South County Ag Program Update

September 12, 2012

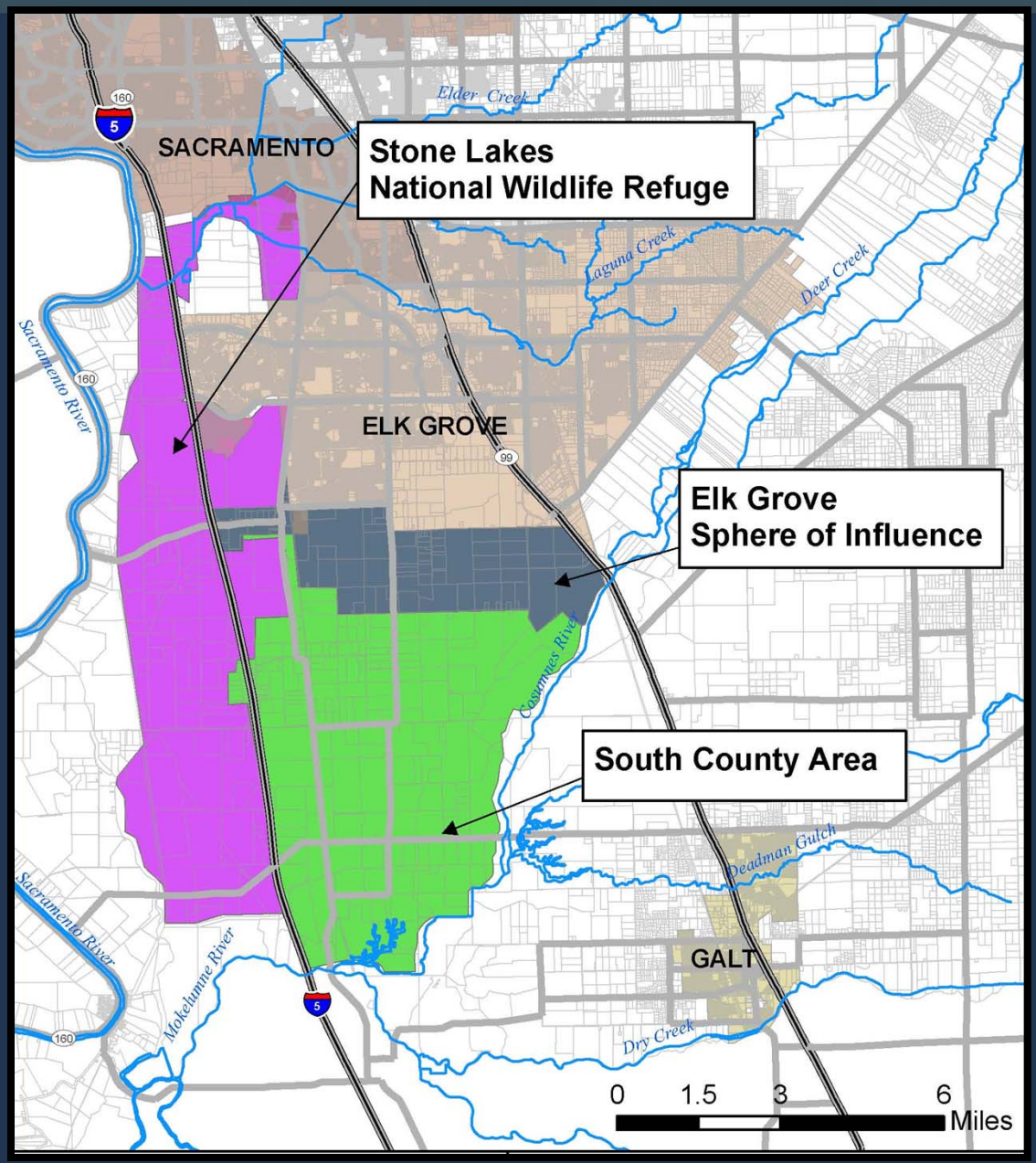
Overview

- South County Ag Program:
  - Market Assessment
  - Project Groundwater Benefits
  - Recharge Evaluation
  - Project Service Area & Facilities
  - Next Steps

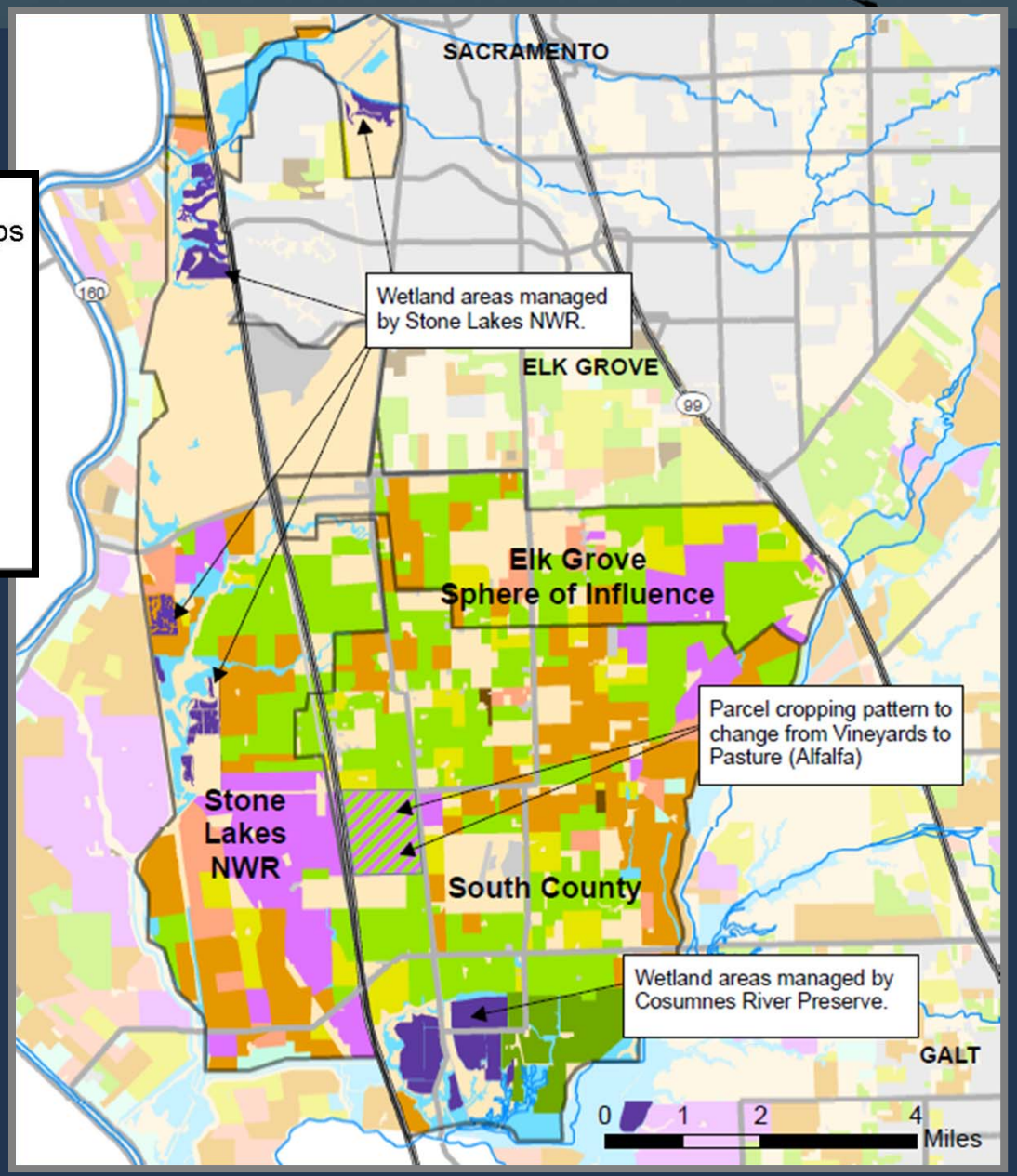
Market Assessment: Study Area Boundary

Acreages

- Stone Lakes = 17,880 ac
- Elk Grove = 6,250 ac
- South County = 18,270 ac
- **Total = 42,400 ac**



Types of Crops
(South County Ag Project)

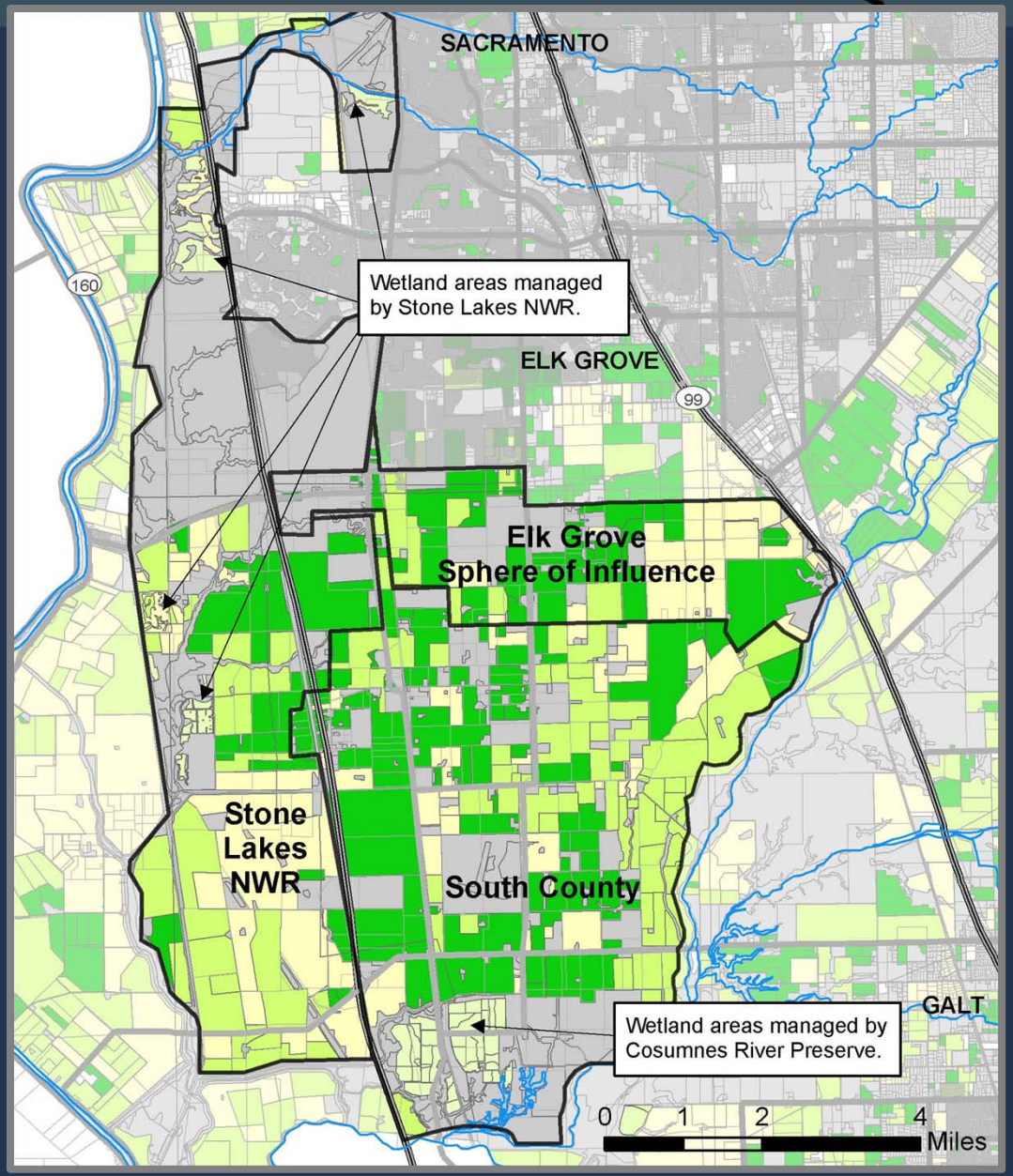


Legend

Project Area	Idle	Truck Crops
Citrus	Pasture	Urban
Field Crops	Rice	Vineyards
Fruits and Nuts	Riparian Vegetation	
Grain and Hay	Native Vegetation	
	Managed Wetland	

