

# Phoenix Active Management Area Draft Fourth Management Plan



Phoenix AMA GUAC Meeting  
July 11, 2019

Natalie Mast  
Program Manager – Management Plans  
ADWR

# Options for this Presentation

## A: 20 minutes

- \* Management Plans Overview & Status
- \* Progress toward the Goal
- \* Differences between 3MP and 4MP
  - \* <5 min
- \* GUAC Role & Request for Feedback

## B: 40 minutes

- \* Management Plans Overview & Status
- \* Progress toward the Goal
- \* Differences between 3MP and 4MP
  - \* 20 min
- \* GUAC Role & Request for Feedback

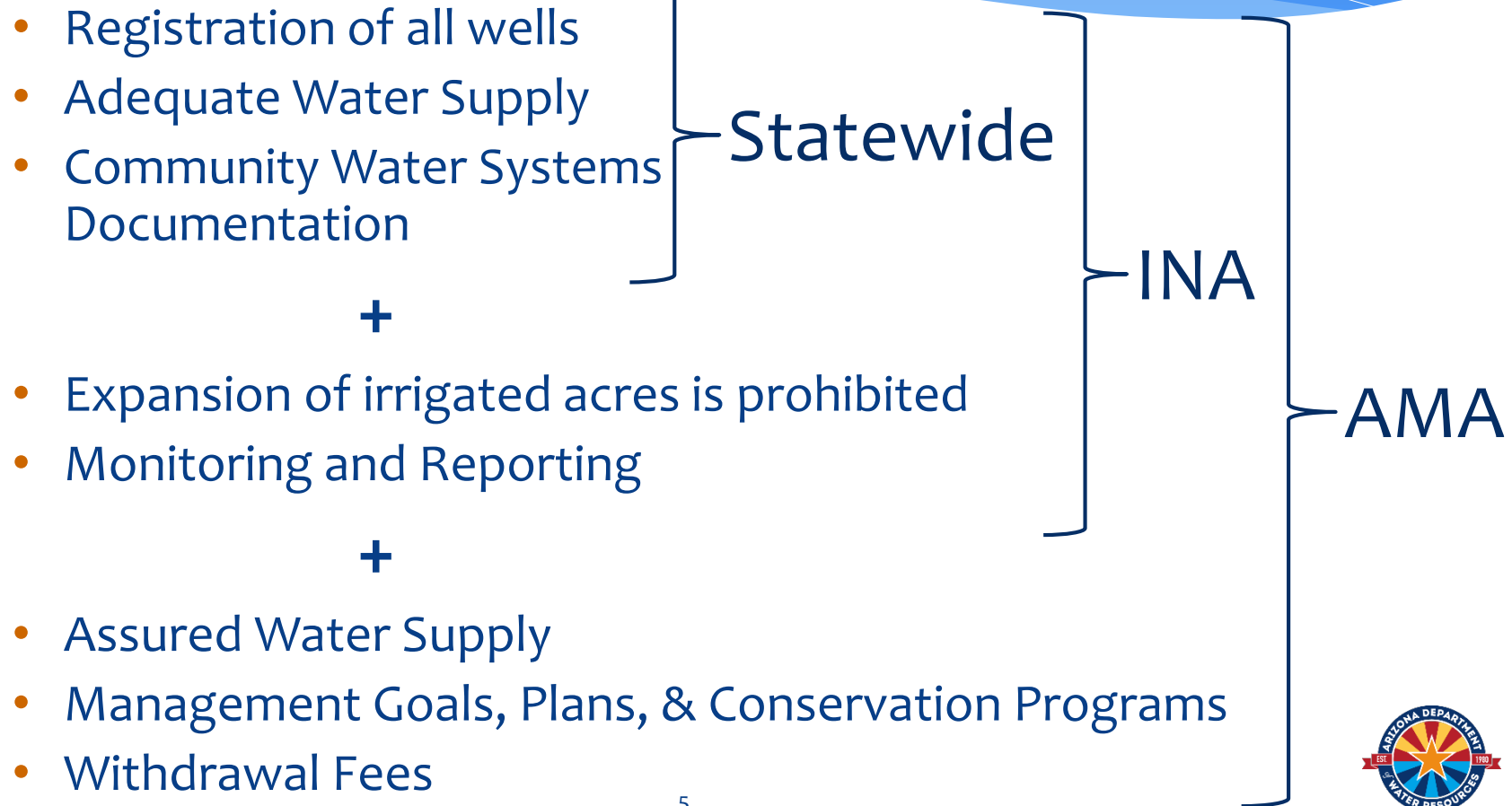
# Contents

1. Management Plans Overview & Status
2. Progress toward the Goal
3. Differences between 3<sup>rd</sup> and 4<sup>th</sup> Management Plans
4. GUAC Role & Request for Feedback

# 1. Management Plans Overview & Status



# Regulatory Structure



# Management Plans

A.R.S. § 45-563 (A)

