

# Stakeholder Driven Water Resources Management, Pajaro Valley Groundwater Basin

Santa Cruz Mid-County Groundwater Sustainability Plan  
Advisory Committee

December 12, 2018

Brian Lockwood, PG, CHg  
General Manager



***Pajaro Valley***  
***Water Management Agency***

# Presentation Overview

- Acknowledgements
- Background
- SGMA
- Basin Management Planning
- Funding Management Activities
- Summary



# Pajaro Valley Water Management Agency

- Formed by the CA State Legislature in 1984 – “Agency Act”
- Our Job: Achieve Sustainable Groundwater Resources
- Multi-jurisdictional: City of Watsonville, parts of Santa Cruz, Monterey and San Benito Counties
- Basin Management Planning, Well Metering, Hydrologic Modeling, Supplemental Water, Conservation





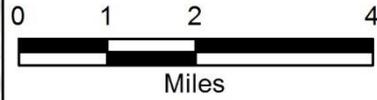
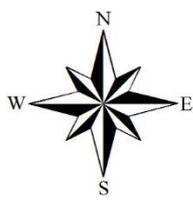
# PV Water Directors Four Elected & Three Appointed

- Javier Zamora, MoCo
- Tom Broz, SCCo
- Vacant, CoW

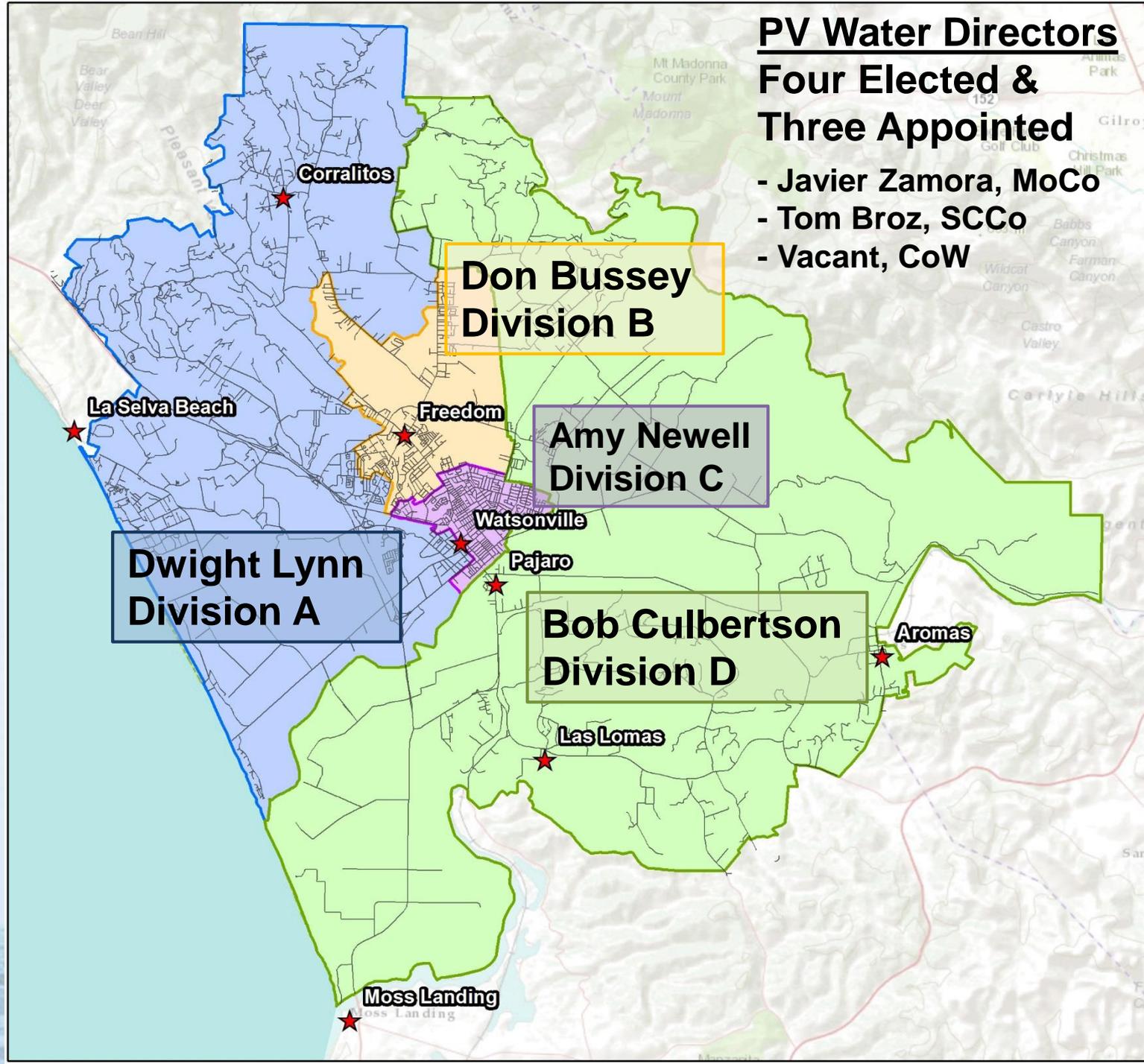
## Electoral Divisions

### Explanation

- ★ Cities & Towns
- Streets
- Division A
- Division B
- Division C
- Division D



**Pajaro Valley**  
Water Management Agency

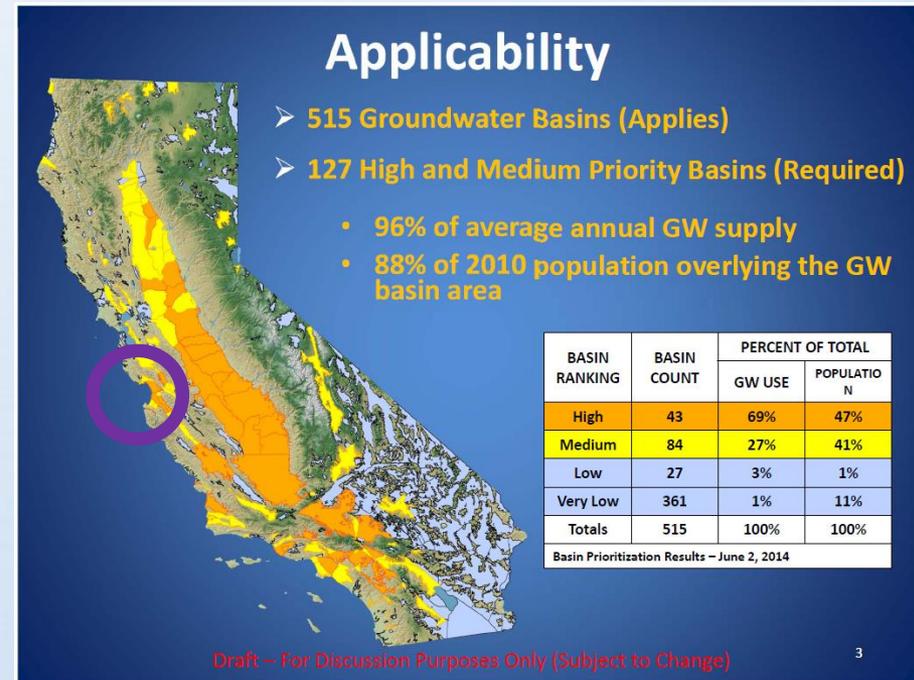




# Sustainable Groundwater Management Act

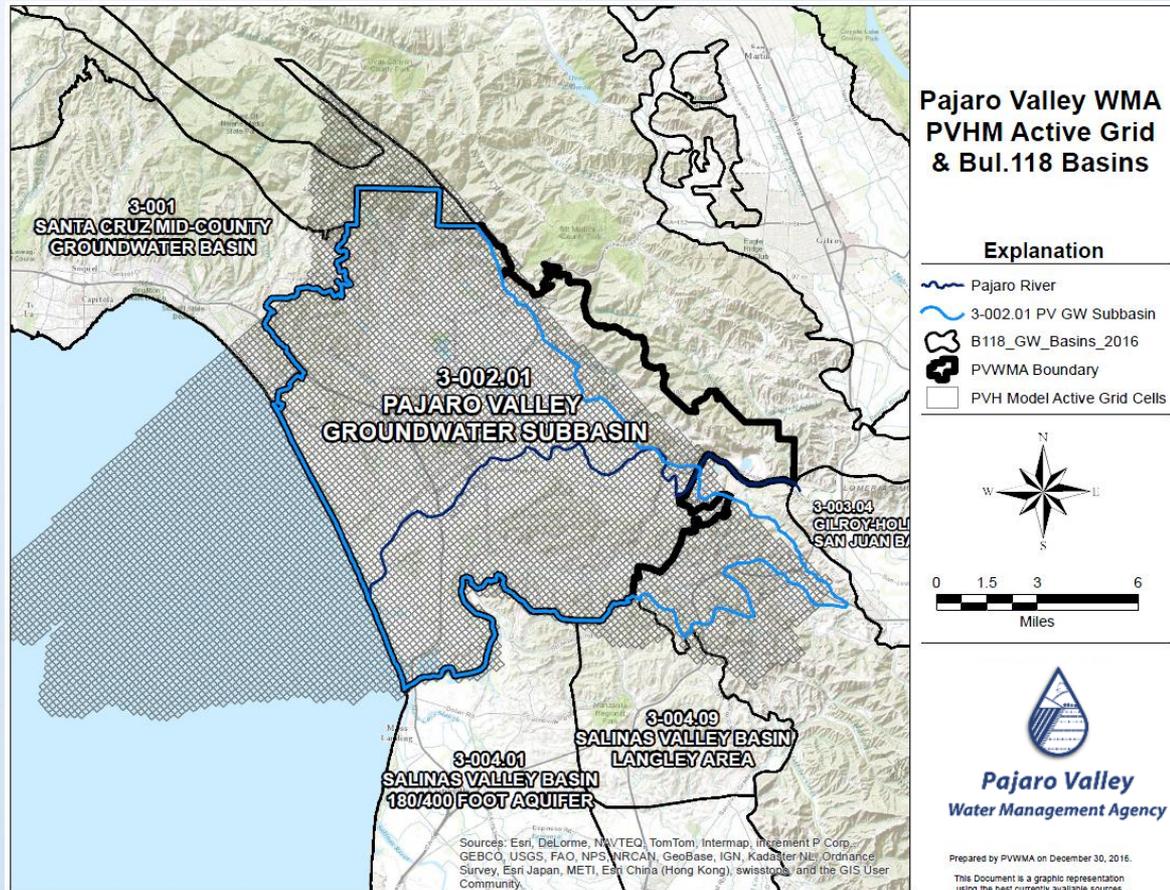
# Sustainable Groundwater Management Act

- The Sustainable Groundwater Management Act or SGMA (September 2014) requires that high priority, critically overdrafted groundwater basins such as the Pajaro Valley be brought into balance by 2040.
- *If not, the State Water Resources Control Board may intervene and may impose pumping restrictions.*



# Pajaro Valley Water & SGMA

- PV Water Est. 1984
- Basin Management Plans (aka Groundwater Sustainability Plan???) in 1999, 2002, 2014
- SGMA Adopted, Fall 2014
- Groundwater Sustainability Agency, Fall 2015
- Basin Boundary Modification, Spring 2016
- Groundwater Sustainability Plan - Alternative Submittal, Winter 2016
- Prop. 1 Sustainable Groundwater Planning Grant - \$1.5 million, Spring 2018, pending Alternative





## State of the Basin

# Pajaro Valley Land Use Summer 2018

## Ag-Economy

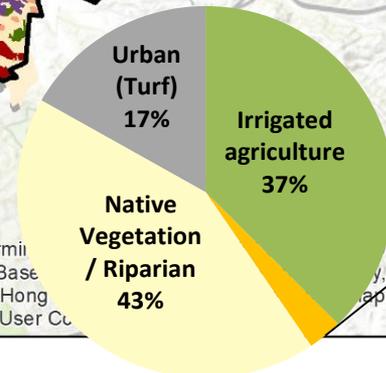
>28,000 Irrig Acres  
-  
Est. Crop Value  
\$1,000,000,000

### Explanation

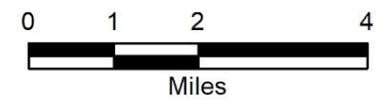
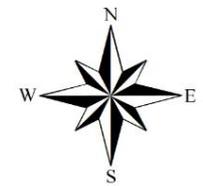
-  San Andreas Fault Trace
-  Pajaro River
-  Waterbody
-  PV Water Boundary

### Land Use Classifications

-  Native Vegetation / Riparian
-  Turf (Urban)
-  Fallow
-  Vegetable Row Crops
-  Strawberries
-  Caneberries
-  Vines
-  Orchards
-  Other



Prepared by PV Water on August 3, 2018. This document is a graphic representation developed using the best currently available data sources & professional judgement.

