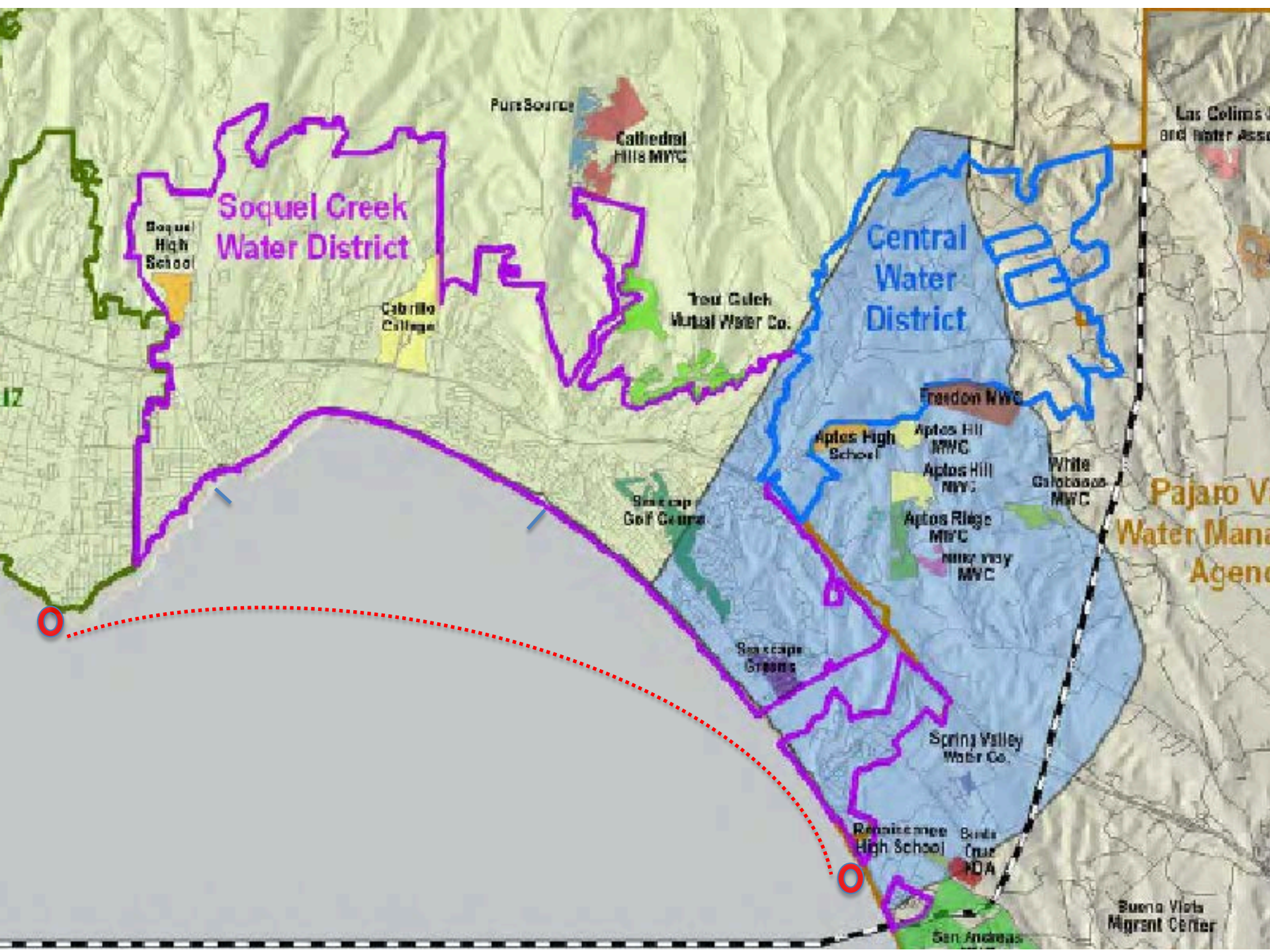


Soquel-Aptos Water

Let's get to the right questions ...





Soquel Creek Water District

Soquel High School

Cabrillo College

Pure Source

Cathedral Hills MWC

Trout Gulch Mutual Water Co.

