water supply. In the absence of Federal approval of any additional CAP water to Scottsdale, Scottsdale would be required to comply with State-assured water supply rules. These rules require that beginning January 1998, any development proposed to occur on desert land within an AMA must provide proof to the ADWR that there is sufficient water to meet the needs of that development for 100 years. If sufficient water supplies are not available, that development would not be allowed. It should be noted, however, that the State's assured water supply requirements were developed based upon the presumed availability and use of CAP supplies. It was the State's intention in recommending CAP allocations to provide renewable (CAP) water supplies to meet projected needs, thereby, protecting nonrenewable ground-water resources.

### D. Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property and assets held in trust by the United States for federally-recognized Indian tribes or individual Indians. Such trust status is derived from rights reserved by or granted to Indian tribes or individuals by treaties, statutes, and executive orders. ITAs may include land, minerals, water rights, and hunting and fishing rights. Reclamation has reviewed the proposed action for possible effects on ITAs. ITAs have not been identified within the project areas; thus, they would not be affected or adversely affected by the proposed action. The nearest federally-recognized Indian tribe and reservation to the BHP project area is the San Carlos Indian Reservation. The closest federally-recognized Indian tribe and reservation to the LPSCO service area is the Gila River Indian

Community (GRIC). The closest federally-recognized Indian tribe and reservation to the Scottsdale portion of the project area is the SRPMIC, which abuts Scottsdale's eastern boundary. The Fort McDowell Mohave-Apache Indian Community (FMMAIC) is also in close proximity to Scottsdale, about 5 miles east of Scottsdale's eastern boundary.

The following Indian tribes were provided an opportunity to comment on the draft EA: San Carlos Apache Tribe, GRIC, SRPMIC, and FMMAIC.

#### E. Cumulative Impacts

Cumulative impacts result from the incremental effect of the proposed action when added to other past, present, and reasonably foreseeable actions. The impacts anticipated to occur from urbanization include conversion of both desert and agricultural lands to urban use. These impacts were generally described in the 1982 Water Allocations and Water Service Contracts EIS.

The importation of Colorado River water into central Arizona accommodates projected increases in population in the Phoenix and Tucson areas, including cities such as Scottsdale. This increase in population results in conversion of land for homes, businesses, recreation, and other land uses. Some of the lands to be used for urban development would come from undisturbed desert land surrounding these urban communities. The State recommended CAP allocations be used to meet future projected growth patterns, and to protect nonrenewable ground-water resources. The 1982 EIS determined that approximately 165,000 acres of undeveloped desert land would be converted to urban use over the 50-year study period under any of the CAP water allocation alternatives evaluated. For Scottsdale, it was estimated that 20,000 acres of undeveloped land would be lost due to future urban growth. These projections, however, did not account for expansion of Scottsdale's water service area and the accelerated growth now occurring. This unexpected growth has resulted in additional desert lands being converted to an urban environment. As stated in the 1982 EIS, the long-term or cumulative impacts to biological resources are likely to be low when compared to the projected growth and development anticipated in the original baseline growth conditions, and considering the size of the Sonoran Desert as a whole (20 million acres).

Reclamation is in the process of preparing an EIS related to proposed modification of existing allocations of CAP water. Currently, 65,647 af of CAP water previously allocated for M&I use, which is uncontracted, would be reallocated to M&I entities after consultation with the ADWR. Scottsdale has requested, and is expected to get, a portion of this uncontracted CAP water. The amount Scottsdale would receive, however, is unknown and would be based on the ADWR's recommendation. Although this additional CAP water would reduce Scottsdale's reliance on ground-water pumping, and assist in meeting the State AMA

requirements, it is anticipated it would still not satisfy future demands. Therefore, it is anticipated that Scottsdale would continue to seek other CAP entitlements, and utilize other water resources (e.g., the appropriated SRP water stored in the Additional Active Conservation Capacity behind Roosevelt Dam, SRP surface diversions, and recharged effluent) to ensure they have an assured water supply at build-out.

#### **IV. MITIGATION COMMITMENTS**

No specific mitigation commitments are proposed to be incorporated into this proposed action.

#### **V. CONSULTATION AND COORDINATION**

Reclamation has coordinated preparation of this EA with the affected entities. A Public Notice was distributed for a 15-day review and comment period (September 10 - 24, 1999) to obtain input, and to identify any concerns the public may have associated with the proposed water transfers to Scottsdale. In addition, a press release describing the proposed water transfers was sent to the local media on September 10, 1999. Four comment letters were received during the public scoping period.

Three comment letters expressed concerns about the 760 af of water being reserved for the Sanctuary Golf Course, and other possible impacts the water transfers may have on existing Reach 11 activities. The water to be used at the Sanctuary Golf Course is addressed under the Scottsdale Environmental Consequences/Proposed Action - Water Resources Section (III, 3., a.). The proposed water transfers would not change or limit any existing Reach 11 uses or activities.

Two comment letters stated that an analysis of long-term and cumulative impacts associated with these water transfers be included in the EA, or that an EIS be prepared for this action.

#### **VI. COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS**

National Environmental Policy Act. This EA has been prepared in accordance with the requirements of NEPA. The EA addresses the environmental consequences of Reclamation's approval of the proposed water exchange agreement and associated approval of assignment of a portion of BHP and LPSCO CAP water contract entitlements in the amount of 2,500 af annually to Scottsdale.

Clean Water Act, as amended. The proposed water transfers do not entail discharge of dredged or fill material into waters of the United States. Once detailed plans for the north Scottsdale development are finalized, the developer(s) selected would need to comply with all Clean Water Act requirements prior to construction.

Clean Air Act, as amended. The proposed water transfers do not involve construction activities and, therefore, there would be no air quality degradation. When detailed plans for the north Scottsdale development are finalized, the developer(s) selected would need to obtain all appropriate air quality permits prior to construction.

Endangered Species Act of 1973, as amended. Approval of the water transfers would not impact species listed as threatened, endangered, or proposed for listing in the vicinity of the BHP PVO, and LPSCO and Scottsdale service areas. Cactus ferruginous pygmy-owl surveys conducted in the north Scottsdale project area proposed for development were negative.

Fish and Wildlife Coordination Act. Reclamation believes the consultation requirements of NEPA and the Endangered Species Act are sufficient to also meet any requirements for consultation under the Fish and Wildlife Coordination Act. The FWS received a copy of the draft EA for review and comment. The proposed project will not impound or divert surface waters in the Scottsdale service area. Future urban development of between 850 to 5,800 acres in Scottsdale could, however, potentially impact surface waters. Any such impacts would be subject to review by the U.S. Army Corps of Engineers pursuant to regulatory requirements of the Clean Water Act (Section 404).

National Historic Preservation Act of 1966, as amended. There likely would be some adverse impacts to cultural resources due to 850 - 5,800 acres of undisturbed desert land being converted to residential and other development use. Because these developments cannot be specified, however, it is not possible to identify where surveys should occur. Scottsdale requires archaeological surveys for proposed developments on land that have a high potential for archaeological resources. Therefore, identification of impacts and any mitigation measures would be a local jurisdictional responsibility. In the event that prehistoric human burials are encountered during development, the developer must comply with A.R.S. § 41--865.

Wild and Scenic Rivers Act of 1968. No portions of river are either designated or under study as a wildlife scenic river in the project areas.

Wilderness Act of 1964, as amended. There are no portions of land either designated or under study as a wilderness area in the project areas.

Executive Order 11990, Protection of Wetlands. No wetlands are known to exist within the project areas.

Executive Order 11998, Floodplain Management. The project area proposed for development in north Scottsdale is located outside established floodplains.

Executive Order 12898, Environmental Justice. To the greatest extent practicable and permitted by law, and consistent with the principles set forth by the National Performance Review, each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on low-income and minority populations in the United States and its territories and possessions. Environmental justice and equity includes the fair treatment of people of all races, cultures, incomes, and educational levels with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment implies that no racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from the operation of industrial and commercial enterprises and from the execution of Federal, State, and local programs and policies. The project is in compliance with this EO.

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BIOLOGICAL EVALUATION  
CITY OF SCOTTSDALE  
SCOTTSDALE, MARICOPA COUNTY, ARIZONA

Prepared for

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October 22, 1999

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## APPENDIX

- Appendix A. Agency Correspondence and Desert Tortoise Handling Guidelines
- Appendix B. Arizona Department of Agriculture Notice of Intent to Clear Land

## EXECUTIVE SUMMARY

SWCA, Inc. Environmental Consultants was contracted by the City of Scottsdale to complete a Biological Evaluation (BE) in support of a proposed water rights exchange in Scottsdale, Maricopa County, Arizona. The project area encompasses approximately 9,200 acres and is located in Township 3 North, Range 5 East, Sections 1-6, 8-16, and 22-26; Township 3 North, Range 6 East, Sections 17-20, and 30; Township 3 North, Range 4 East, Sections 23-26, and 35-36; and Township 3 North, Range 5 East, Sections 19-36. This BE was prepared to evaluate the presence of individuals or habitat for species federally-listed as threatened or endangered and other special status species within the project area.

Thirteen federally-listed species are reported by the U.S. Fish and Wildlife Service (USFWS) as having the potential to occur in Maricopa County. Habitat evaluations for each of these species were completed in the field. Furthermore, a survey for the federally-endangered cactus ferruginous pygmy-owl was conducted, following the currently accepted USFWS protocol. No indication of the species was found within the project area. Correspondence was received from the Arizona Game and Fish Department (AGFD) regarding other special status species that may have been recorded within or near the project area (Appendix A).

None of the species listed by USFWS are expected to occur regularly in the project area based on the known elevational and geographic ranges of these species, on the habitat characteristics of the project area, and on the results of the species-specific surveys.

## 1.0 INTRODUCTION

This report serves as a Biological Evaluation (BE) for the proposed City of Scottsdale water rights transfer project located within Maricopa County, Township 3 North, Range 5 East, Sections 1-6, 8-16, and 22-26; Township 3 North, Range 6 East, Sections 17-20, and 30; Township 3 North, Range 4 East, Sections 23-26, and 35-36; and Township 3 North, Range 5 East, Sections 19-36. The City of Scottsdale has applied for transfer of 2,500 acre feet of water. The proposed transfer includes: 1,200 acre feet from BHP and 1,300 acre feet from Litchfield Park Service (LPC). The project area is located north of the Central Arizona Project (CAP) canal, south of Deer Valley Road, west of Scottsdale Road, and east of the McDowell Mountains (Figure 1).

