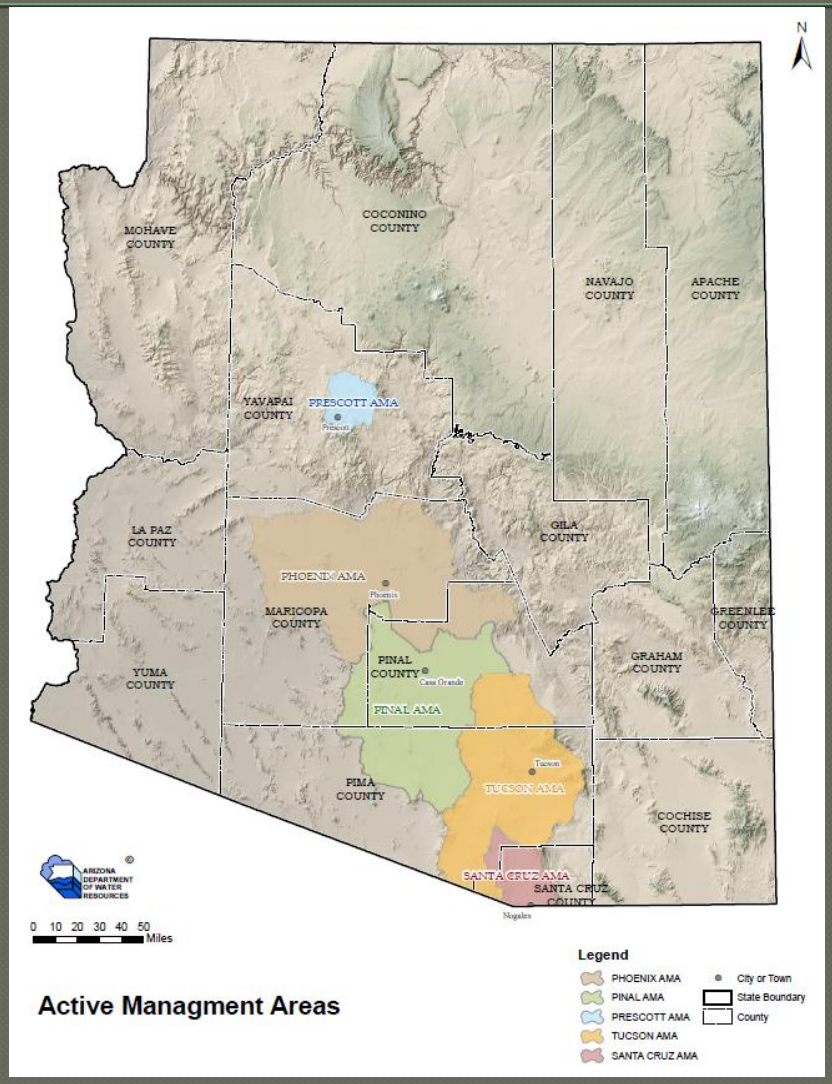
Santa Cruz Active Management Area Assessment

Michael J. Lacey
Deputy Director
Arizona Department of Water Resources

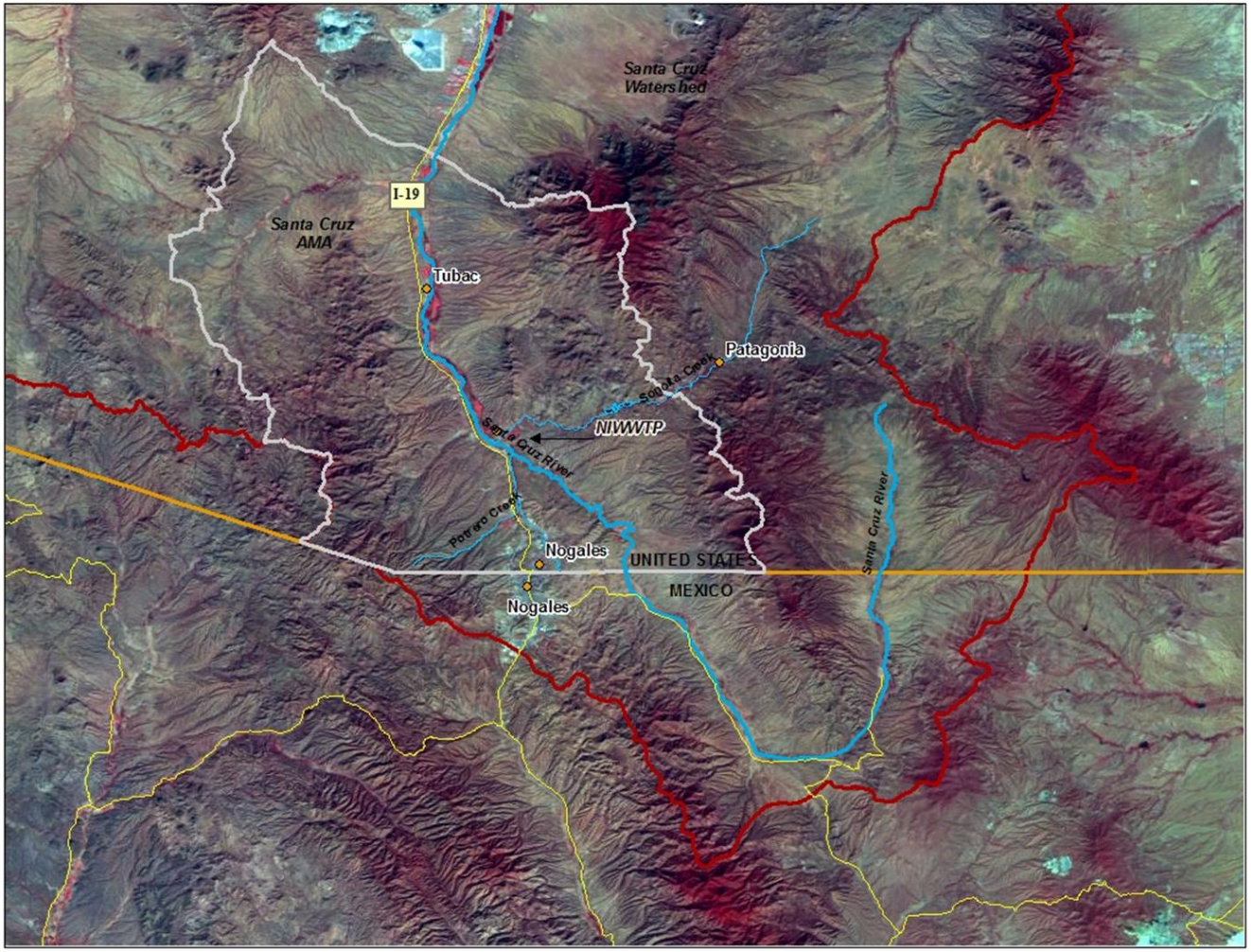
History, Goals & Mission

- 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."

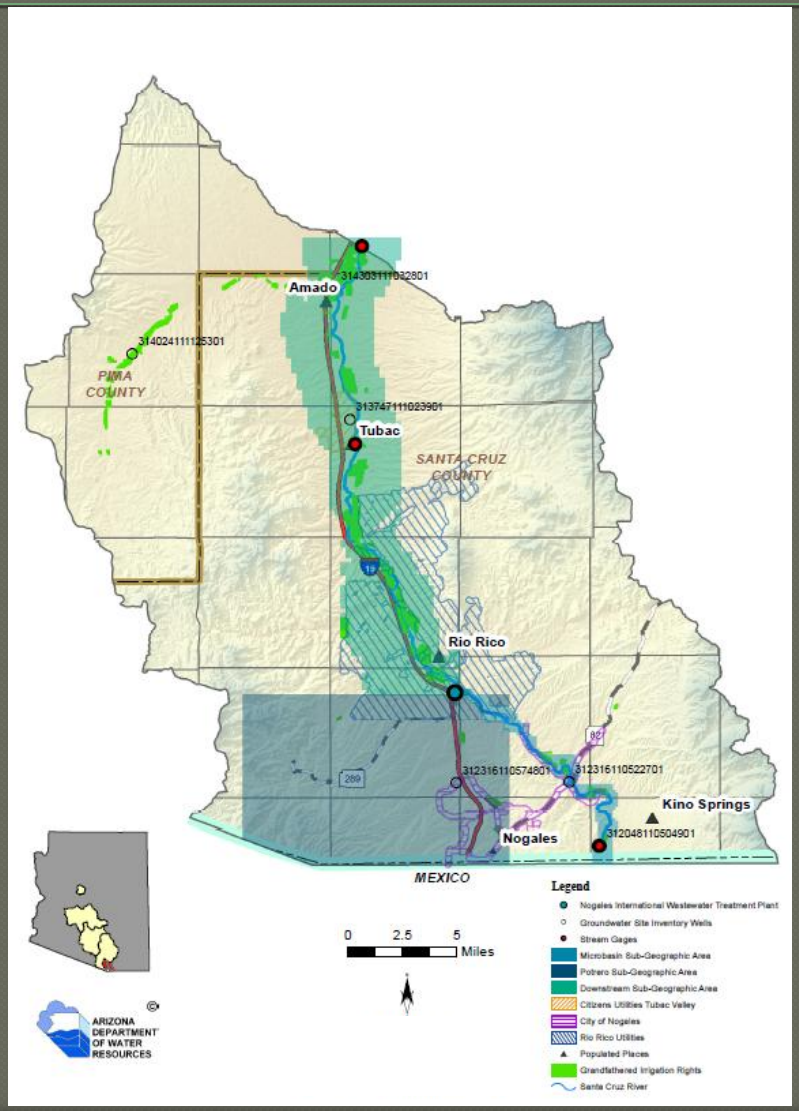
Active Management Areas



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- "Water Withdrawn from Wells" (WWFW)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