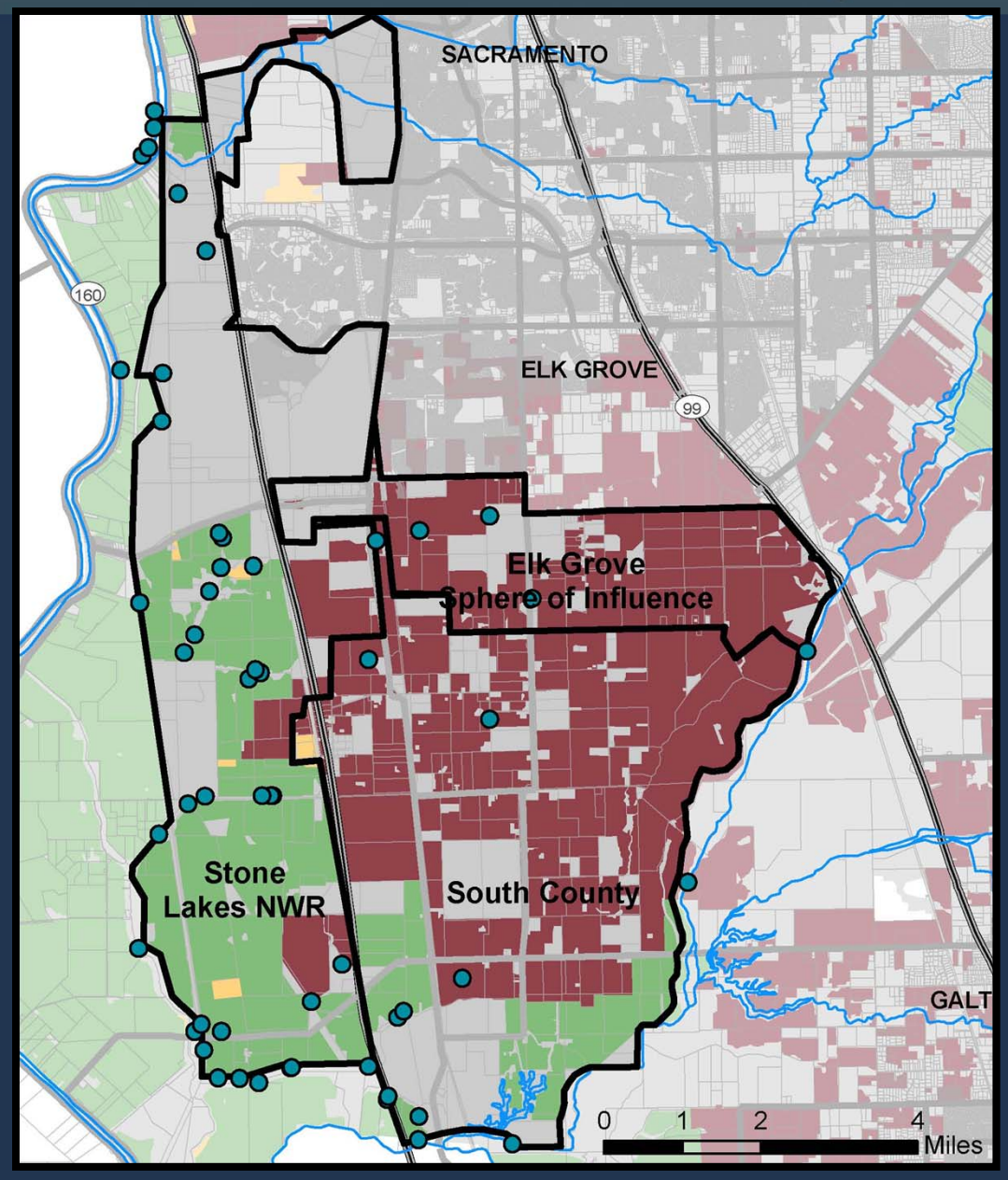
Data from Dept. of Water Resources 2000 Land Use Survey with updates from meetings and surveys completed by growers.

Potential Recycled Water Demands



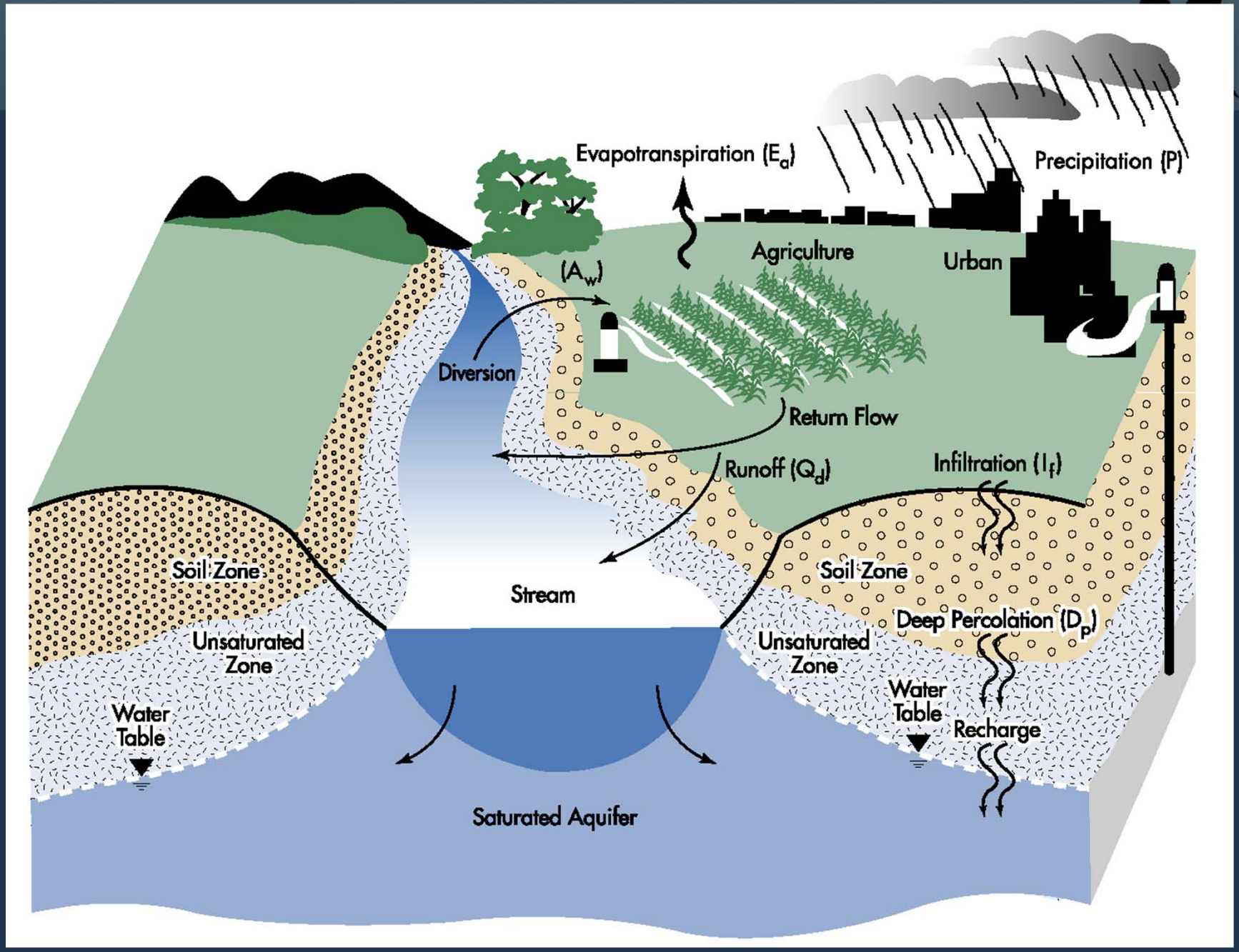
* Based on Land Use Data from DWR, and Reported Applied Water Depths (Average 1998-2001 Hydrologic Conditions)

Current Water Supply Sources

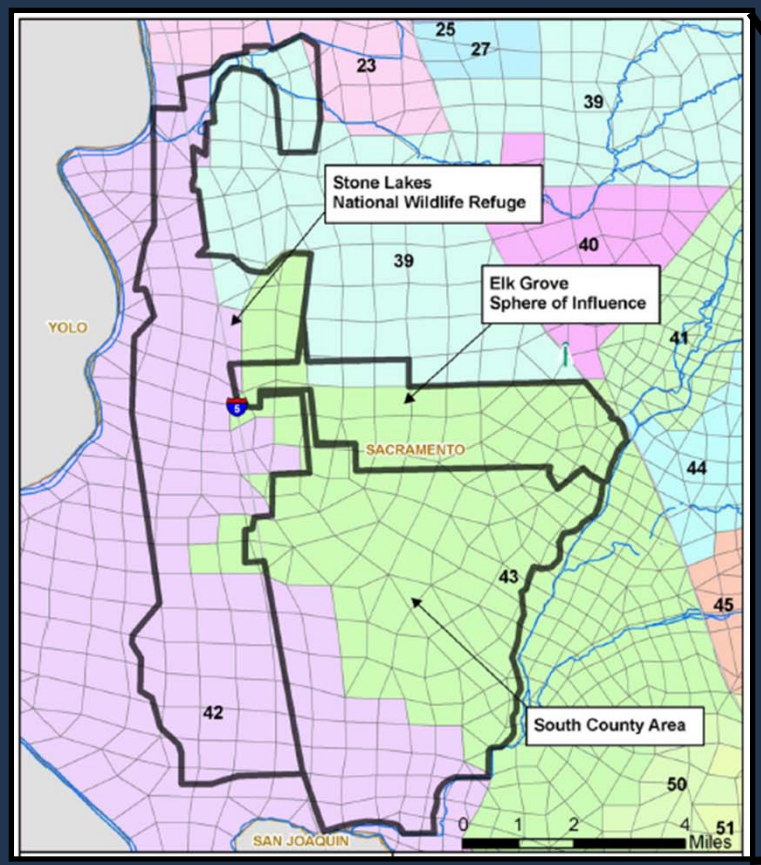


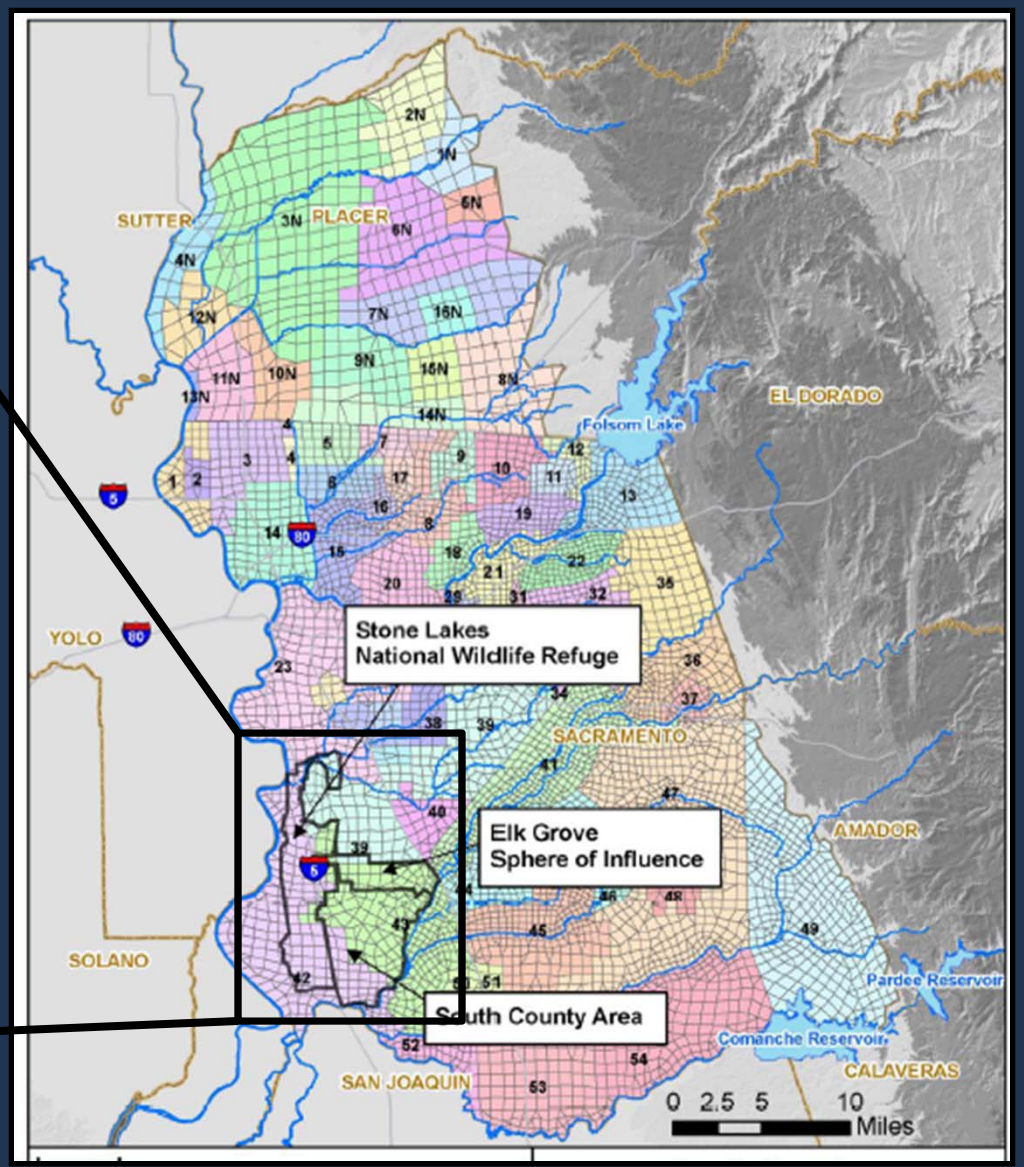
- Blue dots represent parcels with surface water diversions rights per SWRCB database