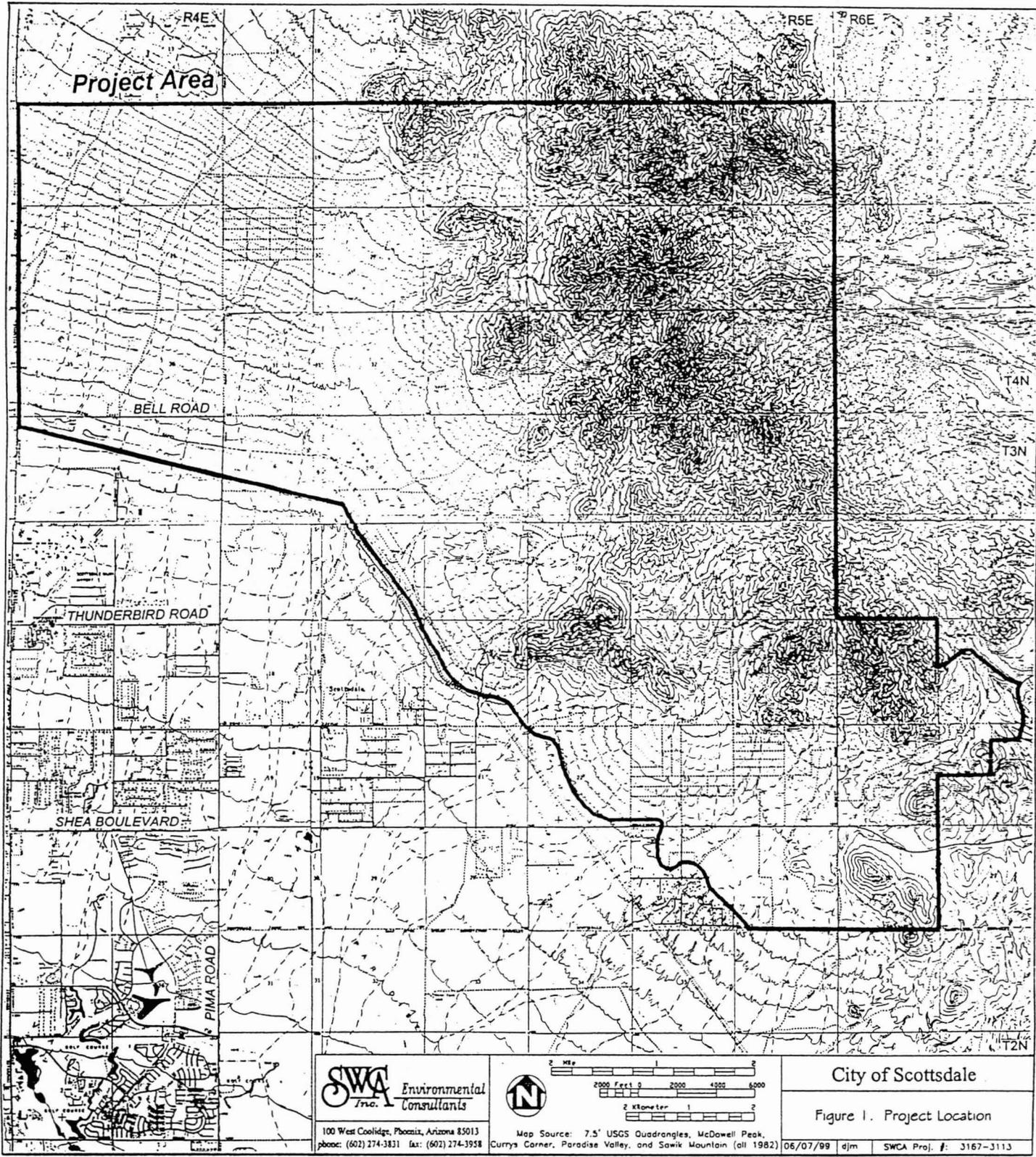
This BE evaluates the presence of individuals or habitat for species listed as threatened or endangered by the USFWS under the Endangered Species Act (ESA) and other special status species as defined below. This BE is based on the USFWS listings of threatened and endangered species in Maricopa County. A field evaluation was conducted to determine the suitability of the project area and vicinity for federally-listed and other special status species. A species-specific survey was also conducted for the federally-endangered cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*).

Species status designations and their implications are summarized below. In general, projects on private land are only required to consider effects on federally-listed (threatened or endangered) species. However, it is recommended that other special status species are also considered in project planning and development.

- **Listed Species.** These are plants and animals listed by the USFWS as threatened or endangered under the ESA. The ESA specifically prohibits the "take" of a listed species. Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to engage in any such conduct."<sup>1</sup> The USFWS has interpreted the definition of take to also include modification of habitat that supports listed species. Projects that may affect listed species or their habitat require either consultation with the USFWS under either Section 7 or an Incidental Take Permit under Section 10(a) of the ESA. The USFWS maintains a listing of threatened and endangered species known to occur or have occurred in each Arizona county.
- **Proposed Species.** These are species that have been proposed by the USFWS for listing under the ESA. They are not legally protected by the ESA, but because these species may be listed in the near future, they typically receive the same consideration. USFWS threatened and endangered species listings by county also include proposed and candidate (see below) species.
- **Candidate Species.** These are species that are being considered for listing as threatened or endangered under the ESA, but have not yet been proposed. Like proposed species, they are not legally protected under the ESA.

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<sup>1</sup> Endangered Species Act, Section 3, paragraph 19. Further, 50 CFR § 17.3 defines "harm" as "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering."



Project Area

BELL ROAD

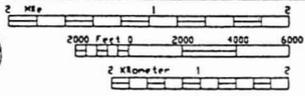
THUNDERBIRD ROAD

SHEA BOULEVARD

PIMA ROAD

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Map Source: 7.5' USGS Quadrangles, McDowell Peak, Currys Corner, Paradise Valley, and Sawik Mountain (all 1982)

City of Scottsdale

Figure 1. Project Location

06/07/99 djm SWCA Proj. #: 3167-3113

- **Wildlife of Special Concern in Arizona.** The Arizona Game and Fish Department (AGFD) formerly listed 116 species as extinct, endangered, threatened, and candidate species in Arizona (AGFD 1988). While the terminology used by AGFD was identical to that of USFWS, the AGFD categories were advisory and provided no legal protection for take of such species or modification of their habitat under the ESA.

The latter point contrasts the USFWS list. To avoid confusion, AGFD is currently revising and reissuing their list as "Wildlife of Special Concern in Arizona" without using the terms endangered or threatened. The revised list has not yet been officially adopted, but has been published in draft form (AGFD 1996).

- **Sensitive.** These are species considered sensitive when occurring on lands managed by the U.S. Forest Service. They are not legally protected under the ESA, but should be considered in project planning and development. Projects requiring easements or authorizations on Forest Service lands may have to consider these species.
- **Protected Plants.** The Arizona Department of Agriculture (ADA) administers the Arizona Native Plant Law. The law categorizes protected plants as Highly Safeguarded and Salvage Restricted, among others. Many common native forbs, shrubs, trees, and succulents are protected. It is unlawful to collect, transport, transplant, or kill protected native plants without a permit or without following specific regulatory procedures. Such regulation also applies to protected plants on private lands. The law does not prevent the destruction of protected plants on private lands as long as (1) the plants are not transported from the land or offered for sale and (2) the landowner notifies the ADA of the intended destruction<sup>2</sup>. Destruction of Highly Safeguarded plants is subject to review by the ADA. A copy of this form is included as Appendix B. In addition, the City of Scottsdale has developed a native plant program to specify proposed treatment of protected native plants during the development process. Issuance of a native plant permit is required (Revised Code, City of Scottsdale, Ord. No. 2262, § 1, 8-15-89).

## 2.0 METHODS

The AGFD was contacted in writing on June 18, 1999 to obtain information about the known occurrence of any federally-listed threatened and endangered species in or near the project site. The AGFD maintains a Statewide database which tracks records for federally-listed species and other species of concern. Species listings provided by the AGFD are indicative of those for which current or historic records exist within a 5-mile radius of the project area. The USFWS Internet database was also accessed to obtain information on federally-listed species that may potentially occur in Maricopa County.

A field investigation was conducted on April 27, 1999 to determine the habitat types present in the project area and its immediate vicinity. Survey areas included open-spaces not previously surveyed this year, and low density housing communities with suitable vegetation communities. Dominant vegetation types and species were recorded during the evaluation. Based on documented habitat requirements, a determination was made of the suitability of the project area and its immediate vicinity for threatened and endangered species listed by the USFWS as having the potential to occur in Maricopa County.

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<sup>2</sup>Landowners must notify the ADA regarding intended destruction of native plants at least 20 days before plants are destroyed over an area less than one acre, 30 days before plants are destroyed over an area less than 40 acres, and 60 days before plants are destroyed over an area 40 acres or more. The required ADA notification form is attached as Appendix B to this report.

Species-specific surveys were also conducted for the federally-listed cactus ferruginous pygmy-owl. The surveys were performed between April 27 and May 30, 1999, following the currently accepted USFWS protocol. The USFWS has recommended that surveys be conducted if the following apply (USFWS 1997): 1) The project area is below 4,000 feet; and 2) The area contains saguaros greater than eight feet tall or with woodpecker cavities, and/or ironwood (*Olneya tesota*), mesquite (*Prosopis spp.*), or palo verde trees (*Cercidium spp.*) greater than six inches in diameter. A new survey protocol has been proposed by the USFWS. This protocol requires two consecutive years of surveys with three surveys per year prior to land clearing activities.

Surveys for the cactus ferruginous pygmy-owl began either in the morning (one hour before sunrise to two hours after sunrise) or in the evening (two hours before sunset to one hour after sunset). A total of 219 call stations were located throughout the property, during each survey, approximately 150 yards apart (Figure 2). Cactus ferruginous pygmy-owl calls were broadcast with a cassette tape player for 30 seconds, followed by a 60-90 second listening and observation period. This sequence was repeated 8 minutes at each call station. Surveys were conducted in calm weather. Areas surveyed were primarily located along the western project boundary up to the base of the McDowell Mountain Preserve. Section 3.3.9 discusses the results of the survey. The current protocol was used for these surveys. Further surveys will be the responsibility of individual project developers.

The current protocol permits surveys to be conducted between September and May, while the proposed protocol allows surveys to be conducted between January and June. The proposed protocol is still informal, and should be more formally addressed by early in the year 2000 by the USFWS. The dates the surveys were conducted were as follows: April 27-28, and May 3-7, 9-10, 12, 17, 21, 25, and 30 of 1999. Areas within the project boundaries were not surveyed if they had been previously surveyed this year by SWCA. This includes both Phases I and II of DC Ranch and the Sonora Vista development projects. Survey for DC Ranch Phase I were conducted using the proposed protocol on April 10-11, 29-30 and May 21-22, 1999. Survey for DC Ranch Phase II were conducted using the current protocol on November 3, 19, 25, 30, December 1-2, 7-8, 15, and 18, 1998, and using the proposed protocol on March 18-19, and May 18-20, 1999. The Sonora Vista project area was surveyed using the current protocol on May 18, 1999. Surveys were conducted through May as the USFWS has informally extended the current protocol survey window, since the pygmy-owl is still responsive (Mike Wrigley, pers. comm. to SWCA 1999).

Calling stations were established in developed areas, such as low density housing communities, where appropriate vegetation exists. A letter from the City of Scottsdale gave SWCA permission to conduct surveys within the project area. In all cases where land was developed, call stations were conducted from the street.

### **3.0 RESULTS**

#### **3.1 Description of the Project Area**

##### **3.1.1 Topography and Elevation**

The project area falls within the Basin and Range Province which is characterized by mountain ranges which protrude abruptly from large, flat plains or basins (Hendricks 1985). The project area occurs between an elevation of 1,500 and 3,982 feet above mean sea level, on a gently sloping alluvial plain that extends west and south of the McDowell Mountains. Within the area are a variety of drainage systems

including wide, braided, low capacity drainage channels. Basin areas within the study area usually have surface slopes of less than 5%, and soils are sandy to gravelly and granitic in nature. The western most portion is made up of the McDowell Mountains that reach heights of roughly 4,000 feet, are rugged in parts, and run along the whole eastern boundary of the project area. The topography to the south, west, and northwest the project area consists of a combination of rolling hills and relatively flat sections.

