



# 2023 Groundwater Extraction Summary Report





# Program Budget

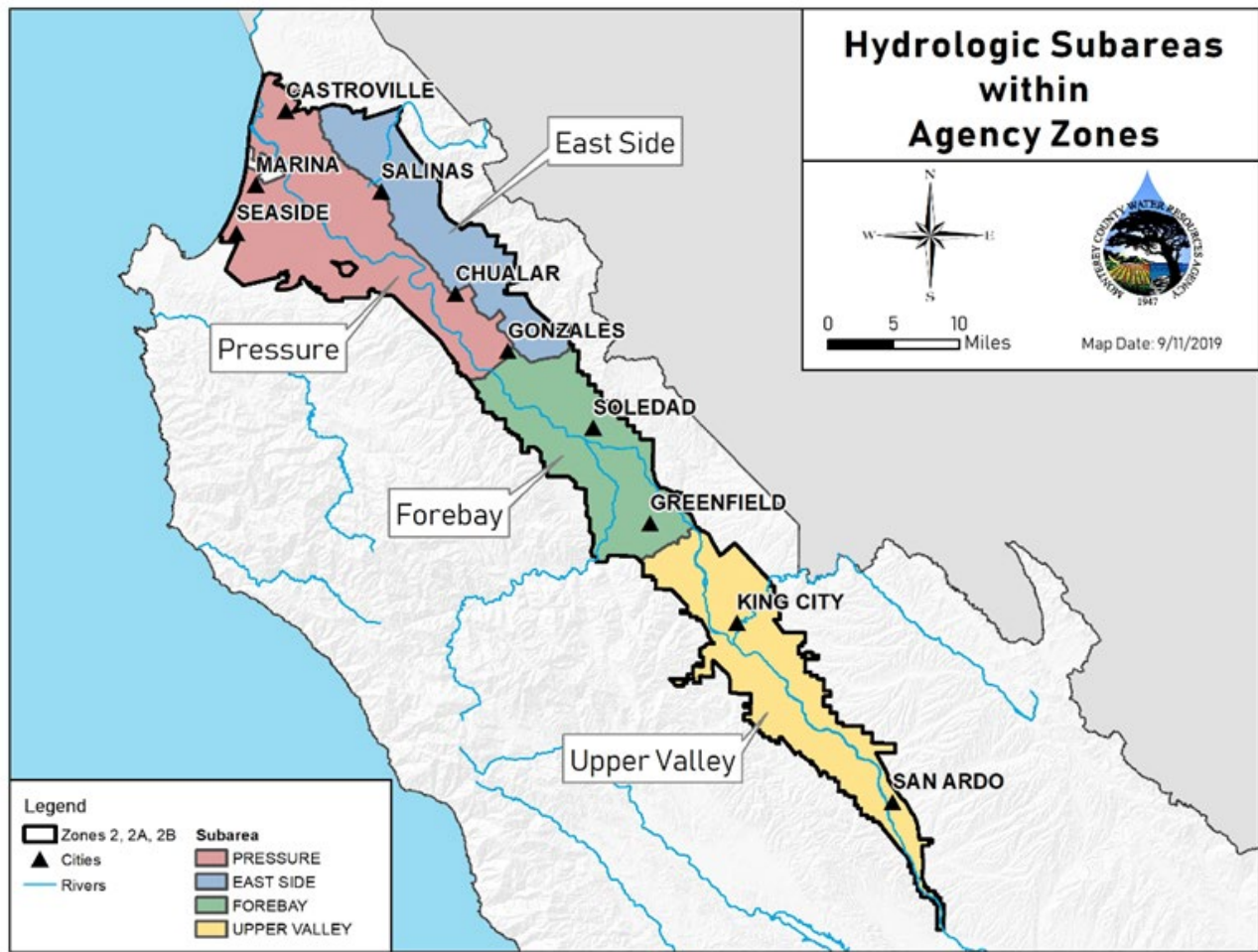
- Activities associated with the Groundwater Extraction Management System (GEMS) program are funded by Fund 116 and are included in the FY 24/25 budget



# Extraction data informs multiple programs

- Groundwater elevation contour maps
- Seawater intrusion maps
- Hydrologic model development
- Well permit application review
- Operation of Agency facilities (e.g., reservoirs, SRDF)
- Hydrogeologic conceptual model of the Salinas Valley Groundwater Basin
- Utilized by local Groundwater Sustainability Agencies

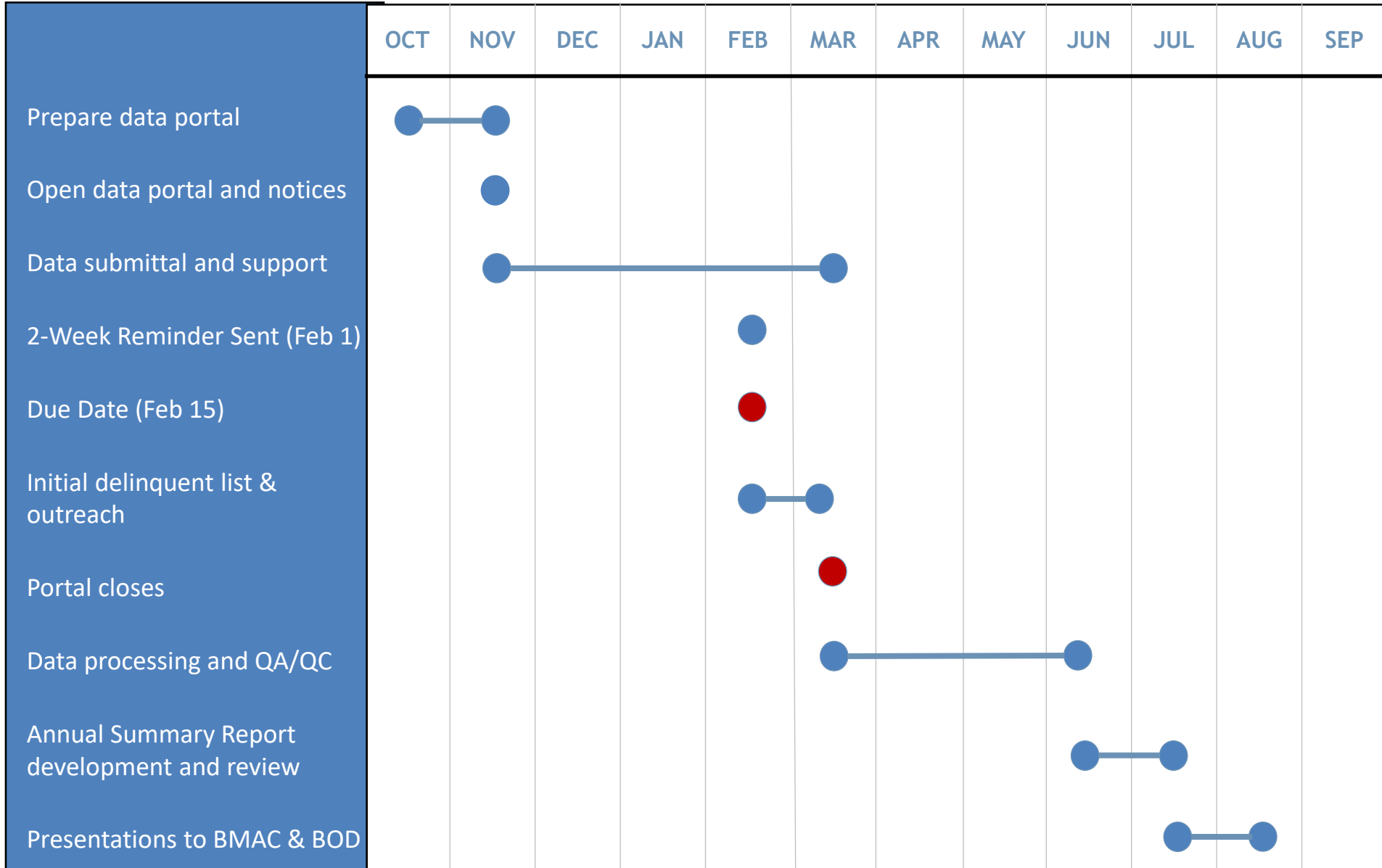
# Program Area & Background



- Long-term program that began in 1993
- Implemented per Agency ordinances
- Geographic extent includes Agency Zones 2, 2A, 2B
- 4 Subareas



