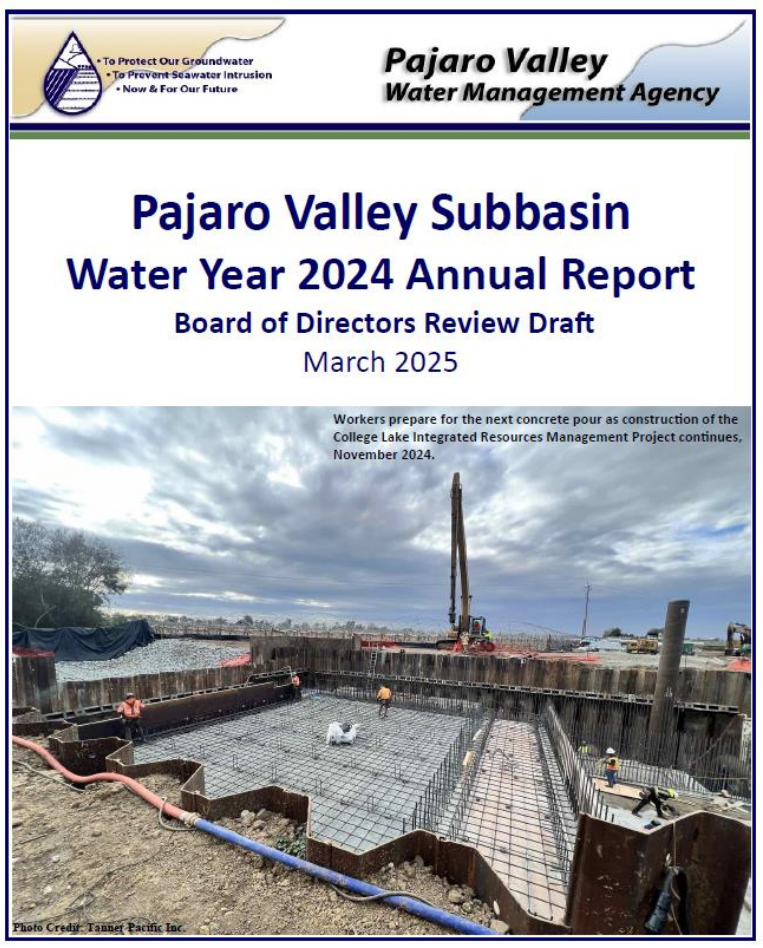
SGMA Annual Report Summary of Water Year 2024



Pajaro Valley Water Management Agency Board of Directors Meeting

March 19, 2025

Presented by:
Casey Meusel
Associate Hydrologist

Pajaro Valley Water Management Agency

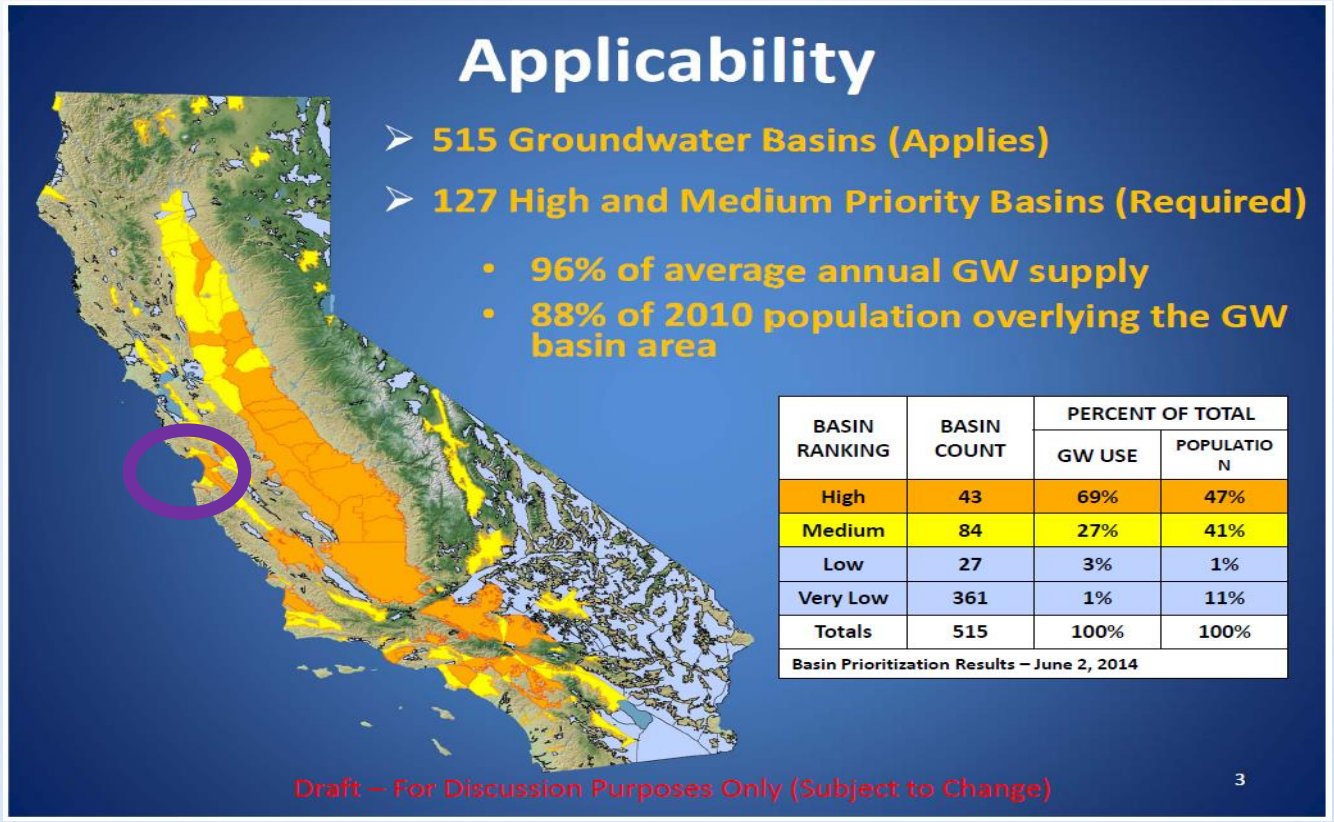
MONTGOMERY & ASSOCIATES
Water Resource Consultants

Presentation Overview

- SGMA & PV Water
- WY2024 Annual Report
    - Progress in Implementing Plan
    - Water Use Data
    - Basin Conditions
    - Sustainability Status

Sustainable Groundwater Management Act

- The Sustainable Groundwater Management Act (SGMA, 2014) requires that high priority, critically overdrafted groundwater basins such as the Pajaro Valley Basin achieve sustainable groundwater resources by 2040.
  - *If not, the State Water Resources Control Board has the authority to impose pumping restrictions to achieve sustainability*.
  - Six Sustainability Indicators



BASIN RANKING	BASIN COUNT	PERCENT OF TOTAL	
		GW USE	POPULATION
High	43	69%	47%
Medium	84	27%	41%
Low	27	3%	1%
Very Low	361	1%	11%
Totals	515	100%	100%

Basin Prioritization Results – June 2, 2014

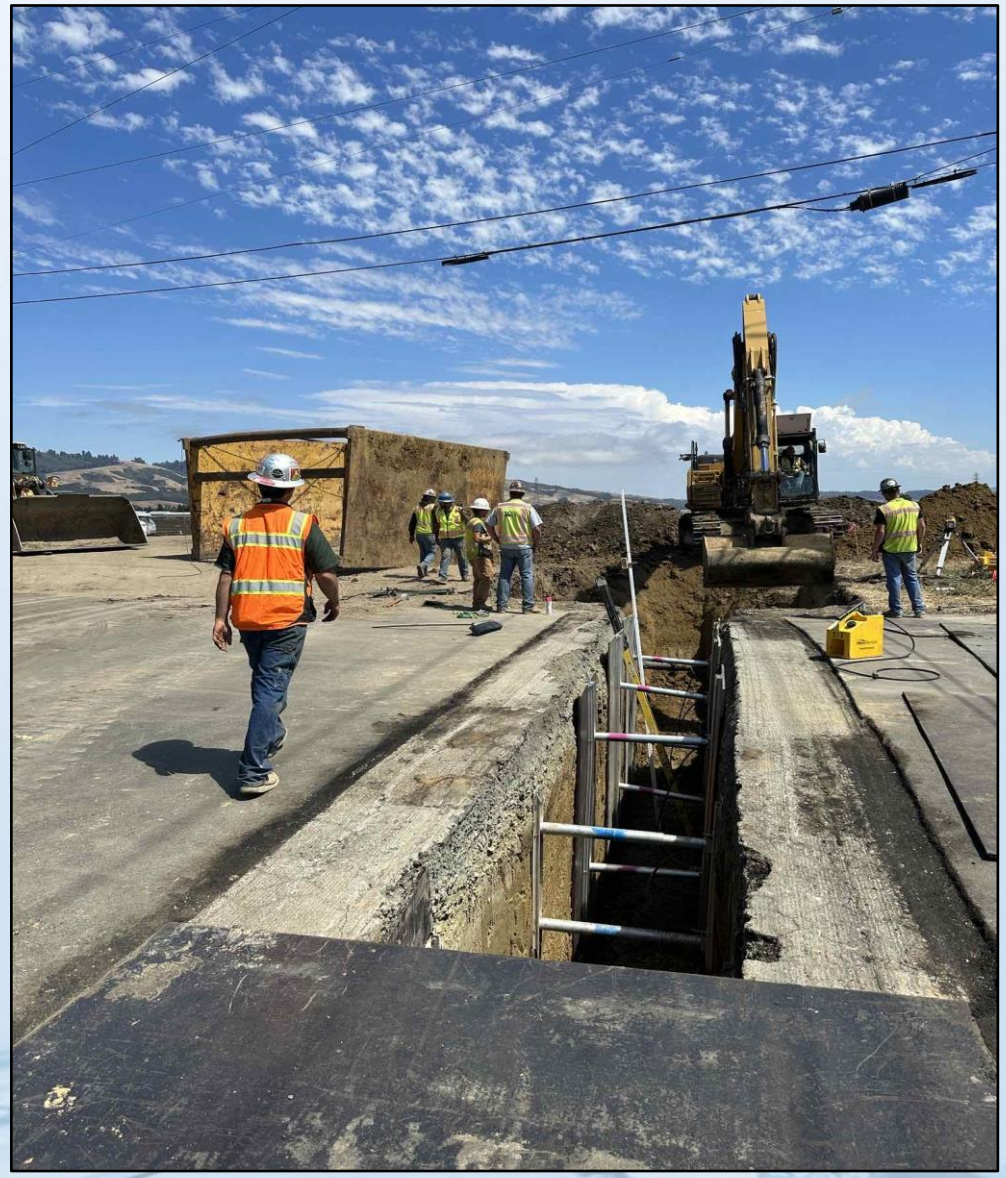
PV Water, SGMA and the PV GSP Alternative