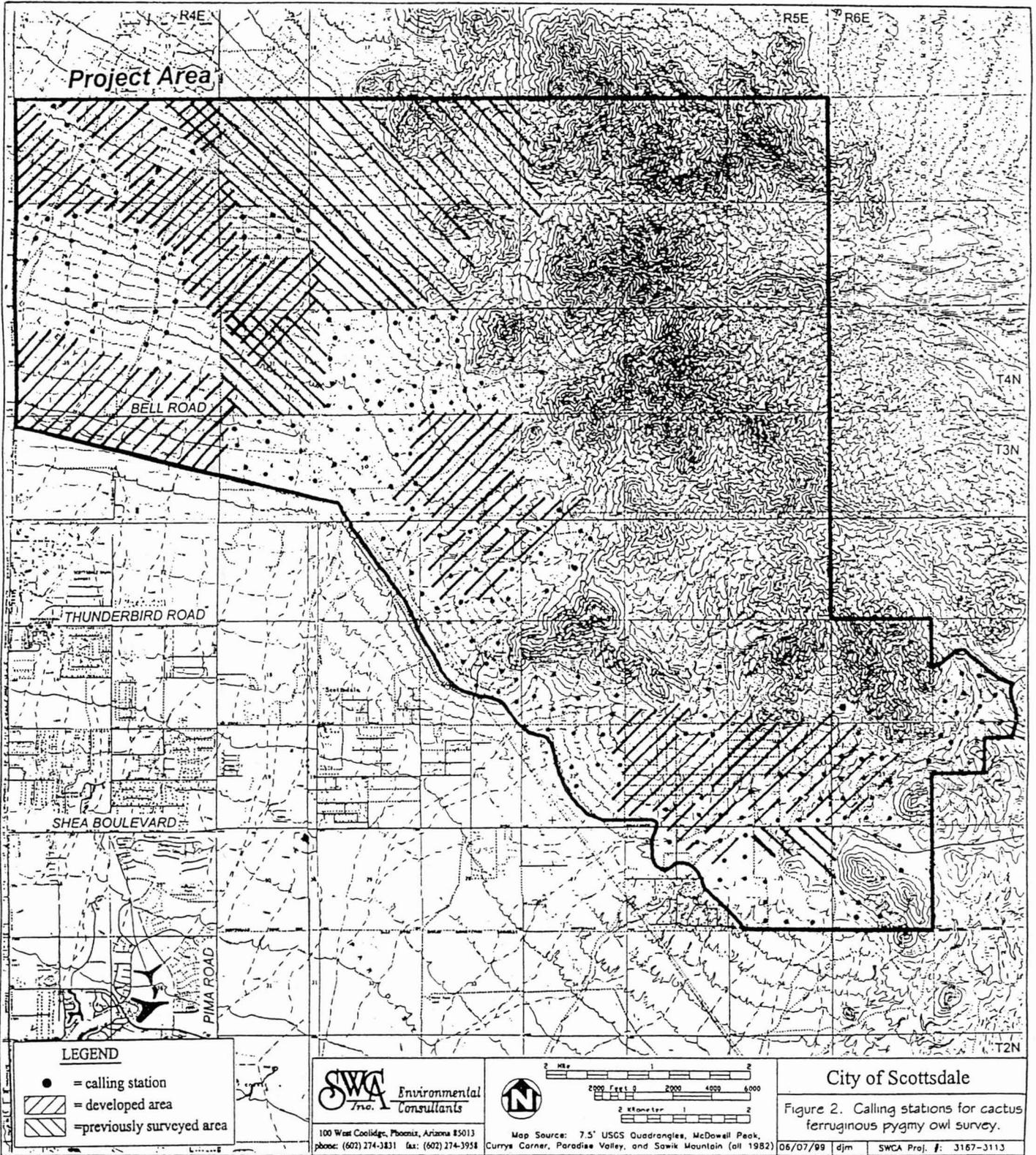
### 3.1.2 Land Use and Physical Characteristics

Because the project area encompasses a large portion of the City of Scottsdale, numerous physical characteristics are present. Based on the City of Scottsdale Land Use map, it is estimated that approximately 25% of the project area is currently developed, 25% is proposed for development and the remaining 50% is undeveloped land. Of the developed and proposed developed areas, medium density residential makes up the majority of the developed space, followed by low density residential and finally industrial and commercial uses. These areas are located west and south of the McDowell Mountains. Approximately half the project area is designated as "special use" by the City of Scottsdale. This categorization includes the McDowell Mountain Preserve, as well as more developed uses such as resorts, cultural institutional uses such as museums, and utilities (Floyd Marsh, Water Resource Advisor, pers. comm. to SWCA 1999). The McDowell Mountain Preserve makes up the majority of the area designated as "special use". Within the undeveloped space surveyed, the following features were found: open space, cattle grazing and horse trails, recreational areas, unimproved roads.

### 3.1.3 Vegetation

The predominant vegetation type within and around the project area is classified as Arizona Upland Division Sonoran Desertscrub, palo verde-mixed scrub-mixed cacti series (Brown 1994). Vegetation differs depending on elevation and topography and degree of development. Vegetation within the project area is primarily characterized by monotypic stands of creosotebush (*Larrea tridentata*) or palo verde-mixed scrub-mixed cacti associations that consists of triangle-leaf bursage (*Ambrosia deltoidea*), foothill palo verde (*Cercidium microphyllum*), globemallow (*Sphaeralcea* sp.), cholla (*Opuntia* sp.), turpentine bush (*Ericameria cooperi*), wolfberry (*Lycium* sp.), ironwood (*Olneya tesota*), mesquite (*Prosopis* sp.), graythorn (*Ziziphus obtusifolia*), brittlebush (*Encelia farinosa*), desert hackberry (*Celtis pallida*), Mormon tea (*Ephedra* sp.), jojoba (*Simmondsia chinensis*), chuparosa (*Beloperone californica*), canyon ragweed (*Ambrosia ambrosioides*), and various grasses. Cacti are found throughout the project area and include hedgehog (*Echinocereus engelmannii*), barrel (*Ferocactus wislizenii*), and cholla (*Opuntia* sp.). SWCA biologists estimated 0-4 saguaros occurred per acre on undeveloped lands within the project area. Lower densities occurred in some areas due to previous grazing activities and undeveloped roads. Xeroriparian areas along the banks of ephemeral washes contain higher densities of trees and plant species such as the chuparosa, canyon ragweed, and catclaw acacia, than associated upland areas.

The distribution of plant species is relatively uniform over the majority of the open spaces within the project area, with trees and larger shrubs occurring both along larger and smaller ephemeral washes and upland areas. Greater average water availability over time results in a higher density of vegetation along the washes compared to adjacent upland areas. Palo verde, ironwood and mesquite species occur throughout the project area and are frequently greater than 6 inches in diameter.



### 3.2 Agency Correspondence

The USFWS Internet Database was accessed and thirteen species which are endangered or threatened are listed for Maricopa County. Listed species identified by the USFWS and their possible occurrence in the project area are summarized in Table 1.

Correspondence was received from the AGFD regarding federally-listed species or species of special concern that may have been recorded in and/or near the project area (Appendix A). Special status species recorded in and/or near the project area are: bald eagle (*Haliaeetus leucocephalus*); California leaf-nosed bat (*Macrotus californicus*); Hohokam agave (*Leptonycteris curasoae yerbabuena*); roundtail chub (*Gila robusta*); and Sonoran desert tortoise (*Gopherus agassizii*), which are addressed in Sections 3.3 and 3.4.

### 3.3 Possible Occurrence of Federally-Listed Species

No federally-listed species are expected to occur regularly in the project area. More detailed descriptions of each species, including habitat requirements, known geographic and elevational range, and recorded occurrences, are provided in this section.

#### 3.3.1 Arizona agave

The Arizona agave is found in the transition zone between oak-juniper woodland and mountain mahogany-oak scrub at 3,000 to 6,000 feet above sea level. Its known habitats are characterized by steep rocky slopes, however, it can occur on drainage bottoms or on relatively gentle slopes or saddles (USFWS 1998). The plant is believed to have originated through a hybridization between two other agave species, *A. chrysantha* and *A. toumeyana* var. *bella*. The nearest known populations of this plant occur in the New River Mountains, approximately 85 miles northwest of the project area.

The site is below the known elevation range at which Arizona agave typically occurs. Furthermore, no oak-juniper woodland or mahogany-oak scrub vegetation associations occur within or near the project area. No agaves of any species were observed during field investigations. This species is not expected to occur in the project area.

#### 3.3.2 Arizona cliffrose

Arizona cliffrose is restricted to Tertiary limestone lake bed deposits and occurs in small populations within relatively few locations in southeastern, central, and north-central Arizona (USFWS 1998). The only known population of Arizona cliffrose in Maricopa County is located in the Horseshoe Lake area.

Soils in the project area are sandy and gravelly, derived primarily from granitic rock. No limestone deposits or outcrops were found in or near the project area. Arizona cliffrose is not expected to occur in the project area.

#### 3.3.3 Arizona hedgehog cactus

The Arizona hedgehog cactus is found on open slopes in narrow cracks between boulders and in the understory of shrubs in the zone between Madrean Evergreen Woodlands and Interior Chaparral at an elevation range from about 3,700 to 5,200 feet above sea level (USFWS 1998).

Table 1. Threatened and endangered species listed by the USFWS for Maricopa County and their potential to occur within the project area. E=federally-listed endangered, T=federally-listed threatened

Species Common Name Scientific Name	Status	Possible Occurrence in Project Area
Arizona agave <i>Agave arizonica</i>	E	Species not expected to occur in project area: Project site below known elevation range for this species, lack of plant communities with which species is typically associated, no agaves of any species found on site.
Arizona cliffrose <i>Purshia subintegra</i>	E	Species not expected to occur in project area: No limestone deposits or outcrops in the project area.
Arizona hedgehog cactus <i>Echinocereus triglochidiatus arizonicus</i>	E	Species not expected to occur in project area: Project site below known elevation range, lack of plant communities with which species is typically associated.
Lesser long-nosed bat <i>Leptonycteris curasoae yerbabuena</i>	E	Species not expected to occur in project area: Project site outside of known geographic range, no possible roost sites; limited foraging resources.
Sonoran pronghorn <i>Antilocapra americana sonoriensis</i>	E	Species not expected to occur in project area: Project site outside of known geographic range.
Desert pupfish <i>Cyprinodon macularius macularius</i>	E	Species not expected to occur in project area: Project site outside of known geographic range, no permanent aquatic habitat, and no records in project vicinity.
Gila topminnow <i>Poeciliopsis occidentalis occidentalis</i>	E	Species not expected to occur in project area: Project site outside of known geographic range, no permanent aquatic habitat in project area, and no records in project vicinity.
Razorback sucker <i>Xyrauchen texanus</i>	E	Species not expected to occur in project area: No permanent aquatic habitat in project area, no known records in project vicinity.
Cactus ferruginous pygmy-owl <i>Glaucidium brasilianum cactorum</i>	E	Species not expected to occur regularly in project area: No recent records in Maricopa County, vegetation characteristics not similar to known pygmy-owl habitat, no pygmy-owls found during field survey.
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	E	Species not expected to occur regularly in project area: No suitable riparian habitat in project area.
Yuma clapper rail <i>Rallus longirostris yumanensis</i>	E	Species not expected to occur in project area: No marsh, aquatic, or possible riparian habitat.
Bald eagle <i>Haliaeetus leucocephalus</i>	T	Species not expected to occur in project area: No reservoirs, rivers, perennial streams in project area. Nearest active breeding area is approximately 1.5 miles away.
Mexican spotted owl <i>Strix occidentalis lucida</i>	T	Species not expected to occur in project area: Project area unsuitable for nesting, unlikely to be used by wintering or transient birds.

Source: USFWS 1998; <http://ifw2es.fws.gov/EndangeredSpecies/Lists/ListSpecies.cfm>

The elevation of the project area is below the known elevational range for the Arizona hedgehog cactus. No Madrean Evergreen Woodlands or Interior Chaparral vegetation types occur. Arizona hedgehog cactus is not expected to occur in the project area.

#### 3.3.4 Lesser long-nosed bat

The lesser long-nosed bat is a migratory species that occurs as a summer resident in desert scrub habitats in southeastern and central Arizona. Pregnant females of this species generally arrive in late April and early May and form maternity roosts in abandoned mine adits and natural caves. In late summer, lesser long-nosed bats migrate to higher elevations and feed primarily on the nectar and pollen of agaves and roost locally in caves.

Foraging habitat for the species is almost non-existent within the project area due to the lack of agaves and very sparse saguaro densities. No on-site surveys within the project area were conducted for potential roost sites such as mine adits and natural caves. However, there are currently only three known maternity roosts in the State, all of which occur in southern Arizona (Petryszyn 1998). There are relatively few records for this species in Maricopa County; prior to 1986, records were limited to one from Phoenix and one from Glendale (Hoffmeister 1986). A single sight record (1992) also exists from a mine site in the Scottsdale area, although the species was not positively identified as a lesser long-nosed bat (Tim Snow, AGFD, per. comm. to SWCA 1998). Except for these records, the project area is outside the known geographic range for this species and its occurrence is considered highly unlikely.

#### 3.3.5 Sonoran pronghorn

The Sonoran pronghorn occurs only as a small remnant population in arid flatlands of southwestern Arizona and adjacent Sonora, Mexico, although historically this subspecies ranged more widely than at present (AGFD 1996). Its habitat consists of wide alluvial basins with desert grasslands in the Sonoran Desert climatic zone (USFWS 1998).

The project site falls well outside the known geographic range of this subspecies in southwestern Arizona; Sonoran pronghorn are not expected to occur in the project area.

#### 3.3.6 Desert pupfish

The desert pupfish occurred historically throughout the lower Gila River Basin. Although formerly extirpated in the State, the subspecies *C. m. macularius* has been reintroduced in four locations. The other subspecies, *C. m. eremus*, occurs only in Organ Pipe National Monument in southwestern Arizona (AGFD 1996).

