Town of Queen Creek Assured Water Supply Presentation & Update

Town Council Regular Meeting

July 19, 2023

ARIZONA DEPARTMENT OF WATER RESOURCES

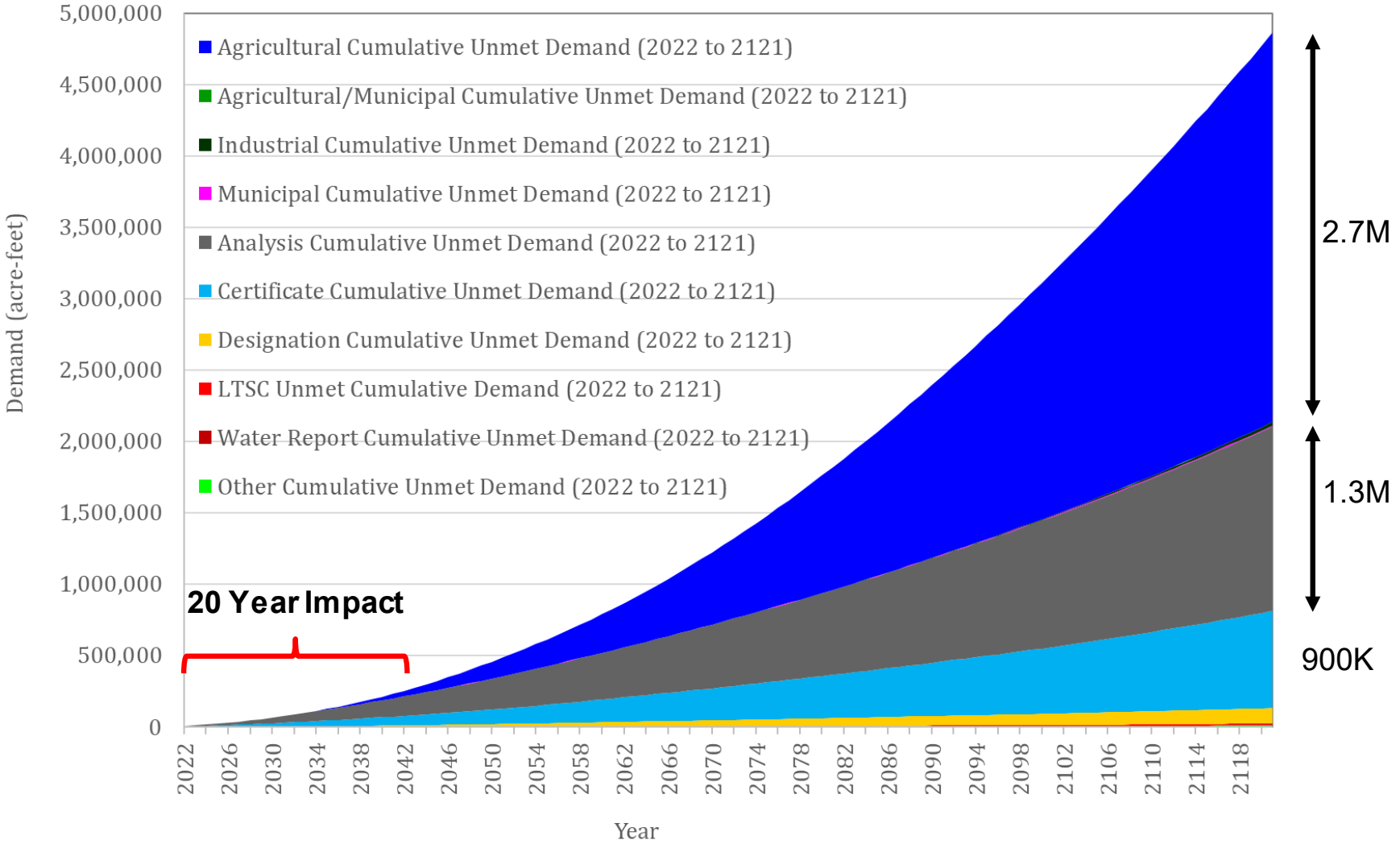
Technical Memorandum

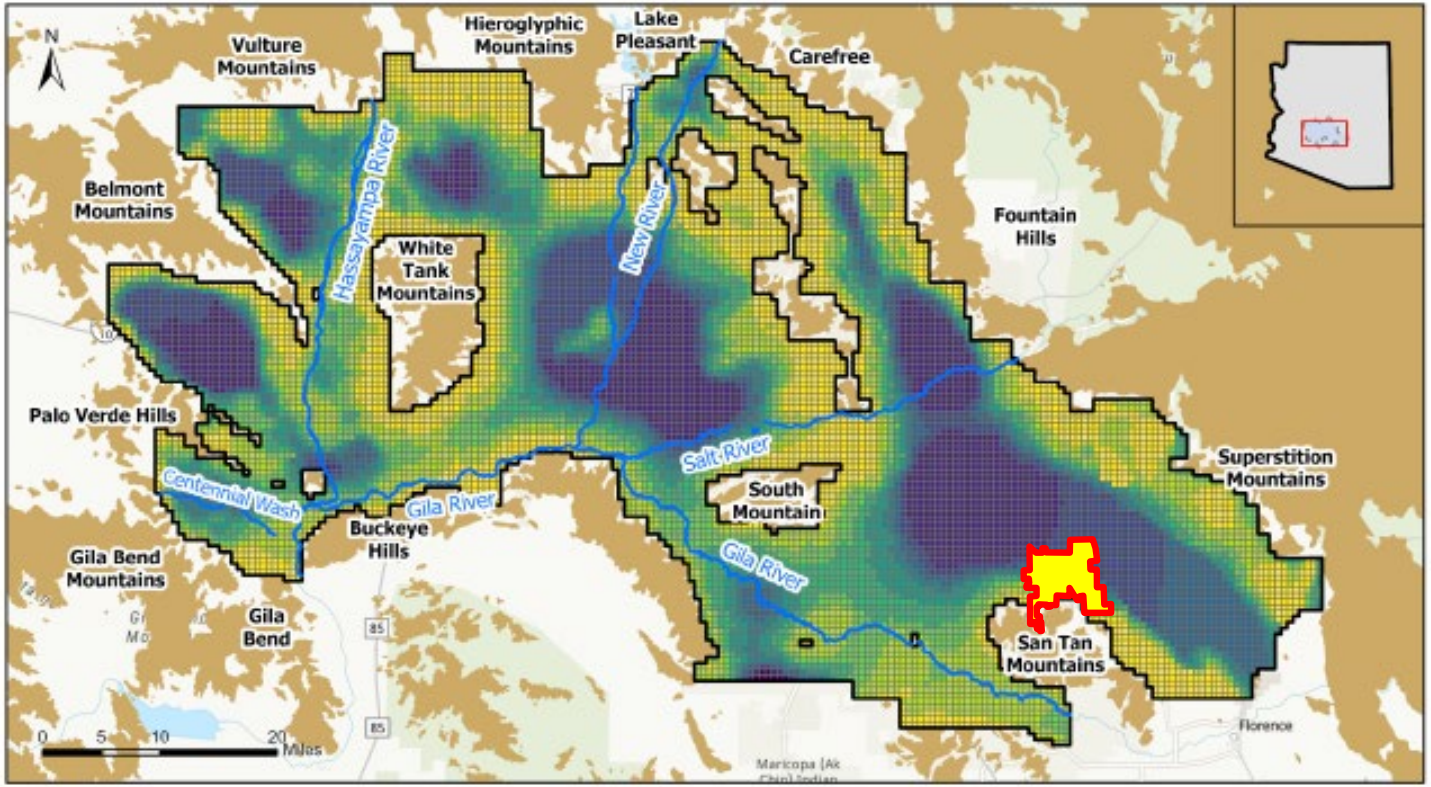
Phoenix AMA

100-Year Assured Water Supply Projection

Groundwater Modeling Section
Hydrology Division

June 2023


5,000,000
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
Demand (acre-feet)
Agricultural Cumulative Unmet Demand (2022 to 2121)
Agricultural/Municipal Cumulative Unmet Demand (2022 to 2121)
Industrial Cumulative Unmet Demand (2022 to 2121)