PV Water submitted GSP Alternative in 2016; Basin Management Plan: Groundwater Sustainability Update 2022 (GSU22) in 2021, and received DWR Approval of the GSU22 in June 2024

WY2024 Annual Report Summary

Progress in Implementing the Plan

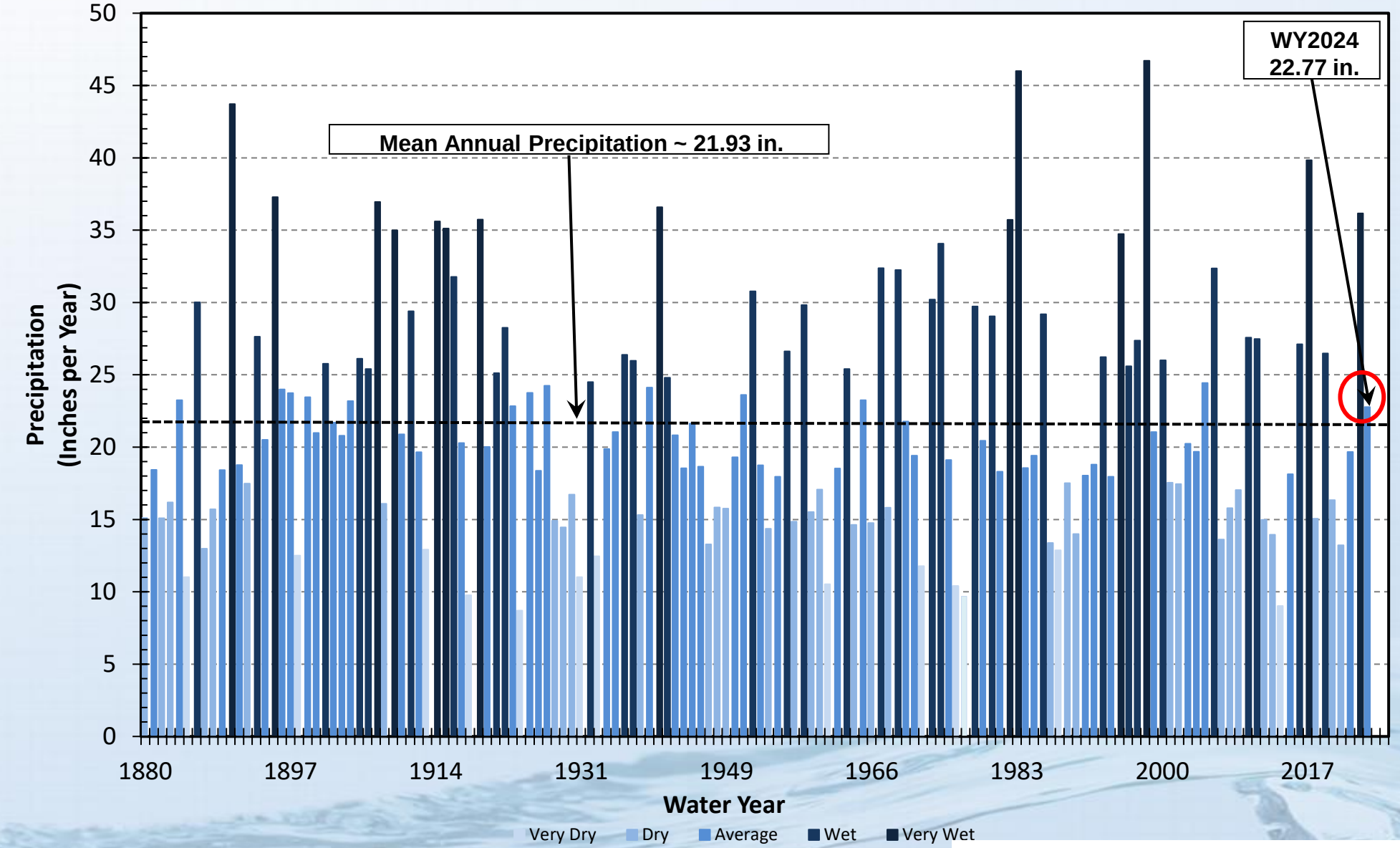
- **College Lake Integrated Resources Management Project**
  - Continued Construction of the College Lake Pipeline
    - Salsipuedes Creek Crossing
  - Completed Construction of the Raw Water Pipeline
  - Construction of Decanting Lagoons
  - Constructed the Domestic Well
  - Installation of Chemical Tanks
  - Erection of Electrical Building
  - Continued Environmental Monitoring & Worker Training
  - WIFIA Funding ($43.1 million)
- **Watsonville Slough System Managed Aquifer Recharge and Recovery Projects**
  - Accomplished 60% and 100% Designs
  - Preparation of an EIR Addendum
  - Water-Right Permit Application Water Availability Analysis Update
  - Aquatic Resources Delineation Report, Cultural Resources Survey Report, Biological Assessment Report
  - Engaged Property Owners/Sent offer Letters
  - WIFIA Funding ($31.1 million)



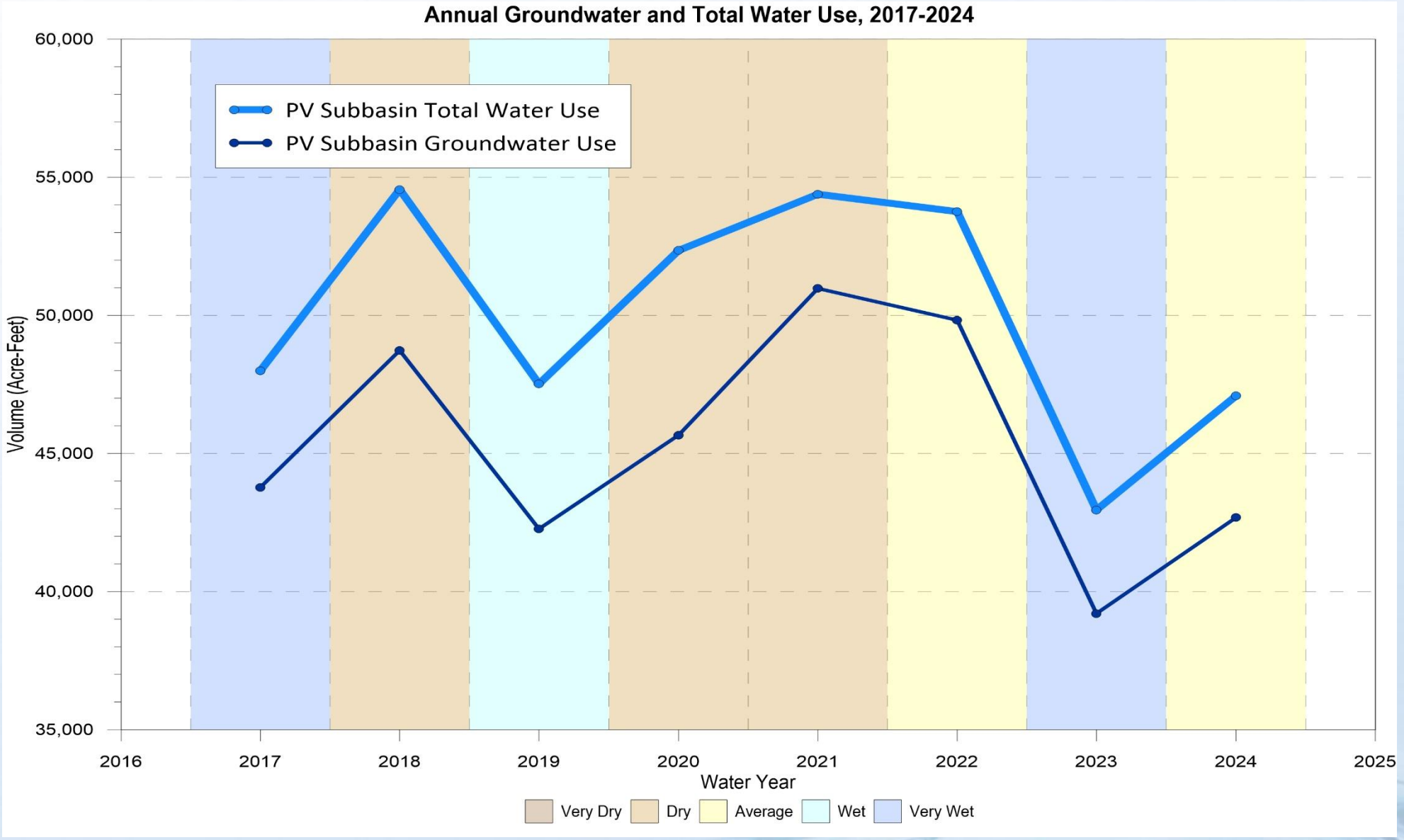
Progress in Implementing the Plan

- **Recharge Net Metering**
  - Preliminary Estimate of Total Infiltration ~231 AF in WY2024 from 3-Systems
- **Conservation Program**
  - Continued Engagement of Water Users in All Aspects of Program
  - 27-Ranches Enrolled in Irrigation Efficiency Program
  - Rolling 5-Year Average (2020-2024) vs. Baseline (2006-2010) Total Ag. Water Use ~5,875 AF Less
- **Multibenefit Land Repurposing Program (MLRP)**
  - Prepared Subagreements
  - Enlisted Consultant Support Services for Plan Development
  - Project Implementation Approvals from DWR
- **Pajaro River Watershed Resilience Program (PRWRP)**
  - Contracted with Project Team
  - Initiated Early Tasks