*“The director shall develop a management plan for each initial active management area for each of five management periods... and shall adopt the plans only after public hearings... The plans shall include a continuing mandatory conservation program... designed to achieve reductions in withdrawals of groundwater.”*



# Management Goals (A.R.S. § 45-562)

***“The management goal of the Tucson, Phoenix, and Prescott active management areas is safe-yield by January 1, 2025...”***

**(A.R.S. § 45-562(A))**

## **Safe-yield:**

***“A groundwater management goal which attempts to achieve and thereafter maintain a long-term balance between the annual amount of groundwater withdrawn in an active management area and the annual amount of natural and artificial recharge in the active management area.”***

**(A.R.S. § 45-561(12))**



# Management Plans Status

- \* The 4th Management Period is 2010-2020.
  - \* Prescott and Tucson AMAs have adopted 4th Management Plans (4MPs).
- \* The 3rd Management Plans (3MPs) remain effective for Phoenix, Pinal, and Santa Cruz AMAs .
  - \* ADWR is working to complete the 4MPs for these AMAs.





# Tentative 4MP Adoption Timing

- \* Target: Complete the remaining 4MPs in 2 years.
  - \* Phoenix: Summer 2020
  - \* Pinal: Spring 2021
  - \* Santa Cruz: Summer 2021
- \* Research and discussions for the 5MPs have already begun. Work to draft the 5MPs will begin immediately after the last 4MP is adopted.



# Management Plans Work Group

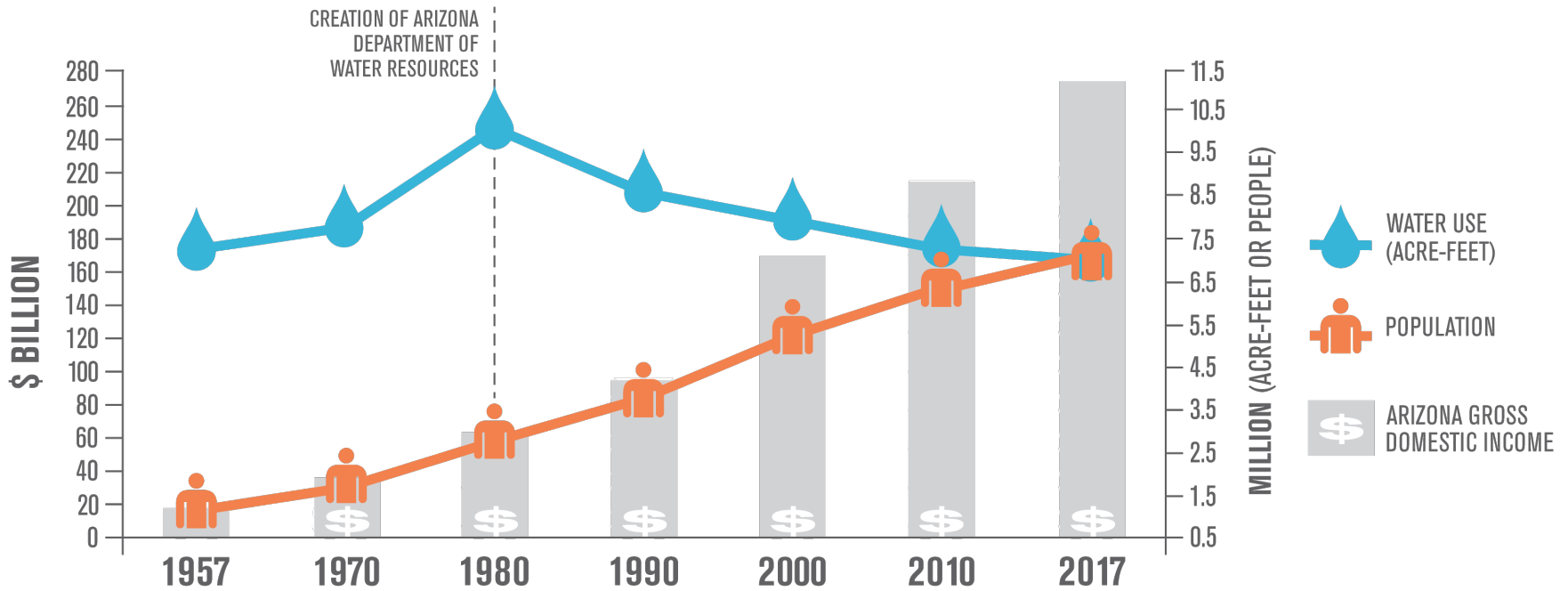
- \* Work Group
  - \* The MPWG is an ADWR-led stakeholder forum for the development of the Fifth Management Plans
  - \* Goals:
    - \* Assess existing conservation programs
    - \* Update existing management strategies
    - \* Develop new management strategies
- \* First meeting: July 9, 2019
  - \* Included detailed discussion of 4MP Recommendations
  - \* Focus on development of 5MP



