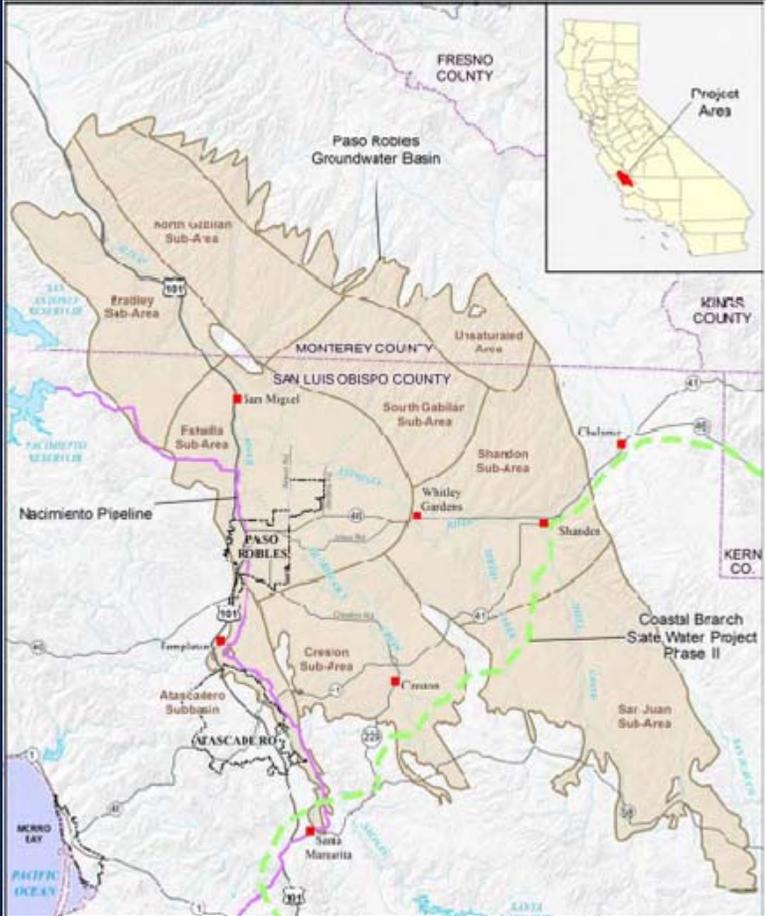


ACHIEVING SUSTAINABILITY IN THE Paso Robles Groundwater Basin



Paso Basin Advisory Committee



- ▶ Purpose:
 - ▶ To advise the Board of Supervisors (BOS), acting either as the San Luis Obispo County Flood Control and Water Conservation District or San Luis Obispo County, concerning policy decisions relating to the Basin
 - ▶ To serve as a public forum to discuss and collect comments on Basin issues

- ▶ Meets the third Thursday of the month from 2 – 4 pm

Tonight's Open House

- ▶ The Big Picture
 - ▶ Water level declines and the Sustainable Groundwater Management Act
 - ▶ Near term agency decisions
 - ▶ Near term public decisions
- ▶ How to get involved
 - ▶ Formal processes
 - ▶ Advisory Committee and its Subcommittees

Presentation Overview

- ▶ Previous Groundwater Management Setting
- ▶ Basin Conditions and County Actions
- ▶ Moving Forward Under the Sustainable Groundwater Management Act

Mission Statement: Public Works will be a valued community partner enhancing quality of life for our fellow county residents



Previous Management Setting



County Efforts

Technical Studies/Efforts	Land Use Authority
2002 Basin Study	Resource Capacity Study
2005 Basin Model	Level of Severity III
Basin Agreement – Technical Consultant	Urgency Ordinance
Banking Feasibility Study	Water Conservation Programs
Water Balance/Pumping Updates	Regulation of Groundwater Exportation
Voluntary Groundwater Management Plan	
Supply Options Study	
Model Update	

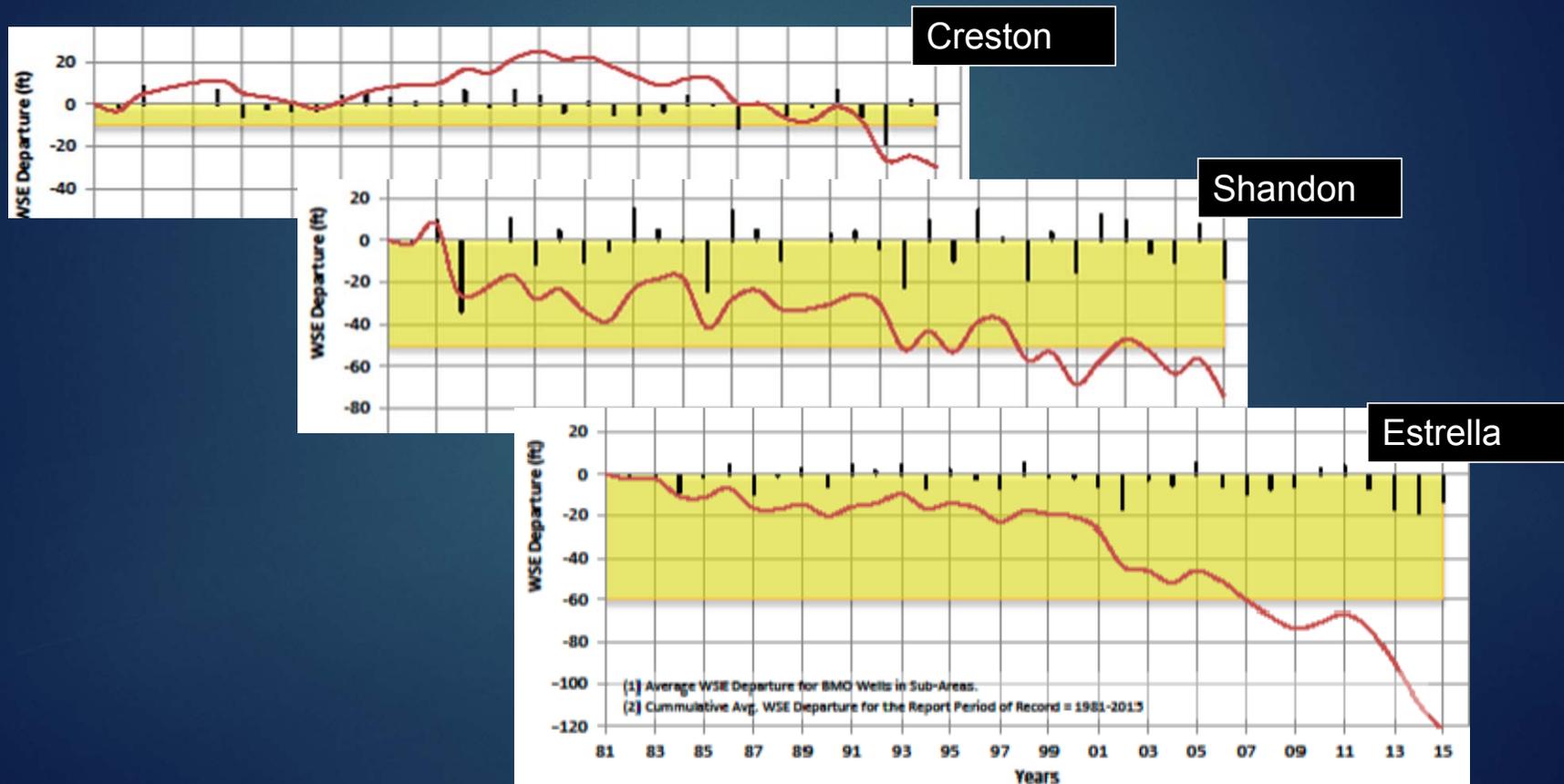
Voluntary Groundwater Management Plan

- ▶ Documented basin conditions and evaluation tools
- ▶ Established Basin Management Objectives
- ▶ Identified potential management actions
- ▶ Blue Ribbon Committee (2 year term)
 - ▶ Mission: To coordinate with stakeholders to implement the Groundwater Management Plan to ensure the health of the basin

Basin Conditions and Evaluation Tools

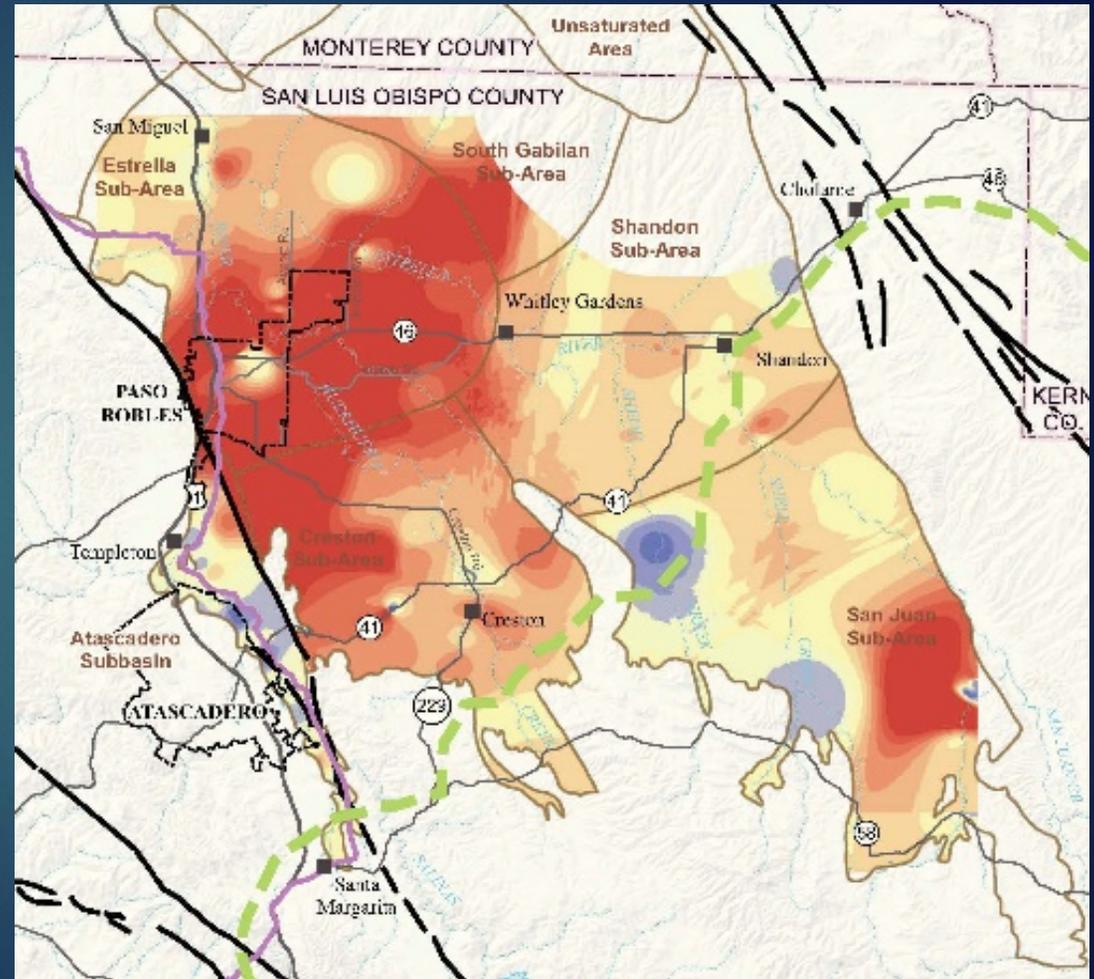
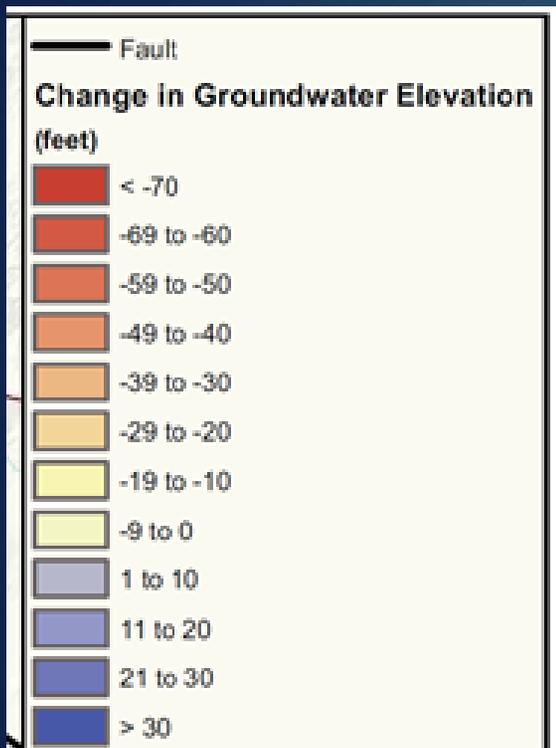
- ▶ Cumulative Departure Curves
- ▶ Water Level Change Map
- ▶ Computer Model