Basin Conditions

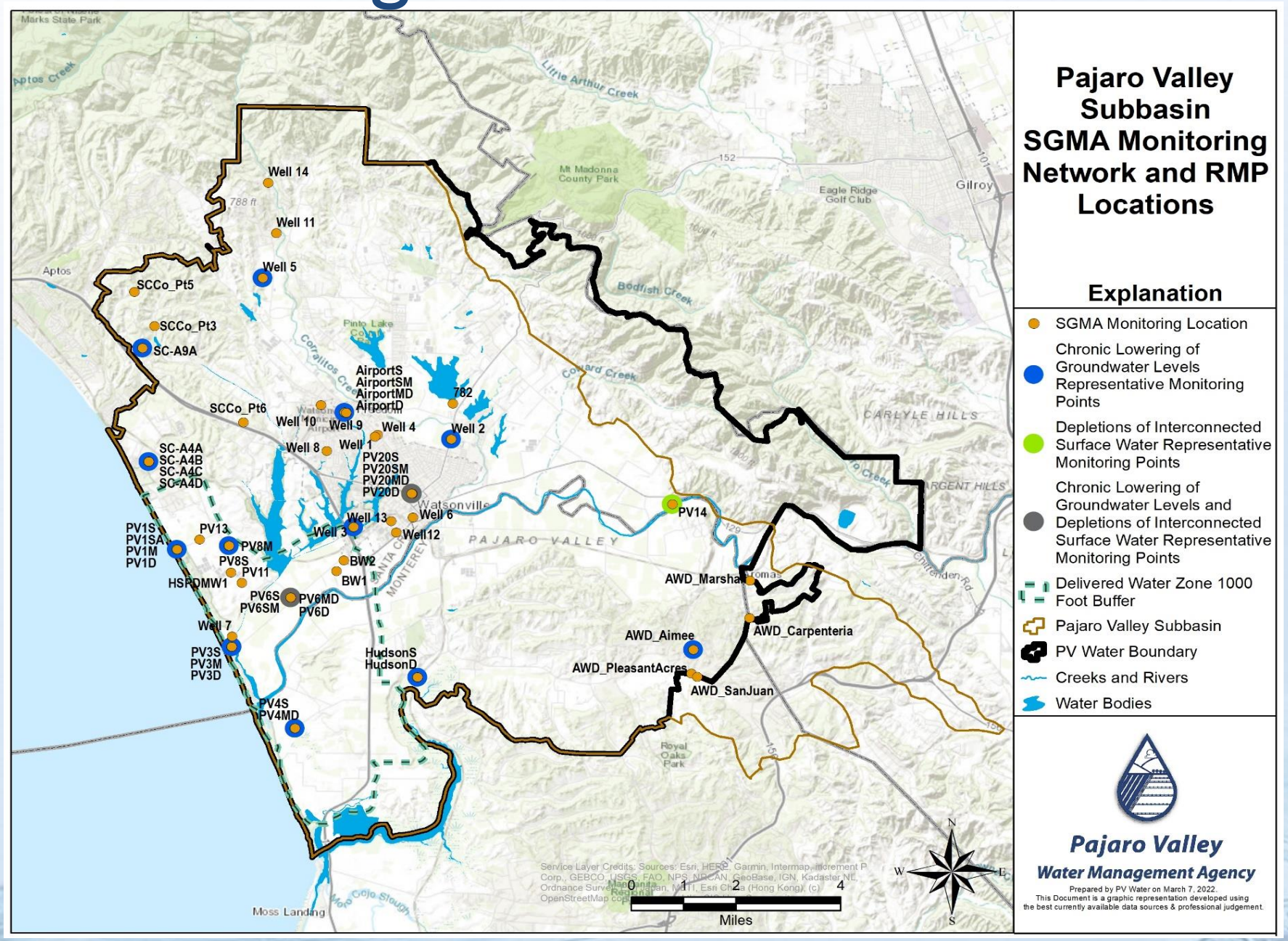


Data Source: http://cdec.water.ca.gov/cgi-progs/queryMonthly?WTW

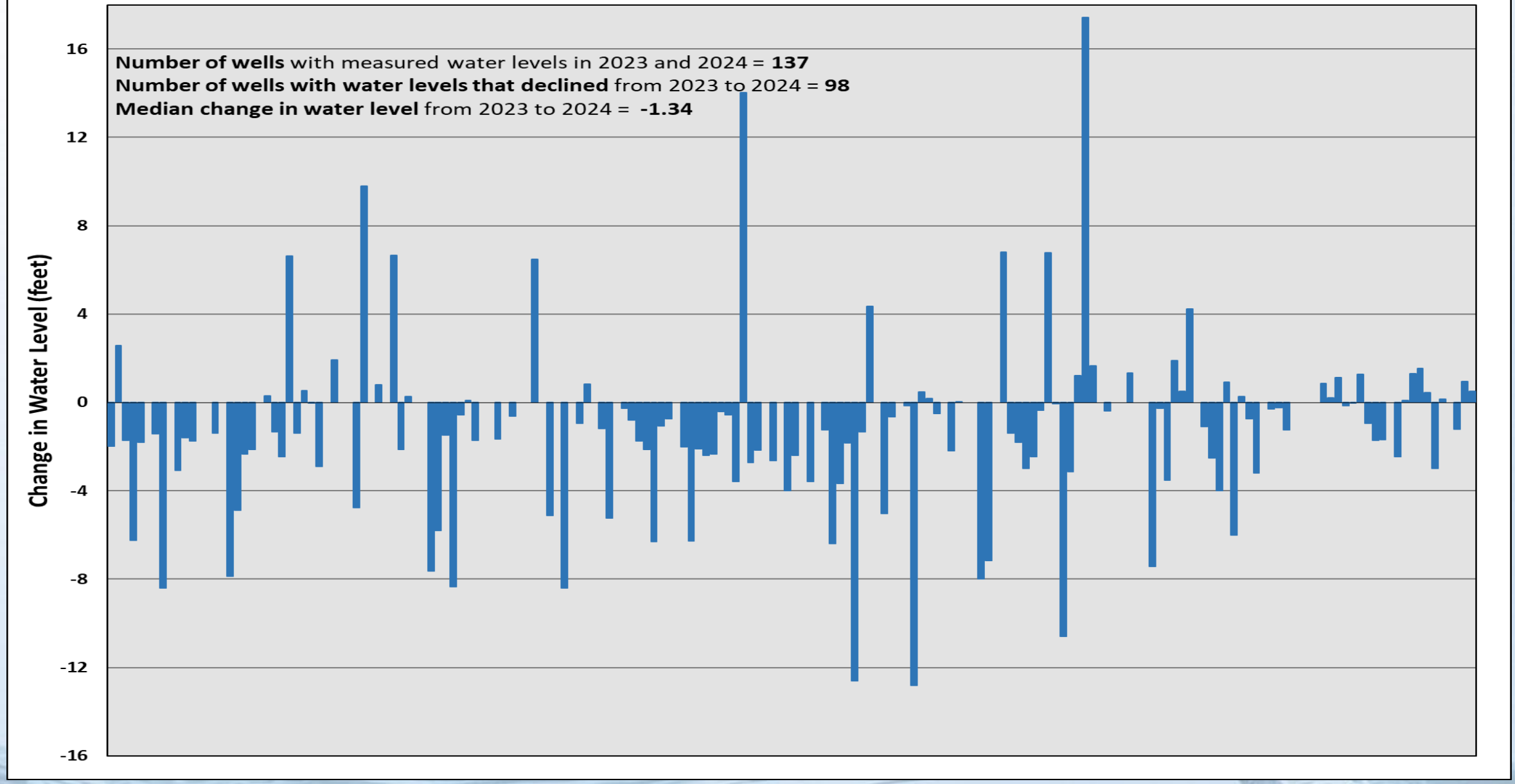


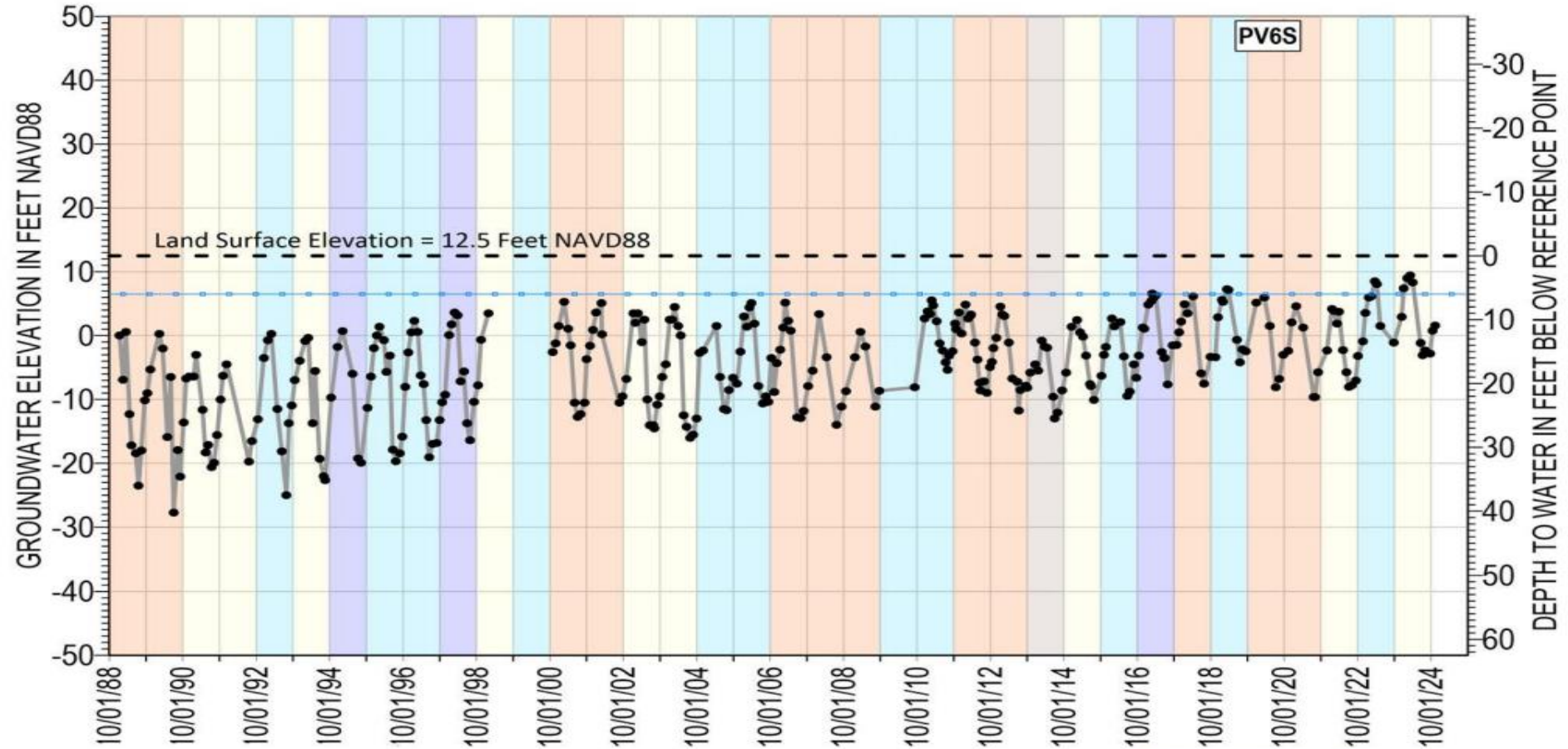
Total Water Use = ~47,086 AF ~91% Groundwater ~78% Agricultural

