NEW APPLICATION

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AZ CORP COMMISSION
DOCKET CONTROL

**BEFORE THE ARIZONA CORPORATION COMMISSION**

COMMISSIONERS

BOB STUMP - Chairman
GARY PEIRCE
BRENDA BURNS
BOB BURNS
SUSAN BITTER SMITH

IN THE MATTER OF THE APPLICATION OF EPCOR WATER ARIZONA INC., AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES FOR UTILITY SERVICE BY ITS MOHAVE WATER DISTRICT, PARADISE VALLEY WATER DISTRICT, SUN CITY WATER DISTRICT, TUBAC WATER DISTRICT, AND MOHAVE WASTEWATER DISTRICT.

DOCKET NO: WS-01303A-14-0010

**APPLICATION**

Arizona Corporation Commission
DOCKETED
MAR 10 2014
DOCKETED BY nr

EPCOR Water Arizona Inc., an Arizona corporation ("EWAZ" or the "Company"), hereby applies for an order establishing the fair value of its plant and property used for the provision of public water and wastewater utility service and, based on such finding, approving permanent rates and charges for utility service designed to produce a fair return thereon for its Mohave Water District, Paradise Valley Water District, Sun City Water District, Tubac Water District, and Mohave Wastewater District In support thereof, EWAZ states as follows:

1. EWAZ is an Arizona public service corporation engaged in providing water and wastewater utility services in several different parts of, Arizona, pursuant to certificates of convenience and necessity granted by the Arizona Corporation Commission. During the Test Year, EWAZ served approximately 44,529 water and 1,448 wastewater service connections.[1]

[1] Mohave Water District: 16,067 connections; Paradise Valley Water District: 4,862 connections; Sun City Water

# APPLICATION
# WS-01303A-14-0010

## PART 1 OF 5
## BARCODE # 0000152663

**To review Part 2 please see:**
**BARCODE #0000152664**

**To review Part 3 please see:**
**BARCODE # 0000152665**

**To review Part 4 please see:**
**BARCODE # 0000152666**

**To review Part 5 please see:**
**BARCODE #0000152667**

2. EWAZ's business office is located at 2355 W. Pinnacle Peak Road, Suite 300, Phoenix, Arizona 85027 and its telephone number is (623) 445-2455. The Company's primary management contact is Jim McKee, Vice President of Corporate Services for EPCOR Water USA Inc.

3. The person responsible for overseeing and directing the conduct of this rate application is Sheryl L. Hubbard. Ms. Hubbard's mailing address is 2355 W. Pinnacle Peak Road, Suite 300, Phoenix, Arizona 85027, her telephone number is (623) 445-2419, and her e-mail address is shubbard@epcor.com. **All discovery, data requests and other requests for information concerning this Application should be directed to Ms. Hubbard, including copies by e-mail, with a copy to undersigned counsel for the Company, including by e-mail to jshapiro@fclaw.com and wbirk@fclaw.com.**

4. EWAZ's present rates and charges for utility service were approved by the Commission in Decision No. 71410 (December 8, 2009) using a test year ending December 31, 2007 (Paradise Valley Water District; Tubac Water District; Mohave Wastewater District); Decision No. 72047 (January 6, 2011) using a test year ending December 31, 2008 (Sun City Water District), amended by Decision No. 72229 (March 9, 2011) (Sun City Water District); and Decision No. 73145 (May 1, 2012) using a test year ending June 30, 2010 (Mohave Water District).

5. EWAZ's revenues from its utility operations are presently inadequate to provide a fair rate of return on the fair value of its utility plant and property devoted to public service. Operating expenses have caused the revenues produced by the current rates and charges for service to become inadequate to meet operating expenses and provide a reasonable rate of return. Therefore, EWAZ requests that certain adjustments to its rates and charges for utility service be approved by the Commission so that EWAZ

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District: 23,004 connections; Tubac Water District: 596 connections; and Mohave Wastewater District: 1,448 connections. *See* EWAZ's H-2, Page 1 Schedules.

may recover its operating expenses and be given an opportunity to earn a just and reasonable rate of return on the fair value of its property devoted to service in the five districts that are part of this Application. EWAZ agrees to use its original cost rate base as its fair value rate base in this proceeding to minimize disputes and reduce rate case expense.

6. Filed concurrently herewith are the schedules required pursuant to A.A.C. R14-2-103 for rate applications by Class A utilities. The test year utilized by EWAZ in connection with the preparation of such schedules is the 12-month period that ended June 30, 2013. EWAZ requests that the Commission utilize such test year in connection with this Application, with appropriate adjustments to obtain a normal or more realistic relationship between revenues, rate base and expenses during the period in which the rates established in this proceeding are in effect.

7. During the test year, the Company's adjusted gross revenues, adjusted operating income (loss), operating income deficiency, adjusted fair value rate base, and rate of return, by district, were:

| District | Adjusted Gross Revenues | Adjusted Operating Income (Loss) | Operating Income Deficiency | Adjusted Fair Value Rate Base | Rate of Return |
|---|---|---|---|---|---|
| Mohave Water | $6,354,293 | $424,406 | $1,204,599 | $23,711,859 | 1.79 % |
| Paradise Valley Water | $9,648,251 | $2,176,797 | $578,275 | $40,102,943 | 5.43 % |
| Sun City Water | $10,265,553 | $782,241 | $994,828 | $25,867,081 | 3.02 % |
| Tubac Water | $579,194 | ($135,672) | $247,146 | $1,622,613 | (8.36%) |
| Mohave Wastewater | $1,055,839 | $78,532 | $282,207 | $5,250,928 | 1.50 % |

8. The Company submits that these rates of return are inadequate to allow it to obtain debt, pay a reasonable dividend to its stockholder, maintain a sound credit rating,

and/or enable EWAZ to attract additional capital on reasonable and acceptable terms in order to continue the investment in utility plant necessary to adequately serve customers.

9. EWAZ is requesting a total revenue increase of $5,458,907, which, when fully implemented, will produce a rate of return on the fair value rate base equal to 6.87 percent for both the water and wastewater operations.

10. EWAZ seeks the following revenue increases for the five districts in this case:

| District | Requested Revenue Increase |
|---|---|
| Mohave Water | $1,983,872 |
| Paradise Valley Water | $950,774 |
| Sun City Water | $1,646,454 |
| Tubac Water | $410,000 |
| Mohave Wastewater | $467,806 |

11. EWAZ's Mohave Water and Sun City Water districts also request approval of a System Improvement Benefits surcharge or SIB.

12. This Application is supported by the testimony and exhibits/schedules of the following witnesses:

a. **Pauline M. Ahern, CRRA** – Ms. Ahern provides testimony on cost of equity.

b. **Thomas J. Bourassa** – Mr. Bourassa provides testimony on Cost of Service Study (G Schedules) and H Schedules, and rate design for all districts.

c. **Shawn Bradford** – Mr. Bradford provides testimony on major utility plant additions since the previous test year for each district, operations, and proposed tank maintenance expenses for Sun City and Tubac water districts.

**d. Candace Coleman, P.E.** – Ms. Coleman requests approval of a System Improvement Benefits Mechanism ("SIB").

**e. Sheryl Hubbard** – Ms. Hubbard provides a broad overview of the requested relief, cost of debt and supports the Company's requested rate base, low-income program recommendations and recovery of rate case expenses.

**f. Jake Lenderking** – Mr. Lenderking provides testimony on water resources and retention of the surcharge mechanisms for purchasing Central Arizona Project water.

**g. Sandra Murrey** – Ms. Murrey provides testimony on various revenue and expense pro forma adjustments.

**h. Jeffrey W. Stuck** – Mr. Stuck provides testimony on major utility plant additions since the previous test year for each district, operations, and proposed tank maintenance expenses for Mohave Water and Wastewater Districts, and Paradise Valley Water District.

**i. Mike Worlton** – Mr. Worlton provides testimony on post test year plant additions.

13. Attached hereto as **Attachment 1** are water and wastewater plant descriptions, completed water use data sheets for the 2012 calendar year, and wastewater flows for January 2012-December 2012 and January 2013-June 2013 for each of the five (5) districts as applicable.

WHEREFORE, EWAZ requests the following relief:

A. That the Commission, upon proper notice and at the earliest possible time, conduct a hearing in accordance with A.R.S. § 40-251 and determine the fair value of EWAZ's utility water and wastewater plants and property devoted to providing water and wastewater utility service for its Mohave Water District, Paradise Valley Water District,

Sun City Water District, Tubac Water District, Mohave Wastewater District, and Sun City Wastewater District;

B. Based upon such determination, that the Commission approve permanent adjustments to the rates and charges for water and wastewater utility service provided by EWAZ, as proposed herein, or approve such other rates and charges as will produce a just and reasonable rate of return on the fair value of the Company's utility plant and property; and

C. That the Commission authorize such other and further relief as may be appropriate to ensure that EWAZ has an opportunity to earn a just and reasonable return on the fair value of their utility plant and property and as may otherwise be required under Arizona law.

RESPECTFULLY SUBMITTED this 7th day of March, 2014.

FENNEMORE CRAIG, P.C.

By _____

Jay L. Shapiro
Todd C. Wiley
2394 E. Camelback Road
Suite 600
Phoenix, Arizona 85016
Attorneys for EPCOR Water Arizona Inc.

**ORIGINAL** and fifteen (15) copies of the foregoing were filed this 7th day of March, 2014, with:

Docket Control
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, AZ 85007

**COPY** of the foregoing was hand-delivered
this 7th day of March, 2014, to:

Dwight D. Nodes, Assistant Chief Administrative Law Judge
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, AZ 85007

Robin Mitchell, Esq.
Matthew Laudone, Esq.
Legal Division
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, AZ 85007

Steve Olea, Director
Utilities Division
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, AZ 85007

By: _____
8962593.

# Addtn'l Filing Requirements

# 1) Compliance Status Reports

# 1a) Arizona Department of Environmental Quality

## Compliance Status Reports-Water

**Arizona Department of Environmental Quality**
Drinking Water Monitoring and Protection Unit
Mail Code 5415B-2
1110 West Washington Street
Phoenix, AZ 85007

# Drinking Water Compliance Status Report

| System Name | System Type | Is system consecutive? |
|---|---|---|
| EPCOR WATER - Mohave | ☒ Community | ☐ Yes, |
| **System ID #** | ☐ Non-transient Non-community | to PWS # |
| 08032 | ☐ Transient Non-community | ☒ No |

| | | | | |
|---|---|---|---|---|
| **Overall compliance status** | ☒ | No major deficiencies | ☐ | Major deficiencies |
| **Monitoring and Reporting status** | ☒ | No major deficiencies | ☐ | Major deficiencies |
| Comments: None | | | | |

| | | | |
|---|---|---|---|
| **Operation and Maintenance status** | ☒ No major deficiencies | ☐ Major deficiencies | |
| **Date of last Sanitary Survey** | 1-5-11 | **Inspector** | Craig Beeson, NRO |

Major unresolved/ongoing operation and maintenance deficiencies:

- ☐ unable to maintain 20psi
- ☐ cross connection/backflow problems
- ☐ treatment deficiencies
- ☐ certified operator
- ☐ inadequate storage
- ☐ surface water treatment rule
- ☐ atc/aoc
- ☐ other =

Comments: During the last sanitary survey, recommendations were made on finished water storage, pumps, monitoring and reporting, and management and operations.

| | | | | |
|---|---|---|---|---|
| **Is an ADEQ administrative order in effect?** | ☐ | Yes | ☒ | No |
| Comments: None | | | | |

| System Information | |
|---|---|
| Population Served | 36330 |
| Service Connections | 14532 |
| Number of Entry Points to the Distribution System | 7 |
| Number of Sources | 7 |
| Initial Monitoring Year | 1994 |
| Monitoring Assistance Program (MAP) System | ☐ Yes ☒ No |

| | | | |
|---|---|---|---|
| **Evaluation completed by** | Donna Calderon, Manager<br>Drinking Water Monitoring and Protection Unit | | |
| **Phone** | 602-771-4641 | **Date** | October 31, 2013 |

| | |
|---|---|
| ☒ | Based upon data submitted by the water system, ADEQ has determined that this system **is** currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4. |
| ☐ | Based upon the monitoring and reporting deficiencies noted above, ADEQ **cannot determine** if this system is currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4. |
| ☐ | Based upon the operation and maintenance deficiencies noted above, ADEQ **cannot determine** if this system is currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4. |

***This compliance status report does not guarantee the water quality for this system in the future, and does not reflect the status of any other water system owned by this utility company.***

**Arizona Department of Environmental Quality**
Drinking Water Monitoring and Protection Unit
Mail Code 5415B-2
1110 West Washington Street
Phoenix, AZ 85007

# Drinking Water Compliance Status Report

| System Name | System Type | Is system consecutive? |
|---|---|---|
| EPCOR WATER - CAMP MOHAVE | ☒ Community | ☒ Yes, |
| **System ID #** | ☐ Non-transient Non-community | to PWS # 08063 |
| 08037 | ☐ Transient Non-community | ☐ No |

| | | |
|---|---|---|
| **Overall compliance status** | ☒ No major deficiencies | ☐ Major deficiencies |
| **Monitoring and Reporting status** | ☒ No major deficiencies | ☐ Major deficiencies |
| Comments: None | | |

| | | | |
|---|---|---|---|
| **Operation and Maintenance status** | | ☒ No major deficiencies | ☐ Major deficiencies |
| **Date of last Sanitary Survey** | 4-18-12 | **Inspector** | Deborah Schadewald-Kohler, PHX |

Major unresolved/ongoing operation and maintenance deficiencies:

- ☐ unable to maintain 20psi
- ☐ cross connection/backflow problems
- ☐ treatment deficiencies
- ☐ certified operator
- ☐ inadequate storage
- ☐ surface water treatment rule
- ☐ ATC/AOC
- ☐ other =

Comments: None

| | | | |
|---|---|---|---|
| **Is an ADEQ administrative order in effect?** | ☐ | Yes | ☒ No |
| Comments: None | | | |

| System Information | | | |
|---|---|---|---|
| Population Served | 193 | | |
| Service Connections | 78 | | |
| Number of Entry Points to the Distribution System | 1 | | |
| Number of Sources | 1 | | |
| Initial Monitoring Year | 1994 | | |
| Monitoring Assistance Program (MAP) System | ☒ | Yes | ☐ No |

| | | | |
|---|---|---|---|
| **Evaluation completed by** | Donna Calderon, Manager<br>Drinking Water Monitoring and Protection Unit | | |
| **Phone** | 602-771-4641 | **Date** | October 31, 2013 |

| | |
|---|---|
| ☒ | Based upon data submitted by the water system, ADEQ has determined that this system **is** currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4, and **PWS is in compliance.** |
| ☐ | Based upon the monitoring and reporting deficiencies noted above, ADEQ **cannot determine** if this system is currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4, and/or **PWS is not in compliance.** |
| ☐ | Based upon the operation and maintenance deficiencies noted above, ADEQ **cannot determine** if this system is currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4, and/or **PWS is not in compliance.** |

***This compliance status report does not guarantee the water quality for this system in the future, and does not reflect the status of any other water system owned by this utility company.***

**Arizona Department of Environmental Quality**
Drinking Water Monitoring and Protection Unit
Mail Code 5415B-2
1110 West Washington Street
Phoenix, AZ 85007

# Drinking Water Compliance Status Report

| System Name | System Type | Is system consecutive? |
|---|---|---|
| EPCOR WATER - LAKE MOHAVE HIGHLANDS | ☒ Community | ☒ Yes, to PWS # 08068 on an emergency basis. |
| **System ID #** | ☐ Non-transient Non-community | |
| 08062 | ☐ Transient Non-community | ☐ No |

| | | | | |
|---|---|---|---|---|
| **Overall compliance status** | ☒ | No major deficiencies | ☐ | Major deficiencies |
| ***Monitoring and Reporting* status** | ☒ | No major deficiencies | ☐ | Major deficiencies |
| Comments: None | | | | |

| | | | |
|---|---|---|---|
| **Operation and Maintenance status** | ☒ No major deficiencies | ☐ Major deficiencies | |
| **Date of last Sanitary Survey** | 4-18-12 | **Inspector** | Deborah Schadewald-Kohler, PHX |

Major unresolved/ongoing operation and maintenance deficiencies:

- ☐ unable to maintain 20psi
- ☐ cross connection/backflow problems
- ☐ treatment deficiencies
- ☐ certified operator
- ☐ inadequate storage
- ☐ surface water treatment rule
- ☐ ATC/AOC
- ☐ other ▪

Comments: During the last sanitary survey, minor deficiencies were noted for the finished water storage (install #16 mesh screen on overflow pipe). An NOC was issued May 24, 2012, the deficiency was resolved, and the NOC was closed on June 7, 2012.

| | | | | |
|---|---|---|---|---|
| **Is an ADEQ administrative order in effect?** | ☐ | Yes | ☒ | No |
| Comments: None | | | | |

## System Information

| | |
|---|---|
| Population Served | 675 |
| Service Connections | 270 |
| Number of Entry Points to the Distribution System | 1 |
| Number of Sources | 2 |
| Initial Monitoring Year | 1994 |
| Monitoring Assistance Program (MAP) System | ☒ Yes ☐ No |

| | | | |
|---|---|---|---|
| **Evaluation completed by** | Donna Calderon, Manager<br>Drinking Water Monitoring and Protection Unit | | |
| **Phone** | 602-771-4641 | **Date** | October 31, 2013 |

| | |
|---|---|
| ☒ | Based upon data submitted by the water system, ADEQ has determined that this system **is** currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4, and **PWS is in compliance.** |
| ☐ | Based upon the monitoring and reporting deficiencies noted above, ADEQ **cannot determine** if this system is currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4, and/or **PWS is not in compliance.** |
| ☐ | Based upon the operation and maintenance deficiencies noted above, ADEQ **cannot determine** if this system is currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4, and/or **PWS is not in compliance.** |

***This compliance status report does not guarantee the water quality for this system in the future, and does not reflect the status of any other water system owned by this utility company.***

**Arizona Department of Environmental Quality**
Drinking Water Monitoring and Protection Unit
Mail Code 5415B-2
1110 West Washington Street
Phoenix, AZ 85007

# Drinking Water Compliance Status Report

| System Name | System Type | Is system consecutive? |
|---|---|---|
| EPCOR WATER - DESERT FOOTHILLS | ☒ Community | ☒ Yes, |
| **System ID #** | ☐ Non-transient Non-community | to PWS # 08175 |
| 08137 | ☐ Transient Non-community | ☐ No |

| | | | | |
|---|---|---|---|---|
| **Overall compliance status** | ☒ | No major deficiencies | ☐ | Major deficiencies |
| **Monitoring and Reporting status** | ☒ | No major deficiencies | ☐ | Major deficiencies |
| Comments: None | | | | |

| | | | |
|---|---|---|---|
| **Operation and Maintenance status** | ☒ No major deficiencies | ☐ Major deficiencies | |
| **Date of last Sanitary Survey** | 5-18-12 | **Inspector** | Deborah Schadewald-Kohler, PHX |

Major unresolved/ongoing operation and maintenance deficiencies:

- ☐ unable to maintain 20psi
- ☐ cross connection/backflow problems
- ☐ treatment deficiencies
- ☐ certified operator
- ☐ inadequate storage
- ☐ surface water treatment rule
- ☐ ATC/AOC
- ☐ other =

Comments: None

| **Is an ADEQ administrative order in effect?** | ☐ | Yes | ☒ | No |
|---|---|---|---|---|
| Comments: None | | | | |

## System Information

| | | | | |
|---|---|---|---|---|
| Population Served | 2740 | | | |
| Service Connections | 1056 | | | |
| Number of Entry Points to the Distribution System | 1 | | | |
| Number of Sources | 2 | | | |
| Initial Monitoring Year | 1998 | | | |
| Monitoring Assistance Program (MAP) System | ☒ | Yes | ☐ | No |

| | | | |
|---|---|---|---|
| **Evaluation completed by** | Donna Calderon, Manager<br>Drinking Water Monitoring and Protection Unit | | |
| **Phone** | 602-771-4641 | **Date** | October 31, 2013 |

| | |
|---|---|
| ☒ | Based upon data submitted by the water system, ADEQ has determined that this system **is** currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4, and **PWS is in compliance.** |
| ☐ | Based upon the monitoring and reporting deficiencies noted above, ADEQ **cannot determine** if this system is currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4, and/or **PWS is not in compliance.** |
| ☐ | Based upon the operation and maintenance deficiencies noted above, ADEQ **cannot determine** if this system is currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4, and/or **PWS is not in compliance.** |

***This compliance status report does not guarantee the water quality for this system in the future, and does not reflect the status of any other water system owned by this utility company.***

**Arizona Department of Environmental Quality**
Drinking Water Monitoring and Protection Unit
Mail Code 5415B-2
1110 West Washington Street
Phoenix, AZ 85007

# Drinking Water Compliance Status Report

| System Name | System Type | | Is system consecutive? | |
|---|---|---|---|---|
| EPCOR WATER - RIO VISTA RANCHES | ☒ | Community | ☒ | Yes, to PWS # 08063 |
| **System ID #** | ☐ | Non-transient Non-community | | |
| 08333 | ☐ | Transient Non-community | ☐ | No |

| | | | | |
|---|---|---|---|---|
| **Overall compliance status** | ☒ | No major deficiencies | ☐ | Major deficiencies |
| **Monitoring and Reporting status** | ☒ | No major deficiencies | ☐ | Major deficiencies |

Comments: None

| **Operation and Maintenance status** | | ☒ No major deficiencies | ☐ Major deficiencies |
|---|---|---|---|
| **Date of last Sanitary Survey** | 5-24-12 | **Inspector** | Deborah Schadewald-Kohler, PHX |

Major unresolved/ongoing operation and maintenance deficiencies:

- ☐ unable to maintain 20psi
- ☐ cross connection/backflow problems
- ☐ treatment deficiencies
- ☐ certified operator
- ☐ inadequate storage
- ☐ surface water treatment rule
- ☐ ATC/AOC
- ☐ other ▪

Comments: None

| **Is an ADEQ administrative order in effect?** | ☐ | Yes | ☒ | No |
|---|---|---|---|---|

Comments: None

| System Information | | | |
|---|---|---|---|
| Population Served | 59 | | |
| Service Connections | 25 | | |
| Number of Entry Points to the Distribution System | consecutive | | |
| Number of Sources | consecutive | | |
| Initial Monitoring Year | 1997 | | |
| Monitoring Assistance Program (MAP) System | ☐ | Yes | ☒ No |

| **Evaluation completed by** | Donna Calderon, Manager<br>Drinking Water Monitoring and Protection Unit | | |
|---|---|---|---|
| **Phone** | 602-771-4641 | **Date** | October 31, 2013 |

| | |
|---|---|
| ☒ | Based upon data submitted by the water system, ADEQ has determined that this system **is** currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4, and **PWS is in compliance.** |
| ☐ | Based upon the monitoring and reporting deficiencies noted above, ADEQ ***cannot determine*** if this system is currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4, and/or **PWS is not in compliance**. |
| ☐ | Based upon the operation and maintenance deficiencies noted above, ADEQ **cannot determine** if this system is currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4, and/or **PWS is not in compliance.** |

***This compliance status report does not guarantee the water quality for this system in the future, and does not reflect the status of any other water system owned by this utility company.***

**Arizona Department of Environmental Quality**
Drinking Water Monitoring and Protection Unit
Mail Code 5415B-2
1110 West Washington Street
Phoenix, AZ 85007

# Drinking Water Compliance Status Report

| System Name | System Type | Is system consecutive? |
|---|---|---|
| EPCOR WATER - TUBAC | ☒ Community | ☐ Yes, |
| **System ID #** | ☐ Non-transient Non-community | to PWS # |
| 12001 | ☐ Transient Non-community | ☒ No |

| | | | | |
|---|---|---|---|---|
| **Overall compliance status** | ☒ | No major deficiencies | ☐ | Major deficiencies |
| **Monitoring and Reporting status** | ☒ | No major deficiencies | ☐ | Major deficiencies |
| Comments: None | | | | |

| | | | |
|---|---|---|---|
| **Operation and Maintenance status** | ☒ No major deficiencies | ☐ Major deficiencies | |
| **Date of last Sanitary Survey** | 3-21-13 | **Inspector** | Ray Morgan, SRO |

Major unresolved/ongoing operation and maintenance deficiencies:

- ☐ unable to maintain 20psi
- ☐ cross connection/backflow problems
- ☐ treatment deficiencies
- ☐ certified operator
- ☐ inadequate storage
- ☐ surface water treatment rule
- ☐ atc/aoc
- ☐ other =

Comments: None

| | | | |
|---|---|---|---|
| ***Is an ADEQ administrative order in effect?*** | ☐ Yes | ☒ No | |
| Comments: None | | | |

| System Information | | | |
|---|---|---|---|
| Population Served | 1485 | | |
| Service Connections | 594 | | |
| Number of Entry Points to the Distribution System | 2 | | |
| Number of Sources | 3 | | |
| Initial Monitoring Year | 1993 | | |
| Monitoring Assistance Program (MAP) System | ☒ Yes | ☐ No | |

| | | | |
|---|---|---|---|
| **Evaluation completed by** | Donna Calderon, Manager<br>Drinking Water Monitoring and Protection Unit | | |
| **Phone** | 602-771-4641 | **Date** | October 31, 2013 |

| | |
|---|---|
| ☒ | Based upon data submitted by the water system, ADEQ has determined that this system **is** currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4. |
| ☐ | Based upon the monitoring and reporting deficiencies noted above, ADEQ **cannot determine** if this system is currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4. |
| ☐ | Based upon the operation and maintenance deficiencies noted above, ADEQ **cannot determine** if this system is currently delivering water that meets water quality standards required by 40 CFR 141/Arizona Administrative Code, Title 18, Chapter 4. |

***This compliance status report does not guarantee the water quality for this system in the future, and does not reflect the status of any other water system owned by this utility company.***

# 1b) Maricopa County Environmental Services Department

## Compliance Status Reports-Water

# Maricopa County
Environmental Services Department

## PUBLIC WATER SYSTEM COMPLIANCE STATUS REPORT

**System Name: EPCOR Water – Sun City**
**PWS ID#: 07-099**

Type of System: Community Number of POE's: 9 Surface Water: N/A
Number of Service Connections: 23,082 Population Served: 38,016

Assigned Monitoring Dates - Initial: 1/1/1994

Does the water system have a Certified Operator? Yes

Does the system have major treatment plant deficiencies? No
Please describe: _____

Date of last inspection: December 15, 2011

Does the system have major O & M deficiencies? No
Please describe: _____

Does the system have water quality monitoring/reporting deficiencies? No
Please describe: _____

General Public Water System Compliance Status? **Compliance**

Date of compliance review: **12/10/2013** By: **Rob Collins** Initials: **RC**
Phone: **(602) 372-2831**

Requested By: EPCOR Water, Environmental Compliance Manager

**Drinking Water Program**
**Korissa Entringer, R.S., Manager**
1001 N. Central Ave., Suite 250, Phoenix, Arizona 85004-1940 Phone: (602) 506-6935 Fax: (602) 372-0866

# Maricopa County
**Environmental Services Department**

## PUBLIC WATER SYSTEM COMPLIANCE STATUS REPORT

**System Name: EPCOR – Tierra Del Rio**
**PWS ID#: 07-532**

Type of System: Community Number of POE's: 1 Surface Water: N/A
Number of Service Connections: 137 Population Served: 900

Assigned Monitoring Dates - Initial: 1/1/2009

Does the water system have a Certified Operator? Yes

Does the system have major treatment plant deficiencies? No
Please describe: _____

Date of last inspection: December 15, 2011

Does the system have major O & M deficiencies? No
Please describe: _____

Does the system have water quality monitoring/reporting deficiencies? No
Please describe: _____

General Public Water System Compliance Status? **Compliance**

Date of compliance review: **2/10/2014** By: **Rob Collins** Initials: **RC**
Phone: **(602) 372-2831**

Requested By: Pre-Inspection

**Drinking Water Program**
**Korissa Entringer, R.S., Manager**
1001 N. Central Ave., Suite 250, Phoenix, Arizona 85004-1940 Phone: (602) 506-6935 Fax: (602) 372-0866

Maricopa County
Environmental Services Department

# PUBLIC WATER SYSTEM COMPLIANCE STATUS REPORT

**System Name: EPCOR Water – Paradise Valley**
**PWS ID#: 07-056**

Type of System: Community Number of POE's: 1 Surface Water: N/A
Number of Service Connections: 4,630 Population Served: 11,600

Assigned Monitoring Dates - Initial: 1/1/1993

Does the water system have a Certified Operator? Yes

Does the system have major treatment plant deficiencies? No
Please describe: _____

Date of last inspection: February 14, 2013

Does the system have major O & M deficiencies? No
Please describe: _____

Does the system have water quality monitoring/reporting deficiencies? No
Please describe: _____

General Public Water System Compliance Status? **Compliance**

Date of compliance review: **12/10/2013** By: **Rob Collins** Initials: **RC**
Phone: **(602) 372-2831**

Requested By: EPCOR Water, Environmental Compliance Manager

**Drinking Water Program**
**Korissa Entringer, R.S., Manager**
1001 N. Central Ave., Suite 250, Phoenix, Arizona 85004-1940 Phone: (602) 506-6935 Fax: (602) 372-0866

# 1c) Arizona Department of Environmental Quality

# Compliance Status Reports-Wastewater

ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov

Janice K. Brewer
Governor

Henry R. Darwin
Director

November 12, 2013

Arizona Corporation Commission
Mr. Steven Olea, Director, Utilities Division
1200 W. Washington
Phoenix, Arizona 85007

RE: Compliance Status for Gateway Reclamation Facility, Aquifer Protection Permits (APP) Inventory number 105010, Place ID 16067, Licensing Time Frame (LTF) number 36949.

Dear Mr. Olea,

The request for evaluation of compliance status from Ms. Nina Miller, EPCOR Water Inc., for the above facility is completed. Our records indicate that above facility has APP number 36949 issued on 04/23/2007.

Review of the APP reporting requirements and self-monitoring results that have been submitted for the period of 7/1/2012 through 6/30/2013 indicate there are no monitoring or reporting violations during the period as follows.

It should be understood that the compliance status of a facility may change from time to time based upon monitoring results or a facility inspection. This compliance review is based on the most current information available.

Sincerely,

Tracy Bunch, Data Unit
Phone: (602) 771-4571
Fax: (602) 771-4505

cc: EPCOR
Facility file

Southern Regional Office
400 West Congress Street • Suite 433 • Tucson, AZ 85701
(520) 628-6733

*Printed on recycled paper*

ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov

Janice K. Brewer
Governor

Henry R. Darwin
Director

November 12, 2013

Arizona Corporation Commission
Mr. Steven Olea, Director, Utilities Division
1200 W. Washington
Phoenix, Arizona 85007

RE: Compliance Status for Wishing Well Reclamation Facility, Aquifer Protection Permits (APP) Inventory number 102181, Place ID 1784, Licensing Time Frame (LTF) number 56330.

Dear Mr. Olea,

The request for evaluation of compliance status from Ms. Nina Miller, EPCOR Water Inc., for the above facility is completed. Our records indicate that above facility has APP number 56330 issued on 09/07/2012.

Review of the APP reporting requirements and self-monitoring results that have been submitted for the period of 7/1/2012 through 6/30/2013 indicate there are no monitoring or reporting violations during the period as follows.

It should be understood that the compliance status of a facility may change from time to time based upon monitoring results or a facility inspection. This compliance review is based on the most current information available.

Sincerely,

Tracy Bunch, Data Unit
Phone: (602) 771-4571
Fax: (602) 771-4505

cc: EPCOR
Facility file

Southern Regional Office
400 West Congress Street • Suite 433 • Tucson, AZ 85701
(520) 628-6733

*Printed on recycled paper*

# 2) Monitoring Assistance Program Invoices

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
## MONITORING ASSISTANCE PROGRAM
## ANNUAL SAMPLING FEE INVOICE

Please return to Alexandra Wood

* Pursuant to A.R.S. § 49-113, interest will be charged if full payment is not received by the specified due date. If you dispute the amount listed, please contact ADEQ as soon as possible. To reduce interest costs on an unpaid invoice, you may remit an amount that you believe is not in dispute. However, if nonpayment is due to willful neglect, you may suffer an additional five percent penalty of up to twenty-five percent of the amount due for each month or fraction of a month the amount is past due.

If you have any questions about your invoice, contact Mary Kaye Black at (602) 771-4518 or toll-free within Arizona at (800) 234-5677, extension 771-4518.

Pursuant to A.R.S. § 49-360 F and A.A.C. R18-4-304 and R18-4-305, "The director shall establish fees for the monitoring assistance program to be collected from all public water systems..."

| | |
|---|---|
| Owner Id #: 23492 | Invoice Number 68981 |
| To: EPCOR WATER ARIZONA INC<br>ATTN NINA MILLER<br>2355 W Pinnacle Peak Rd Ste 300<br>PHOENIX AZ 85027-1282 | Public Water System ID #: 08037 ✓<br>Billing for Calendar Year: 2013<br>Due Date: **February 4, 2013**<br>Total Amount Due . . . . . $ 450.46<br>Amount Paid . . . . . $ |

↑ Keep the top portion for your records. ↑ ADEQ Federal Tax #866004791

## ↓ This entire bottom portion must be returned to ADEQ. ↓

ADEQ Federal Tax #866004791

**Annual Sampling Fee Invoice** **Invoice #** 68981

| | | |
|---|---|---|
| EPCOR WATER ARIZONA INC<br>2355 W Pinnacle Peak Rd Ste 300<br>ATTN NINA MILLER<br>PHOENIX AZ 85027-1282 | Camp Mohave<br>08037 - Epcor Water Arizona Inc | Owner Id #: 23492 **MAP**<br>Billing for Calendar Year: 2013<br>Due Date: **02/04/2013** |

## ANNUAL SAMPLING FEE WORKSHEET

| BU | RC | PROJ | ACT | LOC | ACC'T | INTERCO | AMOUNT |
|---|---|---|---|---|---|---|---|
| JM | 344 | 0 | 3441 | 850 | 5697 | 0 | 450.46 |

** OR **

| PROJECT | TASK | EXPENDITURE TYPE | ORG | AMOUNT |
|---|---|---|---|---|
| | | | | |

Prepared By: GST

Total

Approved by: (signature) Date: 1/3/12

Nina Miller
(Print name of Approver)

JAN 04 2013

| | | |
|---|---|---|
| Base Fee (all MAP systems) | | $ 250.00 |
| Fee per Connection in 2013 | 78 connections X $ 2.57 | $ 200.46 |
| Total Sampling Fee | | $ 450.46 |
| Plus Paid Interest Charges and/or Other Adjustments | | $ 0.00 |
| Plus Unpaid Interest Charges as of 12/20/2012 | | $ 0.00 |
| Minus Payments Received and/or Other Adjustments | | $ 0.00 |
| Amount Due | | $ 450.46 |
| Amount received by ADEQ (Make check payable to State of Arizona) | | $ |

* A $12 fee will be charged for any check not honored by the bank.

Make your check or money order payable to **State of Arizona**
**THIS FORM MUST ACCOMPANY YOUR REMITTANCE.**

**Mail to:** Arizona Department of Environmental Quality
PO Box 18228
Phoenix, AZ 85005

Do not write below this line

| | |
|---|---|
| Check Number: | |
| Received: | JAN 04 2013 |
| Postmarked: | ENTERED |
| Entered: | 12/20/2012 WM300Go |

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
## MONITORING ASSISTANCE PROGRAM
## ANNUAL SAMPLING FEE INVOICE

Please return to Alexandra Wood

* Pursuant to A.R.S. § 49-113, interest will be charged if full payment is not received by the specified due date. If you dispute the amount listed, please contact ADEQ as soon as possible. To reduce interest costs on an unpaid invoice, you may remit an amount that you believe is not in dispute. However, if nonpayment is due to willful neglect, you may suffer an additional five percent penalty of up to twenty-five percent of the amount due for each month or fraction of a month the amount is past due.

If you have any questions about your invoice, contact Mary Kaye Black at (602) 771-4518 or toll-free within Arizona at (800) 234-5677, extension 771-4518.

Pursuant to A.R.S. § 49-360 F and A.A.C. R18-4-304 and R18-4-305, "The director shall establish fees for the monitoring assistance program to be collected from all public water systems..."

| | |
|---|---|
| Owner Id #: 23492 | Invoice Number 68982 |
| To: EPCOR WATER ARIZONA INC<br>ATTN NINA MILLER<br>2355 W Pinnacle Peak Rd Ste 300<br>PHOENIX AZ 85027-1282 | Public Water System ID #: 08062 ✓<br>Billing for Calendar Year: 2013<br>Due Date: **February 4, 2013**<br>Total Amount Due . . . . . $ 943.90<br>Amount Paid . . . . . $ |

↑ Keep the top portion for your records. ↑ ADEQ Federal Tax #866004791

**↓ This entire bottom portion must be returned to ADEQ. ↓**

ADEQ Federal Tax #866004791

**Annual Sampling Fee Invoice** **Invoice #** 68982

| | |
|---|---|
| EPCOR WATER ARIZONA INC<br>2355 W Pinnacle Peak Rd Ste 300<br>ATTN NINA MILLER<br>PHOENIX AZ 85027-1282 | Owner Id #: 23492 **MAP**<br>Billing for Calendar Year: 2013<br>Due Date: **02/04/2013** |

Lake Mohave Highlands
08062 - Epcor Water Arizona Inc

## ANNUAL SAMPLING FEE WORKSHEET

| BU | RC | PROJ | ACT | LOC | ACC'T | INTERCO | AMOUNT |
|---|---|---|---|---|---|---|---|
| 7M | 344 | 0 | 3441 | 850 | 5697 | 0 | 943.90 |

** OR **

| PROJECT | TASK | EXPENDITURE TYPE | ORG | AMOUNT |
|---|---|---|---|---|
| | | | | |

Prepared By:

GST

Total

Approved by: (signature)

Date: 1/8/12

Nina Miller
(Print name of Approver)

JAN 0 4 2013

| | |
|---|---|
| Base Fee (all MAP systems) . . . . . | $ 250.00 |
| Fee per Connection in 2013 . . . . . 270 connections X $ 2.57 . . . . . | $ 693.90 |
| Total Sampling Fee . . . . . | $ 943.90 |
| Plus Paid Interest Charges and/or Other Adjustments . . . . . | $ 0.00 |
| Plus Unpaid Interest Charges as of 12/20/2012 . . . . . | $ 0.00 |
| Minus Payments Received and/or Other Adjustments . . . . . | $ 0.00 |
| Amount Due . . . . . | $ 943.90 |
| Amount received by ADEQ (Make check payable to State of Arizona) . . . . . | $ |

* A $12 fee will be charged for any check not honored by the bank.

Make your check or money order payable to **State of Arizona**
**THIS FORM MUST ACCOMPANY YOUR REMITTANCE.**

**Mail to:** Arizona Department of Environmental Quality
PO Box 18228
Phoenix, AZ 85005

Do not write below this line

| | |
|---|---|
| Check Number: | JAN 0 4 2013 |
| Received: | ENTERED |
| Postmarked: | |
| Entered: | CS3 12/20/2012 WM300Go |

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
## MONITORING ASSISTANCE PROGRAM
## ANNUAL SAMPLING FEE INVOICE

Please return to Alexandra Wood

* Pursuant to A.R.S. § 49-113, interest will be charged if full payment is not received by the specified due date. If you dispute the amount listed, please contact ADEQ as soon as possible. To reduce interest costs on an unpaid invoice, you may remit an amount that you believe is not in dispute. However, if nonpayment is due to willful neglect, you may suffer an additional five percent penalty of up to twenty-five percent of the amount due for each month or fraction of a month the amount is past due.

If you have any questions about your invoice, contact Mary Kaye Black at (602) 771-4518 or toll-free within Arizona at (800) 234-5677, extension 771-4518.

Pursuant to A.R.S. § 49-360 F and A.A.C. R18-4-304 and R18-4-305, "The director shall establish fees for the monitoring assistance program to be collected from all public water systems..."

| | |
|---|---|
| Owner Id #: 23492 | Invoice Number 68983 |
| To: EPCOR WATER ARIZONA INC<br>ATTN NINA MILLER<br>2355 W Pinnacle Peak Rd Ste 300<br>PHOENIX AZ 85027-1282 | Public Water System ID #: 08137 ✓<br>Billing for Calendar Year: 2013<br>Due Date: **February 4, 2013**<br>Total Amount Due . . . . . $ 2,963.92<br>Amount Paid . . . . . $ |

↑ Keep the top portion for your records. ↑ ADEQ Federal Tax #866004791

## ↓ This entire bottom portion must be returned to ADEQ. ↓

ADEQ Federal Tax #866004791

**Annual Sampling Fee Invoice** **Invoice #** 68983

| | | |
|---|---|---|
| EPCOR WATER ARIZONA INC<br>2355 W Pinnacle Peak Rd Ste 300<br>ATTN NINA MILLER<br>PHOENIX AZ 85027-1282 | Desert Foothills<br>08137 - Epcor Water Arizona Inc | Owner Id #: 23492 **MAP**<br>Billing for Calendar Year: 2013<br>Due Date: **02/04/2013** |

## ANNUAL SAMPLING FEE WORKSHEET

Ship To Location

| BU | RC | PROJ | ACT | LOC | ACC'T | INTERCO | AMOUNT |
|---|---|---|---|---|---|---|---|
| 7M | 344 | 0 | 3441 | 8505697 | 0 | | $2,963.92 |

Prepared By: Tax

Total

Approved by: (signature) Date: 1/3/13

Nina Miller
(Print name of approver)

JAN 0 4 2013

| | | |
|---|---|---|
| Base Fee (all MAP systems) | | $ 250.00 |
| Fee per Connection in 2013 | 1,056 connections X $ 2.57 | $ 2,713.92 |
| Total Sampling Fee | | $ 2,963.92 |
| Plus Paid Interest Charges and/or Other Adjustments | | $ 0.00 |
| Plus Unpaid Interest Charges as of 12/20/2012 | | $ 0.00 |
| Minus Payments Received and/or Other Adjustments | | $ 0.00 |
| Amount Due | | $ 2,963.92 |
| Amount received by ADEQ (Make check payable to State of Arizona) | | $ |

* A $12 fee will be charged for any check not honored by the bank.

Make your check or money order payable to **State of Arizona**
**THIS FORM MUST ACCOMPANY YOUR REMITTANCE.**

**Mail to:** Arizona Department of Environmental Quality
PO Box 18228
Phoenix, AZ 85005

Do not write below this line

| | |
|---|---|
| Check Number: | JAN 0 4 2013 |
| Received: | ENTERED |
| Postmarked: | |
| Entered: | CSS 12/20/2012 WM300Go |

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
## MONITORING ASSISTANCE PROGRAM
## ANNUAL SAMPLING FEE INVOICE

* Pursuant to A.R.S. § 49-113, interest will be charged if full payment is not received by the specified due date. If you dispute the amount listed, please contact ADEQ as soon as possible. To reduce interest costs on an unpaid invoice, you may remit an amount that you believe is not in dispute. However, if nonpayment is due to willful neglect, you may suffer an additional five percent penalty of up to twenty-five percent of the amount due for each month or fraction of a month the amount is past due.

If you have any questions about your invoice, contact Mary Kaye Black at (602) 771-4518 or toll-free within Arizona at (800) 234-5677, extension 771-4518.

Pursuant to A.R.S. § 49-360 F and A.A.C. R18-4-304 and R18-4-305, "The director shall establish fees for the monitoring assistance program to be collected from all public water systems..."

| | |
|---|---|
| Owner Id #: 23492 | Invoice Number 69258 |
| To: EPCOR WATER ARIZONA INC<br>ATTN NINA MILLER<br>2355 W Pinnacle Peak Rd Ste 300<br>PHOENIX AZ 85027-1282 | Public Water System ID #: 12001<br>Billing for Calendar Year: 2013<br>Due Date: **March 18, 2013 2nd Notice! Past Due!**<br>Total Amount Due . . . . . $ 1,778.77<br>Amount Paid . . . . . $ |

↑ Keep the top portion for your records. ↑ ADEQ Federal Tax #866004791

**↓ This entire bottom portion must be returned to ADEQ. ↓**

ADEQ Federal Tax #866004791

**Annual Sampling Fee Invoice** **Invoice #** 69258

| | |
|---|---|
| EPCOR WATER ARIZONA INC<br>2355 W Pinnacle Peak Rd Ste 300<br>ATTN NINA MILLER<br>PHOENIX AZ 85027-1282 12001 - Epcor Water Arizona Inc | Owner Id #: 23492 **MAP**<br>Billing for Calendar Year: 2013<br>Due Date: **03/18/2013 Past Due!** |

**ANNUAL SAMPLING FEE WORKSHEET**

| BU | RC | PROJ | ACT | LOC | ACC'T | INTERCO | AMOUNT |
|---|---|---|---|---|---|---|---|
| TT | 337 | 0 | 3441 | 850 | 5697 | 0 | 1,776.58 |

** OR **

| PROJECT | TASK | EXPENDITURE TYPE | ORG | AMOUNT |
|---|---|---|---|---|
| | | | | |

Prepared By: Alexandra Wood GST

Total

Approved by: (signature) Nina Miller Date: 4/2/13

(Print name of Approver)

Per Carlos Toro (ADEQ).

| | | |
|---|---|---|
| Base Fee (all MAP systems) | | $ 250.00 |
| Fee per Connection in 2013 | 594 connections X $ 2.57 | $ 1,526.58 |
| Total Sampling Fee | | $ 1,776.58 |
| Plus Paid Interest Charges and/or Other Adjustments | | $ 0.00 |
| Plus Unpaid Interest Charges as of 04/02/2013 | | $ 2.19 |
| Minus Payments Received and/or Other Adjustments | | $ 0.00 |
| Amount Due | | $ 1,778.77 |
| Amount received by ADEQ (Make check payable to State of Arizona) | | $ |

RECEIVED APR 04 2013 By

* A $12 fee will be charged for any check not honored by the bank.

Make your check or money order payable to **State of Arizona**
**THIS FORM MUST ACCOMPANY YOUR REMITTANCE.**

**Mail to:** Arizona Department of Environmental Quality
PO Box 18228
Phoenix, AZ 85005

APR 04 2013

ENTERED

Do not write below this line

| | |
|---|---|
| Check Number: | |
| Received: | |
| Postmarked: | |
| Entered: | CRT 04/02/2013 WM301RePrint |

# 3) Water Use Data

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Sun City | ADEQ Public Water System Number: | 04-07-099 |

## WATER USE DATA SHEET BY MONTH FOR CALENDAR YEAR JULY 2012 - JUNE 2013

| | | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| MONTH | NUMBER OF CUSTOMERS | GALLONS PUMPED (Thousands) | GALLONS PURCHASED (Thousands) | GALLONS AUTHORIZED UNBILLED (Thousands) | GALLONS DELIVERED (Thousands) | GALLONS SOLD (Thousands) | % NON-ACCOUNT WATER (Thousands) |
| | | | | | (=A+B-C) | | =(D-E)/D |
| Jan-13 | 22,880 | 264,239 | | 849 | 263,390 | 229,426 | 12.89% |
| Feb-13 | 22,868 | 232,225 | | 1,554 | 230,671 | 235,775 | -2.21% |
| Mar-13 | 22,922 | 291,840 | | 820 | 291,020 | 219,282 | 24.65% |
| Apr-13 | 22,880 | 328,289 | | 22,877 | 305,412 | 265,190 | 13.17% |
| May-13 | 22,854 | 409,372 | | 7,736 | 401,636 | 318,500 | 20.70% |
| Jun-13 | 22,860 | 440,517 | | 22,926 | 417,591 | 406,473 | 2.66% |
| Jul-12 | 22,838 | 452,606 | | 2,262 | 450,344 | 432,533 | 3.95% |
| Aug-12 | 22,838 | 430,807 | | 2,427 | 428,380 | 411,056 | 4.04% |
| Sep-12 | 22,867 | 351,921 | | 2,377 | 349,544 | 436,682 | -24.93% |
| Oct-12 | 22,819 | 406,804 | | 2,822 | 403,982 | 286,937 | 28.97% |
| Nov-12 | 22,841 | 332,240 | | 542 | 331,698 | 406,696 | -22.61% |
| Dec-12 | 22,854 | 257,193 | | 723 | 256,470 | 309,536 | -20.69% |
| | **TOTALS ->** | **4,198,053** | **0** | **67,915** | **4,130,138** | **3,958,086** | 4.17% |

What is the level of arsenic for each well on your system. _____mg/l
(If more than one well, please list each separately) - **See attached**

If system has fire hydrants, what is the fire flow requirement? _____GPM for _____ hrs

If system has chlorination treatment, does this treatment system chlorinate continuously?
( ) Yes ( ) No

Is the Water Utility located in an ADWR Active Management Area (AMA)?
(X) Yes ( ) No

Does the Company have an ADWR Gallons Per Capita Per Day (GPCPD) requirement?
(X) Yes ( ) No

If yes, provide the GPCPD amount: 255*

*Estimate

Arizona American Water
Central Division - Sun City Water District
Unaccounted For Water

| | Description | Quantity of Water (Kgal) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 | Jun-13 | Jul-12 | Aug-12 | Sep-12 | Oct-12 | Nov-12 | Dec-12 | TOTAL |
| A | **Gallons Pumped** | | | | | | | | | | | | | |
| | Water Treatment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Wells | 264,239 | 232,225 | 291,840 | 328,289 | 409,372 | 440,517 | 452,606 | 430,807 | 351,921 | 406,804 | 332,240 | 257,193 | 4,198,053 |
| B | **Gallons Purchased** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **Total Production** | 264,239 | 232,225 | 291,840 | 328,289 | 409,372 | 440,517 | 452,606 | 430,807 | 351,921 | 406,804 | 332,240 | 257,193 | 4,198,053 |
| C | **Authorized Unbilled/Consumption** | | | | | | | | | | | | | |
| | In-Plant Usage | 0 | 711 | 25 | 247 | 6,740 | 11,260 | 1,812 | 1,912 | 1,837 | 1,291 | 64 | 284 | 26,183 |
| | Mixing Chemicals - Field | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Well Pumped Waste | 42 | 0 | 0 | 22,176 | 511 | 11,208 | 4 | 26 | 110 | 0 | 0 | 0 | 34,077 |
| | Flushing Mains | 7 | 27 | 0 | 0 | 0 | 0 | 10 | 16 | 6 | 58 | 26 | 8 | 158 |
| | Identified Fire Usage | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 40 |
| | Vandalism | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Street Cleaning | 10 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 8 | 0 | 0 | 11 | 39 |
| | Draining Storage Tanks | 350 | 310 | 334 | 0 | 0 | 0 | 0 | 0 | 0 | 1,000 | 0 | 0 | 1,994 |
| | Online Analyzers & Chlorinators | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 4,824 |
| | Field Meter Testing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Fire Hydrant Maintenance | 38 | 94 | 59 | 6 | 3 | 0 | 24 | 26 | 5 | 34 | 1 | 12 | 302 |
| | Flushing Sewer Mains | 0 | 10 | 0 | 46 | 80 | 56 | 0 | 5 | 9 | 37 | 49 | 6 | 298 |
| | **Total Authorized Unbilled/Consumptio** | 849 | 1,554 | 820 | 22,877 | 7,736 | 22,926 | 2,262 | 2,427 | 2,377 | 2,822 | 542 | 723 | 67,915 |
| D | **Gallons Delivered =(A+B-C)** | **263,390** | **230,671** | **291,020** | **305,412** | **401,636** | **417,591** | **450,344** | **428,380** | **349,544** | **403,982** | **331,698** | **256,470** | **4,130,138** |
| E | **Gallons Sold** | | | | | | | | | | | | | |
| | Residential | 183,145 | 187,176 | 170,956 | 204,144 | 244,457 | 313,519 | 339,295 | 319,454 | 338,770 | 219,029 | 321,359 | 244,911 | 3,086,215 |
| | Commercial | 45,796 | 48,059 | 47,857 | 60,696 | 73,567 | 92,716 | 92,333 | 90,726 | 96,943 | 67,239 | 84,620 | 64,043 | 864,595 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Fire Service | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | OPA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Resale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Miscellaneous | 485 | 540 | 469 | 350 | 476 | 238 | 905 | 876 | 969 | 669 | 717 | 582 | 7,276 |
| | **Total Sales** | **229,426** | **235,775** | **219,282** | **265,190** | **318,500** | **406,473** | **432,533** | **411,056** | **436,682** | **286,937** | **406,696** | **309,536** | **3,958,086** |
| F | **Non-account Water** | | | | | | | | | | | | | |
| | Gallons =D-E | 33,964 | (5,104) | 71,738 | 40,222 | 83,136 | 11,118 | 17,811 | 17,324 | (87,138) | 117,045 | (74,998) | (53,066) | 172,052 |
| | Percentage =(D-E)/D | 12.89% | -2.21% | 24.65% | 13.17% | 20.70% | 2.66% | 3.95% | 4.04% | -24.93% | 28.97% | -22.61% | -20.69% | 4.17% |

Negative numbers indicate quantity or percentage above production or 100%

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Tierra Del Rio | ADEQ Public Water System Number: | 04-07-532 |

## WATER USE DATA SHEET BY MONTH FOR CALENDAR YEAR JULY 2012 - JUNE 2013

| | | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| MONTH | NUMBER OF CUSTOMERS | GALLONS PUMPED (Thousands) | GALLONS PURCHASED (Thousands) | GALLONS AUTHORIZED UNBILLED (Thousands) | GALLONS DELIVERED (Thousands) | GALLONS SOLD (Thousands) | % NON-ACCOUNT WATER (Thousands) |
| | | | | | (=A+B-C) | | =(D-E)/D |
| Jan-13 | 207 | 2,998 | | 40 | 2,958 | 2,464 | 16.70% |
| Feb-13 | 241 | 2,571 | | 192 | 2,379 | 2,296 | 3.49% |
| Mar-13 | 254 | 4,863 | | 1,241 | 3,622 | 2,926 | 19.22% |
| Apr-13 | 291 | 7,914 | | 1,237 | 6,677 | 5,764 | 13.67% |
| May-13 | 312 | 7,611 | | 151 | 7,460 | 7,308 | 2.04% |
| Jun-13 | 314 | 6,368 | | 186 | 6,182 | 5,584 | 9.67% |
| Jul-12 | 143 | 4,550 | | 562 | 3,988 | 3,484 | 12.64% |
| Aug-12 | 166 | 3,574 | | 420 | 3,154 | 2,925 | 7.26% |
| Sep-12 | 167 | 3,496 | | 359 | 3,137 | 3,297 | -5.10% |
| Oct-12 | 174 | 3,243 | | 402 | 2,841 | 2,600 | 8.48% |
| Nov-12 | 192 | 3,771 | | 236 | 3,535 | 3,154 | 10.78% |
| Dec-12 | 206 | 2,860 | | 325 | 2,535 | 2,813 | -10.97% |
| | TOTALS -> | 53,819 | 0 | 5,351 | 48,468 | 44,615 | 7.95% |

What is the level of arsenic for each well on your system. _____mg/l
(If more than one well, please list each separately) - **See attached**

If system has fire hydrants, what is the fire flow requirement? _____GPM for _____ hrs

If system has chlorination treatment, does this treatment system chlorinate continuously?
( ) Yes ( ) No

Is the Water Utility located in an ADWR Active Management Area (AMA)?
( ) Yes ( ) No

Does the Company have an ADWR Gallons Per Capita Per Day (GPCPD) requirement?
( ) Yes ( ) No

If yes, provide the GPCPD amount:_____

Arizona American Water
Central Division - Tierra Del Rio District
Unaccounted For Water

| | Description | Quantity of Water (Kgal) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 | Jun-13 | Jul-12 | Aug-12 | Sep-12 | Oct-12 | Nov-12 | Dec-12 | TOTAL |
| A | **Gallons Pumped** | | | | | | | | | | | | | |
| | Water Treatment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Wells | 2,998 | 2,571 | 4,863 | 7,914 | 7,611 | 6,368 | 4,550 | 3,574 | 3,496 | 3,243 | 3,771 | 2,860 | 53,819 |
| B | **Gallons Purchased** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **Total Production** | 2,998 | 2,571 | 4,863 | 7,914 | 7,611 | 6,368 | 4,550 | 3,574 | 3,496 | 3,243 | 3,771 | 2,860 | 53,819 |
| C | **Authorized Unbilled/Consumption** | | | | | | | | | | | | | |
| | In-Plant Usage | 19 | 16 | 16 | 1,023 | 1 | 36 | 0 | 0 | 0 | 16 | 19 | 20 | 1,166 |
| | Mixing Chemicals - Field | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Well Pumped Waste | 0 | 155 | 1,204 | 193 | 129 | 129 | 541 | 399 | 338 | 331 | 196 | 277 | 3,892 |
| | Flushing Mains | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 7 | 41 |
| | Identified Fire Usage | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Vandalism | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Street Cleaning | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Draining Storage Tanks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Online Analyzers & Chlorinators | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 252 |
| | Field Meter Testing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Fire Hydrant Maintenance | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Flushing Sewer Mains | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **Total Authorized Unbilled/Consumption** | 40 | 192 | 1,241 | 1,237 | 151 | 186 | 562 | 420 | 359 | 402 | 236 | 325 | 5,351 |
| D | **Gallons Delivered =(A+B-C)** | **2,958** | **2,379** | **3,622** | **6,677** | **7,460** | **6,182** | **3,988** | **3,154** | **3,137** | **2,841** | **3,535** | **2,535** | **48,468** |
| E | **Gallons Sold** | | | | | | | | | | | | | |
| | Residential | 794 | 794 | 896 | 1,138 | 1,663 | 1,818 | 645 | 652 | 788 | 715 | 868 | 852 | 11,623 |
| | Commercial | 1,652 | 1,481 | 2,010 | 4,606 | 5,627 | 3,748 | 2,818 | 2,257 | 2,487 | 1,867 | 2,262 | 1,944 | 32,759 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Fire Service | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | OPA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Resale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Miscellaneous | 18 | 21 | 20 | 20 | 18 | 18 | 21 | 16 | 22 | 18 | 24 | 17 | 233 |
| | **Total Sales** | **2,464** | **2,296** | **2,926** | **5,764** | **7,308** | **5,584** | **3,484** | **2,925** | **3,297** | **2,600** | **3,154** | **2,813** | **44,615** |
| F | **Non-account Water** | | | | | | | | | | | | | |
| | Gallons =D-E | 494 | 83 | 696 | 913 | 152 | 598 | 504 | 229 | (160) | 241 | 381 | (278) | 3,853 |
| | Percentage =(D-E)/D | 16.70% | 3.49% | 19.22% | 13.67% | 2.04% | 9.67% | 12.64% | 7.26% | -5.10% | 8.48% | 10.78% | -10.97% | 7.95% |

Negative numbers indicate quantity or percentage above production or 100%

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Sun City West | ADEQ Public Water System Number: | 04-07-150 |

## WATER USE DATA SHEET BY MONTH FOR CALENDAR YEAR JULY 2012 - JUNE 2013

| | | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| MONTH | NUMBER OF CUSTOMERS | GALLONS PUMPED (Thousands) | GALLONS PURCHASED (Thousands) | GALLONS AUTHORIZED UNBILLED (Thousands) | GALLONS DELIVERED (Thousands) | GALLONS SOLD (Thousands) | % NON-ACCOUNT WATER (Thousands) |
| | | | | | (=A+B-C) | | =(D-E)/D |
| Jan-13 | 15,345 | 129,015 | | 1,709 | 127,306 | 109,769 | 13.78% |
| Feb-13 | 15,344 | 127,749 | | 466 | 127,283 | 118,396 | 6.98% |
| Mar-13 | 15,343 | 136,157 | | 54 | 136,103 | 108,710 | 20.13% |
| Apr-13 | 15,297 | 139,623 | 10,175 | 1,472 | 148,326 | 131,874 | 11.09% |
| May-13 | 15,250 | 156,954 | 743 | 10,582 | 147,115 | 139,978 | 4.85% |
| Jun-13 | 15,231 | 161,867 | 12,105 | 10,654 | 163,318 | 163,028 | 0.18% |
| Jul-12 | 15,252 | 181,287 | 1,086 | 574 | 181,799 | 163,088 | 10.29% |
| Aug-12 | 15,260 | 149,228 | 15,847 | 2,595 | 162,480 | 157,164 | 3.27% |
| Sep-12 | 15,262 | 146,652 | 12,536 | 2,289 | 156,899 | 172,893 | -10.19% |
| Oct-12 | 15,314 | 177,917 | 6,703 | 1,488 | 183,132 | 129,388 | 29.35% |
| Nov-12 | 15,329 | 154,751 | | 505 | 154,246 | 171,878 | -11.43% |
| Dec-12 | 15,338 | 97,641 | | 101 | 97,540 | 138,814 | -42.31% |
| | TOTALS -> | 1,758,841 | 59,195 | 32,489 | 1,785,547 | 1,704,980 | 4.51% |

What is the level of arsenic for each well on your system. _____mg/l
(If more than one well, please list each separately) - **See attached**

If system has fire hydrants, what is the fire flow requirement? _____GPM for _____ hrs

If system has chlorination treatment, does this treatment system chlorinate continuously?
( ) Yes ( ) No

Is the Water Utility located in an ADWR Active Management Area (AMA)?
(X) Yes ( ) No

Does the Company have an ADWR Gallons Per Capita Per Day (GPCPD) requirement?
(X) Yes ( ) No

If yes, provide the GPCPD amount:_____202*_____

*Estimate

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Arizona Gateway | ADEQ Public Water System Number: | 04-08-163 |

## WATER USE DATA SHEET BY MONTH FOR CALENDAR YEAR 2012

| | | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| MONTH | NUMBER OF CUSTOMERS | GALLONS PUMPED (Thousands) | GALLONS PURCHASED (Thousands) | GALLONS AUTHORIZED UNBILLED (Thousands) | GALLONS DELIVERED (Thousands) | GALLONS SOLD (Thousands) | % NON-ACCOUNT WATER (Thousands) |
| | | | | | (=A+B-C) | | =(D-E)/D |
| July-12 | 8 | 732 | | 6 | 726 | 671 | 7.54% |
| August-12 | 8 | 704 | | 5 | 699 | 622 | 11.02% |
| September-12 | 8 | 493 | | 4 | 489 | 654 | -33.72% |
| October-12 | 8 | 547 | | 6 | 541 | 367 | 32.13% |
| November-12 | 8 | 406 | | 5 | 401 | 540 | -34.59% |
| December-12 | 8 | 387 | | 4 | 383 | 344 | 10.18% |
| January-13 | 8 | 360 | | - | 360 | 313 | 13.04% |
| February-13 | 8 | 347 | | 116 | 231 | 342 | -48.11% |
| March-13 | 8 | 382 | | - | 382 | 329 | 13.92% |
| April-13 | 8 | 527 | | - | 527 | 456 | 13.53% |
| May-13 | 8 | 747 | | - | 750 | 641 | 14.48% |
| June-13 | 8 | 554 | | - | 554 | 529 | 4.51% |
| | TOTALS -> | 6,186 | 0 | 146 | 6,043 | 5,808 | 3.88% |

What is the level of arsenic for each well on your system. _____mg/l
(If more than one well, please list each separately)

If system has fire hydrants, what is the fire flow requirement? 1,000_____*GPM for* _2.0_____ *hrs*

If system has chlorination treatment, does this treatment system chlorinate continuously?
( X ) Yes ( ) No

Is the Water Utility located in an ADWR Active Management Area (AMA)?
( ) Yes ( X ) No

Does the Company have An ADWR Gallons Per Capita Per Day (GPCPD) requirement?
( ) Yes ( X ) No

If yes, provide the GPCPD amount:_____N/A_____

EPCOR Water
Eastern Division - Mohave Water District - AZ Gateway (08-163)
Unaccounted For Water - July 2012 - June 2013

| | Description | Quantity of Water (Kgal) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jul-12 | Aug-12 | Sep-12 | Oct-12 | Nov-12 | Dec-12 | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 | Jun-13 | TOTAL |
| A | **Gallons Pumped** | | | | | | | | | | | | | |
| | Water Treatment | | | | | | | | | | | | | 0 |
| | Wells | 732 | 704 | 493 | 547 | 406 | 387 | 360 | 347 | 382 | 527 | 747 | 554 | 6,186 |
| B | **Gallons Purchased** | | | | | | | | | | | | | 0 |
| | **Total Production** | 732 | 704 | 493 | 547 | 406 | 387 | 360 | 347 | 382 | 527 | 747 | 554 | 6,186 |
| C | **Authorized Unbilled/Consumption** | | | | | | | | | | | | | |
| | In-Plant Usage | | | | | | | | | | | | | 0 |
| | Mixing Chemicals - Field | | | | | | | | | | | | | 0 |
| | Well Pumped Waste | | | | | | | | | | | | | 0 |
| | Flushing Mains | 6 | 5 | 4 | 6 | 5 | 4 | | 116 | | | | | 146 |
| | Identified Fire Usage | | | | | | | | | | | | | 0 |
| | Vandalism | | | | | | | | | | | | | 0 |
| | Street Cleaning | | | | | | | | | | | | | 0 |
| | Draining Storage Tanks | | | | | | | | | | | | | 0 |
| | Online Analyzers & Chlorinators | | | | | | | | | | | | | 0 |
| | Field Meter Testing | | | | | | | | | | | | | 0 |
| | Fire Hydrant Maintenance | | | | | | | | | | | | | 0 |
| | Flushing Sewer Mains | | | | | | | | | | | | | 0 |
| | **Total Authorized Unbilled/Consumption** | 6 | 5 | 4 | 6 | 5 | 4 | 0 | 116 | 0 | 0 | 0 | 0 | 146 |
| D | **Gallons Delivered =(A+B-C)** | **726** | **699** | **489** | **541** | **401** | **383** | **360** | **231** | **382** | **527** | **747** | **554** | **6,040** |
| E | **Gallons Sold** | | | | | | | | | | | | | |
| | Residential | | | | | | | | | | | | | 0 |
| | Commercial | 671 | 622 | 654 | 367 | 540 | 344 | 294 | 342 | 329 | 456 | 641 | 529 | 5,789 |
| | Industrial | | | | | | | | | | | | | 0 |
| | Fire Service | | | | | | | | | | | | | 0 |
| | OPA | | | | | | | | | | | | | 0 |
| | Resale | | | | | | | | | | | | | 0 |
| | Miscellaneous | | | | | | | 19 | | | | | | 19 |
| | **Total Sales** | **671** | **622** | **654** | **367** | **540** | **344** | **313** | **342** | **329** | **456** | **641** | **529** | **5,808** |
| F | **Non-Account Water** | | | | | | | | | | | | | |
| | Gallons =D-E | 55 | 77 | (165) | 174 | (139) | 39 | 47 | (111) | 53 | 71 | 106 | 25 | 232 |
| | Percentage =D-E/D | 7.54% | 11.02% | (33.72%) | 32.13% | (34.59%) | 10.18% | 13.04% | (48.11%) | 13.92% | 13.53% | 14.14% | 4.51% | 3.84% |

Negative numbers indicate quantity or percentage above production or 100%

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Identified Leakage | | | | | | | | 23 | | | | | 23 |
| Tank Overflows | | | | | | | | | | | | | 0 |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Mohave | ADEQ Public Water System Number: | 04-08-032 |

## WATER USE DATA SHEET BY MONTH FOR CALENDAR YEAR 2012

| | | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| MONTH | NUMBER OF CUSTOMERS | GALLONS PUMPED (Thousands) | GALLONS PURCHASED (Thousands) | GALLONS AUTHORIZED UNBILLED (Thousands) | GALLONS DELIVERED (Thousands) | GALLONS SOLD (Thousands) | % NON-ACCOUNT WATER (Thousands) |
| | | | | | (=A+B-C) | | =(D-E)/D |
| July-12 | 14,466 | 186,363 | | 3,659 | 182,689 | 161,915 | 11.37% |
| August-12 | 14,476 | 185,662 | | 7,030 | 178,610 | 149,529 | 16.28% |
| September-12 | 14,469 | 166,225 | | 5,300 | 160,928 | 166,757 | -3.62% |
| October-12 | 14,425 | 151,864 | | 7,148 | 144,749 | 118,782 | 17.94% |
| November-12 | 14,433 | 137,293 | | 4,652 | 132,606 | 133,022 | -0.31% |
| December-12 | 14,391 | 128,950 | | 3,902 | 125,048 | 116,126 | 7.14% |
| January-13 | 14,462 | 132,341 | | 7,207 | 125,134 | 105,042 | 16.06% |
| February-13 | 14,479 | 117,016 | | 5,966 | 111,050 | 109,041 | 1.81% |
| March-13 | 14,438 | 139,102 | | 3,860 | 135,242 | 103,062 | 23.79% |
| April-13 | 14,460 | 142,950 | | 2,994 | 139,956 | 120,386 | 13.98% |
| May-13 | 14,452 | 157,642 | | 3,205 | 154,437 | 134,555 | 12.87% |
| June-13 | 14,486 | 172,222 | | 4,288 | 167,934 | 154,229 | 8.16% |
| | TOTALS -> | **1,817,630** | - | **59,211** | **1,758,382** | **1,572,446** | 10.57% |

What is the level of arsenic for each well on your system. _____mg/l
(If more than one well, please list each separately)

If system has fire hydrants, what is the fire flow requirement? 1,000_____GPM for _2.0_____ hrs

If system has chlorination treatment, does this treatment system chlorinate continuously?
( X ) Yes ( ) No

Is the Water Utility located in an ADWR Active Management Area (AMA)?
( ) Yes ( X ) No

Does the Company have An ADWR Gallons Per Capita Per Day (GPCPD) requirement?
( ) Yes ( X ) No

If yes, provide the GPCPD amount:_____N/A_____

EPCOR Water
Eastern Division - Mohave Water District - BHC (08-032)
Unaccounted For Water - July 2012 - June 2013

| | Description | Quantity of Water (Kgal) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jul-12 | Aug-12 | Sep-12 | Oct-12 | Nov-12 | Dec-12 | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 | Jun-13 | TOTAL |
| A | **Gallons Pumped** | | | | | | | | | | | | | |
| | Water Treatment | | | | | | | | | | | | | 0 |
| | Wells | 186,363 | 185,662 | 166,225 | 151,864 | 137,293 | 128,950 | 132,341 | 117,255 | 139,102 | 142,950 | 157,642 | 172,222 | 1,817,869 |
| B | **Gallons Purchased** | | | | | | | | (239) | | | | | (239) |
| | **Total Production** | 186,363 | 185,662 | 166,225 | 151,864 | 137,293 | 128,950 | 132,341 | 117,016 | 139,102 | 142,950 | 157,642 | 172,222 | 1,817,630 |
| C | **Authorized Unbilled/Consumption** | | | | | | | | | | | | | |
| | In-Plant Usage | | | | | | | | | | | | | 0 |
| | Mixing Chemicals - Field | | | | | | | | | | | | | 0 |
| | Well Pumped Waste | | | | | | | | | | | | | 0 |
| | Flushing Mains | 3,410 | 6,498 | 5,086 | 6,728 | 4,032 | 3,773 | 7,091 | 5,855 | 3,749 | 2,868 | 3,068 | 4,154 | 56,312 |
| | Identified Fire Usage | 249 | 532 | 214 | 420 | 620 | 129 | 116 | 111 | 111 | 126 | 137 | 134 | 2,899 |
| | Vandalism | | | | | | | | | | | | | 0 |
| | Street Cleaning | | | | | | | | | | | | | 0 |
| | Draining Storage Tanks | | | | | | | | | | | | | 0 |
| | Online Analyzers & Chlorinators | | | | | | | | | | | | | 0 |
| | Field Meter Testing | | | | | | | | | | | | | 0 |
| | Fire Hydrant Maintenance | | | | | | | | | | | | | 0 |
| | Flushing Sewer Mains | | | | | | | | | | | | | 0 |
| | **Total Authorized Unbilled/Consumption** | 3,659 | 7,030 | 5,300 | 7,148 | 4,652 | 3,902 | 7,207 | 5,966 | 3,860 | 2,994 | 3,205 | 4,288 | 59,211 |
| D | **Gallons Delivered =(A+B-C)** | **182,704** | **178,632** | **160,925** | **144,716** | **132,641** | **125,048** | **125,134** | **111,050** | **135,242** | **139,956** | **154,437** | **167,934** | **1,758,419** |
| E | **Gallons Sold** | | | | | | | | | | | | | |
| | Residential | 118,709 | 112,494 | 126,077 | 89,806 | 92,991 | 84,281 | 76,098 | 79,160 | 74,470 | 87,020 | 96,349 | 112,185 | 1,149,640 |
| | Commercial | 26,417 | 26,251 | 29,256 | 20,765 | 23,742 | 19,830 | 17,673 | 18,185 | 17,747 | 20,240 | 23,501 | 25,829 | 269,436 |
| | Industrial | | | | | | | | | | | | | 0 |
| | Fire Service | | | | | | | | | | | | | 0 |
| | OPA | 9,623 | 10,349 | 11,413 | 8,176 | 7,315 | 5,230 | 4,262 | 4,555 | 4,185 | 6,148 | 8,148 | 9,613 | 89,017 |
| | Resale | | | | | | | | | | | | | 0 |
| | Miscellaneous | 7,166 | 435 | 11 | 35 | 8,974 | 6,785 | 7,009 | 7,141 | 6,660 | 6,978 | 6,557 | 6,602 | 64,353 |
| | **Total Sales** | **161,915** | **149,529** | **166,757** | **118,782** | **133,022** | **116,126** | **105,042** | **109,041** | **103,062** | **120,386** | **134,555** | **154,229** | **1,572,446** |
| F | **Non-Account Water** | | | | | | | | | | | | | |
| | Gallons =D-E | 20,789 | 29,103 | (5,832) | 25,934 | (381) | 8,923 | 20,092 | 2,009 | 32,180 | 19,570 | 19,882 | 13,705 | 185,973 |
| | Percentage =D-E/D | 11.38% | 16.29% | (3.62%) | 17.92% | (0.29%) | 7.14% | 16.06% | 1.81% | 23.79% | 13.98% | 12.87% | 8.16% | 10.58% |

Negative numbers indicate quantity or percentage above production or 100%

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Identified Leakage | 409 | 806 | 1,142 | 595 | 328 | 576 | 625 | 121 | 144 | 58 | 484 | 889 | 6,177 |
| Tank Overflows | | | | | | | | | | | | | 0 |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Camp Mohave | ADEQ Public Water System Number: | 04-08-037 |

## WATER USE DATA SHEET BY MONTH FOR CALENDAR YEAR 2012

| | | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| MONTH | NUMBER OF CUSTOMERS | GALLONS PUMPED (Thousands) | GALLONS PURCHASED (Thousands) | GALLONS AUTHORIZED UNBILLED (Thousands) | GALLONS DELIVERED (Thousands) | GALLONS SOLD (Thousands) | % NON-ACCOUNT WATER (Thousands) |
| | | | | | (=A+B-C) | | =(D-E)/D |
| July-12 | 78 | 1,999 | | 222 | 1,777 | 1,701 | 4.28% |
| August-12 | 78 | 2,352 | | 451 | 1,901 | 1,555 | 18.20% |
| September-12 | 78 | 1,252 | | 136 | 1,116 | 1,304 | -16.85% |
| October-12 | 78 | 1,109 | | 100 | 1,009 | 1,038 | -2.87% |
| November-12 | 79 | 1,136 | | 100 | 1,036 | 1,094 | -5.60% |
| December-12 | 77 | 1,084 | | 105 | 979 | 1,020 | -4.19% |
| January-13 | 77 | 1,215 | | 260 | 955 | 979 | -2.51% |
| February-13 | 77 | 1,188 | | - | 1,188 | 1,205 | -1.43% |
| March-13 | 77 | 1,096 | | 87 | 1,009 | 817 | 19.03% |
| April-13 | 78 | 1,268 | | 170 | 1,098 | 1,028 | 6.38% |
| May-13 | 77 | 1,312 | | 109 | 1,203 | 1,213 | -0.83% |
| June-13 | 79 | 1,547 | | 60 | 1,487 | 1,546 | -3.97% |
| | TOTALS -> | 16,558 | - | 1,800 | 14,758 | 14,500 | 1.75% |

What is the level of arsenic for each well on your system. _____mg/l
(If more than one well, please list each separately)

If system has fire hydrants, what is the fire flow requirement? 1,000_____GPM for _2.0_____ hrs

If system has chlorination treatment, does this treatment system chlorinate continuously?
( X ) Yes ( ) No

Is the Water Utility located in an ADWR Active Management Area (AMA)?
( ) Yes ( X ) No

Does the Company have An ADWR Gallons Per Capita Per Day (GPCPD) requirement?
( ) Yes ( X ) No

If yes, provide the GPCPD amount:_____N/A_____

EPCOR Water
Eastern Division - Mohave Water District - Camp Mohave (08-037)
Unaccounted For Water - July 2012 - June 2013

| | Description | Quantity of Water (Kgal) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jul-12 | Aug-12 | Sep-12 | Oct-12 | Nov-12 | Dec-12 | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 | Jun-13 | TOTAL |
| A | **Gallons Pumped** | | | | | | | | | | | | | |
| | Water Treatment | | | | | | | | | | | | | 0 |
| | Wells | 1,999 | 2,352 | 1,252 | 1,109 | 1,136 | 1,084 | 1,215 | 949 | 1,096 | 1,268 | 1,312 | 1,547 | 16,319 |
| B | **Gallons Purchased** | | | | | | | | 239 | | | | | 239 |
| | **Total Production** | 1,999 | 2,352 | 1,252 | 1,109 | 1,136 | 1,084 | 1,215 | 1,188 | 1,096 | 1,268 | 1,312 | 1,547 | 16,558 |
| C | **Authorized Unbilled/Consumption** | | | | | | | | | | | | | |
| | In-Plant Usage | | | | | | | | | | | | | 0 |
| | Mixing Chemicals - Field | | | | | | | | | | | | | 0 |
| | Well Pumped Waste | | | | | | | | | | | | | 0 |
| | Flushing Mains | 222 | 151 | 136 | 100 | 100 | 105 | 260 | | 87 | 170 | 109 | 60 | 1,500 |
| | Identified Fire Usage | | 300 | | | | | | | | | | | 300 |
| | Vandalism | | | | | | | | | | | | | 0 |
| | Street Cleaning | | | | | | | | | | | | | 0 |
| | Draining Storage Tanks | | | | | | | | | | | | | 0 |
| | Online Analyzers & Chlorinators | | | | | | | | | | | | | 0 |
| | Field Meter Testing | | | | | | | | | | | | | 0 |
| | Fire Hydrant Maintenance | | | | | | | | | | | | | 0 |
| | Flushing Sewer Mains | | | | | | | | | | | | | 0 |
| | **Total Authorized Unbilled/Consumption** | 222 | 451 | 136 | 100 | 100 | 105 | 260 | 0 | 87 | 170 | 109 | 60 | 1,800 |
| D | **Gallons Delivered =(A+B-C)** | **1,777** | **1,901** | **1,116** | **1,009** | **1,036** | **979** | **955** | **1,188** | **1,009** | **1,098** | **1,203** | **1,487** | **14,758** |
| E | **Gallons Sold** | | | | | | | | | | | | | |
| | Residential | 294 | 323 | 279 | 212 | 212 | 191 | 172 | 172 | 176 | 236 | 306 | 437 | 3,010 |
| | Commercial | 1,407 | 1,232 | 1,025 | 826 | 882 | 829 | 807 | 1,033 | 641 | 792 | 907 | 1,109 | 11,490 |
| | Industrial | | | | | | | | | | | | | 0 |
| | Fire Service | | | | | | | | | | | | | 0 |
| | OPA | | | | | | | | | | | | | 0 |
| | Resale | | | | | | | | | | | | | 0 |
| | Miscellaneous | | | | | | | | | | | | | 0 |
| | **Total Sales** | **1,701** | **1,555** | **1,304** | **1,038** | **1,094** | **1,020** | **979** | **1,205** | **817** | **1,028** | **1,213** | **1,546** | **14,500** |
| F | **Non-Account Water** | | | | | | | | | | | | | |
| | Gallons =D-E | 76 | 346 | (188) | (29) | (58) | (41) | (24) | (17) | 192 | 70 | (10) | (59) | 258 |
| | Percentage =D-E/D | 4.28% | 18.20% | (16.85%) | (2.87%) | (5.60%) | (4.19%) | (2.51%) | (1.43%) | 19.03% | 6.38% | (0.83%) | (3.97%) | 1.75% |

Negative numbers indicate quantity or percentage above production or 100%

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Identified Leakage | | | 3 | 5 | | | | | | | | | 8 |
| Tank Overflows | | | | | | | | | | | | | 0 |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Desert Foothills | ADEQ Public Water System Number: | 04-08-137 |

## WATER USE DATA SHEET BY MONTH FOR CALENDAR YEAR 2012

| | | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| MONTH | NUMBER OF CUSTOMERS | GALLONS PUMPED (Thousands) | GALLONS PURCHASED (Thousands) | GALLONS AUTHORIZED UNBILLED (Thousands) | GALLONS DELIVERED (Thousands) | GALLONS SOLD (Thousands) | % NON-ACCOUNT WATER (Thousands) |
| | | | | | (=A+B-C) | | =(D-E)/D |
| July-12 | 1,057 | 28,091 | | 417 | 27,674 | 24,893 | 10.05% |
| August-12 | 1,053 | 25,924 | | 629 | 25,295 | 20,718 | 18.09% |
| September-12 | 1,056 | 27,086 | | 1,017 | 26,069 | 24,881 | 4.56% |
| October-12 | 1,057 | 22,480 | | 1,540 | 20,940 | 19,591 | 6.44% |
| November-12 | 1,057 | 20,179 | | 969 | 19,210 | 18,444 | 3.99% |
| December-12 | 1,059 | 17,467 | | 1,664 | 15,803 | 15,861 | -0.37% |
| January-13 | 1,056 | 16,545 | | 1,140 | 15,405 | 13,900 | 9.77% |
| February-13 | 1,056 | 15,066 | | 379 | 14,687 | 13,326 | 9.27% |
| March-13 | 1,059 | 18,966 | | - | 18,966 | 13,647 | 28.04% |
| April-13 | 1,059 | 19,458 | | 385 | 19,073 | 17,369 | 8.93% |
| May-13 | 1,060 | 23,391 | | 151 | 22,943 | 18,521 | 19.27% |
| June-13 | 1,061 | 24,893 | | - | 24,893 | 23,416 | 5.93% |
| | TOTALS -> | **259,546** | **0** | **8,291** | **250,958** | **224,567** | 10.52% |

What is the level of arsenic for each well on your system. _____mg/l
(If more than one well, please list each separately)

If system has fire hydrants, what is the fire flow requirement? 1,000_____GPM for _2.0_____ hrs

If system has chlorination treatment, does this treatment system chlorinate continuously?
( X ) Yes ( ) No

Is the Water Utility located in an ADWR Active Management Area (AMA)?
( ) Yes ( X ) No

Does the Company have An ADWR Gallons Per Capita Per Day (GPCPD) requirement?
( ) Yes ( X ) No

If yes, provide the GPCPD amount:_____N/A_____

EPCOR Water
Eastern Division - Mohave Water District - Desert Foothills Estates (08-137)
Unaccounted For Water - July 2012 - June 2013

| | Description | Quantity of Water (Kgal) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jul-12 | Aug-12 | Sep-12 | Oct-12 | Nov-12 | Dec-12 | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 | Jun-13 | TOTAL |
| A | **Gallons Pumped** | | | | | | | | | | | | | |
| | Water Treatment | | | | | | | | | | | | | 0 |
| | Wells | 28,091 | 25,924 | 27,086 | 22,480 | 20,179 | 17,467 | 16,545 | 15,066 | 18,966 | 19,458 | 23,391 | 24,893 | 259,546 |
| B | **Gallons Purchased** | | | | | | | | | | | | | 0 |
| | **Total Production** | 28,091 | 25,924 | 27,086 | 22,480 | 20,179 | 17,467 | 16,545 | 15,066 | 18,966 | 19,458 | 23,391 | 24,893 | 259,546 |
| C | **Authorized Unbilled/Consumption** | | | | | | | | | | | | | |
| | In-Plant Usage | | | | | | | | | | | | | 0 |
| | Mixing Chemicals - Field | | | | | | | | | | | | | 0 |
| | Well Pumped Waste | | | | | | | | | | | | | 0 |
| | Flushing Mains | 417 | 629 | 1,017 | 1,540 | 969 | 1,594 | 1,140 | 379 | | 385 | 1 | 4 | 8,075 |
| | Identified Fire Usage | | | | | | 70 | | | | | 150 | | 220 |
| | Vandalism | | | | | | | | | | | | | 0 |
| | Street Cleaning | | | | | | | | | | | | | 0 |
| | Draining Storage Tanks | | | | | | | | | | | | | 0 |
| | Online Analyzers & Chlorinators | | | | | | | | | | | | | 0 |
| | Field Meter Testing | | | | | | | | | | | | | 0 |
| | Fire Hydrant Maintenance | | | | | | | | | | | | | 0 |
| | Flushing Sewer Mains | | | | | | | | | | | | | 0 |
| | **Total Authorized Unbilled/Consumption** | 417 | 629 | 1,017 | 1,540 | 969 | 1,664 | 1,140 | 379 | 0 | 385 | 151 | 4 | 8,295 |
| D | **Gallons Delivered =(A+B-C)** | **27,674** | **25,295** | **26,069** | **20,940** | **19,210** | **15,803** | **15,405** | **14,687** | **18,966** | **19,073** | **23,240** | **24,889** | **251,251** |
| E | **Gallons Sold** | | | | | | | | | | | | | |
| | Residential | 20,100 | 16,776 | 19,448 | 14,207 | 14,975 | 13,042 | 11,850 | 11,594 | 11,531 | 14,474 | 14,832 | 18,518 | 181,347 |
| | Commercial | 4,793 | 3,942 | 5,433 | 5,384 | 3,469 | 2,819 | 2,050 | 1,732 | 2,116 | 2,895 | 3,689 | 4,898 | 43,220 |
| | Industrial | | | | | | | | | | | | | 0 |
| | Fire Service | | | | | | | | | | | | | 0 |
| | OPA | | | | | | | | | | | | | 0 |
| | Resale | | | | | | | | | | | | | 0 |
| | Miscellaneous | | | | | | | | | | | | | 0 |
| | **Total Sales** | **24,893** | **20,718** | **24,881** | **19,591** | **18,444** | **15,861** | **13,900** | **13,326** | **13,647** | **17,369** | **18,521** | **23,416** | **224,567** |
| F | **Non-Account Water** | | | | | | | | | | | | | |
| | Gallons =D-E | 2,781 | 4,577 | 1,188 | 1,349 | 766 | (58) | 1,505 | 1,361 | 5,319 | 1,704 | 4,719 | 1,473 | 26,684 |
| | Percentage =D-E/D | 10.05% | 18.09% | 4.56% | 6.44% | 3.99% | (0.37%) | 9.77% | 9.27% | 28.04% | 8.93% | 20.31% | 5.92% | 10.62% |

Negative numbers indicate quantity or percentage above production or 100%

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Identified Leakage | 96 | 7 | | 196 | 77 | 52 | 100 | | | 90 | | | 618 |
| Tank Overflows | | | | | | | | | | | | | 0 |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Lake Mohave | ADEQ Public Water System Number: | 04-08-062 |

## WATER USE DATA SHEET BY MONTH FOR CALENDAR YEAR 2012

| | | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| MONTH | NUMBER OF CUSTOMERS | GALLONS PUMPED (Thousands) | GALLONS PURCHASED (Thousands) | GALLONS AUTHORIZED UNBILLED (Thousands) | GALLONS DELIVERED (Thousands) | GALLONS SOLD (Thousands) | % NON-ACCOUNT WATER (Thousands) |
| | | | | | (=A+B-C) | | =(D-E)/D |
| July-12 | 272 | 2,754 | | 144 | 2,610 | 2,099 | 19.58% |
| August-12 | 272 | 2,827 | | 145 | 2,682 | 2,235 | 16.67% |
| September-12 | 271 | 2,259 | | 98 | 2,161 | 2,535 | -17.31% |
| October-12 | 270 | 2,212 | | 92 | 2,120 | 1,878 | 11.42% |
| November-12 | 269 | 2,054 | | 200 | 1,854 | 1,804 | 2.70% |
| December-12 | 267 | 1,944 | | 10 | 1,934 | 1,805 | 6.67% |
| January-13 | 268 | 1,949 | | 636 | 1,313 | 1,392 | -6.02% |
| February-13 | 269 | 1,571 | | 85 | 1,486 | 1,546 | -4.04% |
| March-13 | 271 | 1,894 | | 189 | 1,705 | 1,208 | 29.15% |
| April-13 | 268 | 1,974 | | 84 | 1,890 | 1,552 | 17.88% |
| May-13 | 269 | 2,225 | | 75 | 2,132 | 1,628 | 23.64% |
| June-13 | 271 | 2,467 | | 340 | 2,127 | 2,253 | -5.92% |
| | TOTALS -> | **26,130** | **0** | **2,098** | **24,014** | **21,935** | 8.66% |

What is the level of arsenic for each well on your system. _____mg/l
(If more than one well, please list each separately)

If system has fire hydrants, what is the fire flow requirement? 1,000_____GPM for _2.0_____ hrs

If system has chlorination treatment, does this treatment system chlorinate continuously?
( X ) Yes ( ) No

Is the Water Utility located in an ADWR Active Management Area (AMA)?
( ) Yes ( X ) No

Does the Company have An ADWR Gallons Per Capita Per Day (GPCPD) requirement?
( ) Yes ( X ) No

If yes, provide the GPCPD amount:_____N/A_____

EPCOR Water
Eastern Division - Mohave Water District - Lake Mohave Highlands (08-062)
Unaccounted For Water - July 2012 - June 2013

| | Description | Quantity of Water (Kgal) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jul-12 | Aug-12 | Sep-12 | Oct-12 | Nov-12 | Dec-12 | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 | Jun-13 | TOTAL |
| A | **Gallons Pumped** | | | | | | | | | | | | | |
| | Water Treatment | | | | | | | | | | | | | 0 |
| | Wells | 2,754 | 2,827 | 2,259 | 2,212 | 2,054 | 1,944 | 1,949 | 1,571 | 1,894 | 1,974 | 2,225 | 2,467 | 26,130 |
| B | **Gallons Purchased** | | | | | | | | | | | | | 0 |
| | **Total Production** | 2,754 | 2,827 | 2,259 | 2,212 | 2,054 | 1,944 | 1,949 | 1,571 | 1,894 | 1,974 | 2,225 | 2,467 | 26,130 |
| C | **Authorized Unbilled/Consumption** | | | | | | | | | | | | | |
| | In-Plant Usage | | | | | | | | | | | | | 0 |
| | Mixing Chemicals - Field | | | | | | | | | | | | | 0 |
| | Well Pumped Waste | | | | | | | | | | | | | 0 |
| | Flushing Mains | 144 | 145 | 98 | 92 | | | 636 | 65 | 189 | 84 | 75 | 290 | 1,818 |
| | Identified Fire Usage | | | | | 200 | 10 | | | | | | | 210 |
| | Vandalism | | | | | | | | | | | | | 0 |
| | Street Cleaning | | | | | | | | | | | | | 0 |
| | Draining Storage Tanks | | | | | | | | | | | | 50 | 50 |
| | Online Analyzers & Chlorinators | | | | | | | | | | | | | 0 |
| | Field Meter Testing | | | | | | | | 20 | | | | | 20 |
| | Fire Hydrant Maintenance | | | | | | | | | | | | | 0 |
| | Flushing Sewer Mains | | | | | | | | | | | | | 0 |
| | **Total Authorized Unbilled/Consumption** | 144 | 145 | 98 | 92 | 200 | 10 | 636 | 85 | 189 | 84 | 75 | 340 | 2,098 |
| D | **Gallons Delivered =(A+B-C)** | **2,610** | **2,682** | **2,161** | **2,120** | **1,854** | **1,934** | **1,313** | **1,486** | **1,705** | **1,890** | **2,150** | **2,127** | **24,032** |
| E | **Gallons Sold** | | | | | | | | | | | | | |
| | Residential | 2,051 | 2,196 | 2,342 | 1,629 | 1,683 | 1,703 | 1,371 | 1,522 | 1,202 | 1,513 | 1,605 | 2,214 | 21,031 |
| | Commercial | 41 | 33 | 185 | 244 | 114 | 95 | 15 | 23 | 6 | 39 | 23 | 39 | 857 |
| | Industrial | | | | | | | | | | | | | 0 |
| | Fire Service | | | | | | | | | | | | | 0 |
| | OPA | | | | | | | | | | | | | 0 |
| | Resale | | | | | | | | | | | | | 0 |
| | Miscellaneous | 7 | 6 | 8 | 5 | 7 | 7 | 6 | 1 | | | | | 47 |
| | **Total Sales** | **2,099** | **2,235** | **2,535** | **1,878** | **1,804** | **1,805** | **1,392** | **1,546** | **1,208** | **1,552** | **1,628** | **2,253** | **21,935** |
| F | **Non-Account Water** | | | | | | | | | | | | | |
| | Gallons =D-E | 511 | 447 | (374) | 242 | 50 | 129 | (79) | (60) | 497 | 338 | 522 | (126) | 2,097 |
| | Percentage =D-E/D | 19.58% | 16.67% | (17.31%) | 11.42% | 2.70% | 6.67% | (6.02%) | (4.04%) | 29.15% | 17.88% | 24.28% | (5.92%) | 8.73% |

Negative numbers indicate quantity or percentage above production or 100%

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Identified Leakage | 9 | 30 | 25 | 5 | | | | 100 | 23 | 3 | | 50 | 245 |
| Tank Overflows | | | | | | | | | | | | | 0 |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Rio Vista | ADEQ Public Water System Number: | 04-08-333 |

## WATER USE DATA SHEET BY MONTH FOR CALENDAR YEAR 2012

| | | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| MONTH | NUMBER OF CUSTOMERS | GALLONS PUMPED (Thousands) | GALLONS PURCHASED (Thousands) | GALLONS AUTHORIZED UNBILLED (Thousands) | GALLONS DELIVERED (Thousands) | GALLONS SOLD (Thousands) | % NON-ACCOUNT WATER (Thousands) |
| | | | | | (=A+B-C) | | =(D-E)/D |
| July-12 | 120 | | 1,536 | | 1,536 | 1,536 | 0.00% |
| August-12 | 119 | | 1,478 | | 1,478 | 1,478 | 0.00% |
| September-12 | 118 | | 1,429 | | 1,429 | 1,429 | 0.00% |
| October-12 | 119 | | 1,134 | | 1,134 | 1,134 | 0.00% |
| November-12 | 119 | | 1,143 | | 1,143 | 1,143 | 0.00% |
| December-12 | 120 | | 878 | | 878 | 878 | 0.00% |
| January-13 | 121 | | 942 | - | 942 | 942 | 0.00% |
| February-13 | 120 | | 974 | - | 974 | 974 | 0.00% |
| March-13 | 120 | | 882 | - | 882 | 882 | 0.00% |
| April-13 | 121 | | 1,020 | - | 1,020 | 1,020 | 0.00% |
| May-13 | 120 | | 1,361 | - | 1,361 | 1,361 | 0.00% |
| June-13 | 121 | | 1,608 | - | 1,608 | 1,608 | 0.00% |
| | TOTALS -> | | **14,385** | **0** | **14,385** | **14,385** | 0.00% |

What is the level of arsenic for each well on your system. _____mg/l
(If more than one well, please list each separately)

If system has fire hydrants, what is the fire flow requirement?
One and two-family dwellings<= 3,600 sq. ft.: 1,500 gpm for 2 hours
One and two-family dwellings> 3,600 sq. ft.: In accordance with the 1997 UFC
All other development: 3,000 gpm for 3 hours (minimum)

If system has chlorination treatment, does this treatment system chlorinate continuously?
( X ) Yes ( ) No

Is the Water Utility located in an ADWR Active Management Area (AMA)?
( ) Yes ( X ) No

Does the Company have An ADWR Gallons Per Capita Per Day (GPCPD) requirement?
( ) Yes ( X ) No

If yes, provide the GPCPD amount:_____N/A_____

EPCOR Water
Eastern Division - Mohave Water District - Rio Vista Ranches (08-333)
Unaccounted For Water - July 2012 - June 2013

| | Description | Quantity of Water (Kgal) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jul-12 | Aug-12 | Sep-12 | Oct-12 | Nov-12 | Dec-12 | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 | Jun-13 | TOTAL |
| A | **Gallons Pumped** | | | | | | | | | | | | | |
| | Water Treatment | | | | | | | | | | | | | 0 |
| | Wells | | | | | | | | | | | | | 0 |
| B | **Gallons Purchased** | 1,536 | 1,478 | 1,429 | 1,134 | 1,143 | 878 | 942 | 974 | 882 | 1,020 | 1,361 | 1,608 | 14,385 |
| | **Total Production** | 1,536 | 1,478 | 1,429 | 1,134 | 1,143 | 878 | 942 | 974 | 882 | 1,020 | 1,361 | 1,608 | 14,385 |
| C | **Authorized Unbilled/Consumption** | | | | | | | | | | | | | |
| | In-Plant Usage | | | | | | | | | | | | | 0 |
| | Mixing Chemicals - Field | | | | | | | | | | | | | 0 |
| | Well Pumped Waste | | | | | | | | | | | | | 0 |
| | Flushing Mains | | | | | | | | | | | | | 0 |
| | Identified Fire Usage | | | | | | | | | | | | | 0 |
| | Vandalism | | | | | | | | | | | | | 0 |
| | Street Cleaning | | | | | | | | | | | | | 0 |
| | Draining Storage Tanks | | | | | | | | | | | | | 0 |
| | Online Analyzers & Chlorinators | | | | | | | | | | | | | 0 |
| | Field Meter Testing | | | | | | | | | | | | | 0 |
| | Fire Hydrant Maintenance | | | | | | | | | | | | | 0 |
| | Flushing Sewer Mains | | | | | | | | | | | | | 0 |
| | **Total Authorized Unbilled/Consumption** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| D | **Gallons Delivered =(A+B-C)** | **1,536** | **1,478** | **1,429** | **1,134** | **1,143** | **878** | **942** | **974** | **882** | **1,020** | **1,361** | **1,608** | **14,385** |
| E | **Gallons Sold** | | | | | | | | | | | | | |
| | Residential | 1,536 | 1,478 | 1,429 | 1,134 | 1,143 | 878 | 942 | 974 | 882 | 1,020 | 1,361 | 1,608 | 14,385 |
| | Commercial | | | | | | | | | | | | | 0 |
| | Industrial | | | | | | | | | | | | | 0 |
| | Fire Service | | | | | | | | | | | | | 0 |
| | OPA | | | | | | | | | | | | | 0 |
| | Resale | | | | | | | | | | | | | 0 |
| | Miscellaneous | | | | | | | | | | | | | 0 |
| | **Total Sales** | **1,536** | **1,478** | **1,429** | **1,134** | **1,143** | **878** | **942** | **974** | **882** | **1,020** | **1,361** | **1,608** | **14,385** |
| F | **Non-Account Water** | | | | | | | | | | | | | |
| | Gallons =D-E | | | | | | | | | | | | | |
| | Percentage =D-E/D | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |

