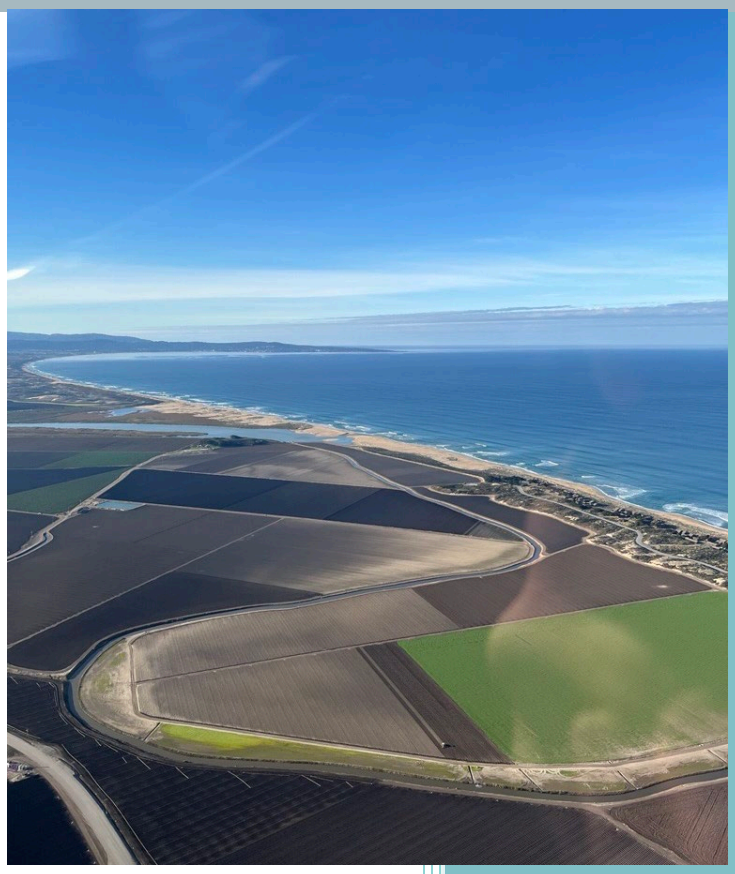
Water Year 2025

Groundwater Extraction Summary Report



Monterey County Water Resources Agency

April 2026


MONTEREY COUNTY WATER RESOURCES AGENCY
1947

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Overview of the Groundwater Extraction Reporting Program

History of the Groundwater Extraction Reporting Program

In 1993, the Monterey County Board of Supervisors adopted Ordinances No. 3717 and 3718 that require water suppliers within Zones 2, 2A, and 2B to report water use information for groundwater extraction facilities (wells) and service connections, with a discharge pipe having an inside diameter of at least three inches, to the Monterey County Water Resources Agency (Agency). In 2024, Ordinance No. 5426 was adopted and Ordinance Nos. 3717 and 3718 were repealed. Ord. No. 5426 and the accompanying Groundwater Monitoring Program (GMP) Manual updated Agency regulations around groundwater extraction reporting.
The purpose of the Groundwater Extraction Reporting Program is to provide the Agency with the most accurate water use information available to effectively manage groundwater resources. In order to obtain accurate water pumping information, methods of directly measuring water extractions have been implemented.

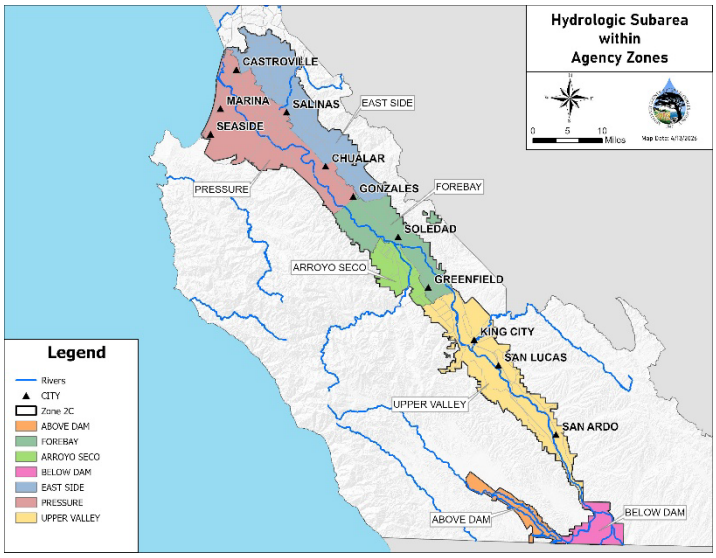


Figure 1. Hydrologic Subareas within Agency Zone 2C

Historically, the Agency has collected groundwater extraction data from well operators annually for a period beginning November 1 and ending October 31 (“reporting year”). Data collection began with the 1992-1993 reporting year. The 2025 annual report marks the first year of reporting on a Water Year (WY) basis, covering the period from October 1 through September 30, in accordance with Ordinance No. 5426. Information submitted by more than two hundred well operators throughout the Salinas Valley is utilized to prepare this report (Figure 1).

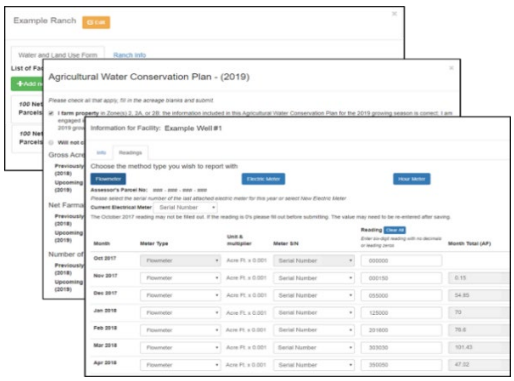
For extraction reporting purposes, the Agency has grouped pumping data using four hydrologic subareas: Pressure, East Side, Forebay, and Upper Valley. These subareas are hydrologically and hydraulically connected, and their boundaries are defined by differences in local hydrogeology and recharge. Zone 2C also identifies an Arroyo Seco subarea that is hydraulically connected to the alluvium of the Salinas Valley but receives a predominance of recharge from the Arroyo Seco River. During WY 2025, the Agency continued to work on expanding groundwater extraction data collection and reporting from the historical program boundaries to Zone 2C. Due to the ongoing nature of this reporting expansion effort, the Agency aggregated groundwater extraction data for the Arroyo Seco and Forebay subareas for WY 2025, but acknowledges that they are defined as separate subareas in Zone 2C. Groundwater extraction reporting has not yet expanded to the Above Dam and Below Dam subareas that are identified in Zone 2C.

Since the adoption of Ordinance 3851 in 1995, the Agency has required the annual submittal of Agricultural Water Conservation Plans, which outline the best management practices (BMPs) that are to be adopted each year by growers in the Salinas Valley. In 1996, an ordinance was passed that requires the filing of Urban Water Conservation Plans (Ordinance 3886). Developed as the urban counterpart to the agricultural water conservation plans, the plans provide an overview of the BMPs to be implemented by urban water purveyors as conservation measures.

Groundwater Summary Report

The purpose of this report is to summarize the data submitted to the Agency by well operators in October 2025 from the following annual forms:

- Groundwater Extraction Forms (agricultural and urban)
- Water Conservation Plans (agricultural and urban)
- Water and Land Use Forms (agricultural)



The agricultural and urban data from the groundwater extraction program cover WY 2025 (October 1, 2024 through September 30, 2025). The agricultural and urban water conservation plans for 2026 are also summarized. This report is intended to present a synopsis of current groundwater extraction within the Salinas Valley, including agricultural and urban water conservation improvements that are being implemented to reduce the total amount of water pumped. It is not the purpose of this report to thoroughly analyze the factors that contribute to increases or decreases in pumping.

Compliance

The Agency received Groundwater Extraction Reports from ninety-four percent (94%) of the 1,910 wells in Zone 2C of the Salinas Valley that were asked to report for WY 2025. Agricultural and Urban Water Conservation Plan submittal compliance for 2025 was eighty percent (80%) and seventy-nine percent (79%), respectively.

Reporting Format

Groundwater extraction data are presented in this report in units of acre-feet (AF). One acre-foot is equal to 325,851 gallons.