Basin Monitoring



Change in Water Level of Monitored Wells from Fall 2023 to Fall 2024





PV6S Groundwater Elevation
Land Surface Elevation
ISW Measurable Objective

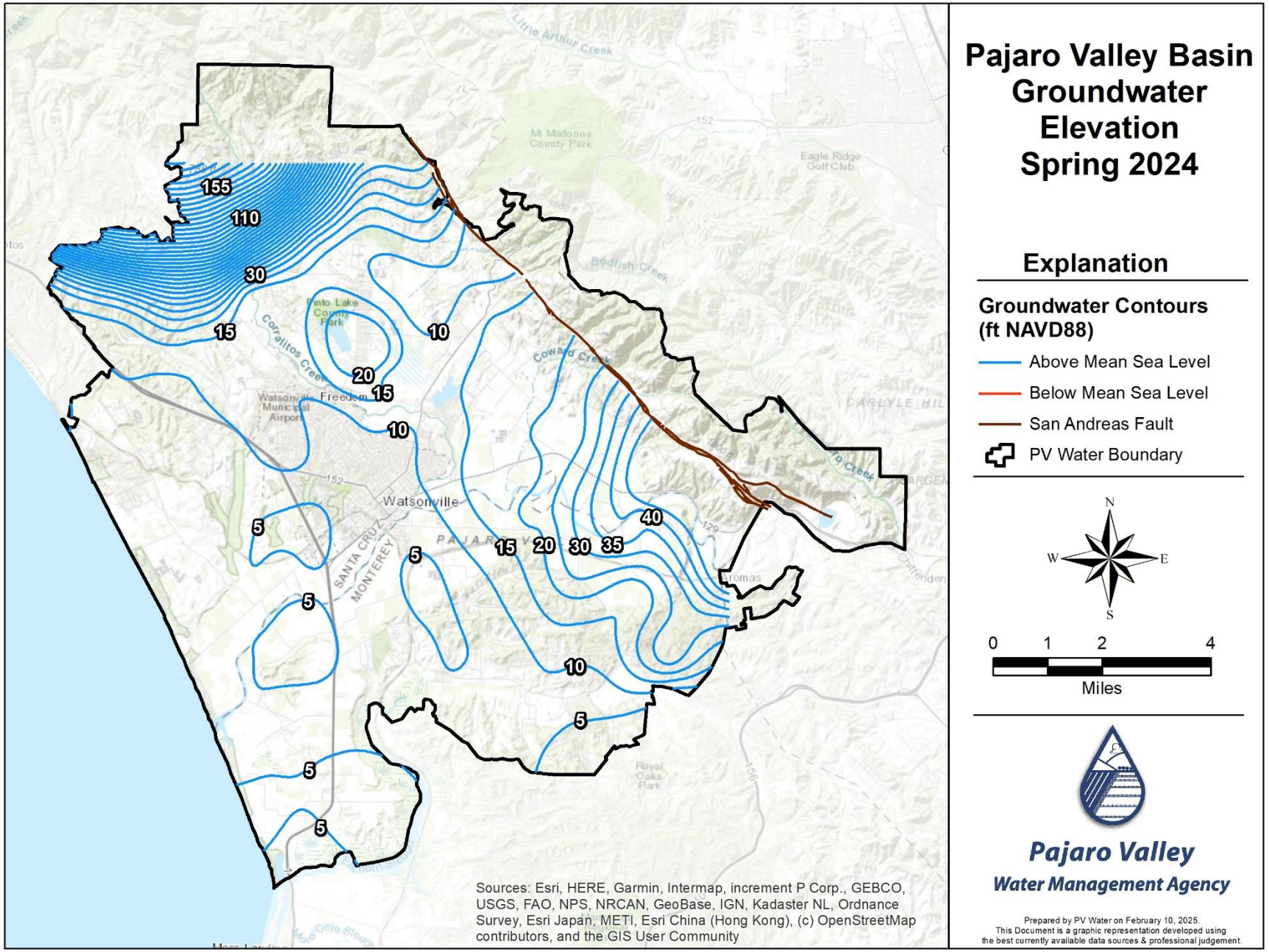
Ground Surface Elevation= 12.5 ft NAVD88
Well Type: Nested Monitoring Well
Total Depth: 180 ft bgs
Aquifer: Aromas and Alluvium
Well Screen Interval= 110-120, 160-180 ft bgs