Central Water District

Freedom MWC

Aptos High School

Aptos Hill MWC

Aptos Hill MWC

Aptos Ridge MWC

Marina MWC

White Gulch MWC

San Jose Golf Course

San Jose Greens

Spring Valley Water Co.

Renaissance High School

Santa Cruz PDA

San Andreas

Las Colinas and Water Assn

Pajaro Valley Water Management Agency

Buena Vista Migrant Center

Groundwater in Soquel and Aptos: All we've got

Water

- How much is pumped by each stakeholder group?
- How much to maintain outflows to ocean; and for recharging streams?
-
- How to better calc rural use (recharge)?
- How accurate are our measurements (rainfall, outflows, sustainable amt)?
- Are we managing the basin as an ENTIRE watershed? What about Pajaro?
-
- What is Enough water for fish?
- Enough for stream flow?

Who Gets to Use It (when scarce)

- How will we allocate our limited resources?
- Do we study further, or do we implement?
-
- What is fair/equitable? And who decides this?

Solutions

- Reduce run off to ocean
 - Permeable pavements
 - use storm drain flow for recharge
 - Store run off (quarries, ponds)
- Manage recharge efficiently across watershed
 - how do we know if mngmt is working?
 -
- Mandate water saving devices
- Recycle waste water
 - install purple pipe now: ahead of treatment capacity
 - Create recycle plant(s)

Control

- Are district wells located in optimal places? (away from ocean)
- Can we measure groundwater levels?
- What will the GSA look like?
 - How will PVMA work w local GSA?
 - How will priv well owners have a seat at table w GSA?
 - How will priv property rights be protected / balanced?

Environment

- Where is the salt water interface; what is travel time (incursion)
- 40% rainfall reduction projected?
- How do we know about recharge
- What are population impacts

On the Horizon

- What has worked elsewhere? Both well and not so well?
- Satellite measure of aquifers?

Groundwater: Deep ReCharge and Outflows

	Purissima		Aromas
	(Todd)	(Hydromtr)	
ReCharge	6,600	5,400	4,200
Outflows	1,125	775	2,320
Available	5,475	4,625	1,880

Sustainable total: **6,730 acre feet**

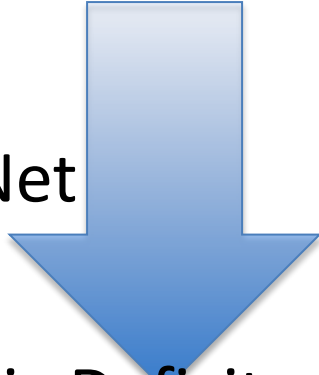
From Todd Peer Review, 2014....Hydrometrics Revised Protective Groundwater Levels, 2012

- Populations & Connections:

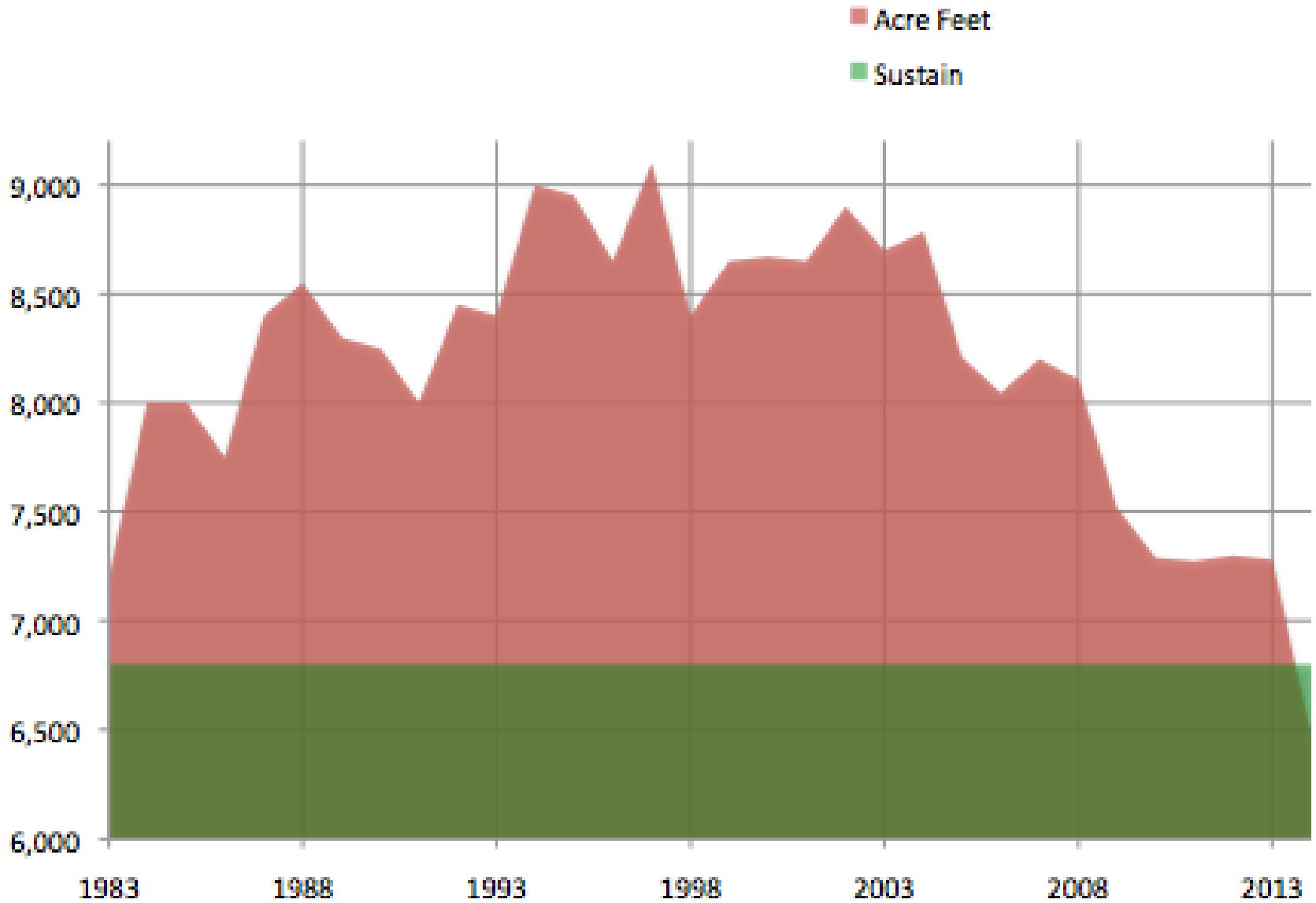
SqCWD	38,000	14,200
CWD	2,700	810
Sm Dists	1,800	670
Rural Res	5,300	2,100
Ag + Inst		125
Total	47,800	17,900

- Available Water:

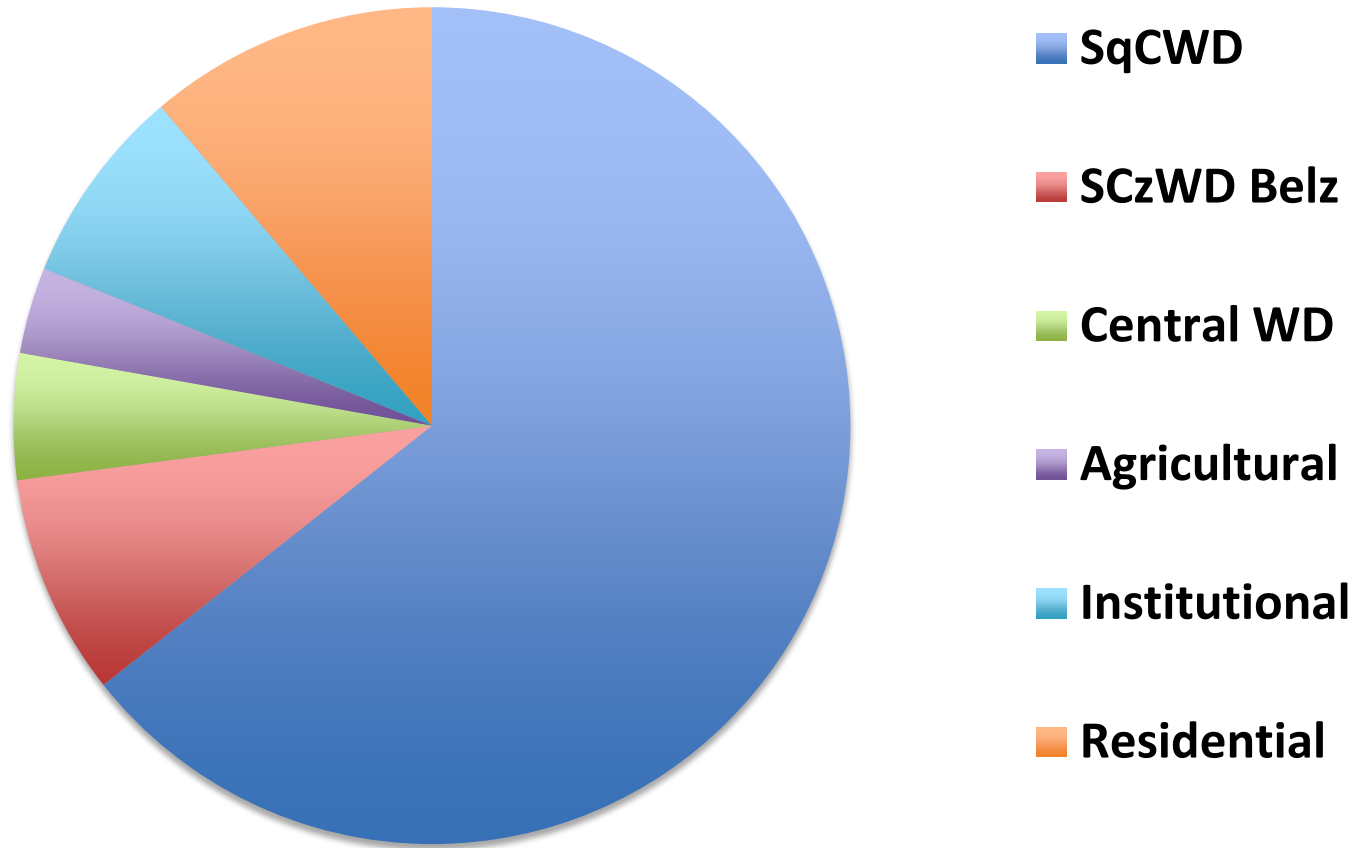
– ReCharge	10,000 AF
– Outflows	3,300
– Net	6,700
– Fix Deficit	5,500
	(for next 15 yrs)



Mid County Overpumping History



2013 Use Volumes, after recharge



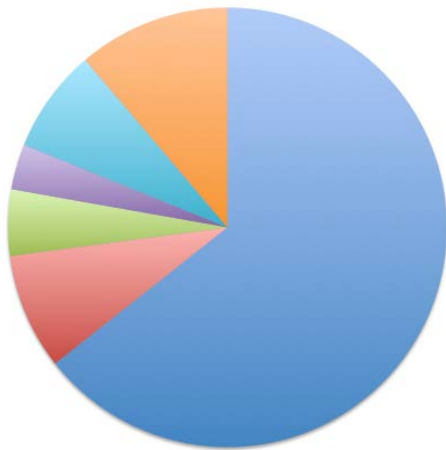
Reduced Usage

2012

2014

Pumped	7,240
w recharge	6,200

6,480
5,450



Groundwater in Soquel and Aptos: All we've got

Water

- How much is there?
 - 10,000 AFy w normal rainfall
 - 6700 available per hydrology
 - 7200 pumped – 6200 w rechg
 - Deficit: 25+ yrs of overpumping
 - Current use
 - 75% SqCWD + SCzWD + CWD
 - 13 % Rural Residences
 - 12% Ag, Golf, Cabrillo
 - How much recharged yrly?
 - 10% of rainfall > 15"
- = Aquifers
- Purisima 66%. Stratified
 - Aromas 33%. Porous
- = Water Model?

Who Gets to Use It (when scarce)

- Land owners
 - Residential
 - Agricultural
 - Institutional
- Nature (regulators)
- Water districts
- Schools, parks

- Reasonable + Beneficial

Solutions

- Conserve
 - we're top tier on this already
- Transfer
 - Excess S Lorenzo winter flow
 - regulatory & ownership issues
- Re-Cycle
 - SqCWD is moving on this
 - Difficulties in injecting into Puris
- Buy
 - ??
 - transport costs
- Make
 - Deep DeSal
 - transport costs

Control

- State
- County
- Community
-
- Muni Water Dists
- Basin Sustain Agency
- PVWMA

Environment

- Drought
- Planned development?
- Salt interface?
- Climate change
- Sea level rise

On the Horizon

- How will SCz & PVWMA affect Mid Co?
- How and who will pay for new supply?
- What has worked elsewhere?
- Change in projected rainfall?
- Fracking?