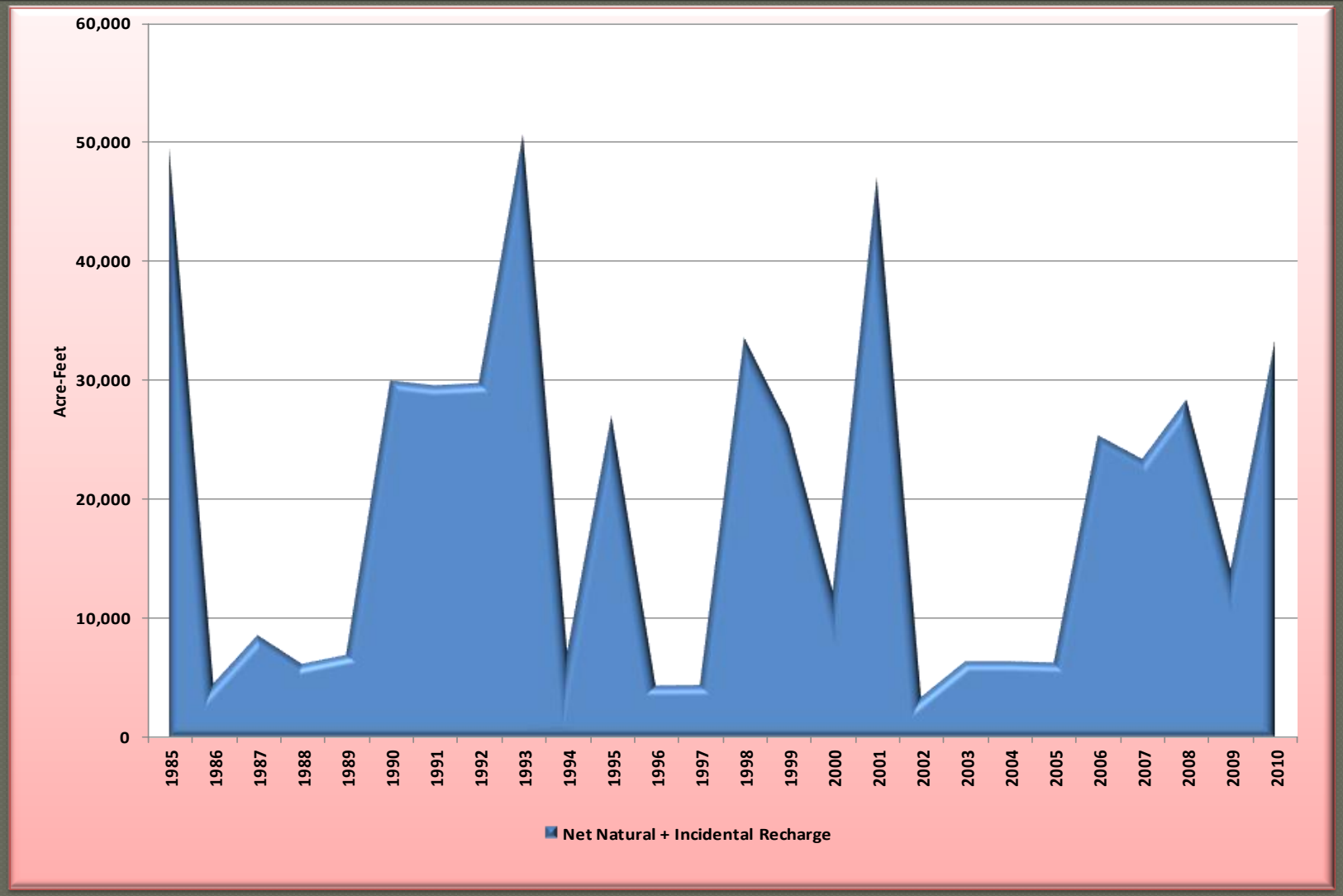
Water Uses

- 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

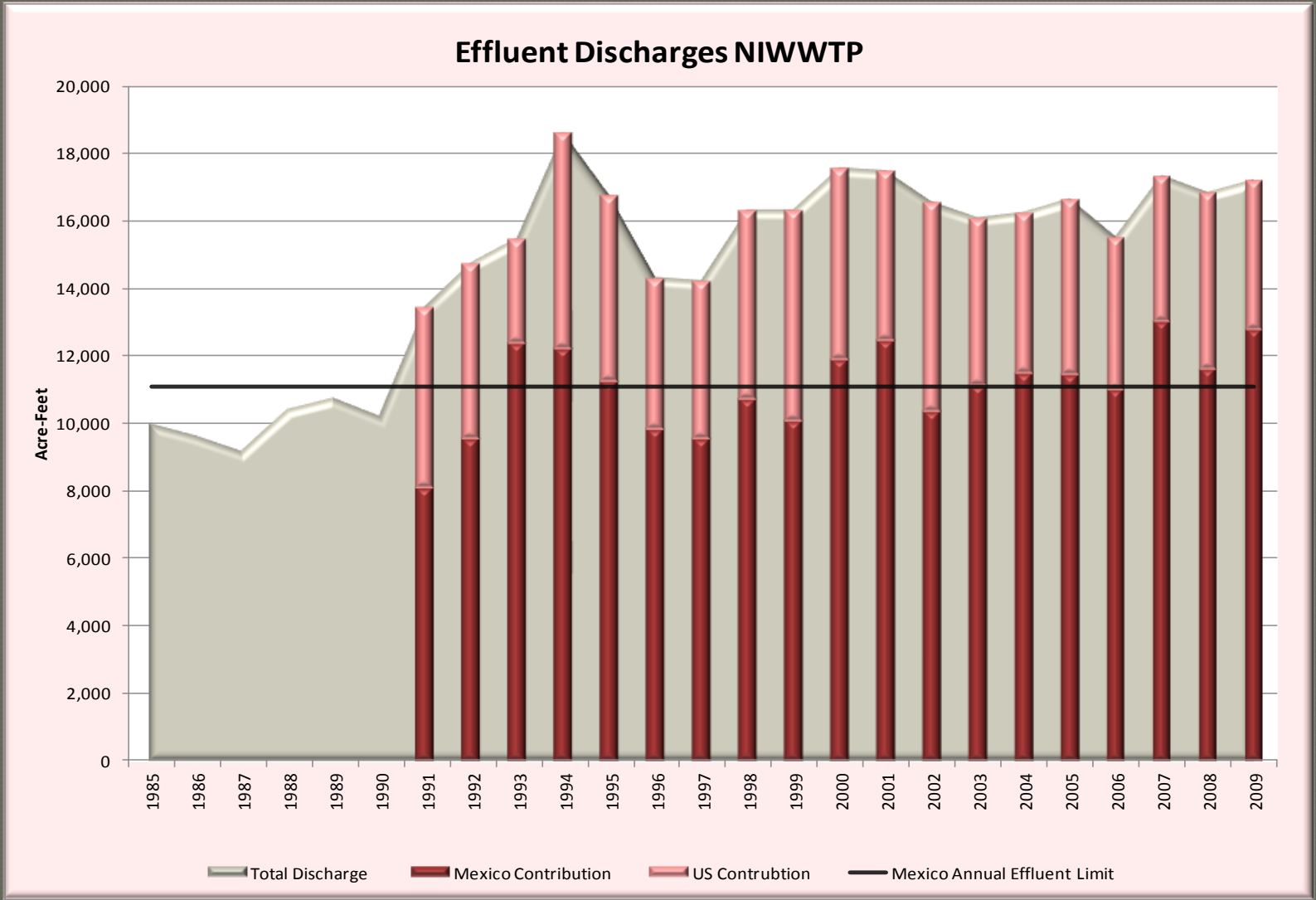
ADWR Analysis

- Groundwater Models
  - Areas
    - Microbasins
    - Downstream Area
  - Construction, Simulation, Calibration
- Risk Analysis
  - Stochastic Streamflow Analysis
    - 100 Independent Predictive Realizations
  - Translated to GW Model Predictions

