

# 1. INTRODUCTION

## 1.1 BACKGROUND

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The City of Peoria (City) Utilities Department is responsible for the planning and operation of the City's water, wastewater and reclaimed water systems. The Department maintains comprehensive master plans for water resources, water infrastructure, wastewater, and water reuse to provide for orderly growth of its systems. The *Water Resources Master Plan* deals primarily with the development and delivery of adequate water supplies to the City. The *Water Infrastructure Master Plan* addresses the treatment and distribution of water to residents and businesses within the City. The *Wastewater Master Plan* addresses the collection, treatment and handling of wastewater generated by the residents and businesses. The *Water Reuse Master Plan* (City of Peoria, 2005d) deals with the distribution of reclaimed water to irrigation and other reclaimed water customers within the City and with the recharge of reclaimed water to the aquifer for stored water credits.

The current *Water Resources Master Plan* (City of Peoria, 2000) is now five years old and requires an update. It provides a common set of assumptions in terms of population, water demand projections, and water supply for the other master plans, which will also be updated in subsequent years.

The availability of water resources will significantly impact the City's future development and growth. The City's current population of approximately 139,000 is projected to grow to more than 314,000 by 2030. Prudent management of existing water supplies and planning for future supplies are essential to maintaining a sustainable water supply and continuing to comply with the regulatory requirements of the State's Groundwater Management Act and Assured Water Supply Rules.

## **1.2 PROJECT PURPOSE AND SCOPE**

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The purpose of the *Water Resources Master Plan* is to identify the projected water demands as the City continues to grow and the strategies necessary to meet the increasing demand for water in the most cost-effective and efficient manner. The *Master Plan* will investigate alternatives for acquiring and utilizing additional water resources, including “outside the box” thinking for creative ways to provide water resources for continued growth and development of the City.

The *Master Plan* will be developed for a study period of 2005 to 2030 and near-term and long-term recommendations will be developed. The recommendations for the near-term will be specific while the recommendations for the long-term will be more general and conceptual.

## **1.3 HISTORY OF PEORIA’S WATER RESOURCES**

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The City was incorporated and water services initiated in 1954. Initially, the City relied on groundwater to serve its municipal needs. Because of overall declining groundwater levels in the Phoenix Valley and resulting groundwater management regulations, projected growth, and availability of surface water from the Salt River Project (SRP) and Central Arizona Project (CAP), the City initiated an aggressive shift toward the use of surface water supplies. The City obtained its initial CAP allocation in 1983 and has worked continuously to increase this allocation. It began delivery of CAP water through the City of Glendale’s Pyramid Peak Water Treatment Plant (WTP) in 1998 and SRP water through the City’s Greenway WTP in 2002.

Wastewater treatment and reclamation is part of the water use cycle and reclaimed water can be considered in the City’s resources. Wastewater treatment for the City was initially handled at the Tolleson Wastewater Treatment Plant. The City expanded its reclamation services and began reclaiming water and recharging it for stored water credits in 1998 with the completion of the Beardsley Water Reclamation Facility (WRF) and its

associated recharge facility. The Jomax WRF was completed in 2004 to provide wastewater management and to produce reclaimed water for direct reuse in the new developments in the northwest areas of the City. The Butler Drive WRF in the City's southern area is currently under design and is anticipated to be operational in 2009. The City's water development milestones are summarized on Table 1-1.

#### **1.4 STUDY AREA AND WATER PLANNING AREAS**

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The study area for the Water Resources Master Plan, shown on Figure 1-1, includes all of the City's Municipal Planning Area (MPA) (City of Peoria, 2004) which encompasses approximately 150,000 acres, or 233 square-miles. The study area includes approximately 19,000 acres or 30 square-miles in neighboring Yavapai County surrounding Lake Pleasant. The current City limits, also shown on Figure 1-1, include approximately 116,000 acres or 178 square-miles within the MPA.

The study area has been divided into four Water Planning Areas (WPAs) that have common water resources characteristics:

- SRP On-Project Lands: areas within the SRP Reservoir District. These areas are entitled to water allotments from the SRP, subject to a water use agreement with SRP.
- Agua Fria East: areas north of SRP On-Project Lands, mostly east of the Agua Fria River, and south of State Highway 74. This area is served CAP water and groundwater.
- Agua Fria West: areas west of the Agua Fria River. Only part of this area within the current City limits has been assigned a portion of the City's CAP allocation. Most of the area has limited groundwater availability.
- Lake Pleasant: area generally north of State Highway 74 and around Lake Pleasant, including areas in Yavapai County. This area has been designated to receive CAP water by the City and generally does not have groundwater physically available.