# Water Management Progress



# Arizona's Water Management Success

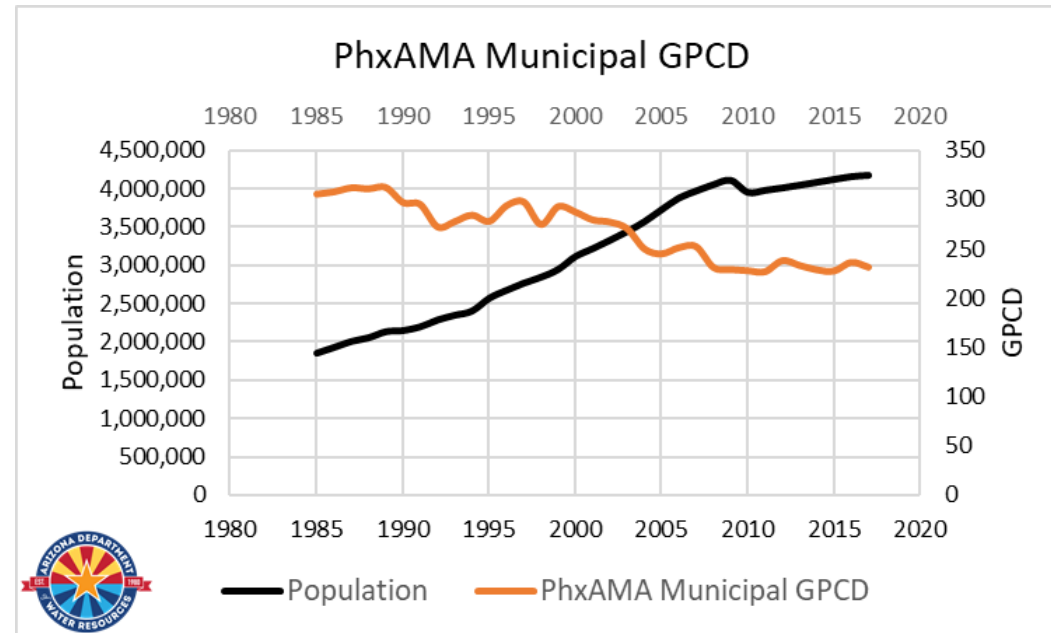


SOURCE: ADWR, 2018



# Role of Management Plans

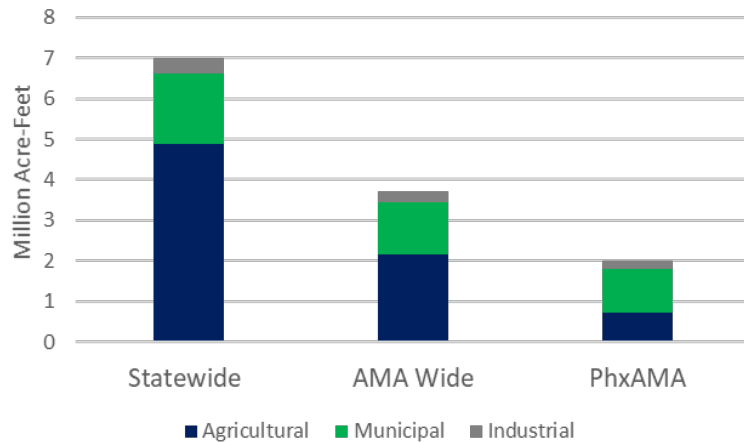
- \* Incremental tightening of conservation requirements under successive Management Plans
- \* Phoenix AMA Municipal GPCD
  - \* 1985-1990: 307
  - \* 2010-2017: 230
  - \* ~25% decline



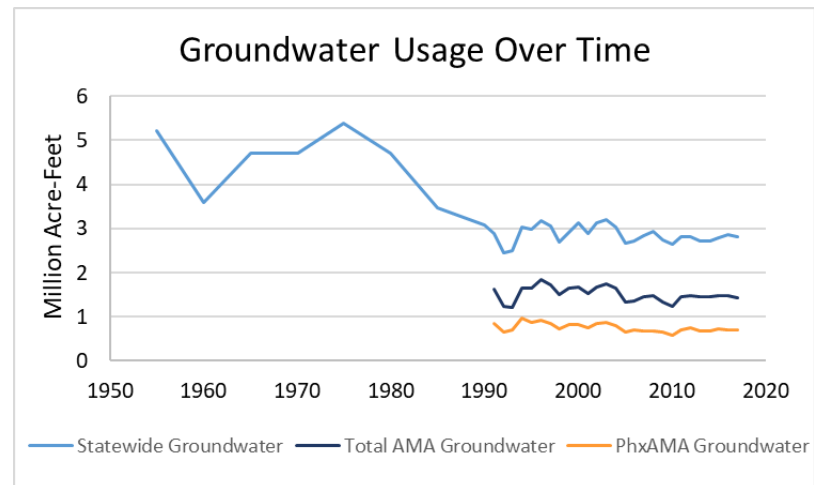
# Phoenix AMA Water Use

ARS § 45-563(A): “... The plans shall include a continuing mandatory conservation program for all persons withdrawing, distributing or receiving groundwater designed to achieve reductions in withdrawals of groundwater.”