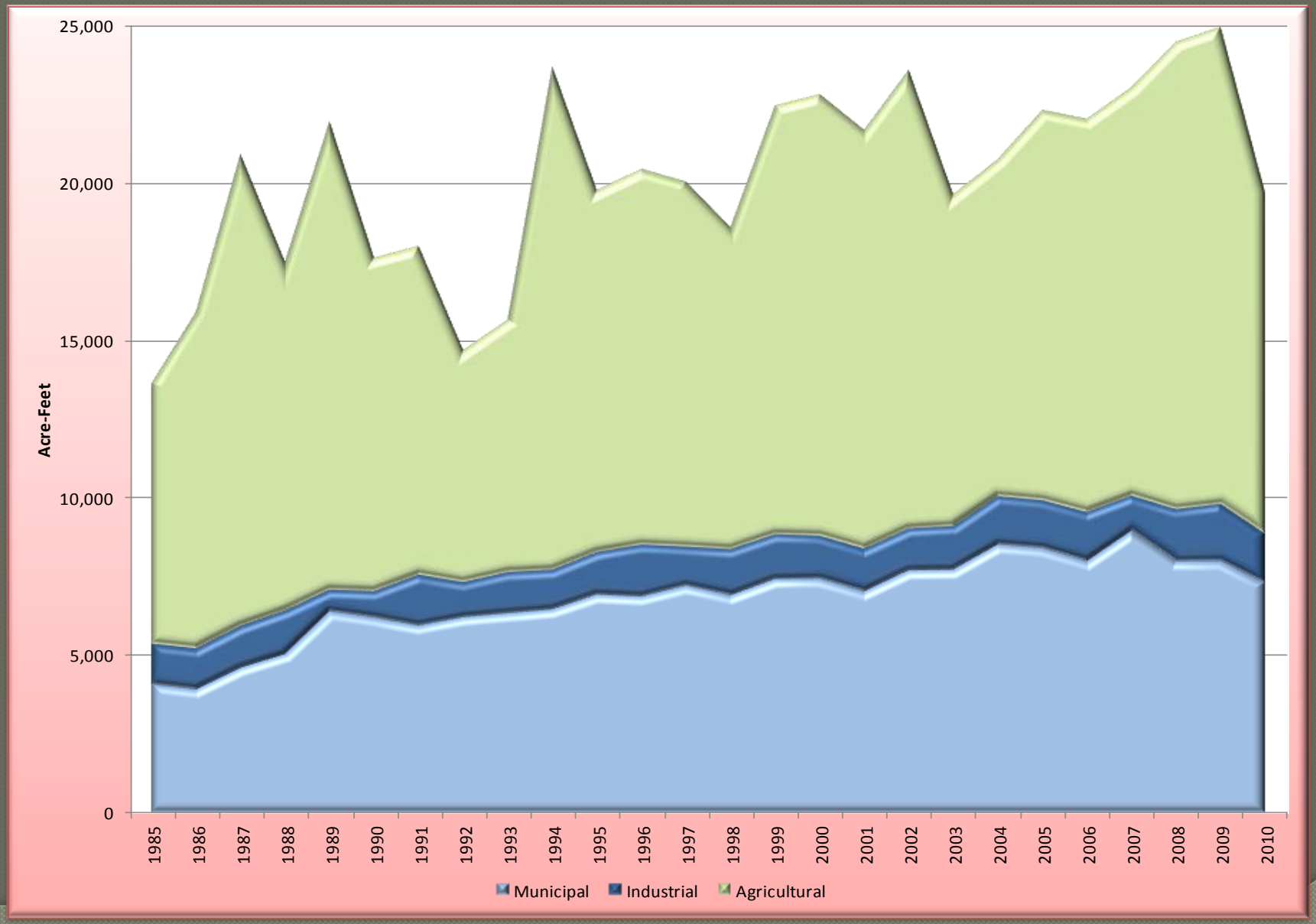
Modeled Net Natural Recharge



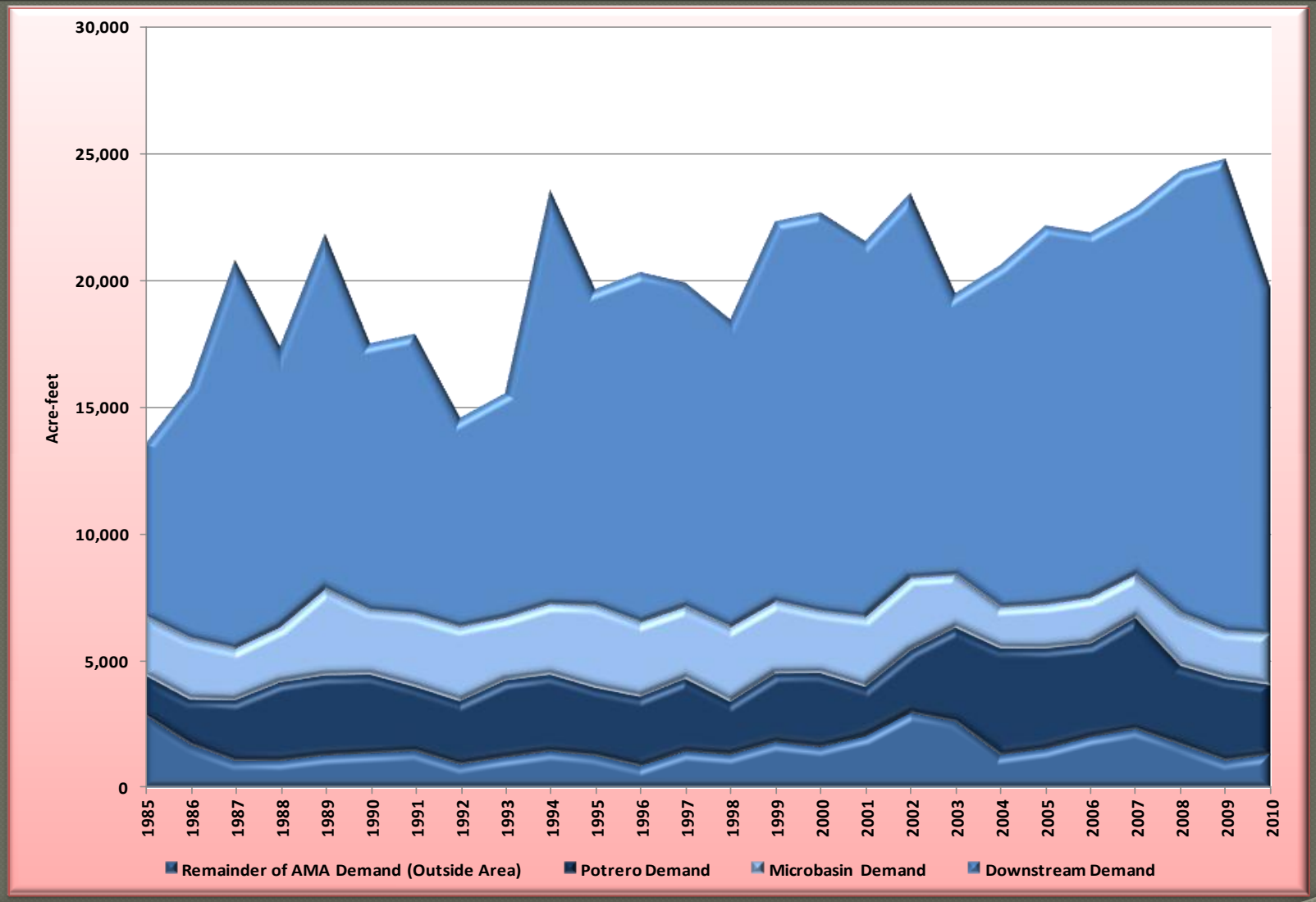
NIWWTP Discharges



Total SCAMA Demand by Sector

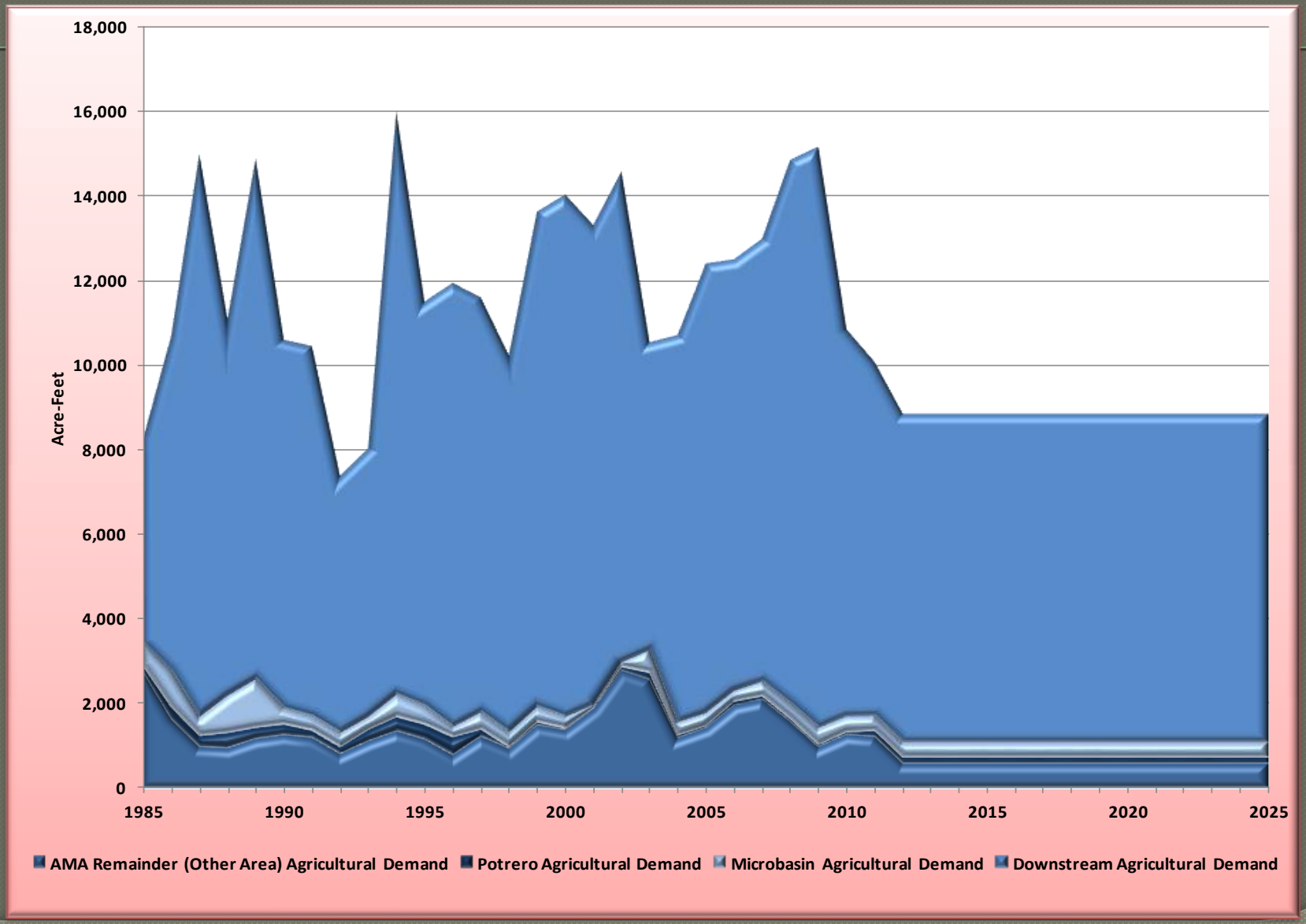


Total Demand by Sub-Area

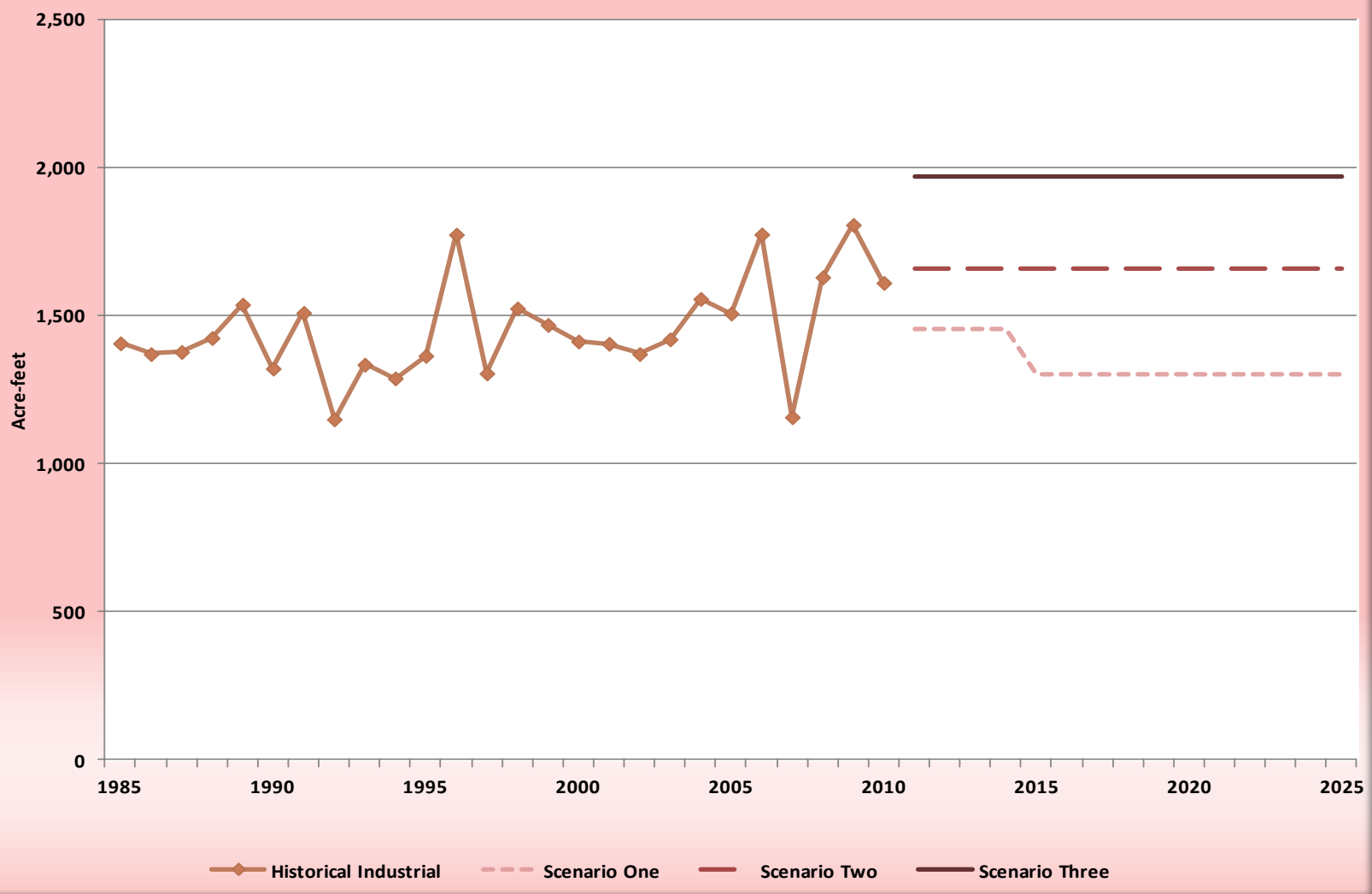


Total AMA Agricultural Demand

