

Arizona Water Association Conference

What's the Plan?
Examining the Impact
the Fourth Management Plan will have
on Arizona's Water Resources

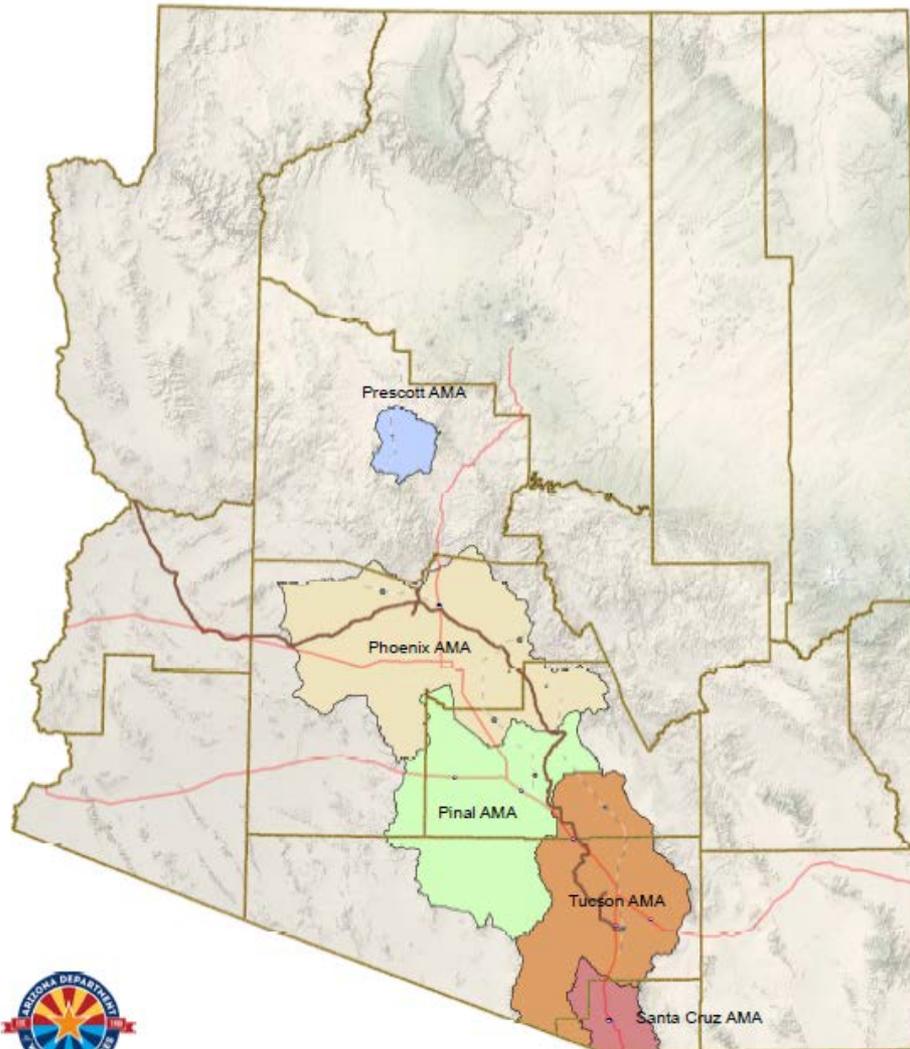
May 1, 2013

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Active Management Areas Overview

- Similarities and differences
- The Assessment and the 4MP

Active Management Areas



0 5 10 20 30 40
Miles



Legend

- PHOENIX AMA
- PINAL AMA
- PRESCOTT AMA
- TUCSON AMA
- SANTA CRUZ AMA
- CAP Aqueduct

Active Management Areas

AMA Goals

- Phoenix, Tucson, and Prescott:
 - Achieve safe-yield by 2025 and maintain thereafter
- Pinal:
 - Allow development of non-irrigation uses and preserve existing agricultural economies for as long as feasible, consistent with the necessity to preserve future water supplies for non-irrigation uses.
- Santa Cruz:
 - Maintain a safe-yield condition and prevent local water tables from experiencing long-term declines

AMA Issues in Common:

- Need to identify and locate augmentation supplies
- Susceptibility of renewable supplies to shortage
- Need for additional drought planning; different strategies needed for long-term conservation vs. short-term drought curtailment
- Cost of augmentation supplies and how we will pay for them
- Increases in water cost due to shortages and importation

AMA Issues in Common:

- How do we manage for SY over the long-term? (Is there a maximum build-out?)
- Will AMAs go back to groundwater if there is no more CAP/surface water?

AMA Issues in Common:

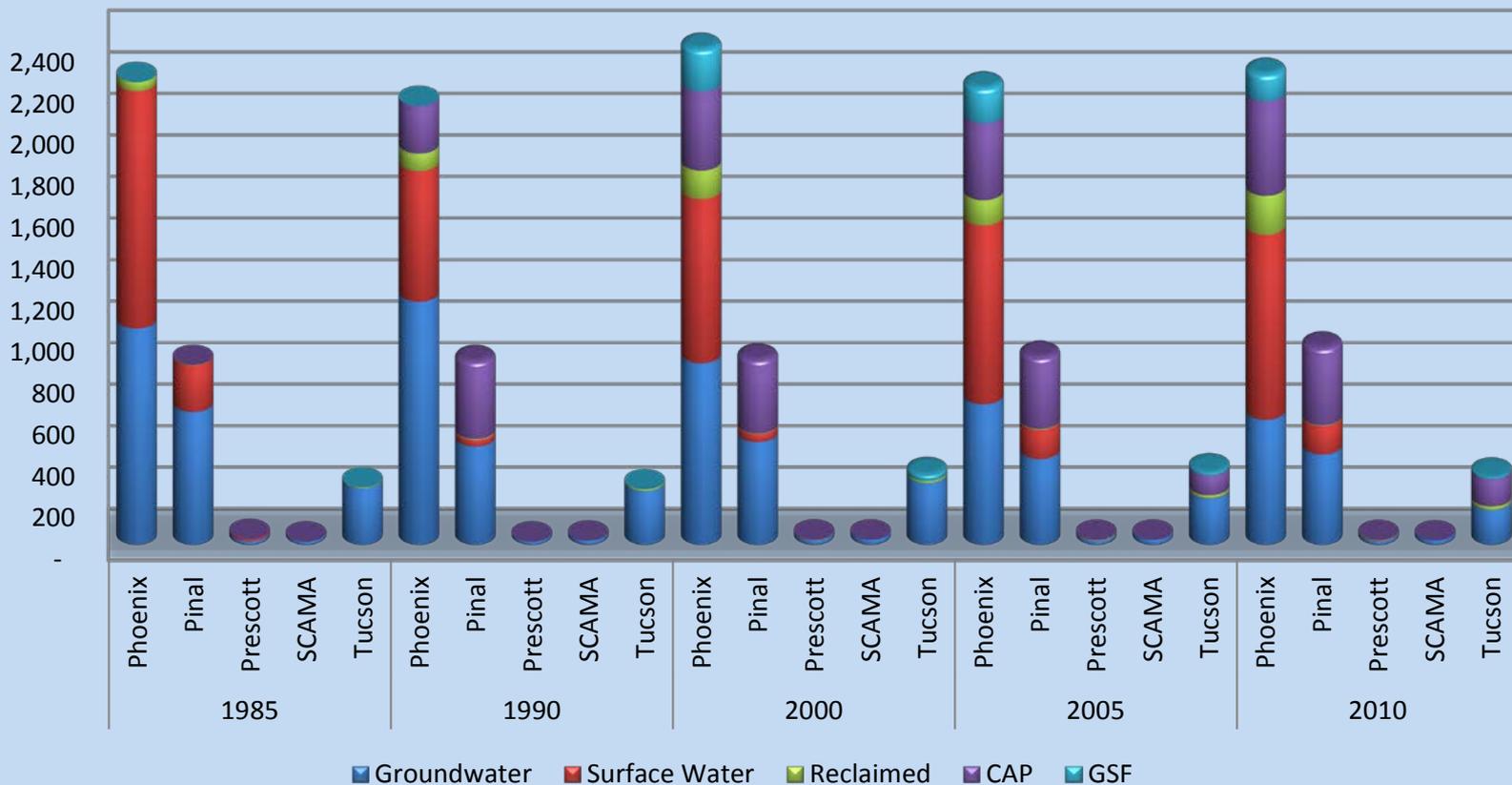
- Location of storage vs. recovery and water management
- AWS GW allowance still allows significant pumping to occur legally
- Committed demand
- Fate of the AWBA/GRD when there is no more excess CAP
- Everyone wants a fix but nobody wants to pay for it

AMA differences:

- Prescott AMA – no CAP, very small and reducing agricultural sector; almost all municipal demand; generous groundwater allowance allows continued pumping; will Big Chino be built by 2025?
- Phoenix AMA – SRP; enormous volume of use; significant infrastructure but incomplete
- Pinal AMA – agricultural demand dominant; difficult goal to understand and implement; generous groundwater allowance; more Indian land than in any other AMA; significant use of AWBA GSF and CAP agricultural pool – what will happen when it is no longer there?
- Tucson AMA – limited renewable supplies after CAP; dominated by municipal demand; most likely of all the AMAs to achieve goal by 2025
- Santa Cruz AMA – international component to water resource management; strong dependency on weather conditions and natural stream flow; dependency on Mexican effluent

AMA Water Use by Type (1985-2010)

Acre-feet (000)



2010 Demand and Supply by AMA:

CATEGORY	Phoenix AMA *	Tucson AMA	Pinal AMA	Prescott AMA	Santa Cruz AMA
Municipal	1,068,719	172,420	37,514	17,899	7,543
Industrial	191,987	58,086	20,555	1,218	1,611
Agricultural	736,073	79,509	865,699	2,455	10,568
Indian	264,670	16,836	157,368	NA	NA
TOTAL DEMAND	2,261,449	326,851	1,081,136	21,572	19,722
Renewable Supplies to Meet Demand ¹	1,536,590	149,513	509,956	5,583	NA
Groundwater to Meet Demand	716,563	168,440	571,180	15,989	19,722
Offsets to GW Pumping ²	729,825	200,483	324,843	24,606	35,544
OVERDRAFT³	(13,262)	(32,043)	246,337	(8,617)	(15,822)