### All Water Sources Demand

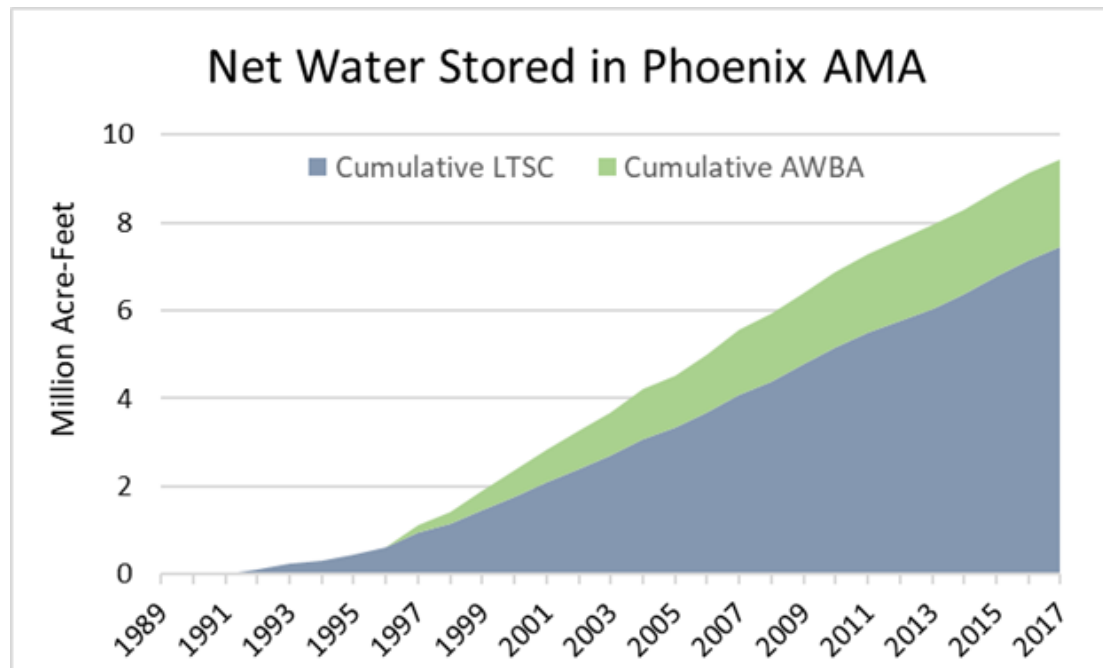


### Groundwater Usage Over Time



# Water for Future Use

- \* 2.0 MAF of water in underground storage by AWBA
- \* 7.4 MAF of water in underground storage by other entities

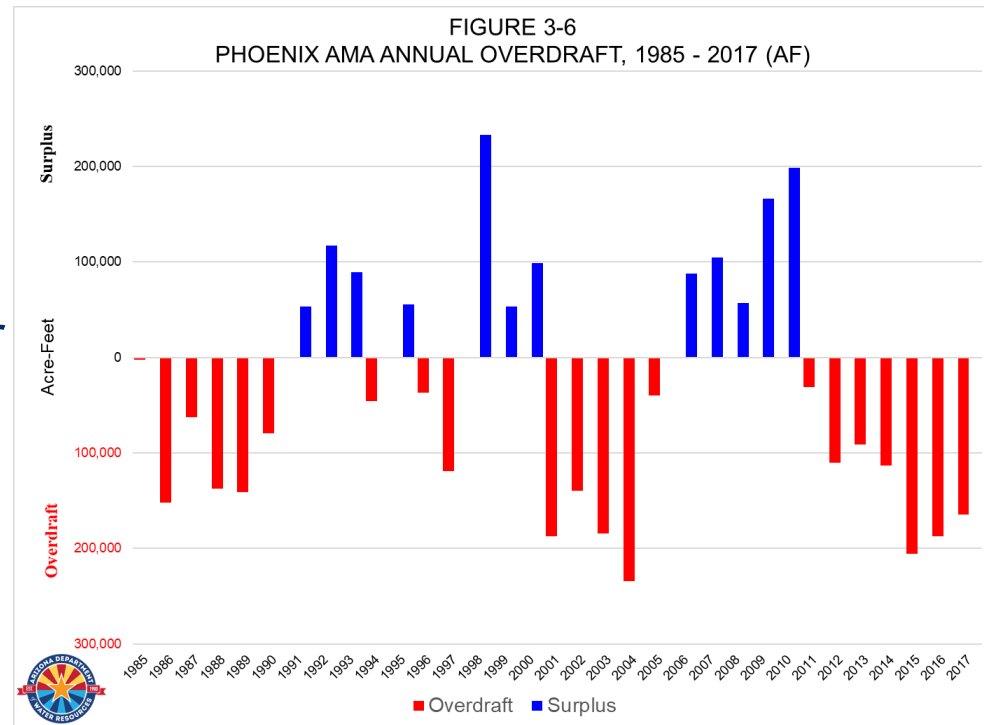


# Progress toward the Goal

## Safe-yield:

A groundwater management goal which *attempts to achieve and thereafter maintain a long-term balance between the annual amount of groundwater withdrawn in an active management area and the annual amount of natural and artificial recharge in the active management area*

(A.R.S. § 45-561(12))





# Differences between Phoenix AMA's 3<sup>rd</sup> & 4<sup>th</sup> Management Plans



# Updates in the 4MP

- \* Background
  - \* Water budgets
  - \* Population Projections
  - \* Maps
  - \* Hydrology
- \* New Provisions
  - \* Reporting
  - \* Audit
  - \* Conservation report
  - \* Conservation Programs