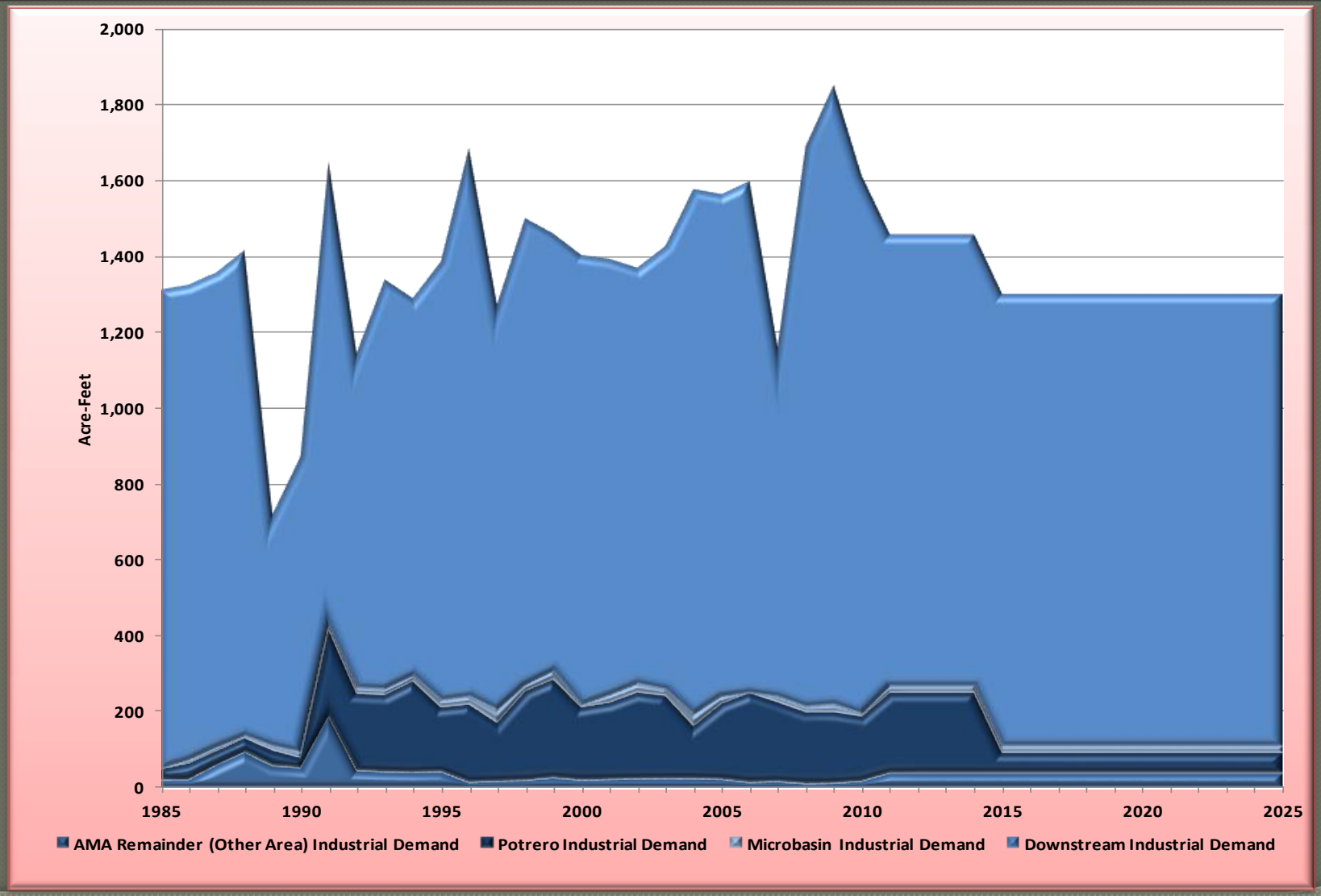
Agricultural Demand by Sub-Area



Total AMA Industrial Demand

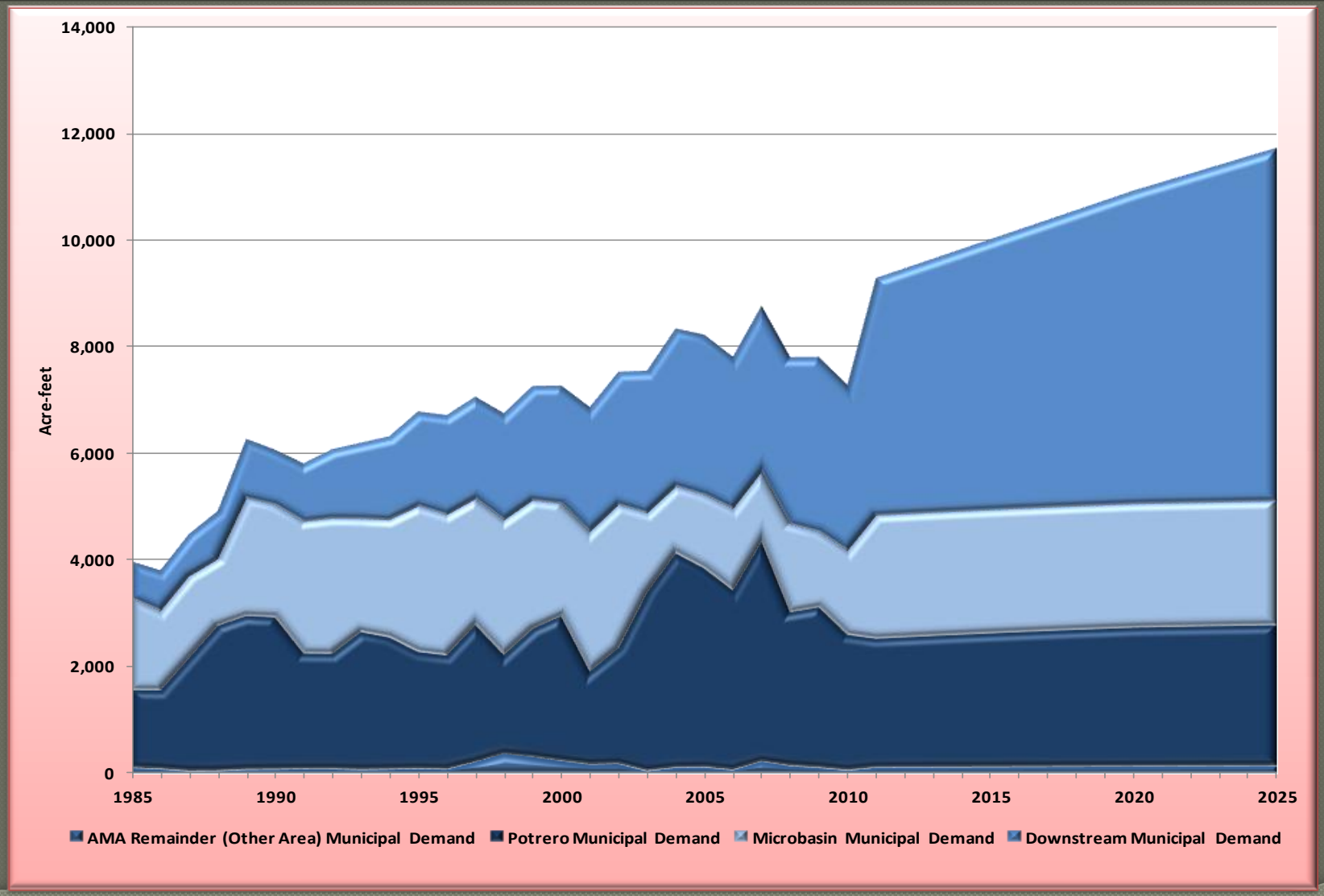


Industrial Demand by Sub-Area



Total AMA Municipal Demand

Municipal Demand by Sub-Area

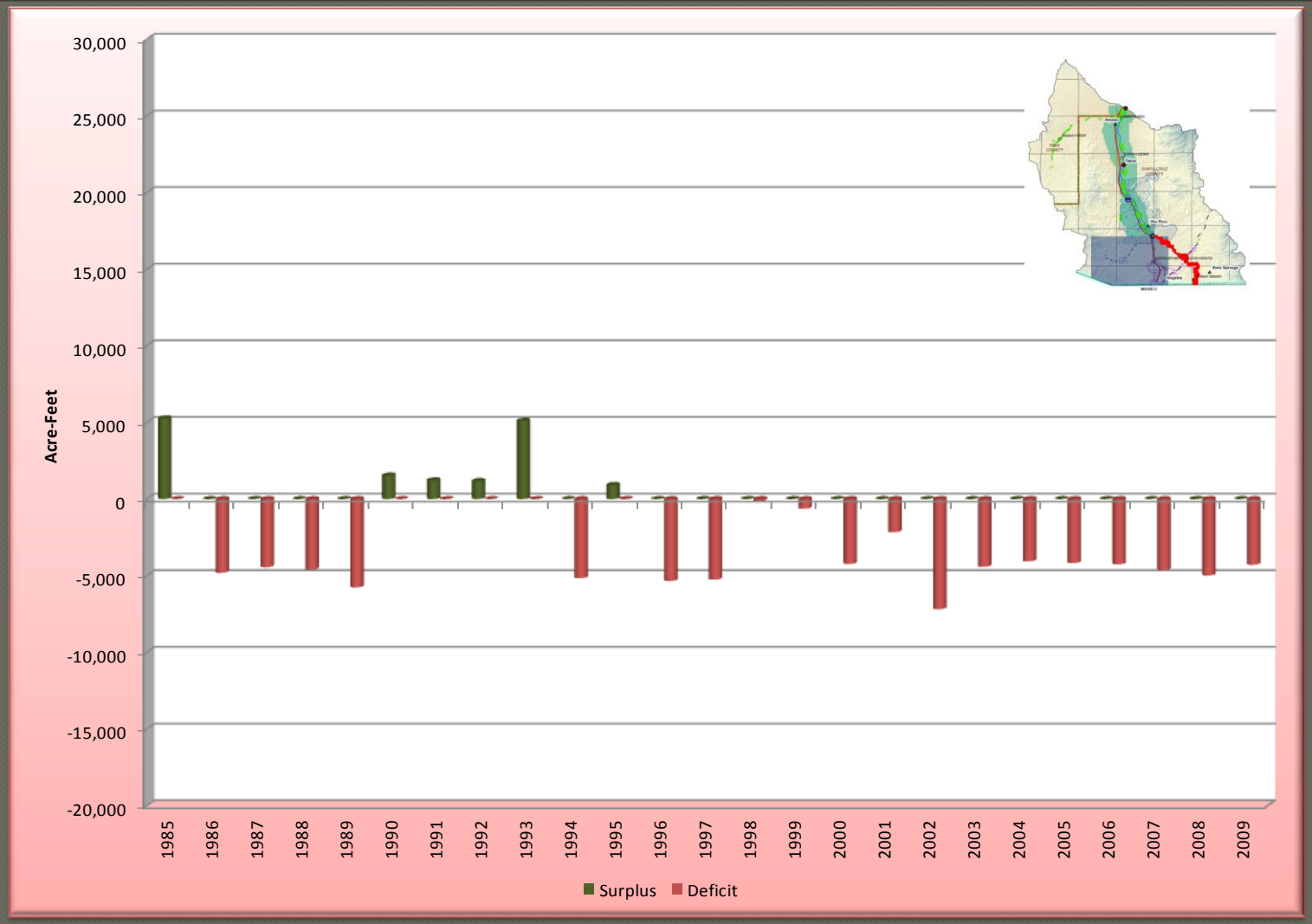


Pre-AWS Rules Platted Lots

