



City of Phoenix, Arizona

Water Services Department
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Water Resources Infrastructure Improvements Plan

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1. Introduction

The City of Phoenix, Arizona (City) retained Red Oak Consulting, a division of Malcolm Pirnie, Inc. (Red Oak) to update its Water Resources Acquisition Fee (WRAF). Red Oak's study consisted of two phases of work: Phase 1 included a technical and cost assessment of proposed WRAF projects, and Phase 2 included the determination and assessment of a WRAF using capital costs developed in Phase 1, updated to reflect current (2008) dollars.

During the course of Red Oak's study, the State of Arizona amended the State Statute relating to municipal development fees (ARS §9-463.05). The revised statute requires that "before the assessment of a new or modified fee, the governing body of the municipality shall adopt or amend an infrastructure improvements plan." This report provides the infrastructure improvements plan (IIP) required by Arizona State Law.



2. Infrastructure Improvements Plan

2.1.1. Estimate of Future Necessary Public Services

An estimate of future necessary public services that will be required as a result of new development, including water resources project, expected funding type, annual supply, capital cost, financing costs and average cost per acre-foot, is provided in **Table 2-1**.

**Table 2-1.
Water Resources Infrastructure Improvements**

Water Resources Project	Year	Expected Funding Type	Annual Supply (acre-feet)	Capital Cost (2008 Dollars)	Financing Cost (2008 Dollars)	Cost per Acre-Foot (2008 Dollars)
<u>On-Project</u>						
SRP Western Canal WTP	2013	Revenue Bond	44,800	\$27,690,000	\$20,601,360	\$1,078
Water Efficiency for New Development	Ongoing	Cash	3,270	2,610,000	-	798
Average Cost Per Acre-Foot						1,059
<u>Off-Project</u>						
CAP Reallocation	2010	Cash	8,206	5,830,000	-	710
GRIC Lease	2008-12	Cash	15,000	27,621,000	2,037,050	1,977
McMullen Valley Water Transfer	2013	Revenue Bond	38,000	113,610,000	84,525,840	5,214
Agua Fria Linear Recharge	2023	Cash	16,000	84,270,000	-	5,267
Northern Reclamation Plants	2017	Cash	20,000	86,910,000	-	4,346
23rd Ave Reclaimed	NA	NA	-	-	-	-
ASLD CAP Reallocation	Ongoing	NA	12,000	-	-	-
Water Efficiency for New Development	Ongoing	Cash	23,695	18,910,000	-	798
Average Cost Per Acre-Foot ¹						\$3,505
Total			180,971	\$367,451,000	\$107,164,250	

1. Off-Project average cost per acre-foot excludes ASLD CAP reallocation. The City has not reached an agreement with the Arizona State Land Department regarding CAP water for use on State Lands within the City.

Capital and financing costs above are provided in 2008 dollars, and reflect the basis for the WRAF calculations, as detailed in Red Oak's WRAF Phase 1 and Phase 2 reports.

2.1.2. Forecast of the Costs of Infrastructure

Table 2-2: Water Resources Infrastructure Improvements Schedule provides a forecast of the costs of infrastructure required, and an estimate the time required to finance and provide the necessary public services, beginning in FY 2007-08 through FY 2029-30. Table 2-2 costs are shown in future dollars.

Water resources infrastructure improvements costs for fiscal years 2007-08 through 2011-12 were provided in the City’s 2007 – 2008 Annual Budget and/or 2007 – 2012 Capital Improvement Program adopted the City Council on June 13, 2007 (Ordinances S-34050 and S-34051), with the exception of ASLD CAP reallocation costs. The City has not reached an agreement with the Arizona State Land Department regarding CAP water for use on State Lands within the City. As such, this IIP excludes ASLD CAP reallocation costs and supplies.

Water resources infrastructure improvements costs for fiscal years 2012-13 through 2029-30 are based on water resources acquisition projects identified in the City of Phoenix “*Water Resources Plan Update 2005*,” adopted by the Phoenix City Council, March 8, 2006, and the capital cost estimates prepared by Red Oak in the accompanying WRAF Phase 1 and Phase 2 Reports.

Red Oak recommends a comprehensive review a minimum of every five years or earlier if the City substantially changes its IIP.

Table 2-2. Water Resources Infrastructure Improvements Schedule

Fiscal Year	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
<u>On-Project</u>								
SRP Western Canal WTP	-	-	-	-	-	33,852,000	-	-
Water Efficiency for New Development	108,000	112,000	117,000	121,000	126,000	132,000	137,000	143,000
<u>Off-Project</u>								
CAP Reallocation	1,166,000	1,166,000	1,166,000	1,166,000	1,166,000	-	-	-
GRIC Lease	13,810,510	4,267,448	4,063,743	3,860,037	3,656,332	-	-	-
McMullen Valley Water Transfer	-	-	-	-	-	138,890,000	-	-
<u>Reclaimed Water Projects</u>								
Agua Fria Linear Recharge	-	-	-	-	-	-	-	-
Northern Reclamation Plants ¹	-	-	-	-	-	-	-	-
23rd Ave Reclaimed	-	-	-	-	-	-	-	-
ASLD CAP Reallocation	Excluded	Excluded	Excluded	Excluded	Excluded	-	-	-
Water Efficiency for New Development	672,000	700,000	729,000	758,000	790,000	822,000	856,000	891,000
Total ²	\$15,757,000	\$6,245,000	\$6,076,000	\$5,905,000	\$5,738,000	\$173,696,000	\$993,000	\$1,034,000