Reporting Methods

The GMP Manual provides well operators with a choice of three different reporting methods: Water Flowmeter, Electrical Meter, or Hour Meter (timer). The summary of groundwater extractions presented in this report is compiled from data generated by all three reporting methods. The GMP Manual requires annual pump efficiency tests for well owners using the electrical meter method and flow meter calibration every five years to ensure the accuracy of the data reported. The overall distribution of methods used for the WY 2025 data was: 87% Flowmeter; 13% Electrical Meter; and <1.0% Hour Meter, with some variability between subarea (Figure 2)

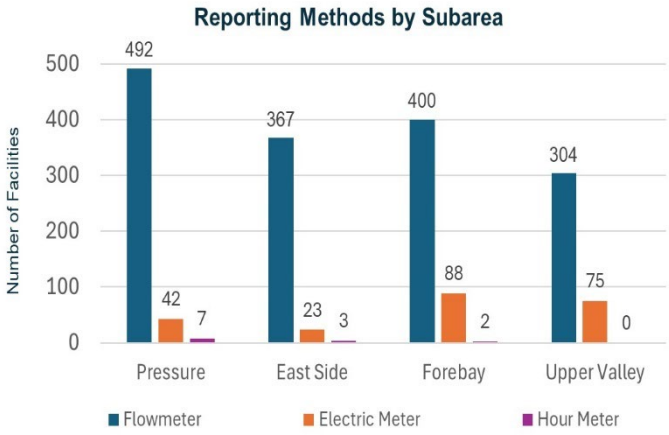


Figure 2. Reporting Method by Subarea

Disclaimer

While the Agency has made every effort to ensure the accuracy of the data presented in this report, it should be noted that the data are submitted by individual reporting parties. In addition, since so many factors can affect the equipment calibration, it is understood that no reporting method is 100 percent accurate. The Agency maintains strict quality assurance in the compilation, standardization, and entry of the data received. Changes to historical data may occur due to additional submittals after the due date. Rounding errors may cause the total extraction values displayed to be within 5 AF of actual totals.

Groundwater Extraction Form – Data Summary

Total Extractions by Subarea and Type of Use

All data presented in this section are derived from the agricultural and urban Groundwater Extraction Forms.

Subarea	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
Pressure	87,622	14,652	**102,273**
East Side	66,949	13,760	**80,709**
Forebay	113,101	6,735	**119,836**
Upper Valley	117,454	2,170	**119,623**
Total (AF)	**385,126**	**37,317**	**422,442**
Total (%)	**91.2%**	**8.8%**	**100.0%**

Table 1. Extraction Data by Subarea and Type of Use.

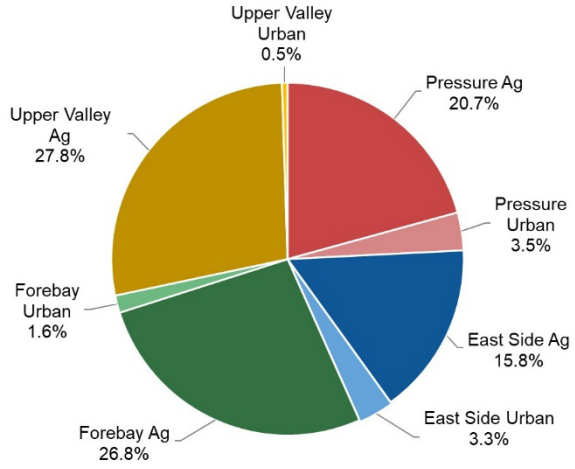


Figure 3. Percentage of Ag and Urban Extractions by Subarea.

Urban Extraction Data by City or Area

The total groundwater extractions attributed to urban use include residential, commercial, institutional, industrial, and governmental pumping, and are summarized below.

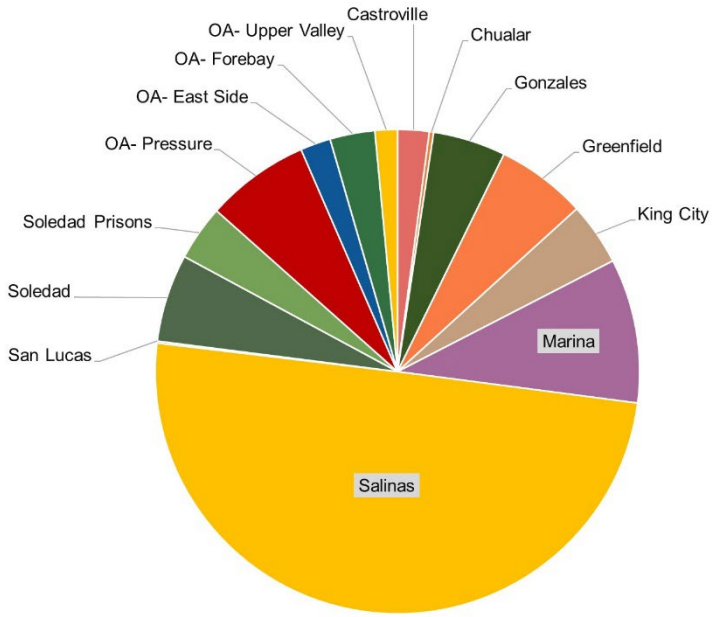


Figure 4. Distribution of Urban Extractions by City or Area.

Table 2. Urban Extractions by City or Area

City or Area	Urban Pumping (AF)	Percentage
Castroville	788	2.10%
Chualar	107	0.28%
Gonzales	1,820	4.86%
Greenfield	2,250	6.01%
King City	1,562	4.17%
Marina	3,607	9.64%
Salinas	18,648	49.82%
San Ardo	48	0.13%
San Lucas	No Data	0.00%
Soledad	2,194	5.86%
Soledad Prisons	1,382	3.69%
OA- Pressure	2,587	6.91%
OA- East Side	760	2.03%
OA- Forebay	1,122	3.00%
OA- Upper Valley	560	1.49%
Total	**37,435**	**100.00%**

OA=Other Area

Total Reported Groundwater Extraction in Zone 2C

Figure 5 provides a spatial representation of groundwater extractions within Zone 2C for WY 2025. The figures and tables on the next six pages provide extraction information by subarea. The number of wells shown in Figures 5 to 16 may be different than the total number of wells in the program, as stated on Page 2, due to delinquent extraction reports.

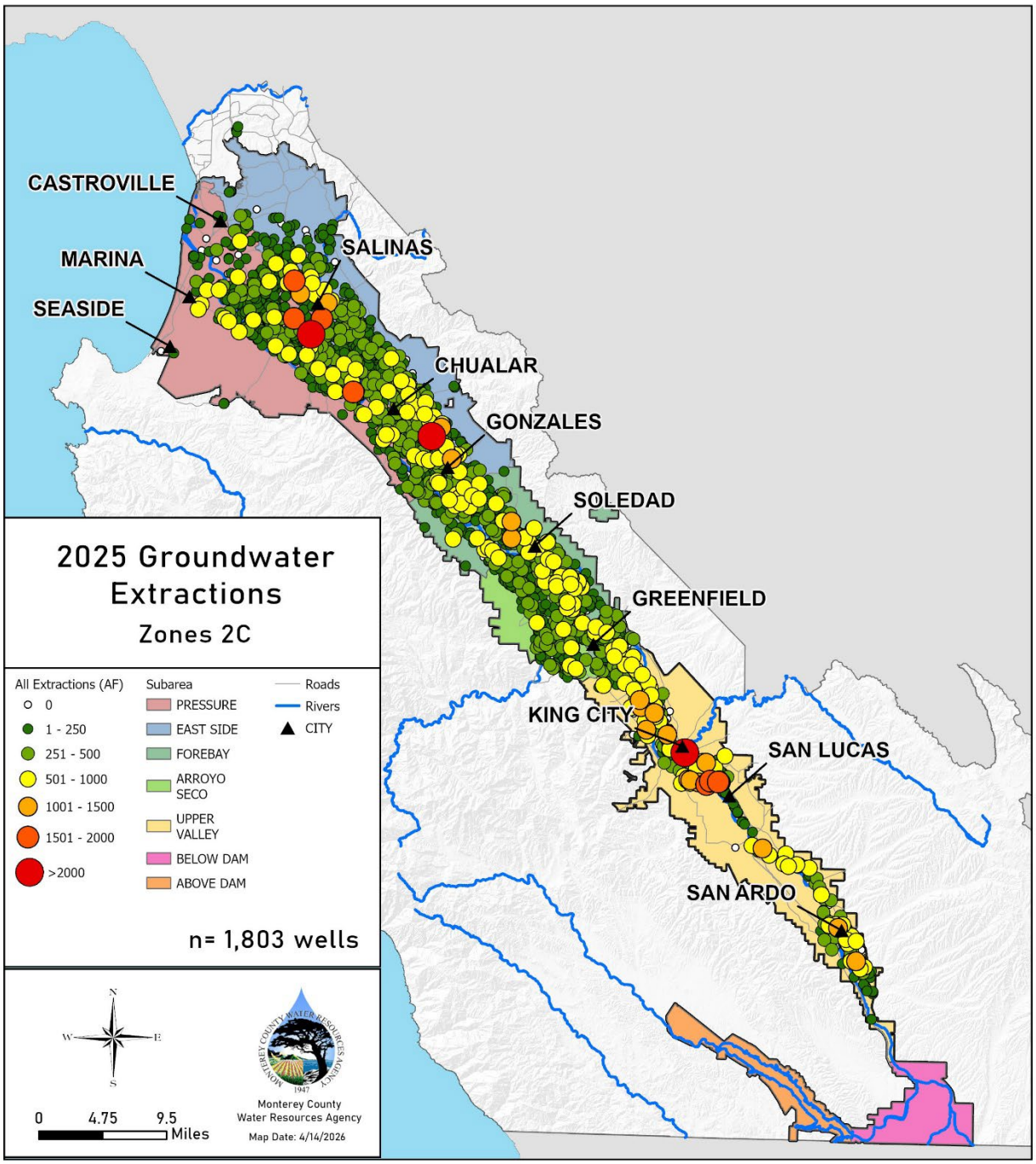


Figure 5. Water Year 2025 Groundwater Extractions (AF).