The project area is outside the known geographical range of the species and does not support aquatic habitat. There are no known records of the desert pupfish in the Verde River.

#### 3.3.7 Gila topminnow

Gila topminnows occurred historically in low to mid-elevation streams in drainages associated with the Gila River. A fairly extensive reintroduction of this species into its historic range occurred in the 1970s, with some success (AGFD 1996). Gila topminnows have been reintroduced at 11 natural sites in southern Arizona (AGFD 1996) and 200 sites throughout the Southwest (USFWS 1998).

The project area does not support a permanent aquatic habitat. There are no known records of Gila topminnows in the immediate project vicinity, including the Verde River.

### 3.3.8 Razorback sucker

Formerly widespread in the Gila and Colorado River systems, this species has been extirpated from much of its former range including the Gila River and its tributaries (USFWS 1994). Reintroduction of millions of fingerlings and a few large razorback suckers were made into the Gila, Salt, and Verde rivers and some tributaries between 1981 and 1990. This includes the reintroduction into the Verde River from near the East Verde River confluence upstream to the headwaters. No populations of razorbacks appear to have become established in any of the areas where they were reintroduced and little evidence has been found of individuals persisting for more than a few months (Hendrickson 1993). There have been recaptures of razorbacks in Horseshoe Reservoir (Paul Marsh, pers. comm. to SWCA 1999) but this species is not known to occur in the Verde River below Bartlett Dam.

There is no aquatic habitat in the project area for the razorback sucker.

### 3.3.9 Cactus ferruginous pygmy-owl

Habitat for the cactus ferruginous pygmy-owl in Arizona includes Sonoran riparian deciduous woodlands and Sonoran desertscrub. Currently, this species is known only from southern Arizona, primarily Pima County and southern Pinal County. There are no recent records of this species in Maricopa County. Historic records from around the turn of the century exist for New River, Cave Creek, Phoenix, Salt River, and Agua Caliente in western Maricopa County (Johnson et al. 1998). A cactus ferruginous pygmy-owl was collected at the confluence of the Salt and Verde Rivers in 1951. A ferruginous pygmy-owl was heard at this location in 1971, but was not visually confirmed or heard after that (Witzeman et al. 1997). With the exception of the collection in 1951, there are no historic or recent records of the cactus ferruginous pygmy-owl in the project vicinity. The Verde River riparian corridor was surveyed from Bartlett Dam to the Fort McDowell Indian Reservation in 1997 and 1998, but no pygmy-owls were detected. (Johnson 1998; USFS 1997).

No cactus ferruginous pygmy-owls were detected during the survey of the project area. The project area also falls outside of the area designated as critical habitat by the USFWS (July 12, 1999; Federal Register 1999). The project area also falls outside of the area proposed as critical habitat by the USFWS on December 30, 1998 (Federal Register 1998). The possible occurrence of the species appears unlikely based on the lack of recent records of the species in Maricopa County, the habitat characteristics, and the negative result of the field surveys.

### 3.3.10 Southwestern willow flycatcher

The southwestern willow flycatcher is a riparian-obligate species that nests in densely vegetated flood plain areas where cottonwood, willow, box elder, buttonbush, and arrow weed are present (USFWS 1998). The habitat characteristics that are important to Southwestern willow flycatcher include distribution and isolation of vegetation patches, hydrology, prey types and abundance, parasites, predators, interspecific competition, and environmental factors (NPS 1997). Suitable nesting habitat for Southwestern willow flycatcher varies with elevation. In higher elevations (above approximately 6,300 feet) nests have been found exclusively in dense stands of Geyer willow. At lower elevations, nests are more likely to occur in areas with dense stands of native broadleaf species or in stands of the exotic species tamarisk, in areas with mixtures of trees and shrubs such as buttonbush, cottonwood, willow and

seep willow, or in areas with a mix of both native and exotic species. In this last case, tamarisk is almost always present (Paradzick et al. 1999). The project area falls outside the designated critical habitat for this species (Federal Register 1997).

No riparian habitat occurs in the project area. It is unlikely the southwestern willow flycatcher would nest or occur regularly in the project area. The project area occurs well outside designated critical habitat for this species within the Verde River floodplain.

#### 3.3.11 Yuma clapper rail

The Yuma clapper rail is a summer resident in cattail and bulrush marshes in the central and southwestern portions of the State. It has been reported from the Salt River near the Verde River confluence. A least 29 individuals were recorded in 1995 along the Gila River west of Phoenix (Witzeman et al. 1997).

No marsh or other aquatic riparian habitats occur in the project area. Yuma clapper rail is not expected to nest or occur regularly in the project area.

#### 3.3.12 Bald eagle

In Arizona, bald eagles nest primarily along the Gila, Salt, Verde, and Bill Williams Rivers (USFWS 1998). Over 200 bald eagles may winter in the State, primarily near lakes and reservoirs. Wintering eagles occur in high numbers on Black River and its tributaries, as well as on the Verde, Gila and Salt rivers, upstream of reservoirs (James Driscoll, AGFD, pers. comm. to SWCA, 1999).

A number of bald eagles nest along the segment of the Verde River below Bartlett Dam, east of the project area. The nearest active breeding area is Box Bar, located approximately 1.5 miles east of the project area. AGFD conducted a nest watch in this breeding area in 1998 (AGFD 1999). Observations of prey delivery to the nest suggests that these eagles forage predominantly on fish in the river. Bald eagles are not expected to nest or forage near the project area due to the lack of permanent surface water sources such as streams, rivers, or lakes. Bald eagles may occasionally fly over the project area but are not expected to occur regularly in the project area.

#### 3.3.13 Mexican spotted owl

Suitable habitat for the Mexican spotted owl is generally described as a relatively closed canopy ponderosa pine/mixed conifer forest associated with steep canyons or north-facing slopes in the northern and eastern portions of the State and with deciduous vegetation in steep canyons in the southern and southeastern portions of the State (Ganey and Balda 1994). Populations are scattered and occur in all but the arid southwestern portion of the state and most of the lowland riparian zones (USFWS 1998). Outside the breeding season, Mexican spotted owls may be found in canyons at lower elevations and have occasionally been reported in urbanized park settings in the Phoenix and Tucson metropolitan areas (R.B. Duncan, R.B. Duncan and Associates, pers. comm. to SWCA, 1999).

Mexican spotted owls are not expected to nest in the project area. Their occasional occurrence in winter is possible, but highly improbable.

### 3.4 Other Special Status Species

Special status species documented by the AGFD in the vicinity of the project area include the bald eagle, California leaf-nosed bat, the Hohokam agave, lesser long-nosed bat, roundtail chub, and the Sonoran desert tortoise (*Gopherus agassizii*). With the exception of the bald eagle and the lesser long-nosed bat, none of these species are federally listed and therefore are not protected under the ESA.

#### 3.4.1 California leaf-nosed bat

The California leaf-nosed bat is a BLM Special Status species. It is not considered a wildlife of special concern species, although the Heritage Database has some records of it and the AGFD has an abstract on the species (AGFD 1997b). It is a year-round resident of desertscrub habitats of southern and western Arizona, California, and Nevada (AGFD 1988) where it roosts colonially in mines and caves. Vaughan (1959) noted bats roosting in tunnels less than 20 ft. deep, but that was exceptional. This species more often roosts deep within tunnels more than several hundred ft. long (AGFD 1997b, K.J. Kingsley, Senior Ecologist, SWCA, pers. comm.). Droppings of this species may be found at the edges of open areas, near the base of the sides or walls of a mine or other roost (ibid). Little is known about the home range and local seasonal movements of this species in Arizona (Hoffmeister 1986). It is thought that the major limiting factor for this species is warm winter roosts.

No suitable roosting habitat is known to exist for this species within the project area.

#### 3.4.2 Hohokam agave

The Hohokam agave is listed as "sensitive" by the Regional Forester and "Highly Safeguarded" as described by the Arizona Native Plant Law. This is defined as an Arizona native plant whose prospects for survival in the State are in jeopardy or are in danger of extinction, or are likely to become so in the foreseeable future. The range of the species is from Paradise Valley and New River Mountains, Maricopa County; South Bradshaw Mountains, Castle Creek and Agua Fria rivers, Yavapai County; Roosevelt Lakes and Tonto Basin, Gila County; and Queen Creek near Superior, Pinal County. It is usually found on benches or terraces above major drainages associated with prehistoric habitation sites (AGFD 1996). It is also found in well drained soil near rock piles.

No agaves were observed during the field evaluation.

#### 3.4.3 Roundtail chub

The roundtail chub is classified as a Wildlife of Special Concern in Arizona and is also listed as sensitive when occurring on lands administered by the U.S. Forest Service (USFS). Roundtail chub habitat occurs in small streams to larger rivers. Although historically distributed throughout the larger tributaries of the Colorado Basin, populations are rare in the larger river portions of the Salt, Verde, and Gila rivers. Population have declined or eliminated due to aquifer pumping, impoundment, stream diversion, and predation by non-native fishes (AGFD 1996).

No permanent aquatic habitat occurs within the project area.

#### 3.4.4 Sonoran desert tortoise

The Sonoran tortoise is classified as a Wildlife of Special Concern in Arizona and is also listed as sensitive when occurring on lands administered by the U.S. Forest Service (USFS). Sonoran desert tortoise habitat occurs primarily in the hills and rocky mountainous terrain of the Arizona Upland and Sonoran Desertscrub communities. Desert tortoises typically forage on plants, plant litter, and arthropods and are usually seen walking across the desert floor or in their burrows. Desert tortoise are typically found along washes and rocky areas, typically building their sheltersites in rocky areas (Johnson et al. 1990). It may also be found in areas where there is creosotebush since they have been known to burrow under the shrub.

No tortoises or their burrows were seen during the field evaluation. If a desert tortoise is found in the project area during development, it is recommended that the AGFD's Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects is followed. The guidelines are attached as part of Appendix A to this report.

#### 4.0 FINDINGS/RECOMMENDATIONS

No federally-listed species are expected to occur regularly in the project area. No additional field work is recommended. All native shrubs, trees, and cacti are protected under the Native Plant Law. The Arizona Department of Agriculture (ADA) and City of Scottsdale must be notified at least 60 days prior to destruction of protected native plants. A copy of the notification form to ADA is included as Appendix B.

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**APPENDIX A**  
Agency Correspondence and Desert Tortoise Handling Guidelines

GUIDELINES FOR HANDLING SONORAN DESERT TORTOISES  
ENCOUNTERED ON DEVELOPMENT PROJECTS

Arizona Game and Fish Department

Revised January 17, 1997

The Arizona Game and Fish Department (Department) has developed the following guidelines to reduce potential impacts to desert tortoises, and to promote the continued existence of tortoises throughout the state. These guidelines apply to short-term and/or small-scale projects, depending on the number of affected tortoises and specific type of project.

Desert tortoises of the Sonoran population are those occurring south and east of the Colorado River. Tortoises encountered in the open should be moved out of harm's way to adjacent appropriate habitat. If an occupied burrow is determined to be in jeopardy of destruction, the tortoise should be relocated to the nearest appropriate alternate burrow or other appropriate shelter, as determined by a qualified biologist. Tortoises should be moved less than 48 hours in advance of the habitat disturbance so they do not return to the area in the interim. Tortoises should be moved quickly, kept in an upright position at all times and placed in the shade. Separate disposable gloves should be worn for each tortoise handled to avoid potential transfer of disease between tortoises. Tortoises must not be moved if the ambient air temperature exceeds 105 degrees fahrenheit unless an alternate burrow is available or the tortoise is in imminent danger.

A tortoise may be moved up to two miles, but no further than necessary from its original location. If a release site, or alternate burrow, is unavailable within this distance, and ambient air temperature exceeds 105 degrees fahrenheit, the Department should be contacted to place the tortoise into a Department-regulated desert tortoise adoption program. Tortoises salvaged from projects which result in substantial permanent habitat loss (e.g. housing and highway projects), or those requiring removal during long-term (longer than one week) construction projects, will also be placed in desert tortoise adoption programs. *Managers of projects likely to affect desert tortoises should obtain a scientific collecting permit from the Department to facilitate temporary possession of tortoises.* Likewise, if large numbers of tortoises (>5) are expected to be displaced by a project, the project manager should contact the Department for guidance and/or assistance.