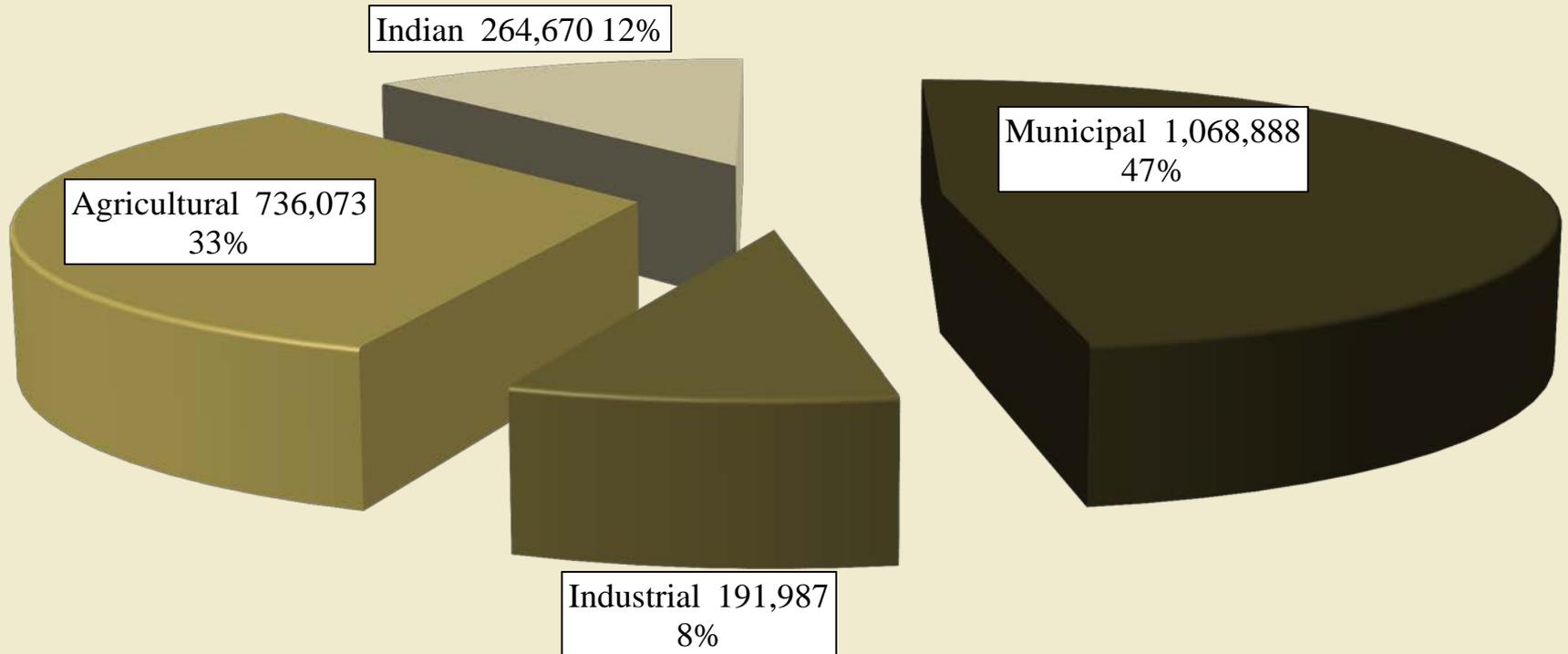
¹ Includes CAP, Surface Water, and Reclaimed Water

² Includes Incidental Recharge, Canal Seepage, CAGR D Replenishment, Cuts to the Aquifer, Reclaimed Water Discharge, and Net Natural Recharge