# Current GEMS Timeline



# Components of the Annual Summary Report



## Groundwater extraction

Monthly data on amount of groundwater pumped per well



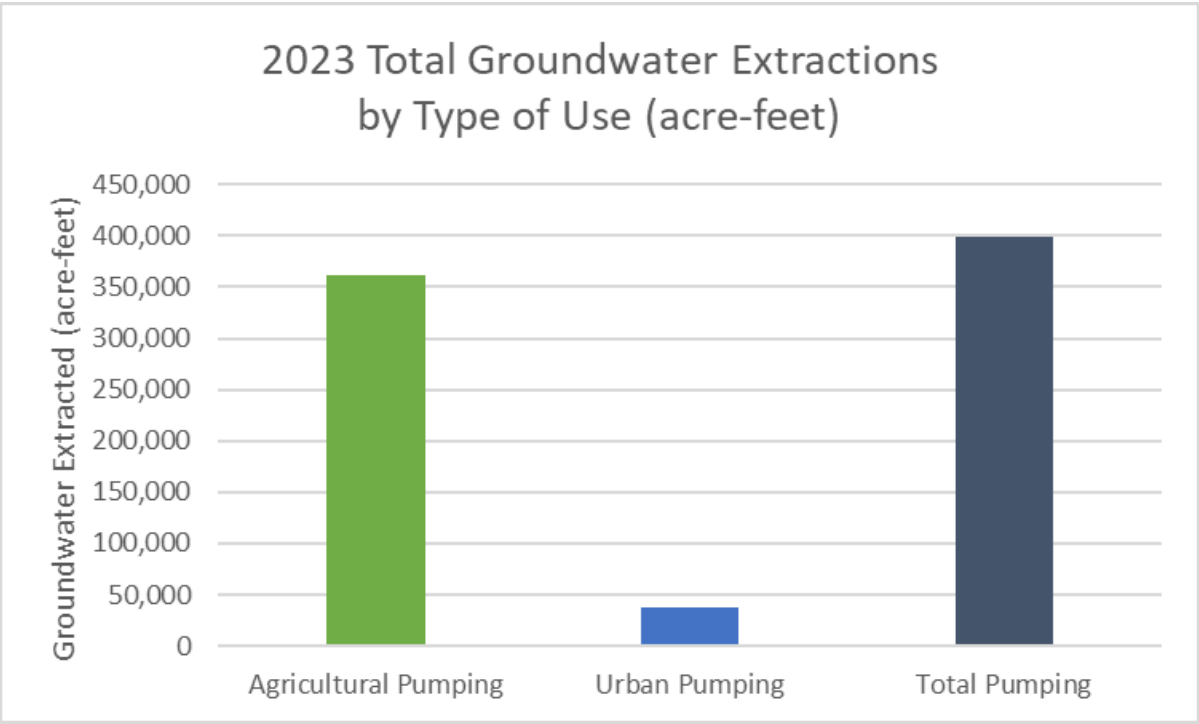
## Anticipated conservation practices



## Water and land use

Groundwater use per acre and crop type

# 2023 Total Annual Extractions

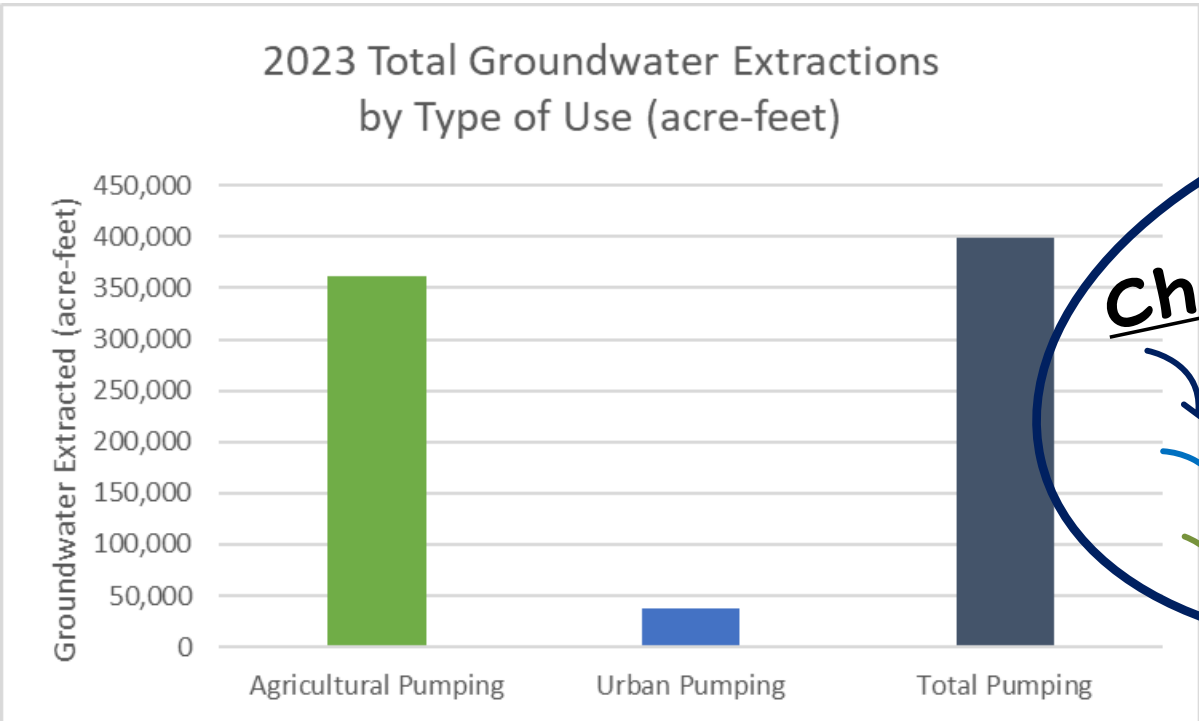


Water Use Type	Total Pumping (ac-ft)	Percent of Total
Agricultural	361,933	90.7%
Urban	37,250	9.3%
<b>All Uses (Total)</b>	<b>399,183</b>	<b>100%</b>

Based on data from 96% of the 1,940 wells that were required to report for 2023.