Municipal Cumulative Unmet Demand (2022 to 2121)
Analysis Cumulative Unmet Demand (2022 to 2121)
Certificate Cumulative Unmet Demand (2022 to 2121)
Designation Cumulative Unmet Demand (2022 to 2121)
LTSC Unmet Cumulative Demand (2022 to 2121)
Water Report Cumulative Unmet Demand (2022 to 2121)
Other Cumulative Unmet Demand (2022 to 2121)
20 Year Impact
2.7M
1.3M
900K
2022
2026
2030
2034
2038
2042
2046
2050
2054
2058
2062
2066
2070
2074
2078
2082
2086
2090
2094
2098
2102
2106
2110
2114
2118
Year



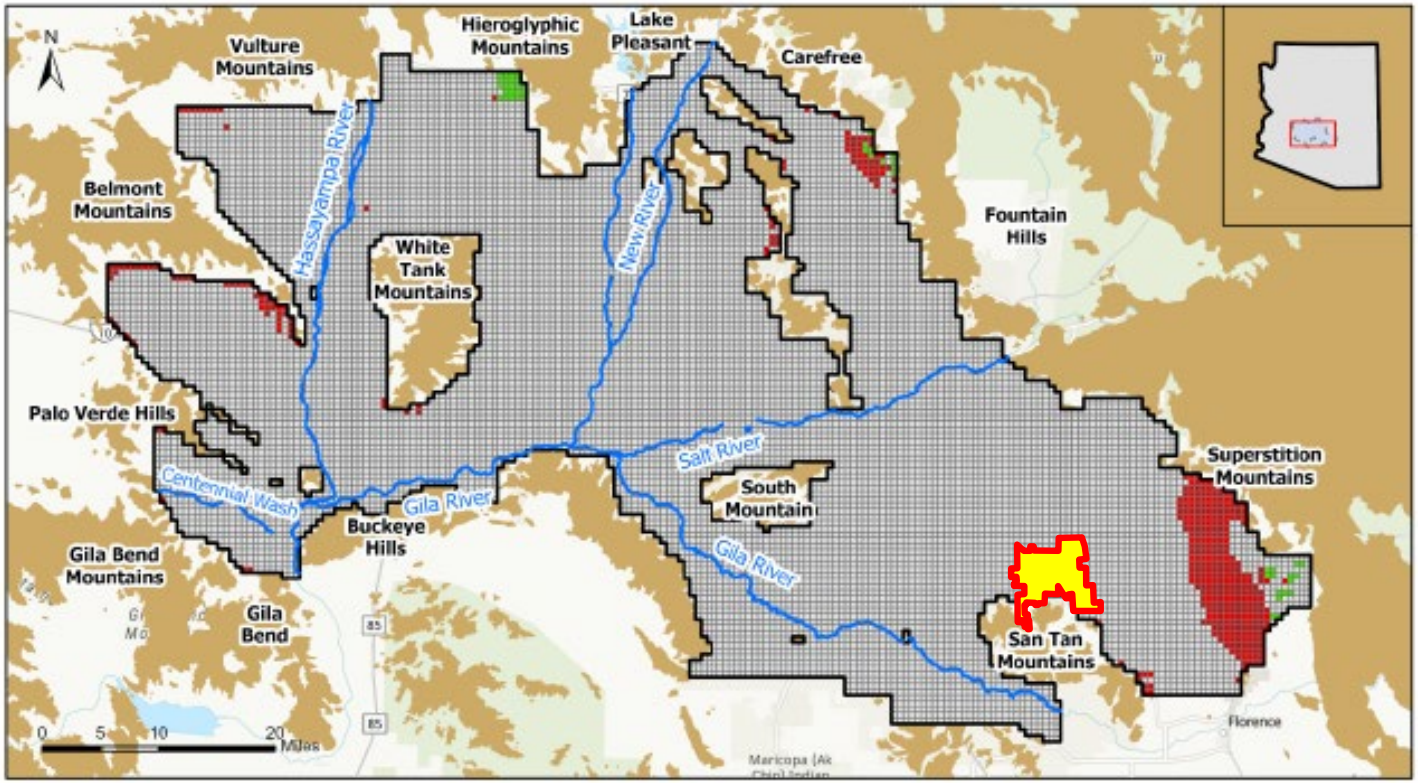
Phoenix Active Management Area (AMA)
100-Year Assured Water Supply Projection

