

FINAL ENVIRONMENTAL ASSESSMENT
AK-CHIN OPTION AND LEASE AGREEMENT

Prepared by

Jones & Stokes Associates, Inc.

for

U.S. Bureau of Reclamation
Phoenix Area Office
Lower Colorado Region
Phoenix, AZ



November 1997



United States Department of the Interior

BUREAU OF RECLAMATION

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NOV 19 1997

IN REPLY REFER TO

PXAO-1500 ENV-6.00
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To: All Interested Persons, Organizations, and Agencies

From: Thomas G. Burbey
Area Manager

Subject: Finding of No Significant Impact (FONSI) and Final Environmental Assessment (EA) for the Provision of Leased Ak-Chin Indian Community Water to Del Webb Corporation (Del Webb) for Use at The Villages at Desert Hills (The Villages), Maricopa County, Arizona

Reclamation has determined that provision of leased Ak-Chin Indian Community water to Del Webb for use at The Villages will not significantly impact the environment. A copy of Reclamation's FONSI is attached. Del Webb intends to pipe the leased water from Waddell Canal (just south of Lake Pleasant) and treat it for use as a drinking water supply for The Villages. The Villages is located approximately 3 miles north of Carefree Highway and 7 miles east of Lake Pleasant, in Maricopa County, Arizona.

On June 9, 1997, copies of the draft EA were distributed to over 300 Federal, State and local agencies, organizations, and interested individuals. A public hearing was held on June 28, 1997, in New River, Arizona, to provide the public with an opportunity to provide oral comments on the adequacy of the draft EA. Public notification of the draft EA's availability and public hearing was published in four local newspapers twice before June 9, 1997. Twenty-five people provided comments for the public record at the June 28, 1997, hearing. A total of 36 written comment letters were received during the public comment period, which ended on September 8, 1997. Comment letters expressing opposition to either the provision of leased water to Del Webb or the development of The Villages felt an environmental impact statement (EIS) should be prepared.

Reclamation's decision to focus the scope of the EA on the construction and operation of the water delivery and treatment system was based upon its determination that it was reasonable to conclude The Villages would be constructed using an alternative water supply in the absence of the leased water. None of the comments received on the adequacy of the draft EA provided substantiation that information regarding the availability of alternative water supplies was factually incorrect. Additionally, none of the comments received, nor Reclamation's own independent review of the information, caused Reclamation to believe a more intensive investigation regarding alternative water supply sources was needed.

A final EA has been prepared that incorporates changes made in response to all comments received, where appropriate. The final EA also includes a summary of all oral comments made, and copies of all written comments received, as well as Reclamation's responses.

On behalf of Reclamation, I thank everyone that participated in the public scoping and document review process. Your interest in this project is appreciated. Should you have any questions regarding this matter, please contact Ms. Sandy Eto of my staff at the above address, Attention: PXAO-1500, 602-395-5688.

Thomas G. Burbey

Attachments 2

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

FINDING OF NO SIGNIFICANT IMPACT

Provision of Water to Del Webb Corporation
under the Ak-Chin Option and Lease Agreement

~~Maricopa County, Arizona~~

Finding of No
Significant Impact

Approved: Thomas G. Burbey
Thomas G. Burbey
Area Manager, Phoenix Area Office
Bureau of Reclamation

Date: 11/18/97
FONSI No. PXA0-97-4

Pursuant to the National Environmental Policy Act of 1969 (NEPA), as amended, and based upon the following, the Bureau of Reclamation (Reclamation) has determined that provision of leased Ak-Chin Indian Community (Ak-Chin) water under an Option and Lease Agreement among Ak-Chin, Del Webb Corporation (Del Webb) and the United States of America, to Del Webb for use at The Villages at Desert Hills (The Villages) will not result in a significant impact on the human environment.

BACKGROUND

In 1994, the Ak-Chin, Del Webb, and the United States executed an Option and Lease Agreement (Agreement) for provision of between 6,000 and 10,000 acre-feet of water per year from Ak-Chin to Del Webb. Because Del Webb's plans for taking and using the water were not completed at the time the Agreement was executed, Reclamation included a clause in the Agreement that stated notwithstanding any other provision of the Agreement, no leased water would be delivered to Del Webb unless and until Del Webb has obtained final environmental clearance from the United States.

Based upon information provided by Del Webb regarding its plans for taking and using the leased water, which indicated water would be used at its The Villages development, Reclamation determined an environmental assessment needed to be prepared pursuant to the NEPA. Reclamation determined it was reasonable to conclude that development of The Villages would occur even in the absence of provision of the leased water and, accordingly, the environmental impacts of The Villages were not a consequence of the provision of leased settlement water. However, Reclamation wanted to provide the public with an opportunity to review and comment upon this preliminary determination as part of the public involvement process. The information provided in the draft environmental assessment (EA) and public review comments would be used to assist Reclamation decision-makers in determining whether a Finding of No Significant Impact (FONSI) is appropriate or an environmental impact statement (EIS) should be prepared.

Extensive public involvement was incorporated into the NEPA process, due to the strong public interest expressed in The Villages development. On October 17, 1996, notices were mailed to 265 interested agencies, organizations, and persons regarding a public scoping meeting to be held, and a 30-day public scoping comment period, on preparation of an EA for this project. Reclamation conducted an agency coordination meeting on October 31, 1996, in which five agencies and several members of the general public attended. The public scoping meeting, held in New River, Arizona, on November 2, 1996, was attended by over 60 people of which 15 provided oral comments. Because of numerous complaints regarding insufficient advance notice of the meeting, Reclamation extended the public scoping comment period an additional 30 days. A notice regarding this extension was sent to over 300 recipients on November 12, 1996. A total of 68 comment letters were received regarding the scope and content of the draft EA; approximately half supported and half opposed the proposed

development. Many commentors opposing the development believed an EIS was required, or felt one should be prepared. Other commentors indicated long-term impacts from The Villages development needed to be addressed in the EA.

Copies of the draft EA were distributed on June 9, 1997, to over 300 Federal, State and local agencies, organizations, and interested individuals. A public hearing was held on June 28, 1997, in New River, Arizona. Approximately 150 to 200 people attended the public hearing. Twenty-five people provided oral comments for the public record. The comment period ended September 8, 1997. A total of 36 written comments were received from 35 commentors. A summary of the oral comments, and copies of all written comments are included in the final EA, along with Reclamation's responses to all comments.

FINDING OF NO SIGNIFICANT IMPACT

Reclamation has determined that provision of Ak-Chin leased settlement water to Del Webb for use at The Villages in north Maricopa County, Arizona, will not significantly impact the environment, and that preparation of an EIS is not required. This decision is based upon the following considerations.

1. The water delivery and treatment system to be constructed by Del Webb consists of a turnout structure and pumping plant at the Waddell Canal, a 9-mile transmission pipeline, storage reservoirs, and a water treatment plant. Approximately 58 percent of the pipeline alignment is located within or adjacent to previously disturbed corridors. The turnout/pumping plant facilities would be located on 0.5 acre. The total area that would be disturbed during construction of the pipeline would be approximately 148 acres, of which approximately 33 acres would be needed for permanent facilities. The storage reservoirs and water treatment facilities would be located within a 44-acre site on Del Webb property located east of I-17.
2. Reclamation has concluded the impacts resulting from the implementation of the delivery system described in No. 1 above will not significantly affect the environment. The temporary and permanent loss of Sonoran desertscrub habitat that will occur from construction and operation of the pumping plant, pipeline and water treatment facilities will not result in a significant adverse impact. The habitat to be impacted is of moderate quality due to previous heavy grazing use. Sonoran desertscrub habitat is relatively abundant throughout the region. No federally-protected species will be impacted by the construction and operation of the water delivery and treatment facilities. No cultural resources were found within any areas proposed to be disturbed during construction of the system facilities. Impacts to water and air quality will be minimal.
3. The environmental commitments identified in the EA (whether listed in Section 4 or elsewhere) will be implemented by Del Webb during its construction of the water delivery and treatment system.

4. A biological assessment was prepared that concluded there will be no effect to federally-listed species resulting from the construction and operation of the system facilities. It further concluded no cumulative impacts from the development of The Villages are anticipated. Fish and Wildlife Service did not contest this conclusion. Compliance with the Endangered Species Act has been completed.

5. Reclamation has concluded Section 106 consultation pursuant to requirements of the National Historic Preservation Act (NHPA). For purposes of fulfilling the requirements of Section 106, the "area of potential effect" considered included the proposed pipeline corridor, water treatment facilities and The Villages, which is consistent with 36 CFR Part 800 (Protection of Historic Properties). No historic properties were identified within areas to be disturbed resulting from construction and operation of the water delivery and treatment facilities. Thirteen archaeological sites were identified within the property boundary of The Villages. All were evaluated for their eligibility for listing on the National Register of Historic Places (NRHP). Reclamation, with State Historic Preservation Officer (SHPO) concurrence, has determined six of these sites are eligible for listing on the NRHP. A Memorandum of Agreement (MOA) among Reclamation, the Advisory Council on Historic Preservation and SHPO requires the development and implementation of a historic property avoidance and treatment plan to comply with Section 106 for the affected historic properties. Reclamation will ensure the MOA is executed.

6. Reclamation has determined that under the "no Federal action" scenario, it is reasonable to conclude The Villages would be constructed in any event. Reclamation independently reviewed information provided by Del Webb regarding four water supply options that would neither require Federal approval or involve Federal monies or action. Reclamation also independently contacted city of Phoenix staff to confirm the accuracy of information provided by Del Webb. In response to Reclamation's request for comments on the adequacy of the draft EA, none of the comments received indicated the information provided by Del Webb or the assumptions made regarding availability of resources were factually incorrect. Nor did any of the comments cause Reclamation to conclude a more intensive investigation regarding the viability of these options was warranted. Arizona Department of Water Resources (ADWR) reviewed the water supply option information provided by Del Webb for conformity to regulations pertaining to water provider service areas and assured water supply. ADWR expressed its belief that one of the options did not appear to meet the legal requirements for establishing a service area and for demonstrating an assured water supply. Reclamation has not relied upon that particular option as the basis for concluding viable alternative water supplies exist in the absence of the leased settlement water.

This determination of the availability of viable water supply options was the basis for determining the scope of the EA and the environmental impacts associated with the proposed action.

7. Additional NEPA will be conducted as appropriate if other points of delivery are identified by Del Webb.

Documents related to this action are identified below.

U.S. Bureau of Reclamation. 1997. Biological assessment for the Ak-Chin Option and Lease Agreement water delivery facilities. Prepared by Jones & Stokes Associates for U.S. Bureau of Reclamation Phoenix Area Office, Phoenix, AZ.

_____. 1997. Final environmental assessment on the Ak-Chin option and lease agreement. Prepared by Jones & Stokes Associates for U.S. Bureau of Reclamation Phoenix Area Office, Phoenix, AZ.

Memorandum of Agreement among Advisory Council on Historic Preservation, Bureau of Reclamation and Arizona State Historic Preservation Officer regarding provision of Ak-Chin leased settlement water to Del Webb under the Ak-Chin Option and Lease Agreement. 1997. Phoenix, AZ.

**Final Environmental Assessment for the
Ak-Chin Option and Lease Agreement**

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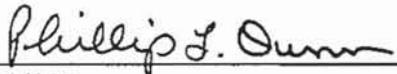
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November 1997

DISCLAIMER

Pursuant to the requirements of 40 CFR Section 1506.5, Jones & Stokes Associates declares under oath that it has no interest, financial or otherwise, in the outcome of this project.



Phil Dunn
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Sacramento, California

11-11-97

Date

This document should be cited as:

Jones & Stokes Associates, Inc. 1997. Environmental assessment for the Ak-Chin option and lease agreement. Final. November. (JSA 96-236.) Phoenix, AZ. Prepared for U.S. Bureau of Reclamation, Phoenix, AZ.

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Section 1.0 Purpose and Need

1.1 INTRODUCTION

The Ak-Chin Indian Community (Community), United States of America, and Del Webb Corporation (Del Webb) have entered into an Option and Lease Agreement that would allow the Ak-Chin Indian Community to lease between 6,000 and 10,000 acre-feet per year (af/yr) of water to Del Webb for 100 years. Delivery of water under the Option and Lease Agreement requires completion of appropriate environmental review under the National Environmental Policy Act (NEPA).

Del Webb plans to transport the leased water by constructing a 9-mile-long pipeline from Waddell Canal south of Lake Pleasant to a future master planned community—The Villages at Desert Hills (The Villages)—that would be located approximately 3 miles north of the Carefree Highway (State Route [SR] 74) and 7 miles east of Lake Pleasant in Maricopa County, Arizona. The pipeline system would include a turnout structure at Waddell Canal, a small pumping plant, pretreatment facilities, the transmission pipeline, storage reservoirs, and a water treatment plant.

1.2 PURPOSE OF AND NEED FOR ENVIRONMENTAL ASSESSMENT

Background

In 1984, Congress enacted Public Law 98-530, the Ak-Chin Settlement Act (Settlement Act), which directed the Secretary of the Interior to deliver 75,000 acre-feet (af) of surface water annually to the Ak-Chin reservation at no cost to the Ak-Chin Indian Community. Colorado River water delivered through the Central Arizona Project (CAP) was specified as the source of the water. To implement the Settlement Act, the United States and the Community signed a contract in 1985 to provide permanent water and settle interim water rights. In 1992, Congress amended the Settlement Act to permit the Community to lease or exchange settlement water for beneficial use within the Pinal, Phoenix, and Tucson Active Management Areas, for periods not to exceed 100 years. In 1994, the Ak-Chin Indian Community, United States of America, and Del Webb agreed to an Option and Lease Agreement for provision of between 6,000 and 10,000 af/yr of leased settlement water. Del Webb had not yet finalized its plans for taking and using the leased settlement water; however, to provide for federal environmental review and clearances before water delivery and to proceed with federal approval of the Option and Lease Agreement, the following clause was added

to the agreement to ensure that adequate environmental review requirements under NEPA would be met:

NEPA Compliance. Notwithstanding any other provision of this Agreement, Leased Settlement Water shall not be delivered to the Company unless and until the Company has obtained final environmental clearance from the United States. Final environmental clearance will be based upon an analysis of the environmental impacts of the Company's plans for taking and using Leased Settlement Water, in accordance with the National Environmental Policy Act of 1969 (83 Stat. 852) and other applicable environmental legislation. Any action(s) required on behalf of the Company in order to obtain final environmental clearance from the United States will be identified to the Company by the United States, and no Leased Settlement Water shall be delivered to the Company unless and until the Company has completed all such action(s) to the satisfaction of the United States. The cost of all such action(s), including the cost of review and oversight by the United States, shall be borne by the Company at no cost to the United States. The above requirements shall also apply to any new points of diversion of the Leased Settlement water proposed by the Company.

In December 1996, Del Webb chose to exercise its option to lease 10,000 af/yr. Del Webb also developed plans for taking and using the settlement water. The U.S. Bureau of Reclamation (Reclamation) has determined that an environmental assessment (EA) according to NEPA should be prepared to determine whether a finding of no significant impact is appropriate or if an environmental impact statement (EIS) should be prepared.

Purpose of this Environmental Assessment

This EA has been prepared to assess and disclose the environmental consequences of Reclamation's provision of leased settlement water under the Option and Lease Agreement. The EA addresses direct, indirect, and cumulative effects of the federal action. Because NEPA applies only to federal actions, the first step in determining the scope of the EA is to identify factors of the existing environment that might influence or be affected by the federal action. For Reclamation, this meant determining whether or not development of The Villages would be a consequence of the federal approval to provide leased water to Del Webb. Del Webb has identified alternative water supply options that could be used in the absence of receiving the leased Ak-Chin settlement water (Appendix A). Based on a review of these options, Reclamation believes it is reasonable to conclude that development of The Villages would occur in the absence of the proposed federal action. Please refer to the discussion of the No-Action Alternative in Section 2, "Proposed Action and Alternatives".

The No-Action Alternative, which describes the conditions that are assumed to exist in the absence of the federal action, provides the basis for comparing the environmental effects of the proposed action. Because The Villages could be developed in the absence of the federal action,

Reclamation is focusing its evaluation of the proposed action in this EA on the impacts associated with construction of the water delivery and treatment facilities needed to take and use leased settlement water. Factors of the existing environment that are addressed in determining the impacts of construction of the water delivery and treatment facilities include:

- biological resource effects, including loss of desert habitat and impacts on plant and wildlife species, including special-status species;
- historic and Indian trust assets effects, and prehistoric cultural resource effects;
- water resources effects;
- air quality and noise effects;
- traffic and circulation effects; and
- land use, visual resource, and environmental justice effects.

The EA was prepared in compliance with NEPA, Council on Environmental Quality Regulations (40 CFR, Parts 1500-1508), Reclamation's NEPA Handbook (U.S. Bureau of Reclamation 1990), Floodplains and Wetlands Executive Orders 11988 and 11990, the federal Endangered Species Act (ESA) (PL 93-205, as amended), the National Historic Preservation Act (NHPA) (16 USC 470), the Clean Air Act (42 USC 7401-7642), and the Clean Water Act (33 USC 1251 et. seq.).

1.3 PURPOSE OF AND NEED FOR THE WATER LEASE

The purpose of the proposed water lease is to provide a surface water supply leased from the Ak-Chin Indian Community to Del Webb. Del Webb intends to use the leased water at a master planned community known as The Villages located approximately 3 miles north of Carefree Highway and 7 miles east of Lake Pleasant in Maricopa County, Arizona. Del Webb will deliver water to The Villages by constructing a 9-mile-long water delivery pipeline from Waddell Canal to the site.

The Ak-Chin Option and Lease Agreement is one option available to Del Webb for providing a reliable water supply for The Villages master planned community. An alternative to groundwater is needed to prove the existence of an assured water supply under regulations promulgated by the Arizona Department of Water Resources (ADWR), to avoid adverse effects on groundwater resources in the development area and to meet Maricopa County Development Master Plan (DMP) Stipulation "r" for The Villages development. Stipulation "r" allows groundwater in the development area to be used by Del Webb only on an interim basis during early construction and for County and public uses until a permanent water supply system is completed and hookup is available. Stipulation "r" was added to the conditions of the DMP by the Maricopa County Board of Supervisors because of the concern of New River and Desert Hills residents about limited groundwater supplies in the development area. The Arizona Groundwater Management Code, which is administered by the

ADWR, also sets limits on who can use groundwater, how much can be withdrawn, and where it can be used. ADWR regulations governing the demonstration of assured water supplies are intended to preclude the use of groundwater in new developments such as The Villages, unless the groundwater is replenished with surface water. The regulations are a part of ADWR's strategy for meeting the primary goal of groundwater management in the Phoenix Active Management Area (AMA) to achieve safe yield of groundwater resources by 2025. Safe yield will occur when the rate of annual groundwater withdrawn in the AMA is less than or equal to the rate of aquifer recharge.

Section 2.0 Proposed Action and Alternatives

2.1 OVERVIEW

Public Law 98-530, the Ak-Chin Indian Community Water Rights Settlement Act, as amended, provides for a Colorado River water supply for the Ak-Chin Indian Community to be delivered through the CAP. The amended act also provides that the Ak-Chin Indian Community may lease a portion of the supply available to it for uses in Pima, Pinal, or Maricopa Counties.

The Ak-Chin Community, United States of America, and Del Webb have agreed to implement an Option and Lease Agreement that would allow the Ak-Chin Community to lease 10,000 af/yr of settlement water to Del Webb for 100 years. Under the proposed action, leased settlement water would be conveyed through the CAP and would be delivered from Waddell Canal. Del Webb plans to construct and operate a 9-mile-long pipeline with ancillary facilities from Waddell Canal to a proposed water treatment plant east of Interstate 17 (I-17) in Maricopa County.

Under authority of the Colorado River Basin Act (PL 90-537), Reclamation is responsible for delivering water through the CAP. The federal action considered in this EA is Reclamation's provision of water under the Option and Lease Agreement.

2.2 PROPOSED ACTION

Reclamation proposes to provide leased settlement water under the Option and Lease Agreement to Del Webb for municipal and industrial use. Del Webb would construct water transmission facilities that would extend from Waddell Canal to a new water treatment plant (Figure 2-1). Pipeline facilities would consist of a buried pipeline with a turnout structure, pumping plant, and storage reservoirs at the terminus of the pipeline. The transmission pipeline and appurtenant facilities would be designed to deliver 10,000 af/yr of surface water supply.

The water delivery system would eventually be connected to a distribution system that would serve The Villages. Because alternative water supply options are available to Del Webb that do not involve a federal action, the EA assumes that development of the future master planned community would occur whether or not Reclamation provides water under the Option and Lease Agreement.

Deliveries of water from the CAP would be made pursuant to a schedule submitted annually by Del Webb to the United States and the Ak-Chin Indian Community and updated periodically to reflect the actual water demand of The Villages community. Del Webb would obtain a permit for a turnout facility from the Central Arizona Water Conservation District (CAWCD), and construct the

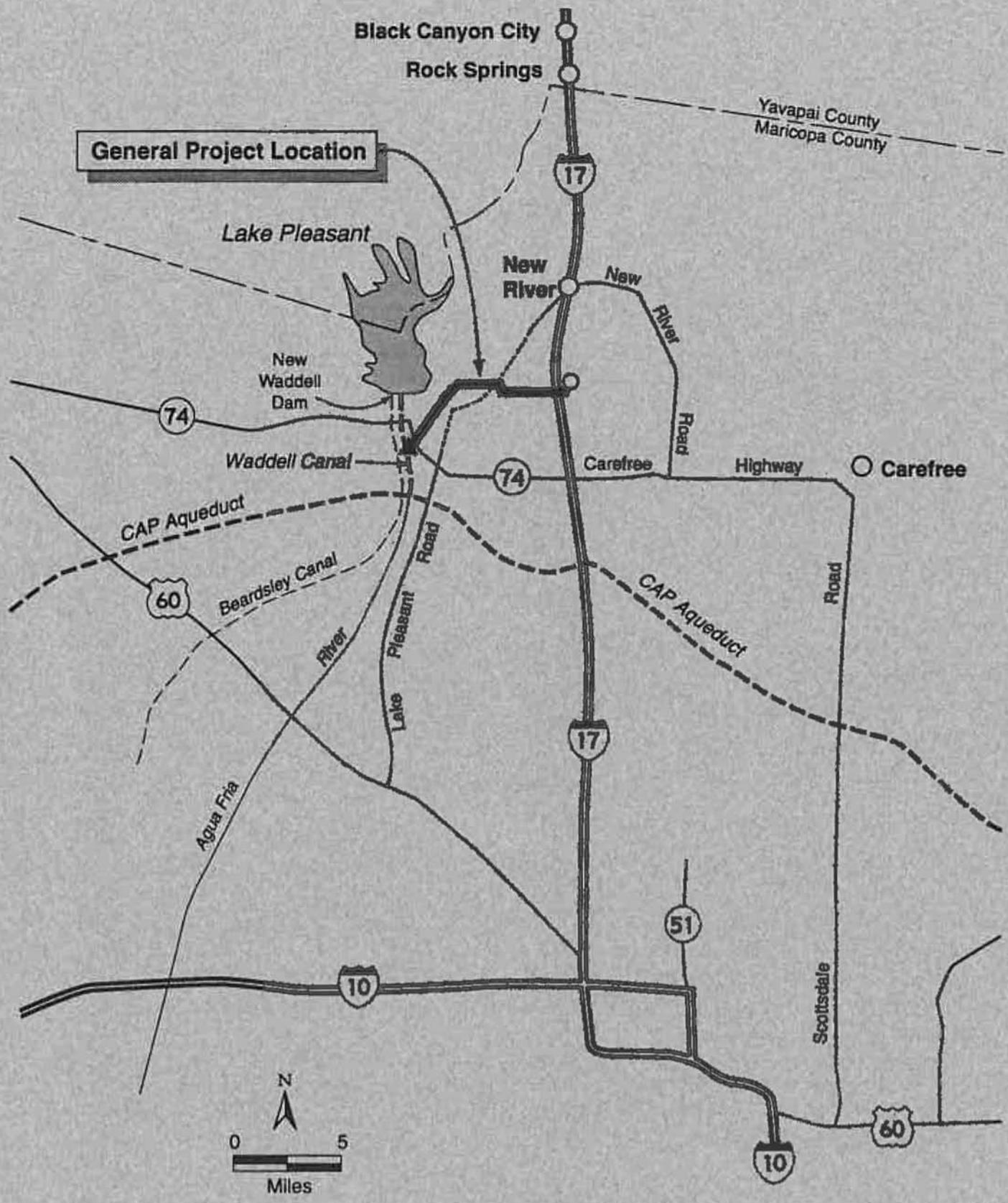


Figure 2-1
Regional Location of Proposed Action Facilities

facility. An approved measurement device would be installed at the turnout. Measured flows would be continuously transmitted to the CAWCD operations center.

Del Webb may eventually pursue other uses of excess leased water (such as recharge or re-marketing). These other potential uses of excess leased water at other locations are speculative at this time; thus, no evaluation of environmental effects associated with other potential uses of the leased water has been included in this EA. Additional NEPA compliance would be conducted as appropriate should any additional points of delivery be proposed.

Water Supply Reliability

The water supply to be delivered from the CAP under the proposed action is highly reliable, both from the standpoint of legal and physical availability. The lease agreement among the Ak-Chin Indian Community, the United States of America, and Del Webb, is a legally binding document that assures that 10,000 af of Colorado River water available to the Ak-Chin Indian Community may be delivered to The Villages. The rate of delivery, if the full 10,000 af were used, may be as much as 40 cubic feet per second (cfs), which is far in excess of the maximum demand under the proposed action.

Colorado River water supplies made available to users in Arizona are delivered pursuant to contracts and laws with established priorities. Users with low priorities must reduce or stop using water if there is a shortage in Colorado River supply. Public Law 98-350 in conjunction with other federal laws and contracts, has established the priority of the Colorado River supply that must be delivered to the Ak-Chin Indian Community through the CAP facilities. The first 50,000 af of that supply is of a higher priority than any CAP water, including that to be delivered to cities and other Indian communities and tribes. This Colorado River water can be expected to be available even in times when no other water is available through the CAP. The next 25,000 af of the total 75,000 af that must be delivered to the Ak-Chin Community under normal water supply conditions is first priority CAP water. The Water Settlement states that during shortage years on the Colorado River, Ak-Chin will receive a minimum of 72,000 af. The 10,000 af of water available to The Villages will be from this 72,000 af. The net effect of the priority of the supply and the binding agreement that Del Webb has with the Ak-Chin Indian Community and the United States of America, is that there are no foreseeable circumstances when there will not be a full water supply available to the planned community.

In addition to the dependability of a Colorado River supply, the CAP is a reliable delivery system. The canals and pumping plants are designed to allow for deliveries throughout the year without interruption for maintenance and repairs. However, unusual and unforeseen events may cause interruption of deliveries for short periods of time. The risk of interruption of deliveries under the proposed action is less than for most other CAP users because the point of delivery would be from the Waddell Canal. This take-out location provides that stored Colorado River water would be available from Lake Pleasant in the event that the flow of water in the CAP aqueduct from the Colorado River is interrupted.

Although the supply is highly reliable, the importance of a continuous water supply to a development the size of The Villages cannot be discounted. Options for adequate backup supplies are being evaluated and would be incorporated into the water delivery system. Included are onsite opportunities for aboveground reservoirs and aquifer storage. Any water use from wells would be from recharged water and would not adversely affect neighboring groundwater wells. The water recharge and recovery activity would require approvals from the Arizona Department of Water Resources and Maricopa County.

The following section describes the components of the water delivery system.

2.3 WATER DELIVERY SYSTEM COMPONENTS

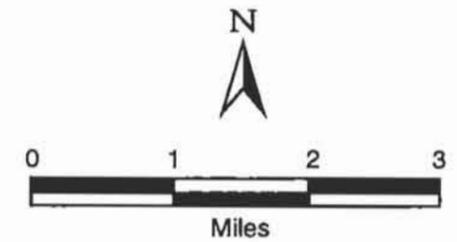
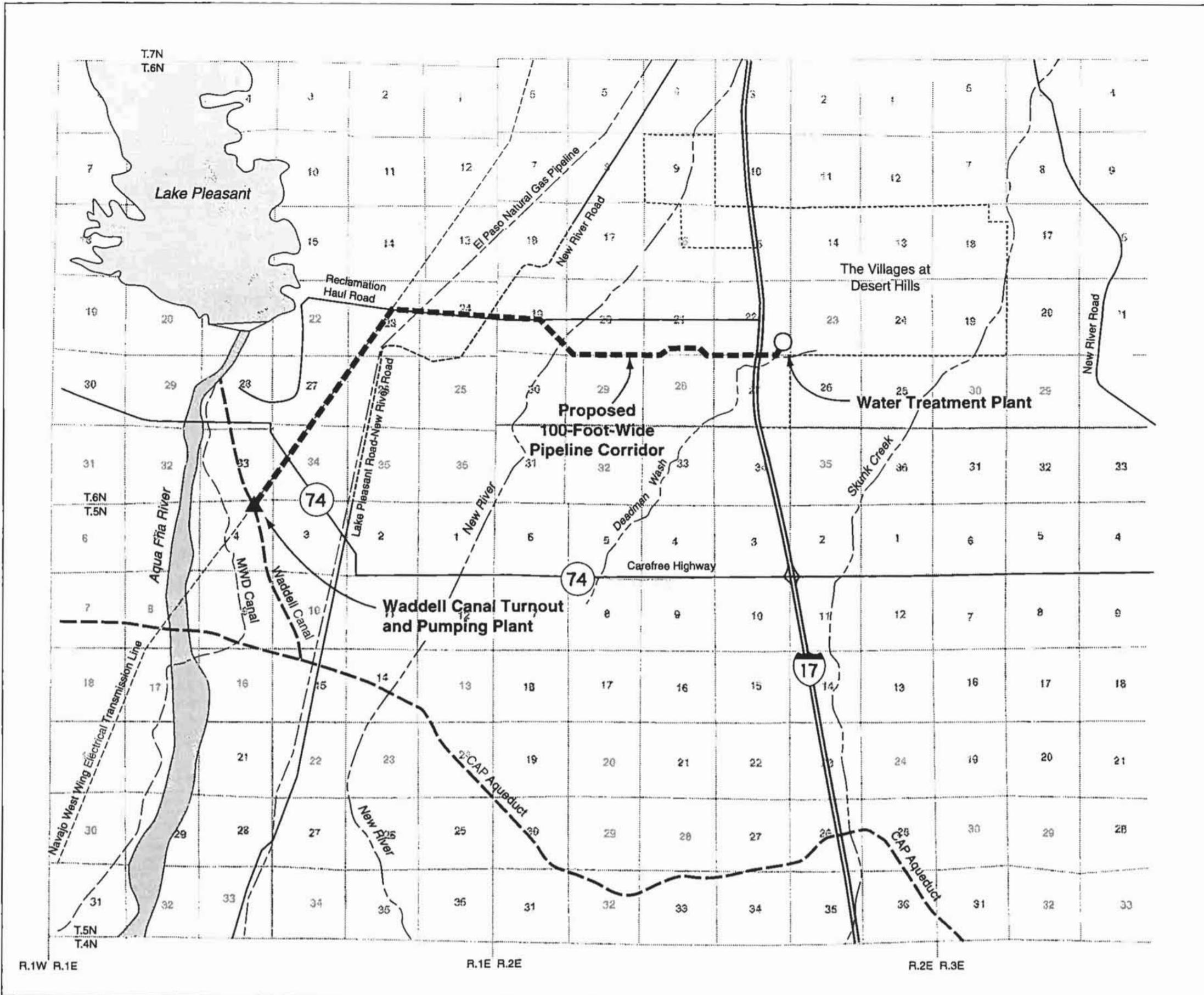
The water delivery system implementation would involve constructing and operating a turnout structure at Waddell Canal, a 9-mile-long transmission pipeline, storage reservoirs, and a water treatment plant. Total costs associated with constructing these system components would be approximately \$29 million.

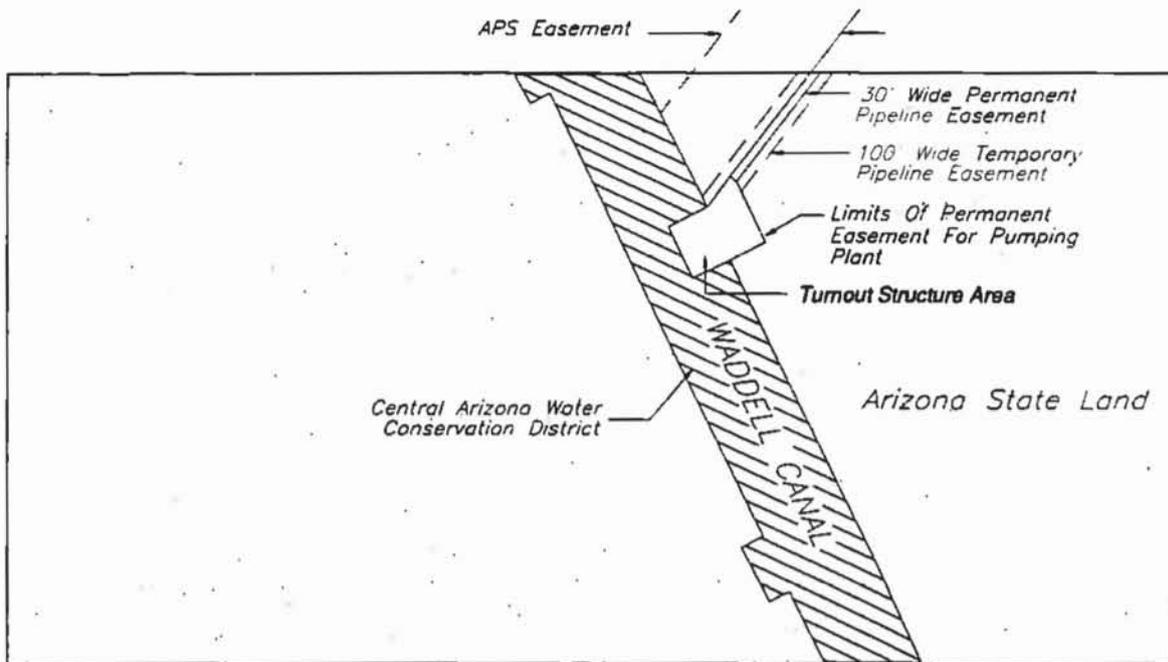
Turnout Structure and Pumping Plant

The turnout structure and pumping plant would be located on the eastern embankment of Waddell Canal at its intersection with the Arizona Public Service (APS) Navajo West Wing Project 500 kilovolt (kV) Southern Transmission Lines (electrical transmission lines) south of the SR 74 crossing (Figure 2-2) and would be used to deliver leased settlement water to the system. The turnout structure and pipeline would require a 100-foot-wide construction corridor and the pumping plant would require an approximately 150-square-foot area. To maintain existing flows within the canal during construction of the turnout, a temporary coffer dam would be constructed in the canal prior to the breaching of the canal and construction of the turnout structure. The proposed turnout structure would divert water by gravity to the pumping plant via an intake pipe. Figure 2-3 shows a detail of the proposed turnout structure location, and Figure 2-4 is an illustration of a typical turnout structure that could be used to divert water from Waddell Canal.

The pumping plant facilities would include a multiple bay concrete sump structure with pumping units on an operating platform. A standby diesel generation system and electrical instrumentation controls would also be included within a fenced security area. The sizes and capacities of the pumping units needed to pump water to the water treatment plant would depend on the rates of flows needed and the total dynamic head of the pumping conveyance system.

**Figure 2-2
Proposed Water Delivery Facilities
under the Ak-Chin Option
and Lease Agreement**





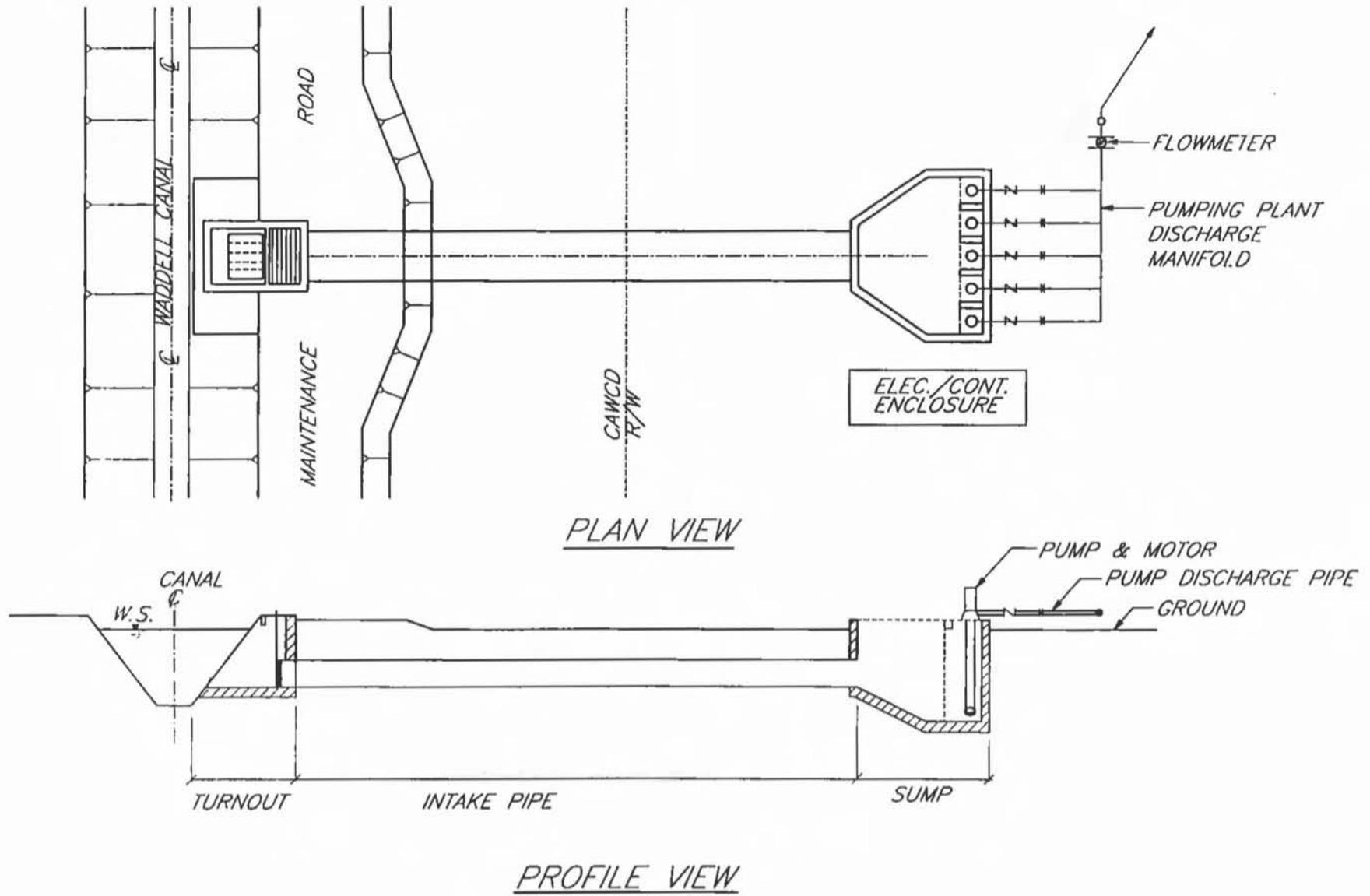
NORTH HALF OF SECTION 4 TOWNSHIP 5N RANGE 1E

BOOKMAN-EDMONSTON
ENGINEERING

OWNERSHIPS AND JURISDICTIONS
PUMPING PLANT AND TURNOUT

FIGURE 2-3

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Transmission Pipeline

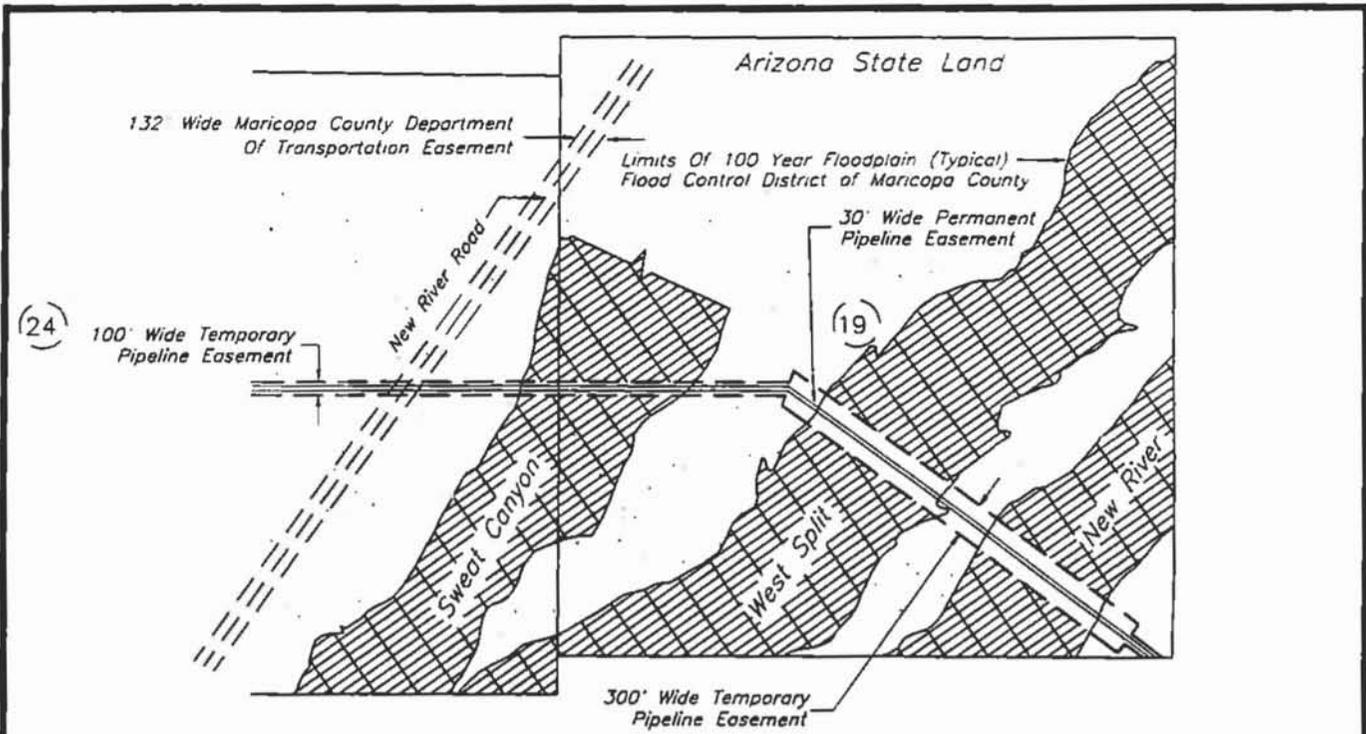
The 9-mile-long pipeline system would be located approximately 3 miles north of the Carefree Highway (SR 74), west of I-17, and southeast of Lake Pleasant (Figures 2-1 and 2-2). The 100-foot-wide pipeline corridor would begin at the turnout and pumping station on Waddell Canal at its intersection with the electrical transmission lines. The alignment would extend northeast from Waddell Canal on the east side of the transmission line corridor for approximately 3.3 miles to an intersection with a former haul road used by Reclamation to construct New Waddell Dam (Reclamation haul road) and then would extend east along the haul road alignment approximately 2.4 miles to a point approximately 0.5 mile west of New River. The alignment would then extend southeast across New River where the construction corridor would be approximately 200 feet wide. Additional corridor width is needed at New River to accommodate construction equipment in this area. East of New River, the alignment would be 100-feet wide and would extend approximately 3 miles to I-17 and beyond to its terminus at a proposed water treatment plant. The portion of the pipeline extending from the middle of Section 19 (Figure 2-2) east of New River was realigned following public scoping for the EA. Figure 2-5 provides a detail of the pipeline corridor at New River and Deadman Wash floodplains. (Please refer to "Alternatives Considered but Eliminated from Detailed Analysis", below, for an explanation of this change.)

The pipeline would be 30-36 inches in diameter and would consist of concrete cylinder or ductile iron pipes. Nominal pipeline pressure would be approximately 150 pounds per square inch.

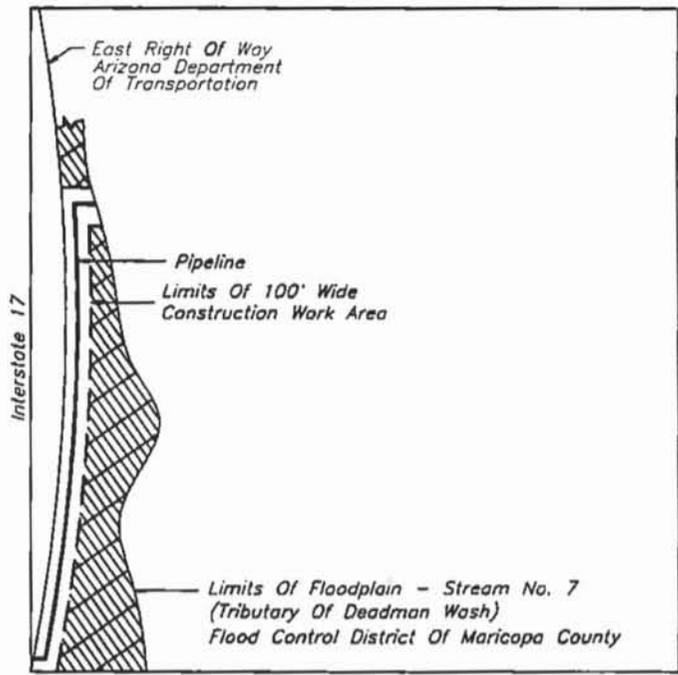
The pipeline would cross 6 roads (including SR 74 and New River Road), 17 minor washes, New River, an El Paso Natural Gas pipeline corridor, and I-17. The alignment topography ranges in elevation from 1,460 feet to 1,860 feet above mean sea level (msl) and stretches from near the Agua Fria River across the New River drainage to Deadman Wash. The pipeline would cross property owned or administered by Reclamation, Central Arizona Water Conservation District, Bureau of Land Management, State Land Department of Arizona, Arizona Department of Transportation, and Maricopa County Department of Transportation (Figure 2-2). Most of the 9-mile-long pipeline alignment crosses state land and would require right-of-way (ROW) easements. Figure 2-6 is a detail of the pipeline corridor near BLM land.

Raw Water Storage and Water Treatment Plant

The leased water delivered through the pipeline is planned to be stored and treated within the 44-acre site set aside in the southwest portion of The Villages property (Section 22) for the water and wastewater treatment facilities (Figure 2-2). The potable water treatment plant would include presedimentation, coagulation, flocculation, sedimentation, filtration, chlorination, water storage, and solids-handling facilities. Raw water would be stored in two 2-million gallon concrete-lined storage reservoirs. These reservoirs would occupy between 1 and 2 acres and would have an average depth of 10-12 feet. The reservoirs would be the discharge point of the pipeline and would be situated below grade at the head works of the water treatment plant to enable gravity feed into the plant of



SECTION 19 TOWNSHIP 6N RANGE 2E
SECTION 24 TOWNSHIP 6N RANGE 1E



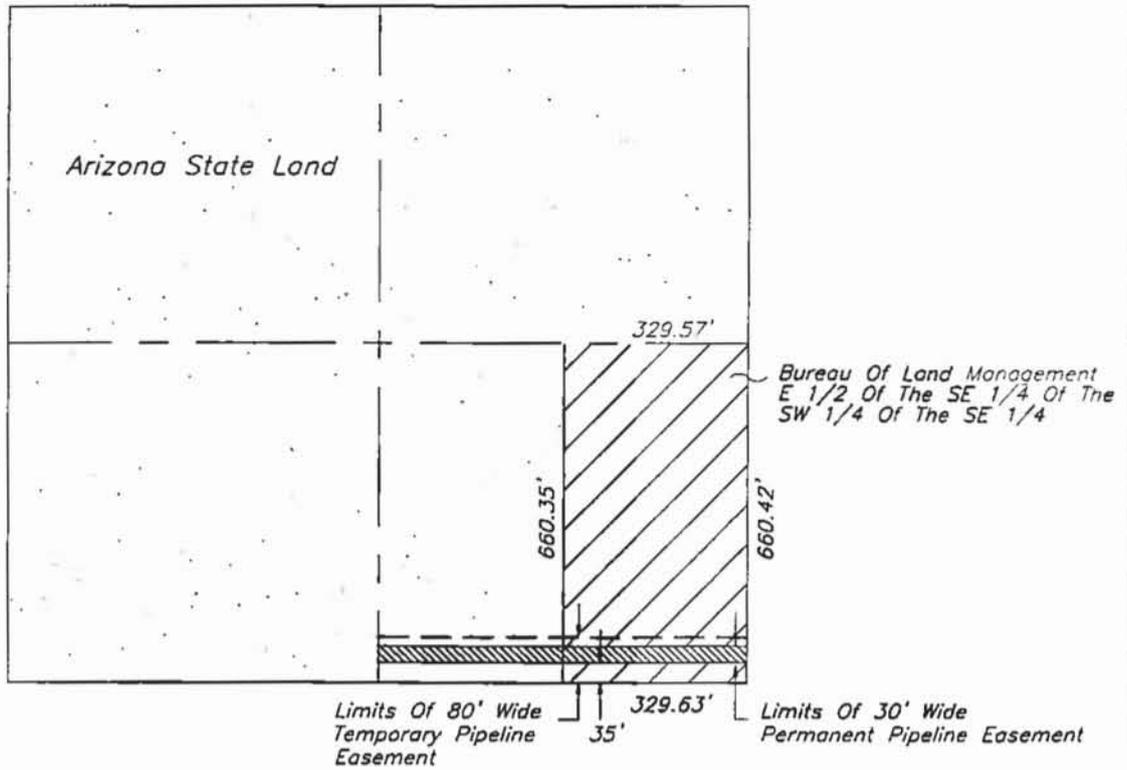
SOUTHEAST QUARTER OF SECTION 22 TOWNSHIP 6N RANGE 2E

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ENGINEERING

OWNERSHIPS AND JURISDICTIONS -
NEW RIVER AND DEADMAN WASH
FLOOD PLAINS

FIGURE 2-5

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SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER
SECTION 20 TOWNSHIP 6N RANGE 2E

BOOKMAN-EDMONSTON
ENGINEERING

OWNERSHIPS AND JURISDICTIONS
BUREAU OF LAND MANAGEMENT

FIGURE 2-6

a continuous flow of water through underground piping. The storage capacity is needed to regulate and maintain flows on a 24-hour basis and to meet peak demands.

Construction and Operation

Construction of the pipeline would require space for trench excavation and backfill, pipe storage, and equipment operations. Pipe would be placed along the alignment before excavation and installation operations. A 100-foot-wide temporary construction easement is assumed for most of the pipeline alignment and appurtenant facilities. The crossing of New River and the pumping plant site would require larger construction sites (approximately 200 feet-wide). Before construction, all vegetation in the immediate vicinity of the pipeline alignment (20-30 feet) would be removed within the construction corridor and handled in accordance with state law; varying amounts of vegetation could be affected in other areas of the proposed corridor. Topsoil would be stripped from the trench area and stockpiled nearby for use during reclamation. Generally, material would be excavated to a depth of approximately 9 feet and placed adjacent to the trench.

After the trench is excavated, a crane would pick up the pipes and position them in the trench. The construction corridor would be an adequate width to accommodate trenching pipe storage, pipe laying operations, and bedding and backfill operations. Bedding material would be placed and compacted in the trench, followed by placement of common backfill materials. Bedding material would be obtained from a local commercial source or generated by screening material that is excavated during construction. Excess material would be spread over the disturbed area after pipeline construction and covered with stockpiled topsoil.

Pipeline construction would require crossing 17 minor drainages, and New River. These drainages do not have perennial streamflow; streamflow occurs only during brief periods of heavy thunderstorms. The pipeline would be buried at a depth sufficient to protect against scour from a 100-year flood. After construction, the drainages would be restored to near-original conditions. The pipeline would be sited under I-17 and Lake Pleasant Road.

After construction is complete, a permanent 30-foot-wide maintenance easement would provide access to the pipeline.

Approximately 58% of the pipeline length would be located within or adjacent to the previously disturbed corridors of the electric transmission lines and the abandoned Reclamation haul road. The turnout structure and pumping plant would be sited on a 0.5-acre site and the pipeline construction corridor would encompass approximately 103 acres. The total area that could be affected by construction activities within the over 9-mile-long pipeline corridor is approximately 148 acres. The permanent 30-foot-wide pipeline corridor would encompass approximately 33 acres assuming that the pipeline would be 9 miles long.

Construction of the raw water storage facilities would involve excavation to design depths, and the excavated material would be used to fill low areas on the plant site. If there is any surplus,

it is anticipated that it would be used on other areas of adjoining property requiring fill, rather than being hauled offsite beyond the adjoining property.

Construction and operation of the water treatment plant would involve clearing up to 44 acres for the plant site and administrative and laboratory facilities. Construction of the processing area and other buildings would involve standard construction practices including construction of an access road on the site to the treatment plant. The water treatment facilities would be automated to reduce operator dependence and ensure operation reliability. Backup power supply also would be provided to ensure operation reliability.

The delivery facilities would be owned and operated by a water company to be established to serve The Villages. The water company could be a subsidiary of Del Webb or another water supply entity. The pumping plant would be operated remotely.

2.4 NO-ACTION ALTERNATIVE

The No-Action Alternative represents the conditions that are assumed to exist in the absence of the proposed federal action and provides a basis for comparison with the proposed action. Under the No-Action Alternative, Reclamation would not provide water under the Option and Lease Agreement, and the specific water delivery and treatment facilities described in connection with the proposed action would not be constructed. Reclamation assumes that if the Option and Lease Agreement were terminated, sufficient water demand exists in central and southern Arizona that would allow the water supply to be leased to another entity by the Ak-Chin Indian Community.

Del Webb has identified alternative water supply options that could be used in the absence of leased settlement water and without the need for Reclamation approval. These water supply options are described in Appendix A. Based on this information, Reclamation believes it is reasonable to conclude that development of The Villages would occur in the absence of the proposed action. Similarly, Reclamation assumes that a water delivery system would be constructed to serve The Villages even if the proposed action is not pursued.

Because Reclamation has determined it is reasonable to conclude that development of The Villages would occur regardless of whether the proposed action occurs, The Villages are included in the discussion of the No-Action Alternative, which represents the conditions that are assumed to exist in the absence of the proposed federal action. The discussion of The Villages in Section 3 includes a description of the affected environment of the proposed Villages development site and a summary of environmental issues related to development of The Villages. To ensure that no confusion is created about what constitutes the "affected environment" of the pipeline corridor, existing conditions and environmental issues for The Villages are summarized together under the No-Action Alternative heading in the "Environmental Consequences and Mitigation Measures" sections of each topical resource area. The environmental consequences of The Villages also are summarized in Section 3.9 in the discussion of the cumulative impacts. The Villages will constitute part of the background of past, present, and reasonably foreseeable future actions against which the incremental effects of the proposed action will be assessed.

Because Reclamation has determined it is reasonable to conclude a water delivery system would be constructed to serve The Villages even if the proposed action is not pursued, the alternative water supply options identified by Del Webb are considered as part of the No-Action Alternative. For ease of analysis in examining the environmental effects of the No-Action Alternative, water supply Option 1 (provision of water service to The Villages by the City of Phoenix) has been selected to represent the various alternative water supply options, and is described in greater detail in order to identify the kinds of effects that may occur with any of the alternative water supply options.

Water Supply Option 1

Under water supply Option 1, as described in Appendix A, the City of Phoenix would provide water service to The Villages from the City's existing water supply system through a series of pipeline extension agreements. The City's distribution system and service area would be extended to include The Villages. The distribution system under this option would involve connecting The Villages water supply pipeline to a 66-inch transmission line adjacent to Deer Valley Road that delivers treated City system water to areas west of 35th Street. The connection point would be just east of I-17 at Deer Valley Road, and from there, the pipeline would extend north on the eastern side of I-17 for approximately 12 miles to The Villages development area. The pipeline would be parallel and adjacent to the I-17 300-foot right-of-way and would consist of a 24-inch diameter pipeline from Deer Valley Road to Carefree Highway and a 36-inch diameter pipeline from Carefree Highway to The Villages development. A temporary construction right-of-way of 100 feet (300 feet at the New River crossing only) would be needed; the permanent right-of-way would be 30 feet. A booster pumping plant located south of Happy Valley Road would be necessary to deliver the treated water. A water treatment plant on The Villages site would not be required under this option.

The Villages at Desert Hills

The Villages is a proposed 5,661-acre master planned community that would be located approximately 3 miles north of the Carefree Highway and 7 miles east of Lake Pleasant on I-17. The Villages is envisioned as a self-contained, multiple-use, mixed-density community of four interrelated "villages" with numerous amenities. The adopted master plan was approved to consist of 32 development areas on 4,969.5 acres planned for residential units; a maximum of 16,526 residential units would be phased in over the life of the project. Predominately single-family detached residential units would be developed at low to medium densities. The average density for the entire project, including high density units, is 2.9 dwelling units per acre. Although the adopted master plan is for a maximum of 16,526 residential units, Del Webb has recently indicated there would likely be 2,000 fewer units.

Development of The Villages in Maricopa County is subject to a DMP that includes a land use plan detailing the natural planning constraints and a Neighborhood Unit Plan of Development (NUPD), Planned Development overlays, and a special-use permit. The land use plan features a self-contained, mixed-use master planned community with interspersed open space areas and trails as well

as golf courses. The DMP also includes an Ecological Resources Management Plan, Community Services and Facilities Plan, Circulation Plan, Drainage Plan, and Public Utilities and Services Plan.

Among the notable features identified in the DMP are the following:

- devotion of 38% of the site (2,150 acres) to open space, including undisturbed natural areas, restored areas, parks and playfields, equestrian trails, and golf courses;
- preservation of hillsides with slopes greater than 15% and major drainages;
- visual resource considerations and buffers near adjacent land use interfaces;
- access to I-17 at two interchanges;
- non-groundwater supply for municipal and industrial use and municipal-level wastewater treatment;
- Sheriff's substation and fire district site; and
- elementary and high school sites and facilities.

The project has also been found to be in compliance with Maricopa County Board of Supervisors' stipulations for the development master plan. Del Webb has also indicated that groundwater recharge facilities would be incorporated into the development. No details of these facilities are currently available.

2.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Alternative Pipeline Alignments

Planning for the pipeline alignments under the proposed action involved a detailed feasibility study that evaluated five alternative CAP turnouts at Lake Pleasant, Waddell Canal, and the CAP aqueduct (Bookman-Edmonston Engineering 1996). Figure 2-7 shows all the turnout structures and pipeline alignment configurations that were considered for this analysis. Alternative A consists of a turnout structure at Lake Pleasant, and Alternative B consists of a turnout from the penstock at Lake Pleasant. Most of the pipeline alignments for both Alternatives A and B would be located within the abandoned Reclamation haul road in a similar manner as described for the proposed action. Alternative C consists of a turnout structure on Waddell Canal at the SR 74 crossing and a pipeline alignment extending north to the New River Road alignment and the abandoned Reclamation haul road. The proposed turnout structure would be located approximately 1 mile south of the Alternative C site on Waddell Canal at the APS transmission line crossing. Alternatives D and E consist of

turnout structures on the CAP Aqueduct on the western and eastern sides of the I-17 crossing with pipeline alignments extending north to the development area.

Criteria for comparing the merits of each alternative included:

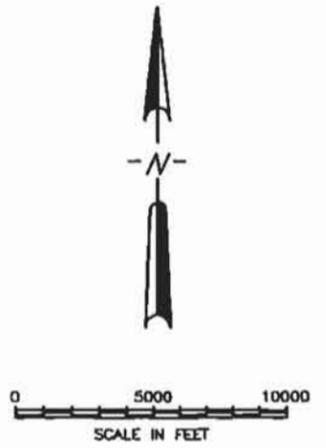
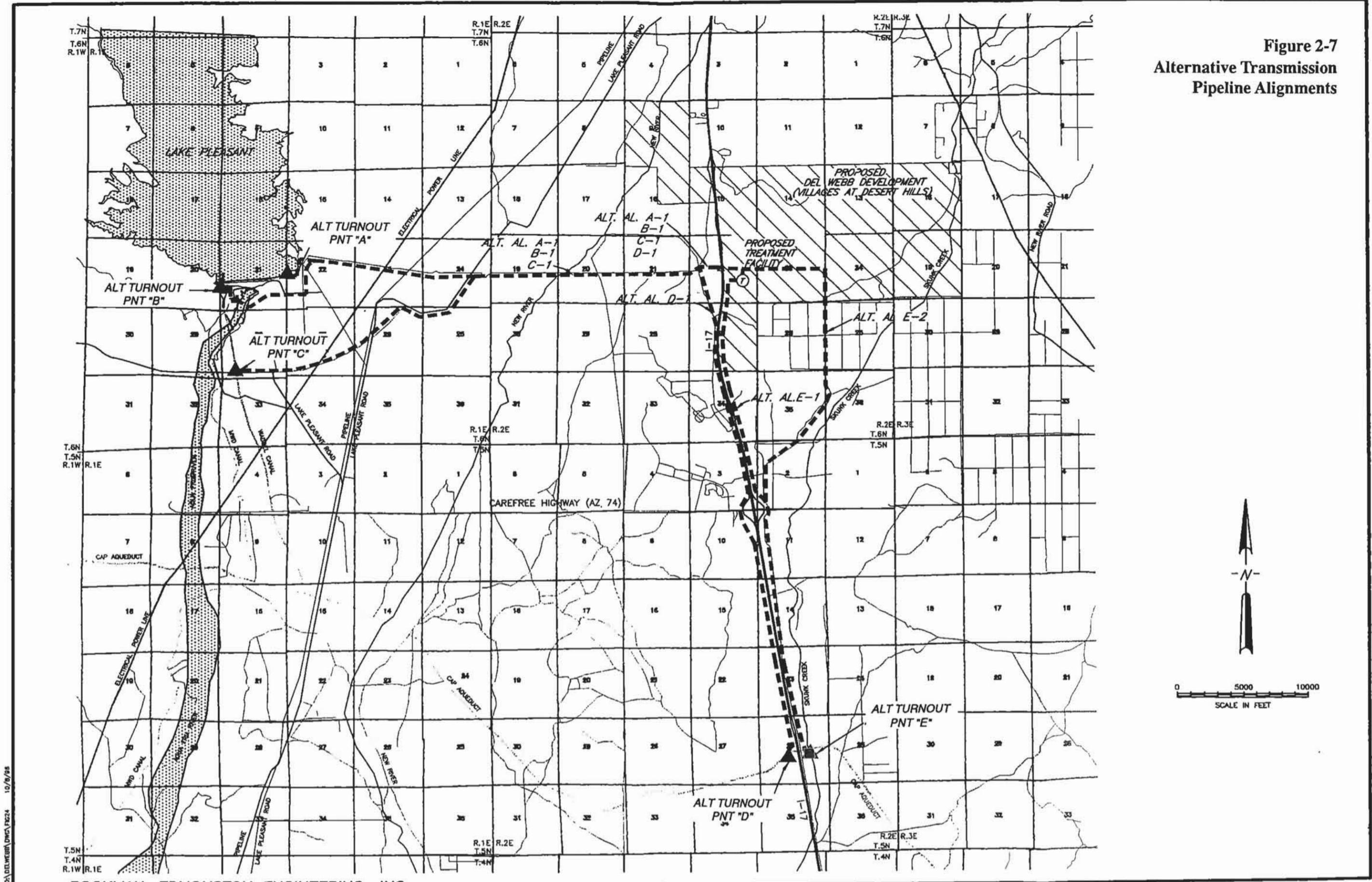
- constructability of the turnout structure and pipeline,
- permit requirements,
- construction schedule,
- ROW issues,
- water supply reliability and quality issues, and
- costs.

Each alternative offered different advantages and disadvantages. Table 2-1 is a summary of the feasibility evaluation conducted for each alternative. The first level of analysis in Table 2-1 identifies relative constructability issues, regulatory and ROW issues, water supply reliability and quality, and schedule considerations. The second level evaluates alternatives based on pumping requirements and number of pumps and pipeline length and diameter needs. Level three shows the relative costs associated with each alternative. Based on the data in levels one, two, and three, the alternatives were ranked. The first category provides ranking in terms of project implementation costs only. The second provides ranking on the basis of total project costs which include the pumping plant power costs over the assumed 45-year life cycle of the facilities. The third ranking considers constructability, ROW and permitting issues. The overall ranking for the alternatives considers all data collected for all of the evaluation criteria including costs.

The feasibility study concluded that Alternative Alignment C was the most feasible, although its costs were not the lowest. Other issues, such as optimal use of previously disturbed areas, constructability, and ROW opportunities, were the main criteria used to select Alternative C. Alternative C was later modified to adjust the turnout point at Waddell Canal to its present location; therefore, the proposed pipeline system is a modified version of Alternative C. The turnout location on Waddell Canal was moved to its current site because of constructability issues, its location near the APS electric transmission line corridor, and the possibility that environmental issues could be avoided by constructing in or near established corridors. A portion of the proposed pipeline corridor identified under Alternative C was also subsequently realigned after the EA public scoping period to avoid an area that was previously designated as proposed critical habitat for the cactus ferruginous pygmy owl. This proposed designation has since been eliminated, but the realigned portion, as shown in Figure 2-2, is still considered part of the proposed pipeline corridor. The original pipeline corridor that is not considered in detail in this EA would have extended along the abandoned Reclamation haul road from the middle of Section 19 east to I-17.

Alternative alignments A, B, D, and E were eliminated from detailed consideration because of excessive construction costs, difficult pipeline corridor terrain, and lack of established ROWs in which to conduct construction activities. Alternative water system delivery alignments considered during the detailed feasibility analysis are not evaluated in detail in this EA because these alternative alignments only partially meet Del Webb's technical and economic selection criteria, as shown in Table 2-1, and were found to be less environmentally preferable than the proposed pipeline corridor.

Figure 2-7
Alternative Transmission
Pipeline Alignments



DEL WEBB DMS/F224 10/26/88

Table 2-1. Summary/Evaluation of Alternative Alignments, CAP Water Supply, Water Facilities and Alignments

| | Alternative | | | | | |
|--|---|--|---|--|---|--|
| | A-1 | B-1 | C-1 | D-1 | E-1 | E-2 |
| Evaluation Criteria | | | | | | |
| Constructability - intake/pumping plant | Very difficult; caisson and intake pipe construction in lake | Moderately difficult; tap into penstock pipe; hard rock area | Minor difficulty; need coffer dam for canal breach | Minor difficulty; need coffer dam for canal breach | Minor difficulty; need coffer dam for canal breach | Minor difficulty; need coffer dam for canal breach |
| Constructability - pipeline | First 2,000 feet difficult; hard rock; New River crossing and I-17 crossing with bore and jack | First 5,000 feet difficult; hard rock; requires crossing of Lower Lake/New River crossing/I-17 crossing with bore and jack | Crossing of Lake Pleasant Road, New River crossing and I-17 crossing with bore and jack | Carefree Highway crossing; crossing steep hill; hard rock area and Deadman Wash crossing | Carefree Highway crossing; crossing steep hill; hard rock area; Deadman Wash crossing; and I-17 crossing with bore and jack | Carefree Highway crossing; crossing steep hill; hard rock area; Deadman Wash crossing; and construction in improved rights-of-way (ROWs) |
| Clean Water Act compliance ^a | Individual Section 404 permit plus Nationwide Section 404 permit | Individual Section 404 permit plus Nationwide Section 404 permit | Nationwide Section 404 permit | Nationwide Section 404 permit | Nationwide Section 404 permit | Nationwide Section 404 permit |
| Special construction and/or salvage techniques | Required | Required | Required | Required | Required | Required |
| Land ownership within required ROW | Federal; state; ADOT; and private | Federal; state; ADOT; and private | Federal; state; ADOT; and private | State; ADOT; and private | State; ADOT; and private | State; ADOT; and private |
| ROW issues | Lake area; federal ownership (BLM); restricted access to County Regional park; aesthetic conditions and restrictions; state lands ROW acquisition process takes a minimum of 1 year | Encroachment of CAWCD facilities; approval difficult; state lands ROW acquisition process takes a minimum of 1 year | State lands ROW acquisition process takes a minimum of 1 year | State lands ROW acquisition process takes a minimum of 1 year | State lands ROW acquisition process takes a minimum of 1 year | State lands ROW acquisition process takes a minimum of 1 year |
| Water supply availability and reliability | Good; large fluctuation in lake water level | Good | Good | Good | Good | Good |
| Water supply quality | Least desirable | Some minor problems | Some minor problems | Some minor problems | Some minor problems | Some minor problems |
| Time implementation schedule | 2 years | 2 years | 2 years | 2 years | 2 years | 2 years |
| Water Facility Requirements | | | | | | |
| Pumping cycle | 24-hour | 24-hour | 24-hour | 24-hour | 24-hour | 24-hour |
| Estimated pipeline length | 40,570 | 48,890 | 42,240 | 45,700 | 39,300 | 49,200 |
| Recommended pipeline diameter | 30 | 30 | 30 | 30 | 30 | 30 |
| Recommended number of pumps | 4 | 4 | 4 | 4 | 4 | 4 |

Table 2-1. Continued

| | Alternative | | | | | |
|--|------------------|------------------|------------------|------------------|------------------|------------------|
| | A-1 | B-1 | C-1 | D-1 | E-1 | E-2 |
| Project Implementation Costs | | | | | | |
| Construction and ROW costs | \$5,952,998 | 6,442,718 | 5,453,866 | 5,761,208 | 5,133,811 | 6,162,519 |
| Administrative, engineering, and construction management costs | 2,018,015 | 2,142,893 | 1,890,736 | 1,969,106 | 1,809,122 | 2,071,442 |
| Contingency - 25% | <u>1,488,250</u> | <u>1,610,679</u> | <u>1,363,466</u> | <u>1,440,302</u> | <u>1,283,453</u> | <u>1,540,630</u> |
| Project implementation costs | 9,459,263 | 10,196,290 | 8,708,068 | 9,170,616 | 8,226,386 | 9,774,591 |
| Power costs - present value (45-years) | <u>1,654,695</u> | <u>1,686,186</u> | <u>2,652,884</u> | <u>2,683,949</u> | <u>2,660,224</u> | <u>2,851,138</u> |
| Total project costs | \$11,113,958 | \$11,883,476 | \$11,360,952 | \$11,854,565 | \$10,886,610 | \$12,625,729 |
| Ranking | | | | | | |
| Economic ranking - implementation costs | 4 | 6 | 2 | 3 | 1 | 5 |
| Economic ranking - total project costs | 2 | 4 | 3 | 5 | 1 | 6 |
| Constructability | 6 | 5 | 1 | 3 | 4 | 2 |
| Overall ranking | 6 | 5 | 1 | 3 | 2 | 4 |

Notes:

- 1 = lowest implementation and total project costs and highest constructability.
6 = highest implementation and total projects costs and lowest constructability.