Please keep in mind the following points:

- These guidelines do not apply to the Mohave population of desert tortoises (north and west of the Colorado River). Mohave desert tortoises are specifically protected under the Endangered Species Act, as administered by the U.S. Fish and Wildlife Service.
- These guidelines are subject to revision at the discretion of the Department. We recommend that the Department be contacted during the planning stages of any project that may affect desert tortoises.
- Take, possession, or harassment of wild desert tortoises is prohibited by state law. Unless specifically authorized by the Department, or as noted above, project personnel should avoid disturbing any tortoise.

THE STATE



OF ARIZONA

# GAME & FISH DEPARTMENT

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Deputy Director

Steve K. Ferrell

August 31, 1999

Ms. Fiona Goodson  
SWCA Inc.  
100 West Coolidge Street  
Phoenix, Arizona 85013

Re: Special Status Species; City of Scottsdale Biological Evaluation on approximately 10,000 Acres North of the CAP Canal to Deer Valley Road

Dear Ms. Goodson:

The Arizona Game and Fish Department has received your letter, dated June 18, 1999, regarding special status species for the above-referenced project and the following information is provided.

The Department's Heritage Data Management System (HDMS) has been accessed and current records show that the special status species listed below have been documented as occurring in the project vicinity.

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>STATUS</u>
bald eagle	<i>Haliaeetus leucocephalus</i>	LT,WC,S
California leaf-nosed bat	<i>Macrotus californicus</i>	WC,S
Hohokam agave	<i>Agave murpheyi</i>	S,HS
lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuena</i>	LE,WC,S
roundtail chub	<i>Gila robusta</i>	WC,S
Sonoran desert tortoise	<i>Gopherus agassizii</i>	WC,S

### STATUS DEFINITIONS

- LE - Listed Endangered.** Species identified by the U.S. Fish and Wildlife Service (USFWS) under the Endangered Species Act (ESA) as being in imminent jeopardy of extinction.
- LT - Listed Threatened.** Species identified by USFWS under ESA as being in imminent jeopardy of becoming Endangered.
- WC - Wildlife of Special Concern in Arizona.** Species whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines, as described by the Department's listing of **Wildlife of Special Concern in Arizona** (WSCA, in prep.).

**APPENDIX B**

Arizona Department of Agriculture Notice of Intent to Clear Land

**ARIZONA DEPARTMENT OF AGRICULTURE  
NOTICE OF INTENT TO CLEAR LAND**

Pursuant to A.R.S. § 3-904 the undersigned, as Owner of the Property described herein, gives this Notice of Intent to Clear Land of protected native plants.

1. **OWNER/LANDOWNER'S AGENT.** The owner or landowner's agent of the Property upon which protected native plants will be affected:

Owner's Name.....Phone.....

Address.....  
Street City State Zip

Agent's Name.....Phone.....

Address.....  
Street City State Zip

2. **PROPERTY.** The description and location of the Property upon which protected native plants will be affected:

Name of Property/Project.....

Address.....

Physical Location (attach map).....  
(Note: Map must also show surrounding land for 1/3 mile in each direction)

Tax Parcel ID Nos. ....

Legal Description (or attach copy) .....  
.....

Number of Acres to be Cleared.....

3. **OWNER'S INTENT.** Landowner's intentions when clearing private land of protected native plants.

- Owner intends to allow salvage of the plants, and agrees to be contacted by native plant salvagers.
- Owner intends to transplant the plants onto the same property, or to another property he also owns.
- Owner has already arranged for salvage of the plants.
- Owner does not intend to allow salvage of the plants.
- Other: .....

4. **APPROXIMATE STARTING DATE.** .....  
(See notice period listed on reverse side)

\_\_\_\_\_  
Signature Date

**NOTICE TO SALVAGERS: CONSENT OF THE LANDOWNER IS REQUIRED BEFORE ENTERING ANY LANDS DESCRIBED IN THIS NOTICE.**

**EXPLANATION OF THIS FORM:**

**1. Notice of Intent to Clear Land.**

The majority of the desert plants fall into one of five groups specially protected from theft, vandalism or unnecessary destruction. They include all of the cacti, the unique plants like Ocotillo, and trees like Ironwood, Palo Verde and Mesquite. In most cases the destruction of these protected plants may be avoided if the private landowner gives prior notice to the Arizona Department of Agriculture.

**2. Notice Period.**

When properly completed, this form is to be sent to the Department within the time periods described below. Landowners/developers are encouraged to salvage protected native plants whenever possible.

**3. Information to Interested Parties.**

The information in this notice will be posted in the applicable county office of the Department and mailed to those parties (salvage operators, revegetation experts) who have an interest in these plants and may approach the landowner with the possibility of saving the plant(s) from unnecessary destruction.

**NOTICE TO LANDOWNER:**

1. The owner may not begin destruction of protected native plants until he receives confirmation from the Arizona Department of Agriculture and the time prescribed below has elapsed. The "Confirmed" stamp only verifies that the Notice has been filed.

<u>Size of area over which the destruction of plants will occur</u>	<u>Length of Notice Period</u>
Less than 1 acre	30 days, oral or written
1 acre or more, but less than 40 acres	30 days, written
40 acres or more	60 days, written

2. If you are clearing land over an area of less than one acre, oral notice may be given by calling the applicable county office at the telephone number given below.

3. If the land clearing or plant salvage does not occur within one year, a new Notice is required.

4. This Notice must be sent to the applicable county office of the Department of Agriculture at the address given below:

**Casa Grande Office**  
711 E. Cottonwood, Ste. A  
Casa Grande, AZ 85222  
(520) 836-7701

**Tucson Office**  
400 W. Congress, Ste. 124  
Tucson, AZ 85701  
(520) 628-6310

**Nogales Office**  
555 W. Goldhill Rd., Ste. 9A  
P. O. Box 2055  
Nogales, AZ 85628  
(520) 761-3445

**Willcox Office**  
241 S. Haskell  
Willcox, AZ 85644  
(520) 384-2665

**Parker Office**  
1112 Arizona Ave.  
Parker, AZ 85344  
(520) 669-5784

**Yuma Office**  
350 W. 16th St., Ste. 432  
Yuma, AZ 85364  
(520) 782-3681

**Phoenix Office**  
1688 W. Adams, Room 415  
Phoenix, AZ 85007  
(602) 542-7182

**NOTICE TO SALVAGERS: CONSENT OF THE LANDOWNER IS REQUIRED BEFORE ENTERING ANY LANDS DESCRIBED IN THIS NOTICE.**

**APPENDIX C**

**Comment Letters on Draft EA  
CAP Water Assignment  
from  
BHP Copper, Inc. and Litchfield Park Service Company  
to  
City of Scottsdale  
and  
Reclamation Responses**

**Prepared by:**

**U.S. Department of Interior  
Bureau of Reclamation  
Lower Colorado Region  
Phoenix Area Office  
Phoenix, Arizona**

**June 2000**



# United States Department of the Interior

## U.S. Fish and Wildlife Service

2321 W. Royal Palm Road, Suite 103

Phoenix, Arizona 85021-4951

(602)640-2720 FAX (602)640-2730



In Reply Refer To:

AESO/FA

September 14, 1999

### Memorandum

To: Area Manager, Bureau of Reclamation

From: Field Supervisor

Subject: Notice of Public Scoping for Preparation of an Environmental Assessment on the Proposed Transfer of 2,500 Acre-Feet of Central Arizona Project (CAP) Water from BHP Copper Company and Litchfield Park Service Company (LPSC) to the City of Scottsdale, Maricopa County, Arizona

We have received the subject Notice and provide the following preliminary comments pursuant to the National Environmental Policy Act (NEPA) (40 CFR Part 1503) for your consideration.

The attachment provided with the Notice states that the purpose for the proposed project is to provide Scottsdale with enough water annually to support both current and planned growth within the community. Scottsdale will receive this 2,500 acre-feet (af) exchange in addition to their existing 49,029 af entitlement, amounting to a total CAP allocation of 51,529 af. The attachment also states that 760 af of the LPSC entitlement would be used at Westworld Golf Course, with the remaining 440 af available for development.

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In regards to CAP water entitlements, the Service believes Reclamation's scope of analysis should include not only the impacts of delivery systems, but also the impacts of municipal and commercial development resulting from the allocation and use of CAP water. The Regulations For Implementing The Procedural Provisions Of The NEPA (40 CFR, Parts 1502.16 and 1508.8), prepared by the Council on Environmental Quality states the environmental consequences of an action include both direct effects and "indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems."

1-1

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For assessing impacts to biological resources from the proposed action, Reclamation's scope of analysis should include potential effects of municipal and commercial development on Sonoran desertscrub vegetation communities and local and regional wildlife resources; including potential shifts in community structure, changes in diversity and relative abundance, and long-term effects

1-2

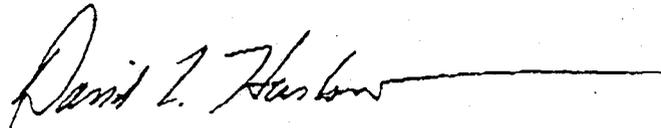
on population demographics and viability. If the proposed project may affect listed species then consultation with the Service would be required under section 7 of the Endangered Species Act.

**1-2**

Additionally, Reclamation should evaluate the cumulative effects of their activities in the proposed action area. Of particular concern is the combined effect of the allocation of CAP water and the construction of flood control facilities related to Scottsdale's Desert Greenbelt Plan. These actions and resulting urban development could significantly affect the quality of the human environment and may require the preparation of an environmental impact statement pursuant to NEPA. As previously recommended to Reclamation, it may be prudent to contact the Regulatory Branch of the U.S. Army Corps of Engineers and work as cooperating agencies to assess the cumulative environmental consequences of CAP water allocation, flood control projects, and Section 404 permitted activities within and around the greater Scottsdale area.

**1-3**

We appreciate the opportunity to provide comments on the subject Notice. If you have questions or concerns, please contact Mike Martinez (x224) or Don Metz (x217).



David L. Harlow

cc: Regional Administrator, Environmental Protection Agency, San Francisco, CA  
Chief, Regulatory Branch, U.S. Army Corps of Engineers, Phoenix, AZ  
Supervisor, Project Evaluation Program, Arizona Game and Fish Department, Phoenix, AZ



# United States Department of the Interior

U.S. Fish and Wildlife Service  
2321 West Royal Palm Road, Suite 103  
Phoenix, Arizona 85021-4951  
Telephone: (602) 640-2720 FAX: (602) 640-2730



In Reply Refer To:  
AESO/SE

November 10, 1999

11/18  
11/18  
1502

## Memorandum

To: Area Manager, Bureau of Reclamation, Phoenix, Arizona

From: Field Supervisor

Subject: Draft Environmental Assessment (DEA) on the Proposed Transfer of 2,500 Acre-Feet (af) of Central Arizona Project (CAP) Water Entitlement From BHP Copper Company and Litchfield Park Service Company (LPSCO) to the City of Scottsdale (Scottsdale), Maricopa County, Arizona

We have received the subject DEA and provide the following comments pursuant to the National Environmental Policy Act (NEPA) ( 40 CFR Part 1503) for your consideration. On September 14, 1999, the Fish and Wildlife Service provided comments to you on the Notice of Public Scoping for the subject proposed transfer of CAP water. Please refer to those comments, as they are still appropriate for this subject DEA.

---

In the Environmental Consequences of the Proposed Action section on page 32, the Bureau of Reclamation (BR) estimates that between 850 and 5,800 acres of Sonoran Desert habitat and associated wildlife values would be lost as a result of increased urbanization. Contrary to the statement made on page 37 that "No specific mitigation commitments are proposed to be incorporated into this proposed action.", we believe mitigation commitments should be developed, as appropriate, in compliance with the Fish and Wildlife Coordination Act and incorporated into this proposed action. We believe this would be appropriate and necessary in order for BR to carry out the spirit and intent of a second level of environmental review for each CAP water use committed to in the 1982 Environmental Impact Statement (EIS). We believe the loss of 850 to 5,800 acres of Sonoran Desert habitat and associated wildlife values would be a significant impact and, if not mitigated, should be disclosed in an EIS.