Cumulative Departure Curves



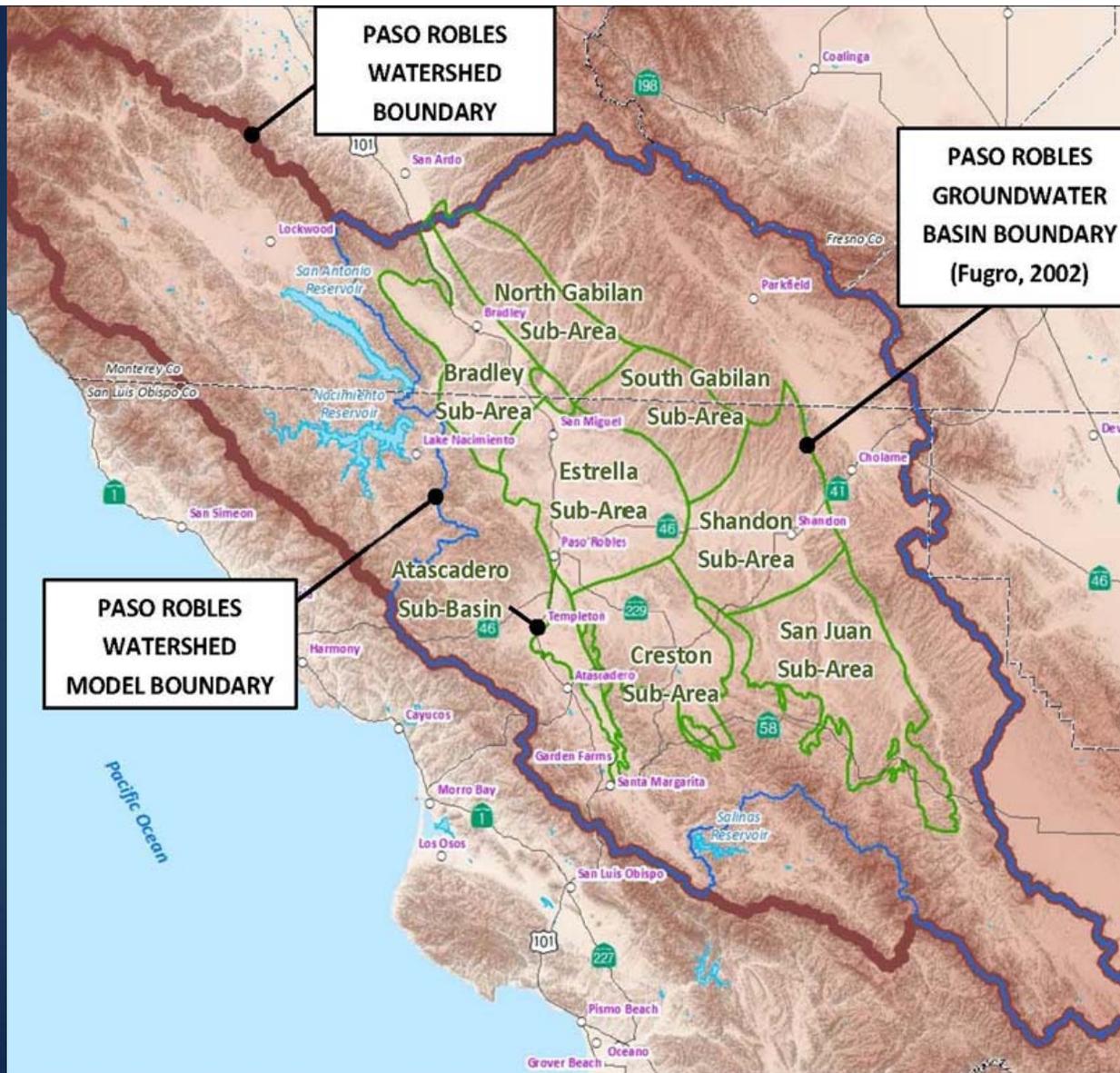
1997 - 2013

Change Map



Computer Model

- ▶ The primary objective of the Basin Model is to provide an updated, accepted tool for simulating Basin response under current and projected future conditions.
- ▶ Developed using groundwater level measurements, streamflow measurements, geology and land use information from 1981 - 2011

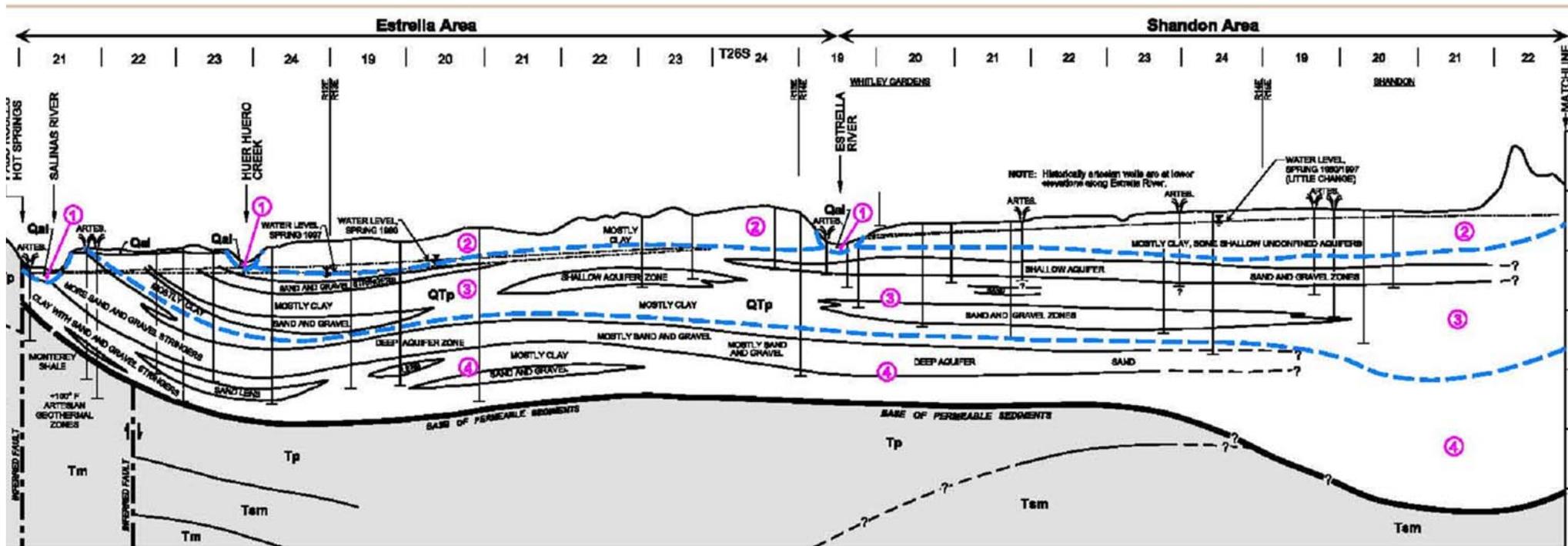


**PASO ROBLES
WATERSHED
BOUNDARY**

**PASO ROBLES
GROUNDWATER
BASIN BOUNDARY
(Fugro, 2002)**

**PASO ROBLES
WATERSHED
MODEL BOUNDARY**

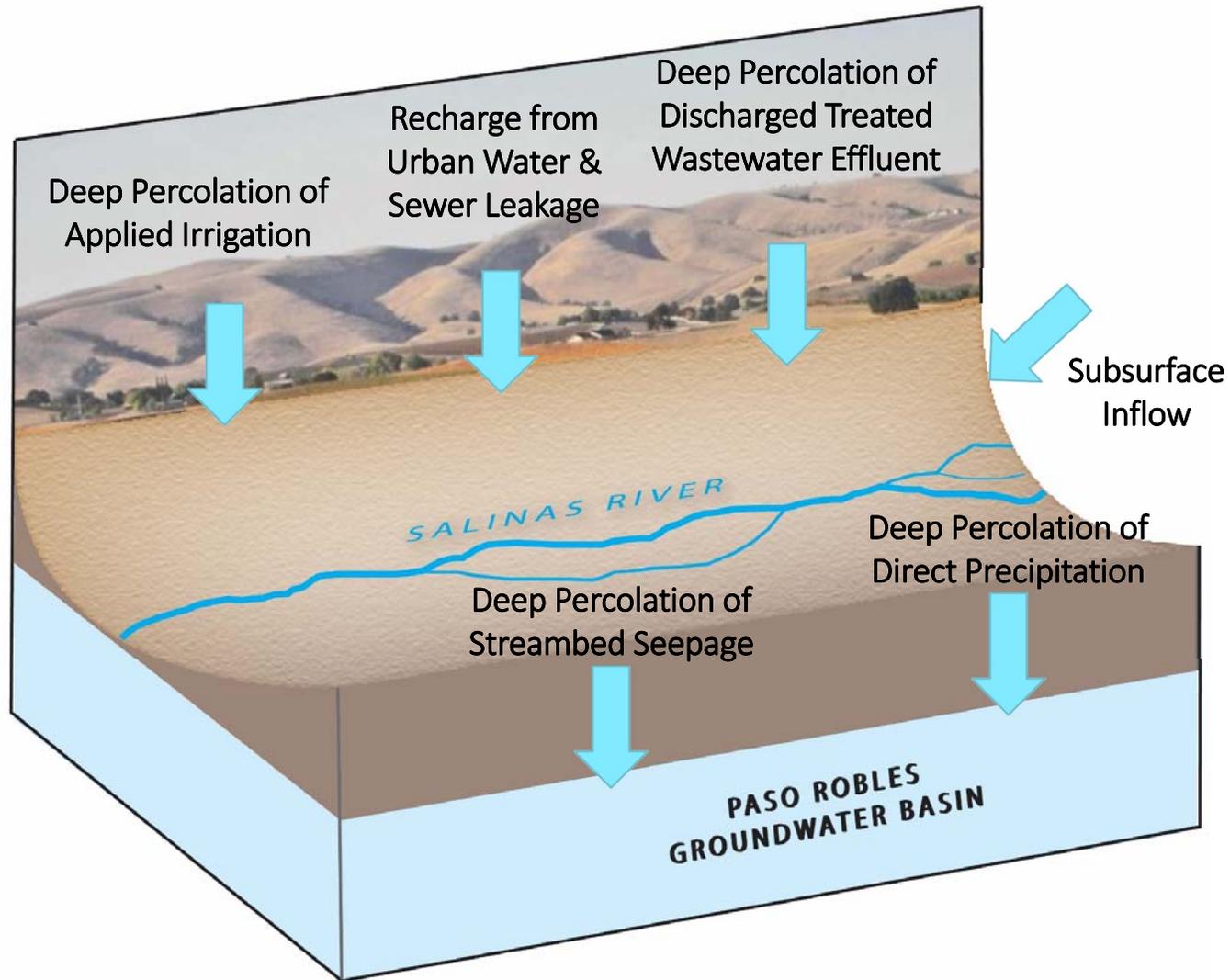
Basin Model Cross Section



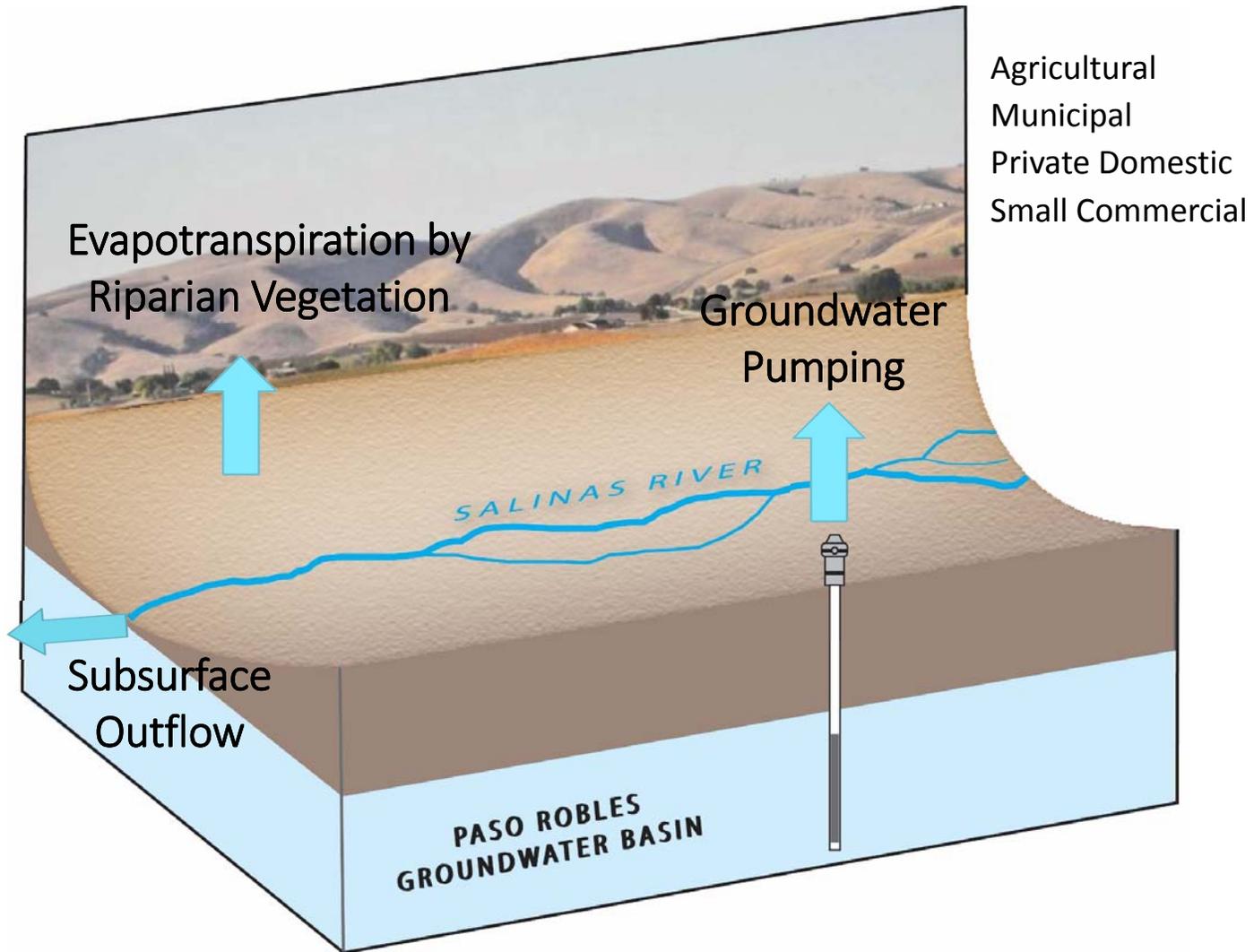
Data Requirements

- ▶ Topography
- ▶ Ground cover
- ▶ Climatic
- ▶ Geology
- ▶ Soil types
- ▶ Groundwater
- ▶ Land use
- ▶ Streamflow
- ▶ Surface water
- ▶ Nacimiento deliveries
- ▶ Crop coefficients
- ▶ Irrigation efficiency
- ▶ Treated wastewater discharge
- ▶ Water demand factors