* The evaluation of probable Clean Water Act compliance is based on analysis conducted as of March 1996 and does not reflect recent revisions to the nationwide permit program. A Section 404 individual permit would be required for the pipeline project.

Source: Bookman-Edmonston Engineering, Inc. 1996.

An additional Lake Pleasant turnout alternative was also investigated; however, it was dropped from further consideration because of noise and recreational effects on Lake Pleasant.

Section 3.0 Affected Environment and Environmental Consequences

3.1 INTRODUCTION

This section describes the affected environment and analyzes the environmental consequences of the proposed action and the No-Action Alternative. The analysis addresses the following resource topics: water resources; vegetation, wildlife, and special status species; cultural resources and Indian trust assets; air quality; noise; traffic and circulation; and land use, visual resource, and environmental justice issues. The analysis focuses on the environmental consequences of the Ak-Chin Option and Lease Agreement and associated water delivery facilities and addresses environmental issues associated with the No-Action Alternative in a qualitative manner. The No-Action Alternative assumes that the proposed action would not take place and that The Villages would be supplied by an alternative water supply (see Section 2, "Proposed Action and Alternatives"). Water supply Option 1 (Appendix A) is presented for illustrative purposes, to identify the kinds of effects that may occur under any of the water supply options.

3.2 WATER RESOURCES

Affected Environment

Hydrology and Drainage

The pipeline corridor is situated in the northeastern part of the Sonoran desert along upper-elevation terraces of the Basin and Range physiographic province. The pipeline corridor experiences climatic conditions typical of the arid southwestern United States; these conditions are characterized by hot, dry summers and mild winters. The average maximum daily temperature is approximately 105°F in July and 65°F in December (U.S. Geological Survey 1989). Rainfall averages 9.5 inches annually near Lake Pleasant and can be substantially more in the surrounding mountains. Two distinct seasonal periods of precipitation occur in the region. During the winter, Pacific storms produce prolonged rainfall of moderate intensity. Approximately 50% of the annual rainfall is associated with winter seasonal storms from November to April. During the late summer, subtropical moisture moving northward from the Gulf of Mexico and the Pacific Ocean brings intense thundershower activity of short duration.

The proposed pipeline corridor is located in the Agua Fria River and the New River watersheds. The constructed turnout on Waddell Canal and a small portion of the pipeline corridor would be located in the Agua Fria watershed. Most of the 9-mile-long pipeline corridor is within the New River watershed. From the turnout on Waddell Canal, the pipeline corridor parallels the existing electrical transmission line along a broad crest that generally increases in elevation from south to north where it crosses the former Reclamation haul road. Except for the Reclamation borrow pit area, the haul road topography is generally level across a broad basin that is bisected by the New River channel. East of the New River, surface elevations increase gradually near I-17, and relief in the terrain is greater near the terminus of the proposed pipeline. The eastern end of the pipeline corridor drains to Deadman Wash, which intersects the New River several miles downstream.

The locations and directions of flow for predominant surface water drainage features within the pipeline corridor are shown in Figure 3-1 in the "Vegetation, Wildlife and Special-Status Species" discussion. New River, which would be the largest drainage feature intersecting the pipeline corridor, forms a small valley that crosses the pipeline corridor in a northeast to southwest direction. Numerous small surface drainage swales cross the electrical transmission line corridor, the former Reclamation haul road, and the portion of the pipeline corridor east of New River. All of the small swales within the pipeline corridor are typical of intermittent desert washes that generally have flow only after storms that produce intense or prolonged rainfall; several years may pass between substantial streamflows (U.S. Geological Survey 1994). Streamflow after storm activity is generally of short duration, with much of the water percolating into the sandy streambed substrate. Although New River is also an intermittent stream, its flow can be substantial because of the relatively large drainage area (approximately 83 square miles). The U.S. Geological Survey (USGS) operated a stream gauge on New River from 1961 to 1982. Data from this period indicate that estimated peak flows are approximately 33,400 cfs for a 100-year recurrence interval and 3,150 cfs for a 2-year recurrence interval (U.S. Geological Survey 1991). Within the period of record, the highest actual peak flow, 19,500 cfs, occurred in September 1970.

Federal Emergency Management Agency (FEMA) floodplain information indicates that 100-year flood flows for the New River are approximately 5 to 10 feet deep in the area of the pipeline corridor (Federal Emergency Management Agency 1996). The slope of the New River channel within the area is approximately 1.0% and the designated floodplain ranges from 1,500 to 2,000 feet wide.

Groundwater in the area is generally at depths greater than 200 feet below ground surface, and seasonal high water tables do not occur in the soils of the area (Soil Conservation Service 1977). Construction, operation, and maintenance of the pipeline and water treatment plant would not intercept or change the nature of groundwater resources within the pipeline corridor.

Water Quality and Soils

Surface water quality is primarily dependent upon the mineral composition of the soils and associated parent materials and sources of contaminants within a watershed as well as the watershed's hydrologic characteristics. Terrain in the area of the pipeline corridor is composed primarily of basin deposits of recent alluvium that originate from erosion of the surrounding granitic, metamorphic, and volcanic mountainous areas. The alluvium generally increases in thickness with increasing distance from the base of the mountains. The soils that have formed consist predominantly of fine-grained and coarser-grained sandy clays on basin terraces, with clayey sands and clayey gravels occupying drainage channels and surrounding channel banks (Bowden Design Group 1995). The soils show very weak profile development and are largely covered with gravel; their use is primarily limited to desert range land. The lack of well defined channels for the small drainage swales indicate that the soils are relatively resistant to erosion.

Based on the undeveloped status of the pipeline corridor area, the surface water quality of natural streamflows would be expected to be acceptable for beneficial uses, such as intermittent aquatic habitat, groundwater recharge, and water supply for wildlife. Streamflow from storms would be expected to carry elevated loads of suspended sediment when runoff begins, followed by a dramatic decrease in sediment concentrations when the rainfall dissipates and flows recede (U.S. Geological Survey 1994).

Environmental Consequences and Mitigation Measures

Proposed Action

Impact: Temporary Alteration of Drainage Patterns and Floodplain Characteristics. Grading and trenching activities associated with construction in the pipeline corridor would temporarily alter the land surface and disturb existing drainage patterns. The potential effects include minor changes to the shape of small swales in the area of the pipeline crossing that could result in increased erosion and changes in the direction of drainage. Minor increases in soil erosion in 17 small washes could ultimately result in increases in sedimentation effects in downstream channels and offsite properties. Construction-related disturbance of the New River channel at the pipeline crossing would cause minor effects similar to those for the smaller drainage features, but the construction site could be exposed to much larger streamflows as well as floods that have higher potential for channel erosion.

Flooding of a river, stream, or wash may cause erosion that can be relatively deep in the streambed. Often this erosion is filled back in by sediment deposited as the flood subsides, but a pipeline crossing the river must be protected against being exposed by the erosion. The technical term for this erosion is scour. A scour analysis was performed for the pipeline crossings of the New River, a tributary of Deadman Wash, and other washes. The analysis used soils information obtained from geotechnical borings of the river and wash beds. In addition, floodflow magnitudes and

frequencies were used to determine a depth of scour (or erosion). Because the New River flows intermittently in a broad floodplain, it can change locations within the floodplain each time it flows. The pipeline would be buried below the depth of scour for the entire floodplain width.

The potential impacts from the proposed action are considered minor because pipeline construction would be of short duration, ground disturbance is likely to occur in only a small area of each drainage feature, and the pipeline would be installed underground and would be inspected and monitored on a regular basis. Given the nature of the desert climate and infrequent streamflow activity, the potential for permanently altering the existing drainage patterns is very small. Construction is also not expected to change the overall ground surface grade, and backfill soil would be compacted to minimize erosion associated with the site. The Flood Control District of Maricopa County (FCDMC) reviews construction practices within designated floodplain areas of the county. The proposed pipeline may require a General License for construction within the FCDMC ROW to assure that drainage features would not be adversely affected (Stroup pers. comm.). Construction of the pipeline would also comply with regulations pursuant to Section 404 of the Clean Water Act under jurisdiction of the U.S. Army Corps of Engineers (Corps) for construction activities within jurisdictional waters of the United States. A Section 404 permit will be obtained by Del Webb, which would also require Section 401 Water Quality Certification from the Arizona Department of Environmental Quality.

Impact: Temporary Construction-Related Effects on Surface Water Quality. Construction activities in pipeline corridor drainages could result in temporary surface water quality effects if construction were to occur during periods of storm activity. Any water quality effects would primarily be associated with minor increases in soil erosion and associated sedimentation of downstream aquatic habitat or desert vegetation and the potential for inadvertent release of construction-related materials, such as fuels and oil-based materials. If contaminants were to enter ephemeral stream channels they could affect aquatic organisms and wildlife and have downstream impacts. The magnitude of the impacts is normally dependent on the hydrologic environment, type of construction practice and contaminants used, extent of disturbed area, timing of precipitation, and proximity to drainage channels.

The potential impacts on surface water quality associated with the pipeline corridor are considered minor because surface flows are infrequent, construction activities would require a relatively small amount of soil disturbance, the activities would be temporary, and the potential release of contaminants could be minimized by following normal construction practices. Construction staging areas used for onsite storage of construction materials would be located well away from drainage channels (Wagoner pers. comm.). If storms and, consequently, streamflow were to occur while construction activities are taking place, any piles of excess soils and any disturbed areas in stream channels would be stabilized to minimize erosion hazards. Del Webb will also comply with the National Pollutant Discharge Elimination System (NPDES) stormwater general permit and will implement a stormwater prevention plan. The planned construction practices and the timing of operations within jurisdictional areas would be reviewed by the Corps in association with the certification process under Section 401 of the Clean Water Act to assure that potential water quality concerns are addressed.

No-Action Alternative

Under the No-Action Alternative, water supply Option 1 and The Villages development could also result in water resources issues.

Topographic features along the water supply Option 1 pipeline alignment would be the same as those along the I-17 corridor. Most of the terrain is flat, open desert land interspersed with occasional areas of rock outcrops and desert washes. The alignment would cross Deadman Wash, Skunk Creek, and several other intermittent streams. Construction of this option would involve grading and trench activities that could temporarily alter drainage patterns and floodplain characteristics in several intermittent streams and washes in a similar manner as described for the proposed pipeline corridor. Construction activities in washes and intermittent streams could also result in temporary effects on surface water quality if construction were to occur during periods of rainfall.

Topographic features of The Villages development area vary to a much greater degree than the area of the proposed pipeline corridor. Elevation ranges from 1,760 feet to 2,430 feet with slopes averaging 6%. Slopes of the New River Mountains are located in the northeast portion of the development area, low hills occur adjacent to I-17, and generally level terrain occurs in the southern portions of the property. The total annual rainfall is greater at the upper elevations of the property than in the New River valley. Many small drainages are located on the property, and Deadman Wash drains a relatively large area of the central and southern portion. Skunk Creek, a major channel that flows from north to south through the southeast corner of the property, has a FEMA-designated 100-year floodplain. Deadman Wash is also subject to periodic flooding.

The soils east of I-17 consist primarily of well-drained, gravelly-clay loams with low permeability. Issues concerning surface water quality in The Villages area would generally be similar to those described for the proposed pipeline corridor; however, suspended sediment loads during runoff events would probably be greater due to the increased streamflow velocities associated with steeper slopes in the stream channels east of I-17.

Substantial groundwater depletion has occurred in the western Salt River Valley area, which encompasses the New River area. In some areas, the groundwater level has decreased by 150 to 250 feet from historic levels (U.S. Geological Survey 1989). As a result, groundwater withdrawals are regulated pursuant to a Groundwater Management Plan for the AMA by the ADWR (Arizona Department of Water Resources 1991, as amended). The overall goal of the groundwater management plan is to establish "safe yield use" (i.e., nondepleting use) of groundwater resources by the year 2025. To reduce groundwater depletion in the region, the groundwater management plan requires all new developments to have an assured 100-year water supply from sources other than groundwater. An assured water supply can be demonstrated in several ways, including, but not limited to, the use of existing municipal supplies or CAP water, natural surface water supplies, water transferred from specific extinguished water rights, reclaimed wastewater effluent, and membership in the Central Arizona Groundwater Recharge District (CAGR). The CAGR was established to

provide a mechanism by which water providers and developers can conveniently arrange to have groundwater they pump replenished with recharged surface water.

The Maricopa County Department of Planning and Infrastructure Development has required The Villages to provide a water supply in accordance with DMP Stipulation "r", which states:

The developer shall not use groundwater for golf course irrigation, residential, industrial, or commercial uses. The only time the developer may use groundwater is on an interim basis early in construction and on an interim basis for County and public uses (such as the fire station, Sheriff's substation and utility yard, trailheads and potential school sites), until the permanent water system is completed and hook-up is available to these facilities. Except for water needed for construction of the main water delivery pipeline and of the water and wastewater treatment facilities, the interim pumping of construction groundwater referenced above shall in all events not exceed a maximum construction period of 18 months nor a maximum amount of 150 acre-feet. All interim pumping of groundwater shall comply with ADWR's regulations providing for protection of existing groundwater users in the area. At a minimum this interim supply of groundwater shall be recharged into the aquifer as soon as the recharge facility described in the DMP has been fully permitted and constructed (Bowden Design Group 1995).

Stipulation "r" was required because of local concern about the possible effect of new wells for The Villages on existing wells in the development area, and, in particular, the possibility that new groundwater demands at The Villages could result in drying up existing wells. Consequently, Del Webb is being required to import a water supply to the site, thereby eliminating the need to use any groundwater from the development area to meet long-term community demands.

Under the No-Action Alternative, development of The Villages could ultimately result in a decline in use of groundwater in the development area. The potential for developing ground water recharge facilities is being investigated. Because groundwater in the development area would not be the source of water for The Villages' residents, development in this area would ensure that small parcel residential development with individual wells and septic systems would not occur in this area. Interim use of a small amount of groundwater during early construction and for County and public uses would be allowed until a permanent water supply system is completed and hookup is available. Interim use of groundwater for these purposes would not adversely affect groundwater resources because the amount of water pumped would not exceed 150 af and would occur for less than 18 months. Additional interim supplies, which may be pumped for construction of the pipeline, are currently estimated to be approximately 50 af, although this amount is not limited by Stipulation "r".

Effects on surrounding existing wells are unlikely. Two primary water-bearing units exist beneath The Villages site, an upper unit from 300 to 700 feet below land surface and a lower unit from 1,100 to 1,500 feet or more below land surface. Separating these two units are poorly permeable horizons of dolomite, clay, silt, and basalt flows. The surrounding residences pump water from wells typically 500 feet in depth from the upper unit. Del Webb would pump interim groundwater for pipeline construction from the lower unit. Because of the poor permeability of the horizons separating the upper and lower units, no adverse impacts are expected on surrounding wells

as a result of Del Webb pumping water for construction. Overall, elimination of the use of groundwater for residential use would have a beneficial effect on groundwater resources.

The existing drainage configuration for The Villages property would be modified to accommodate development plans for the 5,661-acre residential development, including a traffic circulation system, golf courses, open space, and drainage channels. Construction of this residential area is not expected to substantially increase the volumes and peak rates of stormwater runoff to natural drainage channels because the requirements of the FCDMC have been incorporated into the Master Drainage Plan. These requirements limit peak runoff rates and require the use of retention/detention basins to provide for runoff control. In general, increased runoff rates can increase soil erosion and movement of debris in natural drainages if not checked by proper drainage channel design and construction, land grading practices, and soil stabilization measures. Increases in soil erosion can also lead to increases in associated sedimentation of downstream channels and offsite properties. If structures are constructed near the floodplains of major washes, flooding and possible structural damage could occur in these areas. The potential for drainage and flooding effects in The Villages development area would be reduced by implementing all phases of the project in accordance with the Master Drainage Plan (Bowden Design Group 1995). Golf courses planned for the community would be used to convey drainage.

Potential water quality issues under the No-Action Alternative associated with The Villages development include possible short-term effects from construction-related erosion and construction materials discharges and long-term urban runoff effects from residential areas and golf courses. Urban runoff typically carries increased loads of pollutants, such as heavy metals, petroleum products, and pesticides. Turfgrass management operations at golf courses have the potential to increase runoff and percolation of pesticides, fungicides, and fertilizers to shallow groundwater (Balogh and Walker 1992). Possible long-term water quality effects from implementing The Villages would need to be addressed during implementation of the Master Drainage Plan, erosion control, and turfgrass maintenance programs.

Potential construction-related soil erosion and contaminant discharges could be eliminated through strict compliance with standard construction practices. Construction staging areas used for onsite storage of construction materials, such as fuels, should be placed well away from drainage channels. If storms and resultant streamflow occur during construction, areas of excess and disturbed soil and disturbed stream channels should be stabilized to minimize erosion hazards. Long-term impacts from urban runoff and golf course maintenance activities could be minimized by proper maintenance of drainage facilities to allow settling and deposition of pollutants that could reach stream channels. In addition, the potential release of chemicals used to maintain turfgrass could be eliminated by implementing the Integrated Turfgrass Maintenance (ITF) program outlined in the Master Drainage Plan (Bowden Design Group 1995). The ITF should be implemented by providing thorough training for all parties responsible for maintenance activities, monitoring of turfgrass conditions to avoid overapplication of water and chemicals, and effective use of natural biological pest controls to minimize the use of chemicals.

3.3 VEGETATION, WILDLIFE AND SPECIAL-STATUS SPECIES

Affected Environment

This section provides information on vegetation and wildlife resources in the pipeline corridor. Common and scientific names of plants and wildlife and a description of drainage features in the pipeline corridor are provided in Appendix B. Data were obtained by reviewing published and unpublished reports, searching records of the Arizona Game and Fish Department's (AGFD's) Heritage Data Management System (1996), obtaining a sensitive species list from U.S. Fish and Wildlife Service (USFWS), contacting agency and local biologists (Spiller, Gatz, Olson, and Muhlbachler pers. comms.), and conducting field surveys.

A Jones & Stokes Associates botanist and wildlife biologist conducted a field survey on October 15 and 16, 1996. The survey consisted of walking an approximately 100-foot-wide corridor, covering the turnout and pumping plant site on Waddell Canal and the entire pipeline alignment (Figure 2-2). The biologists also surveyed a 44-acre site for the proposed water treatment plant east of I-17. The survey effort emphasized habitat assessments for *federally* protected and *state*-protected special-status animal and plant species. Additional survey work for a portion of the pipeline corridor was conducted by SWCA, Inc. (1996a). Plant identification was based on Arizona Flora (Kearney and Peebles 1960) and was confirmed using the Catalog of the Flora of Arizona (Lehr 1978) and the Field Guide to the Plants of Arizona (Epple 1995).

Special-status plant and animal species that are known or have the potential to occur in the pipeline corridor are presented in Table 3-1 and Appendices B and C. Special-status species are defined as:

- federally proposed or listed threatened or endangered species (16 USC 1532),
- wildlife of special concern in Arizona (WSCA) identified by the AGFD (Olson pers. comm.) (species included in WSCA are currently the same as those in Threatened Native Wildlife in Arizona)(Arizona Game and Fish Department 1988), and
- protected native plants as defined in the Arizona Native Plant Law (1993) (McGinnis pers. comm.).

Four habitat types are found in the pipeline corridor: Sonoran desertscrub, xeroriparian scrub, seasonal drainages, and disturbed areas (Figure 3-1). Plants and animals associated with these habitat types are described below. To calculate habitat acreages, the pipeline corridor and the proposed treatment plant site were plotted on USGS 7.5-minute topographic maps, assuming a 100-foot-wide, approximately 9-mile-long pipeline corridor (including a 200-foot-wide corridor for the New River crossing) and a 44-acre site for the proposed treatment plant. The analysis assumes that vegetation and wildlife in the entire pipeline corridor and at the treatment plant site would be disturbed, even though portions of these areas could be left undisturbed.

Figure 3-1
Habitat Types and Seasonal Drainages

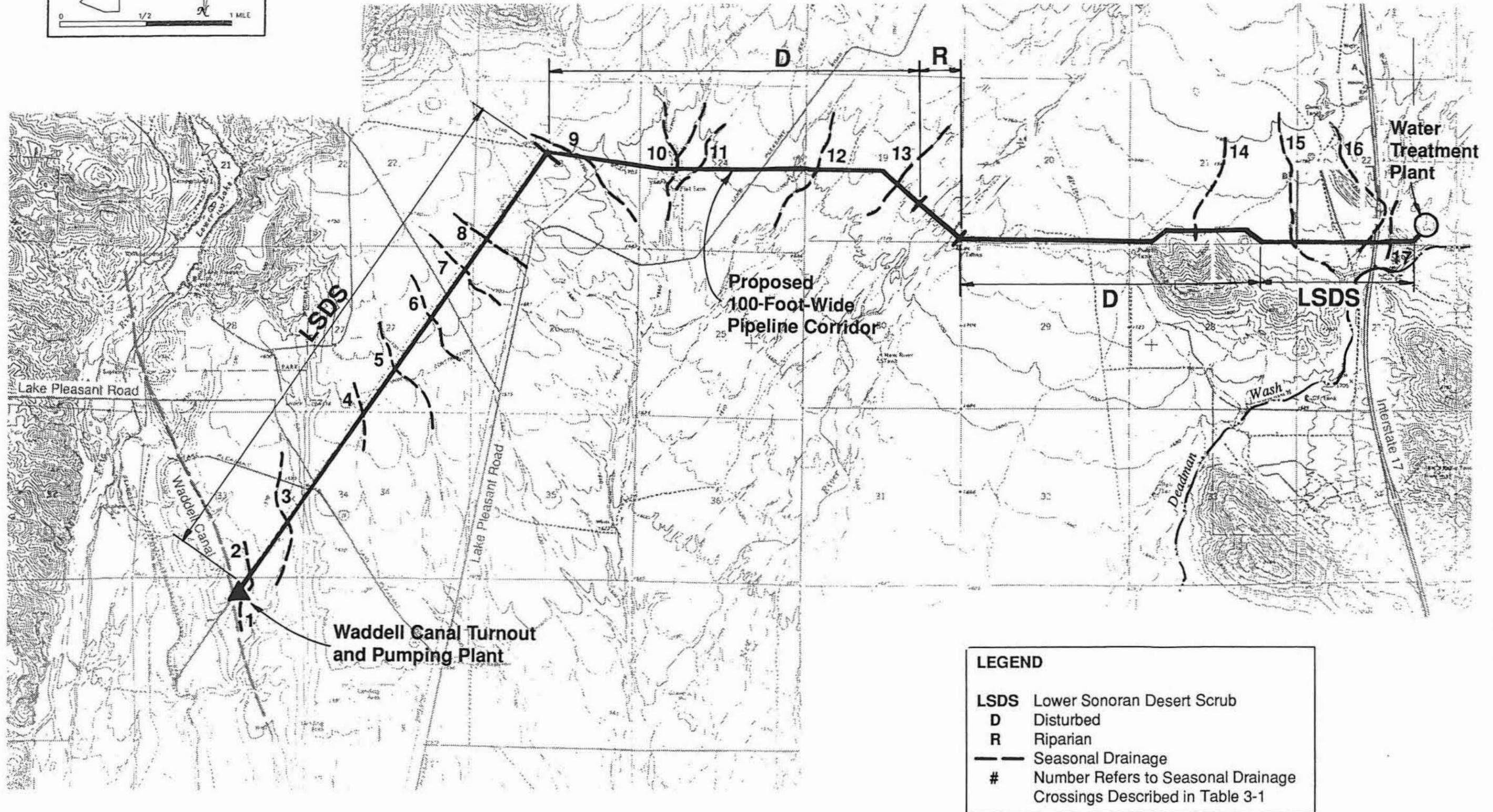
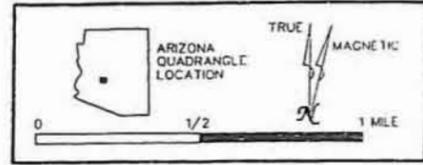


Table 3-1. Federally and State-Protected Special-Status Species That Could Occur in the Project Area (see also, Appendix C).

| Scientific Name | Common Name | Status |
|--|--------------------------------|----------|
| Federally Protected | | |
| Plants | | |
| <i>Agave arizonica</i> | Arizona agave | E |
| <i>Purshia subintegra</i> | Arizona cliffrose | E |
| <i>Echinocereus triglochidiatus arizonicus</i> | Arizona hedgehog cactus | E |
| Mammals | | |
| <i>Leptonycteris curasoae yerbabuenae</i> | Lesser long-nosed bat | E |
| <i>Antilocapra americana sonoriensis</i> | Sonoran pronghorn | E |
| Fish | | |
| <i>Cyprinodon macularius</i> | Desert pupfish | E |
| <i>Poeciliopsis occidentalis occidentalis</i> | Gila topminnow | E |
| <i>Xyrauchen texanus</i> | Razorback sucker | E |
| Birds | | |
| <i>Falco peregrinus anatum</i> | American peregrine falcon | E |
| <i>Haliaeetus leucocephalus</i> | Bald eagle | T |
| <i>Strix occidentalis lucida</i> | Mexican spotted owl | T |
| <i>Empidonax traillii extimus</i> | Southwestern willow flycatcher | E |
| <i>Glaucidium brasilianum cactorum</i> | Cactus ferruginous pygmy-owl | E |
| <i>Rallus longirostris yumanensis</i> | Yuma clapper rail | E |
| State-Protected | | |
| Plants | | |
| <i>Agave murpheyi</i> | Hohokam agave | S, HS |
| <i>Colubrina californica</i> | California snakewood | S |
| Mammals | | |
| <i>Macrotus californicus**</i> | California leaf-nosed bat | WC |
| Amphibians | | |
| <i>Rana yavapaiensis</i> | Lowland leopard frog | S, WC |
| Reptiles | | |
| <i>Gopherus agassizii</i> | Sonoran desert tortoise | S, WC |
| Birds | | |
| <i>Haliaeetus leucocephalus</i> | Bald eagle | T, S, WC |
| <i>Buteo regalis**</i> | Ferruginous hawk | WC |

T = Listed as threatened by the U.S. Fish and Wildlife Service (USFWS); protected by the federal Endangered Species Act.

E = Listed as endangered by USFWS; protected by the federal Endangered Species Act.

S = Sensitive species on U.S. Forest Service lands.

WC = Wildlife of special concern in Arizona.

HS = Highly safeguarded under Arizona Native Plant Law.

** = Identified by SWCA (1994a) as possibly occurring in the project area.

Sonoran Desertscrub Plant Community

The proposed pipeline corridor and treatment plant would encompass approximately 94.5 acres of Sonoran desertscrub habitat (Lower Colorado River Valley subdivision) (Figure 3-1), assuming a 100-foot-wide corridor. The desertscrub community occurs at the proposed pump station site on Waddell Canal and continues along the electric transmission line alignment to its intersection with the abandoned Reclamation haul road. This community also exists on both sides of the abandoned Reclamation haul road and is found east of New River in volcanic hills in the southern portion of Section 21. The proposed 44-acre water treatment plant site is also within this community.

Vegetation. Sonoran desertscrub is characterized by the presence of saguaro, creosote bush, mesquite, ironwood, saltbush, bursage, and cacti (Epple 1995) and is located in relatively undisturbed uplands within the pipeline corridor. Cacti are among the dominant shrubs; saguaro, teddy bear cholla, barrel cactus, beavertail, and strawberry hedgehog cacti were all observed. Cacti are interspersed with scattered foothill palo verde, creosote bush, triangle-leaf bursage, and velvet mesquite. The understory below the cacti and perennial shrubs was often grazed, with annual grasses remaining only in areas of cacti or other obstructions. Vegetation found east of New River includes species of cholla and prickly pear, brittle bush, creosote bush, triangle-leaf bursage, foothill palo verde, and tobosa grass (SWCA 1996a).

Wildlife. Indigenous mammals, birds, and reptiles (or signs of these wildlife, such as nests and tracks) observed during the field survey include kit fox (tracks), Harris' antelope ground squirrel, white-throated woodrat (stick nest), black-tailed hare, desert cottontail, Gambel's quail, Harris' hawk, loggerhead shrike, side-blotched lizard, and desert mule deer. The mixed cacti community provides habitat for a variety of common wildlife species, including woodpeckers, wood rats, owls, and lizards. Wildlife observed in the eastern portion of the pipeline corridor include desert cottontail, gila woodpecker, northern flicker, verdin, white-crowned sparrow, ruby-crowned kinglet, and black-throated sparrow. Signs of coyote, mule deer, and ringtail were also observed (SWCA 1996a). No major animal migration routes that could be affected by a buried pipeline, are known to occur in the area nor were any identified by AGFD or USFWS.

Disturbed Habitats

The proposed pipeline corridor would cross approximately 47.5 acres of disturbed habitat along the former haul road, at the Reclamation borrow site, and east of New River (Figure 3-1).

Vegetation. The area along the haul road is dominated by brittle bush, which was seeded for restoration purposes (Wonderley pers. comm.). Other plant species observed along the haul road portion of the pipeline alignment are four-wing saltbush, desert holly, Russian thistle, and triangle-leaf bursage. The former borrow site was also seeded by Reclamation following construction of New Waddell Dam, but contains less cover than other disturbed areas. Vegetation at the borrow

sites consists of Russian thistle, four-wing saltbush, triangle-leaf bursage, and brittle bush. Areas west of New River are heavily disturbed and generally devoid of vegetation.

Wildlife. The disturbed habitat lacks the diversity of plant species and amount of cover required by many wildlife species. The biologists observed black-tailed hares, mourning doves, black-throated sparrows, horned larks, and foraging red-tailed hawks along the haul road. The open areas along the haul road and at the borrow site provide foraging opportunities for raptors, such as the red-tailed hawk and American kestrel. Many of the same wildlife species that occur in desertscrub habitats would be expected to occur occasionally in the disturbed habitats because these areas are surrounded by desertscrub habitat.

Seasonal Drainages

The proposed pipeline alignment crosses 17 seasonal drainages (2 of the crossings are at different locations in the same drainage [16 and 17]); the area of the crossings totals approximately 0.27 acre. Appendix B provides a description of the location, the dominant vegetation either in or surrounding the drainage, and the approximate width of each drainage. Figure 3-1 shows the location of these drainage features.

Vegetation. Common trees, shrubs, and plants observed in the seasonal drainages include catclaw acacia, foothill palo verde, velvet mesquite, creosote bush, and triangle-leaf bursage. Drainages ranged from 1 to 15 feet wide; most were 10 feet wide or less. None of the drainages contained standing water during the field survey. The five drainages crossing the former haul road and borrow area had been substantially altered by the construction activities associated with the New Waddell Dam. Downstream of the haul road, drainages were narrower, more eroded, and less defined than upstream of the haul road, where the drainages are significantly larger, with well-defined bed and banks.

Wildlife. Seasonal drainages provide a temporary water source for wildlife species but probably do not provide standing water long enough to support amphibian breeding. Seasonal drainages provide more cover than the surrounding desertscrub or disturbed habitats and serve as movement corridors for wildlife species, such as the kit fox and numerous birds.

Xeroriparian Scrub Habitat

The proposed pipeline corridor crosses approximately 5.75 acres of xeroriparian scrub habitat in the New River channel (Figure 3-1).

Vegetation. The New River channel is the largest drainage that the pipeline would cross. A patchwork of sandy areas and areas with medium- to large-sized cobbles and small boulders is present in the channel. Vegetation in the channel is sparse and is subject to periodic scouring flows. Common plants include burro brush, canyon ragweed, sweetbush, and desert broom. Vegetation on small islands in the channel and on the western bank of the New River is more dense and diverse.

Species occurring in these areas include catclaw acacia, brittle brush, creosote bush, triangle-leaf bursage, canyon ragweed, desert broom, and foothill palo verde. Saguaro occur in low numbers between the abandoned Reclamation haul road and the west bank of the New River. Many plants present between the abandoned Reclamation haul road and the west bank of the New River also occur in Sonoran desertscrub. The east bank of the New River is heavily disturbed within the pipeline corridor. Vegetation between the east bank and the southeastern corner of Section 19 (where the pipeline corridor turns to the east) is sparse and consists predominantly of weedy annual species.

Wildlife. Wash habitats such as the New River are important to wildlife because they add diversity to the landscape. Riparian and wash areas provide water, thermal and hiding cover, movement corridors, and diverse nesting and feeding habitats for wildlife species. Common species that occur in washes include phainopepla, warblers, mourning doves, Gila woodpeckers, bats, and desert cottontails. Wildlife observed east of New River includes black-tailed jackrabbit and northern flicker (SWCA 1996a).

The proposed pipeline corridor is located south of an area previously proposed as critical habitat for the cactus ferruginous pygmy-owl, as described in the December 12, 1994, *Federal Register* (59 FR 63975-63986). In the final rule on cactus ferruginous pygmy-owl, published in the March 10, 1997, *Federal Register* (62 FR 10730-10746), USFWS determined that designation of critical habitat in Arizona was not prudent. Please refer to the "Special-Status Wildlife" discussion below for survey results related to the cactus ferruginous pygmy-owl.

Special-Status Species

Table 3-1 and Appendices B and C provide lists of special-status plant and animal species that may potentially occur in the pipeline corridor. The USFWS (Spiller pers. comm.) identified 14 *federally* protected species that may potentially occur in suitable habitat in Maricopa County, including three endangered plants, eight endangered fish and wildlife species, two threatened wildlife species, and one wildlife species (cactus ferruginous pygmy-owl) that is proposed for listing as endangered. (The cactus ferruginous pygmy-owl has since been listed by USFWS as endangered [62 FR 10730-10746].) The Heritage Data Management System used by AGFD (Olson pers. comm.) identified four additional special-status species that could occur in the pipeline corridor: one U.S. Forest Service sensitive plant, one U.S. Forest Service sensitive and "highly safeguarded" plant, and two *state* wildlife species of special concern (Appendix C).

A biological assessment (BA) was prepared, which concluded there would be "no effect" to federally listed threatened or endangered species from direct or indirect impacts of the pipeline or cumulative impacts associated with The Villages (Appendix D). Of the 14 species listed by USFWS as threatened or endangered in Maricopa County, only four species that could potentially occur in the project area, based upon their known geographic range and habitat requirements, were assessed in the BA. These included the bald eagle, American peregrine falcon, southwestern willow flycatcher, and cactus ferruginous pygmy-owl. Because the BA concluded there would be "no effect" to listed species, formal consultation with USFWS is not required and Reclamation has satisfied the Endangered Species Act, Section 7, requirements.

Special-Status Plants. Except for plants protected by the Arizona Native Plant Law, no special-status plants were observed during the field survey of the pipeline corridor and water treatment plant site. There is a potential for one “highly safeguarded” plant, Hohokam agave, to occur in the pipeline corridor; the Hohokam agave has been previously observed in the region (SWCA 1994a). The four remaining special-status plants that could occur in Maricopa County—California snakedwood, Arizona agave, Arizona hedgehog cactus, and Arizona cliffrose—are found at higher elevations than the proposed pipeline corridor and are not expected to occur in this area.

Several native plants protected by the Arizona Native Plant Law were observed during the field survey that are in one of three *state* protected categories: salvage restricted, salvage assessed, and harvest restricted. These plants are listed in Appendix B and include eight salvage-restricted species (saguaro, strawberry hedgehog, ocotillo, barrel cactus, teddy bear and chain fruit cholla, desert Christmas cactus, and Englemann’s prickly pear); three salvage-assessed species (blue and foothill palo verde and desert willow); and two harvest-restricted species (western honey and velvet mesquite). The Arizona Native Plant Law requires that a salvage permit and tags be obtained before any of these native plants are removed from the site.

Special-Status Wildlife. No *state* or *federally* listed wildlife species were observed during the field surveys of the pipeline corridor and WTP site (Jones & Stokes Associates 1996 and SWCA 1996a, 1996b, and 1997). Surveys were conducted for all the species identified in Appendix C with special emphasis on the American peregrine falcon, bald eagle, southwestern willow flycatcher, cactus ferruginous pygmy owl, and Sonoran desert tortoise. Based on this information, a BA was prepared, which concluded there would be “no effect” on *federally* listed species from activities in the pipeline corridor (Appendix D). The project site supports potential habitat for only one *state* special-status wildlife species, the Sonoran desert tortoise. Other *state*-protected species that are either known or expected to occur in the area include the California leaf-nosed bat and ferruginous hawk (SWCA 1994). *Federally* protected bald eagles and peregrine falcons could be transitory and may occasionally forage in the area but would not be adversely affected by the proposed pipeline construction and operation.

Desert tortoises have the potential to occur along the proposed pipeline corridor and at the treatment plant site but were not observed during the field survey. The Sonoran population of desert tortoises prefer rocky, boulder-strewn hillsides, but could also occur in the desertscrub and disturbed habitats throughout the pipeline corridor and in drainages and washes in the pipeline corridor. Investigation of the volcanic hills in the southern portion of Section 21 found no evidence of desert tortoise. Known forage plants for this species do occur on the hills, but suitable tortoise shelter sites are rare.

Although the proposed pipeline corridor at the New River crossing is near an area previously designated as proposed critical habitat for the cactus ferruginous pygmy-owl, no owls are expected to occur near the pipeline corridor because suitable nest sites are limited and riparian habitat along

the New River is confined to a narrow and disjunct area. Habitat types in the pipeline corridor differ significantly from those where cactus ferruginous pygmy-owl are known. No tape-playback survey was completed along the corridor, but in two surveys for the species on The Villages property (along the New River approximately 2.25 miles northeast of the proposed corridor and along several washes east of I-17; SWCA 1994a, 1996b) and north of the proposed alignment approximately 0.5 mile upstream, no cactus ferruginous pygmy-owls were observed. In addition, no cactus ferruginous pygmy-owls have been observed in the New River Valley since 1892, and the nearest known recent observations are from more than 100 miles away (SWCA 1996b).

Environmental Consequences and Mitigation Measures

Proposed Action

Impact: Potential Loss of Protected Native Plants. A number of *state* protected native plants that could be affected by construction and maintenance operations, including saguaro, blue and foothill palo verde, and velvet mesquite, were observed along the proposed pipeline corridor and at the water treatment plant site. Del Webb will conduct preconstruction surveys to determine whether the construction activities would result in the loss of native plants listed in the Arizona Native Plant Law (1993). If Del Webb cannot avoid native species and proposes to remove native plants over an area exceeding 0.25 acre, Del Webb will submit, in writing, a notice of intent to the Arizona Department of Agriculture (ADA) at least 60 days before the plants are scheduled to be removed. Del Webb will not begin removing native plants until it has received written confirmation from the ADA and will comply with applicable *state* law concerning salvage and relocation of native plants. In addition, Del Webb will coordinate with AGFD before reseeding disturbed upland areas with a native seed mix appropriate for desertscrub habitat. Seasonal drainages and riparian areas will also be reseeded with an appropriate seed mix to achieve an acceptable level of revegetation success.

Although Hohokam agave (*Agave murpheyi*) was not found in the pipeline corridor or treatment plant site during field surveys, field surveys conducted east of the pipeline corridor indicate that Hohokam agave does occur in the region. Its presence in the region indicates that it has the potential to occur in the pipeline corridor. Hohokam agave is listed as "highly safeguarded" under the 1993 Arizona Native Plant Law. The highly safeguarded designation is applied to plants "whose prospects for survival are in jeopardy or which are in danger of extinction throughout all or a significant portion of their ranges". If encountered along the pipeline corridor, Del Webb will comply with Arizona Native Plant Law regarding Hohokam agave as outlined above.

Impact: Effects on Waters of the United States and Xeroriparian Scrub. Constructing the pipeline would result in temporary disturbance of drainage features that are considered jurisdictional waters of the United States as defined by the Corps, including up to 7.7 acres within jurisdictional waters as determined by the Corps in 17 seasonal drainages and New River. Pipeline construction would likely disturb up to a 100-foot-wide area at each minor drainage crossing and a 200-foot-wide area at the New River crossing. Approximately 5.75 acres of xeroriparian scrub habitat in the New River channel would be affected. Habitat loss would be temporary and would

effect a marginal number of velvet mesquite, catclaw, and foothill palo verde plant species and associated wildlife species.

As part of the proposed action, Del Webb will re-establish preconstruction conditions within the corridor to allow natural colonization of plant species in this area. This includes re-establishing natural landscape contours and reseeding with an appropriate native seed mix. Del Webb has applied for an individual Section 404 permit from the Corps and will comply with all special conditions set forth therein.

Impact: Loss of Sonoran Desertscrub. Construction of the pipeline would result in the temporary loss of nearly 51 acres of Sonoran desertscrub habitat; construction of the water treatment plant could result in the permanent loss of approximately 44 acres of this habitat. Del Webb will also reestablish preconstruction conditions within the pipeline corridor to allow natural colonization of native plant species and will reseed disturbed upland areas, as necessary, with an appropriate native seed mix. Therefore, the temporary and permanent loss of desertscrub habitat is considered a minor effect that is not anticipated to substantially affect plant and animal resources.

Impact: No Loss of *Federal* Special-Status Species. Construction in the pipeline corridor would not adversely affect any *federally* listed special-status species because none are known to occur in this area. A BA was prepared, which concluded there would be "no effect" to *federally* listed threatened or endangered species from direct or indirect impacts of the pipeline or cumulative impacts associated with The Villages (Appendix D).

Impact: Possible Effects on Desert Tortoise. Although not observed during the field survey, the desert tortoise could occur in the pipeline corridor and particularly near the volcanic hills east of New River and the treatment plant site. Del Webb will conduct preconstruction surveys for desert tortoise burrows. If tortoises are found on the site, Del Webb will contact the AGFD for recommendations and the appropriate permits to move the tortoise before construction begins. Construction of temporary shelters or burrows also could be required, depending on the number of burrows located in the area. Implementing the proposed action is expected to have little or no effect on desert tortoise mortality or long-term viability.

No-Action Alternative

Under the No-Action Alternative, water supply Option 1 and The Villages development could result in biological resources impacts.

Water Supply Option 1. During a preliminary survey conducted by SWCA on April 23, 1997, three plant communities were identified along the Option 1 pipeline alignment: disturbed habitat, Sonoran desertscrub, and xeroriparian habitat (SWCA 1997). Disturbed areas, such as those occurring between the Deer Valley and Pinnacle Peak interchanges, are either devoid of vegetation or are only sparsely vegetated with non-native species, such as Russian thistle and red brome, and provide minimal habitat for wildlife. Sonoran desertscrub habitat mainly occurs north of the Pinnacle Peak interchange and is dominated by creosotebush, triangle-leaf bursage, velvet mesquite, and

buckhorn cholla. Because of the proximity of desertscrub habitat to the I-17 corridor and evidence of disturbance, wildlife habitat value in this habitat type is generally considered low. Xeroriparian habitat is extremely limited and mainly occurs at Deadman Wash and a few other minor washes north of Carefree Highway. Common plant species observed in xeroriparian habitat include velvet mesquite, creosotebush, desert ironwood, and blue palo verde. The water supply Option 1 alignment crossing at Skunk Creek has been previously disturbed and no xeroriparian vegetation occurs at this location.

No *federally* listed threatened, endangered, or previously designated candidate species were observed along the alternative alignment. Habitat along the alternative alignment does not resemble breeding habitat that is currently known to be used by the southwestern willow flycatcher, bald eagle, or peregrine falcon. Because bald eagles and peregrine falcons are extremely mobile species, they may occasionally fly over and even forage within the area (especially in winter), but neither species is likely to regularly occur along the alignment. No cactus ferruginous pygmy-owl were detected at the Deadman Wash crossing or any other pipeline corridor areas during the current or previous surveys and the owl is considered unlikely to occur along this pipeline route. The *state*-protected California leaf-nosed bat and ferruginous hawk may occur along the alignment, but none were observed (SWCA 1994a). Numerous native plants, protected by the Arizona Native Plant Law occur within the Option 1 alignment.

The Villages at Desert Hills. The Villages development area covers approximately 5,661 acres of undeveloped land. Vegetation on the site is typical of the Arizona Upland and Lower Colorado River Valley subdivisions of the Sonoran desertscrub community. Upland habitat occurs on approximately 5,094 acres, and riparian habitat (ephemeral washes) covers approximately 567 acres. About 938 acres of the project site was burned during a 1993 wildfire.

The same *state* and *federally* protected special-status species surveyed for on the proposed pipeline corridor also potentially occur in The Villages development area. The BA prepared for the proposed action, consistent with the requirements of the *federal* Endangered Species Act, evaluated the cumulative impacts associated with The Villages, concluding there would be "no effect" to *federally*-listed species from The Villages (SWCA 1994a, 1996b, and Appendix D). Bald eagles and peregrine falcons could fly over or occasionally forage on the site because they are known to occur in the region, but none were observed during the surveys. Evidence of two *state* species of special concern was observed on or adjacent to the property: Hohokam agave (highly safeguarded plant) and desert tortoise (SWCA 1994a). The California leaf-nosed bat and ferruginous hawk are also expected to occur in the area (SWCA 1994a). Development of The Villages property may have an adverse effect on individuals of these *state* special-status species.

Under the No-Action Alternative, construction activities in The Villages development area would affect a variety of native plant communities and plant species. Impacts in xeroriparian areas will be minimized because development will generally be avoided in drainages. Effects on plant communities will also be reduced by implementing strategies in the Ecological Resources Management Plan that calls for a number of habitat protection measures, including preservation of hillsides over 15% slope and land use controls in sensitive or high-density plant communities. The Villages and water supply Option 1 pipeline will be subject to The Arizona Native Plant Law, which

will reduce impacts on plants protected under the *state's* salvage restricted, salvage assessed, and harvest restricted categories.

Construction activities in The Villages development area could temporarily affect habitat in drainages, but are expected to largely avoid these areas. The development area contains xeroriparian vegetation, including Palo Verde mixed-scrub, mesquite/Palo Verde mixed-scrub, and desert broom mixed-scrub (SWCA 1994a). Palo Verde mixed-scrub occurs along Skunk Creek and Deadman Wash, mesquite/Palo Verde mixed-scrub occurs along a majority of the smaller washes and arroyos, and desert broom mixed-scrub occurs along the banks and within the braided channel of New River.

The washes and arroyos that support the xeroriparian vegetation are considered potential jurisdictional waters of the United States. Del Webb has applied for a Section 404 individual permit from the Corps for activities within jurisdictional waters of the United States.

3.4 CULTURAL RESOURCES

For the purposes of NEPA compliance, and consistent with the organization of the rest of this EA, information on cultural resource impacts from the pipeline and water treatment plant are described in the Affected Environment and Proposed Action portions of this section. The effects of The Villages development are discussed under the No-Action Alternative. However, for purposes of fulfilling the requirements of Section 106 of the National Historic Preservation Act (NHPA), the "area of potential effect" (APE) includes the proposed pipeline corridor, water treatment plant, and the 5,661 acres of The Villages development. Section 5.1 of this EA provides more information on Reclamation's compliance with Section 106 of the NHPA.

Affected Environment

Information provided on existing cultural resources in the pipeline corridor and treatment plant site is summarized from SWCA 1994b, 1996c, and 1996d.

Site Conditions

The pipeline corridor ranges in elevation from 1,460 to 1,860 feet above msl between the Agua Fria River to the west and the 44-acre water treatment plant site east of I-17. Most of the area consists primarily of desert scrub habitat dominated by creosote bush, bursage, and grasses. The geology is primarily gravel and cobble terraces covered by fine alluvium or areas with highly patinated desert pavement. Three basaltic rock outcrops are located near the pipeline corridor east of the New River crossing. The pipeline corridor runs along the eastern edge of the Navajo/West Wing electrical

transmission line corridor for approximately 3.3 miles and then extends along the abandoned Reclamation haul road for approximately 2 miles of the 9-mile long pipeline alignment. East of New River, the pipeline corridor crosses terrain that was disturbed during excavation of earthen rock material used to construct New Waddell Dam.

Prehistorical and Historical Setting

The potential for prehistoric archaeological sites in the pipeline corridor and treatment plant site is quite variable, ranging from sites that were used only for resource exploitation to intensively used agricultural and habitation areas on river terraces. Few indications of historic activities have been identified, other than ranching activities, isolated travel, or occasional recent or modern-age trash dumping episodes (SWCA 1996c, 1996d).

In prehistoric times, the Archaic people inhabited the region from 8000 B.C. to 300 A.D. Much of the land was used for seasonal hunting and gathering. Lithic tools used for gathering and building included various functional forms, such as scrapers, bifacial knives, unifacially altered flakes (various styles), drills, perforators, planes, bifacial and flake cores, and projectile points (Slaughter et al. 1992). Archaic populations followed a mobile lifestyle, with movements being constricted to specific geographic regions. As the Archaic Period continued, mobility decreased, reflecting a tendency toward sedentism (Slaughter et al. 1992).

Following the Archaic Period, the area was occupied by a sedentary group of people called the Hohokam. The Hohokam were desert farmers best known for engineering an extensive system of irrigation canals in central and southern Arizona (Haury 1976). As their population increased, they began to venture out and expand into other drainages. From A.D. 700 until A.D. 1450, the Hohokam established villages in the New River and Agua Fria river valleys (Green 1989). This area, known as the northern periphery, consists of sites suggesting an adaptation by small groups of Hohokam settlers who mixed agriculture, including irrigation, with hunting and gathering technologies.

The Hohokam occupation of the area appears to have been concentrated along the New River and Agua Fria drainages. Farming methods included reliance on direct precipitation and runoff that was diverted to fields (SWCA 1996c and d).

Previous Studies

Various segments of the pipeline corridor and areas near the corridor have been previously surveyed. In 1972, the Museum of Northern Arizona conducted a survey of the Arizona Public Service Navajo Project 500 kV transmission line. Four cultural properties were identified along this corridor. Results of the interim and final reports indicate that none of the sites occur within or adjacent to the proposed pipeline corridor.

Various surveys were conducted between the Agua Fria drainage and I-17 as part of activities associated with construction of New Waddell Dam. Related archaeological surveys include those

for the East Terrace Borrow Area (Green 1985), the New River Borrow Area (Fedick 1986), the Eastern Addition of the New River Borrow Area (Green and Rankin 1988), the New Waddell Haul Road (Hackbarth and Green 1986), and the Agua Fria Borrow Area (Green and Effland 1985). Each of these surveys included a portion of the proposed pipeline corridor, and none identified any cultural resource properties in or near the pipeline corridor.

SWCA completed a cultural resources investigation of the 5,661-acre Villages development area in 1994 (SWCA 1994b). The investigation identified 13 sites and 205 isolated occurrences. None of the sites and only one of the isolated occurrences occur in the vicinity of the proposed water treatment plant.

Survey Methods

The archaeological surveys for the proposed pipeline corridor and associated facilities were completed by walking parallel transects along the linear corridor (two transects within the 100-foot wide corridor) and transects spaced at 20-meter intervals in the survey block of Section 22 (T6N, R2E). Segments of the pipeline corridor were marked with flagging to ensure that the surveys were conducted in the correct locations. All cultural materials identified during the survey were plotted on USGS maps, and descriptions of all artifacts were recorded for later reference. Much of the realigned portion of the pipeline corridor was surveyed previously as part of borrow activities for New Waddell Dam. An additional survey of a portion of the proposed corridor was conducted on December 12, 1996, east of New River in the eastern half of Section 21. The survey was conducted in a 200-foot-wide corridor for an approximately 0.5-mile section of the pipeline corridor east of New River that had not been surveyed previously (SWCA 1996d).

Survey Results

One previously recorded site and 44 isolated occurrences were identified during the initial pipeline corridor survey (Alternatives A-1, B-1, and C-1). Site AZ T:4:171 (ASM) was originally recorded in December 1964 as Site AZ T:4:13(ASU). It was recorded as a lithic and sherd area containing plainware pottery, mano fragments, a chert knife, cores, hammer stones, and chipped stone. The site was relocated by SWCA in 1996 and presumably had been disturbed by borrow activities conducted during construction of the New Waddell Dam. Much of the site is intact, although no ceramics were found on any portion of the undisturbed site area. Flaked stone on the site consisted of three chert flakes, one quartz flake, 77 basalt/rhyolite flakes, one basalt core tool, and 10 basalt/rhyolite cores (SWCA 1996c). Site AZ T:4:171(ASM) is probably a surface site, with a maximum depth of 10 centimeters. The undisturbed surface is desert pavement, and many artifacts are difficult to recognize. The proposed pipeline corridor is located approximately 0.5 mile south of the site.

No National Register eligible archaeological or historic sites, or substantial lithic scatters were located within the proposed pipeline corridor. One site, AZ T:4:53(ASM), a surface artifact scatter, is located immediately southwest of the survey area. The site was originally recorded by Don

Simonis of the Bureau of Land Management (Green and Rankin 1988). At that time, it contained limited lithic and ceramic artifacts. The site was reinvestigated as part of the New Waddell Dam New River Borrow Area expansion. Green and Rankin (1988) documented the site as containing only lithic artifacts. Both previous investigations recommended that AZ T:4:53 (ASM) was not eligible for listing on the National Register of Historic Places (NRHP). During the current work, the site was revisited and evaluated. It still contains no evidence to suggest that it should be considered eligible for the NRHP. The proposed pipeline corridor would be adjacent to the extreme northern portion of the site where only a few lithic artifacts are present (SWCA 1996d). No artifacts are located within the proposed pipeline corridor.

No archaeological or historic sites were identified in the 44-acre water treatment plant site east of I-17 (SWCA 1994b).

Isolated Occurrences. Of the 44 isolated occurrences identified during the initial survey, 39 are prehistoric and 5 are historic. Many of the prehistoric isolates are made from the black porphyritic basalt that is common in the region. This material is commonly fine-grained with crystalline inclusions, which vary in frequency and size and often appear blue in color. Many of the cores and flakes may have been the result of cobble testing or expedient production of flakes. One of the isolates is a corner notched projectile point made of quartzite. The projectile point is somewhat crude and resembles an Archaic period form. Six Hohokam Red-on-buff sherds that appeared to be smaller pieces of a larger sherd, a Gila Plain, and Salt Variety pot break were also discovered. These were the only ceramic artifacts observed during the survey. The historic isolates, including a trash scatter, were all cans and tins (SWCA 1996c, 1996d).

Traditional Cultural Properties. Traditional Cultural Properties (TCPs) are properties that are eligible for listing on the NRHP because of their association with cultural practices or beliefs of a living community that (a) are rooted in that community's history and (b) are important in maintaining the continuing cultural identity of the community. Cultural resource surveys for the proposed water delivery pipeline and water treatment facility did not identify TCPs in the area. Reclamation has consulted with Indian tribes who have a recorded presence or who have claimed ancestry to the area. The tribes are: Ak-Chin Indian Community, Ft. McDowell Mojave-Apache Indian Community, Gila River Indian Community, Hopi Tribe, Salt River Pima-Maricopa Indian Community, Tohono O'odham Nation, Yavapai-Prescott Indian Tribe, and Zuni Pueblo.

Environmental Consequences and Mitigation Measures

Proposed Action

Impact: No Effect on Known Cultural Sites. Construction in the proposed corridor would have no effect on historic properties, as defined by federal regulations. Site AZ T:4:53 (ASM), located adjacent to the proposed corridor, would not be adversely affected because it is not considered significant.

Impact: No Effect on Isolated Occurrences. Construction in the pipeline corridor and at the treatment plant site would not result in adverse impacts on prehistoric isolated occurrences because they have been recorded and the data potential has been exhausted.

Impact: Potential Disturbance of Unknown Cultural Resources. Constructing the pipeline and treatment plant could result in disturbance or alteration of unknown cultural sites that have not yet been uncovered or discovered. Ground-disturbing activities, such as grading and trenching, could uncover previously undiscovered resources. Access roads for pipeline maintenance and operation would also provide access to normally untraveled areas, including potentially sensitive archaeological or historic sites. If significant cultural materials are encountered during construction or other activities, work would be stopped until a qualified archaeologist can evaluate the finds. Reclamation, in consultation with the Arizona State Preservation Officer (SHPO), would require implementation of the following measures if significant cultural materials are present:

- complying with the NHPA, Arizona State Historic Preservation Act of 1982, the Arizona Burial Protection Law of 1990, and the Native American Grave Protection and Repatriation Act;
- securing an Archaeological Resources Protection Act (ARPA) permit from a federal land management agency (Reclamation or U.S. Bureau of Land Management);
- securing a State of Arizona Antiquities Permit from the Arizona State Museum; and
- preparing a mitigation plan, as appropriate, in consultation with the SHPO and the ACHP, other participating parties, and the interested public.

Impact: No Adverse Effect on 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 pipeline corridor and would not be adversely affected by construction in the pipeline corridor. The following Indian tribes were provided an opportunity to comment on the draft EA: Gila River Indian Community, Salt River Pima-Maricopa Indian Community, Ak-Chin Indian Community, Tohono O'odham Nation, Hopi Tribe, Pueblo of Zuni, and Fort McDowell Mojave-Apache Indian Community.

Impact: No Effect on Traditional Cultural Properties. Eight Indian tribes that have a recorded presence, or who have claimed ancestry to the area, were consulted to ensure that TCPs have been identified, recorded, and that impacts on them have been considered. No TCPs were identified; therefore, construction of the proposed water delivery pipeline and the water treatment facility will have no effect on known TCPs.

No-Action Alternative

Under the No-Action Alternative, water supply Option 1 could have similar effects as those described for facilities under the proposed action. The water supply Option 1 pipeline alignment could encounter known and unknown cultural resources sites located along the I-17 ROW during the site selection and construction processes. Prehistoric sites encountered could include sites associated with habitation of the area during the Archaic period and, later, the Hohokam period. Historic period artifacts would be associated with agricultural use of the Black Canyon corridor. Should historic properties or prehistoric artifacts be encountered, implementation of this option would require compliance with applicable state law and coordination with the SHPO to ensure that sites are either avoided or protected.

Based on site surveys conducted by SWCA from August 3 to August 18, 1994, for The Villages development, 13 archaeological sites and 205 isolated occurrences (including prehistoric lithics and ceramics and historic cans, glass and miscellaneous metal artifacts) were found on the 5,661-acre property (SWCA 1994b). Sites include one large agricultural complex, three field houses, three prehistoric artifact scatters, four historic trash dumps, one rock ring, and a road alignment that is possibly related to old Black Canyon highway. Isolated occurrences are scattered throughout the property, with concentrations apparent in the north and southeastern portions of the property and northwestern portions of the property.

Of the 13 sites identified, six are recommended for inclusion in the NRHP under Criterion (d) because of their potential to provide important information to Hohokam and possibly Archaic Period research in the northern periphery. These sites include: Site AZ T:4:119(ASM), a temporary habitation (field house); Site AZ T:4:121(ASM), a temporary habitation with agricultural features (field house); Site AZ T:4:122(ASM), an artifact scatter; Site AZ T:4:124(ASM), a large agricultural complex; Site AZ T:4:125(ASM), an artifact scatter with field house; and Site AZ T:4:128(ASM), an artifact scatter. These sites are important resources in that they are indicative of the broad subsistence farming pattern and natural resource exploitation strategies that were implemented by Hohokam groups in the northern periphery of the Hohokam region.

A TCP was identified at one archaeological site by tribal representatives during a visit to the project area. The TCP will be avoided during construction and protected from future development.

The remaining seven sites and all of the 205 isolated occurrences were determined by a professional archaeologist to not meet the criteria for listing in the NRHP because their data potential was exhausted during the recording process (SWCA 1994b). Reclamation and SHPO concur with this recommendation.

3.5 AIR QUALITY

This section describes the existing air quality conditions and regulatory requirements for the region. The air pollutants of greatest concern in the pipeline corridor are ozone, inhalable particulate

matter less than 10 microns in diameter (PM10), and carbon monoxide (CO). These pollutants are considered to be of concern because of the potential health risks they pose. These health risks are described below under "Federal Ambient Air Quality Standards".

Affected Environment

Federal Ambient Air Quality Standards

Ozone is a respiratory irritant that increases susceptibility to respiratory infections. Ozone causes substantial damage to leaf tissues of crops and natural vegetation and damages many materials by acting as a chemical oxidizing agent. Ozone is of concern primarily during summer because it is created by the interaction among high temperatures, the presence of sunlight, and atmospheric inversion layers, inducing photochemical reactions among nitrogen oxides (NO_x) and volatile organic compounds (VOC) and/or reactive organic gases (ROG). For this reason, significance thresholds are set for these ozone precursors rather than for ozone itself. The federal standards for ozone have been set for a 1-hour averaging time. The federal 1-hour ozone standard is 0.12 part per million (ppm), not to be exceeded more than three times in any 3-year period.

Federal PM10 standards have been set at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) for a 24-hour average and at 50 $\mu\text{g}/\text{m}^3$ for an annual average. Federal 24-hour PM10 standards may not be exceeded more than 1 day per year, and annual standards may not be exceeded at all. Few particles larger than 10 microns in diameter reach the lungs, so PM10 is the focus of the federal standards. Health concerns associated with suspended particles focus on those particles small enough to reach the lungs when inhaled because they can lodge in the lungs and contribute to respiratory problems, including permanent lung damage. Fine particles interfere with the body's mechanism for clearing the respiratory tract or by acting as a carrier of an absorbed toxic substance.

CO is a mildly toxic pollutant that bonds to hemoglobin in the bloodstream when inhaled and interferes with oxygen transport to body tissues. The federal 8-hour average standard for CO is set at 9 ppm and may not be exceeded more than 1 day per year.

Existing Air Quality Conditions

In 1995, federal standards for ozone, PM10, and CO were violated in Maricopa County. The two active monitoring sites closest to the pipeline corridor have recorded exceedances of CO, ozone, or PM10 in 1996 (Brown pers. comm.). The nearest operating monitors are located in North Phoenix and Glendale, Arizona. The proposed pipeline corridor and treatment plant sites are located within the pollutant nonattainment area for CO, ozone, and PM10.

Emission Sources

Ozone precursor pollutants (VOC and NO_x) and CO emissions stem primarily from vehicle traffic associated with urban development. A variety of emission sources contribute to current particulate matter problems in the area. Major contributors to particulate matter problems include agricultural activities, dust resuspended by vehicle traffic on unpaved roads, construction and demolition, and aerosols formed by photochemical smog reactions.

Attainment Status and Air Quality Planning

Air quality management in Arizona is governed by the federal Clean Air Act (CAA), which is implemented by the U.S. Environmental Protection Agency (EPA). The Arizona Department of Environmental Quality (ADEQ) and the Maricopa County Environmental Services, Department of Air Pollution Control (APC), oversee air quality planning and control throughout Maricopa County. ADEQ is responsible for portable and refinery sources control, whereas APC is responsible for stationary and indirect source control, air monitoring, and preparation of air quality attainment plans. The federal Clean Air Act mandated the establishment of ambient air quality standards and requires areas that violate these standards to prepare and implement plans to achieve the standards. These plans are called state implementation plans (SIPs). A separate SIP must be prepared for each nonattainment pollutant. The SIPs for ozone, PM10, and CO are currently being revised because Maricopa County has not attained the federal standards for these pollutants as scheduled, and the EPA reclassified all three from "moderate" to "serious". As part of revising the SIPs, the County is in the process of preparing Serious Area Plans, which are scheduled to be complete in December 1997 for PM10, February 1998 for CO, and December 1998 for ozone. (Crumbaker pers. comm.)

Conformity Screening

The CAA conformity regulation states that for any new project using federal funds or requiring federal approval, the federal agency must show that the project does not cause or contribute to a worsening of air quality in areas that violate the federal ambient air quality standards. The federal agency must perform a formal conformity determination if the emissions from the federal action will exceed certain threshold levels. These pollutant threshold levels, called *de minimis* emission levels, vary from pollutant to pollutant and depend on the nonattainment status of individual air basins.

In the case of the Ak-Chin Option and Lease Agreement, the federal action is Reclamation's provision of leased settlement water under the Option and Lease Agreement. The leased settlement water would be carried through a nonfederal pipeline constructed by Del Webb. Reclamation has no financial or other involvement in, or control over, the construction or operation of the water delivery facilities, or the ultimate construction of The Villages. Nevertheless, because the pipeline and water treatment plant associated with the leased water would likely not be constructed without Reclamation's approval, Reclamation considered emissions associated with construction and operation of Del Webb's proposed water delivery and treatment facilities in determining whether a conformity determination is required.

The nonattainment status of the area is classified as "serious" for CO, PM10, and ozone (Crumbaker pers. comm.). The applicable *de minimis levels* are 100 tons per year (tpy) for VOC and NO_x, 100 tpy for CO, and 70 tpy for PM10. Construction and operation emissions would be well below the minimum threshold emissions level that would trigger the formal conformity requirement (see emissions estimates presented in Table 3-2). Thus, no conformity determination is required for this project.

Environmental Consequences and Mitigation Measures

Proposed Action

Impact: Short-Term Increase in VOC and NO_x (Ozone Precursors) and CO Emissions during Project Construction. Construction of the pipeline and water treatment plant could result in a minor short-term increase in the generation of CO, VOC, and NO_x emissions from the operation of construction equipment. Measures are available to minimize VOC and NO_x emissions during construction. Construction-related emissions would be short-term and would not exceed *de minimis* levels because a relatively small number of construction vehicles would be needed to construct the pipeline and treatment plant. Worst case total emissions were estimated to be 1.40 tpy for CO, 0.33 tpy for VOC, and 2.37 tpy for NO_x, which are well below all applicable *de minimis* levels (Table 3-2). Total emissions includes combustion emissions from construction vehicles and equipment, as well as use of employee vehicles by construction crews associated with construction of both the pipeline and water treatment plant. (Sierra Research 1997.)

Impact: Short-Term Increase in PM10 Emissions during Project Construction. Construction of the pipeline and treatment plant would result in a short-term increase in generation of PM10 emissions attributable primarily to earth-moving activities occurring over several months. Worst case total emissions were estimated to be 45.52 tpy for PM10, which is well below the *de minimis* levels (Table 3-2). Total emissions includes fugitive dust emissions from soil disturbance associated with construction of both the pipeline and water treatment plant. (Sierra Research 1997.) As a condition of the construction contract, Del Webb would be required to submit an earth-moving permit application to the APC and implement a dust control plan to reduce PM10 fugitive dust emissions in accordance with Maricopa County Rule 310 for Fugitive Dust (Anthony pers. comm.). These PM10-reducing measures are included as part of the proposed pipeline and treatment plant construction requirements.

Impact: Potential Long-Term Increase in ROG and NO_x (Ozone Precursors) and CO Emissions during Project Operation. Operation of the water treatment plant could result in emissions to the air of ozone precursors and CO only if operation of the water treatment plant involves the use of internal combustion engines (thereby requiring the use of petroleum fuels). In such a case, Maricopa County may require that Del Webb obtain an Air Quality Permit, depending on the type of engines and the hours operated per year. The APC may also require that additional engineering modifications be made to water treatment equipment to reduce emission levels prior to granting an Air Quality Permit (Anthony and Chiu pers. comms.). Before receiving an Air Quality

Table 3-2. Comparison of Pipeline and Water Campus Emissions (tons per year) to Applicable General Conformity De Minimus Levels Specified in 40 CFR 51.853(b)

| Category | PM10 | VOC | NO _x | CO |
|--|-----------------|--------------------|--------------------|------------------|
| Emissions: | | | | |
| Pipeline | 12.20 | 0.24 | 1.72 | 1.07 |
| Water Campus | 33.32 | 0.09 | 0.65 | 0.33 |
| Total | 45.52 | 0.33 | 2.37 | 1.40 |
| Applicable De Minimus Threshold Levels | 70 ¹ | 100 ^{1,2} | 100 ^{1,2} | 100 ¹ |

PM10 = particulate matter smaller than or equal to 10 microns in diameter

VOC = volatile organic compounds

NO_x = nitrogen oxides

CO = carbon monoxide

¹ Maricopa County is a serious nonattainment area for PM10 and CO.

² EPA recently issued a proposed rule for reclassification of the Maricopa County ozone nonattainment area from moderate to serious (Federal Register, Vol. 62, No. 169; [September 2, 1997]). If finalized as proposed, the applicable de minimus levels for ozone precursors in an area designated as "serious" become 50 tons per year for VOC and NO_x as stated under 40 CFR 51.853(b)(1).

Source: Sierra Research 1997.

Permit from Maricopa County, Del Webb must demonstrate that air emissions would not exceed threshold levels. Operation of the pipeline is not anticipated to generate emissions of ozone precursors and CO. Because ROG-, NO_x-, and CO-reducing measures would be necessary prior to construction, this would be considered a minor adverse effect on air quality. No operating emission sources were identified (Sierra Research 1997).

Impact: Potential Long-Term Increase of PM10 Emissions during Project Operation. Operation of the pipeline and treatment plant is not expected to result in earth-moving activities that would generate substantial PM10. No operating emission sources were identified (Sierra Research 1997).