# New Provisions in the 4MP

- \* Reporting
  - \* Agricultural
    - \* Crop type
    - \* Active irrigated acres
    - \* % of canals lined
  - \* Industrial
    - \* Turfed Acres
    - \* Water Surface Acres
    - \* Low Water Use Plant Acres
    - \* Mine Conservation Evaluation
- \* Audit
  - \* Selected audits of records and practices related to conservation requirements
- \* Conservation Progress Report
  - \* Effectiveness of all conservation programs
  - \* Progress toward goals in all AMAs



# Conservation Progress Report

As a part of the 4MP, ADWR will periodically publish an analysis of each AMA's progress toward its goal.

- \* Expand scope of report required under A.R.S. § 45-563.01 to include analysis of:
  - \* Effectiveness of Conservation Programs in all 3 sectors
  - \* Progress toward the goal in each of the 5 AMAs
- \* Transparency
  - \* Communicating success or need for improvement
  - \* Tracking and ensuring progress of each AMA toward its goal
  - \* Sharing underlying data and methodology





# Conservation Program Changes

Program	Provision	3MP	Adopted 4MPs	Remaining 4MPs
Ag – Districts	Line canals or 10% or less L&U	“10% or more of water deliveries for irrigation use”	“any water for irrigation use”	“any water for irrigation use”
Ag – Base	High Water Duty Adjustment	No change	No change	Top 25% of water duties reduced by up to 10%
Ag – BMP	Points target	10 points	10 points	12 points
Ag – BMP	Points restructuring	Points accrued from 4 Categories	No change	Point values modified in Categories 1 & 2
Muni – GPCD	GPCD target	Recalculated with each Management Plan		
Muni - NPCCP	BMP or Points target	Tier 1 = 1 BMP Tier 2 = 5 BMPs Tier 3 = 10 BMPs	No change	Tier 1 = 2 points Tier 2 = 8 points Tier 3 = 15 points
Muni – NPCCP	Points restructuring	All items count as 1 BMP	No change	Certain BMPs count as multiple points
Industrial – Turf	Application Rate (AF/acre)	Calculated based on 75% Irrigation Efficiency	No change	Calculated based on 80% Irrigation Efficiency
Industrial – Turf	Acres of turf	Certain golf courses limited to 5 acres of turf per hole	No change	Limitation applies to additional turf-related facilities

# Role of the GUAC



# A.R.S. § 45-421(1)

*“The groundwater users advisory council shall:*

- 1. Advise the area director for the active management area, make recommendations on groundwater management programs and policies for the active management area and comment to the area director and to the director on draft management plans for the active management area before they are promulgated by the director.*
- 2. Keep the minutes of its meetings and all records, reports and other information relative to its work and programs in permanent form indexed and systematically filed.*
- 3. Elect from its members a chairman and vice-chairman for terms of two years expiring on the third Monday of January of each even numbered year.*
- 4. Designate the person or persons who shall execute all documents and instruments on behalf of the council.*
- 5. Manifest and record its actions by motion, resolution or other appropriate means.*
- 6. Make a complete record of its proceedings which shall be open to public inspection during regular business hours in the branch office of the department in the active management area.*
- 7. Provide comment to the Arizona water banking authority with regard to draft plans for additional storage facilities and draft plans of operation in accordance with sections 45-2453 and 45-2456.”*



# GUAC Recommendations

**ADWR is seeking written recommendations from the GUAC on the draft Phoenix AMA Fourth Management Plan.**

*Please review the draft and provide any questions or comments to AMA Director Einav Henenson by August 2<sup>nd</sup> (3 weeks).*

- Goal of starting promulgation process in September





# Questions?

[managementplans@azwater.gov](mailto:managementplans@azwater.gov)

Management Plans Work Group:  
[new.azwater.gov/5MP](http://new.azwater.gov/5MP)

Full Text of Management Plans:  
[new.azwater.gov/ama/management-plans](http://new.azwater.gov/ama/management-plans)



