

Santa Cruz Active Management Area Assessment

Pam Muse
Arizona Department of Water Resources

History, Goals & Mission

- Created in 1994

- Originally Part of Tucson AMA

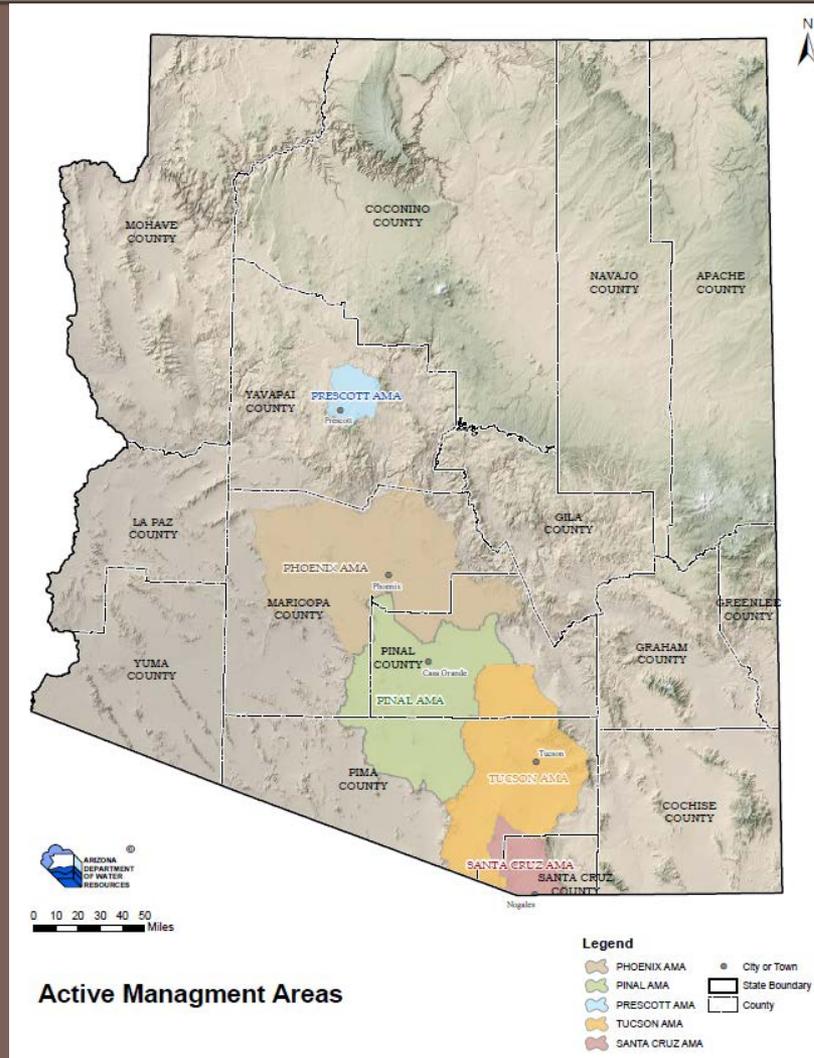
- AMA Goal

- Maintain Safe Yield Condition
- Prevent Local Water Table Declines

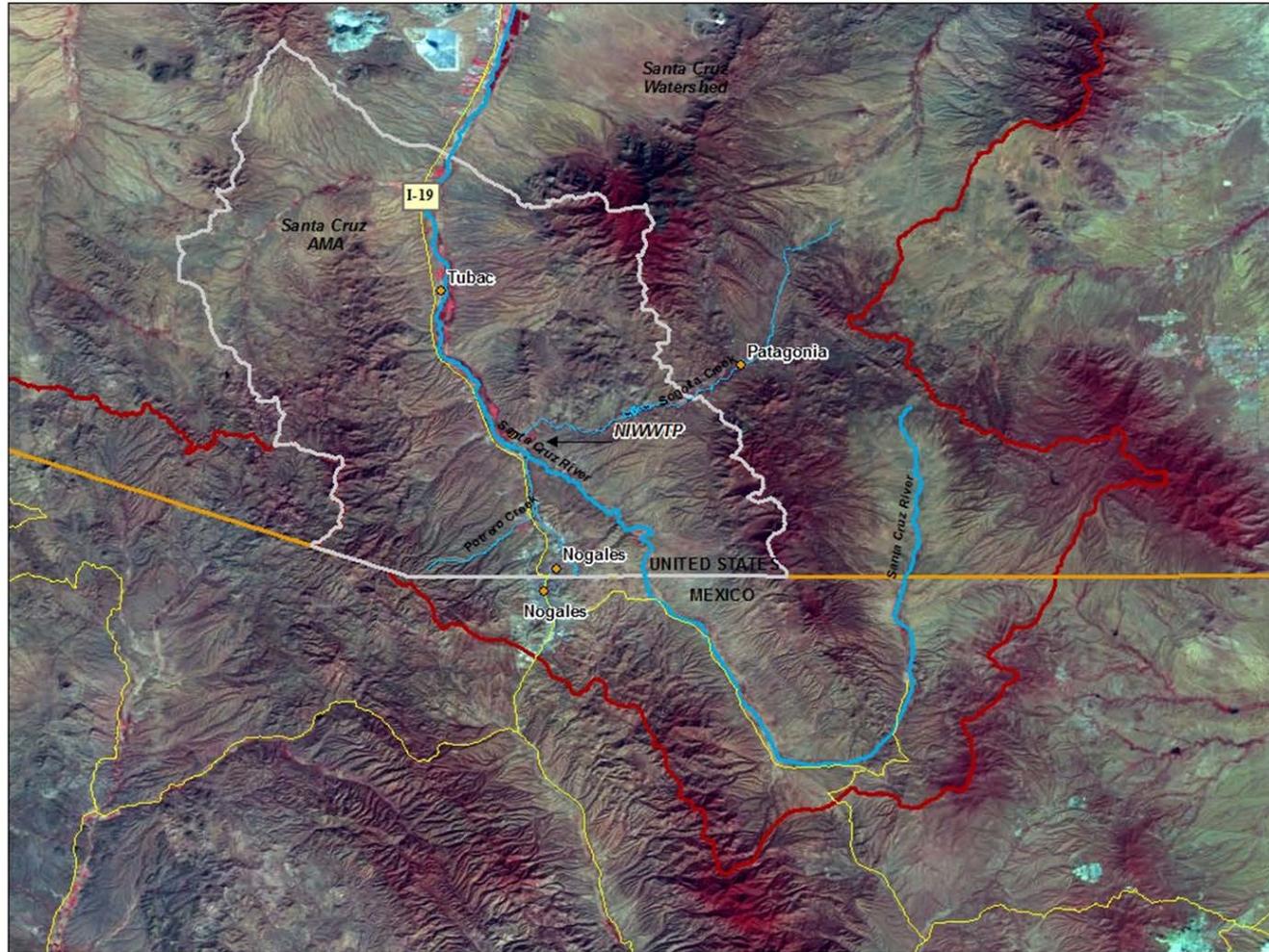
- Mission

- “...manage all water resources in the AMA conjunctively, to assure a reliable water supply for current and future uses, and to protect aquatic and riparian habitat while sustaining a healthy economy.”

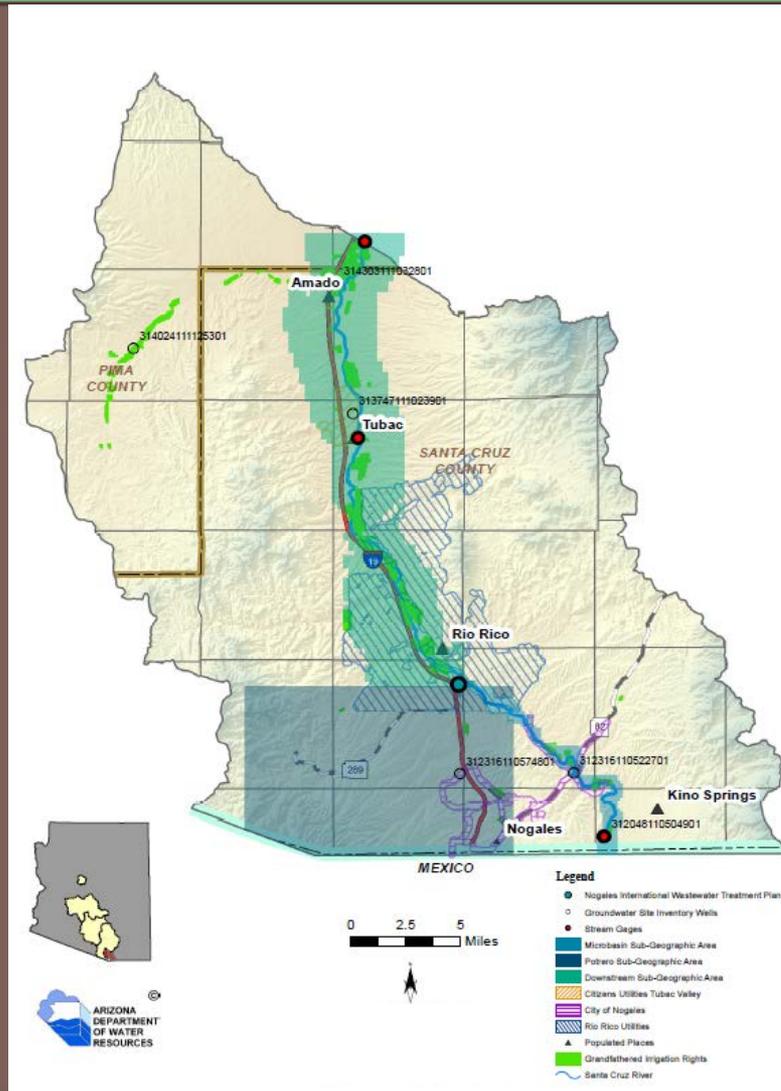
Active Management Areas



Santa Cruz Watershed



SCAMA Sub-Areas



Water Supplies

- ◉ Surface Water
- ◉ Reclaimed Water
- ◉ Groundwater

- ◉ “Water Withdrawn from Wells” (WWFW)
 - General Adjudication
 - GW/SW Interaction
 - Subflow Zone Determination
 - Saturated Floodplain Holocene Alluvium (FHA)
 - Technical Procedures Under Court Review
 - No Impact “Test” Adopted to Date
- ◉ Dual Filed Rights

Water Uses

◉ Direct Use

- Groundwater (WWFW)
- Surface Water
 - Limited to single Agricultural User on Sopori Wash

◉ Indirect Use

- Net Natural Recharge - Infiltrates into Stream Channels and Augments Supplies Available to Local and Downstream Water Users
- Surface Water
- Reclaimed Water