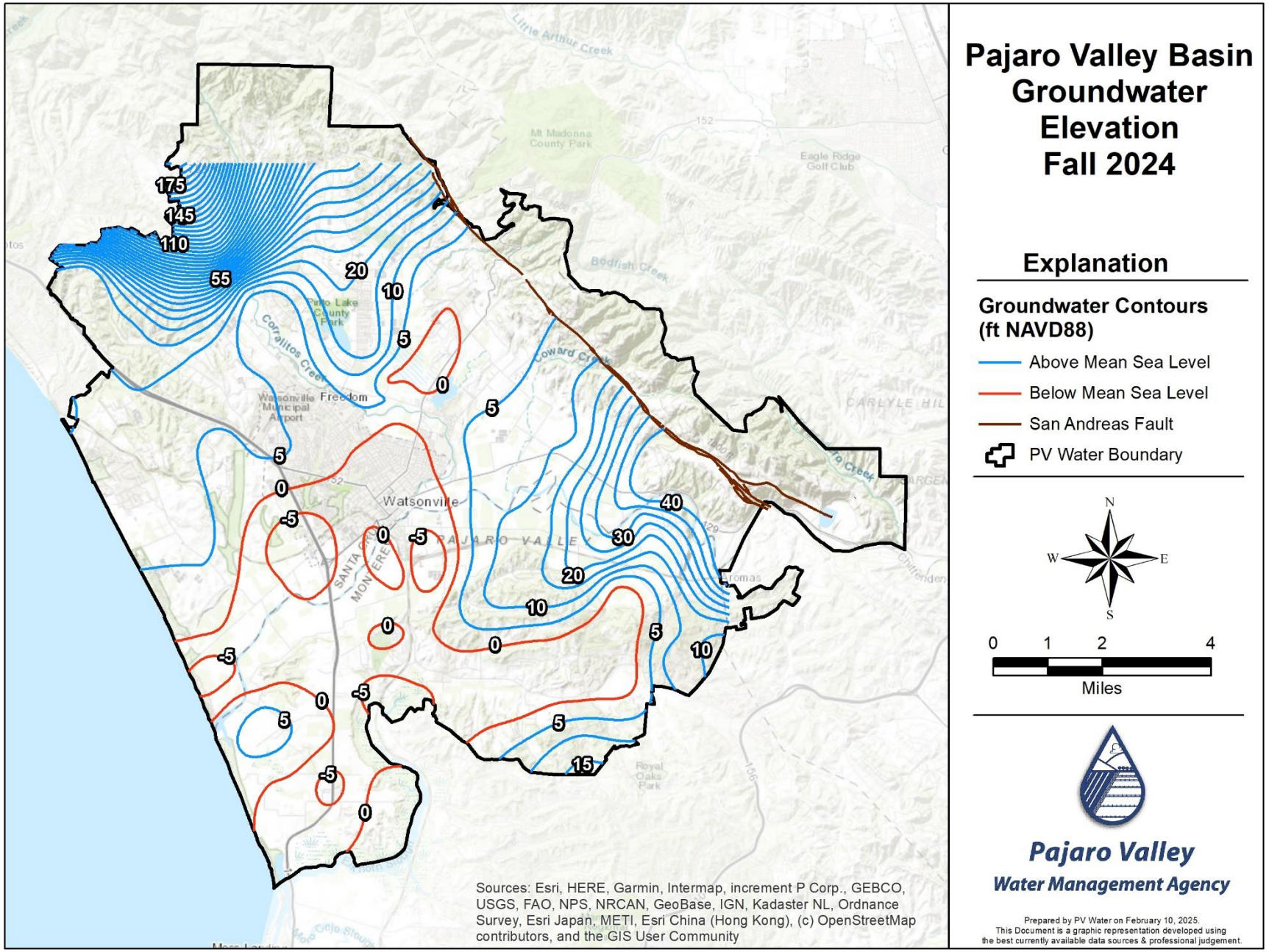
Water Year Classification

Very Wet	Dry
Wet	Very Dry
Average	

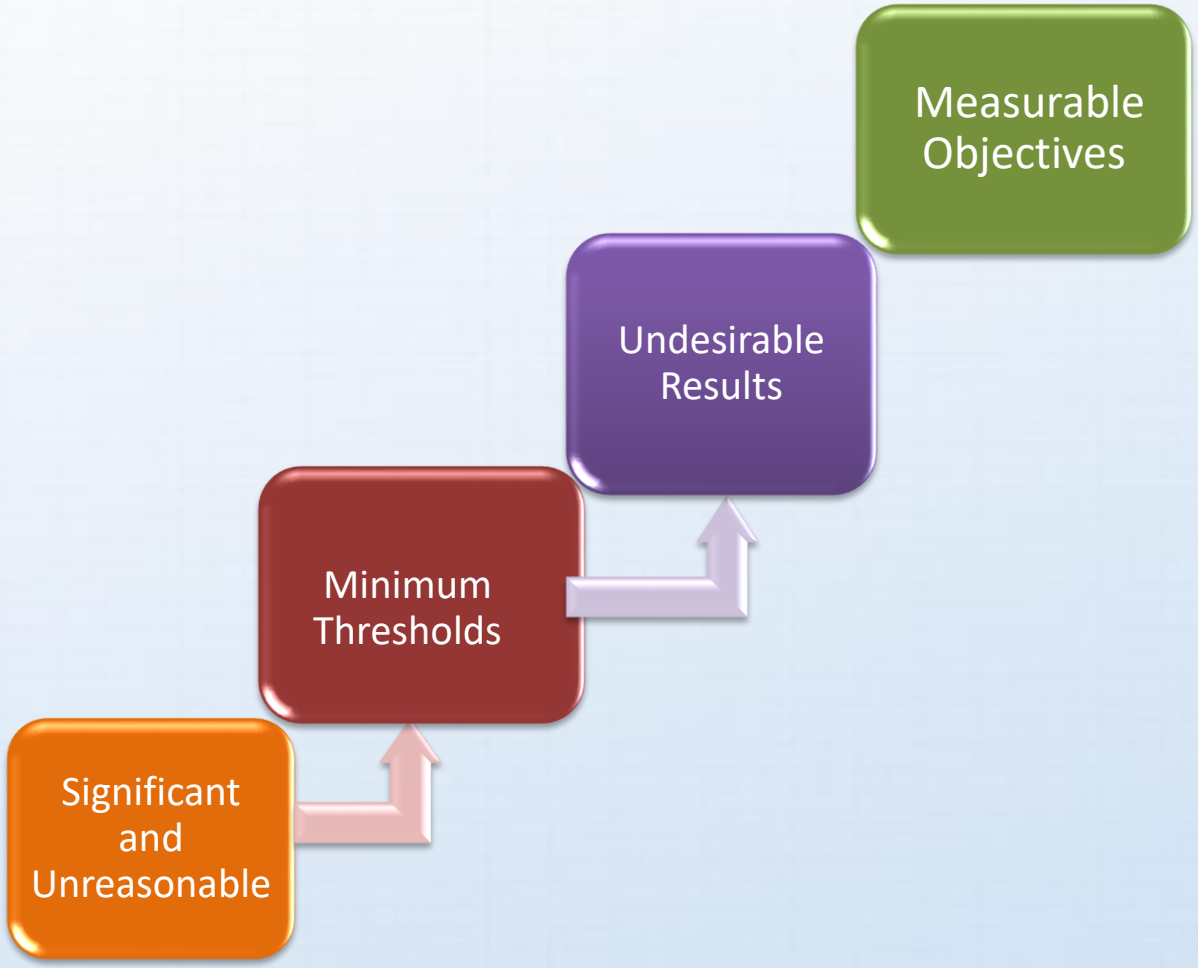
Representative Monitoring Point for ISW

**Note: Pumping measurements and outlier data removed where applicable*
ISW=Depletions of Interconnected Surface Water


Pajaro Valley Basin Groundwater Elevation Spring 2024
Explanation
Groundwater Contours (ft NAVD88)
Above Mean Sea Level
Below Mean Sea Level
San Andreas Fault
PV Water Boundary
N
W
E
S
0 1 2 4
Miles
155
110
30
15
10
20
15
10
5
5
5
5
5
15
20
30
35
40
10
5
Watsonville
Freedom
Watsonville Municipal Airport
Pinto Lake County Park
Mt Madonna County Park
Eagle Ridge Golf Club
Bodfish Creek
Corralitos Creek
Coward Creek
Little Arthur Creek
SANTA CRUZ
MONTEREY
Royal Oaks Park
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), (c) OpenStreetMap contributors, and the GIS User Community
Pajaro Valley
Water Management Agency
Prepared by PV Water on February 10, 2025.
This Document is a graphic representation developed using the best currently available data sources & professional judgement.


Pajaro Valley Basin Groundwater Elevation Fall 2024
Explanation
Groundwater Contours (ft NAVD88)
Above Mean Sea Level
Below Mean Sea Level
San Andreas Fault
PV Water Boundary
N
W
E
S
0 1 2 4
Miles
Pajaro Valley
Water Management Agency
Prepared by PV Water on February 10, 2025.
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), (c) OpenStreetMap contributors, and the GIS User Community
Watsonville
Freedom
Tomas
PAJARO VALLEY
Mt Madonna County Park
Eagle Ridge Golf Club
Bodfish Creek
Corralitos Creek
Harkins Slough
Royal Oaks Park
175
145
110
55
20
10
5
0
-5
40
30
15

Sustainability Status – Important Terminology



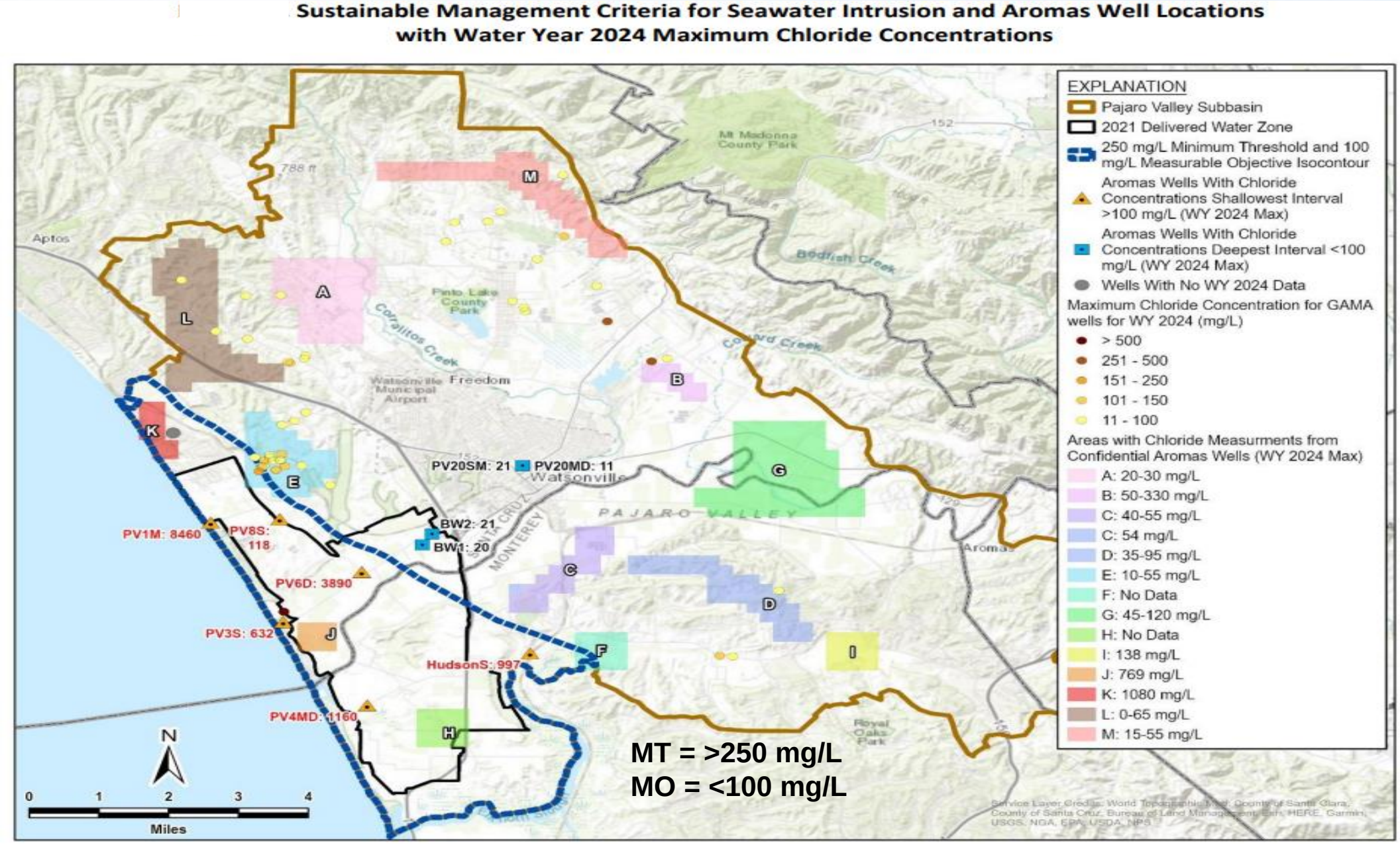
Sustainable Management Criteria (SMC)

- Sustainability achieved by avoiding undesirable results
- **Undesirable results (UR)** are combination of **minimum threshold (MT)** exceedances that represent **significant and unreasonable conditions**
- Undesirable results after 2040 may result in State intervention in Basin management
- **Measurable objectives (MO)** are management goals to provide operational flexibility to prevent undesirable results and include **interim milestones (IM)**