# Backups



# Agricultural Base Program Water Duties

## A.R.S. § 45-567(A)(1)

*“... In setting the irrigation water duty or intermediate water duties for the fourth management period, the director may adjust the highest twenty-five per cent of the final irrigation water duties established within an area of similar farming conditions pursuant to section 45-566 by reducing each water duty in an amount up to ten per cent, except that, in making the adjustment, no water duty may be reduced to an amount less than the greater of the following:*

- (a) The highest water duty within the lowest seventy-five per cent of the water duties computed within the area of similar farming conditions for the fourth management period*
- (b) A water duty computed for the farm unit under this paragraph using an irrigation efficiency of eighty per cent.”*



# Definitions

- \* **Water Duty (WD)\*:** Amount of water in acre-feet per acre that is reasonable to apply to irrigated land in a farm unit during the accounting period
  - \*  $\text{Water Duty} = \text{Irrigation Requirement} / \text{Assigned Irrigation Efficiency}$
- \* **Water Duty Acres (WDAC)\*\*:** The highest number of acres in the farm which were legally irrigated during any one year from 1975-1979.
- \* **Irrigation Acre\*:** an acre of land to which an irrigation grandfathered right is appurtenant.
- \* **Allotment:** the maximum amount of groundwater which may be used for the farm unit.
  - \*  $\text{Allotment} = \text{Water Duty} * \text{Water Duty Acres}$

\*Definition from A.R.S. § 45-402.

\*\*Definition from from A.R.S. § 45-465.



# Agricultural Base Program Water Duties

AMA	Number of rights adjusted (% total in the Base Program)	Maximum change in allotment (% total)
Phoenix	219 (11%)	-6,216 AF (-1.0%)
Pinal	123 (11%)	-3,092 AF (-0.5%)
Santa Cruz	1 (26%)	-5 AF (negligible)

Allotment = Water Duty x Water Duty Acres

Water Duty = Irrigation Requirement / Irrigation Efficiency

Irrigation Requirement = Consumptive Use + Other Needs + Leaching Allowance



# Agricultural BMP Program

A.R.S. § 45-567.02(G)

*“The director shall include... a best management practices program... in lieu of complying with an irrigation water duty and a maximum annual groundwater allotment. The program shall be designed to achieve conservation that is at least equivalent to that required under [the Base Program].”*



# Agricultural BMP Program

	AF/Irrigation Acre			% Total Irrigation Acres	% of Total Ag Water Use
	Base	BMP	% difference	BMP	BMP
Phoenix AMA	4.7	5.1	10%	20%	22%
Pinal AMA	3.1	4.0	29%	35%	42%
Total All AMAs	3.7	4.3	15%	27%	30%

# Agricultural BMP Program

Provision	3MP & Adopted 4MPs	Remaining 4MPs
Points target and structure	10 total points ✓ At least 1 point/category ✓ At least 2 points in Category 2 ✓ No more than 3 points/category	12 total points ✓ At least 1 point/category ✓ At least 2 points in Category 2 ✓ No more than 4 points/category
Points values	No changes	Changes made in Categories 1 & 2 (See Appendix 4B)





# Municipal NPCCP

Provision	3MP & Adopted 4MPs	Remaining 4MPs
Points target	Tier 1: 1 BMP/point Tier 2: 5 BMPs/points Tier 3: 10 BMPs/points	Tier 1: 2 point Tier 2: 8 points Tier 3: 15 points
Points values	Each practice is treated as equal	Certain practices may be worth multiple points (See Appendix 5C)

# Industrial Turf Program

## Turf Application Rate (AF/ac)

	3MP	New	Effective
Prescott	4.9	4.6	5MP
Phoenix	4.9	4.6	4MP
Pinal	4.8	4.5	4MP
Tucson	4.6	4.3	5MP
Santa Cruz	4.6	4.3	4MP

## Limit on Turfed Acreage

3MP & Adopted 4MPs	Remaining 4MPs
Applies to Regulation Post-1985 golf courses	Applies to new or expanding parks, schools, HOAs, and other turf-related facilities*

*\*Applies to any turf-related facility that is not a cemetery.*