ADWR 2023

Figure 2-5

Saturated Thickness of
Alluvial Aquifer above Bedrock
by the End of 2121

Phoenix AMA Grid Boundary
Bedrock
Saturated Thickness above Bedrock (feet)
0 to 300
300 to 600
600 to 900
900 to 1,200
1,200 to 1,500
1,500 to 1,800
1,800 to 2,100
2,100 to 2,400
2,400 to 2,700
2,700 to 2,858



Phoenix Active Management Area (AMA)
100-Year Assured Water Supply Projection

ADWR 2023

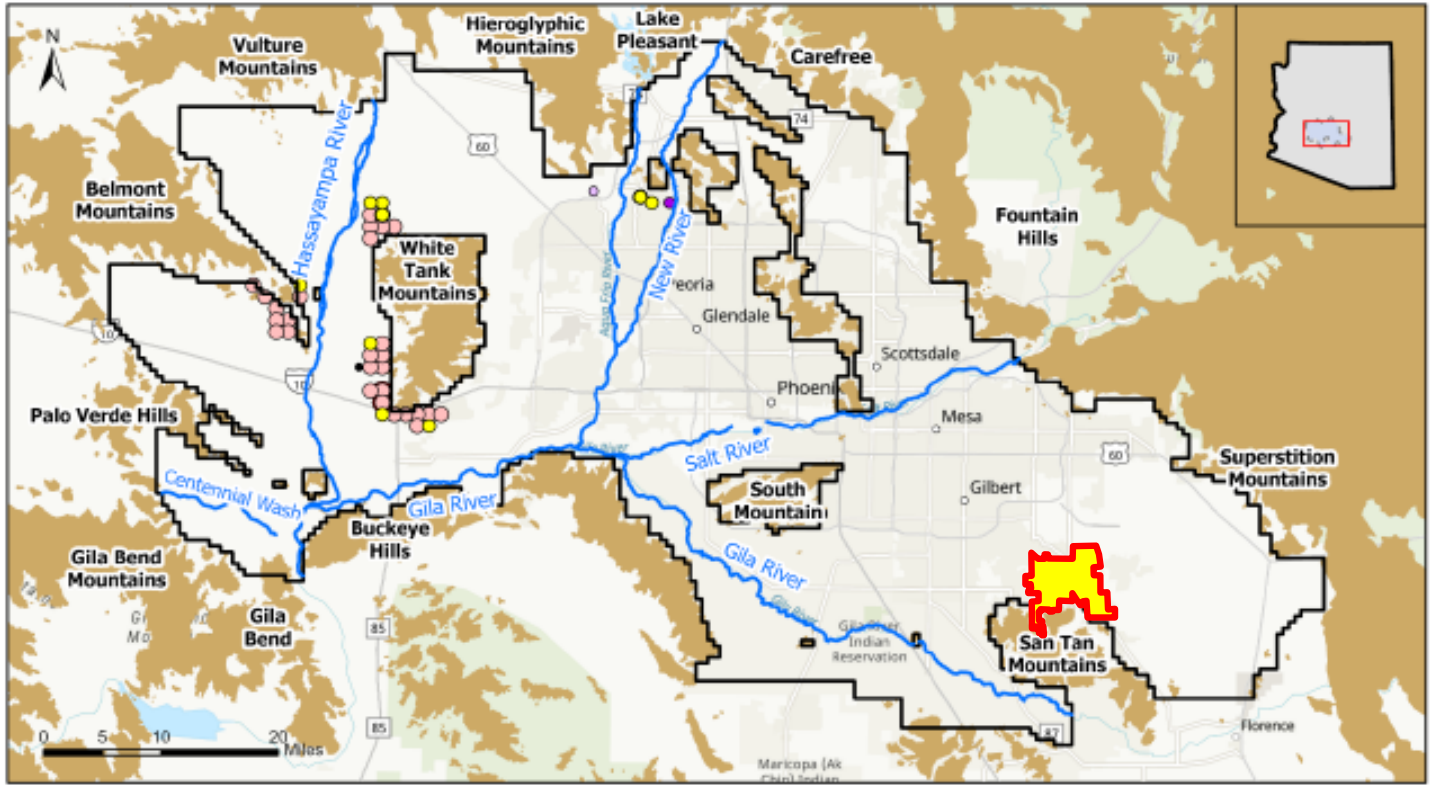
Figure 2-2

Location of
Simulated Depth to Water
below 1,000 ft or at Bedrock

- Phoenix AMA Grid Boundary
- Bedrock

Simulated AWS Violation

- Not Violated
- Violated at Beginning of 2022
- Violated at End of 2121



Phoenix Active Management Area (AMA)
100-Year Assured Water Supply Projection

ADWR 2023

Figure 2-11

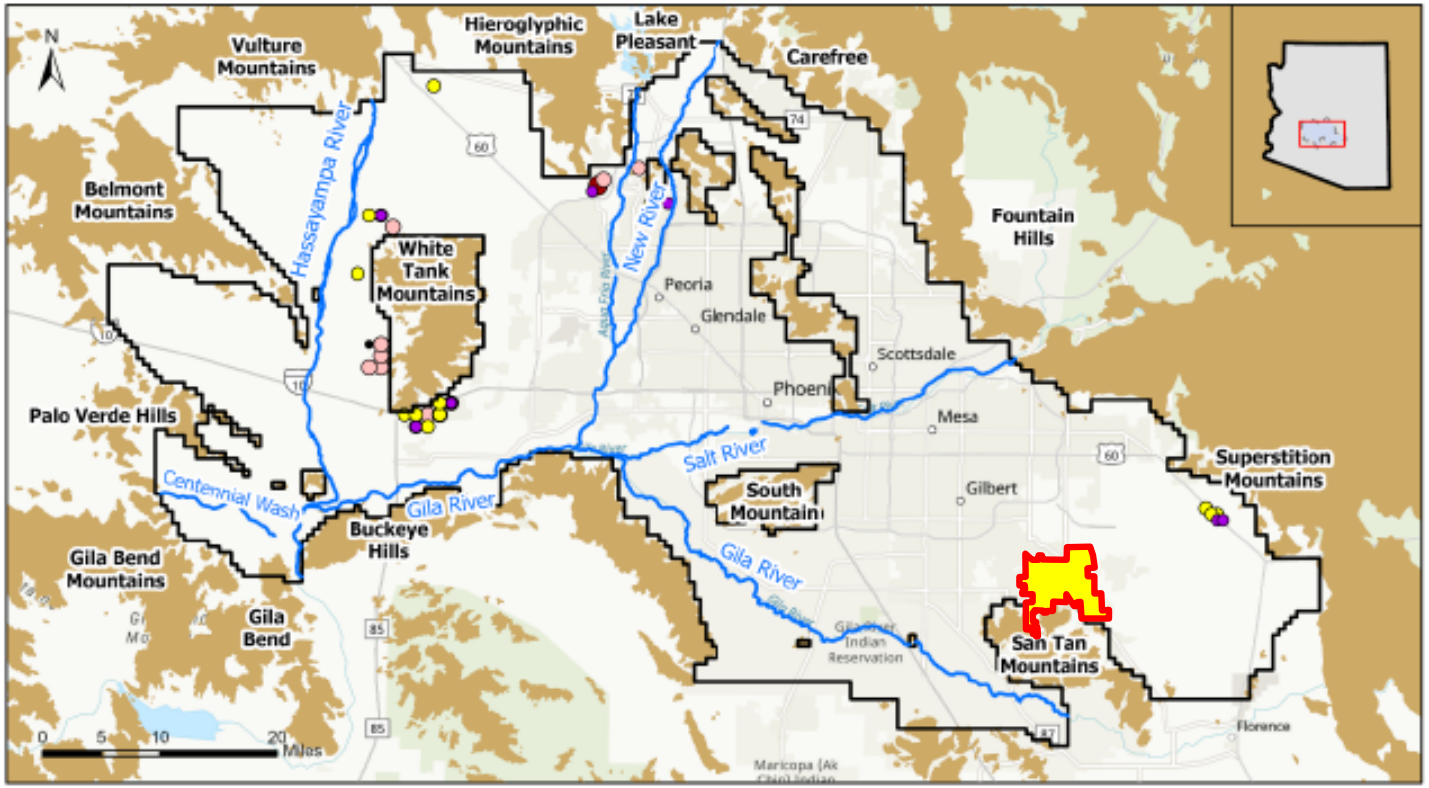
Cumulative Unmet Demand
at Analysis of AWS Locations
(2022 - 2121)

Phoenix AMA Grid Boundary

Bedrock

Cumulative Unmet Demand (acre-feet)

- 6 to 10
- 10 to 100
- 100 to 1,000
- 1,000 to 10,000
- 10,000 to 100,000
- 100,000 to 114,209