Pressure Subarea – Extraction Data

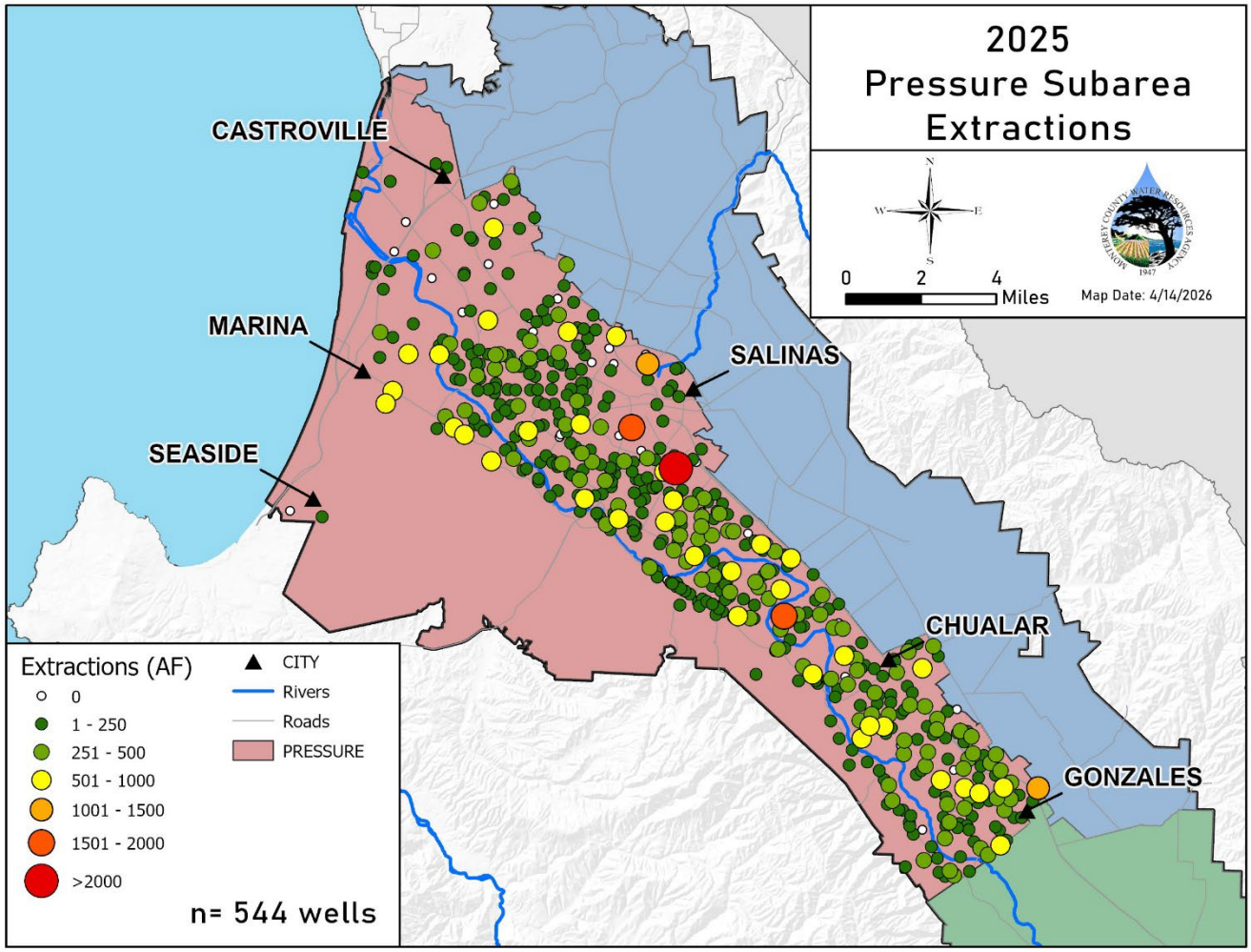


Figure 6. Water Year 2025 Groundwater Extractions in the Pressure Subarea.

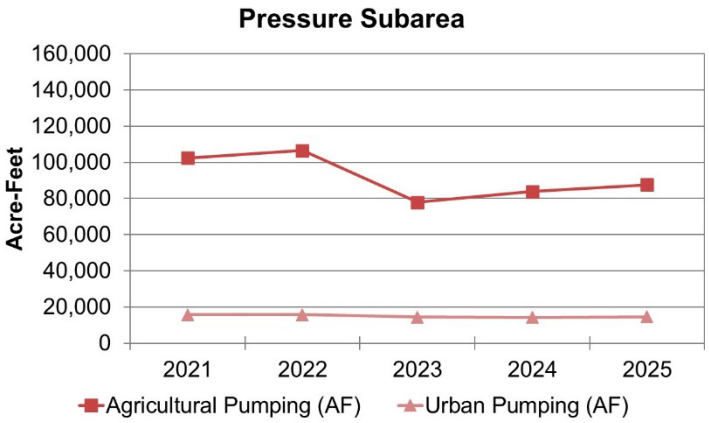


Figure 7. Agricultural and Urban Extractions (AF) in the Pressure Subarea 2021-2025.

Table 3. Total, Agricultural, and Urban Extractions (AF) in the Pressure Subarea 2021-2025.

Year	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
2025	87,622	14,652	**102,274**
2024	83,841	14,260	**98,101**
2023	77,906	14,516	**92,422**
2022	106,493	15,847	**122,340**
2021	102,435	15,785	**118,220**

CSIP and Zone 2B – Extraction Data

The Castroville Seawater Intrusion Project (CSIP) delivers recycled water from the Salinas Valley Reclamation Project, re-diverted stored reservoir water via the Salinas River Diversion Facility, and groundwater from eight supplemental wells to 12,000 acres of irrigated land in the Castroville area, referred to as Zone 2B, to reduce groundwater pumping near the coast. Pumping from non-CSIP supplemental wells (i.e. privately owned wells) has decreased since CSIP began operations in 1998 but is still occurring (Figure 8). The area where chloride concentrations have been observed to equal or exceed 250 milligrams per liter (mg/L) in either the 180-Foot or 400-Foot Aquifer is also included in this analysis. That area is considered vulnerable due to increasing chloride levels from seawater intrusion and, in some cases, contains pathways for seawater intrusion to migrate vertically from the impaired overlying aquifers (Figure 8, Table 4). The data shown below is a subset of the Pressure Subarea extractions on the previous page.

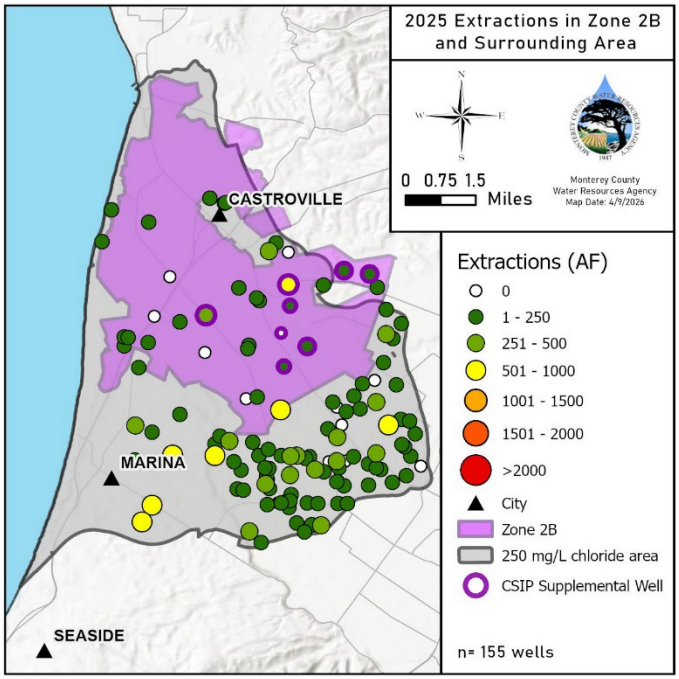


Figure 8. Water Year 2025 Groundwater Extractions (AF) in Zone 2B and surrounding area

Aquifer	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
180-Ft Aquifer or East Side Shallow	1,558	0	**1,558**
180 and 400-Ft Aquifer	610	323	**933**
400-Ft Aquifer or East Side Deep	10,501	1,475	**11,976**
Deep Aquifers	8,441	2,046	**10,365**
Unknown	2,702	0	**2,702**
Total (AF)	23,811	3,843	**27,575**