ADWR Analysis

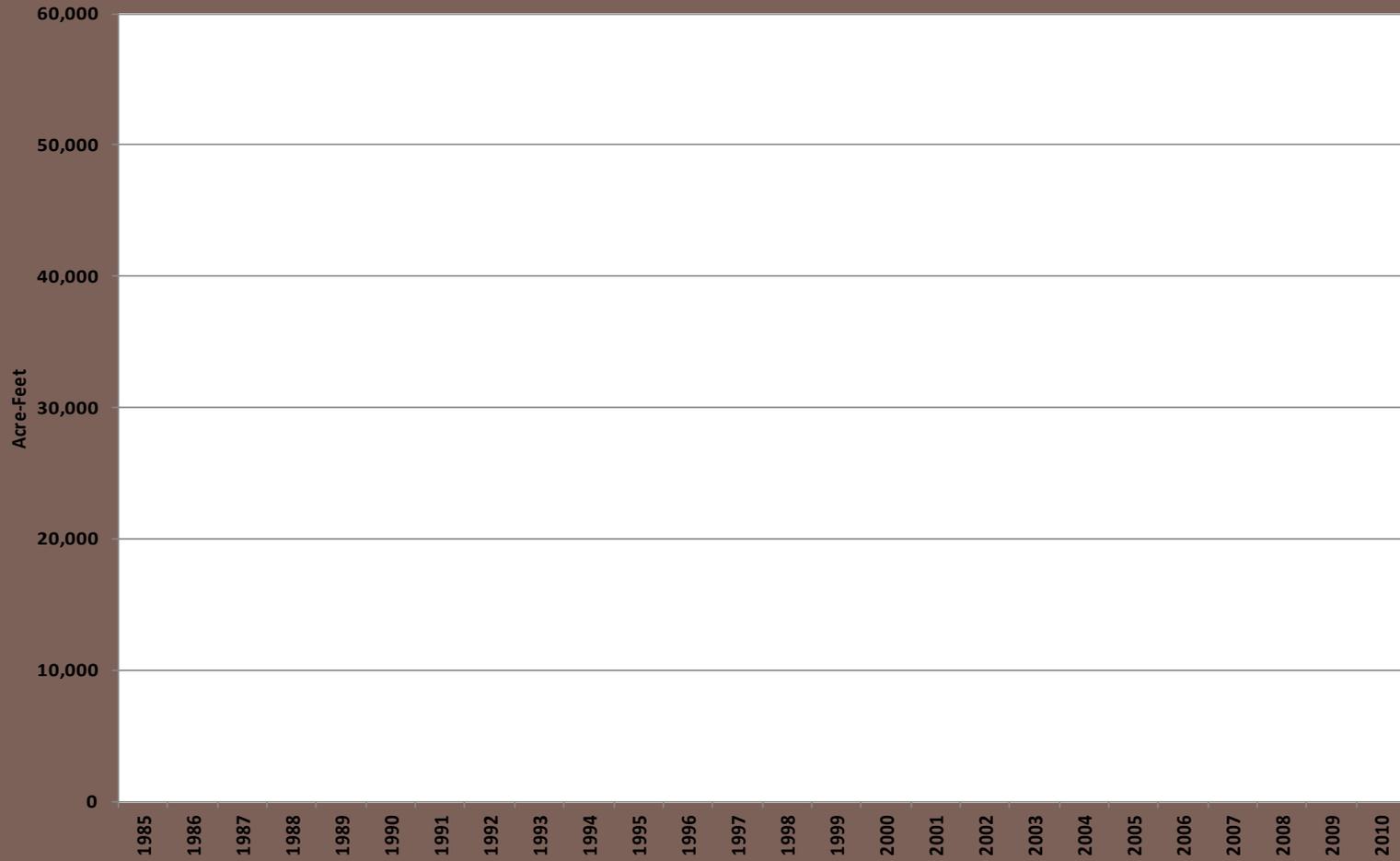
○ Groundwater Models

- Areas
 - Microbasins
 - Downstream Area
- Construction, Simulation, Calibration

○ Risk Analysis

- Stochastic Streamflow Analysis
 - 100 Independent Predictive Realizations
- Translated to GW Model Predictions