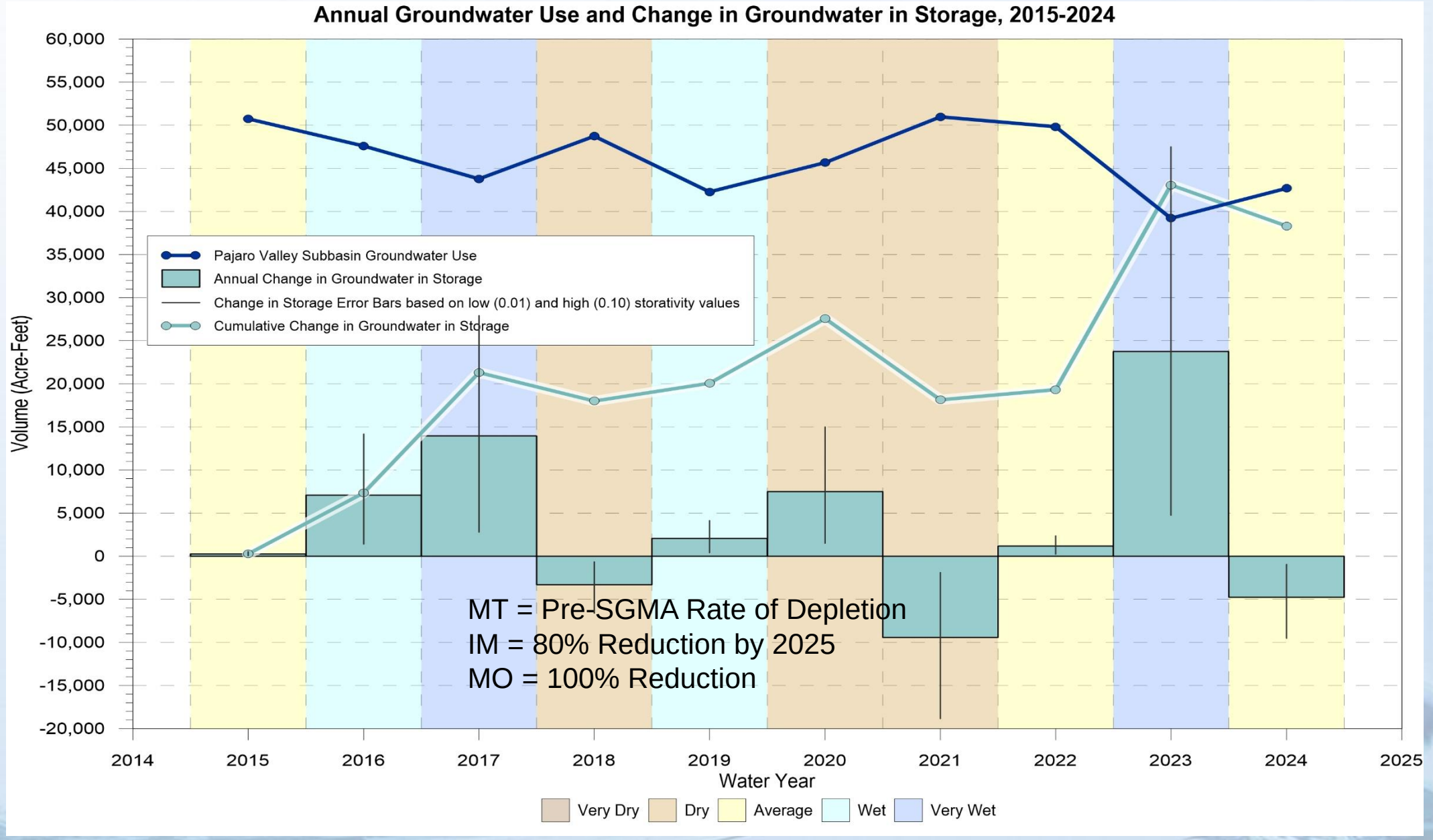
Sustainability Status

	WY2024 Sustainability Evaluation	Minimum Threshold	Undesirable Results	2025 Interim Milestone	Measurable Objective
	Seawater Intrusion	✓	✓	N/A	☒
	Groundwater in Storage	✓	✓	✓	✓
	Groundwater Levels	✓	✓	✓ 17 of 18	✓ 12 of 18
	Interconnected Surface Water	N/A	N/A	✓ 5 of 5	☒
	Water Quality	☒ Coastal Zone Nitrate	☒ Coastal Zone Nitrate	N/A	☒

Seawater Intrusion



Groundwater In Storage



Lowering of Groundwater Levels

Groundwater Levels Measurable Objectives and Average Seasonal Highs over Time

Well Name	Inside/Outside 1,000 Feet of DWZ	Pre-Water Year 2000 Average Seasonal High	Water Year 2000-2009 Average Seasonal High	Water Year 2010-2016 Average Seasonal High	Water Year 2017-2020 Average Seasonal High	Water Year 2010-2020 Average Seasonal High	Water Year 2021-2023 Average Seasonal High	Water Year 2024 Seasonal High	2025 Interim Milestone	Measurable Objective
		Groundwater Elevation in feet NAVD88								
PV1M	Inside	6.3	6.8	6.6	7.1	6.9	7.2	**8.6**	7.9	8.6
PV3D	Inside	2	4.9	3.7	7.5	5.6	5.7	**8.7**	7.5	8.7
PV3S	Inside	3.8	5.2	4.9	7.1	6.0	7.1	**9.1**	6.8	7.3
PV4MD	Inside	3.9	5	7	8.2	7.6	7.9	9.9	8.3	10.2
PV6MD	Inside	1.2	3.9	2	6.7	4.4	7.3	**12.4**	6.8	8.7
PV6SM	Inside	0.9	3.5	1.5	6.5	4.0	5.8	**9.5**	6	8
PV8S	Inside	8.9	7.9	7	9	8.0	8.7	10.4	10.2	11.1
Well 3	Inside	No Data	No Data	-8.4	0.3	-4.1	1.4	**3.4**	-1.4	1.1
AWD_Aimee	Outside	-5.7	No Data	19.7	22.1	20.9	22.5	**26.6**	20.5	26.1
HudsonD	Outside	1.7	0.6	-1.1	4.1	1.5	3.4	**7.8**	4.1	7.2
HudsonS	Outside	1.6	1.5	2.4	5.6	4.0	5.5	7.7	6.8	10.2
PV20MD	Outside	No Data	No Data	3.5	6.7	5.1	5.9	**10.3**	6.3	9.2
PV20SM	Outside	No Data	No Data	2.3	6.9	4.6	5.7	**10.9**	6.4	8.8
SC_A4C	Outside	No Data	No Data	6.9	7.5	7.2	7.7	8.7	9	10.2
SC_A9A	Outside	No Data	No Data	13.1	11.5	12.3	12.3	13.1	13	14.9
Well 2	Outside	No Data	No Data	4.7	13.1	8.9	10.1	**20.4**	12.2	12.4
Well 5	Outside	77.6	107.3	91.1	96.5	93.8	89.6	91.8	90.2	93.1
Well 9	Outside	7.2	8	6.8	3.1	5.0	-0.4	**9.9**	5.4	7.8

Average seasonal highs above measurable objective are indicated in bold

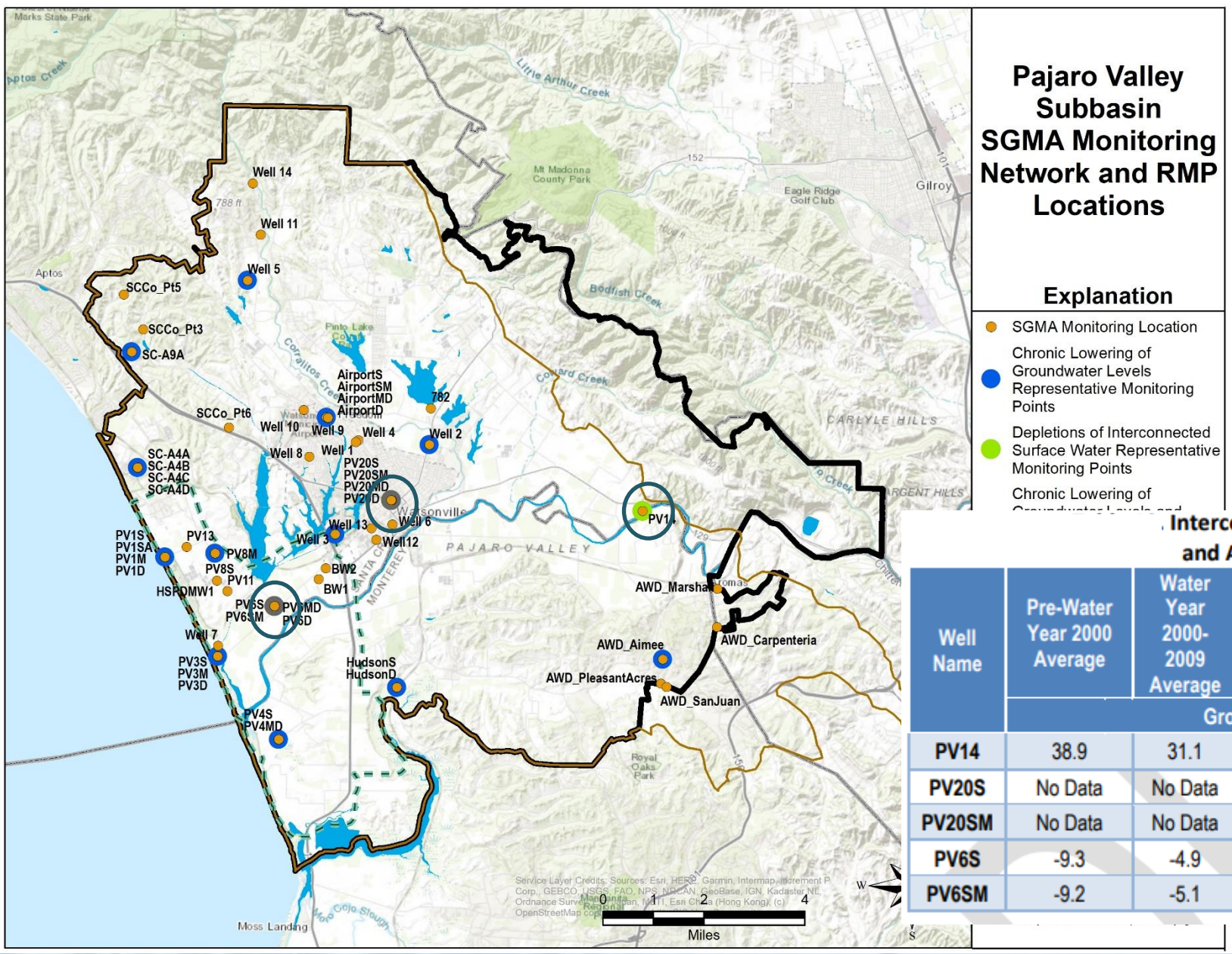
Lowering of Groundwater Levels

Summary of Groundwater Levels Minimum Thresholds and Minimum Groundwater Levels over Time