Negative numbers indicate quantity or percentage above production or 100%

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Identified Leakage | | | | | | | | 23 | | | | | 23 |
| Tank Overflows | | | | | | | | | | | | | 0 |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Paradise Valley | ADEQ Public Water System Number: | 04-07-056 |

## WATER USE DATA SHEET BY MONTH FOR CALENDAR YEAR 2012

| | | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| | | | | GALLONS | | | % |
| MONTH | NUMBER OF CUSTOMERS | GALLONS PUMPED (Thousands) | GALLONS PURCHASED (Thousands) | AUTHORIZED UNBILLED (Thousands) | GALLONS DELIVERED (Thousands) (=A+B-C) | GALLONS SOLD (Thousands) | NON-ACCOUNT WATER (Thousands) =(D-E)/D |
| July-12 | 4,864 | 382,502 | | 164 | 382,338 | 371,336 | 2.88% |
| August-12 | 4,853 | 357,429 | | 147 | 357,282 | 338,060 | 5.38% |
| September-12 | 4,863 | 316,671 | | 188 | 316,483 | 367,100 | -15.99% |
| October-12 | 4,856 | 347,559 | | 510 | 347,049 | 247,685 | 28.63% |
| November-12 | 4,866 | 260,383 | | 226 | 260,157 | 328,841 | -26.40% |
| December-12 | 4,854 | 201,382 | | 281 | 201,101 | 237,592 | -18.15% |
| January-13 | 4,854 | 187,680 | | 147 | 187,533 | 169,282 | 9.73% |
| February-13 | 4,854 | 174,164 | | 165 | 173,999 | 158,197 | 9.08% |
| March-13 | 4,859 | 212,921 | | 233 | 212,688 | 144,530 | 32.05% |
| April-13 | 4,860 | 269,467 | | 157 | 269,310 | 187,332 | 30.44% |
| May-13 | 4,852 | 339,812 | | 1,057 | 338,755 | 258,323 | 23.74% |
| June-13 | 4,860 | 379,243 | | 187 | 379,056 | 354,731 | 6.42% |
| | TOTALS -> | **3,429,213** | - | **3,461** | **3,425,752** | **3,163,009** | **7.67%** |

What is the level of arsenic for each well on your system. _____mg/l
(If more than one well, please list each separately)

| | |
|---|---|
| Well PCX-1 | no longer on system |
| Well 11 | 0.016 |
| Well 12 | 0.007 |
| Well 12b | 0.007 |
| Well 14 | 0.010 |
| Well 15 | 0.008 |
| Well 16 | 0.009 |
| Well 17 | 0.009 |

If system has fire hydrants, what is the fire flow requirement? 1500 GPM for 1 hr

If system has chlorination treatment, does this treatment system chlorinate continuously?
( X ) Yes ( ) No

Is the Water Utility located in an ADWR Active Management Area (AMA)?
( X ) Yes ( ) No

Does the Company have An ADWR Gallons Per Capita Per Day (GPCPD) requirement?
( X ) Yes ( ) No

If yes, provide the GPCPD amount: 1010*

*Estimate

EPCOR Water
Eastern Division - Paradise Valley Water District
Unaccounted For Water - July 2012 - June 2013

| | Description | Quantity of Water (Kgal) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jul-12 | Aug-12 | Sep-12 | Oct-12 | Nov-12 | Dec-12 | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 | Jun-13 | TOTAL |
| A | **Gallons Pumped** | | | | | | | | | | | | | |
| | Water Treatment | | | | | | | | | | | | | 0 |
| | Wells | 382,502 | 357,429 | 316,671 | 347,559 | 260,383 | 201,382 | 187,680 | 174,164 | 212,921 | 269,467 | 339,812 | 379,243 | 3,429,213 |
| B | **Gallons Purchased** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **Total Production** | 382,502 | 357,429 | 316,671 | 347,559 | 260,383 | 201,382 | 187,680 | 174,164 | 212,921 | 269,467 | 339,812 | 379,243 | 3,429,213 |
| C | **Authorized Unbilled/Consumption** | | | | | | | | | | | | | |
| | In-Plant Usage | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 12 | 13 | 13 | 13 | 13 | 156 |
| | Mixing Chemicals - Field | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 3 |
| | Well Pumped Waste | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Flushing Mains | 17 | 0 | 46 | 254 | 84 | 134 | 0 | 27 | 86 | 8 | 39 | 44 | 739 |
| | Identified Fire Usage | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Vandalism | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Street Cleaning | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 |
| | Draining Storage Tanks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 870 | 0 | 870 |
| | Online Analyzers & Chlorinators | 134 | 134 | 129 | 134 | 129 | 134 | 134 | 121 | 134 | 129 | 134 | 129 | 1,572 |
| | Field Meter Testing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Fire Hydrant Maintenance | 0 | 0 | 0 | 110 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 115 |
| | Flushing Sewer Mains | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | ***Total Authorized Unbilled/Consumption*** | 164 | 147 | 188 | 510 | 226 | 281 | 147 | 165 | 233 | 157 | 1,057 | 187 | 3,461 |
| D | **Gallons Delivered =(A+B-C)** | **382,338** | **357,282** | **316,483** | **347,049** | **260,157** | **201,101** | **187,533** | **173,999** | **212,688** | **269,310** | **338,755** | **379,056** | **3,425,752** |
| E | **Gallons Sold** | | | | | | | | | | | | | |
| | Residential | 256,225 | 243,831 | 260,069 | 177,742 | 235,576 | 175,292 | 124,773 | 115,000 | 100,330 | 128,236 | 172,147 | 246,342 | 2,235,563 |
| | Commercial | 111,577 | 91,333 | 104,433 | 67,724 | 91,216 | 61,281 | 43,808 | 42,435 | 43,610 | 58,430 | 84,678 | 105,878 | 906,403 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Fire Service | 23 | 17 | 21 | 9 | 14 | 25 | 61 | 79 | 67 | 63 | 48 | 27 | 454 |
| | OPA | 2,951 | 2,178 | 1,908 | 1,669 | 1,212 | 461 | 219 | 230 | 75 | 114 | 815 | 1,790 | 13,622 |
| | Resale | 391 | 546 | 497 | 392 | 618 | 410 | 353 | 378 | 357 | 387 | 518 | 520 | 5,367 |
| | Miscellaneous | 169 | 155 | 172 | 149 | 205 | 123 | 68 | 75 | 91 | 102 | 117 | 174 | 1,600 |
| | **Total Sales** | **371,336** | **338,060** | **367,100** | **247,685** | **328,841** | **237,592** | **169,282** | **158,197** | **144,530** | **187,332** | **258,323** | **354,731** | **3,163,009** |
| F | **Non-Account Water** | | | | | | | | | | | | | |
| | Gallons =D-E | 11,002 | 19,222 | (50,617) | 99,364 | (68,684) | (36,491) | 18,251 | 15,802 | 68,158 | 81,978 | 80,432 | 24,325 | 262,743 |
| | Percentage =D-E/D | 2.88% | 5.38% | (15.99%) | 28.63% | (26.40%) | (18.15%) | 9.73% | 9.08% | 32.05% | 30.44% | 23.74% | 6.42% | 7.67% |

Negative numbers indicate quantity or percentage above production or 100%

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Tubac | ADEQ Public Water System Number: | 04-12-001 |

## WATER USE DATA SHEET BY MONTH FOR CALENDAR YEAR 2012

| | | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| | | | | GALLONS | | | % |
| MONTH | NUMBER OF CUSTOMERS | GALLONS PUMPED (Thousands) | GALLONS PURCHASED (Thousands) | AUTHORIZED UNBILLED (Thousands) | GALLONS DELIVERED (Thousands) (=A+B-C) | GALLONS SOLD (Thousands) | NON-ACCOUNT WATER (Thousands) =(D-E)/D |
| July-12 | 594 | 7,624 | | 105 | 7,519 | 8,388 | -11.55% |
| August-12 | 595 | 7,220 | | 5 | 7,215 | 6,022 | 16.54% |
| September-12 | 596 | 6,734 | | 11 | 6,724 | 6,408 | 4.69% |
| October-12 | 598 | 7,123 | | 106 | 7,017 | 5,301 | 24.45% |
| November-12 | 592 | 6,991 | | 6 | 6,985 | 6,493 | 7.04% |
| December-12 | 591 | 5,660 | | 5 | 5,655 | 6,254 | -10.60% |
| January-13 | 593 | 5,623 | | 14 | 5,608 | 4,819 | 14.08% |
| February-13 | 595 | 4,667 | | 34 | 4,634 | 4,916 | -6.10% |
| March-13 | 597 | 6,775 | | 36 | 6,739 | 4,189 | 37.84% |
| April-13 | 599 | 8,235 | | 12 | 8,223 | 6,480 | 21.19% |
| May-13 | 601 | 8,671 | | 29 | 8,642 | 7,928 | 8.26% |
| June-13 | 602 | 9,592 | | 33 | 9,559 | 8,934 | 6.54% |
| | TOTALS -> | 84,915 | - | 395 | 84,519 | 76,132 | 9.92% |

What is the level of arsenic for each well on your system. _____mg/l
(If more than one well, please list each separately)

| | | |
|---|---|---|
| Well 3 | 0.003 mg/L | |
| Well 2 | 0.020 mg/L | Disconnected from system |
| Well 4 | 0.036 | |
| Well 5 | 0.017 | |

If system has fire hydrants, what is the fire flow requirement? 1500 GPM for 1 hr

If system has chlorination treatment, does this treatment system chlorinate continuously?
( ) Yes ( ) No

Is the Water Utility located in an ADWR Active Management Area (AMA)?
(X) Yes ( ) No

Does the Company have An ADWR Gallons Per Capita Per Day (GPCPD) requirement?
(X) Yes ( ) No

If yes, provide the GPCPD amount: 246*

*Estimate

EPCOR Water
Eastern Division - Tubac Water District
Unaccounted For Water - July 2012 - June 2013

| | Description | Quantity of Water (Kgal) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jul-12 | Aug-12 | Sep-12 | Oct-12 | Nov-12 | Dec-12 | Jan-13 | Feb-13 | Mar-13 | Apr-13 | May-13 | Jun-13 | TOTAL |
| A | **Gallons Pumped** | | | | | | | | | | | | | |
| | Water Treatment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Wells | 7,624 | 7,220 | 6,734 | 7,123 | 6,991 | 5,660 | 5,623 | 4,667 | 6,775 | 8,235 | 8,671 | 9,592 | 84,915 |
| B | **Gallons Purchased** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **Total Production** | 7,624 | 7,220 | 6,734 | 7,123 | 6,991 | 5,660 | 5,623 | 4,667 | 6,775 | 8,235 | 8,671 | 9,592 | 84,915 |
| C | **Authorized Unbilled/Consumption** | | | | | | | | | | | | | |
| | In-Plant Usage | 38 | 0 | 1 | 1 | 1 | 2 | 1 | 1 | 0 | 2 | 5 | 6 | 58 |
| | Mixing Chemicals - Field | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Well Pumped Waste | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 | 56 |
| | Flushing Mains | 13 | 0 | 5 | 100 | 0 | 0 | 4 | 0 | 0 | 3 | 1 | 13 | 138 |
| | Identified Fire Usage | 5 | 4 | 5 | 5 | 5 | 4 | 3 | 4 | 9 | 8 | 6 | 8 | 65 |
| | Vandalism | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Street Cleaning | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Draining Storage Tanks | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 4 | 10 |
| | Online Analyzers & Chlorinators | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Field Meter Testing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Fire Hydrant Maintenance | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 25 | 0 | 15 | 0 | 69 |
| | Flushing Sewer Mains | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **Total Authorized Unbilled/Consumption** | 105 | 5 | 11 | 106 | 6 | 5 | 14 | 34 | 36 | 12 | 29 | 33 | 395 |
| D | **Gallons Delivered =(A+B-C)** | **7,519** | **7,215** | **6,724** | **7,017** | **6,985** | **5,655** | **5,608** | **4,634** | **6,739** | **8,223** | **8,642** | **9,559** | **84,519** |
| E | **Gallons Sold** | | | | | | | | | | | | | |
| | Residential | 6,236 | 4,511 | 4,679 | 4,001 | 4,613 | 4,400 | 3,364 | 3,567 | 2,950 | 4,326 | 5,532 | 6,434 | 54,613 |
| | Commercial | 2,152 | 1,511 | 1,729 | 1,300 | 1,880 | 1,854 | 1,455 | 1,349 | 1,239 | 2,154 | 2,396 | 2,500 | 21,519 |
| | Industrial | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Fire Service | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | OPA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Resale | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Miscellaneous | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **Total Sales** | **8,388** | **6,022** | **6,408** | **5,301** | **6,493** | **6,254** | **4,819** | **4,916** | **4,189** | **6,480** | **7,928** | **8,934** | **76,132** |
| F | **Non-Account Water** | | | | | | | | | | | | | |
| | Gallons =D-E | (869) | 1,193 | 316 | 1,716 | 492 | (599) | 789 | (283) | 2,550 | 1,743 | 714 | 625 | 8,387 |
| | Percentage =D-E/D | (11.55%) | 16.54% | 4.69% | 24.45% | 7.04% | (10.60%) | 14.08% | (6.10%) | 37.84% | 21.19% | 8.26% | 6.54% | 9.92% |

Negative numbers indicate quantity or percentage above production or 100%

# 4) Major Plant In Service Inventory

# 4a) WATER

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Sun City | ADEQ Public Water System Number: | 04-07-099 |

# WATER COMPANY PLANT DESCRIPTION

## WELLS

| | ADWR ID Number* | Pump Horsepower | Pump Yield (Gpm) | Casing Depth (Feet) | Casing Diameter (Inches) | Meter Size (inches) | Year Drilled |
|---|---|---|---|---|---|---|---|
| 1.1 | 55-606529 | 250 | 1575 | 900 | 20 | 10 | 1951 |
| 1.2 | 55-608176 | 200 | 1000 | 1090 | 20 | 8 | 1958 |
| 2.1 | 55-606532 | 250 | 1025 | 1000 | 20 | 12 | 1954 |
| 2.2 | 55-606530 | 200 | 875 | 750 | 20 | 12 | 1948 |
| 2.3 | 55-606531 | 125 | 500 | 600 | 16 | 10 | 1953 |
| 2.4 | 55-207783 | 200 | 1200 | 1090 | 20 | 10 | 2006 |
| 3.1 | 55-606528 | 500 | 2500 | 1200 | 16 | 14 | 1975 |
| 4.1 | 55-606524 | 325 | 1250 | 1206 | 16 | 10 | 1969 |
| 5.1 | 55-606525 | 300 | 1700 | 760 | 20 | 12 | 2008 |
| 5.2 | 55-606523 | 400 | 1420 | 1000 | 20 | 12 | 1954 |
| 5.3 | 55-606522 | 400 | 1910 | 1206 | 16 | 12 | 1973 |
| 5.4 | 55-606521 | 350 | 1320 | 1176 | 20 | 12 | 1952 |
| 5.5 | 55-606534 | 400 | 1765 | 1215 | 16 | 8 | 1974 |
| 6.1 | 55-574914 | 250 | 1200 | 1200 | 16 | 12 | 1999 |
| 6.2 | 55-606520 | 450 | 1820 | 1317 | 16 | 12 | 1973 |
| 6.3 | 55-606526 | 350 | 1340 | 1006 | 20 | 12 | 1956 |
| 6.4 | 55-606518 | 400 | 750 | 910 | 20 | 12 | 1950 |
| 8.1 | 55-536983 | 250 | 1250 | 1020 | 16 | 12 | 1993 |
| 8.2 | 55-606535 | 350 | 1600 | 1000 | 20 | 12 | 1946/1952 |
| 8.3 | 55-606536 | 500 | 1850 | 1214 | 16 | 12 | 1975 |
| YT | 55-608175 | None | Standby | 1050 | 14 | 10 | 1947 |
| 20A | 55-606537 | None | Standby | N/A | 20 | N/A | 1953 |
| IW | 55-807594 | 125 | 650 | N/A | 16 | 8 | 1998 |

*Arizona Department of Water Resources Identification Number

## OTHER WATER SOURCES

| Name or Description | Capacity (gpm) | Gallons Purchased or Obtained (in thousands) |
|---|---|---|
| | | |

| BOOSTER PUMPS | | FIRE HYDRANTS | |
|---|---|---|---|
| Horsepower | Quantity | Quantity Standard | Quantity Other |
| 75 | 6 | 2,019 | |
| 100 | 16 | | |
| 150 | 7 | | |
| | | | |
| | | | |
| | | | |

| STORAGE TANKS | | PRESSURE TANKS | |
|---|---|---|---|
| Capacity | Quantity | Capacity | Quantity |
| 300,000 | 5 | 5,000 | 10 |
| 460,000 | 2 | 10,000 | 11 |
| 680,000 | 2 | | |
| 1,250,000 | 4 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Sun City | ADEQ Public Water System Number: | 04-07-099 |

## WATER COMPANY PLANT DESCRIPTION (CONTINUED)

**MAINS**

| Size (in inches) | Material | Length (in feet) |
|---|---|---|
| 1 | Various | 971.00 |
| 1 1/4 | Various | 1,204.00 |
| 1 1/2 | Various | 11,992 |
| 2 | Various | 13,452.00 |
| 3 | Various | 12,719 |
| 4 | Various | 168,074 |
| 6 | Various | 792,815 |
| 8 | Various | 262,048 |
| 10 | Various | 112,586 |
| 12 | Various | 221,323 |
| 14 | Various | 367 |
| 16 | Various | 22,276 |
| 18 | Various | 2,449 |
| Undetermined | Various | 9,423 |
| | | |
| | TOTAL = | 1,631,699 |

**CUSTOMER METERS**

| Size (in inches) | Quantity |
|---|---|
| 5/8 X 3/4 | 19,411 |
| 3/4 | 828 |
| 1 | 539 |
| 1 1/2 | 1,608 |
| 2 | 623 |
| 3 | 22 |
| 4 | 4 |
| 5 | |
| 6 | 10 |
| 7 | |
| 8 | 1 |
| Unknown | |
| | |
| | |
| | |
| TOTAL = | 23,046 |

**For the following three items, list the utility owned assets in each category.**

TREATMENT EQUIPMENT:

Gas chlorination equipment and enclosures

STRUCTURES:

Buildings and enclosures associated with wells and booster stations

OTHER:

N/A

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Tierra Del Rio | ADEQ Public Water System Number: | 04-07-532 |

# WATER COMPANY PLANT DESCRIPTION

## WELLS

| | ADWR ID Number* | Pump Horsepower | Pump Yield (Gpm) | Casing Depth (Feet) | Casing Diameter (Inches) | Meter Size (inches) | Year Drilled |
|---|---|---|---|---|---|---|---|
| 9.2 | 55-205600 | 88 | 550 | 984 | 18 | 6 | 2005 |
| 9.3 | 55-207076 | 125 | 1100 | 682 | 18 | 8 | 2006 |
| 9.4 | 55-211616 | 125 | 700 | 777 | 18 | 8 | 2006 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

*Arizona Department of Water Resources Identification Number

## OTHER WATER SOURCES

| Name or Description | Capacity (gpm) | Gallons Purchased or Obtained (in thousands) |
|---|---|---|
| | | |
| | | |

| BOOSTER PUMPS | | FIRE HYDRANTS | |
|---|---|---|---|
| Horsepower | Quantity | Quantity Standard | Quantity Other |
| 60 | 3 | 91 | |
| 100 | 3 | | |
| | | | |
| | | | |
| | | | |

| STORAGE TANKS | | PRESSURE TANKS | |
|---|---|---|---|
| Capacity | Quantity | Capacity | Quantity |
| 1,500,000 | 1 | 15,000 | 1 |
| | | | |
| | | | |
| | | | |
| | | | |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Tierra Del Rio | ADEQ Public Water System Number: | 04-07-532 |

## WATER COMPANY PLANT DESCRIPTION (CONTINUED)

**MAINS**

| Size (in inches) | Material | Length (in feet) |
|---|---|---|
| 2 | Various | 14 |
| 4 | Various | |
| 6 | Various | 1,470 |
| 8 | Various | 18,743 |
| 10 | Various | |
| 12 | Various | 15,916 |
| 14 | Various | |
| 16 | Various | 10,730 |
| 18 | Various | |
| 20 | Various | |
| | | |
| Undetermined | Various | 23 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | **TOTAL =** | **46,896** |

**CUSTOMERS METERS**

| Size (in inches) | Quantity |
|---|---|
| 5/8 X 3/4 | |
| 3/4 | 77 |
| 1 | 8 |
| 1 1/2 | 3 |
| 2 | 17 |
| 3 | 1 |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| | |
| Unknown | |
| | **106** |

**For the following three items, list the utility owned assets in each category.**

TREATMENT EQUIPMENT:
Sodium Hypochlorite generation system

STRUCTURES:
Buildings and enclosures associated with wells and booster stations

OTHER:

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Arizona Gateway | ADEQ Public Water System Number: | 04-08-163 |

# WATER COMPANY PLANT DESCRIPTION

## WELLS

| ADWR ID Number* | Pump Horsepower | Pump Yield (Gpm) | Casing Depth (Feet) | Casing Diameter (Inches) | Meter Size (inches) | Year Drilled |
|---|---|---|---|---|---|---|
| 55-586016 | 8 | 35 | 695 | 8 | 2 | 2003 |
| 55-200219 | 60 | 300 | | | | 2007 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

*Arizona Department of Water Resources Identification Number

## OTHER WATER SOURCES

| Name or Description | Capacity (gpm) | Gallons Purchased or Obtained (in thousands) |
|---|---|---|
| | | |
| | | |

| BOOSTER PUMPS | | FIRE HYDRANTS | |
|---|---|---|---|
| Horsepower | Quantity | Quantity Standard | Quantity Other |
| 40 | 4 | | |
| | | | |
| | | | |
| | | | |

| STORAGE TANKS | | PRESSURE TANKS | |
|---|---|---|---|
| Capacity | Quantity | Capacity | Quantity |
| 350,000 | 1 | 120 | 3 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Arizona Gateway | ADEQ Public Water System Number: | 04-08-163 |

# WATER COMPANY PLANT DESCRIPTION (CONTINUED)

**MAINS**

| Size (in inches) | Material | Length (in feet) |
|---|---|---|
| 2 | Various | |
| 3 | Various | |
| 4 | Various | |
| 5 | Various | |
| 6 | Various | 23 |
| 8 | Various | 2,181 |
| 10 | Various | 1,478 |
| 12 | Various | 2,680 |
| 16 | Various | 148 |
| 18 | Various | |
| Undetermined | Various | 6,775 |
| | | |
| | **TOTAL =** | **13,285** |

**CUSTOMER METERS**

| Size (in inches) | Quantity |
|---|---|
| 5/8 X 3/4 | 4 |
| 3/4 | |
| 1 | |
| 1 1/2 | |
| 2 | 6 |
| 3 | |
| 4 | |
| 6 | |
| | |
| | |
| | |
| | |
| **TOTAL** | **10** |

**For the following three items, list the utility owned assets in each category.**

TREATMENT EQUIPMENT:

STRUCTURES:

OTHER:

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Mohave | ADEQ Public Water System Number: | 04-08-032 |

# WATER COMPANY PLANT DESCRIPTION

## WELLS

| ADWR ID Number* | Pump Horsepower | Pump Yield (Gpm) | Casing Depth (Feet) | Casing Diameter (Inches) | Meter Size (inches) | Year Drilled |
|---|---|---|---|---|---|---|
| 55-506309 | 250 | 1,400 | 515 | 16 | 6 | 1983 |
| 55-509446 | 75 | 500 | 602 | 14 | 12 | 1985 |
| 55-519149 | 100 | 2,100 | 280 | 18 | 12 | 1987 |
| 55-603415 | 25 | 112 | 200 | 16 | 6 | Unknown |
| 55-603472 | 75 | 600 | 610 | 12-10 | 8 | 1975 |
| 55-603473 | 200 | 2,150 | 400 | 14-16 | 8 | 1970 |
| 55-603474 | 18 | 450 | 101 | 16 | 6 | 1959 |
| 55-603476 | None | 250 | 115 | 8 | None | 1961 |
| 55-603477 | 40 | 350 | 450 | 12 | 6 | 1975 |
| 55-603478 | 8 | 83 | 157 | 12 | 3 | Unknown |
| 55-603479 | 20 | 220 | 580 | 12 | 6 | Unknown |

*Arizona Department of Water Resources Identification Number

## OTHER WATER SOURCES

| Name or Description | Capacity (gpm) | Gallons Purchased or Obtained (in thousands) |
|---|---|---|
| | | |
| | | |

| BOOSTER PUMPS | | FIRE HYDRANTS | |
|---|---|---|---|
| Horsepower | Quantity | Quantity Standard | Quantity Other |
| 1.5 | 2 | | |
| 15 | 5 | | |
| 20 | 2 | | |
| 50 | 5 | | |
| 100 | 5 | | |
| | | | |

| STORAGE TANKS | | PRESSURE TANKS | |
|---|---|---|---|
| Capacity | Quantity | Capacity | Quantity |
| 35,000 | 1 | 70 | 1 |
| 123,000 | 1 | 3,000 | 1 |
| 200,000 | 1 | 5,000 | 2 |
| 250,000 | 2 | 10,000 | 1 |
| 300,000 | 1 | | |
| 424,000 | 1 | | |
| 500,000 | 1 | | |
| 750,000 | 1 | | |
| 1,000,000 | 3 | | |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Mohave | ADEQ Public Water System Number: | 04-08-032 |

# WATER COMPANY PLANT DESCRIPTION (CONTINUED)

**MAINS**

| Size (in inches) | Material | Length (in feet) |
|---|---|---|
| 2 | Various | 14,037 |
| 3 | Various | 74,380 |
| 4 | Various | 214,839 |
| 6 | Various | 416,079 |
| 8 | Various | 208,575 |
| 10 | Various | 16,900 |
| 12 | Various | 88,703 |
| 16 | Various | 3,025 |
| 18 | Various | 1,176 |
| 24 | Various | 126 |
| Undetermined | Various | 6,505 |
| | | |
| | **TOTAL =** | **1,044,344** |

**CUSTOMER METERS**

| Size (in inches) | Quantity |
|---|---|
| 5/8 X 3/4 | 15,925 |
| 3/4 | 12 |
| 1 | 370 |
| 1 1/2 | 6 |
| 2 | 439 |
| 3 | 25 |
| 4 | 5 |
| 6 | 4 |
| | |
| | |
| | |
| | |
| **TOTAL** | **16,786** |

**For the following three items, list the utility owned assets in each category.**

TREATMENT EQUIPMENT:

| Gas chlorination equipment w/enclosures |
|---|
| |
| |
| |
| |

STRUCTURES:

| Buildings and enclosures associated with wells and booster stations, building utilized as an |
|---|
| operations center. Administrative building/office. |
| |
| |
| |

OTHER:

| |
|---|
| |
| |
| |
| |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Camp Mohave | ADEQ Public Water System Number: | 04-08-037 |

# WATER COMPANY PLANT DESCRIPTION

## WELLS

| ADWR ID Number* | Pump Horsepower | Pump Yield (Gpm) | Casing Depth (Feet) | Casing Diameter (Inches) | Meter Size (inches) | Year Drilled |
|---|---|---|---|---|---|---|
| 55-559559 | 20 | 500 | 312 | 8 | 4 | 1996 |
| 55-603416 | None | 55 | 200 | 8 | None | Unknown |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

*Arizona Department of Water Resources Identification Number

## OTHER WATER SOURCES

| Name or Description | Capacity (gpm) | Gallons Purchased or Obtained (in thousands) |
|---|---|---|
| | | |
| | | |

| BOOSTER PUMPS | | FIRE HYDRANTS | |
|---|---|---|---|
| Horsepower | Quantity | Quantity Standard | Quantity Other |
| 15 | 2 | | |
| 40 | 2 | | |
| | | | |
| | | | |
| | | | |

| STORAGE TANKS | | PRESSURE TANKS | |
|---|---|---|---|
| Capacity | Quantity | Capacity | Quantity |
| 250,000 | 1 | 5,000 | 1 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Camp Mohave | ADEQ Public Water System Number: | 04-08-037 |

# WATER COMPANY PLANT DESCRIPTION (CONTINUED)

**MAINS**

| Size (in inches) | Material | Length (in feet) |
|---|---|---|
| 2 | Various | |
| 3 | Various | |
| 4 | Various | 6,930 |
| 5 | Various | |
| 6 | Various | 1,654 |
| 8 | Various | 5,185 |
| 10 | Various | 4,429 |
| 12 | Various | |
| 16 | Various | |
| 18 | Various | |
| | | |
| Undetermined | Various | 34 |
| | **TOTAL =** | **18,232** |

**CUSTOMER METERS**

| Size (in inches) | Quantity |
|---|---|
| 5/8 X 3/4 | 53 |
| 3/4 | |
| 1 | 9 |
| 1 1/2 | |
| 2 | 9 |
| 3 | |
| 4 | |
| 6 | |
| | |
| | |
| | |
| | |
| **TOTAL** | **71** |

**For the following three items, list the utility owned assets in each category.**

TREATMENT EQUIPMENT:

STRUCTURES:

OTHER:

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Desert Foothills | ADEQ Public Water System Number: | 04-08-137 |

# WATER COMPANY PLANT DESCRIPTION

## WELLS

| ADWR ID Number* | Pump Horsepower | Pump Yield (Gpm) | Casing Depth (Feet) | Casing Diameter (Inches) | Meter Size (inches) | Year Drilled |
|---|---|---|---|---|---|---|
| 55-551125 | 10 | 25 | 1,212 | 5 | 2 | 1995 |
| 55-557919 | 150 | 600 | 1,073 | 12 | 12 | 1996 |
| 55-903585 | 100 | 210 | 985 | 17 | 4 | 2006 |
| | | | | | | |
| | | | | | | |
| | | | | | | |

*Arizona Department of Water Resources Identification Number

## OTHER WATER SOURCES

| Name or Description | Capacity (gpm) | Gallons Purchased or Obtained (in thousands) |
|---|---|---|
| | | |
| | | |

| BOOSTER PUMPS | | FIRE HYDRANTS | |
|---|---|---|---|
| Horsepower | Quantity | Quantity Standard | Quantity Other |
| 10 | 5 | | |
| 25 | 1 | | |
| 40 | 1 | | |
| | | | |
| | | | |

| STORAGE TANKS | | PRESSURE TANKS | |
|---|---|---|---|
| Capacity | Quantity | Capacity | Quantity |
| 500,000 | 2 | 3,000 | 1 |
| | | 5,000 | 1 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Desert Foothills | ADEQ Public Water System Number: | 04-08-137 |

# WATER COMPANY PLANT DESCRIPTION (CONTINUED)

**MAINS**

| Size (in inches) | Material | Length (in feet) |
|---|---|---|
| 2 | Various | 3 |
| 3 | Various | |
| 4 | Various | |
| 5 | Various | |
| 6 | Various | 18,025 |
| 8 | Various | 65,591 |
| 10 | Various | 2,715 |
| 12 | Various | 14,290 |
| 16 | Various | |
| 18 | Various | |
| | | |
| Undetermined | Various | 481 |
| | **TOTAL =** | **101,105** |

**CUSTOMER METERS**

| Size (in inches) | Quantity |
|---|---|
| 5/8 X 3/4 | 1,034 |
| 3/4 | 1 |
| 1 | 7 |
| 1 1/2 | |
| 2 | 23 |
| 3 | |
| 4 | 1 |
| 6 | |
| | |
| | |
| | |
| | |
| **TOTAL** | **1,066** |

**For the following three items, list the utility owned assets in each category.**

TREATMENT EQUIPMENT:

STRUCTURES:

OTHER:

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Lake Mohave | ADEQ Public Water System Number: | 04-08-062 |

# WATER COMPANY PLANT DESCRIPTION

## WELLS

| ADWR ID Number* | Pump Horsepower | Pump Yield (Gpm) | Casing Depth (Feet) | Casing Diameter (Inches) | Meter Size (inches) | Year Drilled |
|---|---|---|---|---|---|---|
| 55-548414 | None | 500 | 760 | 24 | None | 1995 |
| 55-556101 | 20 | 150 | 505 | 8 | 4 | 1996 |
| 55-603417 | 20 | 150 | 500 | 10 | 4 | 1973 |
| | | | | | | |
| | | | | | | |
| | | | | | | |

*Arizona Department of Water Resources Identification Number

## OTHER WATER SOURCES

| Name or Description | Capacity (gpm) | Gallons Purchased or Obtained (in thousands) |
|---|---|---|
| | | |
| | | |

| BOOSTER PUMPS | | FIRE HYDRANTS | |
|---|---|---|---|
| Horsepower | Quantity | Quantity Standard | Quantity Other |
| 5 | 2 | | |
| 10 | 1 | | |
| 20 | 1 | | |
| 25 | 3 | | |
| | | | |

| STORAGE TANKS | | PRESSURE TANKS | |
|---|---|---|---|
| Capacity | Quantity | Capacity | Quantity |
| 100,000 | 1 | 1,000 | 1 |
| 123,000 | 1 | 3,000 | 1 |
| 150,000 | 1 | 10,000 | 1 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Lake Mohave | ADEQ Public Water System Number: | 04-08-062 |

# WATER COMPANY PLANT DESCRIPTION (CONTINUED)

**MAINS**

| Size (in inches) | Material | Length (in feet) |
|---|---|---|
| 2 | Various | 477 |
| 3 | Various | 163 |
| 4 | Various | 10,382 |
| 5 | Various | |
| 6 | Various | 9,694 |
| 8 | Various | 4,954 |
| 10 | Various | |
| 12 | Various | |
| 16 | Various | |
| 18 | Various | |
| | | |
| | | |
| | **TOTAL =** | **25,671** |

**CUSTOMER METERS**

| Size (in inches) | Quantity |
|---|---|
| 5/8 X 3/4 | 270 |
| 3/4 | |
| 1 | 6 |
| 1 1/2 | |
| 2 | |
| 3 | |
| 4 | |
| 6 | |
| | |
| | |
| | |
| | |
| **TOTAL** | **276** |

**For the following three items, list the utility owned assets in each category.**

TREATMENT EQUIPMENT:

| AD26 and GAC treatment system to remove Iron and Manganese which is a skid mounted pre-packaged system. |
|---|
| |
| |
| |
| |

STRUCTURES:

| Shade structure to protect the GAC Treatment system. |
|---|
| |
| |
| |
| |

OTHER:

| |
|---|
| |
| |
| |
| |
| |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Rio Vista | ADEQ Public Water System Number: | 04-08-333 |

# WATER COMPANY PLANT DESCRIPTION

## WELLS

| ADWR ID Number* | Pump Horsepower | Pump Yield (Gpm) | Casing Depth (Feet) | Casing Diameter (Inches) | Meter Size (inches) | Year Drilled |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

## OTHER WATER SOURCES

| Name or Description | Capacity (gpm) | Gallons Purchased or Obtained (in thousands) |
|---|---|---|
| Bermuda Water Company | | 14,385 |
| | | |

| BOOSTER PUMPS | | FIRE HYDRANTS | |
|---|---|---|---|
| Horsepower | Quantity | Quantity Standard | Quantity Other |
| | | | |
| | | | |
| | | | |
| | | | |

| STORAGE TANKS | | PRESSURE TANKS | |
|---|---|---|---|
| Capacity | Quantity | Capacity | Quantity |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Rio Vista | ADEQ Public Water System Number: | 04-08-333 |

# WATER COMPANY PLANT DESCRIPTION (CONTINUED)

**MAINS**

| Size (in inches) | Material | Length (in feet) |
|---|---|---|
| 2 | Various | |
| 3 | Various | |
| 4 | Various | |
| 5 | Various | |
| 6 | Various | 8,965 |
| 8 | Various | 4,359 |
| 10 | Various | |
| 12 | Various | 637 |
| 16 | Various | |
| 18 | Various | |
| | | |
| | | |
| | TOTAL = | 13,961 |

**CUSTOMER METERS**

| Size (in inches) | Quantity |
|---|---|
| 5/8 X 3/4 | 121 |
| 3/4 | |
| 1 | 3 |
| 1 1/2 | |
| 2 | |
| 3 | |
| 4 | |
| 6 | |
| | |
| | |
| | |
| | |
| TOTAL | 124 |

**For the following three items, list the utility owned assets in each category.**

TREATMENT EQUIPMENT:

STRUCTURES:

OTHER:

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Paradise Valley | ADEQ Public Water System Number: | 04-07-056 |

## WATER COMPANY PLANT DESCRIPTION

### WELLS

| ADWR ID Number* | Pump Horsepower | Pump Yield (Gpm) | Casing Depth (Feet) | Casing Diameter (Inches) | Meter Size (inches) | Year Drilled |
|---|---|---|---|---|---|---|
| 55-624805 | 300 | 1,900 | 1,396 | 20 - 16 | 12 | 1959 |
| 55-624806 | 300 | 1,400 | 1,301 | 24 - 20 | 12 | 1962 |
| 55-624807 | 350 | 2,400 | 1,743 | 20 - 8 | 10 | 1965 |
| 55-624808 | 350 | 2,100 | 1,430 | 20-18-16 | 10 | 1969 |
| 55-624809 | 350 | 2,400 | 1,500 | 18 | 12 | 1980 |
| 55-537967 | 400 | 2,650 | 1,100 | 20 | 12 | 1993 |
| 55-220510 | 400 | 2,980 | 1,130 | 20 | 12 | 2011 |

*Arizona Department of Water Resources Identification Number

### OTHER WATER SOURCES

| Name or Description | Pump Horsepower | Capacity (gpm) | Gallons Purchased or Obtained (in thousands) |
|---|---|---|---|
| | | | |
| | | | |

| BOOSTER PUMPS | | FIRE HYDRANTS | |
|---|---|---|---|
| Horsepower | Quantity | Quantity Standard | Quantity Other |
| 1.5 | 3 | 657 | |
| 3 | 2 | | |
| 7.5 | 1 | | |
| 10 | 2 | | |
| 15 | 1 | | |
| 20 | 3 | | |
| 30 | 5 | | |
| 40 | 2 | | |
| 60 | 3 | | |
| 125 | 3 | | |
| 400 | 4 | | |
| 600 | 2 | | |

| STORAGE TANKS | | PRESSURE TANKS | |
|---|---|---|---|
| Capacity | Quantity | Capacity | Quantity |
| 22,000 | 1 | 500 | 2 |
| 30,000 | 1 | | |
| 95,000 | 1 | | |
| 100,000 | 1 | | |
| 100,000 | 1 | | |
| 100,000 | 1 | | |
| 200,000 | 1 | | |
| 360,000 | 1 | | |
| 500,000 | 1 | | |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Paradise Valley | ADEQ Public Water System Number: | 04-07-056 |

# WATER COMPANY PLANT DESCRIPTION (CONTINUED)

**MAINS**

| Size (in inches) | Material | Length (in feet) |
|---|---|---|
| 1 | Various | 768 |
| 1.25 | Various | |
| 1.5 | Various | 185 |
| 2 | Various | 5,089 |
| 2 1/2 | Various | 425 |
| 3 | Various | 713 |
| 4 | Various | 88,269 |
| 6 | Various | 280,320 |
| 8 | Various | 176,508 |
| 10 | Various | 2,431 |
| 12 | Various | 58,658 |
| 16 | Various | 42,909 |
| 18 | Various | 62 |
| 20 | Various | 2,925 |
| 24 | Various | 18,058 |
| 30 | Various | 2,617 |
| 36 | Various | 271 |
| 42 | Various | 446 |
| Undetermined | Various | 457 |
| | **TOTAL =** | **681,111** |

**CUSTOMER METERS**

| Size (in inches) | Quantity |
|---|---|
| 5/8 X 3/4 | 2,286 |
| 3/4 | 25 |
| 1 | 2,100 |
| 1 1/2 | 170 |
| 2 | 313 |
| 3 | 4 |
| 4 | 1 |
| 5 | |
| 6 | 5 |
| 7 | |
| 8 | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | **4,904** |

**For the following three items, list the utility owned assets in each category.**

TREATMENT EQUIPMENT:

| |
|---|
| Air Stripping Facility for TCE removal |
| Arsenic Treatment Facility, Sodium Hypochlorite, Ferric Chloride, Polymer |
| |
| |
| |

STRUCTURES:

| |
|---|
| Buildings and enclosures associated with arsenic treatment facility, wells and booster stations |
| |
| |
| |
| |

OTHER:

| |
|---|
| |
| |
| |
| |
| |

| COMPANY NAME | | EPCOR WATER | |
|---|---|---|---|
| Name of System: Tubac | | ADEQ Public Water System Number: | 04-12-001 |

# WATER COMPANY PLANT DESCRIPTION

## WELLS

| ADWR ID Number* | Pump Horsepower | Pump Yield (Gpm) | Casing Depth (Feet) | Casing Diameter (Inches) | Meter Size (inches) | Year Drilled |
|---|---|---|---|---|---|---|
| 55-604370 | 25 | 180 | 204 | 12 | 3 | 1965 |
| 55-604371 | 40 | 300 | 140 | 12 | 4 | 1965 |
| 55-505043 | 75 | 500 | 650 | 16 | 8 | 1983 |
| 55-632901 | 75 | 500 | 302 | 12 | 6 | 1977 |
| | | | | | | |

*Arizona Department of Water Resources Identification Number

## OTHER WATER SOURCES

| Name or Description | Capacity (gpm) | Gallons Purchased or Obtained (in thousands) |
|---|---|---|
| | | |
| | | |

| BOOSTER PUMPS | | FIRE HYDRANTS | |
|---|---|---|---|
| Horsepower | Quantity | Quantity Standard | Quantity Other |
| 5 | 3 | 90 | |
| | | | |
| | | | |
| | | | |

| STORAGE TANKS | | PRESSURE TANKS | |
|---|---|---|---|
| Capacity | Quantity | Capacity | Quantity |
| 50,000 | 1 | 2,000 | 1 |
| | | 5,000 | 4 |
| | | 5,400 | 1 |
| | | | |
| | | | |
| | | | |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Tubac | ADEQ Public Water System Number: | 04-12-001 |

# WATER COMPANY PLANT DESCRIPTION (CONTINUED)

**MAINS**

| Size (in inches) | Material | Length (in feet) |
|---|---|---|
| 1 | Various | 427 |
| 2 | Various | 1,021 |
| 3 | Various | 5,083 |
| 4 | Various | 17,153 |
| 6 | Various | 68,450 |
| 8 | Various | 37,029 |
| 12 | Various | 4,041 |
| | | |
| Undetermined | Various | 4,782 |
| | | |
| | | |
| | | |
| | **Total =** | **137,986** |

**CUSTOMER METERS**

| Size (in inches) | Quantity |
|---|---|
| 5/8 X 3/4 | 561 |
| 3/4 | |
| 1 | 45 |
| 1 1/2 | 2 |
| 2 | 14 |
| 3 | 6 |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| | |
| **TOTAL =** | **628** |

**For the following three items, list the utility owned assets in each category.**

TREATMENT EQUIPMENT:

| |
|---|
| 1 Acc-u-tab chlorinator systems and 3 liquid chlorine pumps |
| 1 Granular Iron Media arsenic treatment system with two vessels |
| |
| |
| |

STRUCTURES:

| |
|---|
| Enclosures associated with wells and boosters |
| Three sheds covering chlorine equipment. 4' X 4', 6' X 10', 10' X 10' |
| |
| |
| |

OTHER:

| |
|---|
| Administrative Trailer |
| 125 kVa on-site generator at Well #4 |
| 100 Kw on-site generator at arsenic treatment facility |
| 75 hp natural gas pump at Well 5 |
| |

# 4b) WASTEWATER

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Sun City | Wastewater Inventory Number (if applicable): | 100339 |

# WASTEWATER COMPANY PLANT DESCRIPTION

## TREATMENT FACILITY

| TYPE OF TREATMENT (Extended Aerations, Step Aerations, Oxidation Ditch, Aerobic Lagoon, Anaerobic Lagoon, Trickling Filter, Septic Tank, Wetland, Etc.) | Treated by the City of Tolleson under a long-term contract |
|---|---|
| **DESIGN CAPACITY OF PLANT** (gallons Per Day | N/A |

## LIFT STATION FACILITIES

| Location | Quantity of Pumps | Horsepower Per Pump | Capacity Per Pump (GPM) | Wet Well Capacity (gals) |
|---|---|---|---|---|
| Baptist Village L.S. 11577 W Peoria Ave | 2 | 7.5 | 100 | 1,700 |
| Youngtown L.S. 11602 W Peoria Ave | 2 | 70 | 1200 | 7,520 |
| 111th Ave L.S. 111th Avenue at Olive | 2 | 3 | 160 | 1,000 |
| Coyote Lakes L.S. 17280 N 115th Ave | 2 | 40 | 500 | 7,000 |
| Citrus Point L.S. 16401 N 115th Ave | 2 | 20 | 500 | 1,200 |
| Paradise Resort L.S. 10950 W Union Hills | 2 | 7.5 | 700 | 7,900 |
| Agua Fria Ranch L.S. 9901 N Agua Fria Pkwy | 2 | 30 | 860 | 6,033 |
| | | | | |

## FORCE MAINS

| Size | Material | Length (in feet) |
|---|---|---|
| 4 inch | Various | 2,945 |
| 6 inch | Various | 2,047 |
| 8 inch | Various | 16,844 |
| 10 inch | Various | 3,699 |
| 12 inch | Various | 21,259 |
| | | |

## MANHOLES / CLEANOUTS

| Type | Quantity | Quantity |
|---|---|---|
| | | |
| Standard | 4,594 | 740 |
| Drop | | |
| | | |

| COMPANY NAME | | EPCOR WATER | |
|---|---|---|---|
| Name of System: Sun City | | Wastewater Inventory Number (if applicable): | 100339 |

## WASTEWATER COMPANY PLANT DESCRIPTION (CONTINUED)

**COLLECTION MAINS**

| Size (in inches) | Material | Length (in feet) |
|---|---|---|
| 4 | Various | 120 |
| 6 | Various | 10,431 |
| 8 | Various | 1,269,462 |
| 10 | Various | 69,402 |
| 12 | Various | 30,822 |
| 15 | Various | 16,263 |
| 18 | Various | 10,415 |
| 21 | Various | 9,378 |
| 24 | Various | 0 |
| 27 | Various | 1,301 |
| 30 | Various | 2,977 |
| 33 | Various | 861 |
| 36 | Various | 854 |
| Undetermined | Various | 22,376 |
| | **TOTAL =** | **1,444,662** |

**SERVICES**

| Size (in inches) | Material | Quantity |
|---|---|---|
| 4 | n/a | n/a |
| 6 | n/a | n/a |
| 8 | n/a | n/a |
| 12 | n/a | n/a |
| 15 | n/a | n/a |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

**For the following three items, list the utility owned assets in each category.**

| | |
|---|---|
| **SOLIDS PROCESSING AND HANDLING FACILITIES** | N/A |
| **DISINFECTION EQUIPMENT** (Chlorinator, Ultra-Violet, etc.) | N/A |
| **FILTRATION EQUIPMENT** (Rapid Sand, Slow Sand, Activated Carbon, etc.) | N/A |
| **STRUCTURES** (Buildings, Fences Etc) | N/A |
| **OTHER** Laboratory Equipment, Tools, Vehicles, Standby Power Generators, Etc. | 99th Avenue metering station, various tools and equipment associated with wastewater collection |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Sun City | Wastewater Inventory Number (if applicable): | 100339 |

## WASTEWATER FLOWS

| MONTH/YEAR | NUMBER OF SERVICES | TOTAL MONTHLY SEWAGE FLOW (MG) | SEWAGE FLOW ON PEAK DAY (MG) |
|---|---|---|---|
| JANUARY | 22,062 | 111.936 | 4.217 |
| FEBRUARY | 22,052 | 101.221 | 4.015 |
| MARCH | 22,054 | 114.980 | 4.016 |
| APRIL | 22,038 | 101.167 | 4.012 |
| MAY | 22,030 | 90.919 | 3.010 |
| JUNE | 22,036 | 86.133 | 3.010 |
| | **TOTALS ->** | **606.356** | |

PROVIDE THE FOLLOWING INFORMATION AS APPLICABLE

| | |
|---|---|
| **Method of Effluent Disposal**<br>(leach field, surface water discharge, reuse, injection wells, groundwater recharge, evaporation ponds, etc.) | **N/A** |
| **Wastewater Inventory Number**<br>(all wasterwater systems are assigned an inventory number) | **100339** |
| **Groundwater Permit Numbers** | **N/A** |
| **ADEQ Aquifer Protection Permit Number** | **N/A** |
| **ADEQ Reuse Permit Number** | **N/A** |
| **EPA NPDES Permit Number** | **N/A** |

| COMPANY NAME | EPCOR WATER | |
|---|---|---|
| Name of System: Mohave Wishing Well | Wastewater Inventory Number (if applicable): | 38-158 |

# WASTEWATER COMPANY PLANT DESCRIPTION

## TREATMENT FACILITY

| TYPE OF TREATMENT<br>(Extended Aerations, Step Aerations, Oxidation Ditch, Aerobic Lagoon, Anaerobic Lagoon, Trickling Filter, Septic Tank, Wetland, Etc.) | Extended aeration, trickling filter |
|---|---|
| **DESIGN CAPACITY OF PLANT**<br>gallons Per Day | 500,000 (Wishing Well Treatment Plant) |

## LIFT STATION FACILITIES

| Location | Quantity of Pumps | Horsepower Per Pump | Capacity Per Pump (GPM) | Wet Well Capacity(gals) |
|---|---|---|---|---|
| Mountain View Drive | 2 | 7.5 | 114 | 2,100 |
| Lago Cove | 2 | 3 | 17 | 1,000 |
| Greens @ Los Lagos | 2 | 15 | 326 | 4,650 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## FORCE MAINS

| Size | Material | Length (in feet) |
|---|---|---|
| 4" Force Main | PVC | |
| 6" Force Main | PVC | |
| | | |
| | | |
| | | |

## MANHOLES / CLEANOUTS

| Type | Quantity | Quantity |
|---|---|---|
| | | |
| Standard | 522 | 23 |
| | | |
| | | |
| | | |
| | | |

| COMPANY NAME | | EPCOR WATER | |
|---|---|---|---|
| Name of System: Mohave Wishing Well | | *Wastewater Inventory Number (if applicable):* | 38-158 |

# WASTEWATER COMPANY PLANT DESCRIPTION (CONTINUED)

**COLLECTION MAINS**

| Size (in inches) | Material | Length (in feet) |
|---|---|---|
| 4 | Various | |
| 6 | Various | |
| 8 | Various | 112,534 |
| 10 | Various | 7,495 |
| 12 | Various | |
| 15 | Various | 6,075 |
| 18 | Various | |
| 21 | Various | |
| 24 | Various | |
| | | |
| | | |
| | | |
| | | |
| Undetermined | Various | 17,613 |
| | | |
| | **TOTAL =** | **143,717** |

**SERVICES**

| Size (in inches) | Material | Quantity |
|---|---|---|
| 4 | n/a | |
| 6 | n/a | |
| 8 | n/a | |
| 12 | n/a | |
| 15 | n/a | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | **TOTAL =** | **0** |

**For the following three items, list the utility owned assets in each category.**

| | |
|---|---|
| **SOLIDS PROCESSING AND HANDLING FACILITIES** | Sludge press |
| **DISINFECTION EQUIPMENT** (Chlorinator, Ultra-Violet, Etc.) | Chlorinator |
| **FILTRATION EQUIPMENT** (Rapid Sand, Slow Sand, Activated Carbon, Etc.) | Slow sand |
| **STRUCTURES** (Buildings, Fences Etc) | 600' chain link fence, building with lab, chlorine building |
| **OTHER** Laboratory Equipment, Tools, Vehicles, Standby Power Generators, etc. | 150 KW Cat gen-set, miscellaneous lab equipment, influent meter, effluent meter. Effluent pump. |

| COMPANY NAME | EPCOR WATER |
|---|---|
| Name of System: Mohave Wishing Well | Wastewater Inventory Number (if applicable): 38-158 |

## WASTEWATER FLOWS

| MONTH/YEAR | NUMBER OF SERVICES | TOTAL MONTHLY SEWAGE FLOW (MG) | SEWAGE FLOW ON PEAK DAY (MG) |
|---|---|---|---|
| July-12 | 1,382 | 6.154 | 0.230 |
| August-12 | 1,381 | 6.474 | 0.261 |
| September-12 | 1,409 | 6.444 | 0.261 |
| October-12 | 1,427 | 6.858 | 0.303 |
| November-12 | 1,435 | 6.674 | 0.251 |
| December-12 | 1,440 | 6.891 | 0.261 |
| January-13 | 1,455 | 7.037 | 0.265 |
| February-13 | 1,455 | 6.534 | 0.271 |
| March-13 | 1,425 | 6.874 | 0.268 |
| April-13 | 1,435 | 6.462 | 0.265 |
| May-13 | 1,428 | 6.309 | 0.239 |
| June-13 | 1,417 | 5.633 | 0.231 |
| | **TOTALS ->** | **78.343** | |

**PROVIDE THE FOLLOWING INFORMATION AS APPLICABLE**

| | |
|---|---|
| **Method of Effluent Disposal**<br>(leach field, surface water discharge, reuse, injection wells, groundwater recharge, evaporation ponds, etc.) | **Re-use** |
| **Wastewater Inventory Number**<br>(all wastewater systems are assigned an inventory number) | **Place ID # 1784**<br>**LTF # 43063** |
| **Groundwater Permit Numbers** | **N/A** |
| **ADEQ Aquifer Protection Permit Number** | **P-102181** |
| **ADEQ Reuse Permit Number** | **N/A** |
| **EPA NPDES Permit Number** | **N/A** |

| COMPANY NAME | EPCOR WATER |
|---|---|
| Name of System: Mohave Arizona Gateway | Wastewater Inventory Number (if applicable): |

# WASTEWATER COMPANY PLANT DESCRIPTION

## TREATMENT FACILITY

| TYPE OF TREATMENT<br>(Extended Aerations, Step Aerations, Oxidation Ditch, Aerobic Lagoon, Anaerobic Lagoon, Trickling Filter, Septic Tank, Wetland, Etc.) | Extended Areation, San-Tec plant |
|---|---|
| **DESIGN CAPACITY OF PLANT**<br>gallons Per Day | 112,000 (Arizona Gateway Treatment Plant) |

## LIFT STATION FACILITIES

| Location | Quantity of Pumps | Horsepower Per Pump | Capacity Per Pump (GPM) | Wet Well Capacity(gals) |
|---|---|---|---|---|
| Effluent Lift pump | 1 | 1.4 | 70 | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## FORCE MAINS

| Size | Material | Length (in feet) |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

## MANHOLES / CLEANOUTS

| Type | Quantity | Quantity |
|---|---|---|
| | | |
| Standard | 37 | |
| | | |
| | | |
| | | |
| | | |

| COMPANY NAME | | EPCOR WATER | |
|---|---|---|---|
| Name of System: Mohave Arizona Gateway | | Wastewater Inventory Number (if applicable): | |

# WASTEWATER COMPANY PLANT DESCRIPTION (CONTINUED)

COLLECTION MAINS

| Size (in inches) | Material | Length (in feet) |
|---|---|---|
| 4 | Various | |
| 6 | Various | |
| 8 | Various | 2,019 |
| 8 | Various | |
| 12 | Various | |
| 15 | Various | 150 |
| 18 | Various | |
| 21 | Various | |
| 24 | Various | |
| | | |
| | | |
| | | |
| | TOTAL = | 2,169 |

SERVICES

| Size (in inches) | Material | Quantity |
|---|---|---|
| 4 | n/a | |
| 6 | PVC | |
| 8 | n/a | |
| 12 | n/a | |
| 15 | n/a | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | TOTAL = | 0 |

**For the following three items, list the utility owned assets in each category.**

| | |
|---|---|
| **SOLIDS PROCESSING AND HANDLING FACILITIES** | N/A |
| **DISINFECTION EQUIPMENT** (Chlorinator, Ultra-Violet, Etc.) | Chlorinator/de-chlorinator |
| **FILTRATION EQUIPMENT** (Rapid Sand, Slow Sand, Activated Carbon, Etc.) | None |
| **STRUCTURES** (Buildings, Fences Etc) | Blower building/chain link fencing |
| **OTHER** Laboratory Equipment, Tools, Vehicles, Standby Power Generators, etc. | Stand by generator |

| COMPANY NAME | EPCOR WATER |
|---|---|
| Name of System: Mohave Arizona Gateway | Wastewater Inventory Number (if applicable): |

## WASTEWATER FLOWS

| MONTH/YEAR | NUMBER OF SERVICES | TOTAL MONTHLY SEWAGE FLOW (MG) | SEWAGE FLOW ON PEAK DAY (MG) |
|---|---|---|---|
| July-12 | 8 | 0.240 | 0.010 |
| August-12 | 8 | 0.241 | 0.011 |
| September-12 | 8 | 0.222 | 0.011 |
| October-12 | 8 | 0.229 | 0.013 |
| November-12 | 8 | 0.227 | 0.009 |
| December-12 | 8 | 0.215 | 0.021 |
| January-13 | 8 | 0.233 | 0.018 |
| February-13 | 8 | 0.200 | 0.010 |
| March-13 | 8 | 0.244 | 0.010 |
| April-13 | 8 | 0.245 | 0.010 |
| May-13 | 8 | 0.254 | 0.010 |
| June-13 | 8 | 0.227 | 0.009 |
| | **TOTALS ->** | **2.776** | |

**PROVIDE THE FOLLOWING INFORMATION AS APPLICABLE**

| | |
|---|---|
| **Method of Effluent Disposal**<br>(leach field, surface water discharge, reuse, injection wells, groundwater recharge, evaporation ponds, etc.) | **Evaporation Ponds** |
| **Wastewater Inventory Number**<br>(all wastewater systems are assigned an inventory number) | **Place ID # 16067**<br>**LTF # 31789** |
| **Groundwater Permit Numbers** | **N/A** |
| **ADEQ Aquifer Protection Permit Number** | **P-105010** |
| **ADEQ Reuse Permit Number** | **N/A** |
| **EPA NPDES Permit Number** | **N/A** |

# 5) Curtailment Tariff
# and
# Cross Connection/Backflow Tariff

EPCOR WATER COMPANY
Item 5 - Curtailment and Cross Connection-Backflow Tariffs

EPCOR Water Arizona's curtailment tariffs for all its districts were filed on October 12, 2007 in compliance with Decision No. 67093. The tariffs were approved by the Commission Staff and became effective on October 24, 2007.

EPCOR Water Arizona's cross-connection control tariffs for all its districts were recently revised to reflect the most recent Commission rules and were administratively approved by the Commission June 16, 2013. The approved tariffs are on file with the Commission, but the tariffs for Mohave Water, Paradise Valley Water, Sun City Water, and Tubac Water districts are attached to this filing as well.

ORIGINAL



# CROSS-CONNECTION OR BACKFLOW TARIFF

PURPOSE:

The purpose of this tariff is to protect EPCOR Water Arizona, Inc.'s Mohave Water District's ("Company") water from the possibility of contamination caused by the backflow of contaminants that may be present on the customer's premises by requiring the installation and periodic testing of backflow-prevention assemblies pursuant to the provisions of the Arizona Administrative Code ("A.A.C.") R14-2-405.B.6 and A.A.C. R18-4-215.

REQUIREMENTS:

In compliance with the Rules of the Arizona Corporation Commission ("Commission") and the Arizona Department of Environmental Quality ("ADEQ"), specifically A.A.C. R14-2-405.B.6 and A.A.C. R18-4-215 relating to backflow prevention:

1. The Company may require a customer to pay for and to have installed a backflow-prevention assembly if A.A.C. R18-4-215.B or C applies.

2. A backflow-prevention assembly required to be installed by the customer under Paragraph 1 of this tariff shall comply with the requirements set forth in A.A.C. R18-4-215.D and E.

3. Subject to the provisions of A.A.C. R14-2-407 and 410, and in accordance with Paragraphs 1 and 7 of this tariff, the Company may terminate service or may deny service to a customer who fails to install a backflow-prevention assembly as required by this tariff.

4. The Company shall give any existing customer who is required to install a backflow-prevention assembly written notice of said requirement. If A.A.C. R14-2-410.B.1.a. is **not** applicable, the customer shall be given thirty (30) days from the time such written notice is received in which to comply with this notice. If the customer can show good cause as to why he cannot install the backflow-prevention assembly within thirty (30) days, the Company or Commission Staff may suspend this requirement for a reasonable period of time.



ADMINISTRATIVELY APPROVED FOR FILING

Effective Date: June 16, 2023

ORIGINAL



5. Testing shall be in conformance with the requirements of A.A.C. R18-4-215.F. The Company may require the customer to pay to have the backflow-prevention assembly tested as long as the Company does not require an unreasonable number of tests.

6. The customer shall provide the Company with records of installation and testing. For each backflow-prevention assembly, these records shall include:

   a. assembly identification number and description;
   b. location
   c. date(s) of test(s);
   d. description of repairs and recommendations for repairs made by tester; and
   e. the tester's name and certificate number.

7. In the event the backflow-prevention assembly does not function properly or fails any test, and an obvious hazard as contemplated under A.A.C. R14-2-410.B.1.a. exists, the Company may terminate service immediately and without notice. The backflow-prevention assembly shall be repaired or replaced by the customer and retested.

8. In the event the backflow-prevention assembly does not function properly or fails any test, or in the event that a customer fails to comply with the testing requirement, and A.A.C. R14-2-410.B.1.a. is **not** applicable, the backflow-prevention assembly shall be repaired or replaced within fourteen (14) days of the initial discovery of the deficiency in the assembly or its function. Failure to remedy the deficiency or dysfunction of the assembly, or failure to retest, shall be grounds for termination of water service in accordance with A.A.C. R14-2-410.

ORIGINAL



# CROSS-CONNECTION OR BACKFLOW TARIFF

PURPOSE:

The purpose of this tariff is to protect EPCOR Water Arizona, Inc.'s Paradise Valley Water District's ("Company") water from the possibility of contamination caused by the backflow of contaminants that may be present on the customer's premises by requiring the installation and periodic testing of backflow-prevention assemblies pursuant to the provisions of the Arizona Administrative Code ("A.A.C.") R14-2-405.B.6 and A.A.C. R18-4-215.

REQUIREMENTS:

In compliance with the Rules of the Arizona Corporation Commission ("Commission") and the Arizona Department of Environmental Quality ("ADEQ"), specifically A.A.C. R14-2-405.B.6 and A.A.C. R18-4-215 relating to backflow prevention:

1. The Company may require a customer to pay for and to have installed a backflow-prevention assembly if A.A.C. R18-4-215.B or C applies.

2. A backflow-prevention assembly required to be installed by the customer under Paragraph 1 of this tariff shall comply with the requirements set forth in A.A.C. R18-4-215.D and E.

3. Subject to the provisions of A.A.C. R14-2-407 and 410, and in accordance with Paragraphs 1 and 7 of this tariff, the Company may terminate service or may deny service to a customer who fails to install a backflow-prevention assembly as required by this tariff.

4. The Company shall give any existing customer who is required to install a backflow-prevention assembly written notice of said requirement. If A.A.C. R14-2-410.B.1.a. is **not** applicable, the customer shall be given thirty (30) days from the time such written notice is received in which to comply with this notice. If the customer can show good cause as to why he cannot install the backflow-prevention assembly within thirty (30) days, the Company or Commission Staff may suspend this requirement for a reasonable period of time.



ADMINISTRATIVELY APPROVED FOR FILIN(

Effective Date: June 16, 2013

ORIGINAL



5. Testing shall be in conformance with the requirements of A.A.C. R18-4-215.F. The Company may require the customer to pay to have the backflow-prevention assembly tested as long as the Company does not require an unreasonable number of tests.

6. The customer shall provide the Company with records of installation and testing. For each backflow-prevention assembly, these records shall include:

   a. assembly identification number and description;
   b. location
   c. date(s) of test(s);
   d. description of repairs and recommendations for repairs made by tester; and
   e. the tester's name and certificate number.

7. In the event the backflow-prevention assembly does not function properly or fails any test, and an obvious hazard as contemplated under A.A.C. R14-2-410.B.1.a. exists, the Company may terminate service immediately and without notice. The backflow-prevention assembly shall be repaired or replaced by the customer and retested.

8. In the event the backflow-prevention assembly does not function properly or fails any test, or in the event that a customer fails to comply with the testing requirement, and A.A.C. R14-2-410.B.1.a. is **not** applicable, the backflow-prevention assembly shall be repaired or replaced within fourteen (14) days of the initial discovery of the deficiency in the assembly or its function. Failure to remedy the deficiency or dysfunction of the assembly, or failure to retest, shall be grounds for termination of water service in accordance with A.A.C. R14-2-410.

ORIGINAL



# CROSS-CONNECTION OR BACKFLOW TARIFF

PURPOSE:

The purpose of this tariff is to protect EPCOR Water Arizona, Inc.'s Sun City Water District's ("Company") water from the possibility of contamination caused by the backflow of contaminants that may be present on the customer's premises by requiring the installation and periodic testing of backflow-prevention assemblies pursuant to the provisions of the Arizona Administrative Code ("A.A.C.") R14-2-405.B.6 and A.A.C. R18-4-215.

REQUIREMENTS:

In compliance with the Rules of the Arizona Corporation Commission ("Commission") and the Arizona Department of Environmental Quality ("ADEQ"), specifically A.A.C. R14-2-405.B.6 and A.A.C. R18-4-215 relating to backflow prevention:

1. The Company may require a customer to pay for and to have installed a backflow-prevention assembly if A.A.C. R18-4-215.B or C applies.

2. A backflow-prevention assembly required to be installed by the customer under Paragraph 1 of this tariff shall comply with the requirements set forth in A.A.C. R18-4-215.D and E.

3. Subject to the provisions of A.A.C. R14-2-407 and 410, and in accordance with Paragraphs 1 and 7 of this tariff, the Company may terminate service or may deny service to a customer who fails to install a backflow-prevention assembly as required by this tariff.

4. The Company shall give any existing customer who is required to install a backflow-prevention assembly written notice of said requirement. If A.A.C. R14-2-410.B.1.a. is **not** applicable, the customer shall be given thirty (30) days from the time such written notice is received in which to comply with this notice. If the customer can show good cause as to why he cannot install the backflow-prevention assembly within thirty (30) days, the Company or Commission Staff may suspend this requirement for a reasonable period of time.

ORIGINAL



5. Testing shall be in conformance with the requirements of A.A.C. R18-4-215.F. The Company may require the customer to pay to have the backflow-prevention assembly tested as long as the Company does not require an unreasonable number of tests.

6. The customer shall provide the Company with records of installation and testing. For each backflow-prevention assembly, these records shall include:

   a. assembly identification number and description;
   b. location
   c. date(s) of test(s);
   d. description of repairs and recommendations for repairs made by tester; and
   e. the tester's name and certificate number.

7. In the event the backflow-prevention assembly does not function properly or fails any test, and an obvious hazard as contemplated under A.A.C. R14-2-410.B.1.a. exists, the Company may terminate service immediately and without notice. The backflow-prevention assembly shall be repaired or replaced by the customer and retested.

8. In the event the backflow-prevention assembly does not function properly or fails any test, or in the event that a customer fails to comply with the testing requirement, and A.A.C. R14-2-410.B.1.a. is **not** applicable, the backflow-prevention assembly shall be repaired or replaced within fourteen (14) days of the initial discovery of the deficiency in the assembly or its function. Failure to remedy the deficiency or dysfunction of the assembly, or failure to retest, shall be grounds for termination of water service in accordance with A.A.C. R14-2-410.



ADMINISTRATIVELY APPROVED FOR FILING

Effective Date: June 16, 2013

ORIGINAL

Company Name: EPCOR Water Arizona, Inc. 

# CROSS-CONNECTION OR BACKFLOW TARIFF

PURPOSE:

The purpose of this tariff is to protect EPCOR Water Arizona, Inc.'s Tubac Water District's ("Company") water from the possibility of contamination caused by the backflow of contaminants that may be present on the customer's premises by requiring the installation and periodic testing of backflow-prevention assemblies pursuant to the provisions of the Arizona Administrative Code ("A.A.C.") R14-2-405.B.6 and A.A.C. R18-4-215.

REQUIREMENTS:

In compliance with the Rules of the Arizona Corporation Commission ("Commission") and the Arizona Department of Environmental Quality ("ADEQ"), specifically A.A.C. R14-2-405.B.6 and A.A.C. R18-4-215 relating to backflow prevention:

1. The Company may require a customer to pay for and to have installed a backflow-prevention assembly if A.A.C. R18-4-215.B or C applies.

2. A backflow-prevention assembly required to be installed by the customer under Paragraph 1 of this tariff shall comply with the requirements set forth in A.A.C. R18-4-215.D and E.

3. Subject to the provisions of A.A.C. R14-2-407 and 410, and in accordance with Paragraphs 1 and 7 of this tariff, the Company may terminate service or may deny service to a customer who fails to install a backflow-prevention assembly as required by this tariff.

4. The Company shall give any existing customer who is required to install a backflow-prevention assembly written notice of said requirement. If A.A.C. R14-2-410.B.1.a. is **not** applicable, the customer shall be given thirty (30) days from the time such written notice is received in which to comply with this notice. If the customer can show good cause as to why he cannot install the backflow-prevention assembly within thirty (30) days, the Company or Commission Staff may suspend this requirement for a reasonable period of time.

ORIGINAL



5. Testing shall be in conformance with the requirements of A.A.C. R18-4-215.F. The Company may require the customer to pay to have the backflow-prevention assembly tested as long as the Company does not require an unreasonable number of tests.

6. The customer shall provide the Company with records of installation and testing. For each backflow-prevention assembly, these records shall include:

   a. assembly identification number and description;
   b. location
   c. date(s) of test(s);
   d. description of repairs and recommendations for repairs made by tester; and
   e. the tester's name and certificate number.

7. In the event the backflow-prevention assembly does not function properly or fails any test, and an obvious hazard as contemplated under A.A.C. R14-2-410.B.1.a. exists, the Company may terminate service immediately and without notice. The backflow-prevention assembly shall be repaired or replaced by the customer and retested.

8. In the event the backflow-prevention assembly does not function properly or fails any test, or in the event that a customer fails to comply with the testing requirement, and A.A.C. R14-2-410.B.1.a. is **not** applicable, the backflow-prevention assembly shall be repaired or replaced within fourteen (14) days of the initial discovery of the deficiency in the assembly or its function. Failure to remedy the deficiency or dysfunction of the assembly, or failure to retest, shall be grounds for termination of water service in accordance with A.A.C. R14-2-410.

# Hubbard Direct

**BEFORE THE ARIZONA CORPORATION COMMISSION**

COMMISSIONERS

BOB STUMP - Chairman
GARY PIERCE
BRENDA BURNS
BOB BURNS
SUSAN BITTER SMITH

| | |
|---|---|
| IN THE MATTER OF THE APPLICATION OF EPCOR WATER ARIZONA INC., AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES FOR UTILITY SERVICE BY ITS MOHAVE WATER DISTRICT, PARADISE VALLEY WATER DISTRICT, SUN CITY WATER DISTRICT, TUBAC WATER DISTRICT, AND MOHAVE WASTEWATER DISTRICT. | DOCKET NO: WS-01303A-14-0010 |

# DIRECT TESTIMONY OF SHERYL L. HUBBARD

**March 7, 2014**

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## EXECUTIVE SUMMARY

Sheryl L. Hubbard testifies that:

EPCOR Water USA's corporate culture stressing customer service, operational safety, and keeping costs at or below budget for capital projects was integrated into the operations of all of the operating units acquired from American Water Company in early 2012. Annually, all employees develop measurable goals to provide safe and reliable water and wastewater services to our customers. These goals focus on customer service targets for responding to customer calls or service requests, reducing avoidable accidents and injuries, and monitoring disbursements to meet daily operations and capital expenditure programs. This new corporate culture not only improves the workplace for our employees, but it first and foremost provides benefits to customers of EPCOR Water USA.

This case includes the water districts of Mohave Water, Paradise Valley Water, Sun City Water, Tubac Water, and Mohave Wastewater. The five district total requested revenue increase is $5.459 million, or 19.6%, and the test year is the period ending June 30, 2013.

The Company has continued to make necessary capital investments to adequately provide water and wastewater service to its customers, and it has experienced increases in its operations and maintenance expenses since the previous test years for these districts.

The primary increased investment and expenses in the years since the previous test years for these districts include investments in wells, an arsenic treatment plant, additional depreciation expense associated with additional utility plant in service, and increased labor and labor related expenses associated with increased activities across many

functions resulting from a reduction in management fees from American Water and the establishment of services in Phoenix.

EWAZ's cost of capital is not less than 6.87%. The average cost of long-term debt is 4.29% and the cost of equity is 10.70%.

EWAZ's proposed rate case expense is $650,000.

**EXHIBIT SLH-1 – Summary of Schedule A-1s, B-1s and C-1s**

**EXHIBIT SLH-2 - Rate Case Expense**

## I. BACKGROUND, QUALIFICATIONS AND EXPERIENCE

**Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND TELEPHONE NUMBER.**

A. My name is Sheryl L. Hubbard. My business address is 2355 W. Pinnacle Peak Road, Phoenix, Arizona 85027, and my business phone number is (623) 445-2419.

**Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

A. I am employed by EPCOR Water USA ("EWUS") as Director, Regulatory and Rates.

**Q. PLEASE DESCRIBE YOUR RESPONSIBILITIES WITH EWUS.**

A. My primary responsibilities with EWUS are to direct the preparation of rate applications and other regulatory filings consistent with the applicable regulatory agency's filing requirements in Arizona and New Mexico. I am also the regulatory liaison between EWUS and the regulators of EPCOR Water Arizona Inc. ("EWAZ") and EPCOR Water New Mexico Inc. ("EWNM") and any public outreach.

**Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND EDUCATION.**

A. I have been employed by EWUS since the purchase of Arizona-American Water Company in February 2012. I was employed by Arizona-American Water Company ("AZAM") commencing in March of 2007.

I have more than 30 years of experience in public utility accounting and regulation; 20 years of service with utility regulatory agencies in Michigan and Arizona with the remainder of time with water and gas utilities in Arizona. During my employment with the regulatory agencies in Michigan and Arizona, my responsibilities included managing and preparing revenue requirement calculations for water, steam and electric utilities.

My subsequent employment has been with Citizens Communications Company, Arizona Water Company, AZAM, and now EWUS. My responsibilities have primarily been in the rates and regulatory areas of all of the utilities, but I also managed the financial planning and analysis function as well as the financial reporting side of the business.

I have a Masters of Business Administration from the University of Phoenix and a Bachelor of Arts degree with a major in Accounting from Michigan State University. I am a licensed, certified public accountant in the states of Arizona and Michigan. I am a member of the Arizona Society of Certified Public Accountants and the American Institute of Certified Public Accountants.

**Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

A. Yes, I have. I have also testified before other regulatory commissions in various jurisdictions.

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?**

A. EWAZ is seeking to increase the rates and charges in its Mohave Water District, Paradise Valley Water District, Sun City Water District, Tubac Water District, and Mohave Wastewater District. My testimony provides a broad overview of the requested relief, and in addition provides support for: a) the requested Rate Base for each district; b) recovery of rate case expense; c) the disposition of balances collected for low-income programs in Mohave Water District and Sun City Water District; d) a new low-income program for customers of Paradise Valley Water District, Tubac Water District, and Mohave Wastewater District; and e) the cost of debt.

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## II. EPCOR WATER ARIZONA INC.'S FINANCIAL CONDITION

**Q. WHAT IS EWAZ'S CURRENT FINANCIAL CONDITION?**

A. AAWC was sold to EWUS and renamed EPCOR Water Arizona Inc. and a new era began February 1, 2012. Although, EWAZ's earnings have improved over the earnings of the period from 2001 to 2009 when it was AZAM, EWAZ is still not recovering the rates of return authorized by the Commission under present rates. Table 1 below shows the returns on equity earned from 2001 to 2011 pre-EWAZ, and Table 2 below shows the returns on equity for EWAZ through the end of the test year.

**Table 1 AAWC's Historical ROE**

| Historical ROE (%) | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ROE | -0.83% | 2.25% | 0.71% | -19.05% | -1.48% | -4.04% | -2.16% | -2.15% | -0.06% | 1.49% | 6.30% |

**Table 2 EWAZ's Historical ROE**

| | EWAZ's ROE% | |
|---|---|---|
| | 2012 | 6/30/2013 |
| ROE | 6.30% | 6.50% |

From Table 2 above, it is evident that the financial health of EWAZ still requires additional rate relief if EWAZ is to have a reasonable opportunity to earn its authorized rate of return on its investment.

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**Q. HAS EWAZ IMPLEMENTED ANY PROCEDURES TO CONTROL COST INCREASES DURING ITS OWNERSHIP OF THE COMPANY?**

A. Yes. As part of the transition from American Water, the functions previously provided by the shared services center in New Jersey and St. Louis are now provided by local employees supplemented by limited corporate services from Edmonton, Alberta, Canada, the headquarters of the parent company, EPCOR Utilities, Inc. ("EUI"). Locally provided functions include the Finance, Accounting, Human Resources, Public and Governmental Affairs, Rates and Regulatory, Customer Service, and the Supply Chain functions. Operations, including GIS mapping services, and water testing services are all locally-provided. In the process of expanding the workforce to perform all of the newly-required functions, EWAZ started out by only adding 25 positions to the existing workforce in Arizona. This enabled the Company to determine where additional resources were needed as time progressed. In bringing the Supply Chain function into the local operations, EWAZ has been able to implement a purchase order system for purchasing supplies in conjunction with a focus on developing local vendor relationships to gain better pricing options.

**Q. ARE THE RESULTS OF THESE COST CONTROLLING PROCEDURES REFLECTED IN THE OPERATING EXPENSES REQUESTED IN THIS RATE CASE APPLICATION?**

A. Yes, they are. If you compare Operations and Maintenance ("O&M") expenses with the level of expense requested in the last rate case for each district, you can see that the costs have not increased at the same rate as inflation during the same periods of time. Table 3 below is a comparison of the O&M expenses approved in the last rate case for each of the five districts in this rate case application.

**Table 3 O&M Expense Comparison (Last rate case vs. Current rate case)**

| | TY Last Case | Last Rate Case | Current Rate Case | Increase (Decrease) | |
|---|---|---|---|---|---|
| Mohave Water | 6/30/2010 | $4,474,285 | $4,350,673 | $ (123,612) | -2.76% |
| Paradise Valley Water | 12/31/2007 | $3,578,094 | $4,670,951 | $1,092,857 | 30.54% |
| Sun City Water | 12/31/2008 | $ 6,582,548 | $6,776,112 | $193,564 | 2.94% |
| Tubac Water | 12/31/2007 | $398,293 | $485,261[1] | $86,968 | 21.84% |
| Mohave Wastewater | 12/31/2007 | $549,372 | $672,207 | $122,835 | 22.36% |
| Total O&M Expenses | | $15,582,592 | $17,005,204 | $1,422,612 | 9.13% |

Since the end of the 2007 through the end of the 2012, the United States CPI-U (Urban) has increased only 13.8%.[2] However, the sub-component of the United States CPI-U (Urban) for Water, Sewer and Trash Collection increased 38.7% over the same period. EWAZ has experienced an average increase of 9.13% in the five districts thru prudent management.

## III. COMMUNITY INVESTMENT AND CORPORATE RESPONSIBILITY

**Q. PLEASE DISCUSS EWUS'S POSITION ON COMMUNITY INVESTMENT AND CORPORATE RESPONSIBILITY.**

A. An essential part of EWUS's business philosophy centers around providing A+ customer service and also being actively involved in the communities where we

[1] Total Adjusted Test Year O&M expense of $535,261 less $50,000 amortization of arsenic media replacement costs incurred in other periods.

[2] The US CPI-U equaled 201.8 in December 2006 and 229.5 in June 2013. The US CPI-U Water, Sewer and Trash Collection equaled 139.3 in December 2006 and 196.9 in June 2013.

provide water and wastewater service, and where our employees live or work. This includes supporting and participating in service organizations and community events that contribute to the quality of life in the communities in which we operate. Some examples of events and programs we have recently participated in include Project W.E.T., Join the Chase/Fix-a-Leak Week and the Sun City Fire Department parade. Employees have volunteered time or contributed to the St. Mary's Food Bank and the Salvation Army's Toys for Tots campaign. EWUS also encourages employee volunteerism as part of our commitment to the communities we serve. In 2013, employees contributed to organizations and programs that included United Way and organizations supported through United Way, such as the Boy Scouts of America, Girl Scouts of America, St. Mary's Food Bank, Bullhead City Meals on Wheels, S.T.A.R.S. and St. Mary's Food Bank Alliance. Our employees are actively engaged in the communities we serve, volunteering their own personal time as Boy Scout troop leaders, youth sports coaches, animal rescue volunteers, and volunteering with organizations that support our local first responders and veterans.

**Q. ARE THERE ANY ACTIVITIES PERFORMED BY EWAZ THAT DIRECTLY PROVIDE BENEFITS TO THE CUSTOMERS OF THE COMPANY?**

A. All of the activities discussed in the previous response provide benefits to our customers, but one program that provides a direct reduction to our cost of service for customers is EWAZ's participation in the APS Peak Solutions® Program.

**Q. PLEASE PROVIDE SOME ADDITIONAL DETAILS ON THE APS PEAK SOLUTIONS® PROGRAM.**

A. The APS Peak Solutions® program sponsored by the power company is a way to control the amount of energy consumed based on usage, peak times and planned

reductions and is designed to benefit the Company without impacting availability of power during times of high demand. APS provided an evaluation, on a test program basis for EWAZ specifically, that included recommendations for power reductions, which would result in both use and cost savings for the Company.

Based on the result of the test program, EWAZ has successfully reduced usage in some districts without impacting our service quality to our customers which demonstrates our commitment to sustainability and conservation.

## IV. SUMMARY OF RATE CASE (ALL DISTRICTS)

**Q. WHAT IS EWAZ'S REQUESTED REVENUE REQUIREMENT INCREASE IN THIS CASE?**

A. The application in this case includes the Mohave, Paradise Valley, Sun City, and Tubac water districts, as well as the Mohave Wastewater District. The test year is the twelve months ended June 30, 2013. EWAZ's requested revenue increase, rate base and operating expenses are summarized in Exhibit SLH-1 Summary of Schedule A-1s, B-1s and C-1s. The total requested annual revenue increase is $5.459 million, a combined increase of 19.6%.

**Q. WHY IS EWAZ IS REQUESTING COMMISSION APPROVAL TO INCREASE RATES AT THIS TIME FOR THE DISTRICTS INCLUDED IN THIS RATE APPLICATION?**

A. The Company has made necessary capital investments to continue to provide safe and reliable water service to its customers. Since the time of the last rate case for each of the districts, operations and maintenance expenses have increased even though EWAZ has implemented some cost saving processes to contain costs.

For the Paradise Valley Water District, Tubac Water District, and Mohave Wastewater District, a rate application has not been filed reflecting increased

investment in plant or cost increases in the five and one-half years since the calendar year 2007 test year.

Increases to utility plant in service in the Tubac Water District include plant related to maintaining compliance with Federal water quality standards.

For the Mohave Water District, Sun City Water District, and Tubac Water District, actual June 30, 2013 test year revenues were significantly below the amount previously authorized by the Commission due to continuing declining residential water usage per customer.

Some districts have experienced increases to taxes other than income associated with increases in property taxes.

In addition, EWAZ is seeking authority to implement several new and continuing adjustor mechanisms in this proceeding. The new adjustor mechanisms would provide more timely recovery of increases in costs outside of the Company's direct control such as increases in power costs and employee benefit costs. Along that same line, EWAZ is requesting continuation of its purchased water adjustor mechanisms in its Sun City Water and Paradise Valley Water districts.

In an attempt to simplify our tariffs for the benefit of both customers and customer service representatives, EWAZ is also proposing more consistent Miscellaneous Charges in all districts. By averaging the labor costs and applying a standardized service call time, uniform service charges can be implemented throughout the EWAZ system.

**Q. ANY OTHER RELIEF BEING SOUGHT BY EWAZ IN THIS RATE CASE THAT YOU WOULD LIKE TO MENTION?**

A. Yes. Company witness Ms. Candace Coleman is sponsoring testimony for a System Improvement Benefit Surcharge Mechanism ("SIB") for the Sun City Water District, Mohave Water District, and Paradise Valley Water District.

**Q. WHAT OTHER WITNESSES ARE PROVIDING DIRECT TESTIMONY IN SUPPORT OF EWAZ'S RATE APPLICATION IN THIS PROCEEDING?**

A. The following witnesses are providing direct testimony on the following subject matters in support of EWAZ's rate application:

**Mr. Shawn Bradford** - For the Central Division districts, which include Sun City Water and Tubac Water, Mr. Bradford provides testimony on major utility plant additions since the previous test year for each district, operations, and proposed tank maintenance expenses.

**Mr. Jeffrey Stuck** - For the Eastern Division districts, which include Paradise Valley Water, Mohave Water, and Mohave Wastewater, Mr. Stuck provides testimony on major utility plant additions since the previous test year for each district, operations, and proposed tank maintenance expenses.

**Mr. Jake Lenderking** - Mr. Lenderking provides testimony on water resources and retention of the surcharge mechanisms for purchasing Central Arizona Project water.

**Ms. Candace Coleman** - Ms. Coleman requests approval of a System Improvement Benefits Mechanism ("SIB").

**Mr. Mike Worlton** - Mr. Worlton provides testimony on post test year plant additions.

**Ms. Sandra L. Murrey** - Ms. Murrey provides testimony on various revenue and expense pro forma adjustments.

**Mr. Thomas J. Bourassa** - Mr. Bourassa provides testimony on Cost of Service Study (G Schedules) and H Schedules, and rate design for all districts.

**Ms. Pauline Ahern** - Ms. Ahern provides testimony on cost of equity.

## V. SPONSORED SCHEDULES

**Q. PLEASE IDENTIFY THE SCHEDULES YOU ARE SPONSORING.**

A. I am sponsoring the following schedules for the Company, all of which were either prepared by me or prepared under my direct supervision:

- Schedule A-1 –Computation of Increase In Gross Revenue Requirements
- Schedule A-2 – Summary of Operations
- Schedule A-3 – Summary of Capital Structure
- Schedule A-4 – Construction Expenditures and Gross Utility Plant in Service
- Schedule A-5 – Summary of Cash Flows
- Schedule B-1 – Summary of Fair Value Rate Base
- Schedule B-2 – Original Cost Rate Base Pro Forma Adjustments
- Schedule B-3 – RCND Rate Base Pro Forma Adjustments
- Schedule B-4 – RCND Detail of Plant Accounts
- Schedule B-5 – Computation of Working Capital Allowance
- Schedule B-6 – Lead/Lag Study – Cash Working Capital Requirement
- Schedule D-1 – Summary of Cost of Capital
- Schedule D-2 – Cost of Long-Term Debt
- Schedule D-3 – Cost of Preferred Stock
- Schedule D-4 – Cost of Common Equity

## VI. REVENUE REQUIREMENT – SUMMARY SCHEDULES (A SCHEDULES - ALL DISTRICTS)

**Q. PLEASE EXPLAIN SCHEDULE A-1.**

A. Schedule A-1 titled "Computation of Increase In Gross Revenue Requirements" shows the calculation of the increase in gross revenue and summarizes the change

in gross revenues that the Company has determined is necessary to continue to provide safe and reliable water and wastewater services to its customers while providing the Company an opportunity to earn a reasonable rate of return on its investments dedicated to utility service in these five districts. For purposes of this proceeding, the increase in the gross revenue requirement for the districts included in this rate change application is based on a test year ending June 30, 2013, and totals $5,458,907 as summarized in Table 1 below.

Table 1. Requested Revenue Increase

| | Mohave Water | Paradise Valley Water | Sun City Water | Tubac Water | Mohave Wastewater | Total |
|---|---|---|---|---|---|---|
| **Increase in Gross Revenue Requirement** | **$1,983,872** | **$950,774** | **$1,646,454** | **$410,000** | **$467,806** | **$5,458,907** |

**Q. PLEASE EXPLAIN SCHEDULE A-2.**

A. Schedule A-2 titled "Summary Results of Operations" contains operating history for the unadjusted and adjusted test year ended June 30, 2013, 2012, and 2011 as well as projected year 2014 for the each district. The test year 2013 figures on this exhibit are presented as recorded in the accounting records of the Company and are also adjusted for the pro forma changes identified in the Company's application.

**Q. PLEASE EXPLAIN SCHEDULE A-3.**

A. Schedule A-3 titled "Summary of Capital Structure" summarizes the debt and equity of the Company allocated to the individual districts for test year ending June 30, 2013, 2012, and 2011 as well as projected year 2014. The test year 2013 figures are presented unadjusted as well as adjusted for pro forma changes recommended in the Company's application.

**Q. PLEASE EXPLAIN SCHEDULE A-4.**

A. Schedule A-4 is titled "Construction Expenditures and Gross Utility Plant in

Service". This exhibit presents the historical construction expenditures for test year ending June 30, 2013, 2012, and 2011, as well as three years of projected expenditures for the district. This schedule also contains annual cost data for net plant placed in service and balances of gross utility plant in service for the same time periods shown for construction expenditures. Company witness Mike Worlton is sponsoring the explanation of construction expenditures in this proceeding.

**Q. PLEASE EXPLAIN SCHEDULE A-5.**

A. For each district, Schedule A-5 titled "Summary of Cash Flows" is a statement of cash flows detailing the changes in the cash accounts for test year ending June 30, 2013, 2012, and 2011.

## VII. RATE BASE SCHEDULES (B SCHEDULES - ALL DISTRICTS)

**Q. PLEASE EXPLAIN SCHEDULE B-1.**

A. Schedule B-1 titled "Summary of Fair Value Rate Base" sets forth the Summary of Fair Value Rate Base for each district as of the end of the test year ending June 30, 2013. Rate Base represents the investor-supplied plant facilities and other investments required to provide utility service to customers. The components typically recognized in the calculation of rate base are plant in service, accumulated depreciation and amortization, customer advances in aid of construction ("AIAC"), contributions in aid of construction ("CIAC"), customer deposits, deferred income tax liabilities/investment tax credits also known as ADITS (if applicable), and working capital. Other items that may be considered in the calculation of rate base on a case-by-case basis include regulatory assets (also referred to as deferred debits), regulatory liabilities, acquisition adjustments and construction work in progress.

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Net Plant, plant in service less the associated accumulated depreciation and amortization, is generally the largest component of rate base. Rate base is computed by offsetting Net Plant by AIAC, CIAC-Net of Amortizations, and ADITs. The accumulated balance of AIAC is shown on Line 12 of Schedule B-1. Line 15 of Schedule B-1 shows the CIAC, net of applicable amortizations, for EWAZ. Line 17 shows the amount of Customer Deposits at the end of the test year and Line 18 of the schedule shows the ADITs as of the end of the test year. Paradise Valley Water District is the only district in this proceeding that has Investment Tax Credits remaining on its accounting records and the associated balance has been included as a reduction in the calculation of Rate Base for that district, which is shown on Line 19.

The Working Capital Allowance that is shown on Line 24 of Schedule B-1 is supported by calculations on Schedule B-5 and will be discussed later in this testimony. For ratemaking purposes, a working capital allowance is developed to adjust rate base to reflect the additional investment required for on-going utility operations over and above the amount reflected in net plant.

The Utility Plant Acquisition Adjustment paid by EWUS when AZAM was purchased from American Water Company has not been included in the calculation of Rate Base for the purposes of this proceeding. Line 25 of Schedule B-1 reflects this exclusion on Line 25 of Schedule B-1.

The Company accepts the use of its Original Cost Rate Base as the Fair Value Rate Base for purposes of this proceeding and did not conduct a study to determine rate base based Reconstructed Cost New Depreciated ("RCND"). Accordingly, there is no RCND summary calculation reflected on Schedule B-1.

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Table 2 below is a summary of the original cost rate base values proposed for each district in this proceeding.

Table 2. Original Cost Rate Base

| | Mohave Water | Paradise Valley Water | Sun City Water | Tubac Water | Mohave Wastewater | Total |
|---|---|---|---|---|---|---|
| **Original Cost Rate Base** | **$23,711,859** | **$40,102,943** | **$25,867,081** | **$1,622,613** | **$5,250,928** | **$96,555,426** |

**Q. PLEASE EXPLAIN SCHEDULE B-2.**

A. Schedule B-2 titled "Original Cost Rate Base Pro Forma Adjustments" is a five-page schedule. This schedule details the pro forma adjustments identified and proposed as necessary to adjust the historical test year-end plant in order to include all investments required to provide satisfactory service to historical test year customers when the rates resulting from this application become effective.

**Q. ARE YOU RECOMMENDING ANY ADJUSTMENTS TO THE TEST YEAR LEVELS OF PLANT IN SERVICE?**

A. Yes. The adjustments that I am recommending to the test year levels of plant are reflected on each district's Schedule B-2. The adjustments for all districts include an adjustment for post test year plant additions (Adj SLH-1), a request for a 24-month deferral of post in service allowance for funds used during construction ("AFUDC") and depreciation expense (Adj SLH-2), a removal of CIAC for plant not in service (Adj SLH-3), and removal of the acquisition premium associated with the purchase of AZAM by EWUS (Adj SLH-4).

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**Q. PLEASE EXPLAIN YOUR ADJUSTMENT SLH-1 – POST TEST YEAR PLANT ADDITIONS.**

A. Adjustment SLH-1 – Post Test Year Plant Additions adjusts Plant in Service to include projects that were completed as of the end of the test year but still in the Construction Work in Progress ("CWIP") account due to delays in recording the completed projects to Plant in Service. In addition to the projects still in CWIP, some additional projects slated to be completed by June 30, 2014 are included as well. Company witness, Mike Worlton discusses the proposed post test year plant additions in greater detail in his direct testimony.

All of the CWIP projects included in Adj-SLH-1 consist entirely of revenue-neutral replacements of current facilities necessary to provide continued quality service to existing customers. Investments in new meters and services that will provide service related to growth have not been included in the proposed rate base adjustments.

**Q. WERE THE CWIP PROJECTS THAT THE COMPANY SEEKS TO INCLUDE IN RATE BASE IN THIS PROCEEDING APPROVED DURING THE COMPANY'S CAPITAL BUDGETING PROCESS?**

A. Yes, they were. As part of its overall strategic business plan, EWAZ prepares a five-year capital investment plan. Each year, the capital investment plan is revisited to identify and prioritize necessary capital improvement projects to ensure safe and reliable water and wastewater utility services, including resolving operational challenges, complying with regulatory requirements, and steps to formalize and approve the annual budget. An assessment of capital improvements completed during the prior year is performed, and adjustments, if applicable, are made in accordance with the remaining years of the current five-year investment plan.

**Q. PLEASE EXPLAIN THE BASIS OF EWAZ'S CAPITAL INVESTMENT PLAN?**

A. The Company's capital investment plan is developed from capital improvements identified in Comprehensive Planning Studies ("CPS") conducted on a district-specific basis. From these studies, capital improvement projects are identified in response to any areas of concern identified in the CPS.

**Q. THANK YOU. PLEASE DISCUSS ADJUSTMENT SLH-2 – 24-MONTH DEFERRAL REQUEST.**

A. Adjustment SLH-2 – 24-Month Deferral Request reflects the effects on Rate Base of deferral accounting for a portion of Post in Service AFUDC and depreciation expense on investment between rate cases. The addition to Rate Base reflects the unamortized balance of deferred Post in Service AFUDC and depreciation expense computed by continuing to compute AFUDC on projects completed on day one of the test year which in this case is July 1, 2012 and accumulating the depreciation expense on those projects from the time they are placed into service. I am sponsoring the calculation of the amortization of the balance using the composite depreciation rates calculated by Company witness Ms. Sandra Murrey on Schedule C-2, Adjustment SM-13 for each district. The amortization of the deferred balance is carried to the income statement pro forma adjustment to Depreciation and Amortization sponsored by Ms. Murrey.

**Q. PLEASE EXPLAIN HOW THE COMPOSITE DEPRECIATION RATE USED TO AMORTIZE THE DEFERRED POST IN SERVICE AFUDC AND DEPRECIATION WAS CALCULATED?**

A. The composite depreciation rate is merely the annualized depreciation expense based on test year end plant in service divided by the test year end depreciable plant in service. The calculation is district specific. Table 3 below shows the

composite depreciation rates used for each of the districts in this case. The Company is not opposed to providing the actual plant in service and associated depreciation expense as the case progresses, but for purposes of this application, an estimate is all that is available at this time.