--- end ---

Pose the Key Questions

- How the groundwater cycle works
- Understand user profiles – who & how much
- Who influences or controls usage
- What is coming over the horizon
- Consequences of our various solution sets

Let's use a simple model...

Groundwater in Soquel and Aptos: All we've got

Water

- How much is there?
- Where does it come from?
- How much gets recharged each year?
- What is current use?
- Who uses it?
-
- Detailed Water Model?

Who Gets to Use It (when scarce)

- Land owners?
- Water districts?
- Schools?
- Agriculture?

- Reasonable + Beneficial
- How do we decide?

Solutions

- Conserve

- Transfer

- Re-Cycle

- Make

- Buy

Control

- State
- County
- Community

- Muni Water Dists
- Basin Impl Group
- New Sustainability Agency

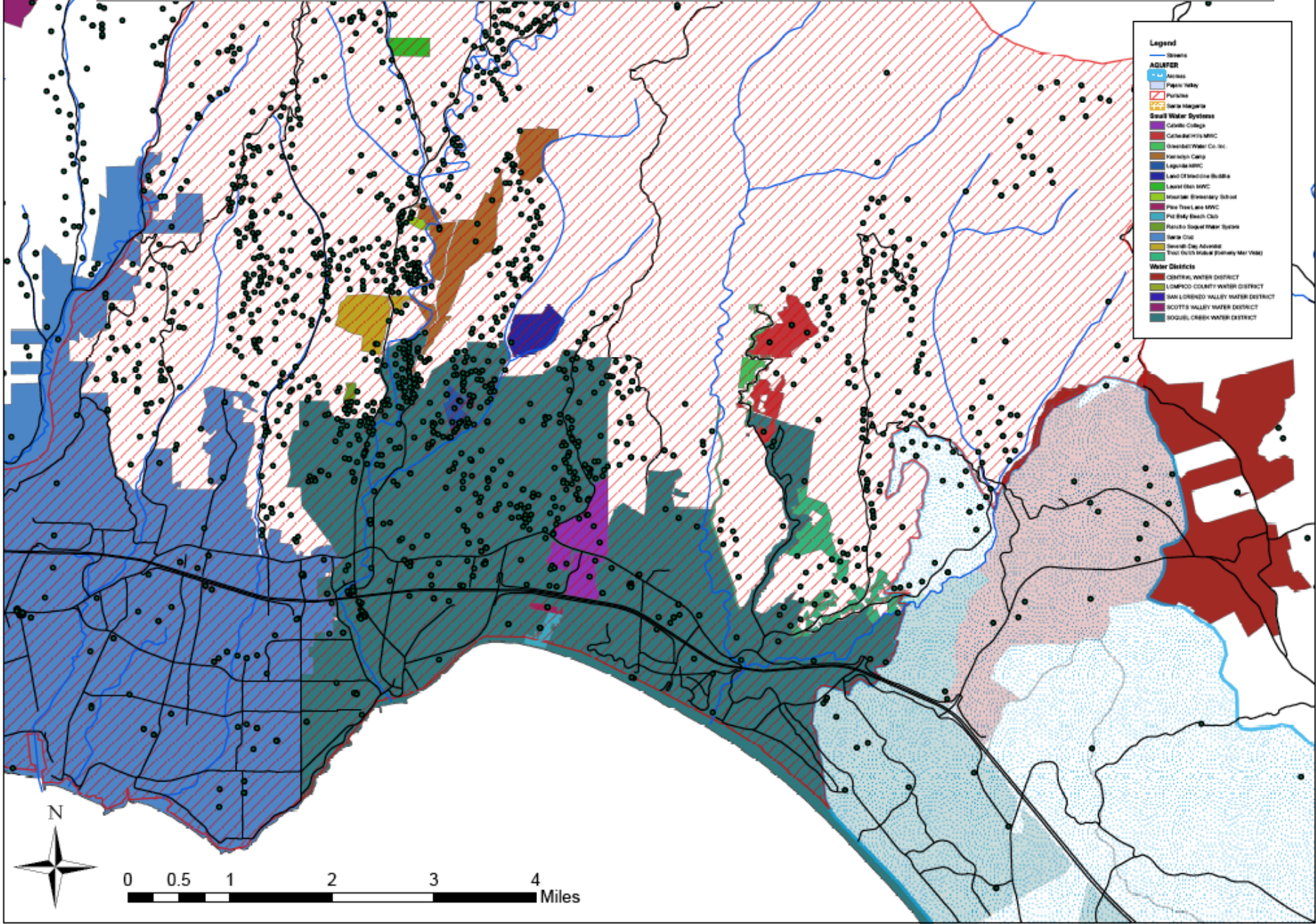
Environment

- Drought
- Planned development
- Salt interface
- Climate change
- Sea level rise

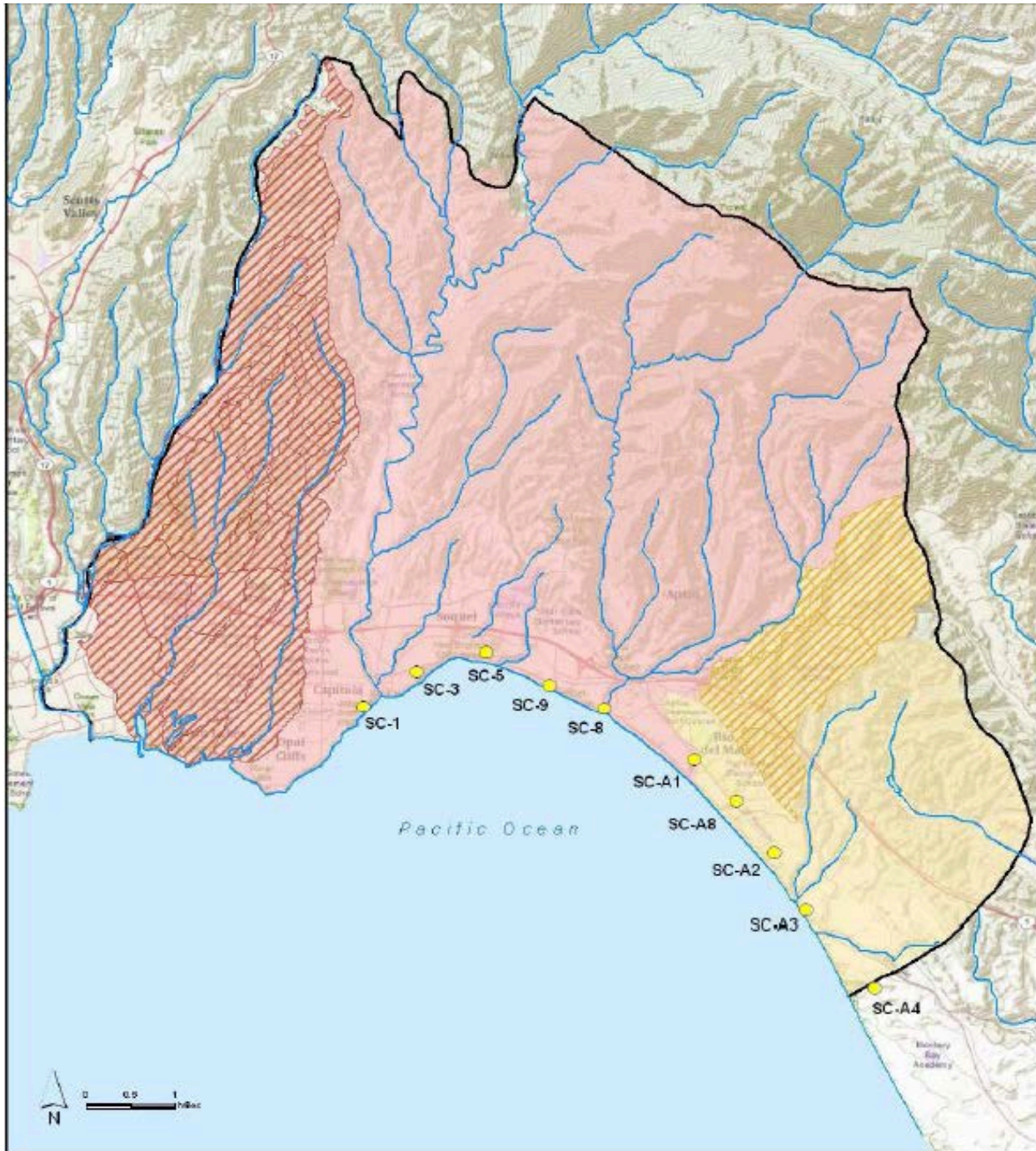
On the Horizon

- How and who will pay for new supply?
- What has worked elsewhere?
- Change in projected rainfall?