Table 4. 2025 Extraction Data in Zone 2B and the 250 mg/L chloride extent by Aquifer and Type of Use

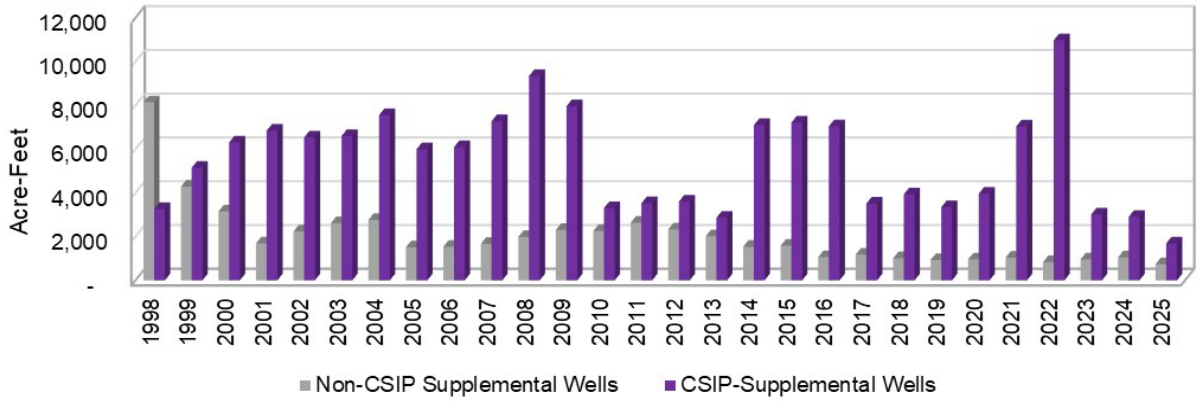


Figure 9. Groundwater Extractions in Zone 2B from CSIP and Non-CSIP Supplemental Wells, 1998-2025

Deep Aquifers – Extraction Data

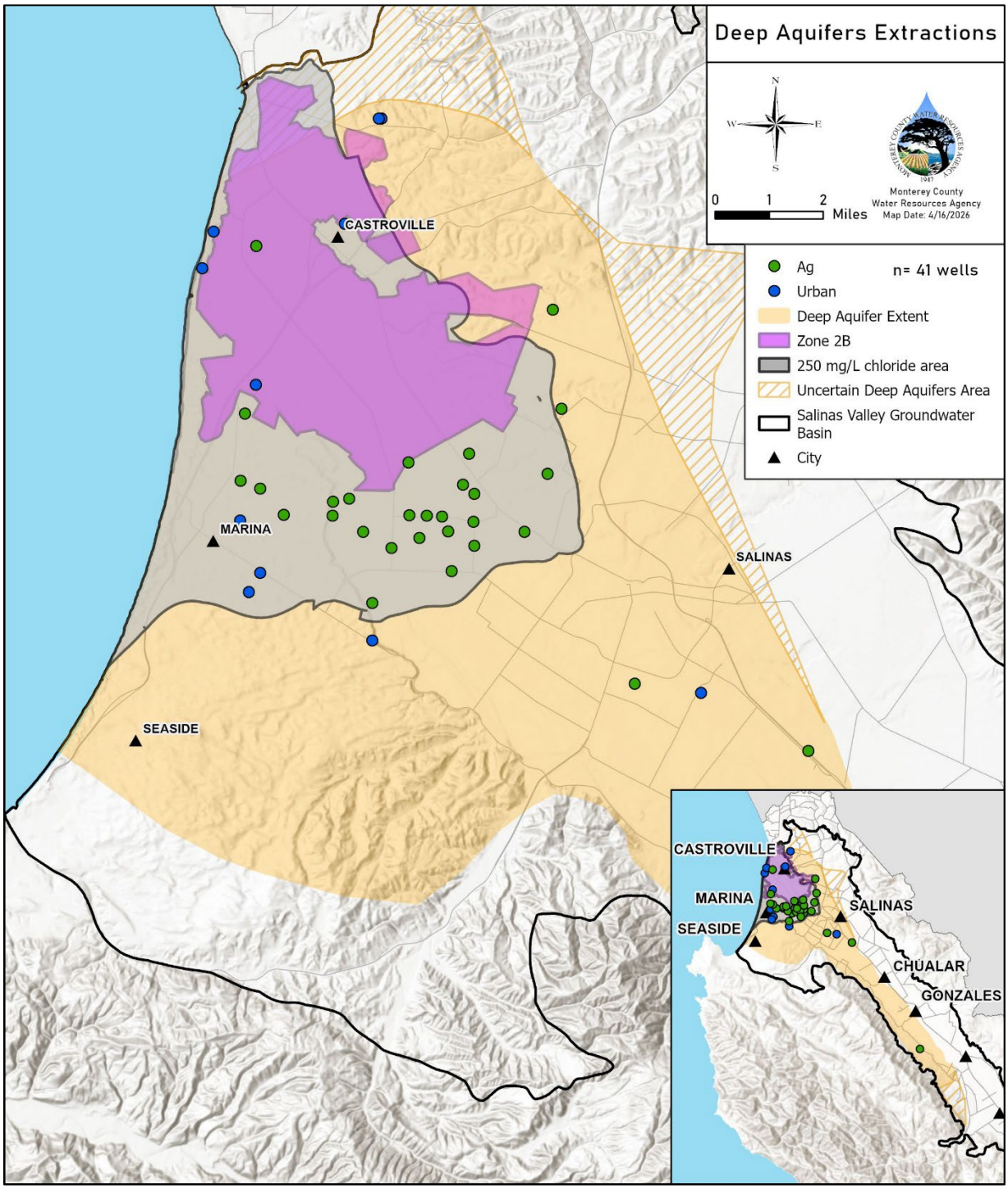


Figure 10. Deep Aquifers Wells with Extraction Data by Type of Use

Deep Aquifers – Extraction Data

The Agency has historically categorized wells as being constructed to extract water from the Deep Aquifers based on best available data, which may include geologic descriptions from well logs, groundwater quality data, and/or groundwater level data. Following completion of the Deep Aquifers Study in 2024 by Montgomery & Associates, the Agency revised the categorization of some wells based on the newly available airborne electromagnetic (AEM) data, which changed the total number of Deep Aquifers wells reporting groundwater extraction data from 57 to 45. Beginning with the 2024 Groundwater Extraction Summary Report, the data reported in this section are derived using the same wells that were designated as Deep Aquifers wells in the Deep Aquifers Study.

Reporting Year	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
2025	7,860	4,741	**12,601**
2024	7,688	4,652	**12,341**
2023	7,826	4,453	**12,279**
2022	9,599	4,154	**13,753**
2021	8,820	4,258	**13,078**
2020	6,996	4,348	**11,344**
2019	5,331	5,016	**10,347**
2018	4,855	4,790	**9,645**
2017	4,958	4,558	**9,516**
2016	4,293	4,259	**8,552**
2015	2,010	4,363	**6,373**
2014	2,031	4,404	**6,435**
2013	1,097	2,505	**3,602**
2012	1,397	2,424	**3,821**
2011	927	2,173	**3,100**
2010	982	2,236	**3,218**
2009	696	2,450	**3,146**

Table 5. Deep Aquifers Groundwater Extractions by Type of Use, 2009-2025

Historical totals of groundwater extraction listed in Table 5 and on Figure 11 prior to 2024 have not been recalculated using the revised set of wells.

The amount of water extracted from the Deep Aquifers has increased in recent years (Table 5). The potential for inducing leakage from the overlying impaired aquifers is a serious concern as groundwater extractions from the Deep Aquifers continue to increase. The Deep Aquifers Study also noted that decreased groundwater elevations in the Deep Aquifers may depressurize clay units that could result in subsidence.