³ Includes GW Allowance pumping

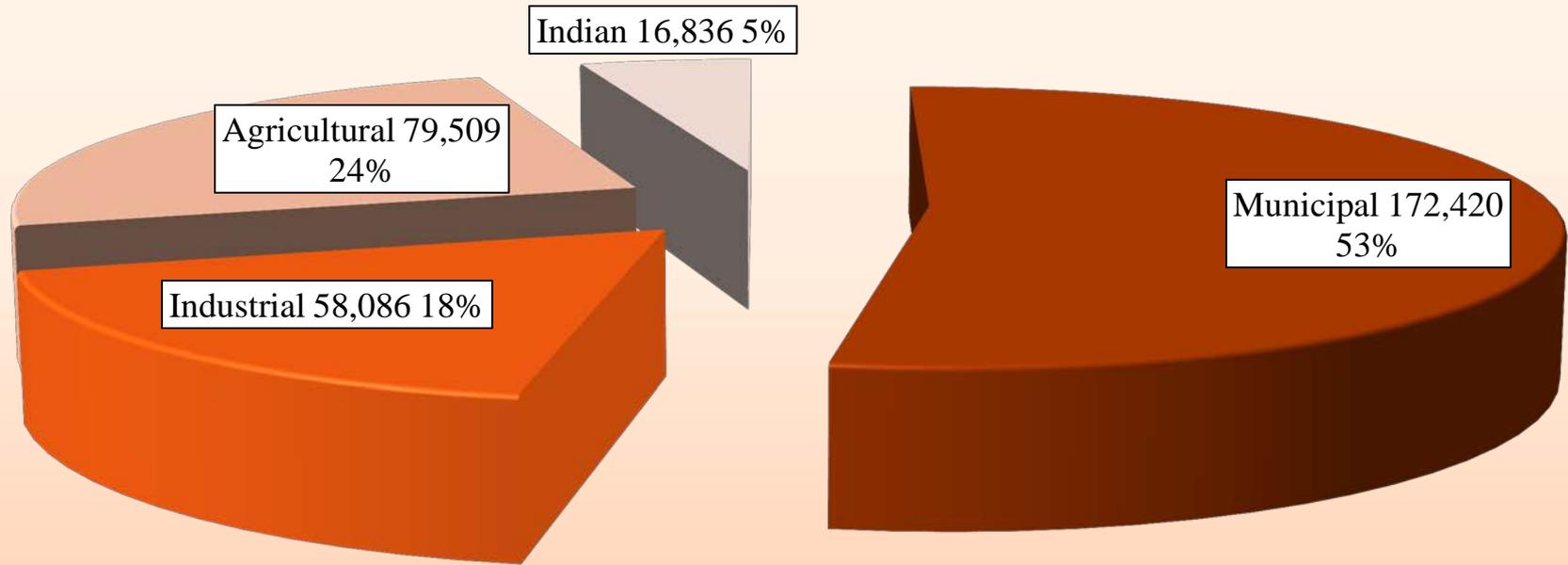
* 2009 Data for PHXAMA

2009 Phoenix AMA Total Demand



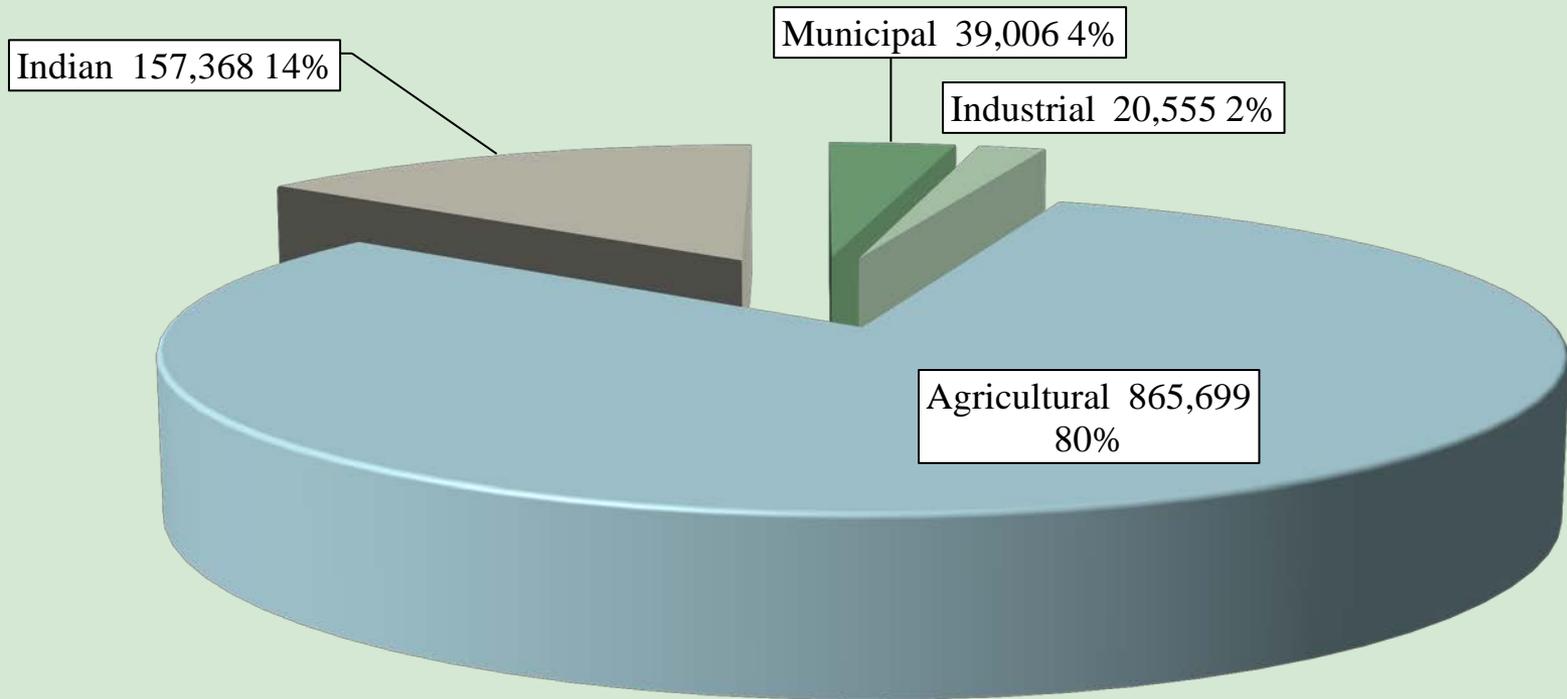
2009 Overdraft = (13,262)

2010 Tucson AMA Total Demand



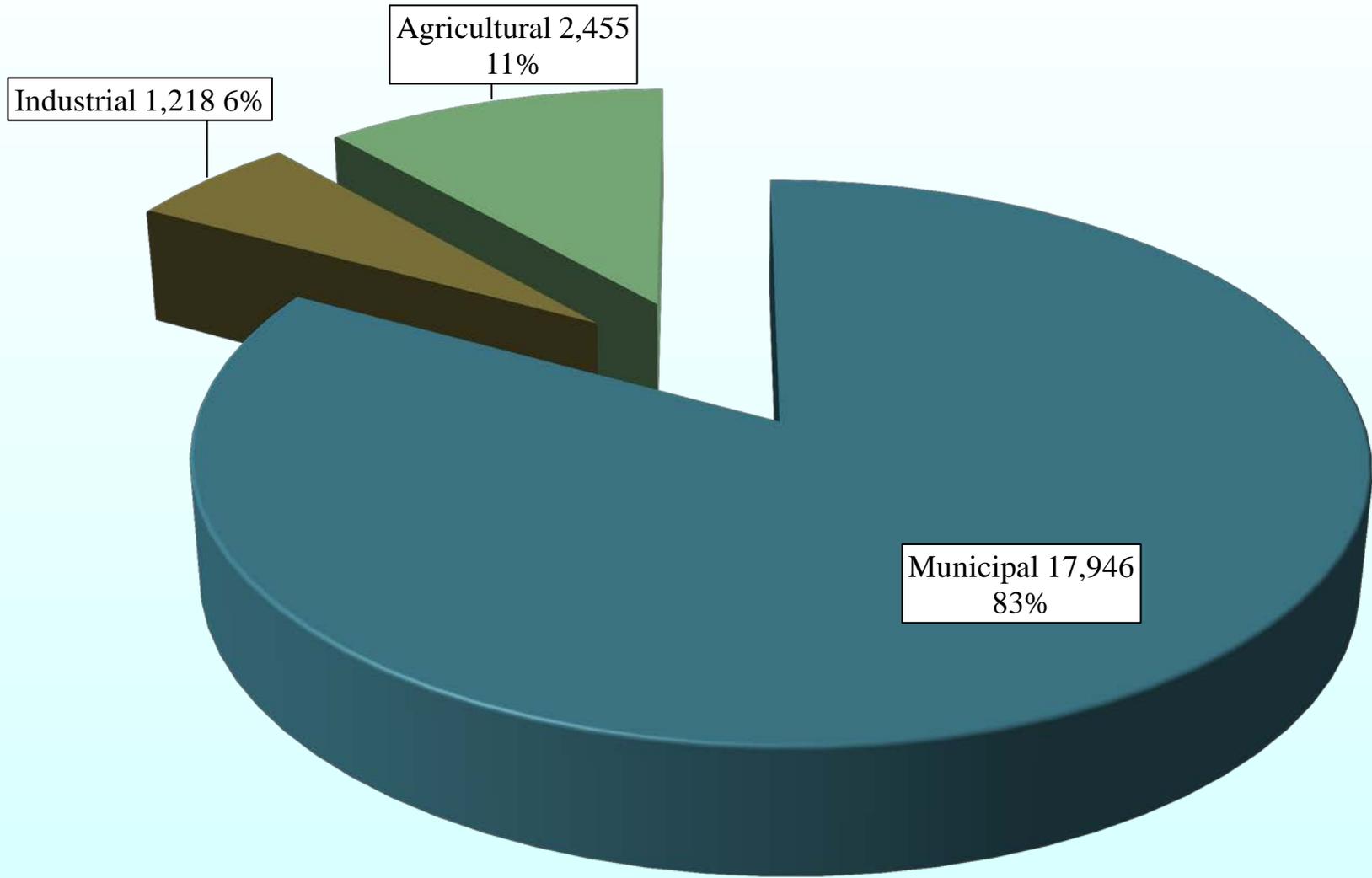
2010 Overdraft = (32,043)