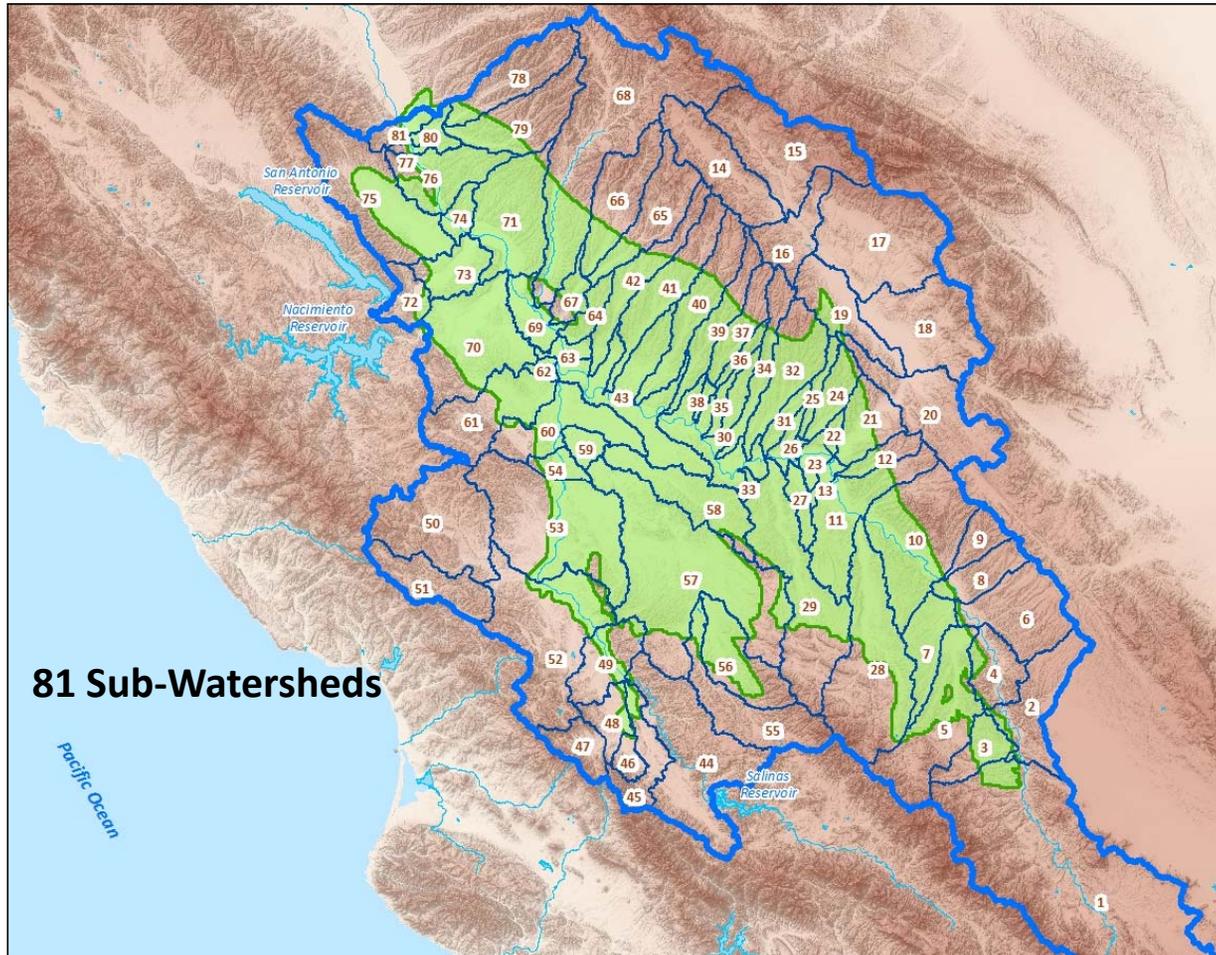
Basin Recharge Components



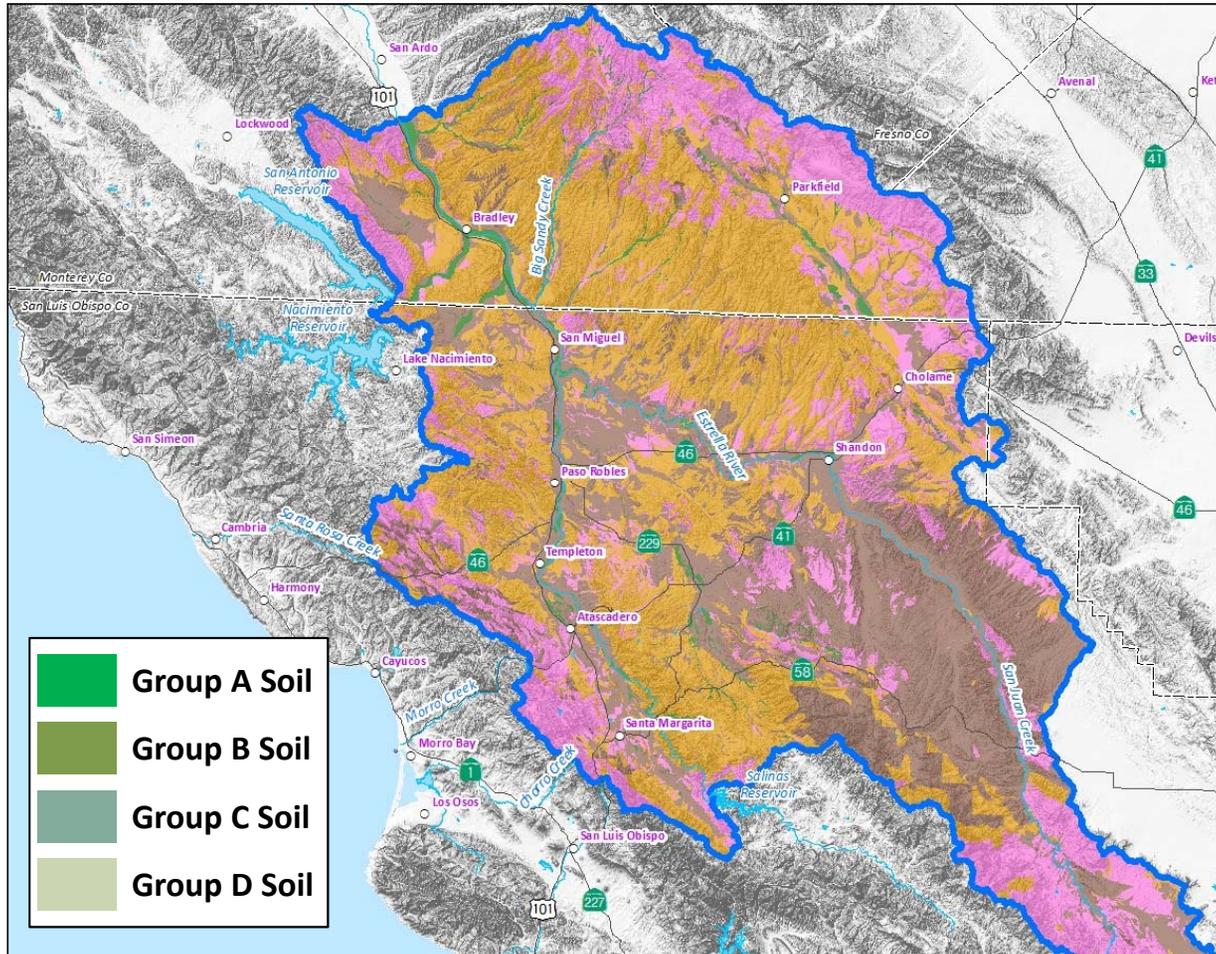
Basin Discharge Components



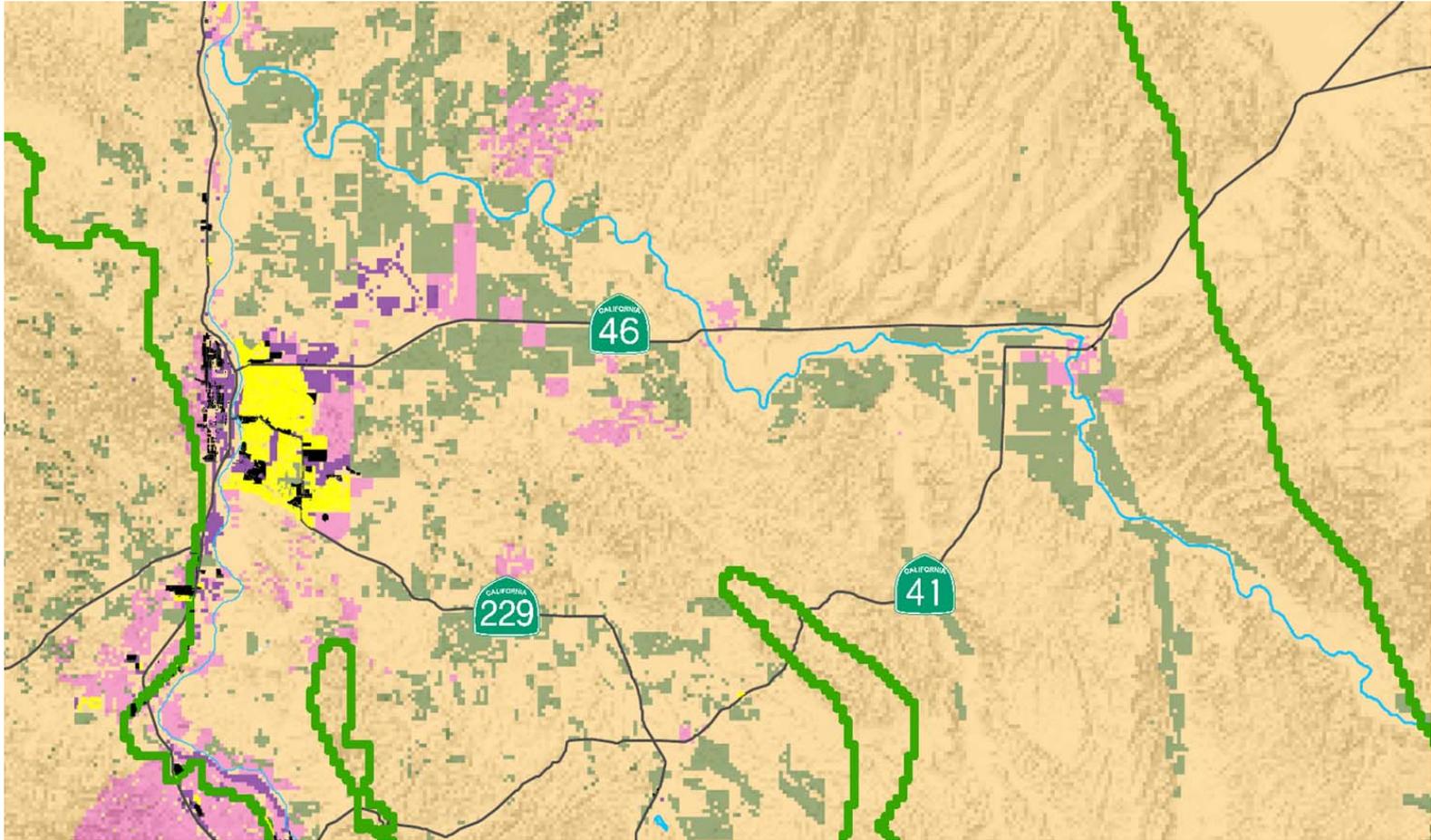
Delineated Sub-Watersheds



Map of Soil Types



Land Use

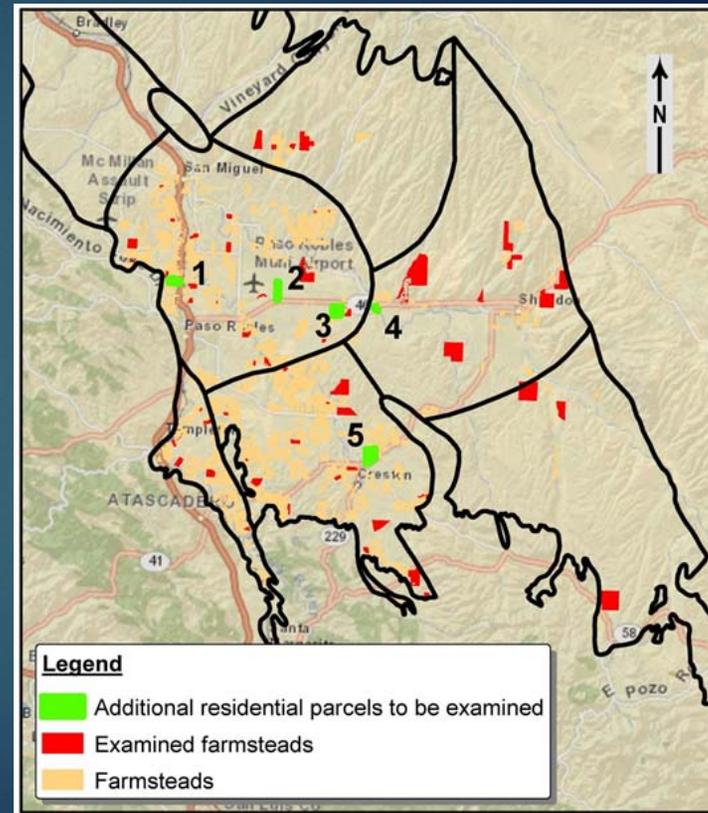


Estimation of Pumping

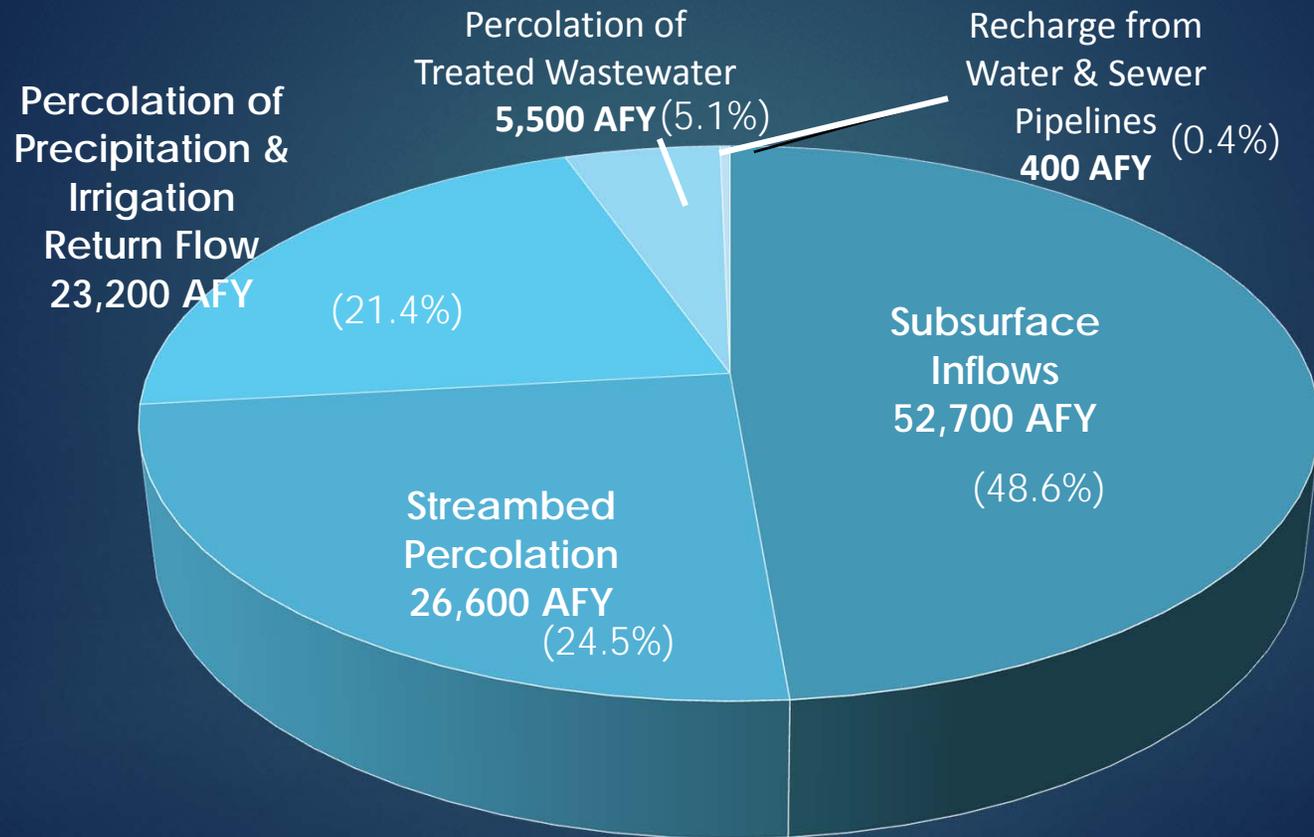
- ▶ Most pumping is agricultural
 - ▶ Required detailed analysis through crop-specific daily soil moisture balances
 - ▶ Annual crop acreages estimated from land use and county crop coverage maps
 - ▶ Analysis of vineyard water demand factors
- ▶ Rural domestic pumping
 - ▶ Improved accuracy of water demand factor

Rural Residential Demand

- ▶ Previous unit estimates
 - ▶ 1.7 AFY/dwelling unit
 - ▶ 1.0 AFY/dwelling unit
- ▶ Two surveys
 - ▶ 0.13 acres/farmstead irrigated
 - ▶ Indoor + outdoor = 0.75 AFY/dwelling unit

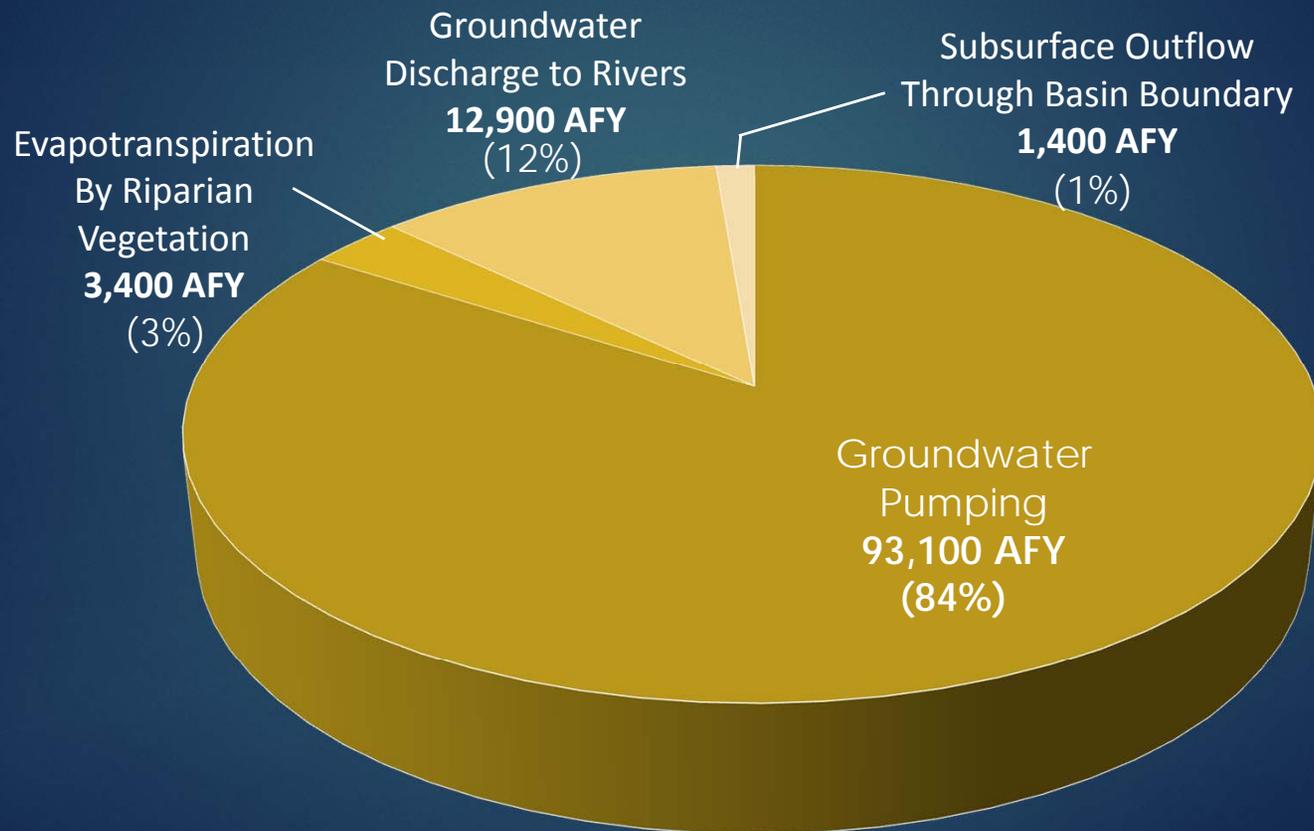


Average Annual Inflows (1981-2011)



TOTAL AVERAGE ANNUAL INFLOW = 108,400 AFY

Average Annual Outflows (1981-2011)



TOTAL AVERAGE ANNUAL OUTFLOW = 110,800 AFY

Average Annual Outflows (1981-2011)

- ▶ Agricultural pumping - 68%
- ▶ Municipal pumping - 11%
- ▶ Private Domestic pumping - 3%
- ▶ Small commercial pumping - 2%

- ▶ Evapotranspiration (ET) by riparian vegetation - 3%
- ▶ Groundwater discharge to rivers - 12%
- ▶ Subsurface outflow - 1%

Water Balance

Total Inflow – Total Outflow = Change in Groundwater Storage

Model Period	Average Annual Change in Storage
1981 - 2011 Historical	-2,400 AFY
2012 - 2040 No growth	-5,600 AFY
2012 - 2040 With growth	-26,200 AFY

Perennial Yield Estimate

Hydrologic Base Period: Covers Wet, Dry and Average Hydrologic Cycles

Average of Base Period 1982 – 2010 [AFY]

Perennial Yield
89,600 AFY

Blue Ribbon Committee

- ▶ 2013 Recommendations
 - ▶ Enhance the Basin Management Plan
 - ▶ Establish an independent special district to manage the Basin
 - ▶ Establish a formal Advisory Committee to the Board of Supervisors for the interim period

New Management Setting



Sustainable Groundwater Management Act

- ▶ Sustainable Groundwater Agency (GSA) by June 2017
 - ▶ Transitioning to a new governance structure
- ▶ Groundwater Sustainability Plan (GSP) by January 2020
 - ▶ Transitioning from a voluntary Groundwater Management Plan

www.groundwater.ca.gov