# 2023 Total Annual Extractions



**Change from 2022**  
 Total = 88,626 AF  
 Urban = 2,738 AF  
 Ag = 85,888 AF

Water Use Type	Total Pumping (ac-ft)	Percent of Total
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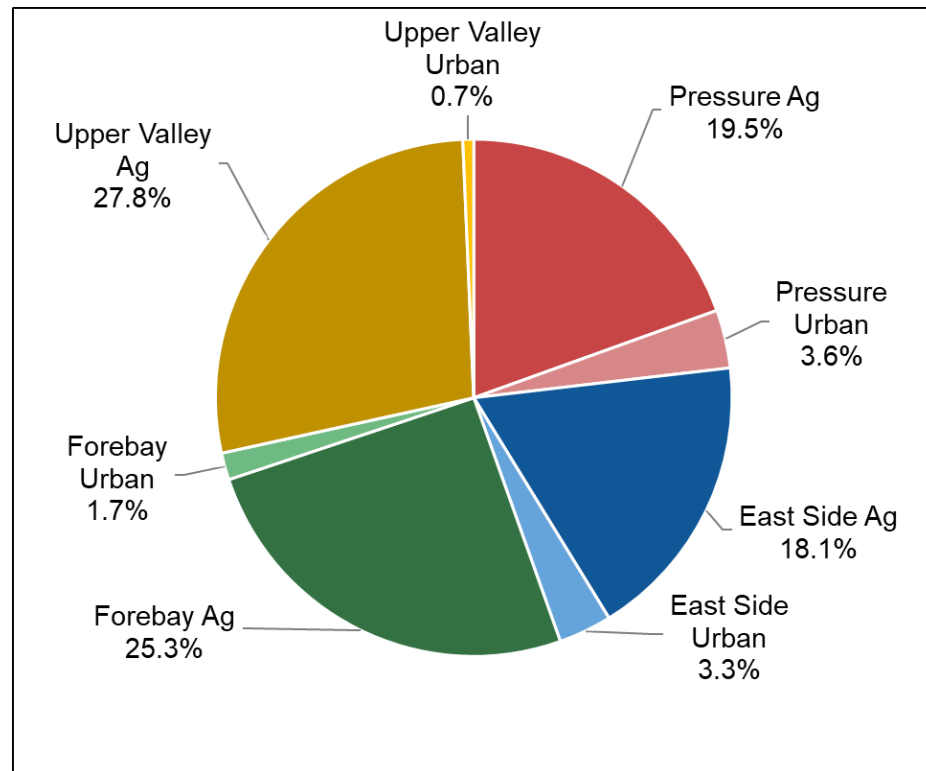
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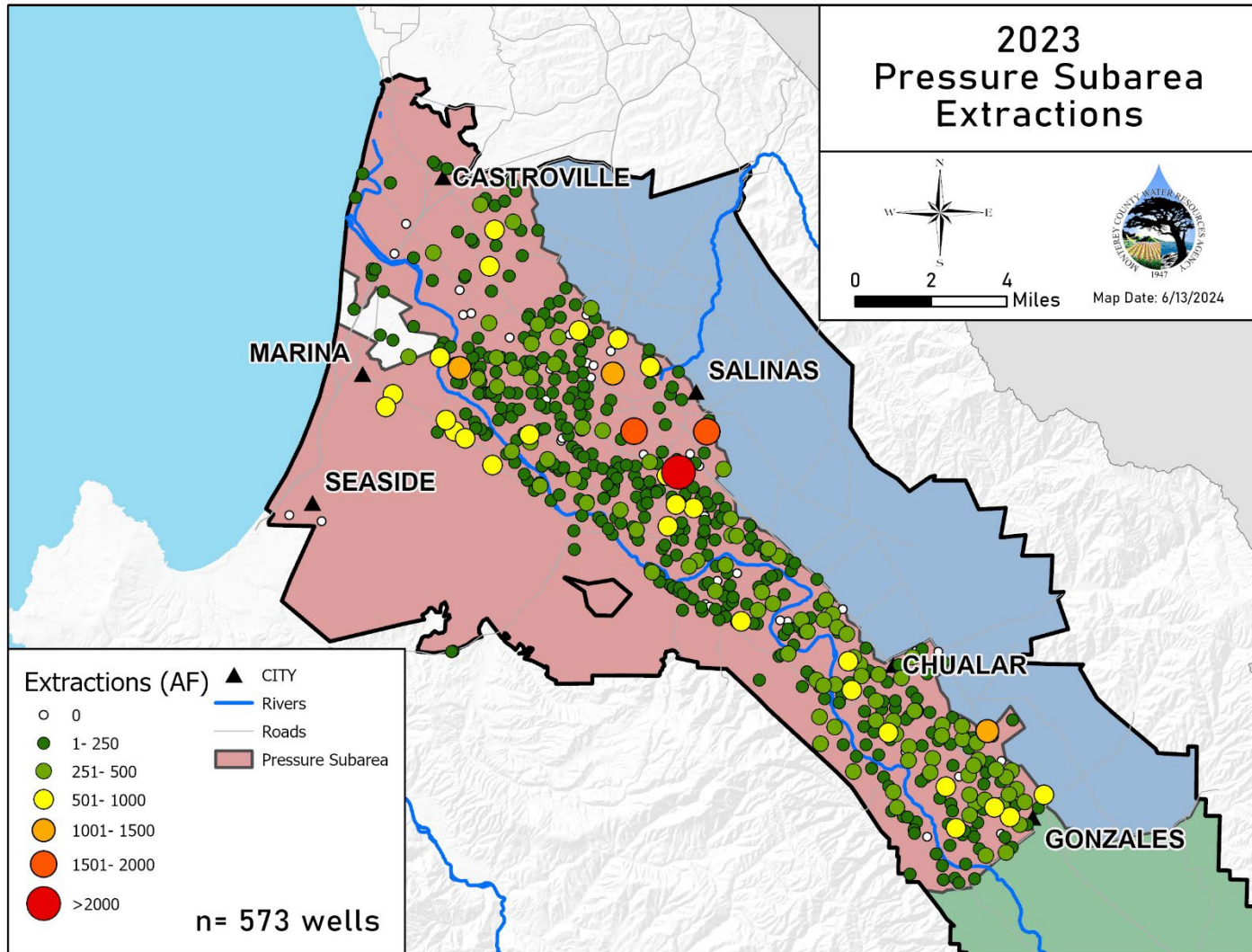


# 2023 Extractions by Subarea

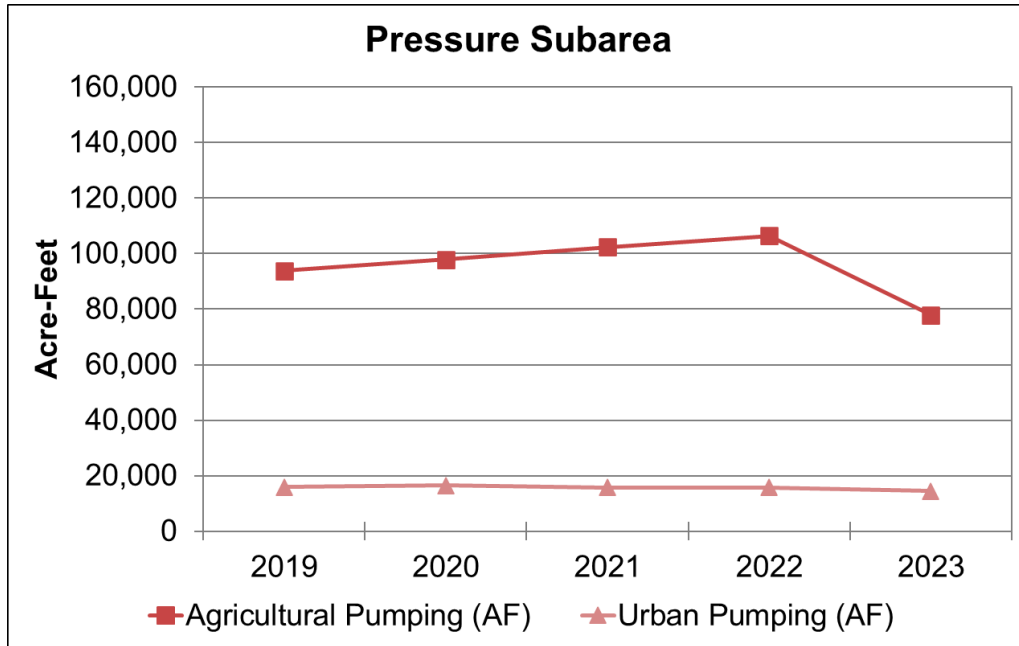
Subarea	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
Pressure	77,906	14,516	<b>92,422</b>
East Side	72,157	13,286	<b>85,443</b>
Forebay	101,050	6,748	<b>107,798</b>
Upper Valley	110,820	2,699	<b>113,520</b>
<b>Total (AF)</b>	<b>361,933</b>	<b>37,250</b>	<b>399,183</b>
<b>Percent of Total</b>	<b>90.7%</b>	<b>9.3%</b>	<b>100.0%</b>