2010 Pinal AMA Total Demand



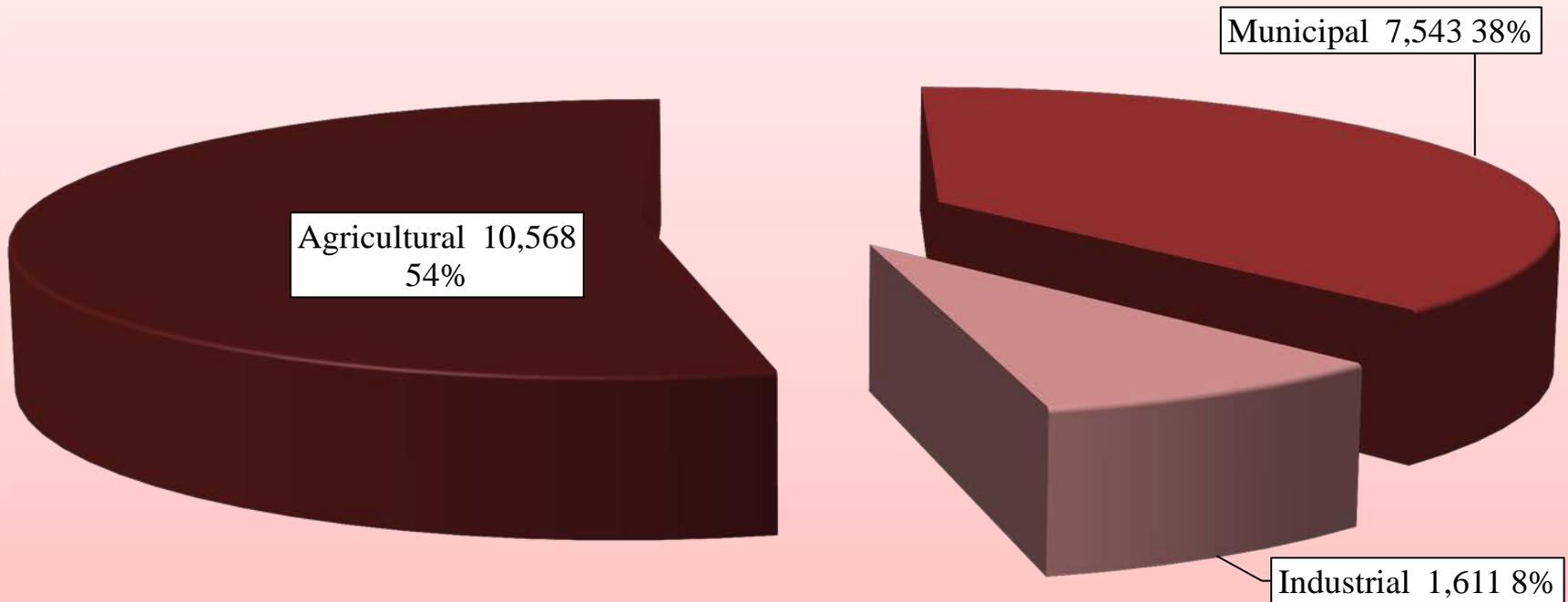
2010 Overdraft = 246,337

2010 Prescott AMA Total Demand



2010 Overdraft = (8,617)

2010 Santa Cruz AMA Total Demand



2010 Overdraft = (15,822)

Assessments:

- A water demand and supply Assessment was completed for each AMA:
 - Historical data for 1985-2006
 - Three “baseline” projection scenarios
 - Three “drought” or “shortage” scenarios
 - Maximized reclaimed or imported supply scenario