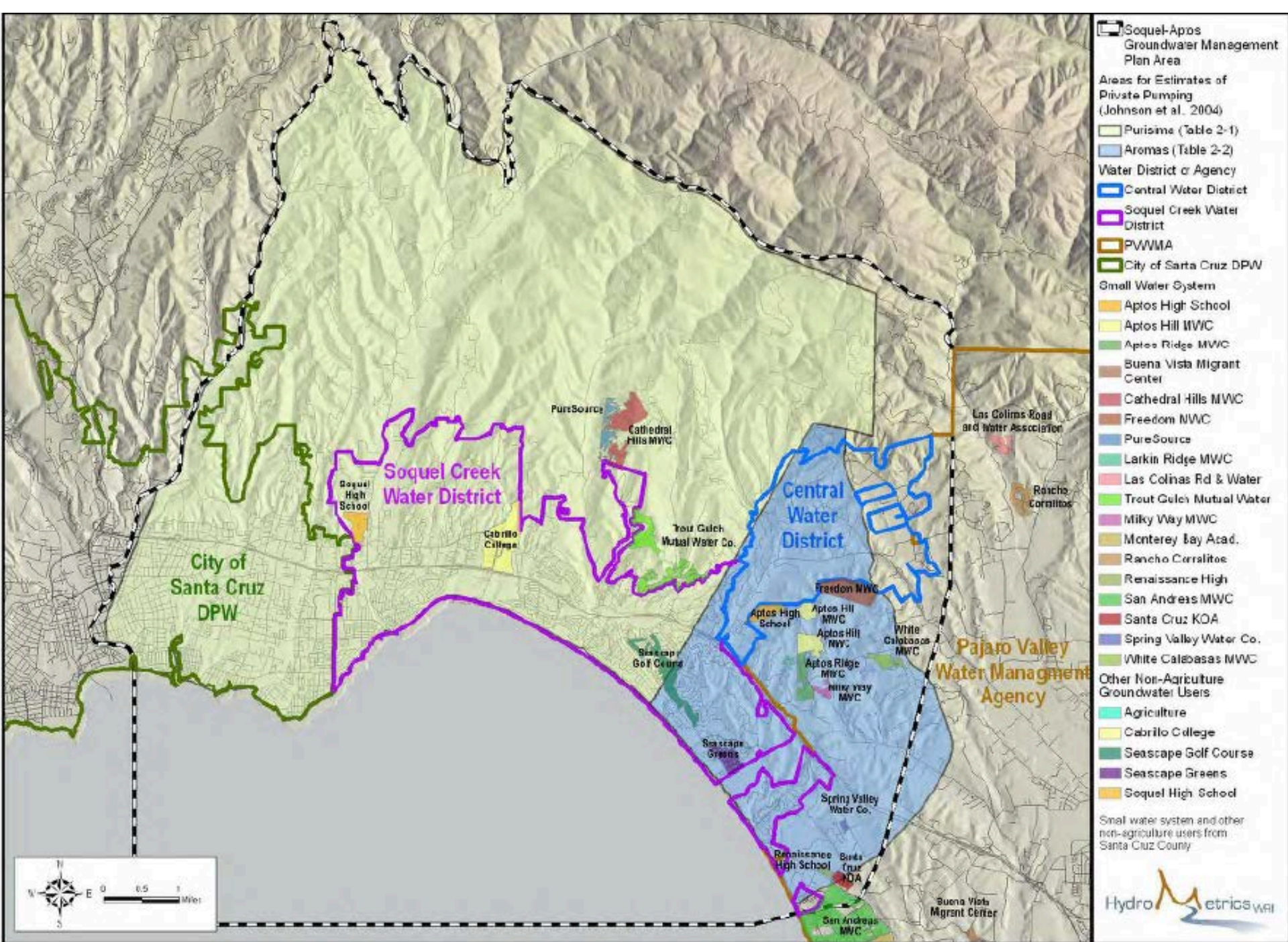
Mid-County Water Districts & Private Wells