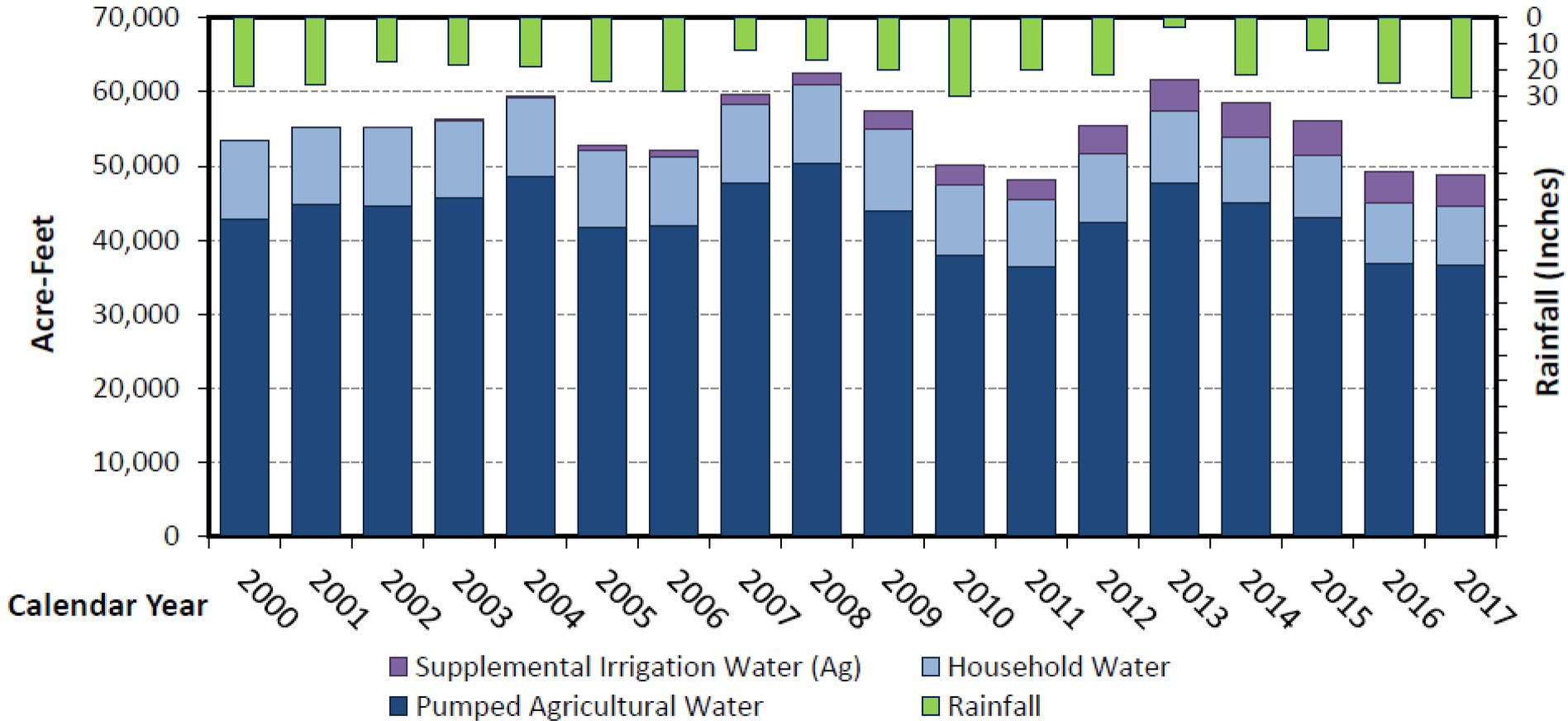


Sources: Esri, HERE, Garmin, FAO, NPS, NRCAN, GeoBase, Japan, METI, Esri China (Hong Kong), contributors, and the GIS User Community



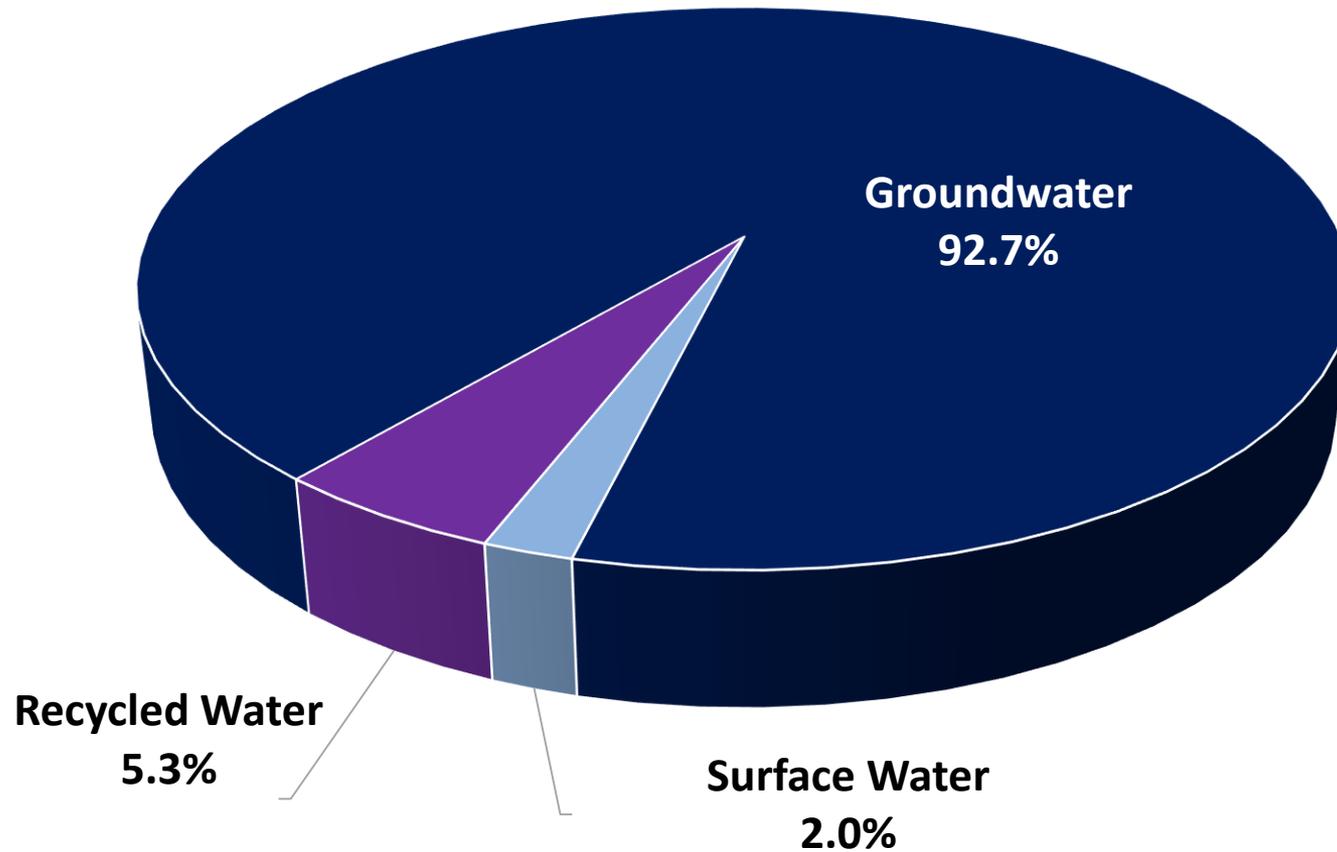


## Water Use and Precipitation Trends Pajaro Valley 2000 - 2017



# Pajaro Valley Water Sources

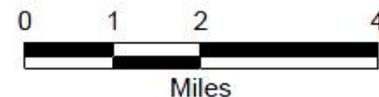
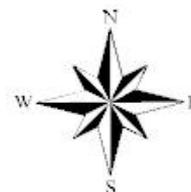
## 49,445 acre-feet of water use in 2017



# Pajaro Basin Groundwater Elevation Fall 2016

## Explanation

-  San Andreas Fault
-  PVWMA Boundary
- Groundwater Contours (ft-msl)**
  -  Above Sea Level
  -  Sea Level
  -  Below Sea Level



**Pajaro Valley**  
**Water Management Agency**

Prepared by PVWMA on March 24, 2017.  
This Document is a graphic representation developed using  
the best currently available data sources & professional judgement.

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

# Pajaro Valley Basin Groundwater Elevation Spring 2017

## Explanation

-  San Andreas Fault
-  PV Water Boundary
- Groundwater Contours (ft-msl)**
-  Above Sea Level
-  Sea Level
-  Below Sea Level



**Pajaro Valley**  
**Water Management Agency**

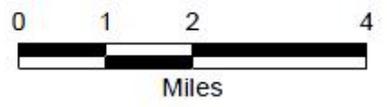
Prepared by PV Water on March 19, 2018.  
This Document is a graphic representation developed using  
the best currently available data sources & professional judgement.

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

# Pajaro Valley Basin Groundwater Elevation Fall 2017

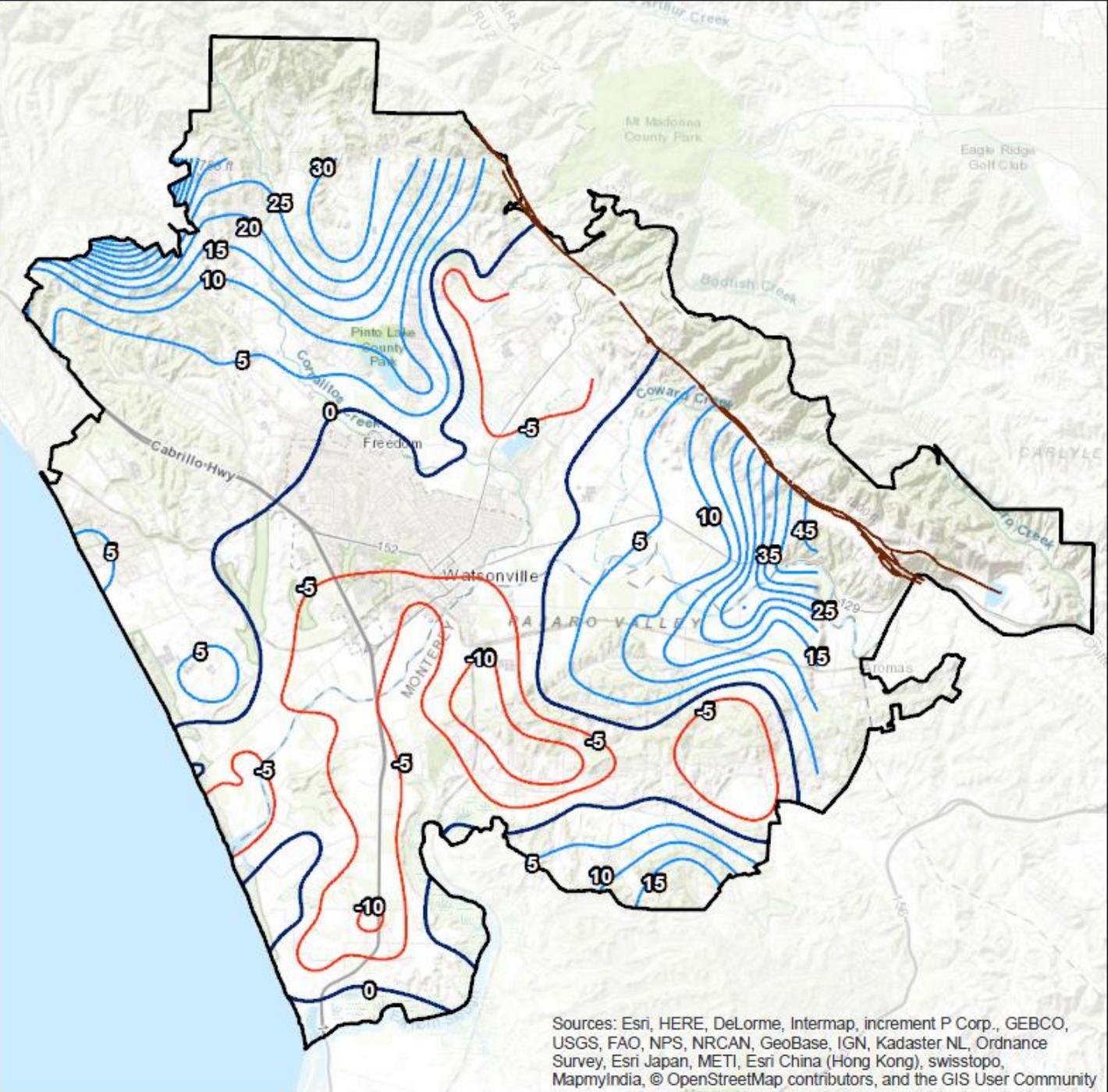
## Explanation

-  San Andreas Fault
-  PV Water Boundary
- Groundwater Contours (ft-msl)**
-  Above Sea Level
-  Sea Level
-  Below Sea Level



**Pajaro Valley**  
**Water Management Agency**

Prepared by PV Water on March 19, 2018.  
This Document is a graphic representation developed using the best currently available data sources & professional judgement.



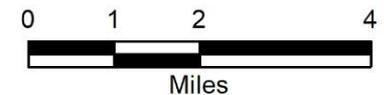
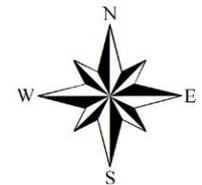
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

# Seawater Intrusion within the Pajaro Valley

## Explanation

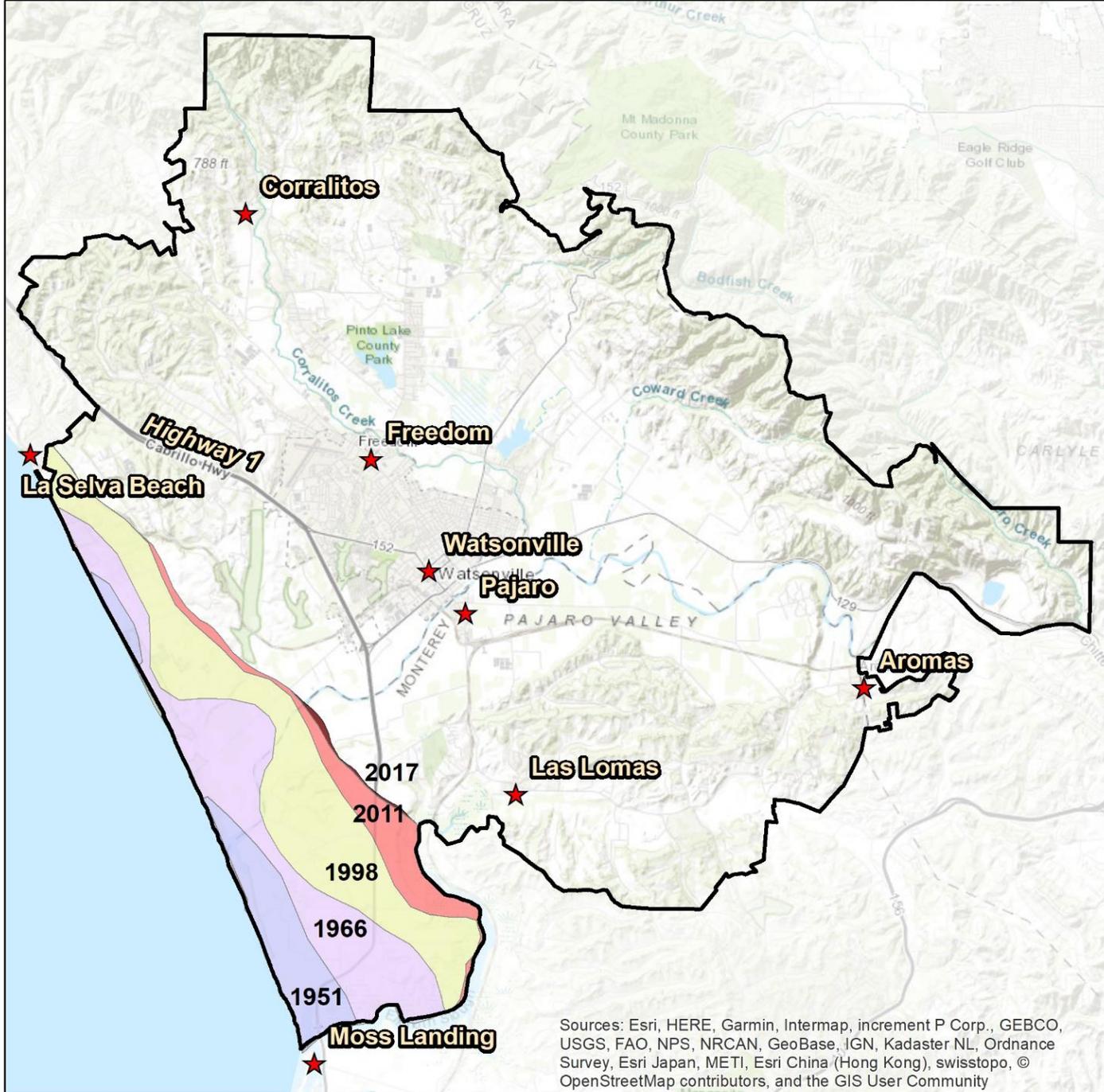
-  Cities & Towns
-  PV Water Boundary
-  Extent of SWI as of 1951\*
-  Extent of SWI as of 1966\*
-  Extent of SWI as of 1998\*
-  Extent of SWI as of 2011\*
-  Extent of SWI as of 2017\*

\*Extent of SWI area represents chloride concentrations of 100 mg/L or greater



**Pajaro Valley**  
Water Management Agency

Prepared by PV Water on August 1, 2018. This document is a graphic representation developed using the best currently available data sources & professional judgement.



