

Updated Industrial Water Demand

West Basins Planning Area
Stakeholders Meeting
October 5, 2016

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PROTECTING
ARIZONA'S WATER SUPPLIES
for ITS NEXT CENTURY

Methodology

1. Determine
Industrial
Users



2. Assign
Water Use to
Each User



3. Project
Water Use

1. Determining Industrial Users

- Sources

- On the ground research
- ADEQ Aquifer Protection Permit Holders
- Stakeholder Input
- Satellite Imagery
- United States Geological Survey (USGS)
- Arizona Department of Agriculture

1. Industrial Water Users

- Dairies
- Egg Production
- Turf
- RV Parks
- Power Plants
- Truck Stops



2. Determining Water Use

- Water use for each user was estimated differently depending on the type of use
- Sources:
 - AZ Dept. of Agriculture
 - Reported data for similar uses
 - USGS Data
 - Satellite Imagery
 - Stakeholder Input

2. Dairies

- Basin: Ranegras Plain
- Water Use Calculation:
 - Gallons/Day = (# Cows₁)(105 GPD₂)
 - Annual AF = $\frac{GPD * 365 \text{ days}}{325,851 \text{ gallons}}$

Complex	# Cows	Water Use (GPD)	Water Use (AF/Year)
A	3200	336,000	376
B	3300	346,500	388
C	2400	252,000	282
Total	8900	934,500	1,047

¹AZ Dept. of Agriculture

²Phoenix AMA Dairy Cow Water Use Allotment

2. Egg Production

- Basin: Ranegras Plain
- Rose Acre Farms provided an approximate number of chickens that will be housed at each complex

Complex	# Chickens	Estimated Water Use ¹ (AF/Year)
A	2 million	300
B	2 million	300
Total	4 million	600

¹Phoenix AMA Data



2. Turf

- Basins: Ranegras Plain and McMullen Valley
- Turf Users: Schools and Golf Courses



Image courtesy of Google Earth

2. Turf

- Water Use Calculations

- School Water Use =

$$(\# \text{ acres})(4.9 \text{ AF/acre/year}^1)$$

- Golf Water Use = $(\# \text{ acres})(8.3 \text{ AF/acre/year}^1)$

User	Area (acres)	Water Use (AF/year)
Bouse Elementary School	1	5
Salome High School	15	76
Salome Elementary School	1	5
Wenden Elementary School	6	31
Desert Palms Golf	3	25
Greasewood Golf	6	52
Total	33	195

¹Phoenix AMA Data



2. RV Parks

- Basins: Ranegras Plain and McMullen Valley
- Water use was calculated separately for summer and winter
- Water Use Calculation

$$\frac{\# \text{ Residents} * 86.88 \text{ GPCD} * 182.5 \text{ days}}{325,851 \text{ gallons}}$$

Season	# Residents ¹	Water Use (AF/Year)
Summer	1,233	60
Winter	14,075	685
Total	15,308	745

¹Provided voluntarily by RV park owners. Number of residents were estimated for the parks that could not be contacted.