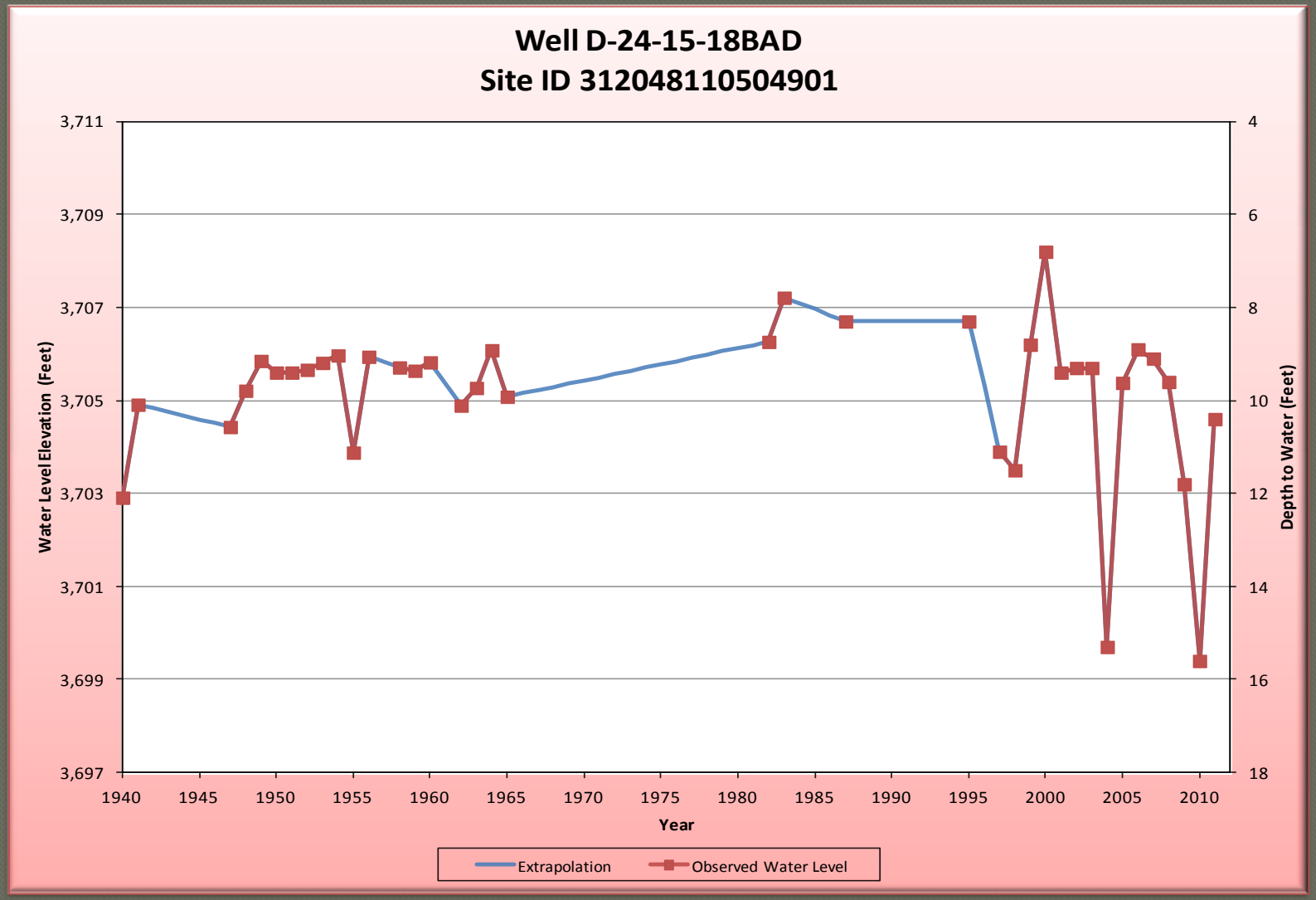
- Rio Rico Utilities Certificate of Convenience and Necessity (CC&N)
  - Current Service (2010)
    - 6,820 Housing Units
    - Demand ≈ 2,600 acre-feet
  - Exempt Well Users ≈ 250 Units
  - Approved Plats ≈ 24,000 units
  - Potential Additional Demand @ 240 GPCD ≈ 4,500 acre-feet per year