Well Name	Inside/ Outside 1,000 Feet of DWZ	Minimum Threshold	Pre-Water Year 2000 Minimum	Water Year 2000-2009 Minimum	Water Year 2010-2016 Minimum	Water Year 2017-2020 Minimum	Water Year 2021-2023 Minimum	Water Year 2024 Minimum
		Groundwater Elevation in feet NAVD88						
PV1M	Inside	2.2	No Data	1.8	4.7	5.1	5.7	6.5
PV3D	Inside	-16.1	-20.9	-16.3	-11.3	-8.8	-12.9	-5.1
PV3S	Inside	-5.8	-6.5	-7.9	-1.3	1.1	0.9	2.5
PV4MD	Inside	0.2	-2.1	-0.4	3.3	4.5	4.7	6.3
PV6MD	Inside	-18.4	-19.3	-20.2	-13.8	-9	-10.6	-4.3
PV6SM	Inside	-19.4	-27.1	-21.1	-13.3	-8.4	-9.8	-3.3
PV8S	Inside	1.7	3	0.9	3.1	4.2	4.8	7.6
Well 3	Inside	-18.9	No Data	No Data	-18.9	-14.2	-19.6	-10.6
AWD_Aimee	Outside	0.7	-13	No Data	-0.4	4.6	3.0	10.6
HudsonD	Outside	-19.8	-19	-20	-19.1	-15.6	-14.4	-8.8
HudsonS	Outside	-3.9	-5.8	-3.9	-2.1	-0.7	0.0	4.1
PV20MD	Outside	-12	No Data	No Data	-13	-10.9	-12.0	-4.0
PV20SM	Outside	-7.1	No Data	No Data	-8	-6.2	-6.3	-1.0
SC_A4C	Outside	6	No Data	No Data	6	6.6	6.8	8.1
SC_A9A	Outside	10.3	No Data	No Data	10.2	10.4	11.6	12.5
Well 2	Outside	-6.1	No Data	No Data	-7.5	1.6	-0.1	6.4
Well 5	Outside	61.8	20.1	55.8	74.4	79.8	83.4	66.8
Well 9	Outside	-9.5	-19.1	-3.2	-12.4	-5.6	-12.8	0.9

Elevations below Minimum Threshold are underlined

Interconnected Surface Waters

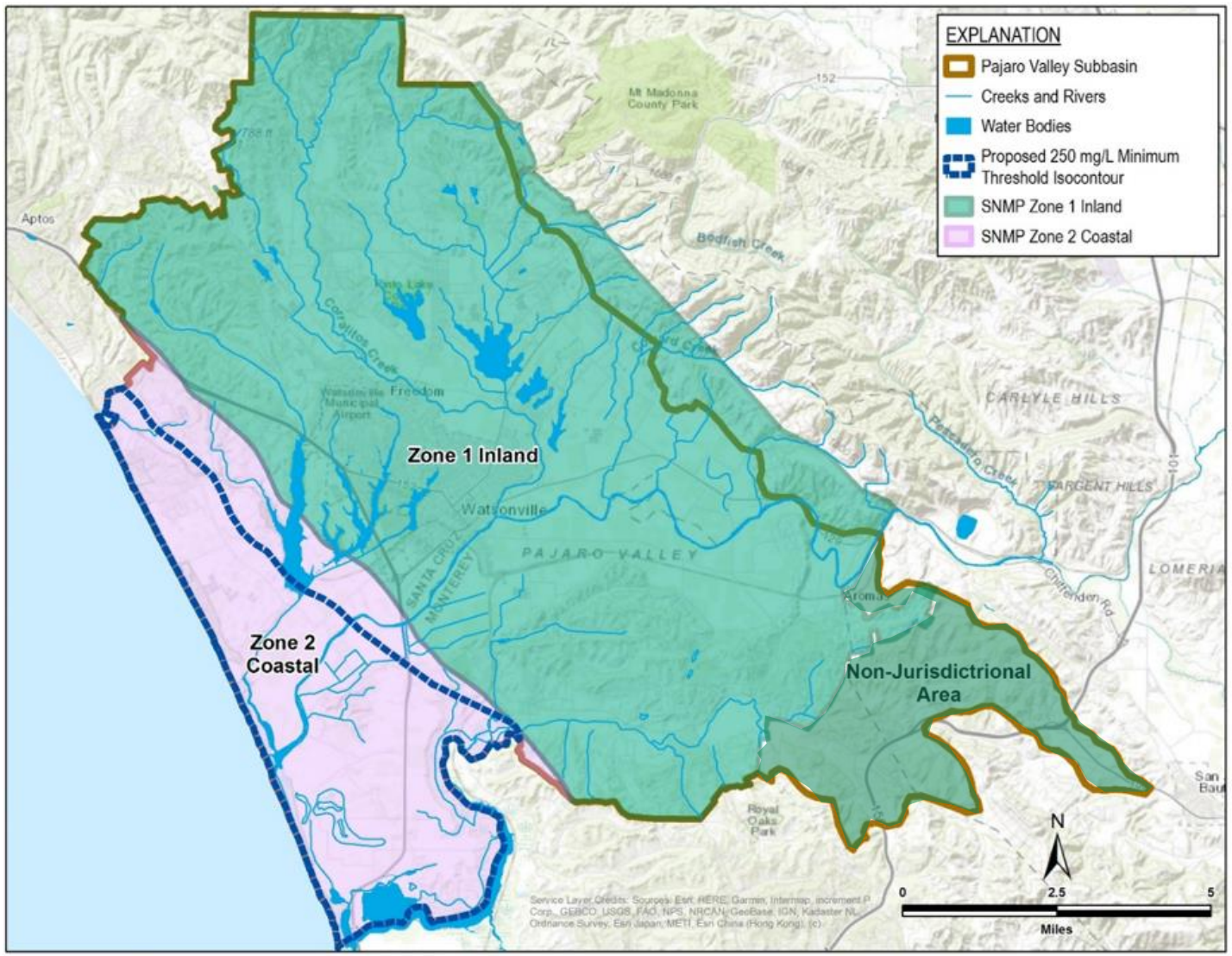


Interconnected Surface Water Measurable Objectives and Annual Average Elevations over Time

Well Name	Pre-Water Year 2000 Average	Water Year 2000-2009 Average	Water Year 2010-2015 Average	Water Year 2016-2020 Average	Water Year 2021-2023 Average	Water Year 2024 Average	2025 Interim Milestone	Measurable Objective
	Groundwater Elevation in feet NAVD88							
PV14	38.9	31.1	No Data	42.9	40.0	44.5	40.2	47
PV20S	No Data	No Data	No Data	0.9	4.4	5.0	4	15
PV20SM	No Data	No Data	No Data	1	4.3	5.0	4.1	15
PV6S	-9.3	-4.9	-3.8	0.4	3.2	3.1	1.3	6.5
PV6SM	-9.2	-5.1	-3.8	0.3	3.2	3.1	1.3	6.5

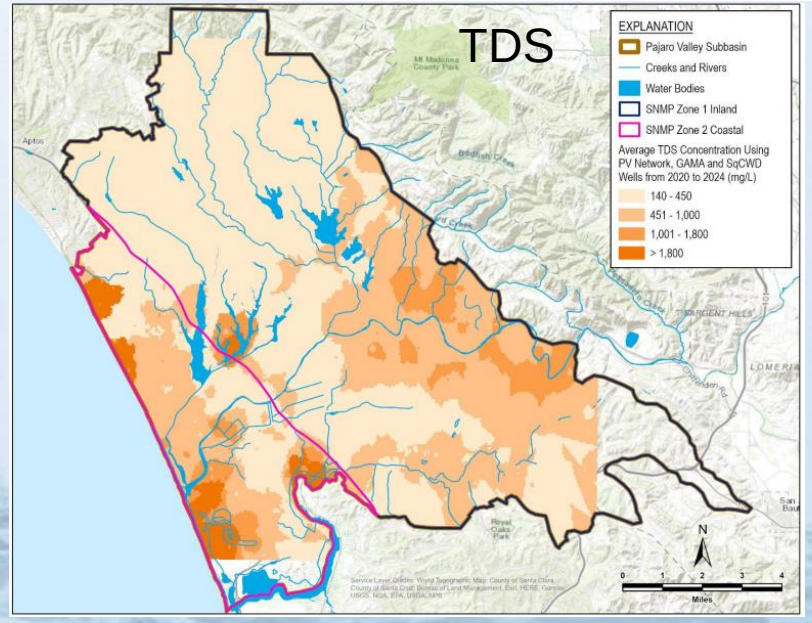
Water Quality Degradation

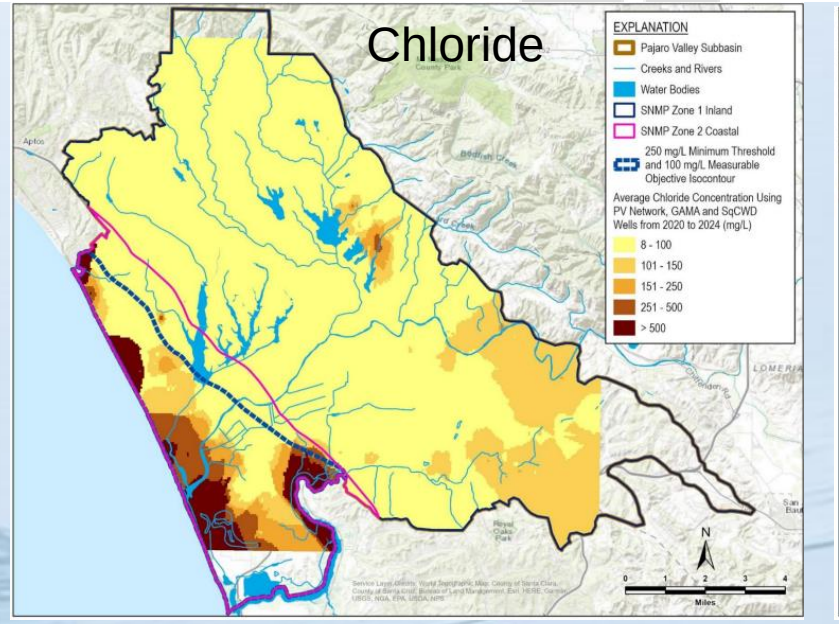
SNMP Assimilative Capacity Zones and Seawater Intrusion Minimum Threshold Isocontour