SacIWRM Hydrologic Components

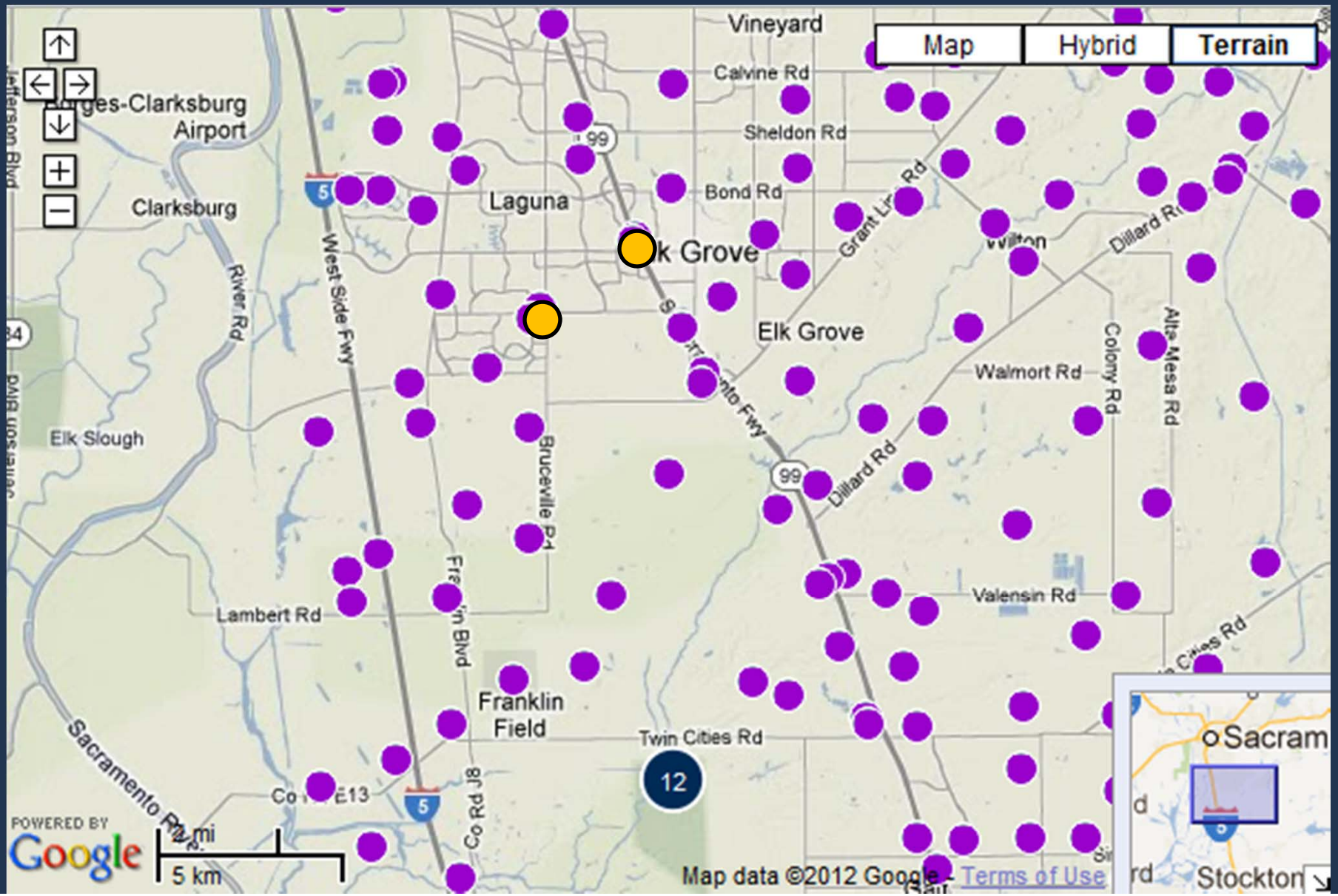


SacIWRM Model Area

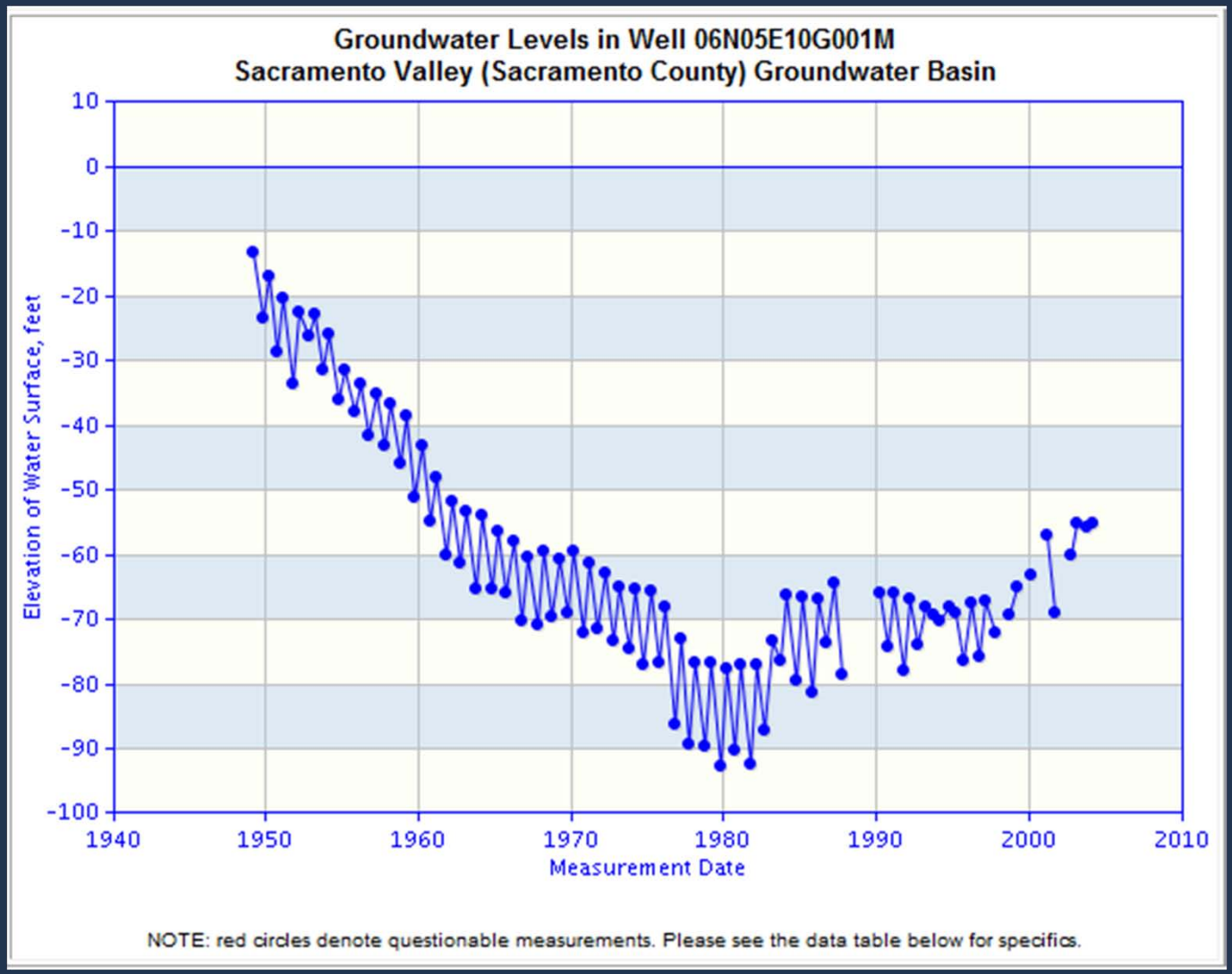




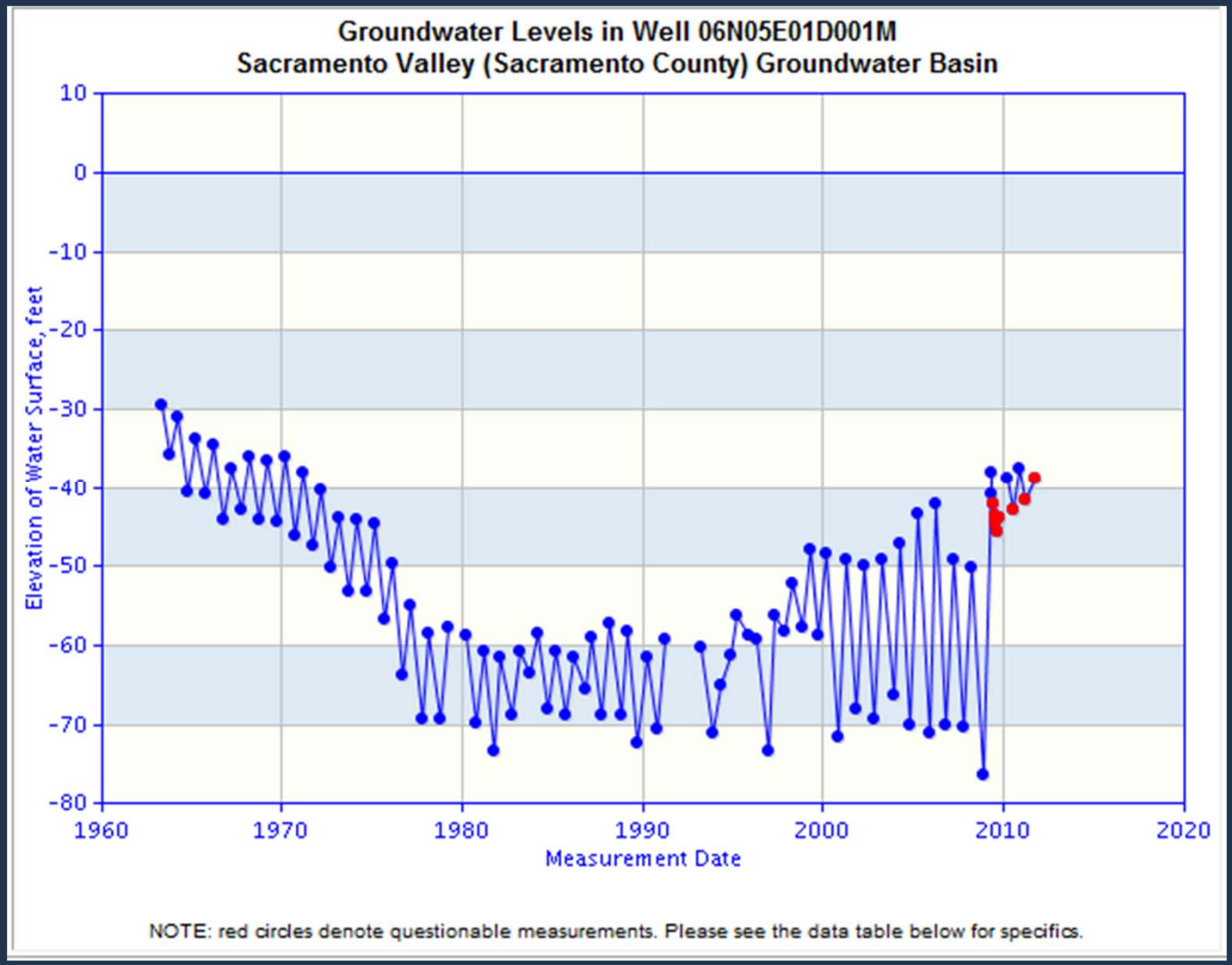
DWR Water Library Monitoring Wells



Historical GW Levels Near Elk Grove



Historical GW Levels Near Bruiceville



Future Baseline Assumptions

Water Use Conditions In Central Basin*:

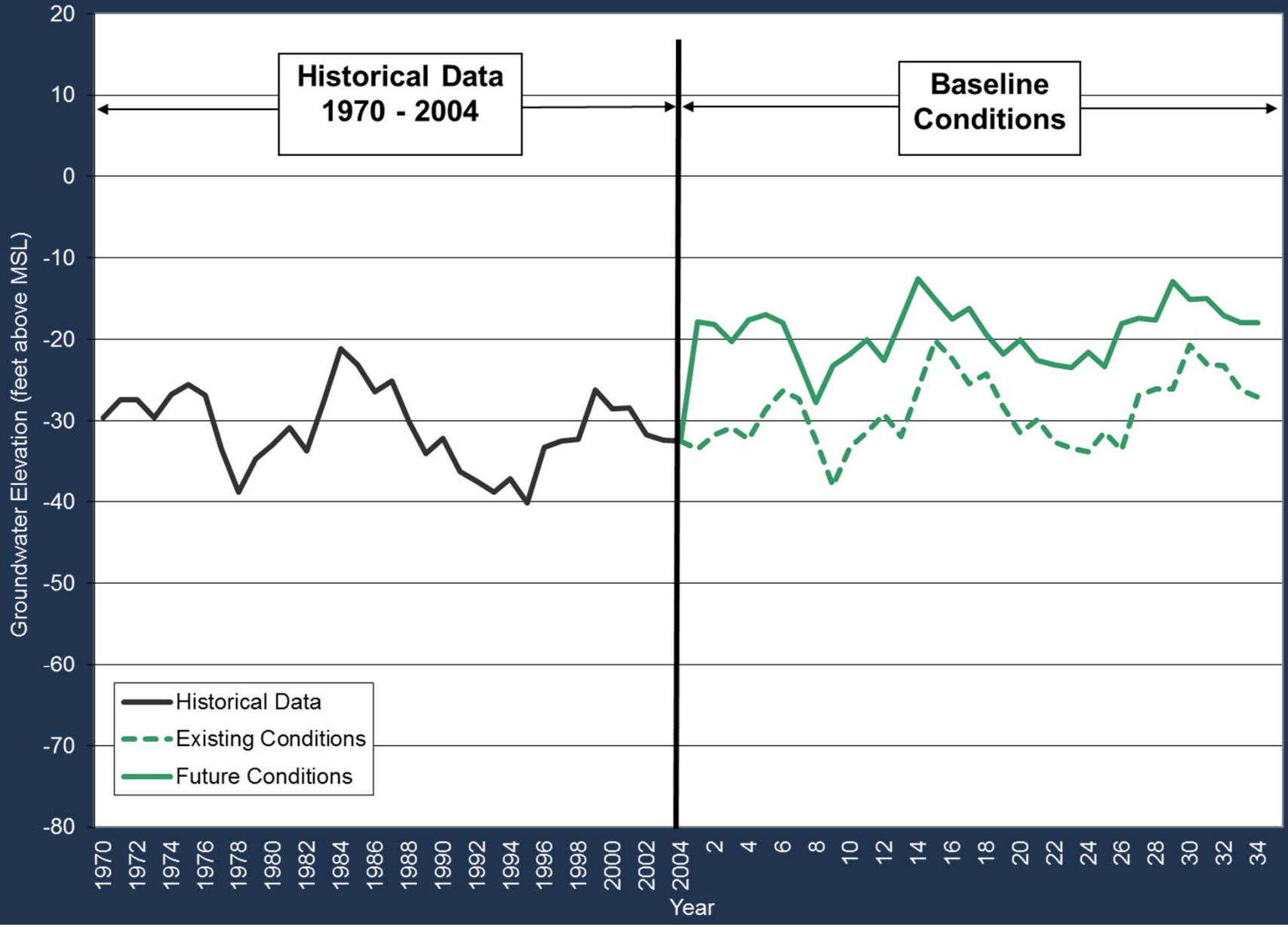
Demands (TAF/Yr)	Existing Condition	Future Condition	Change
Ag Demand	135	107	- 28
Urban Demand	186	312	+ 126

Supplies (TAF/Yr)	Existing Condition	Future Condition	Change
Groundwater	211	206	- 5
Surface Water	110	213	+ 103