Net Water Balance – AMA wide

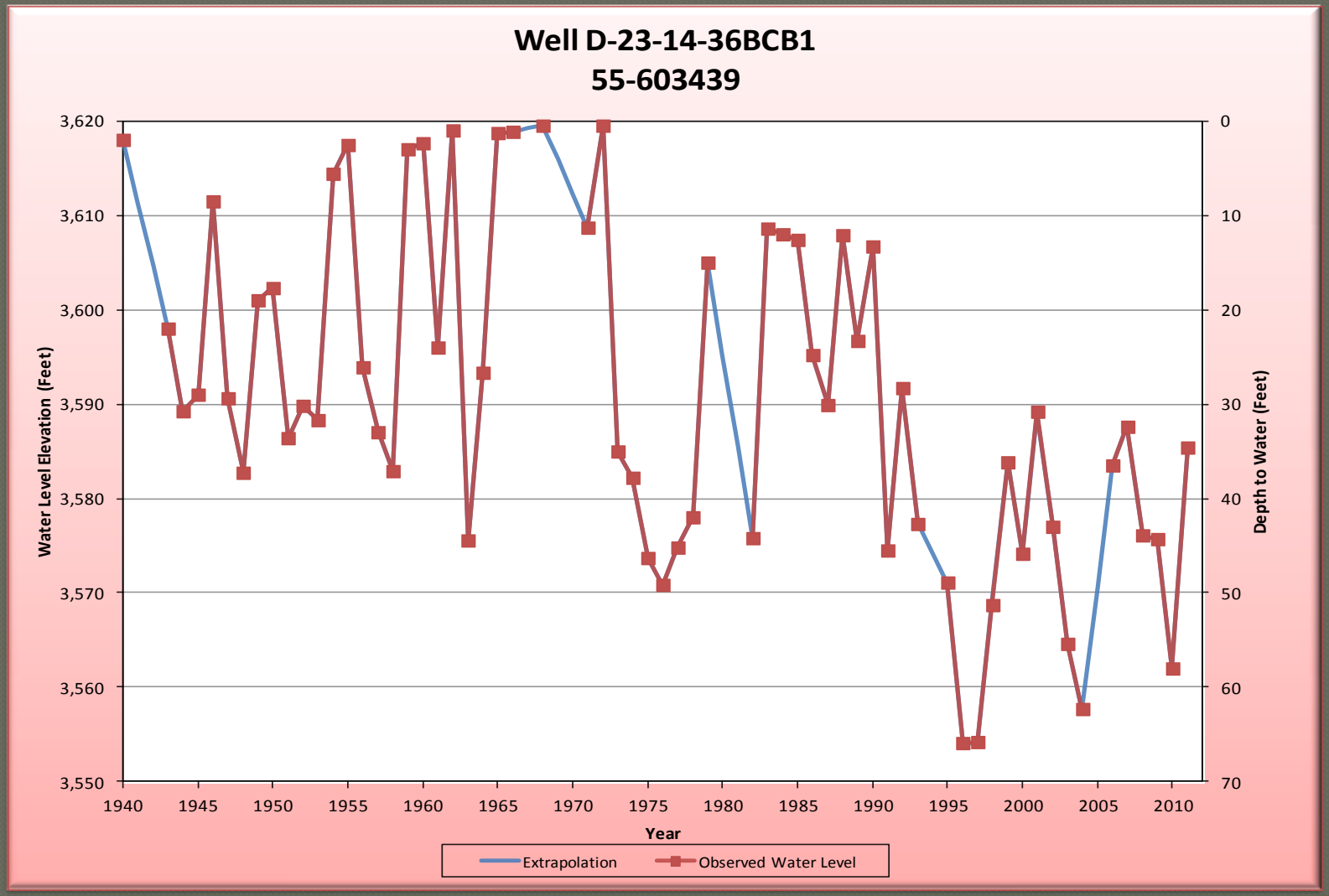
Net Water Balance - Microbasins



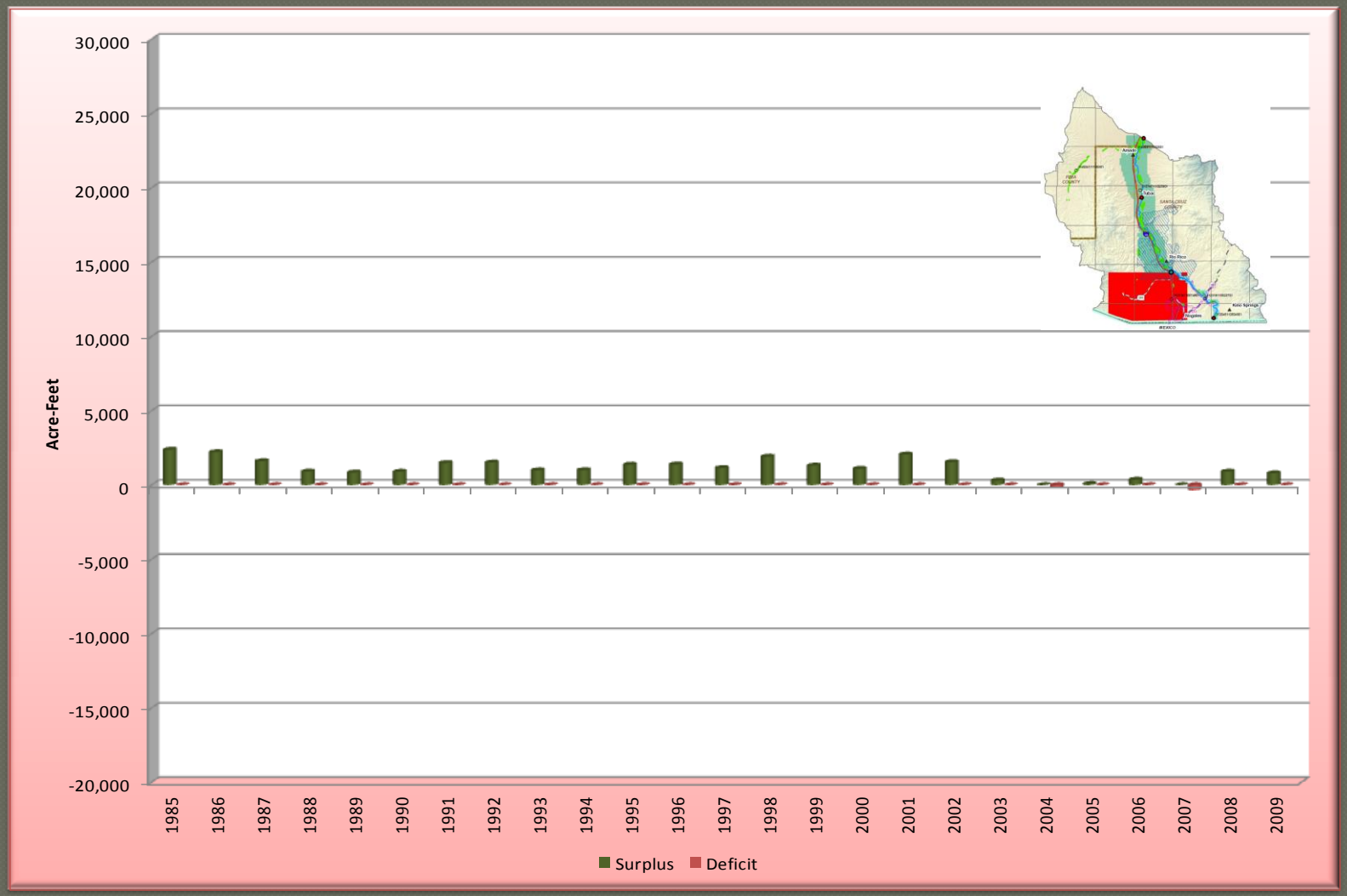
Microbasin Hydrograph 1



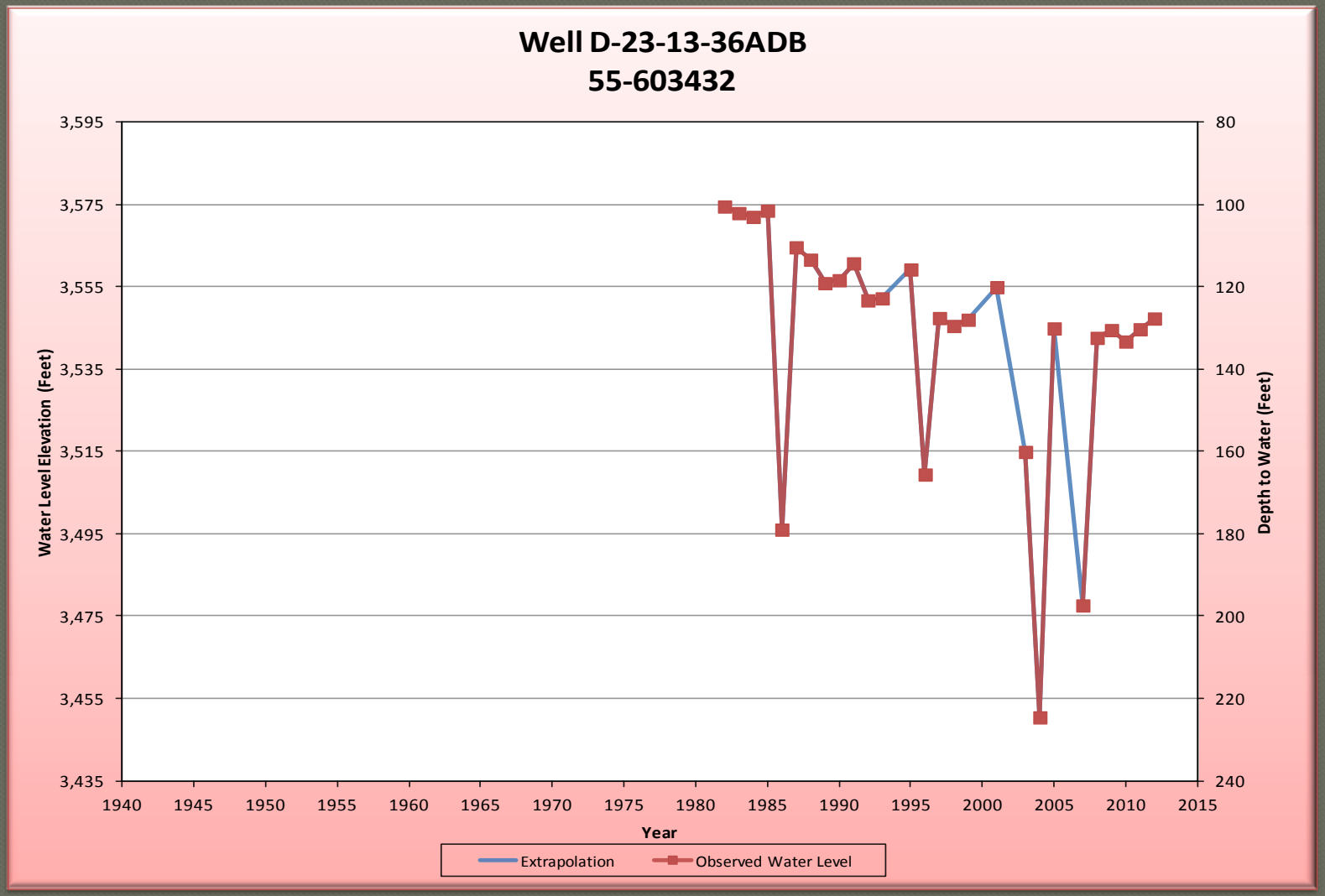
Microbasin Hydrograph 2



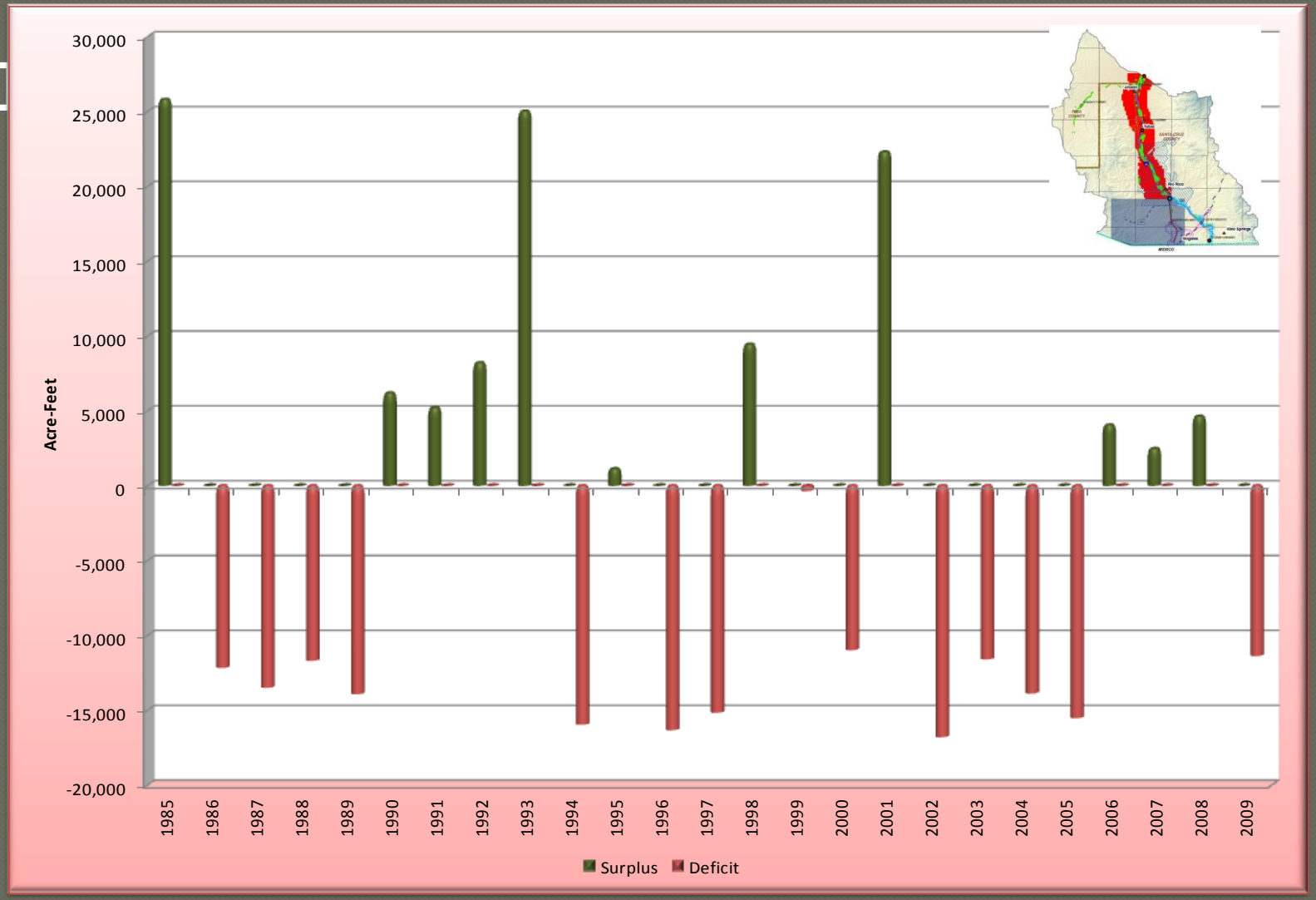
