Land & Water Use Report

Subsurface Soil Investigation

West Central Phoenix - West Osborn Complex Site

Phoenix, Arizona
July 2004

Soil Vapor Extraction and Treatment System

Prepared by
Arizona Department of Environmental Quality
1110 W. Washington Street

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EXECUTIVE SUMMARY

The Arizona Department of Environmental Quality (ADEQ) has prepared this Land and Water Use report for the West Central Phoenix (WCP) West Osborn Complex (WOC) Water Quality Assurance Revolving Fund (WQARF) Registry site to meet the requirements established under Arizona Administrative Code (A.A.C.) R18-16-406 (D). The purpose of the report is to gather information regarding current and foreseeable uses of land or waters that have been or are threatened to be impacted by a contaminant release.

Meetings were conducted with various stakeholders including representatives from the City of Phoenix (COP), Salt River Project (SRP), and local property/well owners to gather information concerning the current and future land and water uses of the site property and surrounding area. Land use on the property and in the surrounding area is predominantly light industrial. The COP Planning Department has no current plans to change zoning or land use in the area.

The COP and SRP currently own and operate groundwater wells within the WCP area. The COP is not currently operating any wells within a one-mile radius of the WCP WOC site boundary. Due to population increases and the consequent increase in water demand, the need may exist to install additional groundwater wells in the WCP area within the next 100 years. SRP maintains two irrigation wells currently not being pumped in accordance with an agreement with the ADEQ.

Groundwater in the area is also extracted by the Michigan Trailer Park and Danone Waters of North America. Michigan Trailer Park operates a 400-foot well as the sole water supply source for the Park's residents. Danone Waters extracts water from their 952-foot well for their processing and bottling operation. Neither entity has plans to change the use of wells on their property.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

ACRONYMS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
ADWR	Arizona Department of Water Resources
AMA	Active Management Area
AWQS	Arizona Aquifer Water Quality Standard
AWS	Assured Water Supply
BTEX	benzene, toluene, ethylbenzene, and xylenes (total)
CAP	Central Arizona Project
COP	City of Phoenix
cis-1,2-DCE	cis-1,1-dichloroethylene or cis-1,1-dichloroethene
1,1-DCE	1,1-dichloroethylene or 1,1-dichloroethene
FS	feasibility study
MCL	maximum contaminant level
MTP	Michigan Trailer Park
µg/L	micrograms per liter
mg/L	milligrams per liter
PCE	tetrachloroethylene or tetrachloroethene
RI	remedial investigation
RO	remedial objective
SRP	Salt River Project
TCA	1,1,1-trichloroethane
TCE	trichloroethylene or trichloroethene
TDS	total dissolved solids
VOC	volatile organic compound
WCP	West Central Phoenix
WOC	West Osborn Complex
WQARF	Water Quality Assurance Revolving Fund

1.0 INTRODUCTION

The Arizona Department of Environmental Quality (ADEQ) has prepared this Land and Water Use report for the West Central Phoenix (WCP) West Osborn Complex (WOC) Water Quality Assurance Revolving Fund (WQARF) Registry site to meet the requirements established under Arizona Administrative Code (A.A.C.) R18-16-406 (D). The purpose of the report is to gather information regarding current and foreseeable uses of land or waters that have been or are threatened to be impacted by a contaminant release.

1.1 Process Overview

The process to complete the remedial investigation (RI) and select remedial objectives (ROs) begins with the completion of the draft RI report. Following the completion of the draft RI report, which includes the land and water use, a public meeting is held to discuss the Use report and solicit input for the selection of ROs. Typically, the public will be given 30 days to comment on the Use report. Following the public meeting and comment period, ADEQ issues the proposed ROs report. The ROs chosen for a site may be based on none, some, or all of the uses identified in the Use report. If there is significant public interest or additional information has been discovered, an additional public meeting to discuss the ROs is held. The Final ROs Report is then prepared and included in the Final RI Report.

1.2 Land and Water Use Report

The purpose of the Land and Water Use report is to gather information regarding current and "foreseeable" uses of land or waters that have been or are threatened to be impacted by a contaminant release, and to project time frames for future changes in those uses. Information gathered from discussions with property owners, water providers, municipalities, and well owners are to be included in the report.

In general, this Land and Water Use report identifies various current and potential future uses of land and water in the vicinity of the WCP WOC site. However, the report does not evaluate the uses, nor does it classify the use as "reasonably foreseeable". The evaluation of uses will take place during public comment periods, and public meetings and will be presented in the proposed ROs report.

1.3 Site Background

In 1982, a volatile organic compound (VOC), trichloroethylene (TCE), was detected in several City of Phoenix (COP) municipal wells located in WCP. Subsequent groundwater sampling confirmed the presence of TCE at concentrations above the EPA Maximum Contaminant Levels (MCLs). ADEQ subsequently designated the area of groundwater contamination as the WCP WQARF area and recommended further study under the WQARF. The WCP WQARF area was

placed on the WQARF Priority List in 1987.

In 1998, the following five WQARF Registry sites were established pursuant to A.R.S. §49-287.01 within the WCP WQARF area:

- West Grand Avenue;
- East Grand Avenue;
- West Osborn Complex;
- North Canal; and
- North Plume.

Figure 1-1 presents the WCP WOC site as redefined in June 2003.

The contaminants known to be present at levels above regulatory limits in the groundwater in the WCP WOC site include the chlorinated solvents tetrachloroethylene (PCE) and TCE. The WOC facility, located at 3536/3600/3640 West Osborn Road in Phoenix, Arizona, has been identified as the source of the groundwater contamination in the WCP WOC site (Figure 1-2).

1.4 General Groundwater Quality

Groundwater in the WCP WOC site and the surrounding area generally contain concentrations of total dissolved solids (TDS) ranging from 415 milligrams per liter (mg/L) to greater than 1,000 mg/L (Brown and Pool, 1989; Daniel, 1981). The principal ions present within local groundwater include sodium, calcium, chloride, and bicarbonate (Reeter and Remick, 1986). Salt River Project (SRP) data for TDS in wells within the WCP area range from 554 mg/L to 965 mg/L (SRP, 1999). Data collected during the WCP WOC RI from wells MW-1S, WCP-4, and WCP-12 in and around the WCP WOC site for TDS ranged from 400 mg/L to 1,400 mg/L. The EPA has not set an MCL for TDS, however, there is a secondary standard of 500 mg/L TDS for drinking water. The secondary standards are non-enforceable guidelines regulating contaminants that may cause aesthetic effects in drinking water.