Table 3. 24- Month Deferral AFUDC and Depreciation Composite Depreciation Rates

| | **Composite Depreciation Rate** |
|---|---|
| Mohave Water | 2.65% |
| Paradise Valley Water | 3.41% |
| Sun City Water | 3.22% |
| Tubac Water | 2.81% |
| Mohave Wastewater | 2.89% |

**Q. PLEASE SUMMARIZE THE COMPANY'S PROPOSED ADJUSTMENTS TO REMOVE DEFERRED DEBITS AND CIAC ASSOCIATED WITH DEVELOPER-FUNDED CWIP AND THE UTILITY PLANT ACQUISITION ADJUSTMENT FROM RATE BASE FOR THE TEST YEAR?**

A. Table 4 sets forth the Company's proposed adjustments to rate base labeled Adj SLH-3 and Adj SLH-4 on Schedule B-2.

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Table 4 – Removal of CIAC not in Plant in Service and Utility Plant Acquisition Adjustment.

| Districts | SLH -3 Removal of CIAC not in Plant in Service | SLH-4 Remove Utility Plant Acquisition Adjustment |
|---|---|---|
| Sun City Water | ($ 854,540) | ($ 3,252,282) |
| Mohave Water | ($ 84,169) | ($ 2,234,523) |
| Paradise Valley Water | ($ 48,632) | ($ 682,202) |
| Tubac Water | ($ 74,010) | ($ 84,345) |
| Mohave Wastewater | ($ 228,459) | ($ 199,566) |
| **Total** | **($ 1,289,810)** | **($ 6,452,918)** |

**Q. PLEASE DISCUSS ADJUSTMENTS ADJ SLH-3 AND ADJ SLH-4 THAT YOU ARE SPONSORING.**

A. Adjustment SLH-3 – Removal of CIAC not in Plant in Service decreases the CIAC balance associated with developer-funded projects that are still in CWIP at the end of the test year. Since these projects were not transferred from CWIP to Utility Plant in Service prior to June 30, 2013, they are not included in the Company's requested Rate Base, and accordingly, the contributions associated with these developer-funded projects should not be reflected as a reduction to the Company's Rate Base.

Adjustment Adj SLH-4 – Remove Plant Acquisition Adjustment eliminates the plant acquisition adjustment from the calculation of Rate Base. When AZAM was acquired by EWUS, an acquisition adjustment was recorded in the accounting records. This adjustment merely removes the acquisition adjustment from inclusion in Rate Base.

**Q. PLEASE EXPLAIN SCHEDULE B-5.**

A. Schedule B-5 provides the Computation of Working Capital Allowance. Working capital is a measure of funding requirements of daily operating expenditures and

other non-plant investments that are necessary to sustain ongoing operations of the utility. This measurement is designed to identify the average ongoing funding requirements of investors for the test year. Working Capital consists of Cash Working Capital derived from a Lead/Lag study, as well as 13-month averages applicable to Required Bank Balances, Inventories, and Prepayments on the Company's Balance Sheet. 13-month averages of the required bank balances, inventories, both plant materials and chemicals, if applicable, and the prepayment balances from the balance sheet have been calculated and are reflected on Schedule B-5.

**Q. PLEASE DISCUSS THE PREPAYMENTS COMPONENT OF THE WORKING CAPITAL REQUIREMENT.**

A. Prepayments are included as a component of working capital to recognize an investment of funds made by a company. Prepayments represent payments of expenses made in advance of the period to which they apply. A 13-month average balance is used to quantify the working capital allowance due to investments in prepayments to be added to the Company's rate base.

**Q. PLEASE DISCUSS THE CASH WORKING CAPITAL COMPONENT OF THE WORKING CAPITAL REQUIREMENT.**

A. Cash working capital should represent the average amount of capital provided by investors, over and above the investment in plant and other rate base items, to finance the cost of service during the time lag before revenues are collected. In conjunction with the other components of rate base, the cash working capital component measures the amount of investor-supplied capital required to provide service. There are several acceptable methods for computing the cash working capital component, but the ACC Staff has adopted the use of the lead/lag methodology for determining cash working capital for large water utilities in this

jurisdiction. The Company's lead/lag cash working capital calculation will be discussed in conjunction with the discussion of Schedule B-6 below.

**Q. PLEASE EXPLAIN SCHEDULE B-6.**

A. Schedule B-6 titled "Lead/Lag Study – Cash Working Capital Requirement" details the calculation of the investor-provided working cash component of the working capital allowance. To compute the working cash component, it is necessary to measure the time lag between services rendered and the receipt of revenues for those services. This measurement, referred to as Revenue Lag Days, reflects a provision of working capital by investors and is shown in Column (C) of Schedule B-6. It is also necessary to measure the time lag between the incurrence of expenses and the payment of those expenses referred to as the Expense Lag Days (Column (D) of Schedule B-6), which offsets the revenue lag. This is referred to as the Net Lag Days and is summarized by expense category in Column (E) of Schedule B-6. When the Revenue Lag Days exceed the Expense Lag Days, there is a net provision of working capital by investors. If the converse is true, there is a net provision of working capital by customers. The cash working capital calculation in this case is based on the adjusted test year results multiplied by the lead/lag factors derived from the exercise discussed above. This is true except for customer accounting, property taxes, and income tax expenses, in which case, the level of expense at the proposed rate levels has been used to account for changes that are impacted by changes in revenue.

## VIII. <u>RATE CASE EXPENSE (ALL DISTRICTS)</u>

**Q. WHAT IS EWAZ'S PROPOSED RATE CASE EXPENSE FOR THIS PROCEEDING?**

A. Exhibit SLH-2 Rate Case Expense displays by our estimated rate case expense of $650,000.

Ms. Murrey sponsors Schedule C-2 income statement adjustment SM-7, which relies on a four-factor allocation of the proposed rate case expense to each district with a three-year amortization period.

**Q. HOW DID YOU ARRIVE AT THIS AMOUNT?**

A. Based on our experience with rate cases before the Commission, and given EWAZ's size and the anticipated nature, length and complexity of the proceedings. If the processing of this application turns out to be more complicated than anticipated, the Company will modify its request to account for the additional incurred expense. Conversely, if the case proceeds as anticipated and rate case expense is lower than expected, we will make an appropriate adjustment downward.

## IX. COST OF CAPITAL SCHEDULES (ALL DISTRICTS)

**Q. WHAT IS THE REQUESTED COST OF CAPITAL IN THIS PROCEEDING?**

A. EWAZ's cost of capital is not less than 6.87%, which is calculated on the D Schedules that I am sponsoring.

**Q. PLEASE DISCUSS SCHEDULES D-1 THROUGH D-4?**

A. Schedules D-1 through D-4 provide the overall cost of capital and its component details – summary of cost of capital (Schedule D-1), cost of debt (Schedule D-2), cost of preferred stock (Schedule D-3), and cost of equity (Schedule D-4) for the total EWAZ as well as for each district.

**Q. WHAT IS THE AMOUNT AND COST OF DEBT?**

A. Schedule D-2 displays an average cost of long-term debt of 4.29%, which has been in effect since the purchase by EWUS of the AZAM districts from American Water Company on February 1, 2012.

**Q. WHAT DEBT ISSUANCES RESULTED FROM THE ACQUISITION BY EWUS?**

A. In Decision No. 72668 issued November 17, 2011, the Commission authorized EWAZ to refinance all of the then existing long-term debt as part of the purchase by EWUS. This was done in 2012 at an interest rate adjusted for issuance costs of 4.29%.

**Q. WHAT IS THE ESTIMATED COST OF EQUITY?**

A. The estimated cost of equity of 10.70%. Ms. Pauline Ahern's Direct Testimony on behalf of the Company supports this cost of equity as fair and reasonable.

## X. NEW ADJUSTOR MECHANISMS

**Q. IS THE COMPANY PROPOSING ANY NEW ADJUSTOR MECHANISMS IN THIS RATE CASE APPLICATION?**

A. Yes. Based upon the uncertainties facing power supply and employee medical expenses, EWAZ is seeking to add a Power Cost Adjustment Mechanism ("PCAM") and an Affordable Care Act Adjustment Mechanism ("ACAM") to its tariffs.

**Q. PLEASE DISCUSS THE BENEFITS OF A PURCHASED POWER ADJUSTMENT MECHANISM FOR CUSTOMERS AND THE COMPANY.**

A. The Commission long ago recognized the benefits of adjuster mechanisms like our proposed PCAM as noted in the following decision:

> *"If purchased power and/or water costs are trending upward, gradually recognizing those increasing cost through incremental rate adjustments sends a more appropriate price signal to users and receives greater customer acceptance than the less frequent, but far larger, rate increases... If purchased power and/or water costs are trending downward, Staff's*

*proposal would delay the refund owing to customers." Decision No. 58120* (December 23, 1992, p. 30).

**Q. ARE THERE ANY OTHER COMPELLING REASONS WHY THE PCAM SHOULD BE AUTHORIZED?**

A. The Commission and the Company share a concern over rate shock. In fact, the current Commission has requested its staff to investigate ways to minimize the impact of a needed rate increase on customer bills. The best way to send appropriate price signals to customers is to enable companies to pass through cost increases and decreases in a more timely fashion. With the proper determination of the base cost of power and a mechanism that includes actual sales volume true ups, an adjustor mechanism can accomplish that goal without harm to customers.

**Q. DOES EWAZ HAVE A RECOMMENDATION OF HOW TO ADMINISTER A PCAM?**

A. Again, I will turn to the Commission which noted from a PCAM type adjuster in a prior decision for Arizona Water Company decision matter.

> *"We still believe that AWC should have a PPAM, and it should be based on gallons pumped and not gallons sold. We recognize that this will not allow AWC to fully collect increased power costs but believe that this will serve as an incentive for AWC to minimize costs. ... As to the PWAM, we believe a similar type of pass-through mechanism, ... will provide sufficient incentive for AWC to hold down costs."* Decision No. 55061 (June 11, 1986 pp. 20-21).

EWAZ also is willing to accept Commission Staff's recommended conditions for approval of a PPAM in the 2013 rate case for Litchfield Park Service Company. There, Commission Staff recommended approval of LPSCO's PPAM subject to two conditions: (1) that the Company provide an annual report on purchased

power; and (2) that Staff calculate an annual increase or decrease, and provide a Recommended Opinion and Order for Commission approval within 30 days of the Company's annual report. Both of these conditions are acceptable to EWAZ.

**Q. ARE YOU ALSO REQUESTING AN ADJUSTMENT MECHANISM FOR EMPLOYEE HEALTH CARE COSTS?**

A. Yes. Medical costs for employees have become quite volatile and unpredictable, two key criteria cited to justify adjustment mechanisms. EWAZ is seeking to establish an adjustor mechanism that would enable the increases or decreases in medical costs for employees to be recovered in a more timely fashion, the ACAM. With the passage of the new health care law, predicting the impact of changes in requirements surrounding employee health care coverage by employers is difficult, if not impossible. An adjustor mechanism would provide protection for both the Company and our customers for changes in this cost.

**Q. DOES EWAZ HAVE A RECOMMENDATION OF HOW TO ADMINISTER AN ACAM?**

A. Yes. Medical costs are based on employee levels and generally include some individual selection criteria. In the case of EWAZ, an average cost per employee has been used to determine the known and measurable expense. The Company recommends using the average cost per employee and the current employee count as the base and provide an adjustment when the average cost per employee changes. Limiting the employee count to the number in the test year would provide an incentive to the Company to control increasing employee levels.

...

...

...

## XI. LOW-INCOME PROGRAMS

**Q. IS EWAZ PROPOSING TO ADD LOW-INCOME PROGRAMS TO TARIFFS IN ANY OF THE DISTRICTS IN THIS PROCEEDING?**

A. Yes. Currently, EWAZ has low-income programs in its Sun City Water and Mohave Water districts; however, the Company is proposing to add low-income programs in the Tubac Water, Paradise Valley Water and Mohave Wastewater districts.

**Q. HOW WILL THE LOW-INCOME PROGRAM BE STRUCTURED IN THESE DISTRICTS?**

A. The existing low-income programs have pre-established participation maximums and a third party assists in screening eligible customers into the programs. For the new programs the Company would propose to continue the use of a third party coordinator and has determined the participation maximums based on 4 percent of the 5/8-inch residential customers. In addition, the proposal contemplates a forty percent discount on the monthly minimum usage charge.

**Q. HOW WILL THE LOW-INCOME DISCOUNT BE RECOVERED BY THE COMPANY?**

A. The cost of the program should be a recoverable charge and the Company has computed a surcharge for each district to be added to the highest block usage rate as discussed in the rate design testimony of Company witness Mr. Thomas J. Bourassa.

**Q. HAS THE COMPANY DETERMINED HOW IT WILL HANDLE OVER- OR UNDER-COLLECTIONS FROM THE SURCHARGE?**

A. Yes. The Company will monitor the annual collections associated with the surcharge applied to the highest usage block and when it has collected sufficient revenue to cover the discounts for the maximum participant levels, the surcharge

for the low-income program will cease. If there are any over- or under- collections, they will be used to offset the subsequent year's low-income program costs.

**Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

A. Yes.

**EPCOR Water Arizona**
Test Year Ended June 30, 2013
Computation of Increase in Gross Revenue Requirement

**EXHIBIT SLH-1**
**Page 1 of 4**

Summary of Schedule A-1's

| Line No. | | Mohave Water | Paradise Valley | Sun City Water | Tubac Water | Mohave Wastewater | Total |
|---|---|---|---|---|---|---|---|
| 1 | Original Cost Rate Base | $23,711,859 | $40,102,943 | $25,867,081 | $1,622,613 | $5,250,928 | $96,555,426 |
| 2 | | | | | | | |
| 3 | Adjusted Operating Income | $ 424,406 | $ 2,176,797 | $ 782,241 | $ (135,672) | $78,532 | $3,326,304 |
| 4 | | | | | | | |
| 5 | Current Rate of Return | 1.79% | 5.43% | 3.02% | -8.36% | 1.50% | 3.44% |
| 6 | | | | | | | |
| 7 | Required Operating Income | $1,629,005 | $2,755,072 | $1,777,068 | $111,474 | $360,739 | $6,633,358 |
| 8 | | | | | | | |
| 9 | Required Rate of Return | 6.87% | 6.87% | 6.87% | 6.87% | 6.87% | 6.87% |
| 10 | | | | | | | |
| 11 | Operating Income Deficiency | $1,204,599 | $578,275 | $994,828 | $247,146 | $282,207 | $3,307,054 |
| 12 | | | | | | | |
| 13 | Gross Revenue Conversion Factor | 1.6469 | 1.6442 | 1.6550 | 1.6589 | 1.6577 | 1.6507 |
| 14 | | | | | | | |
| 15 | **Increase in Gross Revenue** | | | | | | |
| 16 | **Requirement** | **$1,983,872** | **$950,774** | **$1,646,454** | **$410,000** | **$467,806** | **$5,458,907** |
| 17 | | | | | | | |
| 18 | Test Year Adjusted Present Rate Revenue | $ 6,354,293 | $ 9,648,251 | $ 10,265,553 | $ 579,194 | $1,055,839 | $27,903,131 |
| 19 | | | | | | | |
| 20 | Percent Rate Increase | 31.2% | 9.9% | 16.0% | 70.8% | 44.3% | 19.6% |
| 21 | | | | | | | |
| 22 | **Test Year Adjusted Current ROE** | -0.77% | 2.87% | 0.46% | -10.92% | -1.06% | |
| 23 | | | | | | | |
| 24 | Year End Number of Annualized Customer | 16,067 | 4,862 | 23,004 | 596 | 1,448 | 45,977 |

**EPCOR Water Arizona**
Test Year Ended June 30, 2013
Summary of Fair Value Rate Base



| Line No. | Summary of Schedule B-1's | Mohave Water | Paradise Valley | Sun City Water | Tubac Water | Mohave Wastewater | Total |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | Gross Utility Plant in Service | $47,525,169 | $73,416,661 | $76,164,423 | $6,488,991 | $9,226,311 | $212,821,555 |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | Less: Accumulated Depreciation | 16,401,763 | 23,028,171 | 27,310,802 | 1,949,872 | 1,075,072 | 69,765,680 |
| 7 | | | | | | | |
| 8 | Net Utility Plant in Service | $31,123,407 | $50,388,490 | $48,853,621 | $4,539,119 | $8,151,239 | $143,055,875 |
| 9 | | | | | | | |
| 10 | Less: | | | | | | |
| 11 | Advances in Aid of | | | | | | |
| 12 | Construction | $7,012,710 | $1,554,766 | $6,313,480 | $1,952,127 | $1,916,421 | $18,749,505 |
| 13 | | | | | | | |
| 14 | Contributions in Aid of | | | | | | |
| 15 | Construction - Net of amortization | 481,135 | 9,259,772 | 16,125,275 | 1,030,362 | 935,072 | 27,831,617 |
| 16 | | | | | | | |
| 17 | Customer Meter Deposits | 8,257 | 23,819 | 4,903 | 517 | 5 | 37,502 |
| 18 | Deferred Income Taxes & Credits | 696,852 | 212,749 | 1,014,247 | 26,304 | 62,236 | 2,012,387 |
| 19 | Investment tax Credits | 0 | 39,646 | 0 | 0 | 0 | 39,646 |
| 20 | Regulatory Liabilities | 106,450 | 0 | 90,329 | 0 | 0 | 196,779 |
| 21 | Plus: | | | | | | |
| 22 | Unamortized Finance | | | | | | |
| 23 | Charges | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | Deferred Debits | 873,903 | 778,686 | 225,112 | 83,390 | 28,717 | 1,989,807 |
| 25 | Allowance for Working Capital | 19,953 | 26,520 | 336,585 | 9,415 | (15,292) | 377,180 |
| 26 | Utility Plant Acquisition Adjustment | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 | | | | | | | |
| 28 | **Total Rate Base** | $23,711,859 | $40,102,943 | $25,867,081 | $1,622,613 | $5,250,928 | $96,555,426 |

**EPCOR Water Arizona**
Test Year Ended June 30, 2013
Adjusted Test Year Income Statement

Summary of Schedule C-1s

| Line No. | | Mohave Water | Paradise Valley | Sun City Water | Tubac Water | Mohave Wastewater | Total |
|---|---|---|---|---|---|---|---|
| 1 | **Revenues** | | | | | | |
| 2 | Water Revenues | 6,132,996 | 9,589,273 | 10,103,166 | 574,204 | $ 1,052,210 | $ 27,451,849 |
| 3 | Other Revenues | 221,297 | 58,978 | 162,387 | 4,990 | 3,629 | 451,282 |
| 4 | | | | | | | |
| 5 | **Total Revenue** | $ 6,354,293 | $ 9,648,251 | $ 10,265,553 | $ 579,194 | $ 1,055,839 | $ 27,903,131 |
| 6 | **Operating Expenses** | | | | | | |
| 7 | Labor | 1,389,973 | 1,205,431 | 1,711,461 | 179,440 | $ 268,572 | $ 4,754,876 |
| 8 | Purchased Water | 26,831 | - | - | - | (0) | 26,831 |
| 9 | Fuel & Power | 546,720 | 1,329,578 | 1,557,580 | 33,324 | 46,241 | 3,513,444 |
| 10 | Chemicals | (8,257) | 58,805 | 34,119 | 98,934 | 12,000 | 195,602 |
| 11 | Waste Disposal | 7,886 | 15,320 | 4,661 | 811 | 34,306 | 62,983 |
| 12 | Intercompany Support Services | 950 | 860 | 1,396 | 95 | 161 | 3,462 |
| 13 | Corporate Allocation | 347,018 | 314,349 | 510,069 | 34,814 | 58,694 | 1,264,944 |
| 14 | Outside Services | 192,587 | 221,463 | 245,413 | 26,569 | 27,731 | 713,762 |
| 15 | Group Insurance | 418,599 | 321,965 | 490,722 | 33,124 | 53,082 | 1,317,492 |
| 16 | Pensions | 6,694 | 3,881 | 6,298 | 430 | 725 | 18,029 |
| 17 | Regulatory Expense | 104,574 | 84,137 | 129,316 | 9,181 | 15,230 | 342,439 |
| 18 | Insurance Other Than Group | 101,045 | 138,643 | 288,791 | 16,895 | 14,658 | 560,032 |
| 19 | Customer Accounting | 581,279 | 197,288 | 834,153 | 20,561 | 53,827 | 1,687,109 |
| 20 | Rents | 16,923 | 30,456 | 45,805 | 7,566 | 8,199 | 108,948 |
| 21 | General Office Expense | 260,964 | 144,287 | 231,731 | 29,509 | 23,103 | 689,595 |
| 22 | Miscellaneous | (20,272) | 91,606 | 478,848 | 5,574 | 4,577 | 560,333 |
| 23 | Maintenance Expense | 377,160 | 512,882 | 205,746 | 38,435 | 51,102 | 1,185,325 |
| 24 | Depreciation & Amortization | 1,379,320 | 1,630,224 | 1,979,668 | 242,898 | 273,729 | 5,505,839 |
| 25 | General Taxes-Property Taxes | 163,376 | 335,846 | 434,142 | 30,506 | 53,660 | 1,017,530 |
| 26 | General Taxes-Other | 149,829 | 120,776 | 218,906 | 16,157 | 12,392 | 518,061 |
| 27 | Income Taxes | (113,311) | 713,656 | 74,485 | (109,957) | (34,680) | 530,193 |
| 28 | | | | | | | |
| 29 | **Total Operating Expenses** | $ 5,929,887 | $ 7,471,454 | $ 9,483,313 | $ 714,866 | $ 977,308 | $ 24,576,827 |
| 30 | **Utility Operating Income** | $ 424,406 | $ 2,176,797 | $ 782,241 | $ (135,672) | $ 78,532 | $ 3,326,304 |
| 31 | **Other Income & Deductions** | | | | | | |
| 32 | Other Income & Deductions | - | - | - | - | - | - |
| 33 | Interest Expense | 607,024 | 1,026,635 | 662,197 | 41,539 | 134,424 | 2,471,819 |
| 34 | Other Expense | - | - | - | - | - | - |
| 35 | Gain/Loss Sale of Fixed Assets | - | - | - | - | - | - |
| 36 | **Total Other Income & Deductions** | $ (607,024) | $ (1,026,635) | $ (662,197) | $ (41,539) | $ (134,424) | $ (2,471,819) |
| 37 | ***Net Profit (Loss)*** | $ (182,618) | $ 1,150,162 | $ 120,044 | $ (177,211) | $ (55,892) | $ 854,485 |
| 38 | | | | | | | |

| | End of Test Year | | | | End of Projected Year | | | |
|---|---|---|---|---|---|---|---|---|
| Item of Capital | Dollar Amount | Percent of Total | Cost Rate | Weighted Cost | Dollar Amount | Percent of Total | Cost Rate | Weighted Cost |
| Long-Term Debt | $ 231,000,000 | 58.47% | 4.29% | 2.51% | $ 231,000,000 | 59.76% | 4.29% | 2.56% |
| Short-Term Debt | $ 8,560,000 | 2.17% | 0.31% | 0.01% | $ - | 0.00% | 0.31% | 0.00% |
| Stockholder's Equity | $ 155,533,624 | 39.37% | 10.70% | 4.21% | $ 155,533,624 | 40.24% | 10.70% | 4.31% |
| Totals | $ 395,093,624 | 100.00% | | 6.73% | $ 386,533,624 | 100.00% | | 6.87% |

**EPCOR WATER ARIZONA**
**Docket No. WS-01303A-14-___**
**Rate Case Expense**

**EXHIBIT SLH - 2**


| | |
|---|---|
| Estimated Rate Case Expense | $ 650,000 |
| Proposed Amortization (Years) | 3 |
| Annual Rate Case Expense | $ 216,667 |

# Bradford Direct

**BEFORE THE ARIZONA CORPORATION COMMISSION**

COMMISSIONERS

BOB STUMP - Chairman
GARY PIERCE
BRENDA BURNS
BOB BURNS
SUSAN BITTER SMITH

| | |
|---|---|
| IN THE MATTER OF THE APPLICATION OF EPCOR WATER ARIZONA INC., AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES FOR UTILITY SERVICE BY ITS MOHAVE WATER DISTRICT, PARADISE VALLEY WATER DISTRICT, SUN CITY WATER DISTRICT, TUBAC WATER DISTRICT AND MOHAVE WASTEWATER DISTRICT. | DOCKET NO: WS-01303A-14-0010 |

# DIRECT TESTIMONY OF SHAWN BRADFORD

**March 7, 2014**

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## EXECUTIVE SUMMARY

Mr. Bradford testifies as follows:

The purpose of my testimony in this proceeding is to describe the service areas and facilities for two of the districts that are included in this case: Sun City Water District and Tubac Water District. I will also quantify the arsenic media costs incurred to replace the media in two vessels in the Tubac arsenic reclamation facility. In addition, I am sponsoring testimony in support of changes in the tariffs for all of the districts in this proceeding related to miscellaneous service fees.

## I. INTRODUCTION AND QUALIFICATIONS

**Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND TELEPHONE NUMBER.**

A. My name is Shawn Bradford. My business address is 15626 N. Del Webb Blvd., Sun City, Arizona 85351, and my business phone is (623) 815-3136.

**Q. IN WHAT CAPACITY AND BY WHOM ARE YOU EMPLOYED?**

A. I am employed by EPCOR Water Arizona Inc. ("EWAZ" or "Company") as Director of Operations for the Central Division. My division includes the Sun City Water and Tubac Water District, which two systems are included in the Company's rate filing.

**Q. PLEASE DESCRIBE YOUR PRIMARY JOB RESPONSIBILITIES.**

A. I am responsible for managing the Central Division, which includes over 79,000 water and 43,000 sewer connections. I am responsible for ensuring that reliable water treatment, water distribution, wastewater treatment, and wastewater collections services are provided for these customers. My job involves administering and implementing infrastructure improvement plans for water facilities and wastewater facilities, ensuring operational and financial targets are met, and ensuring that facilities are in regulatory compliance. I oversee a $72 million annual operating budget and a $5 million annual capital improvement program.

**Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND EDUCATION.**

A. I graduated from Becker College with a Bachelor of Science degree. I also have an MBA with a concentration in Strategic Leadership from Amberton University. I am a member of the American Water Works Association (AWWA) and the

Arizona Water Association. I am also a member of the board of Environmental Certification Testing, Inc.

I joined EWAZ in 2011. Before joining EWAZ, I was Director of Business Development for Burgess & Niple, an engineering and architectural firm. Prior to that, I provided utility consulting services to various entities in the United States and Canada, and I also worked for the City of Goodyear as the Director of the Public Works & Water Resources Department. Collectively, I have over 26 years of public works and utility operations and management experience, 15 of which were spent in the public sector.

**Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

A. No.

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?**

A. The purpose of my testimony in this case is to provide an overview of the Sun City Water and Tubac Water Districts' operations. I will also quantify the arsenic media costs incurred to replace the media in two vessels in the Tubac arsenic reclamation facility. In addition, I am sponsoring testimony in support of changes in the tariffs for all of the districts in this proceeding related to miscellaneous service fees.

## II. SUN CITY WATER DISTRICT

**Q. PLEASE DESCRIBE THE SUN CITY WATER DISTRICT.**

A. The Sun City Water District is located in Maricopa County. It serves the community of Sun City, the Town of Youngtown, and a portion of the City of Peoria. There are approximately 23,000 customers in the district.

**Q. PLEASE DESCRIBE THE SUN CITY WATER PRODUCTION AND DISTRIBUTION SYSTEM.**

A. Our Sun City Water District customers currently receive treated water from seven water plants located throughout the service territory. The plants store and distribute water from 26 wells that range in depth from 600 to 1,300 feet and have flow rates from 500 to 2,500 gallons per minute. The distribution system, which covers about 19.53 square miles, consists of approximately 318 miles of mains ranging in size from one to 18 inches in diameter. The combined capacity of the 14 storage tanks is approximately 10.3 million gallons.

## III. TUBAC WATER DISTRICT

**Q. PLEASE DESCRIBE THE TUBAC WATER DISTRICT.**

A. The Tubac Water District is located in Santa Cruz County in southern Arizona. There are approximately 600 customers in the Tubac Water District.

**Q. PLEASE DESCRIBE THE TUBAC WATER DISTRICT'S PRODUCTION AND DISTRIBUTION SYSTEM.**

A. The Tubac district supplies potable water to the community of Tubac. The Tubac system consists of three wells having a combined well capacity of 680 gpm, one 500 gpm Arsenic Treatment Facility and one storage tank with a capacity of 50,000 gallons.

**Q. PLEASE DESCRIBE THE ARSENIC TREATMENT FACILITY IN TUBAC.**

A. The facility consists of a 500 gpm granular iron media treatment facility located at the Well 5 site. Equipment includes two 9-ft diameter Severn Trent GIM arsenic removal vessels using Bayoxide E33 Media, facility piping and instrumentation. The two 9-ft diameter vessels are operated in a lead-lag configuration to extend the life of the arsenic media and lower O&M costs.

Per the Severn Trent O&M manual, when working in series flow configuration, one of the absorbers is set as the "lead" position and the other one as the "lag" position. Raw water from the wells will pass through the "lead" vessel first, where arsenic is removed from the water until reaching a limit of 10 ug/L (MCL) or less. The "lead" vessel removes most, if not all, of the arsenic from the water. The water then passes through the "lag" vessel, where, if there is any arsenic remaining in the effluent from the "lead" vessel, it is removed. Backwash of the media in a vessel is necessary before the measured pressure differential for that vessel is 10 psi. When the effluent water from the "lead" vessel exceeds an arsenic level of 10 ug/L, the media from this vessel has reached the end of its useful life and must be replaced. The "lag" vessel is then switched to "lead" position. Once the media has been replaced the vessel with the fresh media becomes the "lag" vessel. The arsenic treatment facility was put into service in December of 2009.

A 12-inch transmission main was also part of this project and conveys treated water from Well 5 to distribution system piping near Well 4. The treated water is disinfected by injecting a sodium hypochlorite solution into the water before it is delivered to customers.

**Q. IS THE ARSENIC TREATMENT FACILITY NECESSARY, USED AND USEFUL?**

A. Yes. This facility is necessary for this district to comply with the rules established by the United States Environmental Protection Agency that established an MCL for arsenic in potable water to be reduced from 50 parts per billion ("ppb") to 10 ppb, effective January 23, 2006.

**Q. HOW MANY EMPLOYEES ARE CURRENTLY OPERATING THE TUBAC WATER SYSTEM?**

A. There is currently one full-time employee and one part-time employee who work for EWAZ in the district, performing system operations and maintenance, meter reading, and customer service. There are no immediate plans to increase staffing levels.

**Q. HAS EWAZ INCURRED COSTS ASSOCIATED WITH THE OPERATION AND MAINTENANCE OF THE ARSENIC TREATMENT FACILITY?**

A. Yes, the Company spent $101,712 in costs to replace the arsenic media in both vessels. In July 2012, the media in vessel #1 was replaced and in July 2013, the media in vessel #2 was replaced.

The performance of each vessel exceeded design data developed by Severn Trent. The performance data estimated that each vessel was capable of treating 48,600 bed volumes or 124 million gallons of water. Table 1 summarized the performance of each vessel and the costs associated with the media replacement.

**TABLE 1 - Tubac Arsenic Treatment Facility**

| | Date of Replacement | Bed Volume (Design) | Bed Volume (Actual) | Gallons Treated (Design) | Gallons Treated (Actual) | Cost |
|---|---|---|---|---|---|---|
| Vessel #1 | July 2012 | 48,600 | 50,626 | 124,000,000 | 128,894,000 | $55,412 |
| Vessel #2 | July 2013 | 48,600 | 62,316 | 124,000,000 | 158,970,000 | $46,300 |
| | | | | | **Total** | **$101,712** |

**Q. IS EWAZ PROPOSING TO RECOVER THE MEDIA REPLACEMENT COSTS ASSOCIATED WITH THE VESSEL #1 AND VESSEL #2?**

A. Yes. When the media in Vessel #1 was replaced in July 2012, the Company deferred the $49,818 pursuant to Decision Number 71410 authorizing an Arsenic

Cost Recovery Mechanism. The media replacement for Vessel #2 completed in July 2013 was likewise deferred for recovery in a Step 2 ACRM request. See Exhibit Schedule C-2 Page 24.

Pursuant to Decision Nos. 67093, 67593, 68310, 68825, and 71410, EPCOR filed an application on March 5, 2010, with the Arizona Corporation Commission ("Commission") requesting authorization to implement Step-One of the Arsenic Cost Recovery Mechanism ("ACRM") for its Tubac Water District. The Commission approved this request on August 10, 2010. Based on prior Commission decisions, EWAZ is now requesting recovery of costs associated with deferred and on-going media replacement operating and maintenance ("O&M") costs for the Tubac Water District. We anticipate on-going costs to replace the arsenic media will be $46,000 annually. This is based on our most recent costs in Tubac and assumes a media life cycle of 24 months with one vessel being replaced each year.

## IV. SERVICE CHARGES (ALL DISTRICTS)

**Q. IS EWAZ ASKING FOR A REVISED ESTABLISHMENT, RE-ESTABLISHMENT AND/OR RECONNECTION OF SERVICE CHARGES FOR THE DISTRICTS IN THIS RATE CASE?**

A. Yes. Commission Rule 14-2-403-D authorizes a water utility to charge for the establishment, reestablishment, or reconnection of utility services. Should service be established during a period other than regular working hours at the customer's request, the Commission has approved an after-hour charge for the service connection. Currently, the approved charge during regular working hours varies from $20.00 in our Paradise Valley Water District to $30.00 in our Sun City Water District as summarized in Table 2, although the costs to provide this service in reality does not vary significantly.

The majority of establishment, reestablishment and reconnection of utility services are performed during normal business hours. The Company's average employee's wages and benefits do not vary from district to district and the time to complete the process is consistent. As such, it makes sense to standardize the establishment, reestablishment, or reconnection charge in each district. We evaluated our average cost when providing this service taking into account travel time, labor and equipment cost. Based on this analysis we request the normal hours fee be increased to $35.00 as summarized in Table 3. This new fee would better reflect the true costs to complete the service and would provide consistency among our districts, simplify our rate schedules and reducing potential confusion among customer service representatives and field service representatives.

**Q. WHAT ABOUT CHARGES FOR THESE SERVICES AFTER-HOURS?**

A. The approved after-hours establishment, reestablishment, or reconnection of utility services charges range from $30.00 in our Mohave Wastewater District to $45.00 in our Tubac Water District. Again, however, the costs to provide these services do not vary significantly between districts. In the event that a customer chooses to establish or re-establish service after hours, an on-call employee is dispatched to perform the service and is paid overtime pay to complete the service request. Our average employee's wages and benefits do not vary from district to district and the time to complete the process after-hours is consistent. Therefore, it also makes sense to standardize the after-hours establishment, reestablishment, or reconnection charge in each district.

As with the normal hours charge above, we evaluated our average cost when providing this service taking into account travel time, labor and equipment cost. Based on this analysis we request this fee be increased to $60.00 as summarized in

Table 3. This new fee also better reflects the actual costs, and would provide consistency among our districts.

| TABLE 2 - Existing Miscellaneous Charges | | | | | | |
|---|---|---|---|---|---|---|
| District | | Mohave Water | PV Water | Sun City Water | Tubac Water | Mohave WW |
| Establishment Reestablishment and/or reconnection of service | Regular Hours | - | $20.00 | $30.00 | $30.00 | $20.00 |
| | After Hours | - | $40.00 | $40.00 | $45.00 | $30.00 |
| | Including Sewer Service | $25.00 | - | - | - | - |
| | Not Including Sewer Service | $20.00 | - | - | - | - |
| Reconnection of service (delinquent) | Regular Hours | $35.00 | $30.00 | $30.00 | $30.00 | $30.00 |
| | After Hours | $35.00 | $60.00 | $40.00 | $45.00 | - |
| Water Meter Test (if correct) | | $35.00 | $15.00 | $10.00 | $10.00 | - |
| Meter Re-Read (if correct) | | $25.00 | $10.00 | $5.00 | $5.00 | - |
| NSF Check Charge | | $25.00 | $12.00 | $25.00 | $25.00 | $25.00 |
| Late Fee Charge | | 1.50% | 1.50% | - | 1.50% | - |
| Deferred Payment Finance Charge | | 1.50% | - | - | 1.50% | - |

**Q. IS EPCOR ASKING FOR A REVISED RECONNECTION OF SERVICE (DELINQUENT) CHARGE?**

A. Yes. Commission Rule 14-2-403-D authorizes a water utility to charge for the reconnection of utility services for delinquent accounts. When service is reestablished after a shut-off for non-payment, the Commission had previsouly authorized the Company to charge for the service reconnection. Currently, the approved charge during regular working hours varies from $30.00 in our Paradise Valley Water district to $35.00 in our Mohave Water district, although the costs to provide this service also do not vary significantly. Based on a similar cost analysis to those discussed above, we request this fee be increased to $35.00 as summarized

in Table 3. This new fee provides the same benefits discussed earlier – actual cost recovery and simplicity.

**Q. IS THERE A DIFFERENT CHARGE FOR AFTER HOURS RECONNECTION AFTER DELINQUENCY?**

A. Yes. The current approved after-hours reconnection charges range from $35.00 in our Mohave Water District to $60.00 in our Paradise Valley Water District, although the costs to provide this service in reality do not vary significantly. If the customer wants to re-establish service after hours, an on-call employee is dispatched to perform the service and is paid overtime pay to complete the service request. Based on our analysis, we request this fee be increased to $65.00 as summarized in Table 3. This new fee would better reflect true costs and provide consistency and simplicity between our districts.

**Q. IS EWAZ ASKING FOR A REVISED WATER METER TEST CHARGE?**

A. Yes. Each utility is obligated to test a meter upon a customer's request. Commission Rule 14-2-408-F authorizes a water utility to charge the customer for such meter test provided that the meter is found to be accurate within 3% of allowable limits. Currently, the approved charge for meter tests varies from $10.00 in our Sun City Water District to $35.00 in our Mohave Water District. As with the other charges I discussed, the costs to provide this service in reality does not vary significantly. Accordingly, and after our analysis of the average costs, we request this fee be increased to $35.00 as summarized in Table 3.

**Q. IS EWAZ ALSO ASKING FOR A REVISED METER RE-READ CHARGE?**

A. Yes. Each utility is obligated at the request of a customer to re-read the customer's meter within 10 working days after such request by the customer. Commission Rule 14-2-408-C authorizes a water utility to charge for any re-reads provided that the original reading was not in error.

Currently, the approved charge for meter re-reads varies from $5.00 in our Sun City Water District to $25.00 in our Mohave Water District, although the costs to provide this service do not vary significantly. We request this fee be increased to $25.00 as summarized in Table 3 based on a similar analysis and for similar reasons as those I have discussed above in my testimony.

**Q. IS EWAZ ALSO ASKING FOR A REVISED INSUFFICIENT FUNDS (NSF) CHECKS CHARGE?**

A. Yes. Commission Rule 14-2-409-F authorizes a utility to charge a fee, to cover the cost incurred when a customer tenders payment for utility service with an insufficient funds check. Currently, the approved charge for NSF varies from $10.00 in our Sun City Wastewater District to $25.00 in our Mohave Water District. The cost that we incur from the various financial institutions we deal with ranges from $10.00 to $35.00 each NSF check charge. These costs are not controlled by the Company and have been difficult to manage, often resulting in our inability to recover our costs. It makes sense to standardize the NSF charge in each district to $25.00. This would provide consistency among our districts, simplify our rate schedules, and in most cases provide for a full-cost recovery of costs incurred.

**Q. IS EWAZ ASKING FOR A REVISED LATE FEE CHARGE?**

A. Yes. The Commission approved a finance charge, to cover costs incurred when residential customers have unpaid bills for utility service in several of our districts. Currently, the approved Late Fee Charge varies from 0% in our Sun City Wastewater District to 1.5% in our Mohave Water District. It also makes sense to standardize the Late Fee Charge in each district to 1.5%.

**Q. IS EWAZ ALSO ASKING FOR NEW DEFERRED PAYMENT FINANCE CHARGE?**

A. Yes. Commission Rule 14-2-409-G authorizes a utility to include a finance charge, to cover costs incurred when qualifying residential customers are place on a deferred payment plan to retire unpaid bills for utility service. Currently, the approved Deferred Payment Finance Charge varies from 0% in our Sun City Wastewater District to 1.5% in our Mohave Water District, although the cost to cover these charges is consistent. It makes sense to standardize the Deferred Payment Finance Charge in each district to 1.5% to provide consistency, simplify our rate schedules, and provide for a full-cost recovery of costs incurred.

**TABLE 3 - Requested Miscellaneous Charges**

| District | | Mohave Water | PV Water | Sun City Water | Tubac Water | Mohave WW |
|---|---|---|---|---|---|---|
| Establishment Reestablishment and/or reconnection of service | Regular Hours | $35.00 | $35.00 | $35.00 | $35.00 | $35.00 |
| | After Hours | $65.00 | $65.00 | $65.00 | $65.00 | $65.00 |
| Reconnection of service (delinquent) | Regular Hours | $35.00 | $35.00 | $35.00 | $35.00 | $35.00 |
| | After Hours | $65.00 | $65.00 | $65.00 | $65.00 | $65.00 |
| Water Meter Test (if correct) | | $35.00 | $35.00 | $35.00 | $35.00 | - |
| Meter Re-Read (if correct) | | $25.00 | $25.00 | $25.00 | $25.00 | - |
| NSF Check Charge | | $25.00 | $25.00 | $25.00 | $25.00 | $25.00 |
| Late Fee Charge | | 1.50% | 1.50% | 1.50% | 1.50% | 1.50% |
| Deferred Payment Finance Charge | | 1.50% | 1.50% | 1.50% | 1.50% | 1.50% |

**Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

A. Yes.

# Stuck Direct

**BEFORE THE ARIZONA CORPORATION COMMISSION**

COMMISSIONERS

BOB STUMP - Chairman
GARY PIERCE
BRENDA BURNS
BOB BURNS
SUSAN BITTER SMITH

| | |
|---|---|
| IN THE MATTER OF THE APPLICATION OF EPCOR WATER ARIZONA INC., AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES FOR UTILITY SERVICE BY ITS MOHAVE WATER DISTRICT, PARADISE VALLEY WATER DISTRICT, SUN CITY WATER DISTRICT, TUBAC WATER DISTRICT AND MOHAVE WASTEWATER DISTRICT. | DOCKET NO: WS-01303A-14-0010 |

# DIRECT TESTIMONY OF JEFFREY W. STUCK

**March 7, 2014**

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## EXECUTIVE SUMMARY

Mr. Stuck testifies that:

The purpose of my testimony in this proceeding is to describe the service areas and facilities for three of the districts that are included in this case: Paradise Valley Water, Mohave Water, and Mohave Wastewater. In addition, I support EWAZ's request for the inclusion of tank maintenance expense in the Paradise Valley Water district's cost of service. I also provide a description of the proposed small meter replacement program.

## I. INTRODUCTION AND QUALIFICATIONS

**Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND TELEPHONE NUMBER.**

A. My name is Jeffrey W. Stuck. My business address is 6215 N. Cattletrack Rd., Scottsdale, Arizona, and my business phone is 623-445-3125.

**Q. IN WHAT CAPACITY AND BY WHOM ARE YOU EMPLOYED?**

A. I am employed by EPCOR Water USA ("EWUS") as Director of Operations for the Eastern Division.

**Q. PLEASE DESCRIBE YOUR PRIMARY RESPONSIBILITIES FOR THE COMPANY.**

A. My primary responsibilities are for water treatment and distribution, and wastewater collection and treatment, and ensuring safe and reliable service for EPCOR Water Arizona Inc. ("EWAZ" or "Company"), which includes the following districts: Mohave Water, Mohave Wastewater, Havasu Water, Paradise Valley Water, Anthem Water, and Anthem Wastewater. I also oversee the operations of Chaparral City Water Company.

**Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND EDUCATION.**

A. I hold a Bachelor of Science Degree from Arizona State University. I have worked in the water industry for over 24 years. I began my career working at the Arizona Department of Water Resources where my duties included water rights investigations associated with the Little Colorado River Adjudication. In 1992, I began working for the Arizona Department of Environmental Quality in the Safe Drinking Water Program. Over the next 13 years, I held many positions in the ADEQ Safe Drinking Water Program with the last being the Safe Drinking Water Program Manager. In 2005, I joined EWUS, then Arizona American Water, as the

Western Region Environmental Director. Since 2007, I have been employed as the Eastern Division Operations Director with responsibilities including overseeing water and wastewater operations in the communities of Paradise Valley, Anthem, Bullhead City, and Lake Havasu. In 2012, my responsibilities were expanded to include Chaparral City Water Company, which provides service in and around Fountain Hills, AZ.

**Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

A. Yes.

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?**

A. The purpose of my testimony in this proceeding is to describe the service areas and facilities for three of the districts that are included in this case: Paradise Valley Water, Mohave Water, and Mohave Wastewater. In addition, I support EWAZ's request for the inclusion of tank maintenance expense in the Paradise Valley Water District's cost of service.

## II. PARADISE VALLEY WATER DISTRICT

**Q. PLEASE DESCRIBE THE PARADISE VALLEY WATER DISTRICT.**

A. The Paradise Valley Water District is located in Maricopa County. It serves approximately half of the Town of Paradise Valley and portions of the City of Scottsdale. There are approximately 4,750 customers in the district.

**Q. PLEASE DESCRIBE THE PARADISE VALLEY WATER PRODUCTION AND DISTRIBUTION SYSTEM.**

A. Our Paradise Valley Water District customers currently receive treated water from six wells located on the eastern edge of the service territory. The wells range in depth from 1,000 feet to 1,800 feet and have flow rates from 1,300 gallons to 2,900 gallons per minute. The distribution system covers about 8.5 square miles and consists of approximately 121 miles of mains ranging in size from two inches to

30 inches in diameter. The system has nine pressure zones due to the varying elevations in the service area. The combined capacity of the 13 storage tanks is 4.529 million gallons. All water from our Paradise Valley Water wells is pumped to the Paradise Valley Arsenic Removal Facility (PVARF) for chlorination, storage and arsenic removal.

**Q. PLEASE PROVIDE SOME BACKGROUND REGARDING THE PARADISE VALLEY WATER DISTRICT WELLS 12 AND 12B.**

A. Well 12 was originally drilled in 1961 and was placed into service in January of 1962. When this well was placed in service, it had a pumping capacity of 2,300 gallons per minute (gpm). This well was in continuous service in the water system from 1962 to 2003. In 1997, Layne-Western was hired to perform a video assessment of the well. This assessment revealed that the well casing was in very poor condition with perforations severely plugged or washed out and several holes and broken sections of casing. As a result of this assessment, Layne–Western installed a well liner in 2003. Upon completion of the liner installation, the well capacity was restored to 1,800 gpm. From 2003 to 2011, the production capacity of the well gradually declined to 1,350 gpm. It was determined that the well could not be relined again and it became necessary to drill a replacement well. Well 12B was drilled and placed into service in 2012 with a pumping capacity of approximately 3,000 gpm. This well currently provides production to the meet the system demands for the Paradise Valley Water District. The original well 12 is still an active well and is used as back up for peak demand and emergencies should there be a failure in well 12B or another of the six active production wells in the District.

## III. PARADISE VALLEY TANK MAINTENANCE PROGRAM

**Q. PLEASE EXPLAIN THE PROPOSED TANK MAINTENANCE PROGRAM FOR THE PARADISE VALLEY DISTRICT.**

A. The in-service dates for the existing tanks in the Paradise Valley Water District range from 1995 to 2006. In 2010, the Paradise Valley Water District procured the services of Tank Industry Consultants ("TIC") to perform inspections on one tank in this district. TIC is a professional engineering firm specializing in the design, specification, and evaluation of storage tanks. The scope of services performed by TIC included a careful study of the tank's interior, exterior, foundations, and accessories with an NACE-certified inspector. The resulting report by TIC included a detailed analysis of the tank's condition, recommended maintenance activities, suggested schedule of repairs, and an engineer's estimate of the cost to perform those repairs. The following items were inspected by TIC and addressed in their reports:

1. Site conditions, including observations of site access, general site security, site maintenance and foundation deficiencies.

2. Tank exterior conditions, including observations of dimensions of all manholes, vents, condition of exterior coating thickness, coating adhesion and metal corrosion, and baseline dimensions for comparison.

3. Tank interior conditions, including observations of the condition of the coating thickness, coating adhesion, metal corrosion, and observation of any debris, and baseline conditions for comparison.

Based on the observations by a professional inspector, TIC recommended that both the interior and exterior of the tank be stripped and recoated in addition to making modifications of the tank overflow, the exterior ladder and tank manhole. The inspection results on this tank are indicative of the general condition of the other tanks in the district and, therefore, require an overall tank maintenance strategy.

**Q. WHAT IS THE PLAN FOR TANK MAINTENANCE IN THE PARADISE VALLEY WATER DISTRICT?**

A. The tank maintenance plan for the Paradise Valley Water District was developed to ensure maintenance occurs at a frequency that balances the timing necessary to effectively and economically extend the life of these assets through maintenance activities and in a manner that is not overly burdensome to the customers. There is no clear industry standard frequency for tank maintenance and, as such, the Paradise Valley Water District plan has been developed based on the number of tanks in the district, the size of those tanks, and the material from which they have been constructed. The Paradise Valley Water District has nine tanks included in this plan, which has a 14 year term.

All of the tanks included in this overall plan are constructed of steel and are in need of interior and exterior recoating and many will require structural repairs as well. The total anticipated cost for the Paradise Valley Water District tank maintenance plan is estimated to be $2,601,920. The Company is requesting that the recommended tank maintenance operation and maintenance expense in this case include an annual revenue stream of $185,851 for the Paradise Valley Water District. This annual revenue stream is derived from the recommendations of the TIC inspection report, and it is anticipated that this estimated expense would be available for review and adjustment when necessary in subsequent Paradise Valley Water District rate cases during the term of the plan.

## IV. MOHAVE WATER DISTRICT

**Q. PLEASE DESCRIBE THE MOHAVE WATER DISTRICT.**

A. The Mohave Water District is located within the city of Bullhead City and in unincorporated areas of Mohave County. The overall service area covers approximately 17,397 acres (27.19 square miles). There are approximately 15,800

customers in the district. The topography within the service area ranges in elevation from 590-1,260 feet. The Mohave Water District has one operating center and five separate water systems:

- The Bullhead City water system (PWS # 08-032), also known as the Main System, serves a majority of the Bullhead City area in Mohave County, with a certificated area of approximately 25 square miles.
- The Camp Mohave water system (PWS # 08-037) serves an unincorporated portion of southern Bullhead City, Mohave County, with a 0.5 square mile certificated area.
- Lake Mohave Highlands system (PWS # 08-062) serves an area located to the north of the main Bullhead City service area, with a service area of approximately 0.6 square miles.
- Desert Foothills system (PWS # 08-137) serves an area in the northwest corner of the main Bullhead City service area, with a service area of approximately 0.6 square miles.
- Rio Vista Ranches system (PWS # 08-333) serves a subdivision in southern Bullhead City, Mohave County, with a 0.5 square-mile certificated area.

**Q. PLEASE DESCRIBE THE MOHAVE WATER DISTRICT WATER PRODUCTION, TREATMENT AND DISTRIBUTION SYSTEM.**

A. The five systems within the Mohave Water district are not interconnected; each has its own water production, storage, and distribution facilities. All water in the Mohave Water district is provided from wells. The terrain of this service territory is varied, rocky and desert. As a result, maintaining proper pressure in the many pressure zones is the primary operational challenge. The water distribution system consists of approximately 199.7 miles of main, ranging in size from 2-inches to 18-inches. The treatment provided in the Mohave Water district is in the form of chlorination before the water enters the distribution system and there is an AdEdge AD26 oxidation/filtration technology for iron and manganese removal with a

granular activated carbon filter for Total Organic Carbon ("TOC") reduction in the Camp Mohave system.

The Bullhead City system consists of six groundwater production wells, ten storage tanks, two booster station sites, and a distribution system serving 14,300 customers. The storage tanks provide a combination of both gravity and pumped storage for the system. There is currently 3.2 Million Gallons ("MG") of gravity storage and 1.48 MG of pumped storage in the Main System. The Camp Mohave system has one pumping site consisting of a well, storage tank, pumping facilities and a distribution system serving 97 customers. This system is where the AdEdge AD26 iron and manganese removal plant with the granular activated carbon finishing filter for TOC reduction is located.

The Lake Mohave Highlands system is comprised of two production wells, three above ground storage tanks, three booster pump stations and a distribution network serving 249 customers. The storage tanks provide pumped storage for the system with total volume of 0.49 MG. This system has an emergency tie-in with the recently acquired North Mohave Valley Corporation Water Company served by a 4-inch meter.

The Desert Foothills system is supplied by two production wells, two storage tanks, two booster pump stations and a distribution network serving 1,028 customers. The storage tanks provide a combination of both gravity and pumped storage for the system with a total volume of 0.5 MG.

The Rio Vista Ranches system receives its water from the Bermuda Water Company through an interconnection with Bermuda Water Company. This system only has a distribution system serving approximately 97 customers.

**Q. WHAT IS THE NON-REVENUE WATER RATIO FOR THE MOHAVE WATER DISTRICT?**

A. The rolling 12-month non-revenue water ratio for the Mohave Water District is currently 9.24%.

**Q. IS THAT AN IMPROVEMENT OVER THE RECENT PAST?**

A. Yes, a significant improvement. In 2009-2012, the non-revenue water ratios for this district were 12.74%, 15.14%, 13.34%, and 11.41%, respectively. The problem peaked at 15.14% in 2010 and that is when the Company commenced an aggressive leak detection effort.

**Q. WHAT WORK HAS BEEN DONE TO FIND SOURCES OF NON-REVENUE WATER AND CORRECT THEM?**

A. In response to the rising non-revenue water ratio in the Mohave Water District, we started leak detection using a traditional type of acoustic leak detection device. We soon learned that because of soil types, bury depth and service line materials, this leak detection equipment was not working reliably or accurately. Consequently, we developed a modified leak detection method that involves isolating a section of main and listening to leak returns in that particular section. This has resulted in the detection of service line leaks that previously went undiscovered with the traditional acoustic approach.

Better able to locate leaking sections of main, we began a concerted service line replacement program in the Mohave Water district. We have also been actively replacing aging customer meters to ensure older, less accurate meters are removed from service. Finally, we test and, if necessary, calibrate all meters three inches and larger each year. The result has been a substantial reduction in non-revenue water in this district.

**Q. HOW MANY EMPLOYEES ARE CURRENTLY CHARGED WITH OPERATING THE MOHAVE WATER DISTRICT?**

A. There are 17 employees who operate and maintain the water system, read meters, and provide customer service to more than 16,800 customers.

## V. MOHAVE WASTEWATER DISTRICT

**Q. PLEASE DESCRIBE THE MOHAVE WASTEWATER DISTRICT.**

A. The Mohave Wastewater system is located in the community of Fort Mohave. The Fort Mohave area is served by our Wishing Well Wastewater Treatment Plant ("Wishing Well"), a 400,000 gpd extended aeration wastewater treatment plant located south of Bullhead City. The treatment process consists of headworks, which include a grit basin and fine screen, Parshall flume meter, aeration and anoxic basin with nitrification and denitrification capability, secondary clarifiers, multi-media filters, chlorine contact basin, clear well with pump station, sludge holding tank and sludge dewatering unit. The effluent is delivered and sold offsite for beneficial reuse in man-made lakes at the Lakes at Los Lagos subdivision. The Fort Mohave service area is approximately 3.5 square miles and there are approximately 1,700 customers in the wastewater service territory.

**Q. HAS THE PLANT CHANGED IN CAPACITY AND OPERATION SINCE THE LAST RATE APPLICATION FILING?**

A. Yes, the Wishing Well plant had an original design capacity of 250,000 gallons per day. This plant was expanded in 2008 to 500,000 gpd to accommodate increased flows that were being received from the wastewater service territory. The plant was designed as an extended aeration plant that would produce class B quality treated effluent. The effluent from the Wishing Well plant was provided to the Desert Lakes Golf Course, which is adjacent to the Wishing Well plant, to be used for irrigation of the golf course facility.

In June 2012, the owner of the Desert Lakes Golf Course notified EPCOR that they were canceling the agreement for the provision of effluent. Upon receipt of this cancellation, EPCOR identified another potential effluent customer adjacent to the Wishing Well Plant. The Buena Vista Homeowners Association ("BVHA") represents a tract of homes that are surrounding a manmade lake in the development known as the Lakes at Los Lagos. EPCOR approached the BVHA to determine if there was any interest in receiving treated effluent to fill the BVHA's lake. At the time, BVHA was filling this lake with pumped groundwater and was very interested in replacing the pumped groundwater with treated effluent.

In order to provide effluent to the BVHA, however, it was necessary for EPCOR to make operational changes that would allow the plant to produce A+ quality effluent and to construct a six inch force main to deliver the effluent. An agreement was entered into with BVHA for them to receive A+ effluent from EPCOR and to pay for the installation of the force main. The modifications to the plant included converting an existing aeration basin to an anoxic zone for denitrification. Other modifications included adding an airlift mixed liquor return pump and associated piping, installation of baffling in the chlorine contact chamber, replacement of diffusers throughout the plant, as well as installation of dissolved oxygen (DO) analyzers. These changes resulted in a de-rating of the plant capacity from 500,000 gallons per day capacity to 400,000 gallons per day capacity. This change in plant capacity and treatment capability is now reflected in the ADEQ APP permit for the Wishing Well Plant. ADEQ APP Permit Number P-102181 lists an operational capacity of 0.4 million gallons per day and establishes A+ effluent requirements.

## VI. SMALL METER REPLACEMENT PROGRAM

**Q. WHAT IS THE COMPANY'S STANDARD FOR REPLACING SMALL WATER METERS?**

A. EWAZ is proposing to establish a small meter replacement frequency of 12 years. Over time, water meter accuracy degrades and results in the under registering of water delivery volumes. This under registration results in inaccurate billing, inaccurate rate calculations, and inaccurate water loss calculations.

The AWWA standard for small meter accuracy is 96% average accuracy and the typical recommended testing period for small meters is 8 years. In 1995, the City of Phoenix completed a study on meter accuracy over time and found that once a meter has registered more than 748,000 gallons, the accuracy begins to dip below the AWWA accuracy standard of 96%. The average monthly residential usage in EWAZ across all districts is 10,100 gallons per month. Based on this average monthly usage, a residential meter would exceed this declining accuracy threshold between 6 and 7 years. We recommend the replacement at 12 years.

Based on this, it is expected that residential meters that have been in service for 12 years or longer are under registering water use, resulting in under billing. This error rate creates inequities when determining appropriate rates for billing and contributes to inaccurate water loss calculations. Replacing small meters at this frequency balances the timing for replacement that ensures accurate meter performance for accurate billing and water consumption measurement with the cost of the replacements. For these reasons, EWAZ requests approval of financing its small meter replacement program by changing the useful life of a small meter from 15 years to 12 years as shown in witness Sandra Murrey's Exhibit Schedule C-2.

**Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

A. Yes.

# Lenderking Direct

**BEFORE THE ARIZONA CORPORATION COMMISSION**

COMMISSIONERS

BOB STUMP - Chairman
GARY PIERCE
BRENDA BURNS
BOB BURNS
SUSAN BITTER SMITH

| | |
|---|---|
| IN THE MATTER OF THE APPLICATION OF EPCOR WATER ARIZONA INC., AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES FOR UTILITY SERVICE BY ITS MOHAVE WATER DISTRICT, PARADISE VALLEY WATER DISTRICT, SUN CITY WATER DISTRICT, TUBAC WATER DISTRICT AND MOHAVE WASTEWATER DISTRICT. | DOCKET NO: WS-01303A-14-0010 |

# DIRECT TESTIMONY OF JAKE LENDERKING

**March 7, 2014**

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## EXECUTIVE SUMMARY

Jake Lenderking testifies that:

The Groundwater Savings Fee ("GSF") in the tariffs of the Sun City Water District and the CAP Surcharge in the tariffs of Paradise Valley Water District are annually adjusting pass-through mechanisms that allow the Company to fully recover all costs associated with CAP water. The surcharges allow for the actual cost to be recovered each year, after it has been paid. Further, Mr. Lenderking testifies that there are issues facing the Navajo Generating Station ("NGS") which will increase its generating costs. As the NGS is the primary source of power for the Central Arizona Project ("CAP"), cost increases at NGS will likely affect CAP water prices in the future. The GSF and the CAP Surcharge mechanisms will enable the recovery of changes in purchased water costs associated with CAP water without multiple rate cases sending the appropriate price signal to customers, and should be retained. Additionally, in regards to the Paradise Valley Water CAP surcharge, Mr. Lenderking also testifies that power cost savings have been carried forward since 2008 even though the SRP-Paradise Valley Water exchange that led to the savings has not been in effect since 2008 and proposes to correct it.

## I. INTRODUCTION AND QUALIFICATIONS

**Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND TELEPHONE NUMBER.**

A. My name is Jake Lenderking. My business address is 2355 W Pinnacle Peak Rd., Suite 300, Phoenix, Arizona 85027, and my business phone is (623) 445 - 2410.

**Q. IN WHAT CAPACITY AND BY WHOM ARE YOU EMPLOYED?**

A. I am employed by EPCOR Water USA ("EWUS") as the Water Resources Manager.

**Q. PLEASE DESCRIBE YOUR PRIMARY JOB RESPONSIBILITIES.**

A. I am responsible for all water resource activities in Arizona and New Mexico including Arizona Department of Water Resources ("ADWR") annual reports, water resource planning, water resource allocation, permitting, water acquisition, and attending and participating in regional water policy forums. I also oversee all EWUS water conservation activities for EPCOR Water Arizona Inc. ("EWAZ" or "Company") and EPCOR Water New Mexico Inc. ("EWNM").

**Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND EDUCATION.**

A. I am currently working towards my Masters of Business Administration at the Thunderbird School of Global Management. Previously, I received a Bachelor of Science degree from Arizona State University in Environmental Resource Management with a concentration in Watershed Ecology. I joined EWUS (then Arizona-and New Mexico-American) in 2007. Before joining EWUS, I was employed by the City of Phoenix in its Water Conservation office, where I worked on the City's demand management plan. I also oversaw the implementation of the City's retrofit and audit program, under which City of Phoenix staff and contractors visited single-family homes, performed water audits, and replaced older

inefficient plumbing fixtures with newer, more efficient ones. Before I joined the City of Phoenix, I was employed by the Arizona Department of Water Resources ("ADWR") as part of its Phoenix Active Management Area ("AMA") section. At the time I left ADWR, I was responsible for the regulation and permitting of all recharge activities in the Phoenix AMA.

**Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

A. Yes.

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?**

A. I will testify in support of the EWAZ's request to retain the Groundwater Saving Fee ("GSF") for the Sun City Water District and the CAP Surcharge for the Paradise Valley Water District.

## II. RETENTION OF THE SUN CITY GSF MECHANISM

### A. Background – Water Supplies

**Q. PLEASE DESCRIBE THE WATER SUPPLIES AVAILABLE TO THE COMPANY FOR ITS SUN CITY WATER DISTRICT?**

A. The Company has 26 wells producing water for this district. These wells are all located within the district's service territory and provide water for service in this district. EWAZ also has a CAP allocation of 4,189 acre-feet for the Sun City Water District. The Company has approximately 10.3 million gallons of storage.

**Q. HOW DOES THE COMPANY USE WATER FROM THESE SOURCES FOR ITS CUSTOMERS?**

A. The wells are used to serve the residential and commercial customers in this district. The CAP water for the Sun City Water District is used to recharge the aquifer from which the district's wells pump water. As the Commission recognized several years ago, demand from customers in the Sun City Water

District is depleting the aquifer, causing land subsidence and other environmental damage.[1]

**Q. HOW DOES THE COMPANY RECOVER THE COST OF THE CAP WATER IT PURCHASES EACH YEAR?**

A. All of the costs to purchase CAP water in the Sun City Water District are recovered via an annual surcharge pursuant to the Arizona Corporation Commission ("Commission") approved GSF mechanism.

**B. Background - GSF**

**Q. PLEASE DESCRIBE THE GSF MECHANISM.**

A. The GSF mechanism was approved by the Commission to allow for the complete recovery of CAP-related expenses so that the Company could continue to retain its CAP allocation and recover the associated expenses. The GSF is a separate charge on customers' bills.

**Q. HOW DOES THE GSF MECHANISM WORK?**

A. The GSF mechanism is designed to include all M&I capital and delivery costs associated with using the CAP allocation offset by any storage credits. In January of each year, the Company files for an adjustment to the GSF to reflect changes in purchased CAP water costs. This filing includes a reconciliation of revenue collected from customers via the GSF for the past year with purchased CAP water expenses for the same period as well as projections of the upcoming year's expenses and revenues. These calculations determine the new GSF, which is implemented in March. The GSF may increase or decrease due to the reconciliation of the past year's revenues, sales volumes and expenses. The end

[1] Decision No. 65655 (February 20, 2003) at 2.

result is complete recovery of all associated purchased CAP water expenses and credits, no more and no less.

**Q. IN DECISION NO. 72046 (DECEMBER 10, 2010), WHAT WAS THE COMMISSION'S FINDING PERTAINING TO THE GSF MECHANISM?**

A. The decision adopted Staff's recommendation because Staff believed that "the Company should include the CAP capital and delivery charges and the offsetting replenishment credits in its costs included in its base rates, thereby eliminating the need for the GSF surcharge in the future." Therefore, we were ordered to eliminate the GSF in the next rate filing, which is this one.

**Q. BUT ISN'T ELIMINATION OF THE GSF SOMEWHAT INCONSISTENT WITH THE COMMISSION'S RECENT DECISIONS AND POLICIES INTENDED TO REDUCE REGULATORY LAG AND IMPLEMENT RATE GRADUALISM IN THE RECOVERY OF COSTS?**

A. Yes. Two examples are the Commission's recent decisions adopting System Improvement Benefits (SIB) Mechanisms for Arizona Water Company and Global Water, and the recent ACC Staff recommendation for the authorization of a Sustainable Water Surcharge in Chaparral City Water Company's general rate case application, Docket No. W-2113A-13-0118, the latter being very similar in nature to the GSF discussed herein.[2] These recent actions are intended to reduce regulatory lag and implement rate gradualism in the recovery of costs. As a result, EWAZ respectfully asks that the Commission reconsider this directive in this proceeding.

[2] *Arizona Water Company*, Decision No. 73938 (June 27, 2013); *Global Water*, Decision No. 74364 (February 26, 2014); Direct Testimony of Gerald Becker in Docket No. W-02113A-13-0118 (Staff does not oppose Chaparral City Water Company's request for a purchased water surcharge referred in that case as a Sustainable Water Surcharge).

C. **Request to Retain the GSF**

**Q. WHY DO YOU BELIEVE THE COMPANY WAS ORDERED TO DISCONTINUE THE GSF?**

A. In several years preceding the order, the Company did not file adjustments to the GSF surcharge mechanism on a timely basis. I believe that this was the root cause for Staff's recommendation to eliminate the GSF Surcharge in a subsequent rate case.

**Q. SINCE THE ISSUANCE OF DECISION NO. 72046, HAS THE COMPANY MADE TIMELY GSF FILINGS?**

A. Yes. The Company has improved its internal process for calculating and filing the annual adjustment to the surcharge each year. We have made the filings on time each year since Decision No. 72046.

**Q. WHY IS THE COMPANY ASKING TO RETAIN THE GSF MECHANISM?**

A. The GSF mechanism is an efficient mechanism that allows for the timely recovery of CAP-related expenses that are not within the Company's control. The GSF also provides customers with the important pricing signals associated with this source of water. In addition, there are several uncertainties that exist today that were not contingencies at the time of the Commission's issuance of Decision No. 72046, such as the Navajo Generating Station and the impact its ultimate resolution will have on CAP water prices.

**Q. WHY IS IT IMPORTANT THAT EWAZ RECOVER ITS CAP COSTS ON A TIMELY BASIS?**

A. The customers need this resource and EWAZ needs to be able to pay the associated invoices when they are due. However, the costs of CAP water are considerable, they can also fluctuate, and these costs are destined to increase significantly and more regularly in the near future. The current surcharge mechanism provides for

recovery of the costs associated with retaining the allocations of CAP water for the Sun City Water District's customers. In addition, the delivery costs associated with the water that is recharged into the aquifer are also allowed recovery under the mechanism. The current surcharge mechanism computes the costs of water for the upcoming period and recovers those expenses from customers as the costs are incurred. Any credits received for the recharge (i.e. storage credits) are flowed through the mechanism as they are received. By charging customers in the period that the costs are incurred, the appropriate pricing signals are given to the customers while providing recovery of costs incurred by the Company without a drain on earnings.

**Q. WHY CAN'T THE COMPANY JUST RECOVER THESE SAME COSTS THROUGH BASE RATES?**

A. Base rates are able to reflect costs at a point in time and CAP water charges change every year. If CAP-related expenses are included as an expense in base rates, the Company would under-recover the purchased water costs every year that CAP rates are greater than the rates included in base rates. Any under-recovery of this purchased CAP water expense will restrain EWAZ's ability to earn its authorized return on its invested capital. The drain on earnings may also lead to more frequent rate applications in order to recover those rising CAP-related expenses, in turn resulting in higher rate increases, rather than gradual annual increases under the GSF surcharge that track the increases that the Central Arizona Water Conservation District ("CAWCD") imposes each year.

**Q. SO CAWCD CHANGES THE COST OF CAP WATER EVERY YEAR?**

A. Yes, each year, CAWCD revises the rates it charges for CAP water so that it covers its operating expenses. This annual change can and has been large. Tables 1 and 2

display the historical and projected cost increases, respectively, as published by CAWCD and projected by the Company.

Table 1 Historical CAP Prices in Dollars Per Acre Foot

| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| **Capital Charge** | $ 18 | $ 15 | $ 15 | $ 15 | $ 15 |
| **Water Delivery Charge** | $ 108 | $ 118 | $ 122 | $ 122 | $ 129 |
| **Total** | $ 126 | $ 133 | $ 137 | $ 137 | $144 |
| **Percentage Change** | | 5.56% | 3.01% | 0.00% | 5.11% |

Table 2 Projected CAP Prices in Dollars Per Acre Foot

| Year | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| **Capital Charge** | $ 20 | $ 21 | | | |
| **Water Delivery Charge** | $ 146 | $ 157 | | | |
| **Total** | $ 166 | $ 178 | $189[3] | $ 200 | $ 212 |
| **Percentage Change** | 15.28% | 7.23% | 6.03% | 6.03% | 6.03% |

**Q. HAS THE COMPANY QUANTIFIED THIS POTENTIAL UNDER-RECOVERY IF THE GSF MECHANISM IS DISCONTINUED?**

A. Yes. CAP expense for the Sun City Water District is $678,618 using the 2015 projected prices published by CAWCD. Using this expense amount as the amount that would be in base rates and the historical average cost increase in CAP water pricing of 6.03 percent, $44,962 will be unrecovered in CAP expenses by 2016. Each year this unrecovered CAP expense grows. As Table 3 below displays, this could cost the Company over $700,000 by 2020.

[3] CAWCD discontinued the practice of providing 4 years of projected rates and today only projects 1 year. The most recent 10-year (2006 – 2015) average price change of 6.03 percent was used to project future CAP prices. CAP prices for 2006 – 2015 are provided in Exhibit JCL -1.

Table 3 Projected Future Losses Associated with CAP Water for the Sun City Water District

| Year | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| **2015 Projected Expense**[4] | 678,618 | 678,618 | 678,618 | 678,618 | 678,618 |
| **Projected Actual Expense**[5] | 723,580 | 771,253 | 821,801 | 875,397 | 932,225 |
| **Unrecovered Amount** | 44,962 | 92,635 | 143,183 | 196,779 | 253,607 |
| **Cumulative Unrecovered Amount** | 44,962 | 137,597 | 280,780 | 477,559 | 731,166 |

**Q. IS THE HISTORICAL AVERAGE PRICE INCREASE IN CAP WATER AN ACCURATE PREDICTOR OF FUTURE CAP WATER PRICES?**

A. No, CAP water prices are expected to increase at an even greater rate in the future, as I discuss further below. For now, it is clear that we face many uncertainties with CAWCD that can lead to significantly larger price increases in the future.

**Q. HOW DOES THIS EXPENSE INCREASE FIT IN WITH OTHER EXPENSE INCREASES THAT THE COMPANY EXPERIENCES?**

A. In the last rate case, the 2008 adjusted test year authorized operation and maintenance expense excluding the cost of purchased water was $6,582,548. Today, the July 1, 2012 – June 30, 2013 adjusted test year operation and maintenance expense is $7,048,944, representing a 7 percent increase. From 2008 to today, CAP water prices increased 48.2 percent.[6] CAP water increases have significantly outpaced other operation and maintenance expense increases.

[4] Using the projected 2015 expense including the following: (4,189 acre feet of CAP water times the CAP published rate for 2015) minus (4,189 acre feet of CAP water times $16 per care foot credit from Maricopa Water District) = $678,618.

[5] The projected annual increase in CAP water prices uses the ten-year annual average of 6.03%.

[6] Exhibit JCL-1 contains historic CAP prices.

**Q. HOW DOES THE GSF MECHANISM BENEFIT THE CUSTOMERS?**

A. It allows for the exact recovery of this known and essential expense and when faced with CAP water price increases, it allows a means to recover the cost increases without having to file rate cases and incur the costs associated with rate filings. Since the surcharge is intended to match the associated expense and changes in number of customers and usage are also factors in the surcharge calculation, customers will also benefit from any decreases in CAP prices that may occur. The surcharge also allows for a proper water policy to continue to be implemented.

**Q. WHAT WILL HAPPEN IF THE COMMISSION DOES NOT ALLOW THE GSF MECHANISM TO CONTINUE?**

A. Two things will occur. The Company will begin to lose money on the purchase of CAP water and may be forced to come in for rate increases sooner than otherwise would be necessary. Table 3 above shows the potential losses on purchased water expense that the Company will face in its Sun City Water District.

**Q. PREVIOUSLY YOU MENTIONED THAT THERE ARE UNCERTAINTIES FACING CAWCD THAT MAY LEAD TO ADDITIONAL CAP WATER PRICE INCREASES. PLEASE DISCUSS THESE UNCERTAINTIES.**

A. There is a very strong possibility that CAP water rates will rise faster than the published rates due to several uncertainties. First, CAWCD has already been faced with rapidly increasing costs and shortfalls in revenue and has begun to deplete its cash reserves. In March 2013, CAWCD held a special Board meeting and went over their cost increases in great detail, identifying revenue shortfalls, and options to remedy the situation. Raising the 2014 CAP rates was one clear and likely option for the Board to address the issue. Another option that CAWCD Board members and staff considered is reconciliation, a practice whereby CAWCD

reconciles its costs at the end of the year and adjusts the per acre foot price for the water that was already purchased.

**Q. DOES CAWCD HAVE AUTHORITY TO DO THIS?**

A. I believe so. Reconciliation has always been available to CACWD and is delineated in all of its CAP Subcontracts for water. At the time of the CAWCD Board discussions in March 2013, the issues at CAWCD were of a significant enough nature that there were discussions of an $8.00 per acre-foot increase on the 2012 and 2013 Water Delivery Charge.

**Q. DID CAWCD RECONCILE ITS RATES FOR 2012 AND 2013?**

A. No. After hearing from the community, the CAWCD board ultimately voted against using the reconciliation procedure for 2012 and 2013, and instead elected to address their financial strain in other ways such as increasing the 2014 rate. The CAWCD board did note that in the future it would exercise its authority to reconcile rates as necessary.

**Q. THANK YOU. PLEASE CONTINUE WITH YOUR DISCUSSION OF THE ISSUES CAWCD FACES THAT MAY CAUSE RAPID COST INCREASES.**

A. Second, CAWCD obtains virtually all of its electricity from the Navajo Generating Station ("NGS") located in Northern Arizona.[7] NGS is currently faced with an EPA rulemaking that would require its owners to make substantial changes or retrofits to comply with the rulemaking.[8] In fact, these changes are so substantial (over $1 billion in costs) that the NGS owners have discussed the possible closure of the plant. If NGS is actually shut down, CAWCD will have to purchase more expensive electricity on the market. If the changes are made at NGS, the increased

[7] According to the CAP website, NGS provides more than 90% of the power CAP needs to provide water. *See* http://www.cap-az.com/index.php/public/navajo-generating-station.

[8] EPA published its proposed rule on February 5, 2013 at 78 C.F.R. 24.

costs will translate into higher electricity prices ultimately increasing CAP prices. Additionally, the EPA is considering other alternatives relating to NGS in the rulemaking, including a proposal to close down one unit at NGS but keeping the other two units open subject to additional pollution controls. Needless to say, if any of these alternatives occur, it will cause significant cost increases to CAWCD that will in turn raise its CAP water rates.

**Q. CAN THE COMPANY ABSORB THESE ADDITIONAL EXPENSES SHOULD THEY OCCUR?**

A. No, at least not without sacrificing the opportunity to earn its authorized return. This is exactly why surcharges exist or should be created - to allow the Company full recovery of a vital expense for renewable water resources where costs are significant, unpredictable and uncertain.

**Q. ARE YOU AWARE OF ANY COMPELLING REASONS TO ELIMINATE THE GSF UNDER THE CURRENT CIRCUMSTANCES?**

A. Honestly, no. We cannot think of any good reason to eliminate the GSF at this time. At the risk of repeating myself, eliminating the GSF will almost certainly result in EWAZ under recovering costs associated with using and retaining its CAP allocation, in turn jeopardizing the Commission's policy of encouraging and incentivizing use of renewable water sources and leading to more frequent rate cases, undermining the policy of rate gradualism, and depriving EWAZ of a reasonable opportunity to earn its authorized return.

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## III. RETENTION OF THE PARADISE VALLEY CAP SURCHARGE MECHANISM

### A. Background – Water Supplies

**Q. PLEASE DESCRIBE THE WATER SUPPLIES AVAILABLE TO THE COMPANY FOR ITS PARADISE VALLEY WATER DISTRICT.**

A. The Company has six wells located within and producing water for this district. EWAZ also has a CAP allocation in the amount of 3,231 acre-feet for this water district. The Company has approximately 4.5 million gallons of storage.

**Q. HOW DOES THE COMPANY USE WATER FROM THESE SOURCES FOR ITS CUSTOMERS?**

A. The wells are used to serve the residential and commercial customers in this district. The CAP water for the Paradise Valley District is used to recharge the aquifer.

**Q. HOW DOES THE COMPANY RECOVER THE COST OF THE CAP WATER IT PURCHASES EACH YEAR?**

A. CAP water charges are recovered through the Commission-authorized CAP Surcharge.

### B. Background – CAP Surcharge

**Q. PLEASE DESCRIBE THE CAP SURCHARGE MECHANISM.**

A. The CAP surcharge mechanism was approved to allow for the complete recovery of CAP-related expenses so that the Company could retain its CAP allocation for the Paradise Valley Water District. The CAP surcharge is a separate charge on customers' bills and is very similar to the Sun City Water District's GSF surcharge described above.

More specifically, the CAP surcharge mechanism is designed to include all M&I capital and delivery costs associated with using the CAP allocation offset by

any storage credits. In January of each year, the Company files for an adjustment to the surcharge to charge its customers. This annual filing includes a reconciliation of past revenue collected via the surcharge with past CAP expense as well as projections of the upcoming year's expenses and revenues. These calculations determine the new surcharge to be implemented in March of that year. Due to the reconciliation of the past year's revenues, sales volumes and expenses, the surcharge may increase or decrease. The end result is complete recovery of all associated purchased CAP water expenses and credits, no more and no less, with appropriate price signals being sent to customers.

**C. Request to Retain the CAP Surcharge**

**Q. WHY DOES THE COMPANY NEED TO SEEK TO RETAIN THE CAP SURCHARGE MECHANISM FOR PARADISE VALLEY WATER DISTRICT IN THIS CASE?**

A. Because in Decision No. 71841, dated August 10, 2010, ACC Staff recommended "that, in its next rate application filed for the Paradise Valley Water District, the Company should include the CAP capital and delivery charges in its costs in base rates, thereby eliminating the CAP surcharge." The Commission, on page 5 of that decision, ordered that the Company "shall include the CAP capital and delivery charges in its costs in base rates and eliminate the CAP surcharge in the next rate increase application filed for its Paradise Valley District."

**Q. WOULD ELIMINATION OF THE CAP SURCHARGE BE CONSISTENT WITH THE COMMISSION'S RECENT DECISIONS AND POLICIES?**

A. No, as with the GSF mechanism discussed above, elimination of the CAP surcharge for this district would be inconsistent with the Commission's recent SIB decisions, and a recent Staff recommendation for the authorization of a Sustainable Water Surcharge for Chaparral City Water Company. As discussed above, these

recent actions apply equally to the CAP Surcharge for the Paradise Valley Water District.

**Q. WHY DO YOU BELIEVE THE COMPANY WAS ORDERED TO DISCONTINUE THE CAP SURCHARGE?**

A. As with the GSF, the Company had not filed adjustments to the CAP surcharge mechanism on a timely basis. However, as is also the case with the GSF, EWAZ has improved its process for calculating and filing the annual adjustment to the surcharge, and we have made the filings on time each year since Decision No. 71841.

**Q. ARE THE REASONS FOR RETAINING THE CAP SURCHARGE SIMILAR TO THE REASONS FOR RETAINING THE GSF FOR THE SUN CITY WATER DISTRICT YOU DISCUSSED ABOVE?**

A. Yes. The CAP surcharge is also an efficient mechanism to allow timely recovery of critical and potentially volatile operating expenses that are not within the Company's control. Like the GSF, the current surcharge mechanism provides for recovery of the costs associated with retaining the allocation of CAP water for the Paradise Valley Water District customers. The current surcharge mechanism computes the costs of water for the upcoming period and recovers those expenses from customers as the costs are incurred. Any credits received for the recharge (i.e. storage credits) are flowed through the mechanism as they are received. By charging customers in the period that the costs are incurred, it sends the appropriate pricing signals to customers while providing recovery of costs incurred by the Company without any drain on earnings.

Finally, as with the GSF, recovery of CAP costs through base rates is an ineffective solution because the costs of CAP water changes every year, as I discussed in detail above in this testimony. The CAP surcharge allows the

Company to continue to pay for CAP-related expenses while recovering the year-over-year increases/decreases in CAP unit prices. If CAP-related expenses are included as an expense in base rates, the Company would almost certainly under recover some of the dollars expended to purchase CAP water due to the annual increases in costs. The result severely impedes the Company's opportunity to earn its authorized return on its invested capital.

**Q. HAS THE COMPANY CALCULATED THE POTENTIAL FOR UNDER-RECOVERY IF THE CAP SURCHARGE IS DISCONTINUED?**

A. Yes. Projected 2015 CAP expense is $523,422 using the 2015 projected prices published by CAWCD. Using this projected 2015 expense of $523,422 as the basis and the historical average cost increase in CAP water prices of 6.03 percent, $34,679 will be unrecovered in CAP expenses by 2016. Each year this unrecovered CAP expense grows. As Table 4 below displays, this grows to over $500,000 by 2020 for the Paradise Valley Water District.

Table 4 Projected Future Losses Associated with CAP Water for the Paradise Valley Water District

| Year | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| **Projected 2015 Expense**[9] | 523,422 | 523,422 | 523,422 | 523,422 | 523,422 |
| **Projected Actual Expense**[10] | 558,101 | 594,872 | 633,860 | 675,199 | 719,030 |
| **Unrecovered Amount** | 34,679 | 71,450 | 110,438 | 151,777 | 195,608 |
| **Cumulative Unrecovered Amount** | 34,679 | 106,130 | 216,567 | 368,344 | 563,953 |

[9] The 2015 projected expense includes the following: (3,231 acre feet of CAP water times the CAP published rate for 2015) minus (3,231 acre feet of CAP water times $16 per acre foot credit from Maricopa Water District) = $523,422.

[10] The projected annual increase in CAP water prices uses the ten-year annual average of 6.03%.

**Q. HOW DOES THIS EXPENSE INCREASE FIT IN WITH OTHER EXPENSE INCREASES THAT THE COMPANY EXPERIENCES?**

A. In the last rate case, the 2006 adjusted test year authorized operation and maintenance expense was $3,578,094. Today, the July 1, 2012 – June 30, 2013 adjusted test year operation and maintenance expense is $4,318,618, representing a 20.7 percent increase. From 2006 to today, CAP water prices increased 56.6 percent. CAP water increases have significantly outpaced other operation and maintenance expense increases. Therefore, for the same reasons we need to retain the GSF, EWAZ should be allowed to retain its CAP Surcharge for the Paradise Valley Water District.

**D. <u>Correction of the Power Cost Savings Component of the CAP Surcharge</u>**

**Q. PLEASE EXPLAIN THE POWER COST SAVINGS COMPONENT OF THE CURRENT CAP SURCHARGE CALCULATION.**

A. The current CAP Surcharge calculation includes an adjustment that reduces purchased water charges by $179,225, and has been referred to as Power Cost Savings. The Power Cost Savings relate to pumping power expenses that were avoided, i.e. not incurred, as a result of the CAP water exchange between EWAZ's predecessor and Salt River Project ("SRP"). This exchange of water has not occurred since 2008. The Company proposed to eliminate the Power Cost Savings in its 2009 annual surcharge filing, but this request was denied. However, since the exchange is not occurring, and the power costs included in this rate application are based on the current level of power expense, the Power Cost Savings should be eliminated from the calculation of the purchased CAP water surcharge after a decision is issued in this case.

**Q. WHAT HAS THE IMPACT OF INCLUDING THIS POWER COST SAVINGS BEEN TO THE COMPANY?**

A. The Company has been reducing its recoverable CAP water expenses by $179,225 each year since January 2008 to include power cost savings in its CAP surcharge reconciliations even though the CAP water exchange with SRP that gave rise to the power cost savings was no longer occurring. Over the six years, this totals $1,075,350. This is the amount of CAP expense that the Company did not recover due to the inclusion of the Power Cost Savings adjustment in the calculation of the CAP surcharge since 2008.

**Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

A. Yes.

# Exhibit JCL -1

*Approved: June 22, 2006*

# CENTRAL ARIZONA PROJECT
# FINAL 2007/2008 RATE SCHEDULE

## DELIVERY RATES FOR VARIOUS CLASSES OF WATER SERVICE

**Units = $/ acre-foot**

**(The Letter Designations in the Formulas Refer to the Rate Components Shown Below)**

| | 2006 | Firm 2007 | Firm 2008 | Advisory 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|
| **Municipal and Industrial** | | | | | | | |
| Long Term Subcontract (C+D) [1] | $ 82 | **$ 87** | **$ 95** | $ 105 | $ 113 | $ 118 | $ 123 |
| Excess Water (A+C+D) | 106 | **108** | **116** | 126 | 118 | 123 | 128 |
| AWBA/CAGRD Recharge (0.1xC+E+H) [2] | 82 | **61** | **51** | TBD | TBD | TBD | TBD |
| Incentive Recharge (0.1xC+E+H) [2] | 82 | **61** | **51** | TBD | TBD | TBD | TBD |
| AWBA Interstate Recharge (A+C+F+G) [3] | 174 | **210** | **217** | 233 | 217 | 154 | 162 |
| **Federal** (C+D) | $ 82 | **$ 87** | **$ 95** | $ 105 | $ 113 | $ 118 | $ 123 |
| **Agricultural** | | | | | | | |
| Settlement Pool (D) [4] | $ 33 | **$ 35** | TBD | TBD | TBD | TBD | TBD |
| Long Term Subcontract (B+C+D) [5] | 84 | **89** | **97** | 107 | 115 | 120 | 125 |
| **Miscellaneous (E+$5/af)** | $ 77 | **$ 56** | **$ 46** | $ 54 | $ 65 | $ 75 | $ 71 |

## RATE COMPONENTS

**Units = $/acre-foot**

| | 2006 | Firm 2007 | Firm 2008 | Advisory 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|
| **Capital Charges** | | | | | | | |
| (A) Municipal and Industrial - Long Term Subcontract [6] | $ 24 | **$ 21** | **$ 21** | $ 21 | $ 5 | $ 5 | $ 5 |
| (B) Agricultural - Long Term Subcontract [5] | 2 | **2** | **2** | 2 | 2 | 2 | 2 |
| **Delivery Charges** | | | | | | | |
| (C) Fixed OM&R [7] | $ 49 | **$ 52** | **$ 55** | $ 62 | $ 67 | $ 71 | $ 77 |
| (D) Pumping Energy Rate 1 [8] | 33 | **35** | **40** | 43 | 46 | 47 | 46 |
| (E) Pumping Energy Rate 2 [9] | 72 | **51** | **41** | 49 | 60 | 70 | 66 |
| (F) Pumping Energy Rate 3 [10] | 80 | **112** | **115** | 122 | 117 | 51 | 50 |
| (G) Property Tax Equivalency [11] | 21 | **25** | **26** | 28 | 28 | 27 | 30 |
| (H) Lost Federal Revenues [12] | 5 | **5** | **5** | TBD | TBD | TBD | TBD |

### Qualifications for Various Classes of Water Service

Long-Term Municipal and Industrial (M&I) Subcontract: M&I subcontractors.
Excess: M&I users who are not subcontractors and the CAGRD; rate is for "as available" water.
AWBA/CAGRD and M&I Incentive Underground Water Storage: The Arizona Water Banking Authority (available for scheduling after all other schedules have been filled) and M&I subcontractors and other Arizona entities who have valid Arizona Department of Water Resources permits and accrue long-term recharge/storage credits from this activity.

*Approved: June 22, 2006*

# CENTRAL ARIZONA PROJECT
# FINAL 2007/2008 RATE SCHEDULE

## DIRECT UNDERGROUND WATER STORAGE

Units = $/acre-foot

| | 2006 | Firm 2007 | Firm 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|
| | | | | Advisory | | | |
| **Underground WaterStorage O&M** [13] | | | | | | | |
| Phoenix AMA | $ 8 | **$ 8** | **$ 8** | $ 9 | $ 10 | $ 11 | $ 13 |
| Tucson AMA | 12 | **13** | **15** | 17 | 19 | 21 | 23 |
| **Underground Water Storage Capital Charge** [14] | | | | | | | |
| Phoenix AMA | $ 15 | **$ 15** | **$ 15** | $ 15 | $ 15 | $ 15 | $ 15 |
| Tucson AMA | 9 | **9** | **9** | 9 | 9 | 9 | 9 |

## CENTRAL ARIZONA GROUNDWATER REPLENISHMENT DISTRICT ASSESSMENT RATES

Units = $/acre-foot

| | Historic 2005/06 | Firm 2006/07 | Firm 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 |
|---|---|---|---|---|---|---|---|
| | | | | Advisory | | | |
| **Phoenix Active Management Area** | | | | | | | |
| Water & Replenishment Component [15] | $ 101 | **$ 107** | ***$ 112*** | $ 120 | *$ 122* | $ 128 | $ 134 |
| Administrative Component [16] | 40 | **30** | **28** | 27 | 27 | 27 | 27 |
| Infrastructure & Water Rights Component [17] | 40 | **77** | **79** | 82 | 84 | 87 | 89 |
| Replenishment Reserve Charge [18] | 31 | **22** | **21** | *22* | *28* | *37* | 39 |
| Total Assessment Rate ($/AF) | $ 212 | **$ 236** | ***$ 240*** | *$ 251* | *$ 261* | *$ 279* | $ 289 |
| **Pinal Active Management Area** | | | | | | | |
| Water & Replenishment Component [15] | $ 81 | **$ 79** | ***$ 87*** | *$ 97* | *$ 89* | *$ 94* | *$ 100* |
| Administrative Component [16] | 40 | **30** | **28** | 27 | 27 | 27 | 27 |
| Infrastructure & Water Rights Component [17] | 40 | **77** | **79** | 82 | 84 | 87 | 89 |
| Replenishment Reserve Charge [18] | 31 | **24** | ***25*** | 24 | *30* | 34 | 33 |
| Total Assessment Rate ($/AF) | $ 192 | **$ 210** | ***$ 219*** | *$ 230* | *$ 230* | *$ 242* | *$ 249* |
| **Tucson Active Management Area** | | | | | | | |
| Water & Replenishment Component [15] | $ 115 | **$ 123** | ***$ 133*** | *$ 145* | *$ 139* | *$ 146* | *$ 153* |
| Administrative Component [16] | 40 | **30** | **28** | 27 | 27 | 27 | 27 |
| Infrastructure & Water Rights Component [17] | 40 | **77** | **79** | 82 | 84 | 87 | 89 |
| Replenishment Reserve Charge [18] | 31 | **21** | **25** | 28 | *35* | *42* | 40 |
| Total Assessment Rate ($/AF) | $ 226 | **$ 251** | ***$ 265*** | *$ 282* | *$ 285* | *$ 302* | *$ 309* |
| **Contract Replenishment Tax - Scottsdale** [19] | | | | | | | |
| Cost of Water | $ 107 | **$ 106** | **$ 108** | *$ 116* | *$ 126* | *$ 118* | *$ 123* |
| Cost of Transportation | 0 | **0** | **0** | 0 | 0 | 0 | 0 |
| Cost of Replenishment | 0 | **0** | **0** | 0 | 0 | 0 | 0 |
| Administrative Component [16] | 40 | **30** | **28** | 27 | 27 | 27 | 27 |
| Total Tax Rate ($/AF) | $ 147 | **$ 136** | **$ 136** | *$ 143* | *$ 153* | *$ 145* | *$ 150* |

## ENROLLMENT & ACTIVATION FEES

Units = $/Housing Unit

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Enrollment Fee** [20] | $ 20 | **$ 23** | **$ 23** | $ 24 | $ 24 | $ 25 | $ 26 |
| **Activation Fee** [20] | 60 | **62** | **63** | 66 | 67 | 70 | 71 |

*Approved: June 22, 2006*

## CENTRAL ARIZONA PROJECT
## FINAL 2007/2008 RATE SCHEDULE

***NOTES:***

1 Does not include the Capital Charge.

2 Rate is 10% of the Fixed OM&R Component plus the Pumping Energy Rate 2 component plus a component to compensate for loss of revenue from Federal deliveries resulting from adding AWBA, M&I/CAGRD Incentive Underground Water Storage, and SRP bring your own power deliveries (derived by formula). Rules regarding the eligibility for and use of M&I Incentive Underground Water Storage are shown on page 1.

3 Rate is the Fixed OM&R component plus the Pumping Energy Rate 3 component plus the M&I Capital Charge plus an equivalency tax component.

4 Rate is the Pumping Energy Rate 1 component.

5 Ag capital charge is part of the delivery rate.

6 Capital charge is paid on full allocation regardless of amount delivered; not included in delivery rates.

7 Fixed OM&R costs divided by projected total water volumes plus a component to fund capital replacements. This amount is collected on all ordered water whether delivered or not.

8 Applies to all water deliveries except AWBA and M&I/CAGRD Incentive Underground Water Storage, AWBA Interstate and SRP bring-your-own power acre-feet. Net pumping energy costs divided by projected deliveries. This amount is collected only for water actually delivered.

9 Applies to AWBA and M&I/CAGRD Incentive Underground Water Storage, and Miscellaneous deliveries. Rate is the average of the prior 3 years actual or forecasted rate. This amount is collected only for water actually delivered.

10 Rate is based upon the estimated cost of purchasing CAP's highest cost energy (above threshold energy until 2011).

11 The rate is based upon the tax levy for the previous elapsed tax year divided by the average water deliveries (excluding Federal deliveries and water storage credits) for the three previous completed delivery years (e.g., for 2007 Rate, the tax equivalency is the levy for the 2005-2006 tax year divided by the average water deliveries for 2003, 2004 and 2005). The Advisory Rates are estimates.

12 A component to compensate for loss of revenues from Federal deliveries resulting from adding AWBA and M&I/CAGRD incentive and SRP bring your own power deliveries (derived by formula).

13 Underground Water Storage O&M is paid by all direct recharge customers using CAP recharge sites.

14 Underground Water Storage capital charge is paid by all direct recharge customers except AWBA for M&I firming, the CAGRD, municipal providers within the CAP service area and co-owners of CAWCD recharge facilities using no more than their share of capacity.

15 The Water & Replenishment Component includes the projected cost to purchase and recharge water. For 2006/2007, the water supply is assumed to be Excess CAP water at the full Excess CAP water rate. For the 2007/2008 advisory rate (based on purchases in 2008), it is assumed that CAGRD will use reclaimed effluent as part of its water supply to meet obligations. The total volume to be purchased and replenished includes the replenishment obligation and a sufficient volume to offset losses incurred during the replenishment process (1%). For the Phoenix and Tucson Active Management Areas (AMAs), replenishment will be accomplished at direct and indirect underground water storage facilities. For the Pinal AMA, replenishment will be accomplished at groundwater savings facilities.

16 The Administrative Component was established so that repayment of all CAWCD advances would occur by the end of 2007. $2/AF has been added to the Administrative component to help fund the CAGRD conservation program for years 2006/2007 through 2011/2012.

17 The Infrastructure & Water Rights Component was established to provide funds to (1) purchase long-term rights to water as opportunities arise, and (2) construct additional infrastructure facilities as the need arises in the future.

18 The Replenishment Reserve Charge is based on a program to establish a replenishment reserve of long-term storage credits as required by statutes. Excess CAP water will be purchased at the CAP Incentive Recharge rate and stored at a combination of direct recharge facilities and groundwater savings facilities in the Phoenix and Tucson AMAs. In the Pinal AMA, credits will be purchased from CAP at the incentive recharge rate in accordance with Board policy adopted on October 6, 2005. This charge will be levied as provided in ARS Section 48-3774.01.

19 The components of the Contract Replenishment Tax - Scottsdale reflect the provisions in the Water Availability Status Contract to Replenish Groundwater Between CAWCD and Scottsdale.