No-Action Alternative

Development of water supply Option 1 and The Villages would occur under this alternative. Existing air quality conditions are the same as identified in the "Affected Environment" section. The Villages and the water supply Option 1 pipeline alignment would not be subject to EPA's general air quality conformity regulation because these projects do not involve federal funding or Reclamation approval.

Air quality issues related to the water supply Option 1 pipeline would be similar to those described for the proposed pipeline corridor. Short-term, construction-related ROG, NO_x, and PM10 emissions would result from trenching and pipeline placing activities involving heavy equipment. Construction emissions under this option would likely be slightly greater than under the proposed pipeline because the Option 1 pipeline corridor would be approximately 3 miles longer than the proposed pipeline. No long-term pollutant emissions would result from this option because water would be treated at the existing City of Phoenix water treatment plant.

Air quality emissions generated from The Villages development would be consistent with air emission levels of other urban or suburban developed areas. Potential emission sources resulting from The Villages development include temporary construction-related sources and vehicular and truck traffic from the more than 16,500 projected residential units, associated commercial development, and proposed wastewater treatment plant facilities. As a result of the traffic expected to be generated at buildout in 20 years from The Villages development, the No-Action Alternative could be expected to generate long-term ROG, NO_x, CO, and PM10 emissions in a region currently identified as a nonattainment area for federal standards.

3.6 NOISE

Affected Environment

Relevant Guidelines and Regulations

Maricopa County has not established noise compatibility criteria for the pipeline corridor (James pers. comm.). The EPA, however, has established sound level guidelines for various types of uses (U.S. Environmental Protection Agency 1971). A sound level of 55 decibels (dB) day-night average sound level (L_{dn}) was established as the outdoor level in residential areas that protects the public health and welfare with an adequate margin of safety. The L_{dn} descriptor is a 24-hour average weighted to penalize noise that occurs during nighttime hours (10 p.m.- 7 a.m.) when people are likely to be most sensitive to noise levels.

Existing Noise Conditions

No noise-monitoring data are available for the pipeline corridor. Existing noise conditions in the areas of the proposed turnout structure, storage reservoirs, water treatment plant, and pipeline corridor are typical of noise conditions in desert open space areas (relatively quiet). The area around the pipeline, however, is generally uninhabited. Existing noise sources consist primarily of traffic from local roadways and I-17 as well as Waddell Canal, which is a minor noise source.

Environmental Consequences and Mitigation Measures

Proposed Action

Impact: Temporary Construction-Related Noise. Construction of the proposed water delivery facilities would result in a temporary increase in noise levels at the turnout structure, pumping plant, pipeline, storage reservoirs, and water treatment plant construction sites. Figure 3-2 illustrates noise levels produced by various types of construction equipment. Properly maintained equipment would produce noise levels near the middle of the indicated ranges. The types of construction equipment that would likely be used for the pipeline construction would typically generate noise levels of 80-90 A-weighted decibels (dBA) at a distance of 50 feet while the equipment is operating (U.S. Environmental Protection Agency 1971, Toth 1979, Gharabegian et al. 1985). The operations of construction equipment can vary from intermittent to fairly continuous, and many pieces of equipment can operate at the same time. Assuming that a bulldozer (87 dBA), backhoe (90 dBA), and front-end loader (82 dBA) are operating simultaneously in the same area, peak construction-period noise could be approximately 94 dBA at 50 feet from the construction sites.

| CONSTRUCTION EQUIPMENT | Noise Level (dBA) at 50 feet | | | | | |
|---|------------------------------|-------|-------|--------|-----|-----|
| | 60 | 70 | 80 | 90 | 100 | 110 |
| Equipment Powered by Internal Combustion Engines | | | | | | |
| Earthmoving | | | | | | |
| Compactors (rollers) | | 70-75 | | | | |
| Front loaders | | 70-85 | | | | |
| Backhoes | | 70-90 | | | | |
| Tractors | | 75-95 | | | | |
| Scrapers, graders | | 80-95 | | | | |
| Pavers | | | 85-90 | | | |
| Trucks | | | 80-95 | | | |
| Materials Handling | | | | | | |
| Concrete mixers | | 75-90 | | | | |
| Concrete pumps | | | 80-85 | | | |
| Cranes (movable) | | 75-85 | | | | |
| Cranes (derrick) | | | 85-90 | | | |
| Stationary | | | | | | |
| Pumps | | 65-70 | | | | |
| Generators | | 70-85 | | | | |
| Compressors | | 75-90 | | | | |
| Impact Equipment | | | | | | |
| Pneumatic wrenches | | | 80-85 | | | |
| Jackhammers and rock drills | | | 80-95 | | | |
| Pile drivers (peaks) | | | | 95-105 | | |
| Other | | | | | | |
| Vibrators | | 70-85 | | | | |
| Saws | | 75-85 | | | | |

Source: U.S. Environmental Protection Agency 1971.



Jones & Stokes Associates, Inc.

Figure 3-2
Construction Equipment Noise Ranges

Although construction-related noise levels could be substantial at the proposed construction site, they would be temporary and no construction would occur at night. In addition, there are no sensitive noise receptors in the pipeline corridor. One homesite is located approximately 0.5 mile north of the pipeline corridor; it would not be affected by construction-related noise.

Impact: Operational Noise. Operation of the proposed turnout structure, pumping plant, and water treatment plant would create noise. In addition, operation of the water delivery system will require occasional maintenance, which also would generate noise; however, noise from maintenance activities would be temporary and would most likely be within the range of levels previously mentioned. No sensitive noise receptors exist in the pipeline corridor vicinity.

No-Action Alternative

Under the No-Action Alternative, similar noise effects, as described for the proposed pipeline, could result from alternative water supply facilities. Construction of the water supply Option 1 pipeline and booster pump plants would involve a temporary increase in noise levels in the 80-90 dBA range adjacent to I-17 between Deer Valley Road and The Villages site. Construction noise associated with the pipeline at this location would probably not be noticeable because of the proximity of the I-17 background traffic noise source. Booster pumping plant operation would likely create a minor increase in noise levels at Happy Valley Road and north of the Carefree Highway; however, no inhabited structures are present in these areas.

Noise levels generated from The Villages development would be typical of those in other suburban areas around Phoenix. Noise levels would be greatest near roadways and in areas identified for public use. Background noise levels on I-17 could also increase by the time the development is completed, which is estimated to be approximately 20 years.

3.7 TRAFFIC AND CIRCULATION

Affected Environment

The proposed pipeline alignment would cross seven roadways: SR 74, New River Road, 87th Avenue, three unnamed gravel/dirt roads, and I-17. Most areas of the alignment would cross undeveloped rural land.

Highways and Roads

The primary roadway in the pipeline corridor is I-17, which connects Phoenix and Flagstaff, Arizona. In the project vicinity, I-17 is a four-lane facility. Average daily traffic (ADT) on I-17 in the vicinity of the pipeline corridor is 22,910 vehicles (Maricopa County Department of Transportation 1996).

Lake Pleasant Road (SR74) is a two-lane road extending north/northwest from Carefree Highway and crossing the Agua Fria River south of New Waddell Dam. The ADT on SR 74 in the vicinity of the proposed action is 678 vehicles (Hamlin pers. comm.). New River Road begins at an intersection with SR 74 approximately 0.5 mile north of Carefree Highway and extends northeast to I-17. New River Road is a two-lane road that is paved for a portion of its length north of the pipeline crossing; in the vicinity of the pipeline corridor as well as to the south, New River Road is improved gravel and dirt. The ADT on New River Road in the vicinity of the pipeline corridor is approximately 2,500 vehicles (Hamlin pers. comm.).

The Arizona Department of Transportation (ADOT) has jurisdiction over I-17 and SR 74, and the Maricopa County Department of Transportation (MCDOT) has jurisdiction over New River Road.

Environmental Consequences and Mitigation Measures

Proposed Action

Impact: Potential Alteration of Present Patterns of Vehicular Circulation and Increase in Traffic Hazards during Construction Activities. The proposed pipeline corridor would cross I-17, SR 74, New River Road, 87th Avenue, and a number of other unpaved roads. The crossing of I-17 and SR 74 would be accomplished by using conventional underground boring methods. These methods would not disrupt traffic patterns on I-17. Where it would cross New River Road and 87th Avenue, the proposed pipeline would be installed using trench-and-bury construction methods. Construction of the pipeline could result in lane or road closures, detours, open trenches, and the addition of construction trucks and equipment on the surrounding roadway system. This potential effect is considered minor because Del Webb has incorporated a traffic control plan for all road crossings into the project design. The traffic control plan will be coordinated with the MCDOT and ADOT, and construction will follow the standards of the local jurisdiction. Elements of the traffic control plan could include:

- coordinating with state and local jurisdictions regarding hours of construction and lane closures that would minimize construction impacts on the roadways;
- obtaining easements or encroachment permits from local agencies and ADOT, as necessary;
- providing for detours or ensuring that at least one traffic lane remains open along affected roadways and minimizing lane closures during the peak a.m. and p.m. commuting hours;
- specifying types and locations of warning signs, lights, and other traffic control devices;
- providing access for driveways and private roads; and

- notifying and consulting with emergency service providers to ensure that adequate emergency access is maintained.

Impact: Increased Vehicular and Truck Traffic on the Existing Roadway Facilities during Construction. Activities associated with construction of the intake structure, pipeline, storage reservoirs, and water treatment plant are expected to result in additional traffic on the pipeline corridor roadways. Because construction traffic would be temporary and truck volumes would be low, this impact would have a minimal effect on daily traffic levels.

Impact: Temporary Effect on Roadway Conditions. Pipeline installation and heavy equipment traffic could result in effects on roadway surface conditions at crossings. As part of the project, Del Webb will be required to follow normal construction practices, including restoring all road surfaces to original conditions and coordinating with local jurisdictions to ensure that appropriate truck routes are used.

Impact: Minimal Increase in Employee Traffic Volumes and Traffic Delays from Operation and Maintenance. Operating the water treatment plant would require additional employees that would generate additional new trips during both morning and evening peak hours. The possible generation of new trips during the peak hours would not result in a substantial increase in traffic. Operation and maintenance of the Waddell Canal turnout structure, pipeline, and storage reservoirs would require minimal traffic from maintenance vehicles and may occasionally require lane closures for maintenance activities. The maintenance activities would be relatively infrequent and would involve only temporary effects on traffic circulation.

No-Action Alternative

Under water supply Option 1, construction activities associated with the pipeline alignment would result in temporary increases in vehicular and truck traffic on the local roadway network and could result in temporary effects on road conditions (e.g., asphalt damage, detours, or delays) related to construction equipment traffic. Operation and maintenance of the pipeline corridor would result in minor operational traffic effects, and no additional employee traffic related to water treatment plant operation would occur because the water supply would be treated by the City of Phoenix.

Traffic and circulation effects that could result from implementation of The Villages development were evaluated during the Maricopa County plan of development approval process in 1995. MCDOT later developed the Northeast Valley Area Transportation Study (NVATS) (1996), which addresses growth in this area of the state over the next several years. The study area encompasses the New River and Desert Hills communities, including The Villages development (Figure 3-3). ADOT is currently conducting the Phoenix-Flagstaff-Page Multimodal Corridor Profile, an independent study also addressing growth in this area over the next several years (Tognacci pers. comm.). Following is additional information on these studies and recommended traffic improvements.

Northeast Valley Area Transportation Study. The NVATS is a technical plan and contains traffic projections for the study area for the planning horizon year 2015. To develop a long-range plan, future conditions for the study area were projected using a regional transportation modeling program, which accounts for socioeconomic data and roadway network data. Traffic estimates for the base year 1995 were made using existing Maricopa Association of Governments (MAG) socioeconomic data, and the model was calibrated against 1995 traffic counts. For the horizon year 2015, population and employment projections were estimated by the County (based on MAG data that were updated by MCDOT) to represent the highest level of development that could reasonably be expected in the study area by 2015 (Miller pers. comm.). This included 80% buildout of The Villages and development of lands not identified as sensitive by Maricopa County in an area south of the Honda Bow alignment. Figure 3-3 shows the current average weekday traffic and the existing roadway network, and Figure 3-4 shows projected ADT volumes based on 2015 growth projections. The NVATS also evaluated a No-Build option, which assumes 2015 growth and no long-range traffic improvements.

Generally, the NVATS traffic modeling shows that ADT volumes on I-17 would increase from approximately 23,000 (in 1995) to 70,000-98,000 (in 2015) in the vicinity of The Villages development area, with the greatest volumes south of Carefree Highway. In 2015, traffic volumes on I-17 are projected to be 129,000 ADT between the proposed interchange near Deadman Wash and Carefree Highway and 142,000 ADT south of Carefree Highway (Figure 3-4).

Improvements on I-17 to interchanges and interchange approaches are recommended by the County to accommodate the projected increase in traffic volume (Figure 3-4). At the maximum zoning densities, the existing Desert Hills and Pioneer Road interchanges would require improvements. The NVATS also recommends a new interchange be located near Deadman Wash, 2 miles south of the Desert Hills interchange. Connections to the new interchange would be provided by six-lane major arterials that would parallel Deadman Wash and run northeast from the interchange.

The County also proposes improvements to arterial roadways within County jurisdiction to facilitate the projected traffic increase. The arterial roadways would receive traffic from 15 proposed major collector streets, two for the property west of I-17 and 13 for the property east of I-17. The major collector roadway proposed for the property on the west side of I-17 would be a north-south roadway that would eventually connect to the Desert Hills interchange. The major collector roadways proposed for the property east of I-17 would be a combination of east-west and north-south roadways that would connect to the arterial system. The major collector roadways would penetrate the individual subdivisions, collecting local traffic and distributing it to the arterial street system. They would also provide traffic circulation between neighborhoods and recreational facilities. All of the major collector roads are proposed to be three lanes, including a two-way left-turn channelization that will be widened to provide the appropriate intersection geometry required at arterial streets. The existing Desert Hills Drive is proposed to be a four-lane minor arterial street extending west and south along I-17 to connect with the existing Pioneer Road interchange. Six-lane major arterial connectors running east and west to the existing Desert Hills interchange are also recommended.

Implementation of Traffic Improvements. Traffic improvements in the NVATS are recommended by the County, for both arterial roads in MCDOT jurisdiction and for I-17 in ADOT jurisdiction, to accommodate growth and traffic volume increases in the study area. Although ADOT participated in the NVATS by serving on the Technical Advisory Committee and providing comments, ADOT does not currently have plans to widen I-17 (Tognocci pers. comm.). Funding has not been secured for most of the improvements discussed and ADOT believes determining specific improvements is premature.

Improvements to I-17 (i.e., interchanges and additional lanes) recommended in the NVATS study are recommendations by the County, but would have to ultimately be implemented by ADOT. Additional traffic lanes and interchange improvements are often funded by ADOT (or ADOT secures the funding through federal, state, local, and private sources), but ADOT does not fund projects until they are placed on the ADOT Five-Year Highway Construction Program, which is updated annually. The only improvement from the NVATS that has been placed on the Five-Year Highway Construction Program thus far is the Desert Hills traffic interchange, which would be primarily funded by Del Webb. Del Webb would also participate in the funding of an additional interchange, but the specific interchange has not yet been identified.

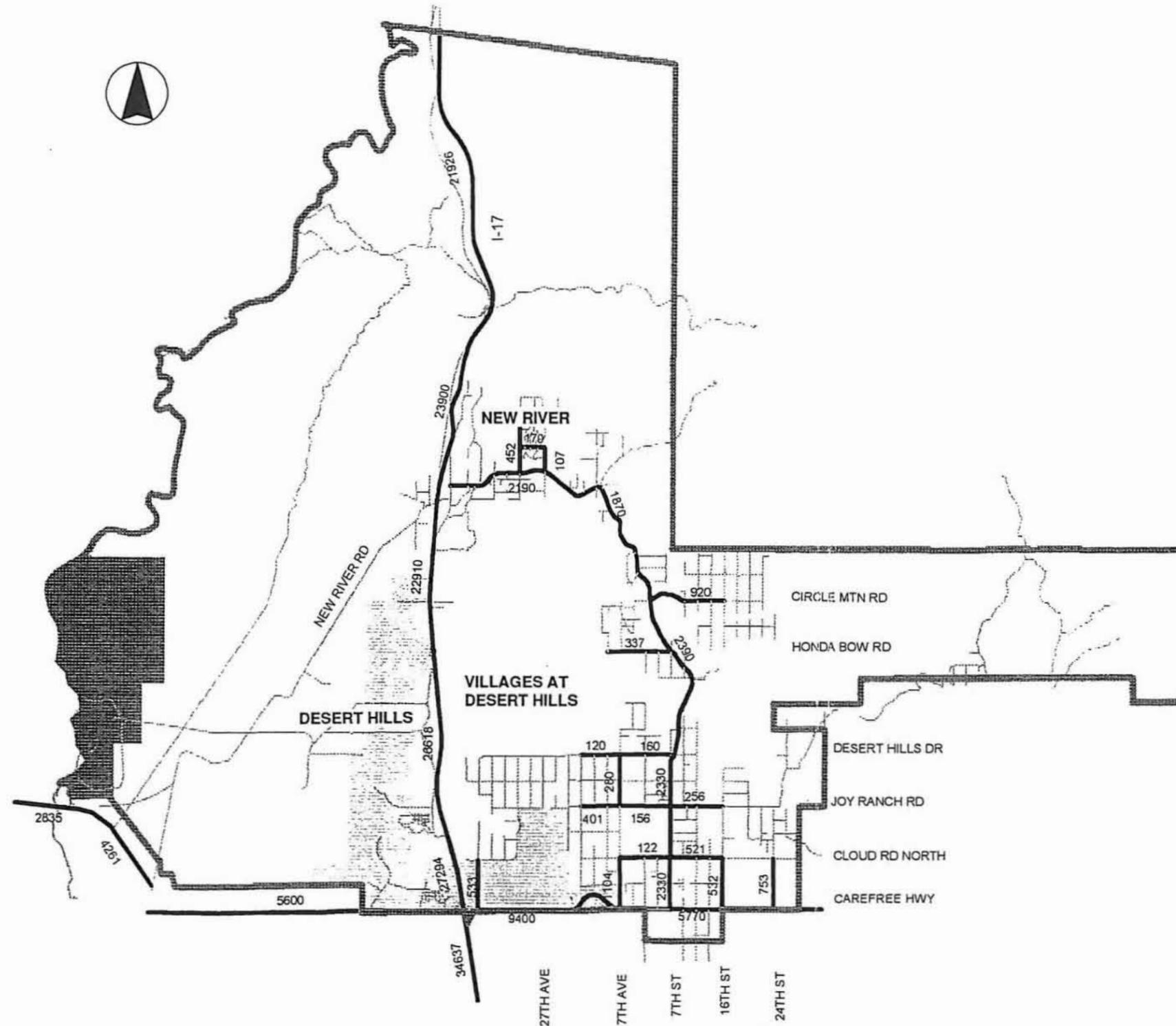
Improvements to arterial roadways are proposals that would be implemented by MCDOT if within County jurisdiction at the time of development. Specific roadway improvements have been identified in the NVATS study with a proposed phasing schedule. However, funding of these improvements has not been committed. As development occurs, it would be the responsibility of the appropriate agency, developer, or jurisdiction to begin programming and funding the project. The NVATS will be updated periodically to reflect changing conditions. (Miller pers. comm.)

I-17 Corridor Profile. ADOT is currently conducting the Phoenix-Flagstaff-Page Multimodal Corridor Profile, an independent study to assess traffic conditions for horizon year 2020. The I-17 Corridor Profile, which represents the southern part of the Phoenix-Flagstaff-Page Multimodal Corridor Profile, is one of a series of long-range studies being conducted to implement the 1994 State Transportation Plan, a policy document developed in response to the federal Intermodal Surface Transportation Efficiency Act (ISTEA). The Phoenix-Flagstaff-Page Multimodal Corridor Profile is anticipated to be complete in mid-1998 and will be used to help identify highway improvements for ADOT's Five-Year Highway Construction Program (Tognocci pers. comm.).

The Villages at Desert Hills Development. The Villages development plan includes several arterial streets within The Villages to be developed by Del Webb. Additionally, intersections of arterial streets and major collector roads may require traffic signals. These traffic improvements would be funded by Del Webb. Existing access to residential areas south of Desert Hills Drive would not be affected by The Villages' circulation improvements.

Figure 3-3

Current Average Weekday Traffic



LEGEND

- Annexed Phoenix Area
- Annexed Peoria Area



SOURCES:

- MCDOT Street Network
- MCDOT Traffic Counts Program, ADT
- November, 1996

Maricopa County Department of Transportation

Northeast Valley Area Transportation Study



LOGAN SIMPSON & DYE

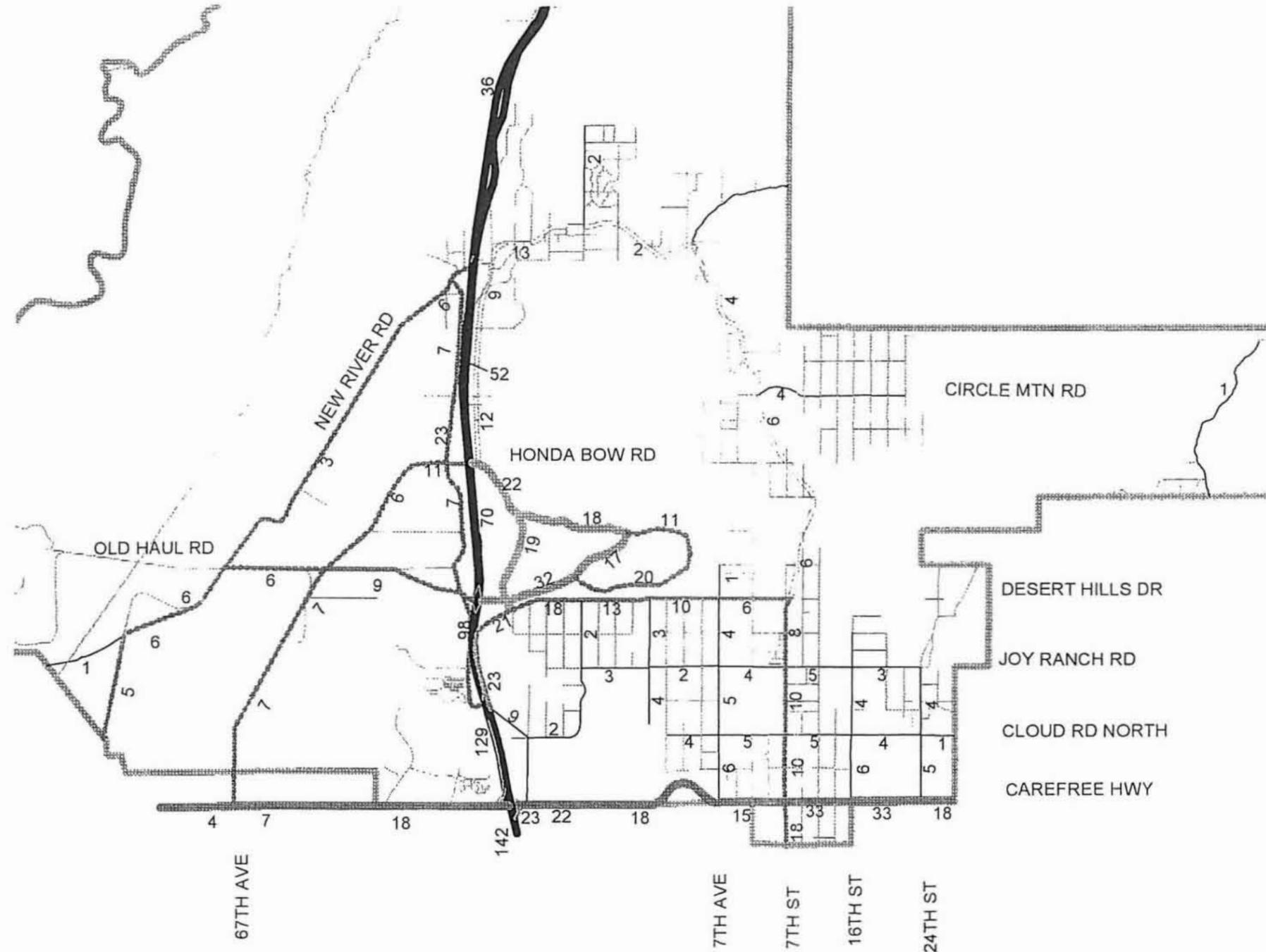


Figure 3-4

Recommended 2015 Roadway Network, Future Average Weekday Traffic

LEGEND

- Interstate
- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector

Average Weekday Traffic in Thousands



SOURCES:

Lee Engineering
Logan Simpson Dye

November, 1996

Maricopa County Department of Transportation

Northeast Valley Area Transportation Study



LOGAN SIMPSON & DYE

3.8 LAND USE AND VISUAL RESOURCES

Affected Environment

Existing Land Use Conditions

The proposed pipeline would be located adjacent to Waddell Canal, an existing electrical transmission line corridor, and Reclamation's abandoned haul road for over half of its 9-mile length. The pipeline corridor consists primarily of desert open space, with few improved land-use features in the vicinity. The corridor would cross 17 minor drainages, the New River channel, the El Paso Natural Gas pipeline corridor, six roads, and I-17.

The construction of the pipeline would require both temporary construction and permanent ROW easements because it would cross land owned by several different state and federal agencies. ROW access would be required from the U.S. Bureau of Land Management (BLM), State Land Department of Arizona (SLD), ADOT, and MCDOT. State and BLM land is primarily used for grazing and other open space uses. During pipeline construction, an approximately 100-foot-wide temporary construction easement would be required for all but the New River crossing where the construction site would be larger. Following construction, a 30-foot-wide, 50-year access easement would be required for the pipeline alignment.

The proposed project is located within the 216-square-mile New River Land Use Planning Area in Maricopa County. The land that the proposed pipeline corridor crosses is currently zoned R-43 (Rural Residential, 1 unit/acre). The New River Land Use Plan also provides for the development of higher densities associated with a development master plan.

East of I-17 several areas of scattered residential development exist on lots of 1 or more acres. The Arizona Factory Outlet Shops are located on the west side of I-17 at the Honda Bow Road (Desert Hills) interchange. The area between I-17 and Lake Pleasant Regional Park is mostly vacant and consists of undeveloped Sonoran desertscrub. In addition, one home site is located approximately 0.5 mile north of the pipeline corridor. No minority or low-income communities are located near the pipeline corridor. The Ben Avery Shooting Range, the Arizona Pioneer Museum, and an RV Park are located approximately 2 miles south of the pipeline corridor, a federal correctional center is located approximately 1 mile south of the pipeline corridor, and the New River Landfill, a residential waste site, is located over 1 mile to the north.

Visual Resources

Visual resources near the pipeline corridor consist generally of typical Sonoran Desert landscape features with scattered rural development. Background views in the area are typical of the landscape setting in much of central Arizona, consisting of distant views of foothills and mountainous terrain, which are generally considered to have high scenic value. Middleground views in the area are of flat desertscrub habitat in the lowland areas and of higher elevation hills, bluffs, and mountains.

Prominent features in the area that add visual variety to the otherwise flat desert habitat are Daisy Mountain east of I-17 (a relatively low volcanic outcrop 1 mile west of I-17 and south of the pipeline corridor), the New River channel, and the Agua Fria River. The surface of Lake Pleasant cannot be seen from the pipeline corridor.

Prominent views in the area are generally only from I-17, SR 74, and New River Road. Viewing opportunities in the area are also possible from a number of lightly traveled unimproved roads.

Environmental Consequences and Mitigation Measures

Proposed Action

Impact: Consistency with Land Use Goals and Planning Objectives of Maricopa County. Construction of the proposed water pipeline is consistent with the goals and planning objectives of Maricopa County. Maricopa County has identified the New River Planning Area as an area of desired future urban growth. However, uncertainty concerning water availability in the New River Planning Area is a severe constraint on future growth; 100% of the current water supply comes from groundwater sources that yield low volumes of water. Because the surface water supply under the proposed action would provide a reliable alternative to groundwater, it is considered consistent with applicable plans and policies.

Impact: Consistency with Adopted Land Use Designations and Zoning. The majority of the area that the proposed pipeline corridor would cross is vacant land. The property is currently zoned R-43 (one residential unit per acre). Because this zoning allows for provision of utility corridors and easements, the water delivery facilities are considered consistent with the intended land use for this area. The New River Land Use Plan makes development provisions for higher-density provided they are part of a Maricopa County Development Master Plan.

Impact: No Conflict with Adjacent Land Uses. Implementing the proposed action would not result in substantial conflicts with surrounding land uses because the pipeline corridor is vacant. The land immediately surrounding the proposed pipeline alignment is undeveloped, with the exception of Waddell Canal, roadway crossings, the El Paso Natural Gas pipeline, and the existing electrical transmission corridor (see the discussion of rights-of-way below). The land uses in the area identified above are not in the immediate vicinity of the proposed pipeline corridor and would not be affected because construction activities for the water delivery facilities would be temporary and the pipeline would be underground. No land use conflicts would occur with the one homesite located approximately 0.5 mile north of the proposed pipeline corridor.

Impact: Possible Conflicts with Existing Local, State, and Federal Agency Rights-of-Way. Construction and operation of the proposed pipeline and treatment facilities would generally create minimal effects on existing local, state, and federal property and ROWs because construction

of water delivery facilities is consistent with the general land use in the area and would not substantially affect use of property or ROWs.

Arizona State Lands Department. Most of the lands that the proposed pipeline corridor would cross are Arizona State Trust Lands. The state's primary goal for these lands is to maximize revenues from use of the lands for state schools. The proposed pipeline corridor has been reviewed by SLD staff, which determined that the pipeline would have only minor effects on State Trust Lands. Construction-related activities would create temporary physical effects on State Trust Lands; these effects would be minimized by measures incorporated into the pipeline design to restore the corridor. (See Section 4, "Environmental Commitments", for additional information on measures to restore the construction corridor.) Additional revenue would be generated related to use of state land for a pipeline easement. Therefore, the ROW conflicts associated with Arizona State Trust Lands are not considered adverse, and the pipeline construction would have a beneficial economic effect on Arizona State Trust Lands.

Bureau of Land Management. BLM is in the process of acquiring acreage on the east side of Lake Pleasant for a dedicated conservation area, which may include portions of the pipeline corridor. The pipeline corridor also includes crossing a narrow BLM ROW east of New River that is known as the Black Canyon Corridor. Del Webb would be required to obtain a ROW easement from BLM to cross the corridor. BLM is working toward establishing a designated trail in the corridor to provide a public amenity for equestrian and pedestrian users. Constructing an underground pipeline across the BLM ROW would result in only minor effects on BLM's plans to develop a trail in their designated corridor (Ragsdale pers. comm.).

Arizona Department of Transportation. The pipeline construction would involve crossing I-17 and SR 74. The ADOT has a policy of not allowing utilities in their ROW, with the exception of perpendicular crossings. The ROW along I-17 is 300 feet. A tunnel would be bored under the I-17 and SR 74 ROW to accommodate the proposed pipeline. Once completed, the pipeline would not affect the ROW. However, construction activities associated with the pipeline could create short-term impacts. Barricades and other traffic control measures would be required to reduce potential safety impacts.

Maricopa County Department of Transportation. MCDOT allows recognized public utilities to be placed in the ROW along county roads, but requires a permit. The proposed pipeline would cross New River Road and several other small roads within the County. Necessary permits have been obtained, and no impacts to the ROWs will occur. However, there will be short-term, construction-related impacts on roadways. Following construction, Del Webb would be required to restore the roadways.

Arizona Public Service Electric Utility Corridor. The proposed pipeline would be sited adjacent to the electric transmission line corridor for approximately 3.3 miles from just after the pumping station at Waddell Canal to the former Reclamation haul road. No adverse land use impacts on the existing transmission corridor are anticipated because the transmission line towers would not be affected by an underground pipeline. Because of the potential for the transmission line to induce current in the pipe during construction, an induction survey would be conducted to determine what

grounding measures need to be implemented during construction of the pipeline. Additionally, locating the proposed facilities adjacent to an existing utility corridor would minimize any potential long-term land use conflicts because the facilities would be sited near an already disturbed corridor. APS has been contacted and pipeline placement will be coordinated with staff to ensure no conflicts with the existing ROW would occur. Approximately 35 feet of APS's existing right-of-way would be used as part of the 100-foot-wide construction easement, further reducing effects in the area.

El Paso Natural Gas Pipeline Corridor. The proposed pipeline would cross the alignment of the El Paso Natural Gas pipeline corridor. The proposed pipeline would not interfere with operation of the gas pipeline because the pipeline would be placed beneath the gas pipeline. Precautions will be taken during construction of the proposed pipeline to eliminate hazards associated with the gas pipeline. El Paso Natural Gas has been contacted to ensure no conflicts arise associated with the water pipeline.

Impact: No Effect on Prime Agricultural Lands. Implementation of the proposed pipeline and treatment plant would not require the conversion of prime agricultural land to nonagricultural uses because no prime agricultural land exists in the pipeline corridor. The proposed pipeline would cross existing grazing land. Provisions will be made to prevent livestock from falling into the trenches during construction.

Impact: Effect on Visual Resources. The proposed pipeline would not be visible during the operational phase and would, therefore, not create any long-term impacts on visual resources. Short-term effects on visual resources during construction are expected to be minor because construction would be temporary, the affected area is relatively small, and no sensitive visual resource receptors would be adversely affected. Minor changes to views of the desert visual resources would be most apparent to motorists during construction at the SR 74 crossing and near I-17. Visual resource changes at the Waddell Canal turnout structure would be consistent with visual resources at the canal.

Impact: No Environmental Justice Effects. The proposed pipeline corridor construction site would not affect any minority or low-income communities because none exist in the corridor area. Environmental commitments identified for the proposed pipeline would also not directly or indirectly affect such communities.

No-Action Alternative

Under the No-Action Alternative, alternative water supply options would be used to serve The Villages development area. Water supply Option 1 would be consistent with the land uses goals, objectives, and designations of Maricopa County and would likely not result in substantial land use conflicts because the pipeline corridor would be sited adjacent to the I-17 corridor, and the pipeline would be buried. ADOT's policy of generally not allowing utilities in its 300-foot-wide ROW would require the pipeline to be sited over 150 feet east of I-17. The pipeline alignment would not affect any prime agricultural land, and no long-term visual resources impacts would result because the

pipeline would be buried, the corridor would be revegetated, and the alignment would be sited adjacent to an existing transportation corridor.

The Villages development is within the 216-square-mile New River Planning Area. The Villages would be developed under a DMP that encompasses 5,661 acres of vacant desert scrub in the southern portion of the New River Planning Area. The site is currently vacant and is zoned to accommodate the proposed development. The DMP, NUPD, and planned development overlay are reflected in the New River Land Use Plan (NRLP) text and map, as amended.

Land uses surrounding the development area consist of I-17 to the west, vacant hills and the community of New River to the north, and scattered rural residences to the east and south. The rural residential area south of Desert Hills Drive is the most concentrated residential area in the development site vicinity.

The Villages development would convert 5,661 acres of vacant Sonoran Desert habitat to a master planned community environment. The development would include a mix of residential units, commercial, employment, recreation, and open space uses. There could be a maximum of 16,526 residential units, as indicated in the adopted master plan, although recent announcements by Del Webb suggest there may be 2,000 fewer units. The average residential density for the entire project is 2.9 dwelling units per acre. Approximately 38% of the development plan is devoted to open space and recreation areas, including undisturbed natural areas, hillsides with slopes over 15%, major drainage ways, golf courses, and 300 acres of neighborhood and community parks. No prime agricultural land would be converted in the development area.

The Villages development is consistent with the goals and objectives of Maricopa County and the NRLP. Additionally, numerous stipulations have been presented by the county with which The Villages development must comply. These stipulations are observed in the NUPD and have been incorporated into the plan of development or will be completed before construction.

The NRLP promotes using DMPs on large tracts in the area, provided that the project is responsive to the physical and natural constraints of the property. The reduction of rural residential sprawl and preservation of natural environmental features are goals of the NRLP that are taken into consideration in the proposed Villages development. The development will be integrated into the natural environment, allowing for the preservation of sensitive open space areas that contain visual resources and natural environmental features such as riparian washes, scenic areas, open desert, and steeply sloping desert hillsides.

A goal of the NRLP is to provide a land use environment which generates a diversified economic base that fosters varied employment opportunities, and encourages business formation and expansion. The Villages DMP meets this goal by providing commercial and job employment centers within the proposed Villages plan of development.

It is also anticipated that The Villages would be consistent with the socioeconomic and land use goals of the County and the NRLP, which encourage higher density urban residential developments that provide a mixture of housing types. Development of a treated surface water

source and wastewater treatment plant for The Villages would eliminate the need for a groundwater source and would ensure that groundwater quality problems associated with individual septic systems do not occur in the development area.

Under the No-Action Alternative, The Villages development would not be expected to create substantial land use conflicts with adjacent rural residences. Rural residences to the north, east, and south of the property would be buffered from new development by the incorporation of low-density residential buffer areas into development plans. Daisy Mountain and the New River Range would eliminate views from and buffer land use conflicts with the existing New River community. Skunk Creek and over 300 acres of low-density residential buffer area would substantially reduce land use conflicts that could arise on the southern and eastern property boundaries. Based on the approved DMP, buffer areas along Desert Hills Drive would retain an R1-43 zoning density.

The northwest portion of the site west of I-17 near the Desert Hill interchange would include commercial and mixed land uses. This portion of the site is compatible with surrounding uses because it is adjacent to the existing Outlet Mall.

Under the No-Action Alternative, conversion of open desert habitat in The Villages development area to a master planned community environment setting would substantially change the current views of the site from I-17 and surrounding rural roads. Del Webb plans to preserve many of the natural drainage and hillside features and will provide 38% of the site for open space and recreation/park features, which will help reduce visual resource impacts. The development area will be landscaped and developed as a high-quality, master planned community. Background views of the mountains would not be affected.

Under the No-Action Alternative, public services and utilities for The Villages development area will be provided according to the DMP. Before adoption of the master plan, Maricopa County identified the lack of infrastructure in the New River Planning Area as a constraint to future development. The provision of public services by a developer is encouraged and many times required as a stipulation of development. All of the public services required in the area will be provided, as described below.

The Villages is in the Deer Valley School District. The Desert Mountain Middle School is approximately 2 miles to the south, and the Deer Valley Junior High and Barry Goldwater Senior High Schools are 10.5 miles south at Rose Garden Lane and 27th Avenue. The New River Elementary School is approximately 3 miles to the north on the east side of Black Canyon Highway. Land will be made available for elementary, junior, and senior high school facilities within The Villages development area. To the extent possible, schools will be located adjacent to parks to maximize shared use of recreational facilities. An agreement with the Deer Valley School District for specific types of facilities has been executed pursuant to a DMP Stipulation "u" to dedicate a 50-acre high school site and construct a \$7 million elementary school. Pursuant to DMP Stipulation "mm", The Villages has committed to reserve two additional school sites for a period of 10 years to serve future populations if necessary. Pursuant to DMP Stipulation "ee", the first Information Center will be converted to a library no later than 10 years from the opening of the first model home complex.

The Maricopa County Sheriff's Department currently provides police protection and security to the general area from a substation 18 miles from The Villages development. Police services in the development area will also be provided by the Maricopa County Sheriff's Department. Pursuant to DMP Stipulation "qq", Del Webb has dedicated a 12-acre site on the west side of I-17 adjacent to the Factory Outlet Mall for use by the Sheriff's Department, which may be operated in conjunction with a maintenance facility for the MCDOT.

The Daisy Mountain Fire District currently provides fire service in the area, with stations located at 7th Avenue and Desert Hills Drive and at 27th Avenue and New River Road. Pursuant to Stipulation "rr" of the DMP, a 2.5-acre site was donated in the development area to the Daisy Mountain Fire District for fire station facilities.

No sanitation district currently exists in the area. The Villages development will provide a sewer system and a wastewater treatment facility for both potable water and reclamation of non-potable wastewater. The 44-acre site for the water treatment plant identified under the proposed action would also serve as a site for a tertiary wastewater treatment plant that will accommodate the entire development. Treated effluent is planned as a future source of water for golf course and landscape irrigation. The golf course lakes will serve as storage basins for the irrigation systems. The wastewater treatment facility is anticipated to serve only The Villages development.

The Villages site is currently not served by solid waste disposal services. Trash collection and disposal services in the development area will be provided by a private collection company and will be disposed of at either the Skunk Creek landfill or the Maricopa County Northwest Regional Landfill. Both have sufficient capacity to serve The Villages and would not need to be expanded.

The Villages site is not within an established water district. The Desert Hills Water Company service area abuts the southeast corner of the property and the boundary of the Sabrosa Water Company service area is approximately 1 mile to the northeast. Under the No-Action Alternative, The Villages development will secure one of the alternative water supply options. Groundwater will not be extracted from local wells to serve the community. (Groundwater can only be used on an interim basis early in construction until a permanent water system is completed). No effects on existing water companies in the area are expected because no established water district exists in the development.

A number of developed and undeveloped recreational resources currently exist in the pipeline corridor near the I-17 corridor. Lake Pleasant Regional Park, which is managed by the Maricopa County Parks Department, is located approximately 10 miles to the west of The Villages development area. The 141,400-acre park includes an extensive system of recreational facilities. The Cave Creek Recreational Area to the east of The Villages development area includes 2,752 acres of trails for hiking and equestrian uses.

The Ben Avery Shooting Range and Recreation Area encompasses 1,443 acres and has facilities that include public shooting ranges and a 100-space campground. An excellent archery range with 5 miles of trails and a practice area is also present, and a trap and skeet range is lighted for night use.

Under the No-Action Alternative, The Villages development would ultimately increase the local population and demand for existing recreational resources in the area. The Villages, however, will provide substantial new recreational amenities, such as 300 acres of public and private parks and open space areas with walking, biking, and equestrian trails. The community will also include a number of private 18-hole golf courses and will feature public access to multi-use/equestrian trails and pathways that will traverse the community and provide access to offsite destinations. Del Webb is also required under its DMP to initiate discussions with the Arizona State Land Department to help secure an interconnecting trail system across state and federal land to Lake Pleasant.

3.9 CUMULATIVE IMPACTS

Cumulative impacts result from the incremental impact of the proposed actions when they are added to other past, present, and reasonably foreseeable future actions (40 CFR 1508.7).

The water delivery pipeline development that would result from implementing the proposed action would have only minor environmental impacts on seasonal drainages, state special-status plant and wildlife species, cultural resources, air quality, noise, land use, and traffic conditions as described above for the proposed action topical analyses. Construction impacts of the water delivery system would be temporary, operational impacts would be minimal, and facility construction and operation would be subject to the environmental commitments identified in the document including those enumerated in Section 4. The proposed pipeline corridor also has been selected because much of the alignment has been previously disturbed (along the APS electric transmission line corridor and abandoned Reclamation haul road), and biological and cultural resource conditions are generally considered moderate to low quality in the area.

Other past, present, or reasonably foreseeable actions proposed in the area that would contribute to cumulative background conditions (conditions that would occur with or without the proposed action) include preliminary proposals for other water supply infrastructure projects and scattered commercial, recreational, and residential development. The City of Phoenix has indicated that it intends to construct a future water treatment plant and distribution facilities in the vicinity of Lake Pleasant to serve future development in northern Phoenix. It is possible that pipeline facilities described under the proposed action could be considered for use or could be expanded in the future for City of Phoenix municipal and industrial (M&I) use. No detailed plans for City of Phoenix water treatment or delivery facilities are available.

The most notable development in the recent past that is located near the pipeline corridor is the Factory Outlet shopping mall located to the north. Maricopa County has approved plans for The Villages master planned community located east of the pipeline corridor and I-17. The Villages consists of 5,661 acres and was approved for 16,526 residential units as described in Section 2 under the No-Action Alternative. Other planned projects include the BLM Black Canyon trail corridor, City of Peoria annexation and development plans near Lake Pleasant, and MWD's development at Lake Pleasant. In addition, an estimated 1,150-acre parcel located northeast of the I-17 and Carefree Highway intersection is being planned for residential and mixed use development. The developer

is currently in the zoning and annexation process and is negotiating for water service from the City of Phoenix.

Maricopa County's New River Land Use Plan, which covers the area that includes the pipeline corridor, indicates that most of the property in the vicinity of the pipeline corridor is currently designated as rural residential (1 unit per acre). Higher densities can occur under this plan if it is part of a development master plan. Much of the area surrounding the pipeline corridor is state trust land, which can be sold or leased for residential and commercial development. The State Land Department typically creates master plans for large expanses of land prior to sale or lease.

The existing or planned developments that contribute to cumulative background environmental conditions are those that have had or could have similar effects as described for the proposed pipeline corridor. Such developments include all of the projects that could result in direct physical effects from construction in the desert environment or that could contribute to indirect growth-related effects. Cumulative hydrologic and water quality impacts in desert washes are expected to be relatively minor because streamflows in the area are infrequent and because the Corps of Engineers regulates effects on jurisdictional waters of the United States, FCDMC regulates the rates of runoff that are allowed from new developments, and construction in or near drainages would generally be temporary or minimized. Inadvertent release of construction materials, such as fuels or oil-based products, could be minimized using standard construction practices and measures required by FCDMC. Groundwater withdrawals would not increase in the area because water supplies from either the City of Phoenix or surface water from the Colorado River, rather than groundwater, would be used for domestic consumption.

Effects from other reasonably foreseeable actions would result in conversion of Sonoran desertscrub habitat, including over 5,000 acres in The Villages development area, and reduction in its value as habitat for common and state special-status wildlife species. Portions of desert washes and xeroriparian vegetation could be temporarily affected in areas where cumulative development would involve crossing the washes. Numerous minor washes and Deadman Wash and Skunk Creek could be temporarily affected. The potential exists for federally listed threatened or endangered plant or wildlife species to be affected by the cumulative background development that could occur in the New River Planning Area, but no federally listed species were identified as occurring in The Villages development area. The BA indicated that no cumulative effect on federally listed species would occur in The Villages area. Other special-status species that are either known to occur or have the potential to occur in the area could be affected by cumulative background development.

The potential for cultural resource effects on identified or unknown sites exists in the area, particularly near drainages, washes, and New River because of the prehistoric and historic Hohokam occupation. The Villages development area, for example, contains six cultural resource sites that were determined by Reclamation to meet the criteria for listing in the NRHP. Construction effects on these resources would be avoided or minimized based upon recommendations of the SHPO or as required by applicable state law.

Cumulative air quality impacts would involve minor, short-term, construction-related NO_x and PM10 emissions from construction equipment and earthmoving activities, long-term pollutant

emissions related to increased population growth, and automobile emissions associated with urban development. Cumulative noise effects would also involve short-term, construction-related impacts in the range of 80-90 dBA at a range of 50 feet and longer term noise impacts primarily near major transportation corridors, such as I-17, that are typical of suburban or urban environments.

Please refer to the discussion of the No-Action Alternative under the "Traffic and Circulation" section for a complete description of projected future average daily traffic volumes and transportation improvements that could be required by 2015. Future development in the Northeast Valley Area Transportation planning area is projected to result in traffic volume increases on I-17 from approximately 23,000 in 1995 to 70,000-98,000 ADT by 2015.

The proposed action is not expected to result in substantial incremental increases in cumulative impacts beyond those resulting from other past, present, or reasonably foreseeable actions in the New River Planning Area. Impacts from constructing and operating the proposed water delivery system would affect a relatively small corridor of the Sonoran Desert. Most of the effects would occur only during project construction, and Del Webb will incorporate environmental commitments into the pipeline design to minimize environmental effects (see Section 4.0).

CAP water is a major renewable water source available to provide municipal and industrial supplies to accommodate future urban growth in the Phoenix metropolitan area. The cumulative growth impacts that were anticipated to result from use of CAP water were considered and disclosed in Reclamation's final EIS entitled "Water Allocations and Water Service Contracting - Central Arizona Project", which addressed CAP municipal and industrial, agricultural water, and Indian Community allocations (Bureau of Reclamation 1982). That EIS identified similar types of regional/cumulative land use changes, growth, and biological resource effects, which may be associated with use of water delivered through the CAP system and may be relevant to the types of effects that may be associated with delivery of the Leased Settlement Water through the CAP.

3.10 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Construction of the pipeline would result in the temporary loss of nearly 51 acres of Sonoran desertscrub habitat; construction of the water treatment plant would result in the permanent loss of a maximum of 44 acres of this habitat. Del Webb will re-establish preconstruction conditions within the pipeline corridor to allow natural colonization of native plant species and will reseed disturbed upland areas, as necessary, with an appropriate native seed mix (see Section 4.0). Therefore, the temporary and permanent loss of desertscrub habitat is considered a minor effect that is not anticipated to substantially affect plant and animal resources.

Section 4.0 Environmental Commitments

The following environmental commitments have been incorporated into the design of the proposed water delivery and treatment facilities to ensure that potential effects on the environment are avoided or minimized. Environmental commitments apply only to facilities described under the proposed action.

4.1 WATER RESOURCES

Del Webb will limit adverse effects on drainage and floodplain characteristics by complying with FCDMC permit and license requirements as they apply to uses in the floodplain and minimizing any diversions to natural surface drainages. Del Webb will design and locate the pipeline facilities to avoid areas of high erosion potential. Del Webb will also comply with the NPDES stormwater general permit and will implement a stormwater pollution prevention plan.

Del Webb will conduct pipeline siting activities in accordance with normal construction practices to minimize the potential for release of contaminants associated with construction equipment. Staging areas used for onsite storage of hazardous materials will be located at least 100 feet from the edge of a wash or other drainage feature. If construction takes place during storms, soil piles and disturbed areas near drainages will be stabilized using standard erosion control measures.

4.2 BIOLOGICAL RESOURCES

Del Webb will conduct preconstruction surveys for native plants, including saguaro and Hohokam agave, to determine whether the precise location of the water delivery facilities would result in the loss of native cacti and trees. If Del Webb cannot avoid native plants and proposes to remove them from an area, Del Webb shall provide any applicable notice to the ADA and otherwise comply with state law concerning the salvage and relocation of native plants.

Del Webb will recontour and reseed disturbed upland areas with a native seed mix appropriate for desert scrub habitat. Seasonal drainages and riparian areas within the 100-foot-wide corridor will also be reseeded with an appropriate native plant seed mix to allow natural colonization of plant species in this area. This includes re-establishing xeroriparian scrub habitat in the New River Channel to preconstruction conditions.

Del Webb will obtain and comply with any special conditions included in a Corps permit under Section 404 of the Clean Water Act for effects on jurisdictional waters of the United States. Existing wildlife water catchments near the pipeline corridor will be avoided.

Del Webb will conduct preconstruction surveys for desert tortoise burrows. If desert tortoises are found on the project site, Del Webb will follow AGFD guidelines for handling desert tortoises and will contact AGFD for recommendations and the appropriate permits to move the tortoise before construction begins. Construction of temporary shelters or burrows also could be required, depending on the number of burrows in the area.

4.3 CULTURAL RESOURCES

If cultural materials are encountered during construction or other activities associated with the proposed action, Reclamation will be notified immediately and work will be stopped until a qualified archaeologist can evaluate the find. Reclamation, in consultation with the SHPO, will require, as appropriate, the following measures if significant cultural material is present:

- complying with the NHPA, the Arizona State Historic Preservation Act of 1982, the Arizona Burial Protection Law of 1990, and the Native American Protection and Repatriation Act;
- securing an Archaeological Resources Protection Act permit from a federal land management agency (Reclamation or U.S. Bureau of Land Management);
- securing a State of Arizona Antiquities Permit from the Arizona State Museum; and
- preparing a mitigation plan in consultation with the SHPO and the ACHP, other participating parties, and the interested public.

It should also be noted that 106 consultation has been conducted for an area of potential effect that includes the pipeline as well as The Villages at Desert Hills. A Memorandum of Agreement (MOA) exists among Reclamation, the ACHP, and SHPO, which includes an historic property avoidance and treatment plan that will address the effects of the development on significant historic properties. Reclamation will ensure that the treatment plan is implemented (Appendix G).

4.4 AIR QUALITY

Del Webb will obtain all necessary permits in compliance with all applicable regulations of Maricopa County Environmental Services, Department of Air Pollution Control. Del Webb will also apply dust suppression measures in accordance with Maricopa County Rule 310 for Fugitive Dust to control excessive particulate matter emissions generated from construction and operational activities in the pipeline corridor.

4.5 TRAFFIC AND CIRCULATION

Del Webb will incorporate a traffic control plan for all road crossings into the proposed water delivery facilities design and construction plans. The traffic control plan will be coordinated with MCDOT and ADOT, and standards of the local jurisdiction will be followed during construction. Elements of the traffic control plan could include:

- coordinating with state and local jurisdictions regarding hours of construction and lane closures that would minimize construction impacts on roadways;
- obtaining easements or encroachment permits from local agencies and ADOT, as necessary;
- providing for detours or ensuring that at least one traffic lane remains open along affected roadways, and minimizing lane closures during the peak a.m. and p.m. commute hours;
- specifying types and locations of warning signs, lights, and other traffic control devices;
- providing access for driveways and private roads; and
- notifying and consulting with emergency service providers to ensure that adequate emergency access is maintained.

Del Webb will restore all road surfaces affected by pipeline construction to original conditions and shall coordinate with Maricopa County to ensure that appropriate truck routes are used.

4.6 LAND USE AND VISUAL RESOURCES

Del Webb will ensure that the appropriate easements and ROW clearances are obtained from the Arizona State Land Department, U.S. Bureau of Land Management, Arizona Department of Transportation, Maricopa County Department of Transportation, and Arizona Public Service before

beginning construction to ensure that no ROW or easement conflicts would result from construction of the pipeline. Additionally, provisions will be made to prevent livestock from falling into the trenches during construction (e.g., temporary fencing).

Section 5.0 Consultation and Coordination

5.1 RELATED LAWS, RULES, REGULATIONS, AND EXECUTIVE ORDERS

Clean Water Act

The Clean Water Act strives to "restore and maintain chemical, physical, and biological integrity of the Nation's water". The goals of the act are achieved through a system of water quality standards, discharge limitations, and permits. If the water quality of a water body is potentially affected by a proposed action, an NPDES permit may be required. If a project may result in the placement of material into waters of the United States, a Corps dredge-and-fill permit (Section 404) may be required. The Section 404 permit may also apply to activities in wetlands and riparian areas. Del Webb has submitted an individual permit application to the Corps for the discharge of fill material into waters of the United States related to pipeline construction, as well as development of The Villages.

Before either an NPDES or a Section 404 permit is issued, a water quality certification must be obtained from the Arizona Department of Environmental Quality.

Clean Air Act

A key purpose of the Clean Air Act (CAA) is to "protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population." The act requires the Environmental Protection Agency (EPA) to publish national primary standards to protect public health and more stringent national secondary standards to protect public welfare (40 CFR 50). States and local governments are responsible for the prevention and control of air pollution. Provision of settlement water under the Option and Lease Agreement and subsequent construction and operation of water delivery facilities would not exceed either primary or secondary CAA standards and does not require a conformity determination.

Endangered Species Act

The ESA provides protection for animal and plant species in danger of extinction (endangered) and those that may become so in the foreseeable future (threatened). Section 7 of the ESA requires federal agencies to ensure that all federally associated activities in the United States would not have adverse impacts on the continued existence of threatened or endangered species or on designated areas that are important in conserving those species. Action agencies must consult with the USFWS to determine the potential impacts that a project may have on protected species. A BA was prepared (see Appendix D) that covers direct effects of the pipeline project and cumulative impacts that could result from The Villages development plan, as required by the ESA. The BA concludes approval of the Option and Lease Agreement will not affect federally listed species. It further concludes no cumulative impacts from the development of The Villages are anticipated. A copy of the BA was provided to the USFWS at their request and was not contested during the 30-day review period. No further consultation was required. All of the requirements of the ESA have been met for the proposed action.

National Historic Preservation Act

The NHPA establishes Federal law and policy for the protection of significant historic properties, including prehistoric archaeological sites, buildings, and traditional cultural places. Specifically, each Federal agency shall identify and take into account the effect of an undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places.

For the purpose of fulfilling the requirements of Section 106 of the NHPA, the "area of potential effect" includes the proposed pipeline corridor, water treatment plant, and The Villages at Desert Hills development, which is consistent with 36 CFR Part 800 (Protection of Historic Properties). No historic properties were identified within the pipeline or treatment plant impact areas. Thirteen archaeological sites were identified within the property boundary of The Villages. All were evaluated for their eligibility for listing on the NRHP; six were recommended for inclusion on the NRHP (SWCA 1994b).

Reclamation has had extensive communication (including field visits) with the ACHP, SHPO, Indian tribes, and other affected federal and state agencies. Reclamation, with SHPO concurrence, has determined that six archaeological properties are eligible for listing on the National Register of Historic Places, and has recommended a historic property avoidance and treatment plan as part of an MOA among Reclamation, the ACHP, and SHPO (Appendix G). All parties have agreed with stipulations presented in the treatment plan and MOA. Del Webb will comply with provisions of the treatment plan. Execution of an MOA among Reclamation, the ACHP and the SHPO indicates Reclamation's satisfaction of its historic resource identification, evaluation and mitigation obligations.

Executive Order 11988, Floodplain Management

Executive Order 11988 requires a construction agency to “avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative” within the 100-year floodplain.

The purpose of this directive is to avoid, where practicable alternatives exist, the short- and long-term adverse impacts associated with floodplain development. In carrying out their responsibilities, federal agencies are required to reduce the risk of loss due to floods; minimize the impact of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains. Del Webb would comply with any FCDMC permit or license requirements issued regarding activities in the floodplain (see Section 4.0). Pipeline construction would require extending the pipeline corridor across a number of seasonal drainages and the New River channel. No adverse effects of the proposed action on floodplain conditions are anticipated to occur.

Executive Order 11990, Wetlands

Executive Order 11990 requires a construction project/company to “avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. . . .”

Federal agencies, in carrying out their land management responsibilities, are to take action that will minimize the destruction, loss, or degradation of wetlands, and take action to preserve and enhance the natural and beneficial values of wetlands. Each agency shall avoid undertaking or assisting in wetland construction projects unless the head of the agency determines that there is no practicable alternative to such construction and that the proposed action includes measures to minimize harm. Del Webb intends to avoid one possible wetland area near the proposed pipeline corridor and to obtain and comply with the requirements of a Corps 404 permit for activities occurring in jurisdictional waters of the United States (see Section 4.0).

Executive Order 12898, Environmental Justice

Executive Order 12898 requires federal agencies to identify and address disproportionately high and adverse human health and environmental effects of federal programs, policies, and activities on minority and low-income populations. Federal agencies are directed to ensure that federal programs or activities do not result, either directly or indirectly, in discrimination on the basis of race, color, or national origin. Federal agencies are required to provide opportunities for input in the

NEPA process from affected communities and to evaluate significant and adverse environmental effects of proposed federal actions on minority and low-income communities during preparation of federal environmental documents. No minority or low-income populations would be adversely affected by provision of settlement water under the Option and Lease Agreement or construction and operation of proposed water delivery facilities.

Farmland Protection Policy Act

The U.S. Natural Resources Conservation Service (NRCS) is responsible for administering the Farmland Protection Policy Act. NRCS has not identified any prime or unique farmland in the project area, and construction of the pipeline or other water delivery facilities would not affect any prime or unique farmlands.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act requires federal agencies to consult with USFWS, National Marine Fisheries Service (NMFS), and the state fish and wildlife resource agency before undertaking or approving water projects that impound or divert surface water. This consultation is intended to promote conservation of fish and wildlife resources by preventing their loss or damage and to provide for development and improvement of fish and wildlife resources in connection with water projects. Federal agencies undertaking water projects are required to fully consider recommendations made by USFWS, NMFS, and the state fish and wildlife resource agency in project reports, such as NEPA documents, and include measures to reduce impacts on wildlife in project plans. Reclamation believes the consultation requirements of NEPA and the ESA are sufficient to also meet any requirements for consultation under the Fish and Wildlife Coordination Act.

5.2 SUMMARY OF AGENCY AND PUBLIC INVOLVEMENT ACTIVITIES

On October 17, 1996, notices were mailed to 265 interested agencies, organizations, and persons informing them of the 30-day public scoping comment period and of a public meeting for preparation of an EA for this project. Reclamation also published a notice of the scoping process and public meeting in the Federal Register on October 15, 1996 (Volume 51, No. 200). Reclamation conducted an agency coordination meeting on October 31, 1996, to present the proposed action and elicit comments from interested and affected federal, state, and local agencies. The meeting was attended by staff members from the USFWS, BLM, AGFD, Bureau of Indian Affairs, and City of Phoenix, and was also attended by several members of the general public.

Reclamation also conducted a public scoping meeting at New River Elementary School on November 2, 1996. The meeting was attended by more than 60 people, of whom 15 provided comments on the scope and content of the draft EA. Reclamation provided an overview of the purpose of the meeting, the proposed pipeline route, and the NEPA process before accepting comments from the public. During the meeting, Reclamation announced it would extend the deadline for written comments to December 13, 1996. A second notice regarding the public scoping comment period extension was sent to over 300 recipients on November 12, 1996.

Reclamation received 68 comment letters from agencies and members of the public regarding the scope and content of the draft EA.

Comments received include numerous comments on the merits of the Option and Lease Agreement and The Villages development and a number of comments on the scope and content of the draft EA, including:

- requests for a full EIS to be prepared on the water delivery facilities and The Villages development;
- concerns and questions about use of groundwater in the area;
- concerns about leapfrog development;
- questions about the reliability of the surface water supply;
- requests for early notice of the public meeting;
- requests for the EA to address air quality, traffic, and development density issues;
- concerns about vegetation and wildlife resources effects and cultural resource issues; and
- concerns about effects on the Agua Fria River and New River.

Reclamation has reviewed and considered all of the comments received during the public meeting and in writing and has incorporated relevant comments on the content and scope of the draft EA into the document, where appropriate. Copies of the transcript of the public meeting and all comment letters are available at Reclamation's Phoenix Area Office.

Copies of the draft EA were distributed on June 9, 1997, to over 300 federal, state, and local agencies, organizations and interested individuals. A public hearing to accept verbal comments on the adequacy of the draft EA was held on June 28, 1997, in New River. Public notification of the availability of the draft EA and public hearing was published in four local newspapers twice before June 9, 1997. Approximately 150-200 people attended the public hearing; 25 people provided comments for the public record. On August 6, 1997, the draft EA was sent out to approximately 60 additional individuals that had earlier requested to be placed on the mailing list for receipt of a draft EA, but whose names had been inadvertently omitted from the original mailing list. The comment

period was extended until September 8, 1997. A total of 36 written comments were received during the public review and comment period. Copies of these written comments, a summary of the public hearing comments, and Reclamation's responses are provided as Appendix H.

The EA analyses were conducted based on information from the following federal, state, and local agencies:

- U.S. Bureau of Reclamation, Phoenix Area Office;
- U.S. Fish and Wildlife Service;
- U.S. Bureau of Land Management
- U.S. Bureau of Indian Affairs
- Arizona State Land Department
- Arizona Game and Fish Department;
- Arizona Department of Water Resources;
- Arizona Department of Environmental Quality;
- State Historic Preservation Officer;
- Maricopa Association of Governments;
- Maricopa County Air Pollution Control District;
- Maricopa County Department of Transportation;
- Maricopa County Flood Control District;
- Maricopa County Planning Department;
- Ak-Chin Indian Community;
- Yavapai-Prescott Indian Tribe; and
- Salt River Pima-Maricopa Indian Community.

Section 6.0 Citations

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- _____. 1996c. An archaeological survey of The Villages at Desert Hills proposed offsite water supply system. Prepared for Del Webb Corporation, Phoenix, AZ.
- _____. 1996d. An alternative alignment for the proposed off-site water supply system: addendum to an archaeological survey of The Villages at Desert Hills proposed offsite water supply system. Prepared for Del Webb Corporation, Phoenix, AZ.
- _____. 1997. Technical memorandum, biological survey of the Interstate 17 pipeline alignment. Prepared for Del Webb Corporation, Phoenix, AZ.
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- U.S. Bureau of Reclamation. 1990. National Environmental Policy Act handbook. Denver, CO.
- _____. 1992. Final environmental impact statement: water allocations and water service contracting Central Arizona Project. Prepared by Lower Colorado Region, Bureau of Reclamation in cooperation with the Bureau of Indian Affairs, Boulder City, NV.
- U.S. Environmental Protection Agency. 1971. Noise from construction equipment and operation, building equipment, and home appliances. (NTID300.1.) Arlington, VA. Prepared by Bolt, Beranek and Newman, Boston, MA. U.S. Government Printing Office. Washington DC.

U.S. Fish and Wildlife Service. 1992. Handbook of Arizona's endangered, threatened and candidate plants. Phoenix, AZ.

U.S. Geological Survey. 1989. Hydrogeology of the western part of the Salt River Valley area, Maricopa County, Arizona. Water Resources Investigations Report 88-4202. Prepared in cooperation with the Arizona Department of Water Resources, Salt River Project, and Arizona Municipal Water Users' Association. Tucson, AZ.

_____. 1991. Basin characteristics and streamflow characteristics in Arizona as of 1989. Water-Resources Investigation Report 91-4041. Prepared in cooperation with the Arizona Department of Water Resources and the Flood Control District of Maricopa County. Tucson, AZ.

_____. 1994. Potential flood hazards and hydraulic characteristics of distributary flow areas in Maricopa County. Water-Resources Investigation Report 93-4169. Prepared in cooperation with the Flood Control District of Maricopa County. Tucson, AZ.

U.S. Soil Conservation Service. 1977. Soil survey of Maricopa County, Arizona, central part. U.S. Department of Agriculture. Prepared in cooperation with University of Arizona Agricultural Experiment Station. Phoenix, AZ.

6.2 PERSONAL COMMUNICATIONS

Anthony, Judy. Environmental planner. Maricopa County Air Pollution District, Division of Environmental Services, Technical Services Division. December 3, 1996 - telephone conversation.

Brown, Vi. Manager. Maricopa County Air Pollution District, Environmental Services Department, Technical Services Division. December 3, 1996 - telephone conversation and December 4, 1996 - facsimile transmittal.

Crumbaker, Jo. Manager of Planning and Analysis. Maricopa County Environmental Sciences Department, Air Quality Division, Phoenix, AZ. November 6, 1997 - telephone conversation.

Eto, Sandra. National Environmental Policy Act specialist. U.S. Bureau of Reclamation, Phoenix, AZ. June 14, 1996 - telephone conversation, facsimile; June 26, 1996 - telephone conversation.

Gatz, Tom. Biologist. U.S. Fish & Wildlife Service, Phoenix, AZ. October 15 and 22, 1996 - telephone conversations.

Hamlin, Scott. Traffic engineer. Maricopa County Department of Transportation, Traffic Engineering Division. November 22, 1996 - telephone conversation.

- James, Michael. Planner. Maricopa County Planning Department. December 2, 1996 - telephone conversation.
- McGinnis, James. Manager. Arizona Department of Agriculture, Native Plants, Phoenix, AZ. October 22, 1996 - telephone conversation.
- Mihlbachler, Brian. Biologist. U.S. Bureau of Reclamation, Phoenix, AZ. December 1996 - meetings and telephone conversations.
- Miller, Janice. Senior planner, AICP. Maricopa County Department of Transportation, Community and Government Relations Division, Maricopa County, AZ. November 12, 1996 - telephone conversation; November 6, 1997 - telephone conversation.
- Olson, Nancy. Project evaluation specialist. Arizona Game & Fish Department, Habitat Branch. October 31, 1996 - letter.
- Ragsdale, Jack. Phoenix resource area manager. Bureau of Land Management. November 15, 1996 - telephone conversation.
- Sheehy, Christine, AICP. Director of planning. Del Webb Corporation. November 12, 1996 - telephone conversation.
- Spiller, Sam F. Field supervisor. U.S. Fish & Wildlife Service, Phoenix, AZ. October 23, 1996 - letter.
- Stroup, Doug. Environmental program manager. Flood Control District of Maricopa County. November 6, 1996 - telephone conversation regarding review process for construction within floodplain.
- Tognacci, Lou. Senior Planner. Arizona Department of Transportation, Transportation Planning Division, Phoenix, AZ. November 6, 1997 - telephone conversation.
- Urban, Niel. Community planner. Maricopa County Planning Department, Maricopa County, AZ. November 12, 1996 - telephone conversation.
- Wagoner, Robert. Vice president. Del Webb Corporation, Phoenix, AZ. January 6, 1997 - telephone conversation.
- Wilson, Mike. Right-of-Way Agent. Arizona State Land Department, AZ. November 14 and 21, 1996 - telephone conversation.
- Wonderley, Wendy. Project manager, Bookman-Edmonston Engineering, Inc. October 15, 1996 - meeting and site visit.

Young, Kara. Environmental planner. Maricopa County Environmental Services Department, Field Services Division, Air Pollution Control, Phoenix, AZ. February 27, 1996 - telephone conversation and facsimile; March 7, 1996 - telephone conversation; and March 8, 1996 - telephone conversation and facsimile.