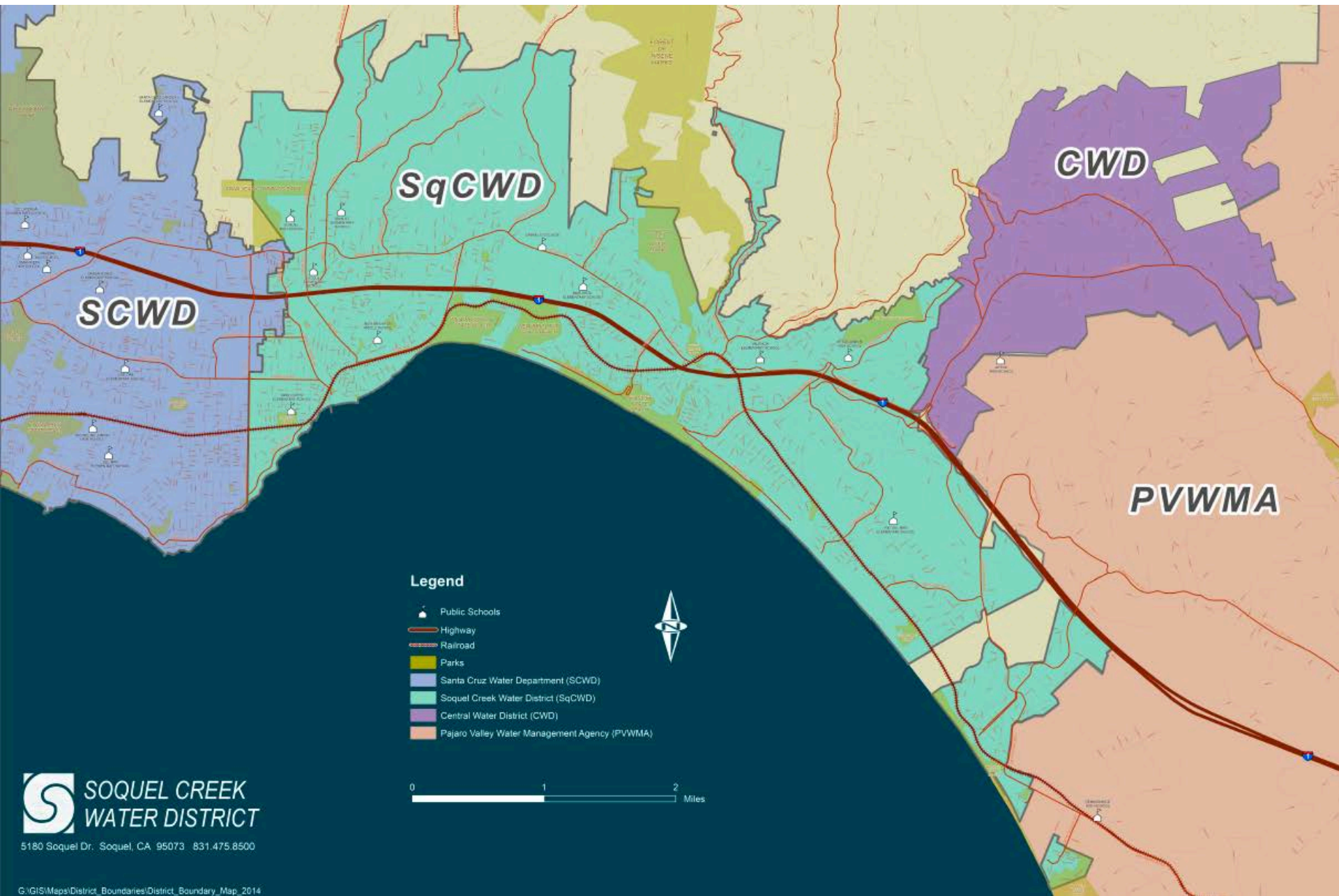


0 0.5 1 2 3 4 Miles



- Study Area
- Coastal Monitoring Well





 **SOQUEL CREEK
WATER DISTRICT**

5180 Soquel Dr. Soquel, CA 95073 831.475.8500