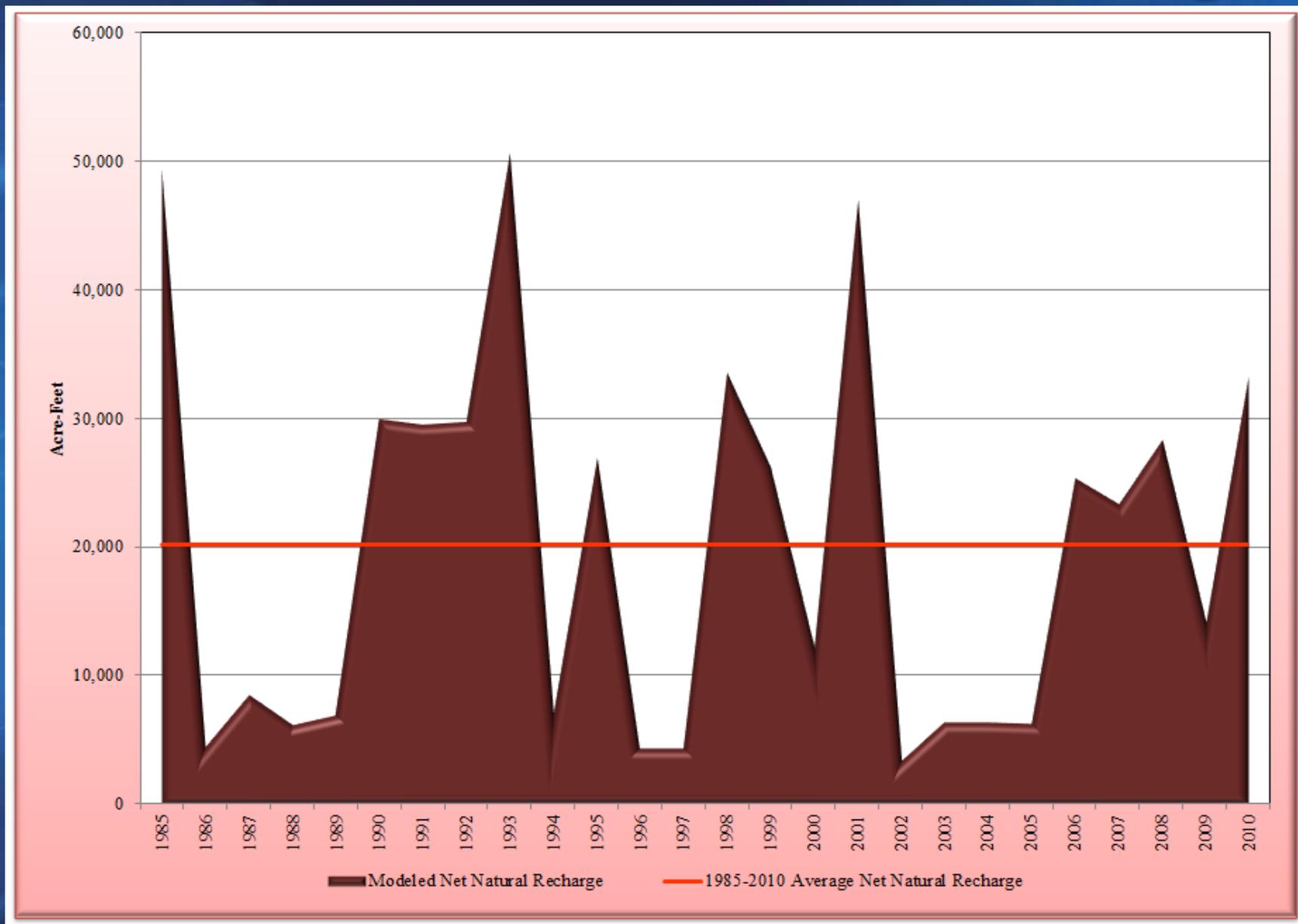
Draft 4MP Structure:

- Initial draft has 12 chapters (same as 3MP):
 - 1 - Intro
 - 2 - Hydro
 - 3 - Assessment
 - 4 - Agricultural
 - 5 - Municipal
 - 6 - Industrial
 - 7 - Water Quality
 - 8 - Augmentation
 - 9 - Water Management Assistance
 - 10 - Plan Implementation
 - 11 - Water Budgets
 - 12 - Future Directions

Draft 4MP Structure:

- Updates the Assessment historical data to include 2007, 2008, 2009, and 2010
- Incorporates “actual” or modeled net natural recharge for 1985-2010 to demonstrate range in fluctuating net natural recharge all AMAs experience

Santa Cruz AMA Net Natural Recharge:



Draft 4MP Structure:

- Projects, using statistical analysis or a segment of the historical record, *fluctuating rather than long-term average* net natural recharge in all AMAs to demonstrate the variability of supply for which we must manage

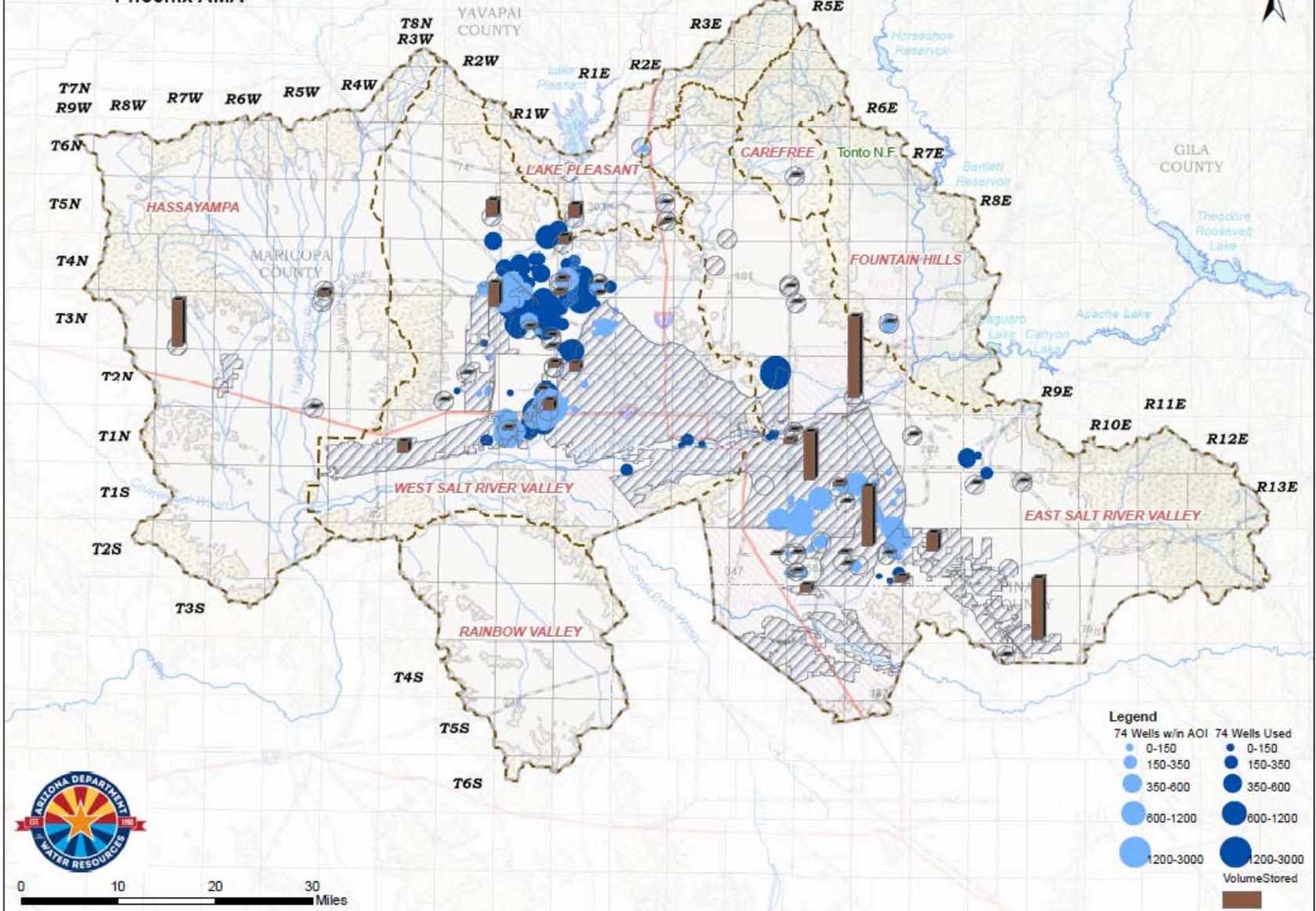
Draft 4MP Structure:

- Population data
 - 2010 Census data is incorporated into the 4MP (the Assessment was based on the 2000 Census)
 - Depending on the timing of promulgation, may incorporate new population projections for each AMA (the Assessment was based on projections from DES that were released in 2006; new state projections due out in Fall 2013)

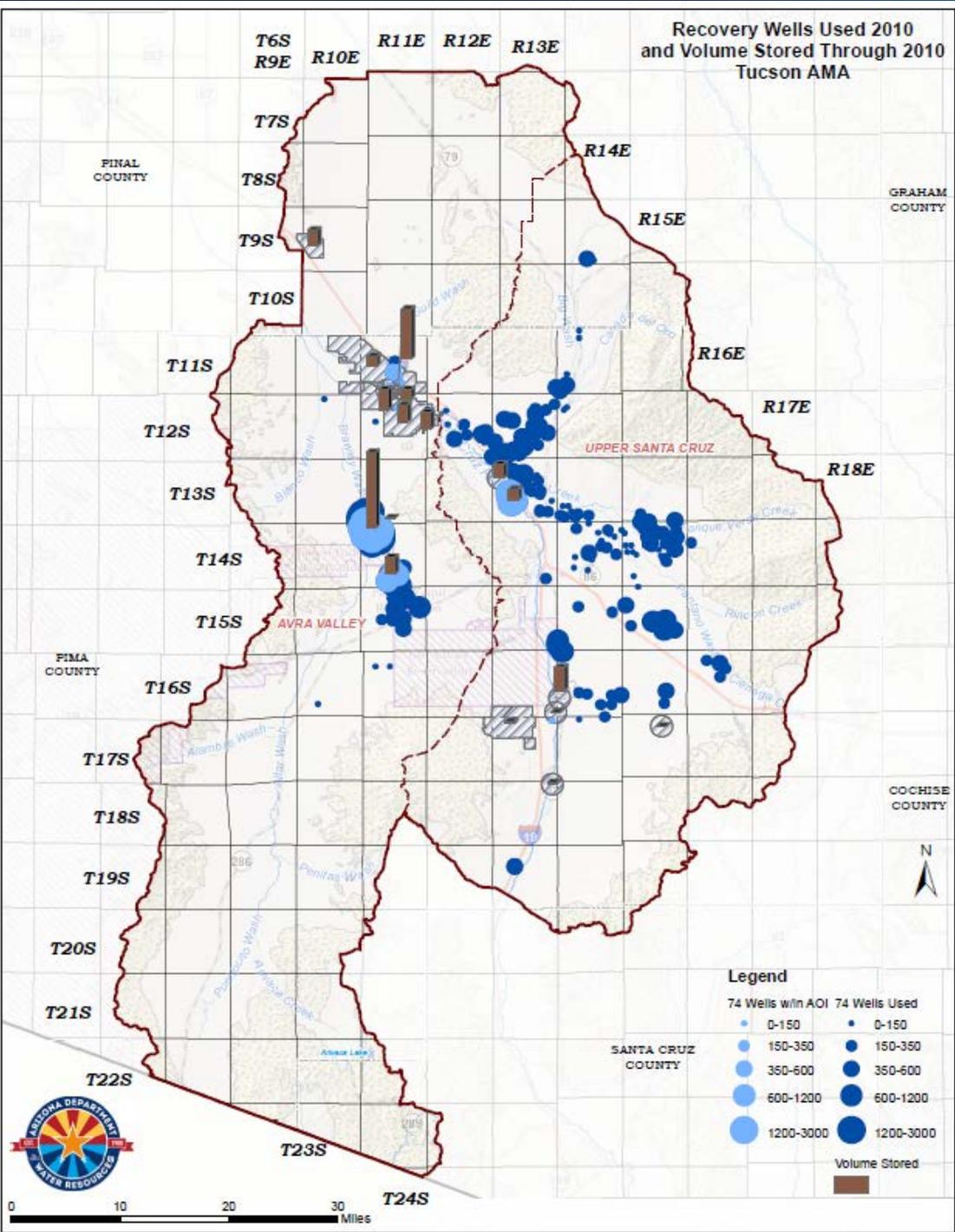
Draft 4MP Conservation Requirements

- Municipal Program:
 - GPCD = 2000-2009 Median minus 1 Standard Deviation or minimum GPCD (based on 3MP models)
 - NPCCP – per statute
- Agricultural and Industrial Programs – no changes proposed
- Enhanced Aquifer Management Concept