Section 7.0 List of Preparers

U.S. BUREAU OF RECLAMATION

| | |
|-------------------|----------------------------------|
| Bruce Ellis | Chief, Environmental Division |
| Sandra Eto | Project Manager |
| Brian Mihlbachler | Biologist |
| Thomas Lincoln | Chief, Cultural Resources Branch |

DEL WEBB CORPORATION

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| Robert R. Wagoner | Vice President, Land Development |
| Philip H. Darrow | Associate General Counsel |
| Thomas E. Lucas | Vice President, Director of Development |
| Christine E. Sheehy | Director of Land Planning |

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| Steve Centerwall | Project Manager |
| Stephanie Myers | Wildlife Biologist |
| Ramona Robison | Botanist/Wetland Specialist |
| Jeff Lafer | Hydrologist/Water Quality Specialist |
| Barry Scott | Archaeologist |
| Chad Beckstrom | Land Use, Recreation, and Services Specialist |
| Kristy Chew | Traffic, Air Quality, and Noise Specialist |
| Susan Davis | Publication Specialist |
| Tony Rypich | Graphic Artist |
| Bev Fish | Report Production |
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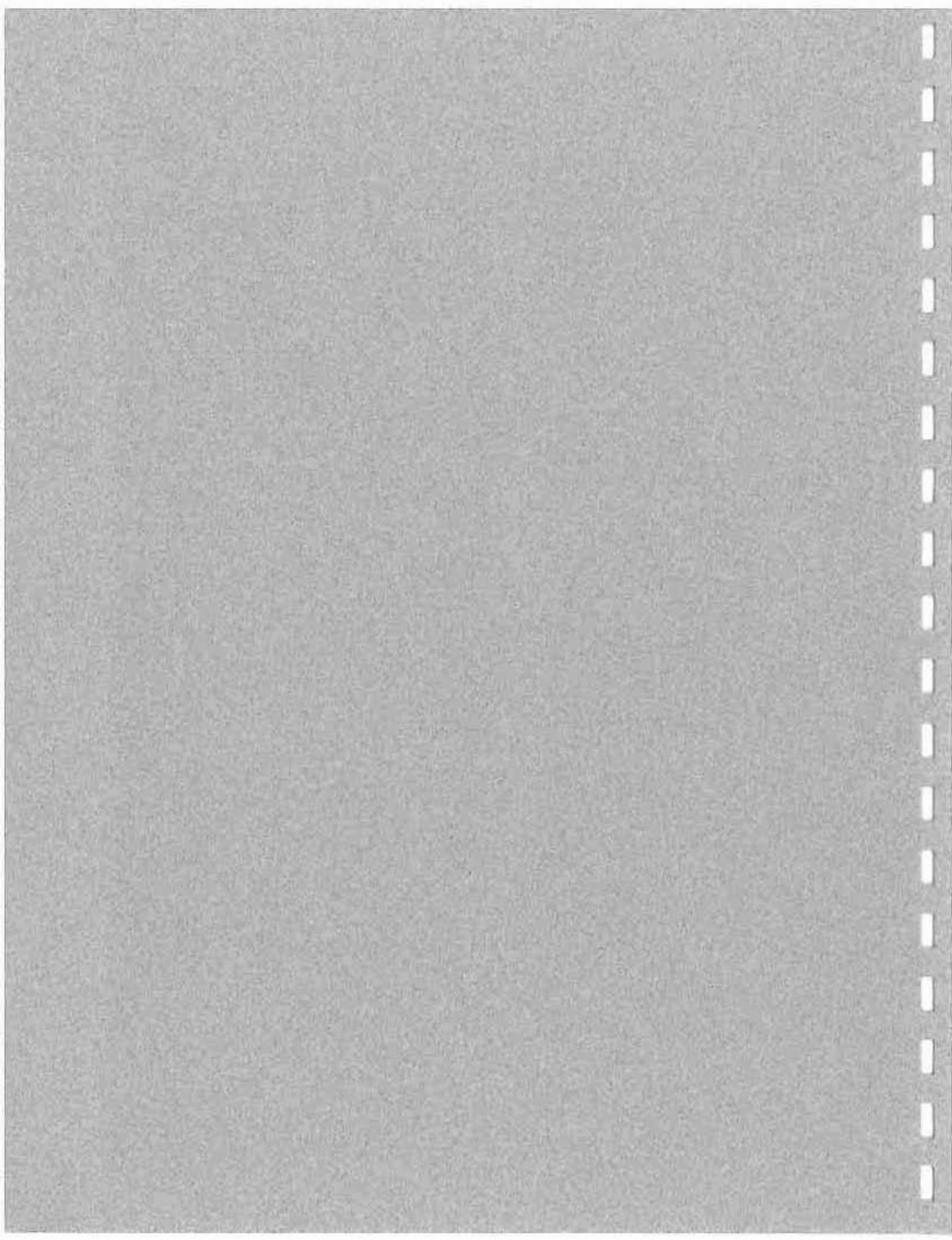
Attorney at Law
Attorney at Law
Attorney at Law

RYLEY, CARLOCK & APPLEWHITE

Michael J. Brophy

Attorney at Law

**Appendix H. Comments on the Draft Environmental
Assessment and Responses**



List of Persons and Agencies Commenting on the Draft Environmental Assessment

VERBAL COMMENTS RECEIVED AT THE JUNE 28, 1997 PUBLIC MEETING

Public Speakers

Hank Lacey
Austin Carter
Al Barber
Jerry Jacka
Bill Dossett
Larry Speer
Betsy Dossett
Steve Brittle
Gloria Dossett
Roberta Bramlet
Wally Goldsmith
Marilyn Goldsmith
Harry Thurston
Gary Giordano
Mary Beth Baker
Mike Fiflis
John Sokol
Irene Semeniuk
Carol Zimmerman
Charles Collins
Lynn DeMuth
Chris Gehlker
Frank Henderson
Gary Schmitt
Gwen McAlister

Comment Cards

Elizabeth Vaughan
Gary Giordano
Marlene McLellan
Andrea Ouse
Don Steuter
Marge Otto
Ernest G. Garcia
Marcia Janssen
N. Fern Statten
Paula Kulina
Renee Guillom
Austin Carter
Robert Otto
Peggy Hicks
Leo Stout
Margie Stout
Walter B. Gura
Richard Jutzi
Doug Robinson
L. Tevipesto
June Ashton
Carol Zimmerman
Frank and Joan Landino
Michael Cobb

WRITTEN COMMENT LETTERS RECEIVED

1. U.S. Department of the Interior, Bureau of Indian Affairs - Deannette Hanna, Acting Area Director
2. Advisory Council of Historic Preservation - Don L. Klima, Director
3. Arizona Game & Fish Department - Timothy Wade, Habitat Evaluation Specialist
4. Henry B. Lacey - Attorney at Law
5. Arizona Center for Law in the Public Interest - David S. Baron, Assistant Director
6. U.S. Department of the Interior, Fish and Wildlife Service
7. Save New River Coalition
8. John J. Ward
9. Leo and Margie Stout
10. Robert D. Cocke
11. Horst Kraus
12. Marilyn De Moss
13. Helen Stephenson
14. Fred Troy
15. Amy Little
16. Andrea J. Ouse
17. Carol Zimmerman
18. Marge Cornell
19. Ann Caylor
20. Vicki Y. Myers
21. Valerie Pieraccini
22. Elizabeth Bucklew Vaughan
23. Mr. and Mrs. David C. Richmond
24. Repair-It Industries, Inc. - Larry Speer
25. Arizona Department of Water Resources - Steve Rossi, Manager, Office of Assured Water Supply
26. Henry B. Lacey - Attorney at Law
27. Michael P. Fafilis - Attorney at Law
28. Art Coates
29. Raymond and Connie Crandell
30. City of Peoria - William J. Mattingly, P.E., R.L.S., Acting Utilities Director
31. Bernice Guddall
32. Charles M. Collins
33. Brian LaPlante
34. Bob Henke
35. Mr. and Mrs. Cecil Grant
36. U.S. Environmental Protection Agency

These letters are included in this appendix, beginning on page H-9. Each letter is followed by responses to comments in that letter.

Responses to Verbal Comments Received at the June 28, 1997 Public Meeting on the Draft Environmental Assessment

Comments received during the draft environmental assessment (EA) public hearing included testimony from 25 speakers and written comments on 24 comment cards, as listed above. Comments were received on the merits of the Ak-Chin Option and Lease Agreement and The Villages at Desert Hills (The Villages) development and on the content and approach of the draft EA. These included:

1. requests for an environmental impact statement (EIS) to be prepared on the lease agreement, water delivery facilities, and The Villages development;
2. concerns that the approach of the draft EA, focusing on evaluation of the provision of settlement water under the Ak-Chin Option and Lease Agreement and subsequent water delivery facilities under the proposed action, was too limited;
3. concerns that the alternative water supply options presented as support for the draft EA approach are not viable;
4. questions about the appropriateness of evaluating The Villages development as part of the No-Action Alternative;
5. questions and concerns about interim use of groundwater during water delivery facility construction and the resulting effects on existing private wells;
6. concerns about whether the National Environmental Policy Act (NEPA) public and agency involvement process was adequate and whether scoping comments were considered; and
7. concerns about effects of The Villages development on air quality, traffic, special-status wildlife species, desert habitat and archaeological resources.

The public meeting began at approximately 10:00 a.m. on Saturday, June 28, 1997, and concluded at approximately 11:40 a.m. U.S. Bureau of Reclamation (Reclamation) staff was available following the meeting to answer individual questions.

The following is a general response to the comments related to the approach and content of the EA (comments 1 through 4, listed above). Comments 5 through 7 are addressed below under "Responses to Other Comments Made During the Public Hearing."

RESPONSE TO COMMENTS ON THE NEPA COMPLIANCE APPROACH (PUBLIC MEETING COMMENTS 1-4)

Reclamation has received a number of comments during public testimony and in letters indicating disagreement with and confusion about the overall approach to the draft EA. Comments are generally related to:

- confusion about the purpose of an EA and content requirements for an EA;
- preparation of a draft EA versus an EIS;
- treatment of The Villages in the draft EA; and
- consideration of alternatives in the draft EA.

Purpose and Scope of the Environmental Assessment

The EA has been prepared to assess and disclose the environmental consequences of Reclamation's provision of leased settlement water under the 1994 Ak-Chin Option and Lease Agreement among the Ak-Chin Indian Community, United States of America, and Del Webb. As indicated in the final EA on page 1-2, second paragraph, Reclamation determined that an EA according to NEPA should be prepared to determine whether a finding of no significant impact (FONSI) is appropriate or if an EIS should be prepared. Reclamation disagrees with comments indicating that preparation of an EA is inappropriate. As indicated in Section 2-4, first paragraph, of Reclamation's October 1990 NEPA Handbook, "[t]he purpose of an EA is to allow the responsible Federal official to determine whether to prepare a FONSI or an EIS. In addition, an EA may be prepared on any action at any time to assist in planning and decision making." Section 2-4B of Reclamation's NEPA Handbook further indicates that "[a]n EA shall not, in and of itself, conclude whether an EIS shall be prepared. This conclusion shall be made when the responsible officials review the EA." This guidance indicates that preparation of an EA is clearly an appropriate and necessary action to fully implement the letter and spirit of NEPA and its implementing regulations.

The EA addressed direct, indirect, and cumulative effects of the federal action. Because NEPA applies only to federal actions, the first step in determining the scope of the EA was to determine the precise scope of activities included within the federal action. In this case, the federal action consists of Reclamation's provision of leased settlement water. Reclamation next needed to identify factors of the existing environment that might influence or be affected by the federal action. For Reclamation, this meant determining whether or not development of The Villages would be a consequence of the federal decision to provide leased settlement water to the Del Webb Corporation (Del Webb). To that end, Del Webb identified alternative water supply options (Appendix A of the EA), at least one of which could reasonably be implemented in the absence of receiving the leased Ak-Chin settlement water. Reclamation has independently verified the validity of three of the options with the Arizona Department of Water Resources (Please refer to comment letter 25 in this appendix), and has independently verified the feasibility of extending service to The Villages from the City of Phoenix water system with city officials. Based on information provided and independently collected, Reclamation determined that it is reasonable to conclude that development of The Villages

would occur in the absence of the proposed federal action. Reclamation has considered an adequate amount of information on this subject and does not believe it is reasonable to expect Del Webb to secure binding contracts for alternative water supply options, as suggested by several commenters, merely to show that other water supply options would be available in the absence of the federal action.

Reclamation has concluded, based on its consideration of alternative water supply options, that the EA should focus on the direct, indirect, and cumulative impacts of providing leased settlement water under the Option and Lease Agreement and the subsequent water delivery facilities. The Villages development is not considered a consequence of the proposed action but is evaluated under the No-Action Alternative as a condition that would be present regardless of the occurrence of the federal action.

In making this determination, Reclamation has considered guidance given in its draft NEPA Handbook (August 1996) Section 3.14.13 on pages 3-62 and 3-63, which further addresses approaches to water transfer-type actions and local growth issues.

One way to determine if the transfer is causing growth is to use the EA to determine whether the urban growth is a consequence of the project water supply, or whether the growth will occur anyway, even in the absence of the project water. If alternative water supplies are reasonably available, then the "future without" scenario is probably very similar to the proposed action, at least with respect to population growth issues. This can be documented in the "no action" ("future without") alternative, thereby avoiding a detailed discussion of issues and impacts which are not a consequence of the Federal action.

The Villages at Desert Hills Analysis

Some commenters have suggested that Reclamation has not considered the environmental effects of The Villages in the EA and that Reclamation should have considered the effects of The Villages in determining whether its provision of leased settlement water would constitute a "major federal action significantly affecting the human environment." As indicated above, Reclamation has carefully considered its proposed approach to evaluating The Villages development in the EA and has concluded, based on the best available information, that The Villages development would occur regardless of whether the proposed federal action occurs. Thus, The Villages is not an effect of Reclamation's proposed action. The EA nevertheless includes in the discussion of the No-Action Alternative a description of the affected environment of The Villages development site and a summary of the environmental issues related to the inevitable development of The Villages, including construction of an alternative water delivery system. The analysis includes parallel discussion for all of the environmental issues addressed under the proposed action. The EA also includes information on the environmental consequences of The Villages in the cumulative impacts analysis, because The Villages constitutes part of the background of past, present, and reasonably foreseeable actions against which the incremental effects of the proposed action are assessed.

Reclamation's approach is fully consistent with NEPA, the Council on Environmental Quality's NEPA regulations, and NEPA case law. Reclamation further believes that The Villages analysis under the No-Action Alternative is adequate and, in fact, has actually exceeded the requirements and standards for evaluating consequences of the No-Action Alternative. Through this approach, Reclamation has adequately evaluated all of the potential environmental effects associated with its decision to provide leased settlement water under the Option and Lease Agreement.

Consideration of Alternatives

Some commenters have questioned the adequacy of Reclamation's consideration of alternatives. Reclamation considered a No-Action Alternative to the proposed action, which is evaluated in detail in the EA. Reclamation has considered a reasonable range of alternatives. A thorough investigation was conducted for feasible water delivery alternatives that could reasonably meet the objectives of the Ak-Chin Option and Lease Agreement. Reclamation's NEPA Handbook (October 1990) recognizes in Section 4-9B, "Reasonable Alternatives" that:

In examining the range of reasonable alternatives, the CEQ [Council on Environmental Quality] memorandum of July 22, 1983, states in part that "an agency's responsibilities to examine alternative sites has always been bounded by some notion of desirability." CEQ stresses that agencies should not disregard the "common sense realities" of a given situation in the development of alternatives.

Selection of the proposed pipeline alignment evaluated in the EA occurred as the result of a detailed feasibility evaluation of the possible alternative alignments. Criteria for evaluating the alignment alternatives, as described beginning on page 2-11 of the EA, included: constructability of the turnout structure and pipeline, permit requirements, construction schedule considerations, right-of-way issues, water quality and supply reliability issues, and costs.

Although the proposed alignment was not the least expensive, it was selected in part because it would utilize a relatively disturbed corridor along the Arizona Public Service (APS) electric transmission line corridor and the abandoned Reclamation haul road for much of its right-of-way. All other alternative alignments considered would involve greater disturbance of previously undisturbed land, including native upland Sonoran desert habitat. Table 2-1 of the EA provides a summary of the feasibility evaluation carried out for the various pipeline alignments considered. Because the other pipeline alignments evaluated at this feasibility level appeared to involve greater environmental effects than the proposed action, no other pipeline alignment alternatives to the proposed action warranted further evaluation in the EA. Please refer also to response to comment 4-3 below.

An alternative intake structure location was considered during the development of the EA, involving construction of a turnout structure on Lake Pleasant. Evaluation of this alternative was dropped from further consideration before finalizing the draft EA because of noise and recreational effects on Lake Pleasant.

Considering alternatives involving delivery of less water under the Option and Lease Agreement is not reasonable and would not meet the objectives of the proposed action. The amount of water to be delivered is contractually agreed upon, consistent with the Ak-Chin Indian Community's congressional authority to lease its surplus settlement water. Reclamation has also found that the entire amount of the water to be provided could be replaced by alternative supplies in the absence of the federal action.

RESPONSES TO OTHER COMMENTS MADE DURING THE PUBLIC MEETING (PUBLIC MEETING COMMENTS 5-7)

Comments were received during the draft EA public hearing concerning the effect of interim groundwater use on private wells, the NEPA public involvement and EA scoping process, and the effects of The Villages on air quality, traffic, wildlife, desert habitat, and archaeological resources.

Interim Groundwater Use

Several speakers expressed concern about the interim use of groundwater for water delivery system construction and short-term construction activities on The Villages site. The local groundwater aquifer utilized by private wells in the vicinity of the proposed water delivery facilities and The Villages site was analyzed. The analysis indicated that the anticipated use of approximately 50 acre-feet per year (af/yr) of groundwater for pipeline construction and 150 af/yr of groundwater for construction and interim uses for 18 months would not adversely affect private wells because of the small amount of groundwater involved and because Del Webb would pump from a lower water bearing unit than surrounding private wells. Please refer to the additional information presented on page 3-6 of the final EA and in response to comment 7-5, below.

Public Involvement and Scoping

A number of speakers questioned the adequacy of the NEPA public involvement and scoping process. Reclamation has exceeded the requirement for public involvement and scoping in its NEPA process in the interest of providing an open, full disclosure process. Reclamation conducted a public scoping meeting at New River Elementary School on November 2, 1996, early in the EA process. Reclamation also extended the deadline for written scoping comments to December 13, 1996, to ensure that adequate time was provided to receive written scoping comments. Reclamation considered all of the EA scoping comments received before publishing the draft EA. Reclamation also provided a public forum for comment on the draft EA on June 28, 1997, at the New River Elementary School. All of the hearing testimony and written comments on the draft EA have been considered, and revisions to the draft EA have been made where appropriate. Reclamation has gone beyond what is required by regulation, as well as what is normally conducted for public involvement

and scoping of an EA by providing for public scoping and draft EA hearings. Please refer also to responses to comments 4-23 and 4-25, below.

Effects of The Villages at Desert Hills

Several commenters made reference to the environmental effects that could result from development of The Villages site. Reclamation has provided a summary of the site conditions and a discussion of environmental issues that would result from The Villages development under the No-Action Alternative. Please refer to the "Response to Comments on the NEPA Compliance Approach" above for an explanation of the EA analysis approach. All of the relevant resource areas were addressed under the No-Action Alternative, including air quality, traffic, wildlife, desert habitat, and archaeological resources issues. The final EA adequately addresses all of the environmental effects that could result from the No-Action Alternative, including The Villages, as presented in Section 3.0, "Affected Environment and Environmental Consequences."

Responses to Written Comment Letters Received

This section includes the comment letters with individual comments numbered in the right margin. Responses to the comments follow each comment letter.

LETTER 1



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
PHOENIX AREA OFFICE
P.O. BOX 10
PHOENIX, ARIZONA 85001 21 1997



IN REPLY
REFER TO:

Environmental Quality Services
File 4301.7 Ak-Chin Water EA
(602) 379-6750

Mr. Bruce Ellis, Chief
Environmental Resource
Management Division
Bureau of Reclamation
P.O. Box 9980
Phoenix, Arizona 85068-0980

Attention: PXAC-1500

Dear Mr. Ellis:

The Bureau of Indian Affairs (BIA) Phoenix Area Office has reviewed the Draft Environmental Assessment (EA) for the Ak-Chin Option and Water Lease Agreement for the Proposed Del Webb Corporation Development at The Villages at Desert Hills, Maricopa County, Arizona. We offer the following comments for your consideration.

1. On the Cover page of the Final EA we recommend specifically stating the name of the proposal as per your cover memorandum dated June 9, 1997.

1-1

2. On page 1-2, first paragraph under National Environmental Policy Act (NEPA) Compliance it states that "final environmental clearance will be based upon analysis of the environmental impacts of the Company's plans for taking and using Leased Settlement Water, in accordance with NEPA and applicable environmental legislation". Then under the Purpose of this EA it states that "based on the review of these options, Reclamation believes it is reasonable to conclude that development of the Villages would occur in the absence of the proposed federal action" and that "Reclamation is focusing its evaluation on the impacts with the construction of the water delivery and treatment facilities needed to take and use leased settlement water". If this is the case, then there seems to be room for interpretation concerning how far the analysis of the impacts for a proposed development project should be taken. The alternative water supply options that may exist for the proposed development need to be evaluated as they relate to the aspect of take and use of leased settlement water. The potential area of impact for the water source should be further addressed.

1-2

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We recommend the Reclamation reconsider the proposed action and whether the EA should also analyze the impacts associated with the proposed "Villages" development and not just the pipeline proposal for delivering the water and ancillary facilities. 1-2

3. On pages 1-3 and Section 5.0 lists and discusses the laws, regulations and executive orders that were evaluated in preparation of the EA. We recommend the following laws and executive orders also be addressed: Clean Air Act; Executive 12898 Environmental Justice; Executive Order 31007 Indian Sacred Sites; and Secretarial Order 3206 regarding Trust Responsibilities and the Endangered Species Act. 1-3

4. On page 2-2, the Figure 2-1 should show where the Ak-Chin Indian Reservation is located in relation to the proposed project. 1-4

5. On page 2-6, it discusses the proposed location of the 9-mile pipeline crossing various Federal, State, and County lands along with required right-of-way easements. Are any of the lands associated with the Bureau of Land Management's Saguaro National Park/Lake Pleasant Land Exchange affected by the proposed pipeline alignment? If so, this needs to be discussed in the EA. We recommend that Figure 2-2 show the various land status. 1-5

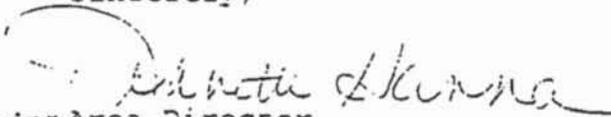
6. Sections 1 and 2 of the EA do not mention anything associated with the use of 10,000 acre feet of water by the Ak-Chin Indian Community if the 1994 Lease Agreement was terminated by the parties. Does the Tribe have the ability to use the water on their reservation or market it to another entity if the Del Webb proposed development does not use this water? 1-6

7. On page 3-22, under the paragraph discussing Traditional Cultural Properties (TCPs) it states that the proposed water delivery pipeline and water treatment facility will have no effect on known TCPs. When will consultation take place with the seven Tribes that have been identified to have ancestry ties to the area concerning unknown TCPs? Will this occur prior to a decision on the EA? 1-7

8. On page 5-5, we recommend that the Ak-Chin Indian Community and the BIA be included in the list of Federal, State, Tribal and Local agencies contacted and consulted. Also any other Tribes that are to be consulted concerning TCP's should be included in this listing. 1-8

We appreciate the opportunity to comment on the Draft EA. If you have any questions concerning the above, please contact the PAO Environmental Quality Services staff at (602) 379-6750.

Sincerely,


Diana Skanna
Section Area Director

Letter 1: Responses to Comments made by Bureau of Indian Affairs

- 1-1. Comment noted. No change to the cover of the EA has been made because the focus of the EA is on provision of settlement water under the Ak-Chin Option and Lease Agreement.
- 1-2. As noted above in the "Response to Comments on the NEPA Compliance Approach", Reclamation has concluded that The Villages development is not an effect of its proposed action because The Villages (a private project) would occur regardless of whether the proposed federal action occurs. Reclamation nevertheless has included in the EA a summary of environmental issues related to The Villages as part of the discussion of the No-Action Alternative and as part of the cumulative impacts analysis. As a result, Reclamation believes it has adequately evaluated the relevant environmental effects of its proposed action.
- 1-3. The EA does address the Clean Air Act on pages 3-22 and 3-23. Additional references to the Clean Air Act have been incorporated into the final EA on page 1-3 and in Section 5.0. Reference to Executive Order 12898 - Environmental Justice has been added to Section 5.0 of the EA. Impacts on "sacred sites", as defined by Executive Order 13007, were considered in the cultural resources section under the heading of "Traditional Cultural Properties". No requirements of Secretarial Order 3206 regarding trust responsibilities and the ESA pertain to this proposed action as no formal consultation has been initiated.
- 1-4. Comment noted. The Ak-Chin Indian Reservation is not located in the vicinity of the Central Arizona Project (CAP) facilities that are applicable to the proposed action or in the vicinity of the proposed water delivery facilities. Therefore, the reservation boundary has not been included on location maps included in the EA.
- 1-5. None of the project alignments would affect lands associated with the Bureau of Land Management's (BLM's) Saguaro National Park/Lake Pleasant Land Exchange. Additional detail of key state and BLM landownerships crossed by the proposed pipeline corridor has been added to the EA as Figures 2-3, 2-5, and 2-6.
- 1-6. Reclamation assumes that if the Option and Lease Agreement were terminated, sufficient water demand exists in central and southern Arizona that the water supply could be leased to another entity by the Ak-Chin Indian Community. The final EA has been revised to reflect this.
- 1-7. In June 1997, Reclamation initiated consultation with eight Indian tribes that claim ancestral ties to the New River area, as required by the National Historic Preservation Act. A written response was received from the Yavapai-Prescott Indian Tribe. During August 1997, a field inspection of the archaeological properties was conducted with members of the Ak-Chin Indian Community and Salt River Pima-Maricopa Indian Community. Input was provided on the proposed historic property treatment plan. Traditional Cultural Properties (TCP) consultation with tribes was included during the National Historic Preservation Act (NHPA) Section 106 consultation process. The final EA has been revised to reflect this consultation, which will be taken into consideration during the decision-making process.

1-8. The additions to the list on page 5-6 of the final EA have been made.

**Advisory
Council On
Historic
Preservation**

LETTER 2

| | |
|------------|------------------|
| OFFICIAL | ACTION BY |
| RECORDS | DATE |
| JUL 10 '97 | |
| DATE | RIGHT TO INITIAL |

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

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| CLASSIFICATION | 7-10-1-1-2 | |
| CONTROL NO. | 100-5-1-1 | |
| FOLDER NO. | 100-5-1-1 | |
| UPDATE | 10/15 | |
| KEYWORD | 100-5-1-2 | |

June 20, 1997

Dennis Schroeder
Area Manager
Bureau of Reclamation
Phoenix Area Office
P.O. Box 9980
Phoenix, AZ 85068-0980

REF: Provision of Leased Ak-Chin Indian Community Water to Del Webb Corporation for Use at The Villages at Desert Hills, Maricopa County, Arizona.

Dear Mr. Schroeder:

On June 16, 1997, the Council received your request that we review the draft Environmental Assessment (EA) for the referenced project.

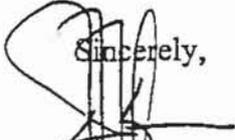
We are pleased that the Bureau is taking the steps to comply with Section 106 of the National Historic Preservation Act. We agree with Reclamation's consideration of the project's Area of Potential Effects as including the pipeline corridor and related facilities, the water treatment plant, and The Villages' development for the purposes of Section 106 compliance, as noted on page 5-2 of the draft EA. We look forward to consulting with your agency on the effects of this undertaking on historic properties included in or eligible for the National Register of Historic Places.

Further, we note that the Villages at Desert Hills project will require a Section 404 permit from the Army Corps of Engineers, a right-of-way or easement from the Bureau of Land Management, and likely other Federal actions, possibly including a NPDES permit from the Environmental Protection Agency and approvals from the Bureau of Indian Affairs, in addition to your agency's actions. In this regard, we would like clarification as to whether the Bureau of Reclamation is acting as lead agency for these other agencies for the purpose of compliance with Section 106 of the National Historic Preservation Act.

2-1

If you have any questions or wish to discuss this further, please contact Ms. Marjorie Ingle Nowick of the Council's Denver office at 303-969-5110 or via email at mnowick@achp.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Don L. Klima". The signature is written over a horizontal line and extends upwards and to the left.

Don L. Klima
Director

Office of Planning and Review

Letter 2: Response to Comments made by the Advisory Council on Historic Preservation

- 2-1. Reclamation is acting as lead agency for compliance with Section 106 for other federal agencies, including the U.S. Army Corps of Engineers.

Mr. Bruce Ellis
July 11, 1997
2

Special Status Species

The Department's Heritage Data Management System 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 | <u>Haliaeetus leucocephalus</u> | LT,WC,S |
| California snakewood | <u>Columbrina californica</u> | S |
| lowland leopard frog | <u>Rana yarabaiensis</u> | WC,S |
| Sonoran desert tortoise | <u>Gopherus acassizii</u> | WC,S |

STATUS DEFINITIONS

- LT - Listed Threatened.** Species identified by the U.S. Fish and Wildlife Service (USFWS) under the Endangered Species Act (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.). Species included in WSCA are currently the same as those in **Threatened Native Wildlife in Arizona** (1988).
- S - Sensitive.** Species classified as "sensitive" by the Regional Forester when occurring on lands managed by the U.S.D.A. Forest Service.

In addition, we recommend contacting USFWS, at the address listed below, for additional information regarding ESA and how it applies to the species listed above as "LT".

Mr. Sam Spiller
Field Supervisor
Arizona Ecological Services State Office
U.S. Fish and Wildlife Service
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Phone: (602) 640-2720

Mr. Bruce Ellis
July 11, 1997
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The Department recommends that the above listed special status species are considered in the planning and implementation of the proposed provision of leased CAP water. Suitable habitat for special status wildlife listed above should be surveyed in order to accurately assess potential impacts of the proposed project to these species.

3-3

In the instance that an individual tortoise or its burrow is encountered prior to or during any construction related to this project, we further recommend that the Department's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects" be used. A copy of these recently updated guidelines has been enclosed for your information.

3-4

Habitat

The project area is located in the Arizona Upland Sonoran Desert scrub biotic community as described by Brown and Lowe (1980). Wildlife species known to inhabit the area include javelina, mule deer, coyote, raptors, and a variety of small mammals, songbirds, and reptiles.

Sonoran desert habitats are categorized as Resource Category III as defined in the Department's Wildlife and Wildlife Habitat Compensation Guidelines (Arizona Game and Fish Department Operating Manual, I2.3). Anticipated losses to Category III habitats are recommended to be compensated for by replacement of habitat values in-kind, or by substitution of high value habitat types, or by increased management of replacement habitats, so that no net loss occurs.

The Department recommends that unavoidable impacts to upland habitats be mitigated. A mitigation plan specifying the mitigation project location and area, implementation time line, monitoring requirements, and mitigation success criteria should be developed.

3-5

We also recommend that the removal of native vegetation be limited to the minimum amount feasible. When removal of vegetation cannot be avoided, plant species protected under the Arizona Native Plant Law, ARS Title 3, Chapter 7, such as cacti should be relocated to an appropriate revegetation site. Revegetation of disturbed sites should be accomplished using locally native plant species.

Wildlife

Individual animals may become trapped or killed in excavated sites associated with water transfer facilities. The Department

3-6

Mr. Bruce Ellis

July 11, 1997

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recommends that trenches, pits, or holes excavated in association with this project be designed, fenced, or covered to avoid entrapment or death of wildlife.

3-6

The pipeline is also in the vicinity of one or more water catchments which currently provide water to both wildlife and cattle. If these are destroyed as a result of the construction, they would need to be rebuilt as soon as possible in other locations, as approved by the Department. Attached is a copy of one of the location maps with the approximate locations noted in red ink.

3-7

The Department further recommends that all hazardous wastes including waste motor oil should be safely stored to prevent spills and be properly disposed of at a designated waste disposal site. Hazardous waste generated in association with water transfer facility construction could enter the watershed or directly affect individual animals by contact or ingestion.

3-8

Department Properties

The proposed pipeline would be constructed just north of the Department's Ben Avery Shooting Facility. The Department requests that we be informed of all proposed construction activities, including implementation schedules, in the vicinity of our property boundary.

3-9

The Department appreciates the opportunity to comment on this draft EA for the proposed provision of leased CAP water from the Ak-Chin Indian Community to the Del Webb Corporation. We look forward to continued cooperation as this project continues.

Sincerely,



Timothy Wade
Habitat Evaluation Specialist

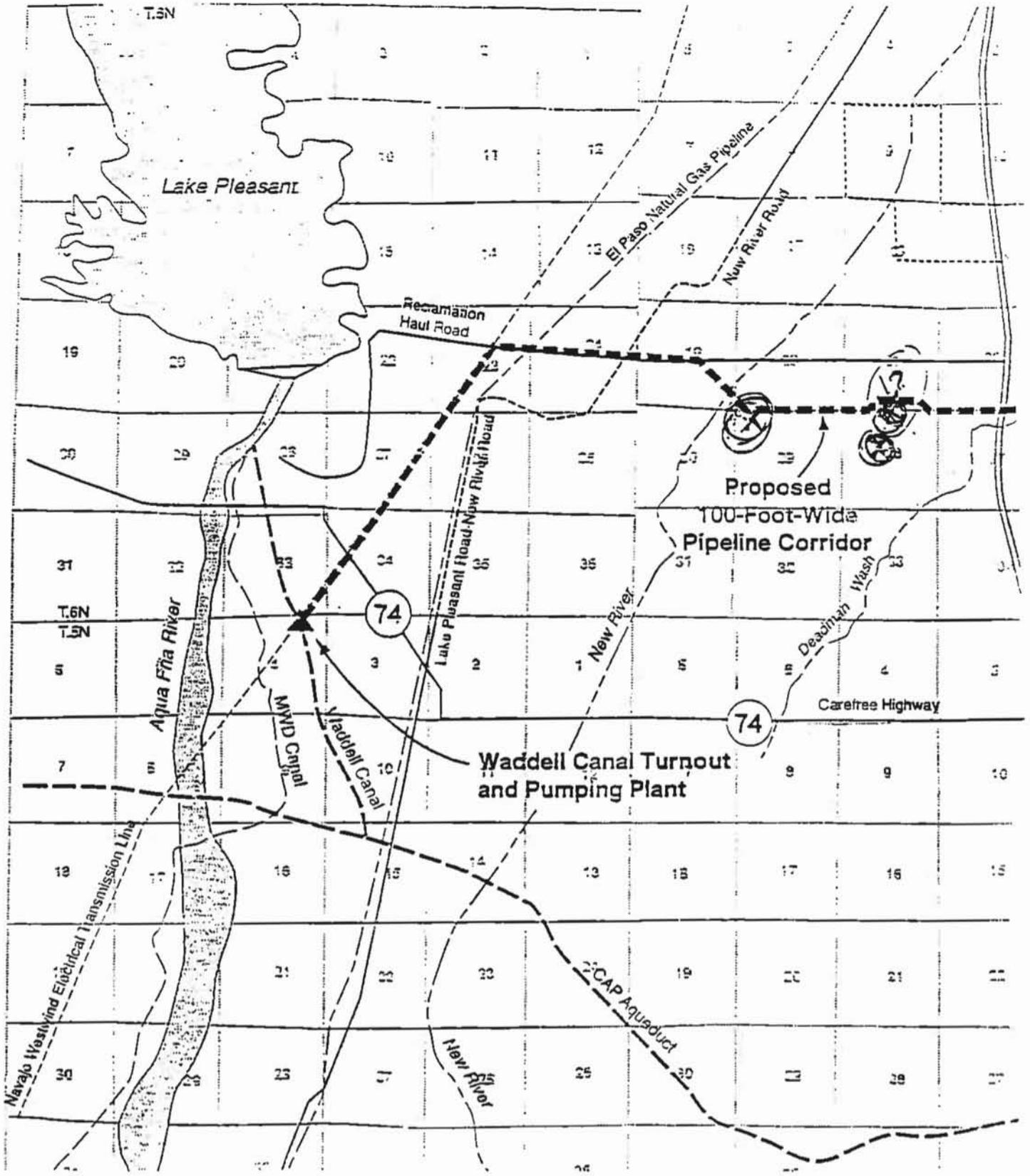
TPW:tw

cc: Kelly Neal, Regional Supervisor, Region 6
Russell Haughey, Habitat Program Manager, Region 6
David L. Walker, Project Evaluation Program Supervisor,
Habitat Branch
Sam Spiller, Ecological Services, US Fish and Wildlife
Service

Mr. Bruce Ellis
July 11, 1997
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Shelly Shepherd, Wildlife Manager, Northwest Phoenix
District

enclosure



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.

RAC:NLO:rc

Letter 3: Response to Comments made by the Arizona Game & Fish Department

- 3-1. Appendix A of the EA includes additional detail in the analysis and substantiation of the alternative water sources that would be available to The Villages development in the absence of federal action. Based on independent verification with the Arizona Department of Water Resources (ADWR) and the City of Phoenix, Reclamation has concluded that at least one viable alternative to the proposed action exists. For example, extension of the City of Phoenix water distribution system north along I-17 is an alternative the Del Webb Corporation could reasonably implement. Substantial evidence has been presented in the EA to indicate that water would be available to the Del Webb Corporation under one or more of these options in the absence of the federal action. Please refer to the supplemental information provided in Appendix A to this EA.
- 3-2. Please refer to the "Response to Comments on the NEPA Compliance Approach", above. Reclamation has considered the effects of The Villages development under the No-Action Alternative for each topical area discussed for the proposed action. The Villages is not a result of the federal action to provide leased settlement water under the Ak-Chin Option Lease Agreement. While potential environmental impacts associated with The Villages development are presented under the No-Action Alternative, impacts associated with The Villages are not considered either direct or indirect effects of Reclamation's proposed action for the purpose of determining whether that action will have "significant" environmental effects. The effects of The Villages are relevant, however, as part of the background, or context, against which the incremental, or cumulative, effects of Reclamation's action are assessed. The discussion of the No-Action Alternative also provides a baseline against which the proposed action is evaluated. Please also refer to response to comments 4-27 and 26-4.
- 3-3. The EA considers all of the special-status species identified in Arizona Game & Fish Department's (AGFD's) letter and presents a similar listing of species received from AGFD in Appendix C. Reclamation has confirmed the results of the special-status species surveys conducted by Jones & Stokes Associates and SWCA in October 1996 and early 1997. No state or federal special-status species were observed during field surveys of the pipeline corridor and water treatment plant site. Reclamation does not anticipate any adverse impacts on special status species resulting from construction of the pipeline or water treatment plant. Please refer also to response to comment 4-8 regarding Endangered Species Act compliance.
- 3-4. The EA indicates in Section 4.0, "Environmental Commitments" under "Biological Resources" (page 4-1) that Del Webb will conduct preconstruction surveys for desert tortoise burrows along the proposed pipeline alignment. If desert tortoises are found, Del Webb will follow AGFD guidelines for handling desert tortoises and will contact AGFD for recommendations and the appropriate permits. The EA also addresses the potential biological and special-status species effects for the Option 1 water supply alternative alignment (as described in Appendix A) and The Villages under the No-Action Alternative.
- 3-5. The EA indicates on page 3-14 that the pipeline project could result in temporary effects on approximately 5.75 acres of xeroriparian scrub and 51 acres of Sonoran desertscrub habitat

within the proposed pipeline right-of-way and could result in the permanent loss of 44 acres of Sonoran desertscrub habitat at the proposed water treatment plant site as shown in Figure 3-1. Del Webb has agreed to recontour and reseed areas of the pipeline corridor not needed for permanent facilities and will reseed upland areas as necessary. The EA indicates in Section 4.0, "Environmental Commitments", under "Biological Resources" that Del Webb will conduct preconstruction surveys for native plants in the water delivery and treatment system impact areas. If Del Webb cannot avoid native plants, it will comply with applicable state law concerning native plants.

- 3-6. Adverse effects on individuals of common wildlife species at the pipeline construction site are unlikely because pipeline construction would occur in limited, defined segments, and disturbed areas would be backfilled as pipeline segments are placed in trenches.
- 3-7. Construction of the pipeline will avoid affecting all existing water catchments.
- 3-8. The EA indicates on page 4-1 under "Water Resources" that Del Webb will comply with the National Pollutant Discharge Elimination System stormwater general permit and will implement a stormwater pollution prevention plan. Standard construction practices would be implemented to minimize potential release of contaminants, and staging areas used for onsite storage of any hazardous construction materials would be located at least 100 feet from the edge of a wash or other drainage feature. Del Webb would also comply with the Flood Control District of Maricopa County's (FCDMC's) permit and license requirements. Please refer to page 3-4 of the EA for a discussion of the temporary construction-related effects on surface water quality that could result under the proposed action.
- 3-9. The Ben Avery Shooting Facility is located approximately 2 miles south of the proposed pipeline corridor and is not expected to be directly or indirectly affected by pipeline construction or operation. Reclamation will request that Del Webb forward to the AGFD any information available related to proposed construction activities or implementation schedules for the water delivery facilities.

LETTER 4

HENRY B. LACEY
Attorney at Law
919 North First Street
PO Box 34262
Phoenix, Arizona 85067-4262
Telephone (602) 258-5050
FAX (602) 258-7560

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July 14, 1997

Bruce Ellis
Chief, Environmental Resource Management Division
US Bureau of Reclamation
Phoenix Area Office
Lower Colorado Region
PO Box 9980
Phoenix, Arizona 85068-0980

Via FAX 395-5733 and Hand Delivery

**Re: Comments of Sierra Club-Grand Canyon Chapter and Save New River Coalition
Draft Environmental Assessment on the Proposed Ak-Chin Option and Lease Agreement
Bureau Reference No. PXAO-1500 ENV-9.00 97002941 8176**

Dear Mr. Ellis:

These comments on the draft Environmental Assessment on the proposed Ak-Chin Option and Lease Agreement are submitted by this office on behalf of the Grand Canyon Chapter of the Sierra Club and the Save New River Coalition. The Grand Canyon Chapter of the Sierra Club and its members are dedicated to the enjoyment, exploration, and protection of Arizona's wild places, to the practice and promotion of this state's ecosystems and natural resources, and to educating Arizonans to protect and restore the quality of the natural and human environment. Many members of the Sierra Club live and/or recreate in the New River area. The Save New River Coalition is a group of residents of the New River, Arizona area who are concerned with protecting and preserving the rural quality of the New River area and the natural environment and ecosystems of the Sonoran Desert.

I. Legal Background

The Bureau's proposed action must comply with the National Environmental Policy Act (NEPA), which requires all federal agencies to prepare and circulate for public review and comment a detailed environmental impact statement (EIS) prior to

4-1

commencing a major federal action that may have a significant effect on the environment. 42 U.S.C. § 4332(2)(C); *Robertson v. Methow Valley Citizen's Council*, 490 US 332, 336 (1989). When a federal agency is not certain whether an EIS is required, it must prepare an environmental assessment (EA). 40 C.F.R. §§ 1501.3, 1501.4, 1508.9; *Foundation for North American Wild Sheep v. US Dep't of Agriculture*, 681 F.2d 1172, 1178 (9th Cir. 1982). If the EA concludes that the proposed project will have no significant impact on the human environment, the agency may issue a "Finding of No Significant Environmental Impact" (FONSI) and proceed with the proposed action. If the agency concludes that the proposed action may result in a significant environmental impact, it must prepare an EIS. 40 C.F.R. § 1501.4; see, e.g., *Smith v. US Forest Service*, 33 F.3d 1072, 1074 n.1 (9th Cir. 1994); *Greenpeace Action v. Franklin*, 14 F.3d 1324, 1328 n.4 (9th Cir. 1992).

When preparing an EA, agencies must take a hard look at the potential impacts of a project, and that a FONSI is issued only when the EA convincingly concludes that no significant impacts on the environment will occur. An EIS must be prepared unless the agency supplies a "convincing statement of reasons why potential impacts are insignificant." *Save the Yaak Committee v. Block*, 840 F.2d 714, 717 (9th Cir. 1988) (quoting *The Steamboaters v. FERC*, 759 F.2d 1382, 1393 (9th Cir. 1985)).

In addition, Council on Environmental Quality (CEQ) regulations recognize that intelligent decisionmaking can be derived only from high quality information. Thus, an EA must provide "evidence and analysis" to support its conclusion that issuance of a FONSI or preparation of an EIS is appropriate. 40 C.F.R. § 1508.9. In addition, information included in NEPA document must be reliable and current. "Accurate scientific analysis . . . [is] essential to implementing NEPA." 40 C.F.R. § 1500.1(b).

An EA must include a careful examination of all of the environmental impacts of a proposed action, including direct, indirect, and cumulative impacts. See 40 C.F.R. § 1508.8 (effects that must be considered are ecological, aesthetic, historical, cultural, economic, social, or health impacts, whether direct, indirect, or cumulative). Indirect effects

are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the patterns of land use, population density or growth rate, and related effects on air and water quality and other natural systems, including ecosystems.

40 C.F.R. § 1508.8(b) (emphasis added).

The federal courts have confirmed that agencies are required to disclose all direct and indirect environmental consequences likely to result from a federal action, even those

that will occur on non-federal land. See *City of Davis v. Coleman*, 521 F.2d 631, 677-81 (9th Cir. 1975) (agency must analyze development impacts in EIS where federal approval of highway project likely to have impacts on development of surrounding area). See also *Sierra Club v. Marsh*, 769 F.2d 868, 877-89 (1st Cir. 1985) (rejecting EA where agency failed to account for private development impacts likely to result from approval of causeway and port facility); *Coalition for Canyon Preservation v. Bowers*, 632 F.2d 774, 783 (9th Cir. 1980) (reaching holding similar to that in *Coleman* case); *Mullin v. Skinner*, 756 F.Supp. 904, 920-22 (E.D.N.C. 1990) (rejecting EA where agency failed to account for private development impacts likely to result from approval of bridge project). The courts have especially emphasized the importance of such disclosure where the project's "reason for being" may be the facilitation of private development. See *Citizen's Committee Against Interstate Route 675 v. Lewis*, 542 F.Supp. 496, 562 (S.D. Ohio 1982).

4-1

An agency must consider how the impact of its proposed action may combine with "other past, present, and reasonably foreseeable future actions regardless of what agency . . . or person undertakes such actions." 40 C.F.R. § 1508.7; see, e.g., *Save the Yaak Committee v. Block*, 840 F.2d 714 (9th Cir. 1988). If the cumulative impacts of a proposed project, considered in combination, are likely to result in significant impacts to the environment, the agency must prepare an EIS. *Resources Limited, Inc. v. Robertson*, 8 F.3d 1394, 1400 (9th Cir. 1994); *Inland Empire Public Lands Council v. Schultz*, 992 F.2d 977, 981 (9th Cir. 1993).

The Bureau must prepare an EIS where there are substantial questions whether the mitigation actions planned by the developer will "completely preclude significant environmental effects." *Conner v. Burford*, 836 F.2d 1521, 1531 (9th Cir. 1988); *Friends of the Earth v. Hintz*, 800 F.2d 822, 836 (9th Cir. 1986).

4-2

The Bureau must consider all reasonable alternatives, including those that may result from the actions of other federal, state, or local agencies. As explained by one federal appellate court:

NEPA requires an integrated view of the environmental damage that may be caused by a situation, broadly considered, and its purpose is not to be frustrated by an approach that would defeat a comprehensive and integrated consideration by reason of the fact that particular officers and agencies have particular occasions for and limits on their exercise of jurisdiction.

4-3

Henry v. Federal Power Comm'n, 513 F.2d 395, 406 (D.C. Cir. 1975). Thus an agency must consider the consequences if another federal, state, or local agency denies a permit or other approval required by applicable federal, state, or local statutes or regulations.

The Department of Interior has issued regulations specifying that agencies within its jurisdiction, including the Bureau, should normally prepare an EIS where (1) the proposed project is a “modification[] to [an] existing project[] or [is] a proposed change[] in the programmed operation of an existing project that may cause a significant new impact;” or (2) the agency proposes to construct a project, or a major unit of a project, not already covered by an existing EIS or where significant new impacts from the project, or major unit of it, are expected. 6 US Department of the Interior Manual 516 (Appendix 9 - Department of Interior NEPA Regulations), § 9.3(4), (5).

4-4

II. The EA Fails to Comply with NEPA

The draft EA on the Ak-Chin lease violates NEPA, and therefore the Bureau should withdraw the draft EA and prepare an EIS on this project. The draft EA fails to include some of the most basic information required by NEPA, including a reasonable range of alternatives, information about the direct and indirect impacts of the project, and the impacts of other reasonably foreseeable projects that may, together with this project, have cumulative impacts on a variety of resources.¹

4-5

A. The EA Does Not Adequately Consider a Reasonable Range of Alternatives

NEPA and its implementing regulations clearly require agencies to consider *all reasonable alternatives* to an agency action when preparing environmental review documents, including an EA. NEPA provides that agencies must “[s]tudy, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.” 42 U.S.C. §§ 4332(2)(E), 4332(2)(cc). The duty to consider reasonable alternatives is independent of and of wider scope than the duty to complete an EIS. In fact, an agency must consider all reasonable alternatives even where it decides to prepare an EA and issue a FONSI. See *Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1228-29 (9th Cir. 1988) (“Consideration of alternatives is critical to the goals of NEPA even where a proposed action does not trigger the EIS process”), *cert. denied*, 489 US 1066 (1989); *Sierra Club v. Watkins*, 808 F.Supp. 852, 870 (D.D.C. 1991) (duty to consider reasonable alternatives is independent of and of wider scope than duty to complete EIS); *Sierra Club v. Alexander*, 484 F.Supp. 455 (N.D.N.Y. 1980) (same). This rule is intended to force agency decisionmakers to identify, evaluate, and take into account all possible approaches to a particular proposal, including those which would better address environmental concerns and the policy goals of NEPA.

4-6

¹ Ideally, an EA should be a “concise document.” *LaFlamme v. FERC*, 945 F.2d 1124, 1129 (9th Cir. 1991). Though the draft EA’s length and complexity is not itself a reason to conclude that a significant effect on the environment will occur as a result of the Bureau’s proposed action, the length and complexity of the draft EA at issue here should reasonably lead the Bureau to conclude that an EIS is appropriate. See Council on Environmental Quality, Forty Most Asked Questions Concerning CEO’s National Environmental Policy Act Regulations, Question No. 36b.

The federal courts have explained, and the CEQ regulations implementing NEPA confirm, that an environmental review document's discussion of alternatives is "the heart" of the NEPA process. 40 C.F.R. § 1502.14. In order to "sharply defin[e] the issues and provid[e] a clear basis for choice among options by the decisionmaker and the public," environmental review documents must explore and evaluate "all reasonable alternatives." *Id.*

4-6

As part of its analysis of the Bureau's proposed action, the EA must thoroughly examine - not dismiss after a summary review or fail to discuss at all - alternatives, including rejecting the proposed lease of Central Arizona Project (CAP) water, approving a smaller or differently located pipeline, or approving the lease subject to conditions imposing a smaller maximum water allotment to Del Webb Corporation. The Bureau has failed to even discuss these possible alternatives.

1. The Bureau Has Failed to Adequately Analyze a "No Action" Alternative

NEPA requires the Bureau to consider a "no action" alternative. As explained recently by the Ninth Circuit:

The goal of the statute is to ensure that federal agencies infuse in project planning a thorough consideration of environmental values. The consideration of alternatives requirement furthers that goal by guaranteeing that agency decisionmakers have before them and take into proper account all reasonable approaches to a particular project (*including total abandonment of the project*) which would alter the environmental impact and the cost-benefit balance.. Informed and meaningful consideration of alternatives - including the no action alternative - is an integral part of the statutory scheme.

4-7

Alaska Wilderness Recreation & Tourism Ass'n v. Morrison, 67 F.3d 723, 729 (9th Cir. 1995) (quoting *Bob Marshall Alliance*, 852 F.2d at 1228) (emphasis in original).

The Bureau has included some discussion of a "no action" alternative in the draft EA, but the Bureau effectively renders its discussion meaningless by assuming that "development of the Villages [at Desert Hills] would occur in the absence of the proposed federal action."² The Bureau's belief in this regard is not supported by the administrative record before the agency and in any event is irrelevant to the agency's obligation to comply with NEPA requirements.

² Draft EA at 1-2.

The draft EA itself makes it clear that Del Webb Corporation does *not* have any other sources of water for the Villages at Desert Hills available. Assuming that alternative sources of water for the development are relevant at all, rejection of a no action alternative is not justified where the developer offers unsupported allegations that it "could" develop this project absent the Bureau's approval of the lease.

The fact is, Del Webb Corporation has *no alternative* water supply. The City of Peoria's water distribution system currently extends no further than Beardsley Road, several miles south of the proposed development.³ Peoria has planned the construction of a water treatment plant that would handle CAP water, but the draft EA contains no indication that Peoria and Del Webb Corporation have contracted for Del Webb's use of that treatment plant or that Del Webb would purchase or otherwise obtain or use a portion of Peoria's CAP allotment.

Nor is there any evidence that the City of Phoenix would provide water to the Villages at Desert Hills. The letter from Phoenix city manager Frank Fairbanks to you, dated June 11, 1996 and included as an attachment to the draft EA, plainly states that Phoenix and Del Webb Corporation have not "explored" any "details of [water] service," much less entered into any agreement or contract requiring Phoenix to provide water. In fact, no such agreement or contract could be entered into unless the Phoenix City Council approved, and no such approval has occurred. Thus, Phoenix has actually taken pains to let the Bureau know that it has made *no* promise to provide water to the Villages at Desert Hills. Mr. Fairbanks' letter clearly indicates that it "is not intended to be a commitment by the City of Phoenix to provide water service to the Villages at Desert Hills nor a binding commitment of any kind by the City of Phoenix."⁴

4-7

The draft EA similarly fails to demonstrate that Del Webb Corporation could obtain the water necessary to support the development through the Central Arizona Groundwater Recharge District (CAGRD). There is no indication that Del Webb Corporation has entered into any leases of or contracts to purchase groundwater wells in the Phoenix active management area (AMA), attempted to obtain a permit for Type 2 non-irrigation grandfathered groundwater rights from the Arizona Department of Water Resources, or applied for membership in the CAGRD. Nor does the draft EA include any evidence that Del Webb Corporation has formed, or attempted to form, a water company for the purpose of serving the Villages at Desert Hills.

It is interesting to note that the draft EA indicates that the cost to Del Webb Corporation of these alternatives is *lower* than that involved in obtaining necessary water via the Ak-Chin lease. The estimated cost to obtain water from those other possible sources ranges from \$10,203,000 to \$27,863,000,⁵ but it would cost Del Webb Corporation approximately \$29,000,000 to obtain the water it seeks from the Ak-Chin

³ Draft EA, Appendix A, at A-6.

⁴ Draft EA, Appendix A, at A-28.

⁵ Draft EA, Appendix A, at A-11, A-14, A-21, A-25.

tribe.⁶ There must obviously be a good reason why the developer is willing to pay \$29 million dollars for the needed water when other alternatives would be less expensive, and it is reasonable to assume that the reason is that those alternatives are not actually available to Del Webb Corporation.

But the question whether Del Webb Corporation could get its water elsewhere is irrelevant in any event. Neither NEPA, its implementing regulations, nor any opinion of a federal court countenances the Bureau's totally unsupported claim that it need not consider the indirect and cumulative impacts of its proposed lease of CAP water because Del Webb Corporation may be able to obtain water elsewhere. The draft EA certainly contains no citation to any authority that would support the Bureau's position in this regard.

4-7

Obviously the impacts on the environment of the development itself must be thoroughly considered if the Bureau is not, as the law indicates, entitled to disregard a no action alternative. The draft EA includes some discussion of those impacts, but that discussion is inadequate.⁷

a. The Discussion of the No Action Alternative Does Not Adequately Address Expected Impacts of the Villages Development on Wildlife and Flora

The Bureau's analysis of impacts of the no-action alternative on vegetation and wildlife suffers from a significant procedural flaw. The Bureau has not obtained the comments of the United States Fish and Wildlife Service (USFWS) with respect to expected impacts on wildlife species listed as endangered or threatened under the Endangered Species Act (ESA). Instead, the only evidence of an effort to coordinate the study process with the USFWS is a letter addressed to Jones & Stokes Associates and dated October 23, 1996 which briefly list of endangered or threatened species, which is attached to the draft EA.⁸

4-8

More is required of the Bureau: the express policy of NEPA is to involve other agencies in the environmental study process. See 42 U.S.C. § 4332(2)(C); *Sierra Club v. Hodel*, 848 F.2d 1068, 1093 (10th Cir. 1988). The fact that USFWS apparently lacks adequate funding to provide project-specific species lists and information is not an excuse for the Bureau to fail to fulfill this responsibility because the cost of that effort should be borne by Del Webb Corporation, which agreed to underwrite the environmental assessment process.

⁶ Draft EA at 2-4.

⁷ The discussion of flaws in the draft EA's treatment of the no-action alternative also apply to the draft EA's treatment of impacts likely to result from the pipeline itself, unless the text indicates the contrary.

⁸ Draft EA, Appendix C. Note that NEPA's requirement that the Bureau coordinate its study efforts with other federal agencies is not satisfied by the involvement of Jones & Stokes biologists or by reliance on studies prepared by private parties in other contexts.

Even if the data and test results discussed in the draft EA are adequate to comply with NEPA, most do not relate to the impacts on wildlife caused by the Villages development. The only "study" that allegedly does so - a paper entitled "Biological Evaluation of the Proposed Villages at Desert Hills Project Site, Maricopa County, Arizona" - has not been provided as an attachment to the draft EA. Accordingly, the Bureau has offered no factual or theoretical underpinnings for its cursory conclusion that no federally listed species are likely to occur on the development site and that the Del Webb Corporation development will not adversely affect such species. Nor does the "Biological Assessment" for the proposed lease agreement provide this essential information. That document does not address the Villages development site at all.⁹

The Bureau concedes that several endangered or threatened species, and the habitat they depend on, may be adversely affected by the pipeline and the planned Villages development. For example, the draft EA includes a statement indicating that bald eagle and peregrine falcon foraging areas may be affected by the development.¹⁰ The draft EA does not explain the specific impacts that may be expected. Moreover, although the Bureau has offered an opinion that the proposed Villages development will not affect any listed species, the draft EA does not discuss any basis for that conclusion other than that no listed species other than bald eagles and peregrine falcons were seen on the Del Webb Corporation property. This statement alone is highly suspect, since the Bureau concedes in a paragraph on the same page that [d]esert tortoise is known to occur in The Villages development area¹¹ and elsewhere that desert tortoises occur in the pipeline corridor.¹²

4-8

The Bureau will be obligated to consult with USFWS before approving the lease because listed species may be affected. 16 U.S.C. § 1536(b). Similarly, the Bureau must avoid any action that would jeopardize the continued existence of any listed species. 16 U.S.C. § 1536(a)(2). It therefore makes absolutely no sense to conclude that approval of the lease will have no significant environmental impact without first determining whether USFWS agrees with that view. In this case, it is clear that USFWS does *not* agree with that view. In letters addressed your office and dated November 6, 1996 and June 12, 1997, the Arizona Ecological Services Field Office of USFWS informed the Bureau of its belief that an EIS is required before approval of the lease may occur. CEQ regulations indicate that USFWS' view is correct. See 40 C.F.R. § 1508.27(9) (requiring agency to analyze impacts on endangered or threatened species and/or their habitats and indicating EIS may be required where adverse impacts may occur)..

⁹ To the extent the Biological Assessment prepared by Jones & Stokes discusses any impacts on species as a result of the pipeline itself, such discussion is woefully inadequate. The public is not told of any specific studies, literature, or field survey *results* that would support the Jones & Stokes' conclusion that the pipeline would have no impact on any listed species.

¹⁰ Draft EA at 3-14.

¹¹ Draft EA at 3-14.

¹² Draft EA at 3-11.

In addition to the obvious flaw in the Bureau's discussion of impacts on the desert tortoise, bald eagle, and peregrine falcon, the Bureau has failed utterly to provide an adequate explanation of why the proposed lease will not adversely affect the cactus ferruginous pygmy owl. Although USFWS has not designated critical habitat for this species, the ESA nevertheless requires the Bureau to affirmatively seek to conserve the species and avoid any action that could jeopardize its continued survival, and in any event the law is clear that habitat destruction, even if not designated "critical," may be a taking under section 9 of the ESA.¹³ See 16 U.S.C. § 1538(a)(1)(B); *Sweet Home Chapter of Communities for a Great Oregon v. Babbitt*, 115 S.Ct. 2407, 2412-18 (1995).

4-8

The draft EA's treatment of impacts on species considered of special status under Arizona law is also defective. The Bureau concedes that development of The Villages at Desert Hills will "affect a variety of native plant communities and plant species," including several protected by Arizona law.¹⁴ However, the Bureau blithely assumes that Del Webb Corporation will take appropriate steps to mitigate such impacts without providing any supporting documents, study results, or other information that would justify that assumption. The Bureau must *independently* evaluate how Del Webb Corporation would mitigate or prevent losses of special status, as well as listed, species. *LaFlamme v. FERC*, 852 F.2d 399, 400 (9th Cir. 1988). Nor may the Bureau rely on *potential*, as opposed to actual, actions that may be taken by Del Webb Corporation to conclude that the planned project will not have an adverse impact on the listed and/or special status species. See *Preservation Coalition, Inc. v. Pierce*, 667 F.2d 851, 860 (9th Cir. 1982).

4-9

b. The Draft EA's Discussion of Air Quality Impacts is Deficient

The draft EA recognizes that approval of the lease will result in short-term *and* long-term increases in ozone precursor pollutants (reactive organic gases and nitrogen oxide compounds), carbon monoxide, and particulate emissions.¹⁵ The Maricopa County area is designated non-attainment for carbon monoxide, particulates, and ozone. Yet the Bureau inexplicably takes the position that the federal conformity regulation does not apply to this project. The Bureau is wrong. Contrary to the Bureau's assertion,¹⁶ the conformity regulation applies to any project that receives any approval from any federal government agency and is not limited in scope to federal funding or approval only from the Bureau. Because this project will indisputably occur in a region designated as a non-compliance area for several pollutants pursuant to the Clean Air Act, the Bureau may not approve the proposed lease unless the result of doing so will not contribute to continued non-compliance with national ambient air quality standards.

4-10

¹³ The Bureau should also consider the likelihood that activity related to construction of the pipeline and of The Villages development will directly result in the death of birds protected by the Migratory Bird Treaty Act.

¹⁴ Draft EA at 3-15.

¹⁵ Draft EA at 3-25, 3-26.

¹⁶ See Draft EA at 3-26.

The draft EA also is not supported by independent, or even proprietary, air quality impact data. There is no discussion of specific air pollution impacts, although the draft EA does indicate that a huge increase in local traffic levels and population will occur as a result of the lease approval. In fact, the draft EA does not even discuss the ongoing effort to prepare a study to determine whether the planned Del Webb Corporation development, along with other developments in Maricopa County, will cause worsening of the area's air pollution problem. This study, supervised by the Maricopa Association of Governments, is not expected to be ready for review until at least mid- to late-August.¹⁷ The Bureau's failure to provide such data, or to commit to a reevaluation of the air quality section of the EA based on the results of the conformity study, renders the EA insufficient as to this issue.

4-10

With regard to mitigation of air quality impacts, this section of the EA also fails to specifically demonstrate actual commitments by Del Webb Corporation and also does not provide enough detail to determine whether such commitments, even if they can be relied upon, are in fact likely to justify the FONSI determination.

4-11

c. The Draft EA Does Not Adequately Address Traffic Impacts

The draft EA indicates that approval of the lease could result in as much as a *tripling* of traffic on I-17 in the New River area.¹⁸ Yet the draft EA includes no information that indicates any definite commitment by or obligation of Del Webb Corporation or the State of Arizona to improve traffic management in the area of the proposed development. This section of the EA also fails even to mention the air quality impacts, congestion, increased accident and injury potential, and wildlife habitat losses that may be caused by increased motor vehicle use and presence in and near the development and on surrounding roadways. Nor does the draft EA include any mention of the most recent traffic impact data that may be available in the files of the Arizona Department of Transportation, Maricopa Association of Governments, or Federal Highway Administration.¹⁹

4-12

¹⁷ Personal Communication between Doug Eberhart, MAG, and Alica McMahon (Mr. Lacey's legal assistant), July 14, 1997.

¹⁸ Draft EA at 3-35. The Bureau does not discuss the source of its traffic information or the methodology by which such information was obtained by the original source. This is a flaw in the draft EA that violates NEPA.

¹⁹ The draft EA apparently assumes that Del Webb Corporation will finance construction of two additional interchanges and a widening of I-17 by several lanes. There is no evidence included in the draft EA that supports this assumption, and in fact it now appears that Del Webb Corporation will agree to finance only *one* additional interchange and *no* additional highway lanes on I-17. Personal Communication between Fred Garcia, Arizona Department of Transportation, and Alica McMahon (Mr. Lacey's legal assistant), July 14, 1997.

d. The Draft EA Does Not Adequately Address Impacts on Cultural and Historic Artifacts

The draft EA does not incorporate the results of the studies relied upon to conclude that The Villages development will have no effect on cultural resources. The studies, literature, or data supporting this conclusion should be provided.

The draft EA admits that impacts on cultural sites will occur when The Villages development is built, and that the site (including that area of it used for the pipeline and the water treatment plant) includes prehistoric and historic archaeological artifacts.²⁰ In fact, the draft EA recognizes that at least five prehistoric sites eligible for inclusion on the National Registry of Historic Places (NRHP) have been located.²¹ Yet the Bureau does not provide any indication of specific, irreversible commitments by Del Webb Corporation to protect or preserve these sites or to otherwise allow mitigation of adverse impacts upon them. Nor does the Bureau adequately explain its decision to concur in a recommendation that eight of these sites be denied NRHP listing.

4-13

e. The Draft EA Fails to Adequately Analyze Impacts on Land Use and Visual Resources

The draft EA seems intent on downplaying the basic reality of The Villages development: 50,000 people are to be housed, at almost 3 homes per acre, in a town less than ten percent that number in size. Such an enormous and rapid increase in population will unquestionably cause dramatic deterioration in the scenic quality of the New River area and virtually obliterate existing rural land uses. Unfortunately, the draft EA utterly fails to recognize that this horrific urban sprawl, in a metropolitan area already cursed with worsening air pollution and traffic congestion, itself constitutes an inevitable and highly destructive environmental impact of the proposed action. More than five thousand acres of rapidly disappearing Sonoran Desert landscape are to be converted into suburban homes, golf courses, roads, and other cookie-cutter suburban developments.²² The Bureau recognizes that the noise resulting from construction of The Villages development will be "typical of suburban or urban environments."²³ The net consequence of all these impacts, aside from the wildlife, air quality, noise, and cultural impacts discussed above, will be the loss of the quality of life and freedom now enjoyed by residents of New River.

4-14

The draft EA recognizes only that The Villages development will increase population and, consequently, demand for urban services in the area.²⁴ The Bureau has not seen fit to include any discussion of how this massive urbanization will affect existing residents' lives, livelihoods, neighborhoods, schools, businesses, or recreational

²⁰ Draft EA at 3-22, 3-23.

²¹ *Id.* at 3-22.

²² Draft EA at 3-40.

²³ Draft EA at 3-44.

²⁴ See Draft EA at 3-39-3.44.

activities. This oversight is a significant flaw in the draft EA and, standing alone, is enough to require preparation of an EIS.

4-14

2. The Bureau Has Not Adequately Explained Why it Did Not Consider Other Pipeline Locations or a Lease Involving Less Water

The draft EA discusses one planned location for the proposed pipeline and the associated water treatment plant. Although the draft EA briefly outlines the reasons why the Bureau believes that other locations for the pipeline are not feasible, the document includes no background on the feasibility study that determined that options A, B, D, and E are infeasible. The Bureau should explain the methodology of that study, the details as to how each factor was considered with respect to each alternative, and the technical and economic selection criteria dictated by Del Webb Corporation.

4-15

The draft EA also does not discuss any alternative that would involve a lease of less than 10,000 acre-feet of Ak-Chin CAP water. This oversight is particularly bothersome in light of the Bureau's assertion that Del Webb Corporation has alternative sources of water to support the Villages development. If Del Webb could in fact obtain all or some of its water from Peoria, Phoenix, or the CAGR, then the Bureau certainly should be able to consider leasing less than the full complement of water needed to support the development.

III. Other Comments

The Villages development will occur on and between the floodplains of various streams and intermittent water courses. Nevertheless, the draft EA contains no discussion of how Del Webb Corporation will mitigate potential increased risks of flood damages. Such information is required under NEPA, as such risks may amount to a significant environmental impact.

4-16

The draft EA contains no substantive discussion of water quality impacts, except to briefly acknowledge that increased pollution is likely as a result of pipeline construction as well as development of The Villages. The Bureau should include data and/or studies indicating whether or not the proposed action, and the development of The Villages, will cause violations of applicable water quality standards and/or regulations. The Bureau also unlawfully failed to include in the draft EA information indicating that Del Webb Corporation has made a specific and irreversible commitment to mitigate and/or prevent such water quality impacts and/or violations.

4-17

The draft EIS also fails to adequately disclose water quality impacts of the proposed pipeline, water storage tanks, and water treatment plant. For example, no anticipated specific suspended sediment runoff figures during storm events are disclosed. The Bureau also does not offer information adequate to assess the risks of increased erosion in the various washes crossed by the pipeline resulting from alteration in the

shape of swales and flood events. No technical information regarding treatment operations is included, and there is no discussion as to the pollutant levels in the CAP water being transported via the pipeline, stored in the proposed tanks, and treated in the planned treatment plant.

4-17

The draft EA does not discuss the Bureau's plans to consult with USFWS. Such consultation is required by the ESA in this case, and NEPA requires the Bureau to disclose the results of such consultation.

4-18

An EIS is required in this case because approval of the Ak-Chin lease, together with Federal Highway Administration approval of additional highway construction necessary to serve The Villages development, Corps of Engineers' and EPA approval of a wetlands permit pursuant to the Clean Water Act, and issuance of relevant ESA permits by USFWS constitute "connected actions" that will, in combination, result in adverse environmental consequences.