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

# Pajaro Basin Chloride Concentration in Groundwater

## Explanation

-  Cities & Towns
-  Coastal Distribution System
-  Proposed K1 Alignment
-  Delivered Water Zone
-  PVWMA Boundary

## Chloride

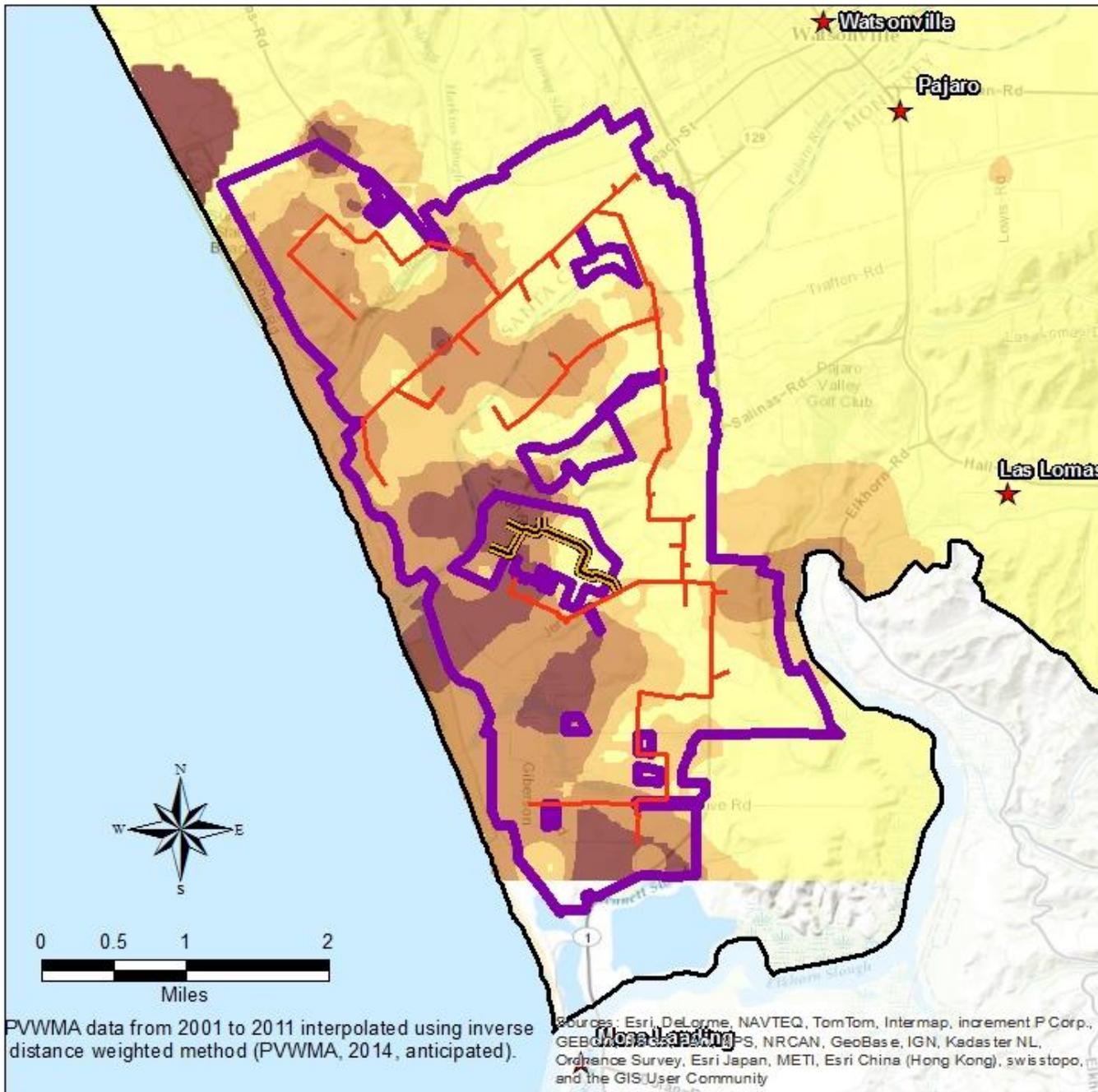
### Max Concentration (mg/L)

-  8 - 100
-  101 - 250
-  251 - 500
-  >500



**Pajaro Valley**  
Water Management Agency

Genr\_Max\_Chloride\_Dlg\_04-10-2014

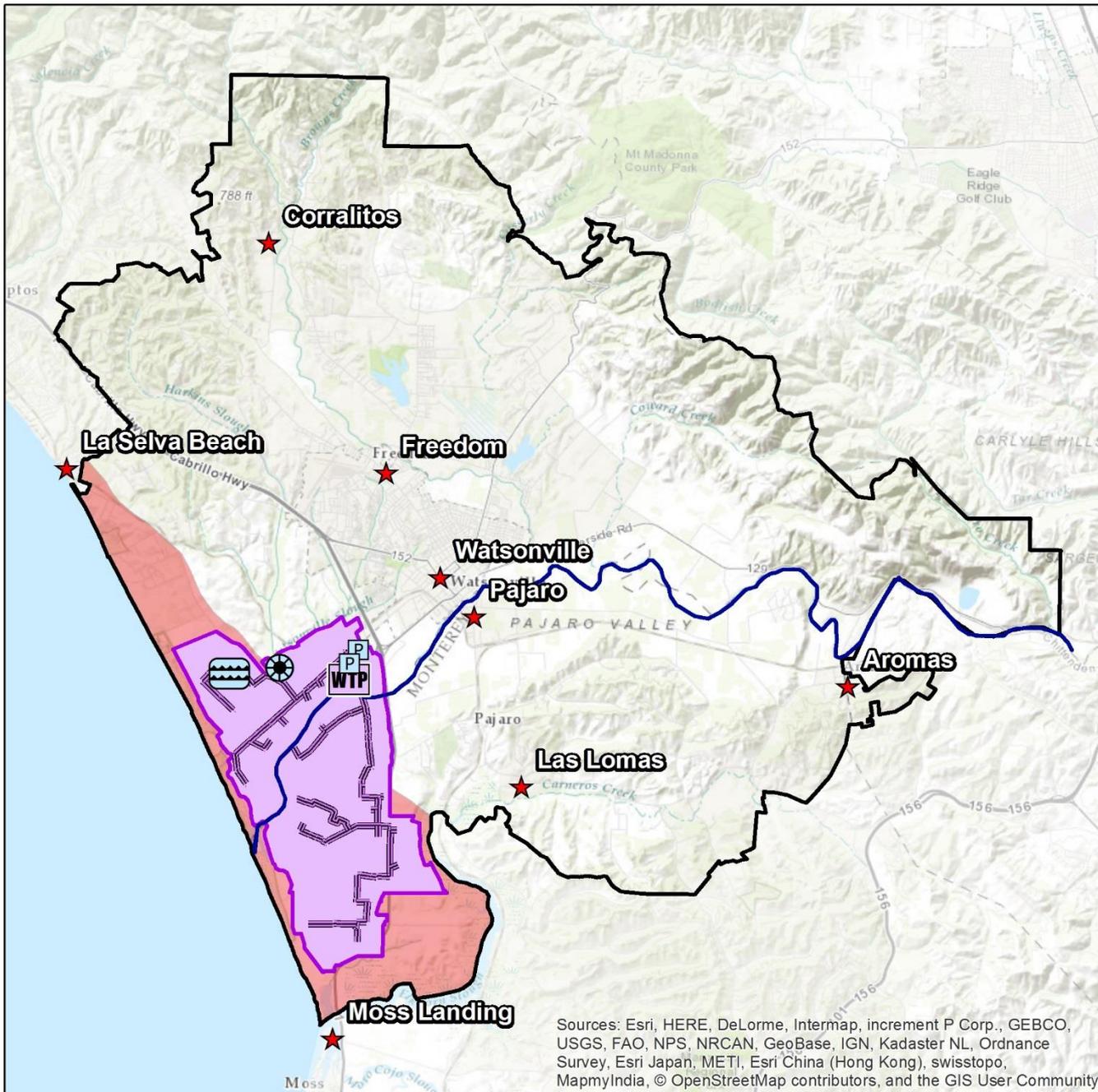


PVWMA data from 2001 to 2011 interpolated using inverse distance weighted method (PVWMA, 2014, anticipated).

Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, Swisstopo, SRTM30 PLUS, NRCAN, GeoBas e, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community



## Existing Water Supply Facilities

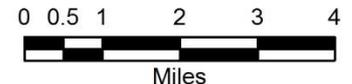


# Water Supply Facilities & Seawater Intrusion

## Explanation

-  Blend Wells
-  Harkins Slough Diversion
-  Recharge Basin
-  Recycled Water Facility
-  Coastal Distribution System
-  Pajaro River
-  Delivered Water Zone
-  PVWMA Boundary
-  Seawater Intrusion\*