# 2023 Groundwater Extraction – Pressure Subarea



# 2023 Groundwater Extraction – Pressure Subarea



**Change from 2022**

Urban = 1,331 AF

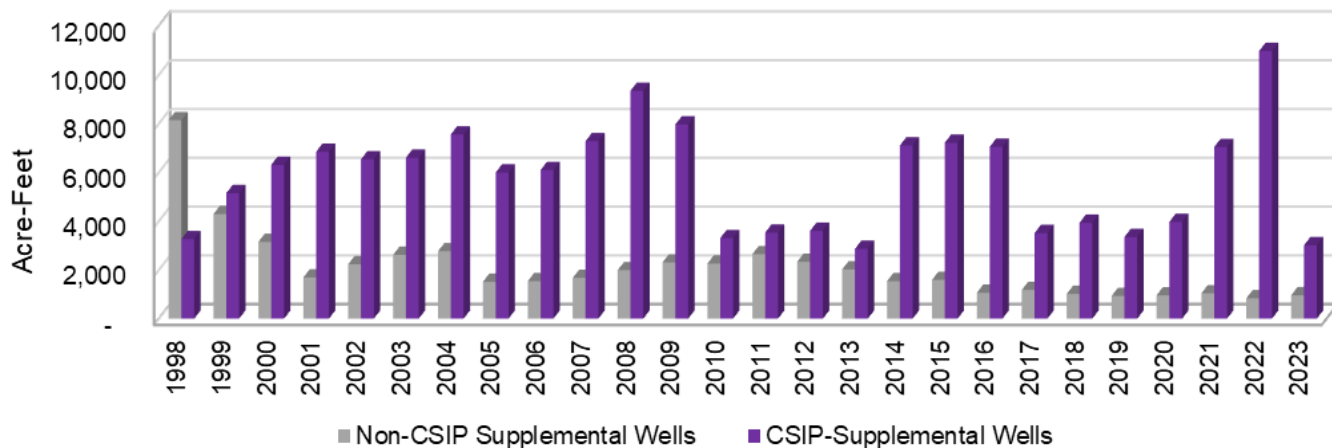
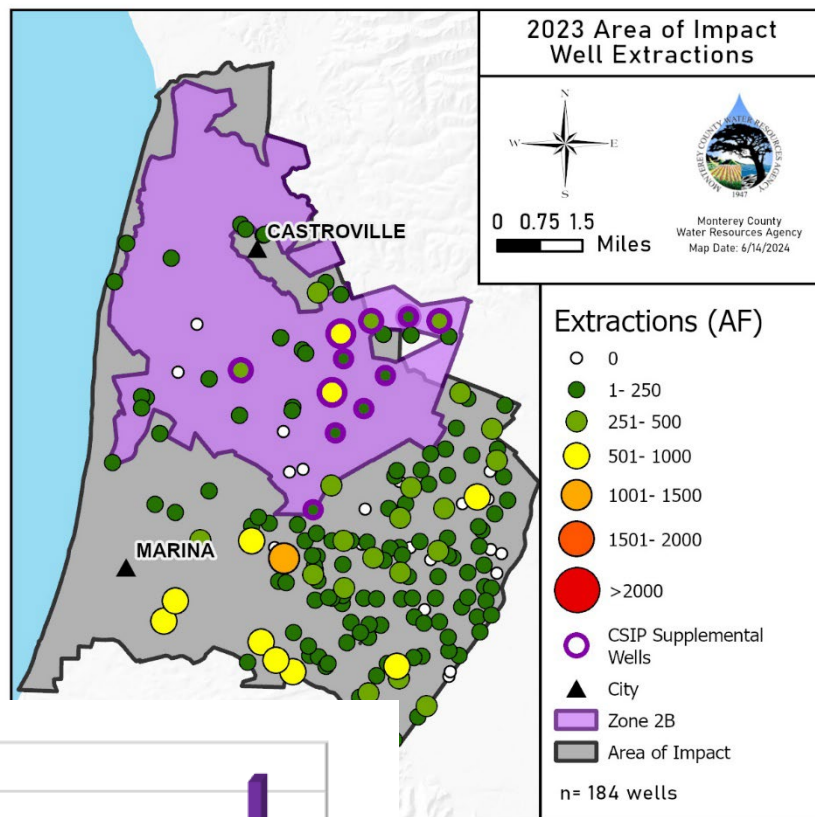
Ag = 28,587 AF

Year	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
2023	77,906	14,516	92,422
2022	106,493	15,847	122,340
2021	102,435	15,785	118,220
2020	97,821	16,452	114,273
2019	93,829	15,885	109,714

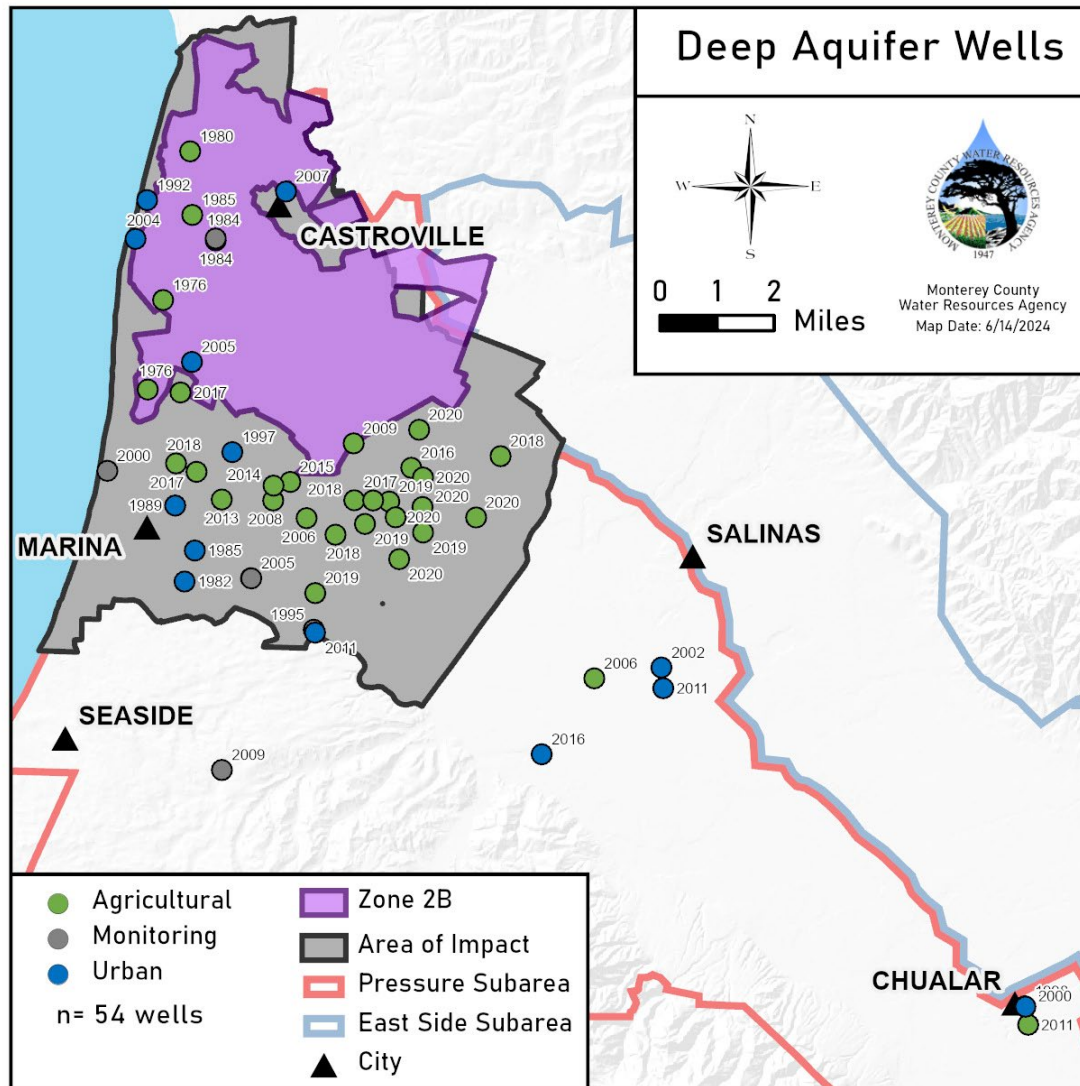


# 2023 Extraction - Zone 2B and Area of Impact

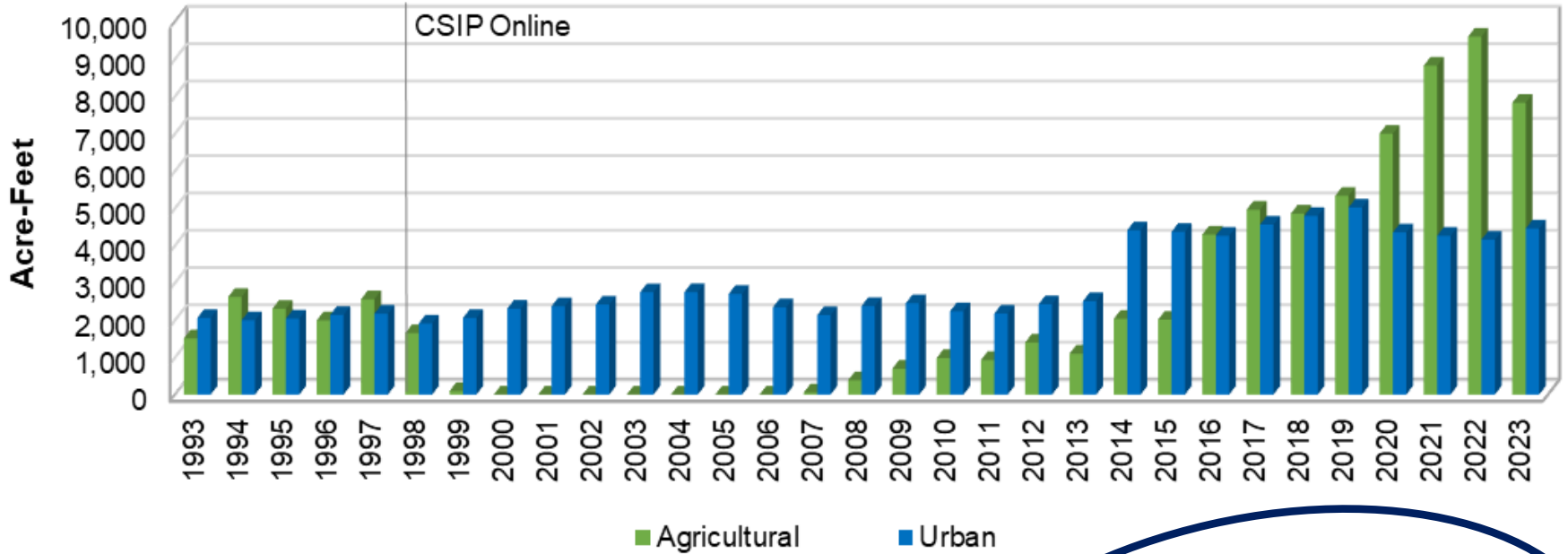
Aquifer	Agriculture Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
180-Ft Aquifer or East Side Shallow	1,508	1	1,509
180 and 400-Ft Aquifer	1,064	303	1,367
400-Ft Aquifer or East Side Deep	11,826	1,512	13,338
Deep Aquifers	7,346	1,806	9,152
Unknown	2,507	88	2,595
<b>Total (AF)</b>	<b>24,251</b>	<b>3,709</b>	<b>27,960</b>