Based on analytical data collected by the SRP from wells located in the WCP area, other general groundwater quality parameters such as nitrate and arsenic are within current regulatory guidelines for drinking water uses (SRP, 1999). Nitrate analyses in 1999 for the two SRP wells closest to the WCP WOC site were below the MCL of 10 mg/L as were data collected by USGS in 1980 to 1985. Arsenic was not detected in SRP samples and was typically below 0.074 mg/L in USGS data (SRP, 1999; Brown and Pool, 1989).

The concentration of TCE in groundwater in the WCP WOC site has exceeded the Arizona Aquifer Water Quality Standard (AWQS) of 5 micrograms per liter (µg/L) in onsite shallow well MW-100S (47 µg/L) and in offsite shallow wells MW-102S (120 µg/L), MW-104S (190 µg/L), and MW-201S (27 µg/L). The AWQS for PCE is currently exceeded in middle-depth wells MW-2M (11 µg/L), MW-3M (9.6 µg/L), MW-4M (27 µg/L), MW-7M (20 µg/L), and MW-105M (8.9 µg/L). Also in the past, concentrations of 1,1-DCE in groundwater were detected in

several wells above the AWQS of 7 µg/L. Currently, concentrations of 1,1-DCE greater than the AWQS were not measured in any of the shallow or middle-depth wells within the WCP WOC site.

In the past, other contaminants have been detected in groundwater in the WCP WOC site at concentrations below their respective AWQSs. These included benzene, toluene, and cis-1,2-dichloroethylene (cis-1,2-DCE).

2.0 USE EVALUATION

The following sections outline current and foreseeable land and water uses for the WCP WOC site and the surrounding area. Reasonably foreseeable uses for land are those uses of land likely to occur at the site within a reasonable time period. Reasonably foreseeable uses of water are those likely to occur within 100 years unless a longer time period is shown to be reasonable based on site-specific circumstances [A.A.C. R18-16-406 (D)].

A list of contacts, meetings, and interviews conducted as part of the use evaluation is presented in Table 2-1.

2.1 Land Uses

Development in the area occurs consistent with zoning laws and must go through a site-planning review and permit process. Current zoning districts in the site area are identified below and a more detailed description of COP zoning designations can be found in Table 2-2. The property lies within the eastern portion of Maryvale Village (Figure 2-1). Each village located within the COP has a Planning Coordinator who has input into planning decisions for that community. Contact information for the Village Planning Coordinators can be found in Table 2-3 (COP, 2004a).

2.1.1 Current Site-Specific Land Use

The WOC facility was originally one large property (about 15 acres) located near 35th Avenue and Osborn Road. It was built in the late 1950's. In the mid-1970s, the property was subdivided and sold as three separate properties.

Since the 1950's, many companies have operated at the site. Some of the companies manufactured capacitors, diodes, transistors, semiconductor parts, and, in recent years, machined parts for the aerospace industry. Many of these businesses used industrial solvents such as TCE, alcohol, Stoddard solvent, and acetone in their production and cleaning processes. Today, businesses at the WOC facility include a furniture manufacturer, machine shop, furniture liquidator, and several office complexes.

The current zoning designation for the WOC facility is A-2, Industrial District (COP, 2004b).

2.2.2 Current Regional Land Use

The current land use surrounding the WCP WOC site is predominantly A-1 (Light Industrial) and A-2 (Industrial) (Figure 2-2). Residential areas (Zoned R-5 and R1-6) are immediately south and west-southwest of the WOC facility. Various commercial zones also border the area.

2.2.3 Future Land Use

Meetings with the COP Planning Department, including the Maryvale planning coordinator, indicated that there are no foreseeable plans to alter current zoning districts in the WCP WOC site vicinity, nor are there any special projects in the area. However, property owners can file to change the zoning designation of their property. Requests for zoning changes must go through a public hearing and be approved by the City Council prior to finalization.

2.2 Groundwater Uses

The WCP WOC site lies within the Phoenix Active Management Area (AMA) created by the Arizona Groundwater Management Code passed in 1980. All groundwater legally withdrawn from any AMA must occur under a groundwater right or permit, unless groundwater is being withdrawn from an exempt well. An exempt well is defined as having a maximum discharge capacity of 35 gallons per minute or less. All exempt wells must be registered with the Arizona Department of Water Resources (ADWR). Non-exempt wells have a discharge capacity greater than 35 gallons per minute and are associated with one of the following types of rights or permits (ADWR, 2001a):

- Grandfathered rights—derived from past individual water use. There are three types of grandfathered rights:
- Irrigation grandfathered rights;
- Type 1 non-irrigation grandfathered rights;
- Type 2 non-irrigation grandfathered rights;
- Service area rights—allow cities, towns, private water companies and irrigation districts to withdraw groundwater to serve their customers; or
- Withdrawal permits—allow new withdrawals of groundwater for non-irrigation uses within AMAs. There are eight types of withdrawal permits covering various groundwater uses that are subject to different requirements. Examples of withdrawal permits include general industrial use permits, dewatering permits, and poor-quality groundwater-withdrawal permits.

Grandfathered rights are derived from past individual water use. An irrigation grandfathered right is the right to use groundwater to irrigate specific acres of land. The amount of groundwater that can be used is specified in the right; however, the amount will vary over time according to a formula established in the management plans. A Type 1 non-irrigation right is associated with land permanently retired from farming and converted to a non-irrigation use. The maximum amount of groundwater that may be pumped each year using a Type 1 right is three acre-feet per acre of land. An irrigation grandfathered right and a Type 1 non-irrigation right may not be sold apart from the associated land. Figure 2-3 presents irrigation grandfathered rights and Type 1 non-irrigation rights in the WCP WOC site area.

Groundwater withdrawn under a Type 2 right can only be used for a non-irrigation purpose. Type 2 rights are the most flexible because they can be sold separately from the land or well. In

addition, the owner of a Type 2 right may, with ADWR approval, withdraw groundwater from a new location within the same AMA.

Groundwater wells having either grandfathered Type 2 irrigation rights (private use) or service area permits (municipal and utility use) within a one-mile radius of the WOC facility have been identified and are presented in Table 2-4.