1. Northern Reclamation Plants include Cave Creek, North Gateway, and/or other northern reclamation plants.
2. Rounded to the nearest 1,000. Infrastructure improvements costs for fiscal years 2007-08 through 2011-12 were provided in the City's 2007 – 2008 Annual Budget and/or 2007 – 2012 Capital Improvement Program, and include costs for CAP reallocation, and GRIC lease. Excludes ASLD CAP reallocation costs in the amount of \$1,700,000 in FY2007-08; \$1,700,000 in FY2008-09; \$1,900,000 in FY2009-10; \$1,800,000 in FY2010-11; and \$1,800,000 in FY2011-12. Infrastructure improvements costs for fiscal years 2012-13 through 2029-30 are shown in future dollars, based on capital cost estimates provided in Red Oak's Water Resources Acquisition Fee Phase 1 and Phase 2 Reports.

Table 2-2. Water Resources Infrastructure Improvements Plan (cont.)

Fiscal Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
<u>On-Project</u>								
SRP Western Canal WTP	-	-	-	-	-	-	-	-
Water Efficiency for New Development	148,000	155,000	161,000	167,000	174,000	181,000	189,000	197,000
<u>Off-Project</u>								
CAP Reallocation	-	-	-	-	-	-	-	-
GRIC Lease	-	-	-	-	-	-	-	-
McMullen Valley Water Transfer	-	-	-	-	-	-	-	-
<u>Reclaimed Water Projects</u>								
Agua Fria Linear Recharge	-	-	-	-	-	-	-	153,972,000
Northern Reclamation Plants ¹	-	124,766,000	-	-	-	-	-	-
23rd Ave Reclaimed	-	-	-	-	-	-	-	-
ASLD CAP Reallocation	-	-	-	-	-	-	-	-
Water Efficiency for New Development	927,000	965,000	1,005,000	1,046,000	1,089,000	1,134,000	1,180,000	1,228,000
Total ²	\$1,075,000	\$125,896,000	\$1,166,000	\$1,213,000	\$1,263,000	\$1,315,000	\$1,369,000	\$155,397,000

- Northern Reclamation Plants include Cave Creek, North Gateway, and/or other northern reclamation plants.
- Rounded to the nearest 1,000. Infrastructure improvements costs for fiscal years 2007-08 through 2011-12 were provided in the City's 2007 – 2008 Annual Budget and/or 2007 – 2012 Capital Improvement Program, and include costs for CAP reallocation, and GRIC lease. Excludes ASLD CAP reallocation costs in the amount of \$1,700,000 in FY2007-08; \$1,700,000 in FY2008-09; \$1,900,000 in FY2009-10; \$1,800,000 in FY2010-11; and \$1,800,000 in FY2011-12. Infrastructure improvements costs for fiscal years 2012-13 through 2029-30 are shown in future dollars, based on capital cost estimates provided in Red Oak's Water Resources Acquisition Fee Phase 1 and Phase 2 Reports.

Table 2-2. Water Resources Infrastructure Improvements Plan (cont.)

Fiscal Year	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	Total
<u>On-Project</u>								
SRP Western Canal WTP	-	-	-	-	-	-	-	33,852,000
Water Efficiency for New Development	205,000	213,000	222,000	231,000	240,000	250,000	261,000	3,990,000
<u>Off-Project</u>								
CAP Reallocation	-	-	-	-	-	-	-	5,830,000
GRIC Lease	-	-	-	-	-	-	-	29,658,000
McMullen Valley Water Transfer	-	-	-	-	-	-	-	138,890,000
<u>Reclaimed Water Projects</u>								
Agua Fria Linear Recharge	-	-	-	-	-	-	-	153,972,000
Northern Reclamation Plants ¹	-	-	-	-	-	-	-	124,766,000
23rd Ave Reclaimed	-	-	-	-	-	-	-	-
ASLD CAP Reallocation	-	-	-	-	-	-	-	-
Water Efficiency for New Development	1,279,000	1,331,000	1,386,000	1,443,000	1,502,000	1,563,000	1,628,000	24,924,000
Total ²	\$1,484,000	\$1,544,000	\$1,608,000	\$1,674,000	\$1,742,000	\$1,813,000	\$1,889,000	\$515,892,000

1. Northern Reclamation Plants include Cave Creek, North Gateway, and/or other northern reclamation plants.
2. Rounded to the nearest 1,000. Infrastructure improvements costs for fiscal years 2007-08 through 2011-12 were provided in the City's 2007 – 2008 Annual Budget and/or 2007 – 2012 Capital Improvement Program, and include costs for CAP reallocation, and GRIC lease. Excludes ASLD CAP reallocation costs in the amount of \$1,700,000 in FY2007-08; \$1,700,000 in FY2008-09; \$1,900,000 in FY2009-10; \$1,800,000 in FY2010-11; and \$1,800,000 in FY2011-12. Infrastructure improvements costs for fiscal years 2012-13 through 2029-30 are shown in future dollars, based on capital cost estimates provided in Red Oak's Water Resources Acquisition Fee Phase 1 and Phase 2 Reports.