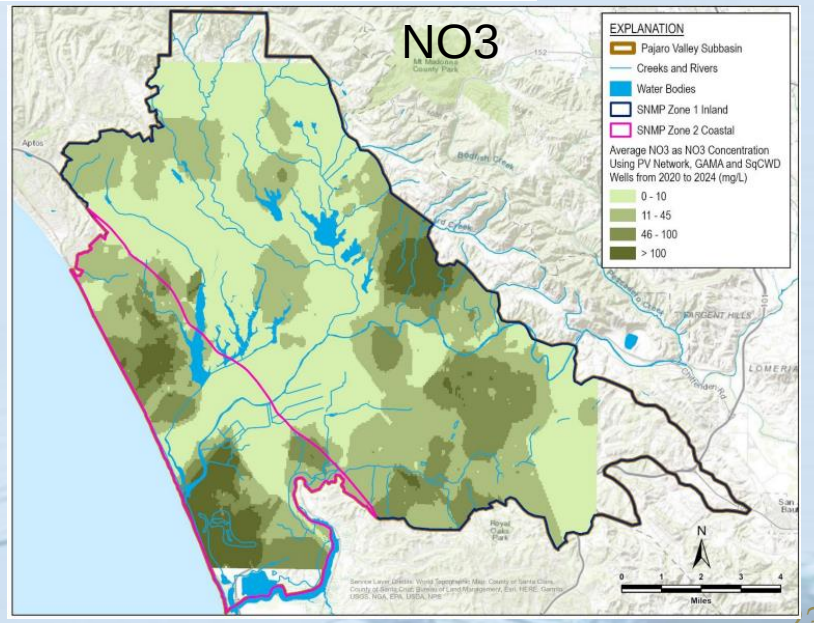


Water Quality

Constituent	Minimum Threshold (mg/L)	Zone	2002-2011 (SNMP)[3]	2016-2020 (GSU22)[3]	2019-2023[3]	2020-2024[3]
TDS	1,000	SNMP Zone 1 Plus[1]	466	475	484	482
		SNMP Zone 2[2]	730	816	924	944
Chloride	150	SNMP Zone 1 Plus[1]	46	61	60	57
		SNMP Zone 2[2]	198*	273*	424*	334*
Nitrate (NO_3)	45	SNMP Zone 1 Plus[1]	24	24	22	21
		SNMP Zone 2[2]	39	52	62	54



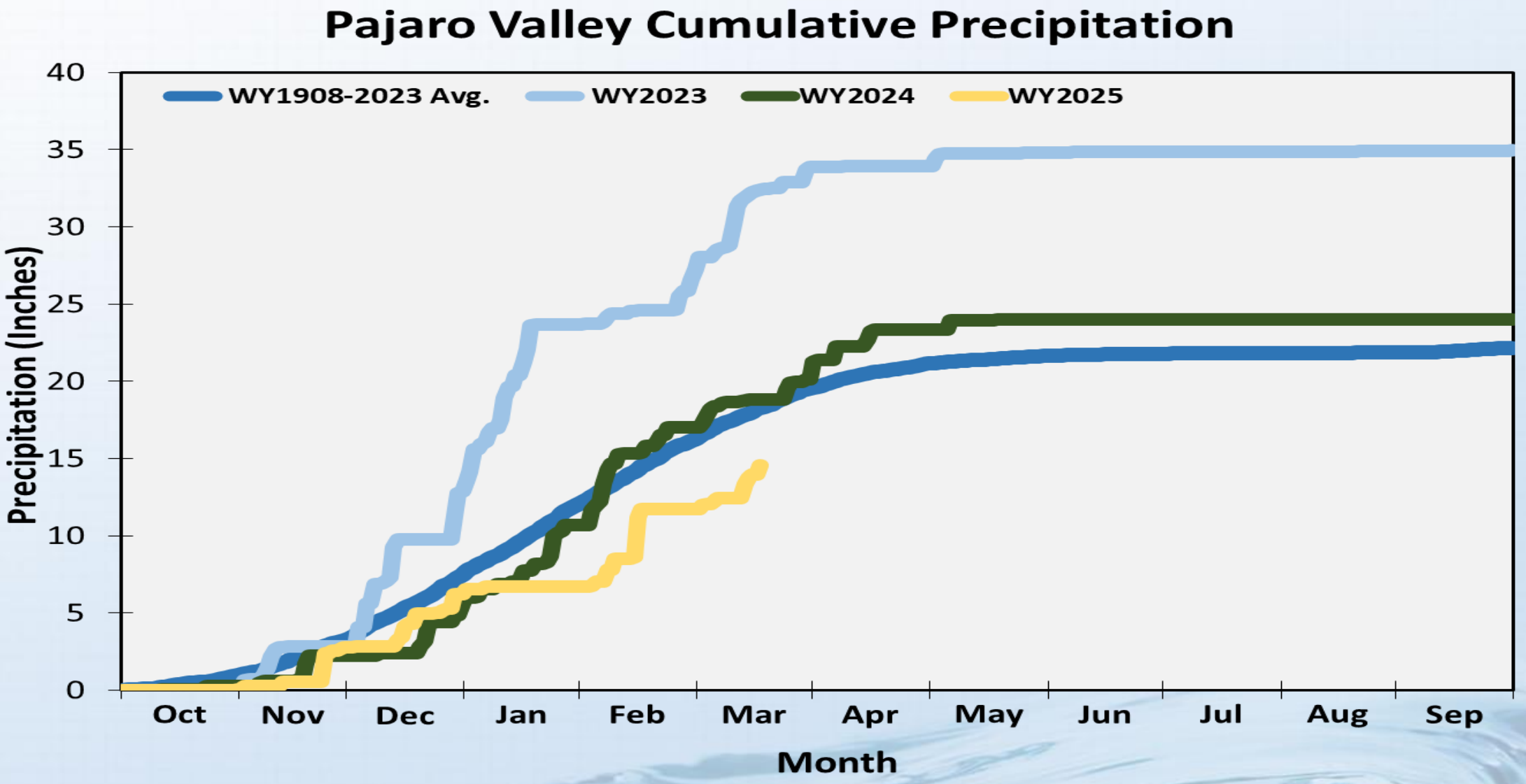




Summary

- Progress
  - Construction of College Lake Project
  - 100% Design and EIR Addendum
  - MLRP and PRWRP
- Basin Conditions
  - 22.77 in of Precipitation (Average)
  - 47,086 AF of Total Water Use
  - Average Basin GW Level Decrease of 1.3 ft
  - ~4,759 AF Decrease of GW in Storage
- Sustainability Status
  - Favorable, Except Coastal Zone Nitrate MT Exceedance and Undesirable Result

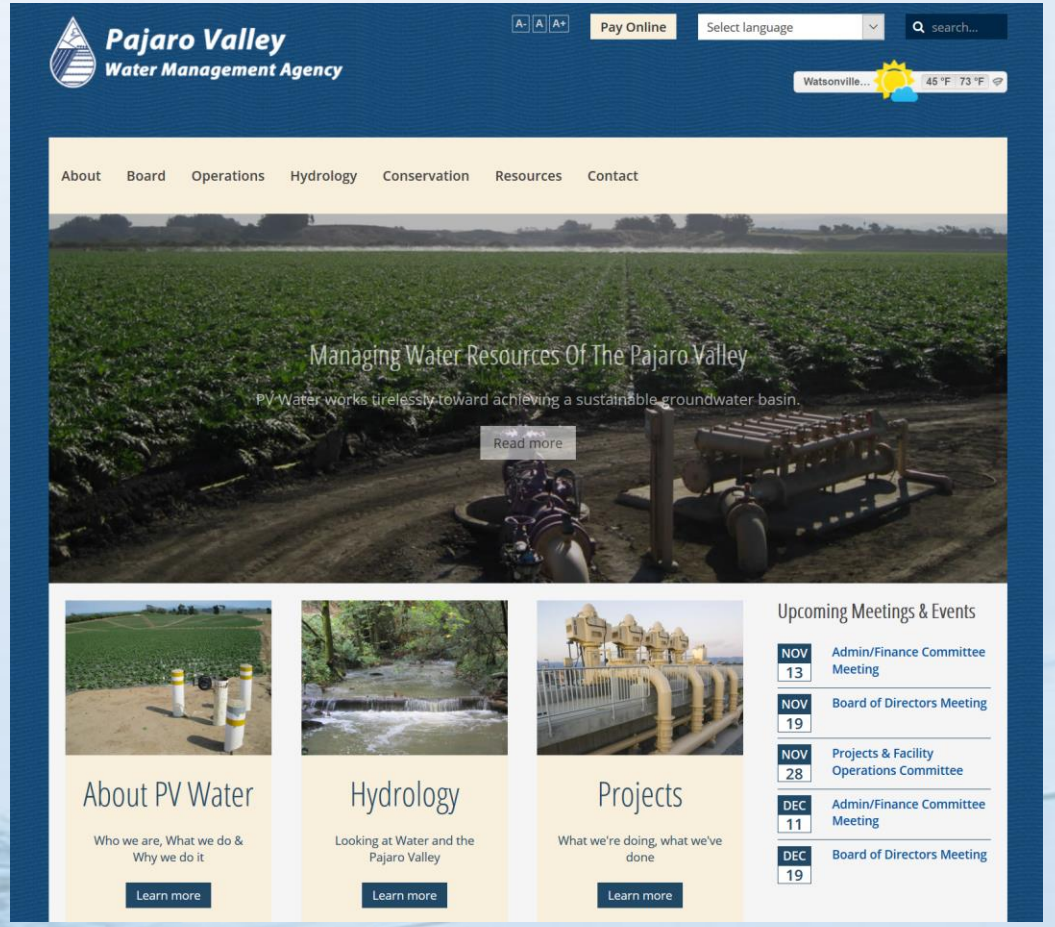
Looking Forward



Data Source: Station WTW operated by City of Watsonville, https://xmacis.rcc-acis.org/

Thank You…

By phone: 831-722-9292

By email: meusel@pvwater.org

Or visit our website: pvwater.org