**TABLE 1-1  
CITY OF PEORIA WATER RESOURCES DEVELOPMENT TIMELINE**

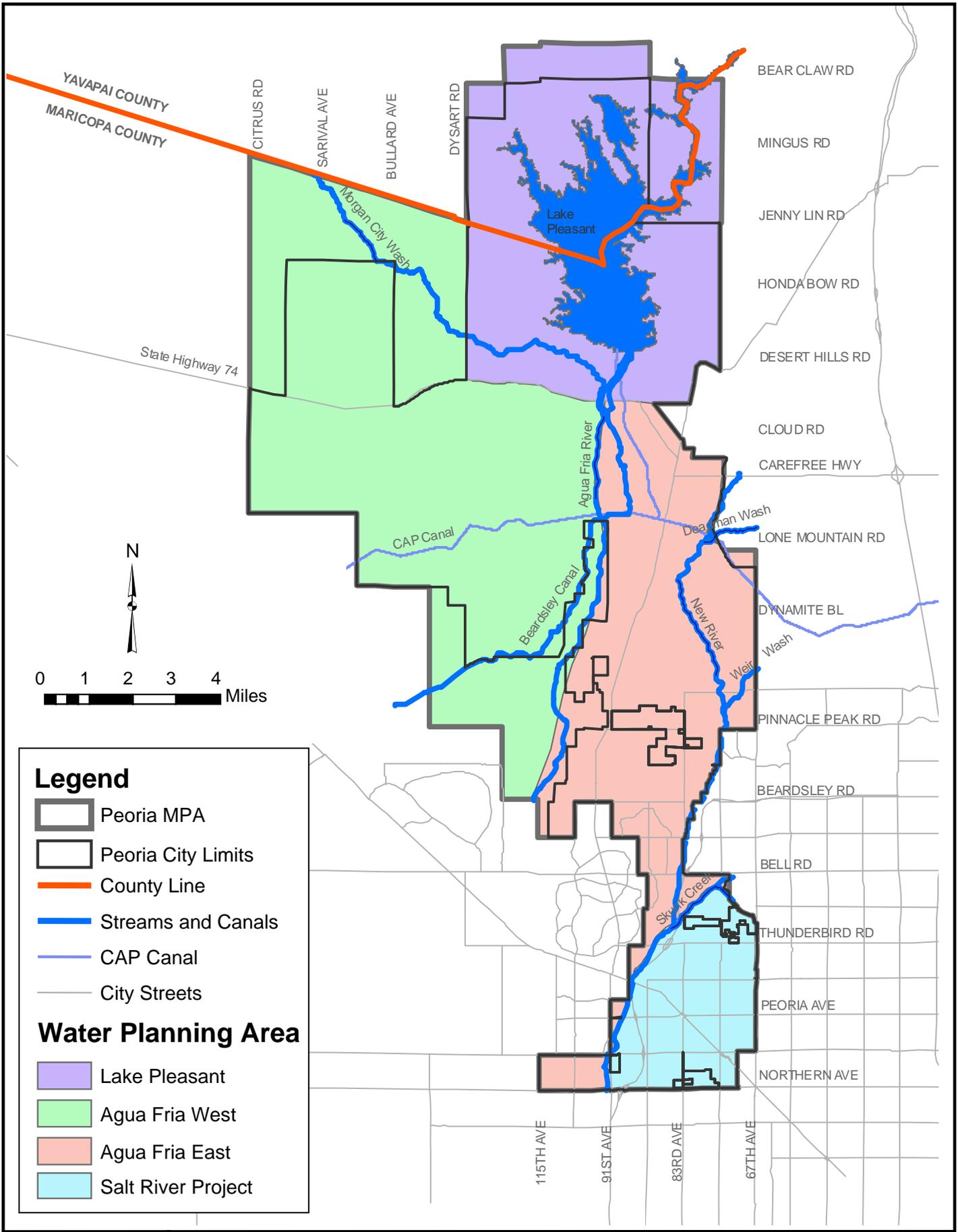
1954	City initiates water service
1967	Tolleson Wastewater Treatment Plant (WWTP) constructed
1968	Central Arizona Project (CAP) authorized to deliver Colorado River water to central Arizona
1980	Groundwater Management Act (GMA) passed and established the Phoenix Active Management Area (AMA)
1980	Tolleson WWTP expanded
1983	City obtains an initial CAP allocation of 15,000 acre-feet per year (AFY)
1985	Pursuant to GMA, First Management Plan published; Peoria reported to have a water use rate of 311 gallons per capita per day (gpcd)
1988	Tolleson WWTP expanded to 17.5 million gallons per day (mgd); Peoria's initial capacity was 6.3 mgd
1989	Amendment No. 1 to the City's original CAP allocation increased the amount to 17,849 AFY, as a result of Peoria's condemnation of the water utility system of Clearwater Water Company
1990	Second Management Plan published, Peoria reported to have a water use rate of 198 gpcd
1993	Amendment No. 2 to the City's original CAP allocation increased the amount to 18,223 AFY, as a result of the assignment of 374 AFY of New River Utility Company's CAP allocation to Peoria
1995	Peoria purchased additional capacity (3.1 mgd) in Tolleson WWTP: Peoria's total capacity is 9.4 mgd
1995	Arizona Department of Water Resources (ADWR) adopts Assured Water Supply (AWS) rules pursuant to GMA which requires providers to have a renewable water supply prior to development of a new subdivision
1997	City obtains service area membership in the Central Arizona Groundwater Replenishment District (CAGR) as a backup supply for AWS purposes with a maximum replenishment obligation of 7,949 AFY
1997	City obtains Designation of AWS from ADWR through 2010