Groundwater Sustainability Plan Elements



Water Code 10727

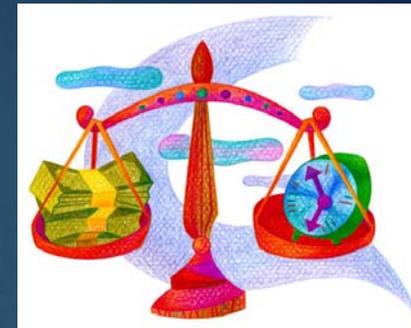
**Requirements to coordinate multiple plans covering basin*

Potential Management Actions

- ▶ Conservation Programs
- ▶ Optimize Nacimiento Water Project
- ▶ Land Use Management
- ▶ Recycled Water
- ▶ Optimize State Water Project
- ▶ Groundwater Banking/Recharge
- ▶ Groundwater Supply
- ▶ Salinas Reservoir Expansion/Exchange
- ▶ Desalination
- ▶ Lopez Lake Expansion/Exchange
- ▶ Precipitation Enhancement
- ▶ New Off/On-Stream Storage/Recharge

Collaborative Management Structure

- ▶ Diversity
- ▶ Cost
- ▶ Fairness



- ▶ Understanding and accepting how our demands and climate change affect water resources and management efforts

Who decides how sustainability will be achieved given limited resources and diverse economic circumstances?

Groundwater Sustainability Agency

- ▶ Local Agencies
- ▶ PUC-Regulated Water Companies, by invite

- ▶ What about the rest of the Basin?



AB2453

Paso Robles Basin Water District

- ▶ Provides for the formation of a new water district
- ▶ 9 member board
- ▶ Authorizes the district to develop, adopt, and implement a groundwater management plan
 - ▶ Collect data
 - ▶ Require conservation
 - ▶ Impose extraction charges
 - ▶ Establish extraction allocations
 - ▶ Implement SGMA



Paso Robles Basin Water District

9 Member Board of Directors Election Process

BOARD OF DIRECTORS SEATS

ELIGIBLE POOL OF BOARD OF DIRECTORS CANDIDATES

WHO CAN VOTE?

HOW MANY VOTES?

Registered Voters Seats



3

Registered Voters within the Water District boundary

Registered Voters within Water District Boundary

1

Per Registered Voter within the Water District boundary

Landowner Seats



6

Any Landowner (resides within two miles of the Water District boundary, or within the boundaries of various surrounding agencies) can run for any land-size category

SMALL LANDOWNERS

Owning less than 40 acres

MEDIUM LANDOWNERS

Owning 40 acres or more but less than 400 acres

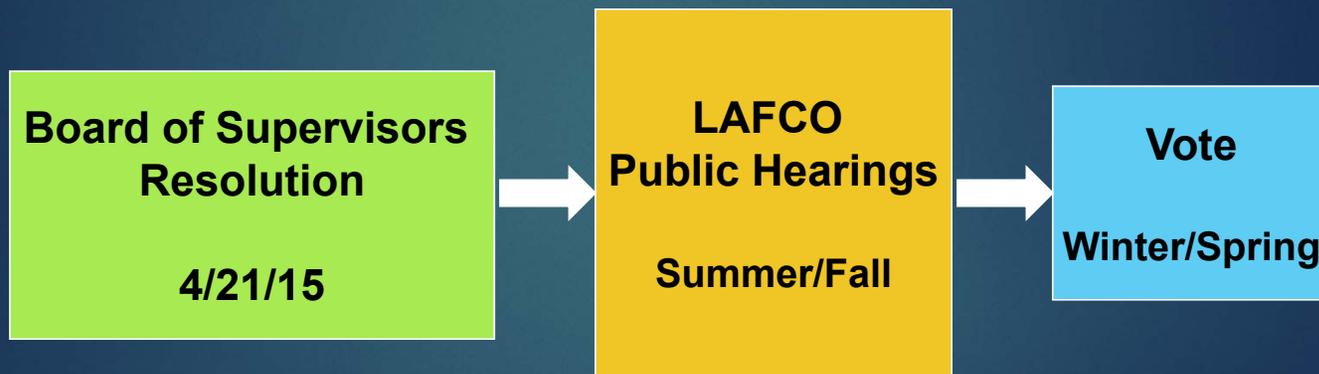
LARGE LANDOWNERS

Owning 400 acres or more

Acreage Owned

Landowners can only vote within their ownership category, and weighted by acreage owned.

AB2453 Formation Process



AB2453

The Decisions

- ▶ Form the District?
 - ▶ One landowner, one vote
- ▶ Elect Nine Board Members
- ▶ Fund the District?