4-19

The draft EA does not adequately disclose, discuss, or analyze all future, related or unrelated but reasonably foreseeable consequences of the proposed project that may result in cumulative impacts. The Bureau must consider all indirect effects of the proposed action, which are those effects "caused by the action and are later in time or farther removed in distance, but [which] are still reasonably foreseeable." 40 C.F.R. § 1508.8(b). Moreover, because the action proposed by the Bureau will combine with actions taken by other governmental agencies and by private actors to have a cumulative or synergistic effect on the environment, the Bureau must consider the impact of its decision on Del Webb Corporation's decision whether or not to proceed with The Villages development. *See, e.g., City of Tenakee Springs v. Clough*, 915 F.2d 1308 (9th Cir. 1990); *Sierra Club v. Penfold*, 857 F.2d 1307, 1320-21 (9th Cir. 1988).

4-20

An EIS must be prepared because the proposed project, as well as the indirect and cumulative results of the proposed project, are likely to result in jeopardy to species listed pursuant to the Endangered Species Act and result in "takings" of such species which are prohibited by section 9 of the ESA.

An EIS must be prepared because the proposed action, as well as the indirect and cumulative impacts of the proposed action, will result in the loss of wetlands.

4-21

An EIS must be prepared because the project will result in a worsening of air quality in Maricopa County, thereby further worsening the area's compliance with applicable ambient air quality standards, and violate the federal conformity regulation.

The Bureau is not entitled to take into account, when determining whether to prepare an EIS, the analysis and conclusions included in the Final Environmental Impact Statement for Water Allocations and Water Service Contracting, Central Arizona Project. An EIS on the proposed action is required pursuant to the Department of Interior NEPA Regulations applicable to the Bureau of Reclamation, Rules 9.3(A)(4) and 9.3(A)(5).

4-22

NEPA requires the Bureau to consult with affected private interests, including the residents of New River and other persons and/or organizations interested in the aesthetic, environmental, economic, and recreational attributes of the Sonoran Desert in and near New River, before preparing an EA and concluding that a FONSI is appropriate. Such consultation is not achieved simply by holding a public hearing on the draft EA.

4-23

The Bureau violated NEPA by closing the scoping process on this project to the public and/or by failing to inform the public of scoping meetings, the accepted scope of the project, or other opportunities to participate.

The Bureau has not made an independent evaluation of the information developed and submitted by Del Webb Corporation. Thus the draft EA violates NEPA. 40 C.F.R. § 1506.5(a).

4-24

By allowing Del Webb Corporation to select the contractor to prepare the draft EA, the Bureau violated 40 C.F.R. § 1506.5. That regulation requires the agency to select the preparer of the EA. The Bureau has violated applicable NEPA regulations by failing to take responsibility for the content of the draft EA. 40 C.F.R. § 1506.5(b).

The Bureau has not complied with applicable NEPA public notice requirements, including those relating to timeliness of notice as to scoping meetings, publication of notices in appropriate newspapers, notification of community organizations, and posting of notices on and off the site in question. 40 C.F.R. § 1506.6.

4-25

The Bureau has abused its discretion, and acted unreasonably, in issuing a draft EA because Bureau personnel have already recognized and admitted that preparation of an EIS on the proposed project is necessary and appropriate. The Bureau's awareness that USFWS believes that an EIS is appropriate, and its failure to follow that advice, is also an abuse of discretion.

4-26

An EIS is required because the proposed action is highly controversial and because the Bureau's action may establish a precedent for other, similar actions with respect to Central Arizona Project water. *See* 40 C.F.R. § 1508.27(b).

4-27

The Bureau must consider indirect and cumulative impacts of its approval of the Ak-Chin lease that may result from actions taken by other federal, state, and local government agencies in the future. Such actions may include, but are not limited to, issuance of other required permits and provision of public services or funding that may help cause such indirect or cumulative impacts.

4-28

On the other hand, NEPA does not authorize the Bureau to accept the unsupported allegations as to possible actions by other governmental agencies offered by the beneficiary of the project. The Bureau must independently investigate and evaluate such allegations and base its determination as to whether a FONSI is appropriate or an EIS

should be prepared on the results of that independent investigation, the evidence in the administrative record, and its own evaluation. Thus, the Bureau should not accept Del Webb Corporation's unsupported assertion, nor rely on its own unsupported assumption, that the developer could obtain water necessary for The Villages development from another source.

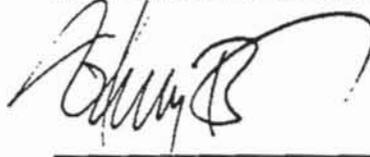
IV. Conclusion

The Bureau has failed to take the required "hard look" at its proposed project. The no action alternative has not been adequately analyzed or discussed, and the Bureau has not included an appropriate range of alternatives. Nor have all of the relevant factors been considered. In sum, the Bureau has illegally and unwisely limited the scope of its analysis to the construction of the pipeline and associated water treatment plant. But NEPA does not permit the Bureau to avoid analyzing the expected indirect and cumulative impacts of the pipeline and water treatment plant. The Bureau must consider *all* of the environmental consequences of its actions, including those caused by the development that the water provided as a result of the proposed lease, before determining whether issuance of a FONSI is appropriate. Consideration of those impacts should induce the Bureau to prepare an EIS.

The Bureau should withdraw the draft EA and prepare an EIS, after a new round of scoping and public comment, on the proposed action.

Sincerely yours,

LAW OFFICE OF HENRY B. LACEY



Hank Lacey

HL:hl
cc: Michael Fiflis, Esq.
Wendy Keefover-Ring
Gary Giordano
Chris Gehlker

Reclamation's Phoenix Area Office, 10888 N. 19th Avenue, Phoenix AZ 85029, upon request. Based on these studies, a BA was prepared which concluded there would be "no effect" to federally listed threatened and endangered species from direct or indirect impacts of the pipeline or cumulative impacts associated with The Villages. Of the 14 species listed by USFWS as threatened or endangered in Maricopa County, only four species (bald eagle, American peregrine falcon, southwestern willow flycatcher, and cactus ferruginous pygmy-owl), which could potentially occur in the project area based on their known geographic range and habitat requirements, were assessed in the BA. The BA was included in the EA sent to USFWS on June 9, 1997, as part of the general distribution for public review and comment. In addition, a separate copy of the BA was sent to USFWS on June 20, 1997, in response to a USFWS request. By regulation, USFWS has 30 days to disagree with an agency's "no effect" determination. No correspondence to that effect has been received by Reclamation, therefore, formal consultation with USFWS is not required and Reclamation has satisfied its Endangered Species Act, Section 7, requirements.

Furthermore, AGFD's comments on the EA did not express any concern pertaining to possible impacts on federally listed species. AGFD did note, however, that state special-status species may occur within the project area. Of the species listed by AGFD, only Hohokam agave and Sonoran desert tortoise were identified in the consultant's reports as either present or possibly occurring within the pipeline corridor or on The Villages site. Impacts on native plant species, including Hohokam agave, in both the pipeline corridor and on The Villages site would be minimized by compliance with the Arizona Native Plant Law, as committed to in Section 4.0 of the EA. Del Webb has also committed to conducting preconstruction surveys for desert tortoises on the pipeline corridor and The Villages site and following AGFD's guidelines to relocate any individuals encountered. In addition, possible impacts on these species would be minimized through Del Webb's compliance with its development master plan for The Villages, which contains an Ecological Resources Management Plan as well as a number of development stipulations imposed by Maricopa County.

Please refer also to response to comment letter 6, and response to comment 26-5.

- 4-9. Although it was not necessary for Reclamation to examine The Villages' effects at the level of detail presented under the No-Action Alternative, Reclamation chose to go beyond what is normally required in EAs and to develop more comprehensive information on the No-Action Alternative. The environmental commitments presented in Section 4.0, "Environmental Commitments", of the EA pertain to the *proposed action*, including construction of the delivery pipeline and water treatment plant. Reclamation intends to follow through with Del Webb to ensure these environmental commitments are implemented. Although these EA commitments do not specifically apply to Del Webb's construction of The Villages, most are in fact already required by federal and state laws and Maricopa County requirements. Development of The Villages site would be subject to the development master plan that has been approved by Maricopa County. The master plan contains an Ecological Resources Management Plan as well as a number of development stipulations imposed by Maricopa County. Effects on native plant species would be minimized by compliance with Arizona Native Plant Law, and effects on wash areas would

be minimized by compliance with U.S. Army Corps of Engineers Section 404 permit conditions as required under the Clean Water Act. Del Webb has also committed to following AGFD's guidelines for relocating any desert tortoises encountered. Please refer also to response to comment 26-5, below.

- 4-10. In general, the conformity provisions of the Clean Air Act state a federal agency may not engage in, support or provide financial assistance for, license or permit, or approve any activity which does not conform to an applicable State Implementation Plan (SIP). Where the federal action is an approval for some aspect of a nonfederal undertaking, the activity subject to conformity would be the part, portion or phase that requires federal approval (40 Code of Federal Regulations [CFR] 51.852). In the case of the Ak-Chin Option and Lease Agreement, the federal action is Reclamation's provision of leased settlement water under the Option and Lease Agreement. The leased settlement water would be carried through a nonfederal pipeline constructed by Del Webb. Reclamation has no financial or other involvement in, or control over, the construction or operation of the water delivery facilities, or the ultimate construction of The Villages. Nevertheless, because the pipeline and water treatment plant associated with the leased water would likely not be constructed without Reclamation's approval, Reclamation considered emissions associated with construction and operation of Del Webb's proposed water delivery and treatment facilities in determining whether a conformity determination is required.

The Clean Air Act conformity regulations provide that where the total of direct and indirect emissions caused by the federal action is below prescribed minimum threshold levels, called *de minimis* emission levels, a conformity determination is not required. According to data generated by Sierra Research (1997) for these facilities, construction and operation emissions would be well below the minimum threshold emissions level that would trigger the formal conformity requirement. The EA has been revised to include the calculations performed that substantiate this conclusion (see Table 3-2). Thus, no conformity determination is required for this project. In no case are the emissions associated with The Villages considered by Reclamation as the direct or indirect result of the federal action.

Please refer to response to comment 4-2 regarding mitigation measures. Environmental commitments presented in Section 4.0 of the EA have been committed to by Del Webb. Reclamation will ensure they are implemented during Del Webb's construction of the pipeline and water treatment plant.

- 4-11. No air quality mitigation measures are expected to be needed for the provision of settlement water under the Option and Lease Agreement or construction and operation of the water delivery system because of the small scale of effects expected from construction and the nature of water pipeline and treatment operational effects. Regarding the No-Action Alternative, The Villages Plan of Development requires, under Development Master Plan Stipulation "n", the following:

As required by the Federal Clean Air Act, the developer shall submit an air quality conformity statement to the Department of Planning and Infrastructure Development prior to the County's issuance of any construction permits for roads of regional significance.

As previously stated in the EA, Del Webb will also obtain all necessary permits in compliance with all applicable regulations of Maricopa County Environmental Services, Department of Air Pollution Control, and will apply dust suppression measures in accordance with Rule 310 for Fugitive Dust. Please refer to the air quality environmental commitment on page 4-3 and to Appendix E of the EA.

- 4-12. Please refer to the "Response to Comments on the NEPA Compliance Approach" above. While potential environmental impacts associated with The Villages development are presented under the No-Action Alternative, impacts associated with The Villages are not considered either direct or indirect effects of Reclamation's proposed action for the purpose of determining whether that action will have "significant" environmental effects. The effects of The Villages are relevant, however, as part of the background, or context, against which the incremental, or cumulative, effects of Reclamation's action are assessed. The discussion of the No-Action Alternative also provides a baseline against which the proposed action is evaluated. As indicated in the EA on pages 3-29 and 3-30, the provision of settlement water under the Option and Lease Agreement and construction and operation of the proposed water delivery system would have minor effects on vehicular and truck traffic and roadway conditions in the corridor area.

Effects of The Villages development as discussed under the No-Action Alternative were based on a traffic analysis conducted during the master planning process by Kirkham, Michael and Associates in 1995, as indicated on page 3-32 of the draft EA document. Since the time The Villages traffic analysis was conducted and The Villages master plan was approved by Maricopa County, the Maricopa County Department of Transportation completed the Northeast Valley Area Transportation Study (NVATS) in late 1996. The NVATS projected future average weekday traffic in 2015 in the vicinity of The Villages to be greater than previously projected in the master plan traffic analysis. In 2015, the average weekday traffic volumes on I-17 are projected to be 98,000 immediately south of The Villages, 129,000 just south of a planned new interchange at Pioneer Road, and 142,000 south of Carefree Highway. These recent projections constitute a 17-35% increase in the traffic volumes projected under The Villages master plan.

Section 3.7, "Traffic and Circulation", of the EA has been revised to provide additional information from the NVATS. Regarding footnote 19, Del Webb has indicated to Reclamation that it has never made any highway funding commitments other than participation in interchange improvements, as described in Section 3.7 of the EA.

Transportation network improvements, including widening I-17 to three lanes in each direction and construction of new interchanges and roadway improvements, are proposed to ensure that peak hour levels of service (LOS) at area intersections are acceptable. Please refer to response to comment 20-3, below, regarding the source of assumptions related to proposed future widening of I-17 to three lanes south of The Villages. Figure 14 of the NVATS indicates that most intersections located in the vicinity of I-17 would be at LOS B

and C, which are acceptable. The letters A through F describe the best to worst driving conditions, respectively. LOS A indicates free-flow operation, and LOS F indicates jammed flow with substantial delay. (Maricopa County Department of Transportation. 1996. Northeast Valley area transportation study. September 17. Prepared by Lee Engineering, Inc. and Logan Simpson & Dye, Phoenix, AZ.)

Although the new county traffic information is only relevant to the No-Action Alternative and does not change the conclusions of the EA or Reclamation's determination of impact significance under the proposed action, the relevant text and figure changes in the EA have been made to reflect the most recent transportation information available and to address this comment. Del Webb's recent decision to reduce the number of dwelling units by 2,000 indicates that the NVATS traffic modeling now likely overestimates The Villages' probable contribution to future area traffic conditions.

- 4-13. The EA indicates that construction in the pipeline corridor would have no effects on significant archaeological sites, Indian Trust Assets, or traditional cultural properties. The potential for discovery of subsurface resources is always a possibility for projects involving excavation or trenching. Reclamation has consulted with the Arizona State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) as required by Section 106 of the National Historic Preservation Act. A Memorandum of Agreement (MOA) among Reclamation, ACHP, and SHPO includes discovery provisions.

Evaluation of cultural resources in The Villages development area under the No-Action Alternative is based on an archaeological survey conducted for the entire site in 1994. After conferring with the ACHP and SHPO, Reclamation defined the Area of Potential Effects (APE) to include The Villages development area for purposes of compliance with Section 106 of the NHPA. Reclamation has had extensive communication, including field visits, with the ACHP, SHPO, Indian tribes, and other affected federal and state agencies. Reclamation, with SHPO concurrence, has determined that six (6) archaeological properties are eligible for listing on the National Register of Historic Places and has recommended a historic property avoidance and treatment plan as part of the MOA among Reclamation, the ACHP, and SHPO. All parties have agreed with stipulations presented in the treatment plan and MOA. Del Webb will comply with provisions of the treatment plan. Execution of an MOA among Reclamation, the SHPO, and the ACHP indicates Reclamation's satisfaction of its historic resource identification, evaluation, and mitigation obligations.

- 4-14. While potential environmental impacts associated with The Villages development are presented under the No-Action Alternative, impacts associated with The Villages are not considered either direct or indirect effects of Reclamation's proposed action for the purpose of determining whether that action will have "significant" environmental effects. The effects of The Villages are relevant, however, as part of the background, or context, against which the incremental, or cumulative, effects of Reclamation's action are assessed. The discussion of the No-Action Alternative also provides a baseline against which the proposed action is evaluated. Please refer also to the "Response to Comments on the NEPA Compliance Approach", above. On pages 3-38 to 3-40, the EA addresses visual impacts as well as possible growth effects that could occur in The Villages area associated with schools, law

enforcement, fire protection, sewage service and solid waste disposal, water supply, and recreation resources.

- 4-15. The EA summarizes the results of a feasibility study for evaluation of alternative systems for the conveyance of leased settlement water (Bookman-Edmonston Engineering, Inc. 1996; referenced on page 6-1 of the EA) prepared as part of Del Webb's water delivery system planning. Please refer to response to comments 4-6 and 4-7 and the "Response to Comments on the NEPA Compliance Approach", above. This report is part of the public record and is available upon request.

The EA indicates on pages 1-1 and 1-2 that "[i]n 1994, the Ak-Chin Indian Community, United States of America, and Del Webb agreed to an Option and Lease Agreement for provision of between 6,000 and 10,000 af/yr of leased settlement water . . ." Because the intent of the lease agreement was to provide a contractually agreed upon amount of water to Del Webb, because the Ak-Chin Indian Community is congressionally authorized to lease surplus settlement water, and because viable alternatives to the leased supply exist, consideration of a lesser amount of water is not reasonable and does not meet the objectives of the proposed action. Del Webb decided to exercise its option for 10,000 af/yr in December 1996. Further, evaluation of effects under the No-Action Alternative are based on the approved Villages master plan, which will not vary based on which water supply option is selected. Presentation of alternative water supply options in Appendix A of the EA supports Reclamation's belief that it is reasonable to conclude that development of The Villages would occur in the absence of the proposed federal action.

- 4-16. Please refer to the "Response to Comments on the NEPA Compliance Approach", above. We would like to point out the EA on page 3-7, paragraph one, addresses the issues of flood flows at The Villages:

Construction of this residential area is not expected to substantially increase the volumes and peak rates of stormwater runoff to natural drainage channels because the requirements of the FCDMC have been incorporated into the Master Drainage Plan. These requirements limit peak runoff rates and require the use of retention/detention basins to provide for runoff control.

- 4-17. The EA indicates on page 3-4, third paragraph, that temporary construction-related effects on water quality from the provision of settlement water under the Option and Lease Agreement and the associated water delivery system would be minor:

. . . because surface flows are infrequent, construction activities would require a relatively small amount of soil disturbance, the activities would be temporary, and the potential release of contaminants could be minimized by following normal construction practices.

The water delivery system would have no direct effects on groundwater resources, and use of a surface water supply delivered through the pipeline could benefit the groundwater aquifer by providing a renewable surface water source rather than relying on individual

groundwater wells for a potable water supply. The No-Action Alternative water quality analysis, which includes The Villages discussion, is presented on pages 3-5 to 3-7 of the EA. The use of Colorado River water for municipal and industrial uses in central Arizona was evaluated by Reclamation as part of the "Environmental Impact Statement on Water Allocations and Water Service Contracting-Central Arizona Project" (Bureau of Reclamation 1982). The EIS concluded that "... CAP water from the Colorado River is expected in many instances to be of better quality than the existing sources of groundwater in central Arizona." The final EA has been revised to address this concern.

- 4-18. The Endangered Species Act (ESA), discussion in Section 5.1 of the EA, has been revised to indicate that the requirements of the ESA have been met. Please refer also to response to comment 4-8.
- 4-19. Reclamation has considered the possible actions related to the proposed action, such as other regulatory permit processes. These related actions are summarized in the EA in Section 5.0, "Consultation and Coordination", and include among others, Clean Water Act compliance, Endangered Species Act compliance and consultation, and NHPA Section 106 compliance. The current Desert Hills/I-17 interchange improvements being carried out by the State of Arizona do not include Federal Highway Administration funding (Duarte pers. comm. ADOT, July 23, 1997). See also response to comment 4-12, second to last paragraph.
- 4-20. The EA discloses the possible cumulative impacts of the proposed action on pages 3-40 to 3-43 and concludes that providing leased settlement water under the Option and Lease Agreement and constructing and operating the proposed water delivery facilities would not be expected to result in substantial incremental impacts in light of the other past, present, and reasonably foreseeable actions in the area (page 3-42, fifth paragraph). Please refer also to response to comment 4-1 and the "Response to Comments on the NEPA Compliance Approach" above.
- 4-21. Comment noted. Please refer to responses to comments 4-8 and 4-10. Reclamation has made a "no effect" determination for listed species, which has not been disputed by USFWS. No wetlands would be affected by the provision of settlement water under the Option and Lease Agreement and construction and operation of the proposed water delivery facilities. It should be noted that loss of wetlands alone does not necessarily require that an EIS be prepared. Although Del Webb has sought a Section 404 permit for impacts on certain nonwetland waters of the United States, an EIS still would not necessarily be required. EAs are often prepared to meet the U.S. Army Corps of Engineers' NEPA compliance requirements for issuance of dredge/fill permits under Section 404 of the Clean Water Act.
- 4-22. Reference in the EA to Reclamation's Water Allocations and Water Service Contracting-Central Arizona Project final EIS is intended to indicate that additional information related to growth effects from use of water delivered through CAP facilities has been previously evaluated by Reclamation and is relevant to this process. Reclamation has not "tiered" its EA analysis off the previous CAP final EIS. Please refer also to response to comment 4-1 related to major federal actions.

- 4-23. Reclamation has provided for substantial public involvement before and during preparation of the draft EA. As indicated in the EA on pages 5-4 and 5-5, Reclamation conducted a public scoping meeting at New River Elementary School on November 2, 1996. The meeting was attended by more than 60 people, of whom approximately 15 provided oral comments on the scope and content of the draft EA. During the meeting, Reclamation announced it would extend the deadline for written comments to December 13, 1996. A second notice regarding the public scoping comment period extension was sent to over 300 recipients on November 12, 1996. Reclamation received and considered approximately 68 comment letters from agencies and members of the public regarding the scope and content of the draft EA. Reclamation also provided for an open public forum to hear comments on the draft EA during the June 28, 1997 public hearing. Reclamation provided notices of the draft EA public hearing in four local newspapers and sent notices and copies of the draft EA to members of the public requesting a copy and those individuals on Reclamation's distribution list (over 300 people). During the public hearing, Reclamation heard oral comments from 25 members of the public and received comments on 24 comment cards. Reclamation also extended the draft EA comment period deadline beyond the 30-day requirement to September 8, 1997. Reclamation's public scoping and involvement program for the EA has met and exceeded the requirements of NEPA and its implementing regulations.
- 4-24. Reclamation, as lead agency for NEPA compliance, determined the scope of the EA and has reviewed and independently verified the information contained in the EA. Reclamation, as lead agency, selected the NEPA compliance consultant. Reclamation is responsible for the content of the EA.
- 4-25. Reclamation has provided adequate notices for scoping and public review meetings and has gone beyond the requirements of NEPA in providing an open forum for comment on the scope and content of the draft EA. Reclamation provided public notices on October 17, 1996, to 265 interested agencies, organizations, and persons before the November 11, 1997 EA scoping meeting, and provided a notice of the scoping process and public meeting in the *Federal Register* on October 15, 1996 (Volume 51, No. 200). A second notice regarding an extension of the public scoping process to December 13, 1996, was sent to over 300 recipients on November 12, 1996. Reclamation also provided adequate public notice of the June 28, 1997 draft EA public hearing to over 300 individuals on Reclamation's distribution list. Please refer also to response to comment 4-23.
- 4-26. As lead federal agency for this action, Reclamation has the authority and responsibility for determining the scope of the NEPA document, with input from affected and interested federal, state, and local agencies and the affected public.
- 4-27. CEQ Regulations (40 CFR 1508.27) indicate that in determining the significance of an impact, the context and intensity of the impact should be considered. When considering the intensity of an impact, two of the ten considerations listed in subpart b. (4) and (6) include: the degree to which the effects on the quality of the human environment are likely to be highly controversial and the degree to which the action may establish a precedent for future

actions with significant effects or represents a decision in principle about a future consideration.

These two factors are only a part of the overall consideration that must occur in determining significance and considered alone do not imply a requirement for an EIS. In fact, Reclamation's NEPA Handbook (October 1990) specifically states, "...the presence of controversy does not mean an EIS is automatically required." (Chapter 2, p. 2-8). With regard to precedent, Reclamation always evaluates what is the appropriate level of and approach to NEPA compliance for every potential federal action on a case-by-case basis, by applying the guidance found in its NEPA Handbook and the CEQ regulations. Accordingly, Reclamation does not view its application of NEPA in this case as precedent-setting, but rather the application of our standard procedures to a unique set of facts. Our experience in dealing with other water transfers of CAP allocations or other Reclamation water contracts has been that each proposal is unique. Therefore, we will continue to approach each situation on a case-by-case basis.

- 4-28. This comment is a summary of the preceding comments. Please refer to the previous responses to comments in this letter and the "Response to Comments on the NEPA Compliance Approach", above.

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| ARIZONA |
| CENTER FOR |
| LAW ^N THE |
| PUBLIC |
| INTEREST |

1840 East River Road
Suite 207
Tucson, Arizona 85718-5892
(520) 529-1798
FAX (520) 529-2927

July 11, 1997

BY FAX (602) 395-5723

Phoenix Area Office
ATTN: PXAO-1500
Bureau of Reclamation
P.O. Box 9980
Phoenix, AZ 85068-0980

RE: Draft Environmental Assessment (EA) - Ak-Chin Option and Lease Agreement

We believe that the draft EA is deficient, and that a full Environmental Impact Statement is legally required for the following reasons.

In 1994, the Ak-Chin Community, Del Webb and the United States agreed to an option and lease agreement under which Del Webb would receive between 6,000 and 10,000 acre feet of water per year to supply planned development at the Villages. The agreement expressly provides that no water can be delivered unless Del Webb obtains Final Environmental Clearance from the United States. It further provides that Final Environmental Clearance "will be based upon an analysis of the environmental impacts of the Company's plans for taking and using Leased Settlement Water, in accordance with the National Environmental Policy Act" Agreement ¶ 15 (emphasis added). Contrary to the explicit terms of the agreement, the Bureau is ignoring the environmental impacts of the use of the leased water, and limiting the scope of the environmental analysis to impacts associated with construction of delivery and treatment facilities.

5-1

Not only does such an approach violate the agreement, but also it also violates NEPA. No environmental analysis was prepared at the time the lease agreement was proposed and executed. The public was assured that such an analysis was unnecessary at that time, because the agreement explicitly required an environmental

Letter 5: Response to Comments made by Arizona Center for Law in the Public Interest

- 5-1. Please refer to the "Response to Comments on the NEPA Compliance Approach", above, and pages 1-1 to 1-3 of the EA for an explanation of Reclamation's NEPA approach. Please refer also to responses to comments 3-1 and 4-7 regarding the issue of alternative water supply options presented in Appendix A of the EA.
- 5-2. Please refer to response to comment 4-20 and the "Response to Comments on the NEPA Compliance Approach", above.
- 5-3. The EA evaluates the direct, indirect, and cumulative effects of the proposed action. However, The Villages has been determined not to be an effect of Reclamation's action. Please refer to the "Response to Comments on the NEPA Compliance Approach", above. The EA also summarizes the environmental effects that would result from The Villages development in its analysis of the No-Action Alternative. Please refer generally to Section 3.0, "Affected Environment and Environmental Consequences", of the EA.



United States Department of the Interior

Fish and Wildlife Service
Arizona Ecological Services Field Office
2321 W. Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
(602) 640-2720 Fax (602) 640-2730



Administrative routing stamp with fields for DATE, ROUTE NO., and INITIALS. Includes a date stamp 'JUN 13 1997' and handwritten initials.

In Reply Refer To:
AESO/FA
970579

June 12, 1997

MEMORANDUM

TO: Chief, Environmental Resource Management Division, Bureau of Reclamation, Phoenix, Arizona

FROM: Field Supervisor

SUBJECT: Draft Environmental Assessment (EA) on the Provision of Leased Ak-Chin Indian Community Water to the Del Webb Corporation for Use at The Villages at Desert Hills, Maricopa County, Arizona

The Fish and Wildlife Service has reviewed the subject EA and offers the following comments for your consideration.

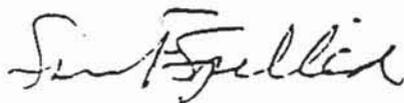
On November 6, 1996, the Service provided a memorandum to your Area Manager regarding scoping issues for this EA. In that memorandum we stated that:

- 1) The Service does not believe the scope of analysis for this EA should exclude the Villages as a consequence of the Federal approval to provide leased CAP water to Del Webb simply because Del Webb has alternative water supplies for their development.
- 2) The Service believes that if Del Webb uses leased CAP water to develop the Villages, the EA will need to include the impacts of that development as a consequence and result of this Federal action.
- 3) The conclusion and result of this Federal action is not only the delivery and treatment facilities, but the use and/or development of the Villages.

6-1

The Service continues to believe this is a Federal action, tiered down from the 1982 CAP Water Allocation and Water Service Contracting Environmental Impact Statement. The Service believes that this proposed action, including the Villages, is not only subject to the National Environmental Policy Act but also subject to the Endangered Species Act of 1973, as amended, and the Fish and Wildlife Coordination Act.

The Service appreciates the opportunity to provide these comments. If you have any questions, please contact Don Metz.

A handwritten signature in cursive script, appearing to read "Sam F. Spiller".

Sam F. Spiller

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (GM:AZ)(AES)
Director, Arizona Game and Fish Department, Phoenix, AZ

Letter 6: Response to Comments made by the U.S. Fish and Wildlife Service

- 6-1. Please refer to the "Response to Comments on the NEPA Compliance Approach", above. Reclamation does not agree with USFWS' position. This EA is not tiered from the 1982 CAP Water Allocations and Water Service Contracting EIS (please refer also to response to comment 4-22). The water being leased under the Option and Lease Agreement is water the Ak-Chin Indian Community received as part of its Water Settlement Act. Although this water is Colorado River water, it has a higher delivery priority than CAP water.

Because the proposed action would not impound or divert, or modify surface streams as described in the Fish and Wildlife Coordination Act (FWCA), Reclamation has determined the FWCA does not apply. The proposed action is subject to the ESA; in compliance with the ESA, Reclamation provided its BA. Impacts from development of The Villages were considered in the BA as part of the analysis of cumulative effects, as required by the ESA. The BA concludes there would be no effect on federally listed threatened or endangered species, including no cumulative effect resulting from The Villages. Formal consultation with USFWS under the ESA is not required. Reclamation has nevertheless provided USFWS a copy of the BA and has solicited, received, and considered USFWS' comments on the proposed action.

LETTER 7

*S*_{ave} *N*_{ew} *R*_{iver} *C*_{oalition}

P.O Box 42033-137
Phoenix, AZ 85080-2033
602-465-2695

WILL THE BUREAU OF RECLAMATION ANSWER THESE QUESTIONS ON THE PUBLIC RECORD?

If Water Options are the Answer:

- ? Where are the **signed, sealed, and delivered** contracts for these other water sources?
- ? Why are the Bureau and Del Webb **wasting** both taxpayer and Federal Agency time and money if they really have four other water sources that don't require citizen or agency review?
- ? How will this not set the **precedent** for everyone else to **get out of having to do an EIS** simply by claiming they have other water sources when they apply to get federally administered CAP water?

7-1

EIS on the Whole Project Being Avoided!

A full Environmental Impact Statement (EIS) is required for federal actions that can result in impacts on the public. **We are the public!** The Ak-Chin lease approval is a federal action! They are required to do a **full-blown EIS!**

7-2

The law says that potential impacts that must be evaluated, among others, are **changes in land use patterns, effects of changes in population growth, changes in population density, increased traffic, increased air pollution, impacts on the quantity and quality of water, negative economic effects, effects on public health or safety, and destruction of ecosystems and wildlife habitats.**

We all know that some of these negative impacts are **already** under way since the approval of this project:

- **Changes in land use patterns:** By getting our land use plan changed for themselves, the **precedent** is set. Other big developers that want to do the same thing can't be turned down anymore.
- **Changes in population growth:** Until Webb got our land use plan changed, the projected population for our area by 2010 was for fewer than 10,000 people. When Webb got their way, the population projection in the land use plan was modified to **over 100,000 people** for our area by 2010!
- **Changes in population density:** Our land use plan previously allowed a maximum of one home per acre until Webb got it changed for themselves to allow **6 to 12 homes per acre**. The **precedent** has been set for the county to continue to approve more of these density changes!

7-3

The remaining impacts are soon on their way in our community:

- **Increased Traffic:** This project alone will put 40,000 more cars on the roads in our area daily.
- **Increased Air Pollution:** This project will ruin our clean air and add to the already serious pollution rating in Maricopa County

- **Quantity and quality of water:** Del Webb can use as much groundwater as they want. hundred of millions of gallons. They can go down to 1,500 feet to get it. What will that do to our well water?
- **Negative economic effects:** Our taxes will go up to pay for the additional 13 schools that will be needed, to pay for additional police and fire protection, and for the enormous infrastructure and freeway expansion costs that will result. We know that Webb won't be paying for these things in the future, just as they haven't been paying their fair share of property taxes all along, at 25 cents an acre per year.
- **Effects on public health or safety:** Violence, drugs, gangs and other crimes from 50,000 more people will endanger our safety and destroy the rural lifestyle of our entire community. Our health will be directly impacted by the destruction of our air quality, and health care costs will rise as a result.
- **Destruction of ecosystems and wildlife habitats:** Del Webb will completely bulldoze and scrape every living thing from the desert floor to build their homes. Even the Draft EA tells us on page 3-4 that "inadvertent release of construction materials, such as fuels and oil-based materials" "...could affect aquatic organisms and wildlife and have downstream impacts."

7-3

- ? Ask them why is Del Webb trying to get out of doing a full EIS on the entire project?
- ? Ask the Bureau officials why they are intentionally violating the law and making it easy for Del Webb to circumvent full environmental compliance?

7-4

We already know why...Because Webb will not get federal approval of the Ak-Chin CAP water lease if they are forced to play by the rules!

Groundwater

Webb can use unlimited amounts of our groundwater. This is fact, not conjecture. The same stipulation "r" that prohibits them from using groundwater for golf courses, residential, commercial, and industrial uses, places no limit on how much groundwater or time they can use to build their water and waste treatment facilities, throughout the property (5,661 acres).

Webb has applied to ADWR to drill 2 more wells on the property to pump 200 acre feet or 65,170,200 gallons of groundwater in just the first two years. They claim they need 150 gallon per minute (gpm) pumping capacity to build the water delivery system.

7-5

- ? What guarantee is there that any well they drill can produce 150 gpm? How many wells will they end up with while looking for that magical pumping power?
- ? Ask them to prove that using 65,170,200 gallons (200 acre feet) of our groundwater just to start with won't have any effect on our wells.
- ? Ask them why they need to pump our groundwater to build a pipeline, when they should be getting the water through the pipeline as they build it!
- ? Ask them why they also need 48,877,650 gallons (150 acre feet) of our groundwater for initial construction and interim public uses as provided in zoning stipulation "r"?

Submit your written comments, concerns, and encouragement for a full-blown EIS on the entire project prior to July 14, 1997 to:

**Mr. Bruce Ellis, Chief, Environmental Resource Management Division
P.O. Box 9980
Phoenix, AZ 85068-0980
Attn: PXA0-1500**

Please contact *SNRC* for more information or to find out how you can help!

602-465-2695

Letter 7: Response to Comments made by the Save New River Coalition

- 7-1. Please refer to the "Response to Comments on the NEPA Compliance Approach", above. The EA presents substantial evidence that at least one of the alternative water supply options, as presented in Appendix A, would be available for The Villages development in the absence of the proposed action. Although Reclamation is aware that finalized contracts to secure the viable water supply options have not been obtained by Del Webb, a reasonable effort has been made to show that other feasible options do exist. It is unreasonable to expect or require that Del Webb obtain multiple finalized contracts solely to demonstrate that water supply options are viable. Please refer also to responses to comments 3-1 and 4-7 regarding Del Webb's preference for the Ak-Chin settlement water and response to comment 4-27 regarding precedence.
- 7-2. Comment noted. Please refer to response to comment 4-1 and the "Response to Comments on the NEPA Compliance Approach", above.
- 7-3. Please refer to response to the "Response to Comments on the NEPA Compliance Approach", above. Reclamation has evaluated the full range of impacts that could result from providing settlement water under the Option and Lease Agreement and construction and operation of the proposed water delivery facilities under the discussion of the Proposed Action in Section 3.0 of the EA and has evaluated effects of The Villages under the No-Action Alternative. Information on The Villages has also been provided under the cumulative impacts discussion because The Villages is part of the background of past, present, and reasonably foreseeable actions against which the incremental effect of the proposed action is measured. Analysis of The Villages' effects includes discussion of effects related to water resources; vegetation, wildlife and special-status species; cultural resources; air quality; noise; traffic and circulation; and land use and visual resources.
- 7-4. Please refer to the "Response to Comments on the NEPA Compliance Approach", above.
- 7-5. The final EA has been modified to include additional information related to interim use of groundwater in The Villages development area under the No-Action Alternative. The June 1997 draft EA did not make complete reference to Stipulation "r" and has been corrected to indicate that except for water needed for construction of the main water delivery pipeline and water and wastewater treatment facilities, the interim pumping of construction groundwater shall not exceed a maximum construction period of 18 months nor a maximum amount of 150 acre-feet (af). Additional interim supplies may be pumped for construction of the pipeline and are currently estimated to be approximately 50 af, although this amount is not restricted by Stipulation "r".

Adverse effects on surrounding wells are unlikely because two primary water-bearing units exist beneath The Villages site, an upper unit from 300 to 700 feet below land surface and a lower unit from 1,100 to 1,500 feet or more below land surface. Separating these two units are poorly permeable horizons of dolomite, clay, silt, and basalt flows. The surrounding residences pump water from wells typically 500 feet in depth from the upper unit. Del Webb would pump interim groundwater for pipeline construction from the lower unit. Because of

the poor permeability of the horizons separating the upper and lower units, no detectable impacts are expected on surrounding wells from Del Webb pumping water for construction. The final EA has been revised to include additional information regarding use of groundwater during construction.

Stipulation "r" as presented in the Plan of Development for The Villages at Desert Hills also states on page 81 that "All interim pumping of groundwater shall comply with ADWR's regulations providing for protection of existing groundwater users in the area. At a minimum this interim supply of groundwater shall be recharged into the aquifer as soon as the recharge facility described in the DMP has been fully permitted and constructed."

LETTER 8

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| OFFICIAL | ACTION BY | |
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| JUL 8 '97 | | |
| DATE | ROUTE TO | INITIALS |
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| CLASSIFICATION | 2001/10 | |
| CONTROL NO. | 9702259 | |
| FOLDER NO. | | |
| UPDATE | 7/25/97 | |
| KEYWORD | 7/25/97 | |

1 July 1997

Mr. Bruce Ellis, Chief
 Environmental Resource Management Division
 P. O. Box 9980
 Phoenix, Arizona 85068-8080

Subject: Draft EA Del Webb/Ak-Chin Water Farce

Dear Mr. Ellis:

The inflated Draft Environmental Assessment which references the option of leased Ak-Chin water to the Del Webb Corp for delivery to the Villages (nay, City) at Desert Hills is institutionalized irresponsibility. What's wrong with doing your job properly for once?

It's irrelevant that the great Del Webb Corporation claims to have other water sources, however fraudulent. What does that have to do with laying waste to some of the best remaining sections of the Great Sonoran Desert in Maricopa County? They won't leave a living thing, flora or fauna, remaining during construction of the high density city with three water-guzzling golf courses.

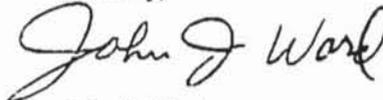
The system is like a vending machine. Giant corporations (developer in this case) put money in one side and out comes, on the other, favorable rulings and legislation from the political establishment. Bureaus should be a buffer between such shameful manipulations, but obviously your agency is in bed with the high-rolling scoundrels.

This is not only a huge (city-making) project, but a precedent for an area with vast areas of state land. In this shameful fiasco, we all saw how easily the developers (nay destroyers) flimflam the politicians.

Ms. Eto exemplified your agency's attitude when she asked my wife, "Why are you doing this. Don't you know you can't win?" Come on!

We demand you do your honest duty for once and order a full EIS (Environment Impact Study.) It's the least you can do.

Sincerely,



John J. Ward

8-1

Letter 8: Response to Comments made by John J. Ward

- 8-1. Your comments on the merits of The Villages development are noted. Please refer also to the "Response to Comments on the NEPA Compliance Approach", above, and response to comment 3-1 related to the issue of preparing an EIS and the availability of alternative water supplies.

To members of the Bureau of Reclamation
 like provided over the meeting at Four River
 Kansas June 28-29.
 My husband and I were very
 pleased of the "New River" group.
 in an opinion of the Red Lake
 reputation, we feel he has done every
 thing possible. He has been very
 the area.
 We attended many meetings, and the
 among our various meetings, the
 separation promised is in general
 regard if they could find a way
 They have agreed to keep their word
 we feel that the project should not
 be held up by any further action.
 Plans for the Village of West Nile
 already in print plan to keep the
 level as indicated as possible, as
 plastic and earth and lined home
 and basement with calm of the dust
 Truck already has gone into what the
 compact will be during and after construction

So out I move to River City, at least

year. We are the result of long form

planning and we enjoy and reap the

benefits everyday. We wish are a

simple job of looking into the future

in 1960

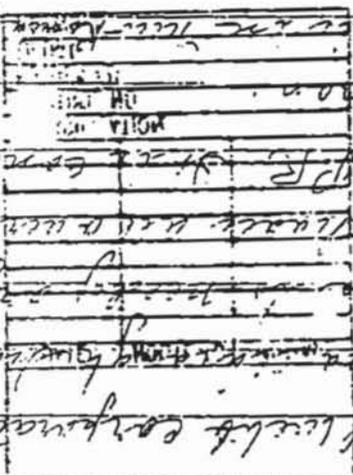
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to take and ~~participate~~ participate are

decision making organization - also

To this account will be in the state. There

is not "PR" that concern for your



-clear man.

There was ~~no~~ no majority

suspending the Village project. They stay

home from the meetings, simply because

of the next acts of a few.

We ask you to have a statement of the

significant impact. There has been

avoided to death. If you want an impact

statement then make our thin apply to

any and all future construction in all the

New River Area.

Sincerely, Joe and Maggie Stout

New River, New River, New River

Letter 9: Response to Comments made by Leo and Margie Stout

9-1. Your comments on the merits of the NEPA process and The Villages development are noted.

Letter 10: Response to Comments made by Robert D. Cocks

- 10-1. Please refer to the "Response to Comments on the NEPA Compliance Approach", above, concerning Reclamation's EA approach and the need for an EIS. The analysis of the effects of provision of settlement water under the Option and Lease Agreement, including construction of the water delivery pipeline, contained in Section 3.0 of the EA, addresses traffic, air quality, noise, water quality, wildlife habitat, cultural resources, land use, and visual resource effects of the proposed action. The EA also provides a summary of the environmental issues related to actions, including development of The Villages, that would occur under the No-Action Alternative. The reference to an Inspector General opinion on the proposed action is in error. No such opinion exists. The comments of the AGFD and USFWS, and Reclamation's response are included in this Appendix (please refer to comment letters 3 and 6).

Appendix G. Cultural Resources Memorandum of Agreement



MEMORANDUM OF AGREEMENT

Whereas, The Ak-Chin Indian Community (AIC) and Del Webb Corporation (Del Webb) have requested the Bureau of Reclamation (Reclamation) to provide leased settlement water to Del Webb under the Ak-Chin Option and Lease Agreement; and

Whereas, Reclamation (Phoenix Area Office) has determined that the provision of leased settlement water under the Ak-Chin Option and Lease Agreement is an undertaking which will have an effect, pursuant to 36 CFR Part 800.9(b), on historic properties eligible for listing on the National Register of Historic Places, and the State Historic Preservation Officer has concurred with this determination; and

Whereas, Reclamation has determined that the undertaking will have an effect on the following eligible properties: archaeological sites AZ:T:4:119, AZ:T:4:121, AZ:T:4:122, AZ:T:4:125, and AZ:T:4:128 (all ASM), and an indirect effect on archaeological site AZ:T:4:124 (ASM); and

Whereas, Reclamation has consulted with the Arizona State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (Council) pursuant to Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) and the Council's implementing regulations 36 CFR Part 800; and

Whereas, the U.S. Army Corps of Engineers (COE), Ak-Chin Indian Community (AIC), Salt River Pima-Maricopa Indian Community (SRPMIC), Gila River Indian Community (GRIC), Tohono O'odham Nation (TON), Yavapai-Prescott Indian Tribe (YPIT), Arizona State Land Department (ASLD), Arizona State Museum (ASM), and Del Webb Corporation (DWC) participated in the consultation and have been invited to concur in this Memorandum of Agreement (MOA); and

Now, Therefore, Reclamation, the SHPO, and the Council agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

Stipulations

Reclamation will ensure that the following measures are carried out:

STIPULATION 1

Development and Implementation of a Historic Property Treatment Plan

Reclamation will ensure that a Historic Property Treatment Plan (HPTP) is developed, in consultation with the Council, the SHPO, and concurring parties. The HPTP shall be consistent with the Secretary of the Interior's *Standards and Guidelines for Archaeology and*

Historic Preservation. It shall be based on the data and results of the Class III (inventory) cultural resource survey, consultation on traditional cultural properties, and field visits to the sites by Reclamation archaeologists, SHPO, tribal representatives, and the developer's archaeological consultant. Reclamation shall submit a draft HPTP to the SHPO, Council, COE, AIC, SRPMIC, GRIC, TON, YPIT, ASLD, ASM, and DWC for a four week (28 days) review period. Reclamation shall ensure that the HPTP is finalized to address comments by those parties and then implemented.

At a minimum the HPTP shall address the following:

- A. Avoidance plan for archaeological site AZ:T:4:124 (ASM) and that portion of site AZ:T:4:119 (ASM) that contains a traditional cultural property (TPC) as defined by tribal representatives.
- B. An archaeological data recovery plan for archaeological sites AZ:T:4:119 excluding the TPC, AZ:T:4:121, AZ:T:4:122, AZ:T:4:125, and AZ:T:4:128 (all ASM). The plan shall include discussion of the following:
 1. Description of the eligible archaeological properties, including an explanation of their significance;
 2. Research topics and questions to be addressed, including theoretical orientation;
 3. Field and analytical methods to be employed;
 4. Data management techniques to be employed; and
 5. Dissemination of data and results of the investigation, including draft and final reports, number of final reports printed, and plans for their distribution;
- C. A plan for the permanent curation of the project archaeological collection, including artifacts, records, data, and other items, in a facility that meets the standards proscribed in 36 CFR part 79, *Curation of Federally-owned and Administered Archaeological Collections*.
- D. A schedule for implementation of the HPTP.
- E. Native American Indian Tribes and Public involvement provisions.
 1. Discussion of the views presented by Indian tribes, individual Native Americans, and the general public on the identification, evaluation, and treatment of historic properties;
 2. Discussion of how their views have been addressed within the HPTP; and
 3. Discussion of the proposed measures for continuing to involve the Native American Indian tribes and the public in the future, including generation of a data recovery report that is geared for the non-professional public
- F. A plan for monitoring the effectiveness of the preservation mechanisms minimizing future adverse effects on the historic properties.

STIPULATION 2
Draft Data Recovery Report Review

Reclamation shall submit a draft technical report resulting from the implementation of Stipulation 1, to the SHPO, Council, COE, AIC, SRPMIC, GRIC, TON, YPIT, ASLD, ASM, and DWC for review and comment. The reviewers shall have forty-five (45) days to respond to Reclamation with comments. Failure to respond by any party within the comment period shall not prohibit Reclamation from finalizing the report. Reclamation shall ensure that comments received during the comment period are addressed in the final published version of the report.

STIPULATION 3
Treatment of Human Remains and Associated Funerary Objects

Treatment of human remains and associated funerary objects shall follow the requirements and specifications contained in an agreement document prepared under Arizona Law A.R.S. 41-865. An agreement shall be finalized for any data recovery, or any feature studies. Human remains shall not be disturbed prior to this agreement being in place.

STIPULATION 4
Discovery of Unknown Cultural Resources

Reclamation shall ensure that a plan for the treatment of historic properties discovered during ground disturbing activities is prepared and implemented as part of the HPTP.

If cultural deposits are discovered during the project ground disturbing activities, Del Webb shall cause a temporary halt to those activities that may affect such deposits, and take steps to ensure that the area of the discovery is protected and secured as specified in the plan, and shall immediately notify Reclamation. Reclamation shall, within 72 hours, notify the Council, SHPO, and concurring parties of the nature of the discovery and the proposed treatment, which shall be in accordance with to the HPTP-Discovery Plan; written confirmation will follow within seven (7) days from the discovery. Reclamation shall seek comment from all parties on the proposed treatment plan. Reclamation shall ensure that the treatment plan is then implemented, but no later than seven (7) days from the notification to Reclamation.

In addition, discoveries made during project ground disturbing activities on state land, including discoveries of human remains, shall be treated according to Arizona Law A.R.S. §41-844.

STIPULATION 5
Curation

Reclamation shall ensure that all materials and records resulting from the implementation of this agreement are curated in accordance with 36 CFR Part 79, except where an alternative

plan for disposition of human remains and associated funerary objects is developed in accordance with Stipulations 3 and 4.

STIPULATION 6
Archaeological Report Dissemination

Reclamation shall ensure that all final archaeological reports resulting from actions pursuant to this agreement will be provided to the Council, SHPO, concurring parties and interested public. Reclamation shall ensure that the reports are responsive to contemporary professional standards, and to the Department of the Interior's *Format Standards for Final Reports of Data Recovery Program* (42 FR 5377-79).

STIPULATION 7
Professional Qualifications

Reclamation shall ensure that all historic preservation work carried out pursuant to this agreement is conducted by or under the supervision of a person(s) meeting the minimum requirements for professional historic preservation personnel described in the *Secretary of the Interior's Professional Qualifications Standards* (48 FR 44738-44739).

STIPULATION 8
Dispute Resolution

Should any party to this agreement, Native American Indian Tribe, or member of the public object within 30 days to any actions proposed or carried out pursuant to this agreement, Reclamation shall consult with the objecting party to resolve the objection. Reclamation shall notify the SHPO of any objection. If Reclamation determines that the objection cannot be resolved, Reclamation shall forward all documentation relevant to the dispute to the Council. Within 30 days after receipt of all pertinent documentation, the Council will either:

- a. Provide Reclamation with recommendations, which Reclamation will take into account in reaching the final decision regarding the dispute; or
- b. Notify Reclamation that it will comment pursuant to 36 CFR Part 800.6 (b), and proceed to comment. Any Council comment provided in response to such a request will be taken into account by Reclamation in accordance with 36 CFR Part 800.6(3)(2) with reference to the subject of the dispute.

Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; Reclamation's responsibility to carry out all actions under this agreement that are not subject of the dispute will remain unchanged.

STIPULATION 9
Amendment of this Agreement

Reclamation, the Council, or the SHPO, may request that the MOA be amended, whereupon they will consult in accordance with 36 CFR Part 800.5(e)(5).

STIPULATION 10
Termination of this Agreement

Reclamation, the Council, or the SHPO may terminate the MOA by providing thirty (30) days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, Reclamation will comply with 36 CFR Part 800.4 through 800.6.

Execution of this Memorandum of Agreement and implementation of its terms evidence that Reclamation has afforded the Council an opportunity to comment on The Villages at Desert Hills Development and its effects on historic properties, and that Reclamation has taken into account the effects of the undertaking on historic properties.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: *John Fowler* Date: 10/29/97
John Fowler, Executive Director

BUREAU OF RECLAMATION

ACTING By: *Thomas G. Burbey* Date: 10/8/97
Thomas G. Burbey, Area Manager, Phoenix Area Office

ARIZONA STATE HISTORIC PRESERVATION OFFICER

By: *James W. Garrison* Date: 10/9/97
James Garrison, State Historic Preservation Officer

CONCUR

U.S. ARMY CORPS OF ENGINEERS

By: _____ Date: _____
Robert L. Davis Colonel, Corps of Engineers, District Engineer

AK-CHIN INDIAN COMMUNITY

By: _____ Date: _____
Honorable William Antone, Chairman

SALT RIVER PIMA-MARICOPA INDIAN COMMUNITY

By: _____ Date: _____
Honorable Ivan Makel, President

GILA RIVER INDIAN COMMUNITY

By: _____ Date: _____
Honorable Mary Thomas, Governor

TOHONO O'ODHAM NATION

By: _____ Date: _____
Honorable Edward D. Manuel, Chairman

YAVAPAI-PRESCOTT INDIAN TRIBE

By: _____ Date: _____
Honorable Stan Rice, Jr., President

ARIZONA STATE LAND DEPARTMENT

By: _____ Date: _____
J. Dennis Wells, State Land Commissioner

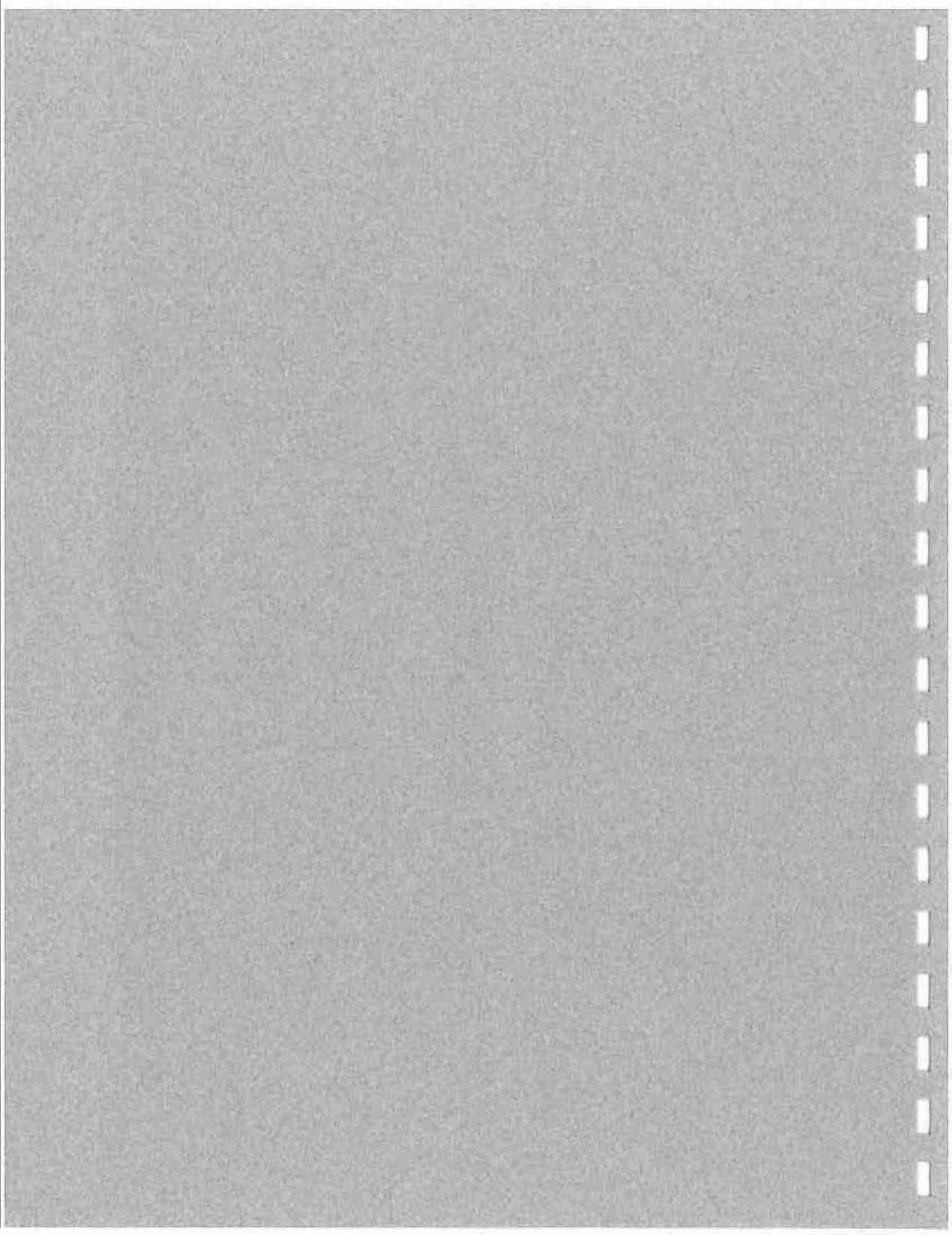
ARIZONA STATE MUSEUM

By: _____ Date: _____
Dr. George J. Gurnerman, Director

DEL WEBB CORPORATION

By: _____ Date: _____
Anne L. Mariucci, Senior Vice-President

Appendix F. Common Conversion Factors to Metric Units



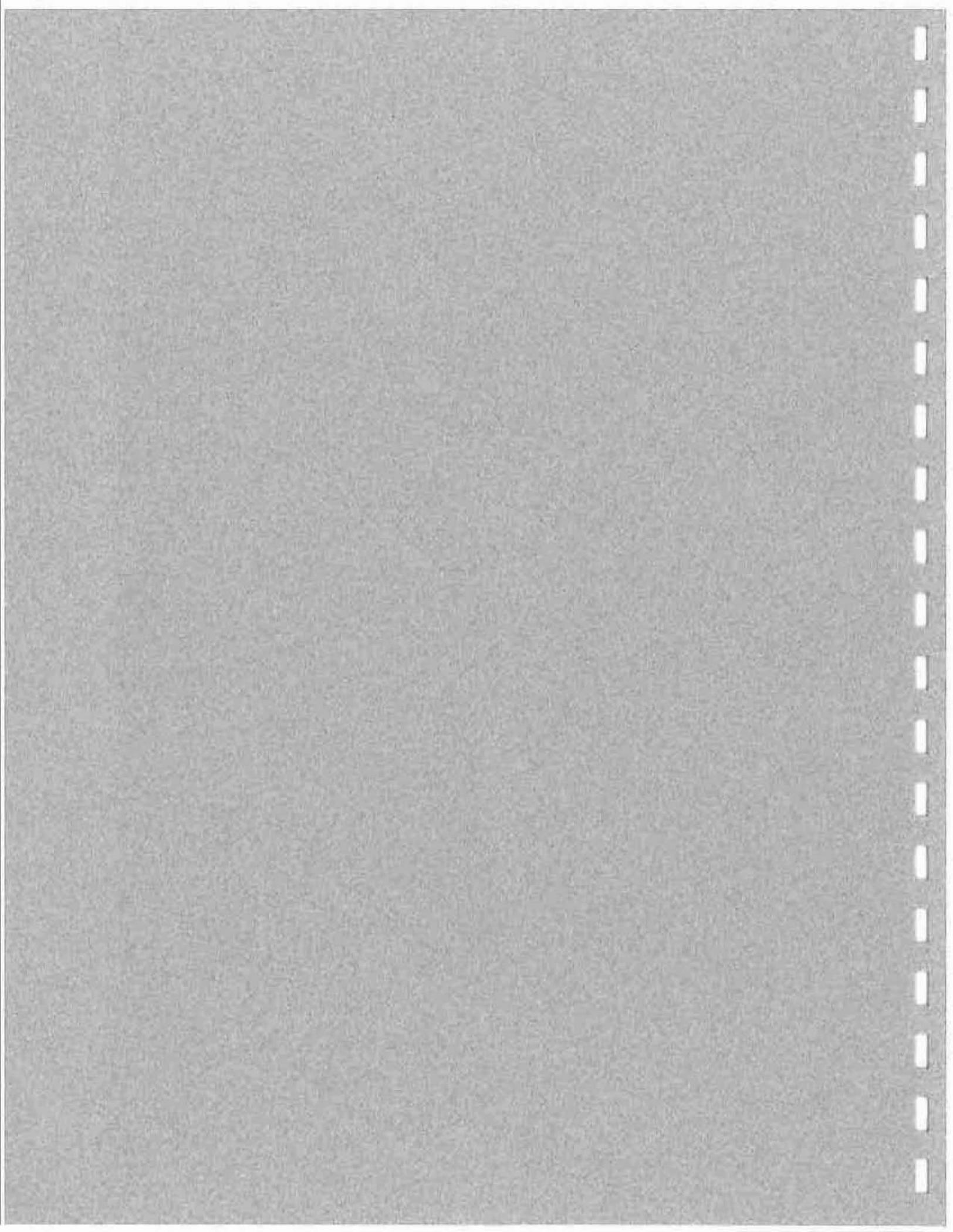
Common Conversion Factors to Metric Units

| Class | Multiply: | By: | To Get: |
|-------------|--|--------------------------------|-------------------------------------|
| Area | acre | 4047.0 | m ² |
| | acre | 0.4047 | ha (10 000 m ²) |
| | ft ² | 0.0929 | m ² |
| | yd ² | 0.8361 | m ² |
| | mi ² | 2.590 | km ² |
| Length | ft | 0.3048 * | m |
| | in | 25.4 * | mm |
| | mi | 1.6093 | km |
| | yd | 0.9144 * | m |
| Volume | ft ³ | 0.0283 | m ³ |
| | gal | 3.785 | L ** |
| | fl oz | 29.574 | mL ** |
| | yd ³ | 0.7646 | m ³ |
| | acre ft | 1233.49 | m ³ |
| Mass | oz | 28.35 | g |
| | lb | 0.4536 | kg |
| | kip (1,000 lb) | 0.4536 | tonne (1000 kg) |
| | short ton (2,000 lb) | 907.2 | kg |
| | short ton | 0.9072 | tonne (1000 kg) |
| Density | lb/yd ³ | 0.5933 | kg/m ³ |
| | lb/ft ³ | 16.0185 | kg/m ³ |
| Pressure | psi | 6894.7 | Pa |
| | ksi | 6.8947 | MPa (N/mm ²) |
| | lb/ft ² | 47.88 | Pa |
| Velocity | ft/s | 0.3048 * | m/s |
| | mi/h | 0.4470 | m/s |
| | mi/h | 1.6093 | km/h |
| Light | footcandle (lumen/ft ²) | 10.764 | lux (lx) (lumen/m ²) |
| Temperature | °F | $t_{°C} = (t_{°F} - 32) / 1.8$ | °C |

* Exact

** Both "L" and "l" may be used for liter. However, "L" is preferred so as not to be confused with the numeral "1".

**Appendix E. Application for Earth Moving Permit,
Demolition, and Dust Control Plan**





Application for Earth Moving Permit, Demolition & Dust Control Plan

Applicant: Owner/Operator/ Leasee General/Prime Contractor Developer

Legal Business Name: _____

Address: _____

City/State/Zip: _____

Phone: _____ Fax: _____

Primary Contact Person: _____

| FOR OFFICE USE ONLY | |
|---------------------|-------|
| Dist. \$ | _____ |
| NOV \$ | _____ |
| Permit \$ | _____ |
| Date Issued | _____ |
| Fee Paid | _____ |
| Approved by | _____ |
| PO | Mail |

Title _____ Pager/Mobile Phone _____ Onsite Phone _____ Offsite Phone _____

Property Owner/General Contractor _____

Phone _____ Contact Person _____ Title _____

Project Location/Street Address _____
 Nearest Major Intersection: _____ City _____

Legal Description (from Phoenix Metropolitan Map Book): Township _____ Range _____ Section _____

Size of Project in Acres (include staging and stockpile areas: _____ Project Start Date: _____

Fee Schedule:

| Total Surface Area Disturbed: | Fee |
|-------------------------------|-------------------------------|
| 0.1 to less than one acre | \$ 65.00 |
| One to less than five acres | \$110.00 |
| Five acres or greater | \$ 8.00 per acre plus \$80.00 |

Brief description of the project: _____

Type of Project (mark all applicable codes):

- Residential (RD) Commercial/Industrial (CD) Road Work (RC) Temporary Storage/Yard (TS)
 Trenching (TR) Site Preparation/Land Dev (SP) Weed Control (WC) Demolition (DE)

For renovation or demolition activities the following information is required:

| | | |
|--|-----------------------------------|--|
| Is asbestos present? _____ | AHERA Determination made by _____ | Date _____ |
| Has 10 Day NESHAP Notification been submitted? _____ | If Yes, date: _____ | Copy of 10 Day Notification attached? <input type="checkbox"/> Yes <input type="checkbox"/> No Start Date: _____ |

In accordance with Rule 310, Section 401.2, a plot plan is required. Provide a plot plan sketch on 8 1/2 in. by 11 in. paper which includes the total area to be disturbed. Indicate sources of fugitive dust emissions on the plot plan, including delivery, transport, and storage areas. Be sure to include linear dimensions in feet on plot plan. Pursuant to Rule 310, Section 303, a dust control plan is required with any earthmoving application.

Additional measures and comments may be attached to this form. Pursuant to Rule 310, Section 503, records of actual implementation or application of these measures must be maintained daily and kept on site and made available upon request by the Control Officer or designee. The records must be retained for at least 3 years by the permittee.

DUST CONTROL PLAN

Choose at least one measure as a primary RACM (Reasonably Available Control Measure) per category. Unless designated, any other control measure in the category will be considered a contingency or back-up control measure. You may prepare your own plan to submit by following the guidelines in Rule 310, Section 401.

Earthmoving / Demolition (ie., trenching, rough grading, final grading, landscaping, material handling)

- Conduct watering as necessary to prevent visible emissions
- Prewet site
- Cease operations (contingency only, cannot be used as a primary RACM)

Disturbed surface areas

On the last day of active operations and when active operations will not occur for not more than fifteen days:

- Apply chemical stabilizers. Reapply as necessary to maintain stabilization.
- Apply water to all unstabilized disturbed areas 3 times per day
- Install wind fences/screens
- Construct berms

Within 8 months of the last day of active operations:

- Pave the affected area
- Physical stabilization with gravel/recycled asphalt
- Physical stabilization with vegetation

Unpaved roads

- Stabilize with gravel/recycled asphalt
- Apply chemical stabilizers to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface
- Water all roads used for any vehicular traffic as needed to control emissions
- Water all roads used for any vehicular traffic at least once daily and restrict vehicle speeds to 15 miles per hour

Open storage piles

- Apply chemical stabilizers
- Apply water to the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust
- Install temporary coverings/enclosures

Access points

- Install a stabilized construction entrance/gravel pad (Required for all access points on sites of 5 acres or more)
- Install a wheel washer
- Limit, restrict, reroute motor vehicle access
- Vacuum/ Wet broom daily

Hauling

- Haul trucks carrying bulk materials must be tarped

Describe available water supply, distance from worksite, method of application, & water storage:

I certify that I am familiar with the operations presented in this application and agree to conduct all operations related to the worksite in compliance with the above dust control plan, Rule 310, any permit conditions and all applicable environmental regulations.

Signature of Responsible Official _____

Print Name & Title _____

(The responsible official is an officer or designated signer from the company named as applicant. If a designated signer is used, a written designation signed by an officer shall be on file with this office.)

Construction Checklist
Daily Recordkeeping for Compliance with Rule 310: Fugitive Dust

Project (as listed on earthmoving equipment permit) : _____

| Yes | No | Does Not Apply | |
|-----|-----|-------------------|---|
| [] | [] | | Is the dust control plan and earthmoving equipment permit on site? |
| [] | [] | | Are the control measures listed in the dust control plan installed on the site and being implemented? |
| [] | [] | [] | If the site is greater than 5 acres, are gravel pads installed at all access points? |
| [] | [] | | Are construction on-site traffic routes and parking restricted to areas specifically designated for those uses? |
| [] | [] | | Is there any evidence of sediment, debris or mud on public roads at site access points? |
| [] | [] | | Was any sediment, debris or mud cleaned by a sweeper truck or manually cleaned from the public road in the last 24 hrs? |
| [] | [] | | Are records of cleaning/sweeping activities available? |
| [] | [] | | Is there sufficient water available for dust control on site? |
| [] | [] | | Are records available confirming amount of water purchased and amount applied? |

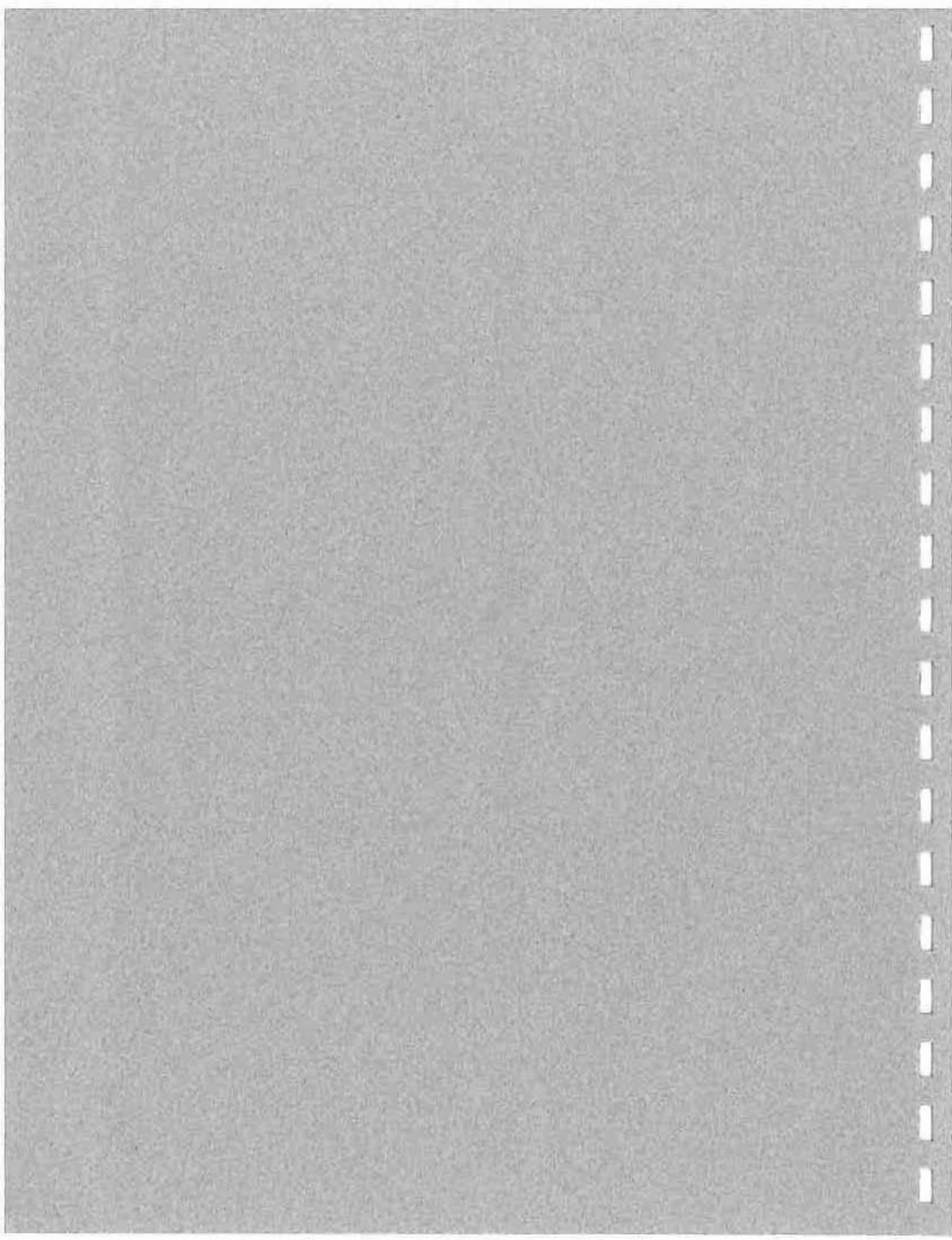
List any corrective action taken: _____

Name & Signature of Employee/ Contractor

Date

Name of Company

Appendix D. Biological Assessment



**Biological Assessment for the
Ak-Chin Option and Lease Agreement
Water Delivery Facilities**

Prepared for:

U.S. Bureau of Reclamation
Phoenix Area Office
Phoenix, AZ 85068-0908
Contact: Dr. Brian Mihlbachler
602/395-5695

Prepared by:

Jones & Stokes Associates, Inc.
2600 V Street, Suite 100
Sacramento, CA 95818-1914
Contact: Stephanie Meyers
916/737-3000

June 1997

INTRODUCTION

The Ak-Chin Indian Community, United States of America, and Del Webb Corporation (Del Webb) have entered into an Option and Lease Agreement that would allow the Ak-Chin Indian Community to lease between 6,000 and 10,000 acre-feet per year (af/yr) of water to Del Webb for 100 years. In December 1996, Del Webb chose to exercise its option for 10,000 af/yr. Delivery of water under the Option and Lease Agreement requires final environmental clearance from the Bureau of Reclamation (Reclamation), including compliance with the Endangered Species Act.