20 The Enrollment Fee and Activation Fee reflect the fees established pursuant to the CAGRD Enrollment Fee and Activation Fee Policy adopted by the Board on May 6, 2004. $2 per housing unit has been added to the enrollment fee starting with the 2006/2007 period to help fund CAGRD's conservation program.

*Approved: June 22, 2006*
*Revised: August 2, 2007*

# CENTRAL ARIZONA PROJECT
# FINAL 2007/2008 RATE SCHEDULE

## DELIVERY RATES FOR VARIOUS CLASSES OF WATER SERVICE

**Units = $/ acre-foot**

**(The Letter Designations in the Formulas Refer to the Rate Components Shown Below)**

| | 2006 | Firm 2007 | Firm 2008 | Advisory 2009 | Advisory 2010 | Advisory 2011 | Advisory 2012 |
|---|---|---|---|---|---|---|---|
| **Municipal and Industrial** | | | | | | | |
| Long Term Subcontract (C+D) [1] | $ 82 | **$ 87** | **$ 91** | $ 105 | $ 113 | $ 118 | $ 123 |
| Excess Water (A+C+D) | 106 | **108** | **112** | 126 | 118 | 123 | 128 |
| AWBA/CAGRD Recharge (0.1xC+E+H) [2] | 82 | **61** | **51** | TBD | TBD | TBD | TBD |
| Incentive Recharge (0.1xC+E+H) [2] | 82 | **61** | **51** | TBD | TBD | TBD | TBD |
| AWBA Interstate Recharge (A+C+F+G) [3] | 174 | **210** | **217** | 233 | 217 | 154 | 162 |
| **Federal** (C+D) | $ 82 | **$ 87** | **$ 91** | $ 105 | $ 113 | $ 118 | $ 123 |
| **Agricultural** | | | | | | | |
| Settlement Pool (D) [4] | $ 33 | **$ 35** | **$ 36** | TBD | TBD | TBD | TBD |
| Long Term Subcontract (B+C+D) [5] | 84 | **89** | **93** | 107 | 115 | 120 | 125 |
| **Miscellaneous (E+$5/af)** | $ 77 | **$ 56** | **$ 46** | $ 54 | $ 65 | $ 75 | $ 71 |

## RATE COMPONENTS

**Units = $/acre-foot**

| | 2006 | Firm 2007 | Firm 2008 | Advisory 2009 | Advisory 2010 | Advisory 2011 | Advisory 2012 |
|---|---|---|---|---|---|---|---|
| **Capital Charges** | | | | | | | |
| (A) Municipal and Industrial - Long Term Subcontract [6] | $ 24 | **$ 21** | **$ 21** | $ 21 | $ 5 | $ 5 | $ 5 |
| (B) Agricultural - Long Term Subcontract [5] | 2 | **2** | **2** | 2 | 2 | 2 | 2 |
| **Delivery Charges** | | | | | | | |
| (C) Fixed OM&R [7] | $ 49 | **$ 52** | **$ 55** | $ 62 | $ 67 | $ 71 | $ 77 |
| (D) Pumping Energy Rate 1 [8] | 33 | **35** | **36** | 43 | 46 | 47 | 46 |
| (E) Pumping Energy Rate 2 [9] | 72 | **51** | **41** | 49 | 60 | 70 | 66 |
| (F) Pumping Energy Rate 3 [10] | 80 | **112** | **115** | 122 | 117 | 51 | 50 |
| (G) Property Tax Equivalency [11] | 21 | **25** | **26** | 28 | 28 | 27 | 30 |
| (H) Lost Federal Revenues [12] | 5 | **5** | **5** | TBD | TBD | TBD | TBD |

### Qualifications for Various Classes of Water Service

Long-Term Municipal and Industrial (M&I) Subcontract: M&I subcontractors.
Excess: M&I users who are not subcontractors and the CAGRD; rate is for "as available" water.
AWBA/CAGRD and M&I Incentive Underground Water Storage: The Arizona Water Banking Authority (available for scheduling after all other schedules have been filled) and M&I subcontractors and other Arizona entities who have valid Arizona Department of Water Resources permits and accrue long-term recharge/storage credits from this activity.

*Approved: June 22, 2006*
*Revised: August 2, 2007*

# CENTRAL ARIZONA PROJECT
# FINAL 2007/2008 RATE SCHEDULE

## DIRECT UNDERGROUND WATER STORAGE
Units = $/acre-foot

| | 2006 | Firm 2007 | Firm 2008 | Advisory 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|
| **Underground WaterStorage O&M** [13] | | | | | | | |
| Phoenix AMA | $ 8 | **$ 8** | **$ 8** | $ 9 | $ 10 | $ 11 | $ 13 |
| Tucson AMA | 12 | **13** | **15** | 17 | 19 | 21 | 23 |
| **Underground Water Storage Capital Charge** [14] | | | | | | | |
| Phoenix AMA | $ 15 | **$ 15** | **$ 15** | $ 15 | $ 15 | $ 15 | $ 15 |
| Tucson AMA | 9 | **9** | **9** | 9 | 9 | 9 | 9 |

## CENTRAL ARIZONA GROUNDWATER REPLENISHMENT DISTRICT ASSESSMENT RATES
Units = $/acre-foot

| | Historic 2005/06 | Firm 2006/07 | Firm 2007/08 | Advisory 2008/09 | 2009/10 | 2010/11 | 2011/12 |
|---|---|---|---|---|---|---|---|
| **Phoenix Active Management Area** | | | | | | | |
| Water & Replenishment Component [15] | $ 101 | **$ 107** | ***$ 112*** | $ 120 | *$ 122* | $ 128 | $ 134 |
| Administrative Component [16] | 40 | **30** | **28** | 27 | 27 | 27 | 27 |
| Infrastructure & Water Rights Component [17] | 40 | **77** | **79** | 82 | 84 | 87 | 89 |
| Replenishment Reserve Charge [18] | 31 | **22** | **21** | *22* | *28* | *37* | 39 |
| Total Assessment Rate ($/AF) | $ 212 | **$ 236** | ***$ 240*** | *$ 251* | *$ 261* | *$ 279* | $ 289 |
| **Pinal Active Management Area** | | | | | | | |
| Water & Replenishment Component [15] | $ 81 | **$ 79** | ***$ 87*** | *$ 97* | *$ 89* | *$ 94* | *$ 100* |
| Administrative Component [16] | 40 | **30** | **28** | 27 | 27 | 27 | 27 |
| Infrastructure & Water Rights Component [17] | 40 | **77** | **79** | 82 | 84 | 87 | 89 |
| Replenishment Reserve Charge [18] | 31 | **24** | ***25*** | 24 | *30* | 34 | 33 |
| Total Assessment Rate ($/AF) | $ 192 | **$ 210** | ***$ 219*** | *$ 230* | *$ 230* | *$ 242* | *$ 249* |
| **Tucson Active Management Area** | | | | | | | |
| Water & Replenishment Component [15] | $ 115 | **$ 123** | ***$ 133*** | *$ 145* | *$ 139* | *$ 146* | *$ 153* |
| Administrative Component [16] | 40 | **30** | **28** | 27 | 27 | 27 | 27 |
| Infrastructure & Water Rights Component [17] | 40 | **77** | **79** | 82 | 84 | 87 | 89 |
| Replenishment Reserve Charge [18] | 31 | **21** | **25** | 28 | *35* | *42* | 40 |
| Total Assessment Rate ($/AF) | $ 226 | **$ 251** | ***$ 265*** | *$ 282* | *$ 285* | *$ 302* | *$ 309* |
| **Contract Replenishment Tax - Scottsdale** [19] | | | | | | | |
| Cost of Water | $ 107 | **$ 106** | **$ 108** | *$ 116* | *$ 126* | *$ 118* | *$ 123* |
| Cost of Transportation | 0 | **0** | **0** | 0 | 0 | 0 | 0 |
| Cost of Replenishment | 0 | **0** | **0** | 0 | 0 | 0 | 0 |
| Administrative Component [16] | 40 | **30** | **28** | 27 | 27 | 27 | 27 |
| Total Tax Rate ($/AF) | $ 147 | **$ 136** | **$ 136** | *$ 143* | *$ 153* | *$ 145* | *$ 150* |

## ENROLLMENT & ACTIVATION FEES
Units = $/Housing Unit

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Enrollment Fee** [20] | $ 20 | **$ 23** | **$ 23** | $ 24 | $ 24 | $ 25 | $ 26 |
| **Activation Fee** [20] | 60 | **62** | **63** | 66 | 67 | 70 | 71 |

*Approved: June 22, 2006*
*Revised: August 2, 2007*

# CENTRAL ARIZONA PROJECT
# FINAL 2007/2008 RATE SCHEDULE

***NOTES:***

1 Does not include the Capital Charge.

2 Rate is 10% of the Fixed OM&R Component plus the Pumping Energy Rate 2 component plus a component to compensate for loss of revenue from Federal deliveries resulting from adding AWBA, M&I/CAGRD Incentive Underground Water Storage, and SRP bring your own power deliveries (derived by formula). Rules regarding the eligibility for and use of M&I Incentive Underground Water Storage are shown on page 1.

3 Rate is the Fixed OM&R component plus the Pumping Energy Rate 3 component plus the M&I Capital Charge plus an equivalency tax component.

4 Rate is the Pumping Energy Rate 1 component.

5 Ag capital charge is part of the delivery rate.

6 Capital charge is paid on full allocation regardless of amount delivered; not included in delivery rates.

7 Fixed OM&R costs divided by projected total water volumes plus a component to fund capital replacements. This amount is collected on all ordered water whether delivered or not.

8 Applies to all water deliveries except AWBA and M&I/CAGRD Incentive Underground Water Storage, AWBA Interstate and SRP bring-your-own power acre-feet. Net pumping energy costs divided by projected deliveries. This amount is collected only for water actually delivered.

9 Applies to AWBA and M&I/CAGRD Incentive Underground Water Storage, and Miscellaneous deliveries. Rate is the average of the prior 3 years actual or forecasted rate. This amount is collected only for water actually delivered.

10 Rate is based upon the estimated cost of purchasing CAP's highest cost energy (above threshold energy until 2011).

11 The rate is based upon the tax levy for the previous elapsed tax year divided by the average water deliveries (excluding Federal deliveries and water storage credits) for the three previous completed delivery years (e.g., for 2007 Rate, the tax equivalency is the levy for the 2005-2006 tax year divided by the average water deliveries for 2003, 2004 and 2005). The Advisory Rates are estimates.

12 A component to compensate for loss of revenues from Federal deliveries resulting from adding AWBA and M&I/CAGRD incentive and SRP bring your own power deliveries (derived by formula).

13 Underground Water Storage O&M is paid by all direct recharge customers using CAP recharge sites.

14 Underground Water Storage capital charge is paid by all direct recharge customers except AWBA for M&I firming, the CAGRD, municipal providers within the CAP service area and co-owners of CAWCD recharge facilities using no more than their share of capacity.

15 The Water & Replenishment Component includes the projected cost to purchase and recharge water. For 2006/2007, the water supply is assumed to be Excess CAP water at the full Excess CAP water rate. For the 2007/2008 advisory rate (based on purchases in 2008), it is assumed that CAGRD will use reclaimed effluent as part of its water supply to meet obligations. The total volume to be purchased and replenished includes the replenishment obligation and a sufficient volume to offset losses incurred during the replenishment process (1%). For the Phoenix and Tucson Active Management Areas (AMAs), replenishment will be accomplished at direct and indirect underground water storage facilities. For the Pinal AMA, replenishment will be accomplished at groundwater savings facilities.

16 The Administrative Component was established so that repayment of all CAWCD advances would occur by the end of 2007. $2/AF has been added to the Administrative component to help fund the CAGRD conservation program for years 2006/2007 through 2011/2012.

17 The Infrastructure & Water Rights Component was established to provide funds to (1) purchase long-term rights to water as opportunities arise, and (2) construct additional infrastructure facilities as the need arises in the future.

18 The Replenishment Reserve Charge is based on a program to establish a replenishment reserve of long-term storage credits as required by statutes. Excess CAP water will be purchased at the CAP Incentive Recharge rate and stored at a combination of direct recharge facilities and groundwater savings facilities in the Phoenix and Tucson AMAs. In the Pinal AMA, credits will be purchased from CAP at the incentive recharge rate in accordance with Board policy adopted on October 6, 2005. This charge will be levied as provided in ARS Section 48-3774.01.

19 The components of the Contract Replenishment Tax - Scottsdale reflect the provisions in the Water Availability Status Contract to Replenish Groundwater Between CAWCD and Scottsdale.

**CENTRAL ARIZONA PROJECT**
**FINAL 2007/2008 RATE SCHEDULE**

20 The Enrollment Fee and Activation Fee reflect the fees established pursuant to the CAGRD Enrollment Fee and Activation Fee Policy adopted by the Board on May 6, 2004. $2 per housing unit has been added to the enrollment fee starting with the 2006/2007 period to help fund CAGRD's conservation program.

*Adopted: June 19, 2008*
*Amended: June 4, 2009*

# CENTRAL ARIZONA PROJECT
# FINAL 2009/2010 RATE SCHEDULE

## DELIVERY RATES FOR VARIOUS CLASSES OF WATER SERVICE

Units = $/ acre-foot

(The Letter Designations in the Formulas Refer to the Rate Components Shown Below)

| | 2008 | Firm 2009 | Firm 2010 | Advisory 2011 | Advisory 2012 | Advisory 2013 | Advisory 2014 |
|---|---|---|---|---|---|---|---|
| **Municipal and Industrial** | | | | | | | |
| Long Term Subcontract (C+D) [1] | $ 91 | $ 108 | $ 118 | $ 127 | $ 136 | $ 144 | $ 149 |
| Excess Water (A+C+D) | 112 | 126 | 133 | 139 | 136 | 144 | 149 |
| Incentive Recharge [2] | 51 | 82 | 133 | N/A | N/A | N/A | N/A |
| AWBA Interstate Recharge (A+C+F+G) [3] | 219 | 233 | 231 | 165 | 165 | 175 | 184 |
| **Federal** (C+D) | $ 91 | $ 108 | $ 118 | $ 127 | $ 136 | $ 144 | $ 149 |
| **Agricultural** | | | | | | | |
| Settlement Pool (D) [4] | $ 36 | $ 45 | $ 49 | $ 50 | $ 53 | $ 56 | $ 58 |
| Long Term Subcontract (B+C+D) [5] | 93 | 110 | 120 | 129 | 136 | 144 | 149 |
| **Agricultural Incentives** [4] | | | | | | | |
| Meet Settlement Pool Goals | n/a | (6) | (6) | tbd | tbd | tbd | tbd |
| Meet AWBA/CAGRD GSF Goals | n/a | (1) | (2) | tbd | tbd | tbd | tbd |
| Meet Recovery Goals | n/a | (1) | (2) | tbd | tbd | tbd | tbd |
| **Miscellaneous** [6] | $ 46 | $ 82 | $ 133 | $ 139 | $ 136 | $ 144 | $ 149 |

## RATE COMPONENTS

Units = $/acre-foot

| | 2008 | Firm 2009 | Firm 2010 | Advisory 2011 | Advisory 2012 | Advisory 2013 | Advisory 2014 |
|---|---|---|---|---|---|---|---|
| **Capital Charges** | | | | | | | |
| (A) Municipal and Industrial - Long Term Subcontract [7] | $ 21 | $ 18 | $ 15 | $ 12 | $ - | $ - | $ - |
| (B) Agricultural - Long Term Subcontract [5] | 2 | 2 | 2 | 2 | - | - | - |
| **Delivery Charges** | | | | | | | |
| (C) Fixed OM&R [8] | $ 55 | $ 63 | $ 69 | $ 77 | $ 83 | $ 88 | $ 91 |
| (D) Pumping Energy Rate 1 [9] | 36 | 45 | 49 | 50 | 53 | 56 | 58 |
| (E) Pumping Energy Rate 2 [10] | 41 | 70 | 85 | n/a | n/a | n/a | n/a |
| (F) Pumping Energy Rate 3 [11] | 115 | 125 | 122 | n/a | n/a | n/a | n/a |
| (G) Property Tax Equivalency [12] | 28 | 27 | 25 | 26 | 29 | 31 | 35 |
| (H) Lost Federal Revenues [13] | 5 | n/a | n/a | n/a | n/a | n/a | n/a |

### Qualifications for Various Classes of Water Service

Long-Term Municipal and Industrial (M&I) Subcontract: M&I subcontractors.
Excess: M&I users who are not subcontractors and the CAGRD; rate is for "as available" water.
Incentive Recharge (AWBA/CAGRD and M&I Incentive Underground Water Storage): The Arizona Water Banking Authority (available for scheduling after all other schedules have been filled) and M&I subcontractors and other Arizona entities who have valid Arizona Department of Water Resources permits and accrue long-term recharge/storage credits from this activity.

*Adopted: June 19, 2008*
*Amended: June 4, 2009*

# CENTRAL ARIZONA PROJECT
# FINAL 2009/2010 RATE SCHEDULE

## DIRECT UNDERGROUND WATER STORAGE
Units = $/acre-foot

| | 2008 | Firm 2009 | Firm 2010 | Advisory 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|
| **Underground Water Storage O&M** [14] | | | | | | | |
| Phoenix AMA | $ 8 | $ 8 | $ 8 | $ 9 | $ 10 | $ 11 | $ 11 |
| Tucson AMA | 15 | 15 | 15 | 15 | 16 | 17 | 18 |
| **Underground Water Storage Capital Charge** [15] | | | | | | | |
| Phoenix AMA | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 | $ 15 |
| Tucson AMA | 9 | 9 | 9 | 9 | 9 | 9 | 9 |

## CENTRAL ARIZONA GROUNDWATER REPLENISHMENT DISTRICT ASSESSMENT RATES
Units = $/acre-foot

| | Historic 2007/08 | Firm 2008/09 | Firm 2009/10 | Advisory 2010/11 | 2011/12 | 2012/13 | 2013/14 |
|---|---|---|---|---|---|---|---|
| **Phoenix Active Management Area** | | | | | | | |
| Water & Replenishment Component [16] | $ 112 | $ 134 | $ 143 | $ 154 | $ 157 | $ 162 | $ 166 |
| Administrative Component [17] | 28 | 33 | 33 | 31 | 29 | 27 | 25 |
| Infrastructure & Water Rights Component [18] | 79 | 90 | 101 | 112 | 115 | 118 | 122 |
| Replenishment Reserve Charge [19] | 21 | 33 | 41 | 49 | 57 | 60 | 63 |
| Total Assessment Rate ($/AF) | $ 240 | $ 290 | $ 318 | $ 346 | $ 358 | $ 367 | $ 376 |
| **Pinal Active Management Area** | | | | | | | |
| Water & Replenishment Component [16] | $ 87 | $ 100 | $ 107 | $ 117 | $ 117 | $ 125 | $ 134 |
| Administrative Component [17] | 28 | 33 | 33 | 31 | 29 | 27 | 25 |
| Infrastructure & Water Rights Component [18] | 79 | 90 | 101 | 112 | 115 | 118 | 122 |
| Replenishment Reserve Charge [19] | 25 | 31 | 38 | 45 | 51 | 54 | 56 |
| Total Assessment Rate ($/AF) | $ 219 | $ 254 | $ 279 | $ 305 | $ 312 | $ 324 | $ 337 |
| **Tucson Active Management Area** | | | | | | | |
| Water & Replenishment Component [16] | $ 133 | $ 143 | $ 153 | $ 164 | $ 161 | $ 168 | $ 177 |
| Administrative Component [17] | 28 | 33 | 33 | 31 | 29 | 27 | 25 |
| Infrastructure & Water Rights Component [18] | 79 | 90 | 101 | 112 | 115 | 118 | 122 |
| Replenishment Reserve Charge [19] | 25 | 39 | 46 | 54 | 61 | 65 | 67 |
| Total Assessment Rate ($/AF) | $ 265 | $ 305 | $ 333 | $ 361 | $ 366 | $ 378 | $ 391 |
| **Contract Replenishment Tax - Scottsdale** [20] | | | | | | | |
| Cost of Water | $ 108 | $ 112 | $ 126 | $ 133 | $ 139 | $ 136 | $ 144 |
| Cost of Transportation | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cost of Replenishment | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Administrative Component [17] | 28 | 33 | 33 | 31 | 29 | 27 | 25 |
| Total Tax Rate ($/AF) | $ 136 | $ 145 | $ 159 | $ 164 | $ 168 | $ 163 | $ 169 |

## ENROLLMENT & ACTIVATION FEES
Units = $/Housing Unit

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Enrollment Fee** [21] | $ 23 | $ 74 | $ 83 | $ 92 | $ 94 | $ 96 | $ 100 |
| **Activation Fee** [21] | $ 63 | $ 72 | $ 81 | $ 90 | $ 92 | $ 94 | $ 98 |

*Adopted: June 19, 2008*
*Amended: June 4, 2009*

## CENTRAL ARIZONA PROJECT
## FINAL 2009/2010 RATE SCHEDULE

***NOTES:***

1 Does not include the Capital Charge.

2 Rate transitions to M&I rate in 2010 and is included in "Excess Water" beginning in 2011. This rate applies to all incentive recharge customers. Rules regarding the eligibility for and use of M&I Incentive Underground Water Storage are shown on page 1.

3 Rate is the Fixed OM&R component plus the Pumping Energy Rate 3 component plus the M&I Capital Charge plus an equivalency tax component. Starting in 2011 Pumping Energy Rate 1 replaces Pumping Energy Rate 3 as a rate component.

4 Rate is the Pumping Energy Rate 1 component. Incentives may be earned for meeting delivery goals in three areas. Any incentives earned can be applied to Settlement Pool deliveries.

5 Ag capital charge is billed separately from the delivery charge, but is based on deliveries.

6 Starting in 2009, the Miscellaneous Rate is the same as the Incentive Recharge Rate.

7 Capital charge is paid on full allocation regardless of amount delivered; not included in delivery rates.

8 Fixed O&M costs divided by projected total water volumes plus a component to fund capital replacements. This amount is collected on all ordered water whether delivered or not.

9 Applies to all water deliveries except AWBA and M&I/CAGRD Incentive Underground Water Storage, AWBA Interstate and SRP bring-your-own power acre-feet. Net pumping energy costs divided by projected deliveries. This amount is collected only for water actually delivered as opposed to scheduled.

10 Applies to AWBA and M&I/CAGRD Incentive Underground Water Storage and SRP bring-your-own power acre-feet. Rate is the average of the prior 3 years actual or forecasted rate. Starting in 2009 a $5/AF Energy Rate 2 catch-up component is included. The SRP rate is the incentive recharge rate less Energy Rate 2.

11 Rate is based upon the estimated cost of purchasing CAP's highest cost energy (above threshold energy until 2011).

12 The rate is based upon the tax levy for the previous elapsed tax year divided by the average water deliveries (excluding Federal deliveries and water storage credits) for the three previous completed delivery years (e.g., for 2009 Rate, the tax equivalency is the levy for the 2007-2008 tax year divided by the average water deliveries for 2005, 2006 and 2007). The Advisory Rates are estimates.

13 A component to compensate for loss of revenues from Federal deliveries resulting from adding AWBA and M&I/CAGRD incentive and SRP bring your own power deliveries (derived by formula). This component is eliminated starting with the 2009 rates.

14 Underground Water Storage O&M is paid by all direct recharge customers using CAP recharge sites.

15 Underground Water Storage capital charge is paid by all direct recharge customers except AWBA for M&I firming, the CAGRD, municipal providers within the CAP service area and co-owners of CAWCD recharge facilities using no more than their share of capacity.

16 The Water & Replenishment Component includes the projected cost to purchase and recharge water and effluent. For rate development purposes it was assumed that the replenishment of effluent would have the same cost as Excess CAP water recharged at a CAP state demonstration recharge project. The total volume to be purchased and replenished includes the replenishment obligation plus a sufficient volume to offset losses incurred during the replenishment process (generally 1% to 2.5%). For the Phoenix Active Management Area (AMA), replenishment will be accomplished at direct underground storage facilities (USFs) and groundwater savings facilities facilities (GSFs). For the Pinal AMA, replenishment will be accomplished at GSFs. For the Tucson AMA, replenishment will be accomplished at USFs.

17 The Administrative Component is designed to cover all CAGRD administrative costs. $2/AF has been added to this component to help fund the CAGRD conservation program.

18 The Infrastructure & Water Rights Component was established to provide funds to (1) purchase long-term rights to water as opportunities arise, and (2) construct additional infrastructure facilities as the need arises in the future.

19 The Replenishment Reserve Charge is based on a program to establish a replenishment reserve of long-term storage credits as required by statutes. Excess CAP water will be purchased at the CAP Incentive Recharge rate and stored at a combination of USFs and GSFs in the Phoenix and Tucson AMAs. In the Pinal AMA, credits will be purchased from CAP at the incentive recharge rate in accordance with Board policy adopted on October 6, 2005. This charge will be levied as provided in ARS Sections 48-3774.01 and 48-3780.01.

**CENTRAL ARIZONA PROJECT**
**FINAL 2009/2010 RATE SCHEDULE**

20 The components of the Contract Replenishment Tax - Scottsdale reflect the provisions in the Water Availability Status Contract to Replenish Groundwater Between CAWCD and Scottsdale. The rates reflect the assumption that Excess CAP water will be available to meet the associated contract replenishment obligations.

21 The Enrollment Fee and Activation Fee reflect the fees established pursuant to the CAGRD Enrollment Fee and Activation Fee Policy adopted by the Board on May 1, 2008. $2 per housing unit is included to the enrollment fee to help fund CAGRD's conservation program.

Final Updated
June 2, 2011

# CENTRAL ARIZONA PROJECT
# FINAL 2011/2012 RATE SCHEDULE UPDATE

## DELIVERY RATES FOR VARIOUS CLASSES OF WATER SERVICE

Units = $/ acre-foot

(The Letter Designations in the Formulas Refer to the Rate Components Shown Below)

| | 2010 | Firm 2011 | Firm 2012 | Advisory 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| **Municipal and Industrial** | | | | | | | |
| Long Term Subcontract (B+C) [1] | $ 118 | **$ 122** | **$ 122** | $ 126 | $ 129 | $ 137 | $ 141 |
| Non-Subcontract (A+B+C) | 133 | **137** | **137** | 141 | 139 | 142 | 141 |
| Recharge (A+B+C starting 2011) [2] | 133 | **137** | **137** | 141 | 139 | 142 | 141 |
| AWBA Interstate Recharge (A+B+E+F starting 2011) [3] | 236 | **167** | **163** | 164 | 162 | 166 | 167 |
| **Federal** (B+C) | $ 118 | **$ 122** | **$ 122** | $ 126 | $ 129 | $ 137 | $ 141 |
| **Agricultural** | | | | | | | |
| Settlement Pool (C) [4] | $ 49 | **$ 53** | **$ 49** | $ 50 | $ 51 | $ 56 | $ 58 |
| **Agricultural Incentives** [4] | | | | | | | |
| Meet Settlement Pool Goals | (6) | **(8)** | **(4)** | tbd | tbd | tbd | tbd |
| Meet AWBA/CAGRD GSF Goals | (2) | **(2)** | **(1)** | tbd | tbd | tbd | tbd |
| Meet Recovery Goals | (2) | **(2)** | **(1)** | tbd | tbd | tbd | tbd |

## RATE COMPONENTS

Units = $/acre-foot

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Capital Charges** | | | | | | | |
| (A) Municipal and Industrial - Long Term Subcontract [5] | $ 15 | **$ 15** | **$ 15** | $ 15 | $ 10 | $ 5 | $ - |
| **Delivery Charges** | | | | | | | |
| (B) Fixed OM&R [6] | $ 69 | **$ 69** | **$ 73** | $ 76 | $ 78 | $ 81 | $ 83 |
| (C) Pumping Energy Rate 1 [7] | 49 | **53** | **49** | 50 | 51 | 56 | 58 |
| (D) Pumping Energy Rate 2 [8] | 85 | **n/a** | **n/a** | n/a | n/a | n/a | n/a |
| (E) Pumping Energy Rate 3 [9] | 122 | **n/a** | **n/a** | n/a | n/a | n/a | n/a |
| (F) Property Tax Equivalency [10] | 30 | **30** | **26** | 23 | 23 | 24 | 26 |

### Qualifications for Various Classes of Water Service

Long-Term Municipal and Industrial (M&I) Subcontract: M&I subcontractors.
Non-Subcontract: M&I users who are not subcontractors and the CAGRD.
Recharge (AWBA/CAGRD and M&I Underground Water Storage): The Arizona Water Banking Authority and M&I subcontractors and other Arizona entities who have valid Arizona Department of Water Resources permits and accrue long-term recharge/storage credits from this activity.

## DIRECT UNDERGROUND WATER STORAGE

Units = $/acre-foot

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Underground Water Storage O&M** [11] | | | | | | | |
| Phoenix AMA | $ 8 | **$ 8** | **$ 8** | $ 8 | $ 8 | $ 8 | $ 8 |
| Tucson AMA | 15 | **15** | **15** | 15 | 15 | 15 | 15 |
| **Underground Water Storage Capital Charge** [12] | | | | | | | |
| Phoenix AMA | $ 15 | **$ 15** | **$ 15** | $ 15 | $ 15 | $ 15 | $ 15 |
| Tucson AMA | 9 | **9** | **9** | 9 | 9 | 9 | 9 |

Final Updated
June 2, 2011

# CENTRAL ARIZONA PROJECT
# FINAL 2011/2012 RATE SCHEDULE UPDATE

## CENTRAL ARIZONA GROUNDWATER REPLENISHMENT DISTRICT ASSESSMENT RATES

Units = $/acre-foot

| | 2009/10 | Firm 2010/11 | Firm 2011/12 | Advisory 2012/13 | 2013/14 | 2014/15 | 2015/16 |
|---|---|---|---|---|---|---|---|
| **Phoenix Active Management Area** | | | | | | | |
| Water & Replenishment Component [13] | $ 143 | **$ 140** | **$ 140** | $ 140 | $ 144 | $ 157 | $ 156 |
| Administrative Component [14] | 33 | **38** | **42** | 44 | 44 | 44 | 44 |
| Infrastructure & Water Rights Component [15] | 101 | **131** | **170** | 204 | 245 | 294 | 353 |
| Replenishment Reserve Charge [16] | 41 | **47** | **51** | 54 | 54 | 55 | 55 |
| Total Assessment Rate ($/AF) | $ 318 | **$ 356** | **$ 403** | $ 442 | $ 487 | $ 550 | $ 608 |
| **Pinal Active Management Area** | | | | | | | |
| Water & Replenishment Component [13] | $ 107 | **$ 110** | **$ 116** | $ 120 | $ 121 | $ 133 | $ 128 |
| Administrative Component [14] | 33 | **38** | **42** | 44 | 44 | 44 | 44 |
| Infrastructure & Water Rights Component [15] | 101 | **131** | **170** | 204 | 245 | 294 | 353 |
| Replenishment Reserve Charge [16] | 38 | **45** | **53** | 61 | 60 | 61 | 61 |
| Total Assessment Rate ($/AF) | $ 279 | **$ 324** | **$ 381** | $ 429 | $ 470 | $ 532 | $ 586 |
| **Tucson Active Management Area** | | | | | | | |
| Water & Replenishment Component [13] | $ 153 | **$ 155** | **$ 155** | $ 161 | $ 164 | $ 166 | $ 163 |
| Administrative Component [14] | 33 | **38** | **42** | 44 | 44 | 44 | 44 |
| Infrastructure & Water Rights Component [15] | 101 | **131** | **170** | 204 | 245 | 294 | 353 |
| Replenishment Reserve Charge [16] | 46 | **53** | **60** | 65 | 61 | 59 | 57 |
| Total Assessment Rate ($/AF) | $ 333 | **$ 377** | **$ 427** | $ 474 | $ 514 | $ 563 | $ 617 |
| **Contract Replenishment Tax - Scottsdale** [17] | | | | | | | |
| Cost of Water | $ 126 | **$ 133** | **$ 137** | $ 137 | $ 141 | $ 139 | $ 142 |
| Cost of Transportation | 0 | **0** | **0** | 0 | 0 | 0 | 0 |
| Cost of Replenishment | 0 | **0** | **0** | 0 | 0 | 0 | 0 |
| Administrative Component [14] | 33 | **38** | **42** | 44 | 44 | 44 | 44 |
| Total Tax Rate ($/AF) | $ 159 | **$ 171** | **$ 179** | $ 181 | $ 185 | $ 183 | $ 186 |

## CAGRD ENROLLMENT & ACTIVATION FEES

Units = $/Housing Unit

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Enrollment Fee** [18] | $ 83 | **$ 107** | **$ 138** | $ 165 | $ 198 | $ 237 | $ 284 |
| **Activation Fee** [18] | $ 81 | **$ 105** | **$ 136** | $ 163 | $ 196 | $ 235 | $ 282 |

## CAGRD ANNUAL MEMBERSHIP DUES

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Member Land Annual Membership Dues ($/Lot)** [19] | | | | | | | |
| Phoenix Active Management Area | -- | -- | **$ 6.88** | $ 8.80 | TBD | TBD | TBD |
| Pinal Active Management Area | -- | -- | **$ 0.90** | $ 1.15 | TBD | TBD | TBD |
| Tucson Active Management Area | -- | -- | **$ 4.34** | $ 5.55 | TBD | TBD | TBD |
| **Member Service Area Annual Membership Dues ($/AF)** [19] | -- | -- | **$10.35** | $13.32 | TBD | TBD | TBD |

Final Updated
June 2, 2011

# CENTRAL ARIZONA PROJECT
# FINAL 2011/2012 RATE SCHEDULE UPDATE

***NOTES:***

1 Does not include the Capital Charge.

2 Rate is equal to M&I rate starting in 2011. This rate applies to all recharge customers. Rules regarding the eligibility for and use of this class are shown on page 1. For 2010, the recharge rate consists of Energy Rate 2 and a contribution toward covering a portion of the Fixed OM&R Rate.

3 The 2010 rate is obtained by adding the Fixed OM&R component, the Pumping Energy Rate 3 component, the M&I Capital Chargeand an equivalency tax component. Starting in 2011 Pumping Energy Rate 1 replaces Pumping Energy Rate 3 as a rate component.

4 Rate is the Pumping Energy Rate 1 component. Incentives may be earned for meeting delivery goals in three areas. Any incentives earned can be applied to Settlement Pool deliveries.

5 Capital Charge is paid on full allocation regardless of amount delivered; not included in delivery rates.

6 Fixed O&M costs divided by projected total water volumes plus a components to fund capital replacements and a rate stabilization reserve. This amount is collected on all ordered water whether delivered or not.

7 Applies to all water deliveries starting in 2011. For 2010, water volumes were excluded for Recharge, AWBA Interstate and SRP bring-your-own power acre-feet. The calculation is pumping energy costs divided by projected volumes. This amount is collected only for water actually delivered as opposed to scheduled.

8 Energy Rate 2 is eliminated starting in 2011 due to new power agreements.

9 Energy Rate 3 is eliminated starting in 2011 due to new power agreements.

10 The rate is based upon the tax levy for the previous elapsed tax year divided by the average water deliveries (excluding Federal deliveries and water storage credits) for the three previous completed delivery years (e.g., for 2010, the tax equivalency is the levy for the 2008-2009 tax year divided by the average water deliveries for 2006, 2007 and 2008). The Advisory Rates are estimates. Note the 2010 rate has been revised.

11 Underground Water Storage O&M is paid by all direct recharge customers using CAP recharge sites.

12 Underground Water Storage Capital Charge is paid by all direct recharge customers except AWBA for M&I firming, the CAGRD, municipal providers within the CAP service area and co-owners of CAWCD recharge facilities using no more than their share of capacity.

13 The Water & Replenishment Component is designed to cover the projected annual costs of satisfying replenishment obligations, including the purchase of long-term storage credits (LTSC) and the purchase and replenishment of water and effluent. The total volume of water to be purchased and replenished includes a sufficient volume to offset losses incurred during the replenishment process (generally 1% to 2.5%). For the Phoenix Active Management Area (AMA), replenishment will be accomplished at direct underground storage facilities (USFs) and groundwater savings facilities (GSFs) as well as through the use of LTSCs purchased from others. For the Pinal AMA, replenishment will be accomplished at GSFs. For the Tucson AMA, replenishment will be accomplished at USFs as well as through the use of LTSCs purchased from others.

14 The Administrative Component is designed to cover all CAGRD administrative costs. A $2/AF rate has been added to this component to help fund the CAGRD conservation program.

15 The Infrastructure & Water Rights Component is designed to generate funds required for the acquisition, lease or exchange of water or water rights and development of infrastructure necessary for CAGRD to perform its replenishment obligations.

16 The Replenishment Reserve Charge is designed to cover costs associated with establishing a replenishment reserve of LTSCs as required by statutes. Water will be stored at a combination of USFs and GSFs in the Phoenix and Tucson AMAs. LTSCs purchased from CAP and others will also be used to help establish the replenishment reserve in the Phoenix and Tucson AMAs. In the Pinal AMA, LTSCs will be purchased from CAP in accordance with Board policy adopted on October 6, 2005. This charge will be levied as provided in ARS Sections 48-3774.01 and 48-3780.01.

17 The components of the Contract Replenishment Tax - Scottsdale reflect the provisions in the Water Availability Status Contract to Replenish Groundwater between CAWCD and Scottsdale. The rates reflect the assumption that Non-Subcontract CAP water will be available to meet the associated contract replenishment obligations.

18 The Enrollment Fee and Activation Fee reflect the fees established pursuant to the CAGRD Enrollment Fee and Activation Fee Policy adopted by the Board on May 1, 2008. A $2 per housing unit is included in the Enrollment Fee to help fund CAGRD's conservation program.

19 The Annual Membership Dues for Member Lands and Member Service Areas reflect the fees established pursuant to ARS Sections 48-3772.A.8. and 48-3779 as well as the Policy on Collection of CAGRD Annual Membership Dues adopted by the Board on April 7, 2011.

Approved
June 7, 2012

# CENTRAL ARIZONA PROJECT
# FINAL 2013 - 2018 RATE SCHEDULE

## DELIVERY RATES FOR VARIOUS CLASSES OF WATER SERVICE

Units = $/ acre-foot

(The Letter Designations in the Formulas Refer to the Rate Components Shown Below)

| | | Firm | Provi-sional | Advisory | | | |
|---|---|---|---|---|---|---|---|
| | 2012 | **2013** | **2014** | 2015 | 2016 | 2017 | 2018 |
| **Municipal and Industrial** | | | | | | | |
| Long Term Subcontract (B+C) [1] | $ 122 | **$ 129** | **$ 138** | $ 149 | $ 155 | $ 159 | $ 160 |
| Non-Subcontract (A+B+C) | 137 | **144** | **154** | 166 | 173 | 177 | 178 |
| Recharge (A+B+C) [2] | 137 | **144** | **154** | 166 | 173 | 177 | 178 |
| AWBA Interstate Recharge (A+B+C+D) [3] | 165 | **168** | **177** | 190 | 198 | 204 | 208 |
| **Federal** (B+C) | $ 122 | **$ 129** | **$ 138** | $ 149 | $ 155 | $ 159 | $ 160 |
| **Agricultural** | | | | | | | |
| Settlement Pool (C) [4] | $ 49 | **$ 53** | **$ 59** | $ 66 | $ 68 | $ 70 | $ 68 |
| **Agricultural Incentives** [4] | | | | | | | |
| Meet Settlement Pool Goals | (4) | **(6)** | **(7)** | **(11)** | **(11)** | **(11)** | **(7)** |
| Meet AWBA/CAGRD GSF Goals | (1) | **(1)** | **(2)** | **(2)** | **(2)** | **(2)** | **(2)** |
| Meet Recovery Goals | (1) | **(1)** | **(2)** | **(2)** | **(2)** | **(2)** | **(2)** |

## RATE COMPONENTS

Units = $/acre-foot

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Capital Charges** | | | | | | | |
| (A) Municipal and Industrial - Long Term Subcontract [5] | $ 15 | **$ 15** | **$ 16** | $ 17 | $ 18 | $ 18 | $ 18 |
| **Delivery Charges** | | | | | | | |
| (B) Fixed OM&R [6] | $ 73 | **$ 76** | **$ 79** | $ 83 | $ 87 | $ 89 | $ 92 |
| (C) Pumping Energy Rate 1 [7] | 49 | **53** | **59** | 66 | 68 | 70 | 68 |
| (D) Property Tax Equivalency [8] | 28 | **24** | **23** | 24 | 25 | 27 | 30 |

**Qualifications for Various Classes of Water Service**

Long-Term Municipal and Industrial (M&I) Subcontract: M&I subcontractors.
Non-Subcontract: M&I users who are not subcontractors and the CAGRD.
Recharge (AWBA/CAGRD and M&I Underground Water Storage): The Arizona Water Banking Authority and M&I subcontractors and other Arizona entities who have valid Arizona Department of Water Resources permits and accrue long-term recharge/storage credits from this activity.

## DIRECT UNDERGROUND WATER STORAGE

Units = $/acre-foot

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Underground Water Storage O&M** [9] | | | | | | | |
| Phoenix AMA | $ 8 | **$ 8** | **$ 8** | $ 9 | $ 9 | $ 10 | $ 10 |
| Tucson AMA | 15 | **15** | **15** | 15 | 15 | 15 | 15 |
| **Underground Water Storage Capital Charge** [10] | | | | | | | |
| Phoenix AMA | $ 15 | **$ 15** | **$ 15** | $ 15 | $ 15 | $ 15 | $ 15 |
| Tucson AMA | 9 | **9** | **9** | 9 | 9 | 9 | 9 |

Approved
June 7, 2012

# CENTRAL ARIZONA PROJECT
# FINAL 2013 - 2018 RATE SCHEDULE

## CENTRAL ARIZONA GROUNDWATER REPLENISHMENT DISTRICT ASSESSMENT RATES

Units = $/acre-foot

| | 2011/12 | Firm 2012/13 | Provisional 2013/14 | Advisory 2014/15 | 2015/16 | 2016/17 | 2017/18 |
|---|---|---|---|---|---|---|---|
| **Phoenix Active Management Area** | | | | | | | |
| Water & Replenishment Component [11] | $ 140 | **$ 137** | **$ 148** | $ 161 | $ 168 | $ 171 | $ 177 |
| Administrative Component [12] | 42 | **44** | **45** | 45 | 45 | 41 | 37 |
| Infrastructure & Water Rights Component [13] | 170 | **204** | **245** | 294 | 353 | 353 | 353 |
| Replenishment Reserve Charge [14] | 51 | **52** | **54** | 59 | 62 | 63 | 66 |
| Total Assessment Rate ($/AF) | $ 403 | **$ 437** | **$ 492** | $ 559 | $ 628 | $ 628 | $ 633 |
| **Pinal Active Management Area** | | | | | | | |
| Water & Replenishment Component [11] | $ 116 | **$ 117** | **$ 128** | $ 141 | $ 148 | $ 152 | $ 154 |
| Administrative Component [12] | 42 | **44** | **45** | 45 | 45 | 41 | 37 |
| Infrastructure & Water Rights Component [13] | 170 | **204** | **245** | 294 | 353 | 353 | 353 |
| Replenishment Reserve Charge [14] | 53 | **56** | **60** | 65 | 69 | 76 | 76 |
| Total Assessment Rate ($/AF) | $ 381 | **$ 421** | **$ 478** | $ 545 | $ 615 | $ 622 | $ 620 |
| **Tucson Active Management Area** | | | | | | | |
| Water & Replenishment Component [11] | $ 155 | **$ 161** | **$ 171** | $ 183 | $ 190 | $ 194 | $ 197 |
| Administrative Component [12] | 42 | **44** | **45** | 45 | 45 | 41 | 37 |
| Infrastructure & Water Rights Component [13] | 170 | **204** | **245** | 294 | 353 | 353 | 353 |
| Replenishment Reserve Charge [14] | 60 | **65** | **69** | 74 | 78 | 80 | 84 |
| Total Assessment Rate ($/AF) | $ 427 | **$ 474** | **$ 530** | $ 596 | $ 666 | $ 668 | $ 671 |
| **Contract Replenishment Tax - Scottsdale** [15] | | | | | | | |
| Cost of Water | $ 137 | **$ 137** | **$ 144** | $ 154 | $ 166 | $ 173 | $ 177 |
| Cost of Transportation | 0 | **0** | **0** | 0 | 0 | 0 | 0 |
| Cost of Replenishment | 0 | **0** | **0** | 0 | 0 | 0 | 0 |
| Administrative Component [12] | 42 | **44** | **45** | 45 | 45 | 41 | 37 |
| Total Tax Rate ($/AF) | $ 179 | **$ 181** | **$ 189** | $ 199 | $ 211 | $ 214 | $ 214 |

## ENROLLMENT & ACTIVATION FEES

Units = $/Housing Unit

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Enrollment Fee** [16] | $ 138 | **$ 165** | **$ 198** | $ 237 | $ 284 | n.a. | n.a. |
| **Activation Fee** [16] | $ 136 | **$ 163** | **$ 196** | $ 235 | $ 282 | $ 282 | $ 282 |

## ANNUAL MEMBERSHIP DUES

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Member Land Annual Membership Dues ($/Lot)** [17] | | | | | | | |
| Phoenix Active Management Area | $ 6.88 | **$ 9.87** | **$13.19** | $17.91 | TBD | TBD | TBD |
| Pinal Active Management Area | $ 0.90 | **$ 1.29** | **$ 1.74** | $ 2.41 | TBD | TBD | TBD |
| Tucson Active Management Area | $ 4.34 | **$ 6.24** | **$ 8.38** | $11.53 | TBD | TBD | TBD |
| **Member Service Area Annual Membership Dues ($/AF)** [17] | $10.35 | **$14.88** | **$20.08** | $27.91 | TBD | TBD | TBD |

Approved
June 7, 2012

# CENTRAL ARIZONA PROJECT
# FINAL 2013 - 2018 RATE SCHEDULE

***NOTES:***

1 Does not include the Capital Charge.

2 This rate applies to all recharge customers. Rules regarding the eligibility for and use of this class are shown on page 1.

3 The rate is obtained by adding the Fixed OM&R component, the Pumping Energy Rate 1 component, the M&I Capital Charge and an equivalency tax component.

4 Rate is the Pumping Energy Rate 1 component. Incentives may be earned for meeting delivery goals in three areas. Any incentives earned are applied to Settlement Pool deliveries.

5 For M&I subcontract water, the Capital Charge is paid on full allocation regardless of amount delivered and not included in delivery rates.

6 Fixed O&M costs divided by projected total water volumes plus components to fund capital replacements and a rate stabilization reserve. This amount is collected on all ordered water whether delivered or not.

7 Applies to all water deliveries. The calculation is pumping energy costs divided by projected volumes. This amount is collected only for water actually delivered as opposed to scheduled.

8 The rate is based upon the tax levy for the previous elapsed tax year divided by the average water deliveries (excluding Federal deliveries and water storage credits) for the three previous completed delivery years (e.g., for 2012, the tax equivalency is the levy for the 2010-2011 tax year divided by the average water deliveries for 2008, 2009 and 2010). The Provisional and Advisory Rates are estimates. Note the 2012 rate has been revised.

9 Underground Water Storage O&M is paid by all direct recharge customers using CAP recharge sites.

10 Underground Water Storage Capital Charge is paid by all direct recharge customers except AWBA for M&I firming, the CAGRD, municipal providers within the CAP service area and co-owners of CAWCD recharge facilities using no more than their share of capacity.

11 The Water & Replenishment Component is designed to cover the projected annual costs of satisfying replenishment obligations, including the purchase of long-term storage credits (LTSC) and the purchase and replenishment of water and effluent. The total volume of water to be purchased and replenished includes a sufficient volume to offset losses incurred during the replenishment process (generally 1% to 2.5%). For the Phoenix Active Management Area (AMA), replenishment is planned to be accomplished at direct underground storage facilities (USFs) and groundwater savings facilities (GSFs). For the Pinal AMA, replenishment is planned to be accomplished at GSFs. For the Tucson AMA, replenishment is planned to be accomplished at USFs.

12 The Administrative Component is designed to cover all CAGRD administrative costs, except labor related costs associated with the acquisition of water rights and infrastructure. A $2/AF has been added to this component to help fund the CAGRD conservation program.

13 The Infrastructure & Water Rights Component is designed to generate funds to purchase long-term rights to water, and construct additional infrastructure facilities as the need arises.

14 The Replenishment Reserve Charge is designed to cover costs associated with establishing a replenishment reserve of LTSCs as required by statutes. Water will be stored at a combination of USFs and GSFs in the Phoenix AMA, and at USFs the Tucson AMA. In the Pinal AMA, LTSCs will be purchased from CAP in accordance with Board policy adopted on October 6, 2005. This charge will be levied as provided in ARS Sections 48-3774.01 and 48-3780.01.

15 The components of the Contract Replenishment Tax - Scottsdale reflect the provisions in the Water Availability Status Contract to Replenish Groundwater between CAWCD and Scottsdale. The rates reflect the assumption that Non-Subcontract CAP water will be available to meet the associated contract replenishment obligations.

16 The Enrollment Fee and Activation Fee reflect the fees established pursuant to the CAGRD Enrollment Fee and Activation Fee Policy adopted by the Board on May 1, 2008. A $2 per housing unit is included in the Enrollment Fee to help fund CAGRD's conservation program.

17 The Annual Membership Dues for Member Lands and Member Service Areas reflect the fees established pursuant to ARS Sections 48-3772.A.8. and 48-3779 as well as the Policy on Collection of CAGRD Annual Membership Dues adopted by the Board on April 7, 2011.

Approved
June 6, 2013

# CENTRAL ARIZONA PROJECT
# FINAL 2014 - 2015 RATE SCHEDULE

## DELIVERY RATES FOR VARIOUS CLASSES OF WATER SERVICE

Units = $/ acre-foot

(The Letter Designations in the Formulas Refer to the Rate Components Shown Below)

| | 2012 | 2013 | Firm 2014 | Advisory 2015 |
|---|---|---|---|---|
| **Municipal and Industrial** | | | | |
| Long Term Subcontract (B+C) [1] | $ 122 | $ 129 | **$ 146** | $ 157 |
| Non-Subcontract (A+B+C) | 137 | 144 | **166** | 178 |
| Recharge (A+B+C) [2] | 137 | 144 | **166** | 178 |
| AWBA Interstate Recharge (A+B+C+D) [3] | 165 | 168 | **189** | 202 |
| **Federal** (B+C) | $ 122 | $ 129 | **$ 146** | $ 157 |
| **Agricultural** | | | | |
| Settlement Pool (C) [4] | $ 49 | $ 53 | **$ 67** | $ 74 |
| **Agricultural Incentives** [4] | | | | |
| Meet Settlement Pool Goals | (4) | (6) | **(14)** | (17) |
| Meet AWBA/CAGRD GSF Goals | (1) | (1) | **(2)** | (2) |
| Meet Recovery Goals | (1) | (1) | **(2)** | (2) |

## RATE COMPONENTS

Units = $/acre-foot

| | 2012 | 2013 | Firm 2014 | Advisory 2015 |
|---|---|---|---|---|
| **Capital Charges** | | | | |
| (A) Municipal and Industrial - Long Term Subcontract [5] | $ 15 | $ 15 | **$ 20** | $ 21 |
| **Delivery Charges** | | | | |
| (B) Fixed OM&R [6] | $ 73 | $ 76 | **$ 79** | $ 83 |
| (C) Pumping Energy Rate 1 [7] | 49 | 53 | **67** | 74 |
| (D) Property Tax Equivalency [8] | 28 | **24** | **23** | 24 |

Long-Term Municipal and Industrial (M&I) Subcontract: M&I subcontractors.
Non-Subcontract: M&I users who are not subcontractors and the CAGRD.
Recharge (AWBA/CAGRD and M&I Underground Water Storage): The Arizona Water Banking Authority, M&I subcontractors, BOR and other Arizona entities who have valid Arizona Department of Water Resources permits and accrue long-term recharge/storage credits from this activity.

## DIRECT UNDERGROUND WATER STORAGE

Units = $/acre-foot

| | 2012 | 2013 | Firm 2014 | Advisory 2015 |
|---|---|---|---|---|
| **Underground Water Storage O&M** [9] | | | | |
| Phoenix AMA | $ 8 | $ 8 | **$ 8** | $ 9 |
| Tucson AMA | 15 | 15 | **15** | 15 |
| **Underground Water Storage Capital Charge** [10] | | | | |
| Phoenix AMA | $ 15 | $ 15 | **$ 15** | $ 15 |
| Tucson AMA | 9 | 9 | **9** | 9 |

Approved
June 6, 2013

# CENTRAL ARIZONA PROJECT
# FINAL 2014 - 2015 RATE SCHEDULE

## CENTRAL ARIZONA GROUNDWATER REPLENISHMENT DISTRICT ASSESSMENT RATES
Units = $/acre-foot

| | 2011/12 | 2012/13 | **Firm 2013/14** | Advisory 2014/15 |
|---|---|---|---|---|
| **Phoenix Active Management Area** | | | | |
| Water & Replenishment Component [11] | $ 140 | $ 137 | **$ 160** | $ 173 |
| Administrative Component [12] | 42 | 44 | **45** | 45 |
| Infrastructure & Water Rights Component [13] | 170 | 204 | **245** | 294 |
| Replenishment Reserve Charge [14] | 51 | 52 | **58** | 63 |
| Total Assessment Rate ($/AF) | $ 403 | $ 437 | **$ 508** | $ 575 |
| **Pinal Active Management Area** | | | | |
| Water & Replenishment Component [11] | $ 116 | $ 117 | **$ 140** | $ 153 |
| Administrative Component [12] | 42 | 44 | **45** | 45 |
| Infrastructure & Water Rights Component [13] | 170 | 204 | **245** | 294 |
| Replenishment Reserve Charge [14] | 53 | 56 | **65** | 70 |
| Total Assessment Rate ($/AF) | $ 381 | $ 421 | **$ 495** | $ 562 |
| **Tucson Active Management Area** | | | | |
| Water & Replenishment Component [11] | $ 155 | $ 161 | **$ 183** | $ 195 |
| Administrative Component [12] | 42 | 44 | **45** | 45 |
| Infrastructure & Water Rights Component [13] | 170 | 204 | **245** | 294 |
| Replenishment Reserve Charge [14] | 60 | 65 | **75** | 80 |
| Total Assessment Rate ($/AF) | $ 427 | $ 474 | **$ 548** | $ 614 |
| **Contract Replenishment Tax - Scottsdale** [15] | | | | |
| Cost of Water | $ 137 | $ 137 | **$ 144** | $ 166 |
| Cost of Transportation | 0 | 0 | **0** | 0 |
| Cost of Replenishment | 0 | 0 | **0** | 0 |
| Administrative Component [12] | 42 | 44 | **45** | 45 |
| Total Tax Rate ($/AF) | $ 179 | $ 181 | **$ 189** | $ 211 |

## ENROLLMENT & ACTIVATION FEES
Units = $/Housing Unit

| | | | | |
|---|---|---|---|---|
| **Enrollment Fee** [16] | $ 138 | $ 165 | **$ 198** | $ 237 |
| **Activation Fee** [16] | $ 136 | $ 163 | **$ 196** | $ 235 |

## ANNUAL MEMBERSHIP DUES

| | | | | |
|---|---|---|---|---|
| **Member Land Annual Membership Dues ($/Lot)** [17] | | | | |
| Phoenix Active Management Area | $ 6.88 | $ 9.87 | **$ 13.19** | $ 17.91 |
| Pinal Active Management Area | $ 0.90 | $ 1.29 | **$ 1.74** | $ 2.41 |
| Tucson Active Management Area | $ 4.34 | $ 6.24 | **$ 8.38** | $ 11.53 |
| **Member Service Area Annual Membership Dues ($/AF)** [17] | $ 10.35 | $ 14.88 | **$ 20.08** | $ 27.91 |

Approved
June 6, 2013

# CENTRAL ARIZONA PROJECT
# FINAL 2014 - 2015 RATE SCHEDULE

**NOTES:**

1) Does not include the Capital Charge.
2) This rate applies to all recharge customers. Rules regarding the eligibility for and use of this class are shown on page 1.
3) The rate is obtained by adding the Fixed OM&R component, the Pumping Energy Rate 1 component, the M&I Capital Charge and an equivalency tax component.
4) Rate is the Pumping Energy Rate 1 component. Incentives may be earned for meeting delivery goals in three areas. Any incentives earned are applied to Settlement Pool deliveries.
5) For M&I subcontract water, the Capital Charge is paid on full allocation regardless of amount delivered and not included in delivery rates.
6) Fixed O&M costs divided by projected total water volumes plus components to fund capital replacements and a rate stabilization reserve. This amount is collected on all ordered water whether delivered or not.
7) Applies to all water deliveries. The calculation is pumping energy costs divided by projected volumes. This amount is collected only for water actually delivered as opposed to scheduled.
8) The rate is based upon the tax levy for the previous elapsed tax year divided by the average water deliveries (excluding Federal deliveries and water storage credits) for the three previous completed delivery years (e.g., for 2012, the tax equivalency is the levy for the 2010-2011 tax year divided by the average water deliveries for 2008, 2009 and 2010). The Provisional and Advisory Rates are estimates.
9) Underground Water Storage O&M is paid by all direct recharge customers using CAP recharge sites.
10) Underground Water Storage Capital Charge is paid by all direct recharge customers except AWBA for M&I firming, the CAGRD, municipal providers within the CAP service area and co-owners of CAWCD recharge facilities using no more than their share of capacity.
11) The Water & Replenishment Component is designed to cover the projected annual costs of satisfying replenishment obligations, including the purchase of long-term storage credits (LTSC) and the purchase and replenishment of water and effluent. The total volume of water to be purchased and replenished includes a sufficient volume to offset losses incurred during the replenishment process (generally 1% to 2.5%). For the Phoenix Active Management Area (AMA), replenishment is planned to be accomplished at direct underground storage facilities (USFs) and groundwater savings facilities (GSFs). For the Pinal AMA, replenishment is planned to be accomplished at GSFs. For the Tucson AMA, replenishment is planned to be accomplished at USFs.
12) The Administrative Component is designed to cover all CAGRD administrative costs, except labor related costs associated with the acquisition of water rights and infrastructure. A $2/AF has been added to this component to help fund the CAGRD conservation program.
13) The Infrastructure & Water Rights Component is designed to generate funds to purchase long-term rights to water, and construct additional infrastructure facilities as the need arises.
14) The Replenishment Reserve Charge is designed to cover costs associated with establishing a replenishment reserve of LTSCs as required by statutes. Water will be stored at a combination of USFs and GSFs in the Phoenix AMA, and at USFs the Tucson AMA. In the Pinal AMA, LTSCs will be purchased from CAP in accordance with Board policy adopted on October 6, 2005. This charge will be levied as provided in ARS Sections 48-3774.01 and 48-3780.01.
15) The components of the Contract Replenishment Tax - Scottsdale reflect the provisions in the Water Availability Status Contract to Replenish Groundwater between CAWCD and Scottsdale. The rates reflect the assumption that Non-Subcontract CAP water will be available to meet the associated contract replenishment obligations.
16) The Enrollment Fee and Activation Fee reflect the fees established pursuant to the CAGRD Enrollment Fee and Activation Fee Policy adopted by the Board on May 1, 2008. A $2 per housing unit is included in the Enrollment Fee to help fund CAGRD's conservation program.
17) The Annual Membership Dues for Member Lands and Member Service Areas reflect the fees established pursuant to ARS Sections 48-3772.A.8. and 48-3779 as well as the Policy on Collection of CAGRD Annual Membership Dues adopted by the Board on April 7, 2011.

# Worlton Direct

**BEFORE THE ARIZONA CORPORATION COMMISSION**

COMMISSIONERS

BOB STUMP - Chairman
GARY PIERCE
BRENDA BURNS
BOB BURNS
SUSAN BITTER SMITH

| | |
|---|---|
| IN THE MATTER OF THE APPLICATION OF EPCOR WATER ARIZONA INC., AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES FOR UTILITY SERVICE BY ITS MOHAVE WATER DISTRICT, PARADISE VALLEY WATER DISTRICT, SUN CITY WATER DISTRICT, TUBAC WATER DISTRICT, AND MOHAVE WASTEWATER DISTRICT. | DOCKET NO: WS-01303A-14-0010 |

# DIRECT TESTIMONY OF MIKE WORLTON, P.E.

**March 7, 2014**

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## EXECUTIVE SUMMARY

Mr. Worlton testifies as follows:

The Company is requesting that the following post-test year projects be included in rate base:

Sun City Water District

- Replacement of well #8.3
- Tools and Equipment
- Vehicles
- 2013 Recurring Projects - Distribution
- 2013 Recurring Projects – Facilities
- Comprehensive Planning Study

Mohave Water

- Laredo Vista well #2
- Well #16.4
- Camp Mohave Manganese
- Old Bullhead City Main Replacements
- Mohave to North Mohave Interconnect
- Tools and Equipment
- Vehicles
- 2013 Recurring Projects - Distribution
- 2013 Recurring Projects – Facilities

Paradise Valley Water

- Country Club Booster Pump Station
- 2013 Recurring Projects – Distribution
- 2013 Recurring Projects – Facilities

Tubac Water

- 2013 Recurring Projects – Distribution
- 2013 Recurring Projects – Facilities

Mohave Wastewater

- Tools and Equipment
- Vehicles
- 2013 Recurring Projects - Distribution
- 2013 Recurring Projects – Facilities

## I. INTRODUCTION AND QUALIFICATIONS

**Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND TELEPHONE NUMBER.**

A. My name is Mike Worlton. My business address is 2355 W. Pinnacle Peak Road, Suite 300, Phoenix, AZ 85027. My business phone is 623-445-2404.

**Q. IN WHAT CAPACITY AND BY WHOM ARE YOU EMPLOYED?**

A. I am employed by EPCOR Water USA ("EWUS") as the Director of Engineering.

**Q. PLEASE DESCRIBE YOUR PRIMARY RESPONSIBILITIES FOR THE COMPANY.**

A. I am responsible for the planning, engineering, and project delivery of EPCOR Water Arizona Inc.'s ("EWAZ" or "Company") and EPCOR Water New Mexico's capital programs along with the developer services and GIS functional areas. I am responsible for first identifying and prioritizing projects into the budgeting process, then providing oversight of the design and construction contracts to ensure compliance with assigned budget and schedule.

**Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND EDUCATION.**

A. I have nearly 18 years of experience as an engineer. I have spent nearly 17 of my 18 years engaged in water and wastewater engineering in Arizona. The bulk of that experience is related to planning, design, and construction support for water and wastewater infrastructure projects.

Prior to joining EWUS, I managed engineering and water and wastewater operations for GHD, Inc. in Arizona. I have also served as Water and Wastewater Practice Leader at AMEC Environment & Infrastructure and a Water Resources Department Manager at Robert Bein, William Frost & Associates ("RBF") Consulting (now Michael Baker Corporation). I have completed various water-

related training courses including valve operation, pump system design, wastewater and water treatment, and water resource management. I am a Board Certified Environmental Engineer and a Fellow of the American Society of Civil Engineers. I am required to complete 20 hours of continuing education annually to maintain various professional registrations and certifications.

**Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.**

A. I received my Bachelors and Masters of Science degrees in Civil Engineering from Brigham Young University in 1996 and 1997, respectively. My education focused on water and wastewater engineering and environmental science.

**Q. ARE YOU A REGISTERED PROFESSIONAL ENGINEER OR CERTIFIED OPERATOR?**

A. I am a professional engineer registered in the states of Arizona, California, Texas, and Utah. I am also a Grade 4 operator certified in the state of Arizona for water treatment, water distribution, wastewater treatment and wastewater collections.

**Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

A. Yes. Approximately 10 years ago I testified on behalf of Desert Hills Water Company in a case brought by a developer involving low water pressures.

## II. PURPOSE OF TESTIMONY

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?**

A. My testimony will provide engineering support relating to post-test year project costs proposed to be included in the rate bases of the districts in this application. I will provide the justification for including these projects in the proposed rate bases and also provide the detail supporting the costs.

## III. POST-TEST YEAR CAPITAL PROJECTS

**Q. IS THE COMPANY PROPOSING ANY POST-TEST YEAR PLANT ADDITIONS IN THIS PROCEEDING?**

A. Yes. There are post-test year capital projects in Sun City Water, Mohave Water, Mohave Wastewater, Tubac Water, and Paradise Valley Water. For these districts we are proposing post-test year plant additions of $15,318,135 consisting of Investment Projects ("IPs") and Recurring Projects ("RPs") as summarized in Table 1 below. The proposed adjustment to the respective rate base is presented by Company witness Ms. Sheryl L. Hubbard on Schedule B-2 Adj. SLH-1 for each district.[1] All of the proposed additions to plant are necessary investments for the Company to continue to provide its customers with safe and reliable water and wastewater services. Below is an explanation of each of the post-test year plant additions.

Table 1. Summary of Post-Test Year Plant Additions

| District | IP | RP | | | | Corporate Allocation | Total IP & RP and Corporate Allocation |
|---|---|---|---|---|---|---|---|
| | | Tools | Vehicles | Distribution | Facilities | | |
| Sun City Water | $2,151,294 | $ 6,600 | $ 0 | $1,298,813 | $ 559,351 | $ 197,525 | $ 4,213,353 |
| Mohave Water | $5,465,043 | $ 51,081 | $ 37,556 | $1,805,830 | $ 259,878 | $ 135,554 | $ 7,754,942 |
| Mohave Wastewater | $ 0 | $ 3,841 | $ 24,321 | $ 1,250 | $ 123,233 | $ 12,106 | $ 164,751 |
| Tubac Water | $ 0 | $ 1,523 | $ 0 | $ 26,709 | $ 17,898 | $ 5,117 | $ 51,247 |
| Paradise Valley Water | $1,283,949 | $ 1,354 | ($ 6,958) | $ 1,078,173 | $ 735,939 | $ 41,385 | $ 3,133,841 |
| **Total** | **$8,900,286** | **$ 64,399** | **$ 54,919** | **$4,210,775** | **$1,696,299** | **$ 391,457** | **$ 15,318,135** |

## IV. INVESTMENT PROJECTS

**Q. PLEASE EXPLAIN WHAT IS MEANT BY THE PHRASE "INVESTMENT PROJECT".**

A. Investment Projects (IPs) are necessary capital improvement projects that are designed to ensure quality water service, resolve operational challenges, and comply

[1] *See* Schedule B-2.

with regulatory requirements. IPs typically arise as the result of recommendations in the Company's comprehensive planning studies ("CPS"), performed for each district. Each CPS generates and identifies capital improvement projects to address areas of concern in the Company's individual districts. These studies analyze and develop customer demand projections; evaluate the adequacy of the source of supply; study water quality characteristics; address reliability concerns of treatment facilities to meet projected maximum day demands; conduct an analysis of existing storage facilities to ensure adequate storage volume is available during peak hour demands and to provide effective fire flow storage; and evaluate the distribution system operation during peak hour demands in all pressure gradients.[2]

**Q. PLEASE IDENTIFY THE INVESTMENT PROJECTS THAT EWAZ IS REQUESTING TO INCLUDE IN POST-TEST YEAR PLANT ADDITIONS IN THIS PROCEEDING.**

A. The proposed IPs by district are summarized by project number and district in Table 2 below.

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[2] EWAZ considers the CPS documents to be confidential and proprietary documents. However, the Company will make them available to requesting parties under an appropriate protective order restricting public use of and access to these CPS.

Table 2. Investment Projects by District

| District | Ref. | Project Number | Amount |
|---|---|---|---|
| **Sun City Water:** | | | |
| Replacement of Well #8.3 | **A** | 379002 | $ 2,151,294 |
| **Mohave Water:** | | | |
| Laredo Vista Well #2 | **B** | 279011 | $ 2,478,823 |
| Well #16.4 | **C** | 379008 | $ 1,906,021 |
| Camp Mohave Manganese | **D** | 279012 | $ 363,644 |
| Old BHC Main Replacements | **E** | 279343 | $ 501,556 |
| Mohave to North Mohave Interconnect | **F** | 479021 | $ 215,000 |
| **Mohave Wastewater** | | | $ 0 |
| **Tubac Water** | | | $ 0 |
| **Paradise Valley Water:** | | | |
| PV Country Club Booster Pump Station | **G** | 279005 | $ 1,283,949 |
| **Total Investment Projects** | | | **$ 8,900,286** |

**Q. PLEASE DISCUSS EACH INVESTMENT PROJECT THAT EWAZ IS REQUESTING TO INCLUDE IN ITS RATE BASES IN THIS PROCEEDING BY PROJECT NUMBER IDENTIFIED IN TABLE 2 ABOVE.**

A. EWAZ is requesting post-test year plant additions in its Sun City Water, Mohave Water, and Paradise Valley Water districts. A discussion of the projects by district and project number follows.

**A. Sun City Water Replacement of Well #8.3 – Project #379002**

The Sun City Water service area receives all potable water from groundwater sources. The service area is divided into two pressure zones (High Zone and Low Zone). The High Zone is supplied from Water Plants (WP) 5, 6, and 8. WP 8 needs to maintain adequate pressure (>40 psi) for customers in the northernmost portion of the district. WP 8 receives its water supply from a total of three wells: 8.1, 8.2, and 8.3. Water quality and productivity of these wells is such that in order to maintain reliable supply to WP 8, all wells must be operational. Water from well 8.2 currently exceeds the nitrate maximum contaminant level ("MCL") and must be blended with water from both Wells 8.1 and 8.3 to satisfy the established standards.

Well 8.3 was originally drilled and equipped in 1975. Corrosion of the casing has allowed surrounding soil to fall into the well shaft. The well casing is in poor condition, and 143 feet of sand has accumulated in the well. The well originally produced 1,900 gallons per minute ("gpm"), but production has steadily diminished to about 430 gpm in 2013. In addition, customers have complained of sand, and excessive sand production has required fitting the well with a de-sander. Even with this improvement, the well continues to require frequent pump maintenance.

While this is not the oldest of EWAZ's wells, it is known that a lower grade of steel was typically used for well casings at the time this well was constructed, and corrosion has been more pronounced as a result. A study of the well condition completed in 2003 and a video survey performed in March of 2010 indicate that the condition of Well 8.3 has deteriorated to the extent that it is considered to be at risk of failure. Due to the extremely poor condition, diminishing capacity, and the history of repairs and temporary fixes to this well, replacement is considered to be

the best option. Therefore, construction of a replacement well on the site of the existing Well 8.3 was recommended.

A major concern with the condition of well 8.3 is meeting demands when it fails. WP 8 has peak demands of 2,700 gpm. Total well water supply to this plant is about 2,611 gpm. With the largest well out of service, this drops to 1,429 gpm firm capacity. Of even greater concern is the fact that, if Well 8.3 fails, water from Well 8.2 cannot be sufficiently blended to reduce nitrates to allowable standards. If water is only supplied from Well 8.1, there will be inadequate supply to meet demands in this part of the Sun City Water District.

This project entails construction of a replacement well, to be drilled on the existing Well 8.3 site. Final accounting for the project is expected to be completed by June 2014 at an estimated total post-test year project cost of $2,151,294.

**B. <u>Mohave Water Laredo Vista Well #2 – Project #279011</u>**

The Mohave Water service area serves zones 1290 and 1100 through two wells, Well #24-1 in Bullhead City and Laredo Vista Well #1. These wells have a combined production capacity of about 1.99 million gallons per day ("MGD"), yet the maximum day demand for these two zones is 2.04 MGD. With Well #24-1 (1.73 MGD capacity) out of service, the remaining, firm capacity for this system is 0.26 MGD. This translates into a deficit of 1.78 MGD.

The 2008 Mohave District CPS identified the need for additional supply sources in these zones and recommended drilling new wells to make up the firm supply deficit. As a result of this study, EWAZ obtained and equipped Laredo Vista Well #1; however, since this well only supplies an additional 0.26 MGD, additional supply sources were still required to ensure a firm supply and reliable water service to customers. It was proposed that a new well, Laredo Vista Well 2,

be drilled to increase the supply. The well site is located on land owned and designated by EWAZ for a well site.

The scope of the project includes the following: drilling and equipping the well and installation of a disinfection system, an estimated 35,000 gallon tank for chlorine contact time and equalization, booster pumps, and piping to connect into the distribution system. Final accounting for the project is expected to be complete in March 2014 at an estimated total post-test year project cost of $2,478,823.

**C. Mohave Water Well #16.4 – Project #379008**

Mohave Water Well #16-2 was originally drilled in 1975 and is the only source dedicated to the 800 and 880 Zones. A video inspection of the well was performed on March 16, 2010. Recommendations from this inspection note the very poor casing condition and state that the well should be replaced. A reduction in pump capacity from 700 gpm to 500 gpm was also indicated. There is a probability that this well could fail due to the poor condition of the casing. This would result in a loss of service to customers in these zones.

The proposed Mohave Water Well #16.4 will provide reliable water supply for Zones 800, 880, and 1110. Final accounting for the project is expected to be completed in June 2014 at an estimated total post-test year project cost of $1,906,021.

**D. Old BHC Main Replacements – Project #279343**

As testified by Company witness, Ms. Candace Coleman, the Old Bullhead City water system has experienced excessive leaking and is served by Acrylonitrile Butadiene Styrene ("ABS") pipe installed between 1967 and 1970. This project also included areas where fire hydrants were fed through 4-inch asbestos cement pipe ("ACP") water mains. At the request of the City, EWAZ initiated water main improvements to serve these areas. These improvements to the water system were

planned to precede Bullhead City's improvements to existing streets in the area. It is anticipated that this will provide a cost savings and convenience to customers because the cost and disruption of trenching the older pavement is limited relative to what would be expected with new pavement.

This project included installation of approximately 4,000 linear feet ("LF") of 8-inch and 100 LF of 12-inch pipeline. Existing fire hydrants along the alignment of the proposed waterlines were reconnected to the new lines. Fire hydrants were also installed as needed at the intersection of each street and Highway 95. Various cross connections with the existing system were also made. Final accounting for the project was completed in September of 2013 at an estimated total post-test year project cost of $501,556.

**E. Camp Mohave Manganese – Project #279012**

The Camp Mohave Well is the sole source of supply for the Camp Mohave water system. This well produces about 140 gpm; the average day demand on this system is 60,000 gallons. The water contains about 0.2 mg/L manganese which can cause water to have a grey/black color which can leave stains. The Secondary Maximum Contaminant Level (smcl) for manganese is 0.05 mg/L. Regular system flushing was used to mitigate the customer impact of high manganese. In 2011, 1,851,000 gallons of water were flushed, equaling 11% of system production. Water that is discolored by manganese causes frequent customer complaints. Manganese can stain household fixtures and clothing, which can cause damage to the personal property of EPCOR's customers. Installation of this manganese treatment plant helps to conserve this water, providing savings to the customer in future years. It will also eliminate staining.

The Camp Mohave Well is also high in total organic carbon (TOC) concentrations which aid in the formation of total trihalomethane (TTHM) compounds. EPCOR was at risk of being out of compliance with the EPA Stage 2 Disinfection Byproduct Rule if TOCs were not reduced.

The manganese will be removed from the water through an oxidation/filtration process, which is the recommended treatment method for the concentration of manganese present in the Camp Mohave Well. Reduction of TOC through treatment was also identified as the most effective way to limit TTHM formation.

The project was completed in July 2013 but was not transferred from CWIP to plant in service before the end of the test year. Final accounting for the project was completed in December 2013 for a total post-test year project cost of $363,644.

**F. Mohave to North Mohave Interconnect – Project# 479021**

Pegasus Ranch Estates is located within EWAZ's Mohave Water District and is immediately adjacent to the North Mohave Valley Corporation, which utility was recently acquired by EWAZ. The water pressures in Pegasus Ranch are not ideal due to a significant elevation difference across the development. In order to maintain marginal pressure at higher points in the system, homes at lower elevations are subject to pressures over 100 psi. In order to control pressures at the low point in the system, lots on the higher end of the development receive pressures below 20 psi.

The North Mohave district has two storage tanks and a water distribution line within a few hundred feet of the existing waterline at the highest elevation point in Pegasus Ranch. A simple connection of the two systems would relieve water pressure issues in Pegasus Ranch and also provide redundancy. The interconnection will require a pressure reducing valve or a disconnect strategically located so that the water pressure does not exceed 80 psi in lower elevations. Final accounting for the project is expected to be completed by June 2014 at an estimated total post-test year project cost of $215,000.

**G. Paradise Valley Country Club Booster Pump Station – Project# 279005**

The Paradise Valley ("PV") Country Club Booster Pump Station was originally built in the 1950s and rehabilitated in 1996. This station has not been reliable or efficient in providing adequate pressures at necessary flow rates to the Paradise Valley Water system. This station has four pumps that have been operated manually because there were no electronic controls on the pumps. All four pumps ran 24 hours a day, 7 days a week, except during the time required to perform regular maintenance. This pump station serves approximately 410 customers in the Country Club Zone, plus an additional 460 customers in 4 downstream pressure zones. If, for any reason, one of the four existing pumps is out of service during high water demand times, the remaining three pumps cannot supply the minimum pressure requirement (20 psi) to all customers.

If the future peak water demand exceeds historical peak demands, it is possible that the pumps would not be capable of supplying the required minimum pressure to all customers even with all four pumps operational. If this loss of pressure occurs, it would require reporting loss of pressure to the Arizona Department of Environmental Quality and to Maricopa County Department of Environmental Services.

This project included replacement of all the pumps with new pumps that met the required design flow and head. All header piping was also increased to reduce headloss. Variable frequency drives were added to provide more efficiency and better control to EWAZ's operations staff. Also, the design point of the replacement pumps now allows for redundancy, which did not exist in the past. This project was completed in September 2013. Final accounting was completed February 2014 at a total post-test year project cost of $1,283,949.

## V. RECURRING PROJECTS

**Q. PLEASE EXPLAIN WHAT IS MEANT BY THE PHRASE "RECURRING PROJECTS".**

A. Recurring Projects (RPs) are routine capital improvements that are typical in nature and incurred to ensure operation of a reliable water system. These expenditures are usually comprised of installing short sections of mains, hydrants, valves, meters, services, small pumps and motors, and other items considered general equipment. The annual level of expenditures for each of the individual RPs varies from year to year based on need.

**Q. PLEASE DISCUSS THE RPs THAT EWAZ IS REQUESTING TO INCLUDE AS POST TEST-YEAR PLANT ADDITIONS IN ITS RATE BASES BY DISTRICT.**

A. A discussion of the requested rate base additions by district and project number for RPs follows. The discussion is categorized similar to the values shown in Table 1 above and include Tools and Equipment, Vehicles, Distribution, and Facilities.

## VI. TOOLS AND EQUIPMENT

### A. Sun City Water – Project # 479314

This project was set up during the budgeting process to provide for the purchase of miscellaneous tools and equipment required for the Sun City Water

operations. By June 30, 2014, the Company plans to spend an estimated $6,600 on tools for repairs and emergency replacements.

**B. Mohave Water – Projects # 379108 and # 479340**

Similar in nature to the project set up for Sun City Water, this Mohave Water project has been set up during the budgeting process to enable the purchase of miscellaneous tools and equipment required for the Mohave Water operations. By June 30, 2014, the Company plans to spend an estimated $51,164 on tools for repairs and emergency replacements.

**C. Mohave Wastewater – Projects # 379108 and # 479343**

This project was set up during the budgeting process to provide for the purchase of miscellaneous tools and equipment required for the Mohave Wastewater operations. By June 30, 2014, the Company plans to spend an estimated $5,401 on tools for repairs and emergency replacements.

**D. Tubac Water – Project # 479351**

This project was set up during the budgeting process to provide for the purchase of miscellaneous tools and equipment required for the Tubac Water operations. By June 30, 2014, the Company plans to spend an estimated $1,523 on repairs and emergency replacements on tools for repairs and emergency replacements.

**E. Paradise Valley Water – Projects # 379108 and # 479347**

This project was set up during the budgeting process to provide for the purchase of miscellaneous tools and equipment required for the Paradise Valley Water operations. By June 30, 2014, the Company plans to spend an estimated $21,796 on tools for repairs and emergency replacements.

## VII. VEHICLES

### A. Mohave Wastewater – Project #473944

This project captures the costs associated with planned RP vehicle purchases required for the Mohave Water operations. By June 30, 2014, the Company plans to apply an estimated $24,321 toward a vacuum trailer.

## VIII. DISTRIBUTION

### A. Sun City Water Projects #379101, 379102, 379104, 379107, 379110, 389600, 389601, 389602, 379331, 489105, 489105, 489106, 489107, 489108, 489100

By June 30, 2014, the Company will complete an estimated $1,298,813 for Sun City Water replacing services, meters, mains, valves, hydrants, and electrical systems, referred to as RP – Distribution in Table 1 above. The following summary details the cost by category:

| **Project Name** | **Estimated Cost** |
|---|---|
| Replace Hydrants | $ 109,616 |
| Main Breaks | $ 202,778 |
| Replace Meters | $ 726,323 |
| Replace Services | $ 121,648 |
| Replace Valves | $ 102,288 |
| Upsize/Downsize Meters | $ 263 |
| Replace/Relocate Mains | $ 35,897 |
| **Post Test-Year Total** | **$ 1,298,813** |

B. **Mohave Water Projects #279453, 379102, 379104, 379107, 379110, 379331, 379453, 479136, 479137, 479138, 479139, 479141**

By June 30, 2014, the Company will complete an estimated $1,805,830 replacing meters, services, valves, replacing or relocating mains, and repairing main breaks. The following summary details the cost by category:

| **Project Name** | **Estimated Cost** |
|---|---|
| Main Breaks | $ 40,803 |
| Replace Meters | $ 327,461 |
| Replace Services | $ 904,835 |
| Replace Valves | $ 130,836 |
| Replace/Relocate Mains | $ 394,930 |
| Booster Stations | $ 6,965 |
| **Post Test-Year Total** | **$ 1,805,830** |

C. **Mohave Wastewater Collections – Projects #379103, 479142**

By June 30, 2014, the Company will complete an estimated $1,250 to replace manholes in the Mohave Wastewater District.

D. **Tubac Water– Projects #379104, 379107, 479150, 479151, 479152, 479153**

By June 30, 2014, the Company plans to spend an estimated $26,709 replacing meters, services, valves, and hydrants in the Tubac water district. The following summary details the cost by category:

| Project Name | Estimated Cost |
|---|---|
| Replace Meters / Mains / Valves / Hydrants | $ 1,291 |
| Replace Services | $ 25,417 |
| **Post Test-Year Total** | **$ 26,709** |

E. **Paradise Valley Water– Projects # 379101, 379102, 379104, 379107, 379110, 379331, 479144, 479145, 479146, 479147, 479148, 479149**

By June 30, 2014, the Company will complete an estimated $1,708,173 replacing hydrants, meters, services, and valves and replacing or relocating mains and repairing main breaks in the Paradise Valley Water system. The following summary details the cost by category:

| Project Name | Estimated Cost |
|---|---|
| Replace Hydrants | $ 25,293 |
| Main Breaks | $ 91,159 |
| Replace Meters | $ 313,479 |
| Replace Services | $ 365,299 |
| Replace Valves | $ 164,644 |
| Replace/Relocate Mains | $ 114,878 |
| New Hydrants | $ 3,422 |
| **Post Test-Year Total** | **$ 1,078,173** |

## IX. FACILITIES

### A. Sun City Water – Project #379333

EWAZ budgets to replace and repair other assets identified by the Company's operations management team. The Sun City Water projects will

replace or improve existing infrastructure. By June 30, 2014, the Company will complete an estimated $559,351 on the projects identified in the table below.

| **Project Name** | **Estimated Cost** |
|---|---|
| Emergency Repair and Replacements | $ 182,844 |
| Water Plant Facilities & Equip | $ 63,811 |
| SCADA | $ 92,300 |
| Repair Theft Damage and Rewind Motor at Well 5.4 | $ 86,062 |
| Replace valves on storage tanks | $ 38,507 |
| Plant 6 Cathodic Protection | $ 20,000 |
| Replace Mechanical Seals for Boosters 3 & 4 at WP 8 | $ 18,092 |
| Replace SC Plant #1 Production Meter | $ 10,700 |
| WP 2 Gate Valve and Cla-Val Relief Repair | $ 15,275 |
| Plant 6 Generator tie to Low Zone | $ 7,500 |
| Replace 8" check valve on SC Plant 5 Booster Pump 1 | $ 4,413 |
| Replace Mechanical Seals for Boosters 1 & 2 at WP 2 | $ 9,581 |
| GIS Map Books | $ 5,536 |
| Miscellaneous | $ 4,731 |
| **Post Test-Year Total** | **$ 559,351** |

**B. Mohave Water – Projects #379106 and 379333**

EWAZ budgets to replace and repair other assets identified by the Company's operations management team. The projects in the Mohave Water district will replace or improve existing infrastructure. By June 30, 2014, the Company will complete an estimated $259,878 on the projects identified in the table below.

| Project Name | Estimated Cost |
|---|---|
| Wells Pumping & Equip | $ 5,515 |
| Plant Facilities & Equip | $ 107,260 |
| Security | $ 11,055 |
| SCADA | $ 128,924 |
| GIS Map Books | $ 7,124 |
| **Post Test-Year Total** | **$ 259,878** |

C. **Mohave Wastewater – Project #379333**

The projects in the Mohave Wastewater district will replace or improve existing infrastructure. By June 30, 2014, the Company will complete an estimated $123,233 on the projects identified in the table below. The credit amounts in the table below reflect final adjustment values for projects completed and not transferred from CWIP to plant in service by the end of the test year.

| Project Name | Estimated Cost |
|---|---|
| Plant Facilities & Equip | $ 57,565 |
| Steel Support Base for VFD Pumps at WW | $ 14,892 |
| Wishing Well Diffuser Replacement | $ 37,242 |
| Los Lagos Lift Station Drainage | $ 7,773 |
| Replace Chlorine Regulator at Wishing Well | $ 2,213 |
| GIS Map Books | $ 3,549 |
| **Post Test-Year Total** | **$ 123,233** |

**D. 2013 Tubac – Project #379333**

The projects in the Tubac Water district will replace or improve existing infrastructure. By June 30, 2014, the Company will complete an estimated $17,898 on the projects identified in the table below.

| **Project Name** | **Estimated Cost** |
|---|---|
| Plant Facilities & Equip AZ | $ 17,437 |
| GIS Map Books | $ 461 |
| **Post Test-Year Total** | **$ 17,898** |

**E. 2013 Paradise Valley Water - Facilities – Projects #379105, 379333, 379334, 479345, 479346**

The projects in the Paradise Valley Water district will replace or improve existing infrastructure. By June 30, 2014, the Company will complete an estimated $735,939 on the projects identified in the table below.

| Project Name | Estimated Cost |
|---|---|
| SCADA | $ 462,150 |
| Office & Ops Center | $ 56,548 |
| Plant Facilities & Equip | $ 66,187 |
| Arsenic Removal Facility | $ 64,725 |
| Rebuild DP 3 Motor at ARF | $ 15,478 |
| Rebuild Well 14 Motor | $ 30,712 |
| Wells Pumping & Equip | $ 7,296 |
| Replace Bowl Bushings at MRTF for DP 3 | $ 8,788 |
| Replace Line Shaft Bearing at MRTF for DP 1 | $ 9,304 |
| Six 16" Valves for the MRTF Distribution Pumps | $ 6,582 |
| Miscellaneous | $ 6,679 |
| GIS Map Books | $ 1,490 |
| **Post Test-Year Total** | **$ 735,939** |

**Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

A. Yes.

# Coleman Direct

**BEFORE THE ARIZONA CORPORATION COMMISSION**

COMMISSIONERS

BOB STUMP - Chairman
GARY PIERCE
BRENDA BURNS
BOB BURNS
SUSAN BITTER SMITH

| | |
|---|---|
| IN THE MATTER OF THE APPLICATION OF EPCOR WATER ARIZONA INC., AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE CURRENT FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES FOR UTILITY SERVICE BY ITS MOHAVE WATER DISTRICT, PARADISE VALLEY WATER DISTRICT, SUN CITY WATER DISTRICT, TUBAC WATER DISTRICT, AND MOHAVE WASTEWATER DISTRICT. | DOCKET NO: WS-01303A-14-0010 |

# DIRECT TESTIMONY OF CANDACE COLEMAN, P.E.

**March 7, 2014**

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## EXECUTIVE SUMMARY

Candace Coleman testifies that:

EPCOR Water Arizona Inc. ("EWAZ" or "Company") has requested a System Improvement Benefits (SIB) mechanism for its Mohave Water, Paradise Valley Water, and Sun City Water districts in order to facilitate the financing and replacement of aging infrastructure assets. This will ensure adequate and reliable water service while reducing large bill increases for ratepayers such as those that occur from infrequent and irregular rate case cycles.

The proposed SIBs contain criteria that have previously been adopted by the Commission for other similarly situated utilities.

The SIB for the Mohave Water District will include the replacement of mains, services, meters, and valves.

The SIB for the Paradise Valley Water District will include the replacement of mains, services, and valves.

The SIB for the Sun City Water District will include the replacement of mains, services, valves, and meters.

Detailed engineering reports, including costs estimates for all plant anticipated to be included in future SIB filings, have also been prepared to support the SIB.

## I. INTRODUCTION AND QUALIFICATIONS

**Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND TELEPHONE NUMBER.**

A. My name is Candace Coleman. My business address is 2355 W Pinnacle Peak Rd., Suite 300, Phoenix, Arizona 85027, and my business phone is (623) 445-2498.

**Q. IN WHAT CAPACITY AND BY WHOM ARE YOU EMPLOYED?**

A. I am employed by EPCOR Water USA ("EWUS" or "Company") as an Engineer in the Planning Department.

**Q. PLEASE DESCRIBE YOUR PRIMARY JOB RESPONSIBILITIES.**

A. I am responsible for the planning for EPCOR Water Arizona Inc. ("EWAZ" or "Company") and EPCOR Water New Mexico Inc. ("EWNM") which includes water and wastewater systems throughout Arizona and New Mexico. My job includes developing comprehensive planning studies, creating and utilizing hydraulic models for distribution system analyses, and identifying potential system deficiencies caused by issues such as aging infrastructure and water quality.

**Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND EDUCATION.**

A. I graduated from the University of California at Berkeley with a Bachelor of Science degree in Chemical Engineering. I am a Registered Professional Engineer in Arizona. I joined EWUS (then Arizona-American Water Company) in 2006. Before joining EWUS, I was employed by ATC Associates, where I worked as an environmental engineer and was responsible for managing several underground storage tank remediation projects. Prior to working for ATC Associates, I was employed by Baker Petrolite as a chemical engineer managing chemical application accounts for Shell Oil and Conoco Phillips.

**Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?**

A. Yes.

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?**

A. The purpose of my testimony in this case is to support the Company's request for a System Improvement Benefits ("SIB") surcharge mechanism for EWAZ's Mohave Water, Paradise Valley Water, and Sun City Water districts. EWAZ has modeled its SIBs for those districts consistent with the SIB first approved by the Commission for Arizona Water Company ("AWC") in Decision No. 73938 (June 27, 2013).

**Q. WHAT IS A SIB?**

**A.** The SIB is a surcharge mechanism that promotes rate gradualism by providing timely recovery of annual capital expenditures to replace certain water and wastewater infrastructure. For the Mohave Water, Paradise Valley Water, and Sun City Water districts, EWAZ anticipates that about $28 million of distribution system improvements are needed to ensure continued system reliability. If EWAZ funded those necessary replacement costs and then sought rate treatment in the ordinary course of business, customers would face substantial rate increases to provide the necessary returns on the plant replacements. As recognized by the Commission in Decision No. 73938, the SIB mechanism allows for more gradual rate changes while enabling utilities to raise the funds they need. Put simply, the SIB mechanism will ensure that these necessary investments occur and customers are protected through the various safeguards contained in the SIB Plans of Administration that will be completed after a final decision in this case is issued.

## II. SYSTEM IMPROVEMENT BENEFITS ("SIB") MECHANISM

**Q. WHY IS EWAZ REQUESTING SIB MECHANISMS FOR THREE OF ITS DISTRICTS IN THIS PROCEEDING?**

A. EPCOR is requesting a SIB mechanism to enable EWAZ to meet the challenge of replacing aging and failing infrastructure. A SIB results in more gradual rate increases, which increases the time between rate cases and reduces their complexity. This will help to keep EWAZ financially healthy, in turn, enabling it to attract the capital it needs to continue to provide safe and reliable water service. It benefits the customers by reducing the magnitude of increases in their bills following rate cases while investing in plant and facilities to continue to maintain and improve the performance of the water systems. A SIB will allow the Company to specifically target aging and failing infrastructure, which has the potential to be a significant burden on customers in the future, especially if action to replace infrastructure is not taken now.

**Q. IN WHICH DOCKET DID THE SPECIFICS OF THE SIB MECHANISM ARISE?**

A. Currently, the specific details for that mechanism are set forth in a Settlement Agreement docketed on April 1, 2013 in Phase 2 of Arizona Water Company's Docket No. W-01445A-11-0310 ("AWC Settlement Agreement"). EWAZ intervened and participated in Phase 2 and was a signatory to the AWC Settlement Agreement.

**Q. WHAT ARE THE INFORMATION REQUIREMENTS SET FORTH IN THE ARIZONA WATER SETTLEMENT AGREEMENT WHEN FILING FOR A SIB MECHANISM IN A GENERAL RATE CASE?**

A. In addition to making a request for the SIB mechanism, the Company must also provide a list of SIB-eligible projects and an estimation of the capital costs for each

project. As detailed in the AWC Settlement Agreement, the Commission-approved projects that will ultimately be included in any resulting SIB surcharge must be completed and placed in service prior to the applicable surcharge taking effect.

**Q. PLEASE SUMMARIZE THESE CRITERIA.**

A. In the AWC Settlement Agreement, guidelines and requirements were set forth for the continued development of the SIB mechanism. A SIB is intended for projects that are necessary to provide proper, adequate, and reliable service to existing customers and is not intended to serve or promote customer growth. SIB surcharge filings are to occur once per year, with no more than five filings between rate cases. Projects eligible for SIB treatment must be replacement projects. Additionally, each project must satisfy at least one of the following criteria:

- system water loss exceeds 10%;
- assets have remained in service beyond their useful service lives;
- other engineering, operational, or financial reason justifies replacement, such as assets experiencing increasing numbers of failures and repairs and meters replaced under a testing and maintenance program; or
- assets required to be moved, replaced, or abandoned by a government agency.

**Q. WHAT TYPES OF QUALIFYING PROJECTS IS EWAZ PROPOSING IN THIS CASE?**

A. The Company is proposing capital projects related to the following categories for inclusion in a water distribution SIB Mechanism:

| NARUC # | Description |
|---|---|
| 331 | Transmission & Distribution Mains and Valves |
| 333 | Services |
| 334 | Meters |

**Q. WHY DOES EPCOR WISH TO IMPLEMENT SIB MECHANISMS FOR THE MOHAVE WATER, PARADISE VALLEY WATER, AND SUN CITY WATER DISTRICTS?**

A. Because EWAZ is committed to delivering high quality and reliable water service to its customers. With the considerable number of customers we serve and facilities we operate, this commitment requires high levels of infrastructure replacement. Water utility infrastructure, or any infrastructure for that matter, requires a continuous replacement program as the assets age. Oftentimes, assets are replaced on a reactive basis only after they have failed. Without a proper annual asset replacement program, water systems become inefficient and begin to fail, and replacement costs are pushed down the road at ever increasing costs. The approval of a SIB by the Commission showed recognition of the important value of this mechanism to address replacements; a step towards breaking this cycle.

In our case, the Mohave Water, Paradise Valley Water, and Sun City Water districts each require investment in infrastructure as many assets are nearing or have surpassed their useful lifetimes. The end of an asset's useful life is when it is considered economically efficient to replace it; that is to say, at the time when the asset is no longer able to provide adequate service and is costly to operate and maintain. EWAZ is seeing an increase in failing assets in these three districts, and these assets require replacement in order to ensure high quality, safe and reliable service. Additionally, failure to replace assets when it is economical to do so can be more problematic in the future. Demographic and economic conditions are always subject to change, but infrastructure needs are essentially fixed.

The American Water Works Association estimates that buried drinking water infrastructure will need investment totaling more than $1 trillion nationwide

in the next 25 years.[1] Determining the age at which an asset is likely to fail is dependent on many variables including the material of the asset, the type of soil in which the asset is buried, and the composition of the water. Finding patterns in historical data help determine where imminent failures may occur. All of the assets to be replaced by EPCOR pursuant to the SIB mechanism have been determined to be in need of replacement, and their replacement will reduce risk, allow the continued provision of safe and reliable utility services, and reduce what has become known as "rate shock".

**Q. HOW DOES THE SIB REDUCE "RATE SHOCK"?**

A. By increasing rates gradually as projects are approved each year. This is more in line with the real world; for example, wages go up a small percentage each year rather than increasing by a large amount every few years. Customers are simply better able to handle small changes in their bills each year as opposed to a larger increase once every few years. As noted in Phase 2 of the AWC rate case, Arizona utility customers strongly prefer frequent smaller rate increases rather than periodic but significantly larger rate increases.[2]

**Q. CAN YOU PROVIDE ADDITIONAL DESCRIPTION OF THE QUALIFYING PROJECTS FOR EACH DISTRICT, STARTING WITH THE MOHAVE WATER DISTRICT?**

A. The Company plans to include meters, mains, services, and valves for replacement under the proposed SIB mechanism.

[1] Buried No Longer: Confronting America's Water Infrastructure Challenge, AWWA, 2012.

[2] *Arizona Water Company*, Decision No. 73938 at 28:8-9.