* Average Annual Conditions for WY 1970-2004 Hydrologic Conditions

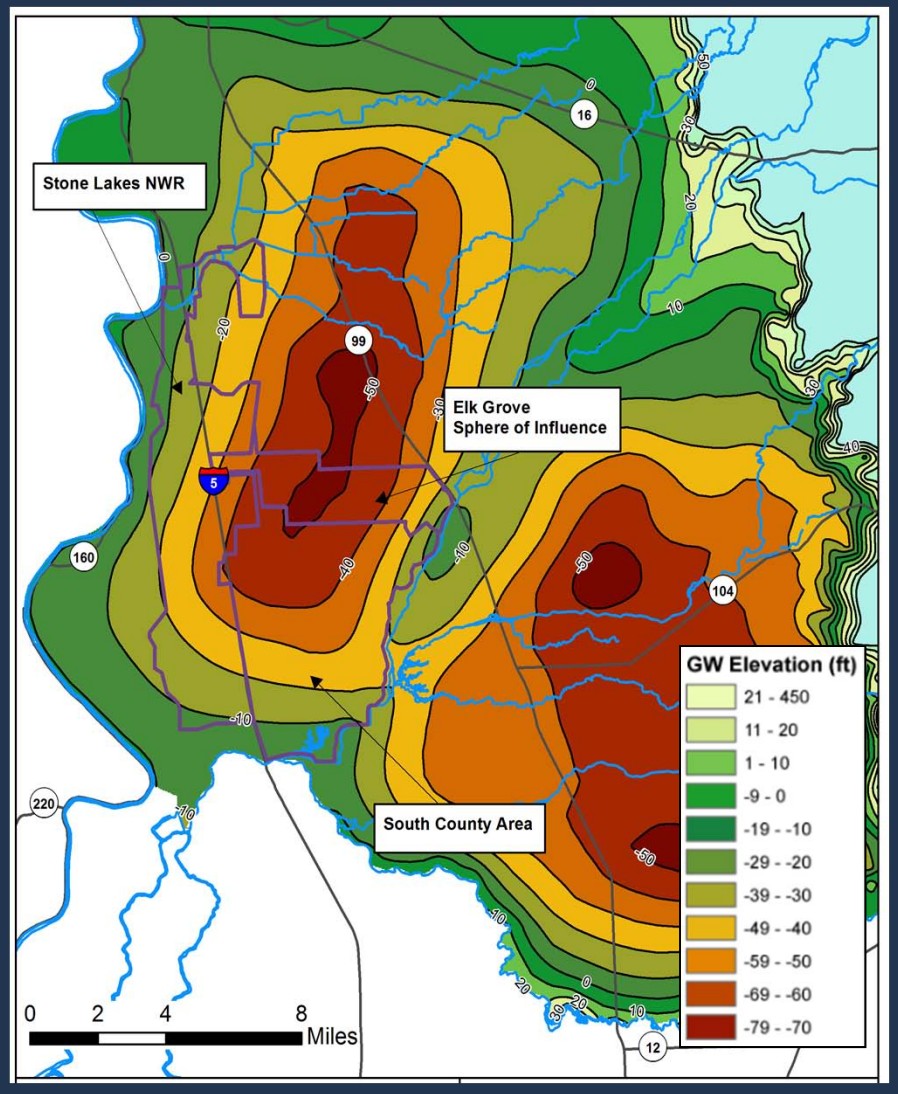
Historical and Projected Conditions

Calibration Well 122 - Layer 1 - Fall Water Levels

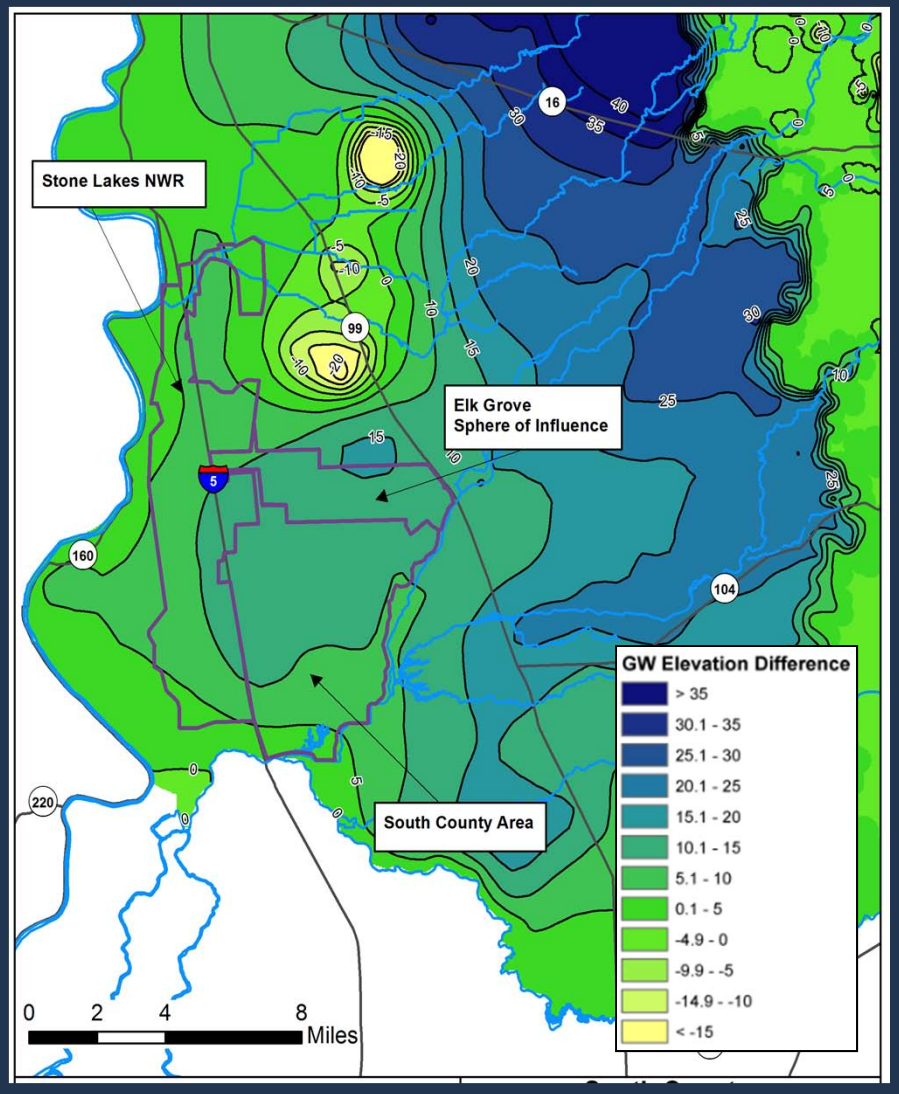


Groundwater Elevations – Future Baseline

Existing Conditions



Change under Future Conditions

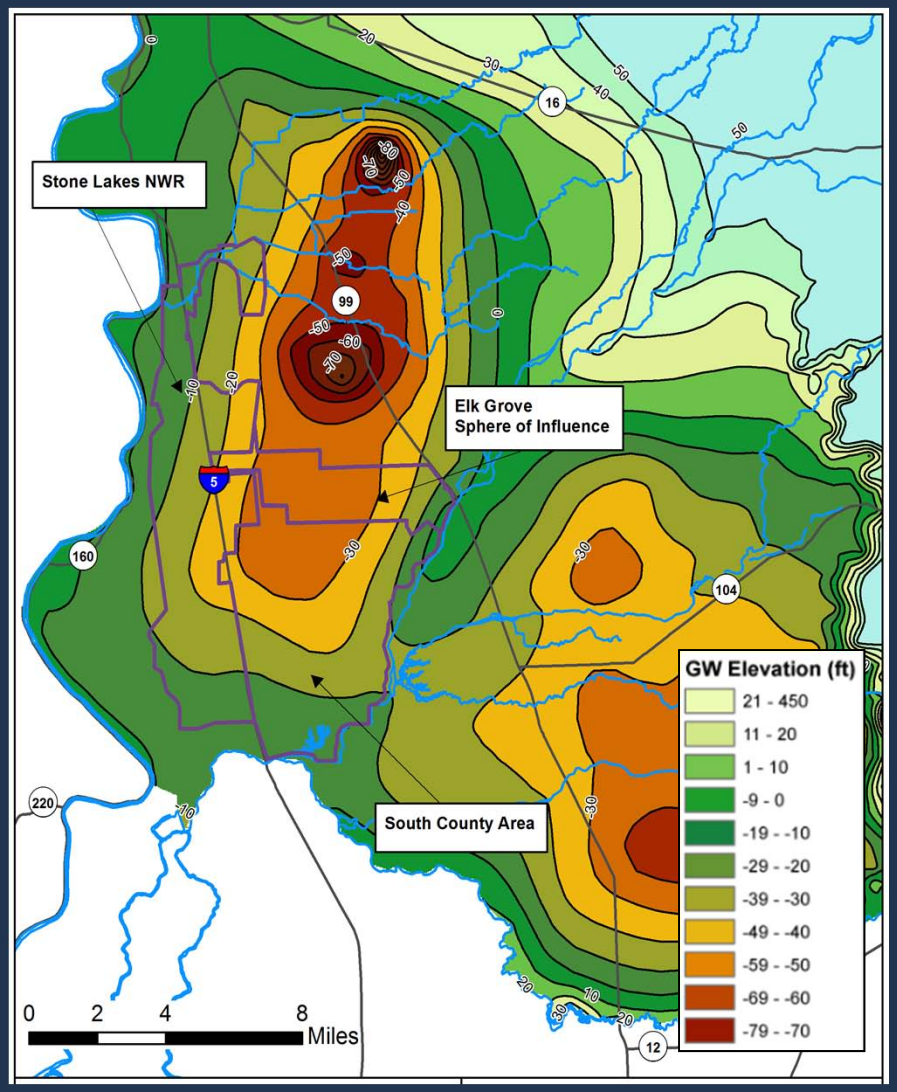


Groundwater Modeling: Recycled Water Project

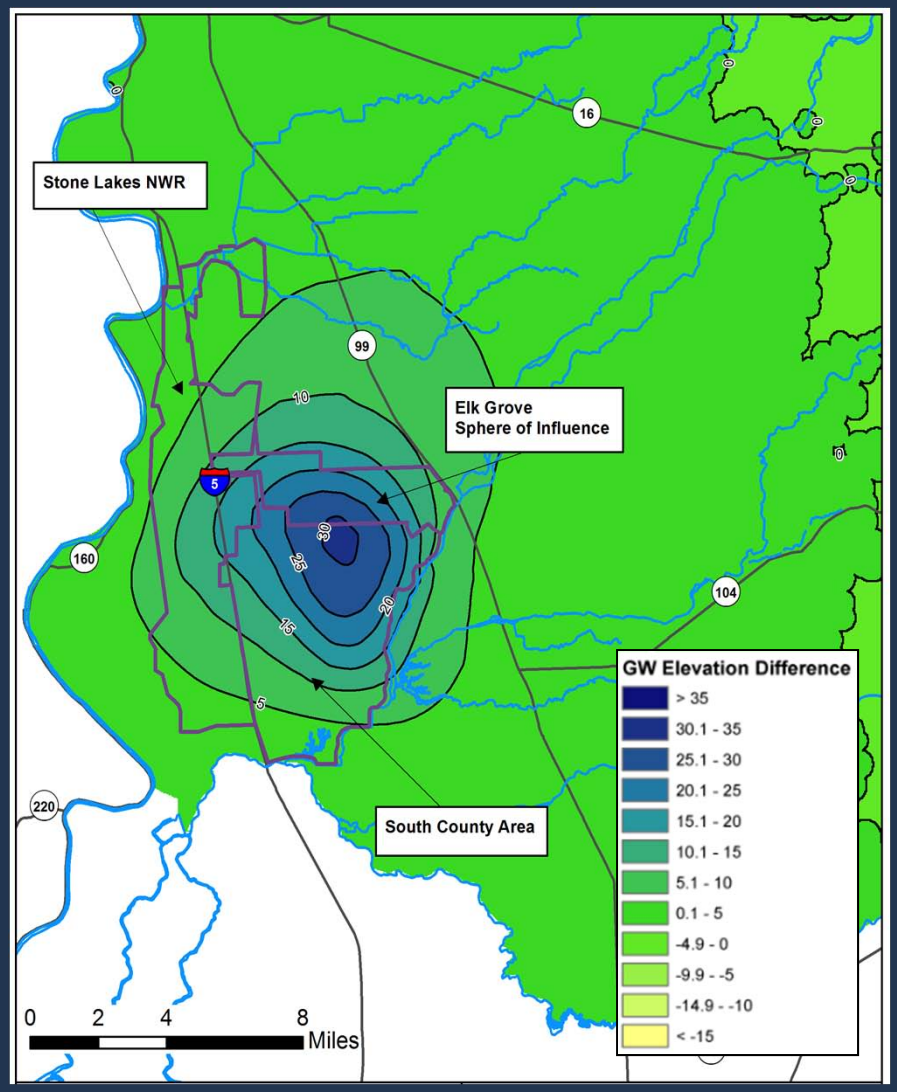
- Preliminary Project Scenario:
  - Based on Future Conditions Baseline
  - Replaces 26,000 AF/year of groundwater pumping with recycled water supply (small project)
    - Large project to replace up to 52,000 AF/year

Groundwater Elevations – With Project

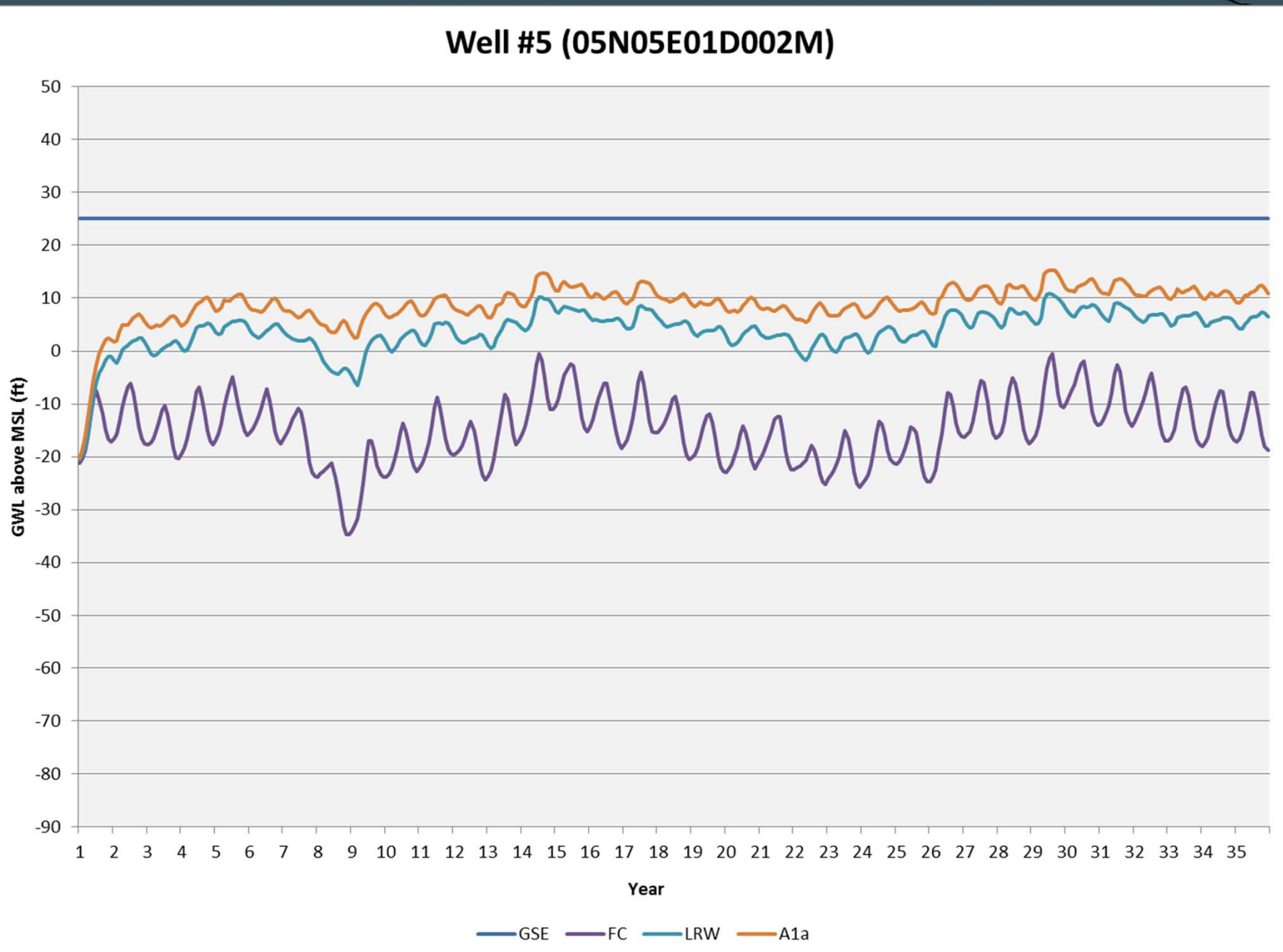
Future Conditions



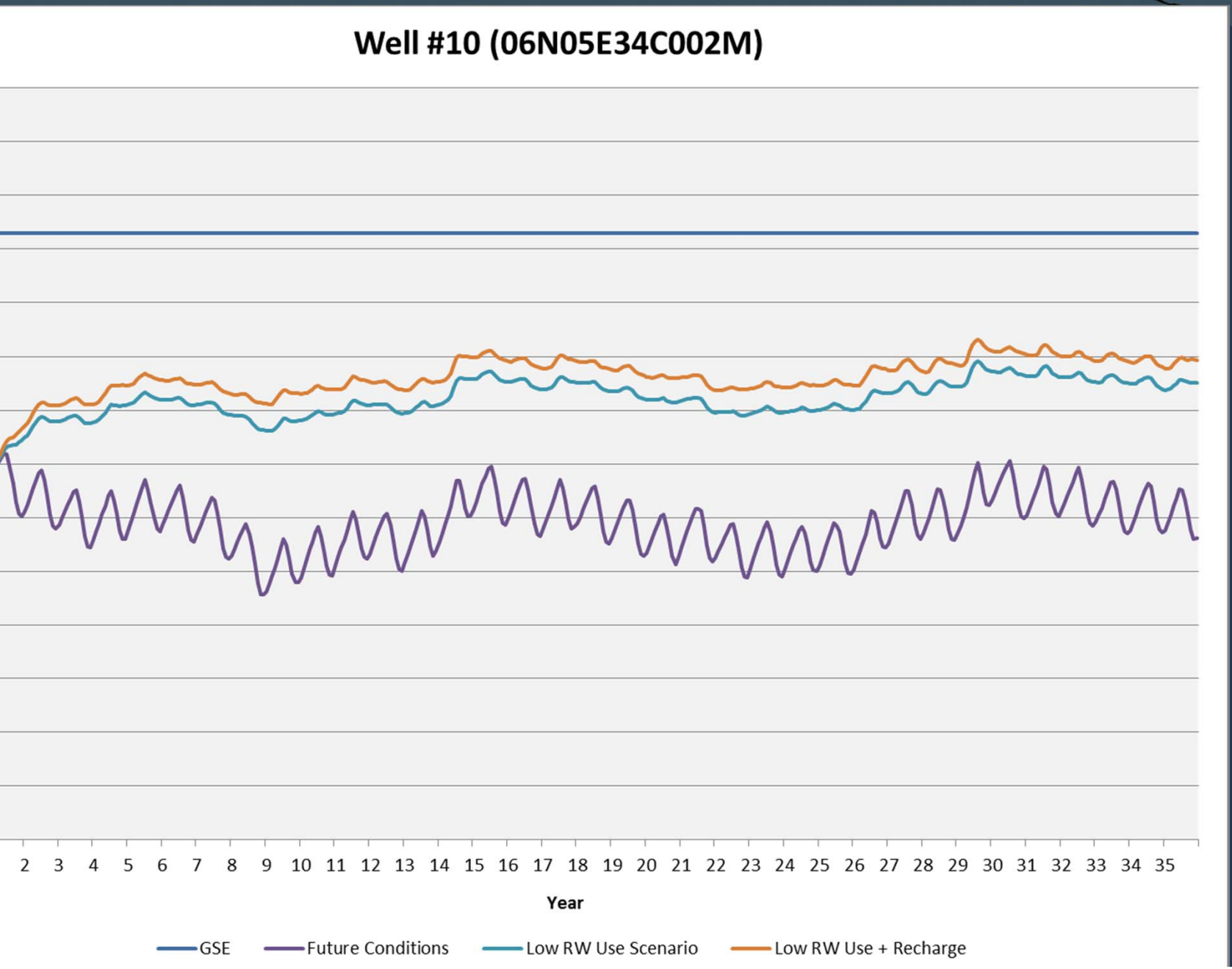
Change with Preliminary Project (26,000 AFY RW)