# 2023 Groundwater Extraction – Deep Aquifers



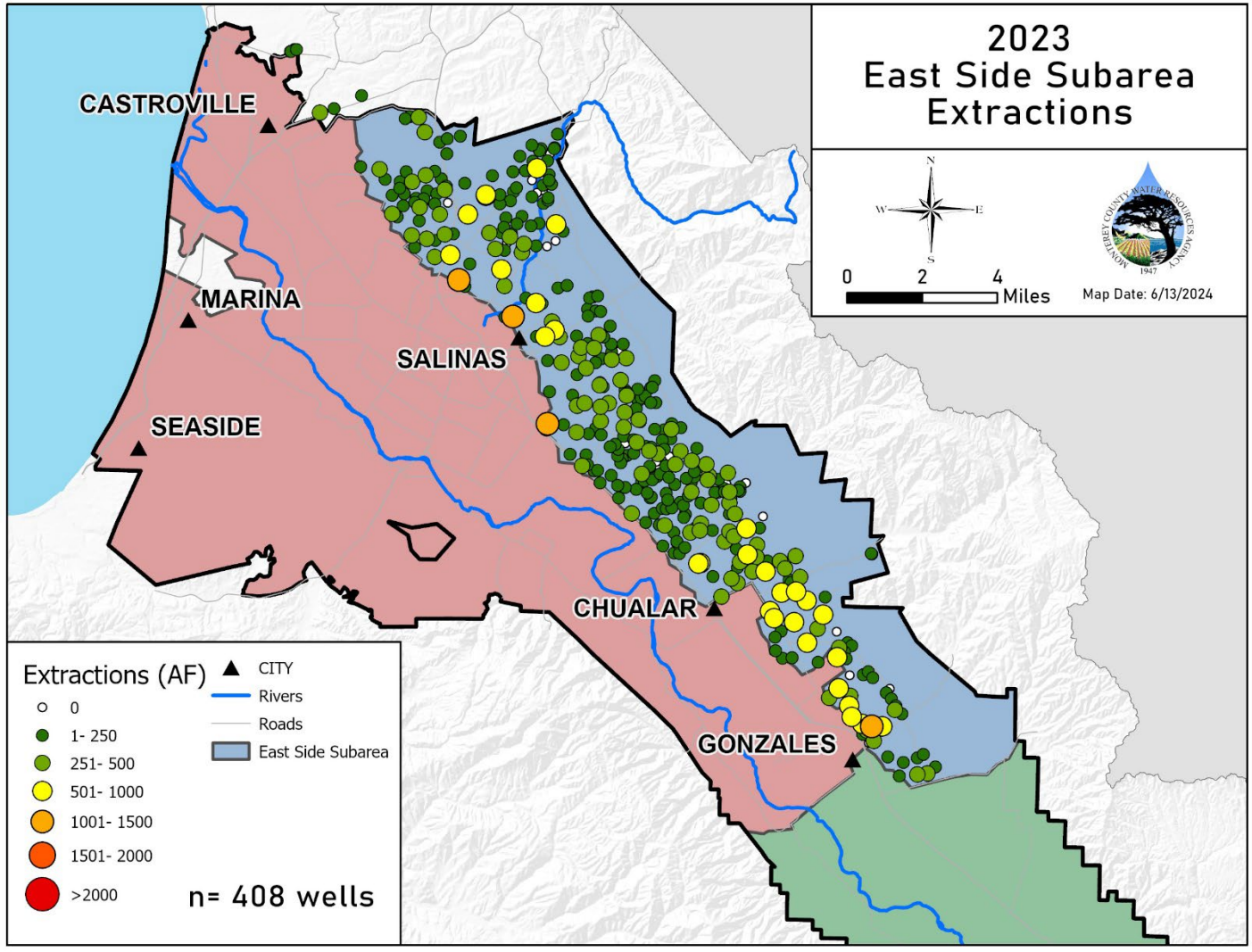
# 2023 Groundwater Extraction – Deep Aquifers



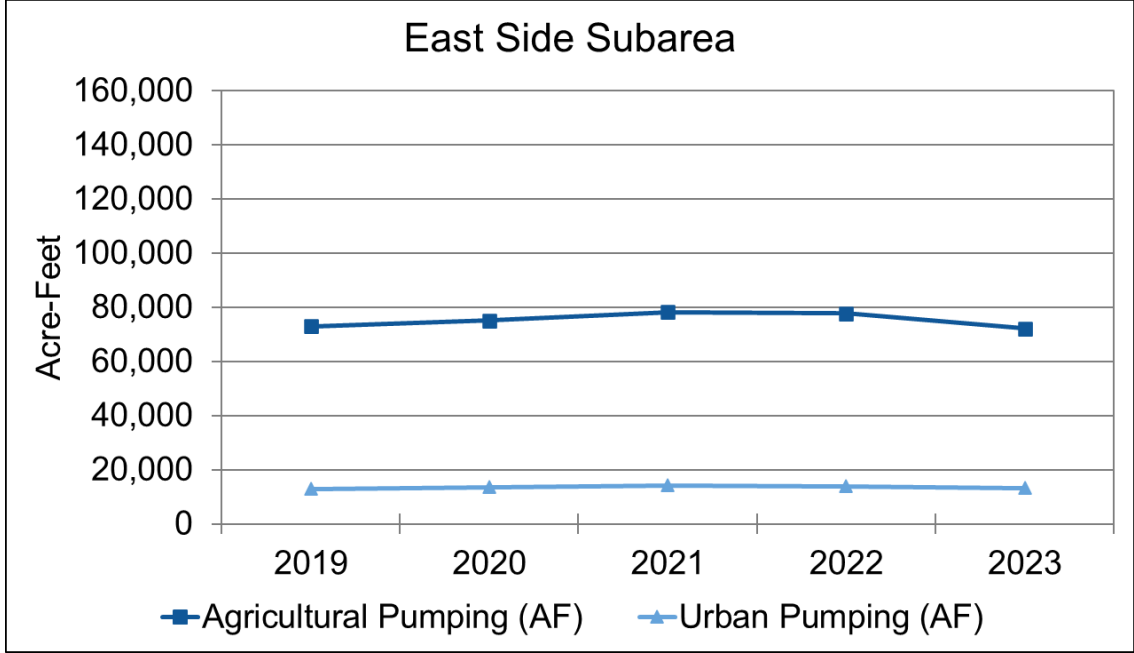
**Change from 2022**  
 ↑ Urban = 299 AF  
 ↓ Ag = 1,773 AF



# 2023 Groundwater Extractions – East Side Subarea



# 2023 Groundwater Extraction – East Side Subarea



Year	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
2023	72,157	13,286	85,443
2022	77,731	13,840	91,571
2021	78,283	14,136	92,419
2020	75,125	13,617	88,742
2019	73,006	12,822	85,828