Net Water Balance - Potrero



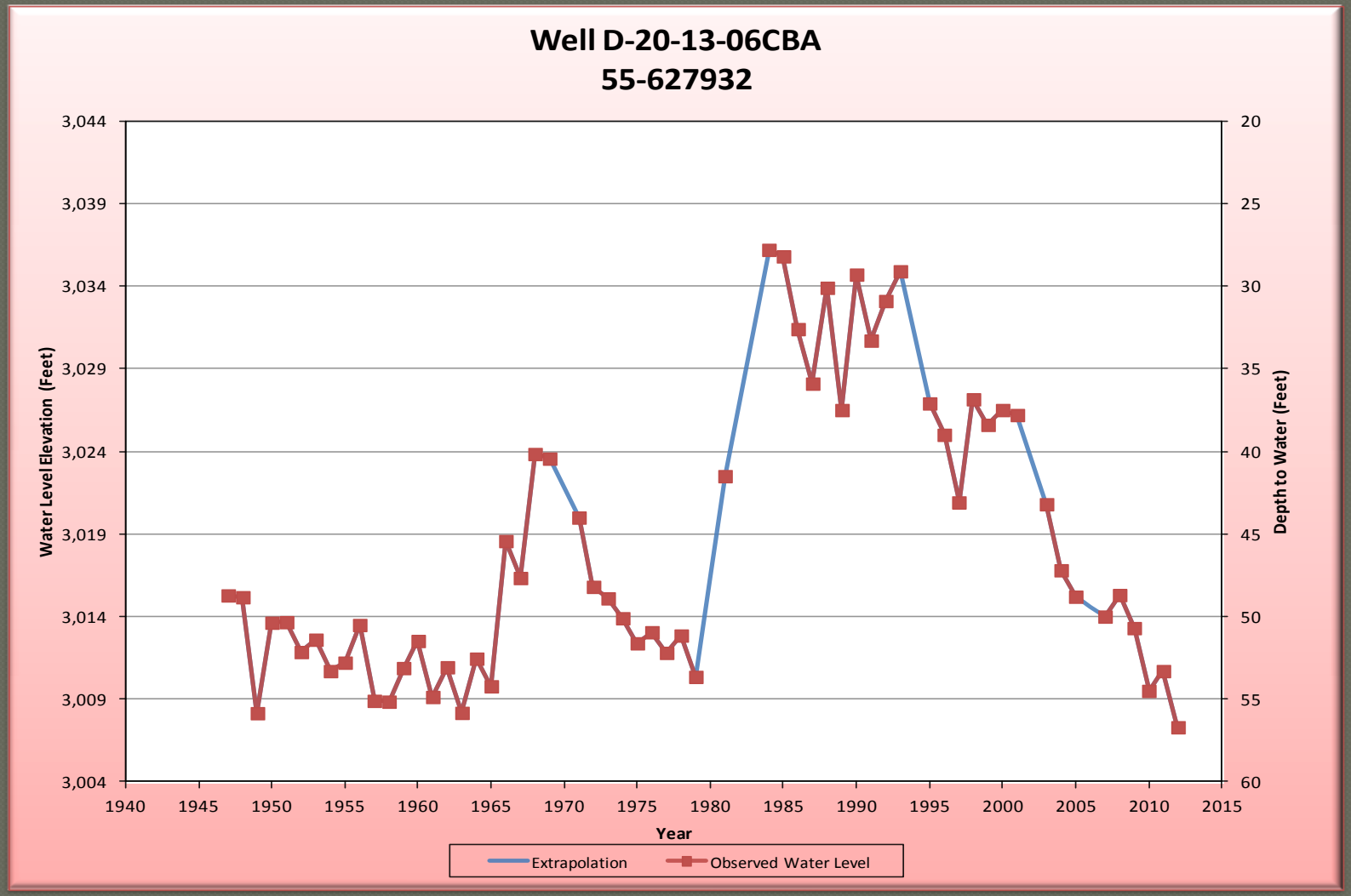
Potrero Hydrograph



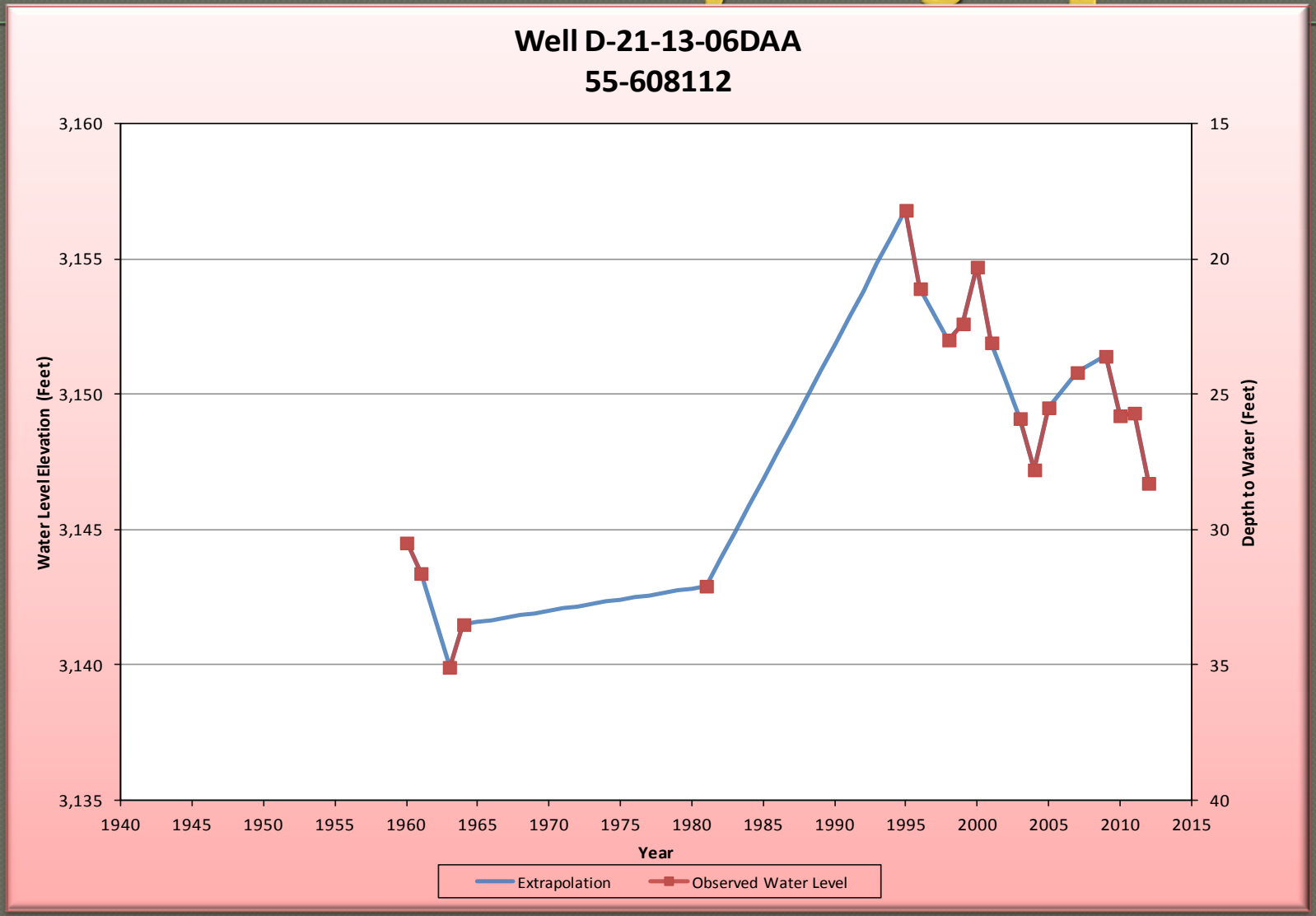
Net Water Balance - Downstream



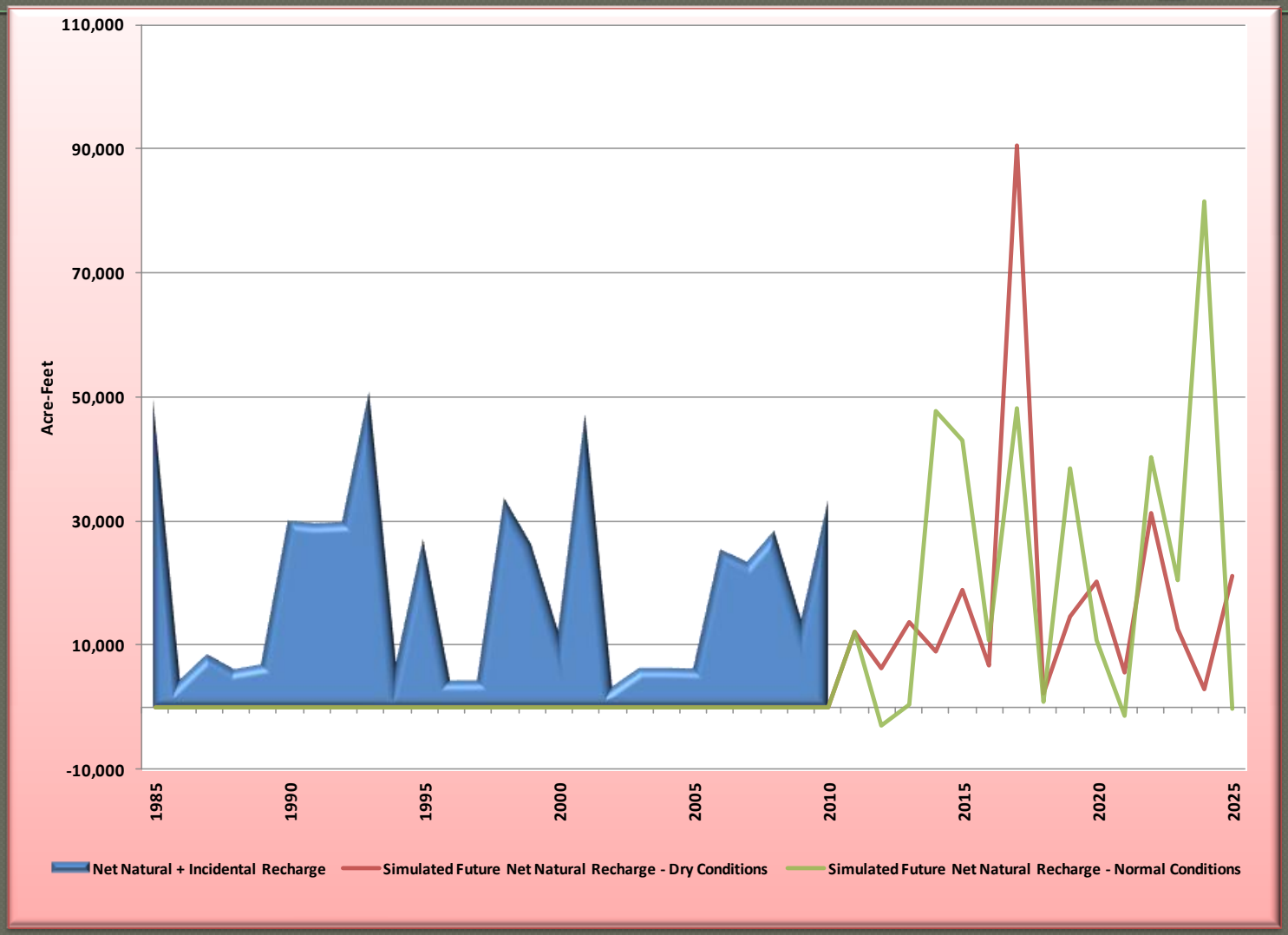
Downstream Hydrograph 1



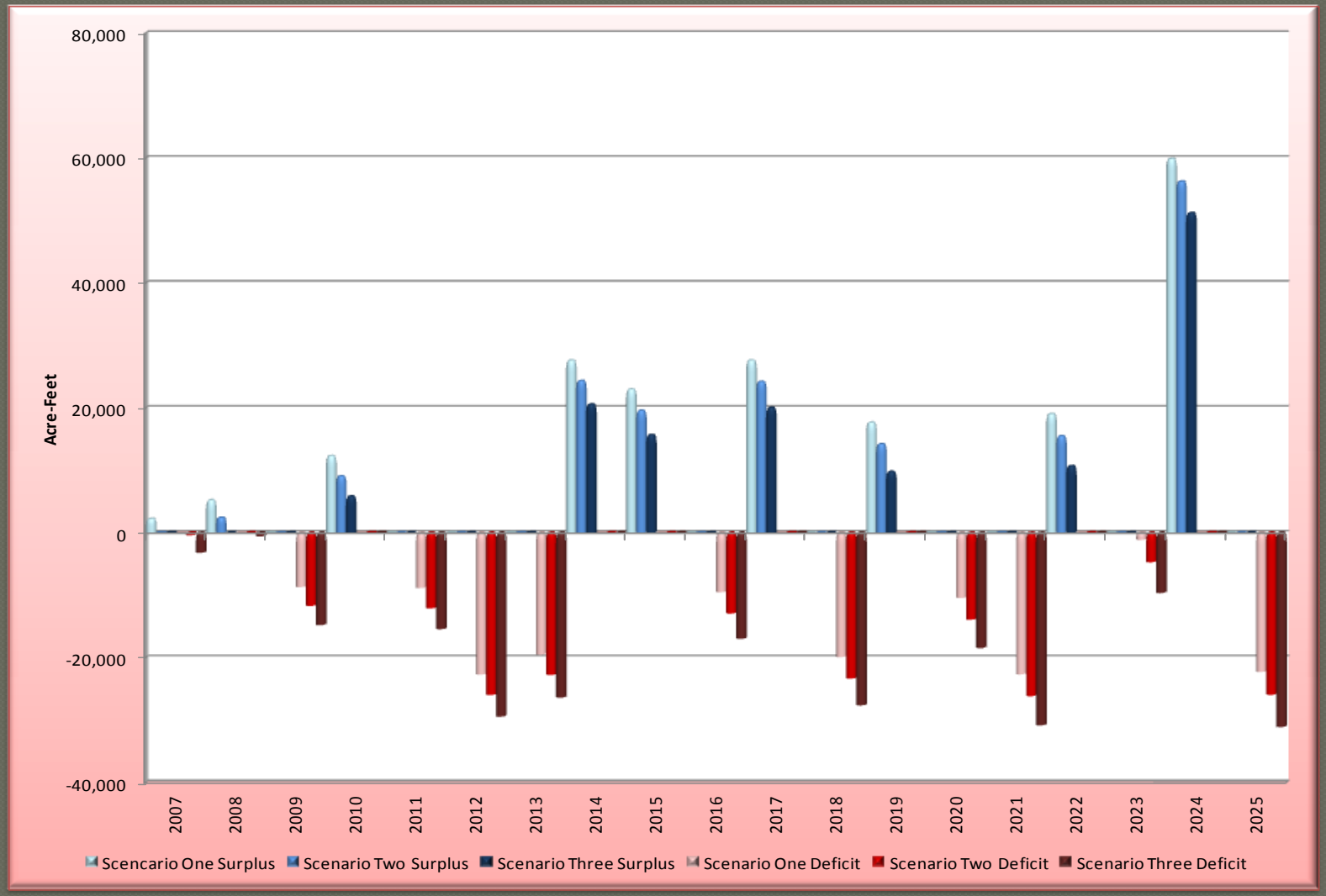