There are approximately 300 registered wells in the area that are permitted to withdraw groundwater to monitor aquifer conditions. A list of these wells is included in Appendix A for reference.

The following sections present detailed information regarding specific uses of wells in or near the WCP WOC site.

2.2.1 Municipal and Utility Groundwater Use

The COP and SRP pump groundwater to a certain degree to satisfy their customer needs. The following sections discuss the current and future groundwater uses of the COP and SRP.

2.2.1.1 City of Phoenix

The COP receives water from four major sources: SRP, the Colorado River through the Central Arizona Project (CAP), reclaimed water, and groundwater (COP, 2000). The portion of water supplied by SRP is from reservoirs on the Salt and Verde Rivers and from groundwater wells. The "On-Project" area, which refers to approximately 30 percent of the water service area entitled to water delivered by SRP, is generally south of the Arizona Canal (Figure 2-4). The WCP WOC site lies within the northern section of the On-Project Area. The "Off-Project and Non-member Area" is supplied primarily by CAP water, supplemented by reclaimed water and water stored at Horseshoe Dam on the Verde River. Groundwater is supplied from wells operated by the COP. Although less than 5 percent of current total water deliveries are from groundwater, the COP uses groundwater to ensure adequate supplies during drought periods and temporary water system outages (COP, 2000).

The COP owns and maintains ten wells in the WCP area (Figure 2-5). Due to water quality degradation and the establishment of more stringent drinking water quality standards in recent years, most of these wells were placed on inactive status by 1989 because the water they produce does not meet current regulatory standards (Table 2-5). COP-70 and COP-71 are located within the WCP WOC site boundary. These wells were capped in 1982 due to TCE contamination above the AWQS. COP-68 is located within the WCP WOC site boundary. This well has been inactive (but not capped) since 1986 due to high TDS and nitrates (COP, 2001a).

2.2.1.1.1 Future COP Needs

According to information provided by COP, the COP estimates that by 2010, 18,000 acre-feet per year of new well capacity will be needed to provide back up water supplies during future drought events (COP, 2000). The additional new well capacity is expected to increase to 140,000 acre-feet by 2050. Reportedly, these increases would require up to 80 new wells by 2050. The COP is currently drilling all of its new production wells in the northeast Phoenix area, but future expansion is limited by concerns over potential land subsidence and competing demand from Scottsdale production wells just across the Phoenix-Scottsdale boundary (COP, 2001b). The state-mandated Assured Water Supply (AWS) Rules limit the depth to which groundwater levels may be lowered through future pumping to 1,000 feet below land surface over the next 100 years. In addition, the COP anticipated that many of the northeast Phoenix wells will require expensive treatment to remove arsenic if the MCL of 10 µg/L is implemented (COP, 2001b). The new arsenic rule became effective on February 22, 2002. The date by which systems must comply with the new 10 µg/L standard is January 23, 2006.

According to COP, possible well field expansion may occur in the WCP area despite water quality problems because groundwater elevations there are several hundred feet higher than in other potential expansion areas and arsenic levels are not a concern. The COP is unlikely to restore previously closed wells to production due to the high cost of wellhead treatment and because of other physical and ADWR regulatory limits (COP, 2001b). According to COP, it is possible, however, that existing well sites could be redrilled with new wells (COP Meeting, 2001).

COP's continued interest in future well development in the Central Phoenix wellfields led COP to the development of computerized tools that would assist the City in evaluating the suitability of groundwater resources in the Central Phoenix area. The primary goal of the project was to aid the City in evaluating the general location and timing of future groundwater resources development for the COP public water supply. As part of the project, COP evaluated the entire water service area for future well development and assigned numerical scores, based on established criteria. Based strictly on the statistical evaluation of the scores, COP indicates that areas with scores in at least the 75th percentile (scores $\geq$ 81) may warrant consideration for future well development. The area where the WCP WOC site is located scores 72-85, therefore, it may be considered for future well development for drought protection (COP, 2002).

2.2.1.2 Salt River Project

Groundwater comprises approximately 15 percent of the water supplied by SRP to municipal treatment plants; however, groundwater contribution varies seasonally with the highest contribution occurring March through August. Historically, there has been enough surface water to meet demand in only one out of every three years. During extended periods of low run off, groundwater can account for almost one-third of the total SRP water supply (SRP, 1999).

SRP operates and maintains nine irrigation wells within the WCP area (Figure 2-5). Four of these wells (11.2E-7.7N, 10.5E-7.5N, 9.5E-7.7N, and 8.5E-7.5N) have been affected by TCE contamination; two of which are within a one-mile radius of the WCP WOC site (Table 2-2). The two wells are 9.5E-7.7N, which is west (crossgradient) of the contaminant plume and well 10.5E-7.5N, which is located east (crossgradient) of the site (Figure 2-3). SRP and ADEQ have had an agreement since 1999 to not pump wells located near WQARF sites in the WCP area due to these influences on contaminant plume migration. Annual pumping rates from the WCP area wells were considerably lower in the past 30 years than the previous 30 years. This was due in large part to above normal precipitation on the watershed and the increased availability of surface water through this period. In recent years, the CAP and the Arizona Water Banking Authority have made it possible for SRP to use Colorado River water in lieu of pumping groundwater.

2.2.1.2.1 Future SRP Needs

Although not in use at this time, SRP has no plans to eliminate any of the wells in the WCP area from their system. Based on demand analysis, SRP has indicated it will continue to need the wells in the area to remain operational, especially during dry years. Current monthly demand (1999-2000) for the section of the Grand Canal downstream from the WCP WQARF area ranges from less than 1,000 acre-feet in the winter months to more than 10,000 acre-feet in the peak summer months. Based on this demand, SRP anticipates that future pumping needs from the four wells affected by TCE contamination during dry years are as follows:

- 60 to 80 percent of the time during the summer months (June to August);
- 20 to 40 percent during shoulder months (March through May and September through October), and
- 0 to 10 percent during the winter months (November through February). In wet years, the wells would most likely be used minimally, if at all (SRP, 2001).

SRP indicated to ADEQ that it has future plans for the construction of a drinking water treatment plant planned at the end of the Grand Canal. If the treatment plant is constructed, overall water demand will likely increase. Additionally, a drinking water treatment plant on the Grand Canal will require that water sources discharging to the canal comply with more stringent water quality criteria. Currently, SRP does not plan on installing any new wells in the WCP area (SRP, 2001).