Phoenix Active Management Area (AMA)
100-Year Assured Water Supply Projection

ADWR 2023

Figure 2-12

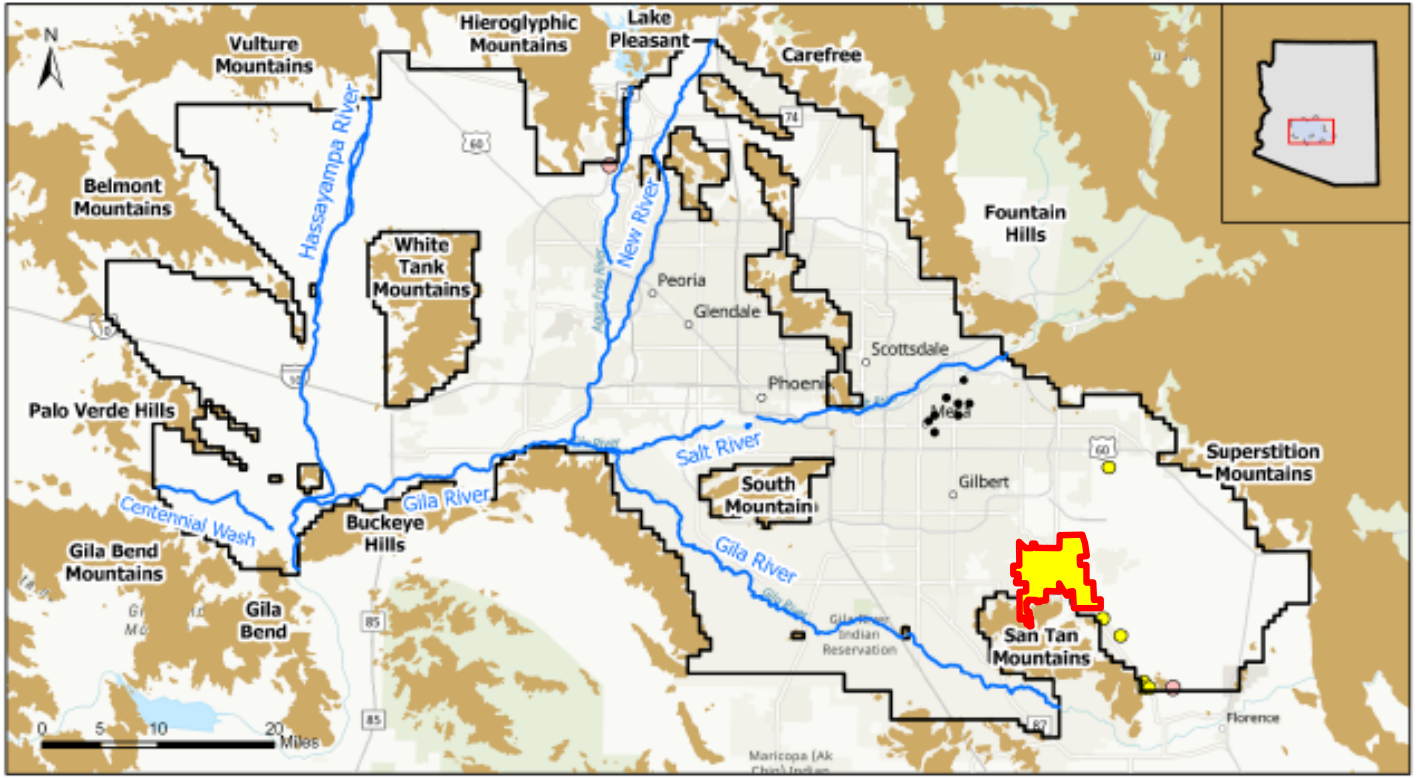
Cumulative Unmet Demand
at Certificate of AWS Locations
(2022 -2121)

Phoenix AMA Grid Boundary

Bedrock

Cumulative Unmet Demand (acre-feet)

- 8 to 10
- 10 to 100
- 100 to 1,000
- 1,000 to 10,000
- 10,000 to 100,000
- 100,000 to 147,287



Phoenix Active Management Area (AMA)
100-Year Assured Water Supply Projection

ADWR 2023

Figure 2-13

Cumulative Unmet Demand
at Designation of AWS Locations
(2022 - 2121)