**METERS**

There are approximately 17,000 meters in this district. Most of these meters are between 15 and 20 years old. The proposed meter replacement schedule will ensure that all meters in this district are replaced by 2019, at the time when many of the meters would otherwise be over 20 years old. The meters must be replaced as they age because they become inaccurate, typically under-registering usage, which also contributes to non-revenue water percentages. The Arizona Department of Water Resources' ("ADWR") Modified Non-Per Capita Conservation Program ("MNPCCP") is one of the regulatory programs for large municipal water providers in Active Management Areas. It is a performance-based program (Best Management Practice or "BMP") that participating water providers use to implement water conservation measures that result in water use efficiency in their service areas. ADWR's BMP for meter replacement and testing requires 2-inch and smaller meters be replaced at a minimum of every 15 years. This meter replacement schedule or a shorter schedule is in-line with industry standards and is authorized by the Commission in EWAZ's water districts (Meter Repair and/or Replacement Tariff – BMP 4.2). The Company is proposing a meter replacement program that will first target meter routes with the oldest meters. EWAZ replaces all meters in its operating companies with the same common meter and software platform, which increases meter reading efficiency, customer service, and employee safety. The Company plans to replace approximately 1,700 meters per year on average over the next five years and expects to continue at this pace until all the meters in the Mohave Water system are replaced. The meter replacement cost over the five-year period is estimated at $1.5 million.

**MAINS**

The Mohave Water service area is comprised of about 200 miles of distribution mains installed between 1955 and 2013. Much of this pipe has a history of breaks and repairs, especially in those pipes installed between 1955 and 1975. A recent City of Bullhead sewer project revealed excessive leaking in an older portion of the City of Bullhead, where most of the plastic ABS (Acrylonitrile Butadiene Styrene) pipe was installed in 1967. The area near Old Bullhead has a similar problem, where ABS pipe installed in 1970 has had numerous leaks and breaks. The PVC (polyvinyl chloride) pipe installed in 1975 in the Lake Mohave Highlands area has had numerous breaks, which has caused a loss in water pressure to customers in the past. During another City of Bullhead sewer project, AC (Asbestos Cement) pipe installed in the 1950s and 1960s was so brittle that it would break when it was exposed. These are just some of the conditions that exist throughout the Mohave Water system. In order to prevent future breaks and leaks that contribute to water loss, EWAZ is proposing a main replacement plan that will include the replacement of about 18,000 feet of pipe between 2015 and 2019 at an approximate cost of $4.6 million over the five-year period.

**SERVICES**

There are approximately 17,000 service connections in the Mohave Water district. Many of these services are either made of polyethylene or polybutylene, both of which have been known to weaken and break easily and quickly. Most leaks go undetected, as they tend to remain below the surface of the ground. Additionally, many of the services are split to feed two or more meters. This can cause problems with water pressure and flow for customers, and makes it difficult for EWAZ to terminate service to a single customer. Except in the case of very low use customers (i.e., in mobile home parks), a single service per meter should be

installed. Using historical data to determine the likelihood that services of a certain age, material, and location have failed or are at risk for immediate failure, the Company plans to replace approximately 800 services between 2015 and 2019 at a total cost of about $3.0 million.

**VALVES**

The Mohave Water distribution system has 4,100 valves that were installed between 1955 and 2013. Historically, valves were tested and replaced if found broken or inoperable during routine maintenance or main repairs. However, EWAZ has found that more valves need to be tested, and replaced if necessary, on an annual basis to improve system reliability and reduce customer service disruptions. An analysis of historical broken valve data showed that the probability of a valve being broken if it is older than 50 years is around 25 percent. EWAZ can no longer perform routine valve maintenance in the older portions of the system because so many would break and need emergency replacement. For this reason, EWAZ plans to test specific areas of the system with the intention of replacing all broken and inoperable valves. The Company estimates it will replace about 230 valves between 2015 and 2019 at a total cost of about $1.1 million.

**Q. PLEASE EXPLAIN THE QUALIFYING PROJECTS FOR THE PARADISE VALLEY WATER DISTRICT.**

A. The Company plans to include mains, services, and valves for replacement under the proposed SIB mechanism in the Paradise Valley Water District.

**MAINS**

The Paradise Valley Water District service area is comprised of 130 miles of distribution mains installed between 1946 and 2013. Historical data shows that breaks occur most often in the oldest pipes, and usually in high-pressure areas where many of the mains are less than six inches in diameter. The Company plans

to replace mains that have a history of breaks and repairs. Considering the pipes that are at the highest risk for failure in the system, the Company will replace approximately 9,300 feet of pipe between 2015 and 2019 at a total cost of about $1.7 million.

**SERVICES**

There are approximately 5,000 service connections in the Paradise Valley Water District. Some of the oldest of these services are located in the Clearwater Hills area and in the area north of Lincoln between Invergordon Road and Lost Dutchman Road. These services are galvanized steel pipe which have been found to be highly corroded and are failing at an extremely high rate. The Company has already begun replacement of the old and failing galvanized services in these areas, and plans to continue these replacements, completing approximately 1,100 services between 2015 and 2019. The total cost over the five-year period is estimated to be $4.3 million.

**VALVES**

The Paradise Valley Water distribution system has 2,365 valves. As previously explained for the Mohave Water District, historically valves were replaced if they were found broken or inoperable during routine maintenance or main repairs, yet more need to be replaced to improve system reliability. Operations staff has found that during routine maintenance, approximately 10% of the valves are found broken, and up to 30% more are found inoperable in the older parts of the system. The Company plans to test all of the valves in the system between 2015 and 2019 and replace valves that are found broken or inoperable. It is anticipated that approximately 200 valves will be replaced between 2015 and 2019 at a total cost of $1.1 million.

**Q. CAN YOU DESCRIBE THE QUALIFYING PROJECTS FOR THE SUN CITY WATER DISTRICT?**

A. The Company plans to include meters, mains, valves, and services for replacement under the proposed SIB mechanism in the Sun City Water district.

**METERS**

There are approximately 23,600 meters in the Sun City Water District. The Company has been actively replacing meters that have exceeded their useful life and plans to have all of the meters replaced by 2019. Under the proposed SIB mechanism, approximately 11,600 meters will be replaced at a total cost of about $2.2 million.

**MAINS**

The Sun City Water District service area is comprised of 320 miles of distribution mains. Most of this pipe was installed before 1985 with the oldest pipe installed in 1959, and about half of the pipe was installed between 1959 and 1969. Main breaks are becoming much more frequent in the Sun City Water District, not only because of the age of the pipe, but also because of the native soil type in the area. The native bedding in the Coyote Lakes area, for example, has necessitated the repair of 37 leaks and breaks in this area over the past five years. Additionally, the service area as a whole had more than 200 repairs of mains in the last five years, half of which occurred in the mains installed between 1959 and 1963. Considering the pipes that are at the highest risk for failure in the system, the Company plans to replace about 5 miles of pipe between 2015 and 2019 at a total cost of approximately $4.1 million.

**SERVICES**

There are approximately 23,600 service connections in the Sun City Water District. The age of these services generally matches the age of the pipe, much of which was

installed between 1959 and 1969. Additionally, many of these services are galvanized steel pipe, which has been found to be highly corroded and failing at a high rate. Using historical data to determine the likelihood that services of a certain age, material, and location have failed or are at risk for immediate failure, EWAZ plans to replace approximately 1,100 services between 2015 and 2019 at a total cost of about $4.3 million.

**VALVES**

The Sun City Water distribution system has about 6,000 valves. As previously explained for the Mohave Water and Paradise Valley Water districts, historically valves were replaced if they were found broken or inoperable during routine maintenance or main repairs. The Company plans to test all of the valves in the system between 2015 and 2019 and replace the valves that are found broken or inoperable. It is anticipated that approximately 80 valves will be replaced between 2015 and 2019 at a total cost of about $400,000.

**Q. WHAT FURTHER SUPPORT WILL THE COMPANY PROVIDE FOR INCLUSION OF THESE REPLACEMENTS IN THE PROPOSED SIB MECHANISM?**

A. The Company has prepared a SIB Engineering Report for each district, which details the justification and cost of each individual project included in the proposed SIB mechanism for each of the districts where a SIB mechanism has been requested. These reports are included as Exhibits CC-1-A for Mohave Water, CC-1-B for Sun City Water, and CC-1-C for Paradise Valley Water. The engineering reports are available upon request. A SIB Plant Table I is included in the report for each SIB Project; these tables are also included separately as Exhibit CC-2. An additional exhibit, Exhibit CC-3, includes a template SIB Plant Table II, to be used when each SIB project is completed.

**Q. HAS THE COMPANY INCLUDED A PLAN OF ADMINISTRATION ("POA") FOR THE SIB?**

A. Yes. A POA template has been prepared by the Commission and is included as Exhibit CC-4. The POA schedules will be completed for each district after a final decision in this proceeding is issued. Should the POA be updated by the Commission, we will modify this template accordingly.

**Q. DOES THIS CONLCUDE YOUR DIRECT TESTIMONY?**

A. Yes, it does.

# SIB ENGINEERING REPORT

## (Exhibit CC-1-A)

## EPCOR Water (USA) Inc.

### Mohave Water District

### PWS ID Nos. 08-032, 08-137, 08-333, and 08-068

**February 28, 2014**

## Introduction

EPCOR Water is submitting this report as **Exhibit CC-1-A** for the direct testimony of Candace Coleman. The intent of this report is to support EPCOR's System Improvement Benefit (SIB) application for its Mohave Water district. Included in this report are a brief system introduction followed by detailed project justifications for asset replacement projects. Each project is accompanied by the corresponding **SIB Plant Table I.**

EPCOR Water supplies water to approximately 17,000 customers in the Mohave Water District. The distribution system is comprised of about 230 miles of pipe and 2,800 valves. Additionally, EPCOR Water just completed (December 2013) the acquisition of North Mohave Valley Corporation, which serves water to about 2,000 customers. Aside from water meter replacements in 2019, the components and needs for the new service area are not addressed in this report.

The Bullhead City area was settled between 1942 and 1953 during the construction of the Davis Dam and the city was incorporated in 1984. The mains are largely in poor condition since many of them were installed beginning in 1955. Many leaks have been reported and repaired, and water loss historically has been between 11 and 12%. During the construction of a City sewer, much pumping was required to dewater the sewer trenches because of the water main leaks. Furthermore, water mains in several areas are located in rear alleys that are difficult to access for main repairs and the alleys are of insufficient width for access by emergency service vehicles. For these reasons, replacing these mains with new mains in the street is a high priority.

During the last two years, approximately $3.0 million was spent replacing services, meters, valves, and mains. This is only a small portion of the total assets that need to be replaced, and only addressed the egregious and visible infrastructure failures. The rate of replacement of critical assets in this system needs to be increased to ensure the reliability of the system and to decrease system water loss.

In the past, assets were replaced when there was a noticeable failure such as water surfacing. This type of reactive approach is typically more expensive as replacements usually occur in an emergency situation, sometimes requiring an interruption in water service. It may also result in water losses, overtime pay, and paying a premium for parts. Another concern, related to

reactive maintenance, is public health and safety. Emergency repairs may require unanticipated shutdowns of the distribution system, leaving homes and possibly fire hydrants without water. Saturated soils, resulting from leaking pipes, may undermine roads, utilities and other structures.

EPCOR has developed a planned replacement approach to asset management for the future. This approach varies depending on the type of asset.

- For meter replacements, EPCOR is relying on industry-wide studies, local experience, and the Best Management Practice adopted in the tariff for meters.

- For service lateral, valve, and water main replacements, EPCOR is using an industry standard Nessie Curve that relies on infrastructure age and historical data to help predict the rate of failure that will occur in the future.

The remainder of this report will give a detailed explanation of the replacements planned for the next five years and an overview of the condition of the Mohave Water system infrastructure. Service line, valve, water main, and meter replacement projects are broken down and described by year in the SIB Plant Table I; a map and cost estimate are provided for each project. The information is organized as follows:

- Section 1 – Services
- Section 2 – Valves
- Section 3 – Mains
- Section 4 – Meters

The following table summarizes the recommended estimated project quantities and spending per category by year for the next five years. It is estimated that a total of about $10 million will be spent over the next five years, with an average spend of $2 million per year. These costs are expected to vary slightly by year depending on field conditions, business requirements, and staff availability.

| Asset Replacements - Mohave Water District, 2015-2019 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2015 | | 2016 | | 2017 | | 2018 | | 2019 | | Total | |
| Asset Type | units | $ | units | $ | units | $ | units | $ | units | $ | units | $ |
| **Mains** | 2,162 | $ 566,093 | 3,820 | $ 872,322 | 4,085 | $ 1,126,877 | 4,087 | $ 1,030,934 | 3,503 | $ 992,251 | 17,657 | $ 4,588,477 |
| **Services** | 274 | $ 1,063,339 | 153 | $ 593,762 | 102 | $ 395,842 | 145 | $ 562,716 | 103 | $ 399,722 | 777 | $ 3,015,382 |
| **Valves** | 46 | $ 212,819 | 46 | $ 217,439 | 46 | $ 225,289 | 45 | $ 229,658 | 45 | $ 226,763 | 228 | $ 1,111,968 |
| **Meters** | 1,479 | $ 266,908 | 1,782 | $ 314,733 | 1,638 | $ 298,679 | 1,457 | $ 263,074 | 2,118 | $ 368,099 | 8,474 | $ 1,511,493 |
| **Total** | | **$ 2,109,159** | | **$ 1,998,257** | | **$ 2,046,686** | | **$ 2,086,382** | | **$ 1,986,835** | | **$ 10,227,320** |

# Section 1 - Services

# SECTION 1 – SERVICES

## 1.1 Overview

Based on the current customer count in EPCOR's Mohave Water district, there are about 17,000 active service laterals. Most of these services were installed between 1960 and 1980. Replacement of service lines is a priority for a number of reasons, including the age of the service lines, the fact that many of the service lines were constructed to feed more than one customer, and the material of the pipe.

## 1.2 Nessie Curve

A "Nessie Curve" is a graphical representation of the annual replacement needs for buried infrastructure. Because it is not economical or feasible to inspect all buried infrastructure, the curve uses historical replacement data and statistical analysis to determine when an asset has reached the end of its useful life and is likely to need replacement. The end of an asset's useful life is when it is considered economically efficient to replace it; this is to say when replacement becomes less expensive than the cost of replacement or repairs in the future. Failure to replace assets when it is economical to do so can be disastrous in the future, when demographic and economic conditions may have changed. As an example, if the population of an area were to decrease in the future, the financial burden of asset replacements on the remaining population would become increasingly difficult, especially if prudent replacements have not been completed in the past.

According to the American Water Works Association (AWWA) "there will be a three-fold increase in the repair costs by the year 2030 despite a concurrent increase of three and a half times in annual investments to replace pipes." [1] The AWWA estimates that buried drinking water infrastructure will need investments totaling more than $1 trillion nationwide in the next 25 years.[2] Given these daunting predictions, it is especially important for water utility providers to implement asset replacement programs now in order to properly manage the investments that will be needed in the future.

[1] Reinvesting in Drinking Water Infrastructure, AWWA, May 2001

[2] Buried No Longer: Confronting America's Water Infrastructure Challenge, AWWA, 2012

Exhibit 1-1 is the Nessie curve which was developed specifically for the service lines in EPCOR's Mohave district. Exhibit 1-2 shows this same data in tabular format. The curve shows that indeed the cost of replacement will be the highest between now and 2030, as predicted by AWWA. It shows that in the next six years, from 2015 through 2020, approximately $20 million should be invested in service line replacements in order to offset the rate at which the services are failing. This equates to about 860 service replacements per year, or an investment of about $3.3 million per year just in service line replacements.

**Exhibit 1-1 – Service Line Nessie Curve**

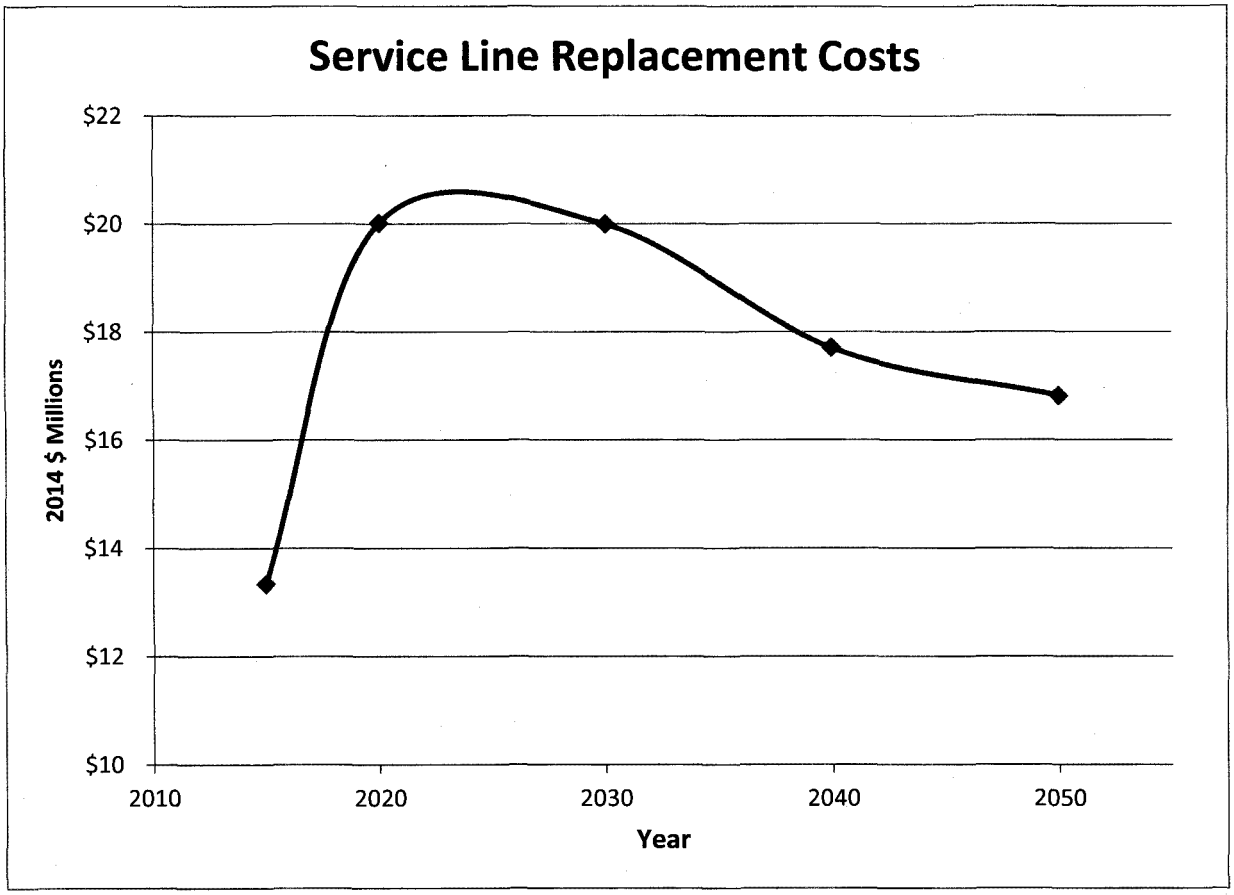


**Exhibit 1-2 Nessie Curve Table**

| Time Frame | Number of Services to be Installed | Cost to Replace Services | Number of Service Replacements per Year | Cost per Year |
|---|---|---|---|---|
| today-2020 | 5157 | $ 20,015,193 | 860 | $ 3,335,866 |
| 2020-2030 | 5152 | $ 19,994,035 | 515 | $ 1,999,403 |
| 2030-2040 | 4562 | $ 17,705,994 | 456 | $ 1,770,599 |
| 2040-2050 | 4333 | $ 16,817,919 | 433 | $ 1,681,792 |

### 1.3 Service Lines Serving Multiple Customers

When much of the original Mohave water system was constructed, single service lines to serve two (or more) properties were installed; a single service was installed from the water main to a common property boundary at the curb line where a manifold was installed splitting the service line to feed two or more residential meters. Exhibit 1-3 shows a 2" service supplying four meters. Throughout the system, the majority of the branched services are 1" services supplying two ¾" meters, while some are 1 ½" or 1 ¼" services that branch into four 1" or ¾" meters. This causes problems with pressure and flow for the customers, as well as for EPCOR employees who need to terminate or shut off service to a single customer. In most cases, service lines serving more than one customer should be replaced with one service line per customer. The exception is when a service supplies very low-use customers, such as in a mobile home park. In these instances, services will remain split. Replacement of service lines in many cases will require that EPCOR replace each of the branched service lines with two (or four, as appropriate) new ¾" or 1" copper services, *i.e.*, one service line for each metered customer.

**Exhibit 1-3 – 2" service supplying four meters**

## 1.4 Service Line Material

The material that was used when the majority of the service lines were installed was polyethylene pipe (poly pipe). The use of this poly pipe is not appropriate in this region or for the system pressures in Bullhead City. The soil conditions and high system pressures cause a

high number of service line failures and leaks which contribute to unnecessary water loss and service disruption. The water from many service line leaks never surfaces because of the porous soil, causing the leaks to go undetected until they are uncovered at a later date. Exhibits 1-4 and 1-5 are pictures of failed poly pipe service lines that were recently found in the Mohave system.

**Exhibit 1-4 – Black poly service line material failure**

**Exhibit 1-5 – Black poly service line material failure**

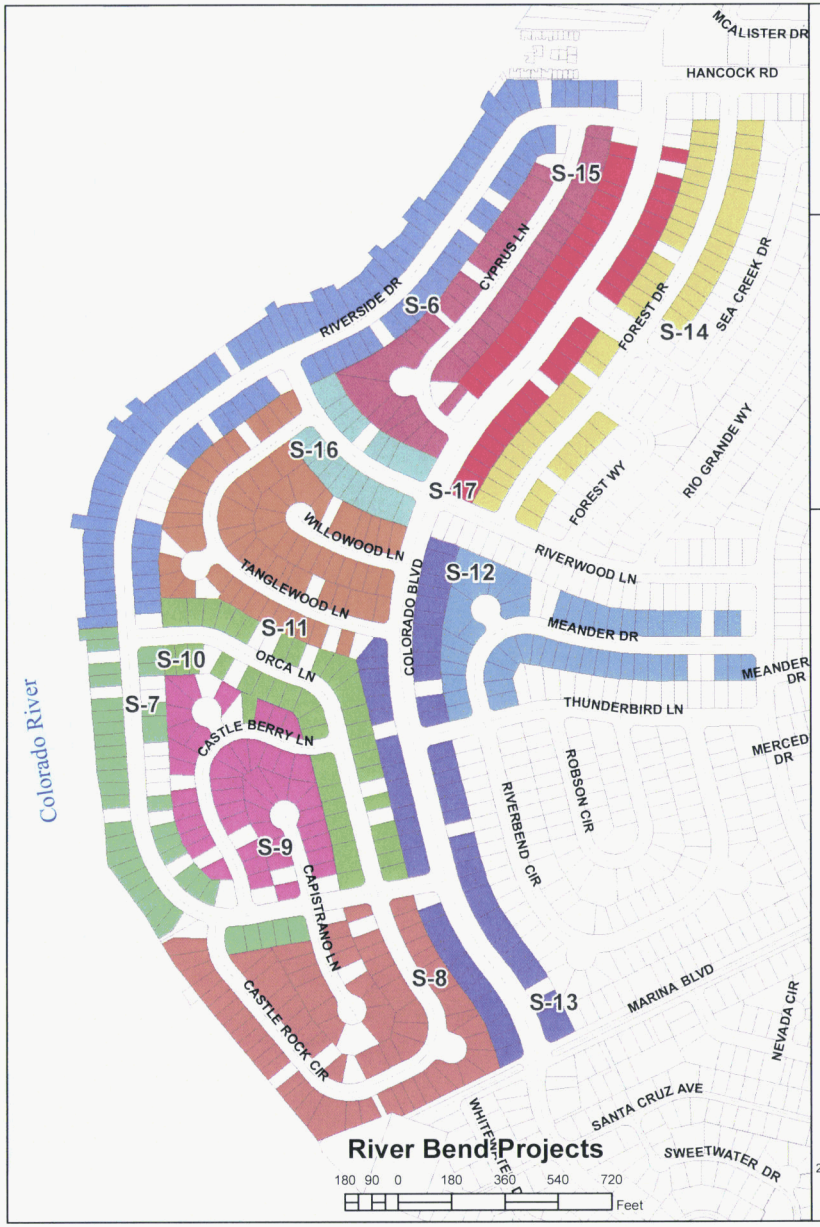
## 1.5 Service Line Replacements

Over the past ten years, 1,795 service lines were replaced because they were known to be failing, which is an average of approximately 180 service line failures per year. Note that this doesn't include service lines which are leaking, unbeknownst to EPCOR Water. During 2012 and 2013 alone, 1,429 services were replaced.

Although the Nessie curve indicates that 860 services should be replaced per year, this would present a significant labor and capital burden on EPCOR and its customers. Additionally, other assets including mains, valves, and meters must also be replaced. In order to develop a replacement program that includes all types of failing assets while keeping the expenditures

within a reasonable range, EPCOR plans to replace a total of about 780 services at a cost of $3 million from 2015 through 2019. This equates to an average of about 155 services per year.

The following map shows the locations of all the proposed service line replacement projects. Service line replacement projects are described in the following tabs labeled **2015, 2016, 2017, 2018, and 2019**. SIB Plant Table I, 1-1 through SIB Plant Table I, 1-5 provide detailed descriptions of each service line replacement project. The tables are broken down by year, so there is a separate table for each year from 2015 (Table I, 1-1) through 2019 (Table I, 1-5). Each project addresses a set of service line replacements that will occur within a defined area. Each project can also be tied to a map showing the parcels where the proposed service lines will be replaced. A detailed cost estimate for each project is also provided.




# Mohave District

PWSID: 0408032

**Project Area:**

## River Bend and Silver Creek Service Replacement Projects 2015-2019

**Legend**

S-1 Project Area

N

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 •

# 2015

Mohave – PWD No. 08-032

**SIB PLANT TABLE I, 1-1**

2015 Service Line Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| S-1 | 333 | service lines | 36 | ¾" & 1" | Copper | $3,881 | Calle de Mercado | 12/2015 | n/a | $139,709 | Replace 34 residential and 2 commercial services on Silver Creek Rd, Calle de Mercado, and Mercado Ct between El Cazador and Rosewood Rd. Many of the services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-1 in Exhibit CC-1-A for more detail. |
| S-2 | 333 | service lines | 53 | ¾" & 1" | Copper | $3,881 | Avenida Colibri | 12/2015 | n/a | $205,682 | Replace 53 residential services on Avenida Colibri and Colibri Ct between Corona Vista and Rosewood Rd. Many of the services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-2 in Exhibit CC-1-A for more detail. |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S-3 | 333 | service lines | 25 | ¾" & 1" | Copper | $3,881 | Paloma Senda Dr | 12/2015 | n/a | $97,020 | Replace 25 residential services on Palo[redacted]da Dr between Corona Vista and Rosewood Rd. Many [redacted]e services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-3 in Exhibit CC-1-A for more detail. |
| S-4 | 333 | service lines | 24 | ¾" & 1" | Copper | $3,881 | Avenida Grande | 12/2015 | n/a | $93,139 | Replace 24 residential services on Avenida Grande between Corona Vista and Avenida Ventura Dr. Many of the services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth See Section 1 narrative and Map No. S-4 in Exhibit CC-1-A for more detail. |
| S-5 | 333 | service lines | 37 | ¾" & 1" | Copper | $3,881 | El Cazador | 12/2015 | n/a | $143,590 | Replace 37 residential services on Calle de Mercado, Valley Vista, El Cazador, Corona Vista, Avenida Grande, Corona Redonda, and Via Corona south of Silver Creek Rd Many of the services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-5 in Exhibit CC-1-A for more detail. |
| S-6 | 333 | service lines | 99 | ¾" & 1" | Copper | $3,881 | Riverside Dr North | 12/2015 | n/a | $384,199 | Replace 99 residential services on Riverside Dr between Orca Ln and Colorado Blvd. Many of the services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-6 in Exhibit CC-1-A for more detail. |
| **Total** | | | **274** | | | | | | | **$1,063,339** | |

# 2015

Project No: S-1 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Calle de Mercado

**Project Description:**

Replace 34 residential
and 2 commercial services
on Silver Creek Rd, Calle de Mercado,
and Mercado Ct
between El Cazador and Rosewood Rd.

**Legend**

- Service to be Replaced
- Existing Copper Service
- Main

N

130 65 0 130 260 390 520 Feet


2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027


EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>**Preliminary Cost Estimate** | | | | Date Prepared:<br>1/31/2014 |
|---|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Mohave | Project Year and Number:<br>**2015 S-1** | Project Location:<br>Calle de Mercado | |
| Project Description:<br>Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs. | | | | |
| Materials & Labor | | | | |
| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
| 36 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 34 residential and 2 commercial services on Silver Creek Rd, Calle de Mercado, and Mercado Ct between El Cazador and Rosewood Rd. | $ 126,000 |
| 36 | hour | 28 | Company labor for field oversight and construction management | $ 1,008 |
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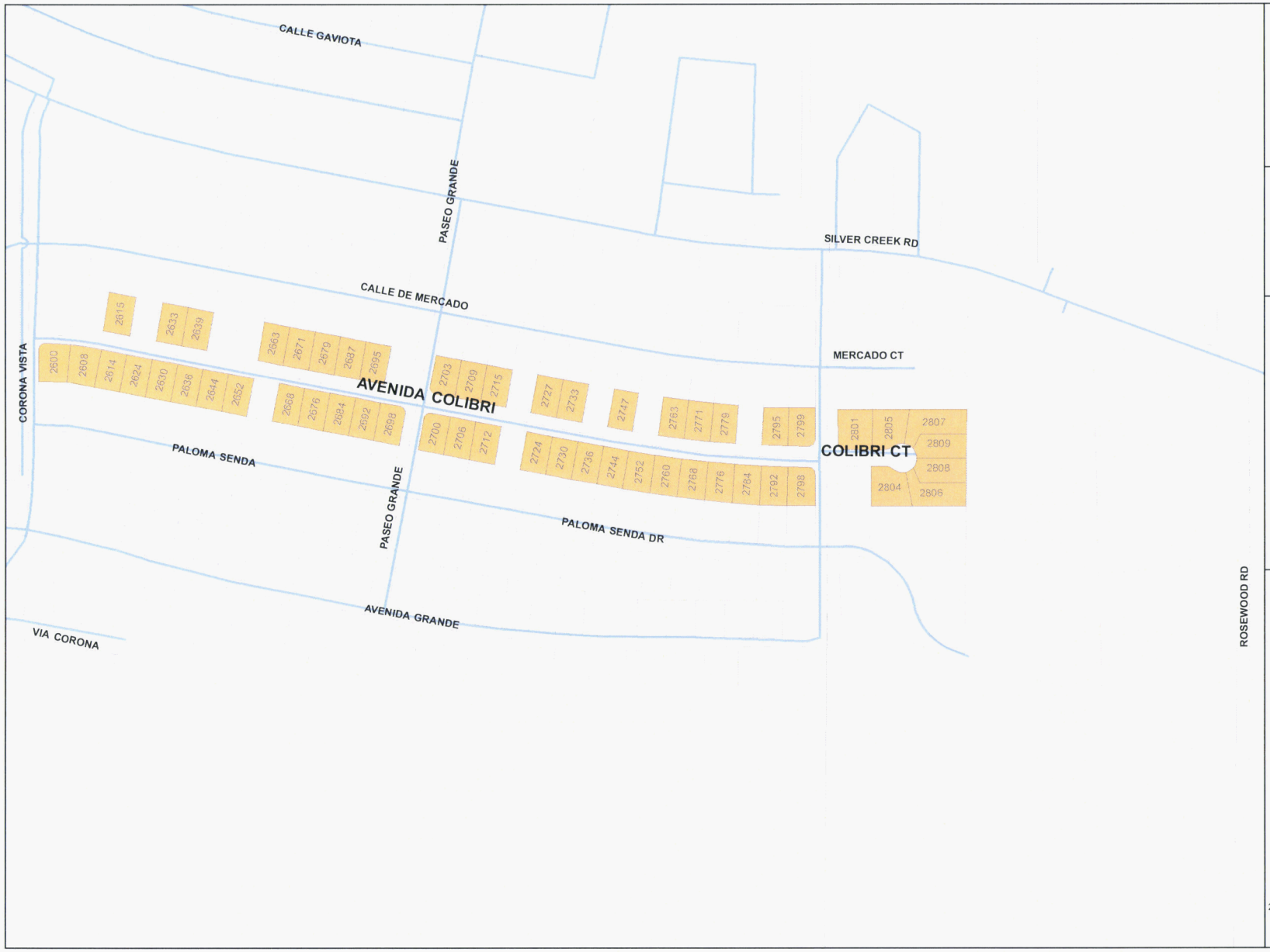
| Subtotal | | | | $ 127,008 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 12,701 |
| **Total Estimated Cost** | | | | **$ 139,709** |




# 2015

Project No: S-2 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Avenida Colibri

**Project Description:**

Replace 53 residential services
on Avenida Colibri and Colibri Ct
between Corona Vista and Rosewood Rd.

**Legend**

- Service to be Replaced
- Main

N

120 60 0 120 240 360 480
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>**Preliminary Cost Estimate** | | | | Date Prepared:<br>1/31/2014 |
|---|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Mohave | Project Year and Number:<br>**2015 S-2** | Project Location:<br>Avenida Colibri | |

Project Description:
Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 53 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 53 residential services on Avenida Colibri and Colibri Ct between Corona Vista and Rosewood Rd. | $ 185,500 |
| 53 | hour | 28 | Company labor for field oversight and construction management | $ 1,484 |
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| Subtotal | | | | $ 186,984 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 18,698 |
| **Total Estimated Cost** | | | | **$ 205,682** |

# 2015

Project No: S-3 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Paloma Senda Dr

**Project Description:**

Replace 25 residential services
on Paloma Senda Dr
between Corona Vista and Rosewood Rd.

**Legend**

- Service to be Replaced
- Existing Copper Service
- Main

N

120 60 0 120 240 360 480
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>**Preliminary Cost Estimate** | | | | Date Prepared:<br>1/31/2014 |
|---|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Mohave | Project Year and Number:<br>**2015 S-3** | Project Location:<br>Paloma Senda Dr | |
| Project Description:<br>Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs. | | | | |

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 25 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 25 residential services on Paloma Senda Dr between Corona Vista and Rosewood Rd. | $ 87,500 |
| 25 | hour | 28 | Company labor for field oversight and construction management | $ 700 |
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| Subtotal | | | | $ 88,200 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 8,820 |
| **Total Estimated Cost** | | | | **$ 97,020** |

# 2015

Project No: S-4 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Avenida Grande

**Project Description:**

Replace 24 residential services on Avenida Grande between Corona Vista and Avenida Ventura Dr.

**Legend**

- Service to be Replaced
- Existing Copper Service
- Main

N

80 40 0 80 160 240 320 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>**Preliminary Cost Estimate** | | | Date Prepared:<br>1/31/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Mohave | Project Year and Number:<br>**2015 S-4** | Project Location:<br>Avenida Grande |

Project Description:
Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 24 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 24 residential services on Avenida Grande between Corona Vista and Avenida Ventura Dr. | $ 84,000 |
| 24 | hour | 28 | Company labor for field oversight and construction management | $ 672 |
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| Subtotal | | | | $ 84,672 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 8,467 |
| **Total Estimated Cost** | | | | **$ 93,139** |

# 2015

Project No: S-5 •
PWSID: 0408032

## Mohave District

**Project Area:**

## El Cazador

**Project Description:**

Replace 37 residential services on Calle de Mercado, Valley Vista, El Cazador, Corona Vista, Avenida Grande, Corona Redonda, and Via Corona south of Silver Creek Rd.

**Legend**

- Service to be Replaced
- Existing Copper Service
- Main

N

80 40 0 80 160 240 320 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | | Date Prepared:<br>1/31/2014 |
|---|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Mohave | Project Year and Number:<br>**2015 S-5** | Project Location:<br>El Cazador | |

Project Description:
Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 37 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 37 residential services on Calle de Mercado, Valley Vista, El Cazador, Corona Vista, Avenida Grande, Corona Redonda, and Via Corona south of Silver | $ 129,500 |
| 37 | hour | 28 | Company labor for field oversight and construction management | $ 1,036 |
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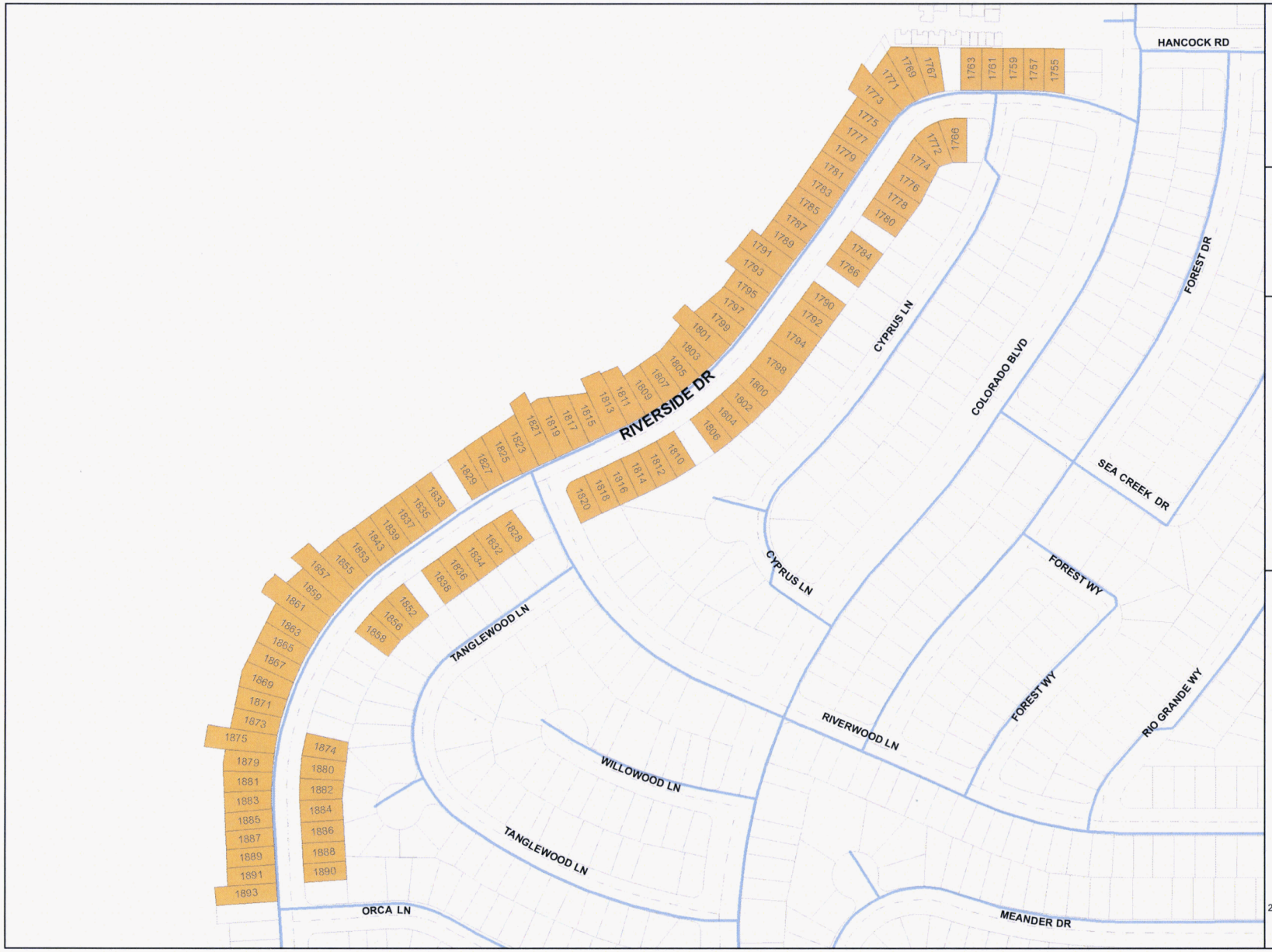
| Subtotal | | | | $ 130,536 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 13,054 |
| **Total Estimated Cost** | | | | **$ 143,590** |




# 2015

Project No: S-6 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Riverside Dr North

**Project Description:**

Replace 99 residential services
on Riverside Dr
between Orca Ln and Colorado Blvd.

**Legend**

- Service to be Replaced
- Main

N

80 40 0 80 160 240 320
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>**Preliminary Cost Estimate** | | | Date Prepared:<br>1/31/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Mohave | Project Year and Number:<br>**2015 S-6** | Project Location:<br>Riverside Dr North |

Project Description:
Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 99 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 99 residential services on Riverside Dr between Orca Ln and Colorado Blvd. | $ 346,500 |
| 99 | hour | 28 | Company labor for field oversight and construction management | $ 2,772 |
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| Subtotal | | | | $ 349,272 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 34,927 |
| **Total Estimated Cost** | | | | **$ 384,199** |

2016

Mohave – PW[illegible]D No. 08-032

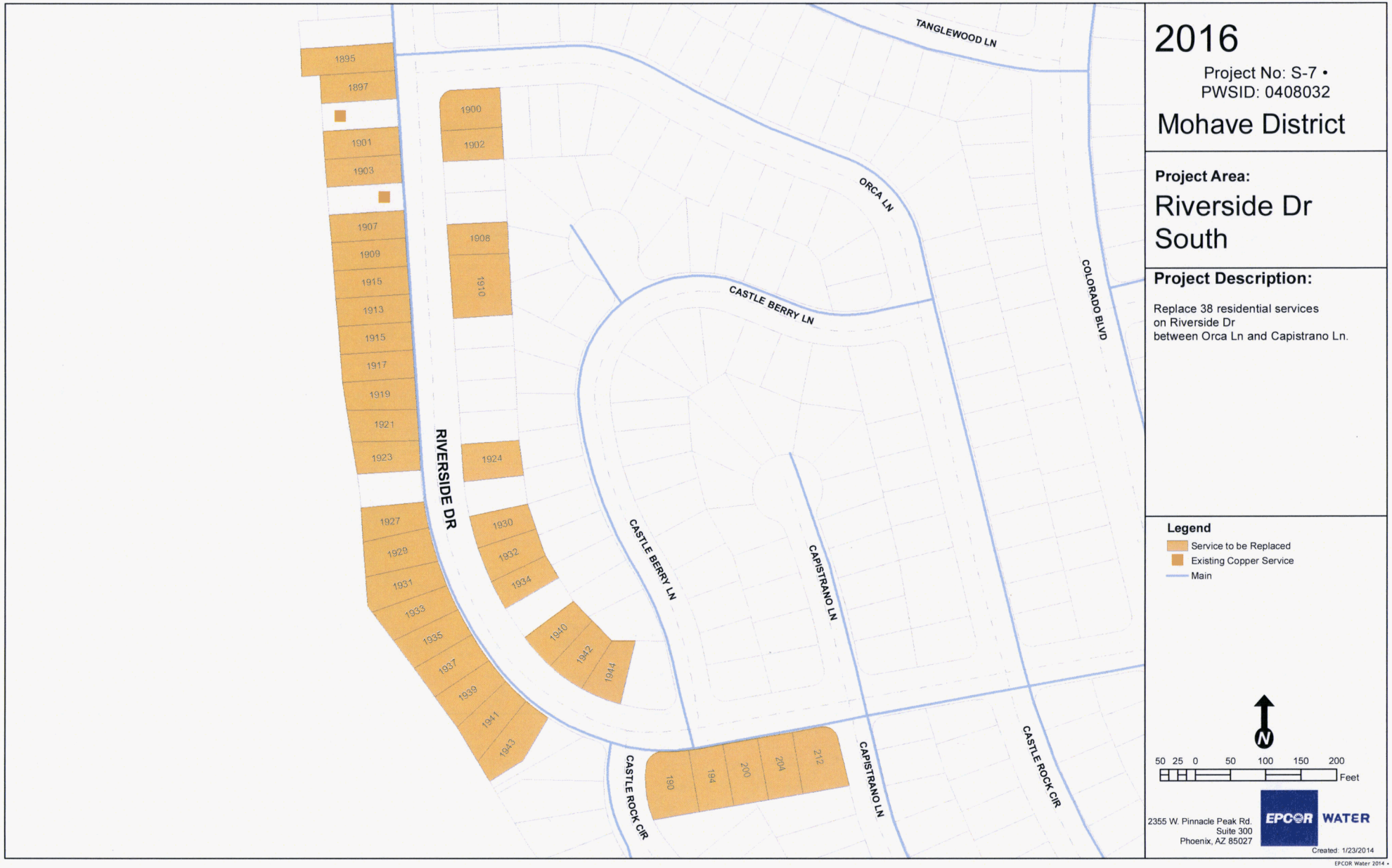
**SIB PLANT TABLE I, 1-2**

2016 Service Line Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| S-7 | 333 | service lines | 38 | ¾" & 1" | Copper | $3,881 | Riverside Dr South | 12/2016 | n/a | $147,470 | Replace 38 residential services on Riverside Dr between Orca Ln and Capistrano Ln. Many of the services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-7 in Exhibit CC-1-A for more detail. |
| S-8 | 333 | service lines | 69 | ¾" & 1" | Copper | $3,881 | Castle Rock | 12/2016 | n/a | $267,775 | Replace 69 residential services on Castle Rock Cir and Capistrano Ln between Riverside Dr and Marina Blvd. Many of the services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-8 in Exhibit CC-1-A for more detail. |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S-9 | 333 | service lines | 46 | ¾" & 1" | Copper | $3,881 | Capistrano Ln | 12/2016 | n/a | $178,517 | Replace 46 residential services on Cast[redacted]y Ln and Capistrano Ln between Riverside Dr and [redacted]a Ln. Many of the services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-9 in Exhibit CC-1-A for more detail. |
| **Total** | | | **153** | | | | | | | **$593,762** | |




# 2016

Project No: S-7 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Riverside Dr South

**Project Description:**

Replace 38 residential services
on Riverside Dr
between Orca Ln and Capistrano Ln.

**Legend**

- Service to be Replaced
- Existing Copper Service
- Main

N

50 25 0 50 100 150 200 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>**Preliminary Cost Estimate** | | | Date Prepared:<br>1/31/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Mohave | Project Year and Number:<br>**2016 S-7** | Project Location:<br>Riverside Dr South |

Project Description:
Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 38 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 38 residential services on Riverside Dr between Orca Ln and Capistrano Ln. | $ 133,000 |
| 38 | hour | 28 | Company labor for field oversight and construction management | $ 1,064 |
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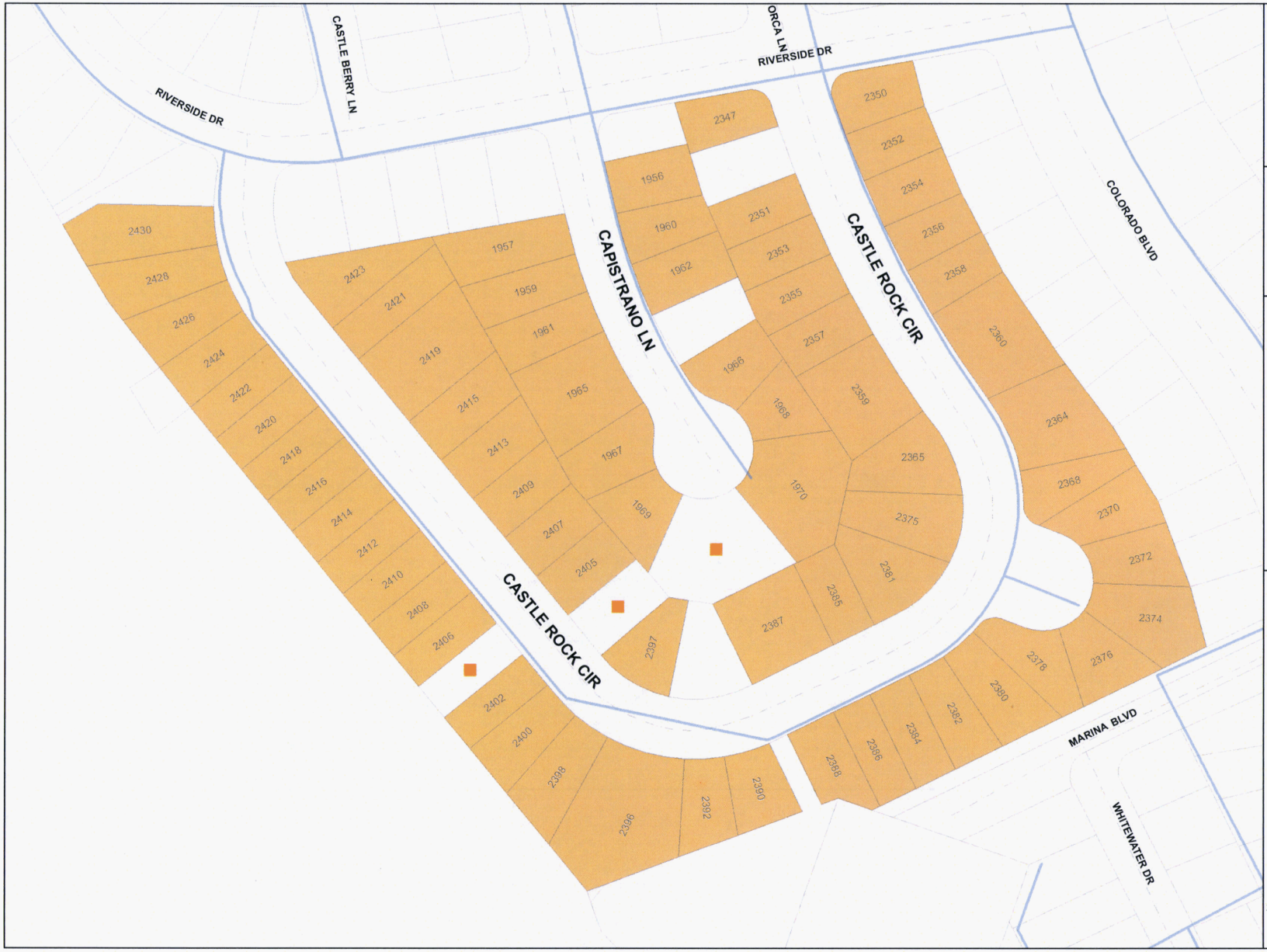
| Subtotal | | | | $ 134,064 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 13,406 |
| **Total Estimated Cost** | | | | **$ 147,470** |




# 2016

Project No: S-8 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Castle Rock Cir

**Project Description:**

Replace 69 residential services on Castle Rock Cir and Capistrano Ln between Riverside Dr and Marina Blvd.

**Legend**

- Service to be Replaced
- Existing Copper Service
- Main

N

30 15 0 30 60 90 120
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

| EPCOR Water<br>**Preliminary Cost Estimate** | | | Date Prepared:<br>1/31/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Mohave | Project Year and Number:<br>**2016 S-8** | Project Location:<br>Castle Rock Cir |

Project Description:
Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 69 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 69 residential services on Castle Rock Cir and Capistrano Ln between Riverside Dr and Marina Blvd. | $ 241,500 |
| 69 | hour | 28 | Company labor for field oversight and construction management | $ 1,932 |
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| Subtotal | | | | $ 243,432 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 24,343 |
| **Total Estimated Cost** | | | | **$ 267,775** |

# 2016

Project No: S-9 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Capistrano Ln

**Project Description:**

Replace 46 residential services on Castle Berry Ln and Capistrano Ln between Riverside Dr and Orca Ln.

**Legend**

- Service to be Replaced
- Existing Copper Service
- Main

N

40 20 0 40 80 120 160 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>**Preliminary Cost Estimate** | | | Date Prepared:<br>1/31/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Mohave | Project Year and Number:<br>**2016 S-9** | Project Location:<br>Capistrano Ln |

Project Description:
Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 46 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 46 residential services on Castle Berry Ln and Capistrano Ln between Riverside Dr and Orca Ln. | $ 161,000 |
| 46 | hour | 28 | Company labor for field oversight and construction management | $ 1,288 |
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| Subtotal | | | | $ 162,288 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 16,229 |
| **Total Estimated Cost** | | | | **$ 178,517** |

2017

Mohave – PWD No. 08-032

**SIB PLANT TABLE I, 1-3**

2017 Service Line Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| S-10 | 333 | service lines | 40 | ¾" & 1" | Copper | $3,881 | Orca Ln | 12/2017 | n/a | $155,232 | Replace 40 residential services on Orca Ln between Riverside Dr and Colorado Blvd. Many of the services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-10 in Exhibit CC-1-A for more detail. |
| S-11 | 333 | service lines | 62 | ¾" & 1" | Copper | $3,881 | Tanglewood Ln | 12/2017 | n/a | $240,610 | Replace 62 residential services on Tanglewood Ln and Willowood Ln between Riverside Dr and Colorado Blvd. Many of the services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-11 in Exhibit CC-1-A for more detail. |
| **Total** | | | **102** | | | | | | | **$395,842** | |

# 2017

Project No: S-10 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Orca Ln

**Project Description:**

Replace 40 residential services
on Orca Ln
between Riverside Dr and Colorado Blvd.

**Legend**

- Service to be Replaced
- Existing Copper Service
- Main

N

50 25 0 50 100 150 200 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>**Preliminary Cost Estimate** | | | Date Prepared:<br>1/31/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Mohave | Project Year and Number:<br>**2017 S-10** | Project Location:<br>Orca Ln |

Project Description:
Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 40 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 40 residential services on Orca Ln between Riverside Dr and Colorado Blvd. | $ 140,000 |
| 40 | hour | 28 | Company labor for field oversight and construction management | $ 1,120 |
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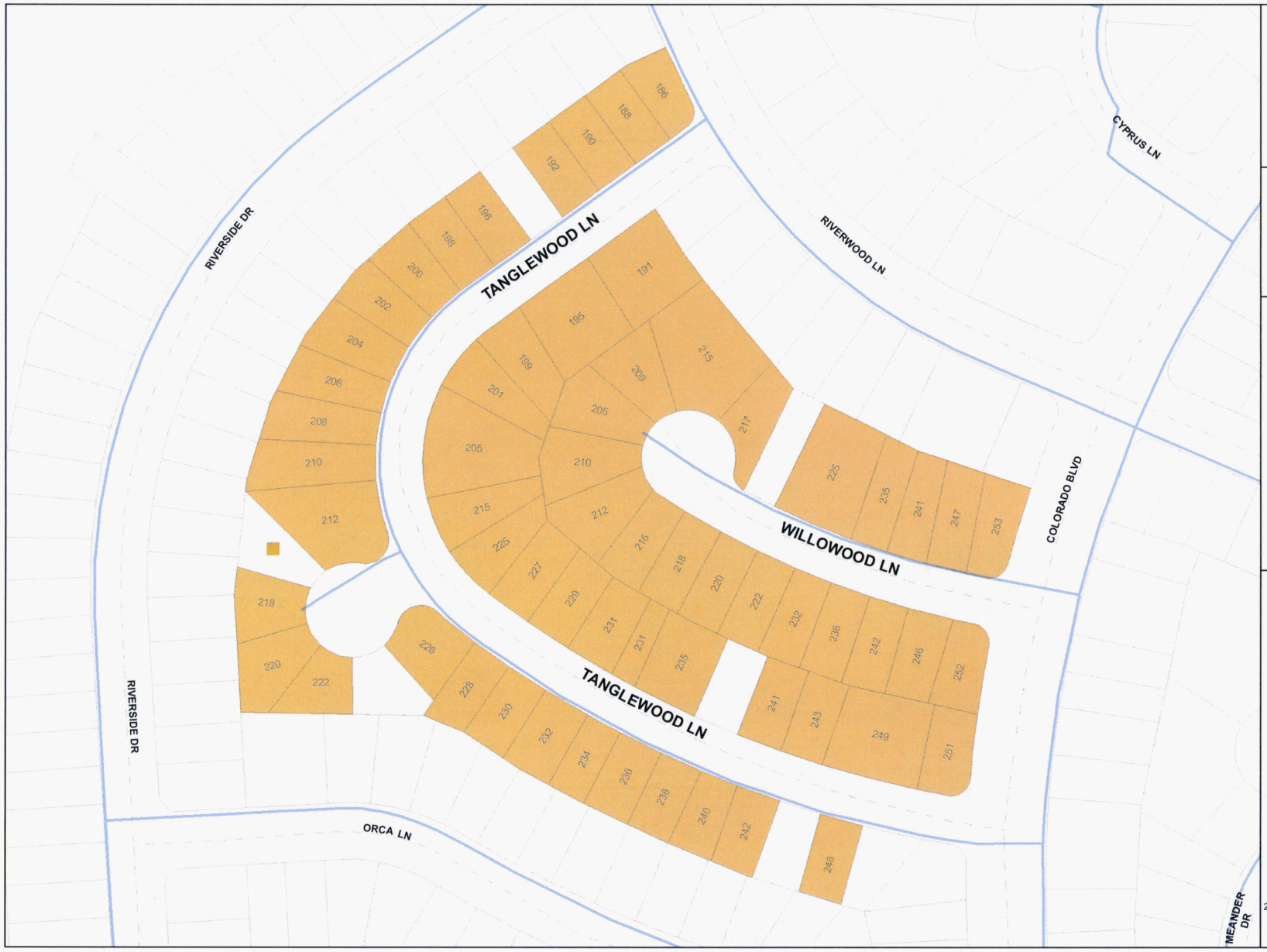
| Subtotal | | | | $ 141,120 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 14,112 |
| **Total Estimated Cost** | | | | **$ 155,232** |




# 2017

Project No: S-11 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Tanglewood Ln

**Project Description:**

Replace 62 residential services
on Tanglewood Ln and Willowood Ln
between Riverside Dr and Colorado Blvd.

**Legend**

- Service to be Replaced
- Existing Copper Service
- Main

N

40 20 0 40 80 120 160
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>**Preliminary Cost Estimate** | | | Date Prepared:<br>1/31/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Mohave | Project Year and Number:<br>**2017 S-11** | Project Location:<br>Tanglewood Ln |

Project Description:
Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 62 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 62 residential services on Tanglewood Ln and Willowood Ln between Riverside Dr and Colorado Blvd. | $ 217,000 |
| 62 | hour | 28 | Company labor for field oversight and construction management | $ 1,736 |
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| Subtotal | | | | $ 218,736 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 21,874 |
| **Total Estimated Cost** | | | | **$ 240,610** |

# 2018

Mohave – PU[redacted]D No. 08-032

**SIB PLANT TABLE I, 1-4**

2018 Service Line Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| S-12 | 333 | service lines | 45 | ¾" & 1" | Copper | $3,881 | Meander Ln | 12/2018 | n/a | $174,636 | Replace 45 residential services on Meander Dr between Thunderbird Ln and Rio Grande Rd. Many of the services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-12 in Exhibit CC-1-A for more detail. |
| S-13 | 333 | service lines | 51 | ¾" & 1" | Copper | $3,881 | Colorado Blvd South | 12/2018 | n/a | $197,921 | Replace 51 residential services on Colorado Blvd between Marina Blvd and Riverwood Ln. Many of the services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-13 in Exhibit CC-1-A for more detail. |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| S-14 | 333 | service lines | 49 | ¾" & 1" | Copper | $3,881 | Forest Dr | 12/2018 | n/a | $190,159 | Replace 49 residential services on Forest Dr between Riverwood Ln and Hancock Rd. Many of the services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-14 in Exhibit CC-1-A for more detail. |
| **Total** | | | **145** | | | | | | | **$562,716** | |

# 2018

Project No: S-12 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Meander Dr

**Project Description:**

Replace 45 residential services
on Meander Dr
between Thunderbird Ln
and Rio Grande Rd.

**Legend**

- Service to be Replaced
- Existing Copper Service
- Main

N

30 15 0 30 60 90 120
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 1/31/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, PE | Mohave | **2018 S-12** | Meander Dr |

Project Description:
Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 45 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 45 residential services on Meander Dr between Thunderbird Ln and Rio Grande Rd. | $ 157,500 |
| 45 | hour | 28 | Company labor for field oversight and construction management | $ 1,260 |
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| Subtotal | | | | $ 158,760 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 15,876 |
| **Total Estimated Cost** | | | | **$ 174,636** |

# 2018

Project No: S-13 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Colorado Blvd South

**Project Description:**

Replace 51 residential services
on Colorado Blvd
between Marina Blvd and Riverwood Ln.

**Legend**

- Service to be Replaced
- Existing Copper Service
- Main

N

80 40 0 80 160 240 320 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>**Preliminary Cost Estimate** | | | Date Prepared:<br>1/31/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Mohave | Project Year and Number:<br>**2018 S-13** | Project Location:<br>Colorado Blvd South |

Project Description:
Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 51 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 51 residential services on Colorado Blvd between Marina Blvd and Riverwood Ln. | $ 178,500 |
| 51 | hour | 28 | Company labor for field oversight and construction management | $ 1,428 |
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| Subtotal | | | | $ 179,928 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 17,993 |
| **Total Estimated Cost** | | | | **$ 197,921** |

# 2018

Project No: S-14 •
PWSID: 0408032

## Mohave District

**Project Area:**

Forest Dr

**Project Description:**

Replace 49 residential services
on Forest Dr
between Riverwood Ln and Hancock Rd.

**Legend**

- Service to be Replaced
- Main

N

60 30 0 60 120 180 240
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | | Date Prepared:<br>1/31/2014 |
|---|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Mohave | Project Year and Number:<br>**2018 S-14** | Project Location:<br>Forest Dr | |

Project Description:
Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 49 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 49 residential services on Forest Dr between Riverwood Ln and Hancock Rd. | $ 171,500 |
| 49 | hour | 28 | Company labor for field oversight and construction management | $ 1,372 |
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| Subtotal | | | | $ 172,872 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 17,287 |
| **Total Estimated Cost** | | | | **$ 190,159** |

2019

Mohave – PWD No. 08-032

**SIB PLANT TABLE I, 1-5**

2019 Service Line Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| S-15 | 333 | service lines | 40 | ¾" & 1" | Copper | $3,881 | Cyprus Ln | 12/2019 | n/a | $155,232 | Replace 40 residential services on Cyprus Ln between Colorado Blvd and Riverside Dr Many of the services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-15 in Exhibit CC-1-A for more detail. |
| S-16 | 333 | service lines | 16 | ¾" & 1" | Copper | $3,881 | Riverwood Ln | 12/2019 | n/a | $62,093 | Replace 16 residential services on Riverwood Ln between Colorado Blvd and Riverside Dr. Many of the services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-16 in Exhibit CC-1-A for more detail. |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| S-17 | 333 | service lines | 47 | ¾" & 1" | Copper | $3,881 | Colorado Blvd North | 12/2019 | n/a | $182,398 | Replace 47 residential services on Colorado Blvd. between Riverwood Ln. and Hancock Rd. Many of the services are branched black poly lines (one service for two customers) that are failing at a high rate. These services are a priority for replacement because of the historical failure rate of the pipe material as well as the need to connect a single service to each customer. Replacing the services will help reduce system water loss and improve customer pressure and flow with a single service for each customer. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-17 in Exhibit CC-1-A for more detail. |
| **Total** | | | **103** | | | | | | | **$399,722** | |

# 2019

Project No: S-15 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Cyprus Ln

**Project Description:**

Replace 40 residential services
on Cyprus Ln
between Colorado Blvd and Riverside Dr.

**Legend**

- Service to be Replaced
- Existing Copper Service
- Main

N

50 25 0 50 100 150 200
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>**Preliminary Cost Estimate** | | | Date Prepared:<br>1/31/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Mohave | Project Year and Number:<br>**2019 S-15** | Project Location:<br>Cyprus Ln |

Project Description:
Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 40 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 40 residential services on Cyprus Ln between Colorado Blvd and Riverside Dr. | $ 140,000 |
| 40 | hour | 28 | Company labor for field oversight and construction management | $ 1,120 |
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| | | | | |
| | | | | |
| Subtotal | | | | $ 141,120 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 14,112 |
| **Total Estimated Cost** | | | | **$ 155,232** |

# 2019

Project No: S-16 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Riverwood Ln

**Project Description:**

Replace 16 residential services
on Riverwood Ln
between Colorado Blvd and Riverside Dr.

**Legend**

- Service to be Replaced
- Main

N

25 12.5 0 25 50 75 100 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 1/31/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, PE | Mohave | **2019 S-16** | Riverwood Ln |

Project Description:
Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 16 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 16 residential services on Riverwood Ln between Colorado Blvd and Riverside Dr. | $ 56,000 |
| 16 | hour | 28 | Company labor for field oversight and construction management | $ 448 |
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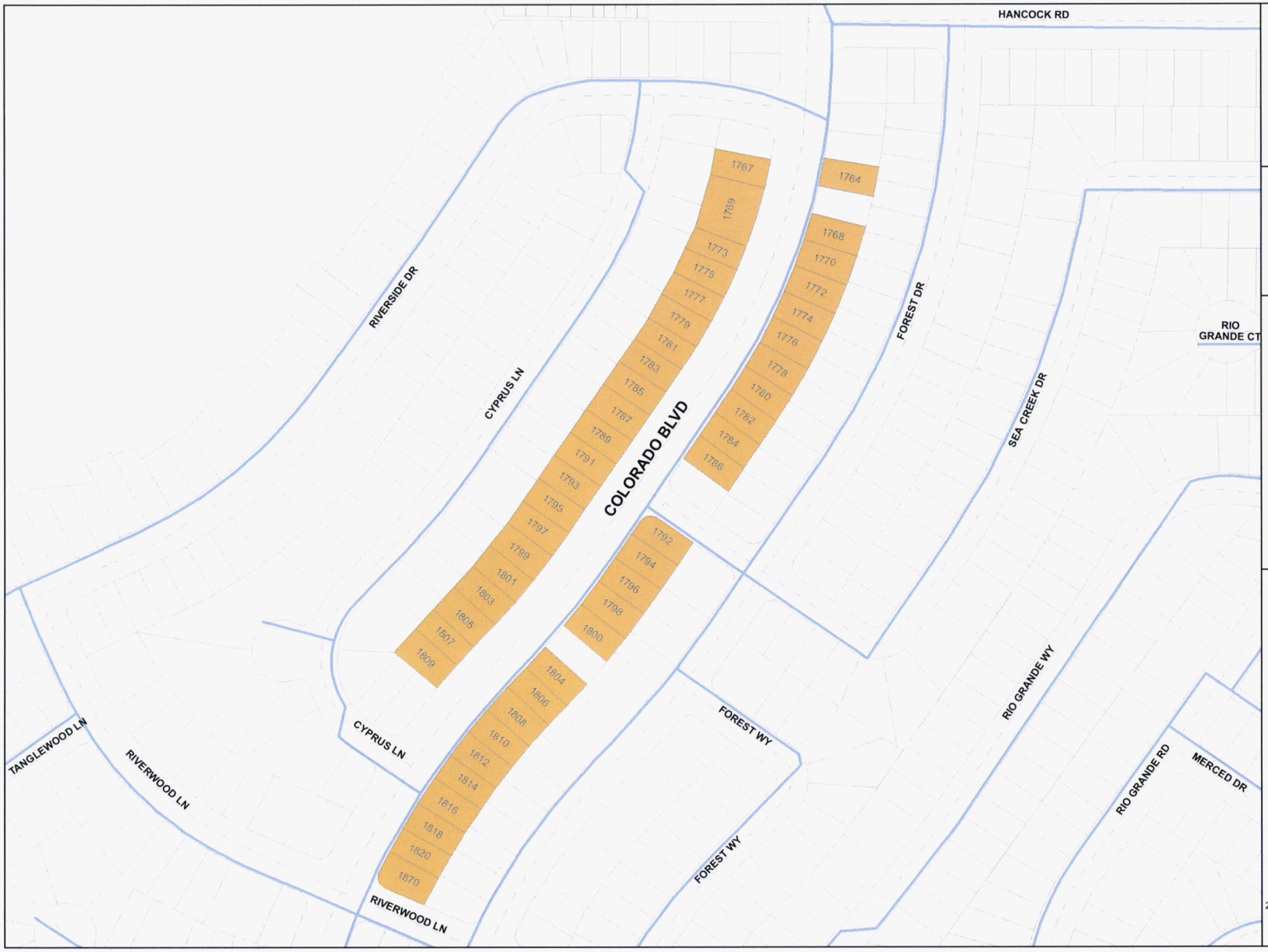
| Subtotal | | | | $ 56,448 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 5,645 |
| **Total Estimated Cost** | | | | **$ 62,093** |




# 2019

Project No: S-17 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Colorado Blvd North

**Project Description:**

Replace 47 residential services
on Colorado Blvd
between Riverwood Ln and Hancock Rd.

**Legend**

- Service to be Replaced
- Main

N

60 30 0 60 120 180 240
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>**Preliminary Cost Estimate** | | | Date Prepared:<br>1/31/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Mohave | Project Year and Number:<br>**2019 S-17** | Project Location:<br>Colorado Blvd North |

Project Description:
Replace inferior branched black poly residential service lines with individual copper service lines to reduce water leaks and emergency repairs.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 47 | 3/4" or 1" service | 3,500 | Contractor material and labor to replace 47 residential services on Colorado Blvd. between Riverwood Ln and Hancock Rd. | $ 164,500 |
| 47 | hour | 28 | Company labor for field oversight and construction management | $ 1,316 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Subtotal | | | | $ 165,816 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 16,582 |
| **Total Estimated Cost** | | | | **$ 182,398** |

# Section 2 - Valves

# SECTION 2 – VALVES

## 2.1 Overview

The Mohave Water district contains about 2,800 distribution system valves. Historical data suggests that many of these valves are leaking and/or inoperable. Over one third of the valves are nearing 50 years old or more and as valves age, they are prone to deterioration and the parts begin to fail. Common failures include stripped, broken, or bent stems, leaking O-rings or packing, corrosion or cracking of the valve body, corrosion of the connecting bolts, and wear on the valve disk and seat.

## 2.2 Nessie Curve

As described in Section 1, a "Nessie Curve" is a graphical representation of the annual replacement needs for buried infrastructure. Because it is not economical or feasible to inspect all buried infrastructure, the curve uses historical replacement data and statistical analysis to determine when an asset has reached the end of its useful life and is likely to need replacement. The end of an asset's useful life is when it is considered economically efficient to replace it, or when replacement becomes less expensive than the cost of replacement or repairs in the future. Failure to replace assets when it is economical to do so can be disastrous in the future, when demographic and economic conditions may have changed. As an example, if the population of an area were to decrease in the future, the financial burden of asset replacements on the remaining population would become increasingly difficult, especially if prudent replacements have not been completed in the past.

According to the American Water Works Association (AWWA) "there will be a three-fold increase in the repair costs by the year 2030 despite a concurrent increase of three and a half times in annual investments to replace pipes." [1] The AWWA estimates that buried drinking water infrastructure will need investments totaling more than $1 trillion nationwide in the next 25 years.[2] Given these daunting predictions, it is especially important for water utility providers to implement asset replacement programs now in order to properly manage the investments that will be needed in the future.

[1] Reinvesting in Drinking Water Infrastructure, AWWA, May 2001

[2] Buried No Longer: Confronting America's Water Infrastructure Challenge, AWWA, 2012

Exhibit 2-1 is the Nessie curve which was developed specifically for the valves in EPCOR's Mohave district. Exhibit 2-2 shows the same data in tabular format. The curve shows that a large investment in valve replacements should occur before 2020; in the next six years, from 2015 through 2020, approximately $4.4 million should be spent on valve replacements, or about $734,000 per year. This equates to about 155 valve replacements per year.

**Exhibit 2-1 – Valve Nessie Curve**

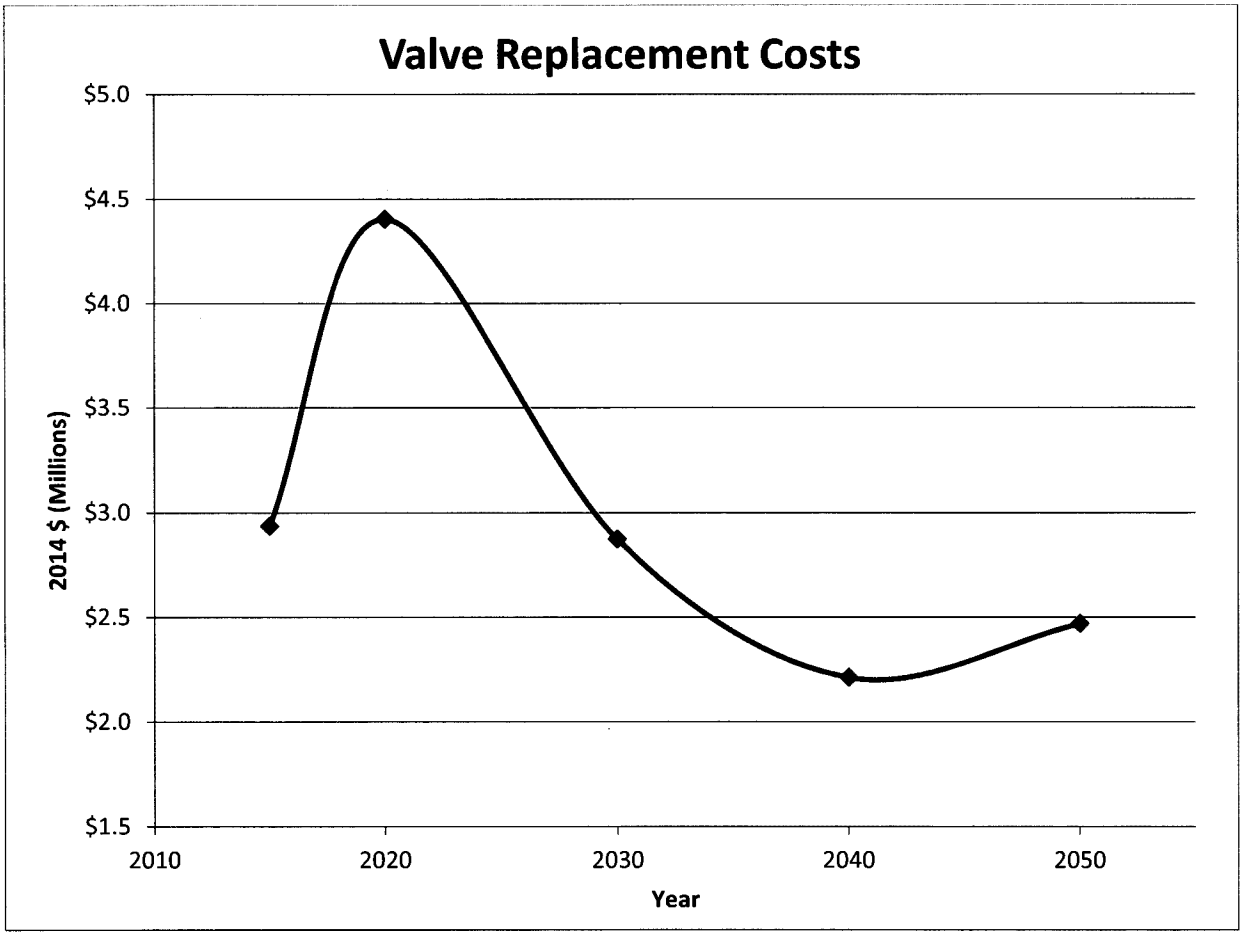


**Exhibit 2-2 - Nessie Curve Table**

| Time Frame | Number of Valves to be Replaced | Cost to Replace Valves | Number of Valve Replacements per Year | Cost per Year |
|---|---|---|---|---|
| today-2020 | 927 | $ 4,404,069 | 155 | $ 734,012 |
| 2020-2030 | 605 | $ 2,873,669 | 61 | $ 287,367 |
| 2030-2040 | 466 | $ 2,212,588 | 47 | $ 221,259 |
| 2040-2050 | 520 | $ 2,469,620 | 52 | $ 246,962 |

## 2.3 Valve Replacements

Historically, the valves were tested and replaced if found broken during main break repairs, or during fire hydrant maintenance. During 2013, approximately 60 valves were found to be broken or inoperable. Most of these valves were found while maintenance was being performed on other assets. In order to improve system reliability and reduce customer service disruption, a certain number of valves need to be tested regularly and replaced when necessary as part of a valve maintenance program. EPCOR plans to systematically test and replace valves by first targeting about 20% of the valves in the system each year for maintenance until all valves have been tested. Although the Nessie curve analysis suggests a replacement rate of 155 valves per year is needed, the distribution system is also in need of main, service, and meter replacements. Therefore, EPCOR's goal is to replace close to 50 valves per year under this plan, although it is impossible to know how many valves will actually need to be replaced in each maintenance area. The investment over five years for valve replacements is estimated at $1.1 million.

Valve replacement projects are described in the following tabs labeled **2015, 2016, 2017, 2018,** and **2019.** SIB Plant Table I, 2-1 through SIB Plant Table I, 2-5 provide detailed descriptions of each valve replacement project. The tables are broken down by year, so there is a separate table for each year from 2015 (Table I, 2-1) through 2019 (Table I, 2-5). Each project addresses

a set of valve replacements that will occur within a defined area. Each project can also be tied to a map showing the proposed valve replacements as well as any valves in the vicinity that have been replaced since 2003 (note that valve replacements that occurred prior to 2003 are not shown on these maps). A detailed cost estimate for each project is also provided.

2015

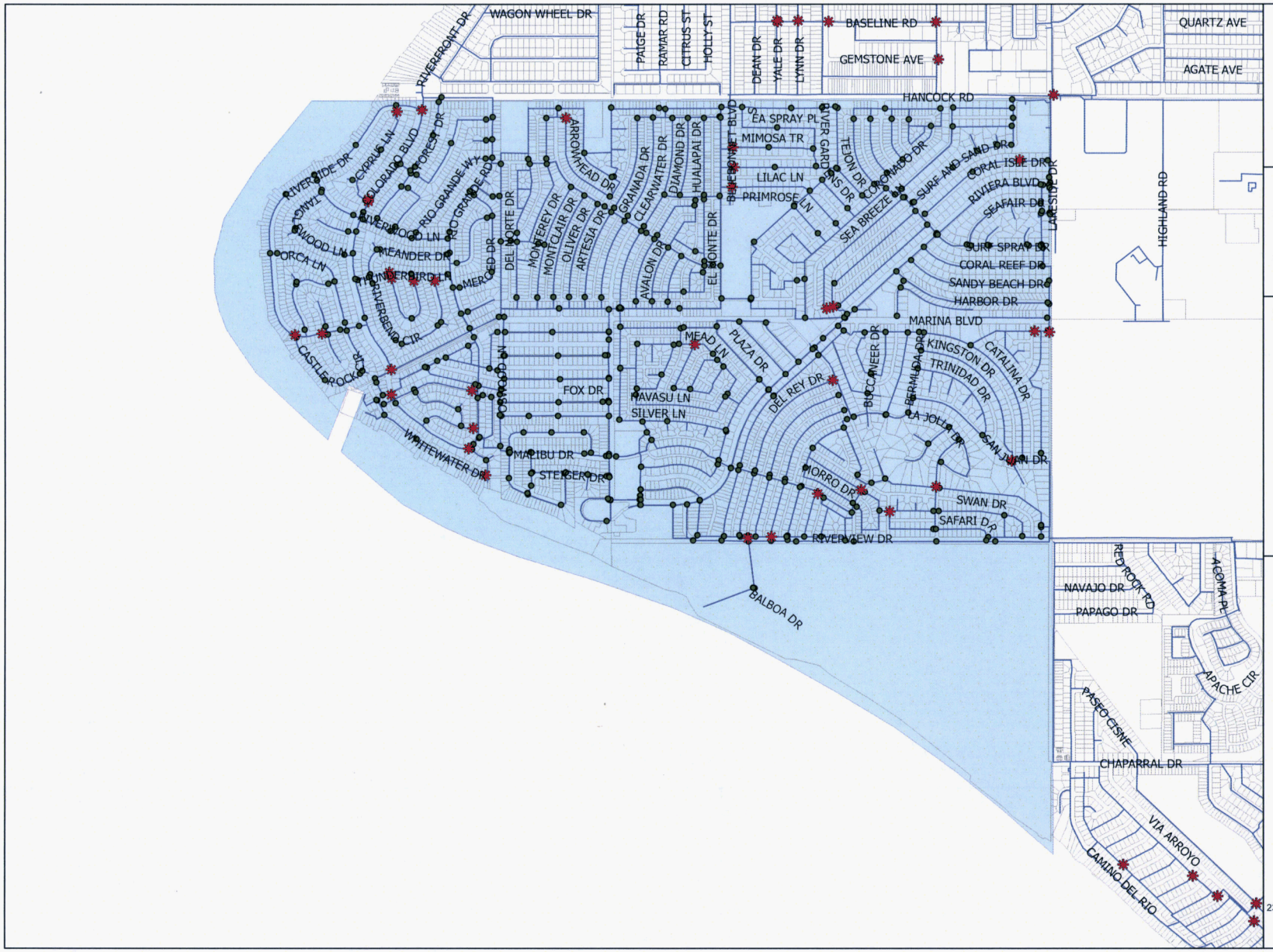
Mohave – P[redacted]D No. 08032

**SIB PLANT TABLE I, 2-1**

2015 Valve Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| V-1 | 331 | gate valves | 46 | 22-4"<br>19-6"<br>4-8"<br>1-12" | cast iron with rubberized epoxy coating | 4"-$4,431<br>6"-$4,651<br>8"-$5,201<br>12"-$6,173 | Area bounded by the Colorado River on the west, Hancock Rd on the north, and Lakeside Dr on the east | 12/2015 | n/a | $212,819 | Replace 22-4", 19-6", 4-8", and 1-12" (estimated, 46 total) distribution system valves that are no longer functioning. These numbers are only estimates and are based on the percentage of existing valve sizes in the project area. This area represents approximately 20% of the total system valves. Valves found broken as a part of the annual valve maintenance program will be replaced. Over one-third of the valves in the system are about 50 years old. In 2013, over 60 valves were found broken during normal operations activities. Making certain that all system valves are operational ensures that the time required to shut down water mains in the event of a main break or system maintenance is minimized. This reduces customer service disruptions and decreases water loss during main breaks. These valve replacements are not related to new growth. See Section 2 narrative and Map V-1 in Exhibit CC-1-A for more detail. |
| **Total** | | | **46** | | | | | | | **$212,819** | |




# 2015

Project No: V-1
PWSID: 0408032

## Mohave Water

**Project Area:**

Valve Maintenance Area V-1

**Project Description:**

Approximately 20% of total distribution system valves will be tested annually. Valves found broken as part of the annual valve maintenance program will be replaced.

Total Valves in Area V-1: 538

**Legend**

- Previous Valve Replacements (2003-2013)
- Distribution System Valves

**Water Main**

- Distribution
- Mohave County Parcels

**Valve Maintenance Area by PWSID**

- 0408032
- 0408037
- 0408062
- 0408137
- 0408163
- 0408333

N

725 362.5 0 725 1,450 2,175 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/17/2014

EPCOR Water 2014 •

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/11/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, PE | Mohave | **2015 V-1** | Area bounded by Hancock Rd, Lakeside Dr, and the Colorado River |

Project Description:

Replace old distribution system valves that are inoperable with new industry standard gate valves with epoxy and rubberized internal components to prevent build-up.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 22 | 4" Valve | 4000 | Contractor material and labor to replace 4" valves in Area V-1. | $ 88,000 |
| 19 | 6" Valve | 4200 | Contractor material and labor to replace 6" valves in Area V-1. | $ 79,800 |
| 4 | 8" Valve | 4700 | Contractor material and labor to replace 8" valves in Area V-1. | $ 18,800 |
| 1 | 12" Valve | 5500 | Contractor material and labor to replace 12" valves in Area V-1. | $ 5,500 |
| | | | | $ - |
| 22 | hour | 28 | Company labor for field oversight and construction management (4" valves) | $ 616 |
| 19 | hour | 28 | Company labor for field oversight and construction management (6" valves) | $ 532 |
| 4 | hour | 28 | Company labor for field oversight and construction management (8" valves) | $ 112 |
| 4 | hour | 28 | Company labor for field oversight and construction management (12" valve) | $ 112 |
| | | | | |
| Subtotal | | | | $ 193,472 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 19,347 |
| **Total Estimated Cost** | | | | **$ 212,819** |

*Company labor includes the salary for one employee at a rate of $28/hour for one hour with the exception of 12" valves, which require one employee for four hours.

2016

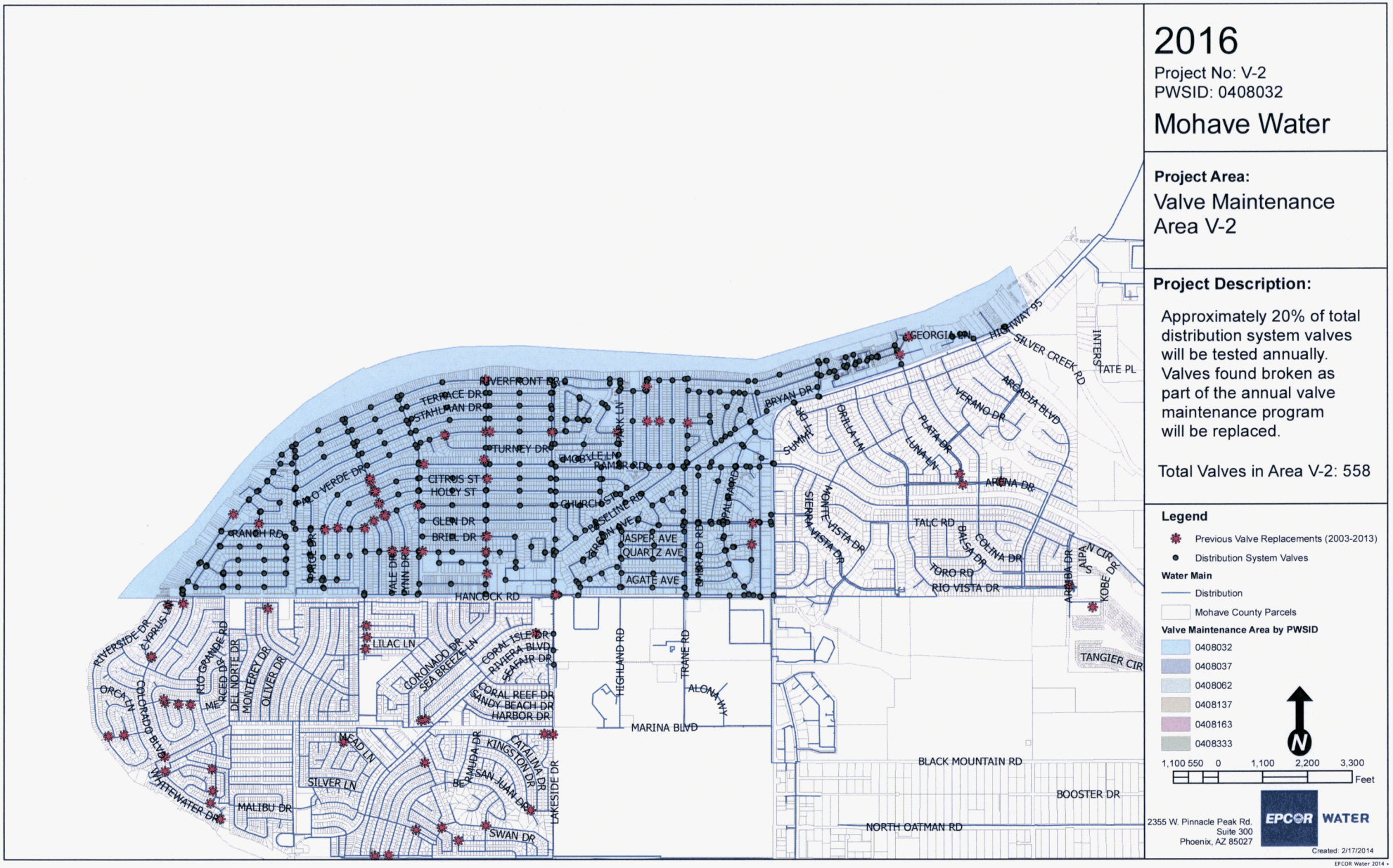
Mohave – P[redacted]D No. 08032

**SIB PLANT TABLE I, 2-2**

2016 Valve Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| V-2 | 331 | gate valves | 46 | 11-4"<br>26-6"<br>8-8"<br>1-12" | cast iron with rubberized epoxy coating | 4"-$4,431<br>6"-$4,651<br>8"-$5,201<br>12"-$6,173 | Area bounded by the Colorado River on the west, Hancock Rd on the south, and Hwy 95 and Fletcher Ln on the east | 12/2016 | n/a | $217,439 | Replace 11-4", 26-6", 8-8", and 1-12" (estimated, 46 total) distribution system valves that are no longer functioning. These numbers are only estimates and are based on the percentage of existing valve sizes in the project area. This area represents approximately 20% of the total system valves. Valves found broken as a part of the annual valve maintenance program will be replaced. Over one-third of the valves in the system are about 50 years old. In 2013, over 60 valves were found broken during normal operations activities. Making certain that all system valves are operational ensures that the time required to shut down water mains in the event of a main break or system maintenance is minimized. This reduces customer service disruptions and decreases water loss during main breaks. These valve replacements are not related to new growth. See Section 2 narrative and Map V-2 in Exhibit CC-1-A for more detail. |
| **Total** | | | **46** | | | | | | | **$217,439** | |




# 2016

Project No: V-2
PWSID: 0408032

## Mohave Water

**Project Area:**

Valve Maintenance Area V-2

**Project Description:**

Approximately 20% of total distribution system valves will be tested annually. Valves found broken as part of the annual valve maintenance program will be replaced.

Total Valves in Area V-2: 558

**Legend**

- Previous Valve Replacements (2003-2013)
- Distribution System Valves

**Water Main**

- Distribution
- Mohave County Parcels

**Valve Maintenance Area by PWSID**

- 0408032
- 0408037
- 0408062
- 0408137
- 0408163
- 0408333

N

1,100 550 0 1,100 2,200 3,300 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/17/2014

EPCOR Water 2014 -

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/11/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, PE | Mohave | **2016 V-2** | Area bounded by the Colorado River, Hancock Rd, Hwy 95, and Flethcher Ln |

Project Description:

Replace old distribution system valves that are inoperable with new industry standard gate valves with epoxy and rubberized internal components to prevent build-up.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 11 | 4" Valve | 4000 | Contractor material and labor to replace 4" valves in Area V-2. | $ 44,000 |
| 26 | 6" Valve | 4200 | Contractor material and labor to replace 6" valves in Area V-2. | $ 109,200 |
| 8 | 8" Valve | 4700 | Contractor material and labor to replace 8" valves in Area V-2. | $ 37,600 |
| 1 | 12" Valve | 5500 | Contractor material and labor to replace 12" valves in Area V-2. | $ 5,500 |
| | | | | $ - |
| 11 | hour | 28 | Company labor for field oversight and construction management (4" valves) | $ 308 |
| 26 | hour | 28 | Company labor for field oversight and construction management (6" valves) | $ 728 |
| 8 | hour | 28 | Company labor for field oversight and construction management (8" valves) | $ 224 |
| 4 | hour | 28 | Company labor for field oversight and construction management (12" valve) | $ 112 |
| | | | | |
| Subtotal | | | | $ 197,672 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 19,767 |
| **Total Estimated Cost** | | | | **$ 217,439** |

2017

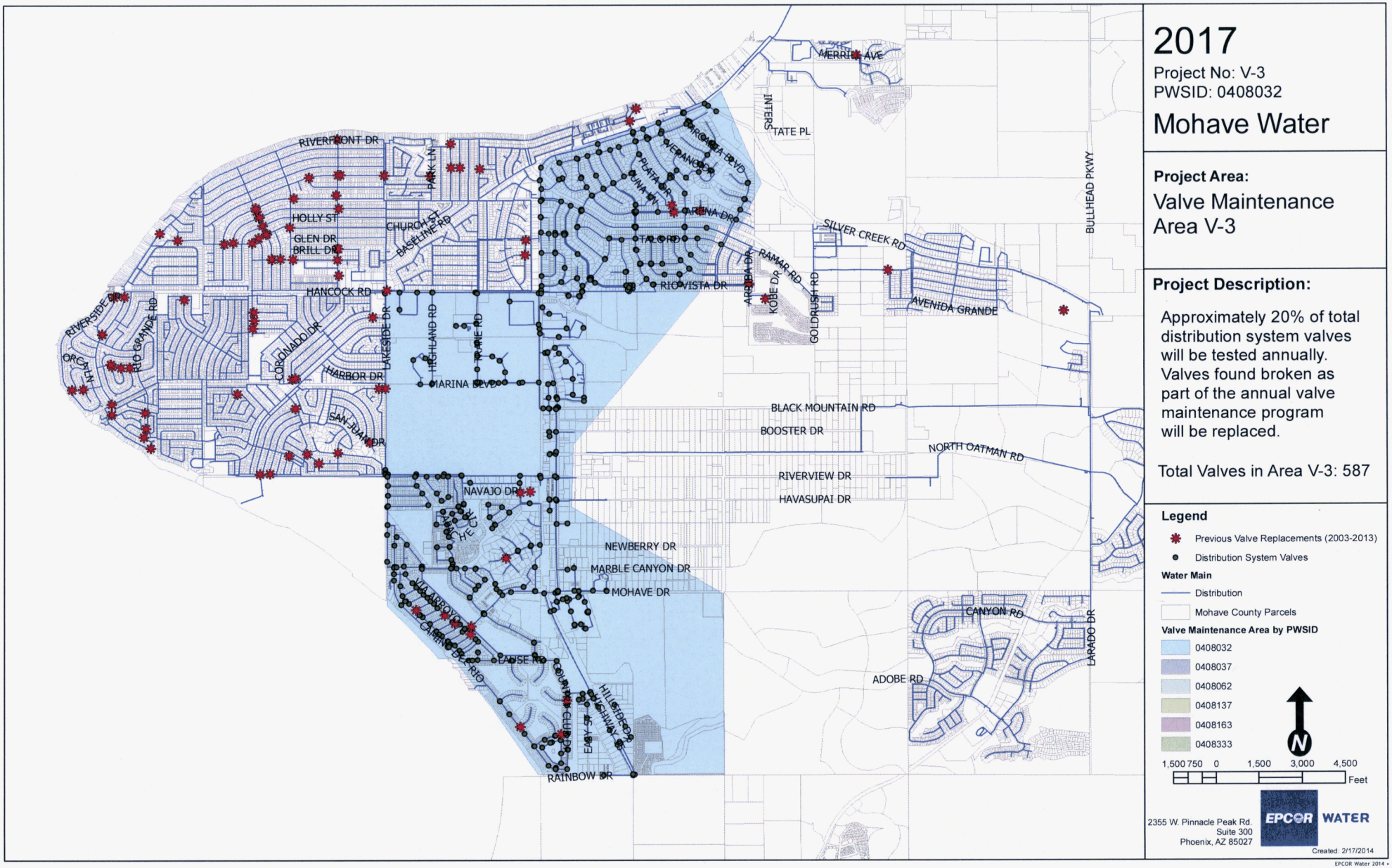
Mohave – P[redacted]D No. 08032

**SIB PLANT TABLE I, 2-3**

2017 Valve Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| V-3 | 331 | gate valves | 46 | 8-4"<br>23-6"<br>10-8"<br>5-12" | cast iron with rubberized epoxy coating | 4"-$4,431<br>6"-$4,651<br>8"-$5,201<br>12"-$6,173 | Area bounded by Camino Del Rio and Lakeside Dr on the west, Hancock Rd on the north, Hwy 95 on the east, and Rainbow Dr on the south; also the area bounded by Hwy 95 on the west and north, Arcadia Blvd on the east, and Rio Vista Dr on the south | 12/2017 | n/a | $225,289 | Replace 8-4", 23-6", 10-8", and 5-12" (estimated, 46 total) distribution system valves that are no longer functioning. These numbers are only estimates and are based on the percentage of existing valve sizes in the project area. This area represents approximately 20% of the total system valves. Valves found broken as a part of the annual valve maintenance program will be replaced. Over one-third of the valves in the system are about 50 years old. In 2013, over 60 valves were found broken during normal operations activities. Making certain that all system valves are operational ensures that the time required to shut down water mains in the event of a main break or system maintenance is minimized. This reduces customer service disruptions and decreases water loss during main breaks. These valve replacements are not related to new growth. See Section 2 narrative and Map V-3 in Exhibit CC-1-A for more detail. |
| **Total** | | | **46** | | | | | | | **$225,289** | |




# 2017

Project No: V-3
PWSID: 0408032

## Mohave Water

**Project Area:**

Valve Maintenance Area V-3

**Project Description:**

Approximately 20% of total distribution system valves will be tested annually. Valves found broken as part of the annual valve maintenance program will be replaced.