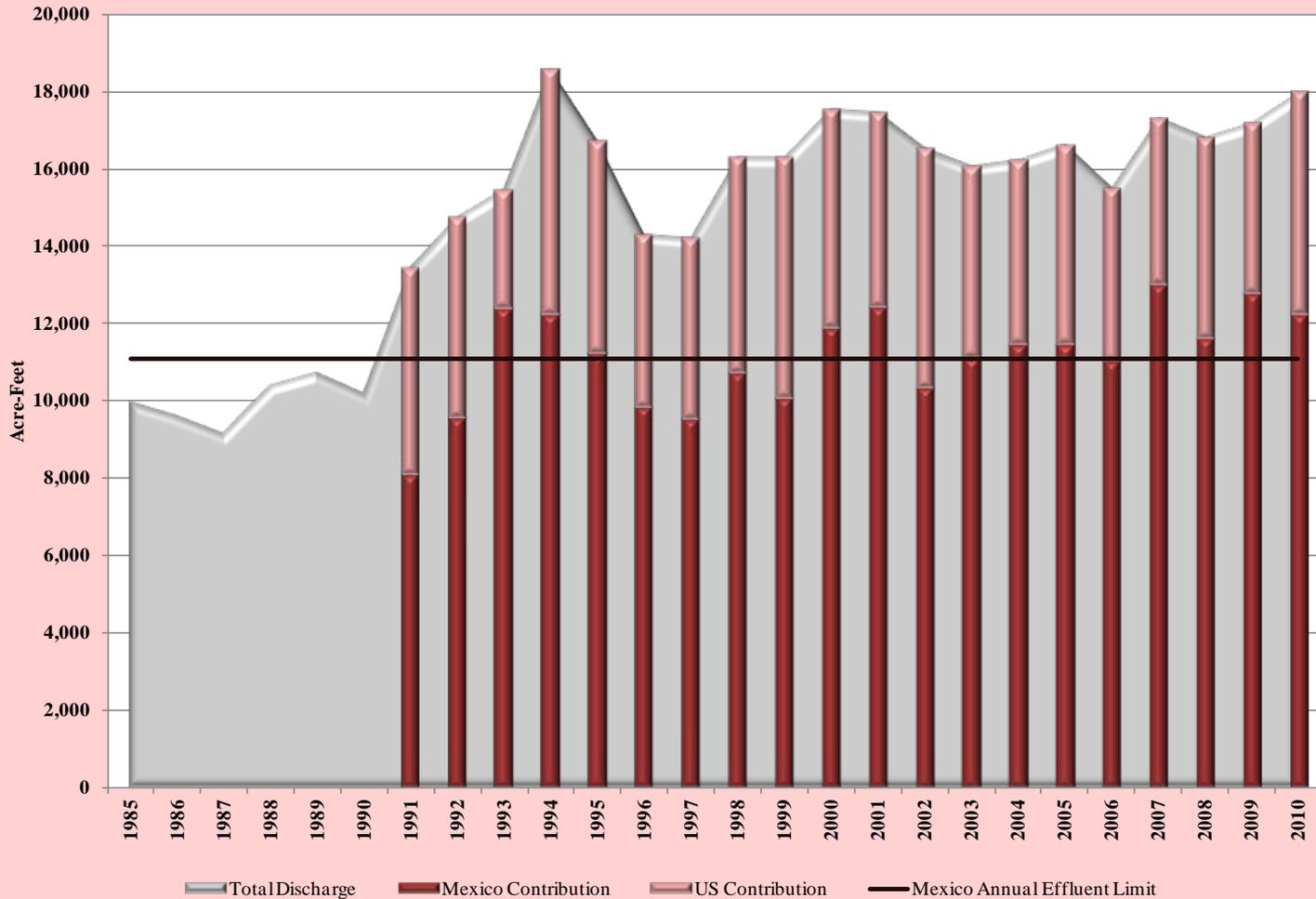
Modeled Net Natural Recharge



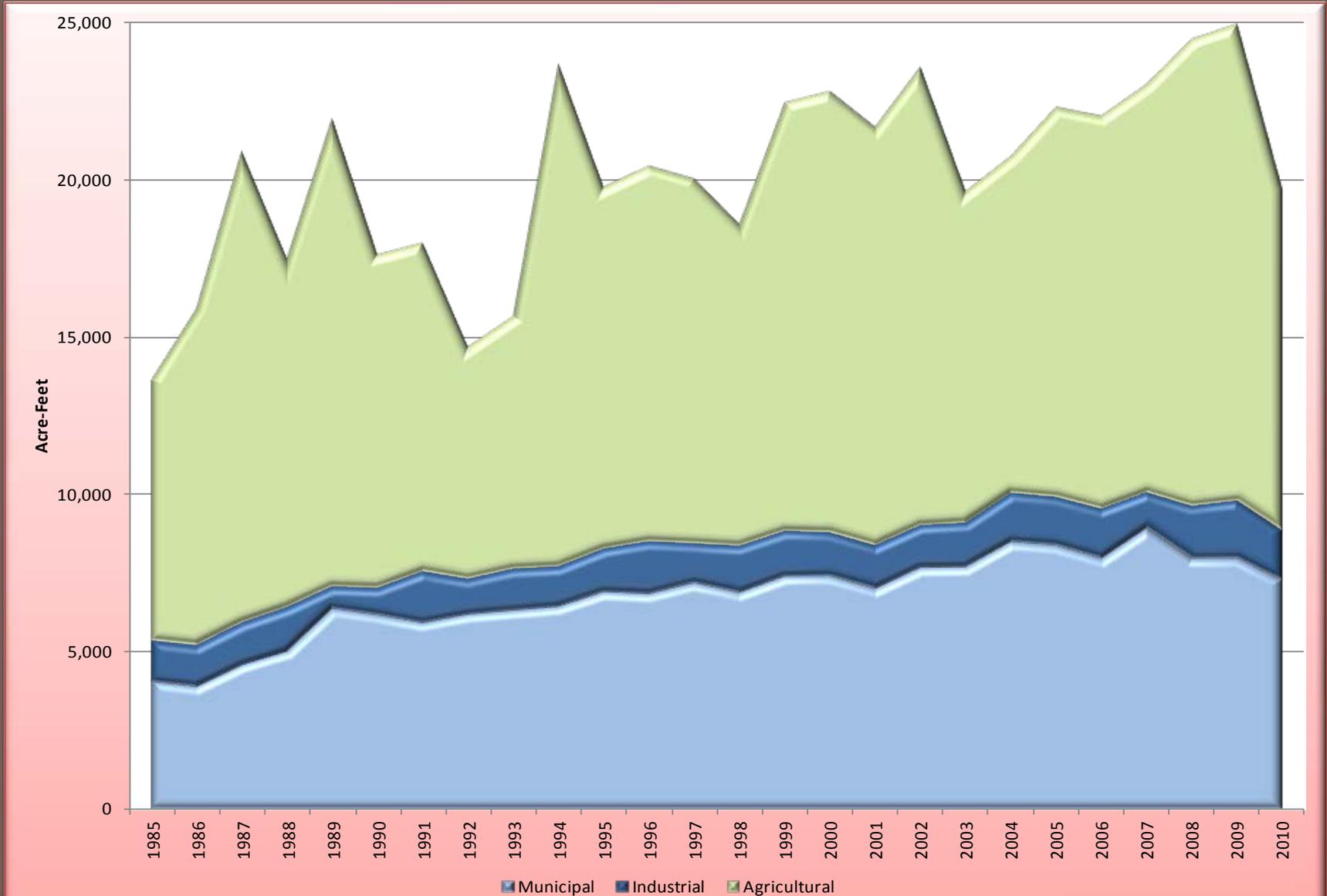
Net Natural + Incidental Recharge

NIWWTP Discharges

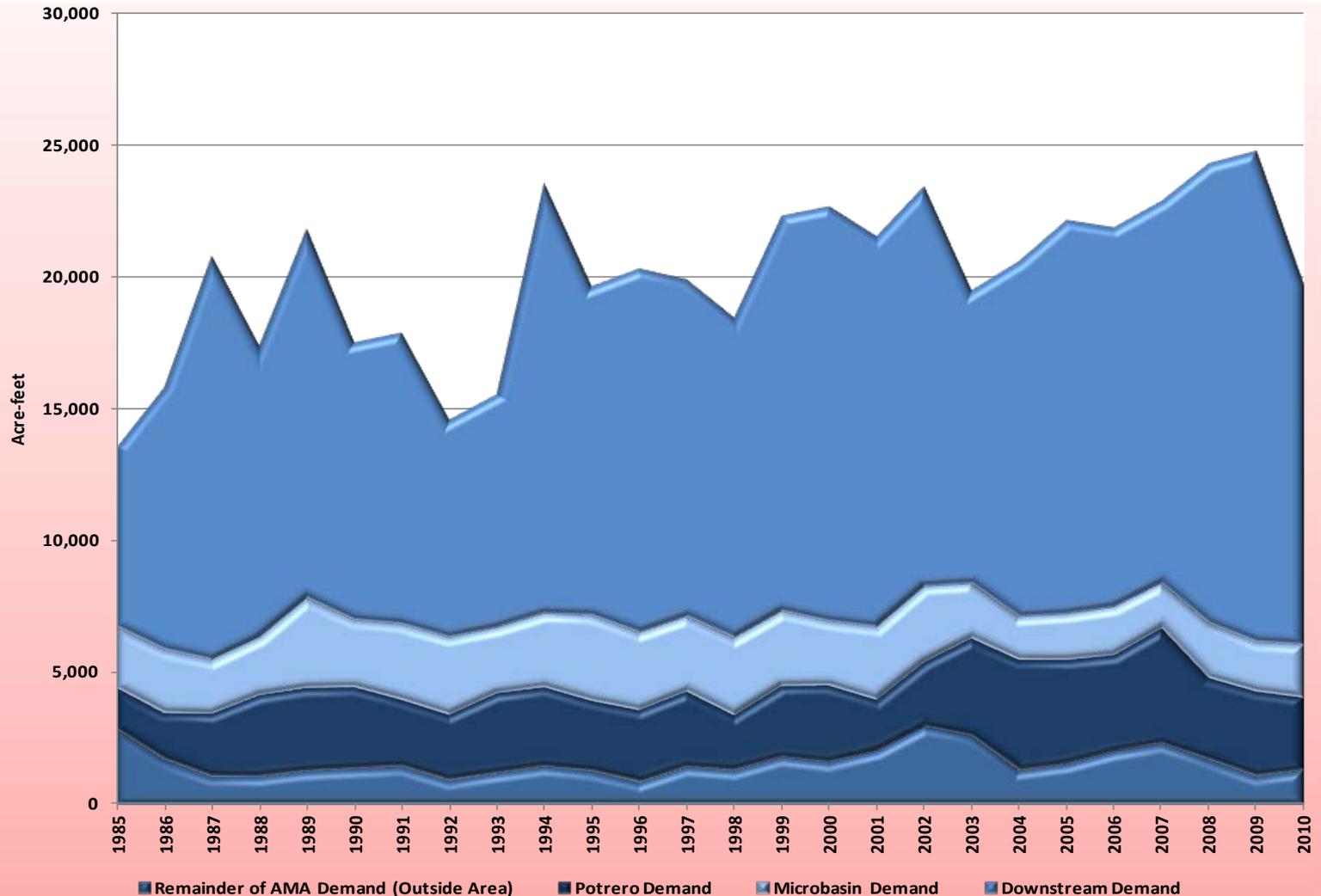
Effluent Discharges NIWWTP



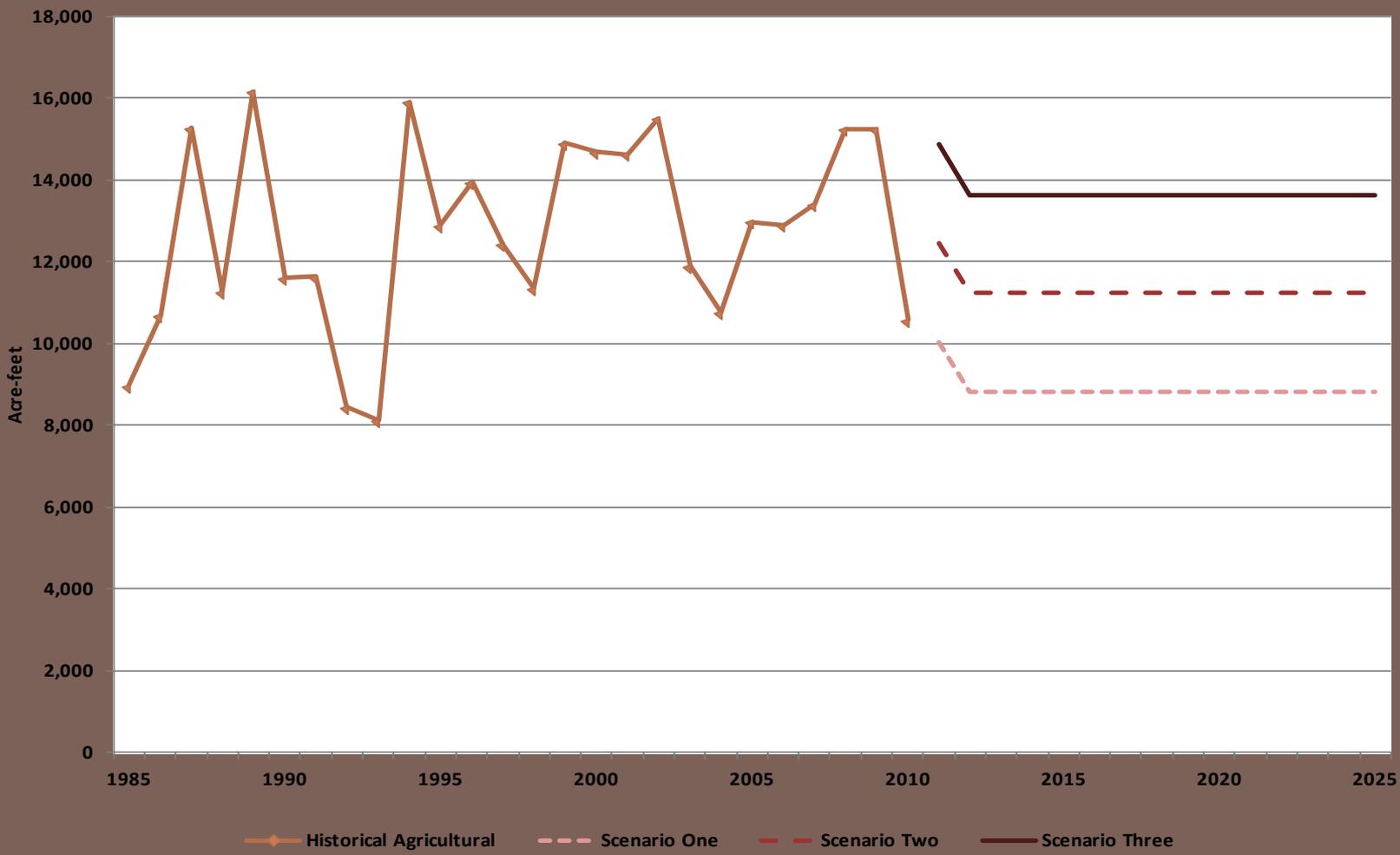
Total SCAMA Demand by Sector



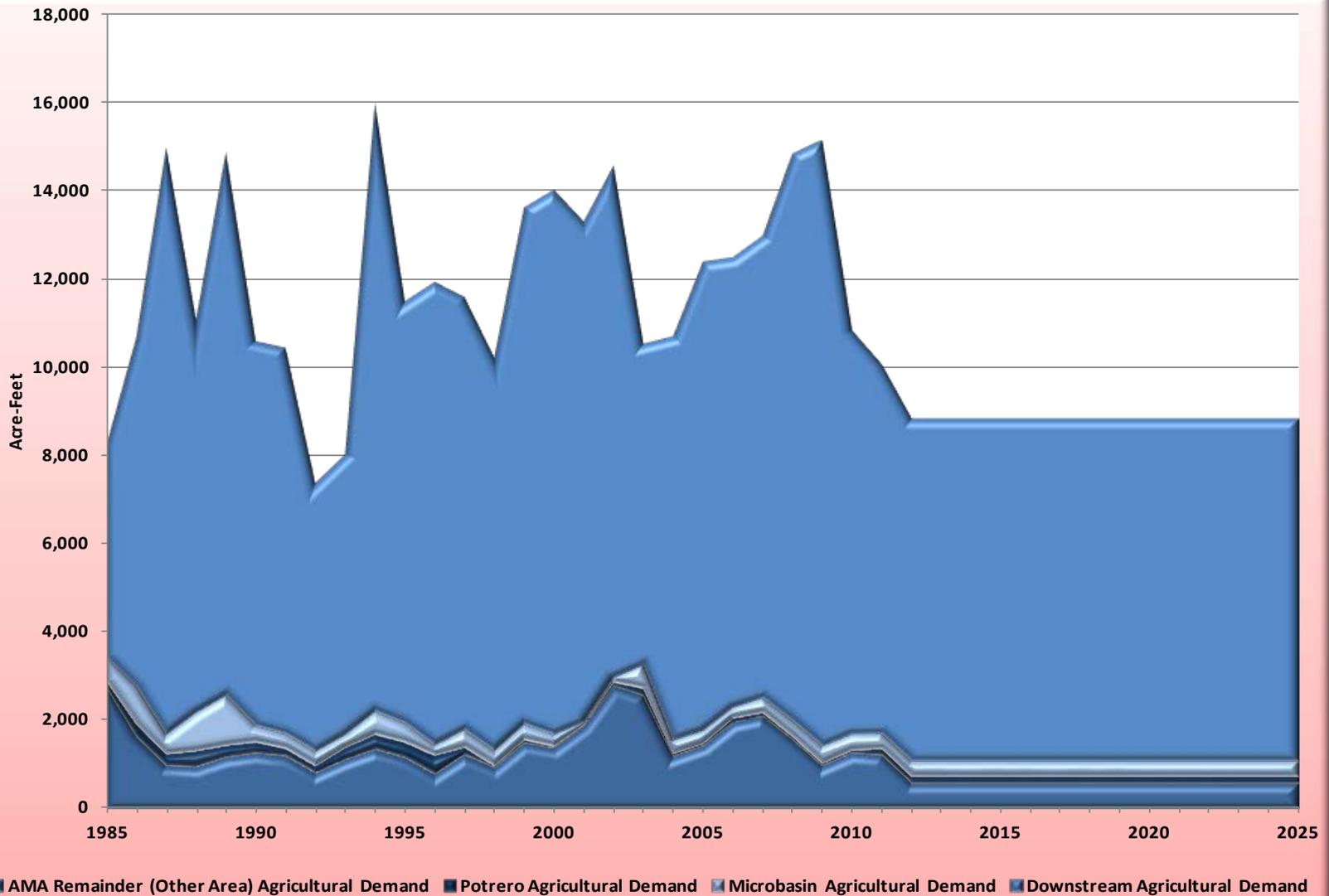
Total Demand by Sub-Area



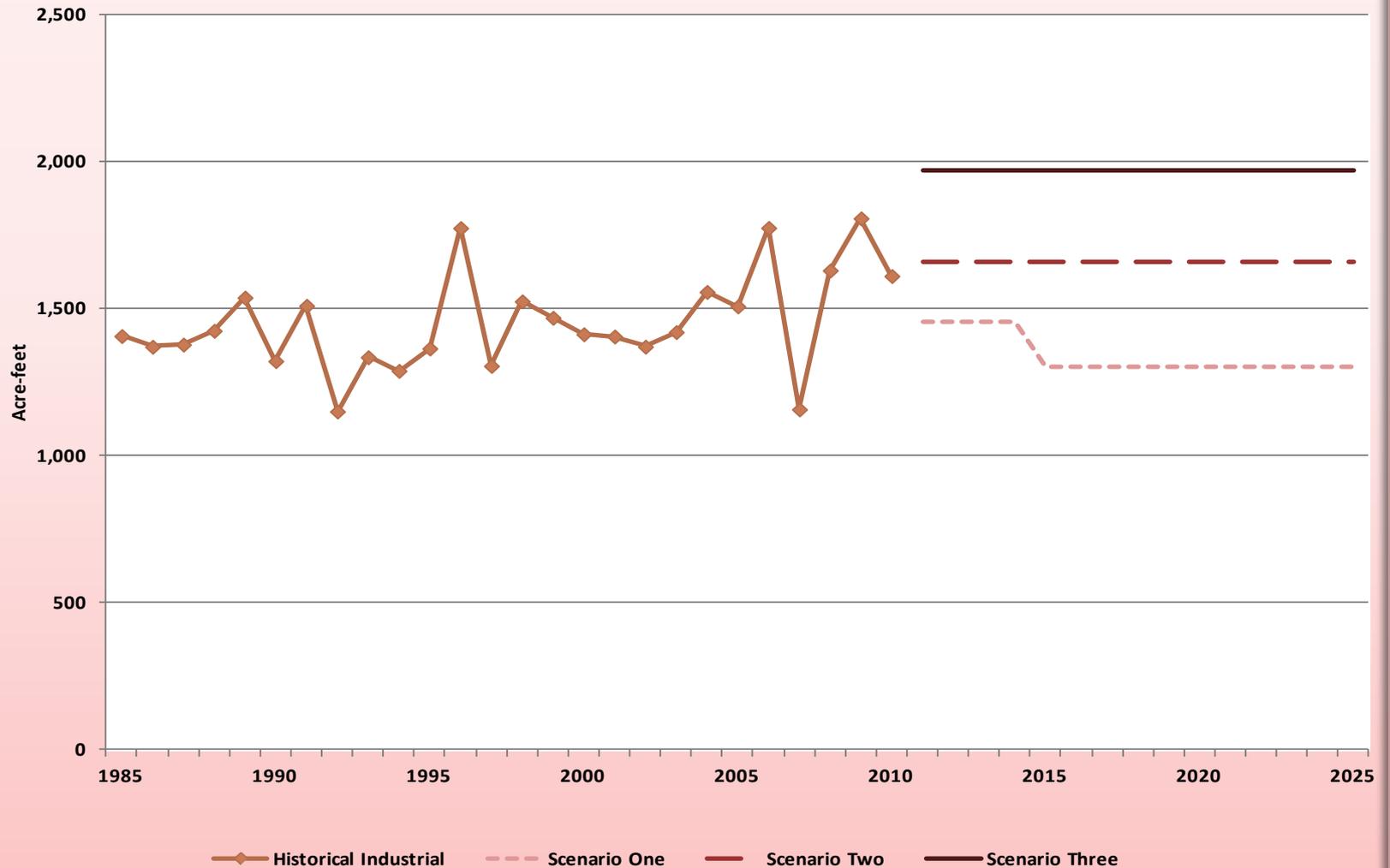