AB2453

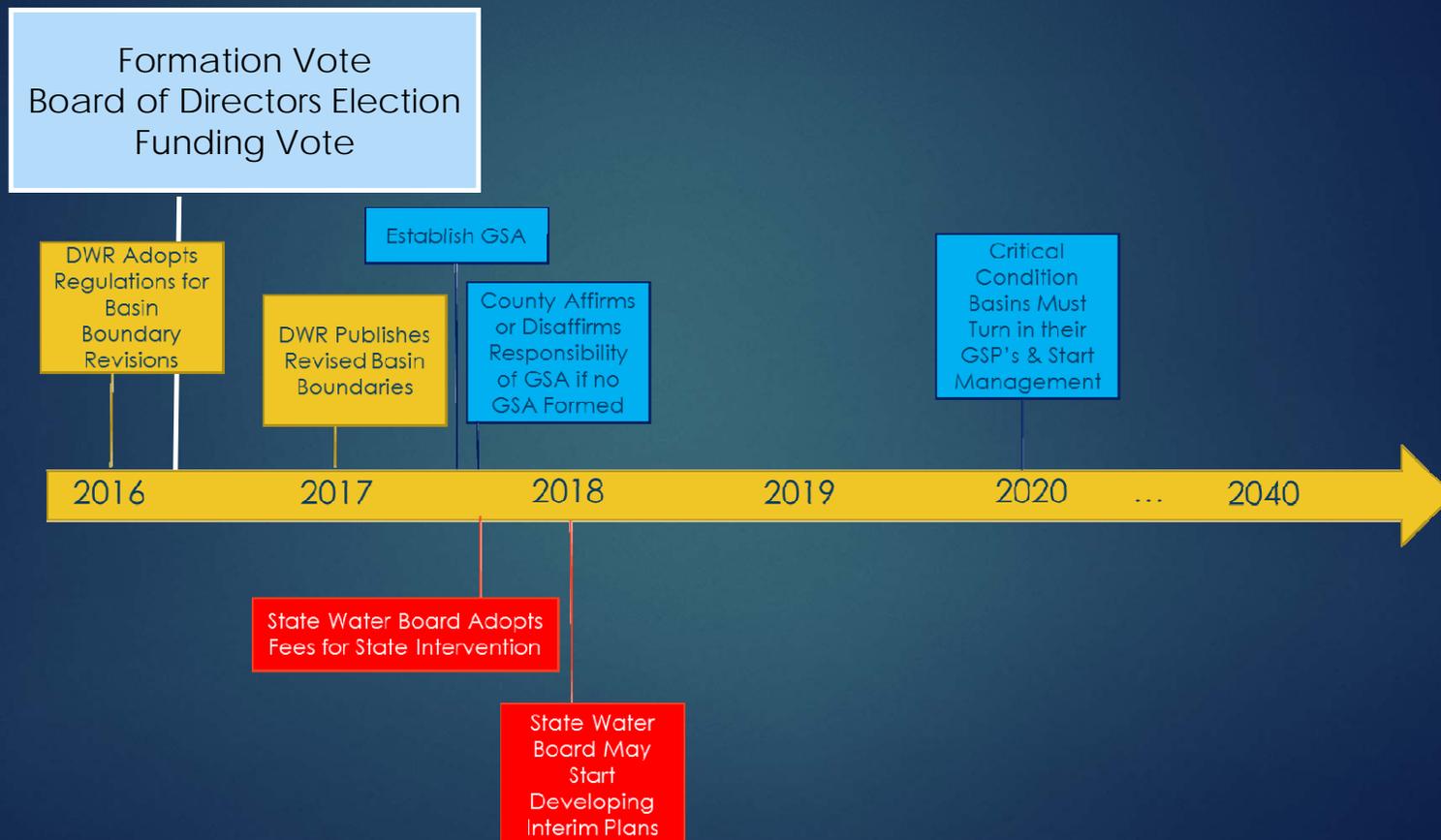
Funding the District

- ▶ Subject to prop 218 public decision process
- ▶ Board of Supervisors directs type of process
- ▶ Summer/Fall - Board deliberations

PRELIMINARY COST ANALYSIS

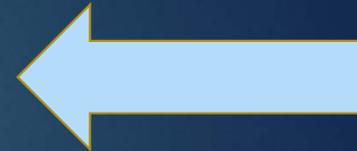
- ❖ Costs are for *SGMA Compliance*
- ❖ Used Financial data from the following districts (Hydrometrics Report):
 - ❖ Fox Canyon GMA, 125k AF Pumped (County operated)
 - ❖ Pajaro Valley WMA, 55k AF Pumped (Independent)
- ❖ Water District vs County Flood Control District
 - ❖ Water District = \$950,000/year
 - ❖ County FCD = \$925,000/year
- ❖ Funding allocation is currently being analyzed
- ❖ Initial study showed \$2.10/acre *applied equally to all parcels* could fund the Water District.
- ❖ However, costs most likely will not be applied equally and instead based on factors such as:
 - ❖ Land Use (grazing, viticulture, Single Family, etc)
 - ❖ Historic Groundwater Pumping

Timing Considerations

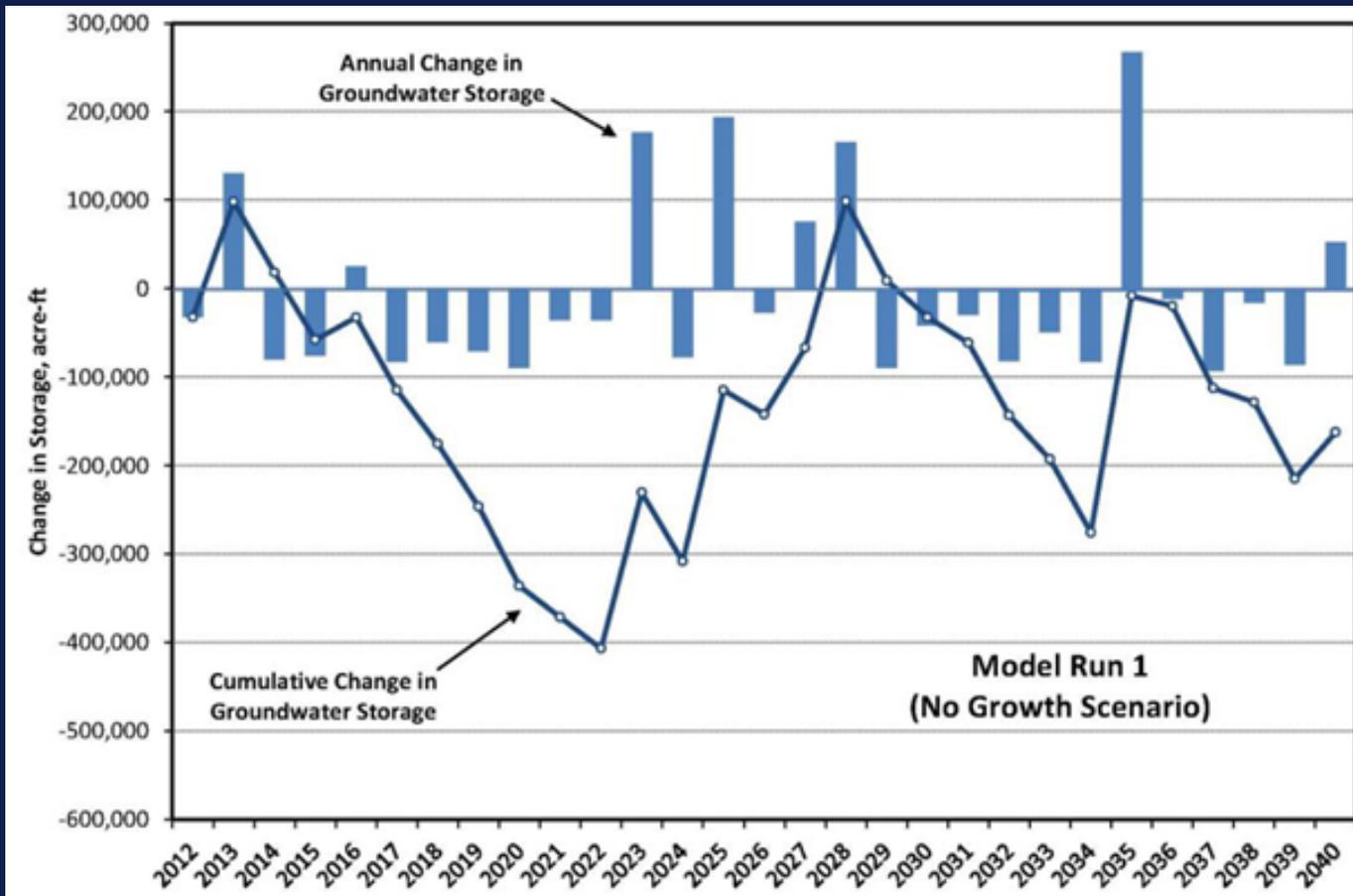


Interim Period Activities

- ▶ AB 3030 Groundwater Management Plan
 - ▶ Monitoring Improvements
 - ▶ Computer Modeling
 - ▶ Supplemental Water Supply Options Study
 - ▶ Conservation Programs
 - ▶ Active Advisory Committee
- ▶ Integrated Regional Water Management Program
 - ▶ Salt and Nutrient Management Plan
 - ▶ Percolation Areas Study
 - ▶ Funding Opportunities
- ▶ US Bureau of Reclamation Basin Study Program
 - ▶ Salinas River Basin Study (potential)

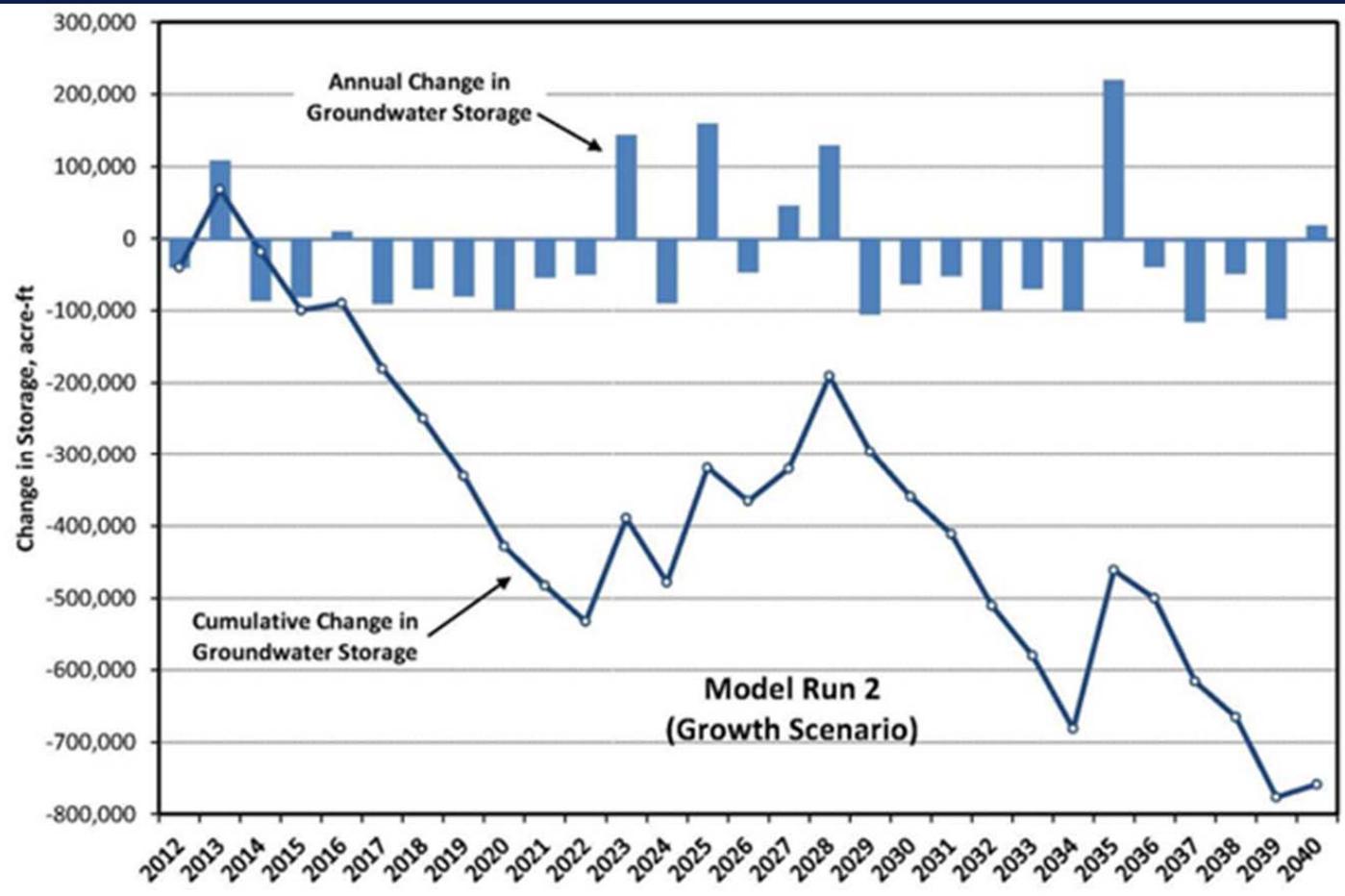


Model Run 1 – Baseline with No Growth(2012-2040)