Total Valves in Area V-3: 587

**Legend**

- Previous Valve Replacements (2003-2013)
- Distribution System Valves

**Water Main**

- Distribution
- Mohave County Parcels

**Valve Maintenance Area by PWSID**

- 0408032
- 0408037
- 0408062
- 0408137
- 0408163
- 0408333

N

1,500 750 0 1,500 3,000 4,500
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/17/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/11/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Mohave | Project Year and Number:<br>**2017 V-3** | Project Location:<br>Area east of Lakeside and west of the Arcadia Blvd alignment |

Project Description:

Replace old distribution system valves that are inoperable with new industry standard gate valves with epoxy and rubberized internal components to prevent build-up.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 8 | 4" Valve | 4000 | Contractor material and labor to replace 4" valves in Area V-3. | $ 32,000 |
| 23 | 6" Valve | 4200 | Contractor material and labor to replace 6" valves in Area V-3. | $ 96,600 |
| 10 | 8" Valve | 4700 | Contractor material and labor to replace 8" valves in Area V-3. | $ 47,000 |
| 5 | 12" Valve | 5500 | Contractor material and labor to replace 12" valves in Area V-3. | $ 27,500 |
| | | | | $ - |
| 8 | hour | 28 | Company labor for field oversight and construction management (4" valves) | $ 224 |
| 23 | hour | 28 | Company labor for field oversight and construction management (6" valves) | $ 644 |
| 10 | hour | 28 | Company labor for field oversight and construction management (8" valves) | $ 280 |
| 20 | hour | 28 | Company labor for field oversight and construction management (12" valves) | $ 560 |
| | | | | |
| Subtotal | | | | $ 204,808 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 20,481 |
| **Total Estimated Cost** | | | | **$ 225,289** |

2018

Mohave – P[redacted]D No. 08032

**SIB PLANT TABLE I, 2-4**

2018 Valve Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| V-4 | 331 | gate valves | 45 | 1-4"<br>17-6"<br>20-8"<br>2-10"<br>5-12" | cast iron with rubberized epoxy coating | 4"-$4,431<br>6"-$4,651<br>8"-$5,201<br>10"-$5,641<br>12"-$6,173 | Area east of Arcadia Blvd and Hwy 95 between the Pass Canyon Rd and Rainbow Dr | 12/2018 | n/a | $229,658 | Replace 1-4", 17-6", 20-8", 2-10", and 5-12" (estimated, 45 total) distribution system valves that are no longer functioning. These numbers are only estimates and are based on the percentage of existing valve sizes in the project area. This area represents approximately 20% of the total system valves. Valves found broken as a part of the annual valve maintenance program will be replaced. Over one-third of the valves in the system are about 50 years old. In 2013, over 60 valves were found broken during normal operations activities. Making certain that all system valves are operational ensures that the time required to shut down water mains in the event of a main break or system maintenance is minimized. This reduces customer service disruptions and decreases water loss during main breaks. These valve replacements are not related to new growth. See Section 2 narrative and Map V-4 in Exhibit CC-1-A for more detail. |
| **Total** | | | **45** | | | | | | | **$229,658** | |

# 2018

Project No: V-4
PWSID: 0408032

## Mohave Water

**Project Area:**

Valve Maintenance Area V-4

**Project Description:**

Approximately 20% of total distribution system valves will be tested annually. Valves found broken as part of the annual valve maintenance program will be replaced.

Total Valves in Area V-4: 555

**Legend**

- Previous Valve Replacements (2003-2013)
- Distribution System Valves

**Water Main**

- Distribution
- Mohave County Parcels

**Valve Maintenance Area by PWSID**

- 0408032
- 0408037
- 0408062
- 0408137
- 0408163
- 0408333

N

1,750 875 0 1,750 3,500 5,250 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/17/2014

EPCOR Water 2014 ©

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/11/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, PE | Mohave | **2018 V-4** | Area east of Arcadia Blvd and Hwy 95 between the Pass Canyon Rd and Rainbow Dr |

Project Description:

Replace old distribution system valves that are inoperable with new industry standard gate valves with epoxy and rubberized internal components to prevent build-up.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 1 | 4" Valve | 4000 | Contractor material and labor to replace 4" valves in Area V-4. | $ 4,000 |
| 17 | 6" Valve | 4200 | Contractor material and labor to replace 6" valves in Area V-4. | $ 71,400 |
| 20 | 8" Valve | 4700 | Contractor material and labor to replace 8" valves in Area V-4. | $ 94,000 |
| 2 | 10" Valve | 5100 | Contractor material and labor to replace 10" valves in Area V-4. | $ 10,200 |
| 5 | 12" Valve | 5500 | Contractor material and labor to replace 12" valves in Area V-4. | $ 27,500 |
| 1 | hour | 28 | Company labor for field oversight and construction management (4" valves) | $ 28 |
| 17 | hour | 28 | Company labor for field oversight and construction management (6" valves) | $ 476 |
| 20 | hour | 28 | Company labor for field oversight and construction management (8" valves) | $ 560 |
| 2 | hour | 28 | Company labor for field oversight and construction management (10" valves) | $ 56 |
| 20 | hour | 28 | Company labor for field oversight and construction management (12" valves) | $ 560 |
| Subtotal | | | | $ 208,780 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 20,878 |
| **Total Estimated Cost** | | | | **$ 229,658** |

2019

Mohave – PWS ID Nos. 08032, 0[redacted] 08062, 08037, 08333, and 08163

**SIB PLANT TABLE I, 2-5**

2019 Valve Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| V-5 | 331 | gate valves | 45 | 8-4"<br>9-6"<br>23-8"<br>1-10"<br>4-12" | cast iron with rubberized epoxy coating | 4"-$4,431<br>6"-$4,651<br>8"-$5,201<br>10"-$5,641<br>12"-$6,173 | Old Bullhead City, Desert Foothills, Lake Mohave Highlands, Camp Mohave, Rio Vista Ranches, and Gateway areas | 12/2019 | n/a | $226,763 | Replace 8-4", 9-6", 23-8", 1-10", and 4-12" (estimated, 45 total) distribution system valves that are no longer functioning. These numbers are only estimates and are based on the percentage of existing valve sizes in the project area. This area represents approximately 20% of the total system valves. Valves found broken as a part of the annual valve maintenance program will be replaced. Over one-third of the valves in the system are about 50 years old. In 2013, over 60 valves were found broken during normal operations activities. Making certain that all system valves are operational ensures that the time required to shut down water mains in the event of a main break or system maintenance is minimized. This reduces customer service disruptions and decreases water loss during main breaks. These valve replacements are not related to new growth. See Section 2 narrative and Map V-5 in Exhibit CC-1-A for more detail. |
| **Total** | | | **45** | | | | | | | **$226,763** | |

# 2019

Project No: V-5
PWSID: 0408032 & 0408137

## Mohave Water

**Project Area:**

Valve Maintenance Area V-5

(Old Bullhead City & Desert Foothills)

**Project Description:**

Approximately 20% of total distribution system valves will be tested annually. Valves found broken as part of the annual valve maintenance program will be replaced.

Total Valves in Area V-5: 553

**Legend**

- Previous Valve Replacements (2003-2013)
- Distribution System Valves

**Water Main**

- Distribution
- Mohave County Parcels

**Valve Maintenance Area by PWSID**

- 0408032
- 0408037
- 0408062
- 0408137
- 0408163
- 0408333

N

900 450 0 900 1,800 2,700 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/17/2014

EPCOR Water 2014

# 2019

Project No: V-5
PWSID: 0408062

## Mohave Water

**Project Area:**

Valve Maintenance Area V-5

(Lake Mohave Highlands)

**Project Description:**

Approximately 20% of total distribution system valves will be tested annually. Valves found broken as part of the annual valve maintenance program will be replaced.

Total Valves in Area V-5: 553

**Legend**

- Previous Valve Replacements (2003-2013)
- Distribution System Valves

**Water Main**

- Distribution
- Mohave County Parcels

**Valve Maintenance Area by PWSID**

- 0408032
- 0408037
- 0408062
- 0408137
- 0408163
- 0408333

N

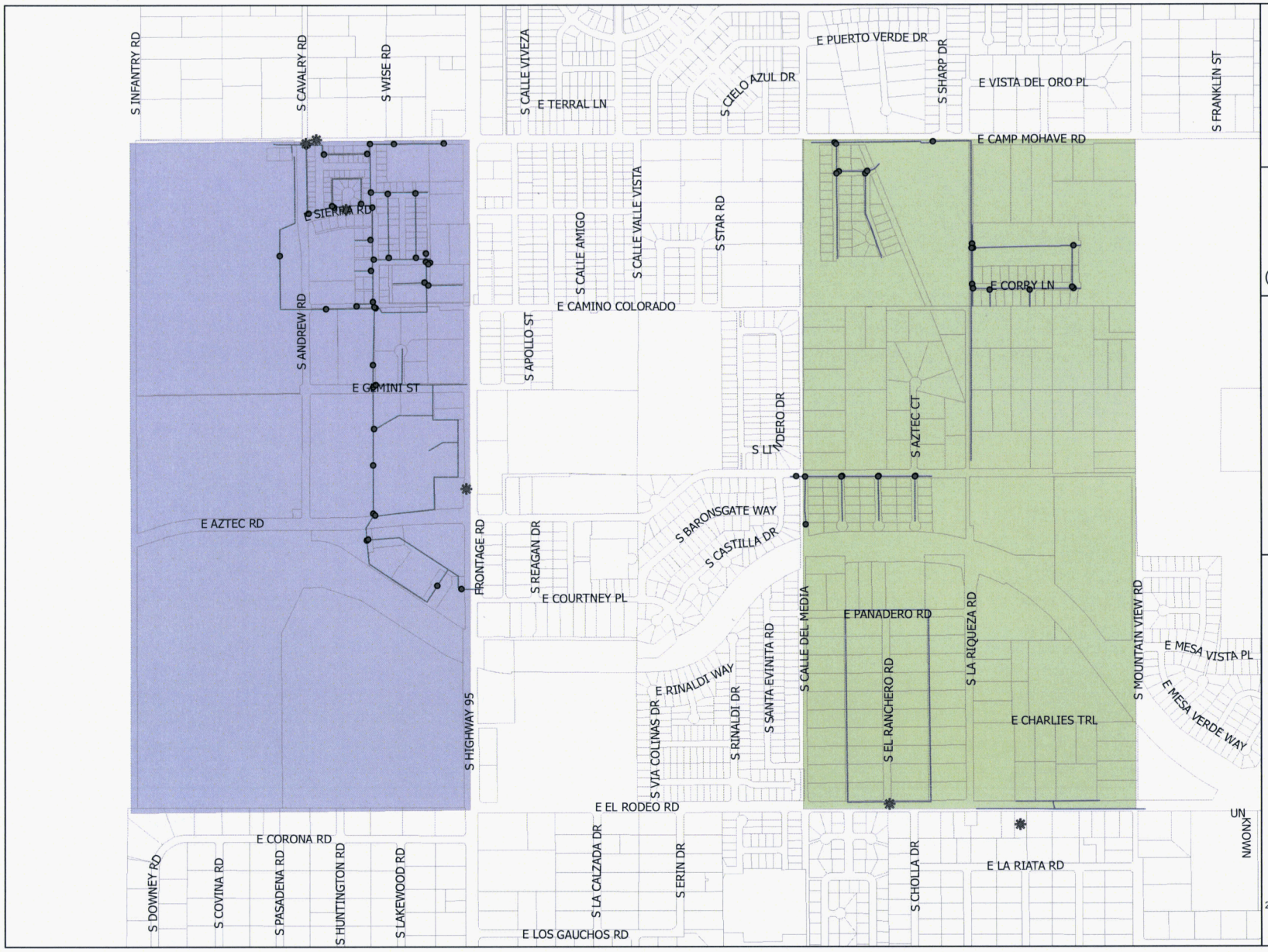
320 160 0 320 640 960 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/17/2014

EPCOR Water 2014 ©




# 2019

Project No: V-5
PWSID: 0408037 & 0408333

## Mohave Water

**Project Area:**

Valve Maintenance Area V-5

(Camp Mohave & Rio Vista Ranches)

**Project Description:**

Approximately 20% of total distribution system valves will be tested annually. Valves found broken as part of the annual valve maintenance program will be replaced.

Total Valves in Area V-5: 553

**Legend**

- Previous Valve Replacements (2003-2013)
- Distribution System Valves

**Water Main**

- Distribution
- Mohave County Parcels

**Valve Maintenance Area by PWSID**

- 0408032
- 0408037
- 0408062
- 0408137
- 0408163
- 0408333

N

480 240 0 480 960 1,440 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/17/2014

EPCOR Water 2014 •

# 2019

Project No: V-5
PWSID: 0408163

## Mohave Water

**Project Area:**

Valve Maintenance Area V-5

(Gateway)

**Project Description:**

Approximately 20% of total distribution system valves will be tested annually. Valves found broken as part of the annual valve maintenance program will be replaced.

Total Valves in Area V-5: 553

**Legend**

- Previous Valve Replacements (2003-2013)
- Distribution System Valves

**Water Main**

- Distribution
- Mohave County Parcels

**Valve Maintenance Area by PWSID**

- 0408032
- 0408037
- 0408062
- 0408137
- 0408163
- 0408333

N

425 212.5 0 425 850 1,275 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/17/2014

EPCOR Water 2014 •

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/11/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, PE | Mohave | **2019 V-5** | Old Bullhead City, Desert Foothills, Lake Mohave Highlands, Camp Mohave, Rio Vista Ranches, and Gateway |

Project Description:

Replace old distribution system valves that are inoperable with new industry standard gate valves with epoxy and rubberized internal components to prevent build-up.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 8 | 4" Valve | 4000 | Contractor material and labor to replace 4" valves in Area V-5. | $ 32,000 |
| 9 | 6" Valve | 4200 | Contractor material and labor to replace 6" valves in Area V-5. | $ 37,800 |
| 23 | 8" Valve | 4700 | Contractor material and labor to replace 8" valves in Area V-5. | $ 108,100 |
| 1 | 10" Valve | 5100 | Contractor material and labor to replace 10" valves in Area V-5. | $ 5,100 |
| 4 | 12" Valve | 5500 | Contractor material and labor to replace 12" valves in Area V-5. | $ 22,000 |
| 8 | hour | 28 | Company labor for field oversight and construction management (4" valves) | $ 224 |
| 9 | hour | 28 | Company labor for field oversight and construction management (6" valves) | $ 252 |
| 23 | hour | 28 | Company labor for field oversight and construction management (8" valves) | $ 644 |
| 1 | hour | 28 | Company labor for field oversight and construction management (10" valve) | $ 28 |
| 16 | hour | 28 | Company labor for field oversight and construction management (12" valves) | $ 448 |
| Subtotal | | | | $ 206,148 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 20,615 |
| **Total Estimated Cost** | | | | **$ 226,763** |

# Section 3 - Mains

# SECTION 3 – MAINS

## 3.1 Overview

EPCOR's Mohave Water district includes about 230 miles of distribution main. Much of this pipe was installed in the 1950s and 1960s. Many mains have been breaking or leaking due to various reasons including inferior pipe material and deterioration from the aging process. Additionally, some of the pipe is located in areas where it cannot be easily accessed in the event that it needs to be repaired.

## 3.2 Nessie Curve

As explained in the previous two sections, a "Nessie Curve" is a graphical representation of the annual replacement needs for buried infrastructure. Because it is not economical or feasible to inspect all buried infrastructure, the curve uses historical replacement data and statistical analysis to determine when an asset has reached the end of its useful life and is likely to need replacement. The end of an asset's useful life is when it is considered economically efficient to replace it; this is to say when replacement becomes less expensive than the cost of replacement or repairs in the future. Failure to replace assets when it is economical to do so can be disastrous in the future, when demographic and economic conditions may have changed. As an example, if the population of an area were to decrease in the future, the financial burden of asset replacements on the remaining population would become increasingly difficult, especially if prudent replacements have not been completed in the past.

According to the American Water Works Association (AWWA) "there will be a three-fold increase in the repair costs by the year 2030 despite a concurrent increase of three and a half times in annual investments to replace pipes." [1] The AWWA estimates that buried drinking water infrastructure will need investments totaling more than $1 trillion nationwide in the next 25 years.[2] Given these daunting predictions, it is especially important for water utility providers to implement asset replacement programs now in order to properly manage the investments that will be needed in the future.

[1] Reinvesting in Drinking Water Infrastructure, AWWA, May 2001

[2] Buried No Longer: Confronting America's Water Infrastructure Challenge, AWWA, 2012

Exhibit 3-1 is the Nessie curve which was developed specifically for the water distribution mains in EPCOR's Mohave district. Exhibit 3-2 shows the same data in tabular format. The curve indicates that in the next six years, from 2015 through 2020, approximately $31 million should be spent on main replacements, or about $5.1 million per year. This equates to about 19,631 linear feet (LF) of main replacements per year.

**Exhibit 3-1 – Main Line Nessie Curve**

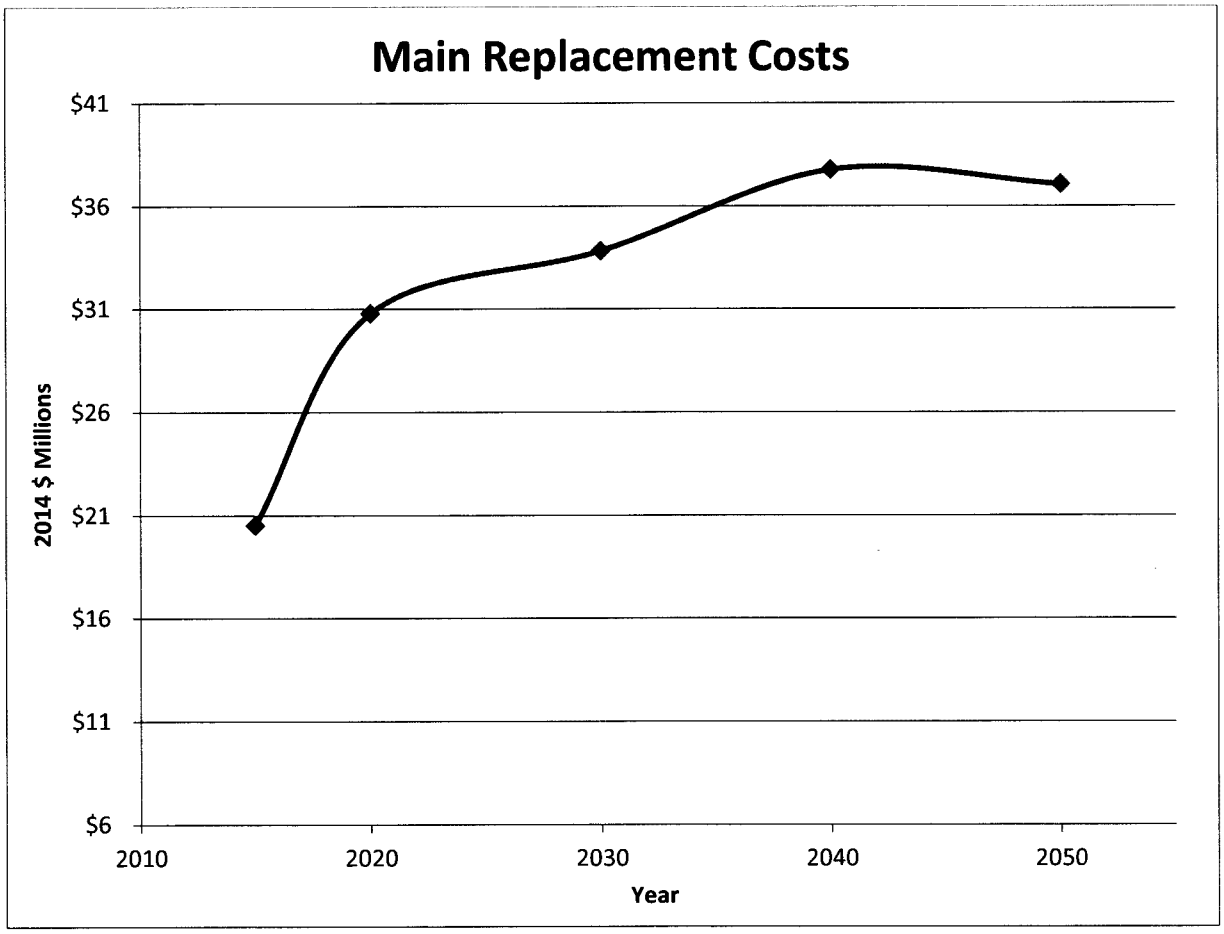


**Exhibit 3-2 Nessie Curve Table**

| Time Frame | Linear Feet of Main to be Replaced | Cost to Replace Mains | Linear Feet of Main to be Replaced per Year | Cost per Year |
|---|---|---|---|---|
| today-2020 | 117,788 | $ 30,781,496 | 19,631 | $ 5,130,249 |
| 2020-2030 | 129,444 | $ 33,827,539 | 12,944 | $ 3,382,754 |
| 2030-2040 | 144,532 | $ 37,770,440 | 14,453 | $ 3,777,044 |
| 2040-2050 | 141,780 | $ 37,051,471 | 14,178 | $ 3,705,147 |

### 3.4 Main Material

Most of the larger diameter water mains in the Mohave district are Class 160 polyvinyl chloride (C-160 PVC) and the smaller diameter mains are thin-wall Acrylonitrile Butadiene Styrene (ABS) pipe. These materials do not meet current State standards for public water systems because of insufficient strength and consequently have resulted in many failures. New mains will be constructed using ductile iron pipe or AWWA C-900 PVC.

### 3.5 Main Location

The location of water mains in the Mohave district is a significant problem. Many of the mains are located in an easement at the rear of lots. There are no existing fire hydrants on these mains which means that fire protection is inadequate. Even if fire hydrants were to be installed, there would not be sufficient space for access by emergency vehicles or service equipment through the utility easement. Currently, repair of these mains requires entering and disturbing private property which can be problematic, especially given the frequency of repairs necessary on these mains. The water mains are the last underground utility remaining in these rear easements. If the mains are relocated to the street, the homeowners will no longer need to be disturbed for utility repairs on their property.

### 3.6 Main Replacements

Over the past ten years, 277 segments of water main were replaced because they were known to have failed. This equates to an average of approximately 28 main failures per year. Note that

this does not include mains which are leaking unbeknownst to EPCOR employees. Although the Nessie curve suggests that almost 20,000 feet of pipe should be replaced per year, this would require a significant labor and capital investment by the company and would put significant financial burden on the customers. Additionally, service line replacements are the highest priority for the next few years due to the high rate of failures (see Section 1 for more information). Therefore, EPCOR proposes to spend an average of $918,000 per year in main replacements for the next five years. This equates to a total of about 18,000 feet of main at a cost of $4.6 million.

Main replacement projects are described in the following tabs labeled **2015, 2016, 2017, 2018, and 2019**. SIB Plant Table I, 3-1 through SIB Plant Table I, 3-5 provide a detailed description of each main replacement project. The tables are broken down by year, so there is a separate table for each year from 2015 (Table I, 3-1) through 2019 (Table I, 3-5). Each project addresses a set of main replacements that will occur within a defined area. Each project can also be tied to a map showing the main replacement as well as historical replacements in the area. (Historical data include only main replacements between 2003 and 2013; replacements prior to 2003 are not included.) A detailed cost estimate for each project is also provided.

2015

Mohave – P[redacted]D No. 08032

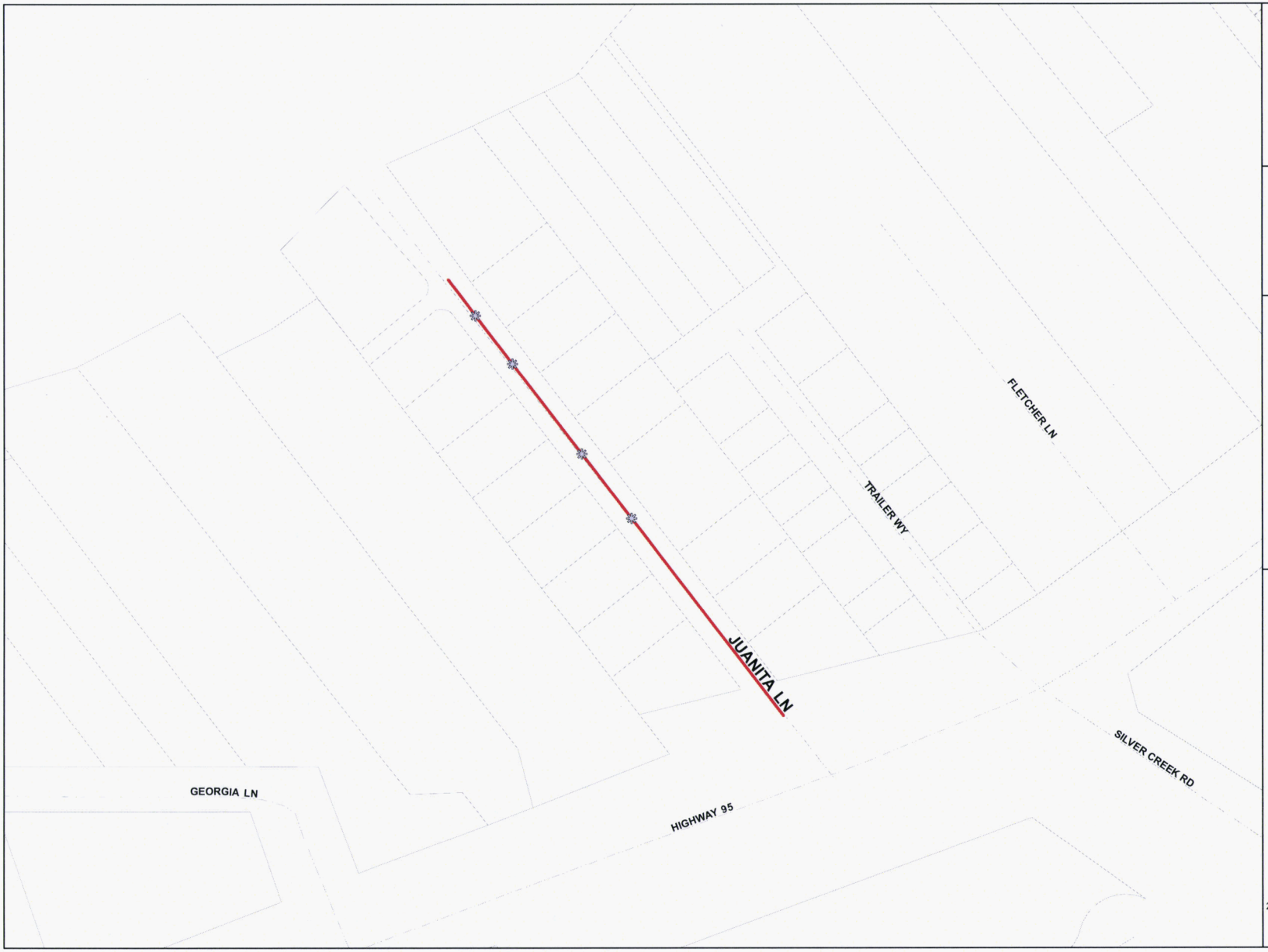
**SIB PLANT TABLE I, 3-1**

2015 Main Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| WM-1 | 331 | Distribution Main | 485 LF | 6" | PVC | $235 | Juanita Ln | 12/2015 | n/a | $113,878 | Replace 485 LF of existing ABS thin-wall main with 6" PVC in Juanita Ln. The main was installed in 1982 and the existing material is not of sufficient strength for use in a public water system which has resulted in several leaks. Replacing the main will help reduce system water loss and improve customer pressure and flow. The existing main is 3" in diameter, which is not sufficient for installing hydrants or supporting fire flow. The main replacement is for existing customers and not related to new growth. See Section 3 narrative and Map No. WM-1 in Exhibit CC-1-A for more detail. |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| WM-2 | 331 | Distribution Main | 1,677 LF | 8" | PVC | $270 | Safari Dr | 12/2015 | n/a | $452,216 | Replace existing mains in rear-lot ease[redacted]long Safari Dr between Riverview Way and Riverview[redacted]d along Riverview Cv north of Riverview Dr with 1,677 LF of 8" main in Safari Dr between Riverview Way and Riverview Dr and Riverview Cv north of Riverview Dr. The existing mains in this area were installed in 1967. The existing pipe material does not meet current standards for use in public water systems and is not of sufficient strength, which has resulted in leaks and/or breaks. Replacing the main will help reduce system water loss and improve system reliability. The existing mains are located in rear-lot easements which are difficult to access for repairs. The mains are not sufficient to support fire flow nor are they accessible for emergency vehicles. One main in the street will replace the two existing mains on either side of the street in the rear easements. The main replacement is for existing customers and not related to new growth. See Section 3 narrative and Map No. WM-2 in Exhibit CC-1-A for more detail. |
| **Total** | | | **2,162 LF** | | | | | | | **$566,093** | |




# 2015

Project No: WM-1 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Juanita Ln

**Project Description:**

Replace the existing main
on Juanita Ln
between Hwy 95
and the Colorado River
with 485 LF of 6" main.

**Legend**

- Recorded Main Break/Leak (2003-2013)
- Main to be Installed

N

30 15 0 30 60 90 120
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/20/2014

EPCOR Water 2014 •

| EPCOR Water<br>**Preliminary Cost Estimate** | | | Date Prepared:<br>2/11/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, P.E. | Water System:<br>Mohave | Project Year and Number:<br>**2015 WM-1** | Project Location:<br>Juanita Ln |

Project Description:

Replace the existing main on Juanita Ln between Hwy 95 and the Colorado River

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 485 | linear feet | 185 | Contractor material and labor to install 6" main and service connections | $ 89,725 |
| 1 | lump sum | 7,000 | Consultant engineering design | $ 7,000 |
| 130 | hours | 35 | Company labor for field oversight and inspections | $ 4,550 |
| 50 | hours | 45 | Company labor for project management | $ 2,250 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Subtotal | | | | $ 103,525 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 10,353 |
| **Total Estimated Cost** | | | | **$ 113,878** |

# 2015

Project No: WM-2 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Safari Dr

**Project Description:**

Replace existing mains
in rear-lot easements along Safari Dr
between Riverview Way and Riverview Dr
and along Riverview Cv
north of Riverview Dr
with 1,677 LF of 8" main in Safari Dr
between Riverview Way and Riverview Dr
and Riverview Cv north of Riverview Dr.

**Legend**

- Recorded Main Break/Leak (2003-2013)
- Main to be Installed
- Existing Main

N

60 30 0 60 120 180 240
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/11/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, P.E. | Water System:<br>Mohave | Project Year and Number:<br>**2015 WM-2** | Project Location:<br>Safari Dr |

Project Description:
Replace existing mains in rear-lot easements along Safari Dr. between Riverview Way and Riverview Dr. and along Riverview Cv. North of Riverview Dr. with 1,677 LF of 8" main in Safari Dr. between Riverview Way and Riverview Dr. and Riverview Cv. North of Riverview Dr.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 1,677 | linear feet | 215 | Contractor material and labor to install 8" main and service connections | $ 360,555 |
| 1 | lump sum | 25,000 | Consultant engineering design | $ 25,000 |
| 460 | hours | 35 | Company labor for field oversight and inspections | $ 16,100 |
| 210 | hours | 45 | Company labor for project management | $ 9,450 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Subtotal | | | | $ 411,105 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 41,111 |
| **Total Estimated Cost** | | | | **$ 452,216** |

2016

Mohave – P[redacted]D No. 08032

**SIB PLANT TABLE I, 3-2**

2016 Main Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| WM-3 | 331 | Distribution Main | 571 LF | 8" | PVC | $207 | Riverview Way | 12/2016 | n/a | $118,041 | Replace existing mains in rear-lot easements along Riverview Way between Riverview Dr and Swan Dr with 571 LF of 8" main in Riverview Way between Riverview Dr and Swan Dr. The existing mains in this area were installed in 1967. The existing pipe material does not meet current standards for use in public water systems and is not of sufficient strength, which has resulted in leaks and/or breaks. Replacing the main will help reduce system water loss and improve system reliability. The existing mains are located in rear-lot easements which are difficult to access for repairs. The mains are not sufficient to support fire flow nor are they accessible for emergency vehicles. One main in the street will replace the two existing mains on either side of the street in the rear easements. The main replacement is for existing customers and not related to new growth. See Section 3 narrative and Map No. WM-3 in Exhibit CC-1-A for more detail. |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| WM-4 | 331 | Distribution Main | 1,860 LF | 8" | PVC | $231 | Swan Dr | 12/2016 | n/a | $430,441 | Replace existing mains in rear-lot ease[redacted]long Swan Dr between Bermuda Dr and Newport Dr w[redacted]860 LF of 8" main in Swan Dr between Bermuda Dr and Newport Dr. The existing mains in this area were installed in 1967. The existing pipe material does not meet current standards for use in public water systems and is not of sufficient strength, which has resulted in leaks and/or breaks. Replacing the main will help reduce system water loss and improve system reliability. The existing mains are located in rear-lot easements which are difficult to access for repairs. The mains are not sufficient to support fire flow nor are they accessible for emergency vehicles. One main in the street will replace the two existing mains on either side of the street in the rear easements. The main replacement is for existing customers and not related to new growth. See Section 3 narrative and Map No. WM-4 in Exhibit CC-1-A for more detail. |
| WM-5 | 331 | Distribution Main | 978 LF | 8" | PVC | $216 | Coronado Dr | 12/2016 | n/a | $211,229 | Replace existing mains in rear-lot easements along Coronado Dr between Swan Dr and Bermuda Dr with 978 LF of 8" main in Coronado Dr between Swan Dr and Bermuda Dr. The existing mains in this area were installed in 1967. The existing pipe material does not meet current standards for use in public water systems and is not of sufficient strength, which has resulted in leaks and/or breaks. Replacing the main will help reduce system water loss and improve system reliability. The existing mains are located in rear-lot easements which are difficult to access for repairs. The mains are not sufficient to support fire flow nor are they accessible for emergency vehicles. One main in the street will replace the two existing mains on either side of the street in the rear easements. The main replacement is for existing customers and not related to new growth. See Section 3 narrative and Map No. WM-5 in Exhibit CC-1-A for more detail. |
| WM-6 | 331 | Distribution Main | 411 LF | 8" | PVC | $272 | Swan Pl | 12/2016 | n/a | $111,612 | Replace existing mains in rear-lot easements along Swan Pl between Bermuda Dr and Swan Dr with 411 LF of 8" main in Swan Pl between Bermuda Dr and Swan Dr. The existing mains in this area were installed in 1967. The existing pipe material does not meet current standards for use in public water systems and is not of sufficient strength, which has resulted in leaks and/or breaks. Replacing the main will help reduce system water loss and improve system reliability. The existing mains are located in rear-lot easements which are difficult to access for repairs. The mains are not sufficient to support fire flow nor are they accessible for emergency vehicles. One main in the street will replace the two existing mains on either side of the street in the rear easements. The main replacement is for existing customers and not related to new growth. See Section 3 narrative and Map No. WM-6 in Exhibit CC-1-A for more detail. |
| **Total** | | | **3,820 LF** | | | | | | | **$872,322** | |

# 2016

Project No: WM-3 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Riverview Way

**Project Description:**

Replace existing mains
in rear-lot easements along Riverview Way
between Riverview Dr and Swan Dr
with 571 LF of 8" main in Riverview Way
between Riverview Dr and Swan Dr.

**Legend**

- Recorded Main Break/Leak (2003-2013)
- Main to be Installed
- Existing Main

N

25 12.5 0 25 50 75 100 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/11/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, P.E. | Water System:<br>Mohave | Project Year and Number:<br>**2016 WM-3** | Project Location:<br>Riverview Way |

Project Description:
Replace existing mains in rear-lot easements along Riverview Way between Riverview Dr. and Swan Dr. with 571 LF of 8" main in Riverview Way between Riverview Dr. and Swan Dr.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 571 | linear feet | 160 | Contractor material and labor to install 8" main and service connections | $ 91,360 |
| 1 | lump sum | 8,000 | Consultant engineering design | $ 8,000 |
| 150 | hours | 35 | Company labor for field oversight and inspections | $ 5,250 |
| 60 | hours | 45 | Company labor for project management | $ 2,700 |
| | | | | |
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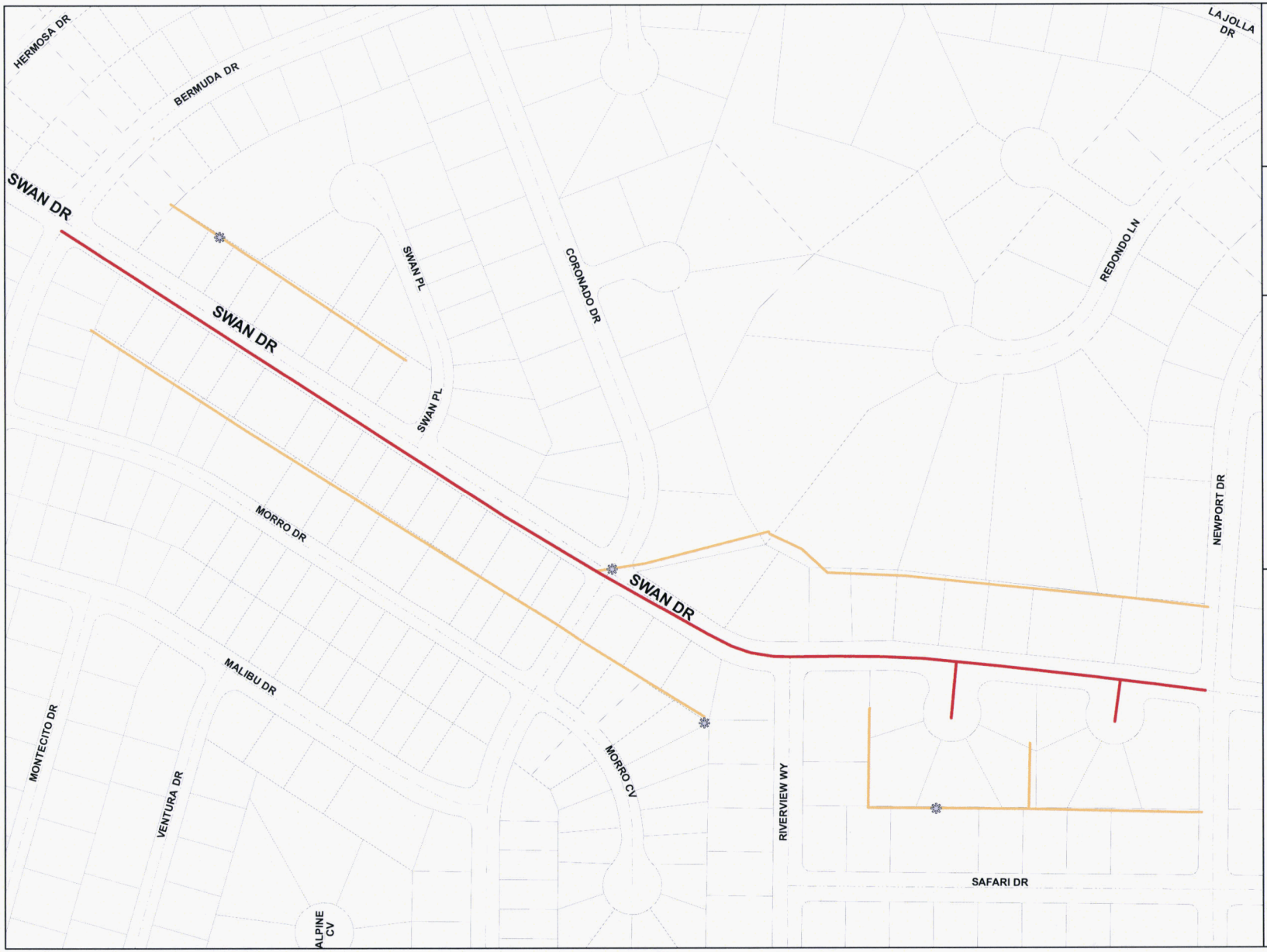
| | | | | |
| | | | | |
| Subtotal | | | | $ 107,310 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 10,731 |
| **Total Estimated Cost** | | | | **$ 118,041** |




# 2016

Project No: WM-4 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Swan Dr

**Project Description:**

Replace existing mains
in rear-lot easements along Swan Dr
between Bermuda Dr and Newport Dr
with 1,860 LF of 8" main in Swan Dr
between Bermuda Dr and Newport Dr.

**Legend**

- Recorded Main Break/Leak (2003-2013)
- Main to be Installed
- Existing Main

N

50 25 0 50 100 150 200 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/11/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, P.E. | Water System:<br>Mohave | Project Year and Number:<br>**2016 WM-4** | Project Location:<br>Swan Dr |

Project Description:
Replace existing mains in rear-lot easements along Swan Dr. between Bermuda Dr. and Newport Dr. with 1,860 LF of 8" main in Swan Dr. between Bermuda Dr. and Newport Dr.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 1,860 | linear feet | 181 | Contractor material and labor to install 8" main and service connections | $ 336,660 |
| 1 | lump sum | 26,000 | Consultant engineering design | $ 26,000 |
| 510 | hours | 35 | Company labor for field oversight and inspections | $ 17,850 |
| 240 | hours | 45 | Company labor for project management | $ 10,800 |
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| | | | | |
| Subtotal | | | | $ 391,310 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 39,131 |
| **Total Estimated Cost** | | | | **$ 430,441** |

# 2016

Project No: WM-5 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Coronado Dr

**Project Description:**

Replace existing mains
in rear-lot easements along Coronado Dr
between Swan Dr and Bermuda Dr
with 978 LF of 8" main in Coronado Dr
between Swan Dr and Bermuda Dr.

**Legend**

- Recorded Main Break/Leak (2003-2013)
- Main to be Installed
- Existing Main

N

30 15 0 30 60 90 120
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/11/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, P.E. | Mohave | **2016 WM-5** | Coronado Dr |

Project Description:
Replace existing mains in rear-lot easements along Coronado Dr. between Swan Dr. and Bermuda Dr. with 978 LF of 8" main in Coronado Dr. between Swan Dr. and Bermuda Dr.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 978 | linear feet | 167 | Contractor material and labor to install 8" main and service connections | $ 163,326 |
| 1 | lump sum | 15,000 | Consultant engineering design | $ 15,000 |
| 250 | hours | 35 | Company labor for field oversight and inspections | $ 8,750 |
| 110 | hours | 45 | Company labor for project management | $ 4,950 |
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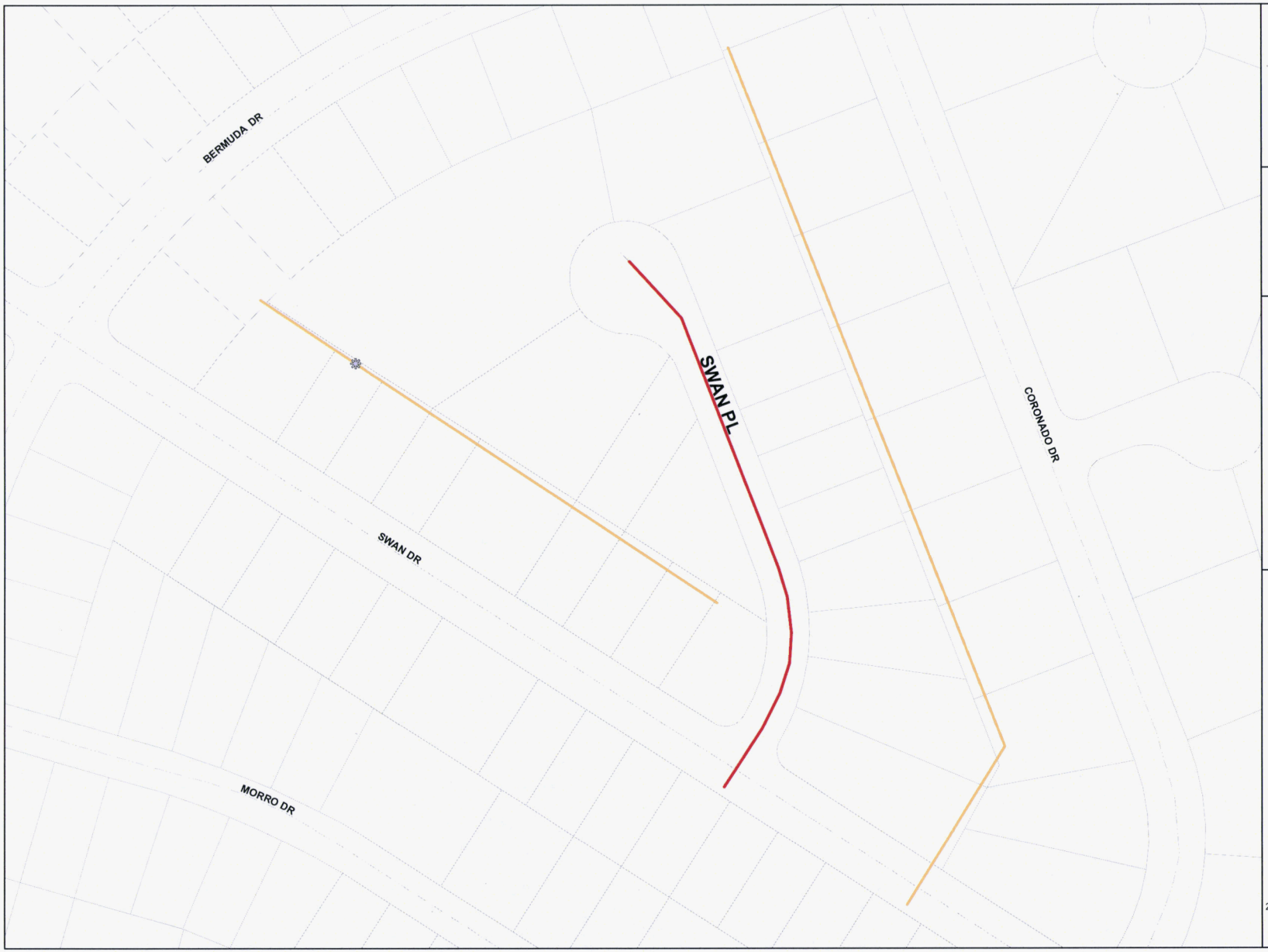
| Subtotal | | | | $ 192,026 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 19,203 |
| **Total Estimated Cost** | | | | **$ 211,229** |




# 2016

Project No: WM-6 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Swan Pl

**Project Description:**

Replace existing mains
in rear-lot easements along Swan Pl
between Bermuda Dr and Swan Dr
with 411 LF of 8" main in Swan Pl
between Bermuda Dr and Swan Dr.

**Legend**

- Recorded Main Break/Leak (2003-2013)
- Main to be Installed
- Existing Main

N

25 12.5 0 25 50 75 100 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/11/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, P.E. | Mohave | **2016 WM-6** | Swan Pl |

Project Description:
Replace existing mains in rear-lot easements along Swan Pl. between Bermuda Dr. and Swan Dr. with 411 LF of 8" main in Swan Pl. between Bermuda Dr. and Swan Dr.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 411 | linear feet | 215 | Contractor material and labor to install 8" main and service connections | $ 88,365 |
| 1 | lump sum | 7000 | Consultant engineering design | $ 7,000 |
| 110 | hours | 35 | Company labor for field oversight and inspections | $ 3,850 |
| 50 | hours | 45 | Company labor for project management | $ 2,250 |
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| | | | | |
| Subtotal | | | | $ 101,465 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 10,147 |
| **Total Estimated Cost** | | | | **$ 111,612** |

2017

Mohave – PU[redacted]D No. 08032

**SIB PLANT TABLE I, 3-3**

2017 Main Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| WM-7 | 331 | Distribution Main | 1,155 LF | 8" | PVC | $354 | Morro Dr | 12/2017 | n/a | $408,980 | Replace existing mains in rear-lot easements along along Morro Dr and Morro Cv between Bermuda Dr and Riverview Dr with 1,155 LF of 8" main in Morro Dr and Morro Cv between Bermuda Dr and Riverview Dr The existing mains in this area were installed in 1967. The existing pipe material does not meet current standards for use in public water systems and is not of sufficient strength, which has resulted in leaks and/or breaks. Replacing the main will help reduce system water loss and improve system reliability. The existing mains are located in rear-lot easements which are difficult to access for repairs. The mains are not sufficient to support fire flow nor are they accessible for emergency vehicles. One main in the street will replace the two existing mains on either side of the street in the rear easements. The main replacement is for existing customers and not related to new growth. See Section 3 narrative and Map No. WM-7 in Exhibit CC-1-A for more detail. |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| WM-8 | 331 | Distribution Main | 353 LF | 8" | PVC | $263 | Coronado Dr | 12/2017 | n/a | $92,667 | Replace existing mains in rear-lot easements along Coronado Dr between Riverview Dr and Malibu Dr with 353 LF of 8" main in Coronado Dr between Riverview Dr and Malibu Dr. The existing mains in this area were installed in 1967. The existing pipe material does not meet current standards for use in public water systems and is not of sufficient strength, which has resulted in leaks and/or breaks. Replacing the main will help reduce system water loss and improve system reliability. The existing mains are located in rear-lot easements which are difficult to access for repairs. The mains are not sufficient to support fire flow nor are they accessible for emergency vehicles. One main in the street will replace the two existing mains on either side of the street in the rear easements. The main replacement is for existing customers and not related to new growth. See Section 3 narrative and Map No. WM-8 in Exhibit CC-1-A for more detail. |
| WM-9 | 331 | Distribution Main | 190 LF | 8" | PVC | $356 | Alpine Cv | 12/2017 | n/a | $67,733 | Replace existing mains in rear-lot easements along Alpine Cv between Riverview Dr and Malibu Dr with 190 LF of 8" main in Alpine Cv between Riverview Dr and Malibu Dr. The existing mains in this area were installed in 1967. The existing pipe material does not meet current standards for use in public water systems and is not of sufficient strength, which has resulted in leaks and/or breaks. Replacing the main will help reduce system water loss and improve system reliability. The existing mains are located in rear-lot easements which are difficult to access for repairs. The mains are not sufficient to support fire flow nor are they accessible for emergency vehicles. One main in the street will replace the two existing mains on either side of the street in the rear easements. The main replacement is for existing customers and not related to new growth. See Section 3 narrative and Map No. WM-9 in Exhibit CC-1-A for more detail. |
| WM-10 | 331 | Distribution Main | 548 LF | 8" | PVC | $230 | Ventura Dr | 12/2017 | n/a | $126,049 | Replace existing mains in rear-lot easements along Ventura Dr between Riverview Dr and Malibu Dr with 548 LF of 8" main in Ventura Dr between Riverview Dr and Malibu Dr. The existing mains in this area were installed in 1967. The existing pipe material does not meet current standards for use in public water systems and is not of sufficient strength, which has resulted in leaks and/or breaks. Replacing the main will help reduce system water loss and improve system reliability. The existing mains are located in rear-lot easements which are difficult to access for repairs. The mains are not sufficient to support fire flow nor are they accessible for emergency vehicles. One main in the street will replace the two existing mains on either side of the street in the rear easements. The main replacement is for existing customers and not related to new growth. See Section 3 narrative and Map No. WM-10 in Exhibit CC-1-A for more detail. |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| WM-11 | 331 | Distribution Main | 1,839 LF | 8" | PVC | $235 | Bermuda Dr | 12/2017 | n/a | $431,449 | Replace existing mains in rear-lot easements along Bermuda Dr between Riverview Dr and Coronado Dr with 1,839 LF of 8" main in Bermuda Dr between Riverview Dr and Coronado Dr. The existing mains in this area were installed in 1967. The existing pipe material does not meet current standards for use in public water systems and is not of sufficient strength, which has resulted in leaks and/or breaks. Replacing the main will help reduce system water loss and improve system reliability. The existing mains are located in rear-lot easements which are difficult to access for repairs. The mains are not sufficient to support fire flow nor are they accessible for emergency vehicles. One main in the street will replace the two existing mains on either side of the street in the rear easements. The main replacement is for existing customers and not related to new growth. See Section 3 narrative and Map No. WM-11 in Exhibit CC-1-A for more detail. |
| **Total** | | | **4,085 LF** | | | | | | | **$1,126,877** | |

# 2017

Project No: WM-7 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Morro Dr

**Project Description:**

Replace existing mains
in rear-lot easements along
along Morro Dr and Morro Cv
between Bermuda Dr and Riverview Dr
with 1,155 LF of 8" main
in Morro Dr and Morro Cv
between Bermuda Dr and Riverview Dr.

**Legend**

- Recorded Main Break/Leak (2003-2013)
- Main to be Installed
- Existing Main

N

40 20 0 40 80 120 160
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/11/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, P.E. | Mohave | **2017 WM-7** | Morro Dr |

Project Description:

Replace existing mains in rear-lot easements along along Morro Dr. and Morro Cv. between Bermuda Dr. and Riverview Dr. with 1,155 LF of 8" main in Morro Dr. and Morro Cv. between Bermuda Dr. and Riverview Dr.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 1,155 | linear feet | 290 | Contractor material and labor to install 8" main and service connections | $ 334,950 |
| 1 | lump sum | 19,000 | Consultant engineering design | $ 19,000 |
| 330 | hours | 35 | Company labor for field oversight and inspections | $ 11,550 |
| 140 | hours | 45 | Company labor for project management | $ 6,300 |
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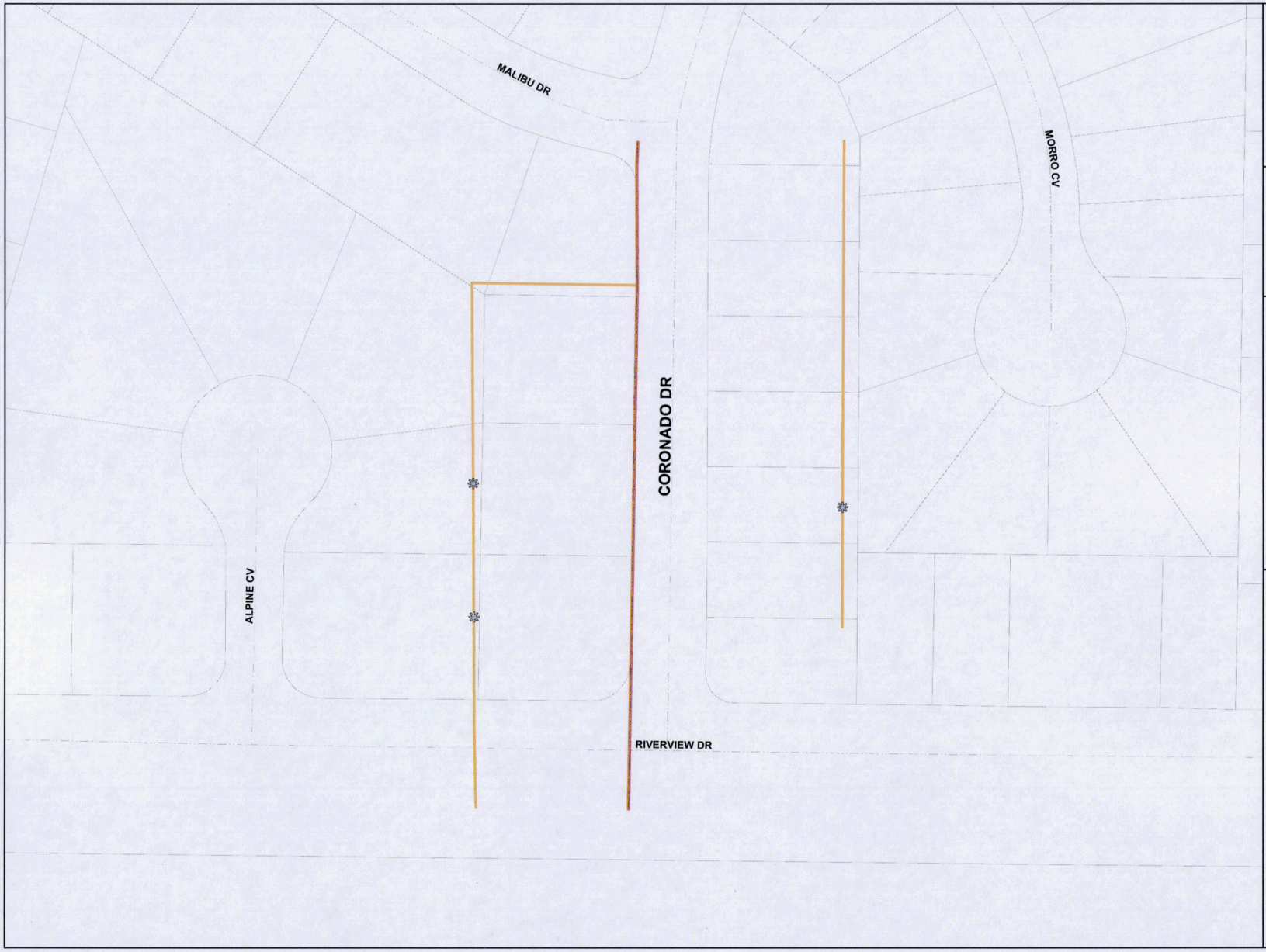
| | | | | |
| | | | | |
| Subtotal | | | | $ 371,800 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 37,180 |
| **Total Estimated Cost** | | | | **$ 408,980** |




# 2017

Project No: WM-8 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Coronado Dr

**Project Description:**

Replace existing mains
in rear-lot easements along Coronado Dr
between Riverview Dr and Malibu Dr
with 353 LF of 8" main in Coronado Dr
between Riverview Dr and Malibu Dr.

**Legend**

- Recorded Main Break/Leak (2003-2013)
- Main to be Installed
- Existing Main

N

20 10 0 20 40 60 80 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/11/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, P.E. | Mohave | **2017 WM-8** | Coronado Dr |

Project Description:
Replace existing mains in rear-lot easements along Coronado Dr. between Riverview Dr. and Malibu Dr. with 353 LF of 8" main in Coronado Dr. between Riverview Dr. and Malibu Dr.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 353 | linear feet | 206 | Contractor material and labor to install 8" main and service connections | $ 72,718 |
| 1 | lump sum | 6,000 | Consultant engineering design | $ 6,000 |
| 100 | hours | 35 | Company labor for field oversight and inspections | $ 3,500 |
| 45 | hours | 45 | Company labor for project management | $ 2,025 |
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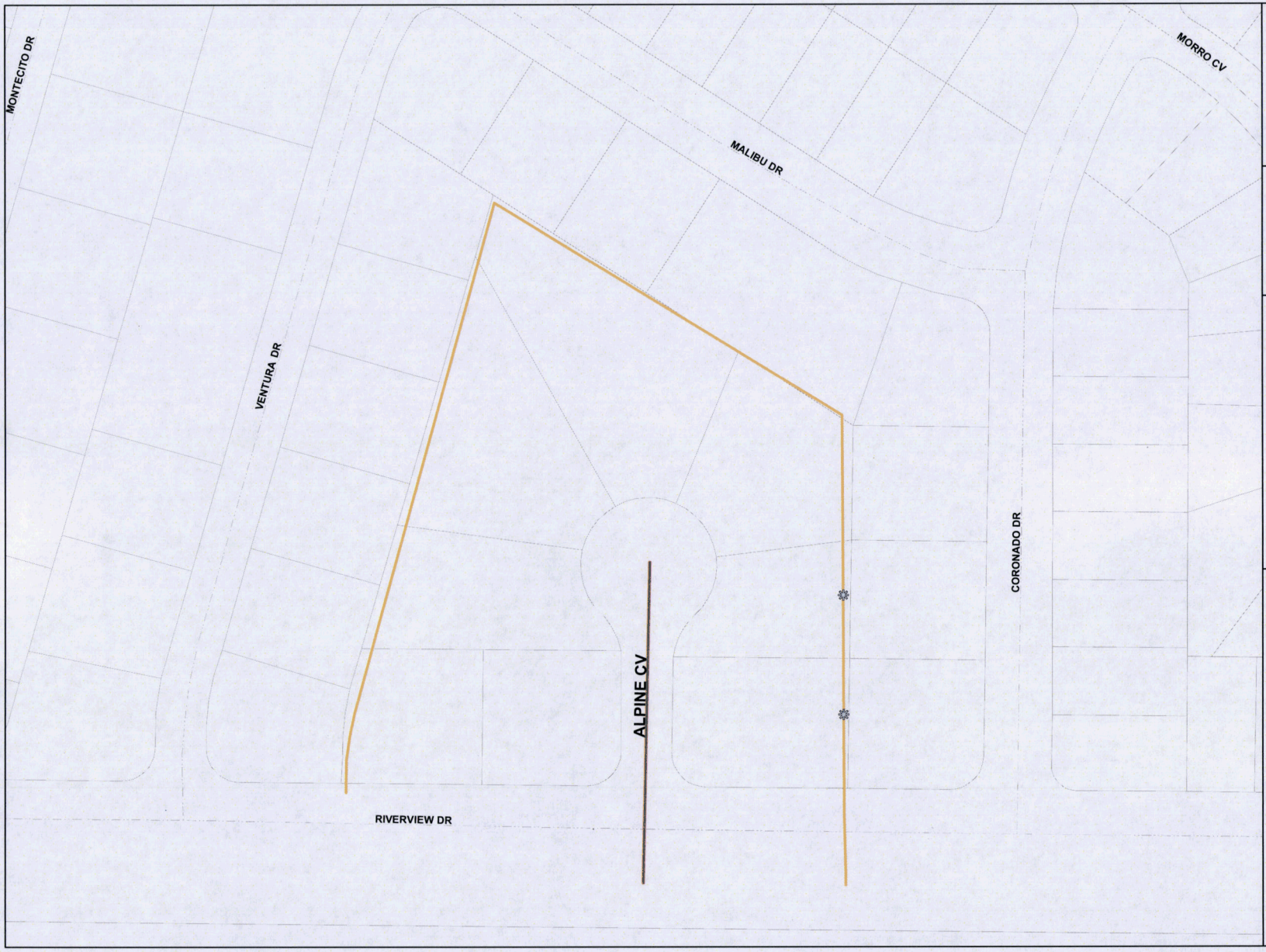
| | | | | |
| Subtotal | | | | $ 84,243 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 8,424 |
| **Total Estimated Cost** | | | | **$ 92,667** |




# 2017

Project No: WM-9 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Alpine Cv

**Project Description:**

Replace existing mains
in rear-lot easements along Alpine Cv
between Riverview Dr and Malibu Dr
with 190 LF of 8" main in Alpine Cv
between Riverview Dr and Malibu Dr.

**Legend**

- Recorded Main Break/Leak (2003-2013)
- Main to be Installed
- Existing Main

N

20 10 0 20 40 60 80
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/11/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, P.E. | Water System:<br>Mohave | Project Year and Number:<br>**2017 WM-9** | Project Location:<br>Alpine Cv |

Project Description:
Replace existing mains in rear-lot easements along Alpine Cv. between Riverview Dr. and Malibu Dr. with 190 LF of 8" main in Alpine Cv. between Riverview Dr. and Malibu Dr.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 190 | linear feet | 280 | Contractor material and labor to install 8" main and service connections | $ 53,200 |
| 1 | lump sum | 4,000 | Consultant engineering design | $ 4,000 |
| 80 | hours | 35 | Company labor for field oversight and inspections | $ 2,800 |
| 35 | hours | 45 | Company labor for project management | $ 1,575 |
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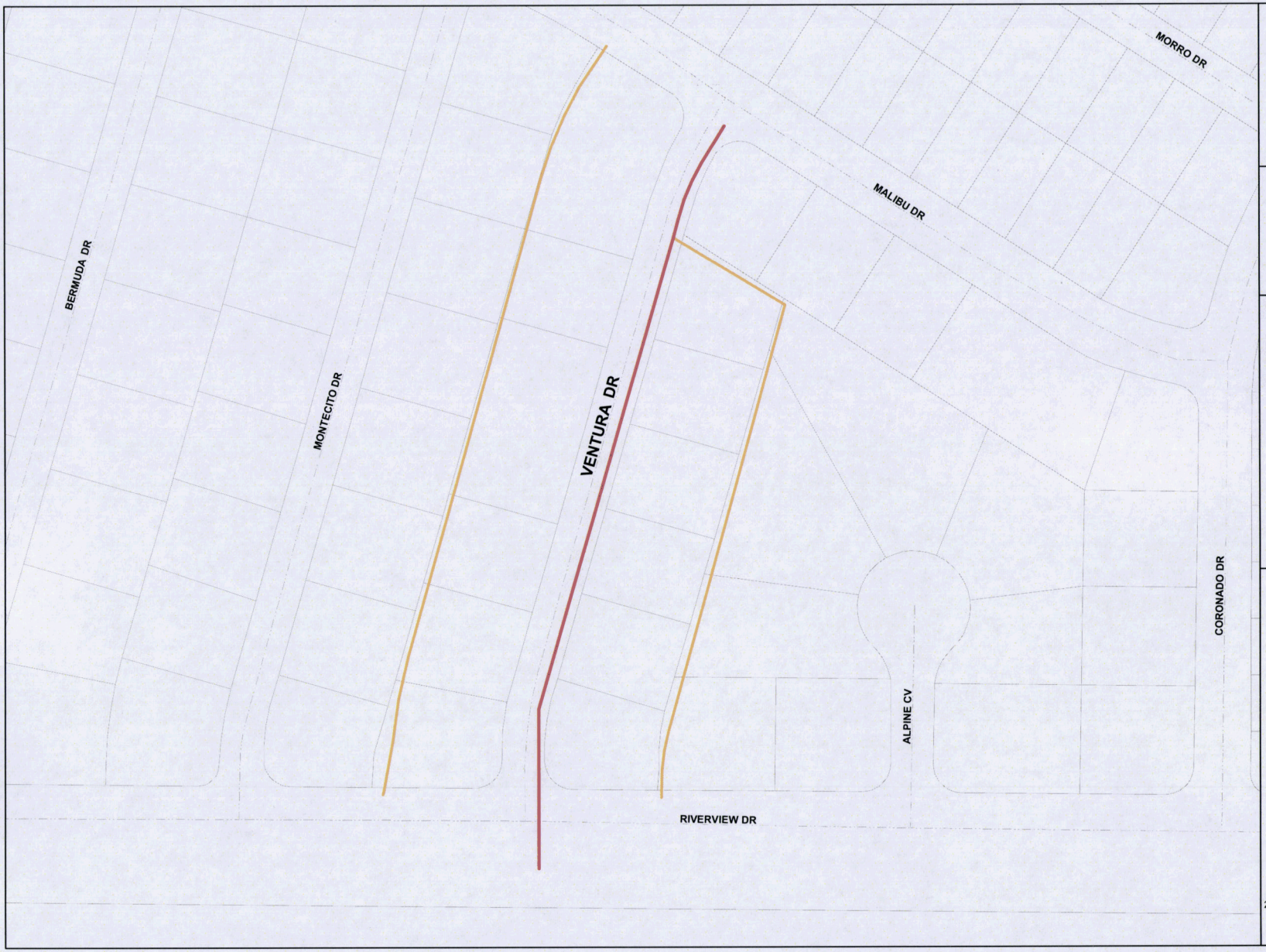
| | | | | |
| | | | | |
| Subtotal | | | | $ 61,575 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 6,158 |
| **Total Estimated Cost** | | | | **$ 67,733** |




# 2017

Project No: WM-10 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Ventura Dr

**Project Description:**

Replace existing mains
in rear-lot easements along Ventura Dr
between Riverview Dr and Malibu Dr
with 548 LF of 8" main in Ventura Dr
between Riverview Dr and Malibu Dr.

**Legend**

- Main to be Installed
- Existing Main

N

25 12.5 0 25 50 75 100 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/11/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, P.E. | Mohave | **2017 WM-10** | Ventura Dr |

Project Description:
Replace existing mains in rear-lot easements along Ventura Dr. between Riverview Dr. and Malibu Dr. with 548 LF of 8" main in Ventura Dr. between Riverview Dr. and Malibu Dr.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 548 | linear feet | 180 | Contractor material and labor to install 8" main and service connections | $ 98,640 |
| 1 | lump sum | 8,000 | Consultant engineering design | $ 8,000 |
| 150 | hours | 35 | Company labor for field oversight and inspections | $ 5,250 |
| 60 | hours | 45 | Company labor for project management | $ 2,700 |
| | | | | |
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| | | | | |
| | | | | |
| | | | | |
| Subtotal | | | | $ 114,590 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 11,459 |
| **Total Estimated Cost** | | | | **$ 126,049** |

# 2017

Project No: WM-11 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Bermuda Dr

**Project Description:**

Replace existing mains
in rear-lot easements along Bermuda Dr
between Riverview Dr and Coronado Dr
with 1,839 LF of 8" main in Bermuda Dr
between Riverview Dr and Coronado Dr.

**Legend**

- Recorded Main Break/Leak (2003-2013)
- Main to be Installed
- Existing Main

N

60 30 0 60 120 180 240 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/24/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | | Date Prepared:<br>2/11/2014 |
|---|---|---|---|---|
| Prepared By:<br>Marc Allen, P.E. | Water System:<br>Mohave | Project Year and Number:<br>**2017 WM-11** | Project Location:<br>Bermuda Dr | |

Project Description:
Replace existing mains in rear-lot easements along Bermuda Dr. between Riverview Dr. and Coronado Dr. with 1,839 LF of 8" main in Bermuda Dr. between Riverview Dr. and Coronado Dr.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 1,839 | linear feet | 184 | Contractor material and labor to install 8" main and service connections | $ 338,376 |
| 1 | lump sum | 26,000 | Consultant engineering design | $ 26,000 |
| 500 | hours | 35 | Company labor for field oversight and inspections | $ 17,500 |
| 230 | hours | 45 | Company labor for project management | $ 10,350 |
| | | | | |
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| Subtotal | | | | $ 392,226 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 39,223 |
| **Total Estimated Cost** | | | | **$ 431,449** |

# 2018

Mohave – P[redacted]D No. 08032

**SIB PLANT TABLE I, 3-4**

2018 Main Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| WM-12 | 331 | Distribution Main | 655 LF | 8" | PVC | $232 | Montecito Dr | 12/2018 | n/a | $151,762 | Replace existing mains in rear-lot easements along Montecito Dr between Riverview Dr and Malibu Dr with 655 LF of 8" main in Montecito Dr between Riverview Dr and Malibu Dr The existing mains in this area were installed in 1967. The existing pipe material does not meet current standards for use in public water systems and is not of sufficient strength, which has resulted in leaks and/or breaks. Replacing the main will help reduce system water loss and improve system reliability. The existing mains are located in rear-lot easements which are difficult to access for repairs. The mains are not sufficient to support fire flow nor are they accessible for emergency vehicles. One main in the street will replace the two existing mains on either side of the street in the rear easements. The main replacement is for existing customers and not related to new growth. See Section 3 narrative and Map No. WM-12 in Exhibit CC-1-A for more detail. |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| WM-13 | 331 | Distribution Main | 2,090 LF | 8" | PVC | $258 | Hermosa Dr | 12/2018 | n/a | $538,549 | Replace existing mains in rear-lot ease[redacted]long Hermosa Dr between Riverview Dr and Coronad[redacted]ith 2,090 LF of 8" main in Hermosa Dr between Riverview Dr and Coronado Dr. The existing mains in this area were installed in 1967. The existing pipe material does not meet current standards for use in public water systems and is not of sufficient strength, which has resulted in leaks and/or breaks. Replacing the main will help reduce system water loss and improve system reliability. The existing mains are located in rear-lot easements which are difficult to access for repairs. The mains are not sufficient to support fire flow nor are they accessible for emergency vehicles. One main in the street will replace the two existing mains on either side of the street in the rear easements. The main replacement is for existing customers and not related to new growth. See Section 3 narrative and Map No. WM-13 in Exhibit CC-1-A for more detail. |
| WM-14 | 331 | Distribution Main | 1,342 LF | 8" | PVC | $254 | Balboa Dr South | 12/2018 | n/a | $340,624 | Replace existing mains in rear-lot easements along Balboa Dr between Riverview Dr and Swan Dr with 1,342 LF of 8" main in Balboa Dr between Riverview Dr and Swan Dr. The existing mains in this area were installed in 1967. The existing pipe material does not meet current standards for use in public water systems and is not of sufficient strength, which has resulted in leaks and/or breaks. Replacing the main will help reduce system water loss and improve system reliability. The existing mains are located in rear-lot easements which are difficult to access for repairs. The mains are not sufficient to support fire flow nor are they accessible for emergency vehicles. One main in the street will replace the two existing mains on either side of the street in the rear easements. The main replacement is for existing customers and not related to new growth. See Section 3 narrative and Map No. WM-14 in Exhibit CC-1-A for more detail. |
| **Total** | | | **4,087 LF** | | | | | | | **$1,030,934** | |

# 2018

Project No: WM-12 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Montecito Dr

**Project Description:**

Replace existing mains
in rear-lot easements along Montecito Dr
between Riverview Dr and Malibu Dr
with 655 LF of 8" main in Montecito Dr
between Riverview Dr and Malibu Dr.

**Legend**

- Recorded Main Break/Leak (2003-2013)
- Main to be Installed
- Existing Main

N

25 12.5 0 25 50 75 100 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/24/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/11/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, P.E. | Water System:<br>Mohave | Project Year and Number:<br>**2018 WM-12** | Project Location:<br>Montecito Dr |

Project Description:
Replace existing mains in rear-lot easements along Montecito Dr between Riverview Dr and Malibu Dr with 655 LF of 8" main in Montecito Dr between Riverview Dr and Malibu Dr.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 655 | linear feet | 183 | Contractor material and labor to install 8" main and service connections | $ 119,865 |
| 1 | lump sum | 9,000 | Consultant engineering design | $ 9,000 |
| 170 | hours | 35 | Company labor for field oversight and inspections | $ 5,950 |
| 70 | hours | 45 | Company labor for project management | $ 3,150 |
| | | | | |
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| | | | | |
| | | | | |
| Subtotal | | | | $ 137,965 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 13,797 |
| **Total Estimated Cost** | | | | **$ 151,762** |

# 2018

Project No: WM-13 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Hermosa Dr

**Project Description:**

Replace existing mains
in rear-lot easements along Hermosa Dr
between Riverview Dr and Coronado Dr
with 2,090 LF of 8" main in Hermosa Dr
between Riverview Dr and Coronado Dr.

**Legend**

- Recorded Main Break/Leak (2003-2013)
- Main to be Installed
- Existing Main

N

75 37.5 0 75 150 225 300 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/23/2014

EPCOR Water 2014 •

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/11/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, P.E. | Mohave | **2018 WM-13** | Hermosa Dr |

Project Description:
Replace existing mains in rear-lot easements along Hermosa Dr. between Riverview Dr. and Coronado Dr. with 2,090 LF of 8" main in Hermosa Dr. between Riverview Dr. and Coronado Dr.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 2,090 | linear feet | 206 | Contractor material and labor to install 8" main and service connections | $ 430,540 |
| 1 | lump sum | 28,000 | Consultant engineering design | $ 28,000 |
| 540 | hours | 35 | Company labor for field oversight and inspections | $ 18,900 |
| 270 | hours | 45 | Company labor for project management | $ 12,150 |
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| | | | | |
| | | | | |
| Subtotal | | | | $ 489,590 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 48,959 |
| **Total Estimated Cost** | | | | **$ 538,549** |

# 2018

Project No: WM-14 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Balboa Dr South

**Project Description:**

Replace existing mains in rear-lot easements along Balboa Dr between Riverview Dr and Swan Dr with 1,342 LF of 8" main in Balboa Dr between Riverview Dr and Swan Dr.

**Legend**

- Recorded Main Break/Leak (2003-2013)
- Main to be Installed
- Existing Main

N

50 25 0 50 100 150 200 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/24/2014

EPCOR Water 2014 •

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/11/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, P.E. | Mohave | **2018 WM-14** | Balboa Dr South |

Project Description:
Replace existing mains in rear-lot easements along Balboa Dr between Riverview Dr and Swan Dr with 1,342 LF of 8" main in Balboa Dr between Riverview Dr and Swan Dr.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 1,342 | linear feet | 199 | Contractor material and labor to install 8" main and service connections | $ 267,058 |
| 1 | lump sum | 22,000 | Consultant engineering design | $ 22,000 |
| 370 | hours | 35 | Company labor for field oversight and inspections | $ 12,950 |
| 170 | hours | 45 | Company labor for project management | $ 7,650 |
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| | | | | |
| Subtotal | | | | $ 309,658 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 30,966 |
| **Total Estimated Cost** | | | | **$ 340,624** |

# 2019

Mohave – P[redacted]D No. 08032

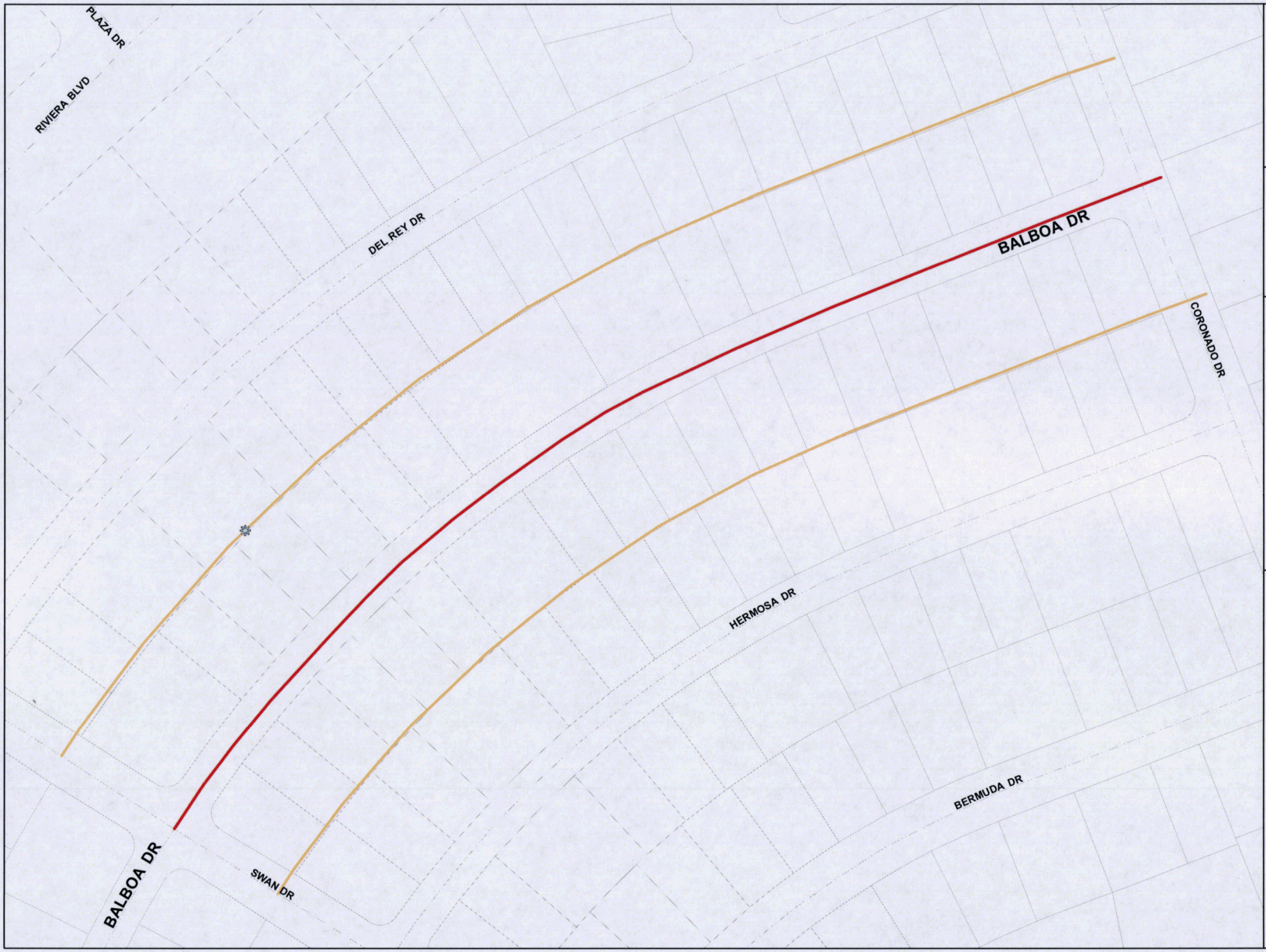
**SIB PLANT TABLE I, 3-5**

2019 Main Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| WM-15 | 331 | Distribution Main | 900 LF | 8" | PVC | $281 | Balboa Dr North | 12/2019 | n/a | $252,945 | Replace existing mains in rear-lot easements along Del Rey Dr between Swan Dr and Coronado Dr with 900 LF of 8" main in Del Rey Dr between Swan Dr and Coronado Dr The existing mains in this area were installed in 1967. The existing pipe material does not meet current standards for use in public water systems and is not of sufficient strength, which has resulted in leaks and/or breaks. Replacing the main will help reduce system water loss and improve system reliability. The existing mains are located in rear-lot easements which are difficult to access for repairs. The mains are not sufficient to support fire flow nor are they accessible for emergency vehicles. One main in the street will replace the two existing mains on either side of the street in the rear easements. The main replacement is for existing customers and not related to new growth. See Section 3 narrative and Map No. WM-15 in Exhibit CC-1-A for more detail. |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| WM-16 | 331 | Distribution Main | 2,603 LF | 8" | PVC | $284 | Del Rey Dr | 12/2019 | n/a | $739,306 | Replace existing mains in rear-lot easer long Del Rey Dr between Riverview Dr and Coronad ith 2,603 LF of 8" main in Del Rey Dr between Riverview Dr and Coronado Dr. The existing mains in this area were installed in 1967. The existing pipe material does not meet current standards for use in public water systems and is not of sufficient strength, which has resulted in leaks and/or breaks. Replacing the main will help reduce system water loss and improve system reliability. The existing mains are located in rear-lot easements which are difficult to access for repairs. The mains are not sufficient to support fire flow nor are they accessible for emergency vehicles. One main in the street will replace the two existing mains on either side of the street in the rear easements. The main replacement is for existing customers and not related to new growth. See Section 3 narrative and Map No. WM-16 in Exhibit CC-1-A for more detail. |
| **Total** | | | **3,503 LF** | | | | | | | **$992,251** | |




# 2019

Project No: WM-15 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Balboa Dr North

**Project Description:**

Replace existing mains
in rear-lot easements along Balboa Dr
between Swan Dr and Coronado Dr
with 900 LF of 8" main in Balboa Dr
between Swan Dr and Coronado Dr.

**Legend**

- Recorded Main Break/Leak (2003-2013)
- Main to be Installed
- Existing Main

N

25 12.5 0 25 50 75 100
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/24/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/11/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, P.E. | Water System:<br>Mohave | Project Year and Number:<br>**2019 WM-15** | Project Location:<br>Balboa Dr North |

Project Description:
Replace existing mains in rear-lot easements along Del Rey Dr between Swan Dr and Coronado Dr with 900 LF of 8" main in Del Rey Dr between Swan Dr and Coronado Dr.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 900 | linear feet | 226 | Contractor material and labor to install 8" main and service connections | $ 203,400 |
| 1 | lump sum | 14,000 | Consultant engineering design | $ 14,000 |
| 230 | hours | 35 | Company labor for field oversight and inspections | $ 8,050 |
| 100 | hours | 45 | Company labor for project management | $ 4,500 |
| | | | | |
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| | | | | |
| | | | | |
| Subtotal | | | | $ 229,950 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 22,995 |
| **Total Estimated Cost** | | | | **$ 252,945** |

# 2019

Project No: WM-16 •
PWSID: 0408032

## Mohave District

**Project Area:**

## Del Rey Dr

**Project Description:**

Replace existing mains
in rear-lot easements along Del Rey Dr
between Riverview Dr and Coronado Dr
with 2,603 LF of 8" main in Del Rey Dr
between Riverview Dr and Coronado Dr.

**Legend**

- Recorded Main Break/Leak (2003-2013)
- Main to be Installed
- Existing Main

N

100 50 0 100 200 300 400 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/24/2014

EPCOR Water 2014 •

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/11/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, P.E. | Mohave | **2019 WM-16** | Del Rey Dr |

Project Description:
Replace existing mains in rear-lot easements along Del Rey Dr between Riverview Dr and Coronado Dr with 2,603 LF of 8" main in Del Rey Dr between Riverview Dr and Coronado Dr.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 2,603 | linear feet | 232 | Contractor material and labor to install 8" main and service connections | $ 603,896 |
| 1 | lump sum | 33,000 | Consultant engineering design | $ 33,000 |
| 620 | hours | 35 | Company labor for field oversight and inspections | $ 21,700 |
| 300 | hours | 45 | Company labor for project management | $ 13,500 |
| | | | | |
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| | | | | |
| | | | | |
| | | | | |
| Subtotal | | | | $ 672,096 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 67,210 |
| **Total Estimated Cost** | | | | **$ 739,306** |

# Section 4 - Meters

## SECTION 4 - METERS

### 4.1 Overview

The Mohave system has approximately 17,000 residential and commercial customer accounts. The meters used to read customer use become inaccurate with age and generally should be replaced every 10 to 15 years. Over the last four years, about 1,650 meters per year have been replaced. In order to ensure meter reading accuracy throughout the system, EPCOR plans to continue replacing inaccurate meters at a comparable pace.

### 4.2 Best Management Practices

The Arizona Department of Water Resources' (ADWR) Modified Non-Per Capita Conservation Program (MNPCCP) is one of the regulatory programs for large municipal water providers in Active Management Areas. It is a performance-based program (Best Management Practice or BMP) that participating water providers use to implement water conservation measures that result in water use efficiency in their service areas. ADWR's BMP for meter replacement and testing requires 2" and smaller meters be replaced at a minimum of every 15 years. EPCOR has adopted the following BMP for its Mohave district:

**Meter Repair and/or Replacement Tariff – BMP 4.2**

PURPOSE

A program for the Company to systematically assess all in-service water meters (including Company production meters) in its water service area to identify under-registering meters and to repair or replace them (Modified Non-Per Capita Conservation Program Best Management Practice Category 4: Physical System Evaluation and Improvement 4.2 Meter Repair and/or Replacement Program).

REQUIREMENTS

The requirements of this tariff are governed by Rules of the Arizona Corporation Commission and were adapted from the Arizona Department of Water Resources' Required Public Education Program and Best Management Practices in the Modified Non-Per Capita Conservation Program.

1. On a systematic basis, the Company will replace all 2-inch and smaller in-service water meters at least once every fifteen years.
2. The Company will test all meters that have caused a meter reading complaint to be filed with the Arizona Corporation Commission.
3. Meters larger than 2-inch shall be tested for one of the following reasons:
   a. A meter reading complaint is filed with the Company by a customer or Arizona Corporation Commission Staff,
   b. A meter has been in service for five years.
4. The test will be accomplished by one of the following:
   a. Having the meter pulled and having a Company Technician physically inspect each meter and its fittings for leaks, registers which may have become loose or are not properly attached to the meter and could be under-registering or other broken parts which need repair.
   b. Utilizing equipment to verify that all electronic components are within manufacturer specifications and are operating properly.
5. In addition, meters shall be randomly selected for flow testing utilizing a flow through detector testing meter.
6. All replacement water meters shall register in gallons in increments equal to or less than as follows:
   a. All new 1-inch and smaller meters that are installed will register usage in 1 gallon increments,
   b. All new 1-1/2-inch through 4-inch meters that are installed will register in 10 gallon increments, and
   c. All new 6-inch and larger meters that are installed will register in 100 gallon increments.
7. The Company shall keep records on the number of meters that were replaced and make this information available to the Commission upon request.

### 4.3 Industry Standards

EPCOR contacted other water utilities around the country to find out what their standard for meter replacement has been. Most of these utilities believe that replacing meters every 10 to 15 years is appropriate. Different studies around the country determined that a 10 to 20 year range

is acceptable; however, there is no exact age that determines the time when a meter should be replaced. A meter's accuracy is dependent on many factors including water quality, water temperature, the flow rate passing through the meter, and the quantity of water that passes through the meter.

### 4.4 Meter Replacements

EPCOR's meter replacement program will target meter routes with the oldest meters first, as well as in critical areas where there have been instances of zero read meters. Prior to replacing the meters in a specific route, 10% of the meters will be tested for accuracy. If these meters do not meet the accuracy requirements described in our meter testing program, all of the meters in the route will be replaced; otherwise another meter route will be considered and tested for replacement need. A copy of the Company's meter testing and replacement guidelines is included in the following tab, **Meter Testing**.

Note that the timing of meter replacements will not necessarily coincide with the timing of service line replacements. Meters located in service line replacement areas may not be ready for replacement at the time of the service line replacements, and vice versa. Meters are being replaced according to meter route, and service lines are being replaced by street. However, when service lines are replaced, the meters on that street will be tested according to EPCOR's meter testing program, and if they are found to meet the requirements for replacement, they will be replaced at the time of the service line replacements; these meters will then *not* be replaced again under the meter replacement schedule.

EPCOR plans to replace an average of 1,695 meters per year over the next five years and continue at this pace until the all meters in the system are replaced. The average cost per year is estimated to be about $300,000. Meter replacement projects for the next five years are described in the following tabs labeled **2015, 2016, 2017, 2018, and 2019**. SIB Plant Tables I, 4-1 through Table I, 4-5 provide a detailed description of each meter replacement project. The tables are broken down by year, so there is a separate table for each year from 2014 (Table I, 4-1) through 2018 (Table I, 4-5). Each project addresses a set of meter replacements that will occur within a defined meter route. Each project can also be tied to a map showing the proposed meter replacements. A cost estimate for each project is also provided.

# Meter Testing

| FIELD OPERATIONS<br>STANDARD OPERATING PRACTICES | Effective Date: | 10-8-07 |
|---|---|---|
| | Revised Date: | 9-10-12 |

| SOP NAME:<br>**SMALL METER TESTING** | SOP #:<br>**CFO-312** |
|---|---|

| **TYPE:**<br>Preventative Maintenance | **DIVISION:**<br>Field Operations | **Activity Definitions:** |
|---|---|---|

## OBJECTIVE

The objective of document is to provide consistent procedures for conducting preventative maintenance by testing water meters for accurate measurement of water consumption.

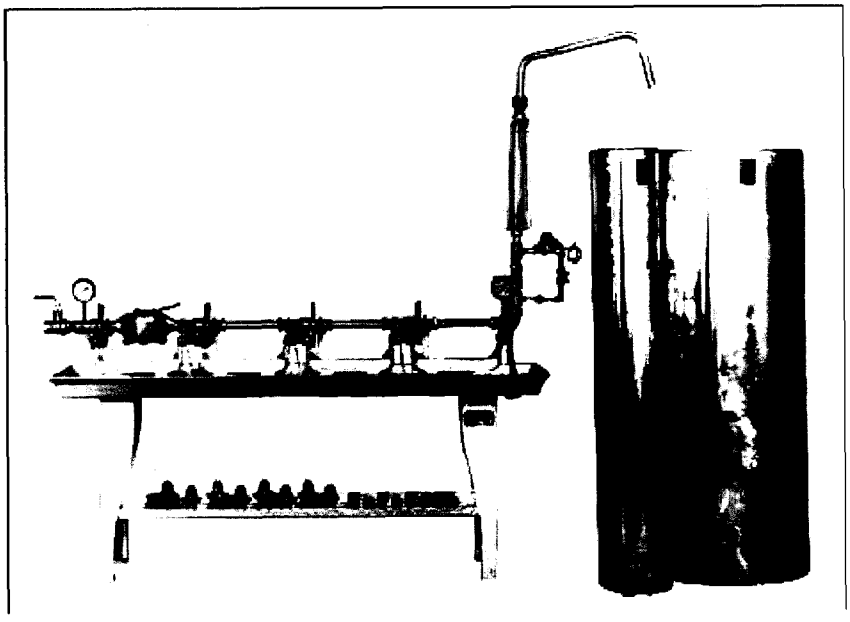
## GOAL

The goal is for all personnel to consistently perform water meter testing using the same steps.

## SCOPE

The practices and procedures in this program apply to all Field Operations employees, and contractors working on behalf of EPCOR Water, performing water meter testing.

## ILLUSTRATION



**PRECAUTIONS**

1. Water lines are under constant pressure.
2. Pinch hazards.
3. Ford Meter Test Bench (pictured above)

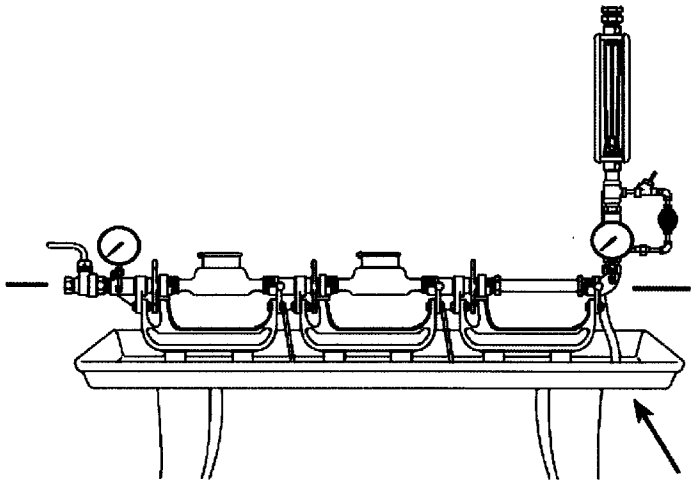
**PROCEDURE**

The Ford Indianapolis Test Bench will be used to test water meters in sizes 5/8" through 3/4" short; and the Ford Akron Test Bench will be used to test meters in sizes 3/4" long through 3". Always test meters of the same size at the same time. Both test benches have a water supply valve to supply water pressure to operate the hydraulic clamping cylinders. This valve should remain open at all times.

**We will first go through the procedures for the Indianapolis Test Bench.**

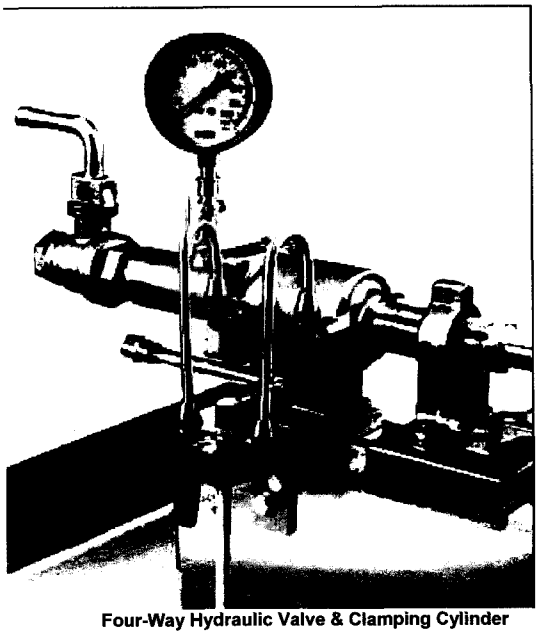
1. Check to see that all gaskets are in-place for each meter saddle.

2. If all meter saddles (9) will not be used, install a ⅝" or ¾" idler bar in each unused meter saddle. (See example below)



3. Make sure meters are installed in the direction of water flow through the test bench, (right to left).

4. Clamp the meters into position by turning the lever handle on the four hydraulic valve to the straight up position. Turning the valve ¼ turn counter-clockwise will release the meters from the clamped position. (See the picture below)



Four-Way Hydraulic Valve & Clamping Cylinder

5. Once all meters and/or idler bars are securely clamped in-place, open the blow-off valve and close the outlet valve going to the Testerate Indicator (rate of flow gauge). Slowly open the inlet valve to purge all the air from the meters. Once the air is purged, close the blow-off valve and slowly open the outlet valve to slowly purge all air from the entire test bench system. Once the purging is complete, close the outlet valve. Verify that there are no leaks from any gaskets, valves, or fittings before proceeding with the testing. Repair all leaks as needed.

6. With the outlet valve closed and the inlet valve open, adjust the meters to an easily recordable start point (dial hand on a whole number or zero) by using the bleeder valves. By opening the bleeder valve for each meter, this allows water to flow through the meter to position the dial hand to a start point. Adjust the outlet/last meter first (far left position), then move to the next (upstream) meter with each successive adjustment. You must use the blow-off valve to adjust the meter in the last position. Eventually all meters will be adjusted to a start point and ready for testing. Document the start point and the meter reading for each meter prior to testing.

7. Make sure the appropriate calibrated tank is empty and the tank drain valve is closed. The 10-gallon tank is used for low or intermediate flow tests and the 100 gallon tank is used for high flow tests. Rotate the calibration tank fill tube over the appropriate tank. Now you are ready to begin testing the meters.

8. The following chart indicates the American Water Works Association (AWWA) test requirements for new, rebuilt and repaired cold water meters:

| Maximum Rate (All Meters) | | | | | Intermediate Rate (All Meters) | | | | Minimum Rate (New and Rebuilt) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size In. | Rate† of Flow gpm | Test Quantity†† Gal. | Test Quantity†† Cu. Ft. | Accuracy Limits Percent | Rate of Flow gpm | Test Quantity†† Gal. | Test Quantity†† Cu. Ft. | Accuracy Limits Percent | Rate of Flow gpm | Test Quantity†† Gal. | Test Quantity†† Cu. Ft. | Accuracy Limits Percent New & Rebuilt Meters | Accuracy Limits Percent Repaired Meters |
| DISPLACEMENT METERS (AWWA C700 AND C710) | | | | | | | | | | | | | |
| 5/8 | 15 | 100 | 10 | 98.5-101.5 | 2 | 10 | 1 | 98.5-101.5 | 1/4 | 10 | 1 | 95-101 | 90 |
| 5/8x3/4 | 15 | 100 | 10 | 98.5-101.5 | 2 | 10 | 1 | 98.5-101.5 | 1/4 | 10 | 1 | 95-101 | 90 |
| 3/4 | 25 | 100 | 10 | 98.5-101.5 | 3 | 10 | 1 | 98.5-101.5 | 1/2 | 10 | 1 | 95-101 | 90 |
| 1 | 40 | 100 | 10 | 98.5-101.5 | 4 | 10 | 1 | 98.5-101.5 | 3/4 | 10 | 1 | 95-101 | 90 |
| 1-1/2 | 50 | 100 | 10 | 98.5-101.5 | 8 | 100 | 10 | 98.5-101.5 | 1-1/2 | 100 | 10 | 95-101 | 90 |
| 2 | 100 | 100 | 10 | 98.5-101.5 | 15 | 100 | 10 | 98.5-101.5 | 2 | 100 | 10 | 95-101 | 90 |
| 3 | 150 | 500 | 50 | 98.5-101.5 | 20 | 100 | 10 | 98.5-101.5 | 4 | 100 | 10 | 95-101 | 90 |
| 4 | 200 | 500 | 50 | 98.5-101.5 | 40 | 100 | 10 | 98.5-101.5 | 7 | 100 | 10 | 95-101 | 90 |
| 6 | 500 | 1,000 | 100 | 98.5-101.5 | 60 | 100 | 10 | 98.5-101.5 | 12 | 100 | 10 | 95-101 | 90 |

We will start with the Low Flow Test. Switch the flow mode to Low on the electric flow control system panel. Turn the power switch to the on position. Quickly adjust the flow rate to ¼ gpm (5/8" meter) on the Testerate Indicator Gauge. The rate-of-flow is measured even with the flat top of the rotor body. Considering this is not a time measured test, it's not too critical for the flow rate to be precisely ¼ gpm throughout the length of the test. However, make every effort to keep the flow rate at ¼ gpm. The flow rate may fluctuate during the test, if the system pressure changes. *If the electric flow control system is not available or required, perform the test manually by slowly opening the outlet valve and quickly adjusting the flow rate to 1/4 gpm.*

9. Once the water level reaches the specified quantity level in the calibrated tank (see chart above), the flow valve should close automatically. If not, manually close the outlet valve. Record the meter reading and calculate the meter accuracy using the following equation:

   Final Meter Reading - Initial Meter Reading = Measured Flow Registered

   5/8" meter minimum flow rate 10 gallon test
   Example #1 0654090.9 - 0654082.8 = 8.1 = Meter running slow
   Example #2 1054230.5 - 1054220.4 = 10.1 = Meter running fast

   In Example #1, this meter test result is outside our tariff of >3% (9.7 gallons) and would need to be replaced.
   In Example #2, this meter test result is within our tariff of >3% (10.3 gallons) and would not require replacement. This meter should be reinstalled at its original service location. Repeat this calculation for each meter tested. A meter running slow, more than 3% accuracy, would require replacement. A meter running fast, more than 3% accuracy, would require replacement and a credit to the customer.