Total AMA Agricultural Demand



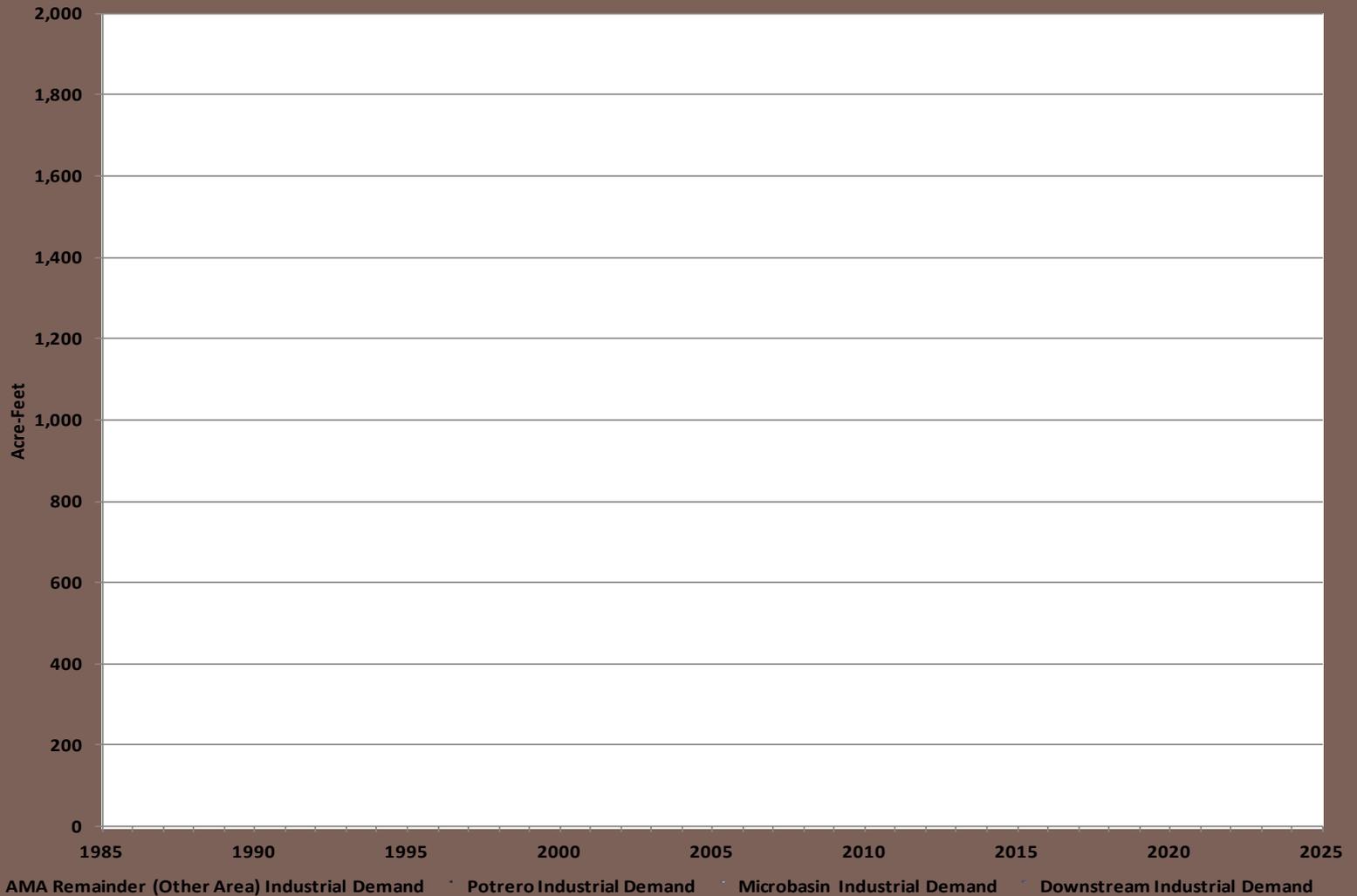
Agricultural Demand by Sub-Area



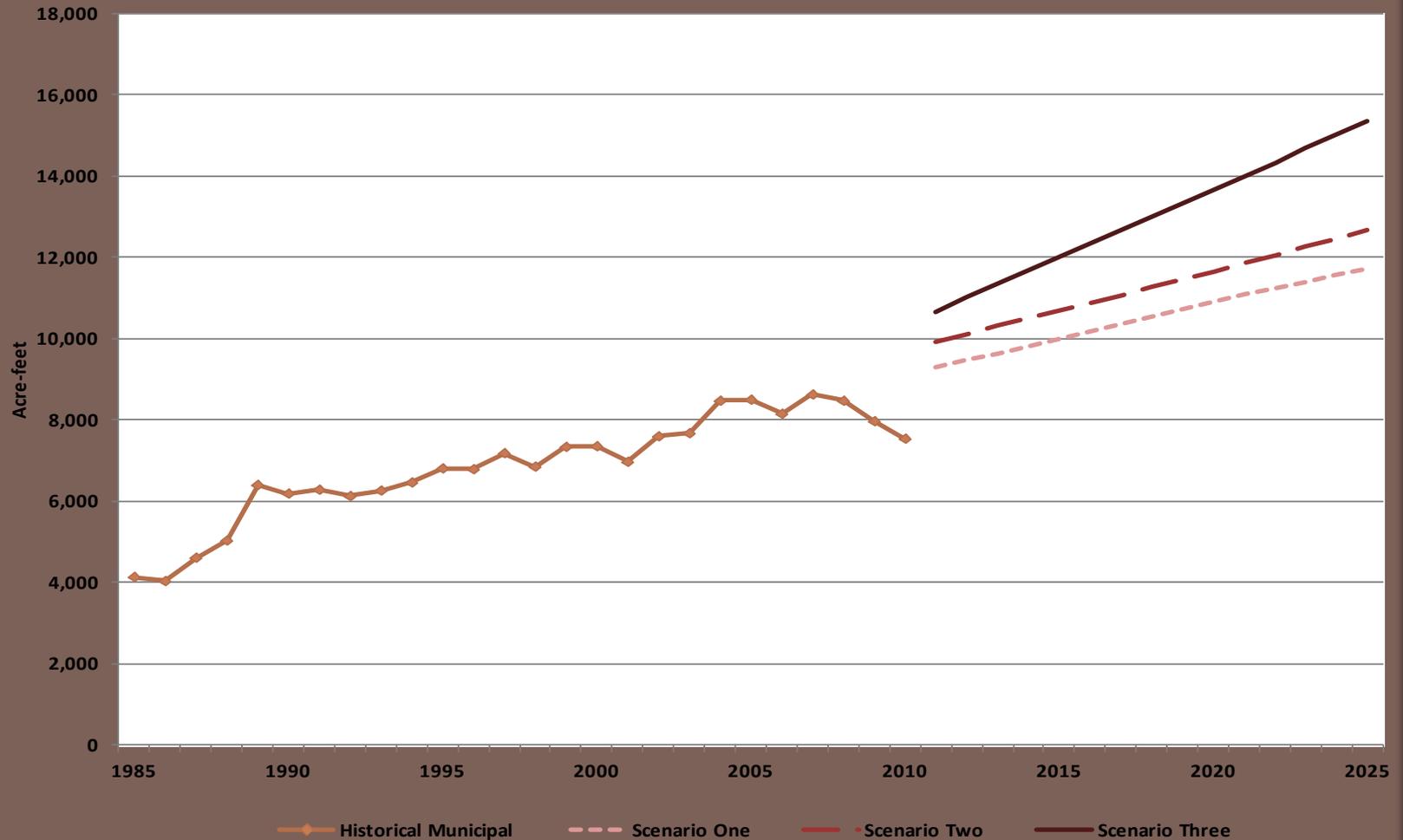
Total AMA Industrial Demand



Industrial Demand by Sub-Area



Total AMA Municipal Demand



Municipal Demand by Sub-Area

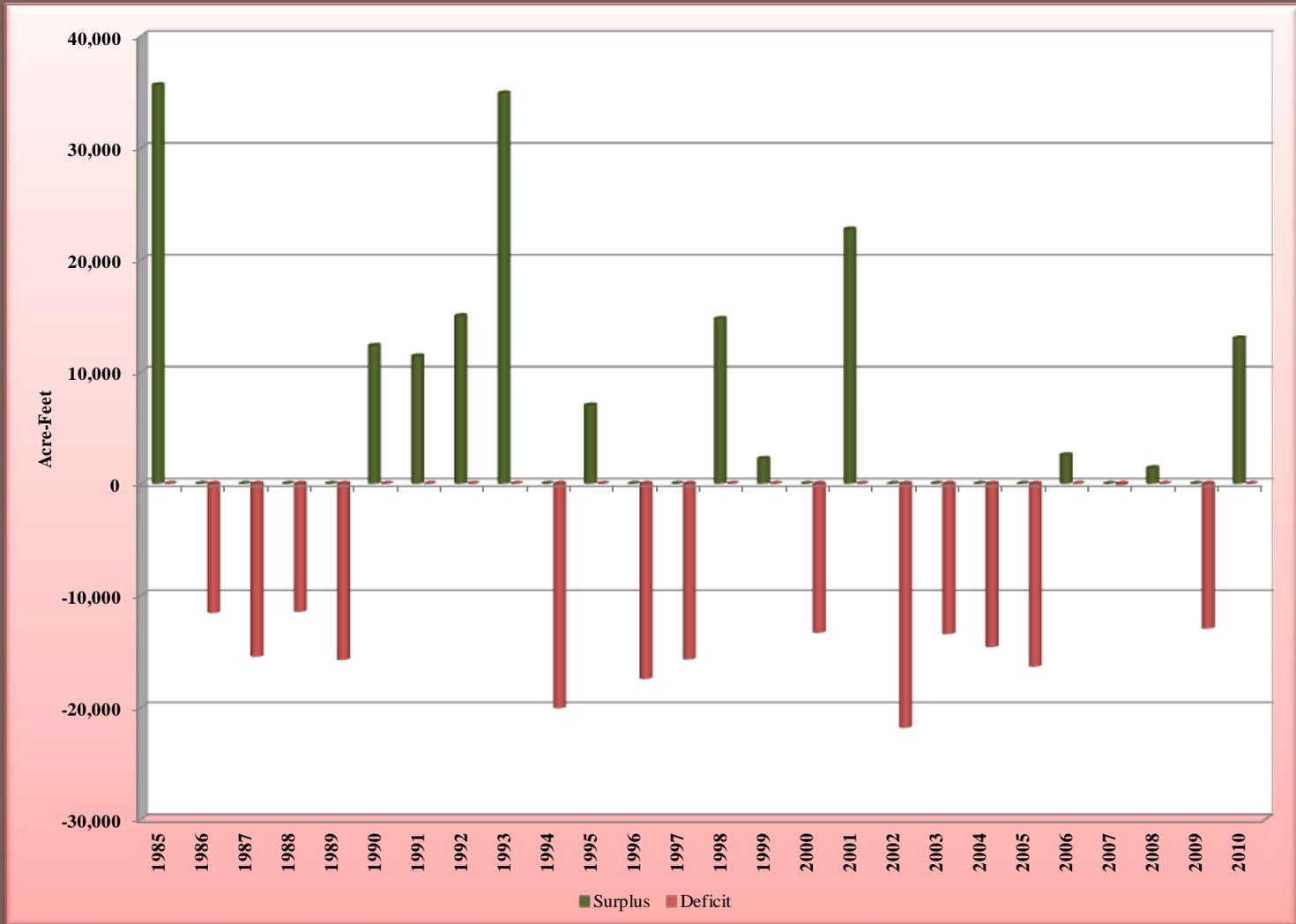


AMA Remainder (Other Area) Municipal Demand Potrero Municipal Demand Microbasin Municipal Demand Downstream Municipal Demand