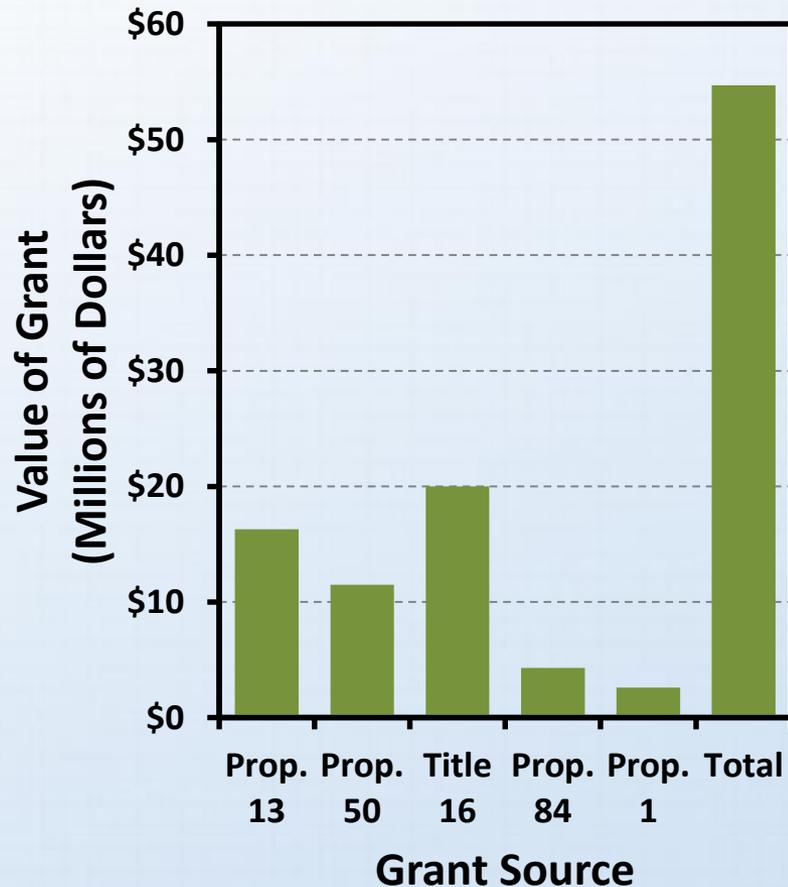
\*Chloride > 100 mg/L in 2011



**Pajaro Valley**  
Water Management Agency

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

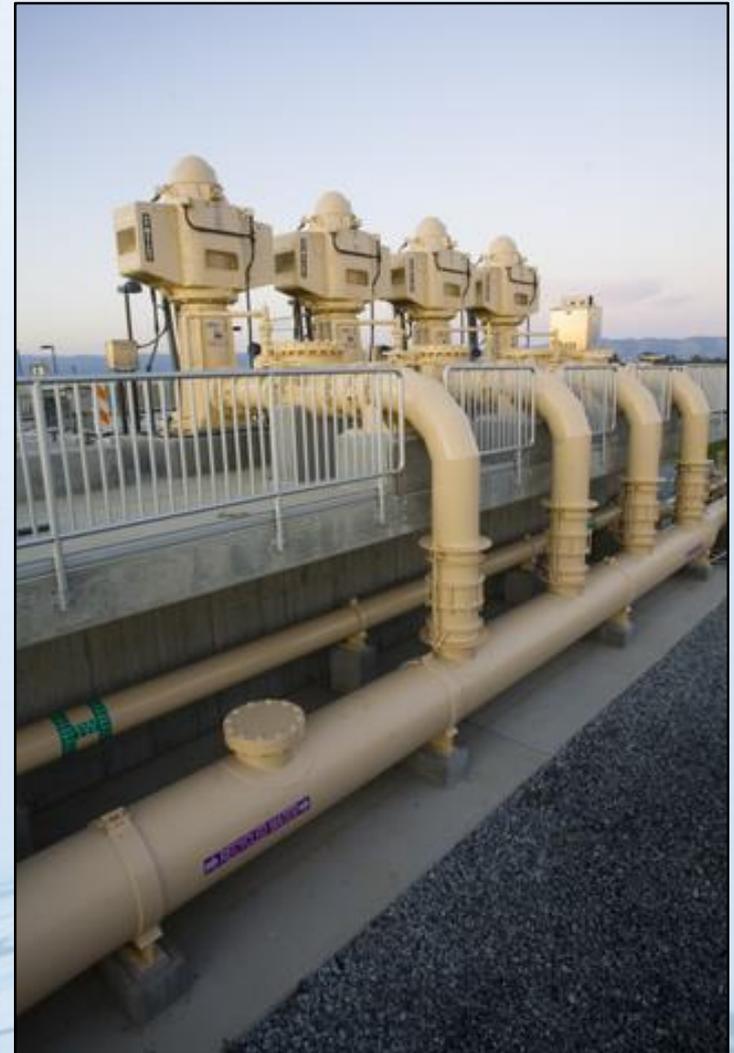
# Grants to Fund Water Supply Projects



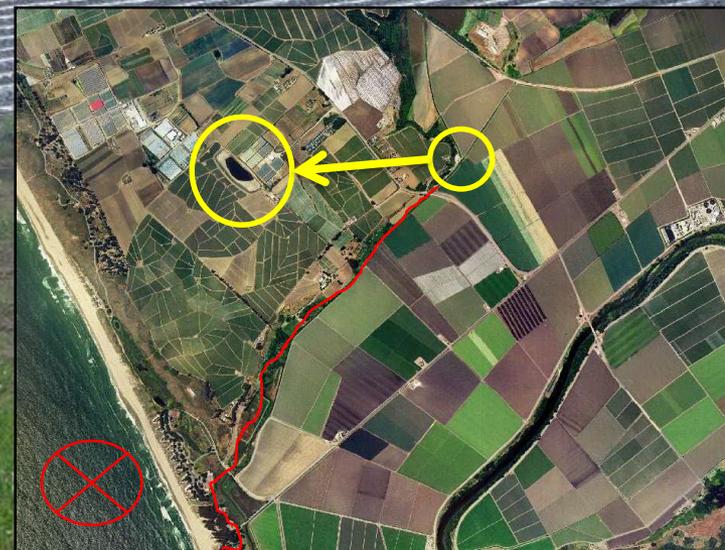
- Approximately half of constructed project costs were funded through grants
- PV Water projects, which focus on water conservation and optimize use of local resources, are competitive for federal and state funding

# Existing Water Supply Facilities to Reduce Overdraft & Seawater Intrusion

- **Harkins Slough Facility**
  - Managed Aquifer Recharge & Recovery
  - Stream flow diversion
  - 8,000 AF recharged since 2002
- **Recycled Water Facility**
  - 4,000 AFY irrigation season capacity
  - Drought tolerant supply
  - Reduces discharge of secondary effluent to marine sanctuary
- **Coastal Distribution System**
  - Over 21 miles of water conveyance pipeline
- **Blend Supplies**



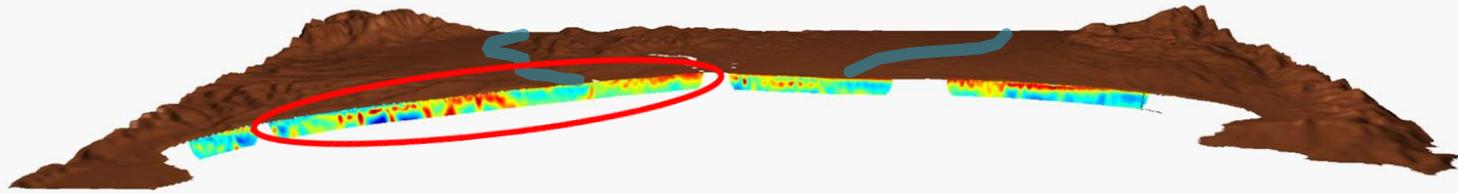
# Harkins Slough Managed Aquifer Recharge & Recovery



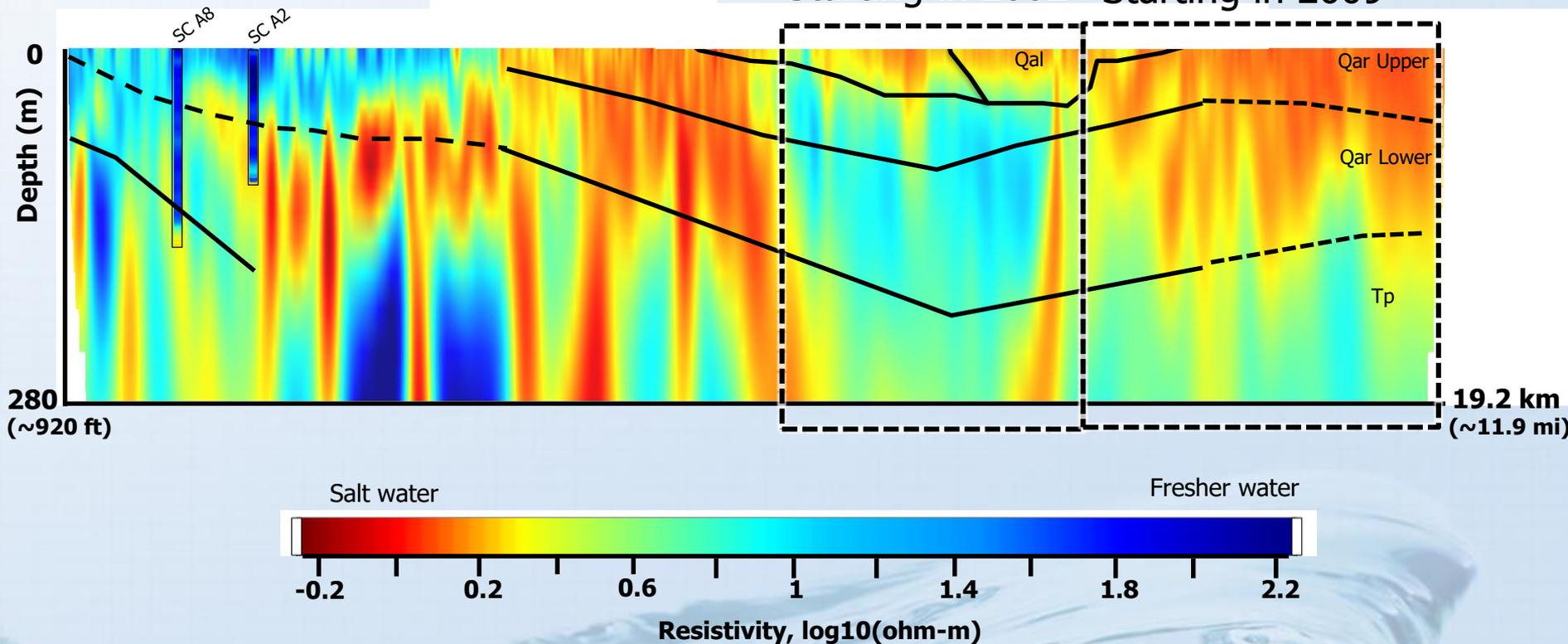
# Recycled Water Facility



# Geophysics Illustrates Progress



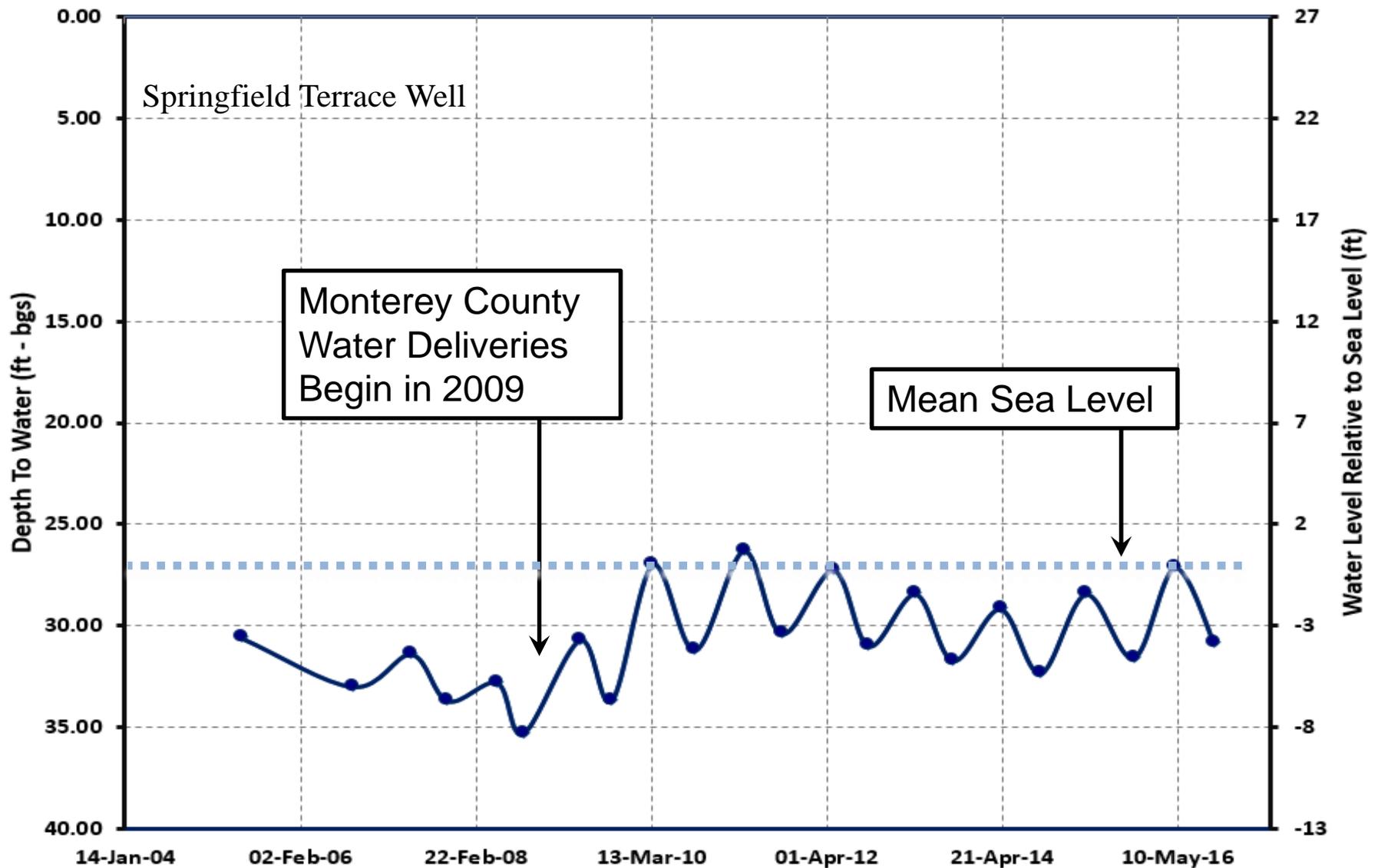
Delivered Water Starting in 2002    Delivered Water Starting in 2009



Goebel, et al, JoH, 2017

Geologic Cross Section: Hanson et al., 2002; Brabb et al., 1997

# Increasing groundwater elevations to prevent seawater intrusion

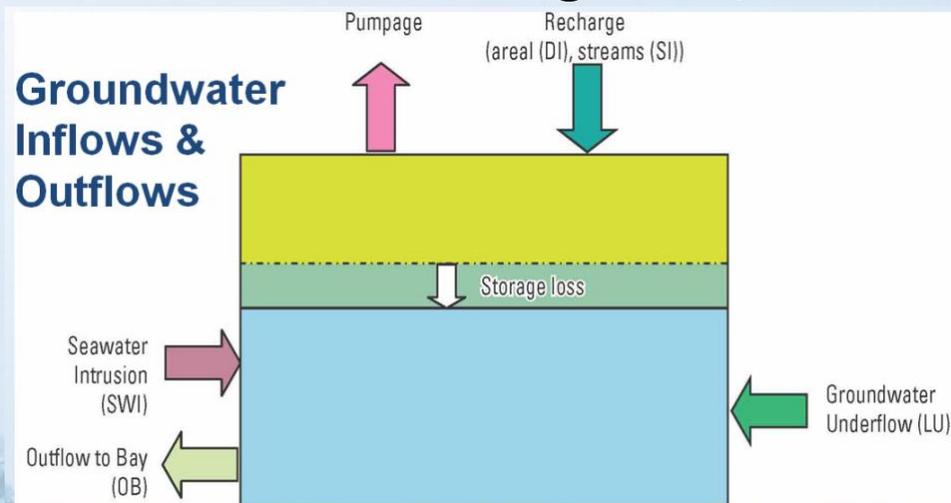




# Water Supply Facilities

# Pajaro Valley Hydrologic Model

- A hydrologic flow model to guide water management decisions
- Designed to reproduce all natural & human components of the hydrologic system, and related climatic factors
- Management & planning tool
- Offset in water budget: **12,100 AFY**



Prepared in cooperation with the Pajaro Valley Water Management Agency

## Integrated Hydrologic Model of Pajaro Valley, Santa Cruz and Monterey Counties, California



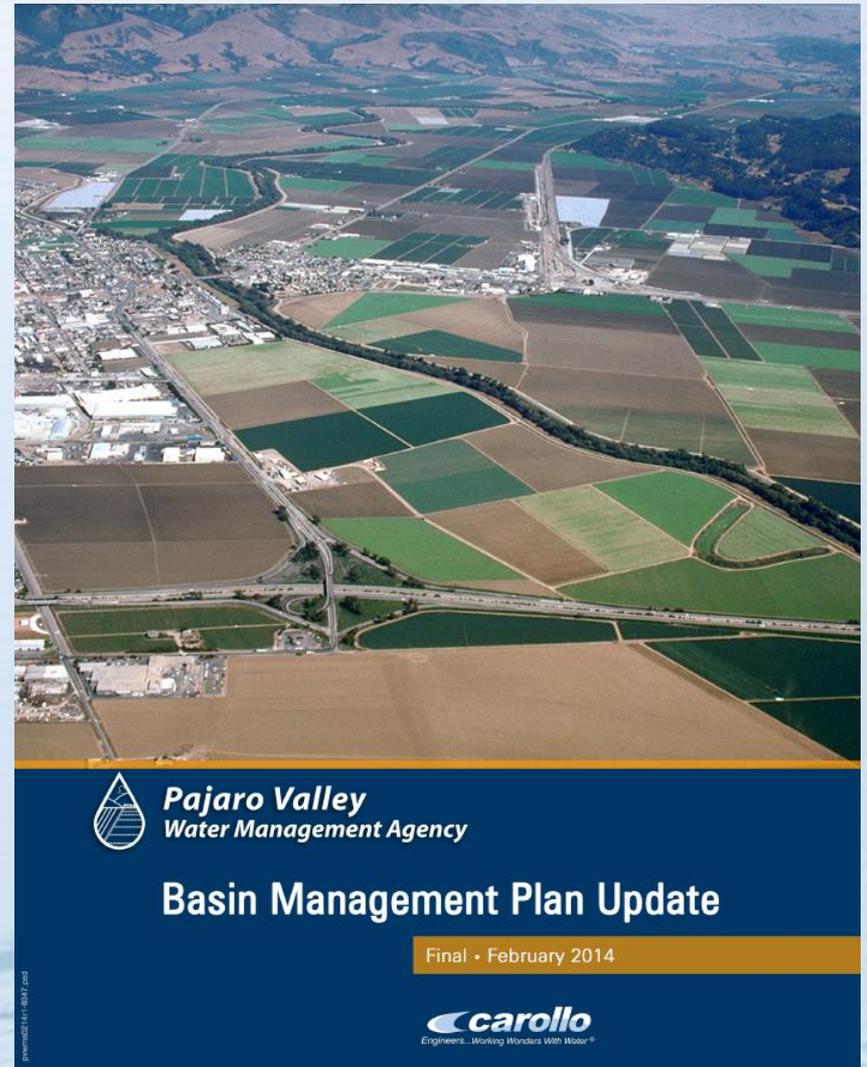
Scientific Investigations Report 2014–5111

U.S. Department of the Interior  
U.S. Geological Survey

# Basin Management Planning Update

**In 2010 the PV Water Board established an Ad Hoc Basin Management Plan Committee to...**

“investigate all practical projects and programs that contribute to the efficient and economical management of existing and supplemental water supplies” and “serve as an advisory committee to the PV Water Board so that Board decisions are fully informed and affected and guided by the community’s interests”.