Del Webb plans to transport the leased water by constructing a 9-mile-long pipeline from Waddell Canal south of Lake Pleasant to a future 5,661-acre master planned community—The Villages at Desert Hills (The Villages)—that would be located approximately 3 miles north of the Carefree Highway (State Route 74) and 7 miles east of Lake Pleasant in Maricopa County (Figure 1). The Villages would have a maximum of 16,526 residential units: predominantly single-family detached homes built in low to medium densities. The planned average density for the entire project, including some high density units, is 2.9 dwelling units per acre. Approximately 38% (2,150 acres) of the development would be retained as open space (e.g., natural areas, parks and playfields, golf courses, and equestrian trails). The Development Master Plan also calls for the preservation of major ephemeral drainages and hillsides with slopes greater than 15%.

In compliance with Section 7 of the Endangered Species Act of 1973, as amended, this Biological Assessment has been prepared to analyze the anticipated impacts on threatened and endangered species that may result from Reclamation's approval of the Option and Lease Agreement. Direct and indirect effects are reviewed for the pipeline construction, as well as possible cumulative impacts from The Villages development.

PROJECT DESCRIPTION

Reclamation proposes to provide leased settlement water under the Option and Lease Agreement to Del Webb for municipal and industrial use. Del Webb would construct water transmission facilities that would extend from Waddell Canal below Lake Pleasant to a new water treatment plant at The Villages. Pipeline facilities would consist of a buried pipeline with a turnout structure, pumping plant, and above-ground storage tanks at the terminus of the pipeline. The transmission pipeline and appurtenant facilities would be designed to deliver 10,000 af/yr of surface water. The water delivery system would eventually be connected to a distribution system that would serve The Villages development.

EXISTING RESOURCES

Pipeline Corridor: Waddell Canal to The Villages

Four habitat types are found in the pipeline corridor: Sonoran Desertscrub (Brown 1982), xeroriparian scrub, seasonal drainages, and disturbed areas (Figure 2). See Appendix B of the Environmental Assessment for a list of common and scientific names of plant and wildlife species mentioned in the text.

Sonoran Desertscrub Plant Community

The proposed pipeline corridor and treatment plant would encompass approximately 94.5 acres of Sonoran Desertscrub habitat (Lower Colorado River Valley Subdivision) (Figure 2), assuming the corridor would be 100 feet wide. The desertscrub community occurs on the proposed pumping station site on Waddell Canal and continues along the transmission tower alignment to its intersection with the former Reclamation haul road. This community also exists on both sides of the former Reclamation haul road and is found east of New River and the volcanic hills in the southern portion of Section 21. The proposed 44-acre water treatment plant site is also within this habitat type.

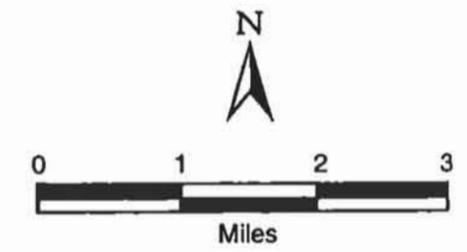
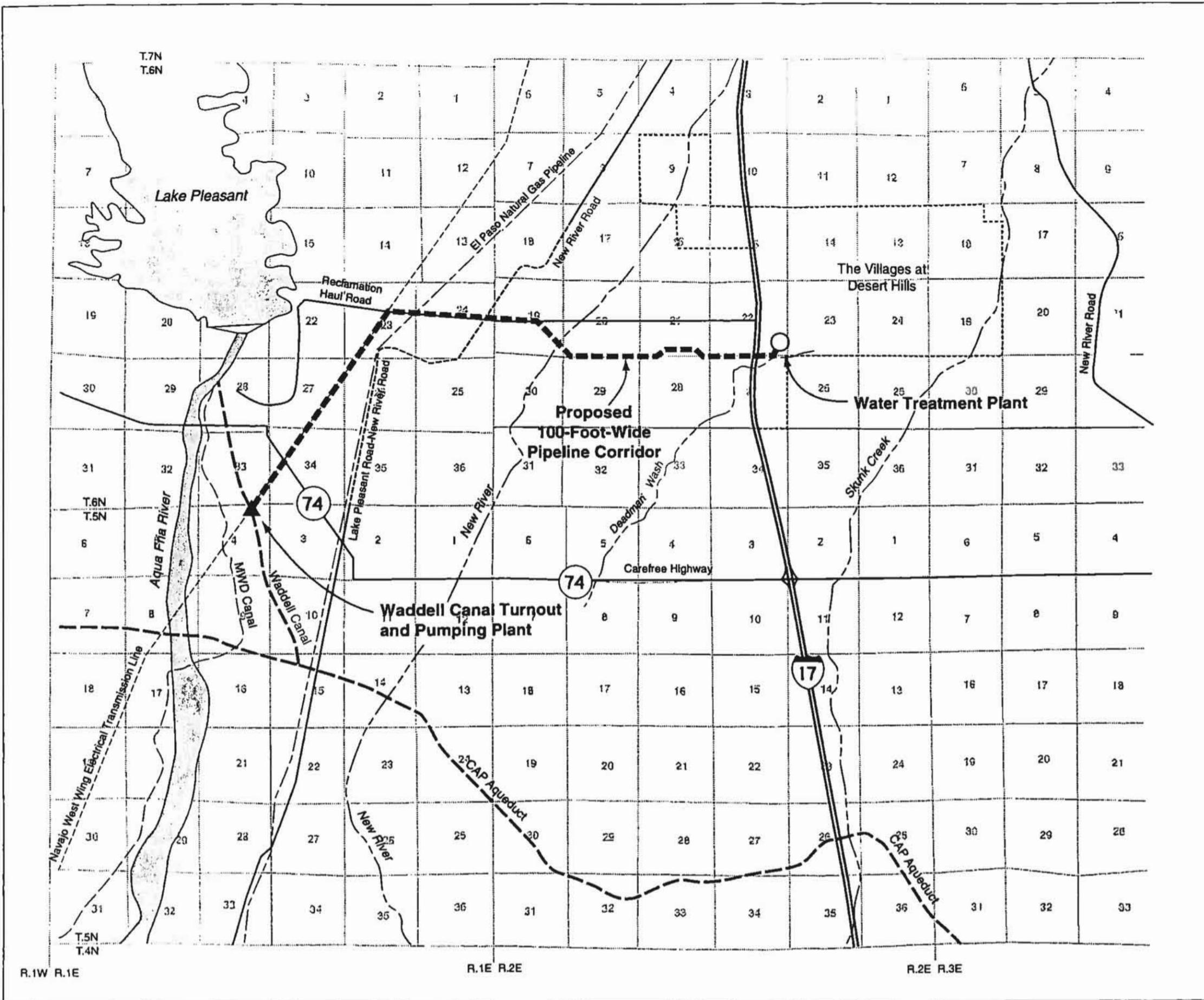
Vegetation

Sonoran Desertscrub occurs on the relatively undisturbed uplands within the pipeline corridor. Dominant plant species include cholla cacti, creosote bush, velvet mesquite, ironwood, saltbush, foothill palo verde, triangle-leaf bursage, and brittle bush. Annual grasses account for most of the understory ground cover because of heavy grazing in the area.

Wildlife

The desertscrub community provides habitat for a variety of common wildlife species, including desert cottontail, gila woodpecker, northern flicker, verdin, white-crowned sparrow, ruby-crowned kinglet, and black-throated sparrow. Signs of coyote, mule deer, and ringtail have also been observed (Jones & Stokes Associates 1996, SWCA 1997).

Figure 1
Proposed Water Delivery Facilities
under the Ak-Chin Option
and Lease Agreement

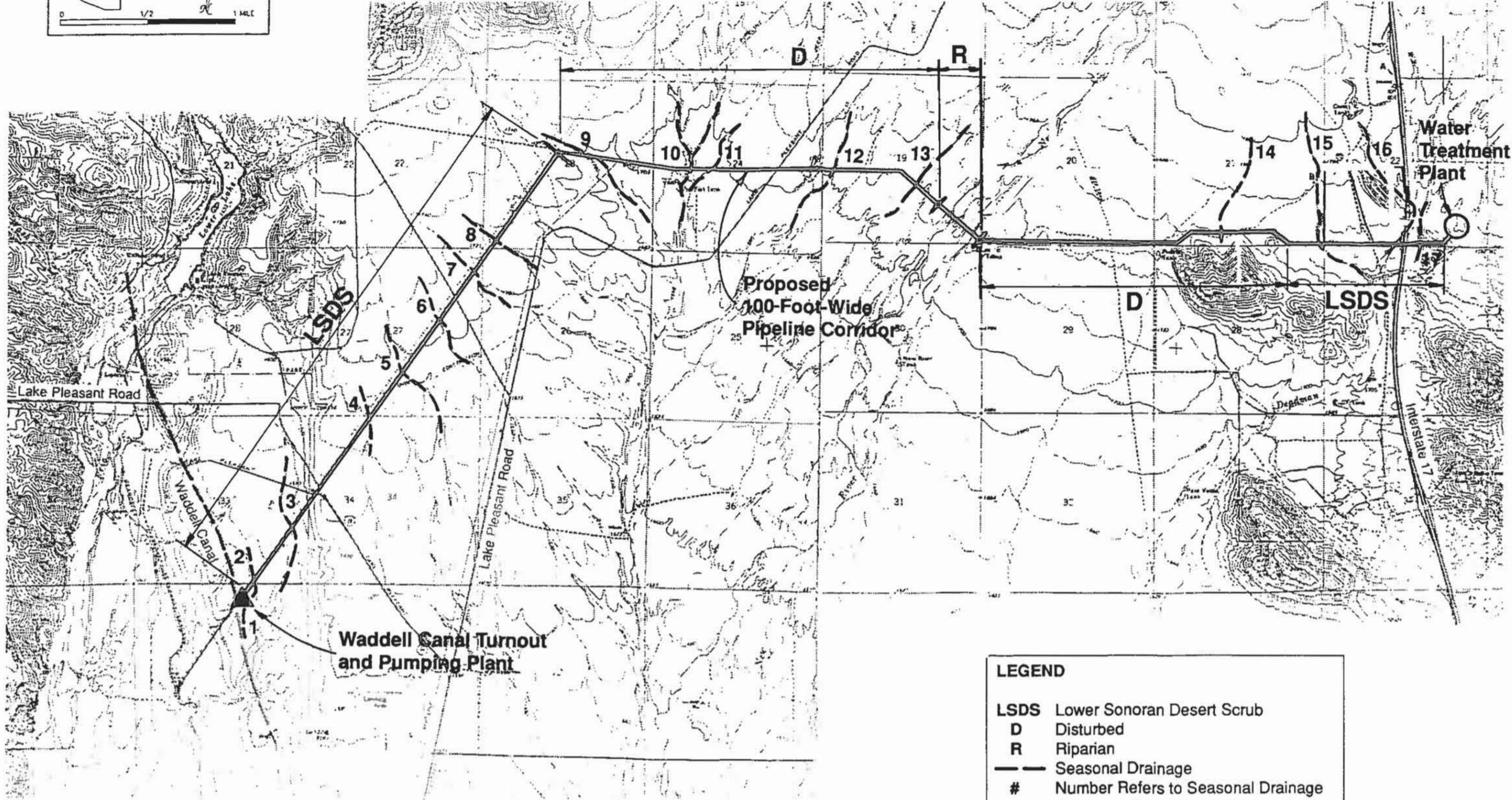
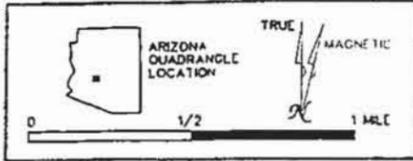


R.1W R.1E

R.1E R.2E

R.2E R.3E

Figure 2
Habitat Types and Seasonal Drainages



LEGEND

| | |
|-------------|---|
| LSDS | Lower Sonoran Desert Scrub |
| D | Disturbed |
| R | Riparian |
| | Seasonal Drainage |
| # | Number Refers to Seasonal Drainage Crossings Described in Table 3-1 |

Disturbed Habitats

The proposed pipeline corridor would cross approximately 47.5 acres of disturbed habitat along the haul road, at the Reclamation borrow site, and east of New River (Figure 2).

Vegetation

The haul road and borrow area are dominated by brittle bush, four-wing saltbush, desert holly, Russian thistle, and triangle-leaf bursage. Areas west of New River are heavily disturbed and generally devoid of native vegetation.

Wildlife

The disturbed habitat lacks the diversity of plant species and amount of cover required by many wildlife species, but black-tailed hares, mourning doves, black-throated sparrows, horned larks, and foraging red-tailed hawks have been observed along the haul road. Many of the same wildlife species that occur in desertscrub habitats would be expected to occur occasionally in the disturbed areas because these habitats are adjacent to one another.

Seasonal Drainages

The proposed pipeline alignment would cross 17 seasonal drainages (2 of the crossings are at different locations in the same drainage [16 and 17]); therefore, a total of .27 acre would be affected (Figure 2).

Vegetation

Common trees and shrubs observed in the seasonal drainages include catclaw acacia, foothill palo verde, velvet mesquite, creosote bush, and triangle-leaf bursage. Drainages range from 1 to 15 feet wide; most are 10 feet wide or less. The five drainages crossing the haul road and borrow area were substantially altered during Reclamation's earlier construction activities and, therefore, support only sparse native vegetation.

Wildlife

The seasonal drainages provide a temporary water source for wildlife species, but probably do not contain standing water for sufficient durations to support amphibian breeding. Seasonal drainages provide more cover than the surrounding desert scrub or disturbed habitats and can be important movement corridors for wildlife species.

Xeroriparian Scrub Habitat

The proposed pipeline corridor would cross approximately 5.75 acres of xeroriparian scrub habitat in the New River channel (Figure 2).

Vegetation

The New River channel is a mosaic of sandy and rocky substrates that are sparsely vegetated and subject to periodic scouring flows. Common plants include burro brush, canyon ragweed, sweetbush, and desert broom. Vegetation on small islands in the channel and on the western bank of New River is more dense and diverse. Species occurring in these areas include catclaw acacia, brittle brush, creosote bush, triangle-leaf bursage, canyon ragweed, desert broom, and foothill palo verde. Saguaros occur in low densities between the former Reclamation haul road and the west bank of New River. The east bank of New River is heavily disturbed and the sparse vegetation is predominantly comprised of weedy annual species.

Wildlife

Wash habitats, such as New River, are important to wildlife because they add diversity to the landscape. Riparian and wash areas provide water, thermal and hiding cover, movement corridors, and a greater diversity of nesting and feeding habitats for wildlife species. Common species found in washes include phainopepla, warblers, mourning dove, northern flicker, Gila woodpecker, bats, black-tailed jackrabbit, and desert cottontail.

The proposed pipeline corridor is located south of previously proposed critical habitat for the cactus ferruginous pygmy-owl, as listed in the December 12, 1994, Federal Register (59 FR 63975-63986). A Final Rule, published March 10, 1997, in the Federal Register (62 FR 10730-10746) stated, however, that designation of critical habitat in Arizona for the cactus ferruginous pygmy-owl was not prudent.

The Villages at Desert Hills

Vegetation

The 5,661-acre area proposed for development of The Villages master planned community is covered by relatively undisturbed Sonoran Desertscrub habitat, including large expanses of both the Arizona Upland and Lower Colorado River Valley Subdivision (Brown 1982) (Figure 3). Dominant upland plants include velvet mesquite, foothill palo verde, triangle-leaf bursage, creosote bush, brittle bush, and cholla cacti. Several ephemeral washes with velvet mesquite, ironwood, desert broom, catclaw acacia, wolfberry, burro bush, blue palo verde, and bristlebush also occur on the property (SWCA 1994). Upland habitats cover approximately 90% (5,094 acres) of the area, and xeroriparian habitats cover approximately 10% (567 acres) (SWCA 1994). In 1993, a wildfire burned 13% of the site, affecting mostly upland habitat. Hohokam agave, a state-protected species, has been located in low densities on portions of the area.

Wildlife

A wide variety of common wildlife species frequently observed in Sonoran Desertscrub habitat have been documented on The Villages property (SWCA 1994). In addition, special-status wildlife species, such as the desert tortoise, ferruginous hawk, and California leaf-nosed bat, are known or expected to utilize habitats of the area (SWCA 1994).

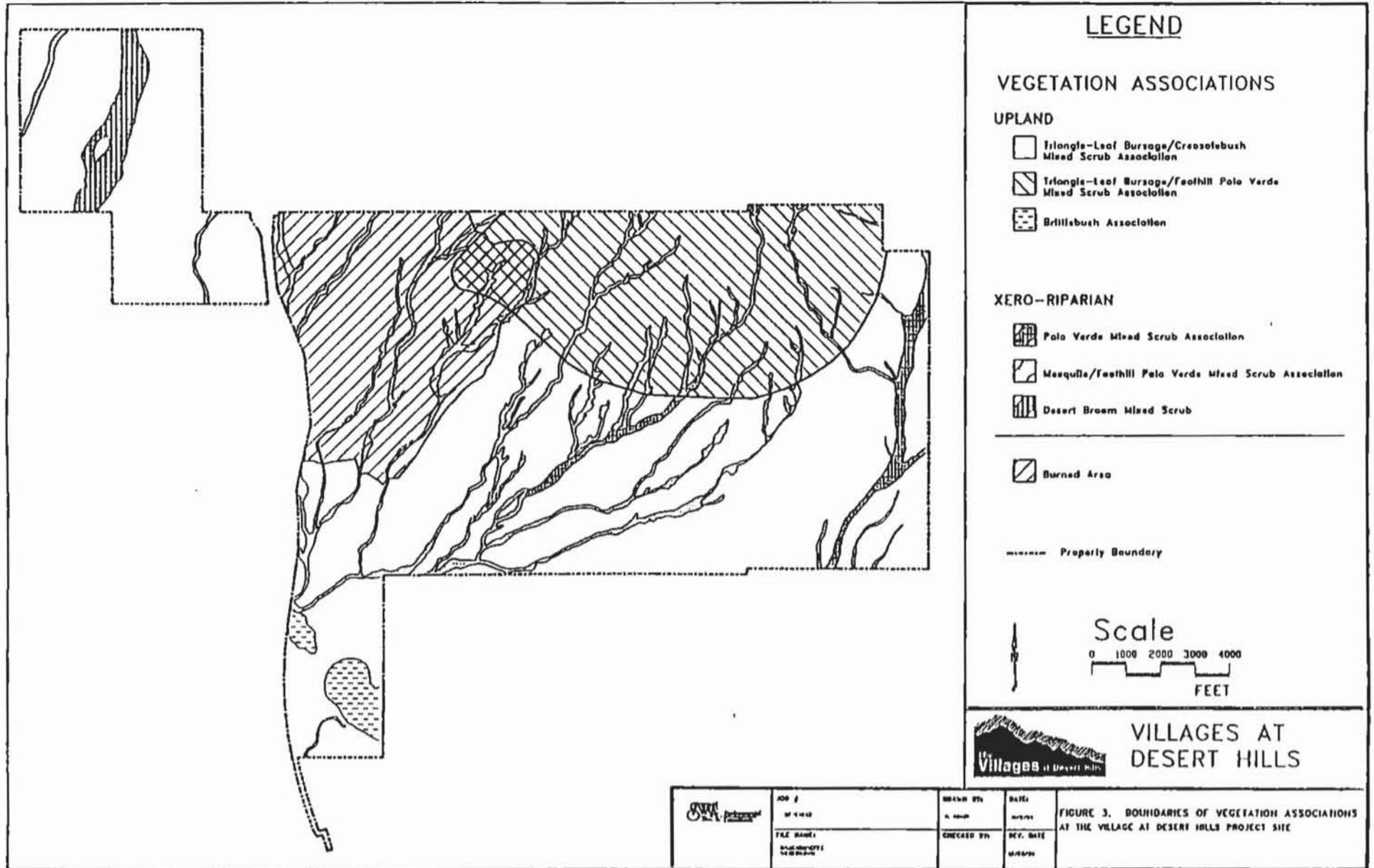
SPECIES OF CONCERN

In accordance with Section 7(c) of the Endangered Species Act of 1973, as amended, Reclamation requested from the Fish and Wildlife Service a list of all endangered, threatened, and proposed species that may occur in the project area (Maricopa County)(see Appendix C of the Environmental Assessment). Four species were subsequently determined to have the potential to occur along the pipeline alignment or on The Villages property: American peregrine falcon, bald eagle, cactus ferruginous pygmy-owl, and southwestern willow flycatcher.

Analysis

A comparison of the habitats observed along the pipeline alignment with the habitat needs of the federally listed species indicates that no suitable habitat or resources for these species occur in the area. The American peregrine falcon, a wide-ranging migratory bird, is a possible transient in the area, but a lack of water and nesting habitat (cliffs and steep slopes) would limit its use of the affected habitat. Bald eagles nesting at the upper end of Lake Pleasant could occasionally forage in the vicinity of the proposed pumping plant, but they are not expected to be affected by the proposed pipeline because no bald eagle nesting or foraging habitat would be directly affected. No suitably

Figure 3



dense upland or riparian habitat for the southwestern willow flycatcher or cactus ferruginous pygmy-owl exists along the proposed pipeline corridor. Field surveys in 1994 and 1995, which used the established survey protocol, also failed to locate pygmy-owls along the pipeline alignment at New River (SWCA 1996, 1997).

Suitable nesting and breeding habitat for the American peregrine falcon and bald eagle does not occur on The Villages development site; however, these species could be transitory through the area. Although several large desert washes occur across the site, dense riparian habitat capable of supporting southwestern willow flycatchers is absent. Potential habitat for the cactus ferruginous pygmy-owl does occur within some xeroriparian habitats on The Villages development site, but field surveys have not documented the presence of this species (SWCA 1994, 1996). Some uplands adjacent to the xeroriparian habitat do support a higher density of ironwood and saguaro; a common characteristic of known pygmy-owl habitats around Tucson, Arizona. However, overall plant density and vertical canopy structure is significantly lower than documented in the pygmy-owl habitats near Tucson.

CONCLUSIONS

Based on field surveys, literature reviews, and on-site habitat assessments, Reclamation has determined that approval of the water lease agreement among the Ak-Chin Indian Community, United States of America, and Del Webb, and construction of a water delivery pipeline from the Waddell Canal to The Villages would not affect federally listed species. No direct or indirect impacts on listed species would occur from construction of the pipeline because no suitable habitat for these species is present in the area. Furthermore, cumulative impacts from the development of The Villages are not anticipated because no suitable habitat is present for the American peregrine falcon, bald eagle, and southwestern willow flycatcher, and field surveys have located no cactus ferruginous pygmy-owls in the area.

CITATIONS

- Brown, D. E.(ed.). 1982. Biotic communities of the American Southwest-United States and Mexico. Desert Plants, Vol. 4, Nos. 1-4.
- Jones & Stokes Associates, Inc. 1996. Biological resources survey for the Del Webb pipeline corridor. Unpublished survey data. Sacramento, CA.
- SWCA. 1994. Biological evaluation of the proposed Villages at Desert Hills project site, Maricopa County, Arizona. December 29. Report submitted to Del Webb Corporation, Phoenix, AZ.

_____. 1996. Results of cactus ferruginous pygmy-owl survey along the proposed pipeline alignment for the Desert Hills off-site water supply system. Technical memorandum. December 12. Prepared for Del Webb Corporation, Phoenix, AZ.

_____. 1997. Biological survey of the new pipeline alignment. Technical memorandum. January 29. Prepared for Del Webb Corporation, Phoenix, AZ.

**Attachment A. Common and Scientific Names of Plant and Animal Species Mentioned in
the Biological Assessment**

Plants

| Common Name | Scientific Name |
|--------------------------|--|
| Barrel cactus | <i>Ferocactus wislizenii</i> ^a |
| Beavertail | <i>Opuntia basilaris</i> |
| Brittle bush | <i>Encelia farinosa</i> |
| Burro brush | <i>Hymenoclea salsola</i> |
| Canyon ragweed | <i>Ambrosia ambrosioides</i> |
| Catclaw acacia | <i>Acacia greggii</i> var. <i>arizonica</i> |
| Creosote bush | <i>Larrea tridentata</i> |
| Desert broom | <i>Baccharis sarathroides</i> |
| Desert holly | <i>Atriplex hymenelytra</i> |
| Englemann's prickly pear | <i>Opuntia phaeacantha</i> ^a |
| Foothill palo verde | <i>Cercidium microphyllum</i> ^b |
| Four-wing saltbush | <i>Atriplex canescens</i> |
| Ironwood | <i>Olneya tesota</i> |
| Russian thistle | <i>Salsola iberica</i> |
| Saguaro | <i>Cereus giganteus</i> ^a |
| Saltbush | <i>Atriplex</i> sp. |
| Strawberry hedgehog | <i>Echinocereus engelmannii</i> ^a |
| Sweet bush | <i>Bebbia juncea</i> |
| Teddy bear cholla | <i>Opuntia bigelovii</i> ^a |
| Tobosa grass | <i>Hilaria mutica</i> |
| Triangle-leaf bursage | <i>Ambrosia deltoidea</i> |
| Velvet mesquite | <i>Prosopis velutina</i> ^c |
| Western honey mesquite | <i>Prosopis glandulosa</i> ^c |

Notes:

^a Salvage restricted protected native plants

^b Salvage assessed native plants

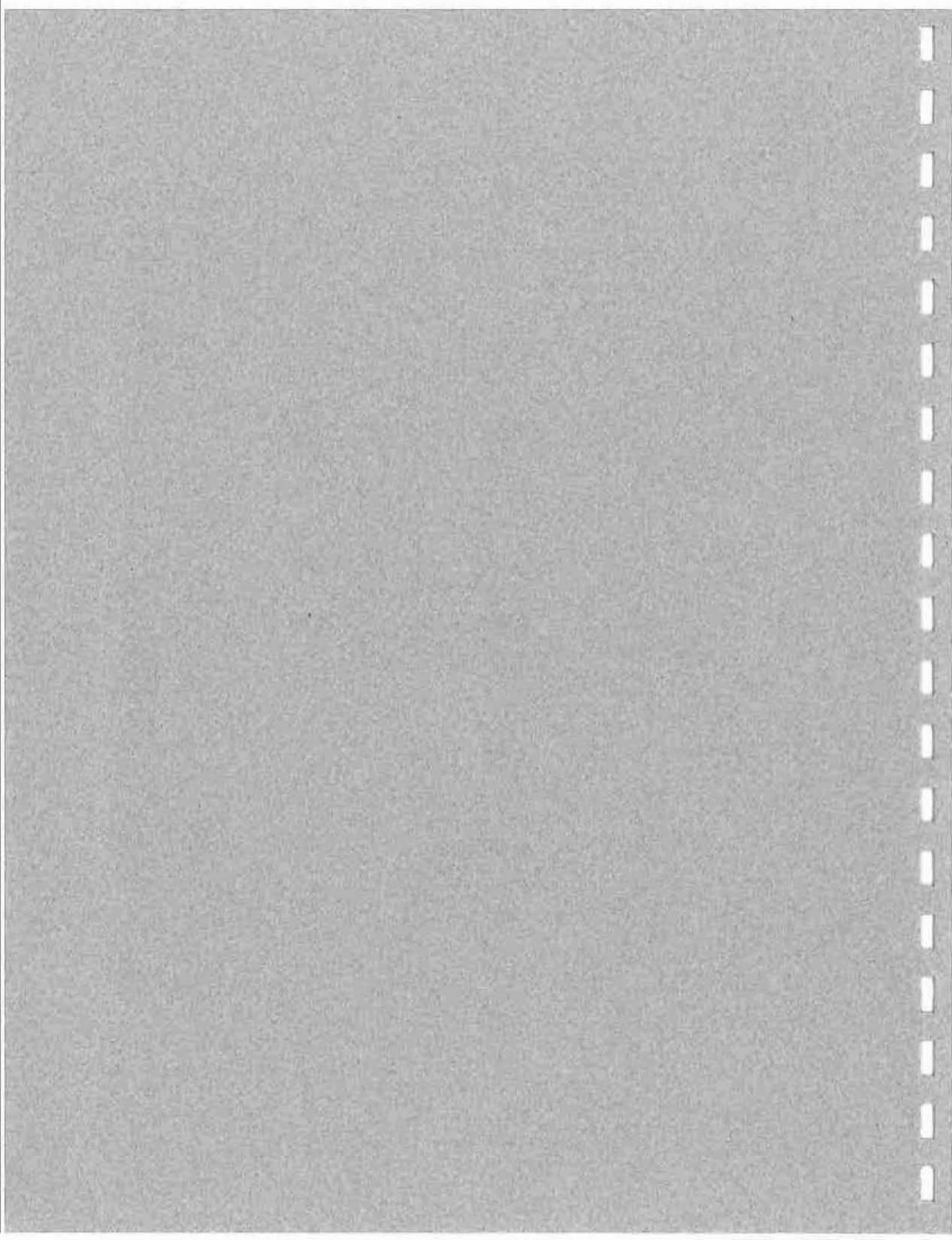
^c Harvest restricted protected native plants

Attachment A. Continued.

Animals

| Common Name | Scientific Name |
|--------------------------------|--|
| Birds | |
| American kestrel | <i>Falco sparverius</i> |
| American peregrine falcon | <i>Falco peregrinus anatum</i> |
| Bald eagle | <i>Haliaeetus leucocephalus</i> |
| Black-throated sparrow | <i>Amphispiza bilineata</i> |
| Cactus ferruginous pygmy-owl | <i>Glaucidium brasilianum cactorum</i> |
| Desert mule deer | <i>Odocoileus hemionus crooki</i> |
| Gila woodpecker | <i>Melanerpes uropygialis</i> |
| Horned lark | <i>Eremophila alpestris</i> |
| Mourning dove | <i>Zenaida macroura</i> |
| Northern flicker | <i>Colaptes auratus</i> |
| Phainopepla | <i>Phainopepla nitens</i> |
| Red-tailed hawk | <i>Buteo jamaicensis</i> |
| Ruby-crowned kinglet | <i>Regulus calendula</i> |
| Verdin | <i>Auriparus flaviceps</i> |
| White-crowned sparrow | <i>Zonotrichia leucophrys</i> |
| Southwestern willow flycatcher | <i>Empidonax traillii extrimus</i> |
| Mammals | |
| Black-tailed hare | <i>Lepus californicus</i> |
| Coyote | <i>Canis latrans</i> |
| Desert cottontail | <i>Sylvilagus auduboni</i> |
| Kit fox (tracks) | <i>Vulpes macotis</i> |
| Ringtail | <i>Bassariscus astutus</i> |

**Appendix C. Special-Status Plant and Wildlife Species
Known or with Potential to Occur at the
Project Site**





GAME & FISH DEPARTMENT

2221 West Greenway Road, Phoenix, Arizona 85023-4399 (602) 942-3000

Governor
Fife Symington

Commissioners
Chairman, Nonie Johnson, Snowflake
Michael M. Golightly, Flagstaff
Herb Guenther, Tucson
Fred Belman, Tucson
M. Jean Hassell, Scottsdale

Director
Duane L. Shroute

Deputy Director
Thomas W. Spalding

October 31, 1996

Ms. Stephanie Myers
Jones & Stokes Associates, Inc.
2600 V Street
Sacramento, California 95818-1914

Re: Special Status Species; Proposed Pipeline Project (Township 5 North, Range 1 East, Section 4; Township 6 North, Range 1 East, Sections 23, 24, 27, 33, 34; Township 6 North, Range 2 East, Sections 19-22) Arizona

Dear Ms. Myers:

The Arizona Game and Fish Department (Department) has reviewed your letter, faxed October 18, 1996, regarding special status species in the vicinity of the above-referenced area, and the following information is provided.

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

| <u>COMMON NAME</u> | <u>SCIENTIFIC NAME</u> | <u>STATUS</u> |
|-------------------------|---------------------------------|---------------|
| bald eagle | <u>Haliaeetus leucocephalus</u> | LT, WC, S |
| California snakewood | <u>Colubrina californica</u> | S |
| Hohokam agave | <u>Agave murpheyi</u> | S, HS |
| lowland leopard frog | <u>Rana yavapaiensis</u> | WC, S |
| Sonoran desert tortoise | <u>Gopherus agassizii</u> | WC, S |

STATUS DEFINITIONS

LT - Listed Threatened. Species identified by the U.S. Fish and Wildlife Service (USFWS) under the Endangered Species Act (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.). Species included in WSCA are currently the same as those in **Threatened Native Wildlife in Arizona** (1988).

Ms. Stephanie Myers
October 31, 1996
2

S - Sensitive. Species classified as "**sensitive**" by the Regional Forester when occurring on lands managed by the U.S.D.A. Forest Service.

HS - Highly Safeguarded. Those Arizona native plants whose prospects for survival in this state are in jeopardy or are in danger of extinction, or are likely to become so in the foreseeable future, as described by the Arizona Native Plant Law (1993).

In addition, the project occurs in the vicinity of proposed Critical Habitat for the cactus ferruginous pygmy-owl (Glaucidium brasilianum cactorum) (59 Federal Register 63975, December 12, 1994). We recommend contacting USFWS, at the address listed below, for additional information regarding ESA and how it applies to the pygmy-owl.

Mr. Sam Spiller
Field Supervisor
Arizona Ecological Services State Office
U.S. Fish and Wildlife Service
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Phone: (602) 640-2720

At this time, the Department's comments are limited to the special status species information provided above. This correspondence does not represent the Department's evaluation of impacts to wildlife or wildlife habitat associated with activities occurring in the subject area. The Department would appreciate the opportunity to provide such an evaluation when specific actions become available.

Thank you for the opportunity to provide this information. If you have any questions, please contact me at (602) 789-3606.

Sincerely,



Nancy Olson
Project Evaluation Specialist
Habitat Branch

NLO:no

cc: Sam Spiller, Field Supervisor, Az E.S. State Office, USFWS
Kelly Neal, Regional Supervisor, Region VI, Mesa

AGFD# 10-18-96(06)

GUIDELINES FOR HANDLING SONORAN DESERT TORTOISES
ENCOUNTERED ON DEVELOPMENT PROJECTS
Arizona Game and Fish Department
Revised November 29, 1993

Desert tortoises of the Sonoran population are those occurring south and east of the Colorado River. Tortoises encountered on short-term projects (less than one week), and not in a burrow should be moved out of harm's way to adjacent appropriate habitat. A tortoise should be moved no further than necessary, not to exceed 0.1 mile from its original location. If it is necessary to move a tortoise more than 0.1 mile to safeguard that tortoise, the Arizona Game and Fish Department (Department) should be contacted to place the tortoise into a Department-regulated desert tortoise adoption program. Moving a tortoise should be done quickly, handling the tortoise as little as possible, while keeping the tortoise in an upright position at all times. If more than one tortoise is to be handled, separate disposable gloves should be worn for each one to avoid potential transfer of disease between tortoises.

If a burrow of a specific tortoise is determined to be in jeopardy of destruction, the tortoise should be relocated to the nearest appropriate alternate burrow, as determined by a qualified biologist. Failure to locate a suitable burrow nearby could mean death for a tortoise, especially during May, June or July, before the onset of the summer rains, or during the winter brumation (hibernation) in December, January and February. If a suitable burrow cannot be found nearby, the tortoise should be placed in an adoption program.

Tortoises salvaged from projects which result in substantial permanent habitat loss (e.g. housing and farm developments), 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 apply for a Department handling permit 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 which are found to the 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 the desert tortoise.
- Take, possession or harassment of a desert tortoise is prohibited by state law. Unless specifically authorized by the Department, or as noted above, project personnel should avoid disturbing any tortoise.



United States Department of the Interior
Fish and Wildlife Service

Arizona Ecological Services Field Office
2321 W. Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
(602) 640-2720 Fax (602) 640-2730



In Reply Refer To:

AESO/SE
2-21-95-I-468

October 23, 1996

Ms. Stephanie Meyers
Jones & Stokes Associates
2600 V Street
Sacramento, California 95818

RE: Feasibility Study for Pipeline Project North of Phoenix, Arizona

Dear Ms. Meyers:

This letter responds to your telephone request of October 18, 1996, for a list of species which are listed as threatened, endangered, or are proposed to be listed as such under the Endangered Species Act of 1973, as amended (Act), which may potentially occur in this project area (Maricopa County). The enclosed list may include candidate species as well. In the past, the U.S. Fish and Wildlife Service has provided project-specific species lists and information. However, staff reductions no longer permit us to provide this detailed level of assistance. We regret any inconvenience this may cause you and hope the enclosed county list of species will be helpful. In future communications regarding this project, please refer to consultation number 2-21-96-I-291.

The enclosed list of the endangered, threatened, proposed, and candidate species includes all those potentially occurring anywhere in the county, or counties, where this project occurs. Please note that this project area may not necessarily include all or any of these species. The information provided includes general descriptions, habitat requirements, and other information for each species on the list. Also on the enclosed list is the Code of Federal Regulations (CFR) citation for each listed or proposed species. Additional information can be found in the CFR and is available at most public libraries. This information should assist you in determining which species may or may not occur within this project area. Site-specific surveys could also be helpful and may be needed to verify the presence or absence of a species or its habitat as required for the evaluation of proposed project-related impacts.

Endangered and threatened species are protected by Federal law and must be considered prior to project development. If the action agency determines that listed species or critical habitat may be adversely affected by a federally funded, permitted, or authorized activity, the action agency must request formal consultation with the Service. If the action agency determines that the planned action may jeopardize a proposed species or destroy or adversely modify proposed critical habitat, the action agency must enter into a section 7 conference with the Service.

Candidate species are those which are being considered for addition to the list of threatened or endangered species. Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event that they become listed or proposed for listing prior to project completion.

If any proposed action occurs in or near areas with trees and shrubs growing along watercourses, known as riparian habitat, the Service recommends the protection of these areas. Riparian areas are critical to biological community diversity and provide linear corridors important to migratory species. In addition, if the project will result in the deposition of dredged or fill materials into waterways or dredging in waterways, we recommend you contact the Army Corps of Engineers which regulates these activities under Section 404 of the Clean Water Act.

The State of Arizona protects some plant and animal species not protected by Federal law. We recommend you contact the Arizona Game and Fish Department and the Arizona Department of Agriculture for State-listed or sensitive species in this project area.

If we may be of further assistance, please contact Tom Gatz.

Sincerely,



Sam F. Spiller
Field Supervisor

Enclosure

cc: Director, Arizona Game and Fish Department, Phoenix, AZ

3/21/96

LISTED TOTAL= 13

NAME: ARIZONA AGAVE

AGAVE ARIZONICA

STATUS: ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 49 FR 21055, 05-18-1984

DESCRIPTION: HAS ATTRACTIVE ROSETTES OF BRIGHT GREEN LEAVES WITH DARK MAHOGANY MARGINS. FLOWER: BORNE ON SUB-UMBELLATE INFLORESCENCES.

ELEVATION
RANGE: 3000-6000 FT.

COUNTIES: GILA, YAVAPAI, MARICOPA

HABITAT: TRANSITION ZONE BETWEEN OAK-JUNIPER WOODLAND & MOUNTAIN MAHOGANY-OAK SCRUB

SCATTERED CLONES IN NEW RIVER MOUNTAINS AND SIERRA ANCHA. USUALLY FOUND ON STEEP, ROCKY SLOPES. POSSIBLY MAZATAL MOUNTAINS. SHOULD BE LOOKED FOR WHEREVER THE RANGES OF *Agave toumeyana* var. *bella* AND *Agave chrysantha* OVERLAP.

NAME: ARIZONA CLIFFROSE

PURSHIA SUBINTEGRA

STATUS: ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 49 FR 22326 5-29-84

DESCRIPTION: EVERGREEN SHRUB OF THE ROSE FAMILY (ROSEACEAE). BARK PALE SHREDDY. YOUNG TWIGS WITH DENSE HAIRS. LEAVES 1-5 LOBES AND EDGES CURL DOWNWARD (REVOLUTE). FLOWERS: 5 WHITE OR YELLOW PETALS <0.5 INCH LONG.

ELEVATION
RANGE: <4000 FT.

COUNTIES: GRAHAM YAVAPAI MARICOPA MOHAVE

HABITAT: CHARACTERISTIC WHITE SOILS OF TERTIARY LIMESTONE LAKEBED DEPOSITS.

WHITE SOILS OF TERTIARY LIMESTONE LAKEBED DEPOSITS CAN BE SEEN FROM A DISTANCE.

NAME: ARIZONA HEDGEHOG CACTUS

ECHINOCEREUS TRIGLOCHIDIATUS ARIZONICUS

STATUS: ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 44 FR 61556, 10-15-1979

DESCRIPTION: DARK GREEN CYLINDROID 2.5-12 INCHES TALL, 2-10 INCHES IN DIAMETER, SINGLE OR IN CLUSTERS. 1-3 GRAY OR PINKISH CENTRAL SPINES LARGEST DEFLEXED AND 5-11 SHORTER RADIAL SPINES. FLOWER: BRILLIANT RED, SIDE OF STEM IN APRIL- MAY

ELEVATION
RANGE: 3700-5200 FT.

COUNTIES: MARICOPA, GILA, PINAL

HABITAT: ECOTONE BETWEEN INTERIOR CHAPPARAL AND MADREAN EVERGREEN WOODLAND

OPEN SLOPES, IN NARROW CRACKS BETWEEN BOULDERS, AND IN UNDERSTORY OF SHRUBS. THIS VARIETY IS BELIEVED TO INTERGRADE AT THE EDGES OF ITS DISTRIBUTION WITH VARIETIES *MELANCANTHUS* AND *NEOMEXICANUS* CAUSING SOME CONFUSION IN IDENTIFICATION.

3/21/96

NAME: LESSER LONG-NOSED BAT

LEPTONYCTERIS CURASOAE YERBABUENAE

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 53 FR 38456, 09-30-88

DESCRIPTION: ELONGATED MUZZLE, SMALL LEAF NOSE, AND LONG TONGUE.
YELLOWISH BROWN OR GRAY ABOVE AND CINNAMON BROWN BELOW.
TAIL MINUTE AND APPEARS TO BE LACKING. EASILY DISTURBED.ELEVATION
RANGE: <6000 FT.

COUNTIES: COCHISE, PIMA, SANTA CRUZ, GRAHAM, PINAL, MARICOPA

HABITAT: DESERT SCRUB HABITAT WITH AGAVE AND COLUMNAR CACTI PRESENT AS FOOD PLANTS

DAY ROOSTS IN CAVES AND ABANDONED TUNNELS. FORAGES AT NIGHT ON NECTAR, POLLEN, AND FRUIT OF PANICULATE AGAVES AND COLUMNAR CACTI. THIS SPECIES IS MIGRATORY AND IS PRESENT IN ARIZONA, USUALLY FROM APRIL TO SEPTMBER AND SOUTH OF THE BORDER THE REMAINDER OF THE YEAR.

NAME: SONORAN PRONGHORN

ANTILOCAPRA AMERICANA SONORIENSIS

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-67

DESCRIPTION: BUFF ON BACK AND WHITE BELOW, HOOFED WITH SLIGHTLY CURVED
BLACK HORNS HAVING A SINGLE PRONG. SMALLEST AND PALEST OF
THE PRONGHORN SUBSPECIES.ELEVATION
RANGE: 2000-4000 FT.

COUNTIES: PIMA, YUMA, MARICOPA

HABITAT: BROAD, INTERMOUNTAIN ALLUVIAL VALLEYS WITH CREOSOTE-BURSAGE & PALO VERDE-MIXED CACTI ASSOCIATIONS

TYPICALLY, BAJADAS ARE USED AS FAWNING AREAS AND SANDY DUNE AREAS PROVIDE FOOD SEASONALLY. HISTORIC RANGE WAS PROBABLY LARGER THAN EXISTS TODAY. THIS SUBSPECIES ALSO OCCURS IN MEXICO.

NAME: DESERT PUFFISH

CYPRINODON MACULARIUS

STATUS: ENDANGERED

CRITICAL HABITAT: Yes RECOVERY PLAN: Yes CFR: 51 FR 10842, 03-31-1986

DESCRIPTION: SMALL (2 INCHES) SMOOTHLY ROUNDED BODY SHAPE WITH NARROW
VERTICAL BARS ON THE SIDES. BREEDING MALES BLUE ON HEAD AND
SIDES WITH YELLOW ON TAIL. FEMALES & JUVENILES TAN TO OLIVE
COLORED BACK AND SILVERY SIDES.ELEVATION
RANGE: <5000 FT.

COUNTIES: LA PAZ, PIMA, GRAHAM, MARICOPA, PINAL, YAVAPAI, SANTA CRUZ

HABITAT: SHALLOW SPRINGS, SMALL STREAMS, AND MARSHES. TOLERATES SALINE & WARM WATER

CRITICAL HABITAT INCLUDES QUITOBAQUITO SPRING, PIMA COUNTY, PORTIONS OF SAN FELIPE CREEK, CARRIZO WASH, AND FISH CREEK WASH, IMPERIAL COUNTY, CALIFORNIA. TWO SUBSPECIES ARE RECOGNIZED: DESERT PUFFISH (*C. m. macularis*) AND QUITOBAQUITO PUFFISH (*C. m. eremus*).

3/21/96

NAME: GILA TOPMINNOW

POECILIOPSIS OCCIDENTALIS OCCIDENTALIS

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-1967

DESCRIPTION: SMALL (2 INCHES), GUPPY-LIKE, LIVE BEARING, LACKS DARK SPOTS ON ITS FINS. BREEDING MALES ARE JET BLACK WITH YELLOW FINS.

ELEVATION RANGE: <4500 FT.

COUNTIES: GILA, PINAL, GRAHAM, YAVAPAI, SANTA CRUZ, PIMA, MARICOPA, LA PAZ

HABITAT: SMALL STREAMS, SPRINGS, AND CIENEGAS VEGETATED SHALLOWS

NAME: RAZORBACK SUCKER

XYRAUCHEN TEXANUS

STATUS: ENDANGERED

CRITICAL HABITAT: Yes RECOVERY PLAN: No CFR: 55 FR 21154, 05-22-1990; 59 FR 13374, 03-21-1994

DESCRIPTION: LARGE (UP TO 3 FEET AND UP TO 16 POUNDS) LONG, HIGH SHARP-EDGED KEEL-LIKE HUMP BEHIND THE HEAD. HEAD FLATTENED ON TOP. OLIVE-BROWN ABOVE TO YELLOWISH BELOW.

ELEVATION RANGE: <6000 FT.

COUNTIES: GREENLEE, MOHAVE, PINAL, YAVAPAI, YUMA, LA PAZ, MARICOPA (REFUGIA), GILA, COCONINO, GRAHAM

HABITAT: RIVERINE & LACUSTRINE AREAS, GENERALLY NOT IN FAST MOVING WATER AND MAY USE BACKWATERS

SPECIES IS ALSO FOUND IN HORSESHOE RESERVOIR (MARICOPA COUNTY).

NAME: AMERICAN PEREGRINE FALCON

FALCO PEREGRINUS ANATUM

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 35 FR 16047, 10-13-70; 35 FR 8495, 06-02-70

DESCRIPTION: A RECLUSIVE, CROW-SIZED FALCON SLATY BLUE ABOVE WHITISH BELOW WITH FINE DARK BARRING. THE HEAD IS BLACK AND APPEARS TO BE MASKED OR HELMETED. WINGS LONG AND POINTED. LOUD WAILING CALLS ARE GIVEN DURING BREEDING PERIOD.

ELEVATION RANGE: 3500-9000 FT.

COUNTIES: MOHAVE COCONINO NAVAJO APACHE SANTA CRUZ MARICOPA COCHISE YAVAPAI GILA PINAL PIMA GREENLEE GRAHAM

HABITAT: CLIFFS AND STEEP TERRAIN USUALLY NEAR WATER OR WOODLANDS WITH ABUNDANT PREY

THIS IS A WIDE-RANGING MIGRATORY BIRD THAT USES A VARIETY OF HABITATS. BREEDING BIRDS ARE YEAR-ROUND RESIDENTS. OTHER BIRDS WINTER AND MIGRATE THROUGH ARIZONA. SPECIES IS ENDANGERED FROM REPRODUCTIVE FAILURE FROM PESTICIDES.

3/21/96

NAME: BALD EAGLE

HALIAEETUS LEUCOCEPHALUS

STATUS: THREATENED CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 60 FR 35999, 07-12-95

DESCRIPTION: LARGE, ADULTS HAVE WHITE HEAD AND TAIL. HEIGHT 28 - 38";
WINGSPAN 66 - 96". 1-4 YRS DARK WITH VARYING DEGREES OF
MOTTLED BROWN PLUMAGE. FEET BARE OF FEATHERS.

ELEVATION

RANGE: VARIES FT.

COUNTIES: YUMA, LA PAZ, MOHAVE, YAVAPAI, MARICOPA, PINAL, COCONINO, NAVAJO, APACHE, SANTA CRUZ, PIMA,
GILA, GRAHAM

HABITAT: LARGE TREES OR CLIFFS NEAR WATER (RESERVOIRS, RIVERS AND STREAMS) WITH ABUNDANT PREY

SOME BIRDS ARE NESTING RESIDENTS WHILE A LARGER NUMBER WINTERS ALONG RIVERS AND RESERVOIRS. AN ESTIMATED 200 TO 300 BIRDS WINTER IN ARIZONA. ONCE ENDANGERED (32 FR 4001, 03-11-1967; 43 FR 6233, 02-14-78) BECAUSE OF REPRODUCTIVE FAILURES FROM PESTICIDE POISONING AND LOSS OF HABITAT, THIS SPECIES WAS DOWN LISTED TO THREATENED ON AUGUST 11, 1995. ILLEGAL SHOOTING, DISTURBANCE, LOSS OF HABITAT CONTINUES TO BE A PROBLEM.

NAME: MEXICAN SPOTTED OWL

STRIX OCCIDENTALIS LUCIDA

STATUS: THREATENED CRITICAL HABITAT: Yes RECOVERY PLAN: Yes CFR: 56 FR 14678, 04-11-91

DESCRIPTION: MEDIUM SIZED WITH DARK EYES AND NO EAR TUFTS. BROWNISH AND
HEAVILY SPOTTED WITH WHITE OR BEIGE.

ELEVATION

RANGE: 4100-9000 FT.

COUNTIES: MOHAVE, COCONINO, NAVAJO, APACHE, YAVAPAI, GRAHAM, GREENLEE, COCHISE, SANTA CRUZ, PIMA,
PINAL, GILA, MARICOPA

HABITAT: NESTS IN CANYONS AND DENSE FORESTS WITH MULTI-LAYERED FOLIAGE STRUCTURE

GENERALLY NESTS IN OLDER FORESTS OF MIXED CONIFER OR PONDERSA PINE/GAMBEL OAK TYPE, IN CANYONS, AND USE VARIETY OF HABITATS FOR FORAGING. SITES WITH COOL MICROCLIMATES APPEAR TO BE OF IMPORTANCE OR ARE PREFERRED.

NAME: SOUTHWESTERN WILLOW FLYCATCHER

EMPIDONAX TRAILLII EXTIMUS

STATUS: ENDANGERED CRITICAL HABITAT: Yes RECOVERY PLAN: No CFR: 60 FR 10694, 02-27-95

DESCRIPTION: SMALL PASSERINE (ABOUT 6") GRAYISH-GREEN BACK AND WINGS,
WHITISH THROAT, LIGHT OLIVE-GRAY BREAST AND PALE YELLOWISH
BELLY. TWO WINGBARS VISIBLE. EYE-RING FAINT OR ABSENT.

ELEVATION

RANGE: <8500 FT.

COUNTIES: YAVAPAI, GILA, MARICOPA, MOHAVE, COCONINO, NAVAJO, APACHE, PINAL, LA PAZ, GREENLEE, GRAHAM,
YUMA, PIMA, COCHISE, SANTA CRUZ

HABITAT: COTTONWOOD/WILLOW & TAMARISK VEGETATION COMMUNITIES ALONG RIVERS & STREAMS

MIGRATORY RIPARIAN OBLIGATE SPECIES THAT OCCUPIES BREEDING HABITAT FROM LATE APRIL TO SEPTEMBER. DISTRIBUTION WITHIN ITS RANGE IS RESTRICTED TO RIPARIAN CORRIDORS. DIFFICULT TO DISTINGUISH FROM OTHER MEMBERS OF THE EMPIDONAX COMPLEX BY SIGHT ALONE. TRAINING SEMINAR REQUIRED FOR THOSE CONDUCTING FLYCATCHER SURVEYS.

3/21/96

NAME: YUMA CLAPPER RAIL

RALLUS LONGIROSTRIS YUMANENSIS

STATUS: ENDANGERED

CRITICAL HABITAT: No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-67; 48

DESCRIPTION: WATER BIRD WITH LONG LEGS AND SHORT TAIL. LONG SLENDER
DECURVED BILL. MOTTLED BROWN ON GRAY ON ITS RUMP. FLANKS
AND UNDERSIDES ARE DARK GRAY WITH NARROW VERTICAL STRIPES
PRODUCING A BARRING EFFECT.

FR 34182, 07-27-83
ELEVATION
RANGE: <4500 FT.

COUNTIES: YUMA, LA PAZ, MARICOPA, PINAL, MOHAVE

HABITAT: FRESH WATER AND BRACKISH MARSHES

SPECIES IS ASSOCIATED WITH DENSE EMERGENT RIPARIAN VEGETATION. REQUIRES WET SUBSTRATE
(MUDFLAT, SANDBAR) WITH DENSE HERBACEOUS OR WOODY VEGETATION FOR NESTING AND FORAGING.
CHANNELIZATION AND MARSH DEVELOPMENT ARE PRIMARY SOURCES OF HABITAT LOSS.

3/21/96

PROPOSED TOTAL= 1

NAME: CACTUS FERRUGINOUS PYGMY-OWL

GLAUCIDIUM BRASILIANUM CACTORUM

STATUS: PROPOSED ENDANGERED CRITICAL HABITAT: No RECOVERY PLAN: No CFR: 59 FR 63975, 12-12-94

DESCRIPTION: SMALL (APPROX. 7"), DIURNAL OWL REDDISH BROWN OVERALL WITH
CREAM-COLORED BELLY STREAKED WITH REDDISH BROWN. SOME
INDIVIDUALS ARE GRAYISH BROWN

ELEVATION

RANGE: <4000 FT.

COUNTIES: MARICOPA, YUMA, SANTA CRUZ, GRAHAM, GREENLEE, PIMA, PINAL, GILA, YAVAPAI

HABITAT: MATURE COTTONWOOD/WILLOW, MESQUITE BOSQUES, AND DESERT SCRUB

RANGE LIMIT IN ARIZONA IS FROM NEW RIVER (NORTH) TO GILA BOX (EAST) TO CABEZA PRIETA MOUNTAINS
(WEST). ONLY A FEW DOCUMENTED SITES WHERE THIS SPECIES PERSISTS ARE KNOWN, ADDITIONAL SURVEYS
ARE NEEDED. CRITICAL HABITAT HAS BEEN PROPOSED FOR THIS SPECIES.

**Appendix B. Plant and Wildlife Nomenclature and
Description of Seasonal Drainages**

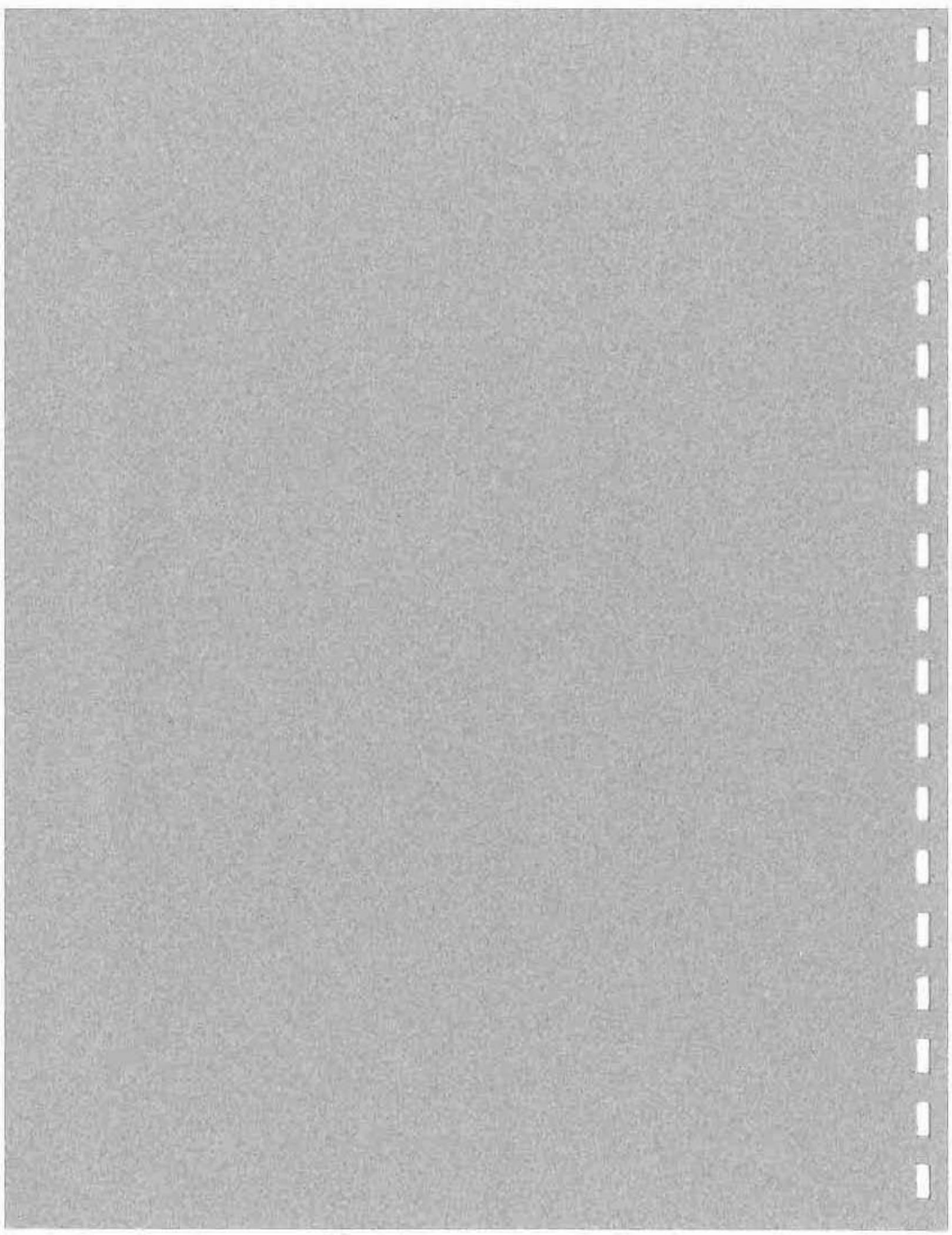


Table B-1. Plant Species Encountered along the Proposed
Water Delivery Pipeline Corridor

| Common Name | Scientific Name |
|--------------------------|--|
| Barrel cactus | <i>Ferocactus wislizenii</i> ^a |
| Bermuda grass | <i>Cynodon dactylon</i> |
| Blazing star | <i>Mentzelia pumila</i> |
| Blue palo verde | <i>Cercidium floridum</i> ^b |
| Bristle-lobed sandmat | <i>Euphorbia setiloba</i> |
| Brittle bush | <i>Encelia farinosa</i> |
| Broom snakeweed | <i>Gutierrezia sarothrae</i> |
| Burro brush | <i>Hymenoclea salsola</i> |
| Canyon ragweed | <i>Ambrosia ambrosioides</i> |
| Catclaw acacia | <i>Acacia greggii</i> var. <i>arizonica</i> |
| Chain fruit cholla | <i>Opuntia fulgida</i> ^a |
| Creosote bush | <i>Larrea tridentata</i> |
| Desert broom | <i>Baccharis sarathroides</i> |
| Desert Christmas cactus | <i>Opuntia leptocaulis</i> ^a |
| Desert hackberry | <i>Celtis pallida</i> |
| Desert holly | <i>Atriplex hymenelytra</i> |
| Desert mistletoe | <i>Phoradendron californicum</i> |
| Desert senna | <i>Cassia covesii</i> |
| Desert tobacco | <i>Nicotiana trigonophylla</i> |
| Desert trumpet | <i>Eriogonum inflatum</i> |
| Desert willow | <i>Chilopsis linearis</i> ^b |
| Englemann's prickly pear | <i>Opuntia phaeacantha</i> ^a |
| Fluff grass | <i>Erioneuron pulchellum</i> (<i>Tridens pulchellus</i>) |
| Foothill palo verde | <i>Cercidium microphyllum</i> ^b |
| Fountain grass | <i>Pennisetum setaceum</i> |
| Four-wing saltbush | <i>Atriplex canescens</i> |
| Globe mallow | <i>Sphaeralcea ambigua</i> |
| Gray thorn | <i>Zizyphus obtusifolia</i> |
| Hairy tridens | <i>Erioneuron pilosum</i> (<i>Tridens pilosus</i>) |
| Janusia | <i>Janusia gracilis</i> |
| Mormon tea | <i>Ephedra</i> sp. |
| Ocotillo | <i>Fouquieria splendens</i> ^b |
| Rabbit brush | <i>Chrysothamnus nauseosus</i> |
| Rambling milkweed | <i>Sarcostemma hirtellum</i> |
| Roughseed clammyweed | <i>Polanisia dodecandra</i> ssp. <i>trachysperma</i> |
| Russian thistle | <i>Salsola iberica</i> |
| Sacred datura | <i>Datura</i> sp. |
| Saguaro | <i>Cereus giganteus</i> ^a |

| Common Name | Scientific Name |
|------------------------|---|
| Seep willow | <i>Baccharis salicifolia</i> |
| Six-weeks three awn | <i>Aristida adsensionis</i> |
| Skeleton weed | <i>Eriogonum deflexum</i> |
| Strawberry hedgehog | <i>Echinocereus engelmannii^a</i> |
| Teddy bear cholla | <i>Opuntia bigelovii^a</i> |
| Tobosa grass | <i>Hilaria mutica</i> |
| Triangle-leaf bursage | <i>Ambrosia deltoidea</i> |
| Velvet mesquite | <i>Prosopis velutina^c</i> |
| Western honey mesquite | <i>Prosopis glandulosa^c</i> |
| White-thorn acacia | <i>Acacia constricta</i> |
| White virgin's bower | <i>Clematis ligusticifolia</i> |
| Woolly tidestromia | <i>Tidestromia lanuginosa</i> |

Notes:

^a Salvage restricted protected native plants

^b Salvage assessed native plants

^c Harvest restricted protected native plants

Table B-2. Wildlife Species Encountered along the Proposed
Water Delivery Pipeline Corridor

| Common Name | Scientific Name |
|----------------------------------|--|
| Birds | |
| American kestrel | <i>Falco sparverius</i> |
| Black-tailed gnatcatcher | <i>Polioptila melanura</i> |
| Black-throated sparrow | <i>Amphispiza bilineata</i> |
| Cactus wren | <i>Campylorhynchus brunneicapillus</i> |
| Common raven | <i>Corvus corax</i> |
| Curve-billed thrasher | <i>Toxostoma curvirostre</i> |
| Gambel's quail | <i>Lophortyx gambelii</i> |
| Gila woodpecker | <i>Melanerpes uropygialis</i> |
| Harris' hawk | <i>Parabuteo unicinctus</i> |
| Horned lark | <i>Eremophila alpestris</i> |
| House finch | <i>Carpodacus mexicanus</i> |
| Killdeer | <i>Charadrius vociferos</i> |
| Loggerhead shrike | <i>Lanius ludovicianus</i> |
| Mourning dove | <i>Zenaida macroura</i> |
| Northern cardinal | <i>Cardinalis cardinalis</i> |
| Northern flicker | <i>Colaptes auratus</i> |
| Northern mockingbird | <i>Mimus polyglottus</i> |
| Phainopepla | <i>Phainopepla nitens</i> |
| Red-tailed hawk | <i>Buteo jamaicensis</i> |
| Ruby-crowned kinglet | <i>Regulus calendula</i> |
| Verdin | <i>Auriparus flaviceps</i> |
| Western kingbird | <i>Tyrannus verticalis</i> |
| White-crowned sparrow | <i>Zonotrichia leucophrys</i> |
| Mammals | |
| Black-tailed jackrabbit | <i>Lepus californicus</i> |
| Coyote | <i>Canis latrans</i> |
| Desert mule deer | <i>Odocoileus hemionus crooki</i> |
| Desert cottontail | <i>Sylvilagus auduboni</i> |
| Harris' antelope ground squirrel | <i>Ammospermophilus harrisi</i> |
| Kit fox (tracks) | <i>Vulpes macrotis</i> |
| Ringtail | <i>Bassariscus astutus</i> |
| White-throated woodrat (nest) | <i>Neotoma albigula</i> |

Table B-2. Continued

| Common Name | Scientific Name |
|----------------------|-----------------------------|
| Reptiles | |
| Side-blotched lizard | <i>Uta stansburiana</i> |
| Western whiptail | <i>Cnemidophorus tigris</i> |

Table B- 3. Locations and Characteristics of Seasonal Drainages
Along the Proposed Water Delivery Pipeline Corridor

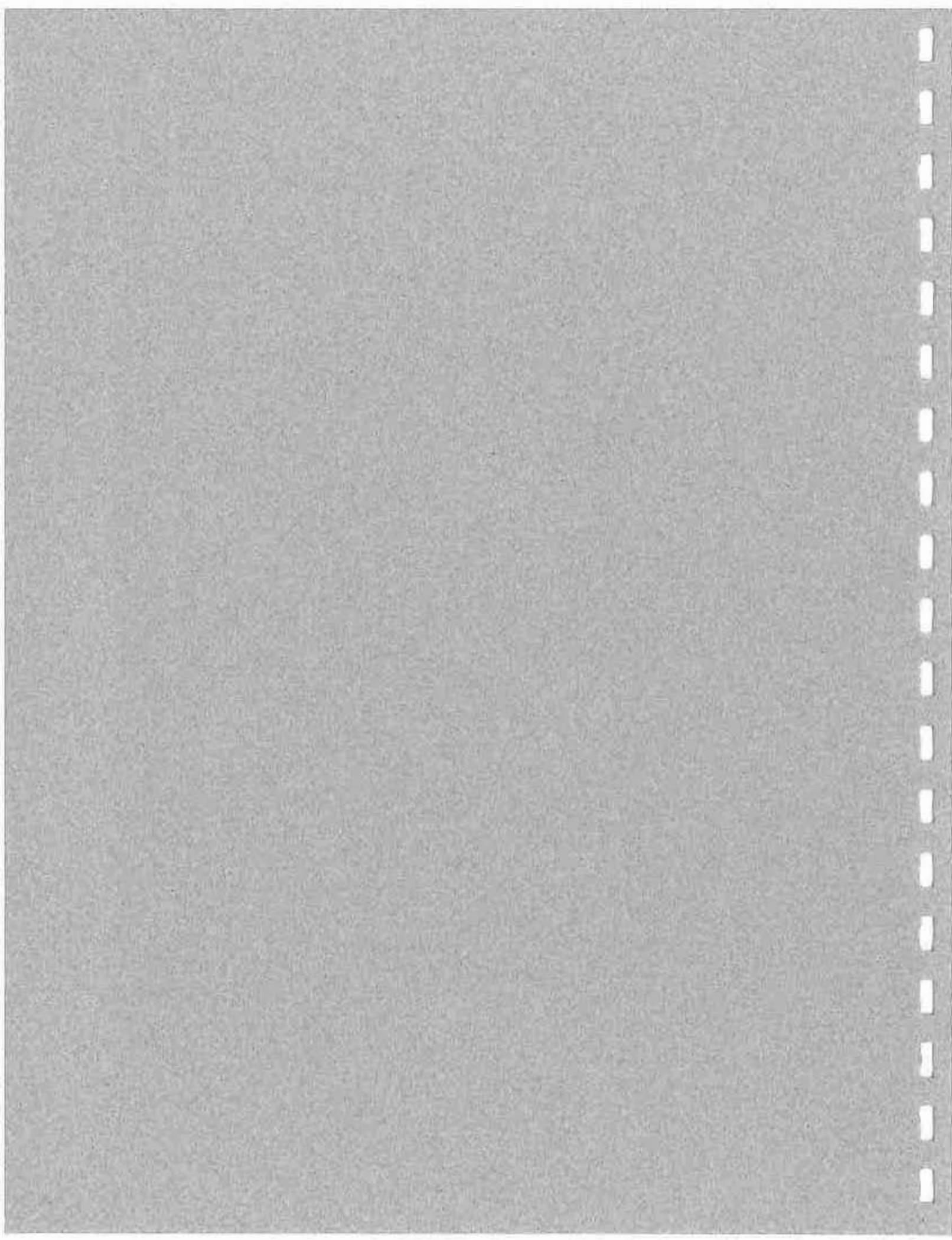
| Drainage Location | Vegetation | Approximate Width (feet) Bed and Bank Condition |
|--|--|---|
| 1. Between Waddell Canal and the proposed pump station, parallel to the canal | Foothill palo verde, triangle bursage, creosote bush, velvet mesquite | 3 feet, cobble bottom with bed and bank |
| 2. First drainage crossing between proposed pump station and Carefree Highway | None | 5 feet, flat gravel bottom with bed and bank |
| 3. Second drainage crossing between proposed pump station and Carefree Highway | None | 10 feet, sandy bottom with bed and bank |
| 4. First drainage crossing from Carefree Highway to intersection with haul road | Desert senna, brittle bush, creosote bush | 1 foot, shallow overland drainage with no bed and bank |
| 5. Second drainage crossing from Carefree Highway to intersection with haul road | Brittle bush, tobosa grass, foothill palo verde, velvet mesquite, gray thorn, triangle bursage | 1 foot, shallow overland drainage with no bed and bank |
| 6. Third drainage crossing from Carefree Highway to intersection with haul road | Bristle-lobed sandmat, globe mallow | 1 foot, shallow overland drainage with no bed and bank |
| 7. Fourth drainage crossing from Carefree Highway to intersection with haul road | Velvet mesquite, creosote bush | 1 foot, slightly incised, sand/cobble bottom with no bed and bank |
| 8. Fifth drainage crossing from Carefree Highway to intersection with haul road | Brittle bush, tobosa grass, creosote bush, foothill palo verde, triangle bursage | 1 foot, slightly incised with no bed and bank |
| 9. Haul road; first drainage from transmission line to New River | Foothill palo verde, triangle bursage, velvet mesquite | 2 foot, 2 to 3 feet incised with bed and bank |
| 10. Haul road; second drainage from transmission line to New River | Globe mallow, triangle bursage, bristle-lobed sandmat, catclaw acacia, foothill palo verde | 15 feet wide with bed and bank, 5 foot channel north of haul road, channel modified by haul road and only slightly incised to the south |
| 11. Haul road; third drainage from transmission line to New River | Bristle-lobed sandmat, globe mallow | .5 feet, no bed and bank |

B-5

Table B-3. Continued

| Drainage Location | Vegetation | Approximate Width (feet) Bed and Bank Condition |
|--|--|--|
| 12. Haul road; fourth drainage from transmission line to New River | Bermuda grass, bristle-lobed sandmat, six-weeks three awn, desert broom triangle bursage | 20 feet wide, bed and bank with vegetated channel |
| 13. Haul road; fifth drainage from transmission line to New River | Bristle-lobed sandmat, brittle bush, six-weeks three awn, triangle bursage | 20 foot wide scoured channel north of haul road, five foot wide vegetated channel below haul road, with defined bed and bank |
| 14. Reclamation borrow site to I-17; first drainage | None | 5 feet wide with bed and bank |
| 15. Reclamation borrow site to I-17; second drainage | Velvet mesquite | 15 feet wide with bed and bank |
| B-6 16. Del Webb property from I-17 to proposed treatment plant; first drainage adjacent to I-17, is a continuation of #16 | Triangle bursage, desert senna | 10 feet wide with bed and bank |
| 17. Del Webb property from I-17 to proposed treatment plant; second drainage | Canyon ragweed | 5 feet wide with bed and bank, deeply incised with cobble bottom |

Appendix A. Water Supply Options



PREFACE

The information in this appendix was developed by Del Webb and its consultants at the request of the U.S. Bureau of Reclamation. Reclamation staff have independently reviewed the information (including technical review of cost estimates and engineering feasibility) and have sought additional review of this appendix from the Arizona Department of Water Resources (ADWR) and the general public (see letters of comment in Appendix H). In addition, Reclamation solicited the views of the city of Phoenix and had follow-up telephone conversations with city staff (Garcia pers. comm.) regarding the accuracy of the information presented in the appendix. Based upon this review, Reclamation has determined that it is reasonable to conclude that Del Webb would be able to obtain alternative water supplies in the absence of the Ak-Chin leased water. Reclamation is not relying on Option 4 as the basis for this conclusion (see Appendix H, response to comment 25-1.) Del Webb has provided supplemental information and relevant correspondence related to the water supply options which are found in Attachment 1 to this Appendix.