Pre-AWS Rules Platted Lots

	Demand (acre-feet/year)	No. of Lots
CURRENT (2010)	7,500	17,000
Committed Demand Remaining		
DAWS	1,600	4,600
CAWS (Estimated)	2,200	3,700
WR (Estimated)	600	600
Dry Lot Subdivisions (Estimated)	100	300
Pre-Rules Unbuilt lots (Estimated)	3,400 - 4,100	12,400 - 15,100
ESTIMATED COMMITTED TOTAL	7,800 - 8,500	21,600 - 24,300
Potential Demand (Current + Committed)	15,300 - 16,000	

Net Water Balance – AMA wide



Location of Index Wells

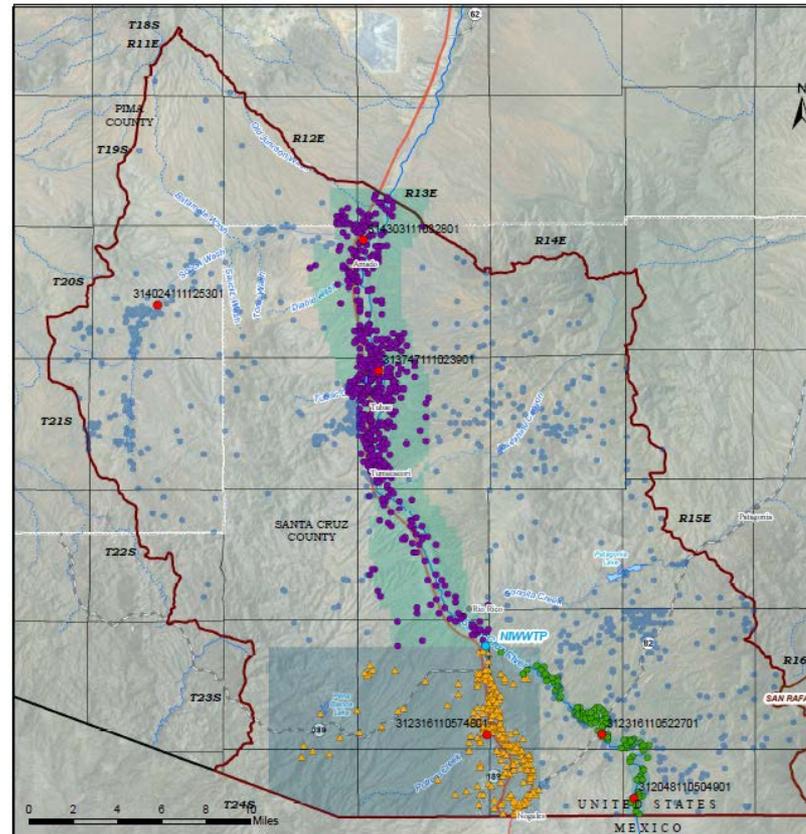
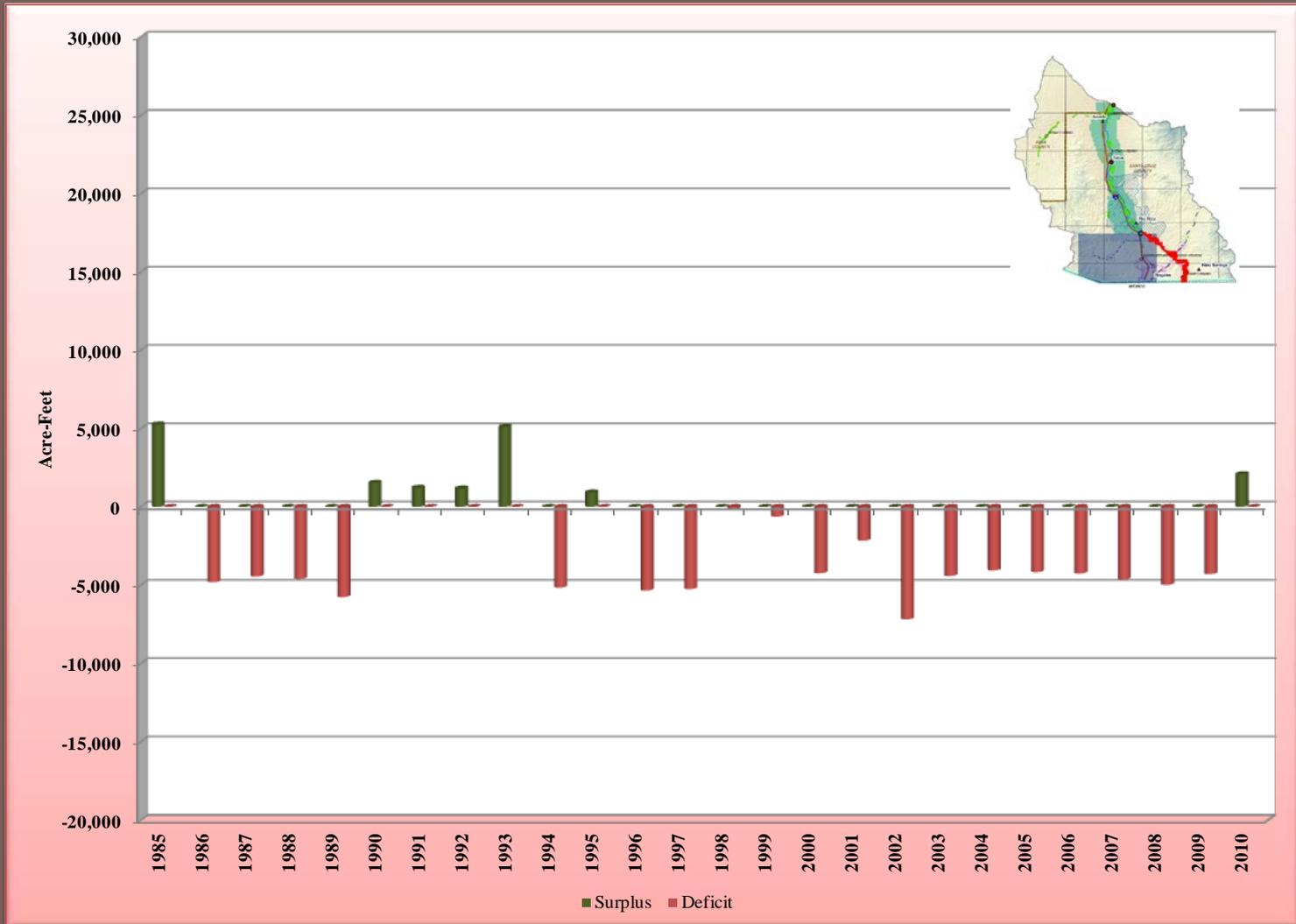


Figure 4-3
Location of Hydrograph Index Wells in SCAMA



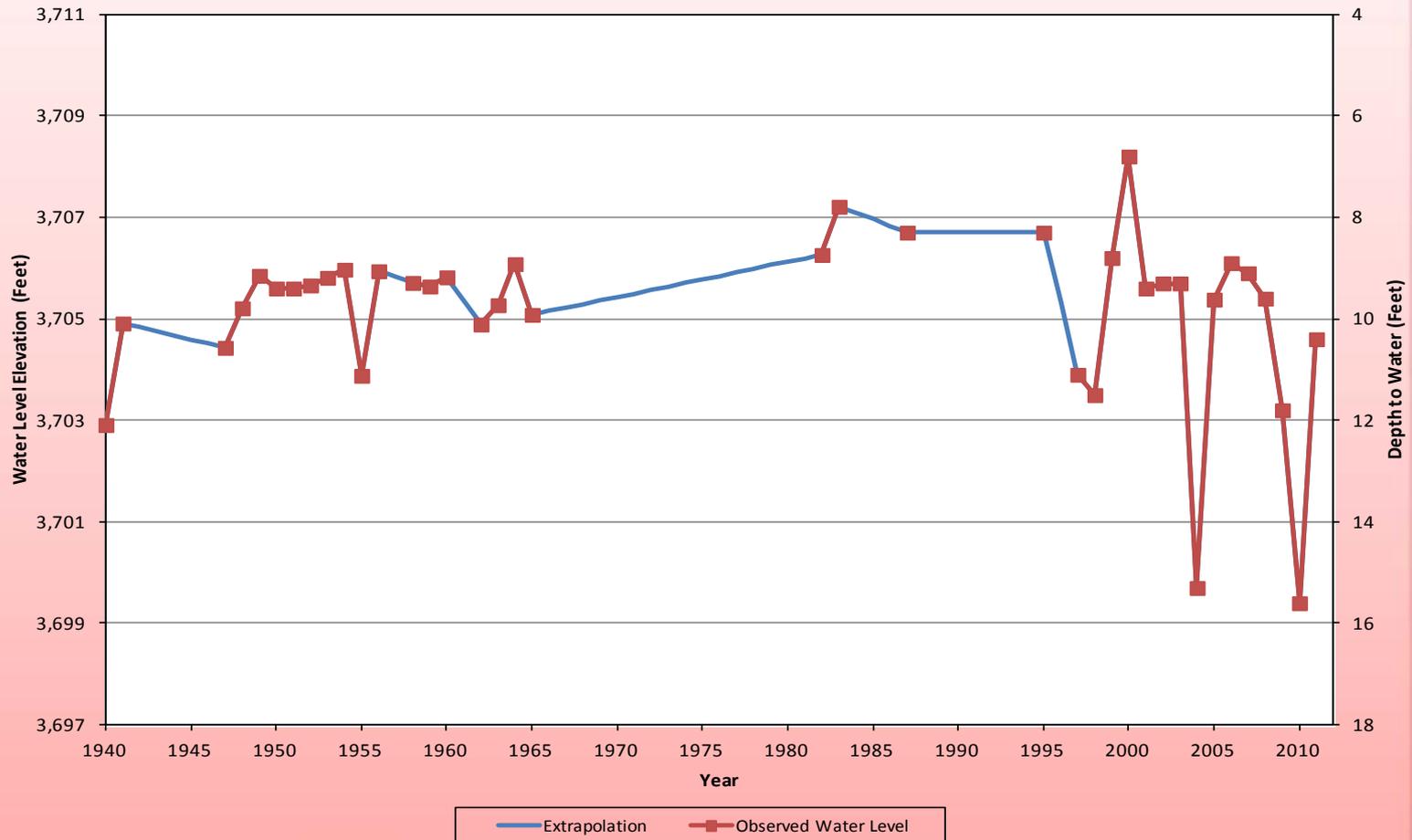
- Legend
- Santa Cruz AMA
 - Index Well
 - Microbasin Area Wells
 - Downstream Area Wells
 - Potrero Area Wells
 - Wells Outside the Inner Valleys and Potrero
 - NIWWTP
 - City or Town
 - Major Road
 - Interstate Highway
 - Stream
 - State Boundary
 - Township/Range
 - County