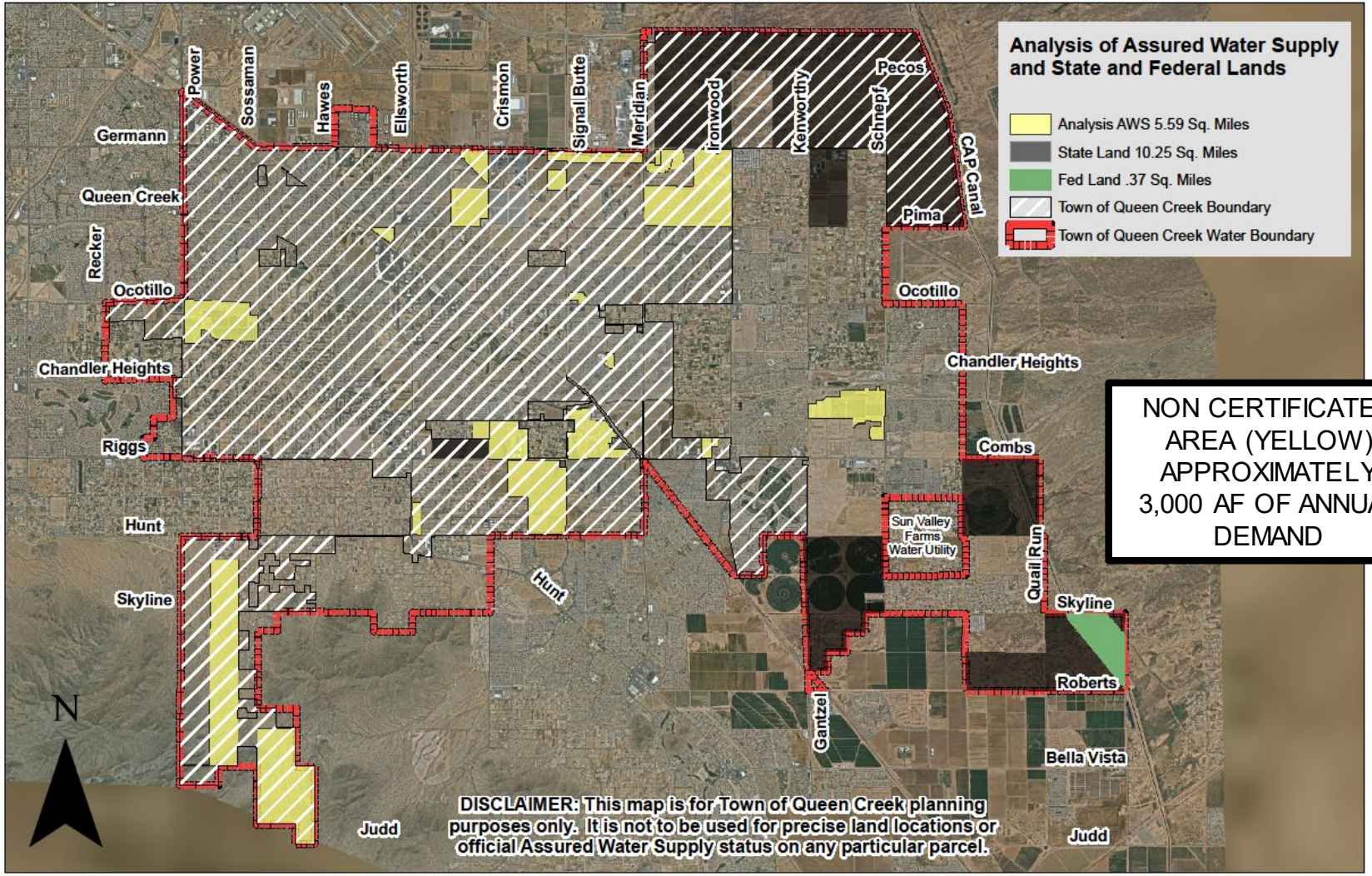
Phoenix AMA Grid Boundary

Bedrock

Cumulative Unmet Demand (acre-feet)