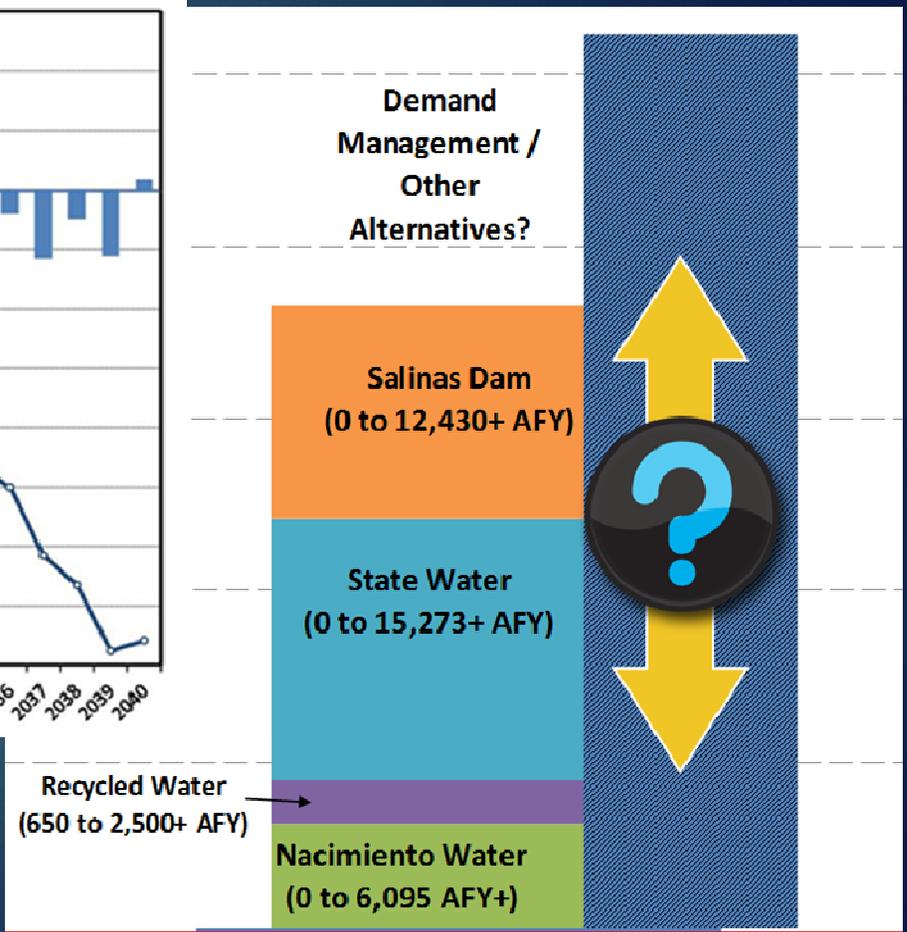
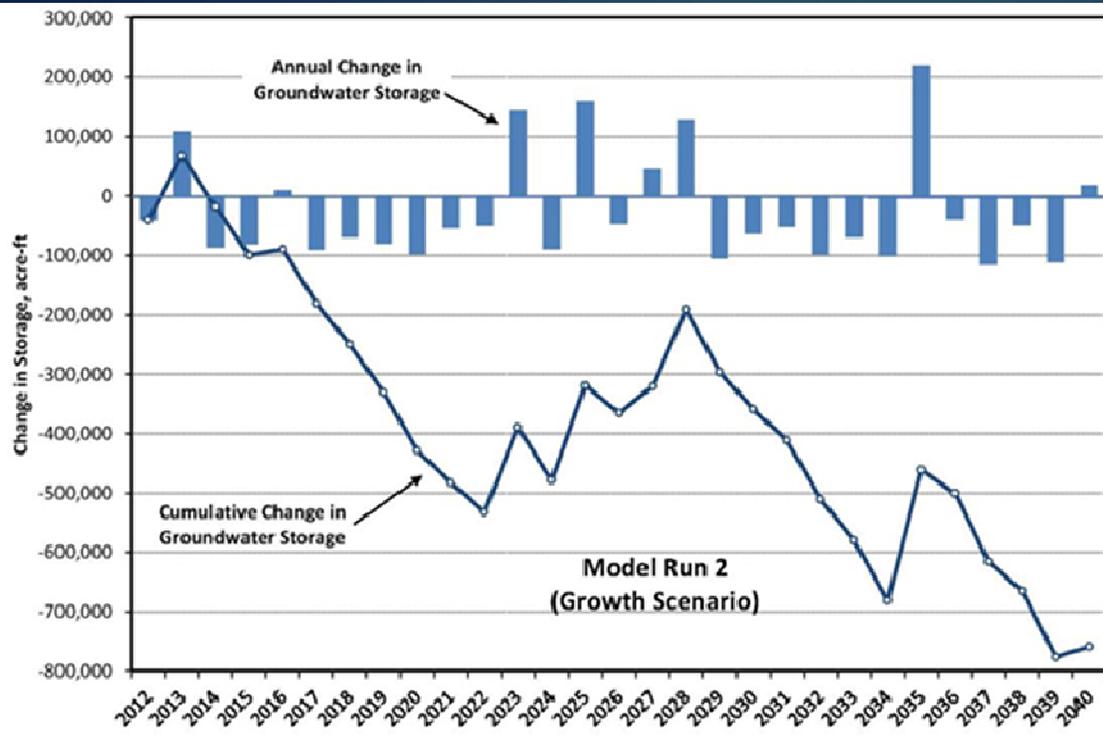
- Outflows Exceed Inflows
- Average 5,600 AFY

Model Run 2 – Baseline with Growth(2012-2040)



- Outflows Exceed Inflows
- Average 26,200 AFY

Supplemental Supply Options



Supply Study is evaluating three major options to stabilize groundwater levels:

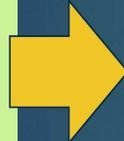
Technical Memorandums



Scope of Study

TMs to Identify:

- Quantity available
- Points of transfer
- Suitable uses
- Implementation Issues



Initial Screening:

- ✓ Uncomplicated (compared to other options)
- ✓ Independent project
- ✓ Key partner interest
- ✓ Public support



Strategy

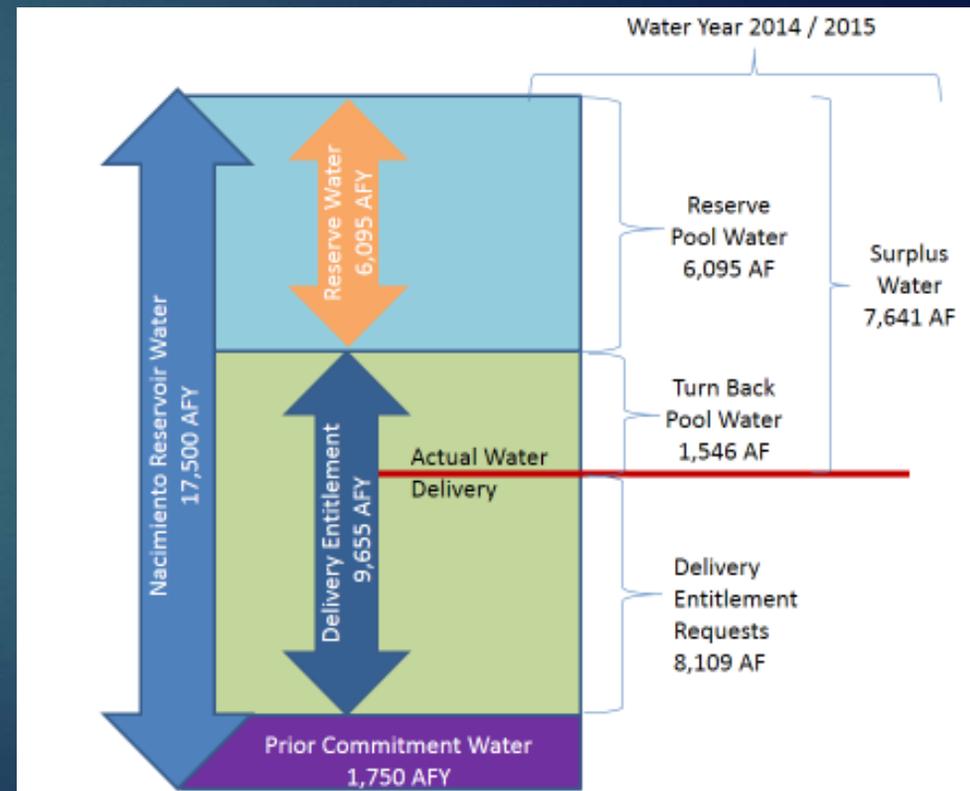
Development:

- Reliability of supply
- Costs
- Environmental Impacts
- Schedule
- Time of Use
- Permitting
- Technical complexity

Nacimiento water is critical to the discussion of options



- ▶ Local supply
- ▶ Existing pipeline and turnouts in the basin
- ▶ Not fully utilized
- ▶ Different delivery options
- ▶ Key to implementation – cost effectiveness



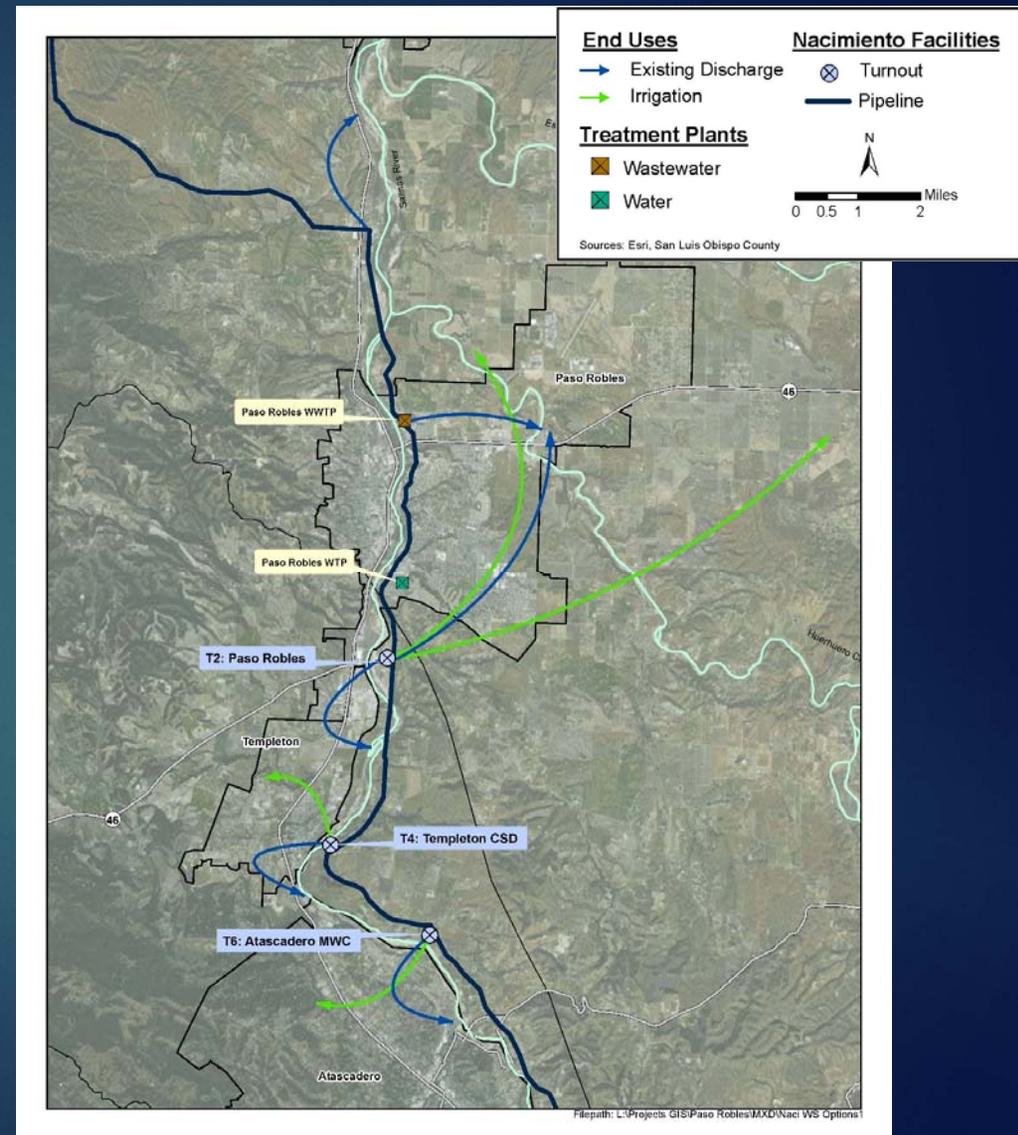
Nacimiento Water Options

Delivery Options:

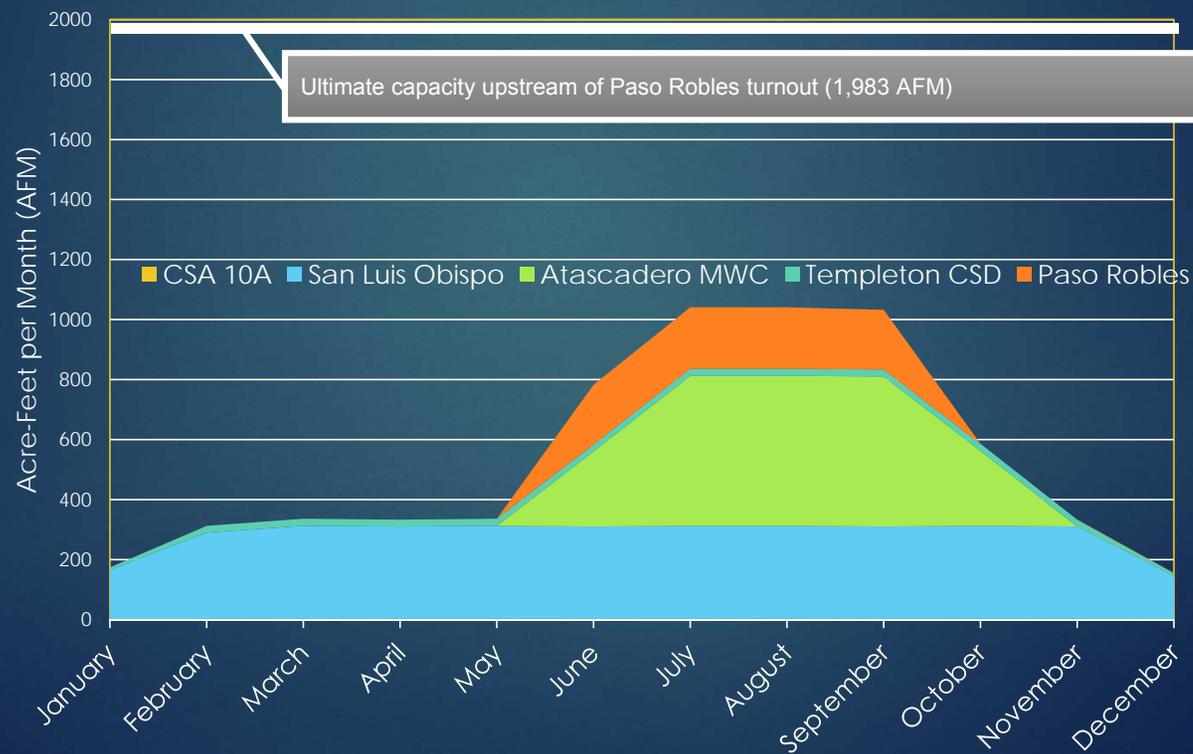
- ▶ Raw Water Direct
- ▶ Salinas River Recharge
- ▶ Recharge Areas of Greatest Decline