Net Water Balance - Microbasins

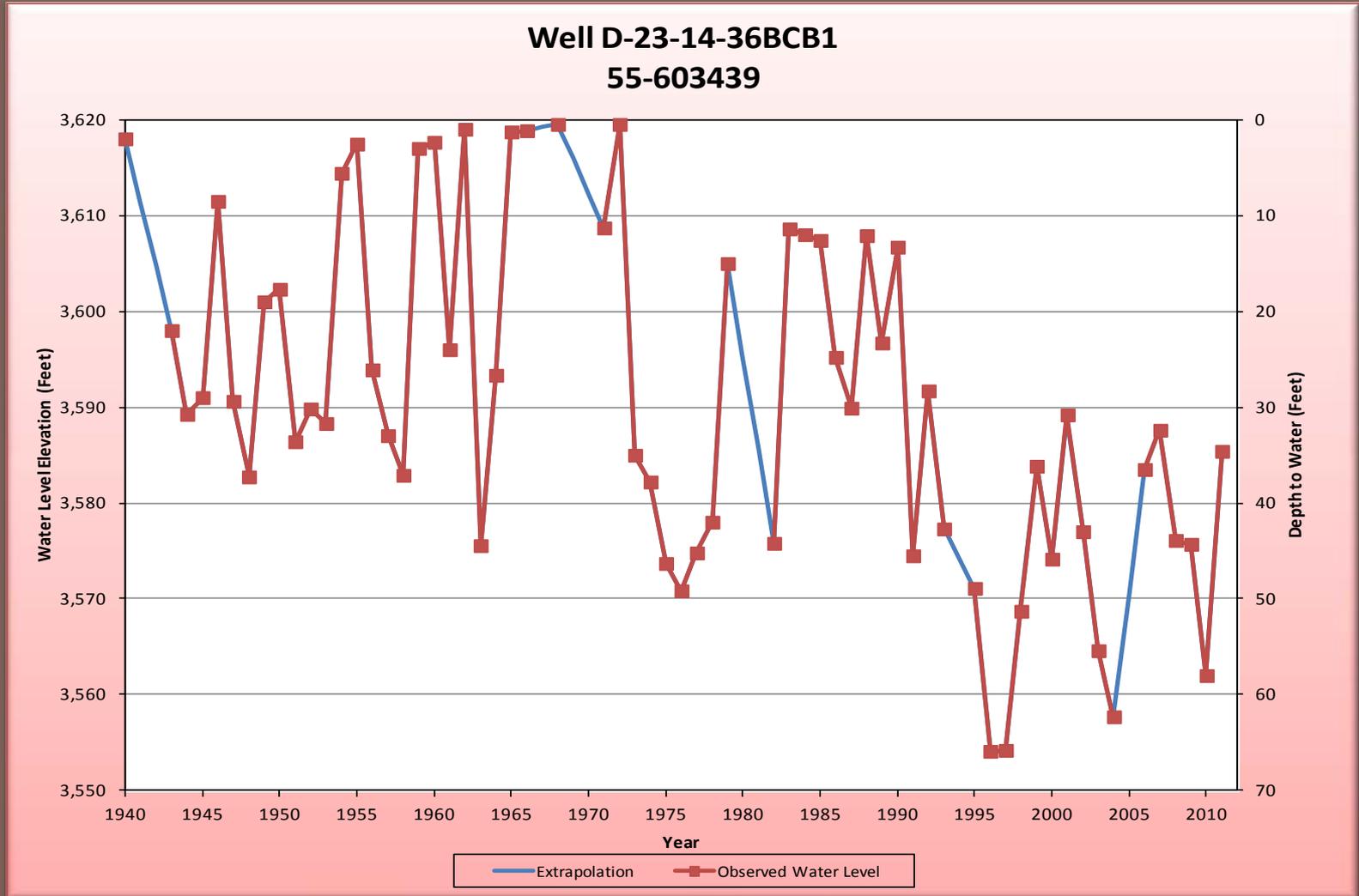


Microbasin Hydrograph 1

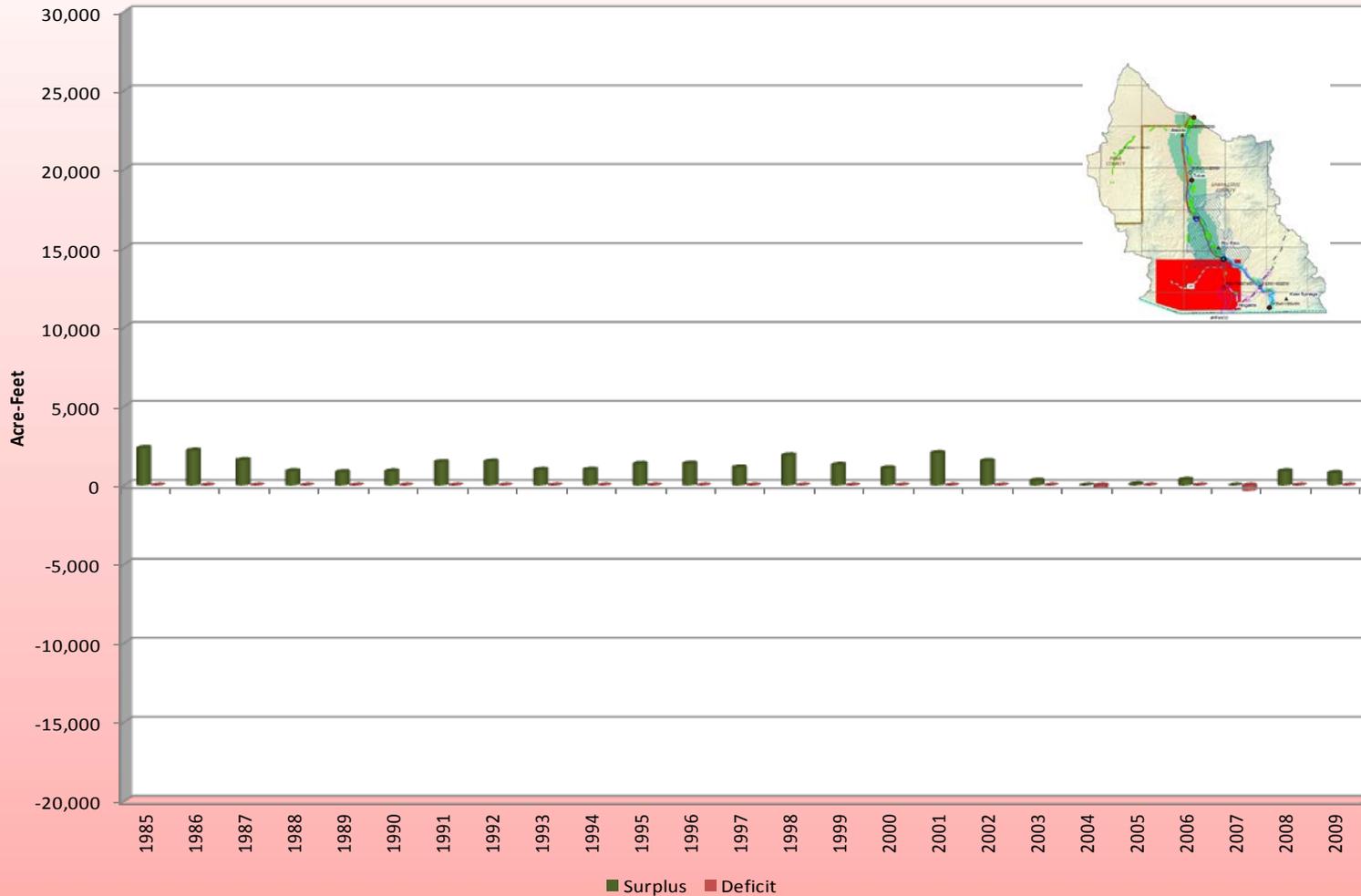
Well D-24-15-18BAD
Site ID 312048110504901