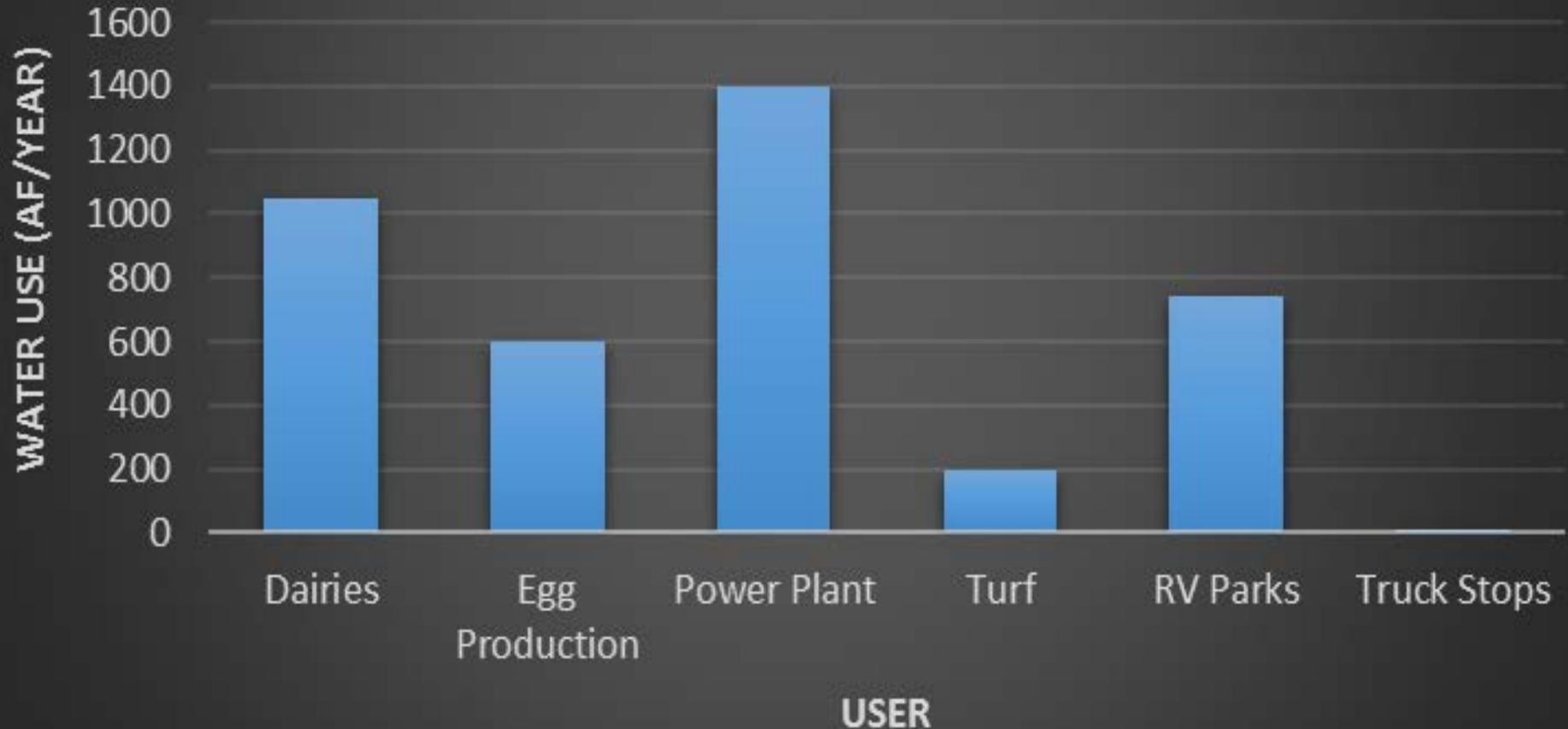


2. Other Industrial Users

- Power Plants
 - Basin: Harquahala INA
 - Water use data provided by the USGS
- Truck Stops
 - Basin: Ranegras Plain
 - Water use estimated by Community Water System data

User	Water Use (AF/Year)
Power Plants	1,402
Truck Stops	4
Total	1,406

West Basins Industrial Water Use 2016



2. Current Industrial Water Use

Current Data	
User	Water Use (AF/Year)
Dairies	1,047
Egg Production	600
Power Plants	1,402
Turf	195
RV Parks	745
Truck Stops	4
Total	3,993

2010 WRDC Data (Existing Data)	
User	Water Use (AF/Year)
Power Plants	1,107
Total	1,107

3. Projections

1. Known future demands were added to the current industrial water use during the year they are projected to begin pumping
2. The demand was then held constant
 - NOTE: In the AMAs, despite an increase in industrial users, water use has actually decreased due to new conservation measures. Thus, future use was held constant due to uncertainty.

3. Projections

User	2016	2017	2018	2019 (and beyond)
Dairies	1,047	1,047	1,047	1,047?
Egg Production	600	600	600	600?
Power Plants	1,402	1,402	1,402	1,402?
Turf	195	195	195	195?
RV Parks	745	745	745	745?
Truck Stops	4	4	4	4?
Groundwater Transport	-	-	3,684	3,684
Unknown Users	???	???	???	???
Total	3,993	3,993	7,677	7,677

Next Steps

- Stakeholders can submit additional information regarding water use or inventory through October 31, 2016
- Staff will incorporate information from this discussion and additional information received post-meeting
- Staff will finalize industrial projections and present the finalized data at the next meeting (date TBD)