**Pajaro Valley**  
Water Management Agency

**Basin Management Plan Update**

Final • February 2014

**carollo**  
Engineers... Working Wonders With Water®

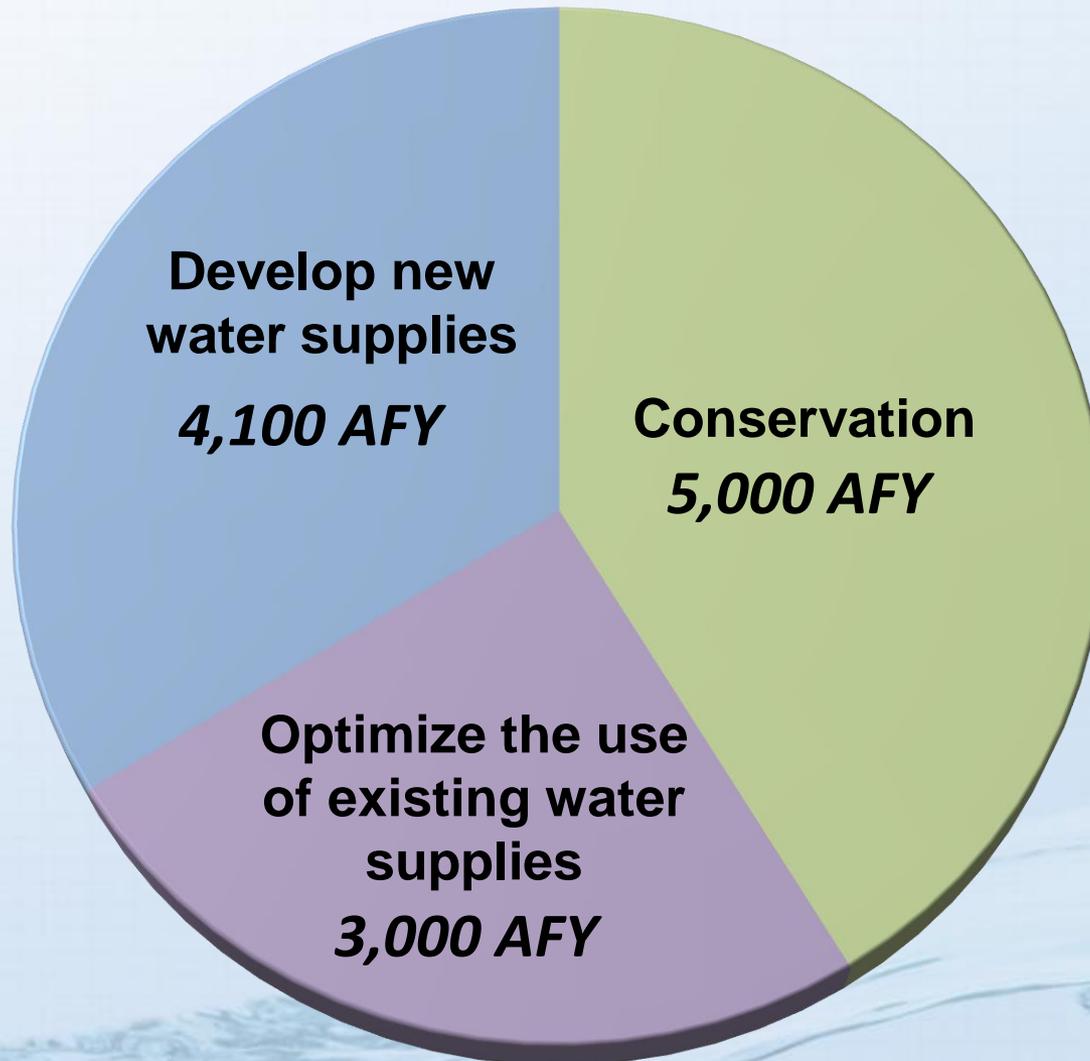
# Ad Hoc BMP Committee Members

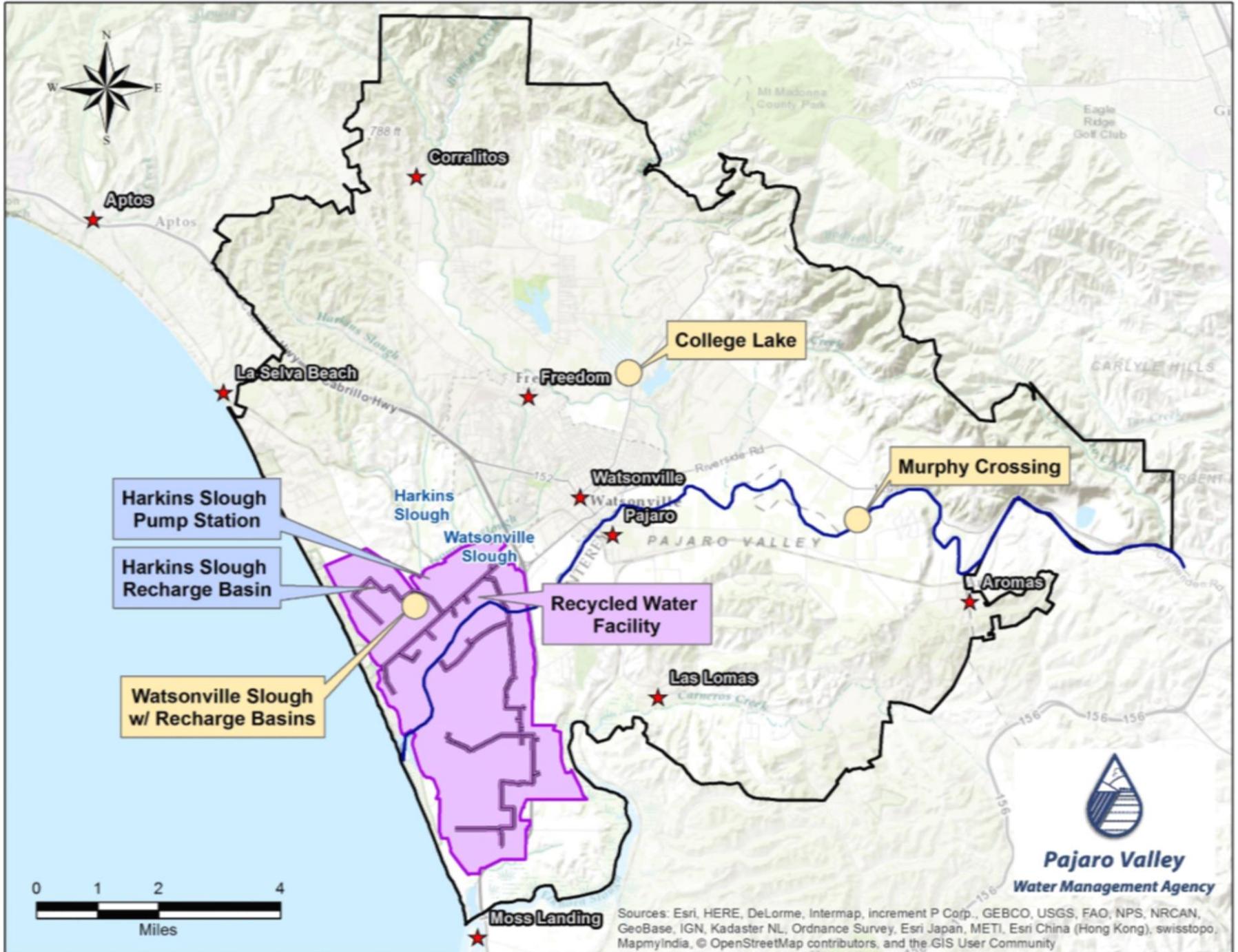
Committee Member	Member Type	Representative Entity
Dave Cavanaugh (Chair)	Appointed	Pajaro Valley Water Management Agency
Kirk Schmidt (Vice Chair)	Appointed	Agricultural
Rosemarie Imazio	Appointed	Pajaro Valley Water Management Agency
Rich Persoff	Appointed	Pajaro Valley Water Management Agency
John Ricker	Appointed	County of Santa Cruz
Ryan Kelly	Appointed	County of Monterey
Steve Palmisano	Appointed	City of Watsonville
Harry Wiggins	Appointed	Pajaro Sunny Mesa Community Services District
John E. Eiskamp	Appointed	Santa Cruz County Farm Bureau
Dave Kegebein	Appointed	Monterey County Farm Bureau
John Martinelli	Appointed	Landowner Group
Chuck Allen	Appointed	Community Dialogue Effort
Vicki Morris	Appointed	Aromas Water District
Ron Duncan	Appointed	At Large
Thomas Karn	Applicant	Rural Residential
Bob Culbertson	Applicant	Environmental
Amy Newell	Applicant	At Large
Skip Fehr	Applicant	Mutual Water Agency
Stuart Kitayama	Appointed	Agricultural
Frank Capurro	Appointed	Agricultural
Tom Rider	Appointed	Agricultural

# BMP Update Objectives

- Prevent seawater intrusion, long-term groundwater overdraft, land subsidence, and water quality degradation;
- Manage existing and supplemental water supplies to control overdraft and to provide for present and future water needs;
- Create a reliable, long-term water supply, which has been identified as an important cornerstone of the long-term economic vitality of the Pajaro Valley;
- Develop water conservation programs; and
- Recommend a program that is cost effective and environmentally sound.

# Basin Management Plan Update contains three primary components to achieve 12,100 ac-ft/yr

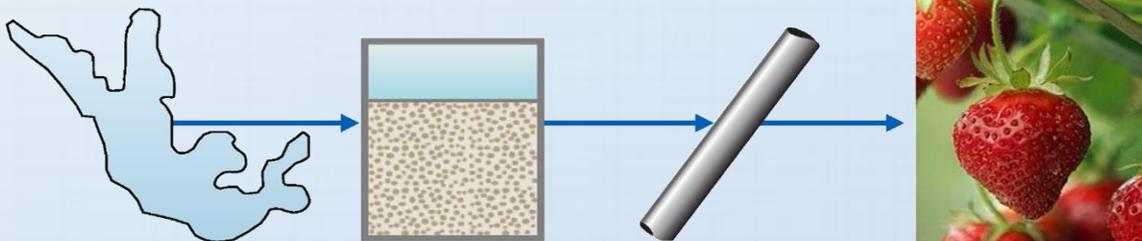
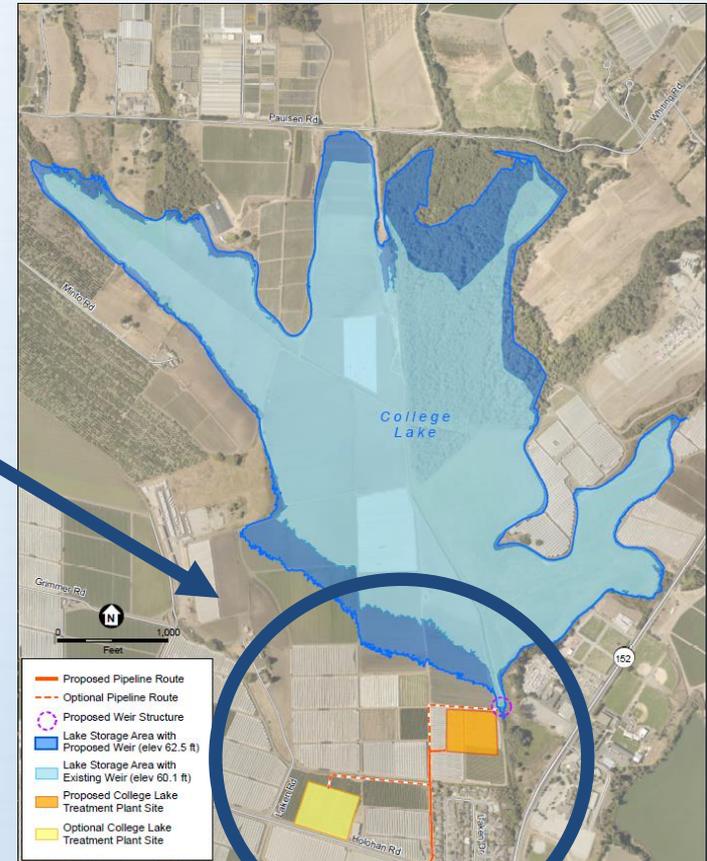




Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

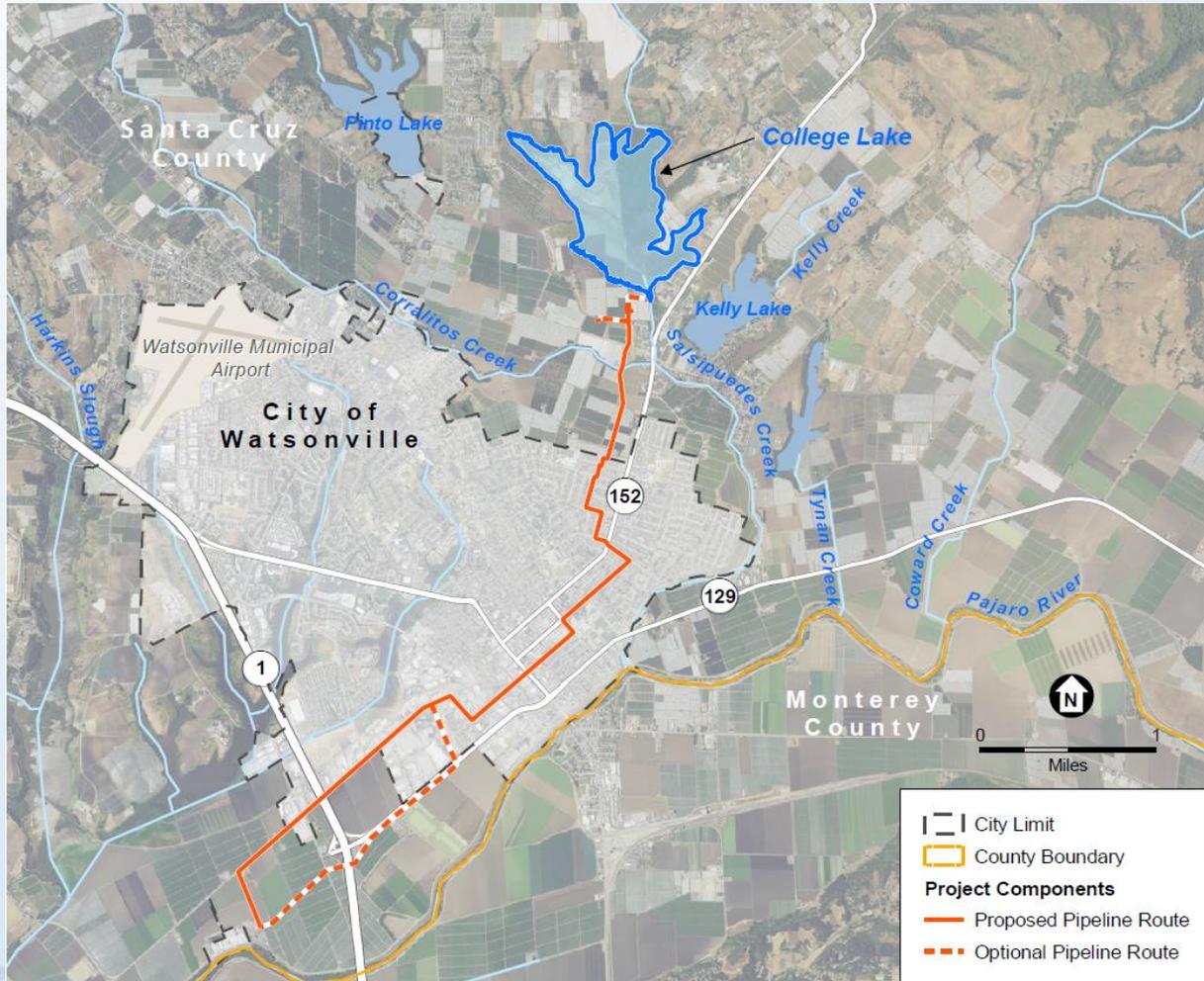
# Proposed College Lake Integrated Resources Management Project

- Projected Yield: 1,800 to 2,400 AFY
- Water Storage Area (285 acres, 1764 AF)
- Weir Structure, Screened Intake, and Pump Station
- Water Treatment Plant (~5 acres)
- Pipeline (5.5 miles)



Source Treatment Conveyance End Users

# Proposed Pipeline Alignment



- Connects College Lake to CDS and recycled water facilities at Watsonville WWTP.
- Serve agricultural uses along route.

# Recharge Net Metering Pilot Program

- Provides financial incentive to landowners to capture and recharge surface water runoff (> 100 AF)
- Will improve aquifer conditions (quantity & quality)
- Diversifies groundwater recharge opportunities
- 5-year pilot program
- Collaborative effort between the PV Water, UC Santa Cruz, Resource Conservation District of Santa Cruz, & Landowners



# Phase 1 Implementation Results Average Water Level Change due to Implementing Selected Alternative

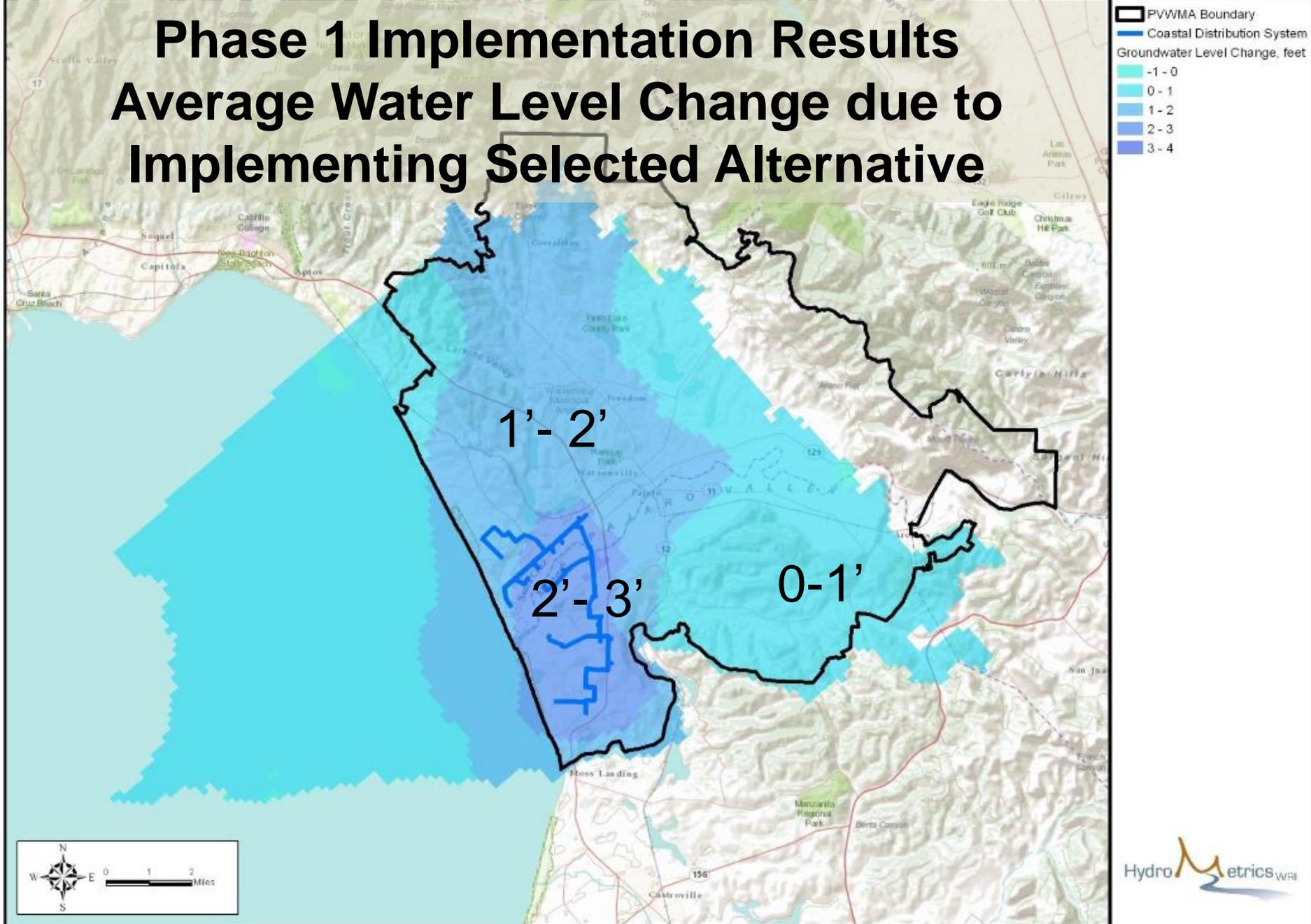


Figure 13: Average Water Level Change Due to Implementing Selected Alternative – Upper Aromas Aquifer

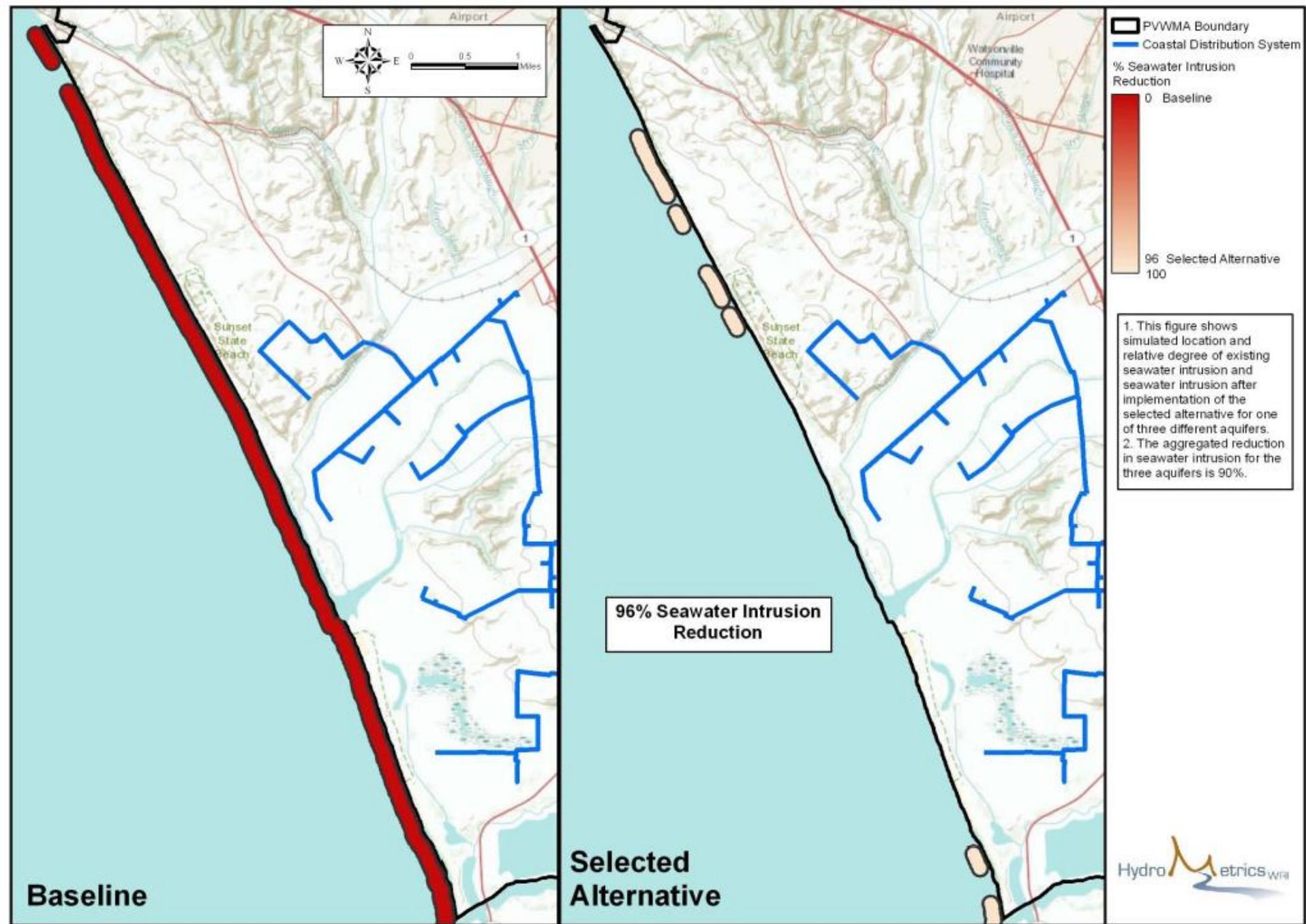
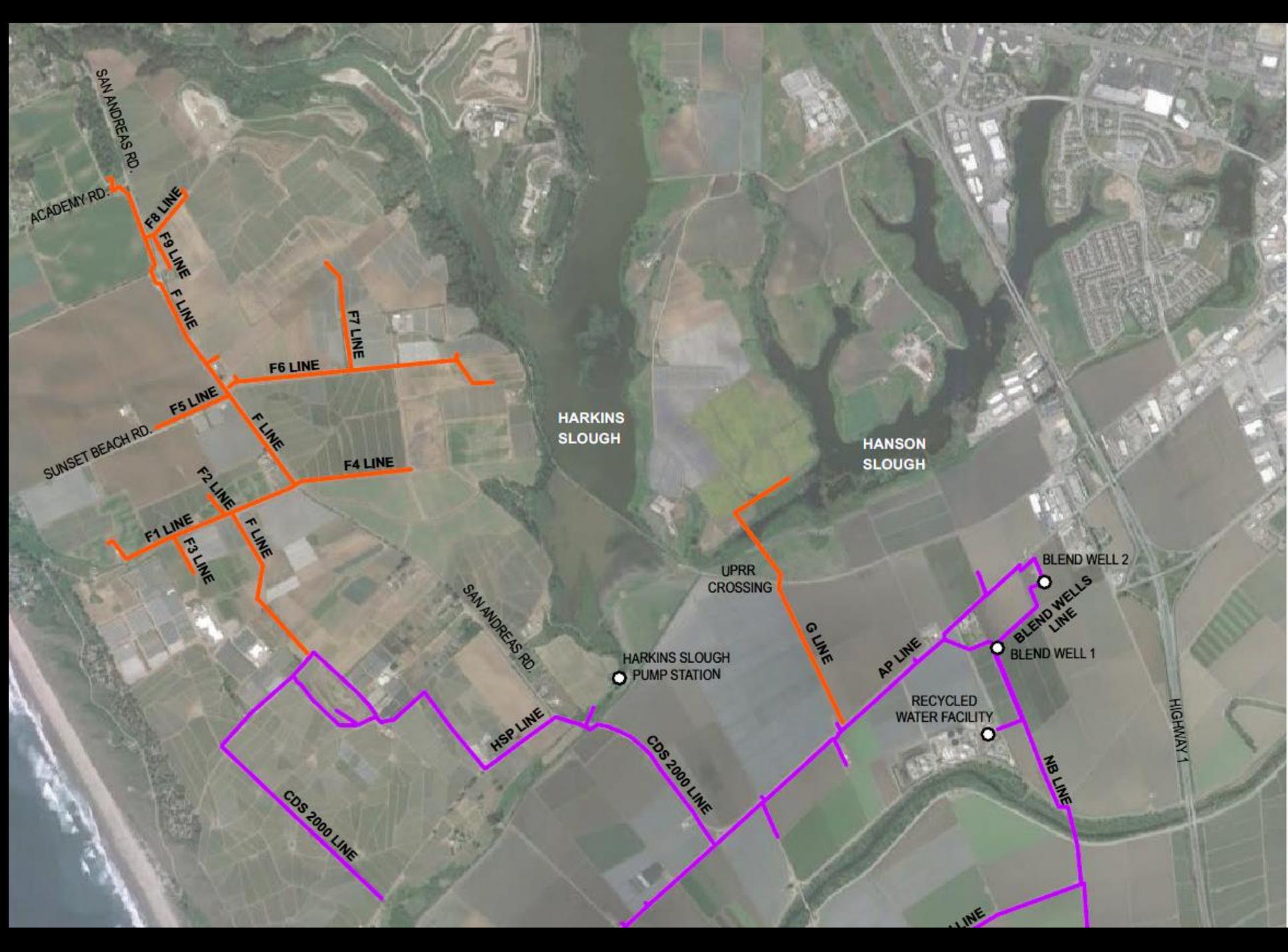


Figure 10: Extent of Simulated Seawater Intrusion – Upper Aromas Aquifer





SAN ANDREAS RD.