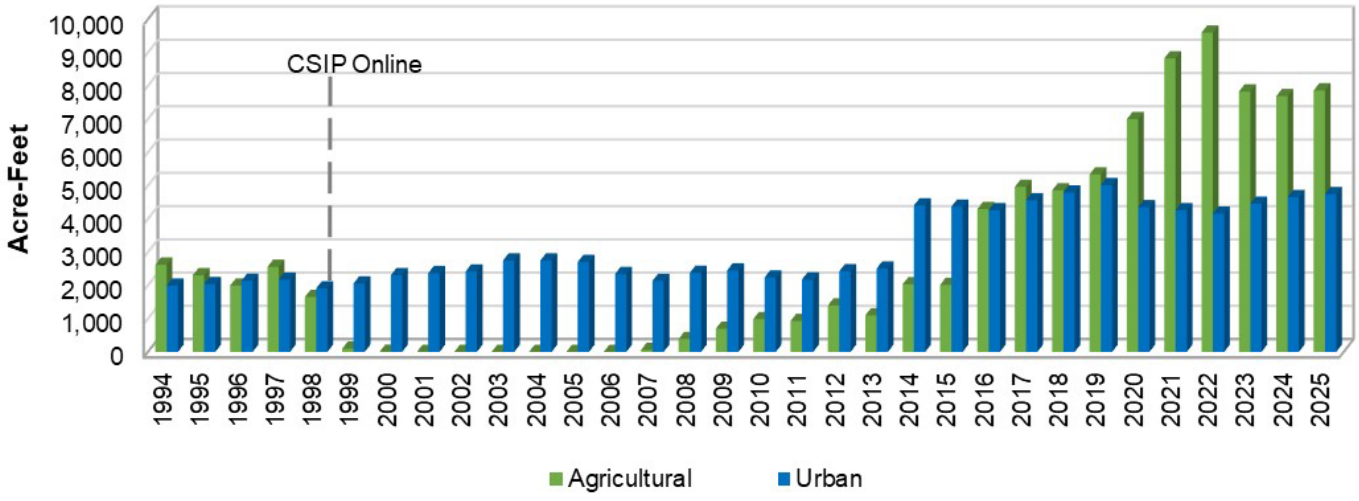


Figure 11. Deep Aquifers Groundwater Extractions by Type of Use, 1994-2025

East Side Subarea – Extraction Data

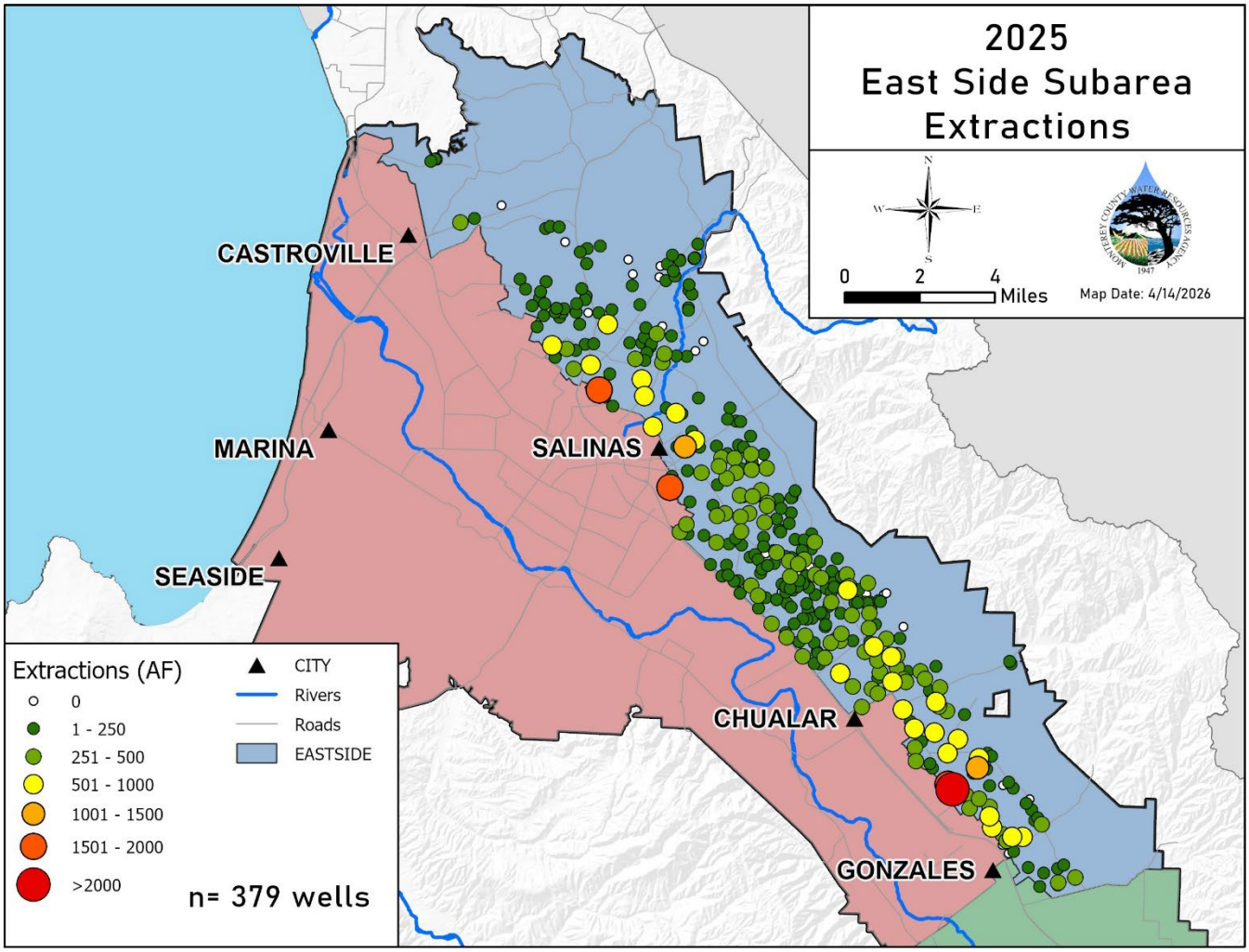


Figure 12. Water Year 2025 Groundwater Extractions in the East Side Subarea.

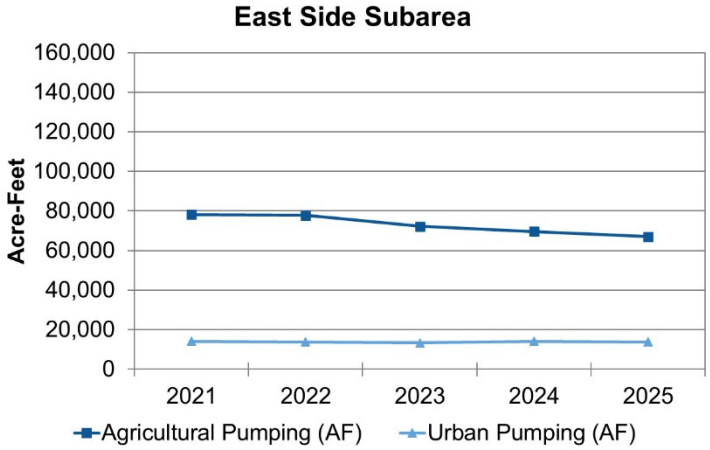


Figure 13. Agricultural and Urban Extractions (AF) in the East Side Subarea 2021-2025.

Table 6. Total, Agricultural, and Urban Extractions (AF) in the East Side Subarea 2021-2025.

Year	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
2025	66,949	13,760	**80,709**
2024	69,683	14,043	**83,726**
2023	72,157	13,286	**85,443**
2022	77,731	13,840	**91,571**
2021	78,283	14,136	**92,419**