1-4

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On page 39, you state that "Reclamation believes that consultation requirements of NEPA and the Endangered Species Act are sufficient to meet any requirements for consultation under the Fish and Wildlife Coordination Act." We disagree with this statement, especially considering that the issue of mitigation has not been addressed. BR states in this paragraph that "The proposed project will not impound or divert surface waters in the Scottsdale service area." The implication there seems to be that the urbanization that will take place in the Scottsdale area is not subject to the Fish and Wildlife Coordination Act (FWCA). We disagree. On page 1 of this document you state that the primary purpose of the CAP is to provide water for irrigation and

1-5

M&I use in central and southern Arizona and western New Mexico. We believe the urbanization described in this DEA is a result of the CAP, and subject to the FWCA as damages to wildlife attributable to the project.

**1-5**

---

We appreciate the opportunity to review this document. If you have any questions, please contact Don Metz at 602-640-2720 (x217).



David L. Harlow

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (GARD-AZ/NM)  
Regional Administrator, Environmental Protection Agency, San Francisco, CA  
Director, Arizona Game and Fish Department, Phoenix, AZ

## **Response to Letter of Comment from the U.S. Fish and Wildlife Service (FWS)**

The FWS requested we address their original comments dated September 14, 1999, provided on the Notice of Public Scoping Letter in addition to the comment letter dated November 10, 1999, on the Draft Environmental Assessment (DEA). The first three responses address comments on the Public Notice letter, followed by responses to the DEA comment letter.

Response 1-1. Construction of a treatment facility and delivery system is not required for the proposed water transfers. Scottsdale already has a treatment plant and delivery system in place to receive 1,740 af of the total 2,500 af of the CAP water allocations to be transferred. The remaining 760 af would be delivered to the Sanctuary Golf Course at WestWorld. The facilities needed to deliver and use the 460 af to irrigate the golf course have already been constructed. The construction and operation of these facilities were covered in the EA prepared for the City's Golf Course, Thompson Peak Parkway, and Desert Greenbelt Flood Control Facilities, and a Finding of No Significant Impact was issued (FONSI No. PXAO-98-01, January 23, 1998). Site specific National Environmental Policy Act (NEPA) compliance was completed for the construction and operation of recharge and recovery facilities related to the irrigation system with preparation of a Categorical Exclusion Checklist (CEC No. PXAO-99-24, January 27, 2000).

The EA does describe the anticipated impacts associated with municipal and commercial development including direct and indirect impacts. Because the specific areas of future development, however, are a function of local planning and zoning decisions, these impacts can only be described in a general way. The EA provides a range of acres that may be affected by continued urban growth.

Response 1-2. The EA's biological resources analysis describes the anticipated effects of municipal and commercial development on Sonoran desertscrub vegetation communities, to the extent practical, in the absence of specific locations for future development. Reclamation required Scottsdale to carry out surveys for the endangered cactus ferruginous pygmy owl (CFPO) for the general area within which the water would be used, due to the presence of potential CFPO habitat. SWCA, Inc. prepared a Biological Evaluation (Appendix A) to assess impacts to the proposed Scottsdale project area. Based upon a review of the Biological Evaluation and SWCA's recommendation that there would be "no effect." Reclamation concluded there would be "no effect" to federally-listed threatened and endangered species.

Response 1-3. The specific location of future growth within the Scottsdale service area identified as the project area cannot be predicted precisely because the exact location for the developments are not known at this time. The overall indirect and cumulative effects of urban development as a result of the CAP allocations were addressed in the 1982 EIS. The assignment of portions of BHP and LPSCO water entitlements would not substantially change the analysis assumptions of the EIS or the projected cumulative effects analysis. Future CAP allocations and flood control facilities would require a separate environmental analysis when final designs are completed and approved. The level of environmental documentation required for these projects would be identified at that time. Reclamation provided a copy of the EA to the U.S. Army Corps of Engineers (Corps) to ensure they are involved, and participate in the NEPA process.

Response 1-4. Where the impacts of CAP water use are direct and identifiable, such as construction of water treatment plants and delivery systems to take and treat CAP water, we agree that environmental mitigation measures should be considered. Where such impacts cannot be identified at the time of the Federal action, such as private development over the next several years within the service area, we do not agree that the need for mitigation applies (also see Response 1-1). In the case of Scottsdale's use of this additional CAP water, the impacts of future growth within the service area cannot be specifically identified, since the lands to be developed are subject to Scottsdale's future planning and zoning decisions, and market conditions for private development. In this circumstance, we do not believe that Reclamation's mitigation responsibilities extend to future private development.

Response 1-5. Reclamation continues to believe that the consultation requirements of NEPA and the Endangered Species Act (ESA) are sufficient to meet the requirements for consultation under the Fish and Wildlife Coordination Act. We do not believe that it is appropriate to require mitigation for this water transfer, particularly since the specific location of water use cannot be identified.

ARIZONA DEPARTMENT OF WATER RESOURCES

Colorado River Management Section

500 North Third Street, Phoenix, Arizona 85004

Telephone 602 - 417-2442

Fax 602 - 417-2424



JANE DEE HULL  
Governor

RITA P. PEARSON  
Director

12/2  
12/3 1000  
1100  
1500 CC  
RNC

November 24, 1999

Ms. Carol Erwin  
Area Manager  
USBR - Phoenix Area Office  
P.O. Box 81169  
Phoenix, Arizona 85069-1169

**RE: Draft Environmental Assessment (DEA) on the Proposed Transfer of 2,500 Acre-Feet of Central Arizona Project (CAP) Water Entitlement From BHP Copper Company and Litchfield Park Service Company (LPSCO) to the City of Scottsdale**

Dear Ms. Erwin:

The Arizona Department of Water Resources (Department) has reviewed the DEA regarding the proposed CAP water entitlement transfers from BHP and LPSCO to the city of Scottsdale. The Department has no comments regarding the BHP portion of the transfer. In regards to the LPSCO transfer, the Department would like to clarify the current status of the proposed action.

In May 1999, LPSCO representatives approached the Department and the Central Arizona Water Conservation District regarding the transfer of their entire CAP entitlement of 5,580 acre-feet. They have proposed that the entitlement be transferred to several Phoenix area entities. Specifically, LPSCO has proposed to transfer 415 acre-feet to the city of Avondale, 60 acre-feet to the Carefree Water Company, 3,905 acre-feet to the city of Goodyear and 1,200 acre-feet to the city of Scottsdale.

At LPSCO's request, the transfer process was recently initiated. Notices have been sent to entities on the Department's CAP mailing list and notices will be published in the Arizona Business Gazette, November 25, 1999 and December 3, 1999. The interested public will have until January 3, 2000 to submit comments. During this portion of the process, other water providers may request a portion of LPSCO's entitlement.

The Department will evaluate the proposed transfer, and any transfer requests by qualified, entities, in accordance with the Department's August 23, 1996 CAP water transfer policy (attached). Once the Department makes its final determination regarding the transfer, the

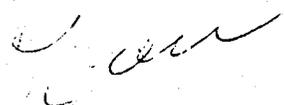
2-1

Director of the Department will submit a recommendation to the Regional Director of the Lower Colorado River Office of the U.S. Bureau of Reclamation.

---

If you have any questions, please contact me at 602-417-2442.

Sincerely,



Thomas Carr  
Manager, Colorado River Management Section

TGC/tgm

C: Shane Brady, USBR  
Jan Ronald. Esq., ADWR

**Response to Letter of Comment from the Arizona Department of Water Resources -  
Colorado River Management Section**

Response 2-1. As stated in the Arizona Department of Water Resources (ADWR) letter dated November 24, 1999, Litchfield Park Service Company (LPSCO) has initiated the water transfer process to relinquish its entire CAP water entitlement (5,580 acre-feet [af]) to several Phoenix area municipal and industrial (M&I) users. The entities along with the proposed allocations for each are as follows; Avondale - 415 af, Carefree Water Company - 60 af, Goodyear - 3,905 af, and Scottsdale - 1,200 af.

The water transfer process requires notices be distributed to other entities on the CAP mailing list to provide others an opportunity to request a portion of LPSCO's CAP entitlement during the comment period which ended January 3, 2000. The ADWR has 60 days to review applicant submittals prior to making its recommendation to the Bureau of Reclamation to approve or disapprove the proposed water transfer.

The Central Arizona Groundwater Replenishment District (CAGR<sup>D</sup>) was the only entity requesting a LPSCO CAP entitlement other than those identified above. CAGR<sup>D</sup>'s letter to the ADWR requested that LPSCO release its entire entitlement to their agency based on ADWR's 1996 Policy Regarding Process for Transfers of CAP M&I Subcontracts (Policy). According to CAGR<sup>D</sup>, they hold a higher priority to LPSCO's entitlement than the "Proposed Recipients" under the Policy. The ADWR will evaluate both the proposed transfer, and CAGR<sup>D</sup>'s request for LPSCO's entitlement prior to submitting its recommendation to Reclamation.

It should be noted that the city of Peoria and Citizens Utility Company which serves Sun City submitted letters to the ADWR during the comment period. The letters support CAGR<sup>D</sup>'s request to acquire LPSCO's CAP entitlement. These entities believe the CAP water entitlement should be retained on the west side of the valley because this area may be adversely impacted (water shortage) in the future. In addition, should the LPSCO water transfer be approved, it would place a replenishment obligation on CAGR<sup>D</sup> should future shortages occur within this service area.

Reclamation plans to finalize the EA and prepare a Finding of No Significant Impact (FONSI) that will cover both the BHP and LPSCO water transfers, but recognizes that the only action taken at the time of finalization of the EA may be the BHP water transfer to Scottsdale.



# SIERRA CLUB

## Grand Canyon Chapter · Arizona

Palo Verde Group  
516 E. Portland  
Phx., Az. 85004

Mr. Shane Brady  
Environmental Resource Management Division  
Bureau of Reclamation  
Phoenix Area Office  
P.O. Box 81169  
Phx., Az. 85009-1169

Nov 29, 1999

Regarding: PXAO-1500 ENV.6.00

Dear Shane Brady,

Thanks for the opportunity to comment on your "Draft Environmental Assessment, Central Arizona Project Water Assignment from BHP Copper Company and Litchfield Park Service Company to City of Scottsdale." We appreciate the Bureau's efforts to analyze the environmental impacts of transferring these CAP water allocations.

We do believe, however, that another alternative should be considered before a portion of BHP's allocation of 2,271 acre feet of water is transferred to Scottsdale. The Carlota Copper Company is currently seeking the necessary permits to operate a mine adjacent to BHP's Pinto Valley Operation. BHP's original intent, as your EA describes, was to trade its CAP allocation for Salt River Project water to be taken from Roosevelt Lake.

3-1

Carlota's current proposal for its water supply is to pump groundwater from under Haunted Canyon and Pinto Creek just north of its project site. Pumping tests conducted in 1993 revealed a direct hydraulic connection between surface water flows in Haunted Canyon and groundwater, as flows diminished greatly at monitoring stations shortly after pumping commenced (Final Environmental Impact Statement for the Carlota Copper Project, Tonto National Forest, July 1997, 3-113). A "Wellfield Mitigation Plan" devised to replenish lost surface flows by pumping additional water from under Pinto Creek and piping it back to Haunted Canyon remains untested and controversial (see FEIS 3-137, FEIS Appendix E, and also Citizens for the Preservation of Powers Gulch and Pinto Creek In the Matter of the Application of Carlota Copper Company, Department of Water Resources, Application #33-96423). Other alternative sources for water supplies, after several years of analysis, remain uncertain (FEIS, 3-128).

3-2

The Sierra Club, together with several other conservation

organizations, have strongly argued both throughout the administrative process and in our legal system that groundwater pumping, together with other related impacts from the proposed Carlota mine, threaten the ecological viability of Haunted Canyon and Pinto Creek. Haunted Canyon is perhaps the finest example of a desert riparian system in central Arizona and has been designated an "aquatic resource of national importance" by the Environmental Protection Agency and has been nominated for "unique waters," a designation bestowed by Arizona's Department of Environmental Quality. An 8.8 mile segment of Pinto Creek downstream of the mine has been found eligible by the Forest Service for Wild and Scenic River status.

3-2

---

The 1997 FEIS analyzed the possibility of using water from Roosevelt Lake, but concluded that such water would be economically feasible only if other entities joined in to use the water and share piping costs, and that since the schedule of availability was unknown, the water might not be deliverable for the initial operation of the mine (FEIS, 2-84).