2.2.2 Private Groundwater Use

Private groundwater use, or non-municipal groundwater use, in the WCP WOC site area consists of a domestic well used by the Michigan Trailer Park and, a water supply well used by Danone Waters of North America, and an irrigation well located at the WOC facility, owned by Capitol Liquidators.

2.2.2.1 Michigan Trailer Park

The Michigan Trailer Park (MTP), located west of the WOC facility at 3135 Grand Avenue, is a 150-pad mobile home and RV park with a current average year-round occupancy of 90 pads. The sole water supply source for the park is from a 400-foot well (MTP-1) located on the MTP property. The well, which is crossgradient to the WCP WOC site and close to SRP Well 10.5E-7.5N, has an approximate pumping capacity of 85 to 100 gallons per minute and serves approximately 135 to 180 residents. The property was sold prior to the finalization of this report. However, the previous owner stated that there were no plans to remove the well from service.

An elevated nitrate concentration from a December 1999 sample caused Maricopa County to request monthly nitrate testing to investigate the need for shutting down the well. All results previous to and since the 1999 sample have been below the nitrate MCL of 10 mg/L. Maricopa County is not requiring MTP to shut down the well at this time and it is expected that the well will remain in service indefinitely.

VOC analyses have also been conducted on samples collected from MTP-1. PCE and TCE have been detected in samples collected from MTP-1. However the concentrations detected have been below the AWQS of 5 μg/L established for each compound. PCE has been detected at a concentration of 0.8 μg/L and TCE has been detected at concentrations ranging from 0.3 μg/L to 0.6 μg/L. The analytical results for samples collected from MTP-1 are considered estimated values due to possible contaminant carryover and/or because the detected value was below the laboratory reporting limit but above the method detection limit.

2.2.2.2 Danone Waters

Danone Waters of North America, formerly owned by McKesson Water Inc., operates a water processing, bottling, and distribution plant approximately one mile southwest (crossgradient) of the WCP WOC facility. The business has been at their present location since 1974 and expanded their facility a couple of years ago. Danone owns three Grandfathered Groundwater Rights (Type 2 non-irrigation rights) for a total of 163 acre-feet and operates a 952-foot well located on the property, which has a pumping capacity of 225 gallons per minute. Danone samples the well regularly and results have not shown detectable concentrations of VOCs. Prior to bottling, groundwater undergoes several treatment steps including reverse osmosis. The company has discussed the feasibility of installing an additional well on-site for back up purposes although no decisions have been made at this time.

2.2.2.3 Other Private Wells

The irrigation well located at WOC facility, commonly referred to as the WOC Irrigation Well, is not currently being used. According to ADWR records, this well is not associated with any active grandfathered groundwater right or permit. The last grandfathered groundwater right associated with this well was in 1997. The Type 2 right was conveyed to someone else and this

well was taken off of the certificate. The name of the person or entity that the Type 2 right was conveyed to is not available. The well is expected to be abandoned before the end of 2004 by United Industrial Corporation, as part of the field investigative activities at the WCP WOC site.

2.3 Surface Water Uses

The Grand Canal is the only surface water body immediately north of the WCP WOC site. Water from SRP irrigation wells along the Grand Canal is discharged to the canal, which presently serves downstream agricultural and urban irrigation customers. A drinking water treatment plant may be constructed at the end of the Grand Canal which would change the end use of the canal water requiring that water discharged to the canal meet stricter water quality criteria than what is currently required.

The Grand Canal is not fully lined in the area of the WCP WOC site (Figure 2-6). The canal is primarily unlined between 19th Avenue and Interstate 17 except for lined portions near Indian School Road, 23rd Avenue, and Interstate 17. The canal is lined on the south bank and on the southern half of the bottom from Interstate 17 to 27th Avenue and on the bottom and both banks from 27th Avenue to 39th Avenue.

3.0 SUMMARY OF USES

The land and water uses described in Section 2.0 most likely relevant to discussion of remedial objectives are presented below.

3.1 Land Uses

The zoning pattern in the area has been long established and there are no foreseeable changes for the future. Land uses for the Layke facility property and within the WCP WOC site area are expected to remain predominantly industrial or light industrial.

3.2 Groundwater Uses

Current and future groundwater uses within the WCP WOC site area include the following:

- The COP anticipates the possible need for additional drinking water wells to augment production in the WCP area sometime in the future.
- SRP owns several irrigation wells in the area and will continue to need operational wells to supplement surface water supplies. A water treatment plant may be built on the Grand Canal sometime in the future, which would change the use of the groundwater from irrigation to drinking water.
- The Michigan Trailer Park is expected to continue to use their well to provide drinking water to park residents.
- Danone Water is expected to continue to use the well located on their property in their bottling operations.

3.3 Surface Water Uses

Currently, there are no surface water uses within the WCP WOC site area.

4.0 REFERENCES

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Table 2-1
Personal Interviews and Contacts

Date	Type of Contact	Party/Attendees	Notes
March 26, 2001	Meeting: COP	Lynda Person, ADEQ Don Richey, ADEQ Tamara Huddleston, AGO Keith Larson, COP Karen O'Regan, COP Karen Peters, COP Bob Pikora, COP Planning Elaine Taylor-Tyler, COP Planning Steve Muenker, COP Planning Nancy Nesky, WESTON Bob Forsberg, LFR	Meeting notes by WESTON available in ADEQ project files.
April 16, 2001	Meeting: SRP	Lynda Person, ADEQ Ana Vargas, ADEQ Bob Forsberg, LFR Kevin Wanttaja, SRP Paul Cherrington, SRP Joe Rauch, SRP Nancy Nesky, WESTON	Meeting notes by WESTON available in ADEQ project files.
June 27, 2001	Interview	Linda Pederson Osborn Investors	Notes in Appendix B
June 27, 1001	Interview	Al Jackson Danone Water	Notes in Appendix B