INTRODUCTION**WATER SUPPLY OPTIONS**

This appendix describes the non-federal water supply sources that Del Webb Corporation (Del Webb) could secure to provide water to The Villages at Desert Hills (The Villages) in order to illustrate what would happen in the development area in the absence of the proposed action. None of the water supply options described below requires the approval of the Bureau of Reclamation (Reclamation) or any other federal entity.

Four alternative sources were examined:

- ▶ City of Phoenix service provided by extending the City's existing water distribution system north from Deer Valley Road to The Villages;
- ▶ City of Phoenix service using CAP water conveyed through a separate system taking water from the CAP system;
- ▶ Extension of existing City of Peoria system north to The Villages; and
- ▶ Enrollment of The Villages in Central Arizona Groundwater Replenishment District (CAGR) and provision of replenished groundwater from wells located offsite. Service would be provided by a newly-formed water company.

Each of the options was evaluated to determine whether:

- (1) There was an adequate supply to meet the projected demand;

- (2) The water was legally available;
- (3) The supply would be considered an assured water supply (AWS) pursuant to the Groundwater Management Act (GMA);
- (4) It was economically feasible to develop and deliver to The Villages; and
- (5) It was technically feasible to construct facilities to deliver the water to The Villages.

Each of the above options is described in more detail in this appendix.

REGULATORY AND LAND USE CONSIDERATIONS

Discussed below are the most pertinent regulatory and land use considerations that apply to water supply sources for The Villages.

GROUNDWATER MANAGEMENT

The Villages is located in the Phoenix Active Management Area (AMA) which was established in 1980 with the enactment of the Groundwater Management Act (GMA). All groundwater and its uses are, therefore, subject to the various laws and administrative rules which control groundwater use in the AMA. The Arizona Department of Water Resources (ADWR) is the regulatory agency charged with enforcing the GMA. Following are the provisions of the GMA that affect the development and use of water supplies that might be secured for The Villages.

Assured Water Supply

ARS Section 45-576 requires that before a subdivision in an AMA is approved by the local jurisdictional authority and by the State Real Estate Commissioner, the subdivider must obtain a certificate of AWS or the subdivision must receive service from a water provider designated as having an AWS. ADWR has adopted rules to guide the administration of the AWS program.

In general, water supplies for an AWS must be renewable. Development cannot occur based on mined groundwater. A CAP supply delivered pursuant to a municipal and industrial subcontract is considered to be a renewable supply. Except for a small allotment for existing providers, groundwater may not be used as a source for an AWS unless it is supported by natural recharge, a permitted groundwater recharge project, or membership in CAGR. D.

Service Area Rules

Groundwater use regulations apply to providers' water service areas and not to other boundaries of jurisdiction, such as city limits. In general, the service area is that area actually being served water by the providers' system, i.e., the area inside the pipeline system which distributes water. Service areas may be expanded to serve additional areas as they develop. However, they may not be expanded for the purpose of incorporating a well field for a water supply.

Water Management Plans

ADWR is required to prepare and adopt groundwater management plans for each AMA for identified periods. The Second Management Plan is now in effect. It will be replaced by the Third Management Plan in the year 2000. Each plan establishes water conservation requirements for all groundwater users for the management period. Each plan also includes criteria for ADWR to follow for permitting uses and the general plan to achieve the established goals of the groundwater management program.

CITY LIMITS AND PLANNING AREAS

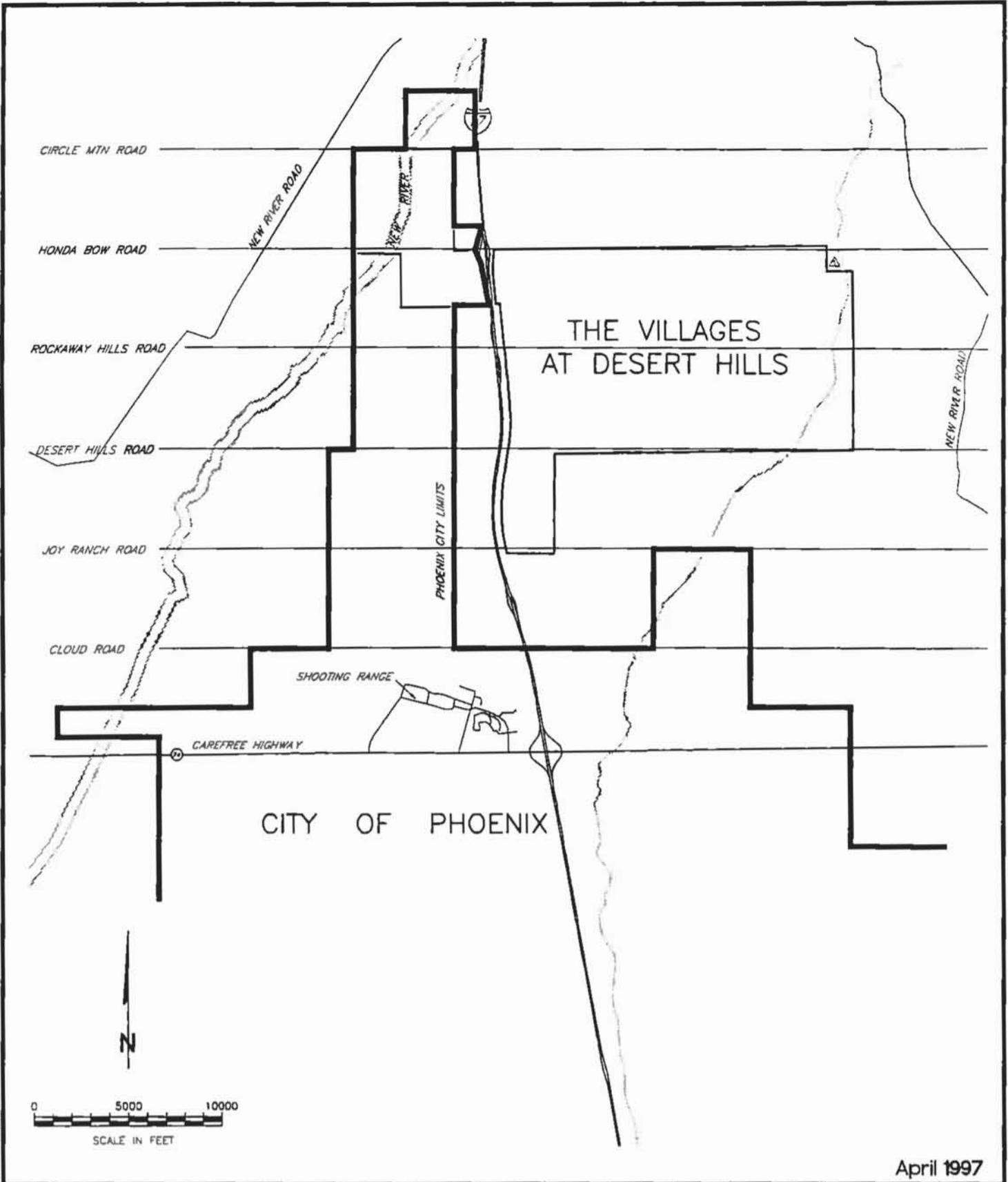
Figure A-1 depicts City of Phoenix limit boundaries in the vicinity of The Villages as of December 1, 1996. Most of the area to be developed as The Villages is currently not within an incorporated city; however, the City of Phoenix has annexed the Factory Outlet Stores immediately adjacent to The Villages and the portion of The Villages that is west of Interstate 17 (I-17). There are no immediate plans for incorporation of the rest of the area to be occupied by The Villages into any municipality.

The City of Phoenix plans to serve water to the area, including The Villages, in the future. The Phoenix Water Resources Plan, approved by the City Council in November 1995, indicates a Water Service Planning Area extending north to the Tonto National Forest boundary. Figure A-2 shows the Water Service Planning Area.

DEVELOPMENT MASTER PLAN STIPULATION

A Development Master Plan Stipulation with Maricopa County restricts the amount of groundwater that may be used at The Villages. The stipulation provides:

"The developer shall not use groundwater for golf course irrigation, residential, industrial or commercial uses. The only time the developer may use groundwater is on an interim basis early in construction and on an interim basis for County and public uses (such as the fire station, Sheriff's substation and utility yard, trailheads and potential school sites), until the permanent water system is completed and hook-up is available to these facilities. Except for water needed for construction of the main water delivery pipeline and of the water and wastewater treatment facilities, the interim pumping of construction groundwater referenced above shall in all events not exceed a maximum construction period of 18 months nor a maximum amount of 150 acre-feet (af). All interim pumping of groundwater shall comply with ADWR's regulations providing for protection of existing groundwater users in the area. At a minimum this interim supply of groundwater shall be recharged into the aquifer as soon as the recharge facility described in the DMP has been fully permitted and constructed."



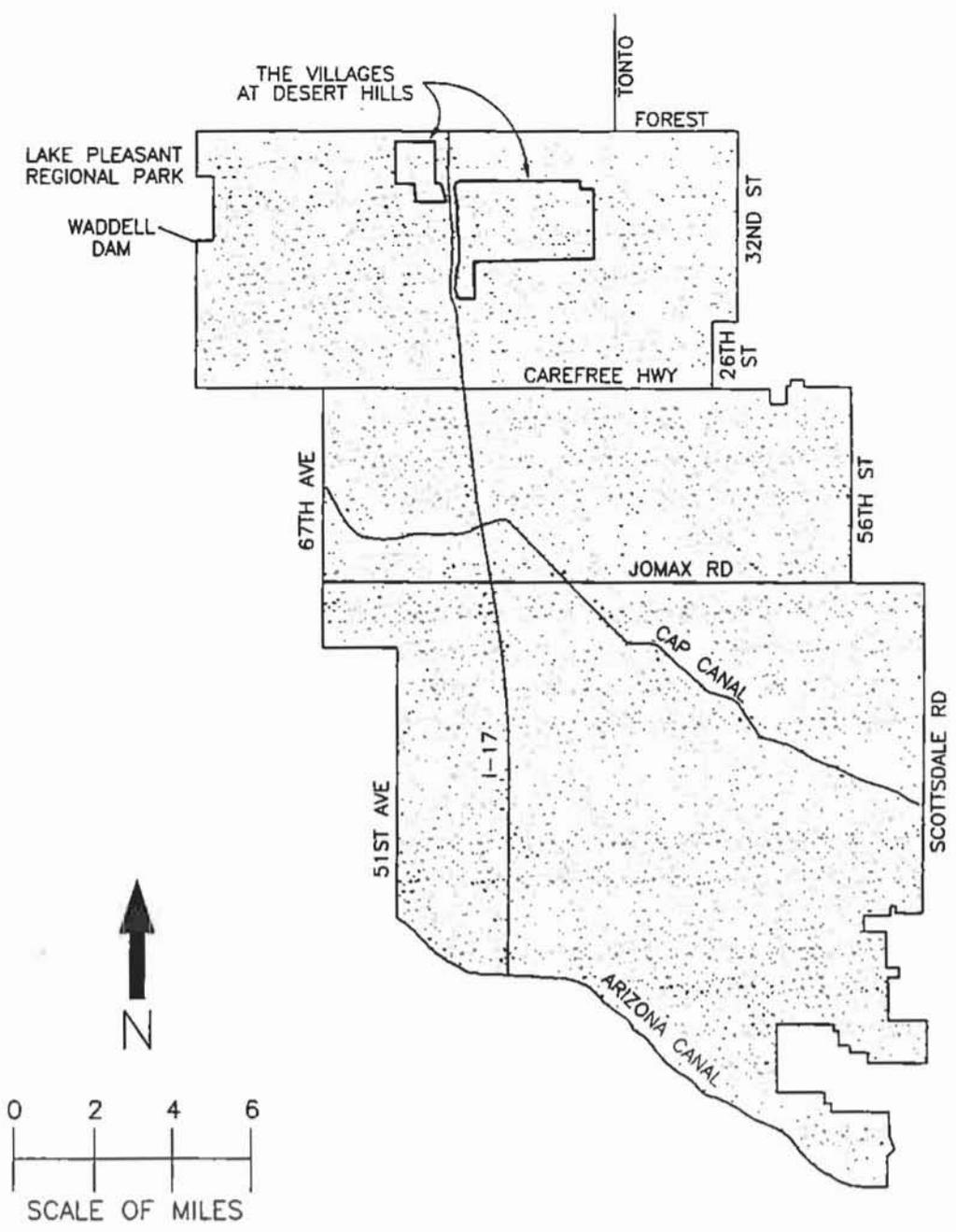
April 1997

Bookman-Edmonston
Engineering, Inc.

Phoenix City Limits
In Vicinity of The Villages
at Desert Hills

FIGURE A-1

S:\DWG\DELWEL\PHO\PHO1.DWG 4/18/97



From: *Phoenix Water Resources Plan*
 City of Phoenix Water Services
 Department, November 1995

May 1997

BOOKMAN-EDMONSTON
 ENGINEERING

CITY OF PHOENIX
 NORTHERN AREA
 OFF-PROJECT WATER SERVICE PLANNING AREA

FIGURE A-2

S:\DWG\DCI\WB\B5\TP\2R\LV.DWG 5/2/97

CURRENT AND PLANNED WATER FACILITIES

Groundwater is currently the only source of water for the area surrounding The Villages. Individual wells make up most of the water service. The Desert Hills Water Company, located to the south, and Sabrosa Water Company, located to the north of the proposed new development, are the only providers in the immediate vicinity. The Desert Hills Water Company operates two wells and serves 540 customers (1995 Annual Report) and the Sabrosa Water Company operates three wells and serves 72 customers (1994 Annual Report).

City of Phoenix water delivery facilities extend north near the Dynamite Boulevard alignment close to where the CAP Aqueduct crosses I-17. Water delivery facilities extend north to Happy Valley Road with main trunk lines along Deer Valley Road.

The City of Phoenix has proposed to construct a 320 mgd treatment plant near Lake Pleasant that will use CAP water from Waddell Canal. The plant will be constructed in stages with full capacity several years away. Operation of the new plant is scheduled to begin about year 2005. The treatment plant will supply water to the areas south and north of the Carefree Highway. A 78-inch trunk line will be constructed from the treatment plant along Carefree Highway.

The City of Peoria distribution system currently extends only as far north as Beardsley Road. Peoria water service is from groundwater at this time.

The City of Peoria currently has plans for construction of a City-owned treatment plant near Greenway Road and the Arizona Canal to treat both CAP and SRP water supplies. The City also has agreed to purchase a share of the City of Glendale's new Pyramid Water Treatment Plant which will treat CAP water supplies.

ARIZONA STATE LAND DEPARTMENT PLANS

The Arizona State Land Department (ASLD) owns most of the public land surrounding and to the west of The Villages. The land will be managed pursuant to the Urban Land Act which provides that ASLD develop plans for its development and disposal. At this time, there are no plans adopted for the land's development.

NON-FEDERAL WATER SUPPLY OPTIONS**OPTION 1 - SERVICE FROM EXISTING CITY OF PHOENIX SYSTEM**

Under this option, the City of Phoenix would provide water service to The Villages from the City's existing water supply system through a series of line extension agreements. The City's distribution system and service area would be extended to include The Villages. The extension of Phoenix' water supply system to include The Villages' property is reflected in the Phoenix Water Resources Plan approved by the Phoenix City Council in November 1995.

Phoenix has already annexed the 900 acres of The Villages lying west of I-17. In a June 11, 1996, letter to Bruce Ellis of Reclamation, Frank Fairbanks, Phoenix City Manager, confirmed that the City could be a water supplier to The Villages based on the City's plans to serve the area with CAP water from its proposed Lake Pleasant Water Treatment Plant.

A letter was also received from the City of Phoenix's City Manager's Office indicating that the City has reviewed the two Phoenix water supply options addressed in the draft EA and that the City staff "generally agree with the description of the water supply situation in the draft report..." The City indicated that "design and timing of delivery facilities would be determined with the City of Phoenix in accordance with their Master Plans and the needs of development in the North Phoenix area" (Garcia pers. comm.). Additionally, Del Webb has also presented considerable evidence about discussions to provide City of Phoenix water to The Villages development, including past correspondence with City officials (see Attachment 1 to this appendix). Reclamation staff also independently contacted City staff on September 15, 1997, to confirm the accuracy of the information contained in Attachment 1 and to further discuss the City of Phoenix options.

No part of this water service agreement would require the approval of Reclamation or any other federal entity, and no part of it would affect groundwater levels in The Villages area or use unreplenished groundwater.

Water Supply

The City of Phoenix currently has adequate existing and planned water supplies to serve The Villages. In November 1995, the Phoenix City Council approved a revised Phoenix Water Resources Plan that identifies an available water supply of 227,704 af per year for "off-Project" areas, including The Villages.¹ The water demand for off-Project lands in 1995 was 175,300 af per year, leaving 52,404 af per year available to serve new development. The projected demand for The Villages is 7,900 acre-feet per year at full build-out.

¹Certain lands within the City of Phoenix are within Salt River Project (SRP) and have surface water supplies that are not available to lands outside of SRP. The Phoenix Water Resources Plan analyzes the "off-Project" areas separately, because the supply of water for SRP land is considered adequate only to meet future needs in the SRP area.

The City of Phoenix projects that water demand in the off-Project area may slightly exceed available supplies by the year 2045. Additional supply opportunities have been identified by the City, but definite plans for their development have not been completed. If The Villages is served by the City of Phoenix, it may result in the use of portions of existing water supplies with other later development being served from other planned supplies. Nevertheless, it is clear that the City of Phoenix currently has adequate water supplies available to serve The Villages.

| City of Phoenix Off-Project and Non-Member Projected Water Supplies and Demands (1,000 Acre-feet) | | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1995 | 2000 | 2005 | 2010 | 2015 | 2023 | 2035 | 2045 |
| CAP Allocation | 113.9 | 113.9 | 113.9 | 113.9 | 113.9 | 113.9 | 113.9 | 113.9 |
| Gateway | 21.0 | 21.0 | 21.0 | 21.0 | 21.0 | 21.0 | 21.0 | 21.0 |
| Reclaimed Wastewater for Turf | 1.6 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 |
| Groundwater | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 |
| Roosevelt Cons. Space | | 32.3 | 32.3 | 32.3 | 32.3 | 32.3 | 32.3 | 32.3 |
| RID EXCH. SRPMIC | 14.2 | 8.5 | 28.5 | 28.1 | 28.1 | 24.7 | 4.7 | 8,137 |
| Fort McDowell Settlement | 0 | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 |
| Hohokam ID Buyout | 62.0 | 2.4 | 43.7 | 34.6 | 25.6 | 16.0 | 6.0 | 6.0 |
| Total Average Year Off-Project Supplies | 228 | 271 | 262 | 253 | 244 | 231 | 221 | 214 |
| Hot Weather Demand | 149 | 162 | 177 | 193 | 210 | 233 | 257 | 281 |
| Surplus (Deficit) | 79 | 109 | 85 | 60 | 34 | (2) | (36) | (67) |

Source: Phoenix Water Resources Plan, City of Phoenix Water Service Department, November 1995.

As can be seen from the above projection, the City has an adequate supply to meet all demands until about the year 2025. Development of additional supply opportunities will assure a full supply well beyond this time. Additional supply opportunities include reallocated CAP, State Land allocated CAP, recharge and recovery of reclaimed water, and water from McMullen Valley. As discussed above, the projected City demand includes estimates for The Villages area. Service to The Villages by the City would not increase the demand significantly, if any, over that already projected.

Pursuant to ARS 45-576.E, the City of Phoenix is deemed to have an AWS until January 1, 1998. Because Phoenix is a deemed provider, The Villages could obtain service from Phoenix and, by doing so, satisfy the assured water supply requirements. The City of Phoenix has applied to ADWR to be designated as having an AWS for the period following January 1, 1998, and is expected to receive such a designation. Receipt of water service from Phoenix as a designated AWS provider will satisfy the AWS requirements for The Villages.

Delivery Facilities

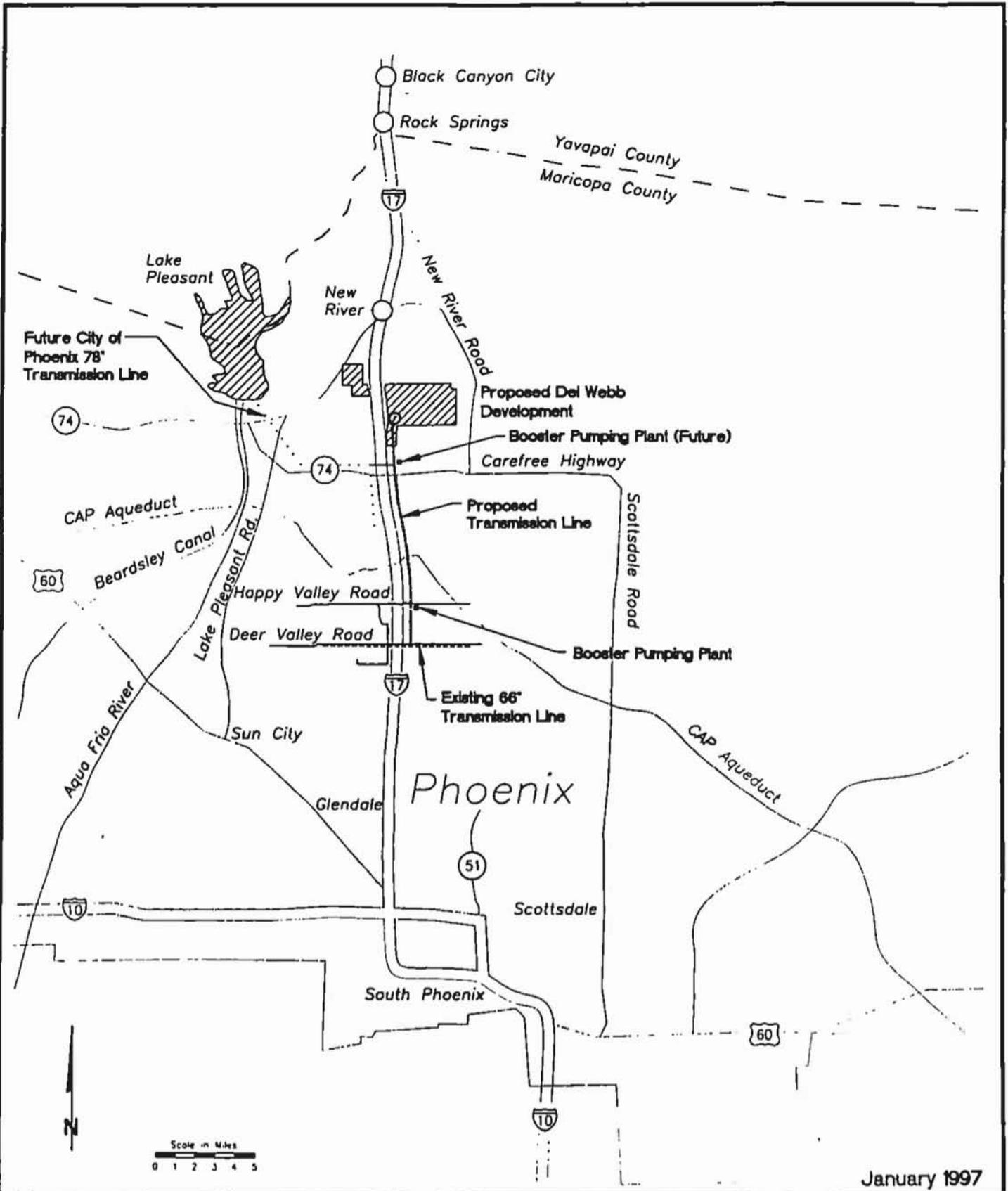
The most likely candidate for connecting the proposed Villages transmission line would be the 66-inch transmission line adjacent to Deer Valley Road that delivers treated Phoenix system water from to areas west of 35th Avenue. The connection point would be just east of I-17 at Deer Valley Road, approximately five miles west of the Union Hills Water Treatment plant. The Union Hills Water Treatment Plant is used to treat CAP water.

The total length of the proposed pipeline would be approximately 63,000 feet (12 miles). The alignment would be parallel and adjacent to the east right-of-way (ROW) of I-17, as shown in Figure A-3. The alignment would cross Skunk Creek, Deadman Wash, several minor intermittent streams, the CAP Canal, Carefree Highway, and other minor roadways.

The Villages' transmission line configuration would consist of a 24-inch diameter pipeline from the Deer Valley Road connection point to the Carefree Highway (43,000 linear feet), and a 36-inch diameter pipeline from Carefree Highway to The Villages development (20,000 linear feet). Because the City of Phoenix plans to build the 320-mgd Lake Pleasant Water Treatment Plant and a 78-inch line along Carefree Highway before the full demand is realized at The Villages, the pipeline south of Carefree Highway could be sized smaller (24-inch) to meet this intermediate level demand and tap into the Phoenix 78-inch line when it is available (currently planned for the year 2005). Design and timing of The Villages' transmission line would be coordinated with the City of Phoenix in accordance with its Master Plans and the needs of development in the North Phoenix area.

A booster pumping plant located south of Happy Valley Road would be necessary to deliver the treated water from the Deer Valley Road connection point to The Villages. The pumping plant would be sized to meet the intermediate demand noted above. Once the planned City of Phoenix 78-inch transmission line is operational, the connection could be made at Carefree Highway, and this booster pumping plant would no longer be necessary. The transmission line segment from Deer Valley Road to Carefree Highway would continue to be integrated with the City of Phoenix distribution system. A booster pumping plant would, however, be necessary north of Carefree Highway (on The Villages 36-inch transmission line) to deliver treated water from the new connection point to The Villages. Figure A-3 shows the conceptual layout for this alternative. Additional facilities and connections to the City of Phoenix water distribution system may be required.

An alternative configuration that does not include a connection to the future 78-inch line would consist of a 36-inch diameter transmission line the entire 12-mile distance from Deer Valley Road to The Villages and one booster pumping plant sized for the maximum day Villages' demand.



January 1997

Bookman-Edmonston
Engineering

Option 1
Service from Existing
City of Phoenix System

FIGURE A-3

Because this system would be delivering treated water, a water treatment plant at The Villages would not be necessary, and the terminal configuration at The Villages development would be different. The pipeline would most likely terminate at a storage facility with the storage facility sized and located with respect to distribution system requirements (rather than treatment plant requirements).

System Operation and Maintenance

Because this would be an extension of service by the City of Phoenix, the system would be operated and maintained by the City. Users would be customers of the City of Phoenix Water Department. Water rates for customers would be established by the City based on policy for service to similar areas on the outskirts of the distribution system.

Estimated Costs

A pre-feasibility-level cost estimate is presented in the table below. Costs include construction costs for the pumping plants and transmission line, and rights-of-way, legal, engineering, construction management, administration, and contingency costs. The total estimated cost for Option 1 is \$12.7 million.

| Estimate of Cost to Provide Treated Water from the Existing City of Phoenix Water Supply System (Option 1) | |
|--|---------------------|
| Item Description | Cost |
| Pumping Plants | |
| Happy Valley Road | \$ 1,000,000 |
| Carefree Highway (future) | 800,000 |
| Subtotal, Pumping Plants | \$ 1,800,000 |
| Transmission Pipeline (20,000 linear feet, 36-inch diameter and 43,000 linear feet, 24-inch diameter) | \$ 6,428,000 |
| Rights-of-Way | \$ 610,000 |
| Subtotal | \$ 8,838,000 |
| Legal, Engineering, Construction Management and Administration (15%) | \$ 1,326,000 |
| Contingencies (25%) | \$ 2,541,000 |
| TOTAL ESTIMATED COST | \$12,705,000 |

The source of funding for construction could be negotiated between Del Webb and the City. A number of variations of up-front funding and development fee structures is possible.

Pursuant to State statute, ARS 45-576.E, the City of Peoria is deemed to have an assured water supply until January 1, 1998. Under this status, The Villages could obtain water service from the City of Peoria and meet the state's AWS requirements. In order to continue its AWS status after January 1, 1998, the City filed an application to be recognized as having an AWS designation. In its AWS application, Peoria anticipates pledging approximately 60,000 acre-feet of water per year from three supply sources: 18,709 acre-feet of CAP water; 18,508 acre-feet of excess groundwater; and 23,103 acre-feet of SRP water.

Supplies which Peoria can pledge for assured water supply purposes are currently limited by treatment capacity. Peoria anticipates pledging nearly 50,000 acre-feet per year of capacity in treatment facilities including 24,600 af/yr of well capacity that would be used to pump excess groundwater pursuant to the City's membership in CAGR. Such groundwater would be replenished by CAGR with surface water supplies. Given infrastructure constraints and certain supply constraints, however, Peoria anticipates pledging approximately 43,000 acre-feet per year.

If Peoria does not become a designated AWS provider, or later loses such designation, The Villages could continue to receive water service from Peoria. In order to satisfy AWS requirements for any remaining development, Del Webb could enroll the remainder of The Villages' property as member lands of the CAGR and obtain a certificate of Assured Water Supply for those lands. Any groundwater pumped from existing Peoria well fields by Peoria to serve those lands would be replenished with surface water by the CAGR. This service arrangement would not require the approval of Reclamation, nor would it impact groundwater levels in The Villages area or use unreplenished groundwater.

The estimated impacts of groundwater production to supply The Villages from the Peoria system were evaluated with respect to the requirements for a 100-year AWS. In order to demonstrate a 100-year water supply, the depth to water at the end of 100 years needs to be less than 1,000 feet.

In performing this analysis, it was assumed that 8,000 acre-feet per year would be obtained from nine wells located in Sections 16 and 21 in Township 4 North, Range 1 East, as shown in Figure A-5.

The analysis shows that the maximum drawdown at the end of 100 years would be about 185 feet indicating that the supply would meet the criterion for a 100-year AWS. The drawdown over time at the well field is shown graphically in Figure A-6. Because of the development of the well field, the drawdown at the closest City of Peoria well (located in section 21) is estimated to be 115 feet after 100 years.

Delivery Facilities

The required facilities would include a connection to the existing City of Peoria water distribution system, a well field, a booster pumping plant, and a transmission pipeline. An estimated nine wells would need to be drilled to a depth of approximately 1,600 feet. Each well would require a 400-horsepower pump. The wells would be connected to the existing City of Peoria water distribution system in the vicinity of Beardsley Road and 91st Avenue. The City of Peoria operates a 16-inch diameter water distribution pipeline at this location.

A booster pumping plant and a transmission line would need to be constructed to deliver water to The Villages. A 36-inch diameter transmission line would head west from the booster pumping plant parallel and adjacent to the northern Beardsley Road ROW, as shown in Figure A-5. At the Lake Pleasant Road, the transmission line would parallel and be adjacent to the southern ROW of the Lake Pleasant Road heading north. The transmission line would head due east along the section line starting at the southern boundary of Section 23, Township 6 North, Range 1 East to The Villages. It is estimated that approximately 19 miles of 36-inch diameter pipeline would be required.

System Operation and Maintenance

Because this would be an extension of service by the City of Peoria, the system would be operated and maintained by the City. Users would be customers of the City of Peoria Water Department. Water rates for customers would be established by the City, based on policy for service to similar areas on the outskirts of the distribution system.

Costs

A pre-feasibility-level cost estimate is presented in the table below which shows construction costs for the well field, pumping plant, and transmission line, and costs for rights-of-way, legal, engineering, construction management, administration, and contingencies. The total estimated cost for Option 3 is \$27.9 million.

| Estimate of Cost to Provide Service from Existing City of Peoria System (Option 3) | |
|---|---------------------|
| Item Description | Cost |
| Well field (9 wells, 1,300 feet deep) | \$ 2,860,000 |
| Pumping Plant | \$ 3,200,000 |
| Transmission Pipeline (102,000 linear feet, 36-inch diameter) | \$12,342,000 |
| Rights-of-Way | \$ 981,000 |
| Subtotal | \$19,383,000 |
| Legal, Engineering, Construction Management and Administration (15%) | \$ 2,907,000 |
| Contingencies (25%) | \$ 5,573,000 |
| TOTAL ESTIMATED COST | \$27,863,000 |

OPTION 4 - CAGR D MEMBERSHIP; SERVICE BY PRIVATE WATER COMPANY

Under this option, the physical water supply for The Villages would be provided from well sites leased or purchased by the water company in the Phoenix AMA where it is determined that pumping over the next 100 years will not cause the water level in the aquifer to decline to more than 1,000 feet below ground surface. The water company's service area would be established through the use of Type 2 non-irrigation grandfathered rights with water for the development being withdrawn from the off-development well sites and piped to The Villages.

As with Option 3, groundwater pumped at these off-development well sites would be replenished by surface water supplies provided by the CAGR D as a result of the enrollment of The Villages' lands in the CAGR D.

This option allows Del Webb to obtain water service for The Villages and an AWS under Arizona law using an arrangement that does not require the approval of Reclamation or any other federal entity and would not impact groundwater levels in The Villages area and would not use unreplenished groundwater.

Water Supply

The estimated impacts of groundwater production to supply The Villages under Option 4 were evaluated with respect to the requirements for a 100-year AWS. In order to demonstrate a 100-year water supply, the depth to water at the end of 100 years needs to be less than 1,000 feet.

In performing this analysis, it was assumed that 8,000 acre-feet per year would be obtained from nine wells, located in Township 5 North, Range 4 East, as shown in Figure A-7.

The analysis shows that the drawdown at the end of 100 years would be about 155 feet. As shown in Figure A-8, the depth to groundwater at the well field would be about 730 feet at the end of 100 years of pumping, which indicates that the supply would meet the criterion for a 100-year AWS.

The analysis used to assess the long-term impacts on groundwater assumes that the 8,000 acre-foot per year demand can be met by wells pumping at a constant rate of about 11 cfs or about 5,000 gpm over the year. However, in fact, the demands will vary during the year, with the demand for the peak day being about 28 cfs, or about 12,700 gpm. The estimated costs are based on the number of wells needed to provide the peak capacity.

Delivery Facilities

The required facilities would include a well field, a booster pumping plant, and a transmission pipeline. An estimated nine wells would need to be drilled to a depth of approximately 1,600 feet. Each well would require a 400-horsepower pump. The wells would be connected to a common booster pumping plant, which would pressurize the water for transmission to The Villages. A 36-inch diameter transmission line would head northeast from the booster pumping plant to the existing power lines, as shown in Figure A-7. The transmission line would then parallel and be adjacent to the southern ROW for the power lines. At the Carefree Highway, the transmission line would parallel and be adjacent to the southern ROW of the Carefree Highway heading west. At Interstate 17, the transmission line would parallel and be adjacent to the eastern ROW of Interstate 17 and would head north to The Villages. It is estimated that approximately 14 miles of 36-inch diameter pipeline would be required.

System Operation and Maintenance

The delivery facilities would be owned and operated by the water company established to serve The Villages.



May 1997

BOOKMAN-EDMONSTON
ENGINEERING

Option 4
CAGRG Membership
Service by Private Water Company

FIGURE A-7

Estimated Costs

A pre-feasibility-level cost estimate is presented in the table below which shows construction costs for the well field, pumping plants, and transmission line, and costs for rights-of-way, legal, engineering, construction management, administration, and contingencies. The total estimated cost for Option 4 is \$19.2 million.

| Estimate of Cost to Provide Phoenix AMA Groundwater Through CAGR Membership (Option 4) | |
|---|---------------------|
| Item Description | Cost |
| Well field (9 wells, 1,600 feet deep) | \$ 2,794,000 |
| Pumping Plant | \$ 1,000,000 |
| Transmission Pipeline (74,000 linear feet, 36-inch diameter) | \$ 8,847,000 |
| Rights-of-Way | \$ 713,000 |
| Subtotal | \$13,354,000 |
| Legal, Engineering, Construction Management and Administration (15%) | \$ 2,003,000 |
| Contingencies (25%) | \$ 3,839,000 |
| TOTAL ESTIMATED COST | \$19,196,000 |

MEMORANDUM
City of Phoenix Water Supply Alternatives

Purpose:

The purpose of this memorandum is to summarize the current status of the activities the City of Phoenix has been undertaking to provide water service to the private land owners along I-17. This service could be delivered to The Villages.

Prior Correspondence Which Has Been Delivered to the Bureau of Reclamation:

Previously, Del Webb has provided copies of a letter from Frank Fairbanks to Bruce Ellis dated June 11, 1996, outlining the ability of the City of Phoenix to serve The Villages with potable water supply. During the time frame in which Mr. Fairbanks wrote this letter, the plans which the City of Phoenix had in place were the overall plans for the City of Phoenix to provide water service to this area, pursuant to their acquisition of a water campus from the State Land Department, with the anticipated delivery of the service in the year 2004.

In February 1997, David Garcia sent a letter to Tom Lucas further outlining the City's commitment and ability to provide water services. Copies of both letters have been provided to BOR and are attached.

Subsequent Discussions:

In early 1997, Communities Southwest, a local real estate developer, opened escrow to purchase the 1150-acre site located at Carefree Highway and I-17 from the Opry Land Publishing Company (OPUBCO). Critical to the development of this property was obtaining water from the City of Phoenix. While the OPUBCO has a Development Agreement which would allow the drilling of wells, the groundwater underneath that property is not sufficient to support the density of development desired by the buyer. Therefore, the buyer began discussions with the City of Phoenix to provide a water supply on an expedited basis in advance of the schedule in the City's Regional Service Plan (then scheduled for 2004).

Around March, 1997, the City approached Del Webb about having Del Webb and Communities Southwest enter into an agreement with the City to provide for the City's acquisition of the easement for the Del Webb pipeline (in its current location), with Del Webb and Communities Southwest agreeing to have water services by the City of Phoenix. As part of that plan, Del Webb and Communities Southwest would build the first phase of the water treatment plant for the City's ultimate master plan for the delivery of water to the property owners along I-17. After careful deliberation regarding the cost and benefits of that alternative, while feasible, Del Webb passed on the proposal in the interest of continuing to pursue the Ak-Chin water supply. Thereafter, Communities Southwest worked with the City of Phoenix to devise an alternate water supply plan. The results of that effort are attached in a letter dated April 8, 1997, from Mark A. Voigt, whereby Communities Southwest proposes either a deal utilizing the phased water treatment facility on the City's future plan site or the extension of services from south of the CAP.

As a result of this letter and discussions between Communities Southwest and the City of Phoenix, the City of Phoenix Water Services Staff held a meeting with private property owners along I-17 which occurred June 24th, 1997. The strategy and agenda, as well as a list of the participants, is attached.

At that meeting, the City outlined its plan for bringing a 54" water line from Deer Valley and 35th Avenue up I-17 to serve the OPUBCO site, with all other property owners having the ability to tie into the line. A 54" line is significantly more than is needed by the OPUBCO site, and it is designed with over-capacity to allow the other property owners to tie in, as well as to allow extension to The Villages to serve the Del Webb project. The estimated cost of this line to Carefree Highway was \$22 million, with Communities Southwest pledging to advance \$6 million. The City was pledging to contribute \$5 million and was looking for the balance of the funding to come from a combination of Del Webb and the remaining private property owners.

Comparison of the Cost of the Ak-Chin Water and Pipeline to the City of Phoenix Alternatives in the Environmental Assessment:

In the draft EA, the Option #1, Service from the Existing City of Phoenix System, showed a cost of the system at \$12,705,000. Option #2, which was Service from the City of Phoenix through Constructed Facility, showed an alternative of \$10,203,000.

The selected alternative for the Ak-Chin water supply pipeline was Alternative C-1 at a cost of \$11,360,952. One of the commentators raised the question about the viability of the City of Phoenix alternative if Del Webb was choosing an alternative which was more expensive.

The cost to construct the facility is only one part of the analysis. There are additional costs which would be required in utilizing the City of Phoenix option which are not detailed in a draft Environmental Assessment. These would involve the cost of having the water service delivered by the City of Phoenix in the form of Development Impact Fees which every home builder would pay to connect to the City of Phoenix. Currently, the Impact Fee for Areas C&D (the closest Development Impact Fee area to The Villages) is \$5,056 per unit for the Desert View Tri-Villages West. This Impact Fee assumes use of the City of Phoenix water system with a private sewer system (as would be the case with The Villages). A copy of the City of Phoenix Development Impact Fees, effective August 1, 1997, through January 31, 1998, is attached. While the City of Phoenix Impact Fees do allow credit for the cost of offsite infrastructure (i.e. the pipeline), the overall cost of the City of Phoenix alternative is still more expensive than developing in the County. While the City of Phoenix alternative would not be cost prohibitive, cost is a factor in determining whether to proceed with utilizing the Ak-Chin water through the proposed pipeline, versus entering into an agreement with the City of Phoenix and paying their Development Impact Fee.

TELucas/cb - 8/22/97

Mr. Bruce Ellis
Page 2
June 11, 1996

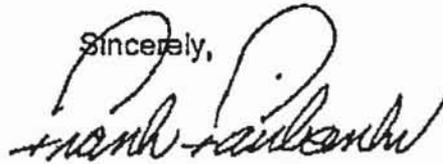
The Villages' current infrastructure plans should be examined jointly with Phoenix to assure that the water system being installed by The Villages is compatible with future service by Phoenix, and the economies of scale are maximized and duplication is minimized. The Villages has pledged to engage in a joint planning exercise with Phoenix to establish possible guidelines to achieve these objectives.

In summary, based upon the above, Phoenix could be a water supplier to The Villages. Appropriate planning and institutional procedures, including Council approval, would have to be implemented before actual service could be provided.

This letter is not intended to be a commitment by the City of Phoenix to provide water service to The Villages at Desert Hills nor a binding commitment of any kind by the City of Phoenix.

I hope this letter answers questions you might have concerning the possibility of Phoenix providing water service to The Villages. Should you have other questions or need more information, please contact Mr. Michael Gritzuk, Phoenix Water Services Director.

Sincerely,



Frank Fairbanks
City Manager

c: David R. Garcia
Michael Gritzuk
Jesse Sears



City of Phoenix
OFFICE OF THE CITY MANAGER

February 4, 1997

Winner of the
Carl Barabasz
Prize



Mr. Thomas E. Lucas
Vice President
Del Webb Corporation
6001 North 24th Street
Phoenix, Arizona 85016

Re: City of Phoenix Comments on Draft Water Supply Alternative for Villages at Desert Hills

Dear Mr. Lucas:

This letter responds to a request made by Bookman Edmonston Engineering, Inc., dated December 18, 1996, for City of Phoenix comment on draft water supply alternatives for the Villages at Desert Hills proposed by the Del Webb Corporation. We understand you propose this draft for inclusion in the environmental Assessment (EA) for Del Webb's proposed pipeline to deliver Ak-Chin Indian Community water from Lake Pleasant to the Village.

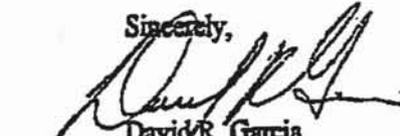
City Staff has reviewed the two alternatives involving water delivery from the City of Phoenix water system. Since its annexation several months ago, a portion of the Villages (900 acres) is within the boundaries of the City of Phoenix. The balance of the Villages is in the county and would require the approval of the City Council to serve the area.

We generally agree with the description of the water supply situation in the draft report, which is the main purpose of the EA.

The timing of delivery facilities described in the report has not been finalized by the City. For the purposes of this document, we suggest a statement to the effect that "design and timing of delivery facilities would be determined with the City of Phoenix in accordance with their Master Plans and the needs of development in the North Phoenix area." We will support this statement.

We hope this provides you with sufficient review comments to meet your needs and the requirements of the Bureau of Reclamation Environmental Assessment for your proposed Lake Pleasant pipeline and Water Treatment Plant at the Villages at Desert Hills. Please feel free to contact me should you have any questions.

Sincerely,



David R. Garcia
Deputy City Manager

TS00401ANRUTILLUCAS.WSI



April 8, 1997

Mr. Frank Fairbanks
City Manager
City of Phoenix
200 West Washington
Phoenix, Arizona 85003-1611

RE: Water Service North of CAP Along the I-17 Corridor

Dear Frank:

The purpose of this letter is to outline several potential policy issues relating to expanding the City of Phoenix water service area into the North I-17 corridor north of the Central Arizona Project Canal.

There are several key facts that will help set a foundation for these discussions:

- Communities Southwest is in the process of purchasing 1,125± acres at the northeast corner of the I-17 and Carefree Highway (the "Property").
- This property is presently within the City of Phoenix (the "City") and has a Development Agreement with the City (City Contract No. 75917) outlining parameters for providing infrastructure to the Property.
- Over the past several weeks, Communities Southwest has had ongoing discussions with the Water and Wastewater Department staff on several alternatives available to us in providing permanent water service to the Property.
- With exception of the purchase of land for the ultimate "Lake Pleasant" Water Treatment Plant, the City does not plan to construct a plant or line improvements until the year 2005.

arizona
1010 North 16th Street
Suite 400
Phoenix, Arizona 85016
602.530.1000
Fax 602.530.7740

california
1010 North 16th Street
Suite 400
Irvine, California 92611
714.530.1401
Fax 714.530.3671

- **Communities Southwest would like to proceed with development of the Property as quickly as possible. Pending final PCD approval, we would like to undertake development as early as mid-1998.**
- **In our discussions with the Planning Department staff and other City staff, we appreciate the potential economic impact benefits to the City by opening up the I-17 Corridor to commercial and residential development.**
- **We realize that development of this area must pay for its own way. I believe the City staff also understands that the first development or developments can not afford to build the ultimate planned City facilities (i.e., 40 - 320 MGD water plant or 78" transmission mains).**

I would suggest that the specific policy question to seek feedback or guidance from the City Council Utilities Subcommittee is the following:

- **Should the City expend staff time and resources to negotiate an initial phase of a water service agreement that allows our development (as well as other interested developments) to install phased water service facilities that allow development to occur before permanent regional water services are installed by the City in 2005?**

Several general alternatives have emerged during our preliminary discussions with City staff:

- 1. Construct a phased water facility to serve the Property and be permitted to use the future City plant site and water line locations. Our initial phases of water services could be expanded with financial participation from other property owners or developers within the City along the I-17 Corridor north of the CAP. This facility would operate until the year 2005.**
- 2. Extend water services from south of the CAP (Union Hills and Deems Reservoir System) to serve the area north until the year 2005. This alternative may also include other developers/owners in the subject area. In discussing with staff, we understand there are current concerns and questions of "borrowing" or limiting the capacity to this system. However, if capacity is present and can be used in the interim, there could be benefits to the City.**

There are many other alternatives or even a combination of alternatives that need to be examined. The Development Agreement contemplates other alternatives such as wells. However, we do agree with the staff that an initial phased system, that is based on the parameters of an ultimate system, makes sense to be examined at this time.

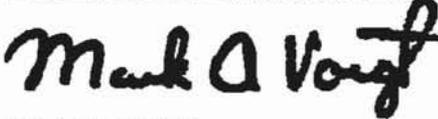
Mr. Frank Fairbanks
April 7, 1997
Page 3

We appreciate the time and cooperation that both the Planning and Water and Wastewater staffs have spent to date. Presently, our feasibility studies of the Property point to the establishment of an economically phased water delivery system as a critical component to the success of this proposed planned community. We would like to establish this water delivery potential before pursuing a PCD district designation. In other words, we need a decision quickly.

We look forward to the Subcommittee Meeting on April 16, 1997.

Yours very truly,

COMMUNITIES SOUTHWEST, L.L.C.



Mark A. Voigt
President, Arizona Division

cc: Mr. Ray Elsdine
Mr. David Garcia
Mr. David Richert
Mr. Michael Gritzek
Mr. Mario Saldamando
Mr. Ray Quay
Mr. Carlos Padilla
Mr. Keith Larsen



City of Phoenix
-PLANNING DEPARTMENT

July 17, 1997

Winner of the
Carl Bertelsmann
Prize



Dear Interested Party:

You are invited to attend a meeting held to inform interested persons of the possible initiation of a Specific Plan for infrastructure financing. The area to be included in the plan is bounded by Carefree Highway on the south, 15th Avenue on the east, New River on the west and on the north by the ridge line of hills running northwest from 15th Avenue and Carefree Highway to 59th Avenue and Desert Hill Road alignment and then on the Desert Hill Road alignment to New River.

Infrastructure Financing Plans are used by the City of Phoenix to calculate fees necessary to pay for capital facilities needed to serve development in a part of the City. These fees are assessed at the time a building permit is requested from the City of Phoenix. These fees are not assessed in unincorporated areas. Unincorporated areas are included to help in preparing infrastructure plans for the area.

The meeting will be held at 7:00 p.m. on August 14, 1997, in the Main Lecture Hall at Barry Goldwater High School, 2820 W. Rose Garden Lane, Phoenix, Arizona. This meeting will be conducted as part of the first meeting of a Village Planning Committee charged with developing plans for this area and areas further north and south.

This letter is being sent to the mailing addresses of property owners of record in the area to be included. Letters are also sent to other interested parties of which the Planning Department is aware. Please inform others you think maybe interested in this meeting.

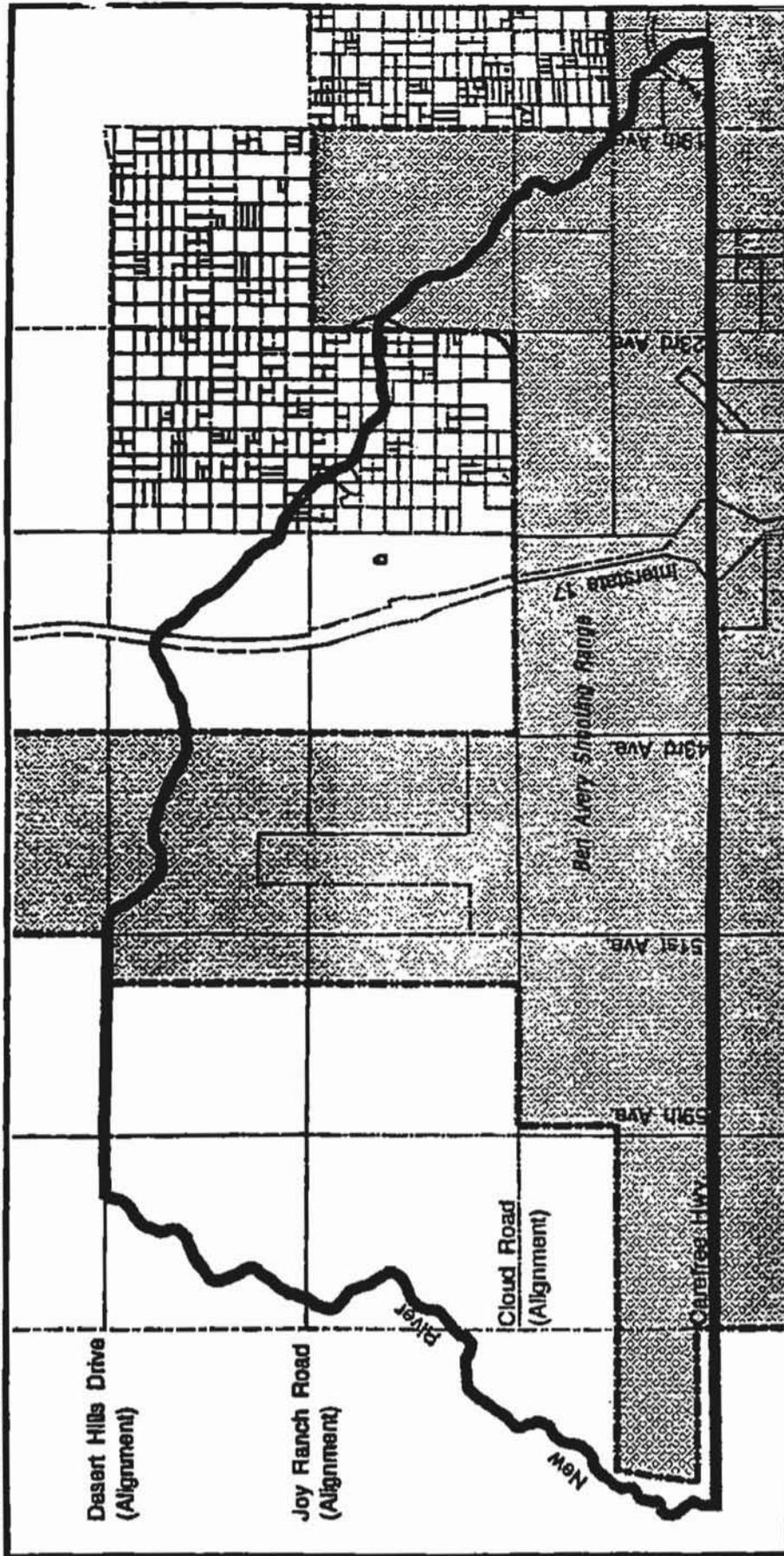
If you need more information please contact Bill Mee at 262-6946.

Sincerely,

David E. Richert
Planning Director

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DISTRIBUTED BY CITY OF PHOENIX



Proposed New Development Impact Fee Area

-  Proposed Area
-  Phoenix City Limits
-  City of Phoenix



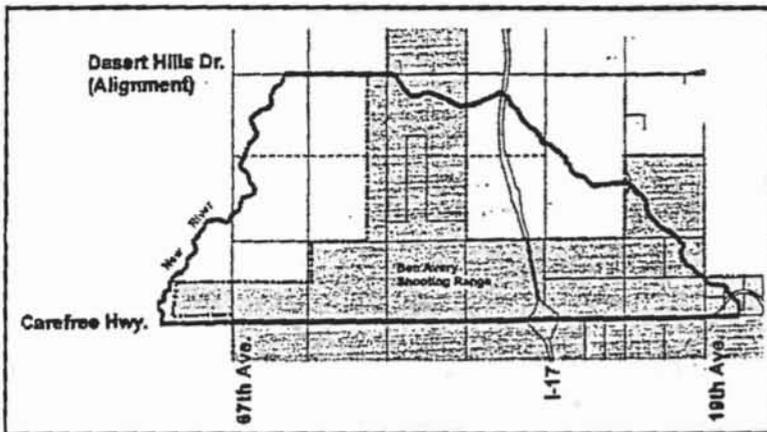
Prepared by: City of Phoenix, Planning Department - July 16, 1997

PLANNING & ZONING

NOTICE OF MEETING ON A NEW INFRASTRUCTURE FINANCING PLAN

Interested parties are invited to attend a meeting on August 14, at 7 p.m. at Barry Goldwater High School, Main Lecture Hall, 2820 W. Rose Lane, Phoenix, Arizona.

This meeting is being held to inform the public of the possible initiation of a Specific Plan for infrastructure financing. The area to be included in the plan is bounded by Carefree Highway on the south, 15th Avenue on the east, New River on the west and on the north by the ridge line of hills running northwest from 15th Avenue and Carefree Highway to the 59th Avenue and Desert Hill Road alignment and then on the Desert Hill Road alignment to New River. The Desert Hill Road alignment is three miles north of Carefree Highway.



Infrastructure Financing Plans are used by the City of Phoenix to calculate fees necessary to pay for capital facilities needed to serve development in a part of the City. These fees are assessed at the time a building permit is requested from the City of Phoenix. These fees are not assessed in unincorporated areas. Unincorporated areas are included to help in preparing infrastructure plans for the area.

This meeting will be conducted as part of the first meeting of a Village Planning Committee charged with developing plans for this area and areas further north and south.

At the hearing, citizens will have an opportunity to express their views concerning the proposal.

For ADA information, call the Planning Department, Theresa Damiani, at 262-6368 (voice) or 495-3793 (fax) or City TDD Relay 534-5500.

David E. Richert, Planning Director
Frank Fairbanks, City Manager



For more information, alternative format/reasonable accommodations, contact the specific departments. The City of Phoenix TTY/TDD is ☎ 534-5500.

**North Black Canyon/I-17 Corridor Proposed Strategies
Meeting with property owners June 24, 1997**

Vision: The North Black Canyon/I-17 Corridor will be a premier employment corridor in the valley. The urban design of the corridor will be distinctive in balancing the sensitive desert preserve lands with development and for achieving transportation sustainability. Skunk Creek Wash will become a linear park with a segment anchoring a central public place. Individual commercial, industrial, and residential developments will be both innovative and of high design quality.

Proposed Strategies:

- 1. Jobs and housing need to be balanced in the I-17 corridor to promote a sustainable transportation system.**
 - a. The corridor will expand the city's high end employment base. Retail and residential areas will be built to support the employment base.
 - b. The corridor will be the center of a new commute shed in the north, independent of the region's central employment commute shed. Care must be exercised in using the existing capacity on I-17.
 - c. The urban form should be oriented to transit service to maximize development opportunities.

- 2. Unique desert lands such as Skunk Creek Wash and mountain ranges will be part of the North Sonoran preserve and will guide the urban form of the corridor.**
 - a. Development of land in the corridor will be coordinated with the Army Corps of Engineers with the objective to preserve major natural drainages.
 - b. Desert preserve features are amenities that will attract high quality development.

- 3. Infrastructure will be built based on masterplans for water service delivery to come from Lake Pleasant in the north and sewer service to come from the wastewater treatment plant in the south near Skunk Creek. All water and sewer lines must be built to their ultimate size.**
 - a. Developers are working on an agreement among property owners to build the main north-south water line. The City will contribute toward sizing the line to its ultimate size.
 - b. An infrastructure growth line will be established along the I-17 corridor so that the development makes efficient use of the water line and payback opportunities are enhanced. Rights to develop land within the infrastructure growth line will be allocated in phases through the zoning process.
 - c. The City will build a wastewater treatment plant in the south near Skunk Creek. Developers will build the sewer and reclaimed water distribution lines from the plant north to Carefree Highway with some city contribution.

**PARTICIPANTS IN THE
NORTH BLACK CANYON/I-17 CORRIDOR
MEETING
JUNE 24, 1997**

| NAME | COMPANY | ADDRESS | PHONE | FAX | E-MAIL |
|-------------------|------------------------------------|--|-------------------|----------|---------------------|
| Brian Burch | <i>Metropolitan Land Company</i> | 4647 N. 32nd St. #235 Phoenix, AZ 85018 | 957-0604 | | |
| John W. Graham | <i>Sunbelt Holdings, Inc.</i> | 426 N. 44th St. Ste. 375 Phoenix, AZ 85008 | 244-1440 | 267-9114 | |
| William J. Graham | <i>Vector Realty Advisors</i> | 6534 N. 46th St. Paradise Valley, AZ 85253 | 228-9700 | 840-6252 | |
| Neil Irwin | <i>Streich Lang (OPUBCO)</i> | 2 N. Central Phoenix, AZ 85004 | 229-5614 | 229-5690 | |
| Thomas E. Lucas | <i>The Village at Desert Hills</i> | 14901 N. Scottsdale Rd. Ste. 200 Scottsdale, AZ 85254 | 596-6000 | 596-6053 | lucast@delwebb.com |
| Richard Mallery | <i>Snell & Wilmer</i> | One Arizona Center Phoenix, AZ 85004-0001 | 382-6232 | 382-6070 | mallery@swlaw.com |
| Harrison Merrill | <i>Vanguard Properties</i> | 3232 Cobb Parkway #315 Atlanta, GA 30339 | (404) 874-1128 | | |
| Charles Parker | <i>MacEwen Trust</i> | 2425 E. Camelback Rd. Ste. 900 Phoenix, AZ 85016 | 954-6277 | | |
| Christine Sheehy | <i>The Village at Desert Hills</i> | 14901 N. Scottsdale Rd. Ste. 200 Scottsdale, AZ 85254 | 596-6063 | 596-6053 | sheehyc@delwebb.com |
| Mark Voight | <i>Communities Southwest</i> | 5343 N. 16th St. Ste. 460 Phoenix, AZ 85016 | 265-1952 | 265-7740 | |



City of Phoenix
DEVELOPMENT SERVICES DEPARTMENT

Winner of the
Carl Bertelsmar
Prize for



PHOENIX DEVELOPMENT IMPACT FEE ORDINANCE

The City of Phoenix has experienced extraordinary growth both in population and in geographic size. As in most communities, Phoenix traditionally relied on bond financing approved by its citizens to pay for capital facilities such as sewer lines, water lines, and major streets which are needed to accommodate growth and new development. These bond funds have come from bond issues paid by taxpayers and ratepayers at large.

Competition for bond funds has intensified as the City invests in the revitalization of targeted areas, as facilities are planned to enhance the City's quality of life, and as Phoenix matures and begins to experience capital facility replacement demands. Additionally, citizens have exerted increasing pressure for new development to pay its proportionate share of infrastructure costs.

In response to these factors, in July 1987, City Council adopted the Development Impact Fee Ordinance also known as Fiscal Impact Fees.

This Fee Ordinance provides for builders and developers to pay their proportionate share of capital facilities needed to serve their projects. Capital facility needs are based on population and nonresidential space projections derived from the adopted General Plan for a planning area. The capital facility categories included in the Development Impact Fee Program are: equipment repair, fire, libraries, major streets, parks, police, solid waste, storm drainage, wastewater, and water.

Currently, Development Impact Fees are assessed in the Desert View Tri-Village-East, Central, and West, (formerly Area C/D) and in the Ahwatukee Foothills Village-Area B. (See attached map.)

The methodology included in the Ordinance allocates the costs for required capital facilities in a planning area to equivalent dwelling units (EDUs). The EDUs calculated for a specific development project are used to determine the impact fees for the project. Additional costs are assessed for projects that are remote from existing capital facilities or for projects requiring specialized capital facilities.

The Impact Fees are paid at the time building permits are issued. The fees are then earmarked for use on specified capital facility categories in the designated planning area.

For additional information on how this program may affect your project, please call Michael Gorecki at 495-5290.

Attachments

TBAr0Impact897.0
7/12/97

200 West Washington Street, Phoenix, Arizona 85003

Recycled Paper



City of Phoenix

DEVELOPMENT IMPACT FEES

Fees Effective August 1, 1997 through January 31, 1998

(Fees will be adjusted every six months according to the Specific Infrastructure Financing Plan Phasing Schedule)

RESIDENTIAL IMPACT FEES

| | Ahwatukee Foothills Village (Area B) | | DESERT VIEW TRI-VILLAGES | | | | | |
|--|--------------------------------------|---------------|--------------------------|---------------|------------|---------------|------------|---------------|
| | Impact Fee | Admin. Charge | West | | Central | | East | |
| | | | Impact Fee | Admin. Charge | Impact Fee | Admin. Charge | Impact Fee | Admin. Charge |
| Single Family Using City Water and City Sewer System Paying \$600 Water & \$600 Sewer Dev. Occ. Fees | \$922 | \$35 | \$4,239 | \$217 | \$4,751 | \$233 | \$4,470 | \$224 |
| Single Family Using City Water System (Private Sewer) Paying \$600 Water Dev. Occ. Fee | \$922 | \$35 | \$4,839 | \$217 | \$5,351 | \$233 | \$5,070 | \$224 |
| Single Family Using Private Water and Private Sewer Not Paying Water/Sewer Dev. Occ. Fees | \$922 | \$35 | \$5,439 | \$217 | \$5,951 | \$233 | \$5,670 | \$224 |

NOTE: *If a developer makes capital facility improvements and the improvements are identified in the specific infrastructure financing plan, the developer will receive credit based on the cost shown in the specific infrastructure financing plan. This is why some developments pay a lower fee than stated in the above chart.*

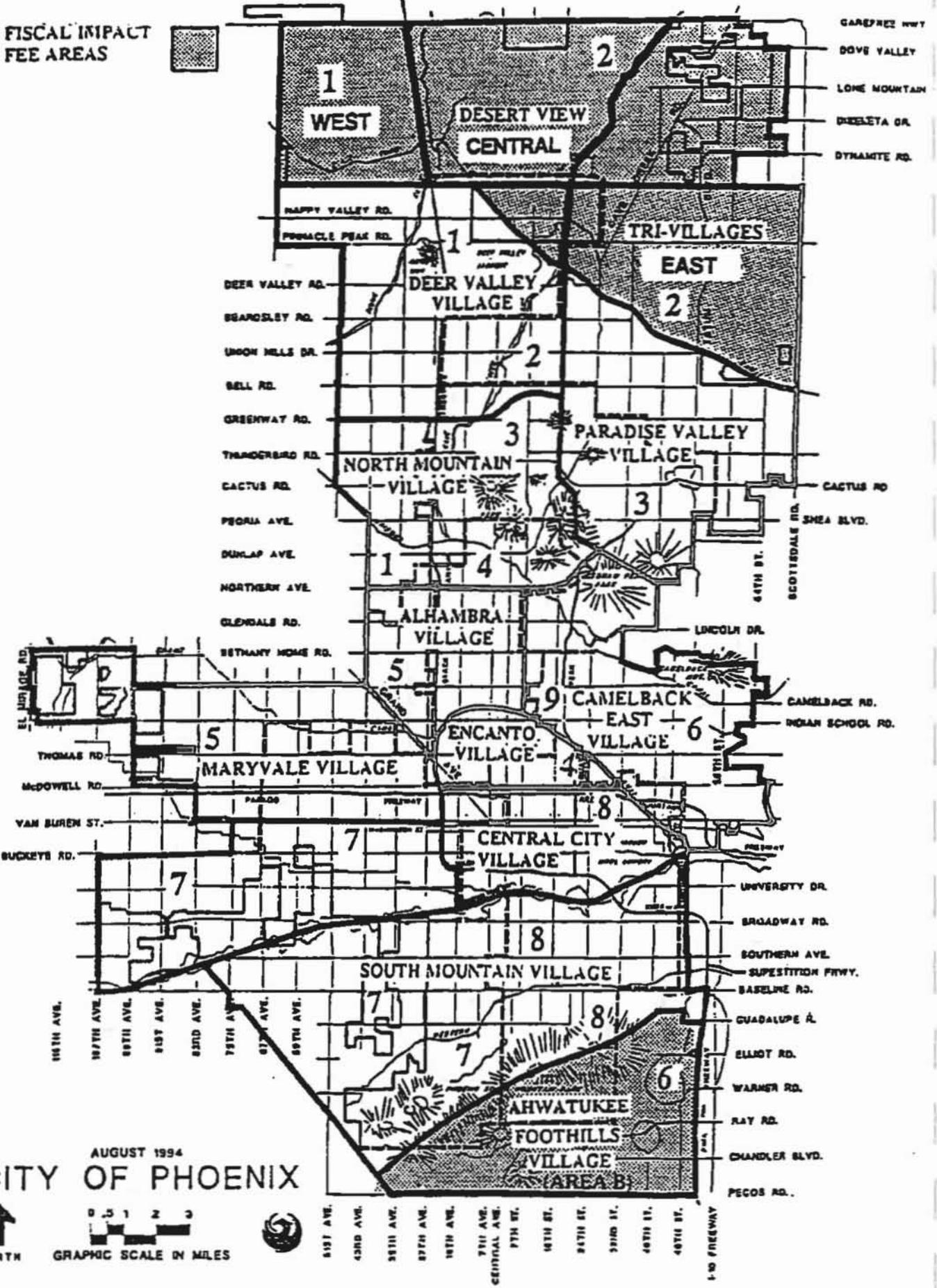
COMMERCIAL IMPACT FEES

The Development Impact Fee for a commercial project is based on the square footage of the building and the use of the building. If the commercial project makes capital facility improvements and the improvements are identified in the specific infrastructure financing plan, the developer will receive credit based on the cost shown in the specific infrastructure financing plan. Commercial projects should be referred to Michael Gorecki (495-5290) of the Development Services Department for fee calculation.