Downstream Hydrograph 2



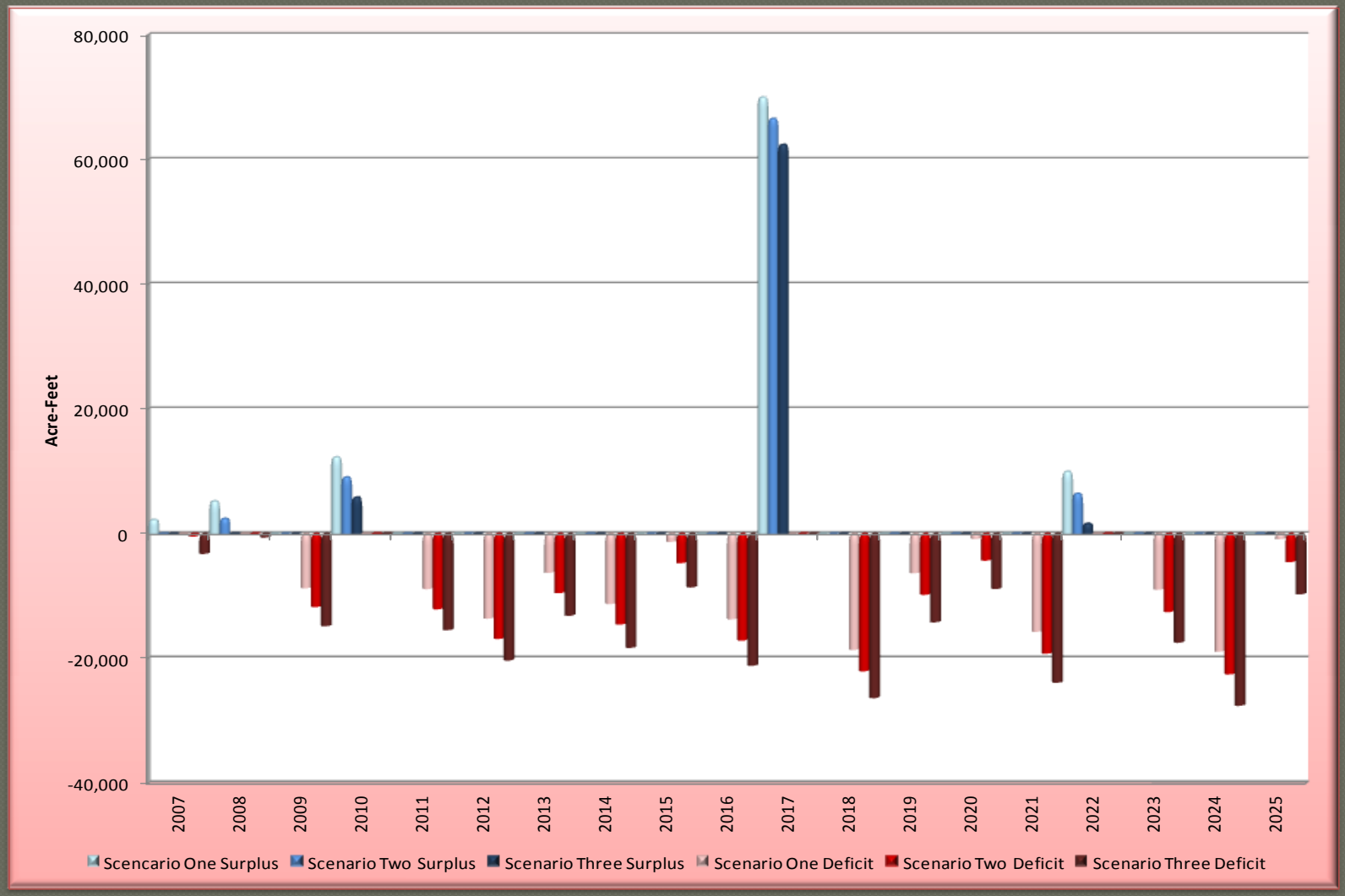
Historic & Projected Supply



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?

Michael J. Lacey, Deputy Director
Arizona Department of Water Resources
(602) 771-8426
mjlacey@azwater.gov