Forebay Subarea – Extraction Data

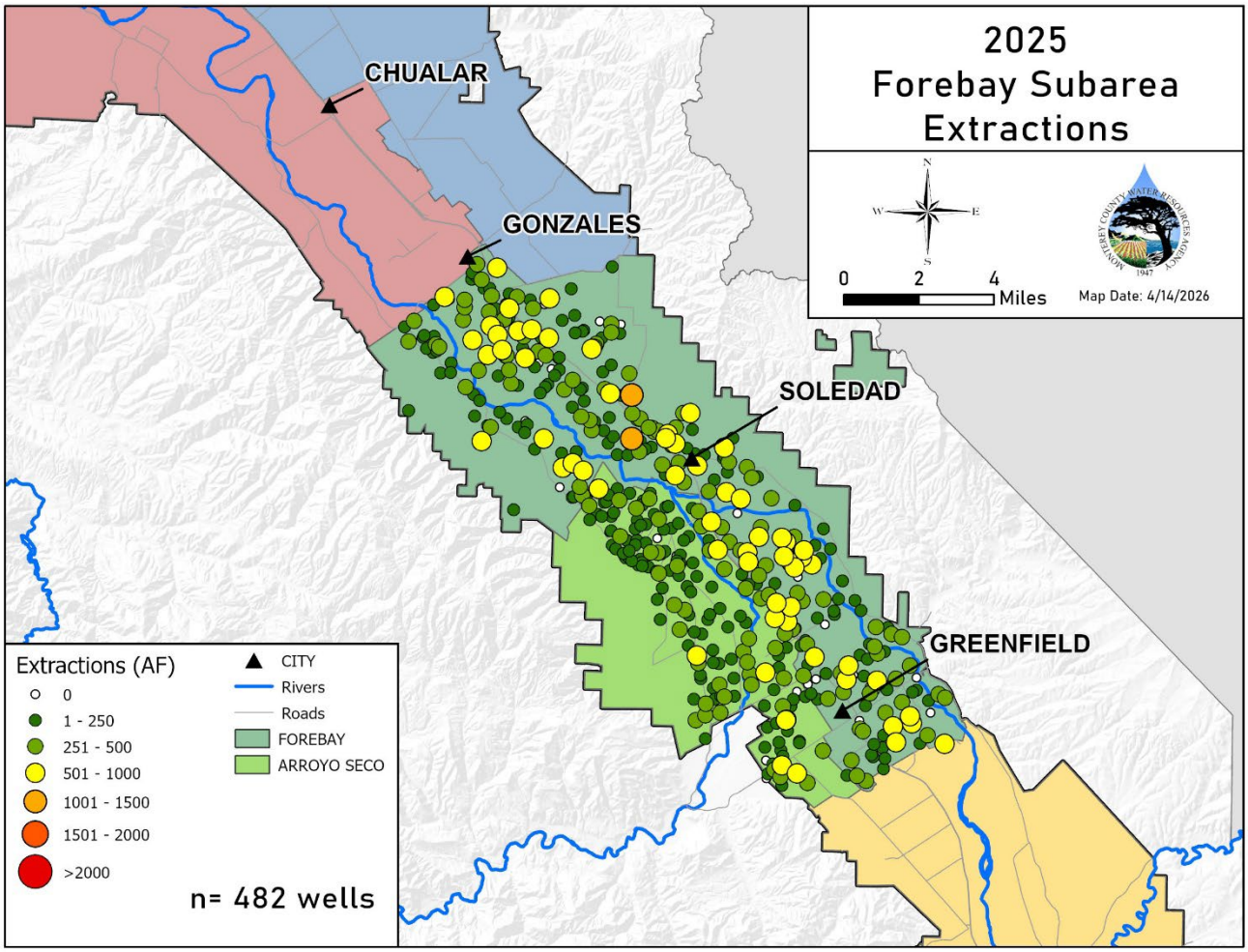


Figure 14. Water Year 2025 Groundwater Extractions in the Forebay Subarea.

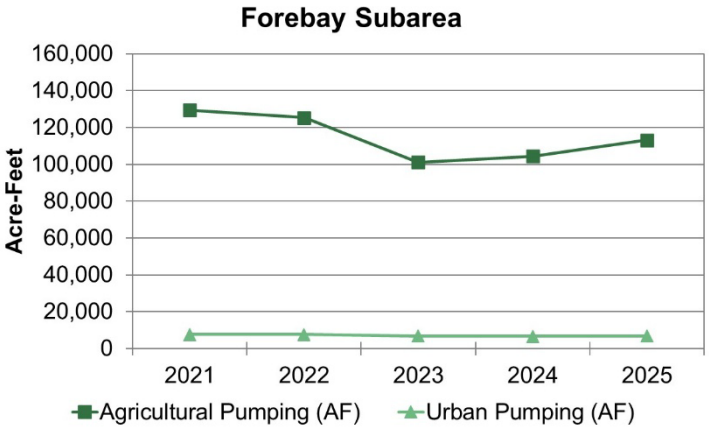


Figure 15. Agricultural and Urban Extractions (AF) in the Forebay Subarea 2021-2025.

Table 7. Total, Agricultural, and Urban Extractions (AF) in the Forebay Subarea 2021-2025.

Year	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
2025	113,101	6,735	**119,836**
2024	104,387	6,621	**111,008**
2023	101,050	6,748	**107,798**
2022	125,341	7,544	**132,885**
2021	129,391	7,645	**137,036**

Upper Valley Subarea – Extraction Data

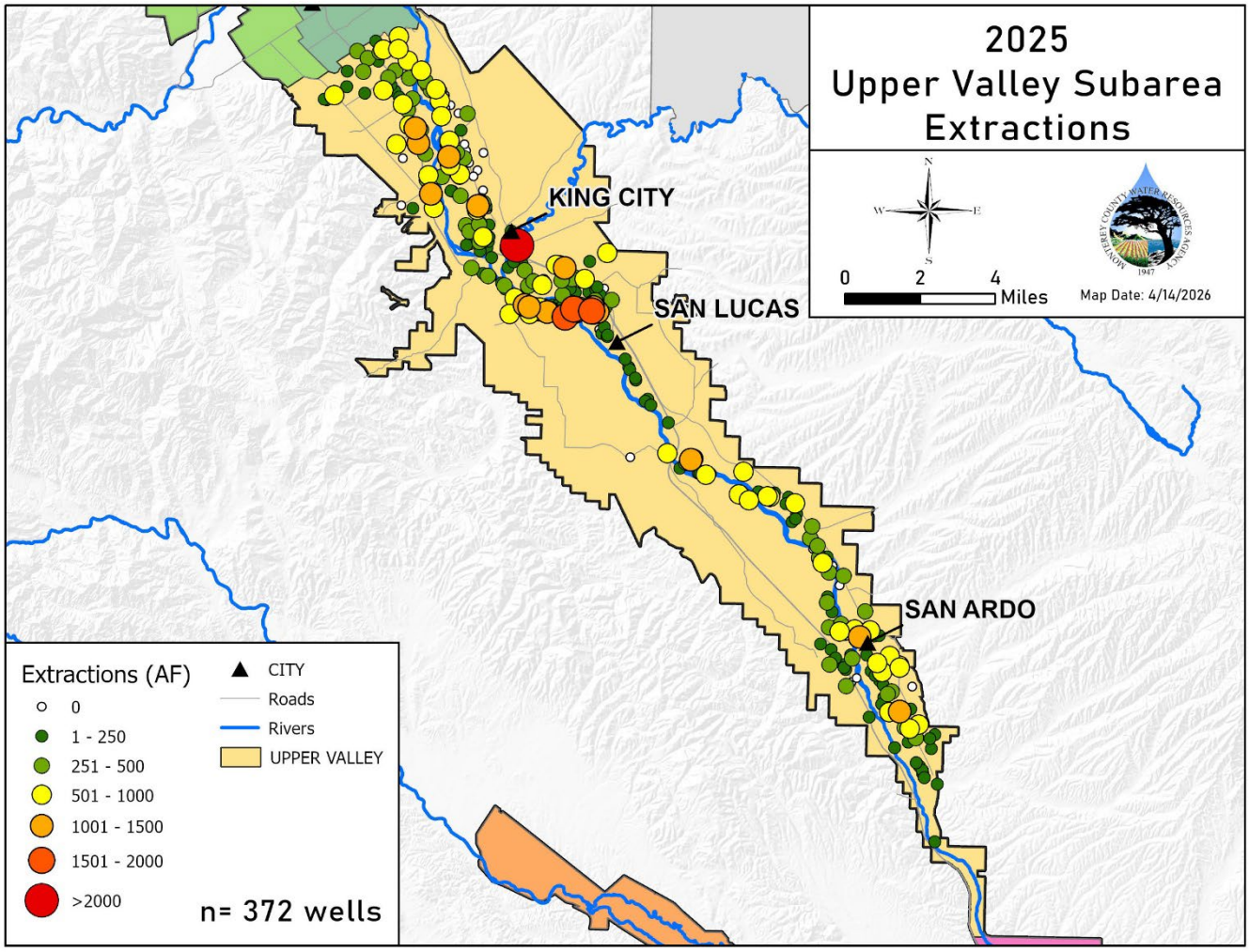


Figure 16. Water Year 2025 Groundwater Extractions in the Upper Valley Subarea

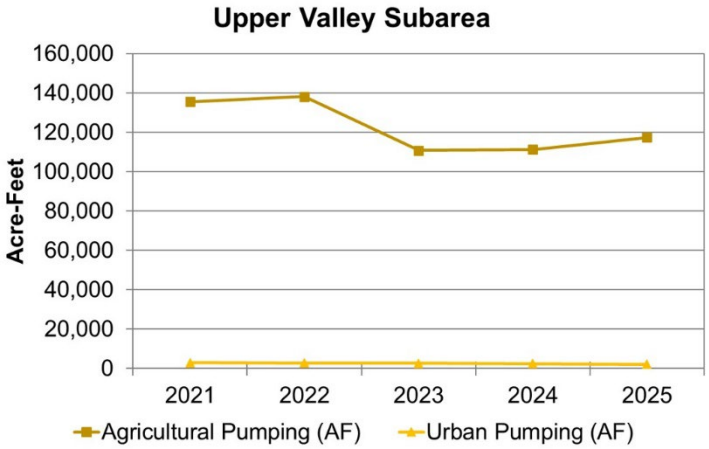


Figure 17. Agricultural and Urban Extractions (AF) in the Upper Valley Subarea 2021-2025.

Table 8. Total, Agricultural, and Urban Extractions (AF) in the Upper Valley Subarea 2021-2025.

Year	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
2025	117,454	2,170	**119,624**
2024	111,359	2,478	**113,837**
2023	110,820	2,699	**113,519**
2022	138,257	2,758	**141,015**
2021	135,596	2,987	**138,583**

Agricultural Water Conservation – Data Summary

In 1995, the Monterey County Water Resources Agency Board of Supervisors adopted Ordinance No. 3851 requiring the filing of Agricultural Water Conservation Plans. Ordinance No. 3851 was amended in 1999, resulting in Ordinance No. 4014. The Agricultural Water Conservation Plans include information on net irrigated acreage, irrigation methods, and crop type. This information is forecasted and indicates what the grower plans to do in the upcoming year. Figure 18 and Table 9 present a breakdown of irrigation methods by crop type. Figure 19 shows the change in irrigation methods over the length of the groundwater extraction reporting program and Figure 20 shows the top ten Best Management Practices (BMPs) to be implemented in 2026.