Table 2-2
Zoning Code Descriptions

Zoning Code	Name	Description/Purpose
A-1	Light Industrial District	Industrial uses designed to serve the needs of the community for industrial activity not offensive to nearby commercial and residential uses.
A-2	Industrial District	Designed to accommodate uses with one or more of the following characteristics: intensive use of property; open uses and/or storage; industrial processes which may involve significant amounts of heat, mechanical, and chemical processing, large amounts of materials transfer, extended or multiple shift operation, large scaled structures. Such uses often function best in association with other similar or supportive uses. Because of the intensity and characteristics of this use class, specific standards are set to maximize their compatibility when adjacent to residential districts or when located on arterial or collector streets.
C-1	Commercial Neighborhood Retail District	Light neighborhood type retail and customer service uses designed to be compatible with each other and nearby residential districts.
C-2	Commercial Intermediate District	Commercial uses of medium intensity designed to be compatible with each other and to provide for a wide range of types of commercial activity within the district.
C-3	Commercial General District	Designed to provide for the intensive commercial uses necessary to the proper development of the community.
CP/GCP	Commerce Park/General Commerce park option	Provides for a broad range of manufacturing, warehousing, distribution and supportive retail sales and services. It is differentiated from the A-1 and A-2 districts, however, in that environmental and site standards ensure a high degree of compatibility with other commerce park options as well as other adjacent uses.
R1-6	Residential	Single family residence 5.30 dwellings/acre – base intensity.
R-5	Residential	Multi family residence 43.5 dwellings/acre – base intensity.

Table 2-3
Maryvale Village Planning Coordinator Contact Information

Village Name	Planning Coordinator	Phone Number
Maryvale	Jan Hatmaker	(602) 261-8771

Information as of June 2004

Table 2-4
Groundwater Wells Within a One-Mile Radius of the WCP WOC Facility[1, 2]

Owner	Approximate Distance from Site	ADWR No.	Common Well Name	Location (T, R, Section, Acre160, Acre40, Acre10)	Well Type	Well Use	Water Use	Installed	Well Depth (ft bgs)	Water Level[3] (ft bgs)	Casing Type	Casing Depth (ft bgs)	Pump Rate (gallons per minute)
Capital Liquidators	On-Site	55-603866	WOC Irrigation Well	2N 2E 27 NE, SE, SE	Non-Exempt	Water Production	Irrigation	Unknown	Unknown	Unknown	Unknown	Unknown	50
Nuckols, Bryce	Crossgradient, 0.5-1.0 mile	55-618512	MTP-1 (Michigan Trailer Park)	2N 2E 26 NW, SE, SW	Non-Exempt	Water Production	Domestic	Unknown	400	Unknown	Steel-Perforated or Slotted Casing	Unknown	80
Danone Waters of North America	Crossgradient, 0.5-1.0 mile	55-800680	Danone	2N 2E 26 SW, NW, SE	Non-Exempt	Water Production	Domestic	04-Jan-74	952	106	Steel-Perforated or Slotted Casing	950	225
Salt River Project	Crossgradient, 0-0.5 mile	55-608381	9.5E-7.7N	2N 2E 25 NW, SW, SE	Non-Exempt	Water Production	Irrigation	01-Jun-50	500	110	Steel-Perforated or Slotted Casing	500	1457
Salt River Project	Crossgradient, 0.5-1.0 mile	55-608377	10.5E-7.5N	2N 2E 26 SE, NW, NW	Non-Exempt	Water Production	Irrigation	10-Jun-49	698	129	Steel-Perforated or Slotted Casing	698	3254
City of Phoenix	Downgradient, 0.5-1.0 mile	55-626550	No. 68	2N 2E 26 SE, NW, NW	Non-Exempt	Inactive (but not capped)	Municipal	01-Feb-53	434	200	Steel-Perforated or Slotted Casing	434	0
City of Phoenix	Downgradient, 0.5-1.0 mile	55-626552	No. 70	2N 2E 34 NE, SE, SW	Non-Exempt	Capped/ Abandoned	Municipal	01-Apr-55	701	203	Steel-Perforated or Slotted Casing	701	0
City of Phoenix	Downgradient, 0.5-1.0 mile	55-626553	No. 71	2N 2E 27 NE, SW, NW	Non-Exempt	Capped/ Abandoned	Municipal	01-May-57	545	194	Steel-Perforated or Slotted Casing	545	0

1 Information for the Danone Water Well furnished by Danone. Information for MTP-1 furnished by Linda Pederson. Other well information from the Arizona Department of Water Resources Well Database.
2 A list of groundwater wells used for monitoring or other environmental purposes can be found in Appendix A.
3 Water level at time of well installation.
ft bgs = feet below ground surface

Table 2-5
Summary of COP Wells in West Central Phoenix[1,2]

Well No.	Well Status	Reason Well is Not Active	Date Taken Out of Service	Year Drilled	Well Diameter (inches)	Well Depth (feet)	Maximum Pumping Capacity
68	Inactive but not capped	1221 mg/L TDS 34 mg/L Nitrates	3/1986	1953	12	434	750
69	Abandoned	825 mg/L TDS 15mg/L Nitrates	10/1988	1954	16	405	450
70	Capped	8.9 µg/L TCE	9/1982	1955	16	701	800
71	Capped	29.0 µg/L TCE	4/1982	1957	16	545	700
72	Active	N/A	N/A	1959	20	1200	442
151	Capped	3.3 µg/L TCE 16 mg/L Nitrates	3/1989	1962	12	650	850
152	Capped	3.9 µg/L TCE 12 mg/L Nitrates	3/1989	1957	20-12	630	1320
157	Inactive but not capped	14 mg/L Nitrates	11/1989	1962	20	696	1169
77	Unused/Capped	Unknown	Unknown	1952	12	400	Unknown
100	Closed	Ethylene dibromide contamination	10/1984	1952	12	387	Unknown

[1] Information from COP letter to ADEQ, April 2001 except for Wells 77 and 100.
[2] Information for Wells 77 and 100 taken from the *Water Quality Assurance Revolving Fund Phase I Report. West Central Phoenix Area, Task Assignment E-1, Phoenix, Arizona*. Prepared by Earth Technology Corportation, August 1989.