- 1 to 10
- 10 to 100
- 100 to 1,000
- 1,000 to 10,000
- 10,000 to 52,620

QUEEN CREEK WATER SERVICE AREA IMPACT

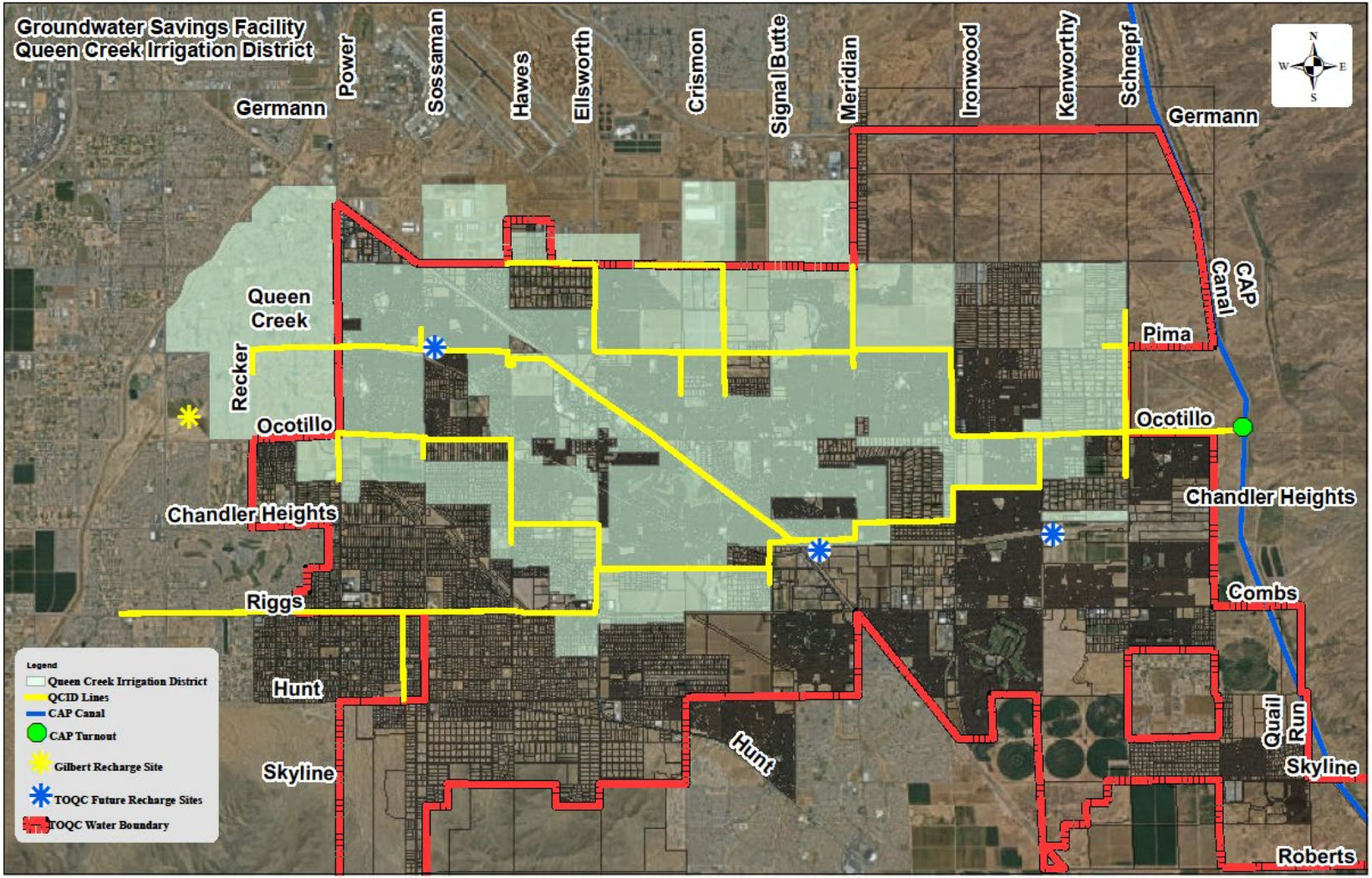


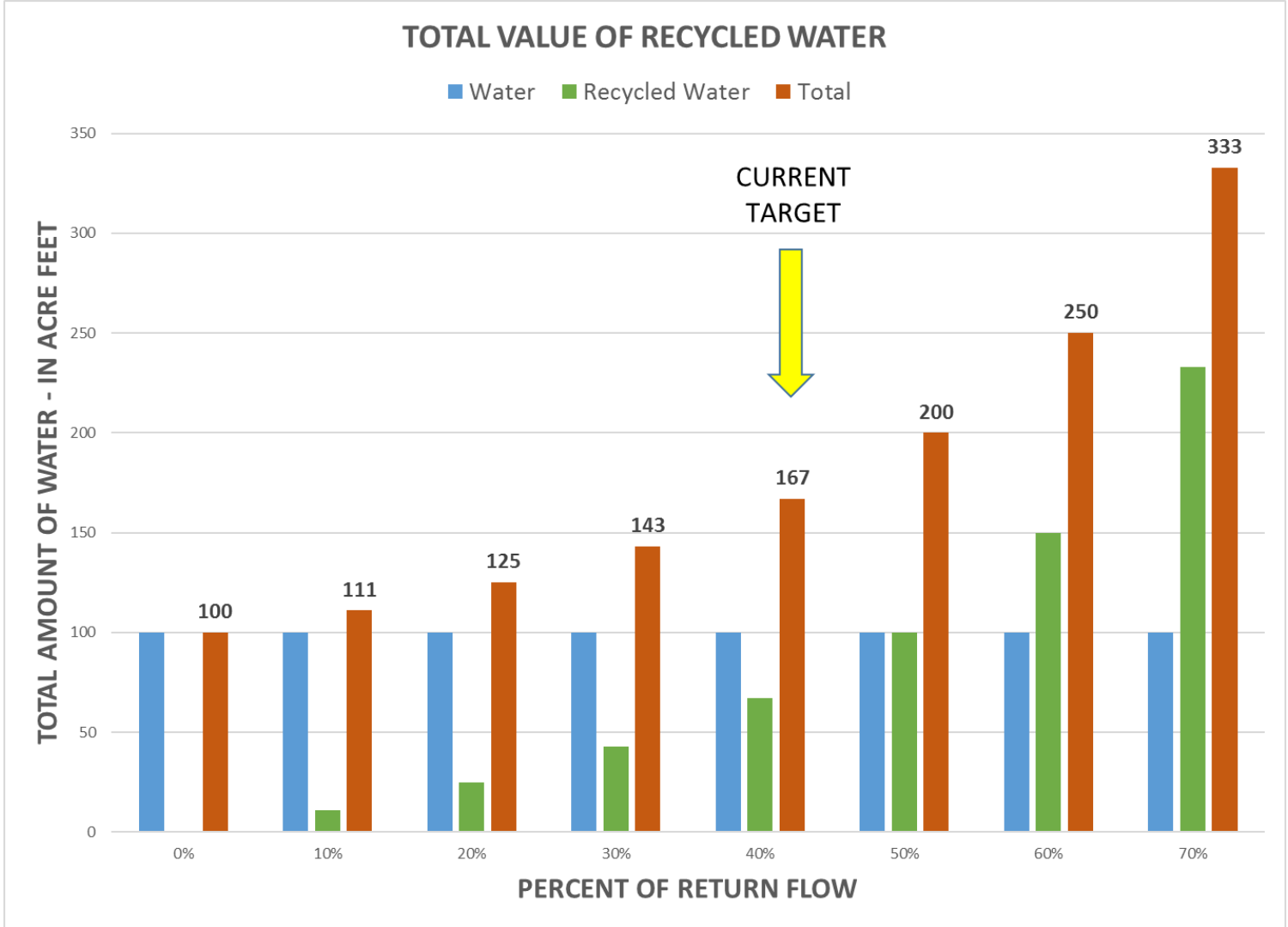
NON CERTIFICATED AREA (YELLOW) APPROXIMATELY 3,000 AF OF ANNUAL DEMAND

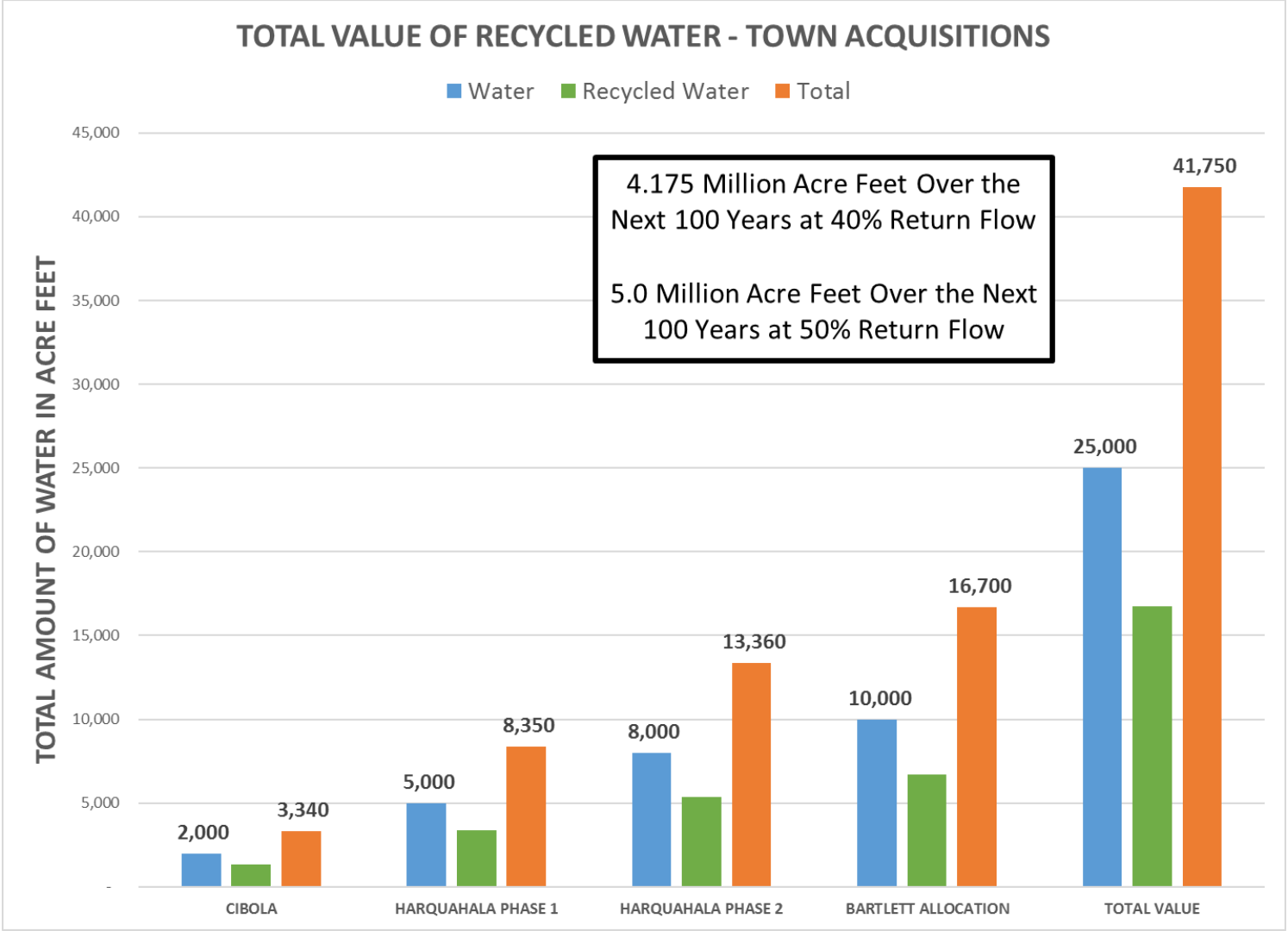
WHAT HAS QUEEN CREEK BEEN DOING

- **Reuse and Recharge of Treated Water**
- **Acquisition of Non-Groundwater Sources**

Diversification of Water Sources


Groundwater Savings Facility
Queen Creek Irrigation District
Germann
Power
Sossaman
Hawes
Ellsworth
Crismon
Signal Butte
Meridian
Ironwood
Kenworthy
Schnepf
Germann
CAP Canal
Queen Creek
Recker
Pima
Ocotillo
Ocotillo
Chandler Heights
Chandler Heights
Riggs
Combs
Hunt
Hunt
Quail Run
Skyline
Skyline
Roberts
N
W
E
S
Legend
Queen Creek Irrigation District
QCID Lines
CAP Canal
CAP Turnout
Gilbert Recharge Site