**Change from 2022**

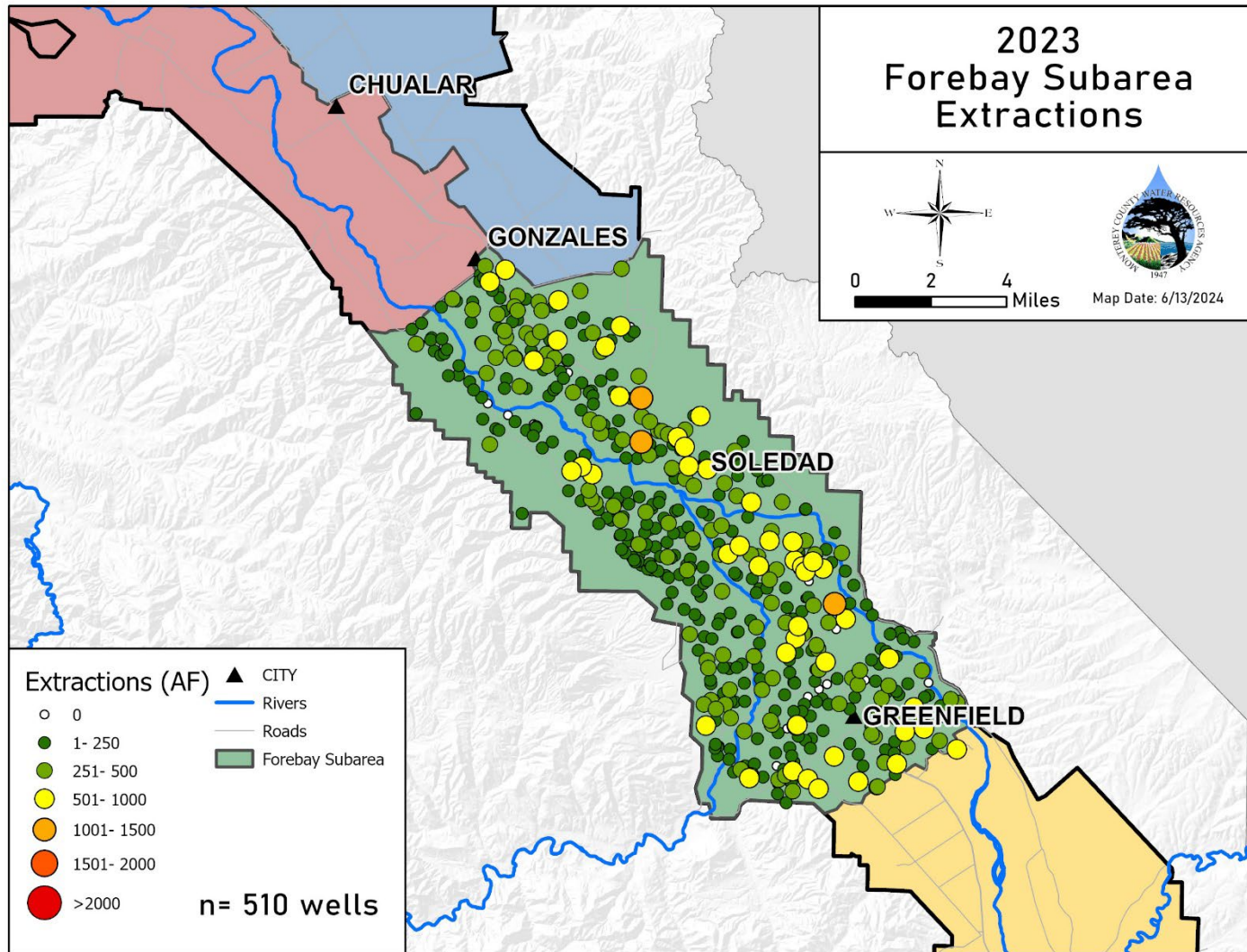
Urban = 554 AF

Ag = 5,574 AF

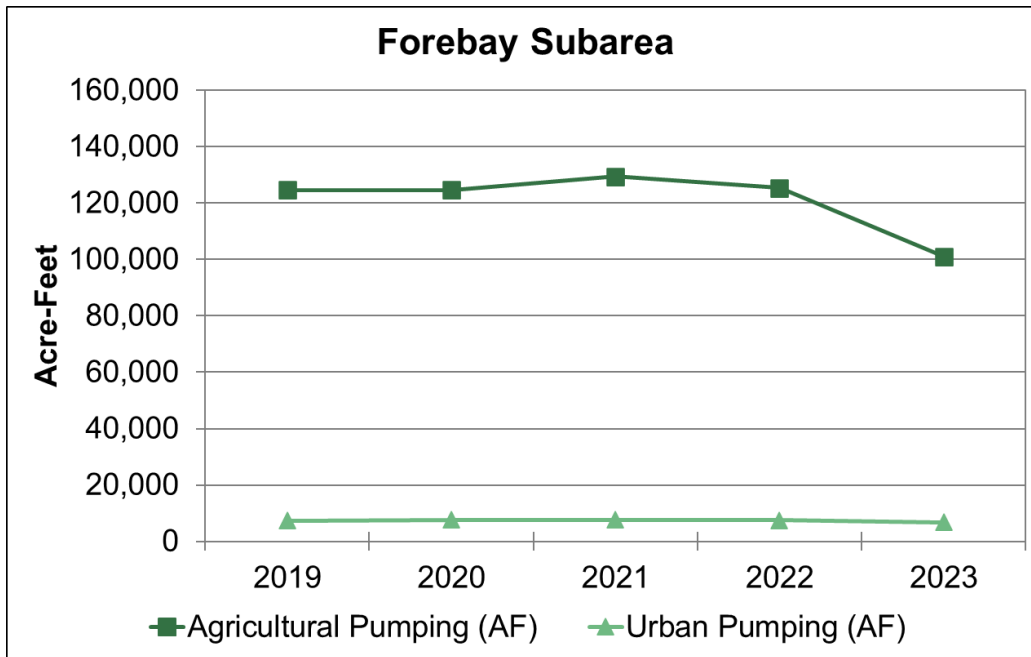




# 2023 Groundwater Extractions – Forebay Subarea



# 2023 Groundwater Extraction – Forebay Subarea



Year	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
2023	101,050	6,748	107,798
2022	125,341	7,544	132,885
2021	129,391	7,645	137,036
2020	124,643	7,590	132,233
2019	124,600	7,374	131,974