ACADEMY RD.

F8 LINE

F9 LINE

F LINE

F7 LINE

F6 LINE

HARKINS SLOUGH

HANSON SLOUGH

SUNSET BEACH RD.

F5 LINE

F LINE

F4 LINE

F1 LINE

F2 LINE

F LINE

F3 LINE

SAN ANDREAS RD.

UPRR CROSSING

G LINE

BLEND WELL 2

BLEND WELLS LINE

BLEND WELL 1

HARKINS SLOUGH PUMP STATION

AP LINE

RECYCLED WATER FACILITY

HIGHWAY 1

NB LINE

HSP LINE

CDS 2000 LINE

CDS 2000 LINE

LINE



Committee Choice: Stop Here

-or-

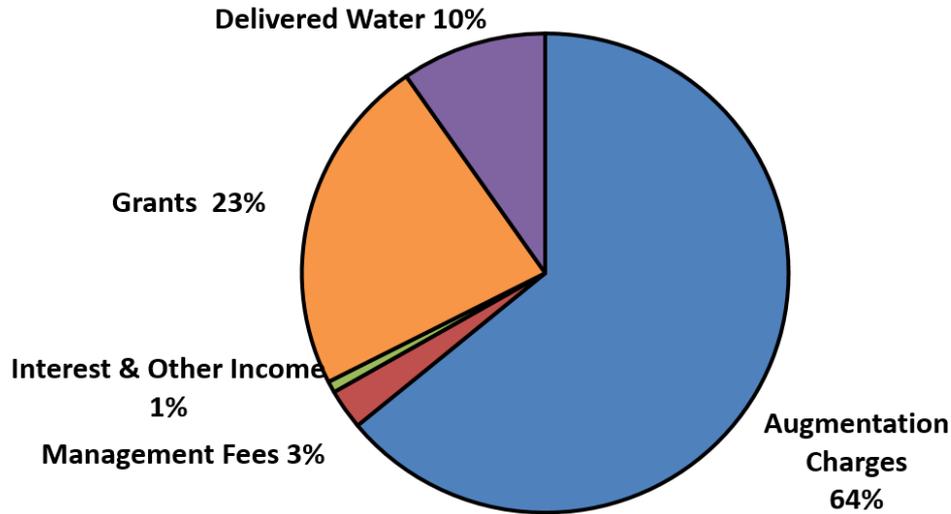
Discuss Funding of Projects & Programs



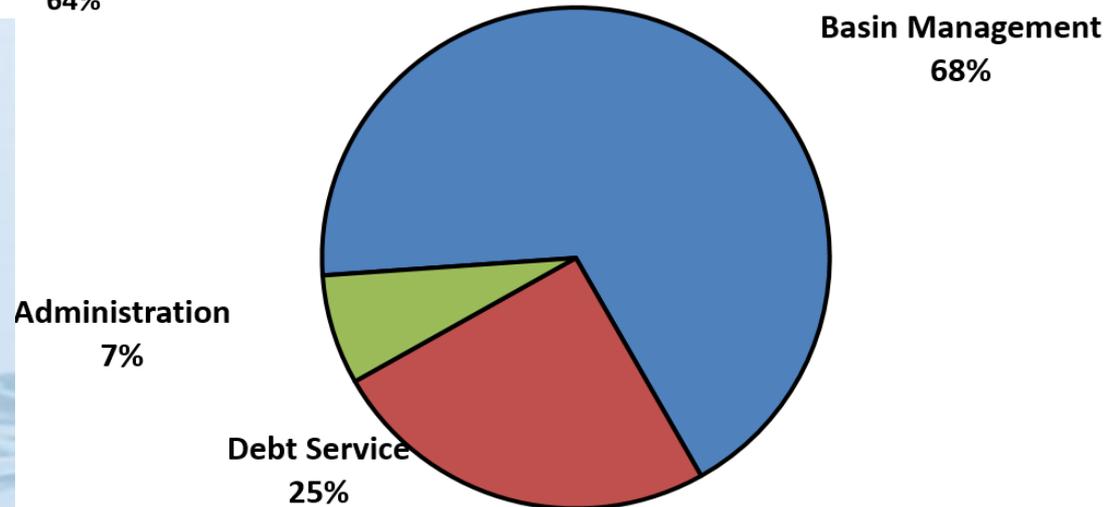
## Funding Future Projects & Programs

# Revenues and Expenditures, FY16-17

**2016 - 17 Revenues and Grants  
\$14,183,594**



**2016 - 17 Expenditures  
\$13,414,374**



# Formation of a Funding Committee provided critical input in the developments of recommendations

- Committee was comprised of 15 members
- 14 meetings held from June '13 through July '14
- Cost of Service Analysis (required per Proposition 218) performed in two phases:

## Phase I: Rate Setting Methodology & Development

Evaluation of available cost recovery mechanisms  
(i.e., Uniform Rates, Tiered Rates, Assessments)



## Phase II: Rate Calculation & Implementation

Calculation of rate structure to support  
ongoing and forecasted expenditures

# Updated Proposition 218 Service Charge Report supports new funding needs

## 2010 Report

Funded:

- Agency Administration
- Special Fund Admin
- Facility Operations
- Basin Management Planning
- Capital Projects
- Debt Service

*Sunset clause limited duration  
– 5 years (2010 – 2015)*

## 2015 Report

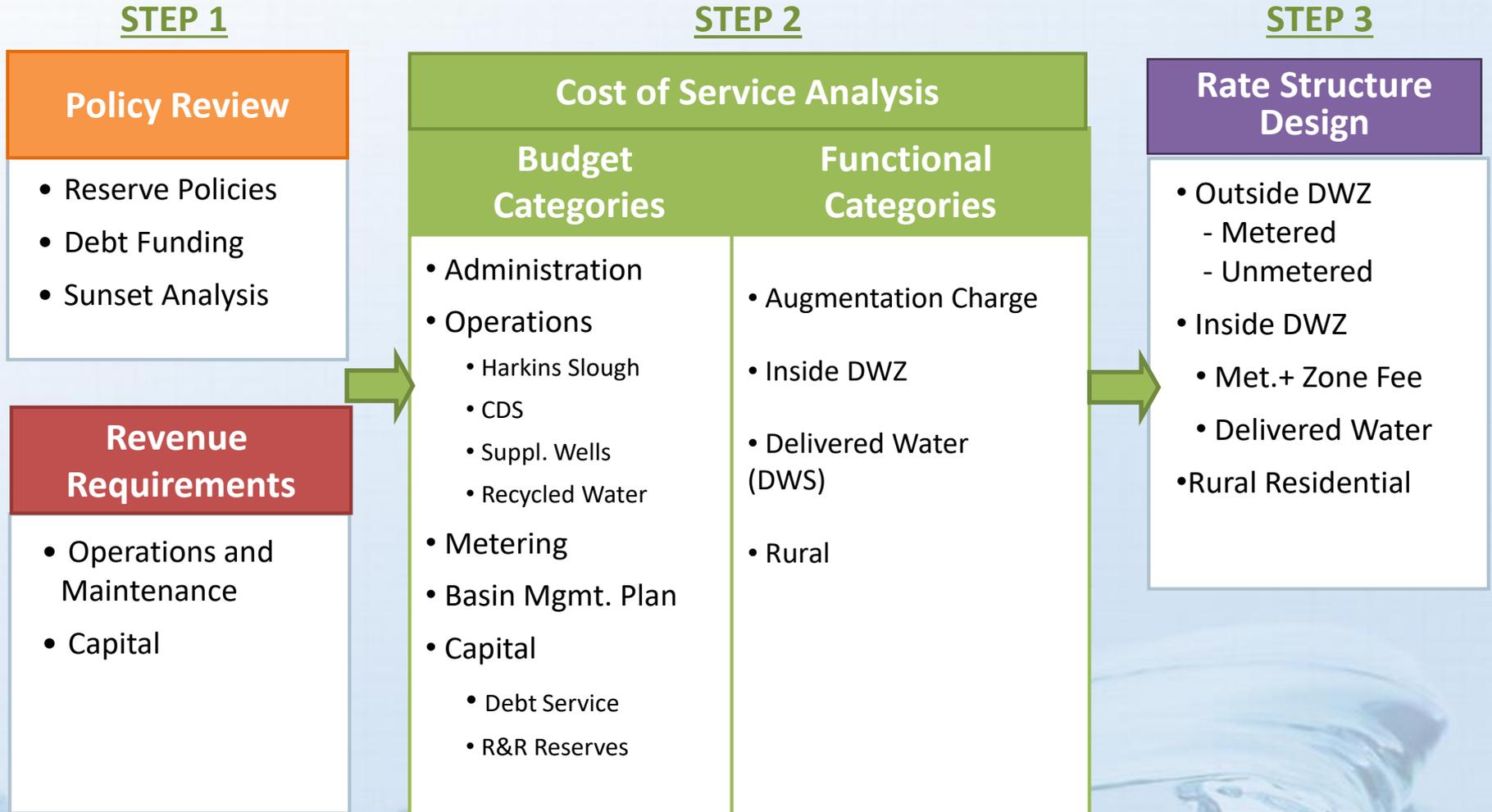
Builds from 2010 Report and adds funding for:

- BMP Projects & Programs
- Additional Staffing needs
- Restructuring of existing debt

*Builds on Pendry-Griffith Lawsuit*

*Gives more consideration to conservation*

# The Cost of Service process was specific to the Agency's budget and services





# Pajaro Valley Water Management Agency

## Interactive Tiered Rate Analysis

### Part I - Inputs & Assumptions

FOR ILLUSTRATIVE PURPOSES ONLY

[Click here to View Rate Impacts.](#)

This is an interactive sheet that enables the user to "Design" various Tiered Rates. By modifying the User Inputs (orange cells), a user can change the number of tiers, acre-feet/acre tier allotments, Tier price differential (rate multiplier), and conservation assumptions. Based on these inputs, rates are calculated and illustrated for both Tiered and Uniform structures.

Input <-- Represent User Input/Assumptions. Modify to change rate structure results.

\* Please note, inputs from "Rate Impacts" impact shown results.

#### Inputs & Assumptions:

	FY 15/16	FY 16/17	FY 17/18
Proposed revenue increase	12%	10%	2%
Agriculture usage* (AF)	70,271	<-- 5 yr average is 44,800/AF (2009 - 2013)	
* Included Metered Wells, Non-Metered Wells, & Delivered Water			
Irrigated Acres	25,869	<-- Assumes 10% non-irrigable "shrink"	

Current (2015) conservation	2,000 AF
Annual Conservation	500 additional AFY up to 5,000 AF total
Number of tiers	5 between 1 & 5 tiers

#### Tier Allocations

Tier 1	0.0	to	0.5	AF / irrigated acre
Tier 2	0.6	to	1.0	AF / irrigated acre
Tier 3	1.1	to	1.5	AF / irrigated acre
Tier 4	1.6	to	3.0	AF / irrigated acre
Tier 5	Greater	than	3.0	AF / irrigated acre

#### Tier Differential (Rate Multi)



# Pajaro Valley Water Management Agency

## Interactive Tiered Rate Analysis

### Part II - Rate Impacts

FOR ILLUSTRATIVE PURPOSES ONLY

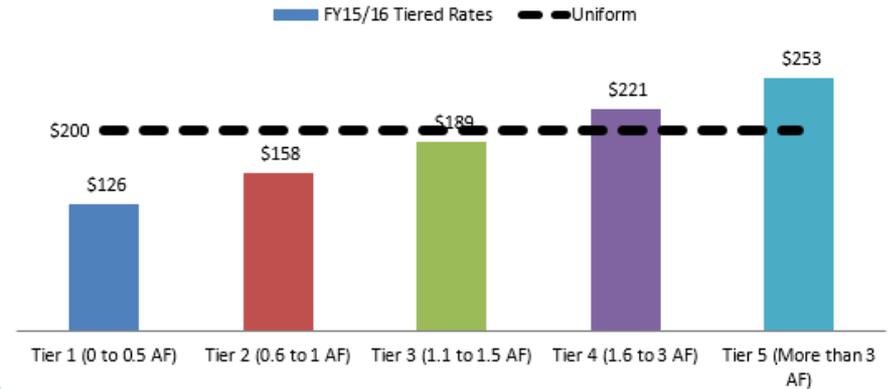
[Click here to revisit Tier Builder](#)

This sheet illustrates the relative impact of implementing Tiered Rates. Sample customer bills are generated (by crop types) to compare Tiered and Uniform costs at various usages. Usage is defined as Acre-feet per Acre (AF/Acre)

Input <-- Represent User Input/Assumptions. Modify to change rate structure results.

\* Please note, inputs from "Tier Structure Design Sheet" impact shown results.