GW Recovery Near Cosumnes River

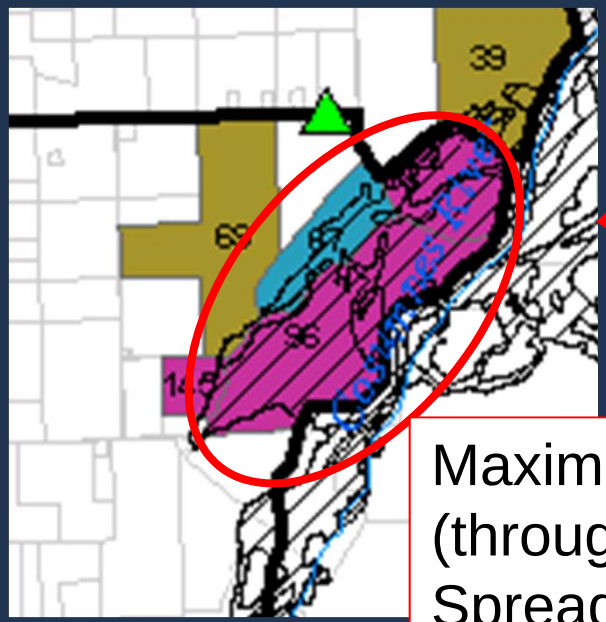


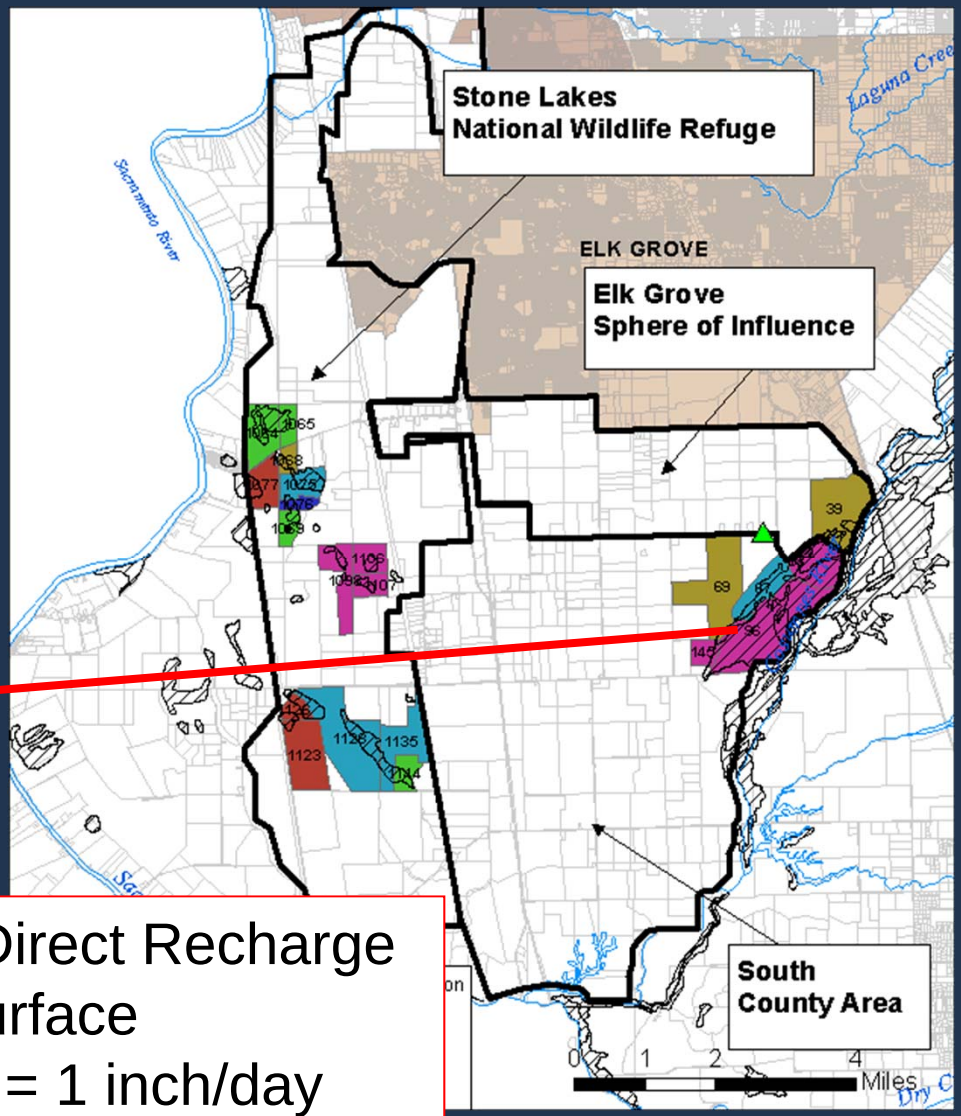
GW Recovery Near Twin Cities Rd



Recharge Evaluation

- Potential High Recharge Areas Located near Cosumnes River

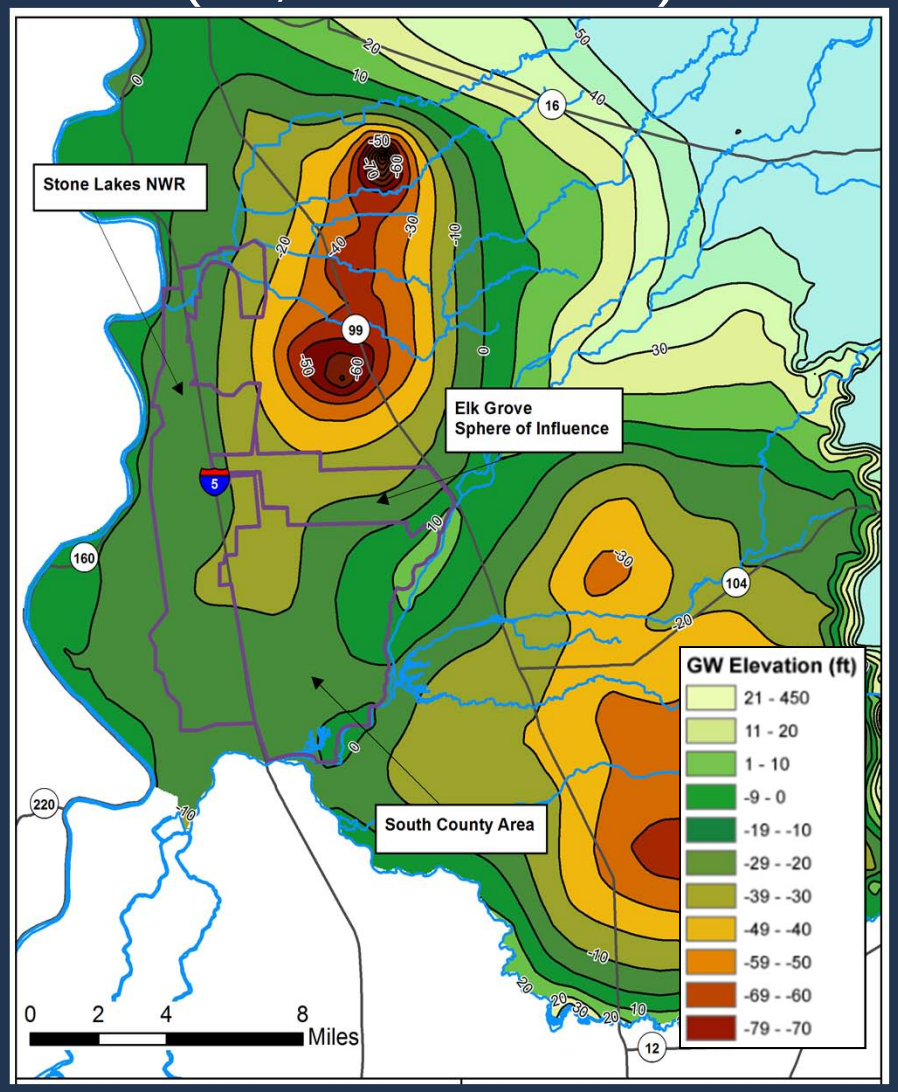




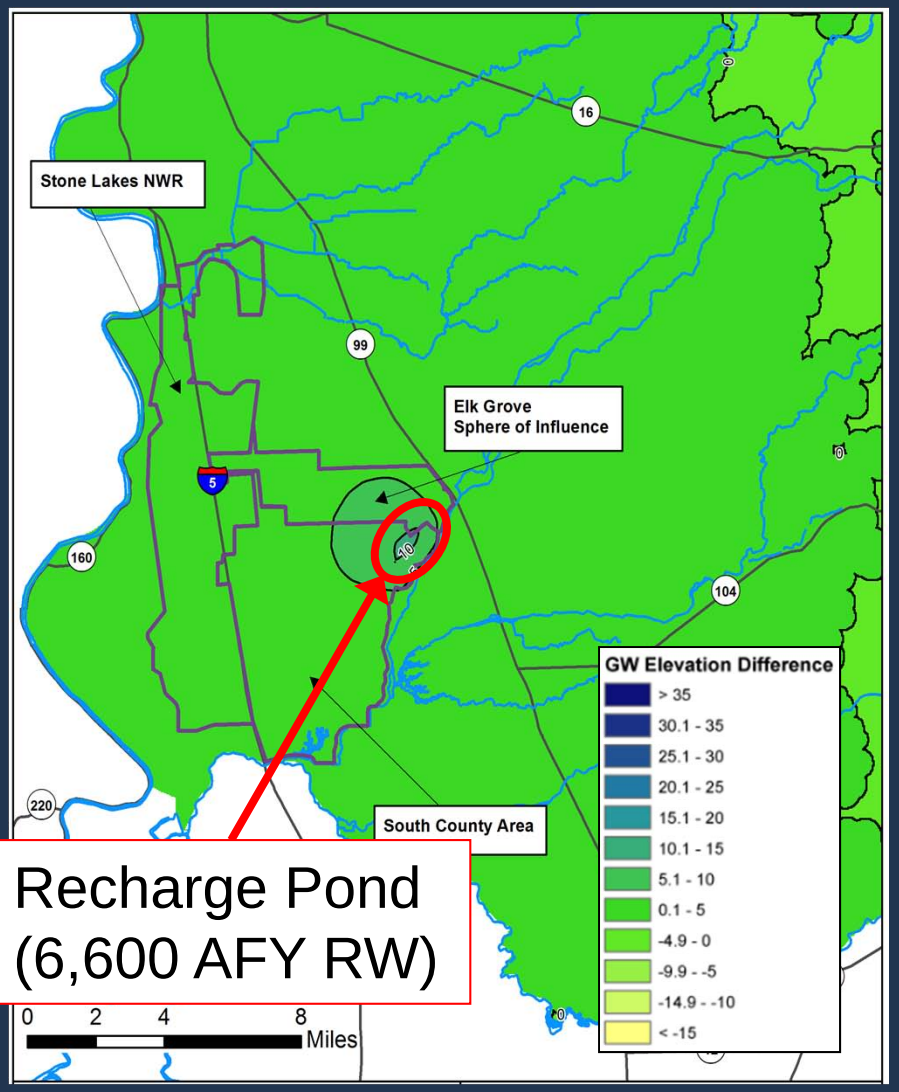
Maximum Direct Recharge (through Surface Spreading) = 1 inch/day

Groundwater Elevations – Project + Recharge Pond

Small Project (26,000 AFY RW)