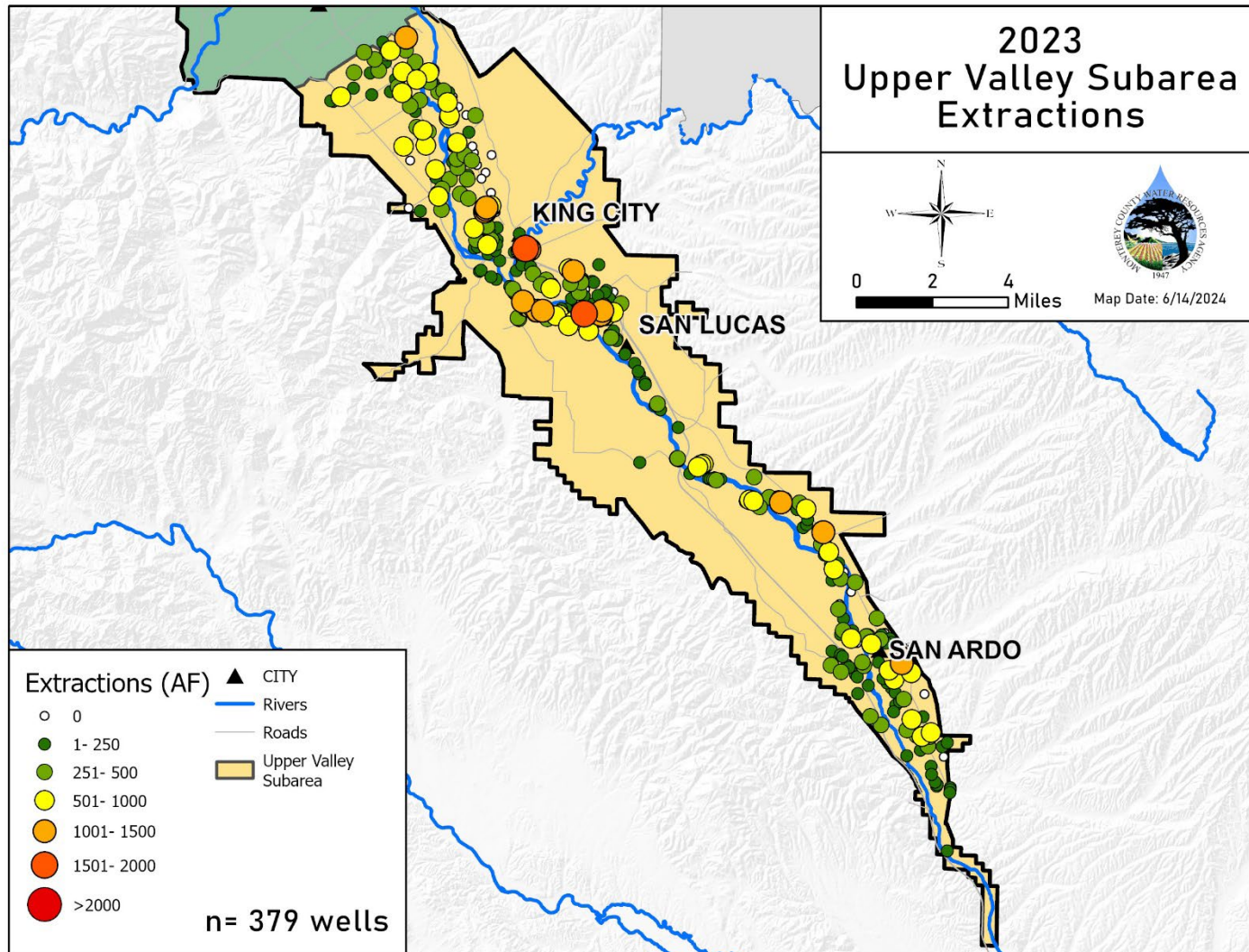
**Change from 2022**

Urban = 796 AF

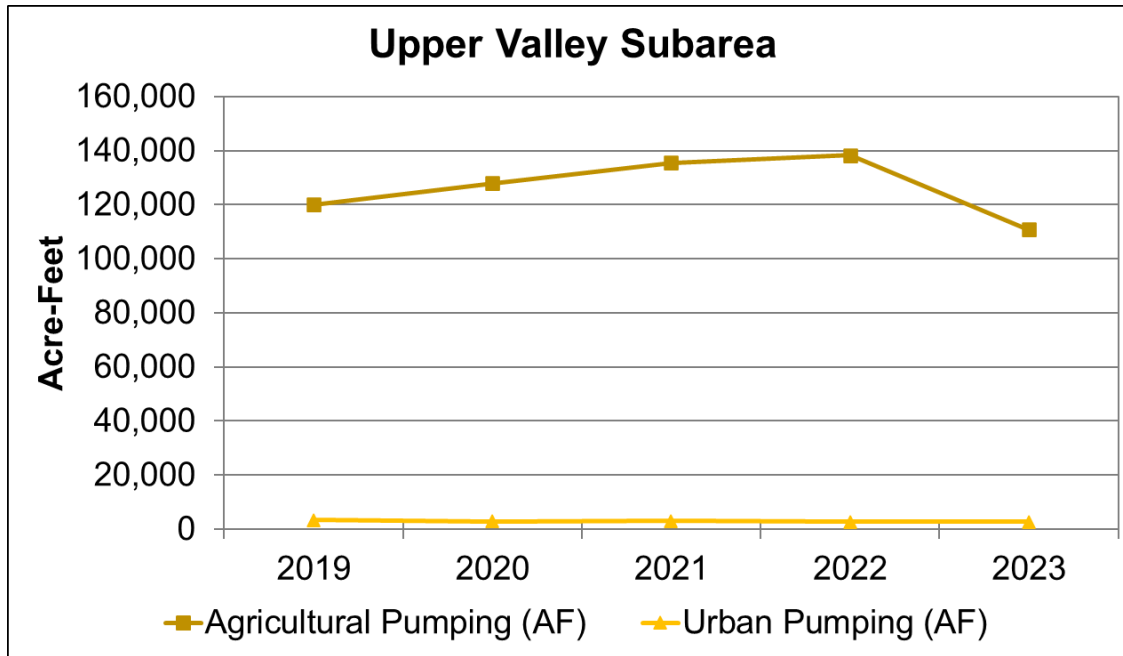
Ag = 24,291 AF



# 2023 Groundwater Extractions – Upper Valley Subarea



# 2023 Groundwater Extraction – Upper Valley Subarea



Year	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
2023	110,820	2,699	113,519
2022	138,257	2,758	141,015
2021	135,596	2,987	138,583
2020	128,016	2,827	130,843
2019	120,025	3,430	123,455