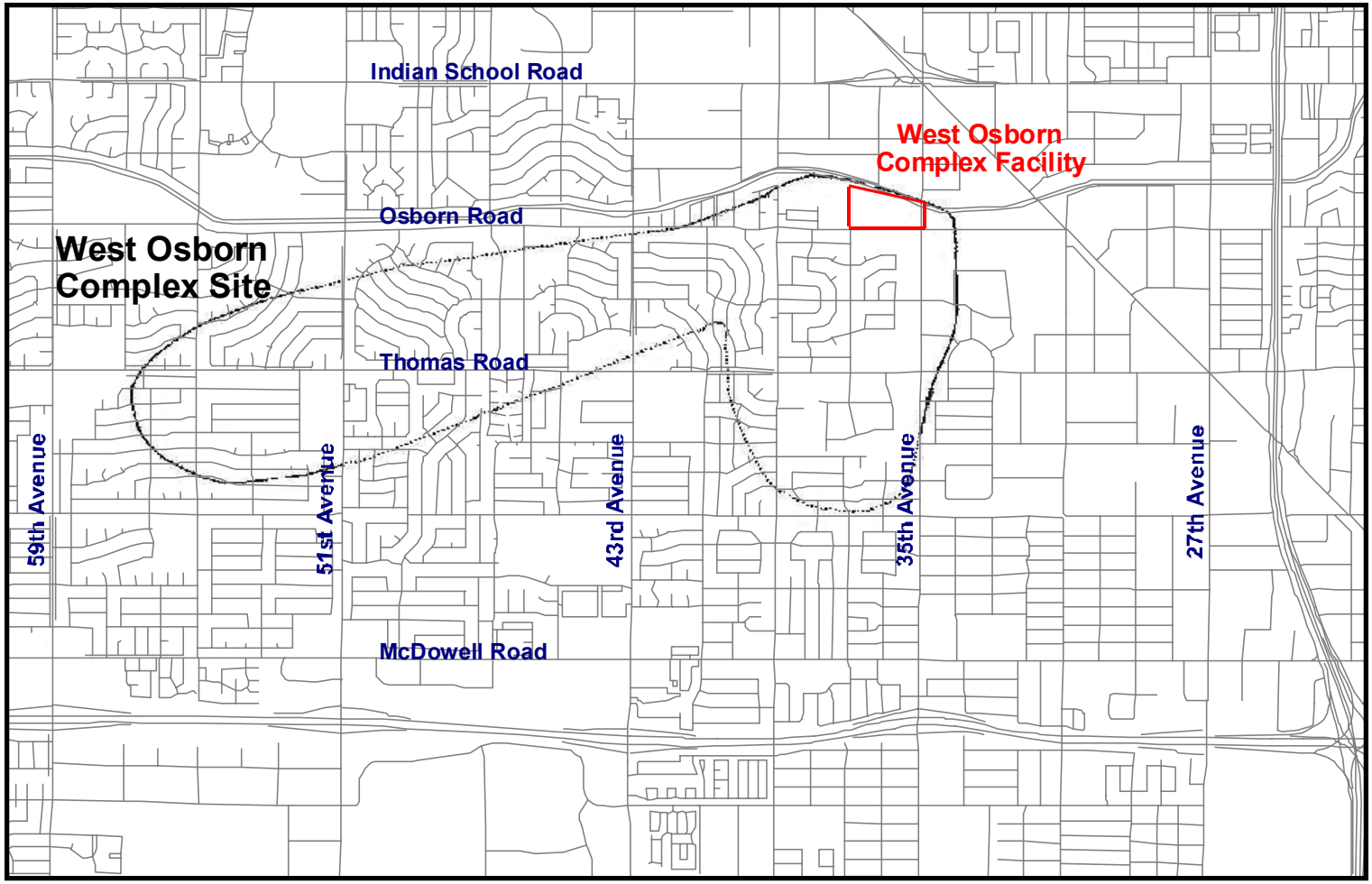

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Figure 1-1

WCP WOC Site Boundary

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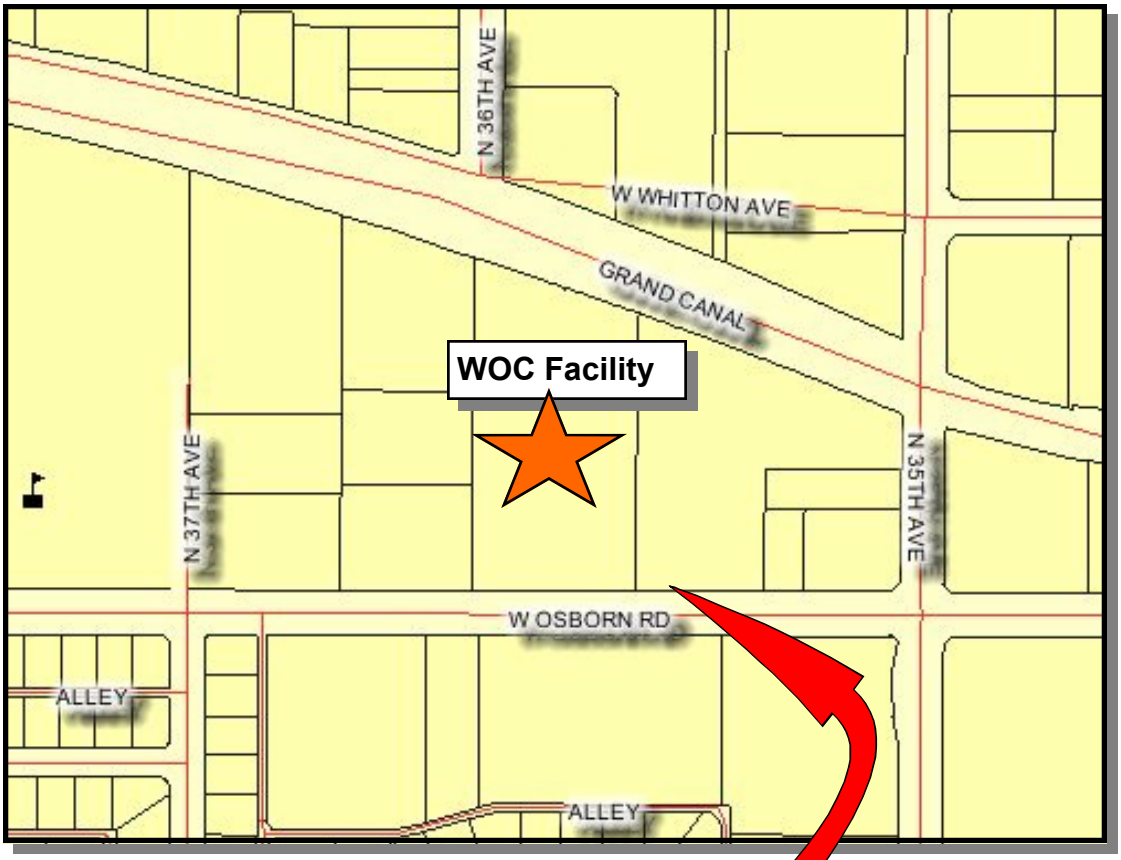