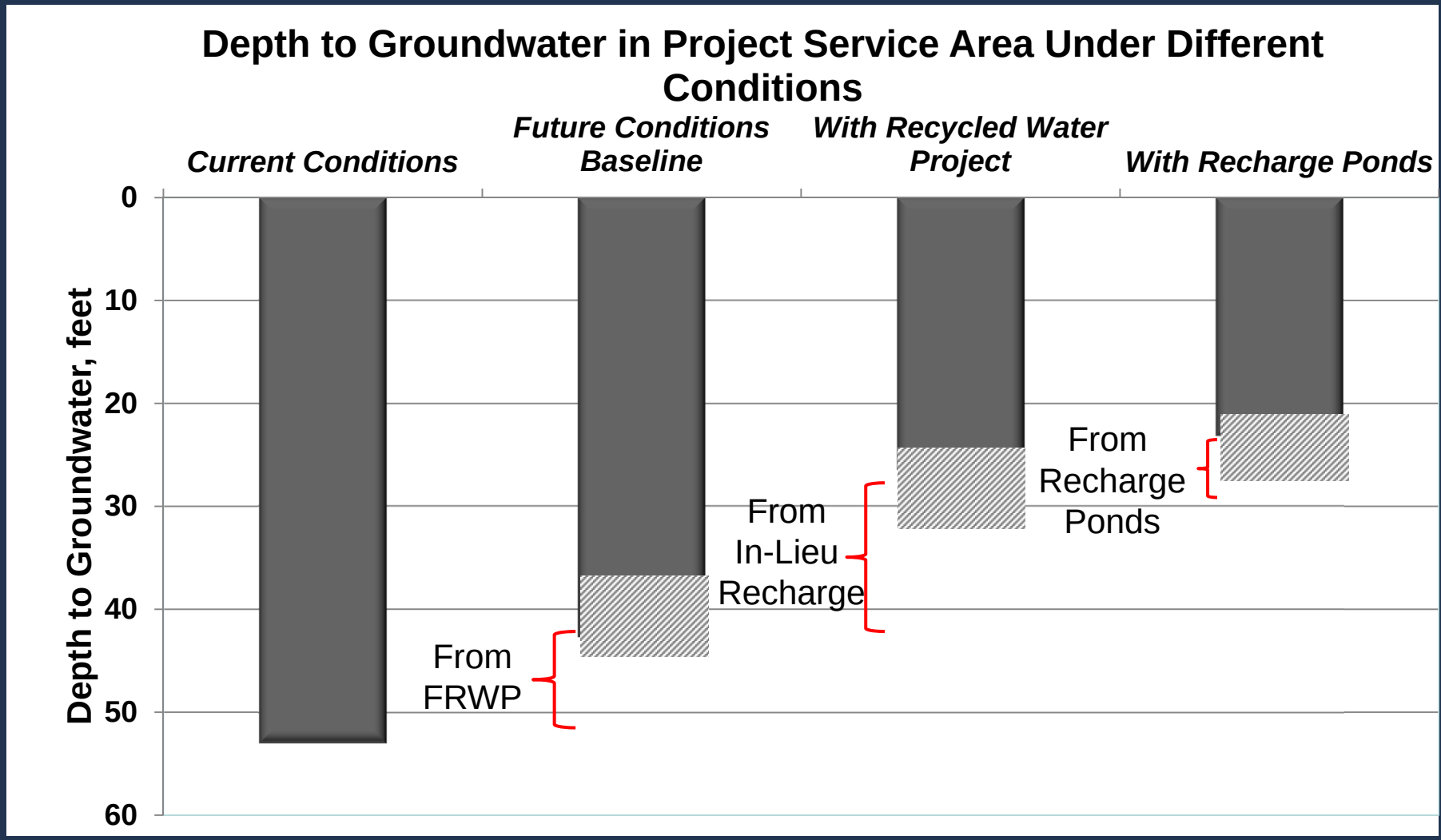


Change with Recharge Pond

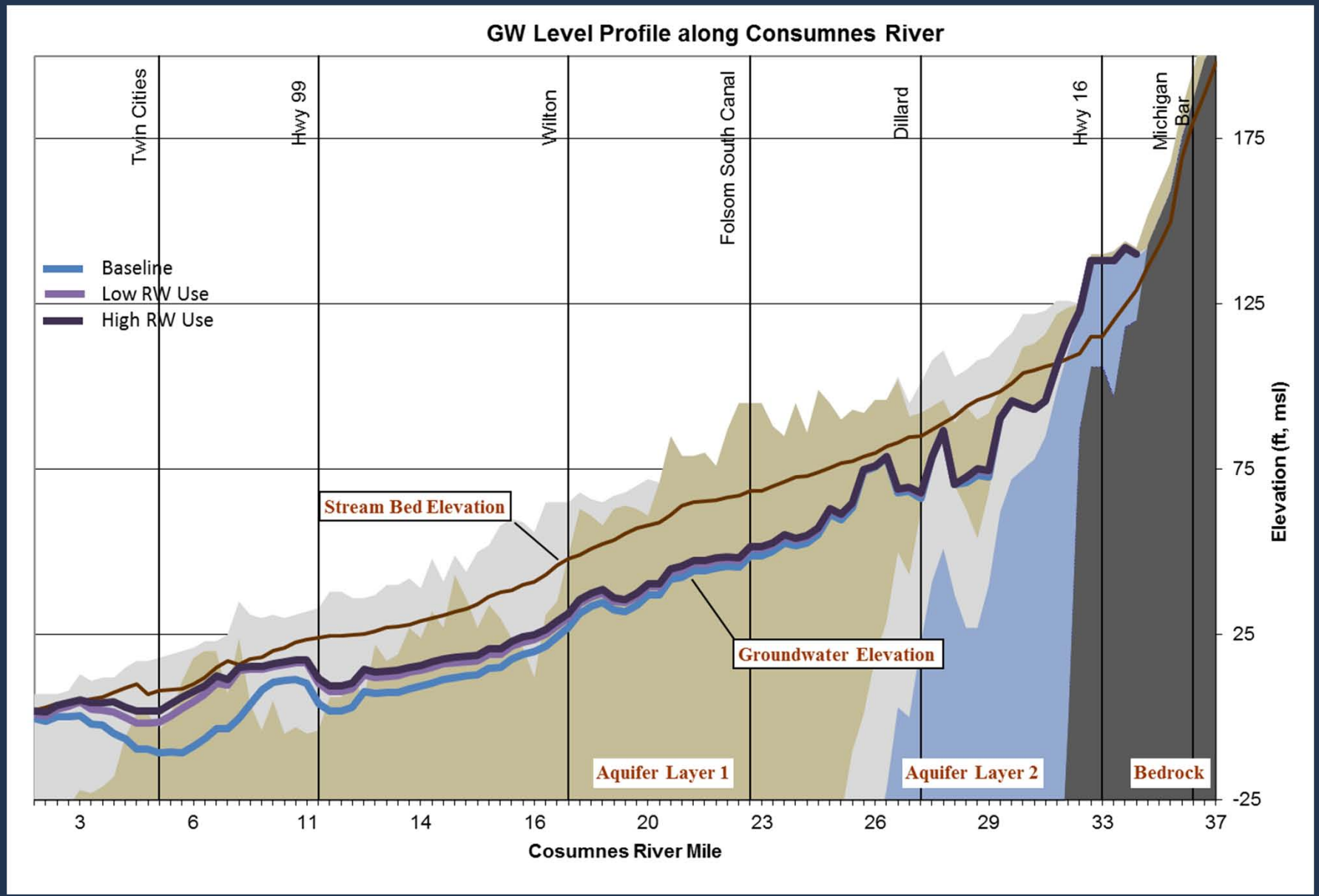


Recharge Pond
(6,600 AFY RW)