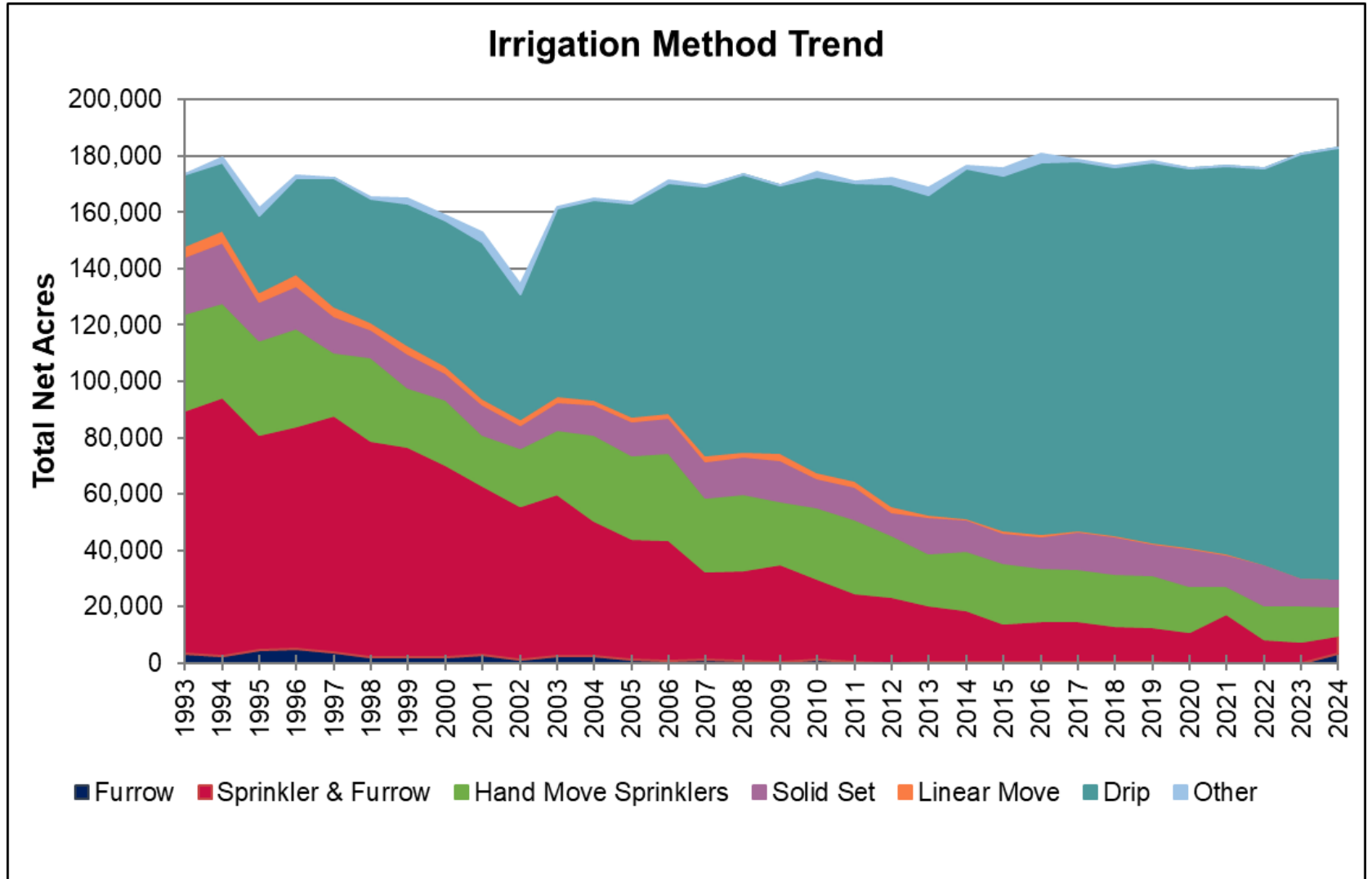
**Change from 2022**

Urban = 59 AF

Ag = 27,437 AF

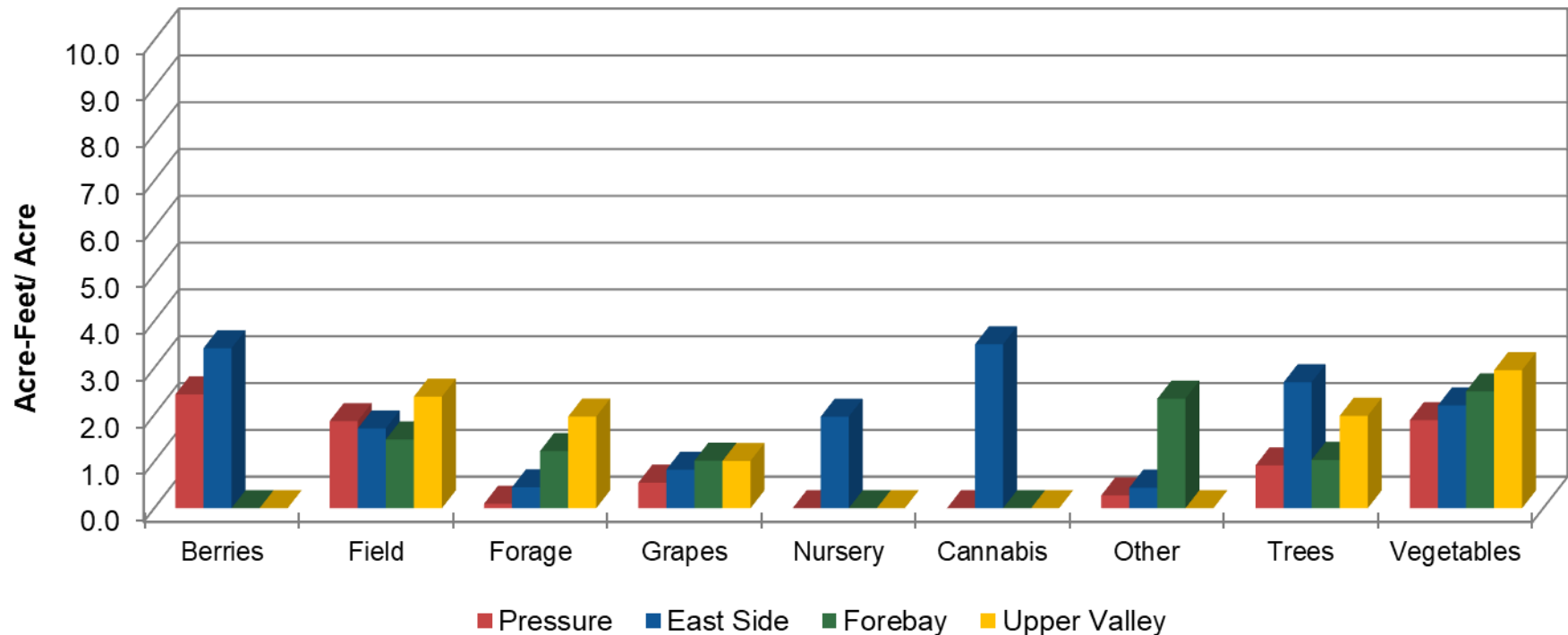


# Irrigation Method Trends (1993-2024)



# Acre-Feet per Acre Water Use by Subarea

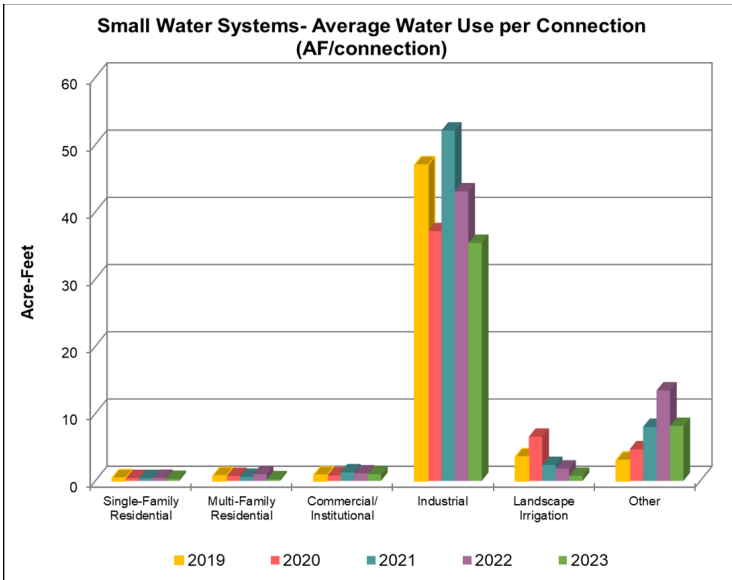
2023 Average Water Usage (Acre-Feet/Acre) by Subarea and Crop Type



2023	Berries (AF/Acre)	Field (AF/Acre)	Forage (AF/Acre)	Grapes (AF/Acre)	Nursery (AF/Acre)	Cannabis (AF/Acre)	Other (AF/Acre)	Trees (AF/Acre)	Vegetables (AF/Acre)
<b>Pressure</b>	2.4	1.9	0.1	0.5	-	-	0.3	0.9	1.9
<b>East Side</b>	3.4	1.7	0.4	0.8	2.0	3.5	0.4	2.7	2.2
<b>Forebay</b>	-	1.5	1.2	1.0	-	-	2.3	1.0	2.5
<b>Upper Valley</b>	-	2.4	2.0	1.0	-	-	-	2.0	2.9



# Urban Water Use – Small Water Systems



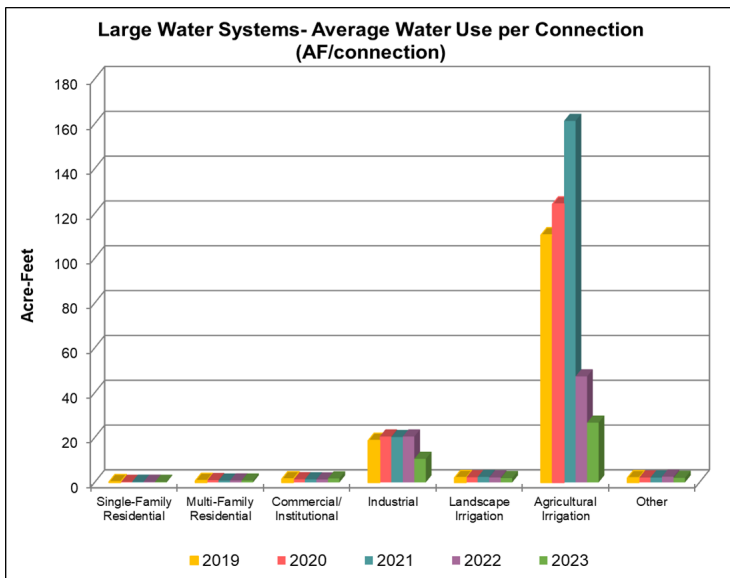
Water use per connection class decreased from 2022.

<b>Small Water Systems: Water Use (AF) Per Connection Class</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>
Single-Family Residential	0.429	0.429	0.423	0.454	0.300
Multi-Family Residential	0.763	0.738	0.600	0.998	0.234
Commercial/ Institutional	0.864	0.806	1.276	1.115	0.996
Industrial	46.986	37.142	52.108	43.073	35.402
Landscape Irrigation	3.559	6.565	2.369	1.832	0.741
Other	3.066	4.702	8.035	13.451	8.166



# Urban Water Use – Large Water Systems

Water use per connection class decreased from 2022 for all except the commercial/institutional category.



Large Water Systems: Water Use (AF) Per Connection Class	2019	2020	2021	2022	2023
Single-Family Residential	0.277	0.273	0.282	0.281	0.262
Multi-Family Residential	0.827	1.032	0.836	0.873	0.815
Commercial/ Institutional	1.553	1.414	1.380	1.316	1.763
Industrial	18.712	20.480	20.227	20.472	10.501
Landscape Irrigation	2.133	2.318	2.433	2.245	1.926
Agricultural Irrigation	110.451	124.190	161.299	47.313	26.659
Other	2.034	2.191	2.176	2.553	2.021





# Delinquent Reports

2023 Reporting Year Number of Violations Before and After Outreach Efforts		
Violation Type	February 2024	Final 2024
Delinquent for Groundwater Extraction Data (n = 1940 wells)	237	68
Delinquent Ag Water Conservation Plan (n = 167)	60	22
Delinquent Urban Water Conservation Plan (n = 42)	13	1



# In Summary...

- Annual groundwater extraction decreased in 2023 across all subareas for both agricultural and urban uses

Subarea	Agricultural Pumping change from 2022 (ac-ft.)	Urban Pumping change from 2022 (ac-ft.)
Pressure	-28,587	-1,331
East Side	-5,574	-554
Forebay	-24,291	-796
Upper Valley	-27,437	-59

*Negative numbers indicate a decrease when compared to 2022*

- Compliance remained similar to past years