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Figure 1-2

West Osborn Complex Facility Location Map
WCP WOC Site

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Figure 2-3

Grandfathered Irrigation and Type I
Non Irrigation Groundwater Rights

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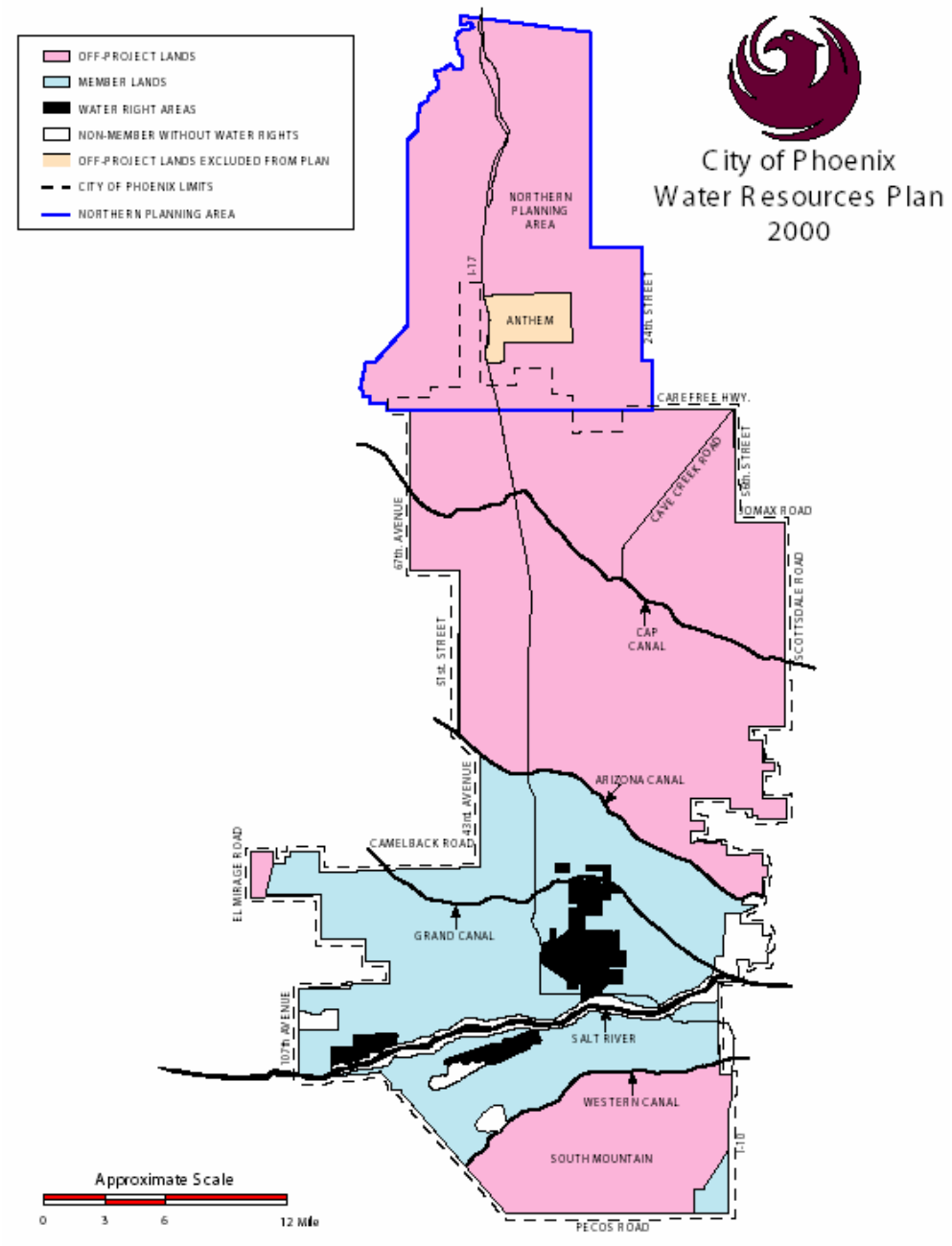