TOQC Future Recharge Sites
TOQC Water Boundary


TOTAL VALUE OF RECYCLED WATER
Water
Recycled Water
Total
TOTAL AMOUNT OF WATER - IN ACRE FEET
350
300
250
200
150
100
50
0
CURRENT TARGET
100
111
125
143
167
200
250
333
0%
10%
20%
30%
40%
50%
60%
70%
PERCENT OF RETURN FLOW


TOTAL VALUE OF RECYCLED WATER - TOWN ACQUISITIONS
Water
Recycled Water
Total
TOTAL AMOUNT OF WATER IN ACRE FEET
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
-
4.175 Million Acre Feet Over the Next 100 Years at 40% Return Flow
5.0 Million Acre Feet Over the Next 100 Years at 50% Return Flow
2,000
3,340
5,000
8,350
8,000
13,360
10,000
16,700
25,000
41,750
CIBOLA
HARQUAHALA PHASE 1
HARQUAHALA PHASE 2
BARTLETT ALLOCATION
TOTAL VALUE

Phoenix AMA Groundwater Model

June 2, 2023

If you are on the webinar, please have microphones on mute.

At the end of the meeting, we will take questions.

If you are online, please submit a question via the online comment form available in the chat.

Key Takeaways (1)

- AWS Program is working as intended
  - We have time to make water management decisions
  - This is an inflection point
- Projected future outflows exceed projected future inflows by a factor of 1.4
- At the end of 100 years, depth to water in areas near the edges of the groundwater basin is projected to exceed 1,000 ft or hit bedrock
- Unmet demand in existing and AWS wells is projected to be 4.9 MAF over the 100-year period (4% of total demand)

Key Takeaways (2)

- Existing homes built pursuant to the AWS program have secure water supplies
- Significant volumes of groundwater and other water supplies are available for continued growth
- Water providers in the Phoenix AMA have diverse water supplies and are not solely reliant on groundwater
- People are not running out of water