Sufficient water (1,300 af) is now available from Roosevelt Lake to supply the proposed Carlota Copper project, with additional allocation left over, according to our estimates, for other users. We urge that the Bureau coordinate with the Forest Service to explore all possibilities to utilize this new supply rather than threaten one of our last remaining riparian areas with excessive groundwater pumping. Would not such a use of water offer far more environmental benefits than promoting more growth and golf courses in north Scottsdale?

3-3

---

yours,



Don Steuter  
Conservation Chair

cc: Paul Stewart, Tonto National Forest  
Laura Gentile, Environmental Protection Agency, Region 9  
Dan Randolph, Mineral Policy Center

## **Response to Letter of Comment from the Sierra Club - Grand Canyon Chapter**

Response 3-1. BHP contacted and offered Camboir (owner of Carlota Copper Company ) its CAP allocation in August 1997. Due to the pending dispute over the sufficiency of the Carlota Copper Project EIS, Cambior would not commit to accept the assignment. Camboir requested a "free option" which was not acceptable to BHP. Under this scenario, BHP would have to pay the carrying costs until Camboir exercised its option. BHP perceived the Camboir offer as unfair, and declined the proposal. No further negotiations have occurred between these two mining companies.

Response 3-2. Reclamation's Environmental Assessment (EA) specifically addresses the impacts related to the proposed action (BHP and LPSCO water transfers of portions of its CAP water entitlements to Scottsdale). The document does not address impacts associated with other mining companies and mining operations unrelated to the proposed action. These issues are beyond the scope of this EA. The environmental issues to which you refer, related to the Carlota Copper Project were addressed during the preparation of the U.S. Forest Service (USFS) 1997 Carlota Copper Project Environmental Impact Statement (EIS).

Response 3-3. As stated in your letter, a water delivery system between Roosevelt Lake and the existing mining operations in the Pinto Valley area may not be economically viable unless other mining companies or other entities in the area are willing to provide funding to assist construction of the delivery system. To date, no one has shown an interest in pursuing this alternative water source, and Reclamation does not have the authority to force such an option to be selected. Funding for such a pipeline would have to come from the water users, and if they have no interest, it is their decision to make.

## FRIENDS OF PINTO CREEK

617 E. Apache Blvd., No. 43, Tempe, AZ 85281  
Phone/Fax (602) 446-9328 email: pinto@creek7asu.edu

FAX 602 216 4006

29 Nov. 1999

Mr. Shane Brady  
Environmental Resource Management Division  
Bureau of Reclamation  
Phoenix Area Office  
PO Box 81169  
Phx., AZ 85069-1169

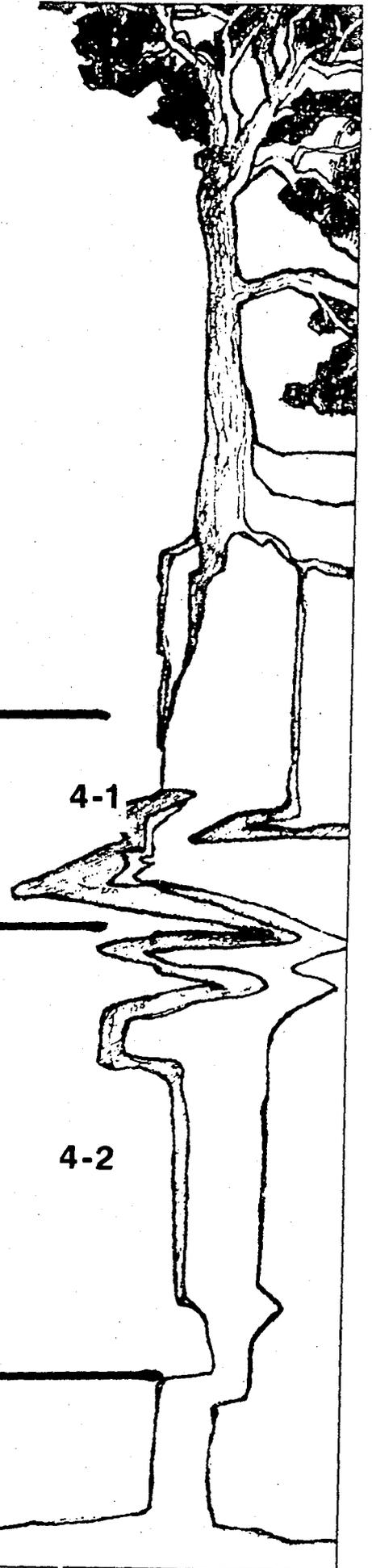
Dear Mr. Brady:

Thank you for the copy of the Draft Environmental Assessment (DEA) Central Arizona Project Water Assignment from BHP Copper Company and Litchfield Park Service Company to the City of Scottsdale and the opportunity to comment

### Comments on Facts

1. (DEA, p. 3 ) I understand BHP has a heap-leaching process entailing sulfuric acid. The DEA describes the mill ore processing, but why not describe the process involving the "leachable ore waste"? Is "waste" the correct term, or is it "crushed ore rock" that becomes "waste" only after BHP extracts the economically extractable minerals?

2. (DEA, p. 7) You place BHP in the upper portion of the Pinto Creek watershed as does the USFS (Tonto) in its 1997 Carlota FEIS text (3-63). However, a large portion of BHP (e.g., wells, a tailings impoundment) on the Tonto FEIS watershed and BHP maps (3-65, 3-132 -- Exhibits A and B) is in the central area of the Pinto Watershed, in the "Pinto Valley subwatershed." You and Tonto place BHP's northern or downstream end some 18 miles from Lake Roosevelt. The Tonto FEIS maps (Exhibits A & B) suggest BHP runs alongside some 8 miles of Pinto Creek, and BHP's southern upstream boundary appears to be some 7 additional miles downstream of Pinto Creek headwaters in the Pinal Mountains. The point is that considerable watershed remains upstream of BHP as is indicated by the 500+ foot width and perhaps 200' height of the US60 highway bridge, less than a mile upstream of BHP.



3. (DEA, p. 7). The Tonto BHP map (Exhibit B) suggests that the current BHP operation encompasses far more than the open pit shown on your Figure 2 (DEA, p. 9) and far more than the cited 2.8 square miles.

4-3

4. (DEA, p. 7) In terms of BHP's private holdings, would it be more accurately to place BHP operations adjacent to as well as within the Tonto National Forest? "...within" suggests that BHP is entirely atop the Forest -- it is partially atop its own private land, which itself is surrounded in part by the Forest (and in part by other private land).

4-4

5. (DEA, p. 18) With reference to the FEIS BHP map (Exhibit B) how can all precipitation be contained (a) if here are waterways laced through BHP operations (e.g., Gold Gulch, East Water Canyon, and, not on this map, 005 Gulch and Cottonwood Gulch among others) that flow, presumably with rain runoff and (b) if mine-related constituents (e.g., seepage from tailings impoundments, flow from 005 Gulch, a NPDES discharge point FEIS 3-131, 3-71) are monitored regularly in the water, constituents presumably flushed in part with rain runoff?

4-5

### Substantive Comments

1. Why can't this BHP water assignment go to the Carlota Copper Company, which proposes to operate an open pit and heap-leach processing operation on 4.8 square miles of Tonto National Forest, the private land eastern portion of which joins BHP's private land? BHP's Lake Roosevelt allotment would be such a source, eliminating much of the adverse impact of the Carlota Mine on Haunted Canyon.

Carlota would have for a twenty-year period an average gpm operations water requirement of 590 gpm that rises to 850 gpm in the dry season, and to 1036 gpm when the January monthly maximum mitigation flow of 186 gpm is added. For this requirement, counts on its wellfield aquifer at and near the confluence of Haunted Canyon and Pinto Creek, a wellfield tested by its consultant in the early 1990s to have an estimated production at 900-1000 gpm. According to the 1997 FEIS, additional water is to come from some combination of pit dewatering (up to 150 gpm after ten years?), two additional wells drilled in the wellfield and a third several miles upstream of the wellfield as well as from up to four alternative low-quality water sources from BHP, the nearby Cypress Mine or the abandoned Gibson Mine upstream from Carlota/BHP.

4-6

There is of course no guarantee that the Haunted Canyon/Pinto Creek wellfield can meet Carlota requirements for twenty years, reason undoubtedly that Carlota is required to find an alternative water source. Four BHP production wells in the bedrock aquifer are within a one-mile radius of the Carlota wellfield and the affect of Carlota pumping on the four is not known because of complex hydrogeologic conditions (FEIS, 3-115), and, I would add, because Tonto refused to require Carlota to test its three wells simultaneously before its infrastructure (e.g., power plant, roads) is in place.

Haunted Canyon is one of few areas in the state which contain heavily canopied low-desert riparian habitats. Its uniqueness includes a stand of eight-story Arizona cypress, an Az. sycamore at least 25 feet in diameter, perennial water, the Abert squirrel normally found at

higher elevations than Haunted Canyon's roughly 3500 feet. Tonto more modestly describes Haunted Canyon's to be with 16.1 acres of the highest quality riparian habitat in the immediate project area (FEIS 3-182), Impacts of the Carlota Project's wellfield on Haunted Canyon include:

- a holding water tank and its foundation,
- a water pipeline running south/upstream, and accompanying road and powerlines
- three current wells, and two more authorized to be installed,
  - one in Haunted Canyon, two near by of which one at 3200 feet distance dropped Haunted Canyon flow from 45 gpm to 5gpm (FEIS, 3-113) and in large part contributed to Tonto insistence on an elaborate wellfield mitigation plan (FEIS, Appendix E)
- an expanded entry road into Haunted Canyon from the north and increased traffic
- archeological site impacts
- the degraded experience for hikers using the hiking trail to Haunted Canyon trailhead (e.g., increased noise, dust, vehicle traffic, view).

4-6

If Carlota obtained its basic source of water from Lake Roosevelt via an SRP allotment, none of the above would occur.

FYI other impacts from the operations some 1.5 miles south/upstream of Haunted Canyon would, however, occur or present the risk of occurring

- a 2.5% increased sediment flow in Haunted Canyon
- spills or leaks from the almost two-mile long heap-leach pad containing toxic heavy metals and process solutions and, at flood time, massive amounts of runoff -- a consultant estimated that a breach in the 110' embankment, considered unlikely by Tonto, a wave 23 feet high would go through Haunted Canyon (undoubtedly destroying this fragile riparian oasis).

2. Why didn't the Pinto Valley Operations (PVO) owners acquire a water allotment directly from Lake Roosevelt in the first place, rather than to buy a CAP allotment, which could evidently never have been used for its PVO.

4-7

3. What need for its operations did the PVO have to purchase a CAP water allotment? The DEA (pp. 14-15) says that BHP has a reliable water supply on site, a statement written after BHP has undertaken a 1200-acre expansion plan earlier this decade. The DEA (p. 4) says that due to subsequent fluctuations in the copper market and water rights issues at other mining operations, it was determined that using CAP water at these operations was either not feasible

4-8

or not required. As asked above, was it ever feasible or substantiated that it was required? Please also explain how copper price fluctuations affect the PVO need for CAP water in that copper prices always fluctuate and large mining companies presumably must take this into account on acquiring CAP water allotments as well as other major decisions.

4-8

4. The DEA (p. 20) suggests that the environmental consequences of the proposed BHP water transfer would be the same for both the No Action and Proposed Action alternatives. I suggest that if the BHP CAP/SRP allotment is transferred to Carlota, use of SRP Lake Roosevelt water would significantly reduce the adverse impacts of the Carlota operations on Haunted Canyon resulting in a substantially significant benefit to the environment

4-9

5. (DEA, p. 32). This loss of 650 to 5,800 acres of Sonoran Desert habitat and associated wildlife values due to increased urbanization is troublesome. This DEA suggests that this loss is among the latest of urban environmental destruction under the name of acceptable incremental growth that is not evidently being considered in any overall game plan. Reference is made to the Scottsdale Environmentally Sensitive Lands Ordinance that reduces development densities or preserve undeveloped areas (p. 33), but "reduces" is a relative term, even a meaningless term in the hands of insensitive developers and lawyers. The question that remains is, "What master plan is in place to preserve" undeveloped areas? If balance is the answer between development and the environment, please explain the exact nature of the current planned balance. Please provide a map that shows what Scottsdale has and proposes to completely take out of development use. Please provide a summary of Scottsdale's position on urban grown plans. The DEA reference (p. 34) to future growth being dependent on private development does not provide confidence that there is any serious plan. Should there not be before such issues as the CAP water assignments are taken up?