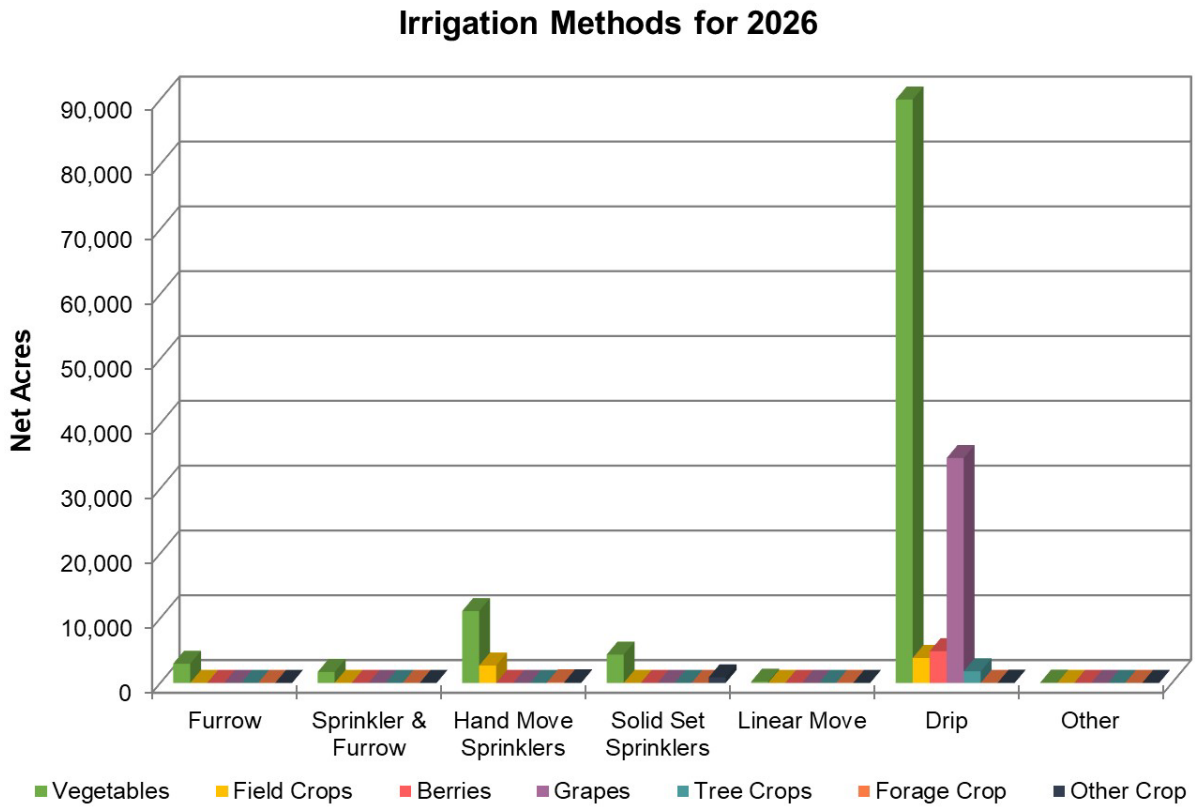


Figure 18. 2026 Forecasted Net Acre Distribution of Irrigation Methods by Crop Type.

2026	Furrow	Sprinkler & Furrow	Hand Move Sprinklers	Solid Set Sprinklers	Linear Move	Drip	Other	Total
Vegetables	2,959	1,689	11,087	4,373	194	96,896	51	117,248
Field Crops	0	10	2,690	0	0	3,853	0	6,552
Berries	0	0	0	0	0	4,899	0	4,899
Grapes	0	0	0	0	0	34,690	0	34,690
Tree Crops	0	0	0	0	0	1,794	0	1,794
Forage Crop	0	0	97	0	10	0	0	107
Other Crop	0	0	95	855	0	37	0	987
Unirrigated	0	0	0	0	0	0	1,851	1,851
Total	**2,959**	**1,699**	**13,968**	**5,228**	**204**	**142,168**	**1,902**	**168,128**

Table 9. Net Acres by Irrigation Method and Crop Type.

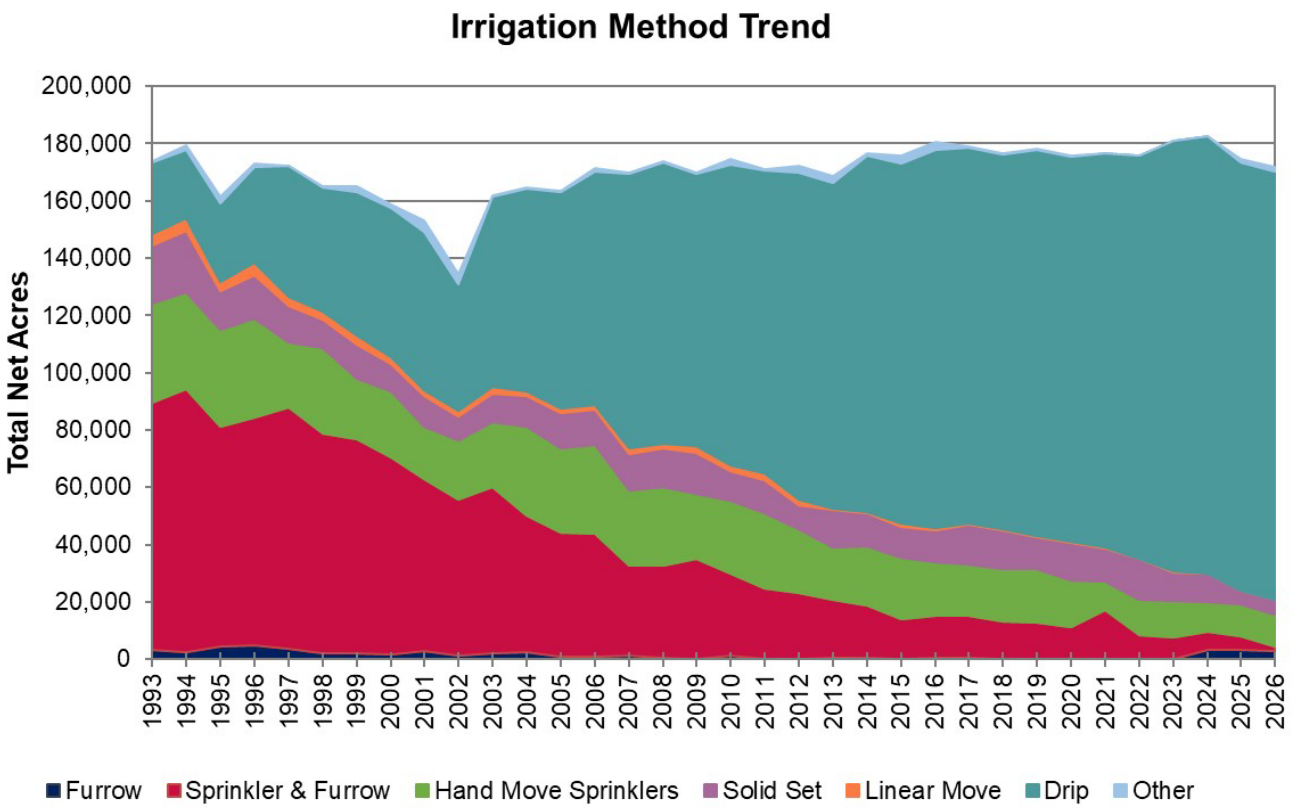


Figure 19. Changes in Irrigation Methods Used Over Time (1993 – 2026) in Zones 2, 2A, and 2B.