**TABLE 1-1 (Continued)**  
**CITY OF PEORIA WATER RESOURCES DEVELOPMENT TIMELINE**

1997	City participates in SRP in-lieu recharge program: by 2005, the City has stored approximately 29, 534 acre-feet (AF) of water as groundwater credits for use to avoid CAGRDR replenishment costs.
1998	Beardsley Water Reclamation Facility (WRF) Phase 1 completed with 3.0 mgd capacity; includes recharge facility for effluent
1998	City begins delivery of CAP water through Pyramid Peak WTP in partnership with the City of Glendale; Peoria capacity is 6 mgd, or 6,720 AFY
1999	Third Management Plan published; Peoria reported to have a water use rate of 196 gpcd for 1992 to 1996
1999	Amendment No. 3 to the City's original CAP allocation increased the amount to 18,709 AFY, as a result of the assignment of 486 AFY of McMicken Irrigation District's CAP Municipal and Industrial allocation to Peoria
1999	City adopts a policy requiring newly annexed lands to provide their own water supply
2000	City adopts development fee policy that requires new developments within the City to provide funds for water resource and infrastructure development
2000	City initiates development of Greenway WTP to deliver primarily SRP water to the SRP area of the City
2000	City extinguishes seven Irrigation Grandfathered Rights and obtains 2,941 AF of groundwater credits
2000	City initiates development of Butler Drive WRF with 10 mgd capacity
2001	CAGRDR service area membership with maximum replenishment obligation of 10,342 AFY
2002	Greenway WTP started operation with initial capacity of 16 mgd, or 17,920 AFY
2002	City submits modification of Designation of AWS to ADWR to demonstrate increased physical groundwater availability due to annexation of Vistancia land
2002	Amendment No. 4 to the City's original CAP allocation increased the amount to 19,709 AFY as a result of the assignment of 1,000 AFY of CAP sub-contract water from Arizona State Land Department to Peoria
2002	CAWCD started Agua Fria recharge facility to recharge CAP water; City purchased 15 percent of the capacity, or 9,000 AFY recharge capacity
2003	City Develops Drought Contingency Plan

**TABLE 1-1 (Continued)**  
**CITY OF PEORIA WATER RESOURCES DEVELOPMENT TIMELINE**

2003	CAGR maximum replenishment obligation increases to 12,142 AFY as a result of the modification to the Designation of AWS
2003	Beardsley WRF expanded to 4 mgd
2003	CAWCD started Hieroglyphic Mountain recharge facility to recharge CAP water; City purchased 15 percent of the capacity, or 4,000 AFY recharge capacity
2004	The Jomax WRF is completed with 0.75 mgd capacity; 100 percent of reclaimed water to be used as direct reuse
2004	Re-rating of Pyramid Peak WTP increased Peoria's share to 9 mgd



YAVAPAI COUNTY  
MARICOPA COUNTY

CITRUS RD  
SARIVAL AVE  
BULLARD AVE  
DYSART RD

BEAR CLAW RD  
MINGUS RD  
JENNY LIN RD  
HONDABOW RD  
DESERT HILLS RD

State Highway 74



0 1 2 3 4 Miles

**Legend**

- Peoria MPA
- Peoria City Limits
- County Line
- Streams and Canals
- CAP Canal
- City Streets

**Water Planning Area**

- Lake Pleasant
- Agua Fria West
- Agua Fria East
- Salt River Project

115TH AVE  
91ST AVE  
83RD AVE  
67TH AVE

CLOUD RD  
CAREFREE HWY  
LONE MOUNTAIN RD  
DYNAMITE BL  
PINNACLE PEAK RD  
BEARDSLEY RD  
BELL RD  
THUNDERBIRD RD  
PEORIA AVE  
NORTHERN AVE