### Figure 1: Calculated Tiered Rates



#### Bill Comparison by Land Use (Augmentation Outside DWZ)

Assumed Acreage 20 acres

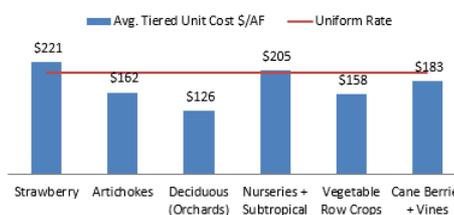
#### Sample FY15/16 Bill

	AF/Acre	Total Demand	Uniform Rate	Tiered Rate	% Change	Avg. Tiered Unit Cost \$/AF
Strawberry	6.0	120	\$ 24,024	\$ 26,521	10%	\$ 221
Artichokes	1.6	32	\$ 6,406	\$ 5,178	-19%	\$ 162
Deciduous (Orchards)	0.4	8	\$ 1,602	\$ 1,010	-37%	\$ 126
Nurseries + Subtropical	4.0	80	\$ 16,016	\$ 16,418	3%	\$ 205
Vegetable Row Crops	1.5	30	\$ 6,006	\$ 4,736	-21%	\$ 158
Cane Berries + Vines	2.5	50	\$ 10,010	\$ 9,156	-9%	\$ 183

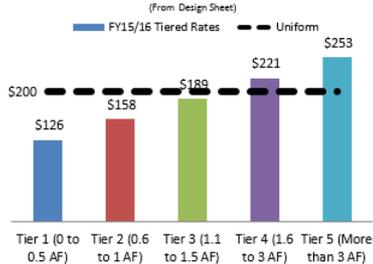
#### Rate Impact (Current to Tiered FY16/17)

	FY 13/14 Uniform Rate	FY16/17 Tiered Rate	% Change
Strawberry	\$ 20,880	\$ 29,384	41%
Artichokes	\$ 5,568	\$ 5,737	3%
Deciduous (Orchards)	\$ 1,392	\$ 1,119	-20%
Nurseries + Subtropical	\$ 13,920	\$ 18,190	31%
Vegetable Row Crops	\$ 5,220	\$ 5,247	1%
Cane Berries + Vines	\$ 8,700	\$ 10,145	17%

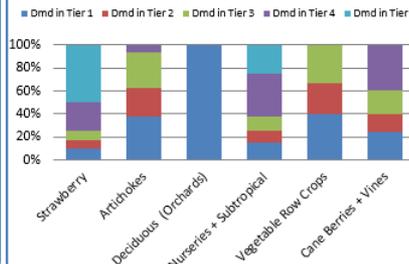
### Figure 3: Average of Tiered Rate, by Land Use



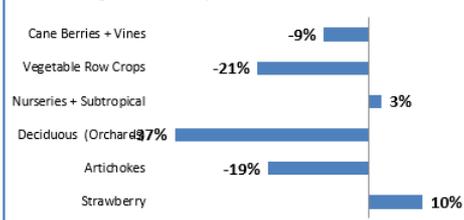
### Figure 1: Calculated Tiered Rates



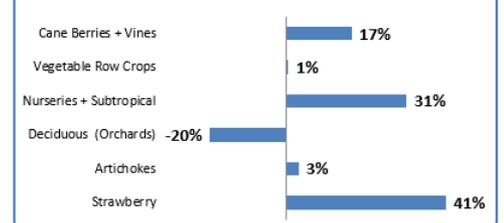
### Figure 2: Demand Per Tier by Land Use



### Figure 4: Rate Impact Tiered vs. Uniform Rate



### Figure 5: Impact from Current to Tiered FY16/17



# Uniform Rate Tool



Revenue Check						Difference
Revenue Requirement	\$ 11,810,030	\$ 12,276,526	\$ 12,761,449	\$ 13,265,526	\$ 13,789,514	
Rate Revenue	\$ 11,810,030	\$ 12,276,526	\$ 12,761,449	\$ 13,265,526	\$ 13,789,514	-

Summary Table	Current (14/15)	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	5-yr Impact
Augmentation Charge - Outside DWZ	\$ 179	\$ 195	\$ 206	\$ 217	\$ 227	\$ 238	33%
Augmentation Charge - Inside DWZ	\$ 215	\$ 234	\$ 250	\$ 262	\$ 276	\$ 289	34%
Delivered Water Charge	\$ 338	\$ 360	\$ 355	\$ 357	\$ 371	\$ 386	14%
Augmentation Charge - Rural Residential*	\$ 172	\$ 186	\$ 194	\$ 201	\$ 209	\$ 217	26%

Proposed Revenue Increase	Current	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Rate Calculations						
Cost of Metered Water Users Service (Cost Allocation)	\$ 9,444,268	\$ 9,817,317	\$ 10,205,101	\$ 10,608,202	\$ 11,027,226	
Metered Water User Consumption						

<b>Metered Rate</b>	\$
Annual % Change	
Cost of Additional DWZ Metered Service	
Metered Water Consumption/DWZ	
<b>Additional Supplemental Service</b>	\$
Annual % Change	
Cost of Unmetered Water Users Service	
Unmetered Accounts (Rural Residential)	
<b>Unmetered Rate</b>	\$
Annual % Change	
Cost of Delivered Water Service	
Delivered Water Consumption	
<b>Delivered Water Rate</b>	\$ 338
Annual % Change	6.57%

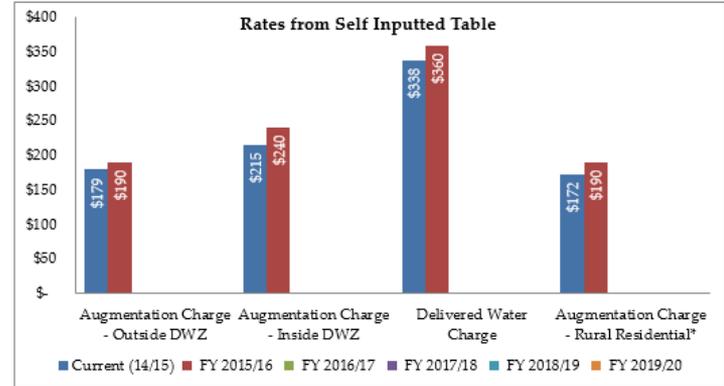
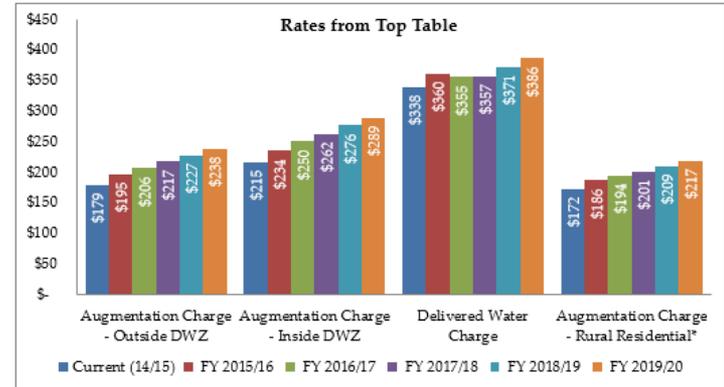
This spreadsheet details how the specific rates are derived by dividing the resulting costs of service allocations by forecasted consumption.

For interaction purposes, either the **Cost Allocation** or the **Consumption** amounts can be modified. The Revenue Check will calculate the impact between the Revenue Requirement and the forecasted rate revenue (based on the designed rate \* consumption).

Additionally, the **Self Inputted Rates** section allows users to simply input desired rates and calculates the resulting revenue impact. Please note this utilizes the the same **consumption** amounts from the above.

Price Differentials from Above	Current	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	Average
Inside vs Outside Augmentation Charge	\$ 36	\$ 39	\$ 44	\$ 45	\$ 49	\$ 51	44
Delivered Water Service vs Inside	\$ 123	\$ 126	\$ 105	\$ 95	\$ 95	\$ 97	107
Outside vs Rural	\$ 7	\$ 9	\$ 12	\$ 16	\$ 18	\$ 21	14

Self Inputted Rates	Current	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20
Augmentation Charge - Outside DWZ	\$ 179	\$ 190				
Augmentation Charge - Inside DWZ	\$ 215	\$ 240	To	Be	Inputted	
Delivered Water Charge	\$ 338	\$ 360				
Augmentation Charge - Rural Residential*	\$ 172	\$ 190				



# Rates fund projects and programs that protect our water resources

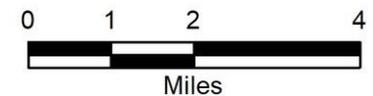
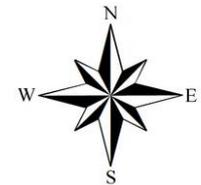
User Group	Rates FY 2018/19	Rates FY 2019/20
Augmentation Charge, Metered Users - Outside Delivered Water Service Area	\$231/AF	\$246/AF
Augmentation Charge, Metered Users - Inside Delivered Water Service Area	\$309/AF	\$338/AF
Augmentation Charge, Unmetered <sup>1</sup> – (Rural Residents)	\$109/Year per Residence	\$115/Year per Residence
Delivered Water Charge	\$381/AF	\$392/AF

Note: 1. Unmetered Customers are charged for an estimated annual consumption of 0.5 AF per year for each known residence connected to an unmetered well.

# Pajaro Valley Water Management Agency Rate Zones

## Explanation

-  Cities & Towns
-  Streets
-  Highway 1
-  Pajaro River
-  Outside Delivered Water Zone
-  Delivered Water Zone



**Fiscal Year 2018/19**  
 Augmentation Charge  
 MW ODWZ = \$231/AF  
 MW DWZ = \$309/AF

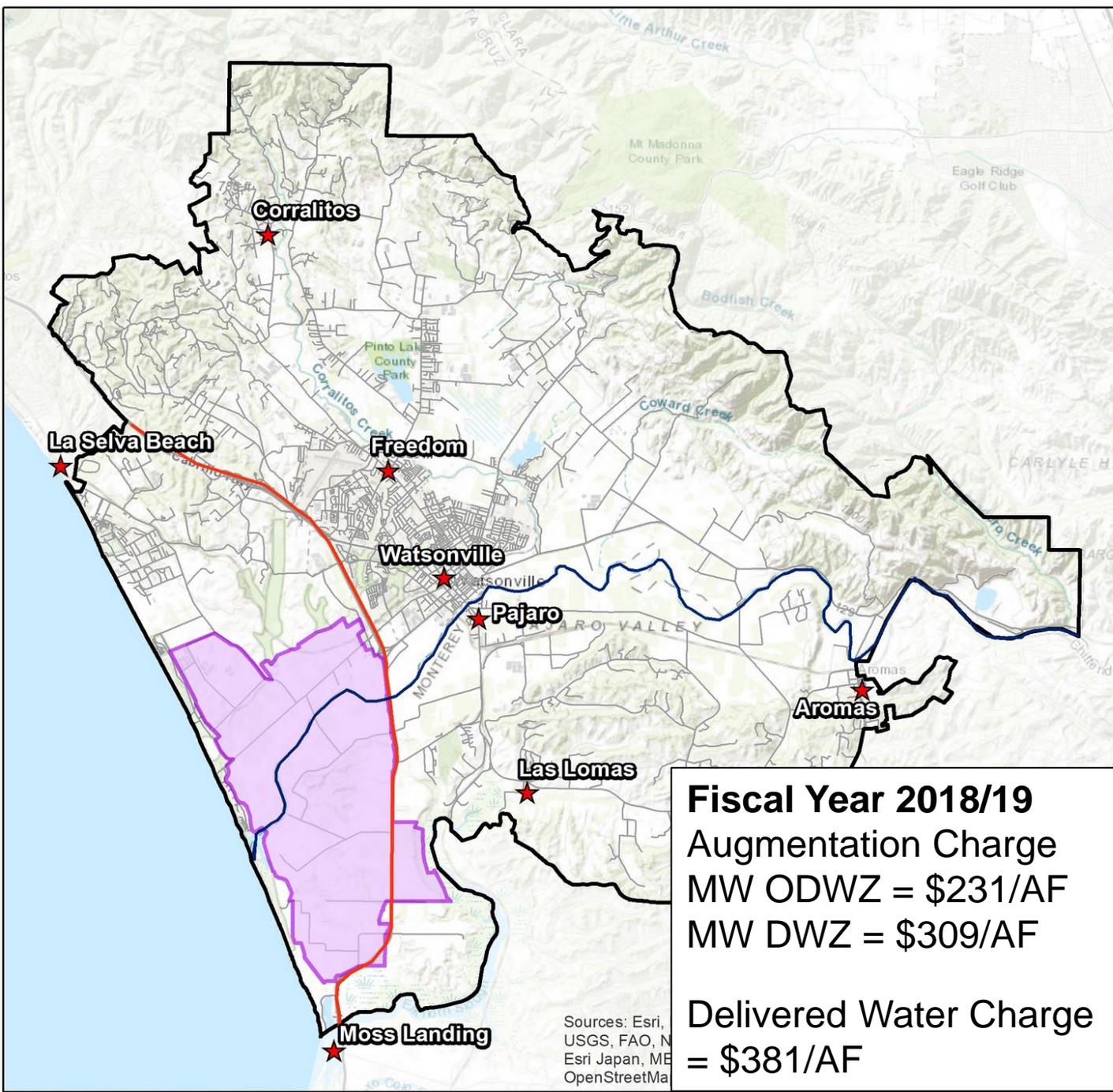
**Delivered Water Charge**  
 = \$381/AF

Sources: Esri,  
 USGS, FAO, N  
 Esri Japan, ME  
 OpenStreetMa



**Pajaro Valley**  
**Water Management Agency**

Prepared by PV Water on April 5, 2018.  
 This Document is a graphic representation developed using  
 the best currently available data sources & professional judgement.



# Summary

- Stakeholder involvement through committees has been a critical component of recent successes.
- Providing tools to committee members has been very useful in improving understanding and building trust.
- Public outreach to the broader community is also very important. Board meetings tend to not be well attended.



# Thank You...

*By phone: 831-722-9292*

*By email: lockwood@pvwater.org*

*Or visit our website: pvwater.org*

**Pajaro Valley**  
Water Management Agency

Pay Online | Select language | search... | Watsonville... 45°F 73°F

About | Board | Operations | Hydrology | Conservation | Resources | Contact

Managing Water Resources Of The Pajaro Valley  
PV Water works tirelessly toward achieving a sustainable groundwater basin.  
[Read more](#)

**About PV Water**  
Who we are, What we do & Why we do it  
[Learn more](#)

**Hydrology**  
Looking at Water and the Pajaro Valley  
[Learn more](#)

**Projects**  
What we're doing, what we've done  
[Learn more](#)

**Upcoming Meetings & Events**

NOV 13	Admin/Finance Committee Meeting
NOV 19	Board of Directors Meeting
NOV 28	Projects & Facility Operations Committee
DEC 11	Admin/Finance Committee Meeting
DEC 19	Board of Directors Meeting