4-10

In this regard, please provide the Scottsdale policy on seeking water for a golf course when the Valley has over one hundred golf courses. How do golf courses fit into the master water plan?

Please provide Scottsdale's water conservation plan that sharply curtails water usage per person and per business. How does this fit into estimation of its future water needs?

Please inform how Scottsdale's and others calculations on water availability for this issue have taken into consideration the Arizona climate and climatē predictions. I have read that we are undergoing the worse drought in 40 years in the state, that global warming has caused the expansion of the world's deserts, etc.

4-11

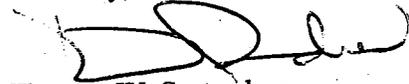
Finally, please provide Scottsdale's master plan in terms of at what point will it limit its growth, saying this is large enough, and future inhabitants and businesses will need to build within this limit or go elsewhere?

In sum, I believe these are legitimate additional questions that an EA should address. I believe that the relatively small amount of water and the set of short-term needs of the various entities should also be placed into the larger picture of where are we all, water-wise and where

are we going as best as we can determine at this time. The alternative, this current incremental growth without long-term vision is incrementally and increasingly devastating us all.

Thank you for your considerations,

Sincerely,



Thomas W. Sonandres  
Coordinator, Friends of Pinto Creek

Enclosures: As stated. To be sent overnight mail with a copy of this letter

## **Response to Letter of Comment from the Friends of Pinto Creek**

### Comments on Facts.

Response 4-1. The Final EA (FEA) includes a brief discussion of the leachable waste processing at the PVU as requested. The EA was prepared to address the proposed water transfer, not detailed BHP mining operations.

Response 4-2. The EA has been revised, and states that the PVO is located within the overall Pinto Creek Watershed (see page 5 of the FEA).

Response 4-3. The EA has been revised, and a new map is included in the FEA to reflect that the BHP PVO encompasses approximately 4.7 square miles (see page 5, and Figure 2 of the FEA)

Response 4-4. The EA has been revised to reflect that BHP owns land where its mining operations occur, and that both private and Federal (U.S. Forest Service) lands are adjacent to, or surround BHP's property (see page 5 of the FEA).

Response 4-5. The DEA discussion that all precipitation is contained within the 2.8 square mile PVU open pit mine has been deleted. The intent of the original statement was that all precipitation that falls within the open pit collects within the depression area, and the water that does not percolate underground is used in BHP mining operations.

### Substantive Comments.

Response 4-6. As indicated in Response 3-1, BHP approached the owner of Carlota Copper company regarding a possible transfer of its CAP water allocation in August 1997; however, this does not appear to be considered a viable alternative by the parties concerned. Therefore, the impacts from the Carlota Copper Company project are not germane to this EA and are not addressed. See also Response 3-2.

Response 4-7. It should be noted that the draft EA incorrectly identified Inspiration Copper Company as the original CAP entitlement holder. This has been corrected in the Final EA. City Services Company (CITCO) was the original company that signed a contract with Reclamation and the CAWCD to obtain a CAP water entitlement of 2.271 af annually. CITCO changed its name to Magma Copper which was then bought by BHP, which now controls the CAP entitlement. CITCO's preliminary plans indicated they would attempt to negotiate an exchange agreement with the Salt River Project (SRP) to exchange their CAP allocation for SRP water from Roosevelt Lake. Three other CAP applicants (Arizona Water Company, Inspiration Copper Company, City of Globe) planned to join CITCO in sharing the necessary water transportation facility costs to deliver Roosevelt Lake water to the area. These entities, however, never consolidated efforts to construct this conveyance system. No other mining companies or local entities have come forward to support construction of this delivery system.

Response 4-8. See Response 4-7.

Response 4-9. See Response 5-1, to the Salt River Project (SRP). Any direct benefits would require construction of a delivery pipeline from Roosevelt Lake. None of the water users have any interest in such a project, and it is beyond Reclamations authority to force consideration of this option.

Response 4-10. We believe the EA provides an objective description of the impacts to Sonoran Desert habitat and associated wildlife values that would result from increased urbanization, given the amount of information currently known about the potential areas to be affected, and not known about specific locations and timing of such urbanization. As stated in the EA, Scottsdale's Environmentally Sensitive Land Ordinance provides incentives to reduce development densities or preserve undevelopment areas designated as environmentally sensitive. Questions regarding Scottsdale's land use policies and position regarding urban growth or preservation plans should be directed to City of Scottsdale, Planning Division, 7447 E. Indian School Road, Scottsdale, AZ 85251. Point of contact, Mr. Brian Hancock (480) 312-2513. Future growth within Scottsdale's service area is a function of private development over which Reclamation has no authority or control. See also Response 1-1, and 1-4.

Response 4-11. The request for additional information related to Scottsdale's Master Plan and urban growth policies should also be directed to Scottsdale's Planning Division (address and number listed above). Information related to Scottsdale's Water Conservation Plan should be directed to the City of Scottsdale, Water Resources Division, 9388 E. San Salvador, Scottsdale, AZ 85258. Point of contact, Ms. Karen Warner (480) 312-5659. Policy related to obtaining water for Scottsdale's golf courses should also be directed to the Water Resources Division. Point of contact, Ms. Beth Miller (480) 312-5009.



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WATER RIGHTS & CONTRACTS**

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*David C. Roberts*  
(602) 236-2343

November 30, 1999

**BY FAX AND US MAIL**

Mr. Shane Brady  
Bureau of Reclamation  
Phoenix Area Office  
P.O. Box 81169  
Phoenix, Arizona 85069-1169

**Re: Draft Environmental Assessment (DEA) for the proposed transfer of 2,500 acre feet of Central Arizona Project (CAP) water entitlement from BHP Copper Company (BHP) and Litchfield Park Service Company (LPSCO) to the City of Scottsdale**

Dear Mr. Brady:

We have reviewed the draft DEA for the proposed transfer of 2,500 acre feet of Central Arizona Project water entitlement from BHP Copper Company and Litchfield Park Service Company (LPSCO) to the City of Scottsdale. We understand that the transfer includes 1,300 acre feet of the BHP allocation and 1,200 acre feet of LPSCO's allocation. The approval of this transfer will increase Scottsdale's total allocation of CAP water to 51,529 acre feet annually.

We also understand that BHP plans to transfer its entire CAP entitlement to other municipal and industrial users and terminate its water service subcontract in the near future (DEA at pp. 1, 12 and 15). SRP is concerned that this and future transfers of the BHP CAP entitlement water to other water users will jeopardize any future discussions between SRP and the Pinal Creek Group to mitigate the current and future impacts to surface flows in Pinal Creek.

As you may or not be aware, Pinal Creek was declared a Water Quality Assurance Revolving Fund (WQARF) site in 1989. The Pinal Creek Group, comprised of the BHP Copper Company and the Cyprus Miami Mining Corporation (Cyprus), is currently working under a Consent Decree with the Arizona Department of Environmental Quality (ADEQ) to clean up groundwater contamination in the alluvial aquifer of Pinal Creek. The treatment includes dewatering the alluvial aquifer through pumping a series of shallow alluvial wells. The pumped water is treated and reused for various mining purposes at BHP's Pinto Valley mine and at Cyprus' mine. Our understanding is that beginning this month, a portion of the treated water will be discharged to Pinal Creek. It is SRP's opinion that all of the treated water should either be discharged to Pinal

Creek, or in the alternative, a replacement supply should be provided to SRP in exchange for the reduction in historic flows in Pinal Creek caused by the pumping.

SRP has been monitoring the situation on Pinal Creek since it was declared a WQARF site. We have written numerous letters over the years citing our concerns of reduced surface flows in Pinal Creek and our expectation that SRP shareholders, which includes shareholders living in south Scottsdale, not be impacted in a final remedial action. Following the issuance of the Feasibility Study Report and Recommended Remedial Action, SRP requested the Arizona Department of Water Resources (ADWR) make a determination as to the appropriability of the water to be pumped pursuant to the recommended action. ADWR completed their hydrologic investigation in November 1997 and determined that the recommended remedial action would deplete surface flows of Pinal Creek by 50% of the average median flow, or 3,038 acre feet annually. ADWR strongly encouraged the Pinal Creek Group to "work with the downstream rightholders to develop a consensual plan." As predicted, these impacts can be seen at the USGS gauge site at Inspiration Dam. In the first six months of 1999, the difference between the daily flow and historic median has resulted in a reduction in flow averaging 10 acre feet per day. Projected over the full year, this results in a loss of 3,650 acre feet from surface flows in Pinal Creek.

SRP and the Pinal Creek Group have met to discuss the potential for a water exchange, using CAP water as the exchange source. However these discussions have not yet come to fruition. Again, our difference of opinion regarding the water rights associated with the mining operations is the primary stumbling block. In an attempt to resolve these issues, the Pinal Creek Group provided information to ADWR regarding their water rights. ADWR is currently evaluating this information and has stated that it will meet with the parties (SRP and Pinal Creek Group) in the near future.

5-1

SRP is concerned that a reduction of 1,300 acre feet from BHP's CAP water entitlement may leave insufficient water to implement a water exchange. SRP is also concerned about statements in the DEA that no impacts will result from this transfer (DEA at p. 12) and that no other alternative exists for using the BHP CAP water entitlement (DEA at p. 15). In light of the recent Arizona Supreme Court decision which entitles federal reservations greater protection from groundwater pumping than state law based water users, BHP's alternative water supplies could be adversely impacted from claims by senior downstream federal reserved right holders such as the Gila River Indian Community.<sup>1</sup> Moreover, the Pinal Creek Group's entire remediation project could be impacted because the water being pumped, treated, and used at BHP's and Cyprus' mines would be needed to satisfy the federal reserved rights of the Gila River Indian Community.

In SRP's opinion, implementing an exchange of CAP water entitlement for reduced flows in Pinal Creek not only provides another alternative for using BHP's entitlement, but also mitigates impacts to senior water right holders while requiring no additional infrastructure to implement. Of course, if the Pinal Creek Group decides to discharge all treated water back to Pinal Creek, SRP would have no concerns with this transfer.

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<sup>1</sup> See In re the General Adjudication of All Rights to Use Water in the Gila River System and Source. Opinion regarding Interlocutory Review of Issues 4 and 5, November 19, 1999.

Mr. Shane Brady

Page 3

11/30/99

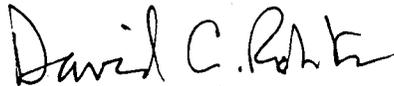
Consequently, it may very well be in BHP's best interest to retain its entire CAP allocation to mitigate impacts of its pumping on other senior water right users such as the Gila River Indian Community.

5-1

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Thank you for the opportunity to comment on the DEA. If you should have any questions regarding these comments, please feel free to call me at (602) 236-2343.

Sincerely,



David C. Roberts

Manager

Water Rights & Contracts

cc: Michael J. Pearce, ADWR  
Edward Pond, ADEQ

## **Response to Letter of Comment from the Salt River Project (SRP)**

Response 5-1. Reclamation forwarded a copy of the SRP comment letter to BHP Copper, Inc. (BHP) for a response to substantive points raised in the comment letter. The BHP response is provided for information purposes. Preparation of this EA does not require Reclamation to take a position on the issues of fact which are disputed between SRP and BHP. In essence, the concerns raised by SRP are a water rights matter and are beyond the scope of this EA to resolve.

Reclamation cannot require BHP to "hold" onto its CAP contract for future settlement purposes with SRP. BHP is free to relinquish its contract entitlement at any time, without Reclamation approval. BHP has evaluated its position in light of the water rights concerns raised by SRP, and has concluded that it does not wish to retain its CAP contract in that context. Finally, even if we could exert such control over BHP it does not appear that environmental benefits on Pinal Creek would result. The exchange proposed by SRP would simply compensate SRP for perceived losses on Pinal Creek, but would do nothing to restore flow, or promote an environmental benefit on Pinal Creek.