Cost of Water/Availability :

- ▶ Temporary for Non-participant (~ 9000 AFY) = \$1500 to \$2200/AF
- ▶ Full Subscription (6095 AFY) = \$400 to \$1400/AF

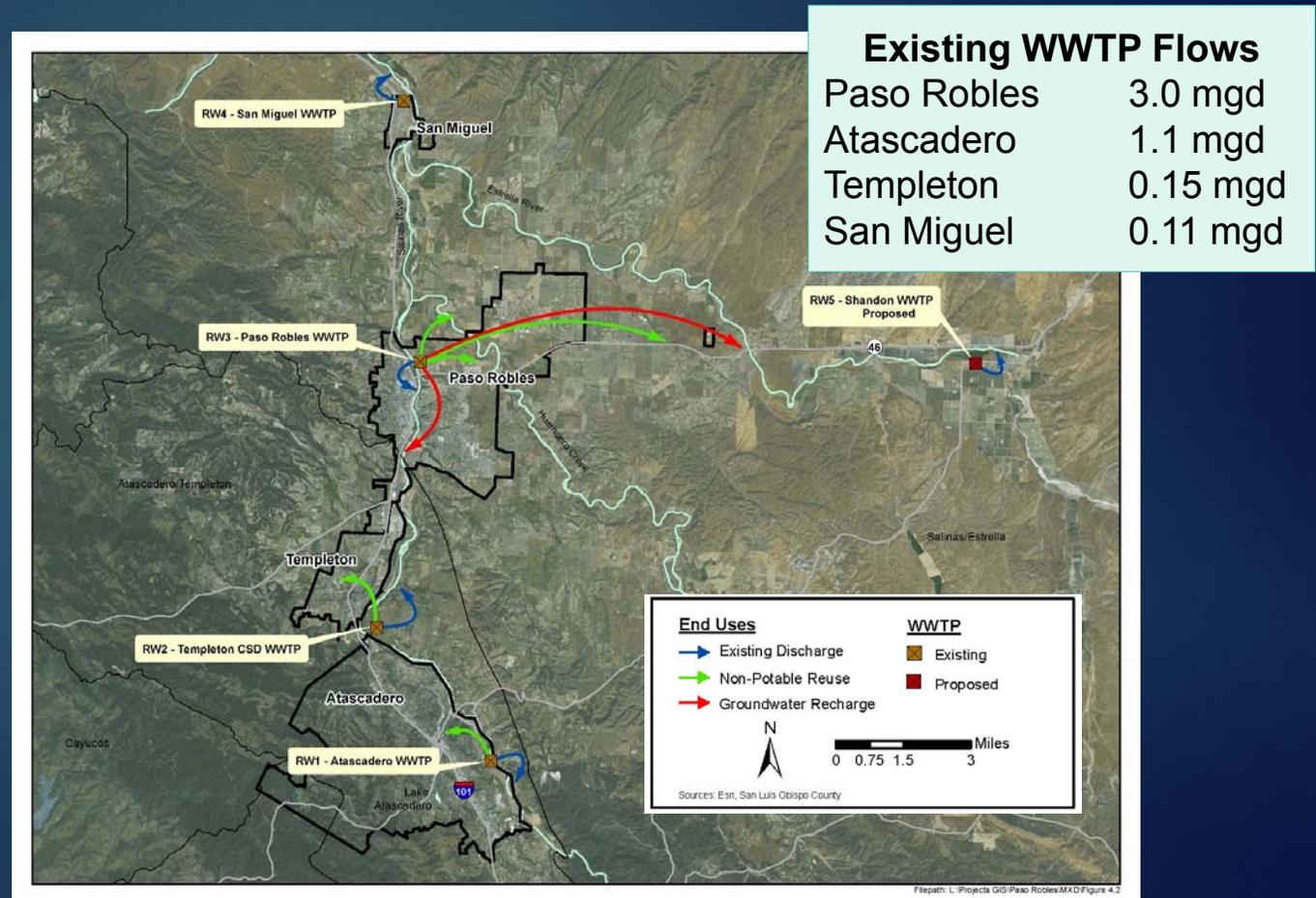


Historical use of Nacimiento Water peaks in summer, largely available in winter



Recycled water is another supply option

- ▶ Local supply
- ▶ No existing pipeline
- ▶ Not fully utilized
- ▶ Different end uses
- ▶ Available year round



Further Analysis: Paso Robles Recycled Water

End Uses/Delivery:

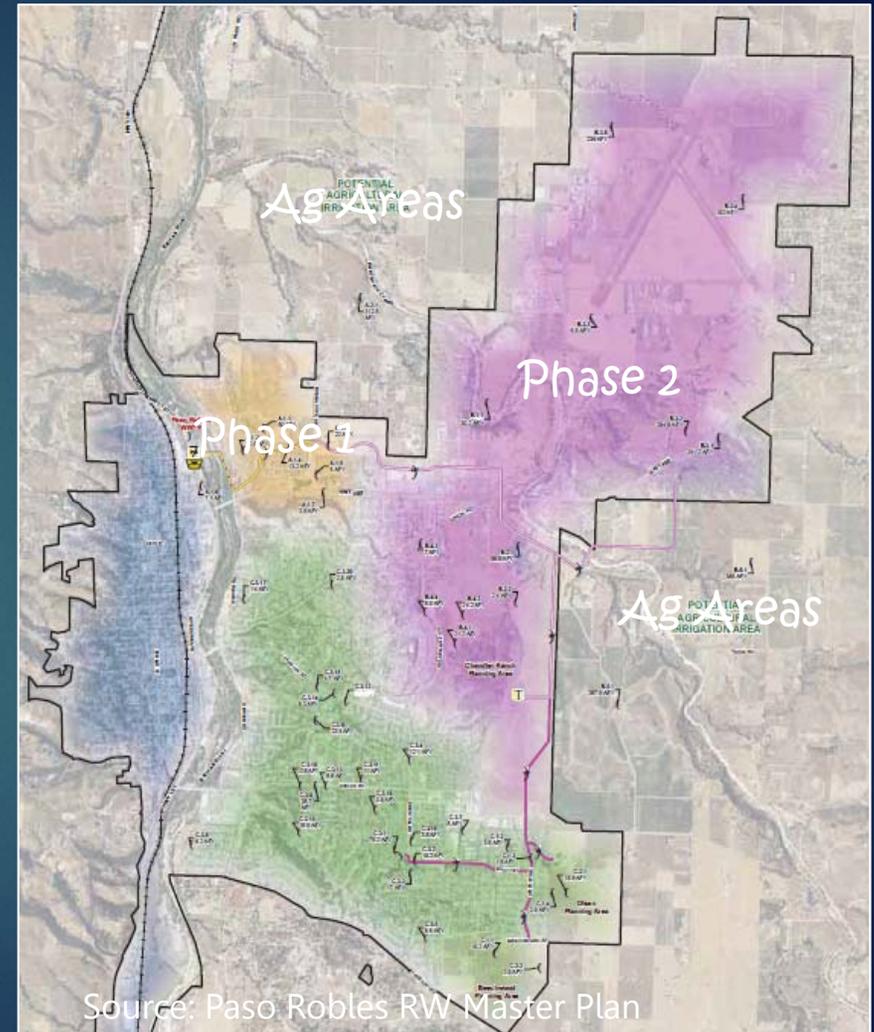
- ▶ Urban Irrigation
- ▶ Agricultural Irrigation
- ▶ Recharge

Cost:

- ▶ More cost effective to serve Ag

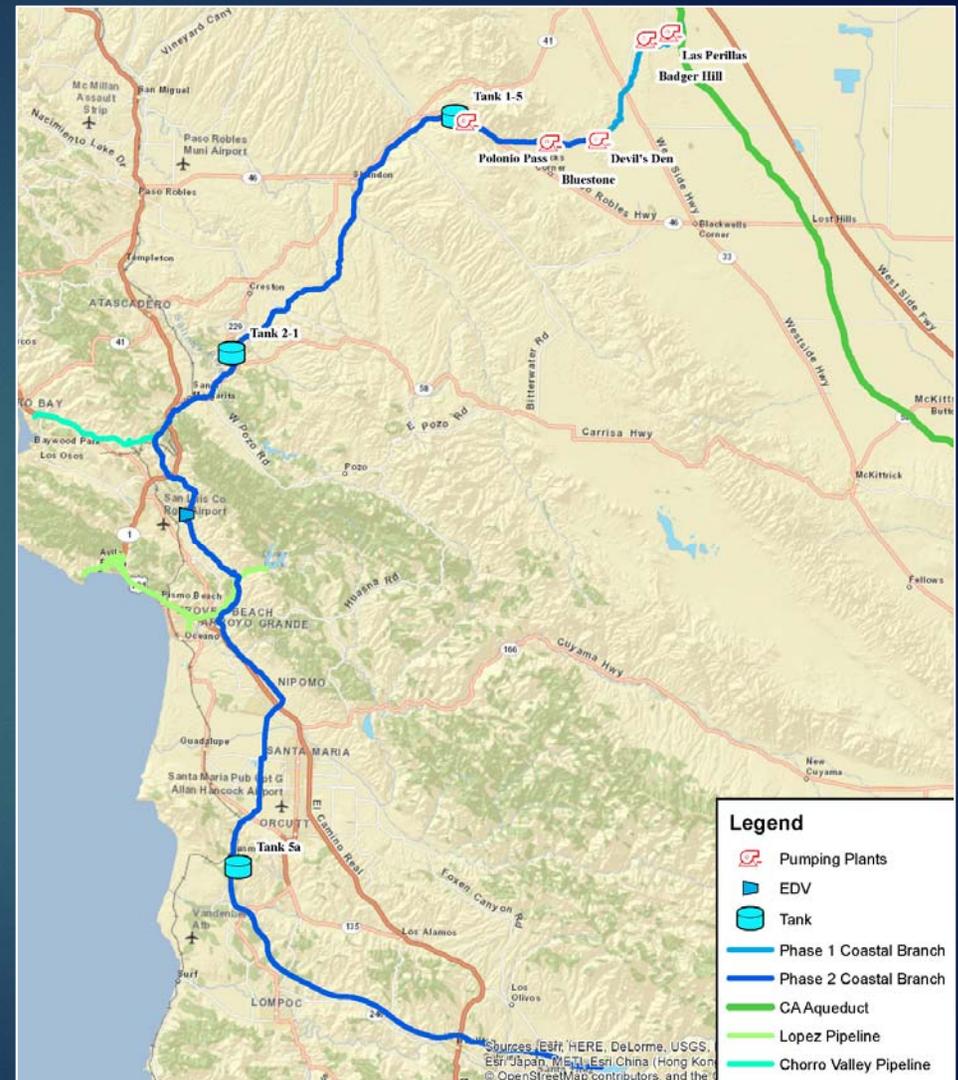
Benefits:

- ▶ Benefit to Basin unclear

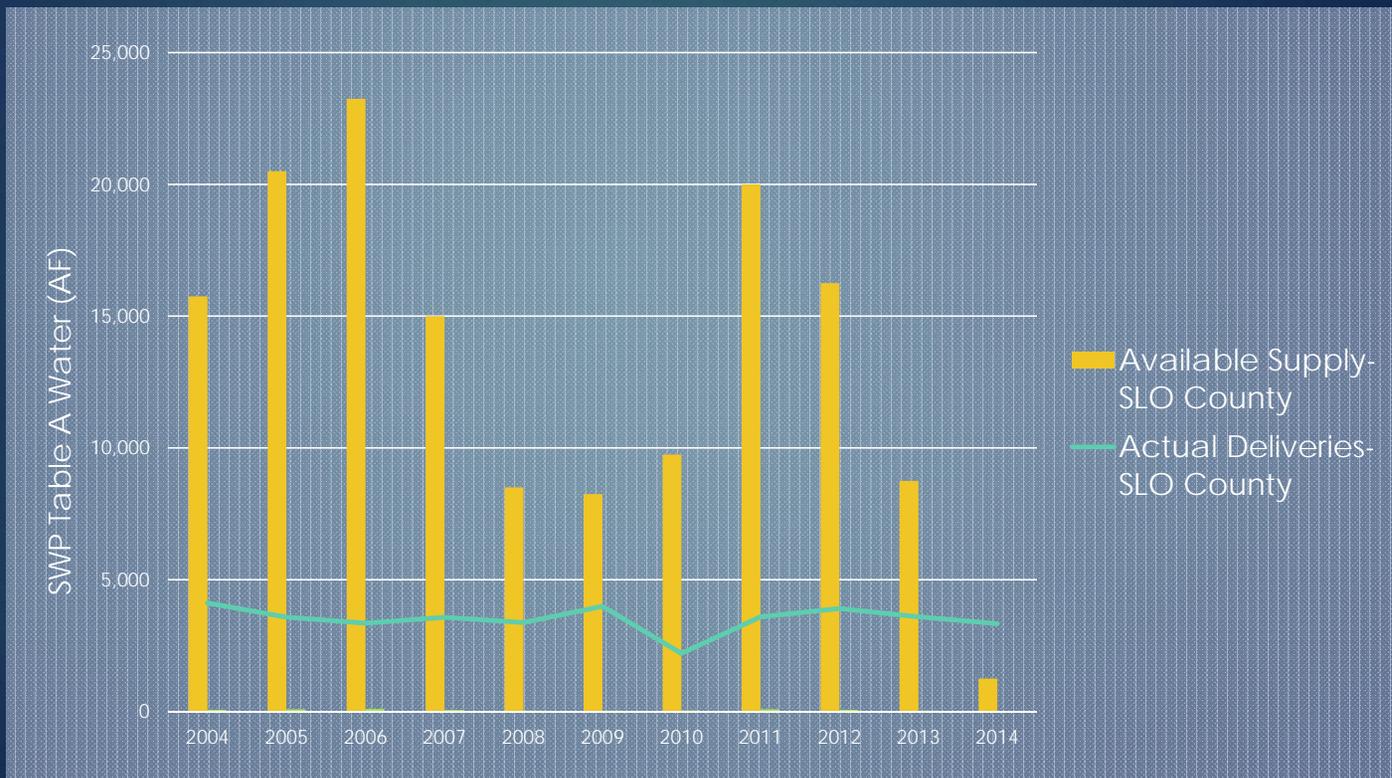


State Water Project (SWP)