The Development Impact Fee is collected by the Development Services Department when the building permit is issued.

34800 N
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FISCAL IMPACT
 FEE AREAS

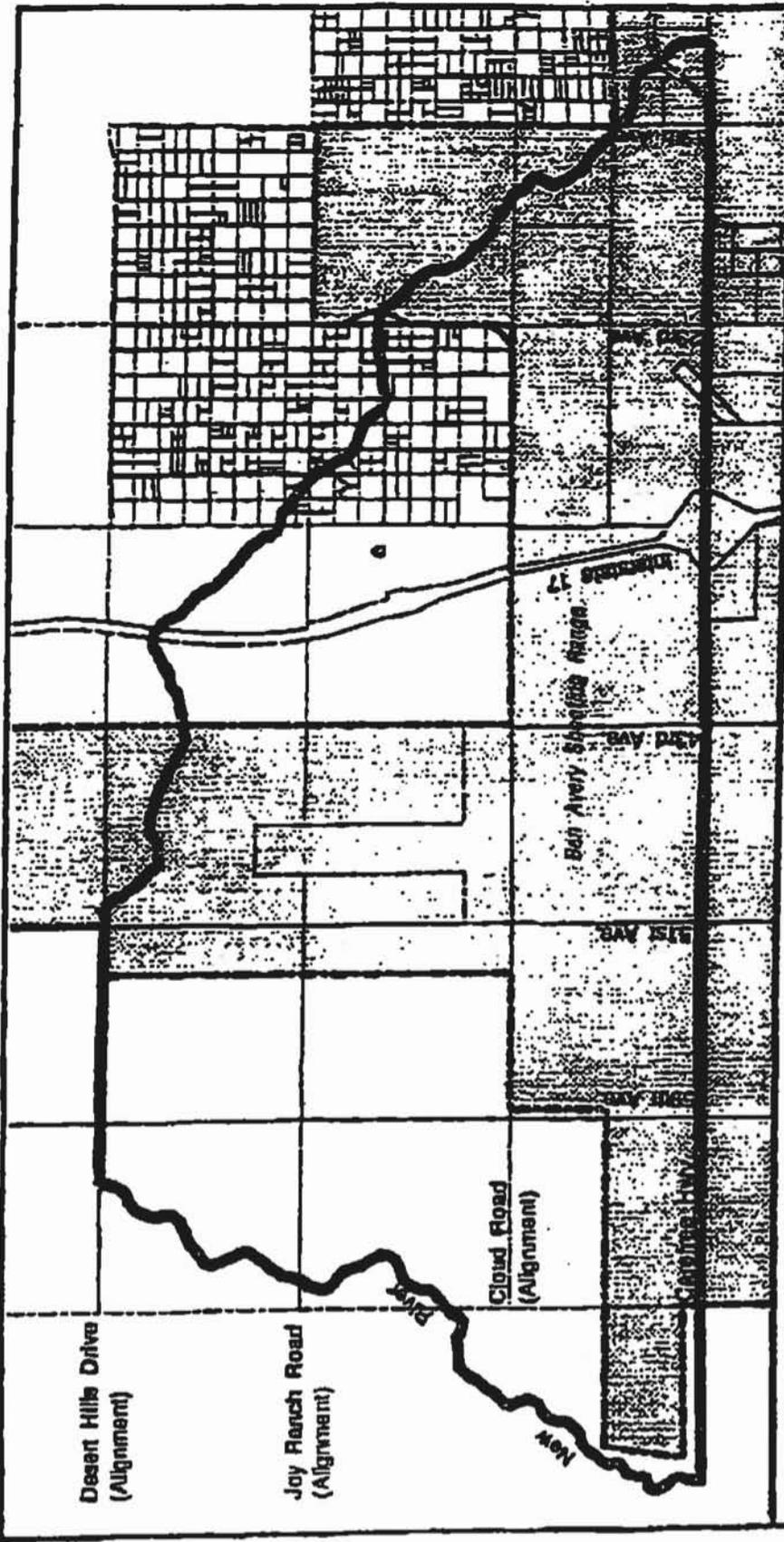


AUGUST 1994
 CITY OF PHOENIX



51ST AVE.
 43RD AVE.
 35TH AVE.
 27TH AVE.
 19TH AVE.
 11TH AVE.
 CENTRAL AVE.
 7TH ST.
 16TH ST.
 24TH ST.
 32ND ST.
 40TH ST.
 48TH ST.
 I-10 FREEWAY

DISTRIBUTED BY CITY OF PHOENIX



Proposed New Development Impact Fee Area

- Proposed Area
- Phoenix City Limits
- City of Phoenix



Prepared by: City of Phoenix, Planning Department - July 16, 1987



June 12, 1997

Lawrence Ramsey
Department of Water Resources
Management Support Section
500 North Third Street
Phoenix, Arizona 85004

Dear Mr. Ramsey,

On Friday, May 16, 1997 we were contacted by phone by Mr. Khoury of Stanley Consultants, Inc. on behalf of Del Webb Corporation. We received a letter from Michael Buckley dated May 20, 1997 as a follow-up to the phone call. Mr. Khoury requested that we notify them of our inability to supply them with water from our system for the construction of an 8 mile, 30" pipeline that is to supply all of the water for the new Del Webb New River Development. He explained that this would aid them in securing a permit to drill and operate a new well on their land west of I-17. They project that this well would produce 300 or 400 gallons a minute.

This letter expresses our strong objection to any new high capacity well or wells that will constantly endanger our limited supply of ground water. We operate 4 wells (from 395' to 1100' deep) on a rotating basis, that produce from 4 to 10 gpm when each is pumped for a maximum of 24 hours on and 48 hours off.

Skunk Creek passes through our land a mile above the Del Webb land and we believe that a large withdrawal of ground water in the Skunk Creek or New River basins will diminish our limited supply. We also fear that should Del Webb's lease with AK-Chin for CAP water not come to fruition, the developer might be tempted to use this, and additional wells, not just for construction, but other uses as well.

The permit for this "Construction Water" well should be subject to:

1. No new well until all permits, contracts, rights of way and other legal issues relative to CAP water are resolved and actually signed and sealed by all State, Federal and Tribal parties.
2. Use of well limited to water for the construction of the pipeline and water treatment plant only.

H-79

3. Well or wells currently on the project site, to be metered and same reported to the Department of Water Resources monthly.
4. Total maximum withdrawal to be no more than 90,000 gallons per day for a maximum of 18 months.

We are very concerned as water is our lifeblood. Please notify us of any hearings or meetings we may attend relative to any large proposed use of New River ground water.

Thank you for your attention to this matter.

Sincerely,

SHANGRI LA II RESORT
KRAUS INVESTMENTS L.C. (Owner)



Horst Kraus
President

HK:sr

cc: Karen A. Jenkins, Consumer Service, Arizona Corporation Commission
Renz D. Jennings, Commissioner (Water Division), Arizona Corporation Commission
Dennis E. Schroeder, Area Manager, U.S. Department of the Interior, BOR
Bruce Ellis, U.S. Department of the Interior, BOR
Congressman J.D. Hayworth
Senator John McCain, (R) Arizona
Senator Jon Kyl, (R) Arizona
Governor Fife Symington
Tom Carr, Permit Section, Department of Water Resources
Supervisor Fulton Brock
Supervisor Don Stapley
Supervisor Betsy Bayless
Supervisor Mary Rose Wilcox
Supervisor Jan Brewer

Letter 11: Response to Comments made by Shangri La II Resort

- 11-1. Additional information regarding withdrawals of groundwater during construction has been added to the final EA. Also see response to comment 7-5.
- 11-2. Your comments on the merits of the NEPA process and The Villages development are noted. Please refer also to the "Response to Comments on the NEPA Compliance Approach", above.

LETTER 12

June 29, 1997

Mr. Bruce Ellis, Chief
Environmental Resource Management Division
Bureau of Reclamation
P. O. Box 9980
Phoenix, Arizona 85068-0980

Re: PXAO-1500

Dear Mr. Ellis:

| | | |
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| KEYWORD | | |

I attended a Bureau of Reclamation meeting June 28th in New River. I had heard about the proposed Del Webb development in this area, and I was given information about this meeting by a co-worker. I drove one hour, from Tempe, to go to this meeting.

Even though I live in Tempe, I am against the Del Webb development. I think it is obvious that this project will have a detrimental affect upon the environment -- which to me means not only the quality of life for people in New River, but for anyone who breathes the air.

This is a prime example of urban sprawl which has become a menace throughout the West. As people move farther away from the city, they must drive longer distances to get to their jobs and other resources (a baseball stadium, airport or symphony hall). This causes more air pollution which all of us in the Valley breathe.

We should be filling in the vacant land within the City of Phoenix, not leap-frogging over parts of the desert to create another suburb. This type of development has gone on way too long. It's time to stop it now.

In my mind, the environmental impacts seem obvious, so it almost seems like a waste of time to do an EIS. However, my impression is that without an EIS, the project will be built. Therefore, I urge you to do an EIS on the project.

Sincerely,

Marilyn De Mass

12-1

Letter 12: Response to Comments made by Marilyn DeMoss

- 12-1. The final EA has been revised to specifically address air quality effects that would result from provision of settlement water under the Option and Lease Agreement and construction and operation of the proposed water delivery facilities (Please refer to pages 3-24 and 3-25 of the final EA). A general discussion of air quality effects of The Villages is included in the EA on page 3-25 under the No-Action Alternative. While potential environmental impacts associated with The Villages development are presented under the No-Action Alternative, impacts associated with The Villages are not considered either direct or indirect effects of Reclamation's proposed action for the purpose of determining whether that action will have "significant" environmental effects. The effects of The Villages are relevant, however, as part of the background, or context, against which the incremental, or cumulative, effects of Reclamation's action are assessed. The discussion of the No-Action Alternative also provides a baseline against which the proposed action is evaluated. See also response to comment 4-10.

The comments regarding urban sprawl and leap-frog development concern local land use and zoning decisions that are appropriately addressed at the local governmental level. It should also be noted that preparation of an EIS does not necessarily preclude implementation of a project.

LETTER 13

July 7, 1997
New River, Ariz.

U.S. Bureau of Reclamation:
Phoenix Area Office:

Dear Sirs:

I attended the meeting at
The New River School on June
28th. I have also received the
Draft Environmental Assessment.
I do thank you and think you
have done a very good thorough
job. I do not think it requires
any further studied.

I am one of the silent people
in favor of the Del Webb
development. In regard to
the Pipe line I think it is
the only way to go -

We know progress and more

13-1

(2)

people coming every day. The Del Webb plan has tried to cover all situation, as to water and environment.

I have lived in New River since 1951. But I was here in 1934 in New River. Had relatives living here - many changes and very much growth. We still have water.

13-1

We do need planned cities and building codes. If everyone has a well & septic tanks the ground will become contaminated. I don't think our ground water here will be effected as we are several miles above the Del Webb site.

I do hope you will consider the pipe line as the best plan for water.

13-1

(3)
I think you have done a
very good job and thank
you.

Sincerely

Helen Stephenson

P.S. at the meeting there were
3 lawyers and a person from
Cave Creek. I don't feel they know.

As a resident of New River
please take a look around
New River as to the type
of how unplanned development
looks.

Letter 13: Response to Comments made by Helen Stephenson

13-1. Your comments on the merits of the NEPA process and The Villages development are noted.

The National Environmental Policy Act (NEPA) was legislated to safeguard this nation's natural resources. In cases where federal resources or funds are involved, it provided a means for the federal government to step in and take an objective look at the potential threat to the environment. It was legislation that the Department of the Interior fought for.

The proposed Del Webb development is a textbook case. Maricopa county has one of the worst air pollution problems in the country. It is number two in the country for particulates, it has been downgraded by the EPA to **serious** for Ozone and is out of compliance in all three categories.

14-2

Phoenix does not have a heavy industrial base. The source of the pollution problem is automobiles. The proposed development, the largest ever approved by the Maricopa County Board of Supervisors has no provision for public transportation, is located twenty miles (of interstate highway) from the nearest employment center, and will contribute between 9,000 and 34,000 pounds of particulates annually to an already very serious air pollution problem.

The stance that the Department of the Interior is taking is, "since it appears the development of the Villages will occur in the absence of the federal action, Reclamation anticipates the EA will focus on the impacts associated with construction of the delivery and treatment systems".

The reference to the development being built, "in the absence of the federal action", is based on a letter from The Del Webb Corporation listing the cities of Phoenix and Peoria as alternative water sources. Letters from these cities indicate that no such agreements are in place. Even if agreements could be made, the fact remains that the development will use CAP water piped across federal land.

14-3

In an internal memo, Bruce Ellis, chief of the environmental resource management division of the Bureau of Reclamation stated, "The scope of the EA should not only include the impacts associated with construction of the water-delivery system, but should also include the impacts resulting from development of the master-planned community, since this is how the water will be used".

The U.S. Fish and Wildlife Service agree, in a letter to the Bureau of Reclamation. Fish and Wildlife Field Supervisor Sam Spiller states, "The service does not believe the scope of analysis for this EA should exclude the Villages ... simply because Del Webb has alternative water supplies for their development".

The individuals at the working level are pressing for an EA on the entire development, but the package that was sent out was an EA for only the pipeline.

Something is very wrong. The Department of the Interior should be taking the opposite stance. They should see this as an opportunity for NEPA to do what it was legislated for. To safeguard the environment and its potential affect on the local population. As a person with respiratory problems I know the effects of air pollution: increased mortality rates, shorter life span, and just recently a link to sudden infant death (SID).

14-4

Is there a reason that the Department of the Interior is not following its own legislation? Please provide an answer to this question.

14-4

Letter 14: Response to Comments made by Fred Troy

- 14-1. Please refer to the "Response to Comments on the NEPA Compliance Approach", above.
- 14-2. Please refer to response to comments 4-10 and 12-1 regarding evaluation of air quality effects in the EA. We have no information about the source of the commenter's reference to the contribution of "9,000 and 34,000 pounds of particulates."
- 14-3. Please refer to the "Response to Comments on the NEPA Compliance Approach", above, for a discussion of Reclamation's NEPA approach and the decision to either issue a FONSI or prepare an EIS. It should be noted that constructing the proposed pipeline would involve crossing only a small amount of federal land. Most of the land that would be crossed by the pipeline is state-owned land (Please refer to Figure 2-6 of the EA).

The final EA includes additional analysis and substantiation that alternative water sources would be available to The Villages development in the absence of the federal action (see Appendix A). Please also refer to response to comment 3-1.

The cited portion of an internal Reclamation memorandum was taken out of context. The memorandum goes on to state:

The correct assessment of environmental impact rests on a comparison of future conditions "with" and "without" the project. Accordingly, the EA must describe the conditions most likely to occur in the absence of the proposed action (provision of water through the lease agreement). This No Federal Action (or "future without") scenario becomes the baseline against which the impacts of the proposed action are measured. It is particularly important in this instance to determine if the Company's master planned community would go forward in the absence of the water supply made available through the Agreement.

This is consistent with the approach taken in the EA (see the "Response to Comments on the NEPA Compliance Approach", above).

The comments of the USFWS, and Reclamation's responses, are included in this Appendix (see comment letter 6).

- 14-4. Reclamation has disclosed and considered the relevant potential effects that could result from the reasonable range of alternatives considered in the EA, while recognizing that land use authority and development project approval in Maricopa County are the responsibility of the Maricopa County Board of Supervisors.

.....
 The awesome BACKGROUND setting of
 The majestic MOUNTAINS and
 The incredible variety of CACTI.
 I've lived in Arizona for 30 years
 and moved out to Desert Hills
 11 years ago to escape the
 crowds and scorching STREETS
 of The VALLEY. If I can be of any
 ASSISTANCE or support please call
 me. THANKS for your help!

15-1



MAACK Co. Inc.
 Wholesale
 TEMPE, ARIZONA 85287

Amy Little
 71

MW-21

Letter 15: Response to Comments made by Amy Little

15-1. Your comments on the existing New River environment are noted.

Letter 16: Response to Comments made by Andrea J. Ouse

- 16-1. Vegetation and wildlife field surveys were conducted for the entire water delivery system corridor using standard field techniques. Conducting lengthy and intensive field surveys to document all wildlife in the pipeline corridor is not required or practical for purposes of NEPA. Plant and wildlife species encountered during the field surveys are presented in Appendix B of the EA.
- 16-2. The draft EA indicates that construction within the pipeline corridor would temporarily disturb up to 0.27 acre in 17 seasonal drainages and 5.75 acres of xeroriparian scrub in the New River channel. Because the pipeline would be buried and Del Webb would be required to recontour and reseed those areas of the corridor not needed for permanent facilities, these temporary effects are considered minor.
- 16-3. The EA statement on page 3-9 regarding animal migration routes is based on knowledge of Reclamation's biologist and professional consultants about the wildlife resources of the project area and the reasonable assumption that a buried pipeline would not pose an obstacle to animal movements.
- 16-4. The last paragraph of Section 3.3 of the EA is related to actions that would occur under the No-Action Alternative in the absence of Reclamation's provision of settlement water under the Ak-Chin Option and Lease Agreement. The need for a Section 404 permit for activities that result in placement of dredged or fill material into waters of the United States does not mandate preparation of an EIS. Preparation of a NEPA document may be required depending on the type of activity, amount of discharged material, and/or amount of waters of the United States that would be affected. The Corps of Engineers would make that determination, and would prepare any NEPA document deemed to be appropriate, as part of the Section 404 permitting process.

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| UPDATE | 27722 21 | |
| KEYWORD | 27722 21 | |

Carol Zimmerman

4 July 1997

Mr. Bruce Ellis, Chief
 Bureau of Reclamation
 23623 North 7th Street
 Phoenix, Arizona 85024

Re: PXAO-1500

Mr. Ellis:

I am writing to you on the Fourth of July, an apt date, considering one of the salient points Thomas Jefferson made in the Declaration of Independence was the inalienable right of the governed to challenge their government. Mr. Ellis, your Environmental Assessment is seriously flawed. It does not adequately address negative environmental impacts. It focuses on the proposed pipeline with little discussion of what will happen once the water reaches New River. Four federal issues have not been adequately addressed: The Clean Water Act, the Clean Air Act, the Endangered Species Act, and the National Environmental Policy Act (NEPA). In addition, there is evidence that the Bureau of Reclamation is in collusion with Del Webb Corporation.

Clean Water

The Environmental Assessment is inadequate in addressing not only the delivery and treatment of the water, but the use of the water in the development of the "Villages". The long-term water quality effects of run-off from residential areas and golf courses (the result of implementing Del Webb's "Villages") is not adequately addressed. Pollutants such as petroleum products, fertilizers, and pesticides will drain into our groundwater.

17-1

Clean Air Act

Page 3-25 states, "Truck traffic associated with pipeline construction would be low... and not expected to exceed the *de minimis* levels and no conformity analysis is necessary". That statement is ludicrous. It's a scandal for you to expect the air quality to remain pristine as a result of this pipeline construction.

17.

The purpose of this proposed pipeline is to support Del Webb's proposed "Villages at Desert Hills", a Master Planned City. This city will house an estimated 50,000 to 70,000 people, most of whom will be driving cars and adding to the already polluted air. Maricopa County is currently in violation of the Clean Air Act and is having to pay fines as a result. The issue of air pollution is not adequately addressed in this Environmental Assessment.

Endangered Species

The Environmental Assessment is inadequate in addressing endangered species, such as the Pygmy Owl and the Lesser Long-Nosed Bat, both residents of the area under attack.

17-3

Page 3-10 of the EA states, "The final rule on cactus ferruginous pygmy owl... determined that designation of critical habitat in Arizona was not prudent." Not prudent for whom? Del Webb? The United States Supreme Court ruled recently that the habitat of endangered species shall be protected as well as the endangered species themselves. Your Environmental Assessment does not take this into consideration.

17-3

Discussion of the impact on the desert tortoise on page 3-13 is woefully inadequate. Pages 3-14 and 3-15 state, "Evidence of two state species of special concern was observed on or adjacent to the property: Hohokam agave (highly safeguarded plant) and the desert tortoise. The California leaf-nosed bat and ferruginous hawk are either known or expected to occur in the area." The "Villages" WILL have an effect on these state special-status species. This alone should indicate an EIS is needed.

NEPA

NEPA requires a federal agency that wants to engage in a major federal action which significantly affects the human environment, to study and report the environmental impacts of its proposed decision. Federal approval for the lease of between 6,000 and 10,000 acre feet of Ak-Chin Indian CAP water per year requires that the Bureau of Reclamation conduct a full Environmental Impact Study (EIS) on the human and ecological effects of this development. These impacts include growth inducing effects, changes in the pattern of land use, changes in population density and growth rate, as well as severe negative effects on air quality, traffic, crime, water, taxes, infrastructure, and natural ecosystems. Approval of Ak-Chin water lease is a federal action. An EIS is required.

17-4

Details of the pipeline have changed, so now it's out-of-scope. (Del Webb has expanded the area where they can take water.) Most importantly, Del Webb has no legitimate water sources. (This should require them to do a full Environmental Impact Study.)

Constructing the pipeline, treatment plant, and the resultant "Villages" will result in disturbances to unknown archeological sites that have not yet been discovered.

Del Webb Corporation must be in full compliance with the National Environmental Policy Act (NEPA) and must complete an Environmental Impact Study.

These are not local issues, nor Maricopa county issues, nor Arizona state issues. These are Federal issues. Del Webb must conduct a full Environmental Impact Study.

The Bureau of Reclamation, an agency of the Department of the Interior, appears to be in collusion with the applicant, Del Webb Corporation.

Why is this EA so big? The length alone tells you that this project is so big and complicated that it needs an EIS. The Council on Environmental Quality advises agencies to keep the length of EAs to not more than 10 - 15 pages. In its document *Forty Most Asked Questions concerning CEQs National Environmental Policy Act (NEPA) Regulations*, Question 36b asks "Under what circumstances is a lengthy EA appropriate?" The response states that "Agencies should avoid preparing a lengthy EA except in unusual cases where a case is so complex that a concise document cannot meet the goals of Section 1508.9 (of the NEPA policy) and where it is extremely difficult to determine whether the proposal could have significant environmental effects. **In most cases, however, a lengthy EA indicates that an EIS is needed.**"

17-5

Mr. Ellis, your e-mail bemoaning your struggle with how to limit the scope of NEPA indicates the Bureau of Reclamation's collusion with Del Webb. Mr. Ellis, what changed your mind about an EIS? During the public meeting in New River on 28 June 1997 it was stated that you once agreed for the need of an EIS, and now you are saying it is not needed. What changed you mind?

The Del Webb Corporation has bullied its way through this whole process of getting the land and attempting to "develop" it. The Corporation acquired the land as the result of an illegal land swap, and the link of this land to the Don Bolles murder is a matter of record. In spite of citizens shrieking out how Del Webb Corporation has broken laws and continues to break laws to get its way, our government officials continue to genuflect before the great and powerful Del Webb Corporation. The Del Webb Corporation has corrupted our government. Are you, Sir, among them?

Sincerely,



Carol Zimmerman

Letter 17: Response to Comments made by Carol Zimmerman

- 17-1. A general discussion of the water quality effects that would result from The Villages development under the No-Action Alternative is presented on pages 3-5 through 3-7 of the EA. The potential for pollutants, such as fertilizer, petroleum products and pesticides, to affect water resources is addressed in the second paragraph on page 3-7. Reclamation believes this general analysis is an adequate description of the water resource effects that would occur under the No-Action Alternative.
- 17-2. The federal air quality conformity regulations indicate that a conformity determination is not required because the proposed action (provision of leased settlement water, including construction of the delivery pipeline and water treatment plant) would not cause emissions that would exceed pollutant threshold levels, called *de minimis* emission levels. The *de minimis* levels that would apply to the proposed action are 100 tons per year (tpy) for reactive organic gases (ROG) and nitrogen oxides (NO_x), 100 tpy for carbon monoxide (CO) and 70 tpy for PM10 (particulate matter smaller than or equal to 10 microns in diameter). The construction-related emission levels have been estimated and are included in the final EA on pages 3-24 and 3-25. Pipeline construction emissions would not begin to approach the threshold levels because of the relatively minor amount of truck and heavy equipment traffic associated with the construction effort. Operation of the turnout, pipeline and treatment plant would not result in emissions because these facilities would use electricity. Please refer also to response to comment 4-14 for a discussion of the conformity requirement.

Air quality effects of The Villages are not relevant to either the Clean Air Act conformity analysis or NEPA except in the context of the NEPA cumulative impacts inquiry. Quantification of air quality impacts for The Villages has not been carried out because The Villages is not part of the proposed federal action and is not being caused by the federal action. The decision to approve The Villages, whatever its costs and benefits to the community, is the responsibility of local government, specifically the Maricopa County Board of Supervisors.

- 17-3. Reclamation has adequately addressed potential impacts on federally protected species by preparing a BA and providing it to USFWS. Cactus ferruginous pygmy owls and lesser-longed nosed bats do not occur within the pipeline corridor because habitat for these species does not occur in this area. Critical habitat was proposed for the cactus ferruginous pygmy-owl in Arizona in a USFWS proposed rule (59 *Federal Register* [FR] 63975). However, because the pygmy-owl has been a sought-after species for birding enthusiasts, the USFWS now believes that designation of critical habitat and the subsequent publication of location maps and detailed locality descriptions would harm the species rather than aid in its conservation. The publication of pygmy-owl localities in Arizona would also make the species more vulnerable to acts of vandalism. The USFWS, therefore, has determined that designation of critical habitat for the pygmy-owl is not prudent (62 FR 10730 [1997]).

Del Webb has committed to following AGFD's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects" should any desert tortoise be encountered during development of The Villages.

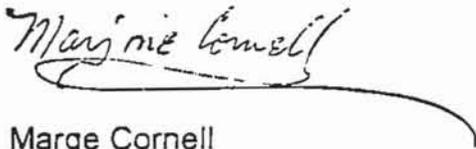
- 17-4. Please refer to the "Response to Comments on the NEPA Compliance Approach", above, regarding Reclamation's approach to NEPA Compliance, including the decision to prepare a FONSI or an EIS and the definition of a "major federal action." Regarding potential impacts on archaeological resources and water supply option viability, please see response to comments 4-13 and 3-1.
- 17-5. Reclamation has considered CEQ's guidance for the length of an environmental assessment and has endeavored to minimize the length of the EA. For this EA, Reclamation decided to include additional information on the No-Action Alternative to be responsive to public interest expressed about effects of The Villages. This resulted in an EA that is somewhat longer than other EAs prepared by Reclamation. In general, the length of a document by itself is not the determining factor as to whether or not an EIS is appropriate. The need for an EIS is based on Reclamation's consideration of the significance of the impacts that could result from the proposed action. Please refer also to the "Response to Comments on the NEPA Compliance Approach", above.
- 17-6. Your comments on the merits of the NEPA process and The Villages development are noted. As noted in the "Response to Comments on the NEPA Compliance Approach", above, Reclamation has developed guidance in its Draft NEPA Handbook (August 1996), which specifically addresses approaches to NEPA compliance for water transfer actions and local growth issues. This guidance was developed to address the sometimes difficult decisions regarding the scope of NEPA documents involving the use of federal project water. This is the difficult issue "bemoaned" by Mr. Ellis in his e-mail message. The statement you refer to as being made in the June 28, 1997 public hearing in New River, that Mr. Ellis once agreed to the need for an EIS, is in error. Mr. Ellis has never made any conclusion or statement regarding the need for an EIS on this proposal. Your comments on the Del Webb Corporation are noted.

of self-indulgence, and to do this instinctively and every time. But, this shining quality does not occur spontaneously in people. It has to be learned. Parents, schools and churches have to teach it. Unless they do, our society will begin to crumble."

The sense of honor that our ancestors knew has weakened and diminished. We no longer understand how important honor is in the conduct of our daily lives. The men who signed the Declaration of Independence did know. They **pledged** their sacred honor.

Please act honorably. Make sure our precious resources are protected! Do the right thing by doing a full-blown Environmental Impact Statement.

Sincerely,

A handwritten signature in cursive script that reads "Marge Cornell". The signature is written in black ink and is positioned above a horizontal line that extends to the right.

Marge Cornell

cc: Robert Johnson, Bureau of Reclamation
Honorable John McCain, United States Senate
John Kennedy, EPA
Cindy Lester, Dept. of the Army Corps of Engineers
Bruce Babbitt, U.S. Department of the Interior

Letter 18: Response to Comments made by Marge Cornell

- 18-1. Please refer to the "Response to Comments on the NEPA Compliance Approach", above.
- 18-2. The Ak-Chin Option and Lease Agreement is a binding agreement to provide up to 10,000 af/year of settlement water. Use of this surface water, delivered through the Central Arizona Project facilities, is intended to provide an alternative to the use of groundwater resources for domestic consumption. Regarding your comment on population growth in the area, Reclamation believes local land use and zoning issues are appropriately addressed at the local governmental level.
- 18-3. Please refer to response to comment 7-5 for an explanation of the interim use of groundwater and the effects thereof. The EA presents analysis of the environmental effects that could result from provision of leased settlement water, including the effects of the water delivery facilities and summarizes environmental issues related to The Villages under the No-Action Alternative. The impacts of the alternatives addressed in the EA have been adequately disclosed and considered. Please refer also to the "Response to Comments on the NEPA Compliance Approach", above.

LETTER 19

Ann Caylor

Bruce Ellis, Chief
Environmental Resource Management Division
Bureau of Reclamation
PO Box 9980
Phoenix, AZ 85068-0980

PXAO-1500

Re: Draft Environmental Assessment Ak-Chin Option and Lease Agreement

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|-------------|------------|---------|
| OFFICIAL | SECTION 51 | |
| RECORD COPY | FILE DATE | |
| JUL 14 '97 | | |
| DATE | ROUTE TO | INITIAL |
| 7/14 | 1515 | RAC |
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| CLASSIFIED | 1510/600 | |
| CONTROL NO. | 147003642 | |
| FOLDER ID | | |
| UPDATE | 7/16/97 | |
| APPROVED | | |

July 11, 1997

Dear Mr. Ellis,

I am a resident of New River and attended your June 28 public comment meeting. I had previously obtained and read a copy of your EA statement on the proposed Del Webb Villages development. Although I would like to see the Bureau of Reclamation conduct an EIR on the project for a wide variety of reasons, I understand that you would like more specific comments on why residents think the EA is inadequate.

I am particularly concerned about the groundwater impact of the construction phase of the project and also about the certainty of other available water sources, primarily those from Peoria and Phoenix on which the Bureau based its assessment that the Ak-Chin water lease was only one of several alternatives for the Del Webb project. The EA states that "An alternative to groundwater is needed to prove the existence of an assured water supply under the regulations promulgated by the" ADWR. (1-3) The report also discusses the fact that groundwater could be used by Del Webb during the construction phase, with certain limits.

I find that the EA does not discuss in enough detail the impact this limited use of groundwater would have on the groundwater supply currently serving the residents of the area. I think an EIR is essential to fully understand the impact of the project on current water use and that direct testimony from the ADWR be included which would detail a complete plan for replenishment. Additionally, the residents of the area need to know how this interim use of

19-1

groundwater would effect current water supplies, whether private wells now serving individual households would need to be reconstructed, even on a temporary basis. The whole concept of "safe yield" needs to be clarified to the residents.

19-1

The other section of the EA which I feel needs further elaboration and clarification is the section covering alternative water sources for the project. These water sources are pivotal to the Bureau's major conclusions about the Del Webb project. The report states that because "alternative water supply options are available to Del Webb that do not involve a federal action, the EA assumes that development...would occur" with or without Ak-Chin water. (2-1) These alternatives include a water supply from Phoenix, from Peoria, and enrollment of The Villages in CAGR through a to-be-formed water company. Appendix A does not sufficiently cover these alternatives. I think the public needs to know whether these other water sources have been approved by the relevant public entities. As presented, the EA includes only a statement from Phoenix on any possible future water system in which Phoenix City Manager Frank Fairbanks concludes that there is no commitment for Phoenix to supply the project and that the City Council would have to approve such a plan, which it has not. I think Manager Fairbanks points out the many obstacles to an assured alternative water supply for the project. These are the grounds upon which the Bureau based its assessment that an EIR was not necessary. Finally, nothing was included from the city of Peoria or the state covering the other alternative water supplies. Appendix A clearly seems to raise more questions than are addressed in the EA and which should be answered in an EIR.

19-2

Lastly, because the EA refers to a range of environmental impacts from the proposed project it leaves the impression that the Bureau feels it is within the scope of their oversight to look at these impacts. Having read short summaries of the myriad impacts of such a project (Cultural Resources, Air Quality, etc.) it seems self-evident that the Bureau should do a complete job of assessing them. If it is not within the purview of the Bureau to address them why include them in the EA? If it is, shouldn't the Bureau present all of the relevant data which an EIR would do?

19-3

It seems that the Bureau of Reclamation needs to look beyond the narrow letter of federal regulation to the spirit of public oversight. The Bureau should protect public resources by investigating the widest array of possible effects which could determine long-term degradation of land and water. By examining the entire picture of public state and local, as well as private (including Indian) interests the Bureau could assess the future environmental viability

of this area's land and water resources.

Thank you for considering my comments and I look forward to hearing from you about the issues I have raised. I hope the Bureau of Reclamation will serve the present and future residents of this area by presenting an EIR for the proposed Del Webb Villages project.

19-3

Sincerely,

Ann Caylor

Ann Caylor

Letter 19: Response to Comments made by Ann Caylor

- 19-1. The EA has been revised to include additional information regarding temporary impacts on groundwater from the interim use of groundwater during construction of the pipeline and water treatment plant (see page 3-6 of the final EA). Please also refer to response to comment 7-5.
- 19-2. Additional information has been included in Appendix A of the EA relevant to the viability of alternative water supply options. Please also refer to responses to comments 3-1, 4-7, and 7-1.
- 19-3. The approach to the EA is discussed in the "Response to Comments on the NEPA Compliance Approach", above. Reclamation has adequately disclosed the potential environmental effects that could result from the Proposed Action and the No-Action Alternative. Reclamation believes local land use and zoning issues are appropriately addressed at the local governmental level.

Letter 20: Response to Comments made by Vicki Y. Myers

- 20-1. Please refer to response to comment 4-12, above. The final EA has been revised to include the data from the NVATS, although the projections for The Villages may now be somewhat overstated in light of the proposed rezoning of The Villages, which would result in fewer residential units.
- 20-2. The traffic analysis referred to by the commenter indicates that traffic volumes on several roadway segments could be less with The Villages than without because of traffic improvements assumed to occur in the traffic model. This projected traffic scenario would occur because traffic volumes on minor roadways are assumed to be redistributed to arterial roadways. Overall, the traffic modeling conducted for The Villages development and the NVATS indicate that traffic volumes in the area would increase and would require roadway improvements to maintain acceptable transportation conditions.
- 20-3. The Northeast Valley Area Transportation Study (NVATS) indicates on page 48 that:

This analysis assumed that the I-17/Honda Bow Road (Desert Hills) traffic interchange is reconstructed to improve the existing awkward configuration. It also assumed that I-17 is widened to three lanes in each direction south of the proposed new interchange to serve the Villages at Desert Hills Master Planned Community.

The NVATS also indicates in Table 9 following page 62 that widening of I-17 to three lanes in each direction between Carefree Highway and the proposed new interchange near Deadman Wash is recommended in the 5-to-10-year program. The NVATS also notes that programming of these projects would occur when projects are placed on Arizona's Department of Transportation's (ADOT's) Statewide Transportation Improvement Program. Section 3.7, "Traffic and Circulation", of the EA has been revised to provide additional information from NVATS. Also refer to response 4-12.

Letter 21: Response to Comments made by Valerie Pieraccini

21-1. Please refer to the "Response to Comments on the NEPA Compliance Approach", above.

LETTER 22

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| NO. 001 | 10 |
| DATE | JUL 11 1997 |
| TO | ENVIRONMENTAL |
| FROM | PHOENIX |
| SUBJECT | WATER PIPELINE |
| CLASSIFICATION | CONFIDENTIAL |
| CONTROL NO. | 71113676 |
| ISSUED | 7/11/97 |
| DATE | 7/11/97 |
| ISSUED BY | |

July 7, 1997

Mr Bruce Ellis, Chief
 Environmental Resource Management Division
 Post Office Box 9980
 Phoenix, Arizona 85068-0980

Dear Mr Ellis;

Thank you for coming out to our community on June 28th, to listen to our comments.

I know initially the meeting was supposed to gather comments regarding the proposed water pipeline from the CAP to The Villages development. Many of the comments went astray from this narrow topic. This is because the topic is NOT narrow. We don't believe you can choose a pipeline path to study and ignore the more than 5,600 acres of land that is to be developed.

22-1

If you are required to investigate the environmental impact of Federal actions - isn't the entire development a result of Federal action - if they use the Ak-Chin lease option? And if you listen to the side of their tongue their speaking with at any given moment, you may hear the Del Webb Corporation saying that this is their only option for water supply.

You are in a position that was created to serve the PEOPLE, and to help protect the ENVIRONMENT. Truly the majority of the people in this community are requesting, and it seems so are your own laws, that you perform a full blown EIS on the ENTIRE project. The environment here begs of you to perform a full blown EIS. It is a beautiful piece of property, supporting a rich supply of flora & fauna - and encompassed by a community of good people who will surely suffer, if the environment does.

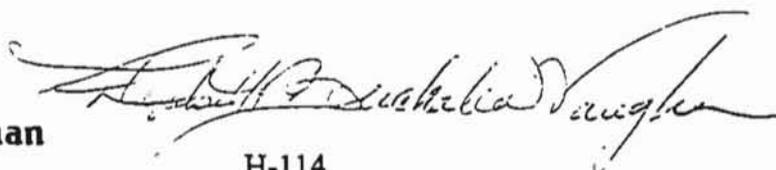
I am not "against" Del Webb or their development. Nor can I say that I am "in favor" of it either. I'm not crazy about seeing that beautiful piece of property developed, but I know that it will be - if not by Del Webb than by someone else. I do not agree with the density of the proposed development, nor do I agree with golf courses being layed. THIS is a worthy piece of property to study!

22-2

Please, please reconsider. This is much more important than you know, not just to us, but to the many generations that follow.

Thank you for your time.

Elizabeth Buckalew Vaughan



Letter 22: Response to Comments made by Elizabeth Buckalew Vaughan

- 22-1. Please refer to the "Response to Comments on the NEPA Compliance Approach", above.
- 22-2. Your comment on the merits of The Villages development is noted. Reclamation believes local land use and zoning issues are appropriately addressed at the local governmental level.

Letter 23: Response to Comments made by Mr. and Mrs. David C. Richmond

23-1. Your comments on the merits of the NEPA process and The Villages development are noted.

Repair-It Indi

National Sales Office
 1938 East Cavalry Rd.
 Phoenix, AZ 85027
 Phone: (602) 465-0165
 FAX: (602) 465-0169
 Inventor/CEO
 Larry Speer



Manufacturing Plant
 440 West Hopocan Avenue
 Barberton, Ohio 44203
 Phone: (330) 745-0069
 FAX: (330) 745-7555

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| Larry Speer | | |
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| UPDATE | 700-244 | |

Bureau Of Reclamation
 Phoenix Area Office
 Box 9980
 Phoenix, AZ 85068

June 30, 1997

Bruce Ellis

Dear Mr. Ellis:

This letter is being sent to you so that you clearly understand the ramifications of the meeting on June 28, 1997, at the New River Elementary school. A copy of this letter is being sent to Robert Johnson, in Nevada.

1. None of the residents of New river enjoy having to look at the BOR as adversaries. You are "our" public federal officials. Your decisions, by law, must reflect the benefit of the public. As a result of your decisions, the public should deal with your department with trust and respect. This is what the citizens in New River would like to do.
2. When your department seeks to find reasons, and technical loopholes in the law, that give your department an excuse not to make decisions that benefit the public, just the opposite happens. This apparently may be the case with the decision you are about to make concerning the Del Webb project. 24-1
3. You have more than sufficient proof that neither Phoenix nor Peoria have committed to supply water to the Del Webb project. Moreover, Del Webb has clearly stated in writing to everyone that there choice is Ak-Chin. This is an indisputable fact. Hundreds of flyers were circulated to everyone in New River and elsewhere to this effect. You have one in your office.
4. Yet you are trying to make a case where an EA on the pipeline is sufficient for this massive project; notwithstanding that this project will impact Maricopa County in a manner that will dramatically change the lifestyle of all of its residents. Your own laws mandate that an EIS is required on this entire project, 5600 acres of pristine Sonoran desert. Yet you seek to circumvent your owns laws, making a case that "maybe" the water

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Barberton, Ohio 44203
Phone: (330) 745-0069
FAX: (330) 746-7555
Vice President
Scott Speer

supply is available from sources that are outside of Ak-Chin...and you know that this is not the case.

5. You are making citizens band together to sue their own gov't, to make the gov't follow their own laws. Do not take this lightly. If what we suspect is true, not only will the courts overrule your decision, but your personal freedom, and that of all of those involved in this decision, may be at risk.

6. Presently, several criminal as well as environmental attorneys are seriously and carefully reviewing all aspects of this matter. You were quoted sections of the criminal code at that meeting that should make it clear to you, that any collusion on the part of federal officials is a very serious matter, that can result in a heavy fine and imprisonment. Those laws were read to you, and you can be certain that if the evidence is obtained, they will be part of an action against the BOR, and the individuals who would be involved in that suit.

24-1

7. DOES COLLUSION EXIST? Many people believe that Bruce Babbitt, Secretary of the Interior, who historically has had ties with Del Webb, has influenced your department to do an EA, limiting the scope of the EA to just the water pipeline, and making a finding of no significance. This belief is manifested by the statement from Tom Lucas of Del Webb who has stated in this Sunday's Arizona Republic, a copy of which is outlined in this letter, "he is confident that the BOR will issue a Statement of No Significant Impact". He also stated that the Del Webb Corporation is prepared to defend it. That Del Webb is scheduled to begin construction on the pipeline at the end of the year. He is saying all of this Mr. Ellis, while your department is supposedly in the process of making a decision on this matter. This leads me to believe that Tom Lucas and Del Webb already know what decision your department will make...or that they are involved in the decision making process. Why would Del Webb be prepared to defend an action which your department is making. How do they know already what that decision is...to the point where they have made plans to construct the pipeline already. Mr. Lucas' statement to the press obviously indicates that Del Webb Corp. already knows your decision. What happened to "acting in the public interest". That decision is only benefiting Del Webb.

8. If your department does not do an EIS on the entire Del Webb project, this matter will go to court. You are aware of that. But also be aware that Steve Brittle has made it clear to you

LETTER 26

HENRY B. LACEY
Attorney at Law
919 North First Street
PO Box 34262
Phoenix, Arizona 85067-4262
Phone (602) 258-5050
Fax (602) 258-7560

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August 22, 1997

Bruce Ellis
Chief, Environmental Resource Management Division
US Bureau of Reclamation
Phoenix Area Office, Lower Colorado Region
PO Box 9980
Phoenix, Arizona 85068-0980

Via Certified U.S. Mail (Return Receipt Requested)

**Re: Supplemental Comments of Save New River Coalition and Sierra Club
(Grand Canyon Chapter) on Draft Environmental Assessment on the
Proposed Ak-Chin Option and Lease Agreement (Bureau Reference No.
PXAO-1500 ENV-9.00 97002941 8176)**

Dear Mr. Ellis:

In light of the Bureau's decision to extend the comment period on the draft Environmental Assessment ("EA") for the proposed Ak-Chin Option and Lease Agreement, this office hereby submits supplemental comments on behalf of the Save New River Coalition and the Sierra Club - Grand Canyon Chapter. The comments in this letter are in addition to, and do not replace or in any way negate, the comments submitted on July 14, 1997.

The letter of July 14 identified major areas of concern with the EA, as follows:¹

1. The Bureau's decision to issue an Environmental Assessment ("EA") instead of an Environmental Impact Statement ("EIS") is legally adequate only if the agency has accurately identified the relevant environmental concerns. The Bureau must also provide evidence of high quality, including reliable and accurate information, to support its determination that a Finding of No Significant Impact ("FONSI") is appropriate. In addition, the Bureau must ensure that any final EA issued includes a careful examination of all direct, indirect, and cumulative impacts. Indirect effects include "growth-inducing

26-1

¹ This is not a comprehensive summary of the comments contained in the July 14, 1997 correspondence.

effects and other effects related to induced changes in the patterns of land use, population density or growth rate, and related effects on air and water quality and other natural systems, including ecosystems." 40 C.F.R. § 1508.8(b). Cumulative impacts are the results of the project in combination with "other past, present, and reasonably foreseeable future actions regardless of what agency . . . or person undertakes such actions." 40 C.F.R. § 1508.7. The Bureau must disclose all direct, indirect, and cumulative effects that are expected to occur on federal and non-federal land. This requirement is especially important, and is more emphasized, where the project under consideration may facilitate private development.

2. The draft EA on the Ak-Chin lease and option agreement does not meet these requirements. The Bureau has failed to consider all direct, indirect, and cumulative impacts on the environment, including the inducement of urban sprawl and traffic, reduction in air quality in New River and elsewhere in Maricopa County, wildlife habitat and plant loss in the area of the pipeline and the proposed Villages at Desert Hills development, destruction of archeological and historic artifacts along the pipeline route and in the area of the proposed Villages at Desert Hills development, and damage to the existing social, economic, and political conditions in New River and surrounding areas.

3. The cumulative impacts of this project are enough, standing alone, to require preparation of an EIS because approval by the Bureau will inevitably result in significant impacts to the environment.

4. An EIS is required because the draft EA fails to offer any evidence that would support a conclusion that the developer of the Villages at Desert Hills will undertake mitigation actions that will "completely preclude significant environmental effects." *Conner v. Burford*, 836 F.2d 1521, 1531 (9th Cir. 1988).

5. An EIS is required because approval of the Ak-Chin lease and option agreement, together with federal funding of highway improvements necessary to support the Villages at Desert Hills development, federal approval to discharge pollutants into "waters of the United States" pursuant to section 404 of the Clean Water Act ("CWA"), issuance of relevant Endangered Species Act ("ESA") permits, issuance of relevant state and local permits, and private sector actions are "connected actions" that will, in combination, result in significant adverse environmental consequences.

6. The Final EIS on Water Allocations and Water Service Contracting for the Central Arizona Project ("CAP"), issued by the Bureau in 1982, does not cover the proposed project. Department of the Interior ("DoI") regulations require preparation of an EIS on this ground alone. DoI regulations also require preparation of a separate EIS on the Ak-Chin lease and option agreement because the proposed project is a "modification" to an existing project, a "proposed change in the programmed operation" of CAP which "may cause a significant new impact;" and will cause "significant new impacts" of the CAP.

26-1

9. The Bureau has failed to disclose or discuss the fact that its own employees, and indeed some agency personnel assigned to work on and/or supervise preparation of this very draft EA, have indicated that the draft EA should "address the reasonably foreseeable environmental impacts resulting from [the Bureau's] approval of the lease - including the developer's plans to take and use the water (develop a golf course)." Memorandum from Bruce Ellis to ibr3dm10.3LCADMIN.LNEILSON et al., May 2, 1996. Another memorandum from Mr. Ellis to Phoenix Bureau officials confirmed this point of view a year earlier, and also noted that the EA should adequately address impacts on air quality, traffic, land use changes, loss of wildlife habitat, and loss of New River residents' rural lifestyle. See Memorandum from Bruce D. Ellis to Area Manager, Phoenix, Arizona (April 25, 1995), at 1-2.

26-7

10. The Bureau's failure to discuss the extent to which approval of the Ak-Chin lease and option agreement would cause a violation of the federal air quality conformity regulation renders the draft EA fatally flawed. See *Conservation Law Foundation v. U.S. Department of the Air Force*, 864 F. Supp. 265 (D.N.H. 1994). Furthermore, the draft EA is similarly fatally flawed because it does not adequately explain how approval of the Ak-Chin lease and option agreement may complicate Arizona's and Maricopa County's compliance with the Clean Air Act ("CAA"), the costs to other industries if compliance with the CAA is not achieved or the CAA is violated, or how such air quality impacts may be mitigated. See *Id.*

26-8

11. The draft EA is inadequate because it does not assess compliance with other applicable federal and state environmental laws, including but not limited to the CAA, ESA, CWA, the Migratory Bird Treaty Act, the Fish and Wildlife Coordination Act, and the National Historic Preservation Act.

26-9

12. The draft EA is inadequate because it fails to specify an alternative that is environmentally preferable, as required by 40 C.F.R. § 1505.2(b).

13. The length of the draft EA indicates that an EIS is appropriate. Council on Environmental Quality ("CEQ") regulations require that an EA be "concise," and as a general rule if the EA is longer than 25 pages an EIS is necessary. The draft EA on the Ak-Chin lease and option agreement, not including the appendices, table of contents, and lists of tables and figures, and documents included without being assigned a page number, is 80 pages long.

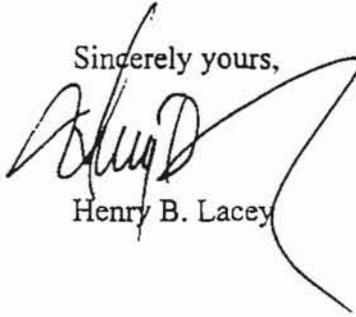
26-10

14. The Bureau may not cure the flaws in the draft EA by issuing memoranda, data, or reports into the public record unless such supplemental information is made a part of the environmental review document itself. *Sierra Club v. Marsh*, 976 F.2d 763 (1st Cir. 1992).

26-11

Thank you for the opportunity to provide additional comments. Please contact me if you have questions.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Henry B. Lacey", with a long, sweeping flourish extending to the right.

Henry B. Lacey

HL:hl

cc: Chris Gehlker

Gary Giordano

Letter 26: Response to Comments made by Henry B. Lacey, Attorney at Law

- 26-1. Please refer to response to comments 4-1 through 4-28.
- 26-2. Please refer to the "Response to Comments on the NEPA Compliance Approach", above. All of the factors cited by the commenter apply to The Villages, which Reclamation has determined is not included in the proposed action and is not an effect of that action. Please refer also to response to comment 4-27.
- 26-3. Please refer to response to comments 4-8 and 17-3. The EA indicates that no effects on federally listed threatened or endangered or state special-status species, including those listed by the commenter would result from the proposed action.
- 26-4. Please refer to response to comment 4-27. The fact that this water lease is from an Indian tribe to a private developer is not relevant to the NEPA approach taken by Reclamation. Whether the water lease or transfer is from an Indian tribe to a private developer, or from an Indian tribe to a municipality, or from one CAP subcontractor to another, Reclamation applies its NEPA guidance on a case-by-case basis.
- 26-5. Please refer to response to comment 4-2 regarding mitigation measures. Del Webb committed to the environmental commitments presented in Section 4.0 of the EA. Reclamation will ensure they are implemented during Del Webb's construction of the pipeline and water treatment plant.
- 26-6. Please refer to the "Response to Comments on the NEPA Compliance Approach" and response to comments 3-1 to 3-9, 4-8, and 6-1. Reclamation has solicited, reviewed, and considered all of the comments provided by state and federal agencies. We do not believe that disagreement with USFWS regarding the scope of our NEPA document requires that an EIS be prepared.
- 26-7. Please refer to the "Response to Comments on the NEPA Compliance Approach" and to responses to comments 14-3 and 17-6. The position taken by Reclamation with respect to the scope of the NEPA document is consistent with both memorandums referenced in this comment.
- 26-8. Please refer to response to comment 4-10.
- 26-9. Reclamation's NEPA process has considered all applicable federal and state laws in Section 3.0 and Section 5.0 of the EA. The Migratory Bird Treaty Act (MBTA) regulates the intentional taking, killing, and possession of migratory birds. The MBTA is silent on incidental taking and killing of migratory birds resulting from (as long as it is not the purpose of) carrying out an otherwise lawful activity, such as the proposed action. The reference to an environmentally preferable alternative at 40 CFR 1505.2(b) applies only to records of decisions in cases requiring EISs. It does not apply to preparation of an EA.
- 26-10. Please refer to response to comment 17-5.

- 26-11. All reports used to prepare both the EA and BA are cited in Section 6.0, "Citations", of the EA. It is not reasonable to make all documents used in preparation of this EA a part of the EA itself. Specific citations can be made available for review at Reclamation's Phoenix Area Office, 10888 N. 19th Avenue, Phoenix AZ 85029, upon request.

Letter to Bruce Ellis
Chief, Environmental Resource Management Division
Bureau of Reclamation
September 8, 1997
Page 2 of 2

leased Ak-Chin Indian Community water. A copy of the article is enclosed.

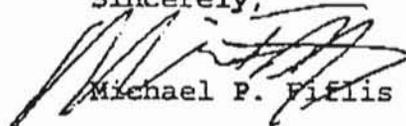
b. In another issue of the newsletter, Del Webb reproduced a letter from its legal department indicating that it will not use groundwater at the Villages other than for construction. A copy of that letter is enclosed.

c. In a third newsletter, dated August/September 1995, Del Webb again stated it would not use groundwater. It also indicated it would seek Bureau of Reclamation approval for "diversion of water either from Lake Pleasant or the CAP canal." A copy of the article is enclosed.

These newsletters are significant because Del Webb has since indicated that: "Our plans for water usage at the Villages haven't changed at all . . . This is just on more step in the ongoing development process and is required because we plan to use water from the Ak-Chin community." Draft of story for UpFront, bearing date stamp of October 8, 1996.

These admissions by Webb suggest that Webb's claim of alternative water sources for use at the Villages is without basis and merely a subterfuge to skirt NEPA. The admissions also indicate that the Bureau has not taken the "hard look" at the proposed action and no action alternatives, as required by NEPA. A reasonable review of the above statements indicates that the Bureau's assumption that the Villages will be developed with or without approval of the Ak-Chin lease is also without basis. Put another way, Del Webb's statements lead to the conclusion that the Villages will not be developed unless the lease is approved; Del Webb requires and plans to use the Ak-Chin leased water. Thus, a Finding of No Significant Impact would be improper - the development of the Villages depends on lease approval. The Bureau accordingly needs to take these facts into account in revising the draft EA.

Sincerely,



Michael P. Fiffis

27-1

Letter 27: Response to Comments made by Michael P. Fiflis, Attorney at Law

- 27-1. Please refer to the "Response to Comments on the NEPA Compliance Approach" and response to comments 3-1 and 4-7, above. We do not believe that Del Webb's identification of the Ak-Chin leased water as its water source in the various newsletters is proof the availability of other water supply options is "without basis and merely a subterfuge to skirt NEPA" as this commenter contends. Del Webb has, after all, signed a contract for the lease of this water. The leased water has the advantage of being a renewable surface water supply and, in light of continued public concern expressed regarding the use of local groundwater, it is reasonable to expect Del Webb to highlight the advantages of using the leased water in its newsletters.

LETTER 28

Desert Advocate
70 E. Mitchell Drive
Phoenix, AZ 85012

Attention: Letters to the Editor

Dear Editor:

For many years, my wife, Joyce and I have called this wonderful community our home. The many friends we have met and spent special times with is something we will always cherish. Although we have reached a point in our lives that has caused us to recently move, New River will always be very close to our hearts.

I have had the pleasure of becoming close with many of you in the community and have had the opportunity to be involved with a number of fine organizations and committees such as the New River Community Association and the Transportation Advisory Board.

Through these affiliations, I have witnessed a sincere love of community by so many dedicated local residents. I have also witnessed the dedication of others to this community - most significantly the care and concern displayed by our Supervisor Betsey Bayless.

Betsey has always made it a priority to listen and solicit valuable input from residents regarding a number of issues. She is a person of integrity and sincerely interested in serving New River/Desert Hills in the best way possible.

Your paper recently shared with the community the most recent example of her desire to benefit this area by getting Del Webb to reduce the number of homes in their project by more than 2,000. That's significant and I know it is much in part of Betsey's commitment to the citizens of New River.

I will miss all of the wonderful residents in this community, and all the others who have worked to look after our best interests.

Art Coates

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| KEYWORD | | |

28-1

Letter 28: Response to Comments made by Art Coates

28-1. Your comment on the merits of the New River Community is noted.

Raymond & Connie Crandell

September 4, 1997

Bruce Ellis

ATTN: PXAO-1500
PO Box 9980
Phoenix, AZ 85068-0980

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Dear Mr. Ellis:

We have attended all the meetings Del Webb has conducted for the public to see the plans for the Ak-Chin Option and Lease Agreement for the pipeline to the Villages at Desert Hills for water supply. The plan for the water pipeline shows it will be placed on already disturbed desert.

We have seen the work done to the land by the Core of Engineers, etc for the dam construction in the last ten years, and we see no reason for more studies to be required.

We support the plan Del Webb has submitted for the Villages at Desert Hills water supply pipeline across the desert. We see no reason for extended studies.

Sincerely,

Raymond & Connie Crandell

Raymond & Connie Crandell
New River area residents for 17 years

29-1

Letter 29: Response to Comments made by Raymond and Connie Crandell

- 29-1. Your comments on Reclamation's proposed action and the proposed water delivery facilities are noted.



City of Peoria

8401 West Monroe Street, Peoria, Arizona 85345

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| UPDATE | 1997 2 | |
| KEYWORD | | |

September 5, 1997

Mr. Bruce D. Ellis, Chief
 Environmental Resource Management Division
 P.O. Box 9980
 Phoenix, AZ 85068-0980

Re: Response to Draft Environmental Assessment (EA) on the Provision of Leased Ak-Chin Indian Community Water to Del Webb Corporation for Use at The Villages at Desert Hills, Maricopa County, Arizona

Dear Mr. Ellis:

The City of Peoria has the following comments related to the above referenced Draft Assessment.

The Draft Assessment discusses the "Option 3 Service from Existing City of Peoria System" and correctly notes that the proposed "Villages at Desert Hills" development was not included in the City of Peoria Water Master Plan issued March, 1997. The extension of the City of Peoria water system to serve the "Villages at Desert Hills" would require an amendment to the Water Master Plan to specifically address this new service area.

30-1

We note that the concept for extending the City of Peoria Water system is at a "pre-feasibility level" and therefore reserve comment on the concept presented in "Option 3" until it is further developed.

We appreciate the opportunity to comment on this draft Assessment.

Sincerely,

William J. Mattingly, P.E., R.L.S.
 Acting Utilities Director

Letter 30: Response to Comments made by City of Peoria

- 30-1. Reclamation notes the city's comments on the feasibility of water supply Option 3 as presented in Appendix A of the EA.

Letter 31: Response to Comments made by Bernice Guddall

- 31-1. Your comments on the merits of the NEPA process and the provision of leased settlement water and construction of water delivery facilities are noted.

Phoenix, Arizona
August 29, 1997

Bureau of Reclamation
Attn: Mr Bruce Ellis
Attn: FXA0-1500
P.O. Box 9950
Phoenix, AZ 85068-0950

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Sir:

I own property, treaty area, part of which accesses from ~~from~~ ^{across}, directly across from the D. L. Webb - Villegas development.

I gave verbal testimony at the hearing on the Ak-Chin pipeline right of way, testifying for the pipeline.

Since the hearing I have found that my two working wells on my property have dropped in water level, fifty feet, in four years. My water is believed to be supplied by an underground source under the Shank Creek gully which traverses the Villegas property. The reduced level, 220 feet to 270 feet, could most probably be caused by ^{new} neighboring wells. This is evidence that Shank Creek well supply could not supply the east side of the Villegas.

as a property owner and taxpayer. I strongly support the Ak-Chin pipeline as the only logical supply for the Villegas.

Thank you
Charles M. Collins

Letter 32: Response to Comments made by Charles M. Collins

- 32-1. Your comments on the merits of the NEPA process and the provision of leased settlement water and construction of water delivery facilities are noted.



September 2, 1997

Mr. Bruce Ellis,

In regard to the Del Webb pipeline the draft EA fully addresses the significant issues associated with the pipeline. The recharge benefits from CAP water will eventually help our entire community and the water table. A lot of the people criticizing the EA are just trying to stop progress in the area. A full EIS is not needed.

Brian LaPlante

Brian LaPlante

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Letter 33: Response to Comments made by Brian LaPlante

- 33-1. Your comments on the merits of the NEPA process and the provision of leased settlement water and construction of water delivery facilities are noted.

LETTER 34

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August 18, 1997

Dear Mr. Ellis

What is the hold up on the approval of the Del Webb pipeline? This is the most reasonable proposal a development company has come up with for providing water to this ever popular State. The area in question is already a utility use that has been deemed appropriate in the past for other projects. Moving forward with the pipeline is supported by residents not only of the Desert Hills community, but by county residents also. The bureau's document on the assessment was very accurate and showed no problems to our environment in my opinion.

34-1

Bob Henke
Desert Hills Resident

Bob Henke

Letter 34: Response to Comments made by Bob Henke

- 34-1. Your comments on the merits of the NEPA process and the provision of leased settlement water and construction of water delivery facilities are noted.

Letter 35: Response to Comments made by Mr. and Mrs. Cecil Grant

- 35-1. Your comments on the merits of the NEPA process and the general adequacy of the EA are noted.

LETTER 36



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

September 8, 1997

Bruce Ellis, Chief
 Environmental Resource Management Division
 Bureau of Reclamation
 P.O. Box 9980
 Phoenix, AZ 85068-0980

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Dear Mr. Ellis:

The U.S. Environmental Protection Agency (EPA) has reviewed the Ak-Chin Option Draft Environmental Assessment (DEA). Our comments on this DEA are provided pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and 309 of the Clean Air Act. The DEA evaluates potential environmental impacts associated with facilities necessary to deliver Ak-Chin settlement water to the Del Webb residential development near New River, Arizona. A "no action" alternative is also considered.

36-1

As you know, EPA received a congressional inquiry from Sen. John McCain concerning the Del Webb development at New River in late July. Consistent with its response to this inquiry, EPA has reviewed the DEA to determine whether approval of the lease will likely cause significant environmental impacts which cannot be adequately mitigated, in which case the preparation of an Environmental Impact Statement (EIS) may be warranted. With respect to the NEPA analysis performed for the water delivery system, it is our opinion that the analysis provided in the DEA is sound, and provides sufficient information upon which to base a decision to issue a Finding of No Significant Impact (FONSI) or proceed to an EIS.

The Bureau of Reclamation (BOR) chose not to analyze the potential environmental impacts of the Villages development in detail in this DEA. Page 1-2 states: "Because the Villages could be developed in the absence of the federal action, Reclamation is focusing its evaluation of the proposed action in this EA on the impacts associated with construction of the water delivery and treatment facilities needed to take and use leased settlement water." We note that the DEA does, in fact, include summary information in Section 3.9 (Cumulative Impacts) and Appendix D (Biological Assessment) regarding potential impacts expected to occur as a result of development at the Villages site, although the discussion is generally limited to issues such as vegetative conversion and potential impacts to sensitive species. An issue is whether BOR should have included a more detailed discussion of growth-related impacts stemming from the development itself, such as traffic congestion, waste issues, and related impacts to air and water quality. While we understand BOR's position that the villages could be developed without the proposed federal action, we believe that an analysis of the indirect and cumulative impacts from traffic, waste, etc. would provide the public with a better understanding of the scope of

36-2

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impacts associated with the federal action. BOR should consider expanding its NEPA analysis for this project to address the issues in question.

We appreciate the opportunity to review this DEA. If you have any questions, please call Leonidas Payne of my staff at (415) 744-1571.

Sincerely,

A handwritten signature in black ink, appearing to read "David J. Farrel", with a horizontal line underneath.

David J. Farrel, Chief
Federal Activities Office

cc: Sen. John McCain
Mr. Norman Trzaskowski

Letter 36: Response to Comments made by the U.S. Environmental Protection Agency

- 36-1. Reclamation appreciates the EPA's review of the draft EA. Your comment on the adequacy of the analysis in the EA is noted.

- 36-2. Reclamation has included a summary of The Villages site conditions and environmental issues associated with development under the No-Action Alternative for each of the topical issue areas discussed for the proposed action. This evaluation includes discussion of water and biological resources, cultural resources, air quality, noise, land use, and visual resources. Please refer to Section 3.0 of the EA. Reclamation has provided more detail on the No-Action Alternative effects than in other EAs prepared recently in the interest of addressing the concerns of members of the public. Please refer to the "Response to Comments on the NEPA Compliance Approach", above.

List of Acronyms and Abbreviations

| | | | |
|-----------|--|-------------------|--|
| ACHP | Advisory Council on Historic Preservation | L _{dn} | day-night average sound level |
| ADA | Arizona Department of Agriculture | MAG | Maricopa Association of Governments |
| ADEQ | Arizona Department of Environmental Quality | M&I | municipal and industrial |
| ADOT | Arizona Department of Transportation | MCDOT | Maricopa County Department of Transportation |
| ADT | average daily traffic | MOA | Memorandum of Agreement |
| ADWR | Arizona Department of Water Resources | msl | mean sea level |
| AGFD | Arizona Game and Fish Department | | |
| af | acre-feet | | |
| af/yr | acre-feet per year | NEPA | National Environmental Policy Act |
| AMA | Active Management Area | NHPA | National Historic Preservation Act |
| APC | Maricopa County Environmental Services, Department of Air Pollution Control | NMFS | National Marine Fisheries Service |
| | | NO _x | nitrogen oxides |
| APE | area of potential effect | NPDES | National Pollutant Discharge Elimination System |
| APS | Arizona Public Service | NRCS | U.S. Natural Resources Conservation Service |
| ARPA | Archaeological Resources Protection Act | NRHP | National Register of Historic Places |
| | | NRLP | New River Land Use Plan |
| BA | biological assessment | NUPD | Neighborhood Unit Plan of Development |
| BLM | U.S. Bureau of Land Management | NVATS | Northeast Valley Area Transportation Study |
| | | | |
| CAA | Clean Air Act | PM10 | inhalable particulate matter less than 10 microns in diameter |
| CAGR | Central Arizona Groundwater Replenishment District | PMOA | Programmatic Memorandum of Agreement |
| | | ppm | parts per million |
| CAP | Central Arizona Project | | |
| CAWCD | Central Arizona Water Conservation District | Reclamation | U.S. Bureau of Reclamation |
| CEQ | Council on Environmental Quality | ROG | reactive organic gases |
| CFR | Code of Federal Regulations | ROW | right-of-way |
| cfs | cubic feet per second | | |
| CO | carbon monoxide | Settlement Act | Ak-Chin Settlement Act |
| Community | Ak-Chin Indian Community | SHPO | State Historic Preservation Officer |
| Corps | U.S. Army Corps of Engineers | SIP | state implementation plan |
| | | SLD | State Land Department of Arizona |
| dB | decibels | SR | State Route |
| dBA | A-weighted decibel | | |
| Del Webb | Del Webb Corporation | TCP | Traditional Cultural Properties |
| DMP | Maricopa County Development Master Plan | tpy | tons per year |
| | | | |
| EA | environmental assessment | USFWS | U.S. Fish and Wildlife Service |
| EIS | environmental impact statement | USGS | U.S. Geological Survey |
| EPA | Environmental Protection Agency | | |
| ESA | Endangered Species Act | The Villages | The Villages at Desert Hills master planned community |
| | | VOC | volatile organic gases |
| FCDMC | Flood Control District of Maricopa County | | |
| FEMA | Federal Emergency Management Agency | WSCA | wildlife of special concern |
| FONSI | finding of no significant impact | | |
| FR | Federal Register | μg/m ³ | micrograms per cubic meter |
| | | | |
| I-17 | Interstate 17 | | |
| ISTEA | Intermodal Surface Transportation Efficiency Act | | |
| ITA | Indian trust asset | | |
| ITF | Integrated Turfgrass Maintenance | | |
| | | | |
| kV | kilovolt | | |