NOTE: Figure adapted from City of Phoenix Resources Plan Update

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Figure 2-4

SRP Water Service Planning Areas

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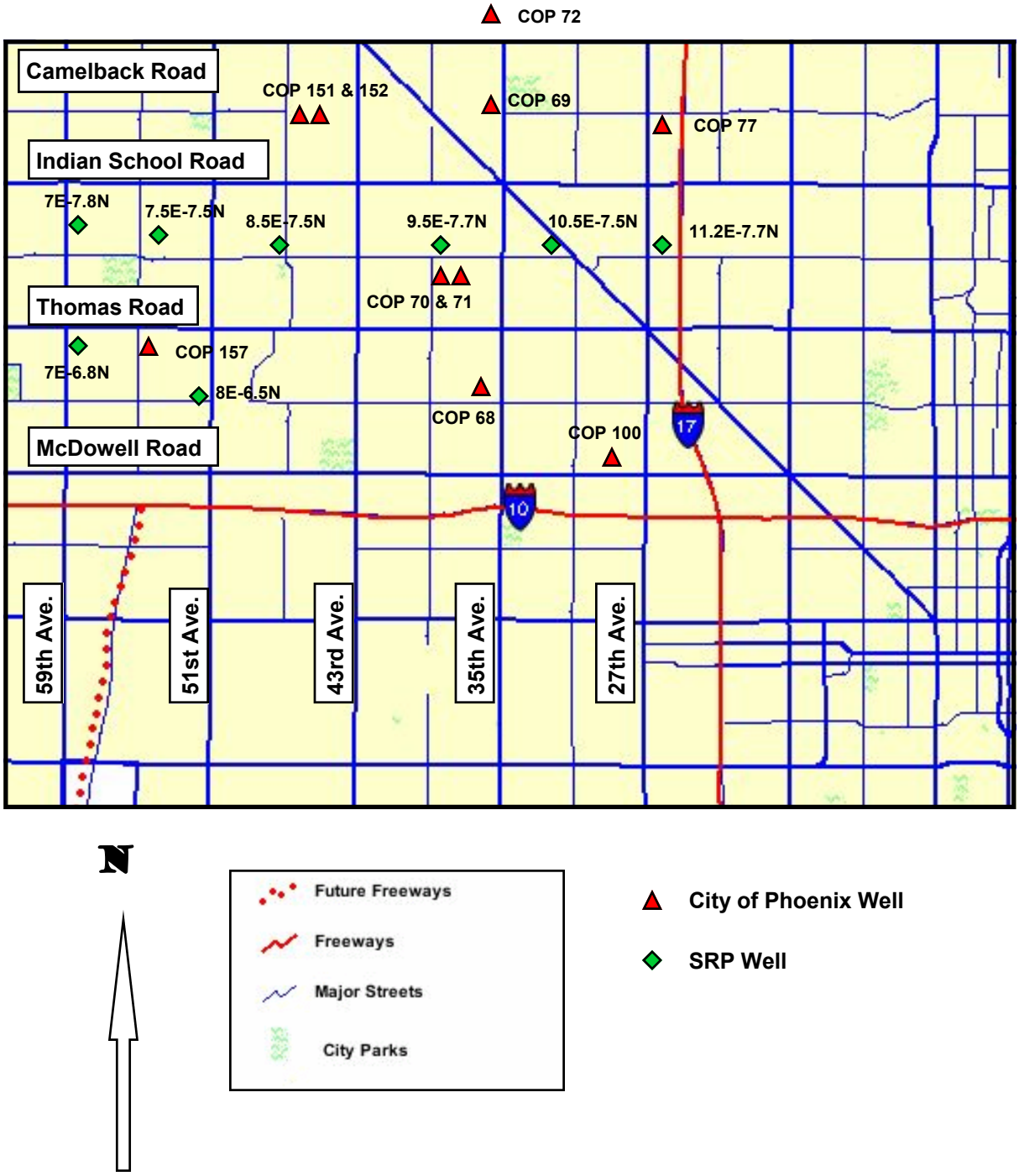

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Figure 2-5

COP and SRP Wells Within the West Central Phoenix Area

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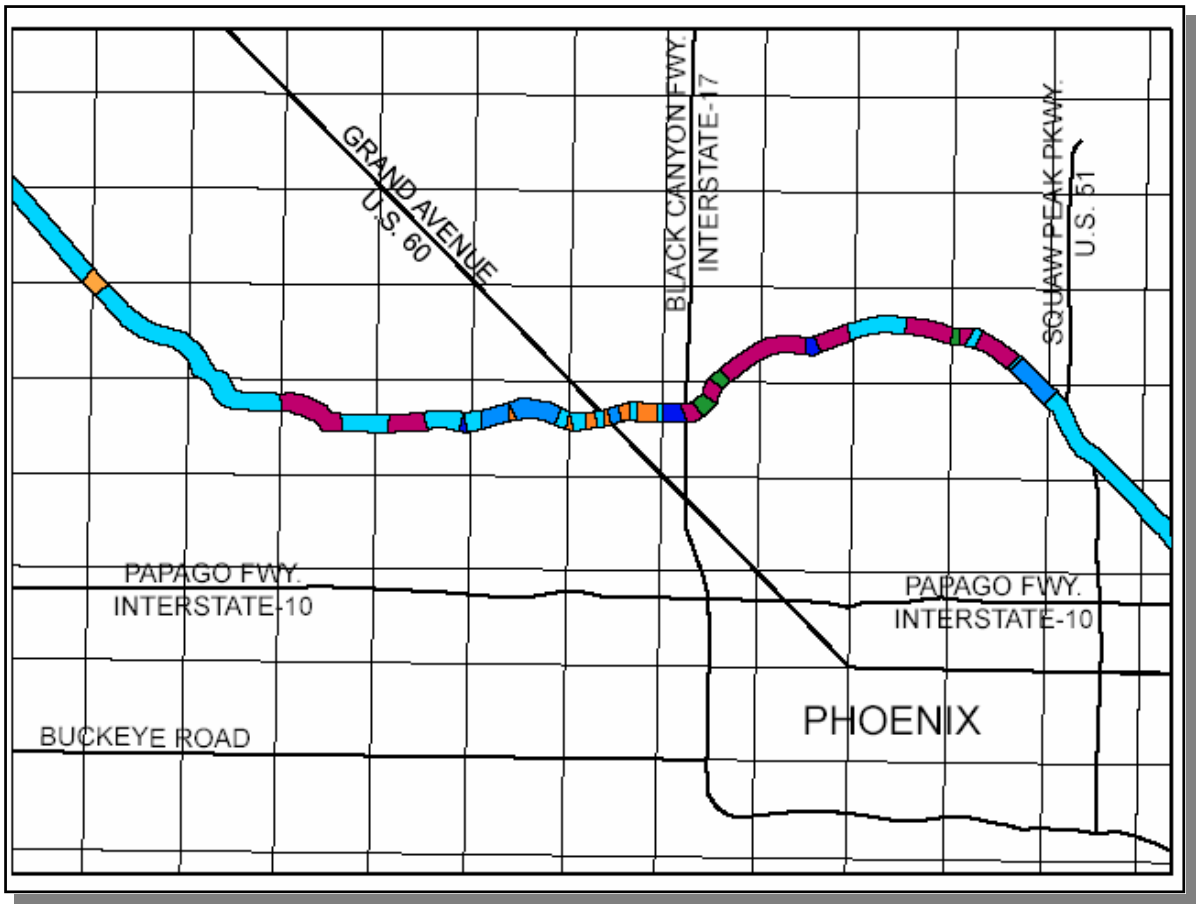

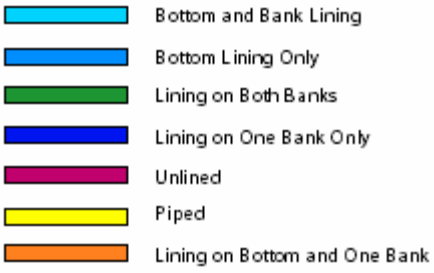

NOTE: Figure adapted from the map of Lined and Unlined Canals by the Salt River Valley Water User's Association.

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Figure 2-6

Lined and Unlined Sections of the Grand Canal

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