Recovery Wells Used 2010 and Volume Stored Through 2010 Phoenix AMA



Recovery Wells Used 2010
and Volume Stored Through 2010
Tucson AMA

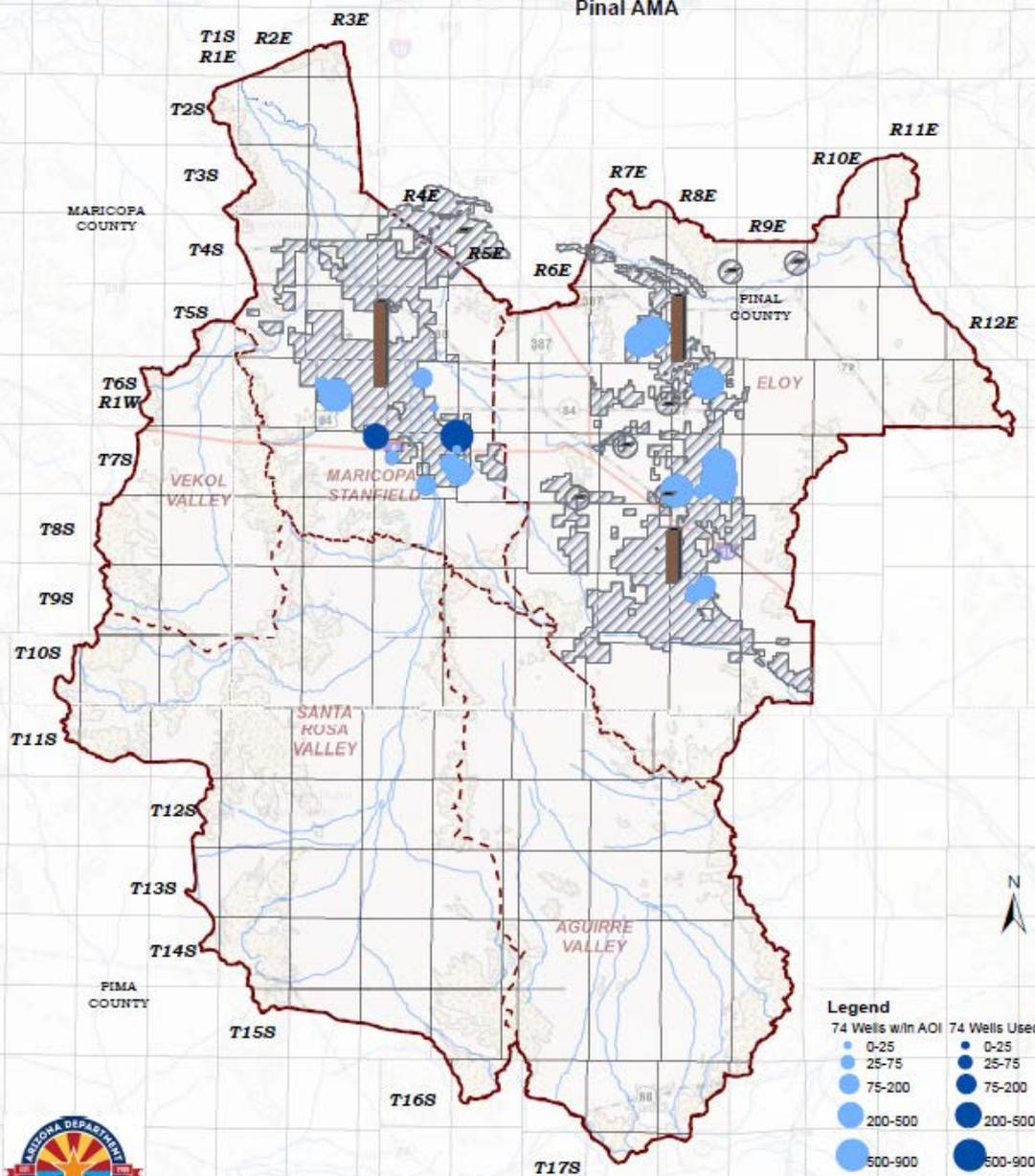


Legend

- | | |
|-------------------|-----------------|
| 74 Wells w/in AOI | 74 Wells Used |
| ● 0-150 | ● 0-150 |
| ● 150-350 | ● 150-350 |
| ● 350-600 | ● 350-600 |
| ● 600-1200 | ● 600-1200 |
| ● 1200-3000 | ● 1200-3000 |
| | ■ Volume Stored |

Recovery Wells Used 2010 and Volume Stored Through 2010 Pinal AMA

GILA COUNTY



Legend

74 Wells with AOI	74 Wells Used
● 0-25	● 0-25
● 25-75	● 25-75
● 75-200	● 75-200
● 200-500	● 200-500
● 500-900	● 500-900
	■ Volume Stored



AMA Status: who can get there by 2025?

- Tucson AMA – if maximize reclaimed use and continue 3MP targets can get there by 2025
- Phoenix AMA – under maximized reclaimed scenario still shows OD ~ 150,000 acre-feet in 2025 – will take other groundwater reductions to get there
- Prescott AMA – with Big Chino at max and ~ 6,000 acre-feet of recovery can get there in 2025; careful management of storage/recovery would allow SY to be maintained several decades into the future
- Pinal AMA – Ag IR has been a major offset to OD, but it is decreasing over time; CAP is holding groundwater pumping at bay – OD likely to increase over time meaning less water for future uses by any sector
- Santa Cruz AMA – depends on international water supplies, committed demand, the weather, and adoption of AWS rules for goal

Questions?