   **All customer meters must meet the Arizona Corporation Commission (ACC) accuracy of 3%.**

10. Repeat steps 6 – 9 to run the Intermediate and/or Maximum Rate Flow Test. Reference the appropriate column in the chart above for the test rate-of-flow gpm.

11. Once all tests are complete, remove all meters tested, and attach Meter Test Result Tag. Record all meter test results in the Meter Test Data Base.

**We will now go through the procedures for the Akron Test Bench.**

1. Check to see that all gaskets are in-place for each meter saddle.

2. If all meter saddles (3) will not be used, install the 2" idler bar in each unused meter saddle. Install the correct meter adapter (located on back row of test bench) for each size meter as follows:

   | | |
   |---|---|
   | ¾" Long | HT-16&HT-12A |
   | 1" | HT-14 |
   | 1½" | HT-15 |
   | 2" | Not Required |
   | 3" | Not Required |

3. Make sure meters are installed in the direction of water flow through the test bench, (left to right).

4. Clamp the meters into position by turning the lever handle on the four hydraulic valve to the right (On). Turning the valve to the left (Off) will release the meters from the clamped position. The center position is a neutral position. (See the picture below)

5. Once all meters and/or idler bars are securely clamped in-place, open the blow-off valve and close the outlet valve going to the Testerate Indicator (rate of flow gauge). Slowly open the inlet valve to purge all the air from the meters. Once the air is purged, close the blow-off valve and slowly open the outlet valve to slowly purge all air from the entire test bench system. Once the purging is complete, close the outlet valve. At this point, determine the maximum rate of flow expected for your meter test. All rate of flows less than 36 gpm should be performed with the Testerate By-pass Valve in the close position. All rates of flows over 36 gpm up to 170 gpm should be performed with the Testerate By-pass Valve in the close position and are read from the auxiliary scale mounted along side the tube. The rate of flow is measured even with the flat top of the rotor body. Verify that there are no leaks from any gaskets, valves, or fittings before proceeding with the testing. Repair all leaks as needed.

6. With the outlet valve closed and the inlet valve open, adjust the meters to an easily recordable start point (dial hand on a whole number or zero) by using the bleeder valves. By opening the bleeder valve for each meter, this allows water to flow through the meter to position the dial hand to a start point. Adjust the outlet/last meter first (far left position), then move to the next (upstream) meter with each successive adjustment. You must use the blow-off valve to adjust the meter in the last position. Eventually all meters will be adjusted to a start point and ready for testing. Document the start point and the meter reading for each meter prior to testing.

7. Make sure the appropriate calibrated tank is empty and the tank drain valve is closed. The 10-gallon tank is used for low or intermediate flow tests and the 100 gallon tank is used for high flow tests. Rotate the calibration tank fill tube over the appropriate tank. Now you are ready to begin testing the meters.

8. We will start with the Low Flow Test. Slowly open the outlet valve and quickly adjust the flow rate to ¾ gpm on the Testerate Indicator Gauge. The rate-of-flow is measured even with the flat top of the rotor body. Considering this is not a time measured test, it's not too critical for the flow rate to be precisely ¾ gpm throughout the length of the test. However, make every effort to keep the flow rate at ¾ gpm. The flow rate may fluctuate during the test, if the system pressure changes.

   All 3" hydrant meters will be tested at the following flow rates and quantities:

| | | |
|---|---|---|
| Intermediate | 20 gpm | 100 gallons |
| Minimum | 8 gpm | 100 gallons |

9. Once the water level reaches the specified quantity level in the calibrated tank (see chart above), the flow valve should close automatically. If not, manually close the outlet valve. Record the meter reading and calculate the meter accuracy using the following equation:

Final Meter Reading - Initial Meter Reading = Measured Flow Registered

3" meter maximum flow rate, 100 gallon test
Example #1 01654178 - 01654082 = 96 = Meter running slow
Example #2 01054322 – 01054220 = 102 = Meter running fast

In Example #1, this meter test result is outside our tariff of >3% (96 gallons) and would need to be replaced.
In Example #2, this meter test result is within our tariff of >3% (102 gallons) and would not require replacement. This meter should be reinstalled at its original service location. Repeat this calculation for each meter tested. A meter running slow, more than 3% accuracy, would require replacement. A meter running fast, more than 3% accuracy, would require replacement and a credit to the customer.

**All customer meters must meet the Arizona Corporation Commission (ACC) accuracy of 3%.**

10. Repeat steps 6 – 9 to run the Intermediate and/or Maximum Rate Flow Test. Reference the appropriate column in the chart above for the test rate-of-flow gpm.

11. Once all tests are complete, remove all meters tested, and attach Meter Test Result Tag. Record all meter test results in the Meter Test Data Base.

**MEL HUNTSPON** **September 10, 2012**
**Manager, Field Operations**

2015

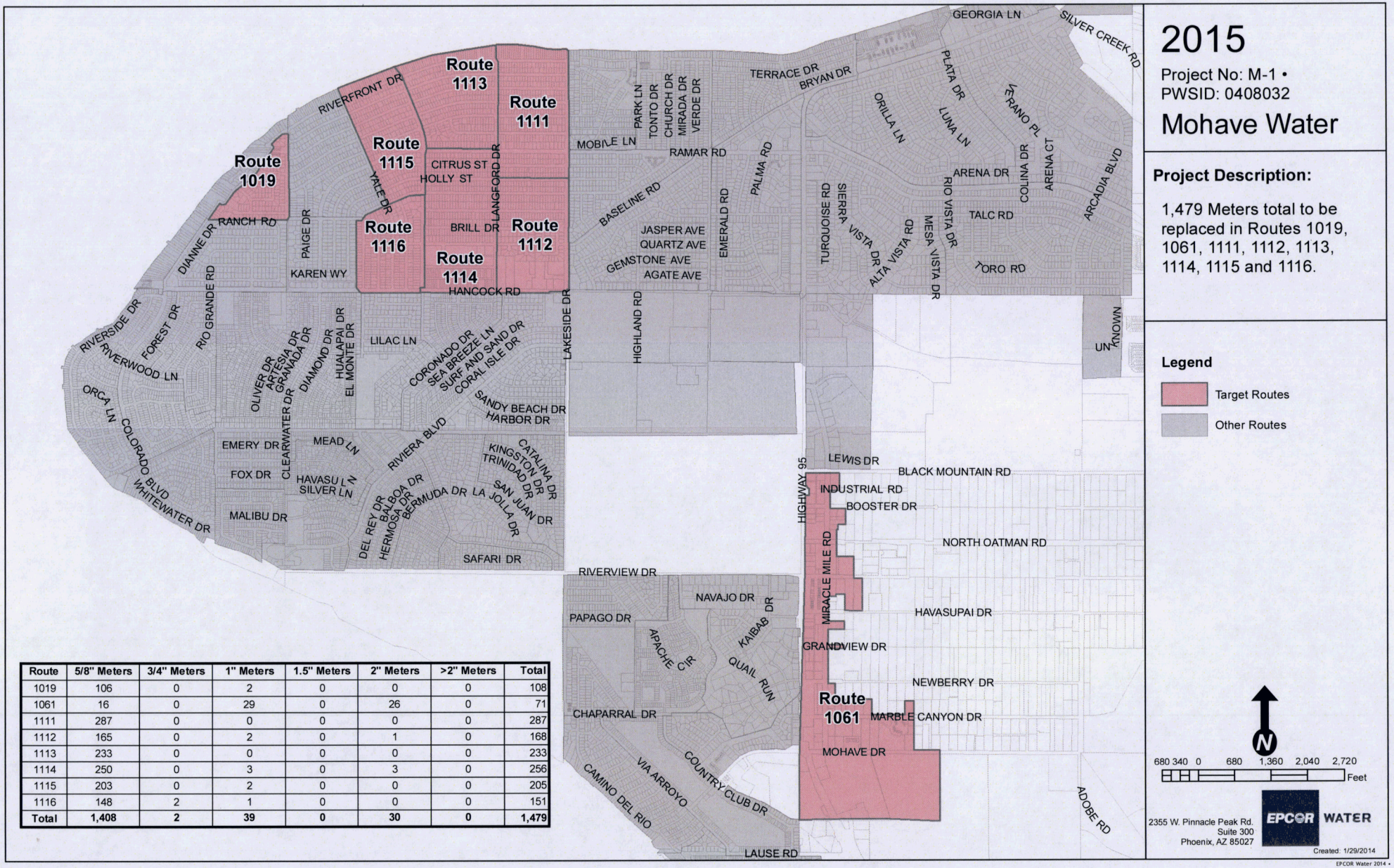
Mohave water distri[redacted] PWS ID No. 08-032

**SIB PLANT TABLE I, 4-1**

2015 Meter Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (new plant) (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| M-1 | 334 | meters | 1,479 | 5/8" to >2" | Copper/ Plastic | 5/8"-$173<br>3/4"-$195<br>1"-$234<br>1½"-$367<br>2"-$447<br>>2"-$1,223 | Meter Routes 1019, 1061, and 1111-1116 (see map M-1 in Exhibit CC-1) | 12/2015 | n/a | $266,908 | Replace 1,408 - 5/8", 2 - 3/4", 39 – 1", and 30 – 2" (1,479 total) meters in Mohave district meter routes 1019, 1061, and 1111-1116. The existing meters in these routes will be between 12 and 16 years old at the time of replacement; most will be at least 15 years old. They are experiencing a rapid decline in meter accuracy. Prior to replacement, a 10% sample of the route meters will be tested for accuracy. The new meters will help reduce system water loss. The meter replacements are for existing customers and not related to new growth. See Section 4 narrative and Map M-1 in Exhibit CC-1-A for more detail. |
| **Total** | | | **1,479** | | | | | | | **$266,908** | |




| Route | 5/8" Meters | 3/4" Meters | 1" Meters | 1.5" Meters | 2" Meters | >2" Meters | Total |
|---|---|---|---|---|---|---|---|
| 1019 | 106 | 0 | 2 | 0 | 0 | 0 | 108 |
| 1061 | 16 | 0 | 29 | 0 | 26 | 0 | 71 |
| 1111 | 287 | 0 | 0 | 0 | 0 | 0 | 287 |
| 1112 | 165 | 0 | 2 | 0 | 1 | 0 | 168 |
| 1113 | 233 | 0 | 0 | 0 | 0 | 0 | 233 |
| 1114 | 250 | 0 | 3 | 0 | 3 | 0 | 256 |
| 1115 | 203 | 0 | 2 | 0 | 0 | 0 | 205 |
| 1116 | 148 | 2 | 1 | 0 | 0 | 0 | 151 |
| **Total** | **1,408** | **2** | **39** | **0** | **30** | **0** | **1,479** |

# 2015

Project No: M-1 •
PWSID: 0408032

## Mohave Water

**Project Description:**

1,479 Meters total to be replaced in Routes 1019, 1061, 1111, 1112, 1113, 1114, 1115 and 1116.

**Legend**

- Target Routes
- Other Routes

680 340 0 680 1,360 2,040 2,720 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/29/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/11/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, P.E. | Water System:<br>Mohave | Project Number:<br>M-1 | Project Location:<br>Meter routes 1019, 1061, and 1111-1116 |

Project Description:

Replace 1,408 - 5/8", 2 - 3/4", 39 – 1", and 30 – 2" (1,479 total) meters.

Materials & Labor

| Quantity | Unit | $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 1,408 | 5/8" Meter | 139 | New Meter | $ 195,402 |
| 2 | 3/4" Meter | 159 | New Meter | $ 318 |
| 39 | 1" Meter | 194 | New Meter | $ 7,564 |
| 0 | 1.5" Meter | 292 | New Meter | $ - |
| 30 | 2" Meter | 350 | New Meter | $ 10,496 |
| | | | | |
| 943 | hours | 28 | Labor to install new 5/8" meters* | $ 26,414 |
| 1.3 | hours | 28 | Labor to install new 3/4" meters* | $ 38 |
| 26 | hours | 28 | Labor to install new 1" meters* | $ 732 |
| 0 | hours | 28 | Labor to install new 1.5" meters* | $ - |
| 60 | hours | 28 | Labor to install new 2" meters* | $ 1,680 |
| | | | | |
| Subtotal | | | | $ 242,644 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 24,264 |
| **Total Estimated Cost** | | | | **$ 266,908** |

*Company labor includes the salary for two employees at a rate of $28/hour for 20 minutes each for 5/8", 3/4", and 1" meters, 45 minutes each for 1 1/2" meters, 1 hour each for 2" meters, and 2 hours each for meters larger than 2".

# 2016

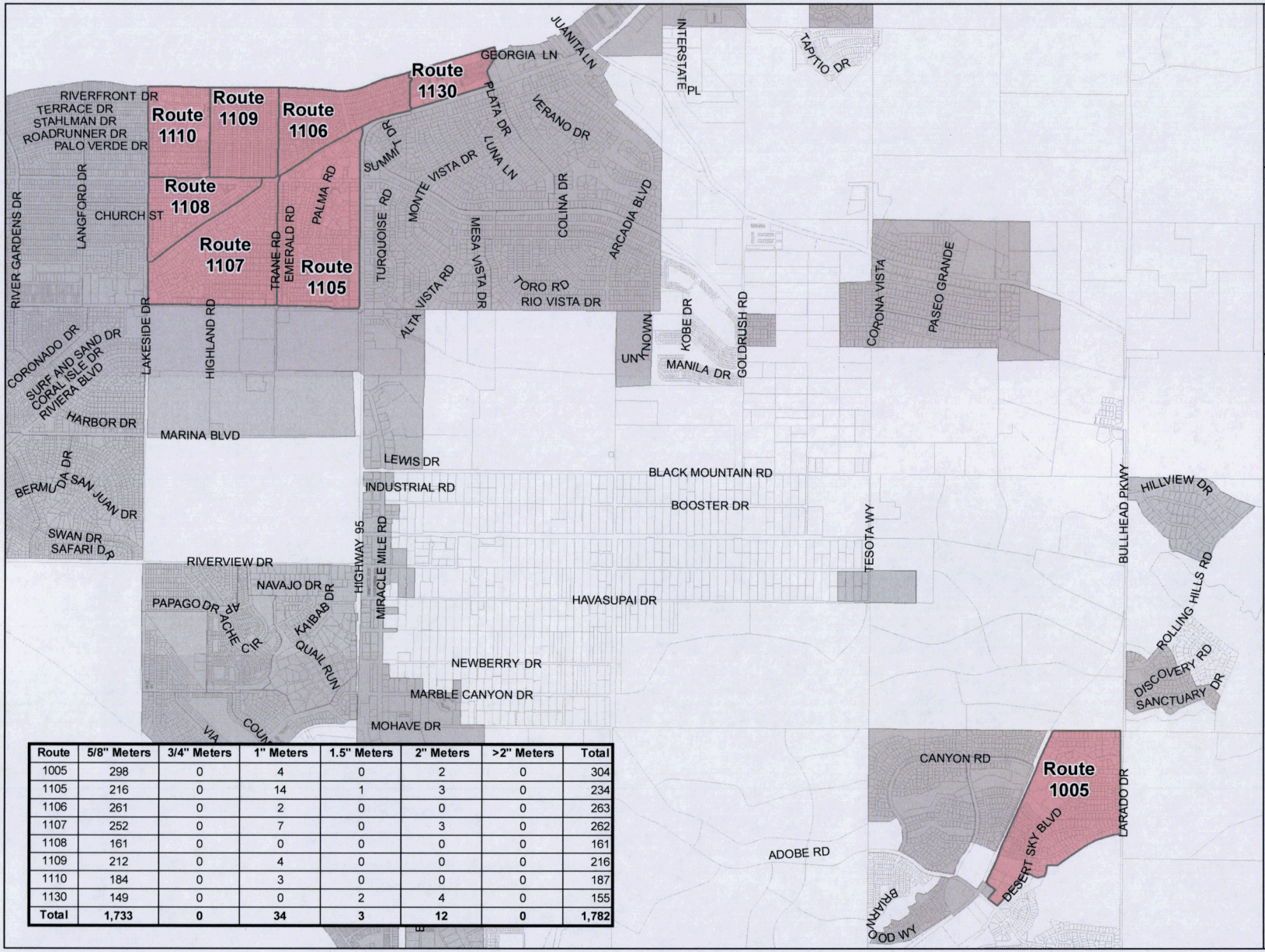
Mohave water distri[redacted]PWS ID No. 08-032

**SIB PLAN[redacted]ABLE I, 4-2**

2016 Meter Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (new plant) (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| M-2 | 334 | meters | 1,782 | 5/8" to >2" | Copper/ Plastic | 5/8"-$173<br>3/4"-$195<br>1"-$234<br>1½"-$367<br>2"-$447<br>>2"-$1,223 | Meter Routes 1005, 1105-1110, and 1130 (see map M-2 in Exhibit CC-1) | 12/2016 | n/a | $314,733 | Replace 1,733 - 5/8", 34 – 1", 3 – 1.5", and 12 – 2" (1,782 total) meters in Mohave district meter routes 1005, 1105-1110, and 1130. The existing meters in these routes will be between 12 and 17 years old at the time of replacement; most will be at least 16 years old. They are experiencing a rapid decline in meter accuracy. Prior to replacement, a 10% sample of the route meters will be tested for accuracy. The new meters will help reduce system water loss. The meter replacements are for existing customers and not related to new growth. See Section 4 narrative and Map M-2 in Exhibit CC-1-A for more detail. |
| **Total** | | | **1,782** | | | | | | | **$314,733** | |




| Route | 5/8" Meters | 3/4" Meters | 1" Meters | 1.5" Meters | 2" Meters | >2" Meters | Total |
|---|---|---|---|---|---|---|---|
| 1005 | 298 | 0 | 4 | 0 | 2 | 0 | 304 |
| 1105 | 216 | 0 | 14 | 1 | 3 | 0 | 234 |
| 1106 | 261 | 0 | 2 | 0 | 0 | 0 | 263 |
| 1107 | 252 | 0 | 7 | 0 | 3 | 0 | 262 |
| 1108 | 161 | 0 | 0 | 0 | 0 | 0 | 161 |
| 1109 | 212 | 0 | 4 | 0 | 0 | 0 | 216 |
| 1110 | 184 | 0 | 3 | 0 | 0 | 0 | 187 |
| 1130 | 149 | 0 | 0 | 2 | 4 | 0 | 155 |
| **Total** | **1,733** | **0** | **34** | **3** | **12** | **0** | **1,782** |

# 2016

Project No: M-2 •
PWSID: 0408032

## Mohave Water

**Project Description:**

1,782 Meters total to be replaced in Routes 1005, 1105, 1106, 1107, 1108, 1109, 1110 and 1130.

**Legend**

- Target Routes
- Other Routes

N

870 435 0 870 1,740 2,610 3,480 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/29/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/11/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, P.E. | Water System:<br>Mohave | Project Number:<br>M-2 | Project Location:<br>Meter routes 1005, 1105-1110, and 1130 |

Project Description:

Replace 1,733 - 5/8", 34 – 1", 3 – 1.5", and 12 – 2" (1,782 total) meters.

Materials & Labor

| Quantity | Unit | $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 1,733 | 5/8" Meter | 139 | New Meter | $ 240,506 |
| 0 | 3/4" Meter | 159 | New Meter | $ - |
| 34 | 1" Meter | 194 | New Meter | $ 6,595 |
| 3 | 1.5" Meter | 292 | New Meter | $ 876 |
| 12 | 2" Meter | 350 | New Meter | $ 4,198 |
| | | | | |
| 1,161 | hours | 28 | Labor to install new 5/8" meters | $ 32,511 |
| 0 | hours | 28 | Labor to install new 3/4" meters | $ - |
| 23 | hours | 28 | Labor to install new 1" meters | $ 638 |
| 5 | hours | 28 | Labor to install new 1.5" meters | $ 126 |
| 24 | hours | 28 | Labor to install new 2" meters | $ 672 |
| | | | | |
| Subtotal | | | | $ 286,121 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 28,612 |
| **Total Estimated Cost** | | | | **$ 314,733** |

2017

Mohave water distr[illegible] PWS ID No. 08-032

**SIB PLANT TABLE I, 4-3**

2017 Meter Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (new plant) (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| M-3 | 334 | meters | 1,638 | 5/8" to >2" | Copper/ Plastic | 5/8"-$173<br>3/4"-$195<br>1"-$234<br>1½"-$367<br>2"-$447<br>>2"-$1,223 | Meter Routes 1002, 1003, 1014, and 1101-1104 (see map M-3 in Exhibit CC-1) | 12/2017 | n/a | $298,679 | Replace 1,557 - 5/8", 34 – 1", 1 – 1.5", and 46 – 2" (1,638 total) meters in Mohave district meter routes 1002, 1003, 1014, and 1101-1104. The existing meters in these routes will be between 16 and 23 years old at the time of replacement; most will be at least 17 years old. They are experiencing a rapid decline in meter accuracy. Prior to replacement, a 10% sample of the route meters will be tested for accuracy. The new meters will help reduce system water loss. The meter replacements are for existing customers and not related to new growth. See Section 4 narrative and Map M-3 in Exhibit CC-1-A for more detail. |
| **Total** | | | **1,638** | | | | | | | **$298,679** | |

# 2017

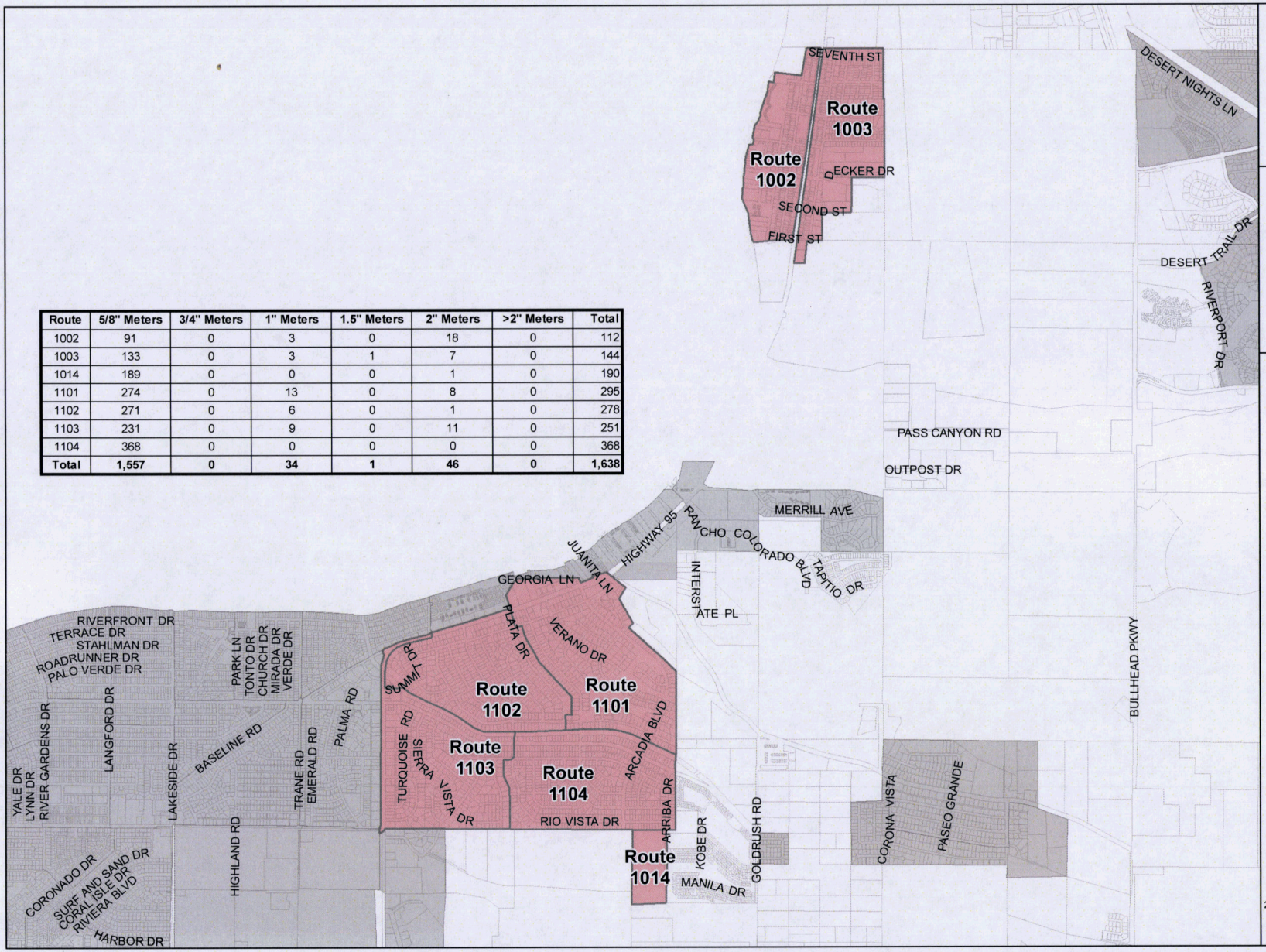
Project No: M-3 •
PWSID: 0408032

## Mohave Water

**Project Description:**

1,638 Meters total to be replaced in Routes 1002, 1003, 1014, 1101, 1102, 1103 and 1104.

| Route | 5/8" Meters | 3/4" Meters | 1" Meters | 1.5" Meters | 2" Meters | >2" Meters | Total |
|---|---|---|---|---|---|---|---|
| 1002 | 91 | 0 | 3 | 0 | 18 | 0 | 112 |
| 1003 | 133 | 0 | 3 | 1 | 7 | 0 | 144 |
| 1014 | 189 | 0 | 0 | 0 | 1 | 0 | 190 |
| 1101 | 274 | 0 | 13 | 0 | 8 | 0 | 295 |
| 1102 | 271 | 0 | 6 | 0 | 1 | 0 | 278 |
| 1103 | 231 | 0 | 9 | 0 | 11 | 0 | 251 |
| 1104 | 368 | 0 | 0 | 0 | 0 | 0 | 368 |
| **Total** | **1,557** | **0** | **34** | **1** | **46** | **0** | **1,638** |




**Legend**

- Target Routes
- Other Routes

N

920 460 0 920 1,840 2,760 3,680 Feet


2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER


Created: 1/29/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/11/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, P.E. | Water System:<br>Mohave | Project Number:<br>M-3 | Project Location:<br>Meter routes 1002, 1003, 1014, and 1101-1104 |

Project Description:

Replace 1,557 - 5/8", 34 – 1", 1 – 1.5", and 46 – 2" (1,638 total) meters.

Materials & Labor

| Quantity | Unit | $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 1,557 | 5/8" Meter | 139 | New Meter | $ 216,080 |
| 0 | 3/4" Meter | 159 | New Meter | $ - |
| 34 | 1" Meter | 194 | New Meter | $ 6,595 |
| 1 | 1.5" Meter | 292 | New Meter | $ 292 |
| 46 | 2" Meter | 350 | New Meter | $ 16,094 |
| | | | | |
| 1,043 | hours | 28 | Labor to install new 5/8" meters | $ 29,209 |
| 0 | hours | 28 | Labor to install new 3/4" meters | $ - |
| 23 | hours | 28 | Labor to install new 1" meters | $ 638 |
| 2 | hours | 28 | Labor to install new 1.5" meters | $ 42 |
| 92 | hours | 28 | Labor to install new 2" meters | $ 2,576 |
| | | | | |
| Subtotal | | | | $ 271,526 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 27,153 |
| **Total Estimated Cost** | | | | **$ 298,679** |

2018

Mohave water district – P[redacted]D Nos. 08-032 and 08-137

**SIB PLAN[redacted]ABLE I, 4-4**

2018 Meter Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (new plant) (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| M-4 | 334 | meters | 1,457 | 5/8" to >2" | Copper/ Plastic | 5/8"-$173<br>3/4"-$195<br>1"-$234<br>1½"-$367<br>2"-$447<br>>2"-$1,223 | Meter Routes 1008, 1009, 1011-1013, 1042, 1124, 1131, 1133, and 1137 (see map M-4 in Exhibit CC-1) | 12/2018 | n/a | $263,074 | Replace 1,377 - 5/8", 37 – 1", and 43 – 1.5" (1,457 total) meters in Mohave district meter routes 1008, 1009, 1011-1013, 1042, 1124, 1131, 1133, and 1137. The existing meters in these routes will be between 13 and 19 years old at the time of replacement; most will be at least 14 years old. They are experiencing a rapid decline in meter accuracy. Prior to replacement, a 10% sample of the route meters will be tested for accuracy. The new meters will help reduce system water loss. The meter replacements are for existing customers and not related to new growth. See Section 4 narrative and Map M-4 in Exhibit CC-1-A for more detail. |
| **Total** | | | **1,457** | | | | | | | **$263,074** | |

| Route | 5/8" Meters | 3/4" Meters | 1" Meters | 1.5" Meters | 2" Meters | >2" Meters | Total |
|---|---|---|---|---|---|---|---|
| 1008 | 279 | 0 | 3 | 0 | 0 | 0 | 282 |
| 1009 | 225 | 0 | 7 | 0 | 3 | 0 | 235 |
| 1011 | 238 | 0 | 9 | 0 | 7 | 0 | 254 |
| 1012 | 100 | 0 | 3 | 0 | 5 | 0 | 108 |
| 1013 | 35 | 0 | 2 | 0 | 1 | 0 | 38 |
| 1042 | 63 | 0 | 1 | 0 | 1 | 0 | 65 |
| 1124 | 8 | 0 | 10 | 0 | 26 | 0 | 44 |
| 1131 | 54 | 0 | 0 | 0 | 0 | 0 | 54 |
| 1133 | 143 | 0 | 0 | 0 | 0 | 0 | 143 |
| 1137 | 232 | 0 | 2 | 0 | 0 | 0 | 234 |
| **Total** | **1,377** | **0** | **37** | **0** | **43** | **0** | **1,457** |

# 2018

Project No: M-4 •
PWSIDs: 0408032, 0408137

## Mohave Water

**Project Description:**

1,457 Meters total to be replaced in Routes 1008, 1009, 1011, 1012, 1013, 1042, 1124, 1131, 1133 and 1137.

**Legend**

- Target Routes: PWSID 0408032
- Target Routes: PWSID 0408137
- Other Routes

N

1,500 750 0 1,500 3,000 4,500 6,000 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 1/29/2014

EPCOR Water 2014 •

| EPCOR Water<br>**Preliminary Cost Estimate** | | | Date Prepared:<br>2/11/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, P.E. | Water System:<br>Mohave | Project Number:<br>M-4 | Project Location:<br>Meter routes 1008, 1009, 1011-1013, 1042, 1124, 1131, 1133, and 1137 |

Project Description:

Replace 1,377 - 5/8", 37 – 1", and 43 – 1.5" (1,457 total) meters.

Materials & Labor

| Quantity | Unit | $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 1,377 | 5/8" Meter | 139 | New Meter | $ 191,100 |
| 0 | 3/4" Meter | 159 | New Meter | $ - |
| 37 | 1" Meter | 194 | New Meter | $ 7,177 |
| 43 | 1.5" Meter | 292 | New Meter | $ 12,549 |
| 0 | 2" Meter | 350 | New Meter | $ - |
| | | | | |
| 923 | hours | 28 | Labor to install new 5/8" meters* | $ 25,833 |
| 0 | hours | 28 | Labor to install new 3/4" meters* | $ - |
| 25 | hours | 28 | Labor to install new 1" meters* | $ 694 |
| 65 | hours | 28 | Labor to install new 1.5" meters* | $ 1,806 |
| 0 | hours | 28 | Labor to install new 2" meters* | $ - |
| | | | | |
| Subtotal | | | | $ 239,158 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 23,916 |
| **Total Estimated Cost** | | | | **$ 263,074** |

2019

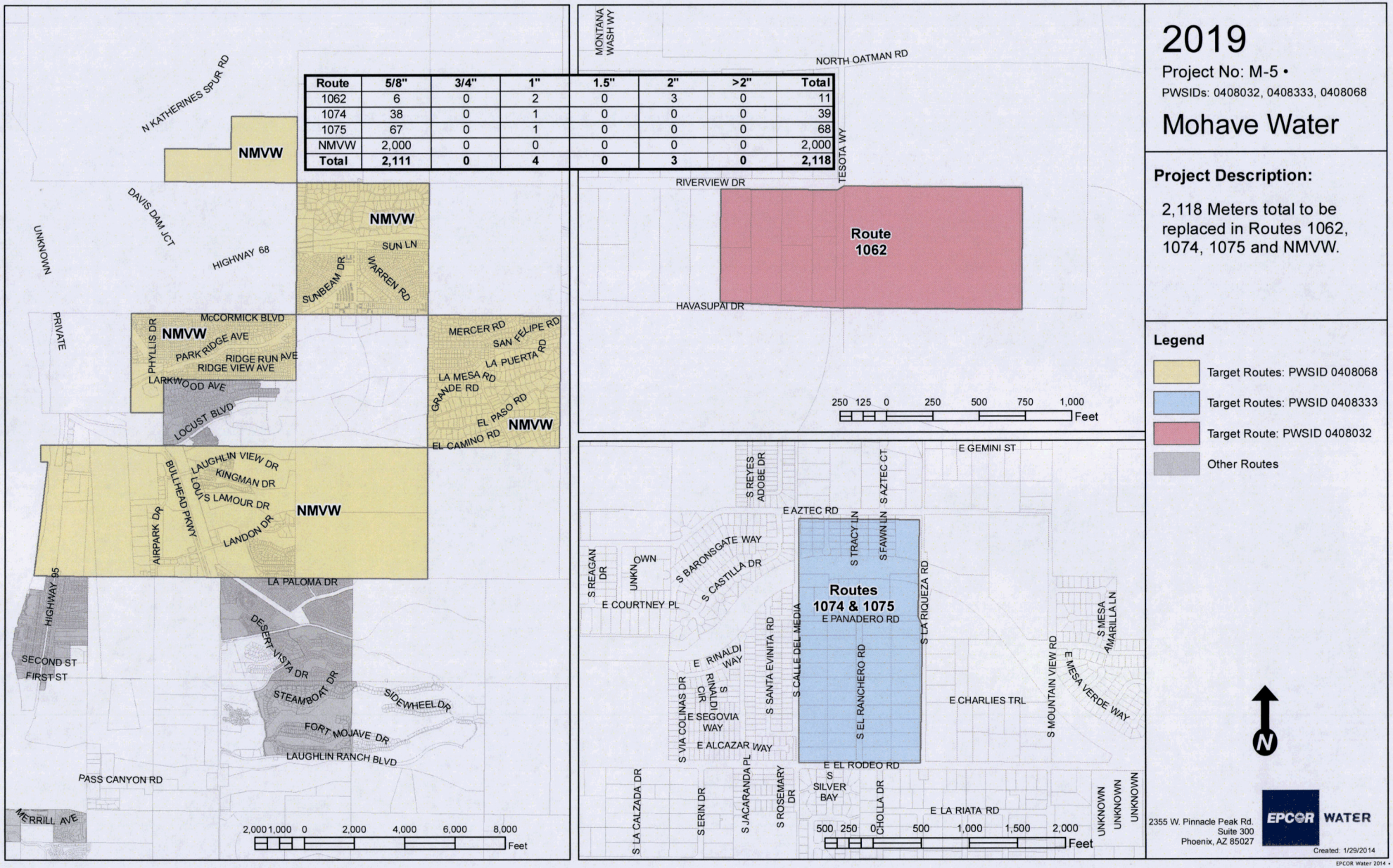
Mohave water district – PWS [illegible]os. 08-032, 08-333, and 08-068

**SIB PLANT TABLE I, 4-5**

2019 Meter Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (new plant) (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br>**331 T&D Mains**<br>**333 Services**<br>**334 Meters**<br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| M-5 | 334 | meters | 2,118 | 5/8" to >2" | Copper/ Plastic | 5/8"-$173,<br>¾"-$195<br>1"-$234<br>1½"-$367<br>2"-$447<br>>2"-$1,223 | Meter Routes 1062, 1074, 1075, and NMVW (see map M-5 in Exhibit CC-1) | 12/2019 | n/a | $368,099 | Replace 2,111 - 5/8", 4 – 1", and 3 – 2" (2,118 total) meters in Mohave district meter routes 1062, 1074, 1075, and North Mohave Valley Water. The existing meters in these routes will be between 13 and 19 years old at the time of replacement; most will be at least 14 years old. They are experiencing a rapid decline in meter accuracy. Prior to replacement, a 10% sample of the route meters will be tested for accuracy. The new meters will help reduce system water loss. The meter replacements are for existing customers and not related to new growth. See Section 4 narrative and Map M-5 in Exhibit CC-1-A for more detail. |
| **Total** | | | **2,118** | | | | | | | **$368,099** | |




| Route | 5/8" | 3/4" | 1" | 1.5" | 2" | >2" | Total |
|---|---|---|---|---|---|---|---|
| 1062 | 6 | 0 | 2 | 0 | 3 | 0 | 11 |
| 1074 | 38 | 0 | 1 | 0 | 0 | 0 | 39 |
| 1075 | 67 | 0 | 1 | 0 | 0 | 0 | 68 |
| NMVW | 2,000 | 0 | 0 | 0 | 0 | 0 | 2,000 |
| **Total** | **2,111** | **0** | **4** | **0** | **3** | **0** | **2,118** |

# 2019

Project No: M-5 •

PWSIDs: 0408032, 0408333, 0408068

## Mohave Water

**Project Description:**

2,118 Meters total to be replaced in Routes 1062, 1074, 1075 and NMVW.

**Legend**

- Target Routes: PWSID 0408068
- Target Routes: PWSID 0408333
- Target Route: PWSID 0408032
- Other Routes


2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER


Created: 1/29/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | | Date Prepared:<br>2/11/2014 |
|---|---|---|---|---|
| Prepared By:<br>Marc Allen, P.E. | Water System:<br>Mohave | Project Number:<br>M-5 | Project Location:<br>Meter routes 1062, 1074, 1075, and NMVW | |
| Project Description:<br>Replace 2,111 - 5/8", 4 – 1", and 3 – 2" (2,118 total) meters. | | | | |

Materials & Labor

| Quantity | Unit | $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 2,111 | 5/8" Meter | 139 | New Meter | $ 292,965 |
| 0 | 3/4" Meter | 159 | New Meter | $ - |
| 4 | 1" Meter | 194 | New Meter | $ 776 |
| 0 | 1.5" Meter | 292 | New Meter | $ - |
| 3 | 2" Meter | 350 | New Meter | $ 1,050 |
| | | | | |
| 1,414 | hours | 28 | Labor to install new 5/8" meters* | $ 39,602 |
| 0 | hours | 28 | Labor to install new 3/4" meters* | $ - |
| 3 | hours | 28 | Labor to install new 1" meters* | $ 75 |
| 0 | hours | 28 | Labor to install new 1.5" meters* | $ - |
| 6 | hours | 28 | Labor to install new 2" meters* | $ 168 |
| | | | | |
| Subtotal | | | | $ 334,635 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 33,464 |
| **Total Estimated Cost** | | | | **$ 368,099** |

# SIB ENGINEERING REPORT

## (Exhibit CC-1-B)

## EPCOR Water (USA) Inc.

### Sun City Water District

### PWS ID No. 07-099

**February 28, 2014**

## Introduction

EPCOR Water is submitting this report as **Exhibit CC-1-B** for the direct testimony of Candace Coleman. The intent of this report is to support EPCOR's System Improvement Benefit (SIB) application for its Sun City water district. Included in this report are a brief system introduction followed by detailed project justifications for asset replacement projects. Each project is accompanied by the corresponding **SIB Plant Table I.**

EPCOR Water supplies water to approximately 23,000 customers in the Sun City water district. The distribution system is comprised of about 262 miles of pipe and 5,979 valves. The district consists primarily of the original Sun City master planned community, the town of Youngtown, and the Tierra del Rio master planned community. The first two of these started in the mid-1950s while Tierra del Rio is a new development. The infrastructure in the older areas of the district is aging and many assets need replacing. Water main replacement is most needed in a part of the Coyote Lakes community where recent leaks have been numerous. Additionally, an area south of Grand Avenue has mains that have reached the end of their design life and have been leaking often.

During the past two years, an average of approximately $870,000 was spent replacing services, meters, hydrants and valves. This is only a portion of the total assets that need to be replaced, and generally only addressed the egregious and visible infrastructure failures. The rate of replacement of critical assets in this system needs to be increased to ensure the reliability of the system and to decrease system water loss.

In the past, assets were replaced when there was a noticeable failure such as water surfacing. This type of reactive approach is typically more expensive as replacements usually occur in an emergency situation, sometimes requiring an interruption in water service. It may also result in water losses, overtime pay, and paying a premium for parts. Another concern, related to reactive maintenance, is public health and safety. Emergency repairs may require unanticipated shutdowns of the distribution system, leaving homes and possibly fire hydrants without water. Saturated soils, resulting from leaking pipes, may undermine roads, utilities and other structures.

EPCOR has developed a planned replacement approach to asset management for the future. This approach varies depending on the type of asset.

- For meter replacements, EPCOR is relying on industry-wide studies, local experience, and the Best Management Practice adopted in the tariff for meters.

- For service line and valve replacements, EPCOR is using an industry standard Nessie Curve that relies on age of infrastructure and historic failures to help predict the number of asset failures we will experience in the future.

- Finally, the asset management approach for water main replacements in the district is to replace the leaking mains in Coyote Lakes and areas south of Grand Avenue to reduce water loss and the number of necessary repairs.

The remainder of this report will give a detailed explanation of the replacements planned for the next five years and an overview of the condition of the Mohave Water system infrastructure. Service line, valve, water main, and meter replacement projects are broken down and described by year in the SIB Plant Table I; a map and cost estimate are provided for each project. The information is organized as follows:

- Section 1 – Services
- Section 2 – Valves
- Section 3 – Mains
- Section 4 – Meters

The following table summarizes the recommended estimated project quantities and spending per category by year for the next five years. It is estimated that a total of about $11 million needs to be spent over the next five years, with an average spend of $2.2 million per year. These costs are expected to vary by year depending on field conditions, business requirements, and staff availability.

| Asset Replacements - Sun City Water District, 2015-2019 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Asset Type | 2015 | | 2016 | | 2017 | | 2018 | | 2019 | | Total | |
| | units | $ | units | $ | units | $ | units | $ | units | $ | units | $ |
| **Mains** | 5,786 | $ 1,005,087 | 12,869 | $ 1,680,440 | 3,854 | $ 471,483 | 2,633 | $ 349,698 | 3,824 | $ 575,162 | 28,966 | $ 4,081,870 |
| **Services** | 165 | $ 650,232 | - | $ - | 313 | $ 1,241,420 | 316 | $ 1,256,363 | 290 | $ 1,145,430 | 1,084 | $ 4,293,445 |
| **Valves** | 16 | $ 76,375 | 16 | $ 81,418 | 16 | $ 82,188 | 16 | $ 77,018 | 16 | $ 82,610 | 80 | $ 399,608 |
| **Meters** | 2,100 | $ 409,508 | 2,071 | $ 376,982 | 2,292 | $ 432,728 | 2,784 | $ 534,279 | 2,351 | $ 470,906 | 11,598 | $ 2,224,402 |
| **Total** | | **$ 2,141,201** | | **$ 2,138,840** | | **$ 2,227,818** | | **$ 2,217,357** | | **$ 2,274,108** | | **$ 10,999,325** |

# Section 1 - Services

# SECTION 1 – SERVICES

## 1.1 Overview

Based on the current customer count in EPCOR's Sun City district, there are about 23,200 active services. Most of these service lines were installed between 1959 and 1980 during the original development of Sun City. Replacement of service lines is a priority mainly because of the age of the service lines and the material of the pipe.

## 1.2 Nessie Curve

A "Nessie Curve" is a graphical representation of the annual replacement needs for buried infrastructure. Because it is not economical or feasible to inspect all buried infrastructure, the curve uses historical replacement data and statistical analysis to determine when an asset has reached the end of its useful life and is likely to need replacement. The end of an asset's useful life is when it is considered economically efficient to replace it; this is to say when replacement becomes less expensive than the cost of replacement or repairs in the future. Failure to replace assets when it is economical to do so can be disastrous in the future, when demographic and economic conditions may have changed. As an example, if the population of an area were to decrease in the future, the financial burden of asset replacements on the remaining population would become increasingly difficult, especially if prudent replacements have not been completed in the past.

According to the American Water Works Association (AWWA) "there will be a three-fold increase in the repair costs by the year 2030 despite a concurrent increase of three and a half times in annual investments to replace pipes." [1] The AWWA estimates that buried drinking water infrastructure will need investments totaling more than $1 trillion nationwide in the next 25 years.[2] Given these daunting predictions, it is especially important for water utility providers to implement asset replacement programs now in order to properly manage the investments that will be needed in the future.

[1] Reinvesting in Drinking Water Infrastructure, AWWA, May 2001

[2] Buried No Longer: Confronting America's Water Infrastructure Challenge, AWWA, 2012

Exhibit 1-1 is the Nessie curve which was developed specifically for the service lines in EPCOR's Sun City district. Exhibit 1-2 shows the same data in tabular format. The curve shows that indeed the cost of replacement will be the highest between 2020 and 2030, as predicted by AWWA. It also shows that in the next six years, from 2015 through 2020, approximately $31 million should be invested in service line replacements in order to offset the rate at which the services are failing. This equates to about 1,315 service replacements or an investment of about $5.2 million per year.

**Exhibit 1-1 – Service Line Nessie Curve**

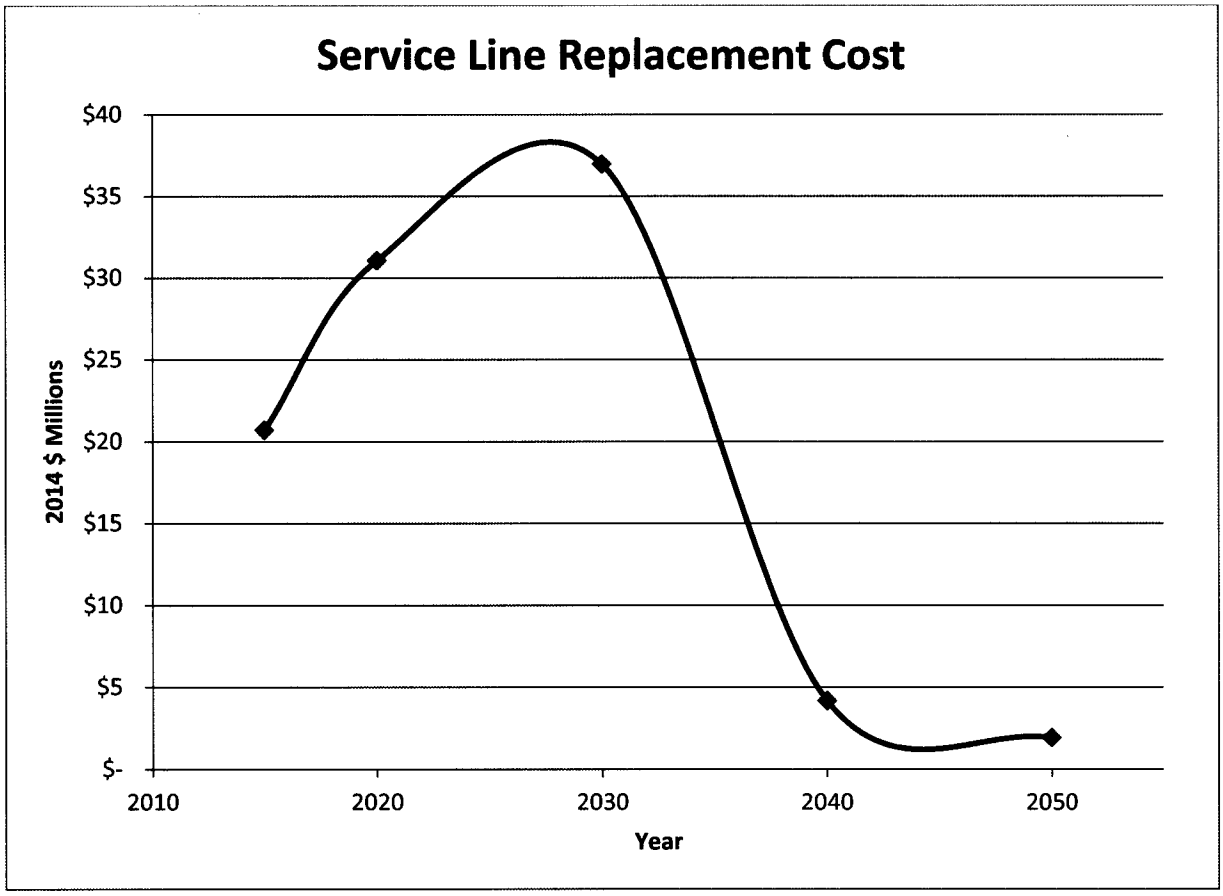


**Exhibit 1-2 Nessie Curve Table**

| Time Frame | Number of Services to be Installed | Cost to Replace Services | Number of Service Replacements per Year | Cost per Year |
|---|---|---|---|---|
| today-2020 | 7892 | $ 31,055,136 | 1315 | $ 5,175,856 |
| 2020-2030 | 9393 | $ 36,959,864 | 939 | $ 3,695,986 |
| 2030-2040 | 1060 | $ 4,170,447 | 106 | $ 417,045 |
| 2040-2050 | 485 | $ 1,906,930 | 48 | $ 190,693 |

### 1.3 Service Line Material

The material that was used when the majority of the service lines were installed was galvanized steel, which deteriorates under local conditions more quickly than copper. As these pipes age, the zinc coating erodes from the pipe, leading to corrosion of other metals beneath the coating. Corrosion can build-up on the inside walls of the pipes which can interfere with pressure and flow. Galvanized pipe also tends to corrode on the outside of the pipe in certain soil types. Exhibit 1-3 is a picture of an uncovered galvanized service. Galvanized steel is no longer used for water services and has contributed to service line failures and leaks which result in unnecessary water loss and service disruption. The water from many service line leaks never surfaces because of the porous soil, causing the leaks to go undetected until they are uncovered at a later date.

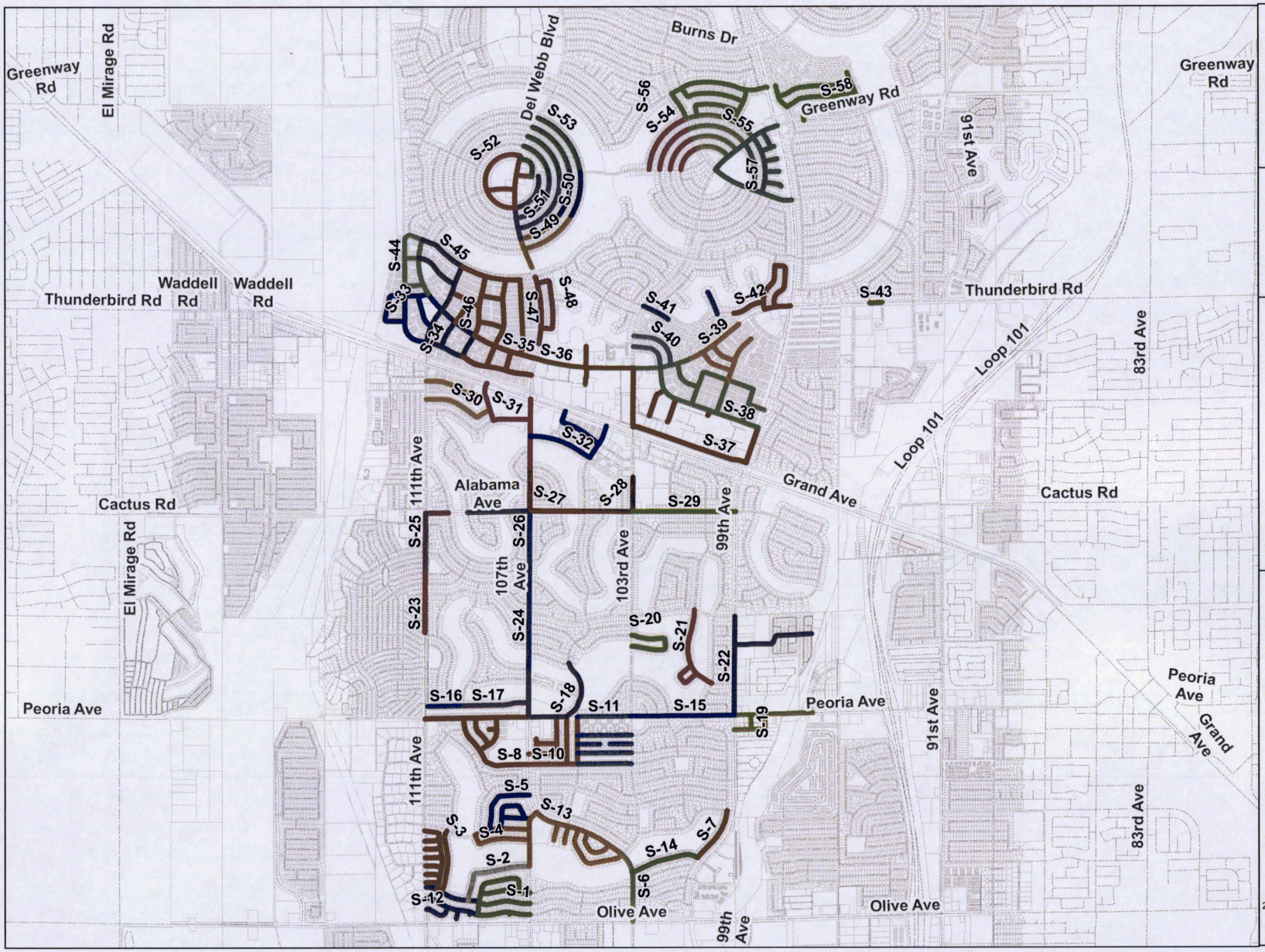
**Exhibit 1-3**

## 1.4 Service Line Replacements

Over the past five years, 122 service lines were replaced because they were known to be failing, which is an average of approximately 24 service line failures per year. Note that this doesn't include service lines which are leaking unbeknownst to EPCOR Water employees.

Although the Nessie curve indicates that 1,315 services should be replaced per year, this would present a significant labor and capital burden on EPCOR and its customers. Additionally, other assets including mains, valves, and meters must also be replaced. In order to develop a replacement program that includes all types of failing assets while keeping the expenditures within a reasonable range, EPCOR plans to replace an average of about 271 services per year in 2015, 2017, 2018, and 2019. (No replacements are planned during 2016.) This equates to a total of about 1,100 services at a cost of $4.3 million.

The following map shows the location of all the service line replacement projects. The projects are described in the following tabs labeled **2015, 2017, 2018, and 2019**. SIB Plant Table I, 1-1 through SIB Plant Table I, 1-4 provide a detailed description of each service line replacement project. The tables are broken down by year, so a separate table is provided for each year from 2015 through 2019 except for 2016, when no replacements are planned. Each project addresses a set of service line replacements that will occur within a defined area. Each project can also be tied to a map showing the parcel where the proposed service line will be replaced. A detailed cost estimate for each project is also provided.




# Services

Project No: N/A
PWSID: 0407099

## Sun City Water

**Project Area:**

## Sun City Services Project Areas

**Project Description:**

Service replacements
2015, 2017, 2018 and 2019

N

1,000 500 0 1,000 2,000 3,000 4,000 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 •

2015

Sun City – PW[illegible]D No. 07-099

**SIB PLANT TABLE I, 1-1**

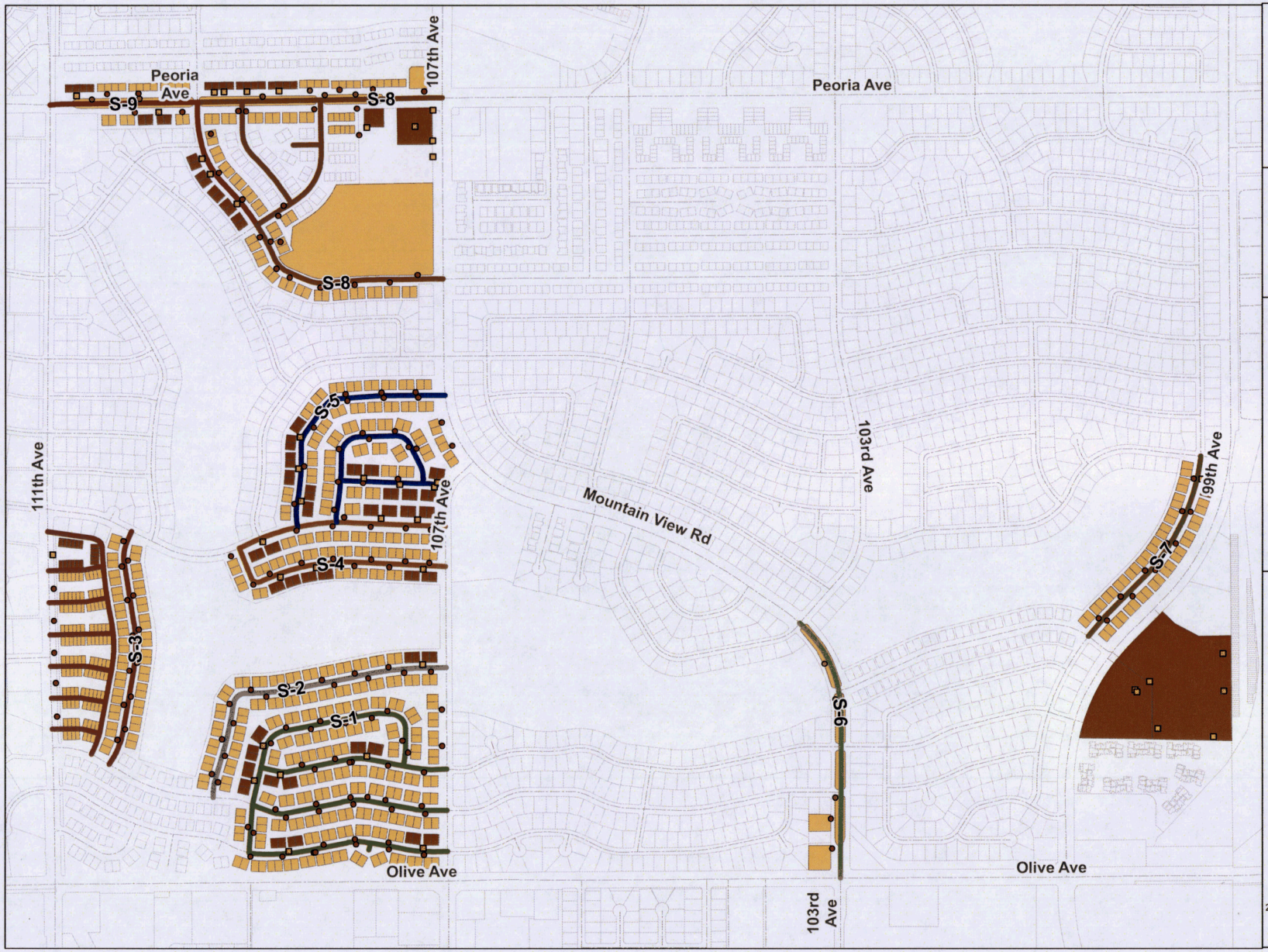
2015 Service Line Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| S-1 | 333 | service lines | 42 | 2-1"<br>40-1.5" | Copper | 1"-$3,881,<br>1.5"-$3,947 | Kelso Dr | 12/2015 | n/a | $165,634 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (42 total on 107th Dr, 109th Ave, Caron Dr, Denham Dr, Kelso Dr and Mission Ln between 109th Ave and 107 Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-1 in Exhibit CC-1-B for more detail. |
| S-2 | 333 | service lines | 17 | 1" | Copper | 1"-$3,881 | Hatcher Rd | 12/2015 | n/a | $65,974 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (17 total on 109th Dr and Hatcher Rd between Kelso Dr and 107th Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-2 in Exhibit CC-1-B for more detail. |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S-3 | 333 | service lines | 18 | 14-1.5" 4-2" | Copper | 1.5"-$3,947 2"-$4,013 | 110th Ave | 12/2015 | n/a | $71,306 | Replace aging services with copper services to reduce water leaks and emergency repairs. (18 total on 110th Ave and Apartments between Kelso Dr and Mountain View Rd.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-3 in Exhibit CC-1-B for more detail. |
| S-4 | 333 | service lines | 16 | 1.5" | Copper | $3,947 | Mountain View Rd | 12/2015 | n/a | $63,149 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (16 total on Mountain View Rd and Venturi Dr between Cumberland Dr and 107th Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-4 in Exhibit CC-1-B for more detail. |
| S-5 | 333 | service lines | 22 | 1.5" | Copper | $3,947 | Cheryl Dr | 12/2015 | n/a | $86,830 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (22 total on Cheryl Dr, Cinnabar Ave, Cumberland Dr, and Salem Dr between Mountain View Rd and 107th Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-5 in Exhibit CC-1-B for more detail.. |
| S-6 | 333 | service lines | 5 | 1.5" | Copper | $3,947 | 103rd Ave | 12/2015 | n/a | $19,734 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (5 total on 103rd Ave between Mountain View Rd and Olive Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-6 in Exhibit CC-1-B for more detail. |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S-7 | 333 | service lines | 11 | 1.5" | Copper | $3,947 | Balboa Dr | 12/2015 | n/a | $43,415 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (11 total on Balboa Dr between Mountain View Rd and Ironwood Dr.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-7 in Exhibit CC-1-B for more detail. |
| S-8 | 333 | service lines | 24 | 1.5" | Copper | $3,947 | 108th Dr | 12/2015 | n/a | $94,723 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (24 total on 108th Ave, 108th Dr, Clair Dr, Deanne Cir and Peoria Ave between 109th Ave and 107th Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-8 in Exhibit CC-1-B for more detail. |
| S-9 | 333 | service lines | 10 | 1.5" | Copper | $3,947 | Clair Dr | 12/2015 | n/a | $39,468 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (10 total on Clair Dr and Peoria Ave between 111th Ave and 108th Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-9 in Exhibit CC-1-B for more detail. |
| **Total** | | | **165** | | | | | | | **$650,232** | |




# 2015

Project No: N/A
PWSID: 0407099

## Sun City Water

**Project Area:**

## Sun City 2015 Project Areas

**Project Description:**

Replace 156 residential and 9 irrigation services.

**Legend**

**Services**

**Services**

- COPPER
- COMMERCIAL
- IRRIGATION
- RESIDENTIAL

**Project Parcels**

- Parcels with service previously replaced
- Parcels with service to be replaced

N

260 130 0 260 520 780 1,040 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

# 2015

Project No: S-1
PWSID: 0407099

## Sun City Water

**Project Area:**

## Kelso Dr

**Project Description:**

Replace 42 residential services on 107th Dr, 109th Ave, Caron Dr, Denham Dr, Kelso Dr and Mission Ln between 109th Ave and 107 Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

60 30 0 60 120 180 240 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2015 S-1** | Project Location:<br>Kelso Dr |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (42 total on 107th Dr, 109th Ave, Caron Dr, Denham Dr, Kelso Dr and Mission Ln between 109th Ave and 107 Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 2 | 1" service | 3500 | Contractor material and labor to replace services | $ 7,000 |
| 40 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 142,400 |
| 42 | hours | 28 | Company labor for field oversight and construction project management | $ 1,176 |
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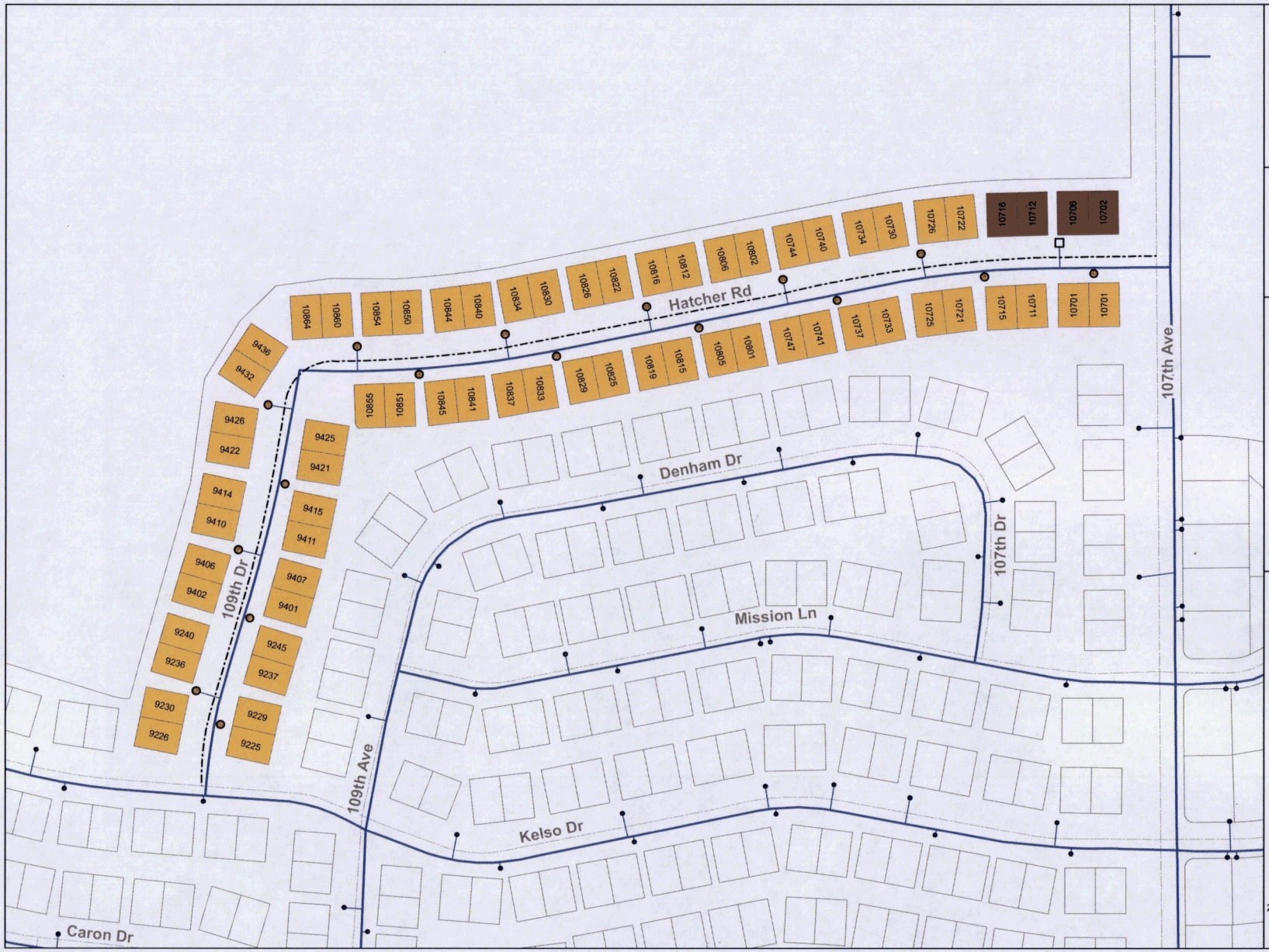
| Subtotal | | | | $ 150,576 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 15,058 |
| **Total Estimated Cost** | | | | **$ 165,634** |




# 2015

Project No: S-2
PWSID: 0407099

## Sun City Water

**Project Area:**

## Hatcher Rd

**Project Description:**

Replace 17 residential services on 109th Dr and Hatcher Rd between Kelso Dr and 107th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

60 30 0 60 120 180 240 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/7/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, PE | Sun City | **2015 S-2** | Hatcher Rd |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (17 total on 109th Dr and Hatcher Rd between Kelso Dr and 107th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 17 | 1" service | 3500 | Contractor material and labor to replace services | $ 59,500 |
| 17 | hours | 28 | Company labor for field oversight and construction project management | $ 476 |
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| Subtotal | | | | $ 59,976 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 5,998 |
| **Total Estimated Cost** | | | | **$ 65,974** |

# 2015

Project No: S-3
PWSID: 0407099

## Sun City Water

**Project Area:**

110th Ave

**Project Description:**

Replace 18 residential services on 110th Ave and Apartments between Kelso Dr and Mountain View Rd.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

90 45 0 90 180 270 360 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 -

| EPCOR Water<br>**Preliminary Cost Estimate** | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2015 S-3** | Project Location:<br>110th Ave |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (18 total on 110th Ave and Apartments between Kelso Dr and Mountain View Rd.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 14 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 49,840 |
| 4 | 2" service | 3620 | Contractor material and labor to replace services | $ 14,480 |
| 18 | hours | 28 | Company labor for field oversight and construction project management | $ 504 |
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| Subtotal | | | | $ 64,824 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 6,482 |
| **Total Estimated Cost** | | | | **$ 71,306** |

# 2015

Project No: S-4
PWSID: 0407099

## Sun City Water

**Project Area:**

## Mountain View Rd

**Project Description:**

Replace 16 residential services on Mountain View Rd and Venturi Dr between Cumberland Dr and 107th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

50 25 0 50 100 150 200
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>**Preliminary Cost Estimate** | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2015 S-4** | Project Location:<br>Mountain View Rd |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (16 total on Mountain View Rd and Venturi Dr between Cumberland Dr and 107th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 16 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 56,960 |
| 16 | hours | 28 | Company labor for field oversight and construction project management | $ 448 |
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| Subtotal | | | | $ 57,408 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 5,741 |
| **Total Estimated Cost** | | | | **$ 63,149** |

# 2015

Project No: S-5
PWSID: 0407099

## Sun City Water

**Project Area:**

## Cheryl Dr

**Project Description:**

Replace 22 residential services on Cheryl Dr, Cinnabar Ave, Cumberland Dr, and Salem Dr between Mountain View Rd and 107th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

50 25 0 50 100 150 200 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/7/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, PE | Sun City | **2015 S-5** | Cheryl Dr |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (22 total on Cheryl Dr, Cinnabar Ave, Cumberland Dr, and Salem Dr between Mountain View Rd and 107th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 22 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 78,320 |
| 22 | hours | 28 | Company labor for field oversight and construction project management | $ 616 |
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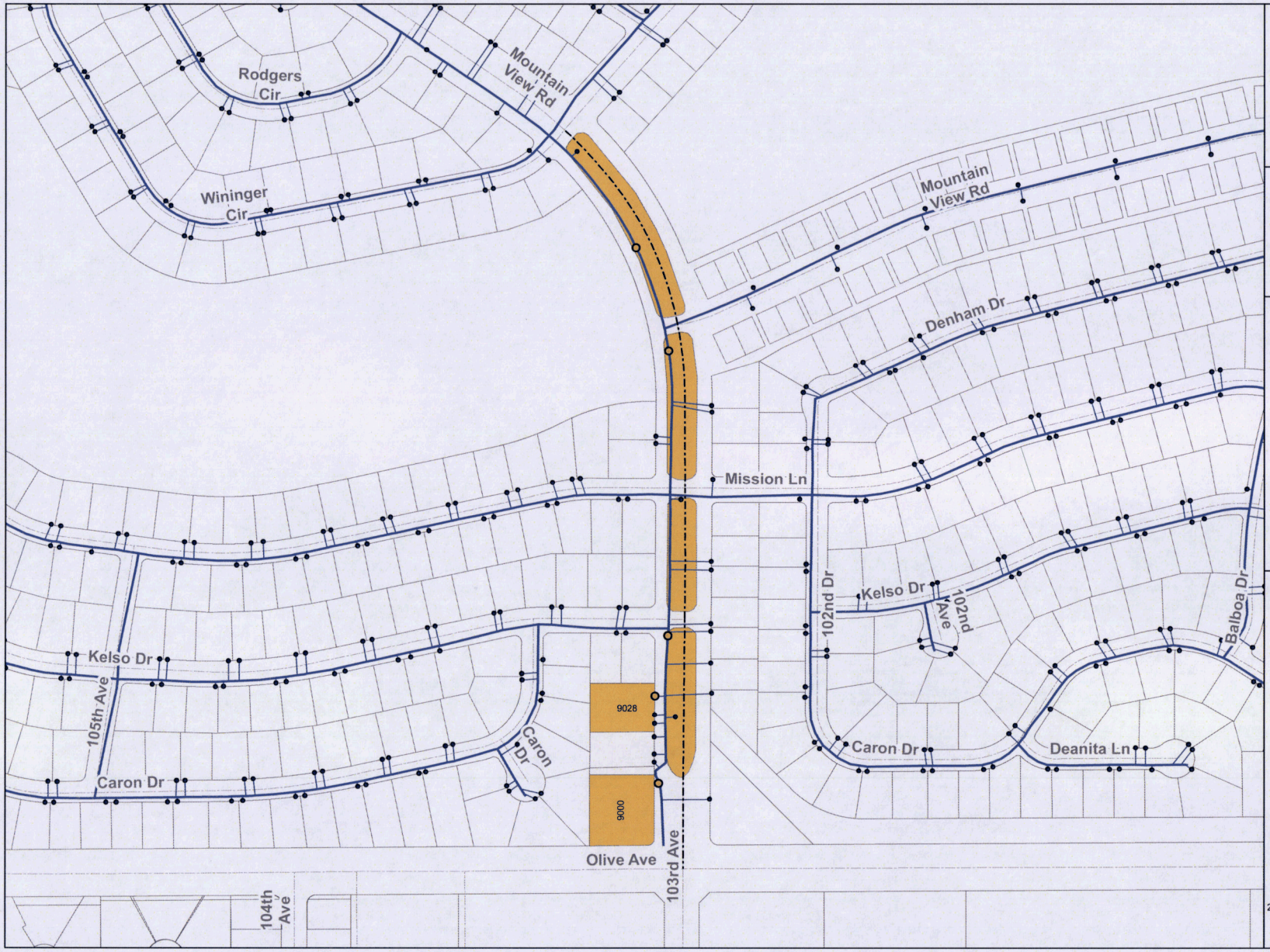
| Subtotal | | | | $ 78,936 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 7,894 |
| **Total Estimated Cost** | | | | **$ 86,830** |




# 2015

Project No: S-6
PWSID: 0407099

## Sun City Water

**Project Area:**

## 103rd Ave

**Project Description:**

Replace 2 residential and 3 irrigation services on 103rd Ave between Mountain View Rd and Olive Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

90 45 0 90 180 270 360 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2015 S-6** | Project Location:<br>103rd Ave |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (5 total on 103rd Ave between Mountain View Rd and Olive Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 5 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 17,800 |
| 5 | hours | 28 | Company labor for field oversight and construction project management | $ 140 |
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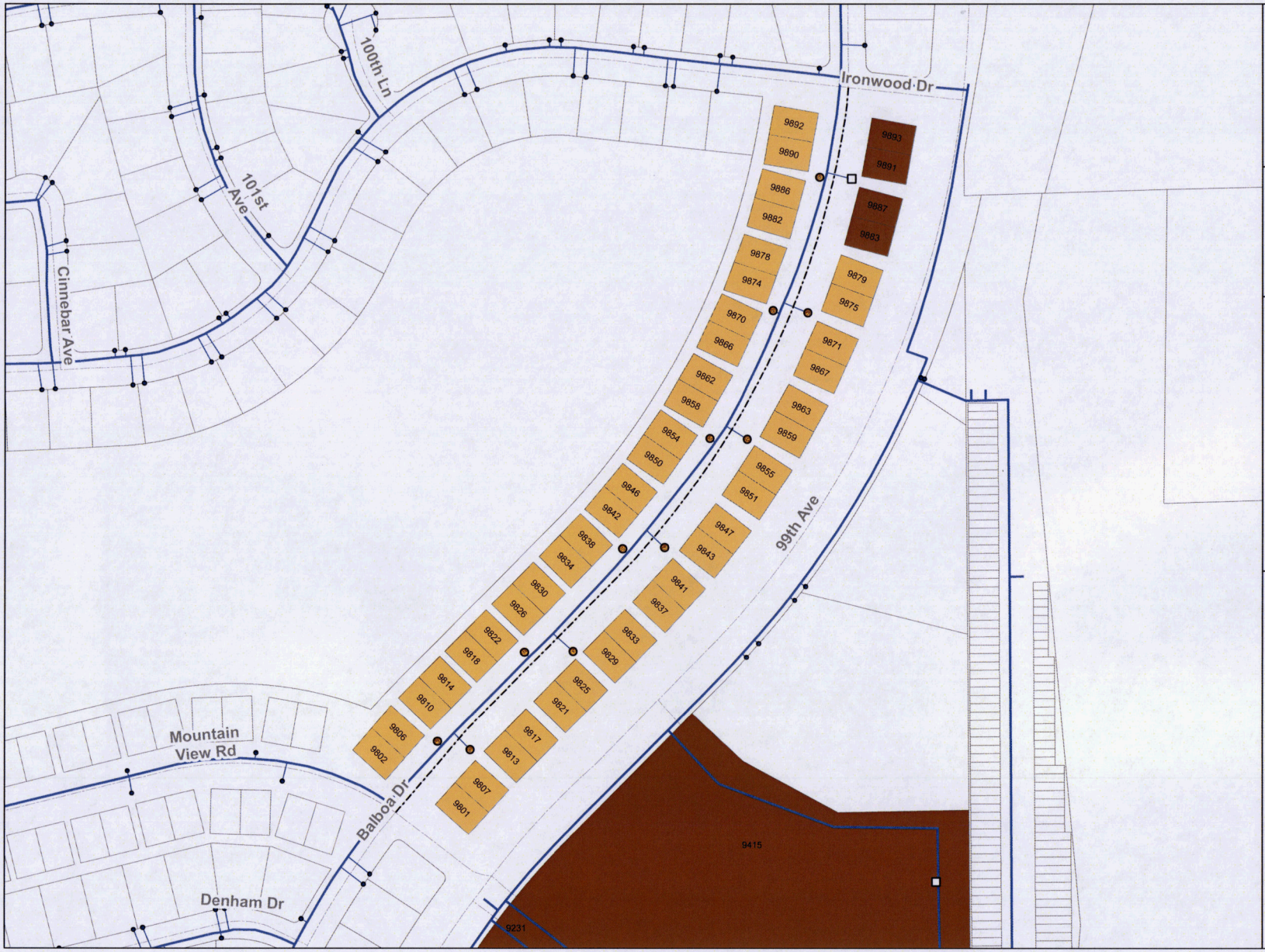
| Subtotal | | | | $ 17,940 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 1,794 |
| **Total Estimated Cost** | | | | **$ 19,734** |




# 2015

Project No: S-7
PWSID: 0407099

## Sun City Water

**Project Area:**

## Balboa Dr

**Project Description:**

Replace 11 residential services on Balboa Dr between Mountain View Rd and Ironwood Dr.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

60 30 0 60 120 180 240 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2015 S-7** | Project Location:<br>Balboa Dr |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (11 total on Balboa Dr between Mountain View Rd and Ironwood Dr.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 11 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 39,160 |
| 11 | hours | 28 | Company labor for field oversight and construction project management | $ 308 |
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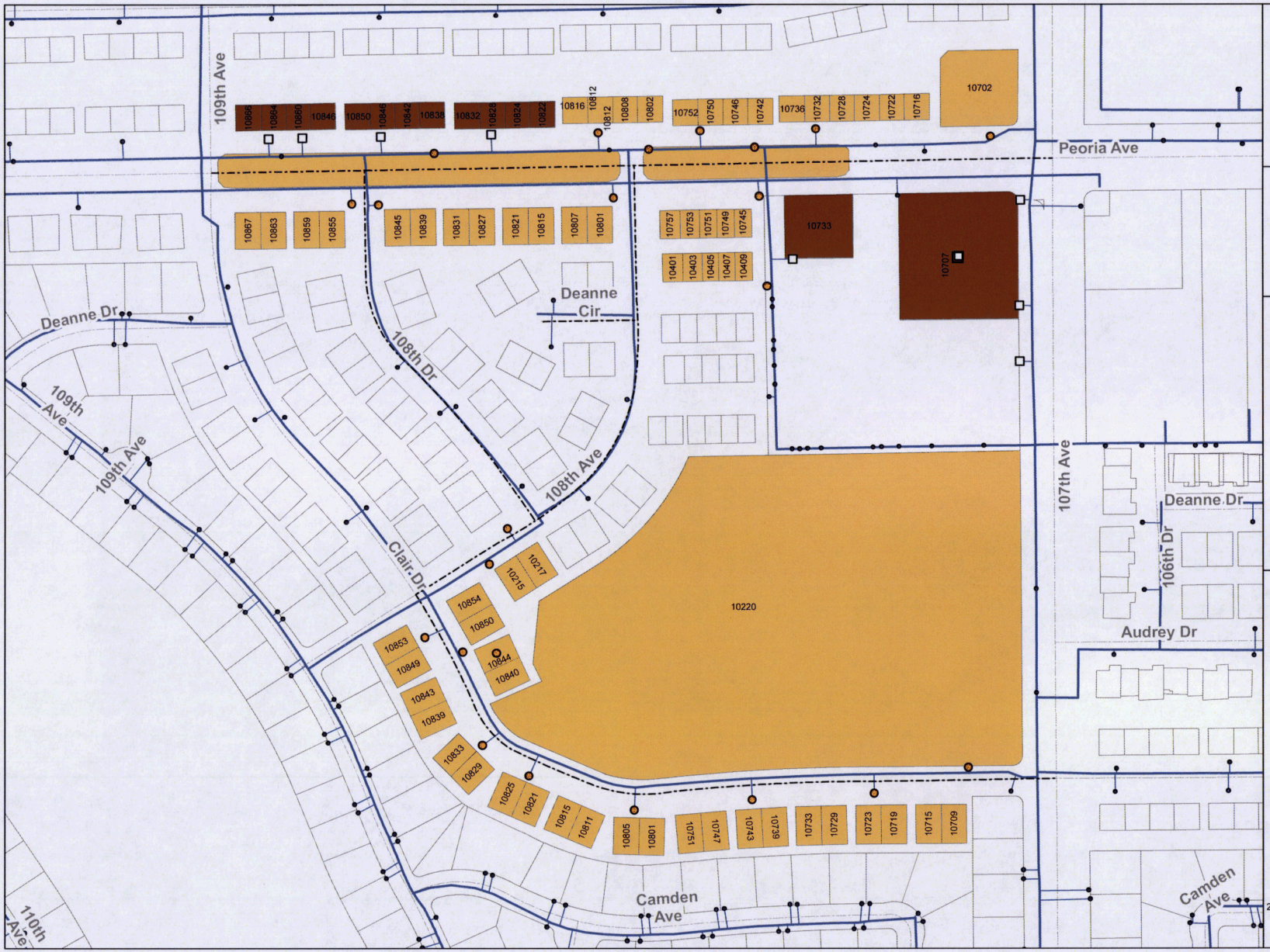
| Subtotal | | | | $ 39,468 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 3,947 |
| **Total Estimated Cost** | | | | **$ 43,415** |




# 2015

Project No: S-8
PWSID: 0407099

## Sun City Water

**Project Area:**

## 108th Dr

**Project Description:**

Replace 20 residential and 4 irrigation services on 108th Ave, 108th Dr, Clair Dr, Deanne Cir and Peoria Ave between 109th Ave and 107th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

75 37.5 0 75 150 225 300 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/7/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, PE | Sun City | **2015 S-8** | 108th Dr |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (24 total on 108th Ave, 108th Dr, Clair Dr, Deanne Cir and Peoria Ave between 109th Ave and 107th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 24 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 85,440 |
| 24 | hours | 28 | Company labor for field oversight and construction project management | $ 672 |
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| Subtotal | | | | $ 86,112 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 8,611 |
| **Total Estimated Cost** | | | | **$ 94,723** |

# 2015

Project No: S-9
PWSID: 0407099

## Sun City Water

**Project Area:**

## Clair Dr

**Project Description:**

Replace 8 residential and 2 irrigation services on Clair Dr and Peoria Ave between 111th Ave and 108th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

50 25 0 50 100 150 200 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2015 S-9** | Project Location:<br>Clair Dr |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (10 total on Clair Dr and Peoria Ave between 111th Ave and 108th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 10 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 35,600 |
| 10 | hours | 28 | Company labor for field oversight and construction project management | $ 280 |
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| Subtotal | | | | $ 35,880 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 3,588 |
| **Total Estimated Cost** | | | | **$ 39,468** |

2017

Sun City – PW[illegible]D No. 07-099

**SIB PLANT TABLE I, 1-2**

2017 Service Line Replacements

**Information to be included with SIB-Eligible Project Notification**

| | NARUC Acct No. (DSIC-eligible plant) | Replacement Plant Description (DSIC-eligible plant) | | | | | Site (location description) | Replacement Plant | | | 1. Provide narrative why Replacement Plant is necessary<br>- replacement of existing plant that has exceeded its designated useful life and has worn out or is in deteriorating condition due to no fault of the utility<br>- replacement of existing plant to address excessive water loss (10% or more)<br>- replacement of existing plant for other reasons supported by persuasive showing by utility<br><br>2. Provide narrative explaining why this segment of plant is a priority.<br><br>3. Provide narrative explaining how replacing this plant will benefit existing customers.<br><br>4. Provide affirmation that Replacement Plant does not include the costs for extending or expanding facilities to serve new customers.<br><br>5. Provides reference to related page No. in the submitted detailed Engineering Analysis supporting the need for SIB. Engineering Analysis shall also include narrative explaining the utility's systematic assessment, inspection, maintenance, and repair/replacement program. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Project No. | **309 Supply Mains**<br><br>**331 T&D Mains**<br><br>**333 Services**<br><br>**334 Meters**<br><br>**335 Hydrants** | Description | Pipe length/ Quantity | Diameter/ Size | Material | Installed Cost/Unit (Estimated) | | Expected In-Service Date | Estimated Subtotal Cost (by NARUC Acct No) | Estimated Subtotal Cost (by project) | |
| S-10 | 333 | service lines | 11 | 2-1"<br>40-1.5" | Copper | 1"-$3,881<br>1.5"-$3,947 | 105th Dr | 12/2017 | n/a | $43,415 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (11 total on 105th Ave, 105th Dr, 106th Ave, 106th Dr, Audrey Dr, Clair Dr and Deanne Dr between 107th Ave and 105th Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-10 in Exhibit CC-1-B for more detail. |
| S-11 | 333 | service lines | 25 | 1" | Copper | 1"-$3,881 | Audrey Dr | 12/2017 | n/a | $98,670 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (25 total on Audrey Dr, Clair Dr, Corte Del Sol Este, Corte Del Sol Oeste, Deanne Dr and Peoria Ave between 105th Ave and 103 Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-11 in Exhibit CC-1-B for more detail. |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S-12 | 333 | service lines | 22 | 14-1.5" 4-2" | Copper | 1.5"-$3,947 2"-$4,013 | Caron Dr | 12/2017 | n/a | $86,830 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (22 total on Tonada Dr, Caron Dr, Kelso Dr and109th Dr between 111th Ave and 109th Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-12 in Exhibit CC-1-B for more detail. |
| S-13 | 333 | service lines | 14 | 11-1.5" 3-2" | Copper | 1.5"-$3,947 2"-$4,013 | Mountain View Rd West | 12/2017 | n/a | $55,453 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (14 total on 105th Ave, 105th Dr, 107th Ave, Mountain View Rd, Rodgers Cir and Winninger Cir between 107th and 103rd Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-13 in Exhibit CC-1-B for more detail. |
| S-14 | 333 | service lines | 14 | 1.5" | Copper | $3,947 | Mountain View Rd East | 12/2017 | n/a | $55,255 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (14 total on Mountain View Rd between 103rd Ave and Balboa Dr.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-14 in Exhibit CC-1-B for more detail. |
| S-15 | 333 | service lines | 4 | 1.5" | Copper | $3,947 | Peoria Ave and 103rd Ave | 12/2017 | n/a | $15,787 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (4 total on Peoria Ave between 103th Ave and 99 Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-15 in Exhibit CC-1-B for more detail. |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S-16 | 333 | service lines | 8 | 1.5" | Copper | $3,947 | Abbott Ave West | 12/2017 | n/a | $31,574 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (8 total on Abbott Ave between 111th Ave and 109th Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-16 in Exhibit CC-1-B for more detail. |
| S-17 | 333 | service lines | 14 | 1.5" | Copper | $3,947 | Abbott Ave East | 12/2017 | n/a | $52,255 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (14 total on Abbott Ave and 107th Ave between 109th Ave and 107th Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-17 in Exhibit CC-1-B for more detail. |
| S-18 | 333 | service lines | 3 | 2-1.5"<br>1-3" | Copper | 1.5"-$3,947<br>3"-$4,145 | Peoria Ave and 105th Ave | 12/2017 | n/a | $12,038 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (3 total on Peoria Ave and 105th Ave between 107th Ave and 105th Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-18 in Exhibit CC-1-B for more detail. |
| S-19 | 333 | service lines | 1 | 1.5" | Copper | $3,947 | Peoria Ave and 99th Ave | 12/2017 | n/a | $3,947 | Replace aging service with copper service line to reduce water leaks and emergency repairs. (1 total on Peoria Ave between 99th Ave and 96th Ave.) This service is a priority because it was installed 40 to 50 years ago. Replacing the service will help reduce system water loss and improve customer pressure and flow. The service line replacement is for existing customers and not related to new growth. See Section 1 narrative and Map No. S-19 in Exhibit CC-1-B for more detail. |
| S-20 | 333 | service lines | 3 | 1.5" | Copper | $3,947 | Snead Circle | 12/2017 | n/a | $11,840 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (3 total on Sneed Circle west of 103 Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-20 in Exhibit CC-1-B for |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | more detail. |
| S-21 | 333 | service lines | 10 | 1.5" | Copper | $3,947 | Coggins Dr | 12/2017 | n/a | $39,468 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (10 total on Coggins Dr and Lakeview Cir between Sun City Blvd and Balboa Dr.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-21 in Exhibit CC-1-B for more detail.. |
| S-22 | 333 | service lines | 1 | 1.5" | Copper | $3,947 | 99th Ave | 12/2017 | n/a | $4,145 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (1 total on 99th Ave between Sun City Blvd and Peoria Ave.) This service is a priority because it was installed 40 to 50 years ago. Replacing the service will help reduce system water loss and improve customer pressure and flow. The service line replacement is for existing customers and not related to new growth. See Section 1 narrative and Map No. S-22 in Exhibit CC-1-B for more detail. |
| S-23 | 333 | service lines | 4 | 1.5" | Copper | $3,947 | 111th Ave South | 12/2017 | n/a | $15,787 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (4 total on 111th Ave between Elk Ave and Iowa Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-23 in Exhibit CC-1-B for more detail. |
| S-24 | 333 | service lines | 8 | 1.5" | Copper | $3,947 | 107th Ave South | 12/2017 | n/a | $31,574 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (8 total on 107th Ave between Connecticut Ave and Elk Ave and Hope Dr.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-24 in Exhibit CC-1-B for more detail. |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| S-25 | 333 | service lines | 5 | 1.5" | Copper | $3,947 | 111th Ave North | 12/2017 | n/a | $19,734 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (5 total on 111th Ave and Alabama Ave between Elk Ave and Cherry Hills Dr.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-25 in Exhibit CC-1-B for more detail. |
| S-26 | 333 | service lines | 12 | 1.5" | Copper | $3,947 | 107th Ave North | 12/2017 | n/a | $47,362 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (12 total on 107th Ave and Alabama Ave between Pebble Beach Dr and Connecticut Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-26 in Exhibit CC-1-B for more detail. |
| S-27 | 333 | service lines | 8 | 1.5" | Copper | $3,947 | Alabama Ave and 107th Ave | 12/2017 | n/a | $31,574 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (8 total on 107th Ave and Alabama Ave between Cherry Hills Dr and 105th Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-27 in Exhibit CC-1-B for more detail. |
| S-28 | 333 | service lines | 10 | 1.5" | Copper | $3,947 | Alabama Ave at Thunderbird | 12/2017 | n/a | $39,468 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (10 total on Alabama Ave and 103th Ave between 105th Ave and Oakmont Dr.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-28 in Exhibit CC-1-B for more detail. |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| S-29 | 333 | service lines | 7 | 1.5" | Copper | $3,947 | Alabama Ave at Coggins | 12/2017 | n/a | $27,628 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (7 total on Alabama Ave between 103rd Ave and 99th Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-29 in Exhibit CC-1-B for more detail. |
| S-30 | 333 | service lines | 27 | 14-1.5"<br>13-2" | Copper | 1.5"-$3,947<br>2"-$4,013 | Coggins Dr | 12/2017 | n/a | $107,422 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (27 total on Coggins Dr and Windsor Dr between 111th Ave and 108th Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-30 in Exhibit CC-1-B for more detail. |
| S-31 | 333 | service lines | 10 | 8-1.5"<br>2-2" | Copper | 1.5"-$3,947<br>2"-$4,013 | Oakmont Dr West | 12/2017 | n/a | $39,600 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (10 total on Oakmont Dr, 107th Ave and 108th Ave between Grand Ave and Cherry Hills Dr.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-31 in Exhibit CC-1-B for more detail. |
| S-32 | 333 | service lines | 14 | 6-1.5"<br>8-2" | Copper | 1.5"-$3,947<br>2"-$4,013 | Oakmont Dr East | 12/2017 | n/a | $55,783 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (14 total on 105th Ave, Coggins Dr and Oakmont Dr between 107th Ave and 105th Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-32 in Exhibit CC-1-B for more detail. |

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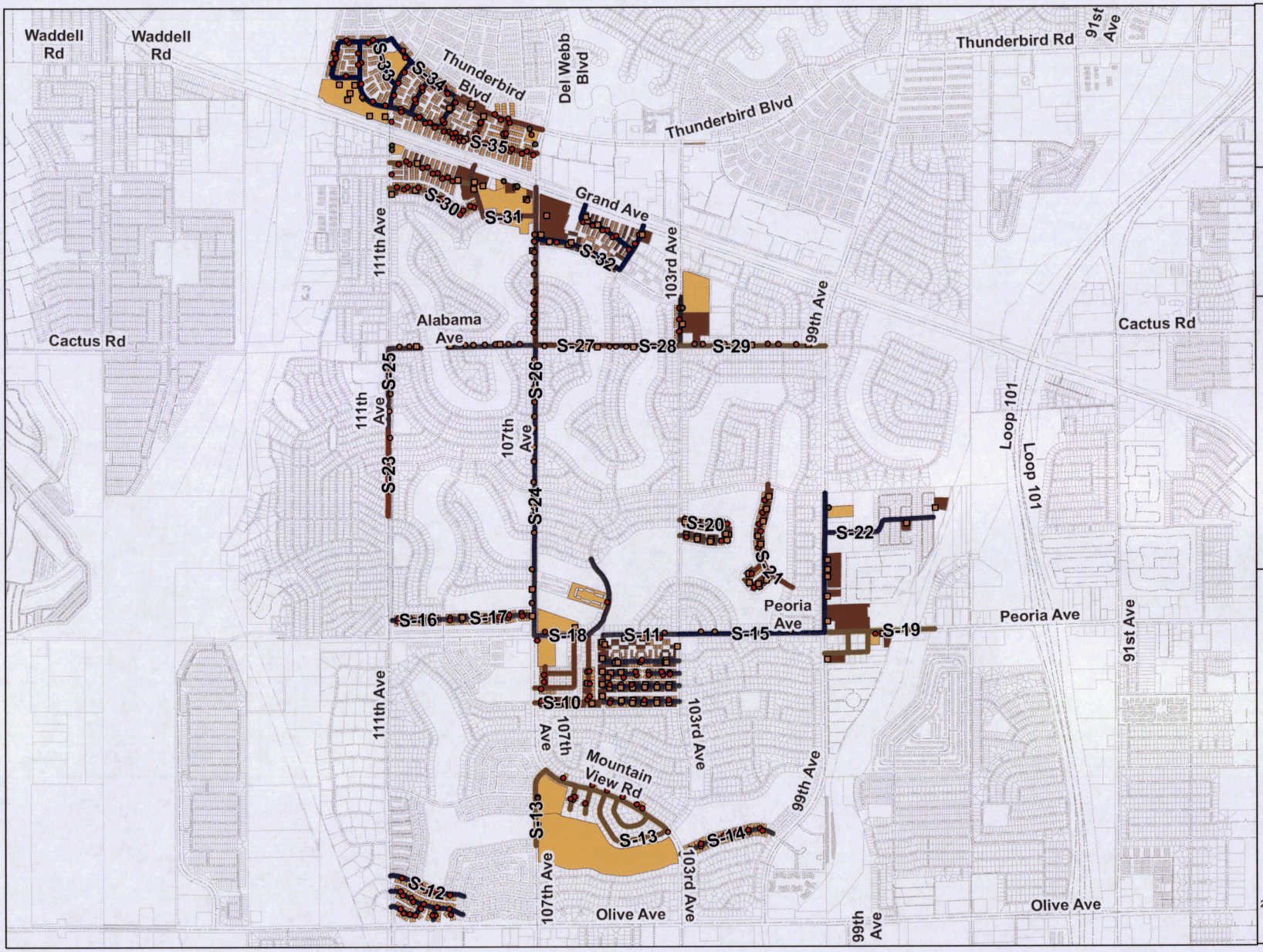
|---|---|---|---|---|---|---|---|---|---|---|---|
| S-33 | 333 | service lines | 21 | 5-1.5"<br>16-2" | Copper | 1.5"-$3,947<br>2"-$4,013 | Newcastle Dr | 12/2017 | n/a | $83,939 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (21 total on Emerald Dr, Garden Court , Newcastle Dr, Silverbell Dr and Thunderbird Blvd between Emerald Dr and 111th Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-33 in Exhibit CC-1-B for more detail. |
| S-34 | 333 | service lines | 25 | 4-1.5"<br>20-2"<br>1-2.5" | Copper | 1.5"-$3,947<br>2"-$4,013<br>2.5"-$4,079 | Santa Fe Dr West | 12/2017 | n/a | $100,122 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (25 total on 109th Ave, 110th Ave, 111th Ave, Santa Fe Dr and Thunderbird Blvd between 111th Ave and 109th Ave.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-34 in Exhibit CC-1-B for more detail. |
| S-35 | 333 | service lines | 32 | 10-1.5"<br>22-2" | Copper | 1.5"-$3,947<br>2"-$4,013 | Santa Fe Dr East | 12/2017 | n/a | $127,750 | Replace aging services with copper service lines to reduce water leaks and emergency repairs. (32 total on 108th Ave, 108th Dr, Santa Fe Dr and Thunderbird Blvd between 109th Ave and Del Webb Blvd.) The services are old and are failing at a high rate. These services are a priority because they are galvanized steel pipe and they were installed 40 to 50 years ago. Galvanized pipe is prone to corrosion and has abeen shown to have a useful life of less than 40 years. Replacing the services will help reduce system water loss and improve customer pressure and flow. The service line replacements are for existing customers and not related to new growth. See Section 1 narrative and Map No. S-35 in Exhibit CC-1-B for more detail. |
| **Total** | | | **313** | | | | | | | **$1,241,420** | |




# 2017

Project No: N/A
PWSID: 0407099

## Sun City Water

**Project Area:**

## Sun City 2017 Project Areas

**Project Description:**

Replace 232 residential, 69 irrigation and 12 commercial services.