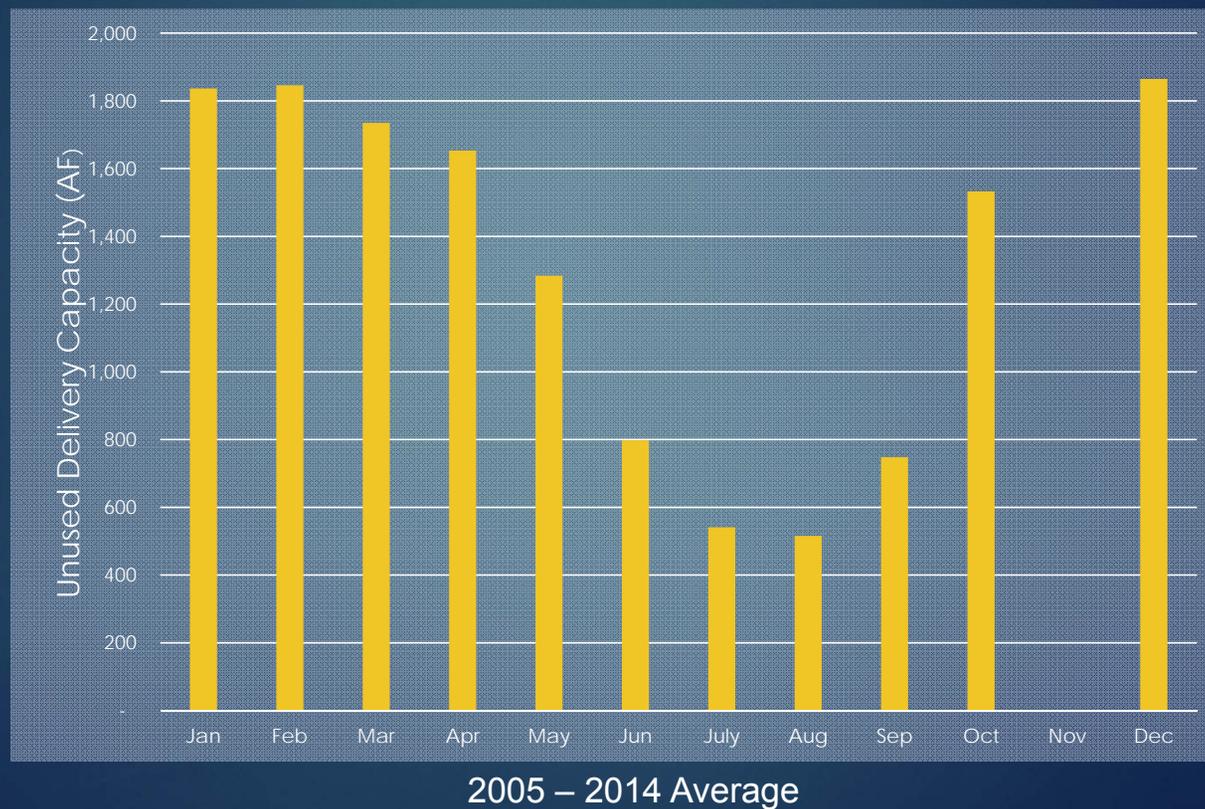
- ▶ Imported supply
- ▶ Existing pipeline and turnouts in the basin (Shandon)
- ▶ Not fully utilized
- ▶ Different delivery options: Treated vs. Raw
- ▶ Key to implementation - cost effectiveness



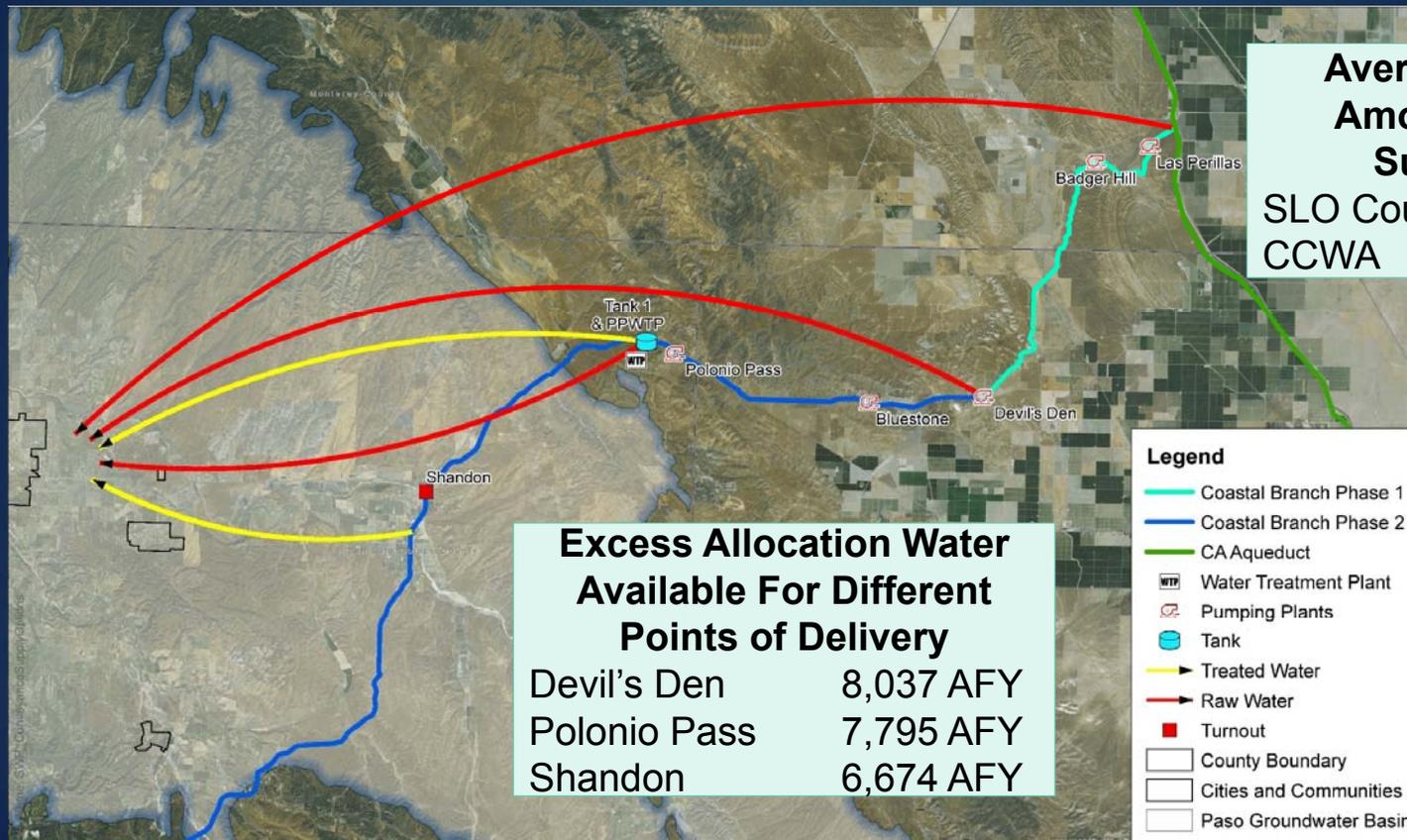
Opportunities to take advantage of wet year flows



Monthly variability in SWP deliveries and capacity lead to off-season availability



SWP Options: Use District excess allocation or purchase from subcontractor



Average Undelivered Amount by Existing Subcontractors

SLO County	2,153 AFY
CCWA	4,906 AFY

Legend

- Coastal Branch Phase 1
- Coastal Branch Phase 2
- CA Aqueduct
- Water Treatment Plant
- Pumping Plants
- Tank
- Treated Water
- Raw Water
- Turnout
- County Boundary
- Cities and Communities
- Paso Groundwater Basin



Paso Basin Supplemental Water Supply Options Study
SWP Conveyance Supply Options



Next Step: Strategy Development

- ▶ Additional tasks to be completed include:
 - ▶ Evaluate the potential to combine options for additional cost effectiveness and greater benefit.
 - ▶ Using the Basin model to identify the potential benefits that may be gained from implementation of options.
 - ▶ **Analysis 1 – Demand Reduction Scenario**
 - ▶ **Analysis 2 – Salinas River Recharge**
 - ▶ **Analysis 3 – Offset Basin Pumping with Recycled Water**
 - ▶ Analysis 4 – Offset Water Demand in Estrella Sub-Area
 - ▶ Analysis 5 – Additional Releases to Huer Huero Creek
 - ▶ Analysis 6 – Additional Releases to Estrella River
 - ▶ Analysis 7 – Offset Pumping in Creston Sub-Area
 - ▶ Analysis 8 – Offset Pumping in Shandon Sub-Area

Supply Options Project Schedule

Task Description	2014	2015
	J A S O N D	J F M A M J J A S O N D
In-Basin (Nacimiento) Supplies TM		
State Water Supplies TM		
Recycled Water Supplies TM		
Strategy Development Report		
Public/Advisory Meetings		



DEPARTMENT OF PLANNING AND BUILDING

Promoting the wise use of land Helping build great communities

County Wide Water Programs

Planning Department Staff:

Xzandrea Fowler

Michael Hanebutt

Cheryl Cochran



DEPARTMENT OF PLANNING AND BUILDING

Promoting the wise use of land Helping build great communities

County Wide Water Programs

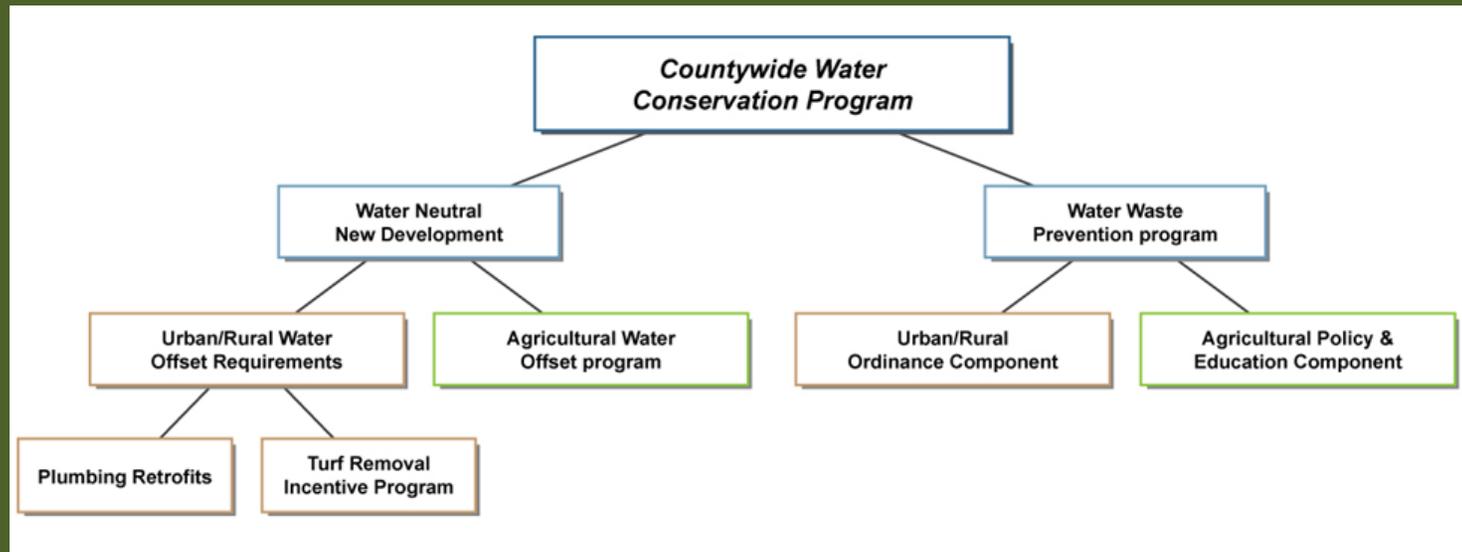
- Interim programs to substantially reduce the drawdown of the groundwater basin
- History: Paso Robles Groundwater Basin Urgency Ordinance
 - Adopted: August 27, 2013
 - Expires: August 27, 2015
- Two Main Programs
 - Water Neutral New Development
 - Water Waste Prevention



DEPARTMENT OF PLANNING AND BUILDING

Promoting the wise use of land Helping build great communities

CWWCP Overview





DEPARTMENT OF PLANNING AND BUILDING

Promoting the wise use of land Helping build great communities

Important Dates

- DSEIR comment period: May 22 through July 6
- Final SEIR released July 16
- PC hearing/BOS recommendation – July 30
- BOS introduction – August 11
- BOS hearing – August 25
- BOS hearing continued – September 1 (if needed)
- Earliest effective date of ordinances – September 24

Draft text available at:

www.slocounty.ca.gov/planning/water-amendments.htm

Additional Welcome Remarks

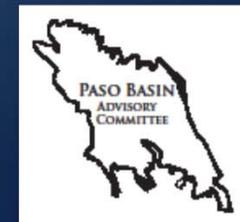
BOARD OF SUPERVISORS CHAIR
DEBBIE ARNOLD
DISTRICT 5



DISTRICT 1 SUPERVISOR
FRANK MECHAM



ADVISORY COMMITTEE CHAIR
SUE LUFT



Paso Basin Advisory Committee Subcommittee Email Lists

- ▶ Basin Solutions
- ▶ Computer Model
- ▶ Conservation
- ▶ Management
- ▶ Outreach and Education
- ▶ Supply Options



San Luis Obispo County Department of Public Works
American Public Works Association Accredited 2014

Q&A



www.pasobasin.org