Microbasin Hydrograph 2

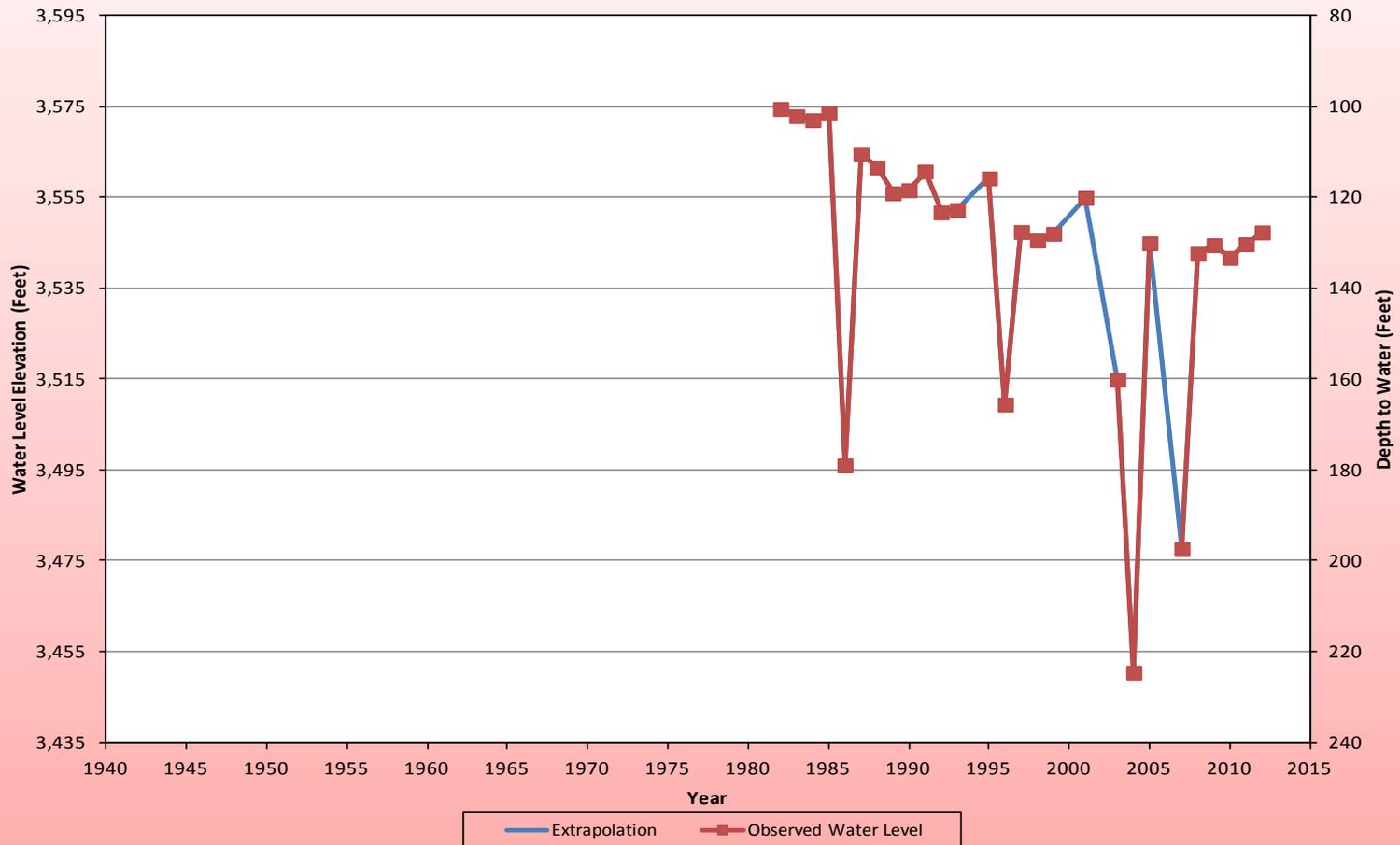


Net Water Balance - Potrero

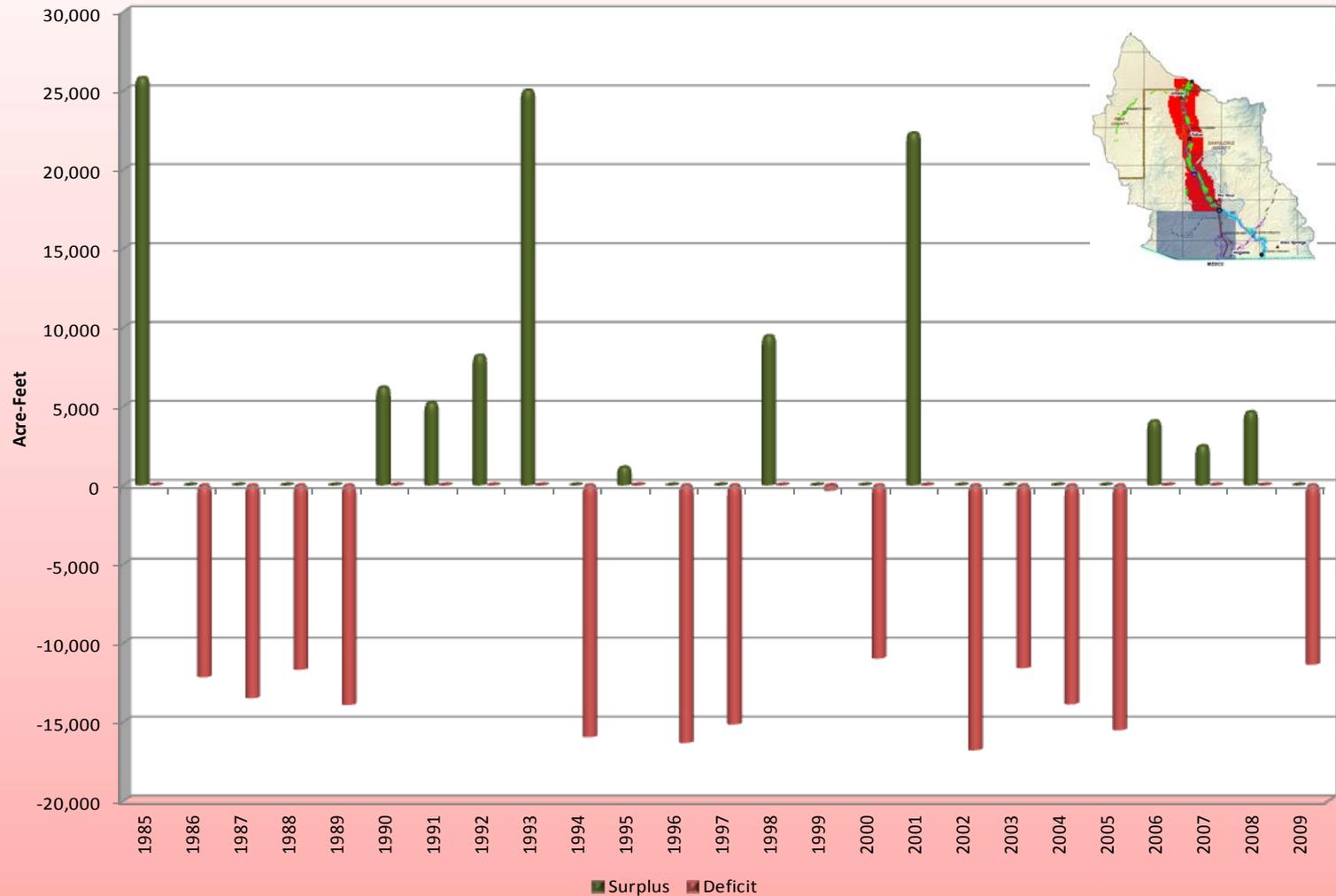


Potrero Hydrograph

Well D-23-13-36ADB
55-603432



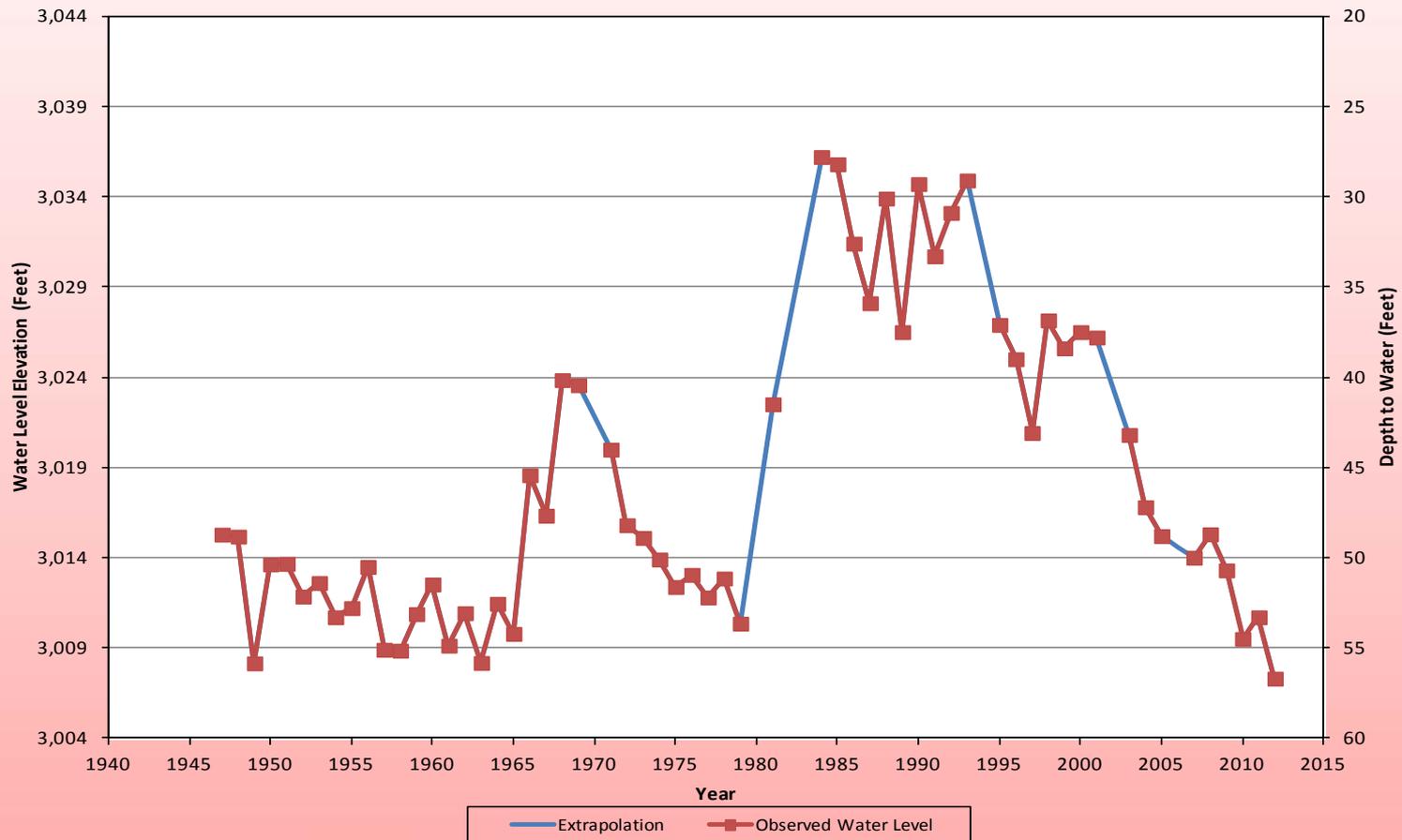
Net Water Balance - Downstream



Downstream Hydrograph 1

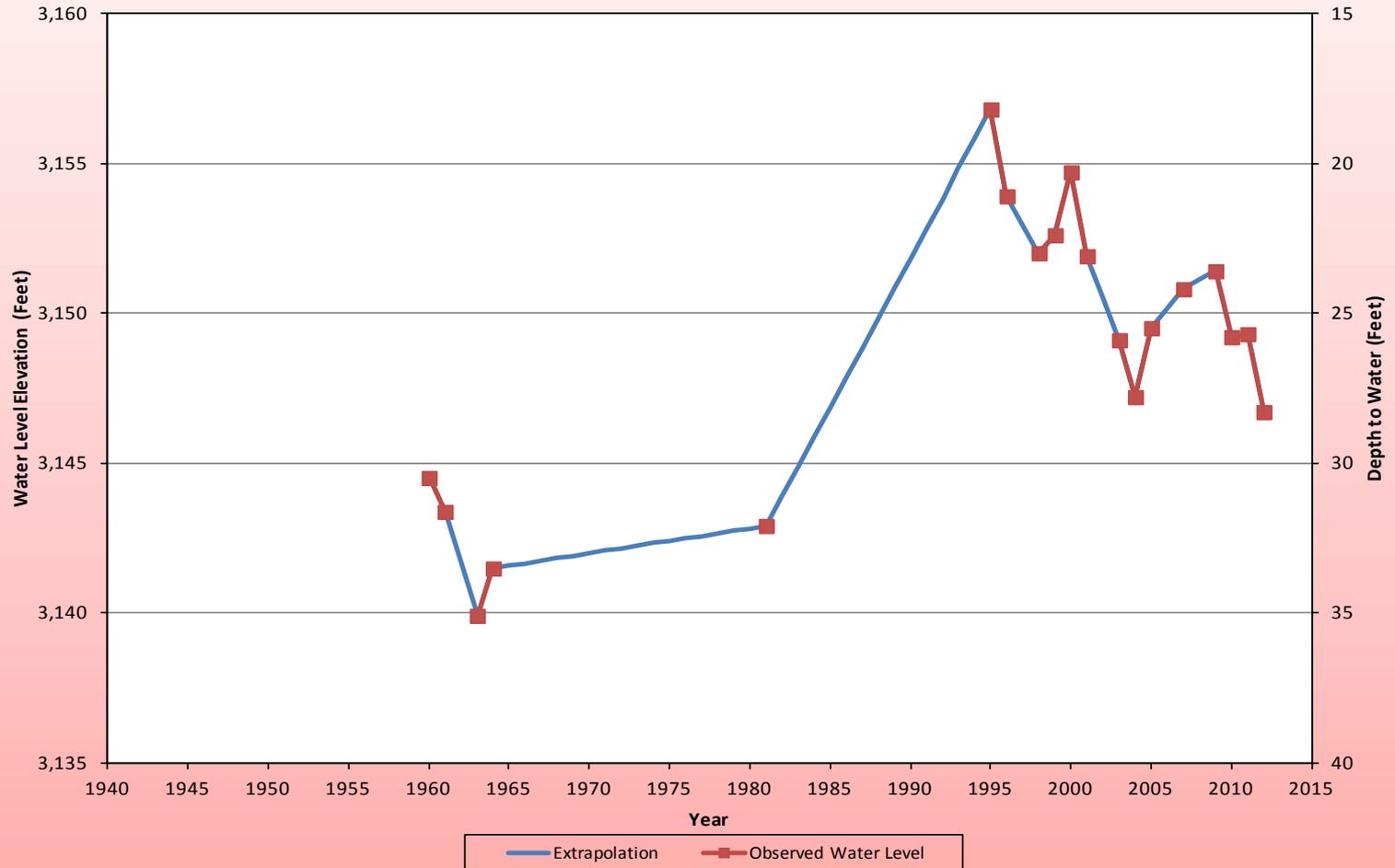
Well D-20-13-06CBA

55-627932

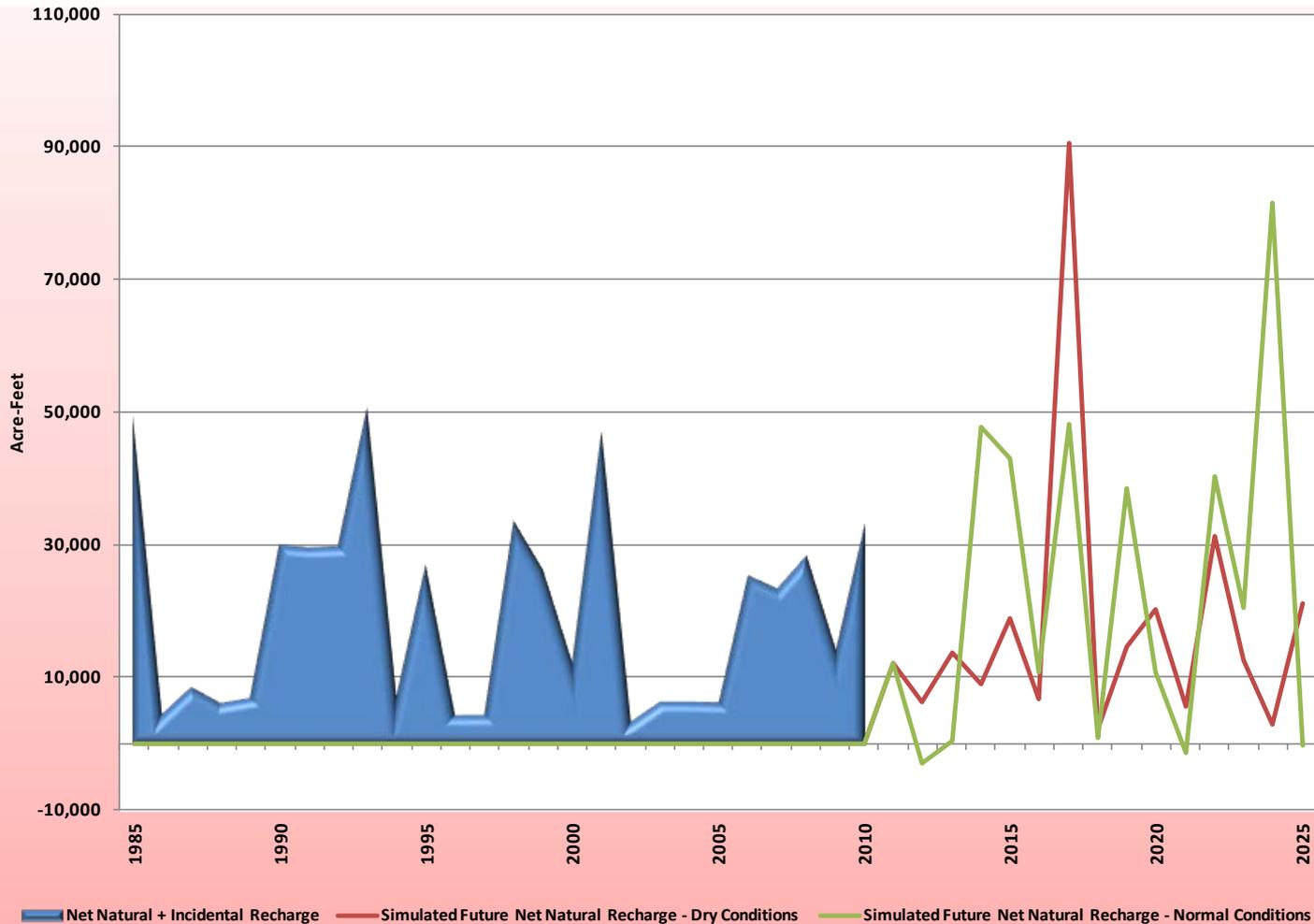


Downstream Hydrograph 2

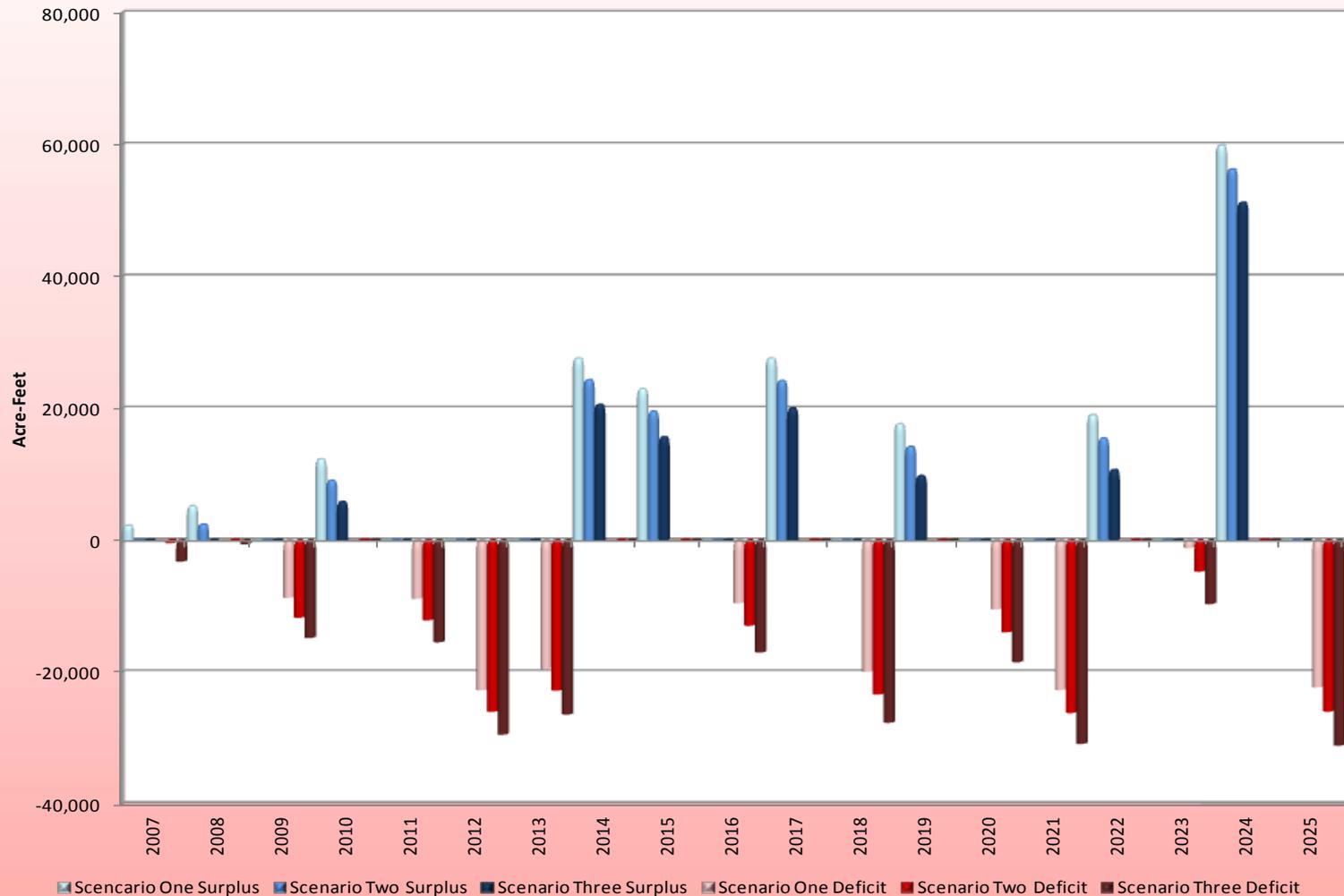
Well D-21-13-06DAA
55-608112



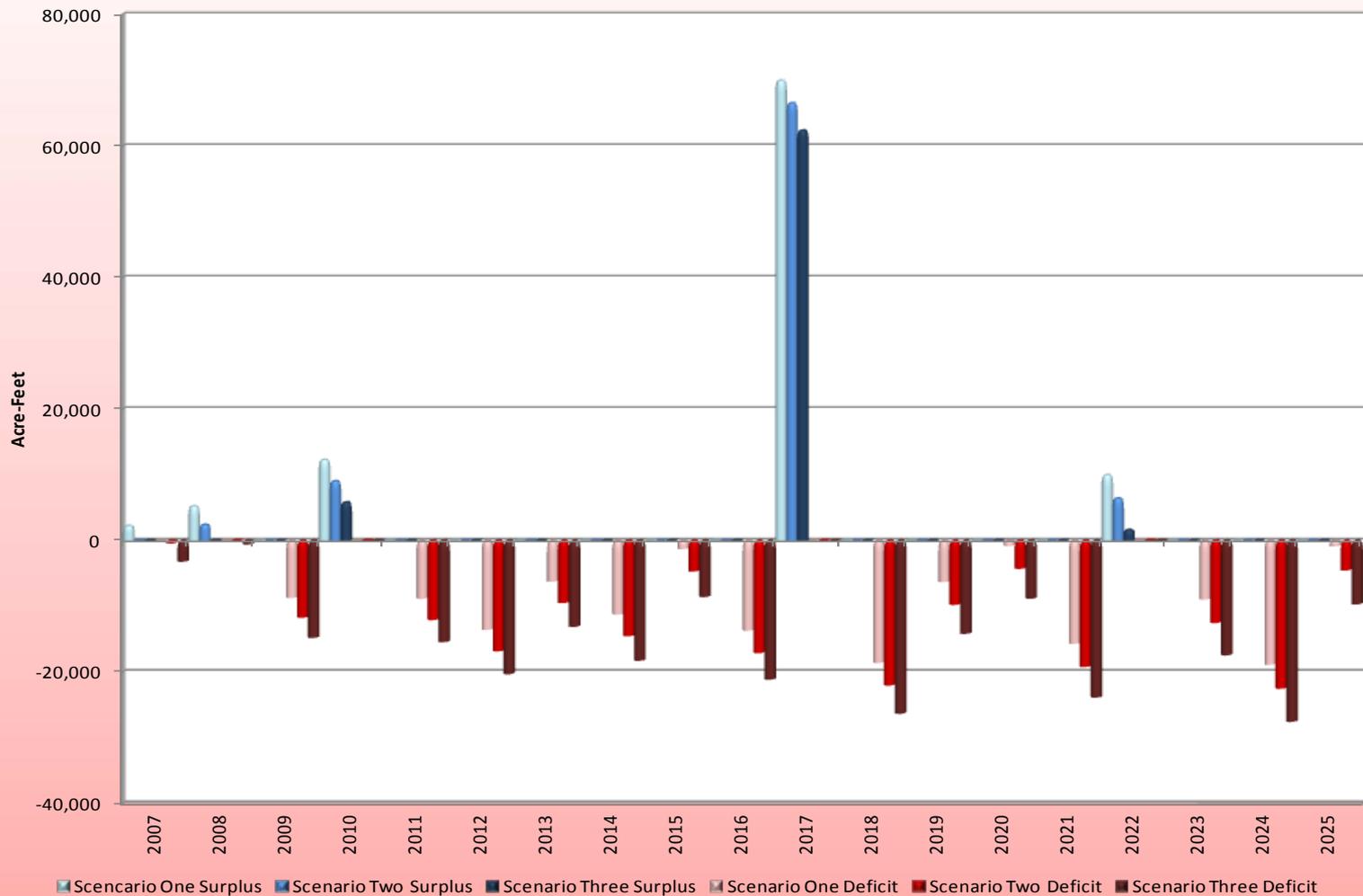
Historic & Projected Supply



Predictive Simulations-Normal



Predictive Simulations-Dry



Water User Options & Response

◉ Limited Flexibility Today

- Reduce Demands
- Curtail Deliveries
- Shift Supplies
 - Largely Limited to Nogales, AZ
 - Move Pumping from Microbasins to Potrero

◉ Future Options

- Increase Reclaimed Water Utilization
 - Lack of Infrastructure
 - Downstream Consequences
- Supply Importation
- Rainwater Harvesting?

Regulatory & Planning Issues

- Reliability of Supplies
- Availability of Additional Renewable Supplies
- Lack of Suitable Locations for Storage
- Impact of Diverting Supplies from Current Uses/Discharges
- Limited Non-Potable Reuse Opportunities
- Fate of NIWWTP Effluent
- Challenges with Physical, Legal & Continuous Availability under AWS Rules
 - Lack of Local Rules
 - Moratorium

Questions?

Pam Muse, AMA Planning/Data Mgmt
Arizona Department of Water Resources
(602) 771-8596
pmmuse@azwater.gov