**Legend**

**Services**

**Services**

- COPPER
- COMMERCIAL
- IRRIGATION
- RESIDENTIAL

**Project Parcels**

- Parcels with service previously replaced
- Parcels with service to be replaced

N

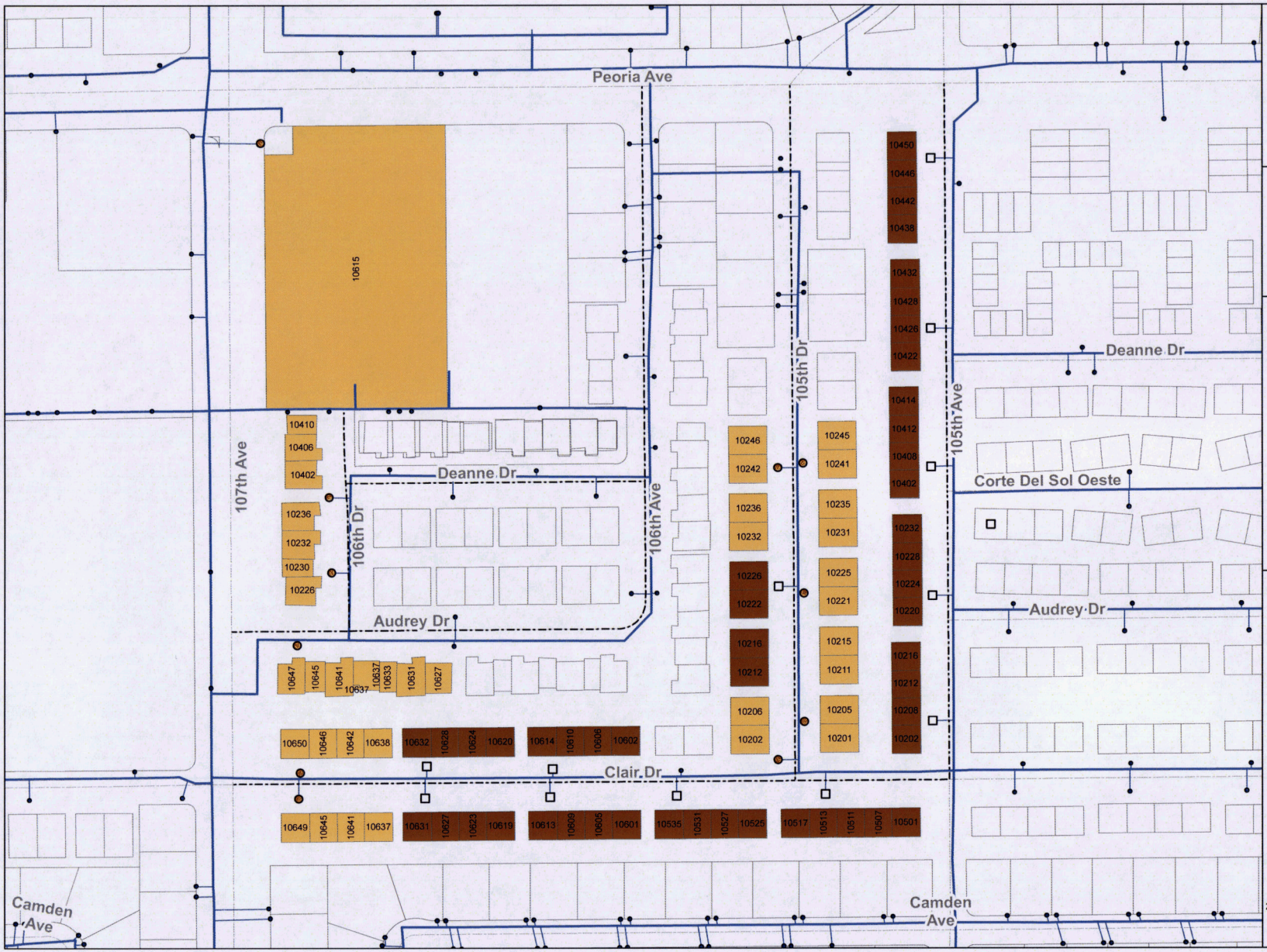
720 360 0 720 1,440 2,160 2,880
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 •




# 2017

Project No: S-10
PWSID: 0407099

## Sun City Water

**Project Area:**

105th Dr

**Project Description:**

Replace 11 residential services on 105th Ave, 105th Dr, 106th Ave, 106th Dr, Audrey Dr, Clair Dr and Deanne Dr between 107th Ave and 105th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

60 30 0 60 120 180 240 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-10** | Project Location:<br>105th Dr |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (11 total on 105th Ave, 105th Dr, 106th Ave, 106th Dr, Audrey Dr, Clair Dr and Deanne Dr between 107th Ave and 105th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 11 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 39,160 |
| 11 | hours | 28 | Company labor for field oversight and construction project management | $ 308 |
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| Subtotal | | | | $ 39,468 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 3,947 |
| **Total Estimated Cost** | | | | **$ 43,415** |

# 2017

Project No: S-11
PWSID: 0407099

## Sun City Water

**Project Area:**

## Audrey Dr

**Project Description:**

Replace 23 residential and 2 irrigation services on Audrey Dr, Clair Dr, Corte Del Sol Este, Corte Del Sol Oeste, Deanne Dr and Peoria Ave between 105th Ave and 103rd Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

75 37.5 0 75 150 225 300 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>**Preliminary Cost Estimate** | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-11** | Project Location:<br>Audrey Dr |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (25 total on Audrey Dr, Clair Dr, Corte Del Sol Este, Corte Del Sol Oeste, Deanne Dr and Peoria Ave between 105th Ave and 103 Ave.

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 25 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 89,000 |
| 25 | hours | 28 | Company labor for field oversight and construction project management | $ 700 |
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| Subtotal | | | | $ 89,700 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 8,970 |
| **Total Estimated Cost** | | | | **$ 98,670** |

# 2017

Project No: S-12
PWSID: 0407099

## Sun City Water

**Project Area:**

## Caron Dr

**Project Description:**

Replace 22 residential services on Tonada Dr, Caron Dr, Kelso Dr and 109th Dr between 111th Ave and 109th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

50 25 0 50 100 150 200 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-12** | Project Location:<br>Caron Dr |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (22 total on Tonada Dr, Caron Dr, Kelso Dr and109th Dr between 111th Ave and 109th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 22 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 78,320 |
| 22 | hours | 28 | Company labor for field oversight and construction project management | $ 616 |
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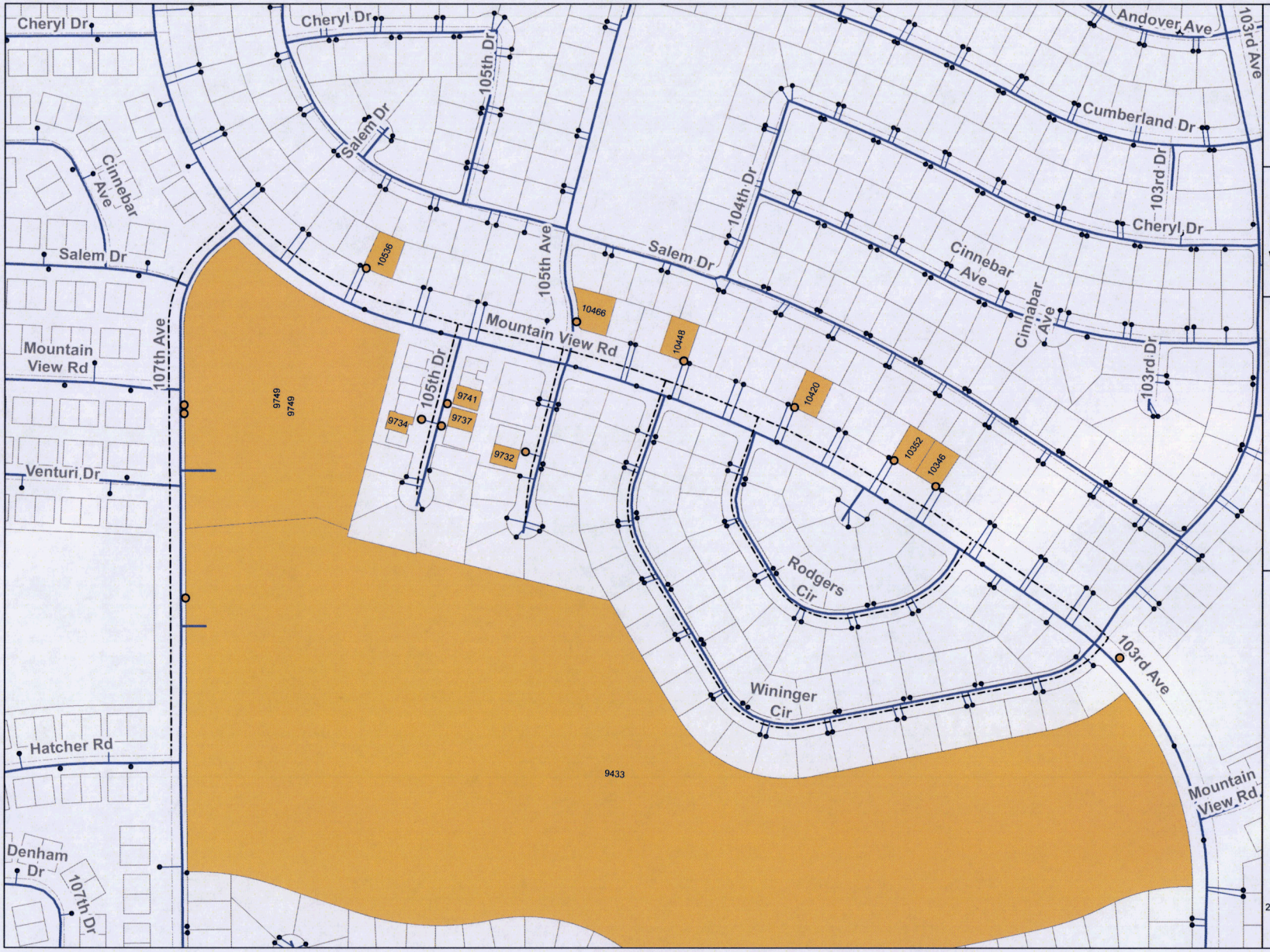
| Subtotal | | | | $ 78,936 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 7,894 |
| **Total Estimated Cost** | | | | **$ 86,830** |




# 2017

Project No: S-13
PWSID: 0407099

## Sun City Water

**Project Area:**

## Mountain View Rd West

**Project Description:**

Replace 10 residential, 2 commercial and 2 irrigation services on 105th Ave, 105th Dr, 107th Ave, Mountain View Rd, Rodgers Cir and Winninger Cir between 107th and 103rd Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

100 50 0 100 200 300 400 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-13** | Project Location:<br>Mountain View Rd West |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (14 total on 105th Ave, 105th Dr, 107th Ave, Mountain View Rd, Rodgers Cir and Winninger Cir between 107th and 103rd Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 11 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 39,160 |
| 3 | 2" service | 3620 | Contractor material and labor to replace services | $ 10,860 |
| 14 | hours | 28 | Company labor for field oversight and construction project management | $ 392 |
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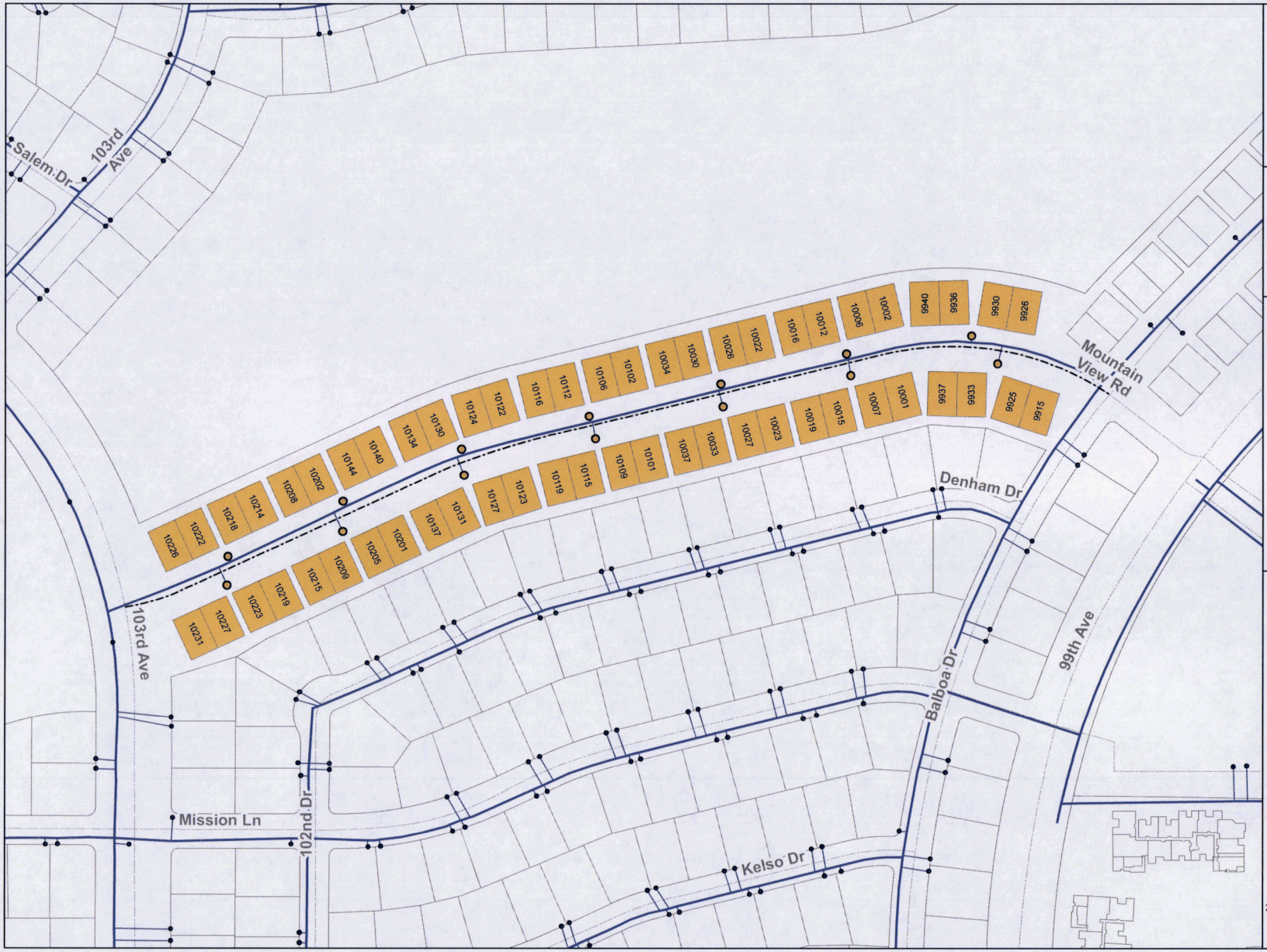
| Subtotal | | | | $ 50,412 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 5,041 |
| **Total Estimated Cost** | | | | **$ 55,453** |




# 2017

Project No: S-14
PWSID: 0407099

## Sun City Water

**Project Area:**

## Mountain View Rd East

**Project Description:**

Replace 14 residential services on Mountain View Rd between 103rd Ave and Balboa Dr.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

60 30 0 60 120 180 240 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-14** | Project Location:<br>Mountain View Rd East |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (14 total on Mountain View Rd between 103rd Ave and Balboa Dr.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 14 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 49,840 |
| 14 | hours | 28 | Company labor for field oversight and construction project management | $ 392 |
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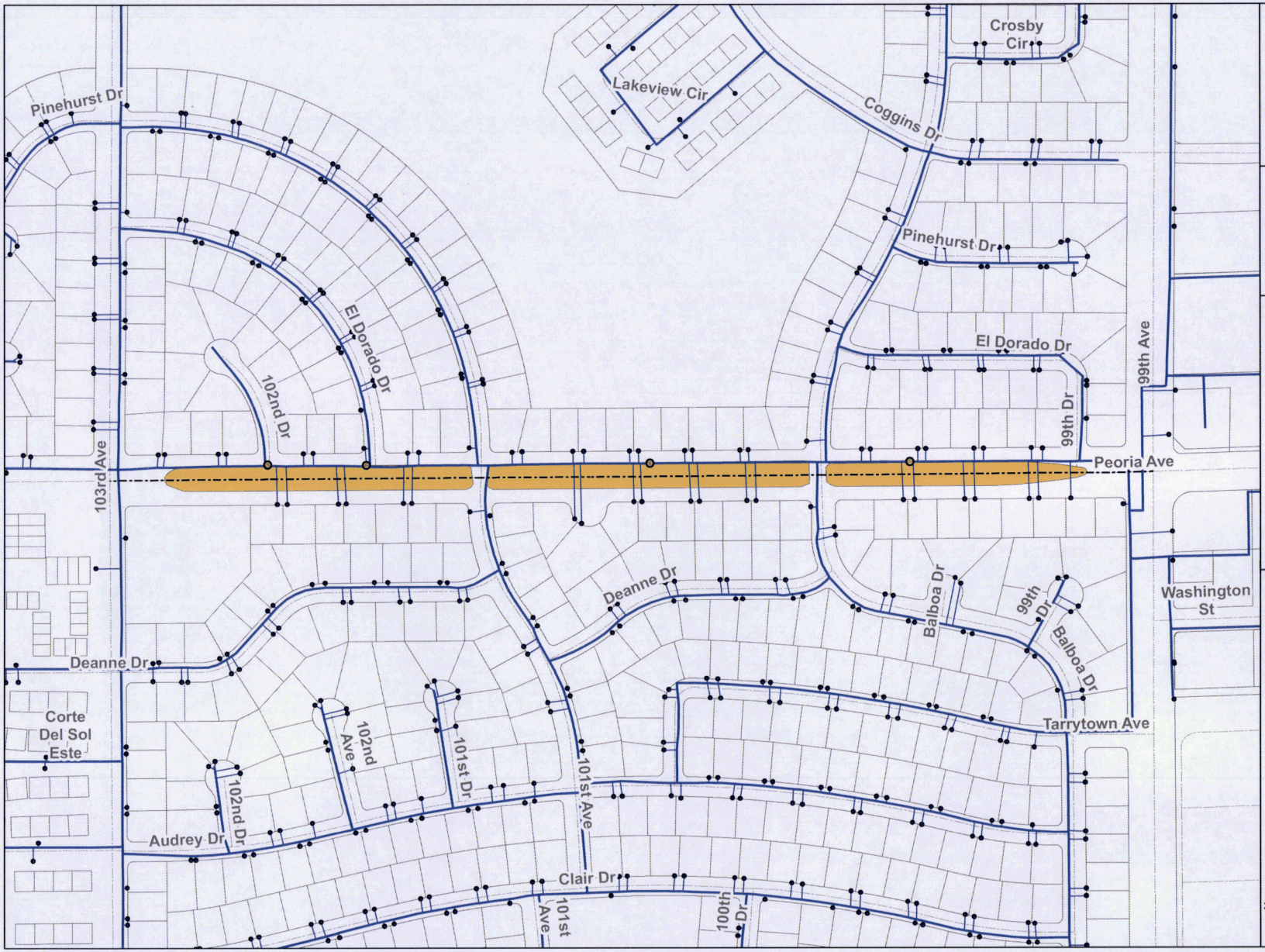
| Subtotal | | | | $ 50,232 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 5,023 |
| **Total Estimated Cost** | | | | **$ 55,255** |




# 2017

Project No: S-15
PWSID: 0407099

## Sun City Water

**Project Area:**

## Peoria Ave and 103rd Ave

**Project Description:**

Replace 4 irrigation services on Peoria Ave between 103th Ave and 99 Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

100 50 0 100 200 300 400 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>Preliminary Cost Estimate | | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-15** | Project Location:<br>Peoria Ave and 103rd Ave | |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (4 total on Peoria Ave between 103th Ave and 99 Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 4 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 14,240 |
| 4 | hours | 28 | Company labor for field oversight and construction project management | $ 112 |
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| Subtotal | | | | $ 14,352 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 1,435 |
| **Total Estimated Cost** | | | | **$ 15,787** |

# 2017

Project No: S-16
PWSID: 0407099

## Sun City Water

**Project Area:**

## Abbott Ave West

**Project Description:**

Replace 8 residential services on Abbott Ave between 111th Ave and 109th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

30 15 0 30 60 90 120 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>**Preliminary Cost Estimate** | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-16** | Project Location:<br>Abbott Ave West |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (8 total on Abbott Ave between 111th Ave and 109th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 8 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 28,480 |
| 8 | hours | 28 | Company labor for field oversight and construction project management | $ 224 |
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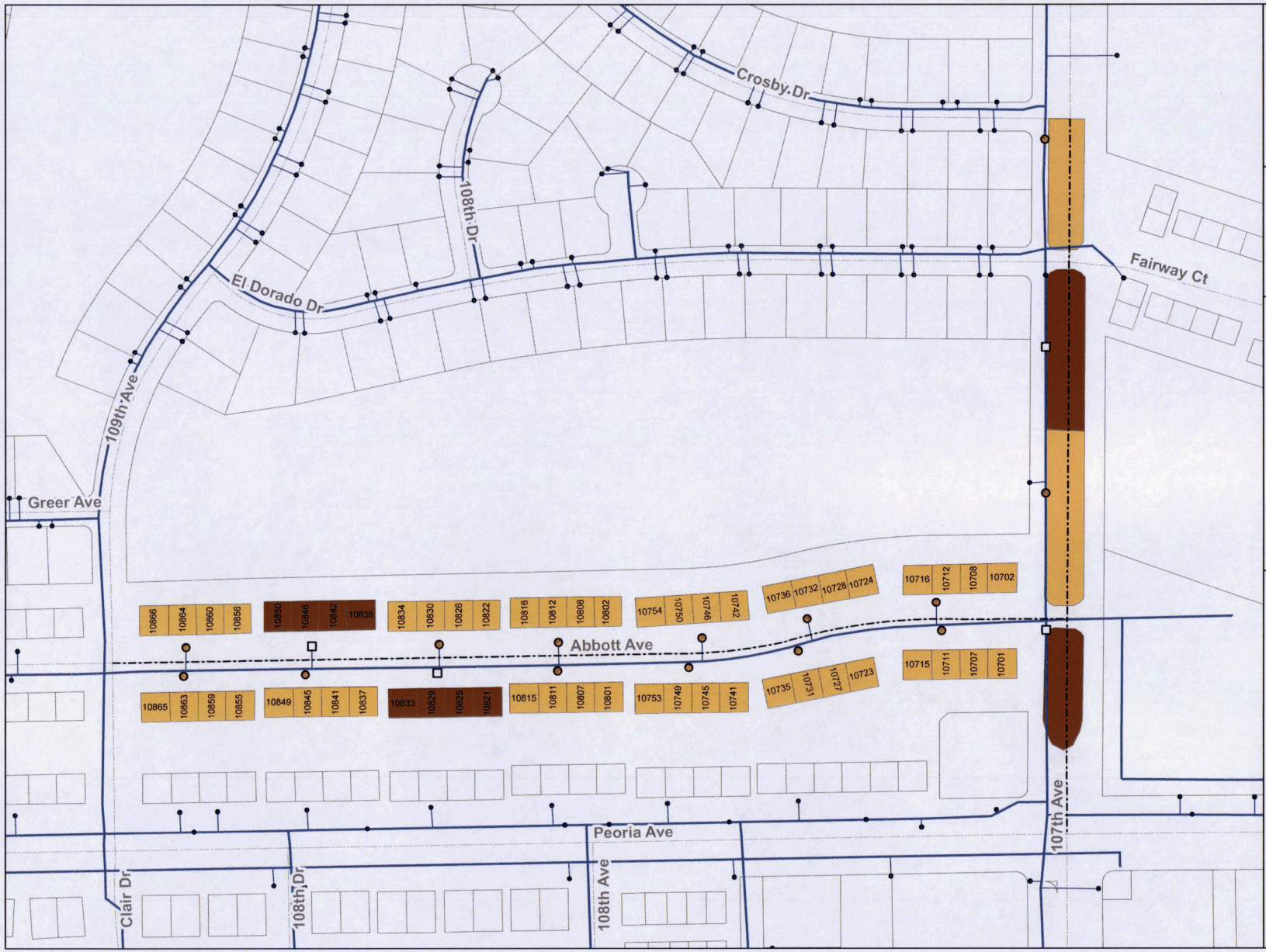
| Subtotal | | | | $ 28,704 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 2,870 |
| **Total Estimated Cost** | | | | **$ 31,574** |




# 2017

Project No: S-17
PWSID: 0407099

## Sun City Water

**Project Area:**

## Abbott Ave East

**Project Description:**

Replace 12 residential and 2 irrigation services on Abbott Ave and 107th Ave between 109th Ave and 107th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

60 30 0 60 120 180 240 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-17** | Project Location:<br>Abbott Ave East |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (12 total on Abbott Ave and 107th Ave between 109th Ave and 107th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 14 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 49,840 |
| 14 | hours | 28 | Company labor for field oversight and construction project management | $ 392 |
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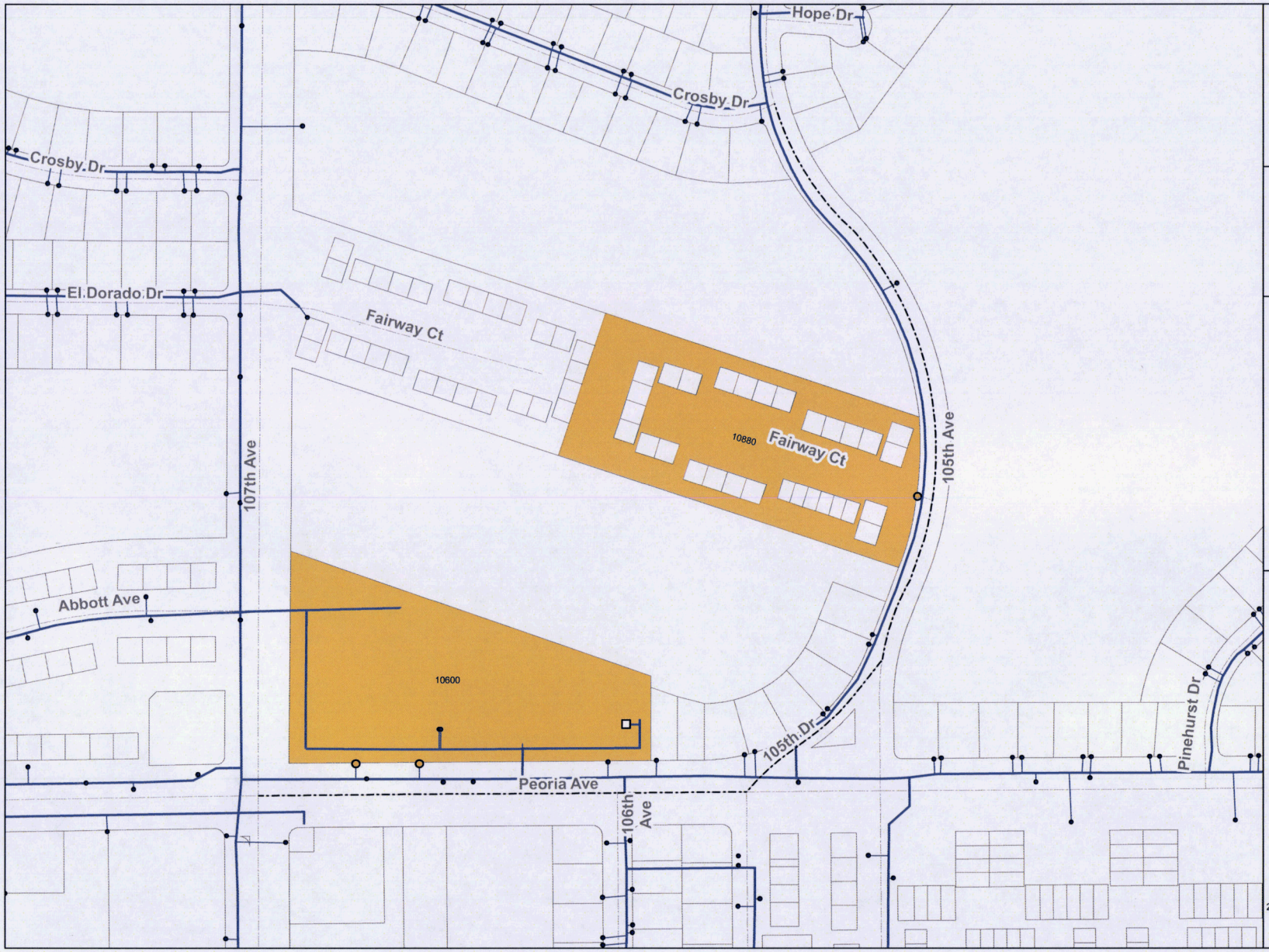
| Subtotal | | | | $ 50,232 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 5,023 |
| **Total Estimated Cost** | | | | **$ 55,255** |




# 2017

Project No: S-18
PWSID: 0407099

## Sun City Water

**Project Area:**

## Peoria Ave and 105th Ave

**Project Description:**

Replace 3 residential services on Peoria Ave and 105th Ave between 107th Ave and 105th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

80 40 0 80 160 240 320 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-18** | Project Location:<br>Peoria Ave and 105th Ave |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (3 total on Peoria Ave and 105th Ave between 107th Ave and 105th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 2 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 7,120 |
| 1 | 3" service | 3740 | Contractor material and labor to replace services | $ 3,740 |
| 3 | hours | 28 | Company labor for field oversight and construction project management | $ 84 |
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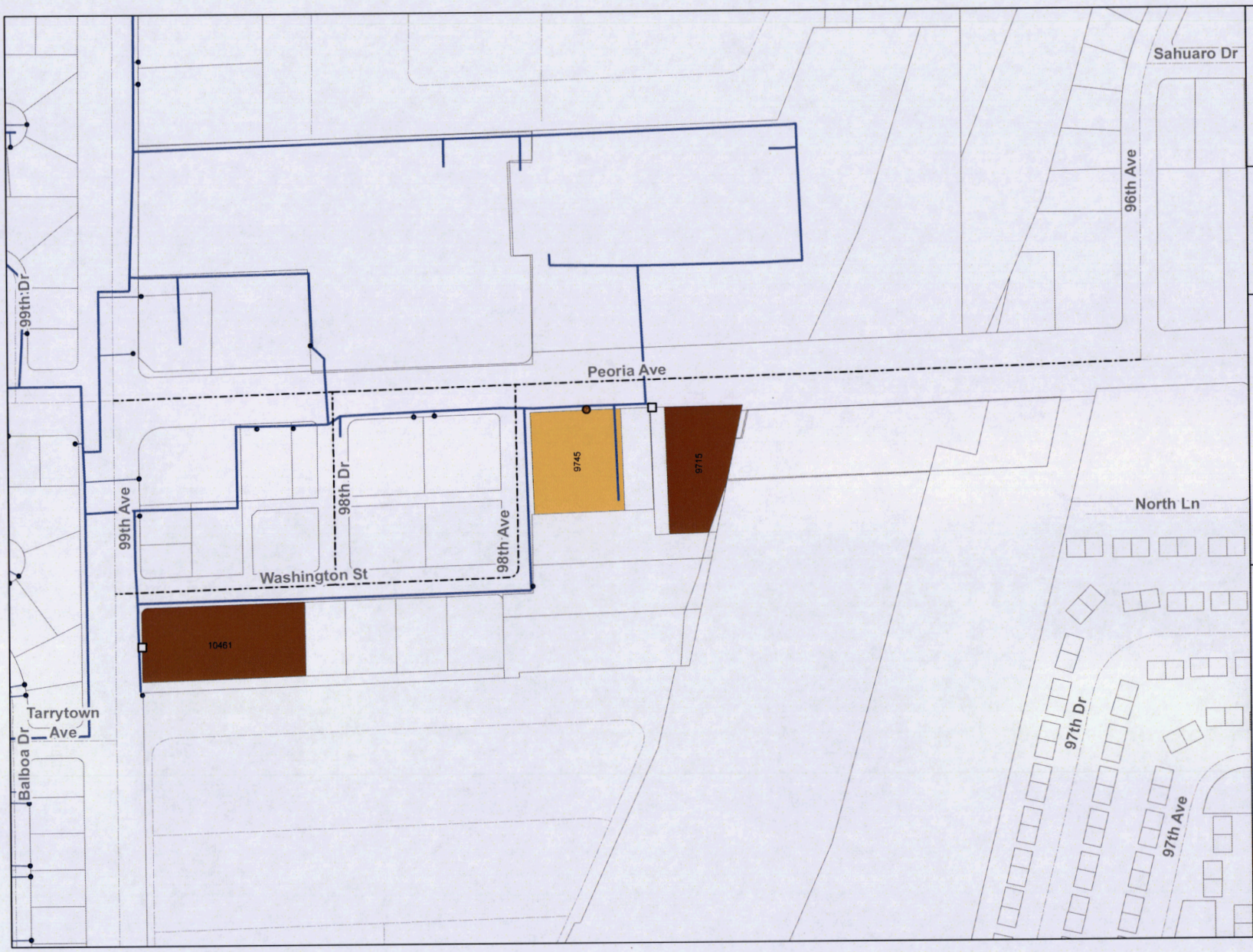
| Subtotal | | | | $ 10,944 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 1,094 |
| **Total Estimated Cost** | | | | **$ 12,038** |




# 2017

Project No: S-19
PWSID: 0407099

## Sun City Water

**Project Area:**

## Peoria Ave and 99th Ave

**Project Description:**

Replace 1 residential services on Peoria Ave between 99th Ave and and 96th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

75 37.5 0 75 150 225 300 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-19** | Project Location:<br>Peoria Ave and 99th Ave |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (1 total on Peoria Ave between 99th Ave and 96th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 1 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 3,560 |
| 1 | hours | 28 | Company labor for field oversight and construction project management | $ 28 |
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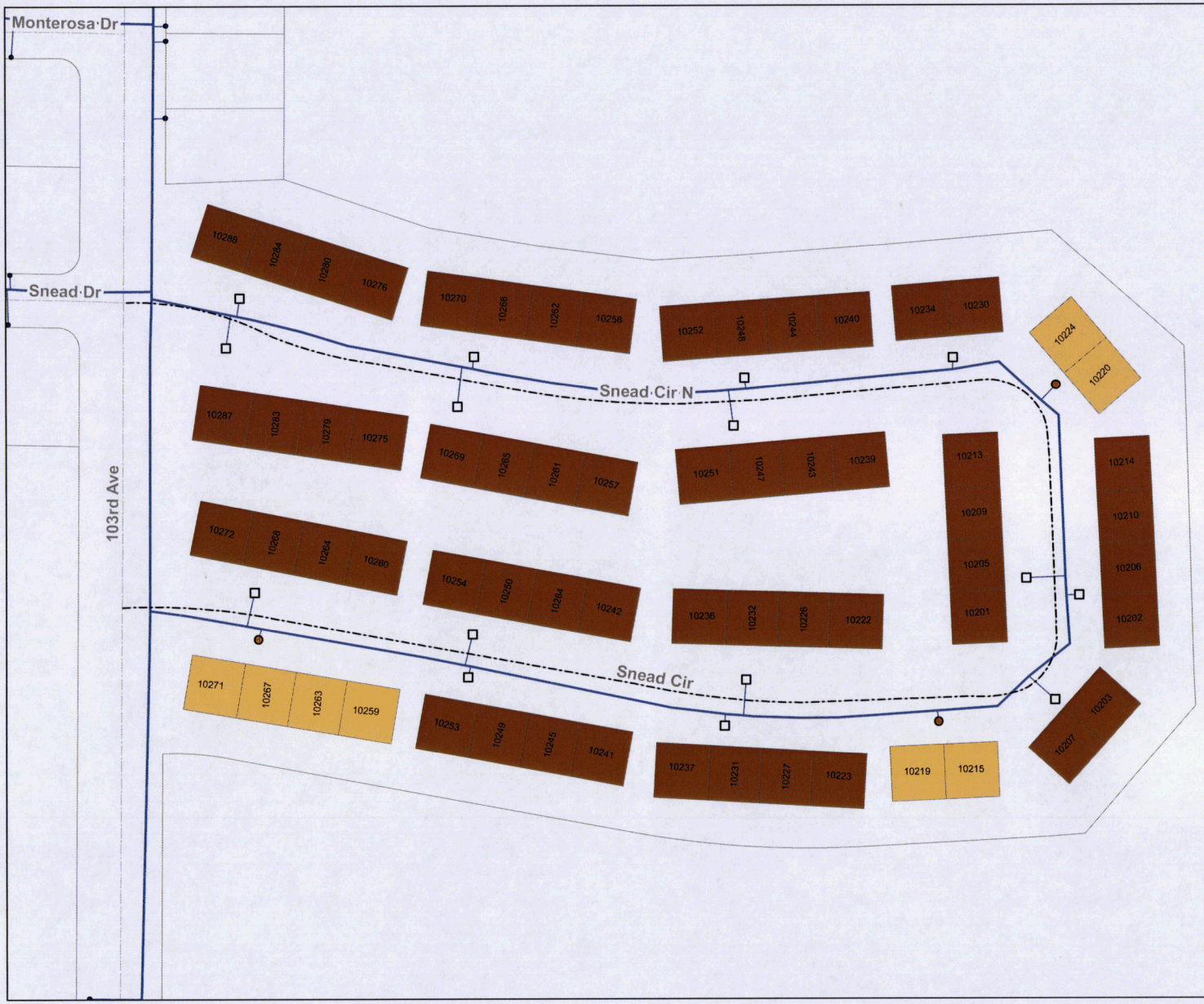
| Subtotal | | | | $ 3,588 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 359 |
| **Total Estimated Cost** | | | | **$ 3,947** |




# 2017

Project No: S-20
PWSID: 0407099

## Sun City Water

**Project Area:**

## Snead Circle

**Project Description:**

Replace 3 residential services on Snead Circle west of 103 Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

30 15 0 30 60 90 120 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-20** | Project Location:<br>Snead Circle | |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (3 total on Snead Circle west of 103 Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 3 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 10,680 |
| 3 | hours | 28 | Company labor for field oversight and construction project management | $ 84 |
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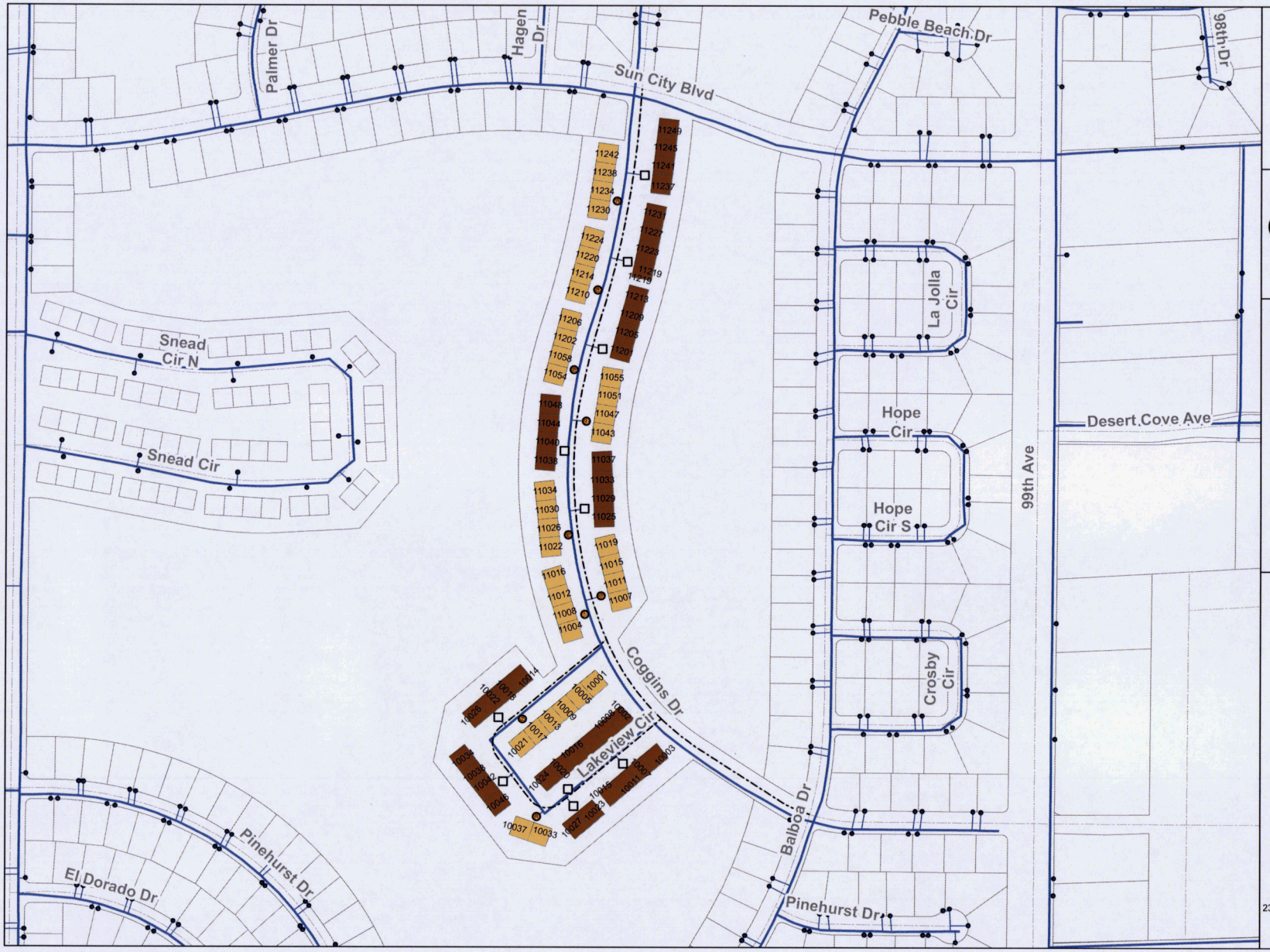
| Subtotal | | | | $ 10,764 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 1,076 |
| **Total Estimated Cost** | | | | **$ 11,840** |




# 2017

Project No: S-21
PWSID: 0407099

## Sun City Water

**Project Area:**

## Coggins Dr

**Project Description:**

Replace 10 residential services on Coggins Dr and Lakeview Cir between Sun City Blvd and Balboa Dr.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

100 50 0 100 200 300 400 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-21** | Project Location:<br>Coggins Dr |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (10 total on Coggins Dr and Lakeview Cir between Sun City Blvd and Balboa Dr.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 10 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 35,600 |
| 10 | hours | 28 | Company labor for field oversight and construction project management | $ 280 |
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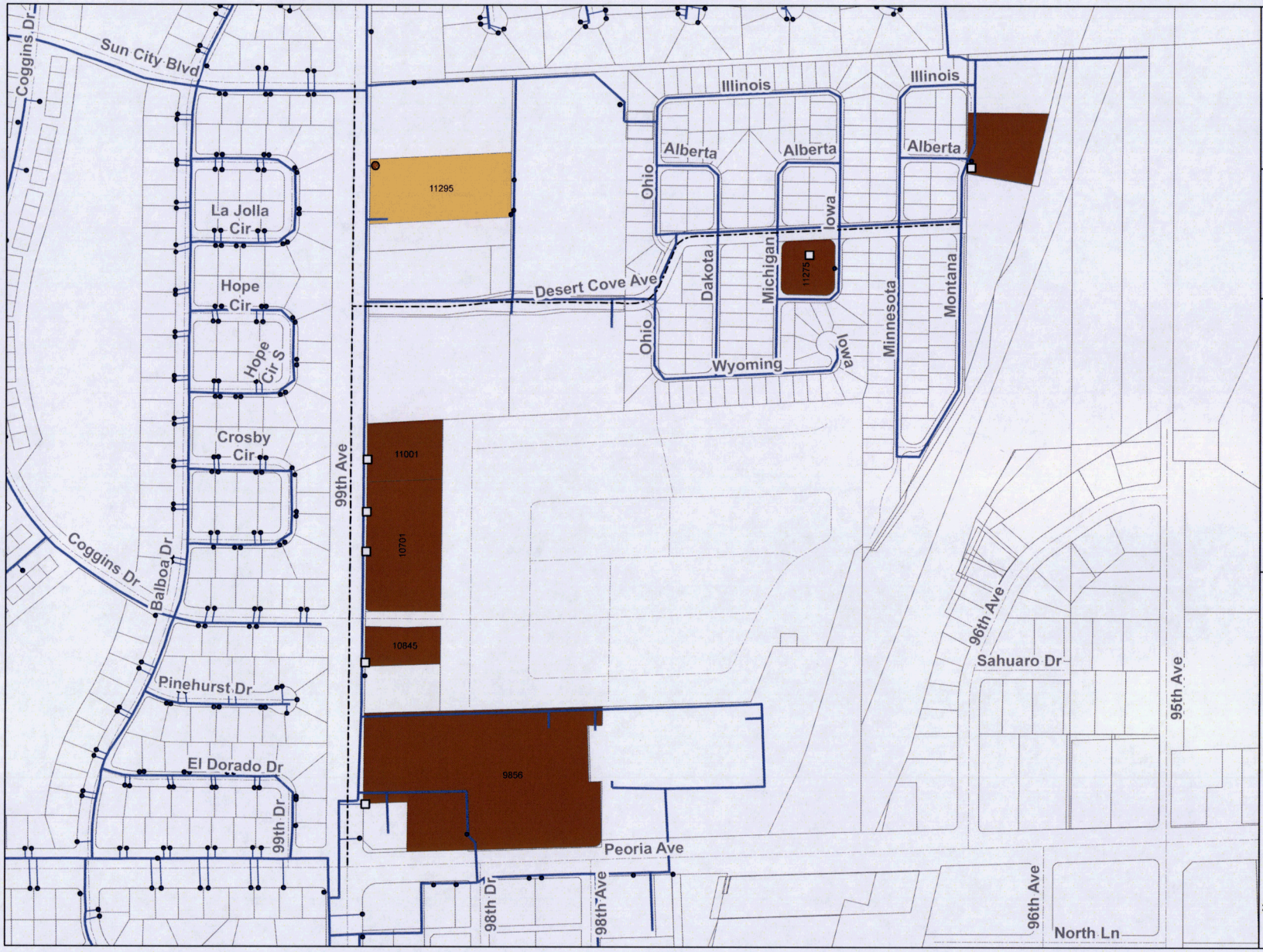
| Subtotal | | | | $ 35,880 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 3,588 |
| **Total Estimated Cost** | | | | **$ 39,468** |




# 2017

Project No: S-22
PWSID: 0407099

## Sun City Water

**Project Area:**

99th Ave

**Project Description:**

Replace 1 commercial service on 99th Ave between Sun City Blvd and Peoria Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

12562.5 0 125 250 375 500 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014

| EPCOR Water<br>Preliminary Cost Estimate | | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-22** | Project Location:<br>99th Ave | |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (1 total on 99th Ave between Sun City Blvd and Peoria Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 1 | 3" service | 3740 | Contractor material and labor to replace services | $ 3,740 |
| 1 | hours | 28 | Company labor for field oversight and construction project management | $ 28 |
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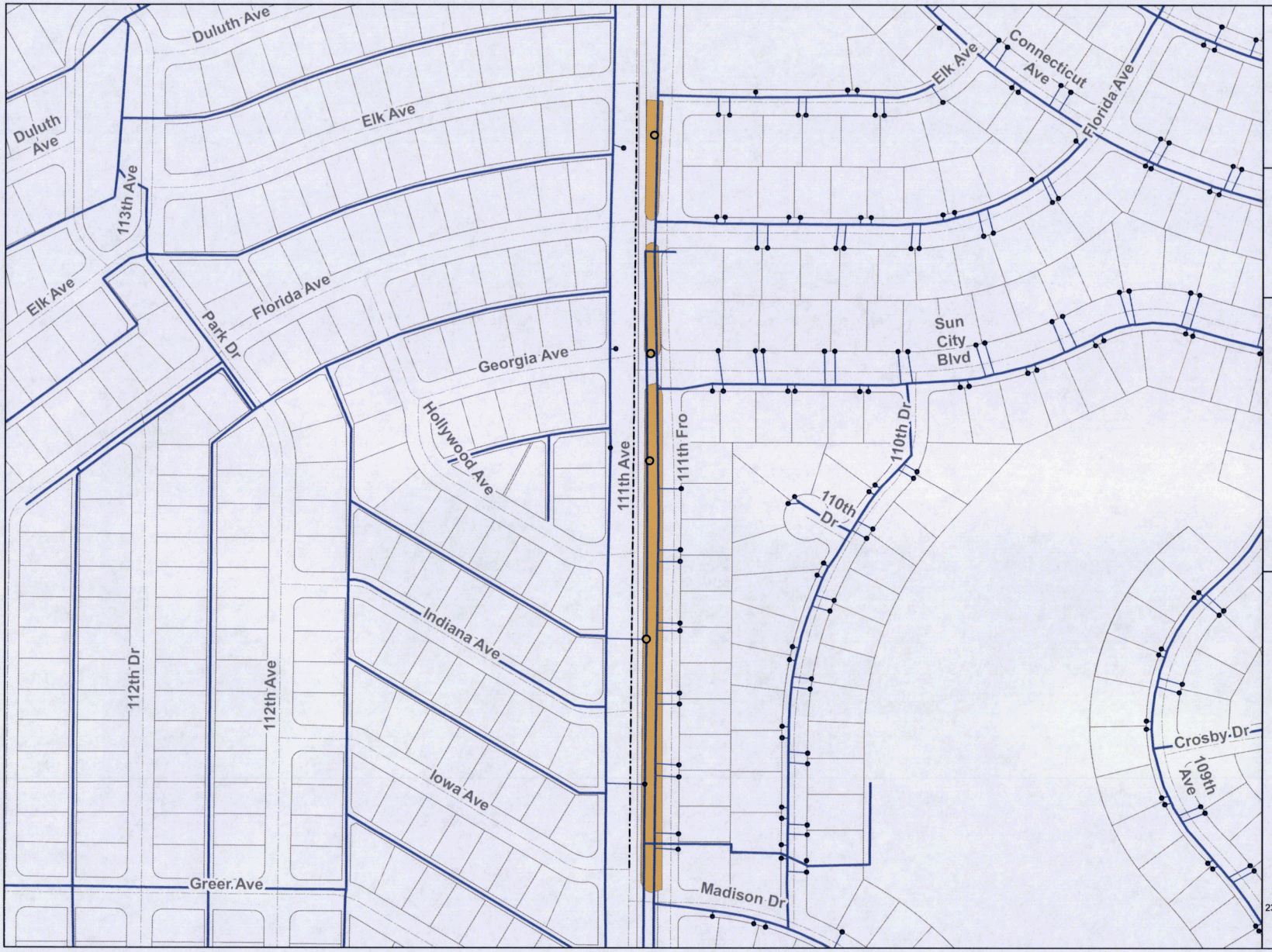
| Subtotal | | | | $ 3,768 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 377 |
| **Total Estimated Cost** | | | | **$ 4,145** |




# 2017

Project No: S-23
PWSID: 0407099

## Sun City Water

**Project Area:**

## 111th Ave South

**Project Description:**

Replace 4 irrigation services on 111th Ave between Elk Ave and Iowa Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

75 37.5 0 75 150 225 300 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-23** | Project Location:<br>111th Ave South |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (4 total on 111th Ave between Elk Ave and Iowa Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 4 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 14,240 |
| 4 | hours | 28 | Company labor for field oversight and construction project management | $ 112 |
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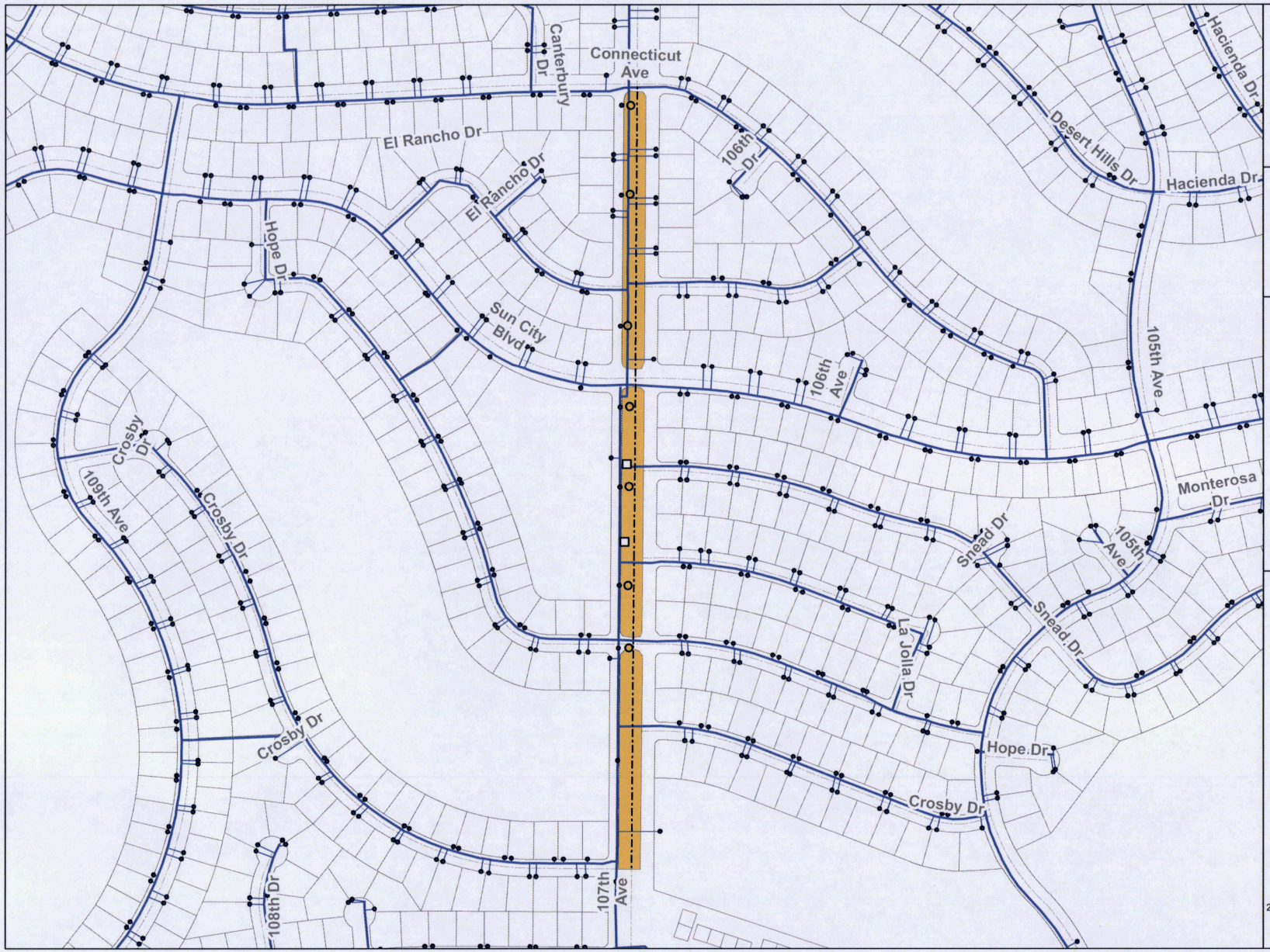
| Subtotal | | | | $ 14,352 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 1,435 |
| **Total Estimated Cost** | | | | **$ 15,787** |




# 2017

Project No: S-24
PWSID: 0407099

## Sun City Water

**Project Area:**

## 107th Ave South

**Project Description:**

Replace 1 residential and 7 irrigation services on 107th Ave between Connecticut Ave and Elk Ave and Hope Dr.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

110 55 0 110 220 330 440
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-24** | Project Location:<br>107th Ave South |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (8 total on 107th Ave between Connecticut Ave and Elk Ave and Hope Dr.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 8 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 28,480 |
| 8 | hours | 28 | Company labor for field oversight and construction project management | $ 224 |
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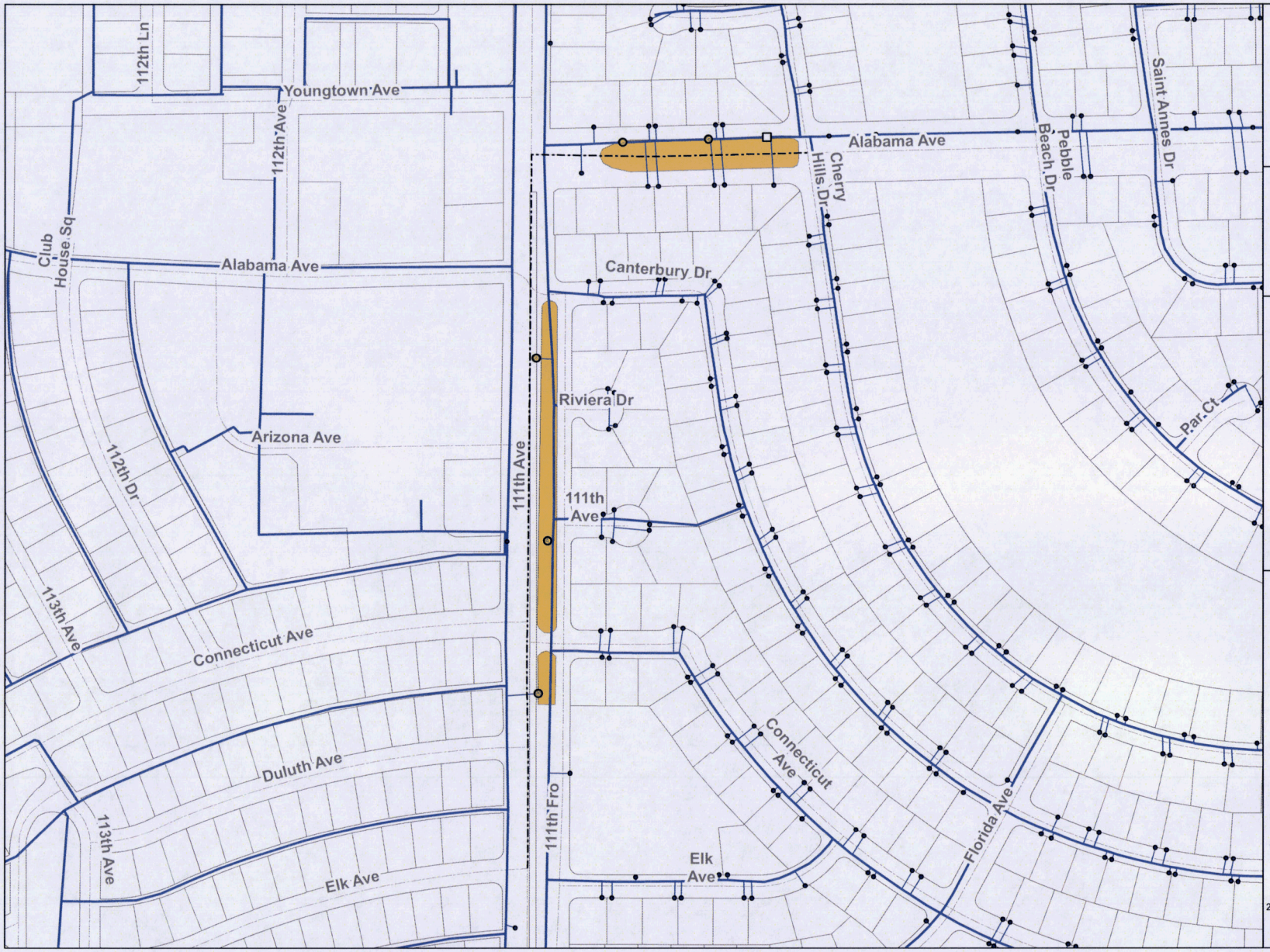
| Subtotal | | | | $ 28,704 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 2,870 |
| **Total Estimated Cost** | | | | **$ 31,574** |




# 2017

Project No: S-25
PWSID: 0407099

## Sun City Water

**Project Area:**

## 111th Ave North

**Project Description:**

Replace 5 irrigation services on 111th Ave and Alabama Ave between Elk Ave and Cherry Hills Dr.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

80 40 0 80 160 240 320 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/7/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, PE | Sun City | **2017 S-25** | 111th Ave North |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (5 total on 111th Ave and Alabama Ave between Elk Ave and Cherry Hills Dr.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 5 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 17,800 |
| 5 | hours | 28 | Company labor for field oversight and construction project management | $ 140 |
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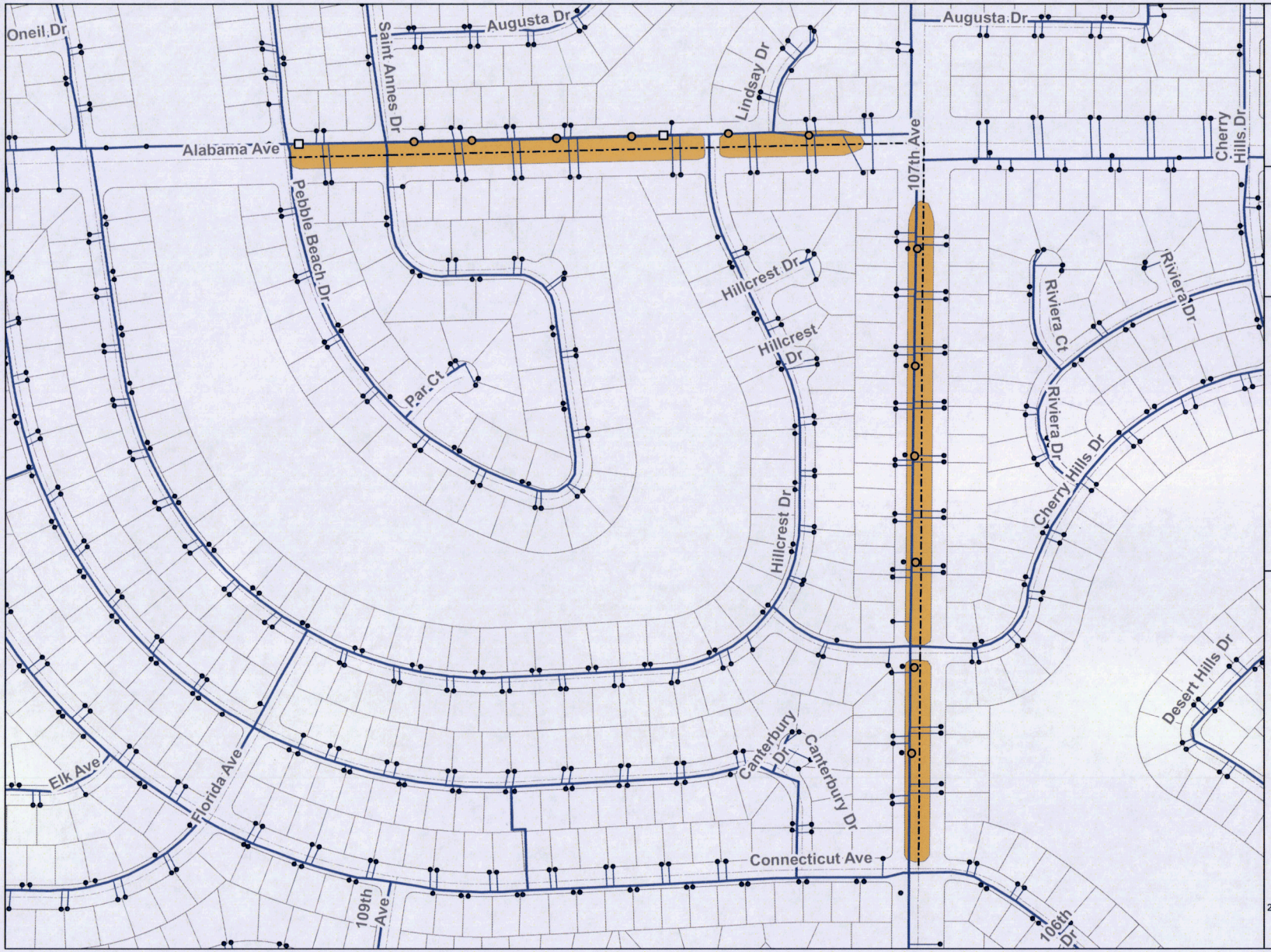
| Subtotal | | | | $ 17,940 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 1,794 |
| **Total Estimated Cost** | | | | **$ 19,734** |




# 2017

Project No: S-26
PWSID: 0407099

## Sun City Water

**Project Area:**

## 107th Ave North

**Project Description:**

Replace 12 irrigation services on 107th Ave and Alabama Ave between Pebble Beach Dr and Connecticut Ave

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

100 50 0 100 200 300 400 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-26** | Project Location:<br>107th Ave North |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (12 total on 107th Ave and Alabama Ave between Pebble Beach Dr and Connecticut Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 12 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 42,720 |
| 12 | hours | 28 | Company labor for field oversight and construction project management | $ 336 |
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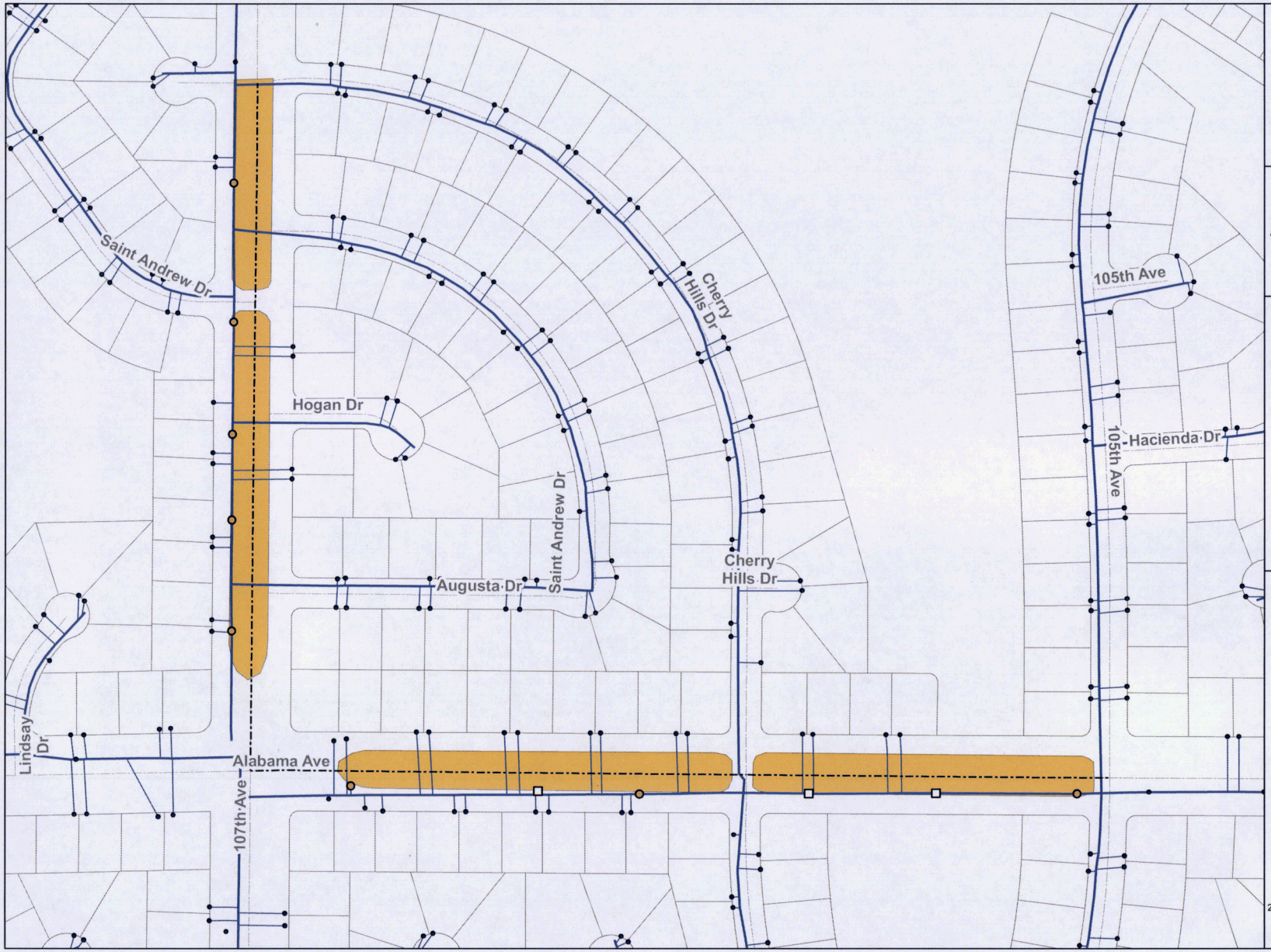
| Subtotal | | | | $ 43,056 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 4,306 |
| **Total Estimated Cost** | | | | **$ 47,362** |




# 2017

Project No: S-27
PWSID: 0407099

## Sun City Water

**Project Area:**

## Alabama Ave and 107th Ave

**Project Description:**

Replace 8 irrigation services on 107th Ave and Alabama Ave between Cherry Hills Dr and 105th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

60 30 0 60 120 180 240 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>Preliminary Cost Estimate | | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-27** | Project Location:<br>Alabama Ave and 107th Ave | |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (8 total on 107th Ave and Alabama Ave between Cherry Hills Dr and 105th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 8 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 28,480 |
| 8 | hours | 28 | Company labor for field oversight and construction project management | $ 224 |
| | | | | |
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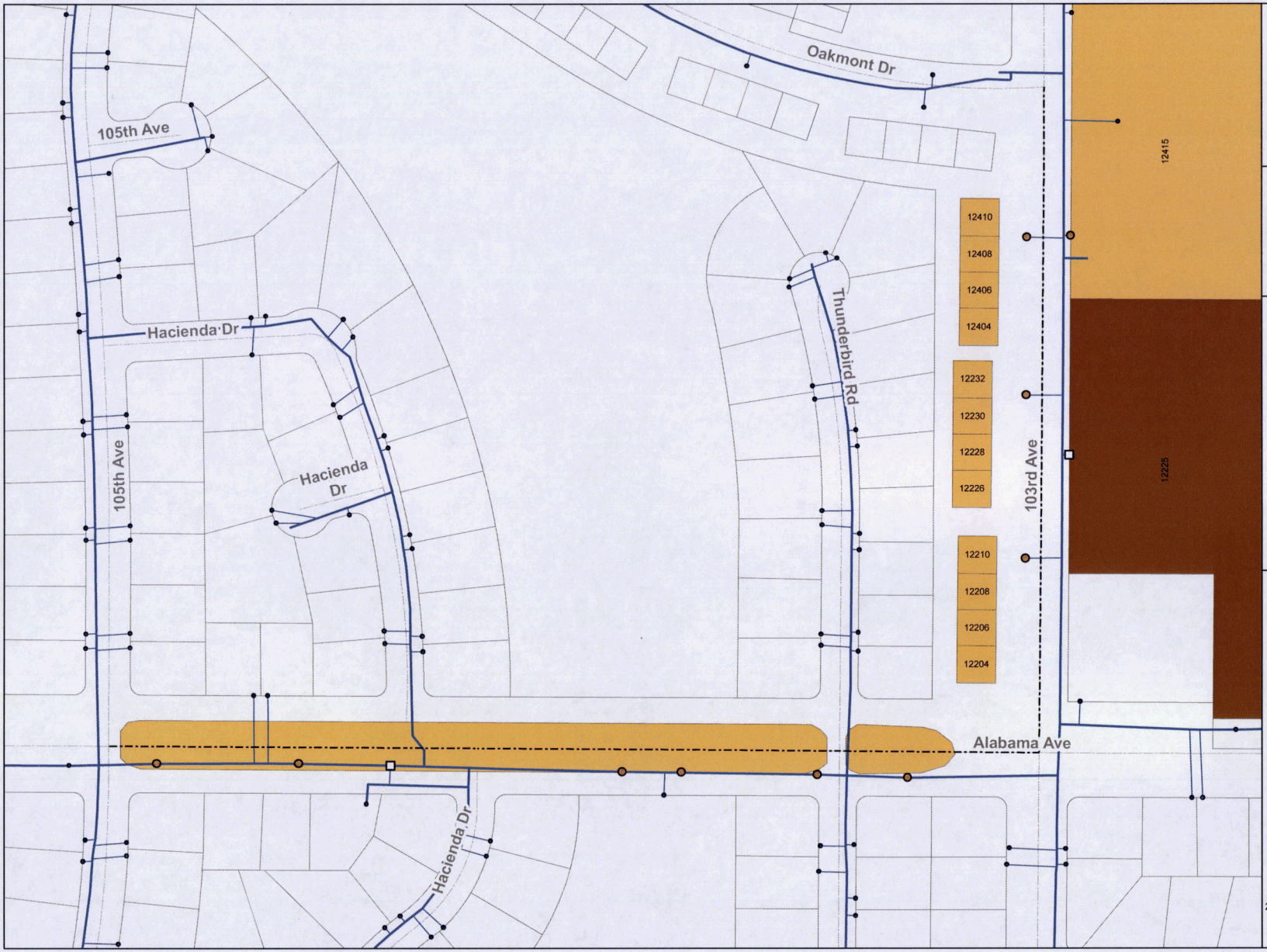
| | | | | |
| | | | | |
| Subtotal | | | | $ 28,704 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 2,870 |
| **Total Estimated Cost** | | | | **$ 31,574** |




# 2017

Project No: S-28
PWSID: 0407099

## Sun City Water

**Project Area:**

## Alabama Ave at Thunderbird

**Project Description:**

Replace 3 residential, 1 commercial and 6 irrigation services on Alabama Ave and 103th Ave between 105th Ave and Oakmont Dr.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

50 25 0 50 100 150 200 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-28** | Project Location:<br>Alabama Ave at Thunderbird |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (10 total on Alabama Ave and 103th Ave between 105th Ave and Oakmont Dr.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 10 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 35,600 |
| 10 | hours | 28 | Company labor for field oversight and construction project management | $ 280 |
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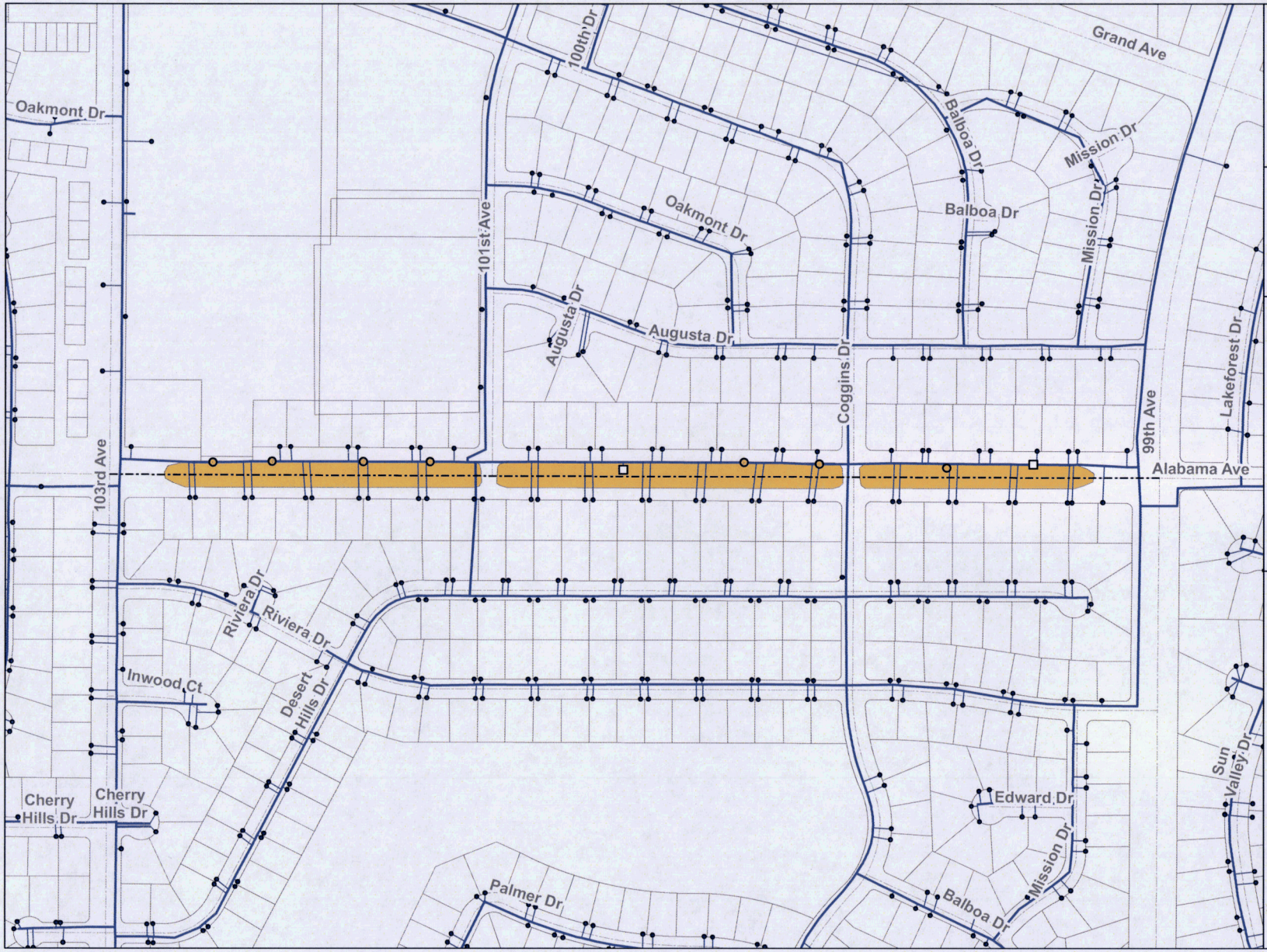
| | | | | |
| Subtotal | | | | $ 35,880 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 3,588 |
| **Total Estimated Cost** | | | | **$ 39,468** |




# 2017

Project No: S-29
PWSID: 0407099

## Sun City Water

**Project Area:**

## Alabama Ave at Coggins

**Project Description:**

Replace 7 irrigation services on Alabama Ave between 103rd Ave and 99th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

100 50 0 100 200 300 400 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-29** | Project Location:<br>Alabama Ave at Coggins |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (7 total on Alabama Ave between 103rd Ave and 99th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 7 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 24,920 |
| 7 | hours | 28 | Company labor for field oversight and construction project management | $ 196 |
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| Subtotal | | | | $ 25,116 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 2,512 |
| **Total Estimated Cost** | | | | **$ 27,628** |

# 2017

Project No: S-30
PWSID: 0407099

## Sun City Water

**Project Area:**

## Coggins Dr

**Project Description:**

Replace 25 residential and 2 commercial services on Coggins Dr and Windsor Dr between 111th Ave and 108th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

60 30 0 60 120 180 240 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 •

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/7/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, PE | Sun City | **2017 S-30** | Coggins Dr |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (27 total on Coggins Dr and Windsor Dr between 111th Ave and 108th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 14 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 49,840 |
| 13 | 2" service | 3620 | Contractor material and labor to replace services | $ 47,060 |
| 27 | hours | 28 | Company labor for field oversight and construction project management | $ 756 |
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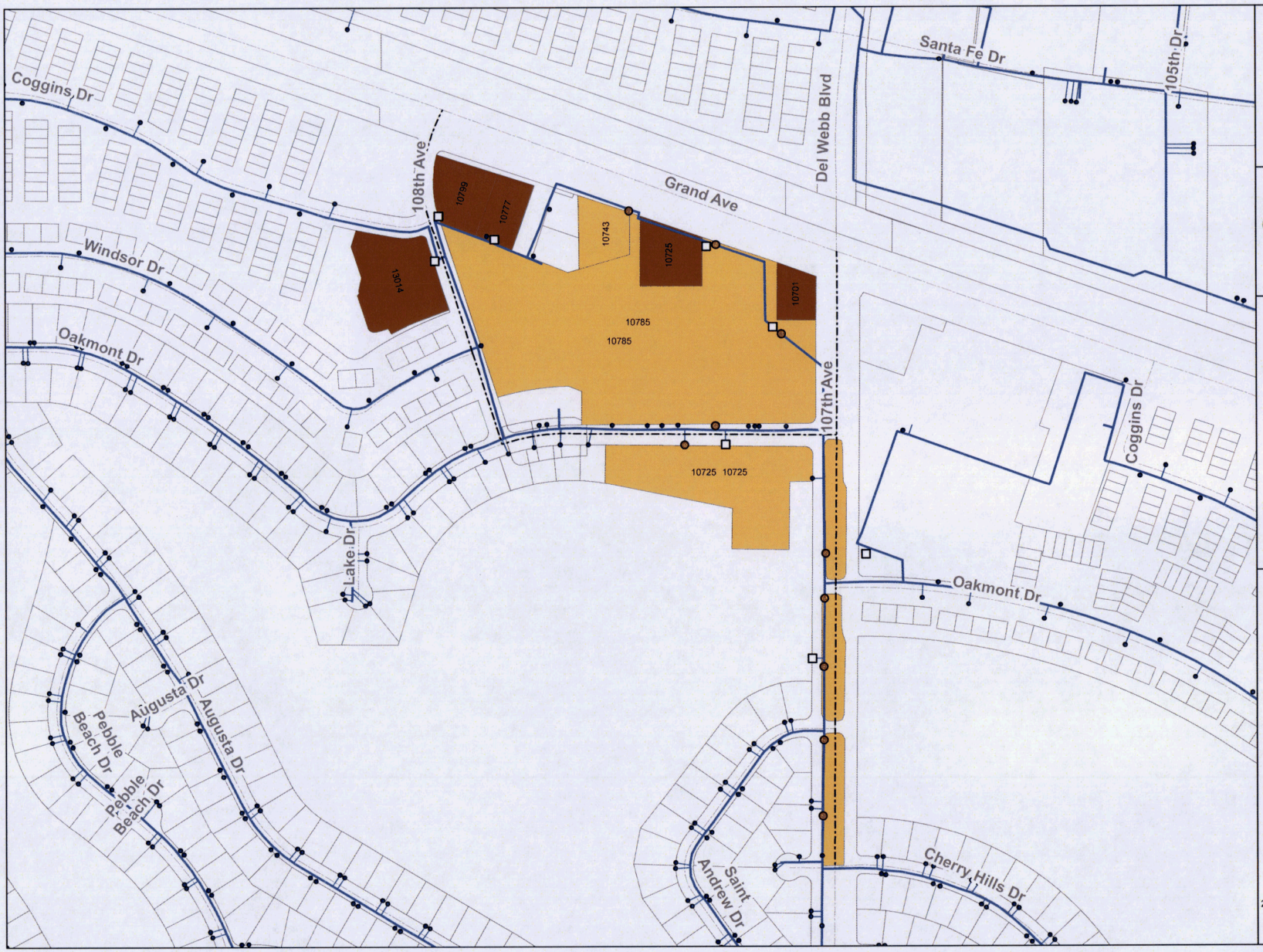
| Subtotal | | | | $ 97,656 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 9,766 |
| **Total Estimated Cost** | | | | **$ 107,422** |




# 2017

Project No: S-31
PWSID: 0407099

## Sun City Water

**Project Area:**

## Oakmont Dr West

**Project Description:**

Replace 4 commercial and 6 irrigation services on Oakmont Dr, 107th Ave and 108th Ave between Grand Ave and Cherry Hills Dr.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

110 55 0 110 220 330 440
Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 •

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/7/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, PE | Sun City | **2017 S-31** | Oakmont Dr West |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (10 total on Oakmont Dr, 107th Ave and 108th Ave between Grand Ave and Cherry Hills Dr.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 8 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 28,480 |
| 2 | 2" service | 3620 | Contractor material and labor to replace services | $ 7,240 |
| 10 | hours | 28 | Company labor for field oversight and construction project management | $ 280 |
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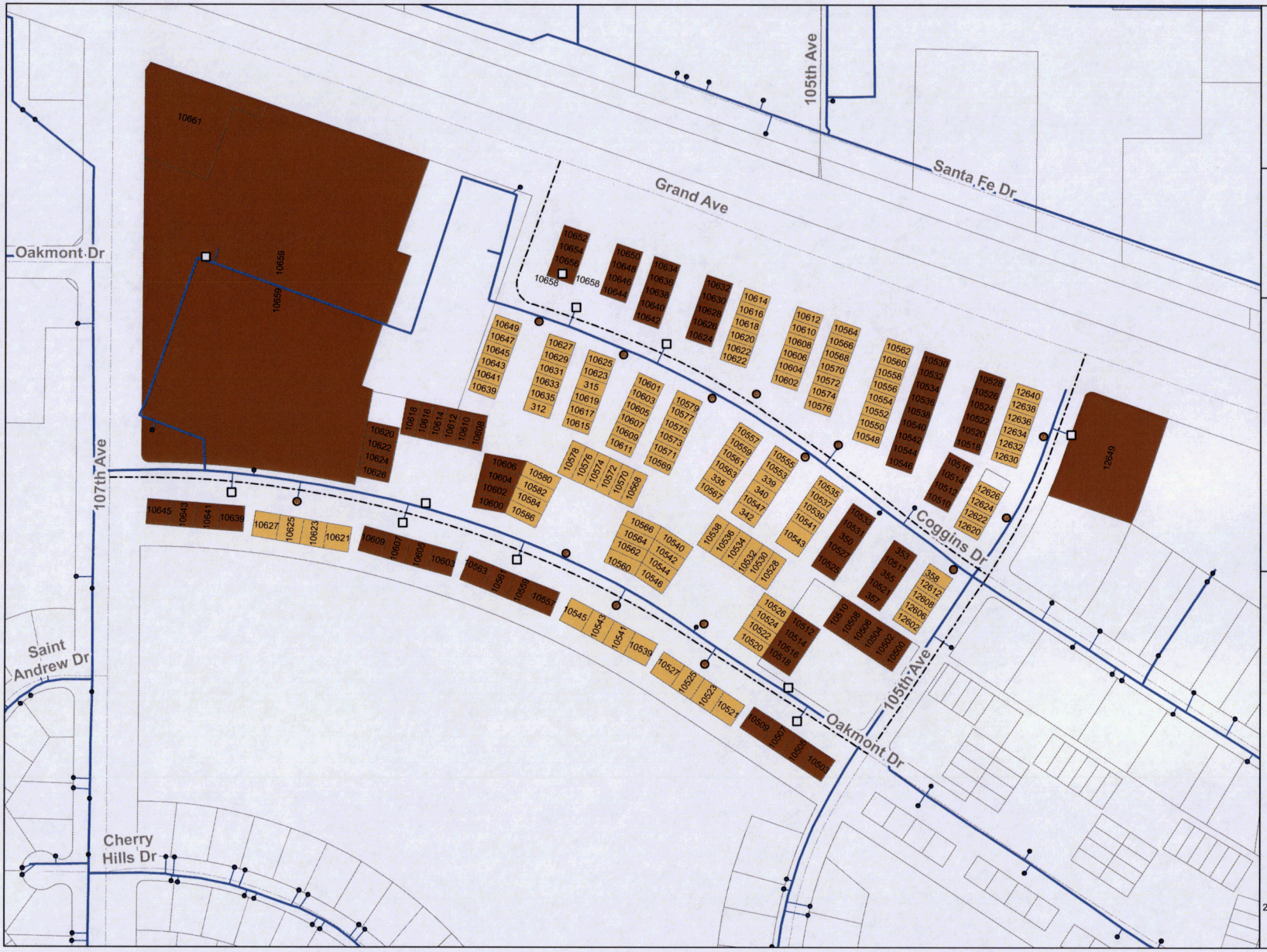
| Subtotal | | | | $ 36,000 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 3,600 |
| **Total Estimated Cost** | | | | **$ 39,600** |




# 2017

Project No: S-32
PWSID: 0407099

## Sun City Water

**Project Area:**

## Oakmont Dr East

**Project Description:**

Replace 14 residential services on 105th Ave, Coggins Dr and Oakmont Dr between 107th Ave and 105th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

75 37.5 0 75 150 225 300 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014

**EPCOR Water**
**Preliminary Cost Estimate**

Date Prepared: 2/7/2014

| Prepared By: | Water System: | Project Year and Number: | Project Location: |
|---|---|---|---|
| Marc Allen, PE | Sun City | **2017 S-32** | Oakmont Dr East |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (14 total on 105th Ave, Coggins Dr and Oakmont Dr between 107th Ave and 105th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 6 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 21,360 |
| 8 | 2" service | 3620 | Contractor material and labor to replace services | $ 28,960 |
| 14 | hours | 28 | Company labor for field oversight and construction project management | $ 392 |
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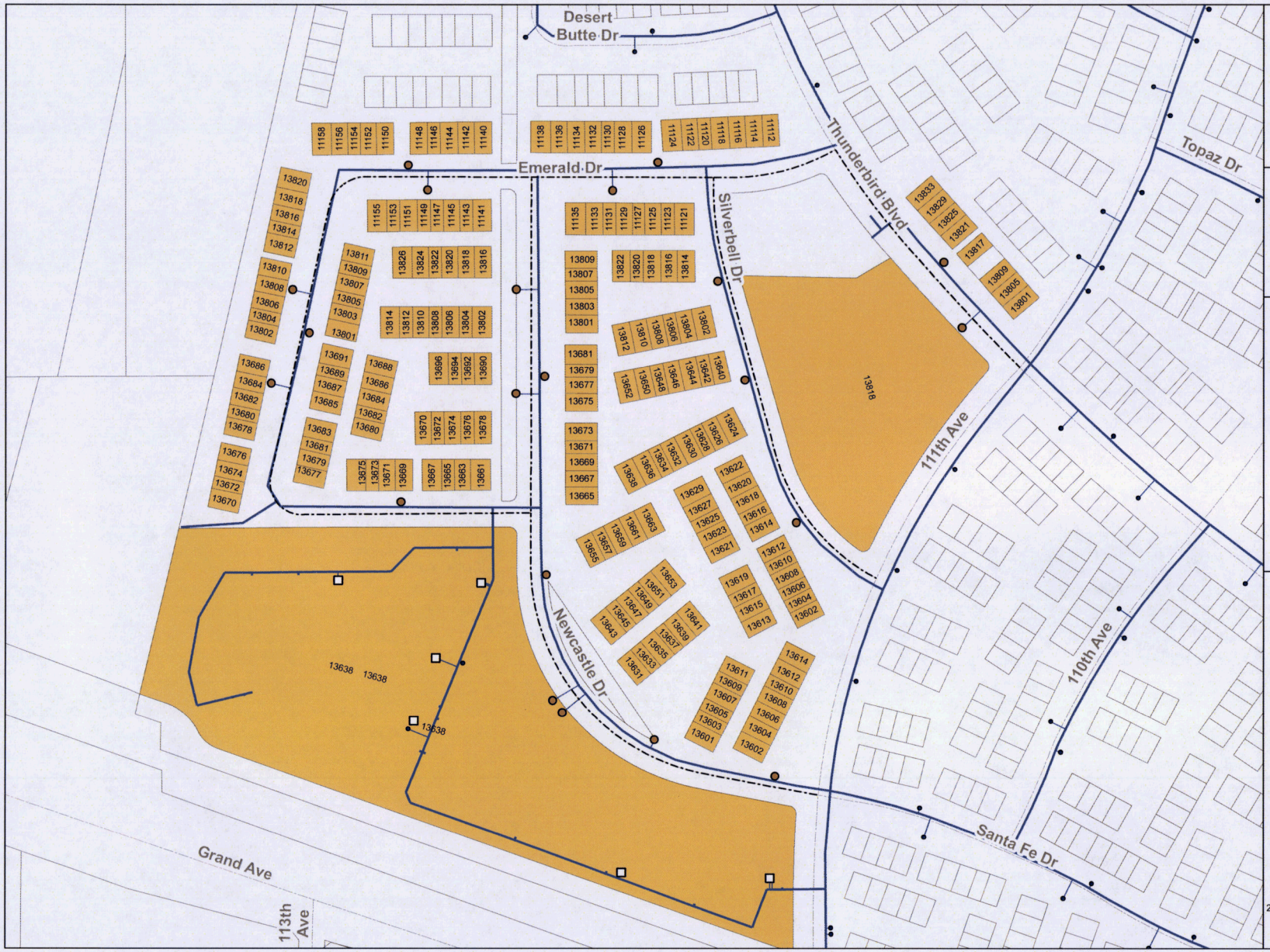
| Subtotal | | | | $ 50,712 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 5,071 |
| **Total Estimated Cost** | | | | **$ 55,783** |




# 2017

Project No: S-33
PWSID: 0407099

## Sun City Water

**Project Area:**

## Newcastle Dr

**Project Description:**

Replace 19 residential and 2 irrigation services on Emerald Dr, Garden Court Dr, Newcastle Dr, Silverbell Dr and Thunderbird Blvd between Emerald Dr and 111th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

75 37.5 0 75 150 225 300 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 ©

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-33** | Project Location:<br>Newcastle Dr |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (21 total on Emerald Dr, Garden Court , Newcastle Dr, Silverbell Dr and Thunderbird Blvd between Emerald Dr and 111th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 5 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 17,800 |
| 16 | 2" service | 3620 | Contractor material and labor to replace services | $ 57,920 |
| 21 | hours | 28 | Company labor for field oversight and construction project management | $ 588 |
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| Subtotal | | | | $ 76,308 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 7,631 |
| **Total Estimated Cost** | | | | **$ 83,939** |

# 2017

Project No: S-34
PWSID: 0407099

## Sun City Water

**Project Area:**

## Santa Fe Dr West

**Project Description:**

Replace 25 residential services on 109th Ave, 110th Ave, 111th Ave, Santa Fe Dr and Thunderbird Blvd between 111th Ave and 109th Ave.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

70 35 0 70 140 210 280 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014 •

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-34** | Project Location:<br>Santa Fe Dr West |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (25 total on 109th Ave, 110th Ave, 111th Ave, Santa Fe Dr and Thunderbird Blvd between 111th Ave and 109th Ave.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 4 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 14,240 |
| 20 | 2" service | 3620 | Contractor material and labor to replace services | $ 72,400 |
| 1 | 2.5" service | 3680 | Contractor material and labor to replace services | $ 3,680 |
| 25 | hours | 28 | Company labor for field oversight and construction project management | $ 700 |
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| Subtotal | | | | $ 91,020 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 9,102 |
| **Total Estimated Cost** | | | | **$ 100,122** |

# 2017

Project No: S-35
PWSID: 0407099

## Sun City Water

**Project Area:**

## Santa Fe Dr East

**Project Description:**

Replace 28 residential, 2 commercial and 2 irrigation services on 108th Ave, 108th Dr, Santa Fe Dr and Thunderbird Blvd between 109th Ave and Del Webb Blvd.

**Legend**

**Project Services**
- Service previously replaced
- Service to be Replaced

**Project Parcels**
- Parcels with service previously replaced
- Parcels with service to be replaced
- Project Centerlines
- Customer Meters
- Water Mains
- Water Services

N

70 35 0 70 140 210 280 Feet

2355 W. Pinnacle Peak Rd.
Suite 300
Phoenix, AZ 85027

EPCOR WATER

Created: 2/10/2014

EPCOR Water 2014

| EPCOR Water<br>Preliminary Cost Estimate | | | Date Prepared:<br>2/7/2014 |
|---|---|---|---|
| Prepared By:<br>Marc Allen, PE | Water System:<br>Sun City | Project Year and Number:<br>**2017 S-35** | Project Location:<br>Santa Fe Dr East |

Project Description:

Replace aging services with copper service lines to reduce water leaks and emergency repairs. (32 total on 108th Ave, 108th Dr, Santa Fe Dr and Thunderbird Blvd between 109th Ave and Del Webb Blvd.)

Materials & Labor

| Quantity | Unit | Avg $/Unit | Description | Estimated Item Cost |
|---|---|---|---|---|
| 10 | 1.5" service | 3560 | Contractor material and labor to replace services | $ 35,600 |
| 22 | 2" service | 3620 | Contractor material and labor to replace services | $ 79,640 |
| 32 | hours | 28 | Company labor for field oversight and construction project management | $ 896 |
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| Subtotal | | | | $ 116,136 |
| General Overhead Rate on Labor and Capital (10%) | | | | $ 11,614 |
| **Total Estimated Cost** | | | | **$ 127,750** |