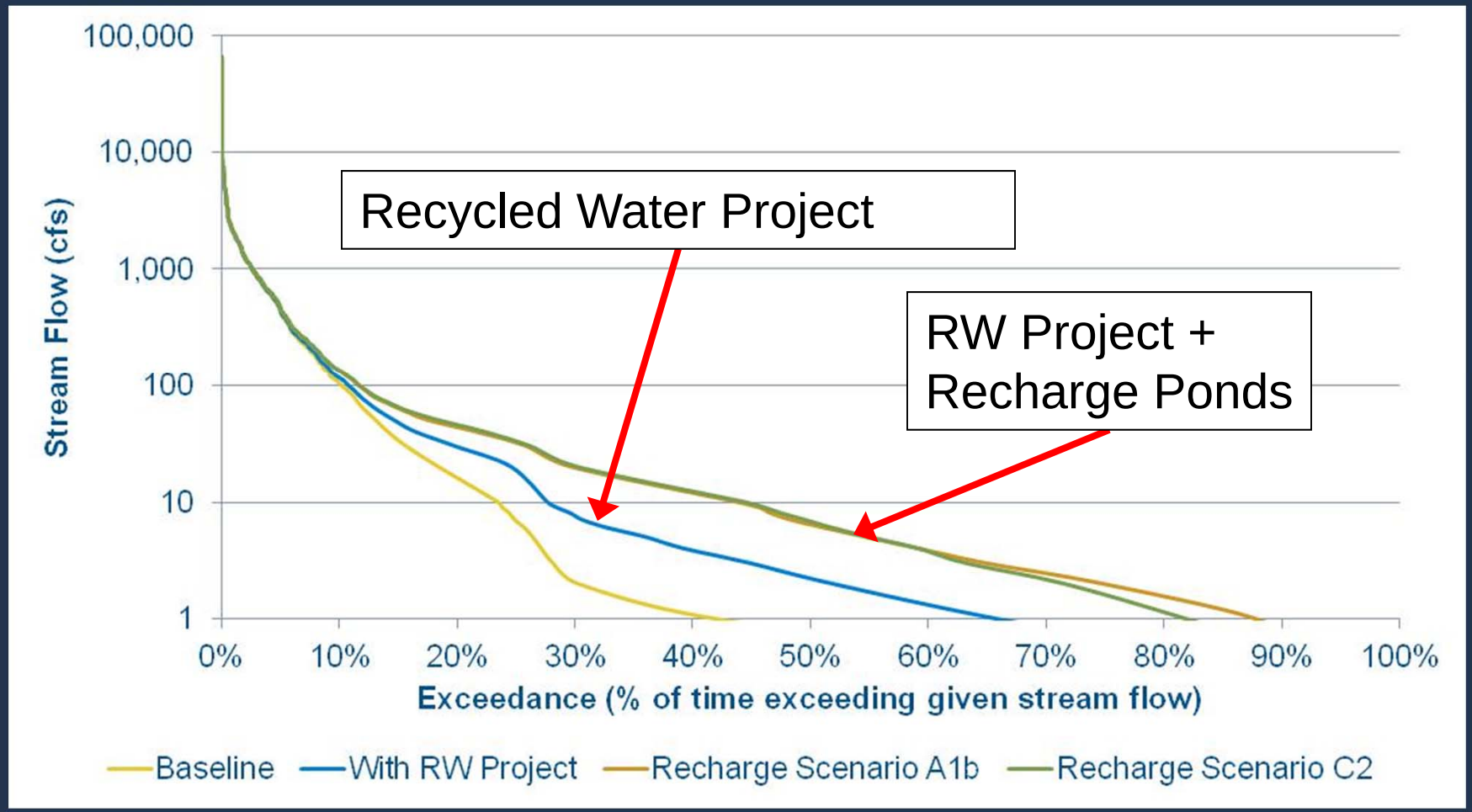
Depth to Groundwater



Effect of RW Delivery Along Cosumnes River



Impact on Fall Cosumnes River Flows



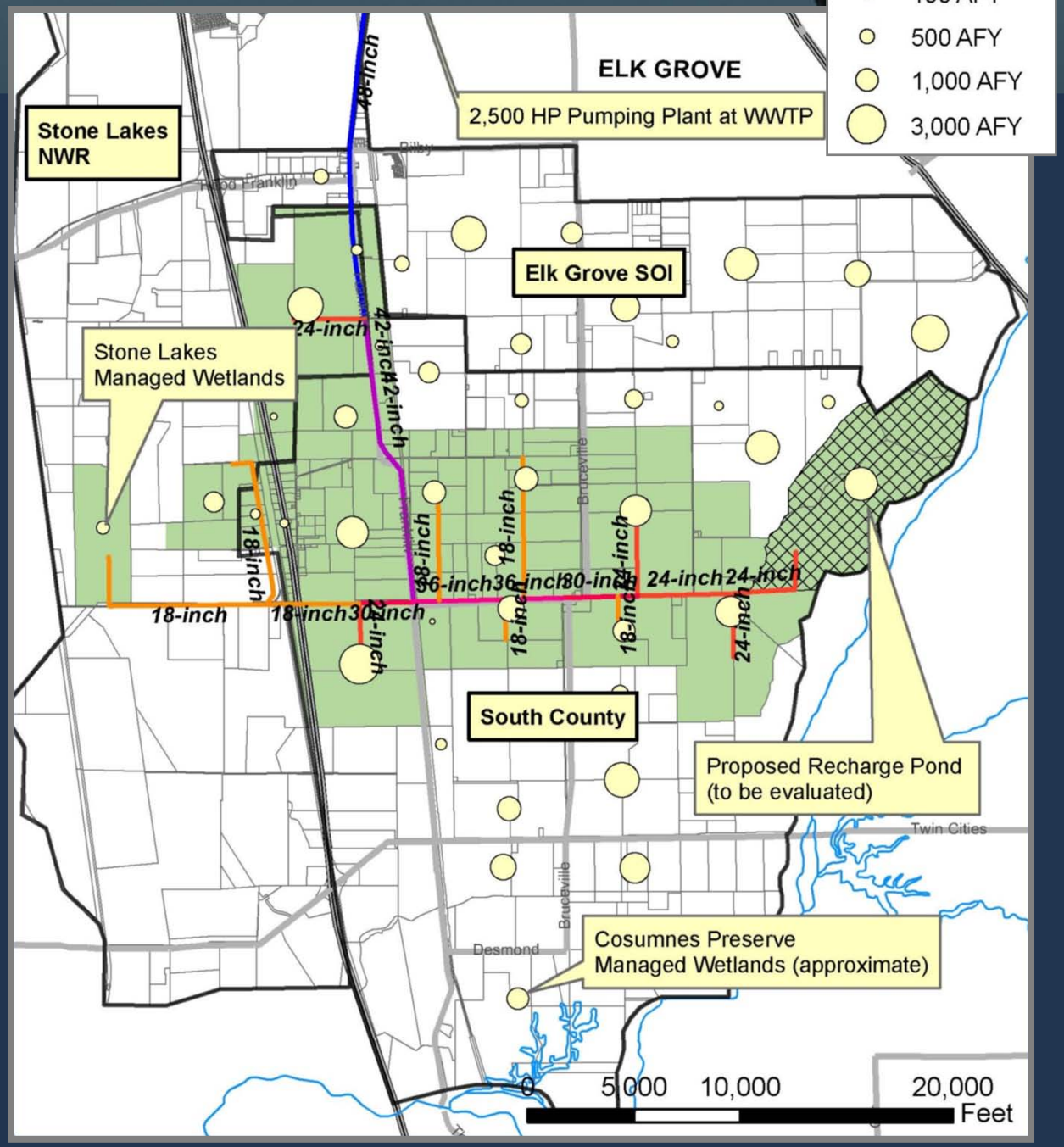
Final Alternatives being Further Evaluated

- Three Potential Project Sizes:
  - *Range notes difference of without and with recharge pond*
  - Large Project (48,000 - 53,000 AFY)
  - Medium Project (29,000 - 34,000 AFY)
  - Small Project (22,000 – 27,000 AFY)

- Alternatives include additional components:
  - Wildlife refuge demands
  - Groundwater recharge via surface spreading in a recharge pond

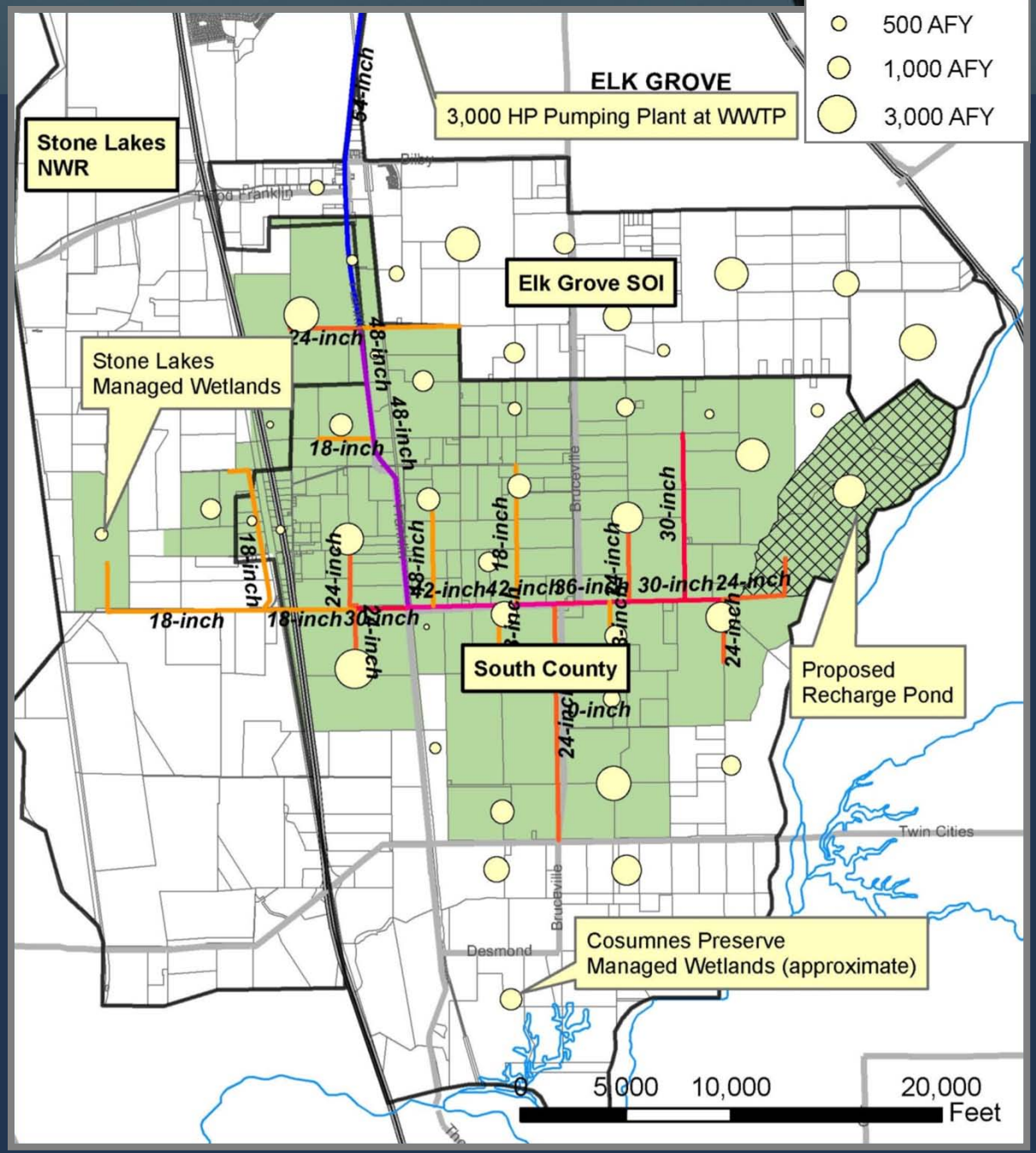
Small Project Alternative

- Irrigated Acres: 8,000 ac
- Delivered RW: 22,000 AFY
- w/ Recharge Pond: 27,000 AFY



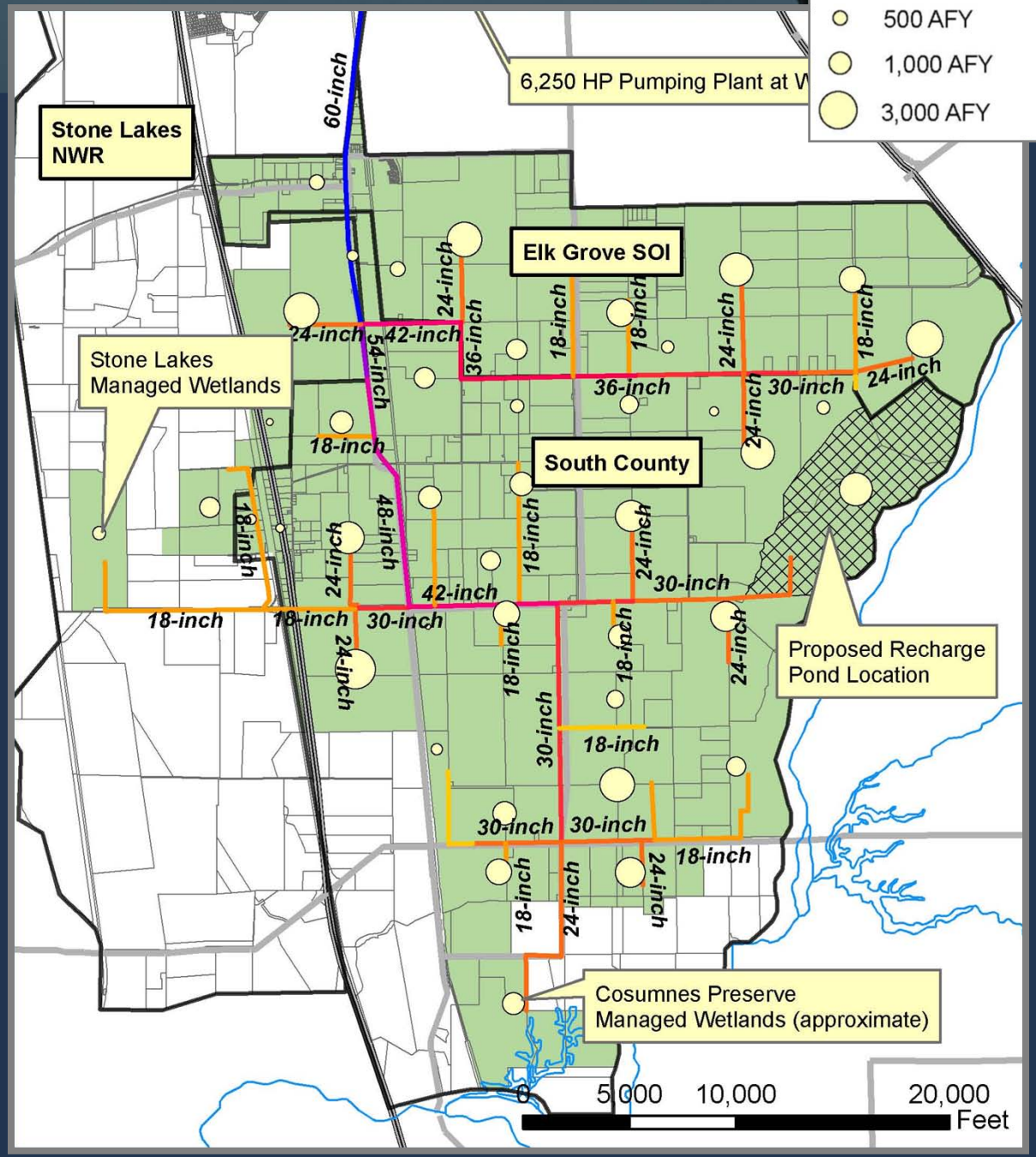
Medium Project Alternative

- Irrigated Acres: 11,000 ac
- Delivered RW: 29,000 AFY
- w/ Recharge Pond: 34,000 AFY



Large Project Alternative

- Irrigated Acres: 18,000 ac
- Delivered RW: 48,000 AFY
- w/ Recharge Pond: 53,000 AFY



Range of Costs

- Capital costs
  - $125-230 million
  - With Recharge Pond - $140-245 million
- Unit costs (Capital and O&M)
  - $380-440 per AF
  - With Recharge Pond - $360-390 per AF

Example breakdown of Capital Costs for Large Project:

LARGE PROJECT FACILITIES	COST
Pipelines	$106.2 M
Pumping Plant	$8.4 M
Service Connections – piping up to property line incl. meter	$12.8 M
SUBTOTAL	*$127.4 M*
Implementation Costs – incl. right-of-way	$46.1 M
Contingencies	$55.4 M
TOTAL	**$228.9 M**

Potential Benefits

- Reliable, drought-proof water supply
- Beneficial use of nitrogen in recycled water
- Higher groundwater levels
  - Reduced groundwater pumping costs
  - Longer pump life (reduced wear and tear)
- Increased flows in Cosumnes River
- Avoided wastewater discharges

Next Steps

Spring 2012

- River Intake Analysis (Task 3)
- Groundwater Recharge Evaluation (Task 4)
- Storage Analysis (Task 5)
- Preliminary Identification of facilities and alternatives (Task 6)

Summer 2012

- Regulatory, Legal, and Institutional Requirements (Task 7)
- Development of Alternatives and Cost Estimates (Task 8)

Fall/ Winter 2012

- Draft Feasibility Study Report
- Final Feasibility Study Report

Current Needs from SCGA

- Continued Support in the Grant Funding Efforts
- Continued Participation/Input in Planning

- Support to Develop a Water Accounting Framework for SCGA

Questions & Answers