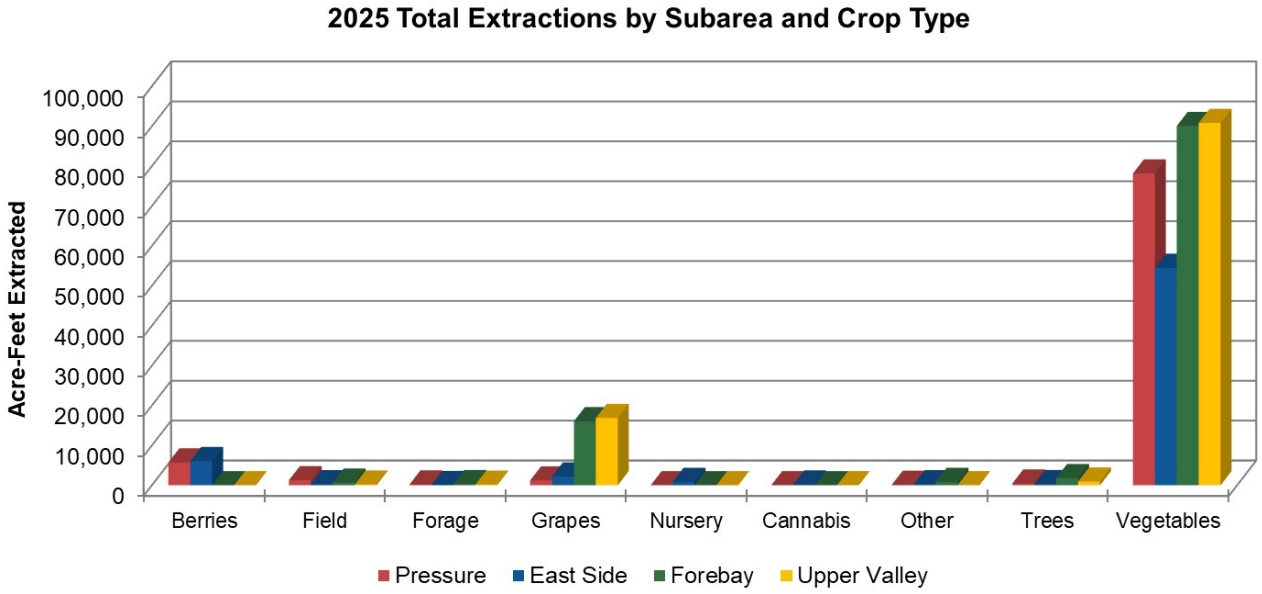
Figure 20. Top Ten BMPs Forecasted for 2026by Reported Net Acres of Application.

Water and Land Use Form – Data Summary

The following three figures show the agricultural water extracted (Figure 21), irrigated net acres (Figure 22), and amount of water used per acre (Figure 23) by hydrologic subarea and crop type based on data submitted on the Water and Land Use forms. The data account for all crop types reported and all reporting methods: water flowmeter, electrical meter, and hour meter.

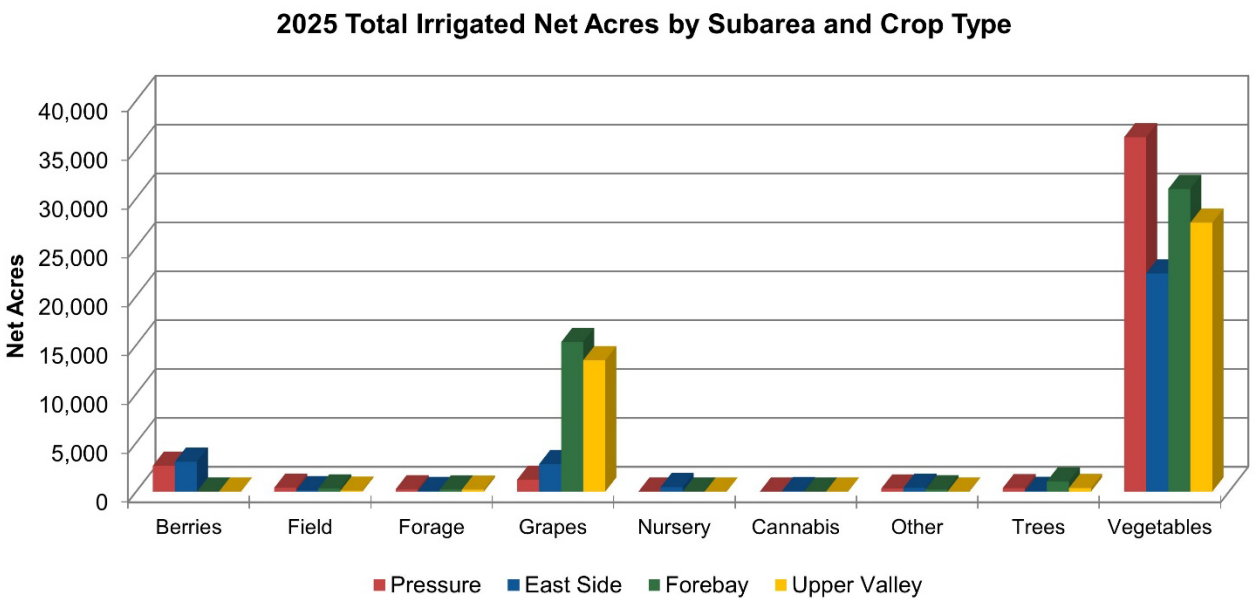
Changing weather patterns, variable soil types, and crop types affect the amount of water needed for efficient irrigation. Even during years with similar precipitation amounts, pumping rates will vary from one subarea to another, and crop types will vary depending on economic demand and other factors.

Examples of crop type categorizations include strawberries and raspberries under Berries; beans and grains under Field Crops; alfalfa and pasture under Forage Crops; avocados and lemons under Tree Crops; and sod, flower bulbs, ornamentals, and cactus pears under Other Crops.



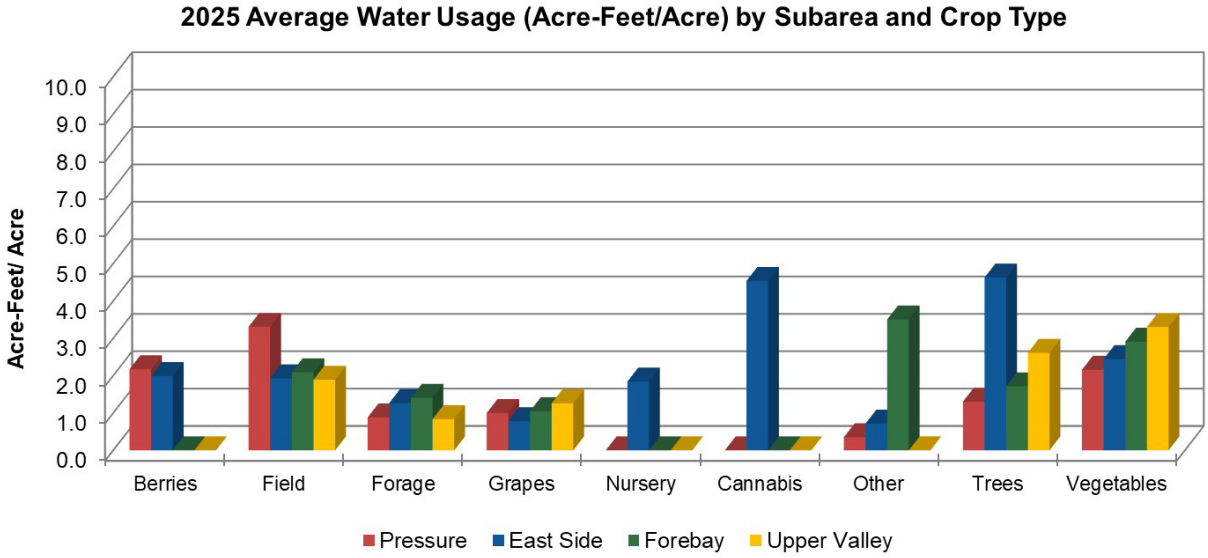
2025	Berries (AF)	Field (AF)	Forage (AF)	Grapes (AF)	Nursery (AF)	Cannabis (AF)	Other (AF)	Trees (AF)	Vegetables (AF)
Pressure	5,725	1,279	205	1,208	-	-	110	452	78,148
East Side	6,064	256	65.6	2,191	834	197	274	301	54,503
Forebay	-	674	297	16,050	-	-	830	1,804	90,034
Upper Valley	-	172	161	16,867	-	-	-	940	90,817

Figure 21. 2025 Extractions Reported by Crop Type and Subarea.



2025	Berries (Net Acres)	Field (Net Acres)	Forage (Net Acres)	Grapes (Net Acres)	Nursery (Net Acres)	Cannabis (Net Acres)	Other (Net Acres)	Trees (Net Acres)	Vegetables (Net Acres)
Pressure	2,637	387	233	1,209	-	-	314	347	36,249
East Side	3,048	133	51.8	2,804	453	43.5	382	65.0	22,313
Forebay	-	323	211	15,297	-	-	237	1,053	30,961
Upper Valley	-	91.0	193	13,428	-	-	-	360	27,504

Figure 22. 2025 Irrigated Net Acres Reported by Crop Type and Subarea.



2025	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)
Pressure	2.2	3.3	0.9	1.0	-	-	0.4	1.3	2.2
East Side	2.0	1.9	1.3	0.8	1.8	4.5	0.7	4.6	2.4
Forebay	-	2.1	1.4	1.0	-	-	3.5	1.7	2.9
Upper Valley	-	1.9	0.8	1.3	-	-	-	2.6	3.3

Figure 23. 2025 Acre-Feet/Acre by Crop Type and Subarea.

Urban Water Conservation – Data Summary

In 1996, the Monterey County Water Resources Agency Board of Supervisors adopted Ordinance No. 3886 requiring that all cities and urban water purveyors within Zones 2, 2A, or 2B file plans showing the water conservation measures that were implemented during the prior year and which are planned for implementation in the coming year. Since 1996, the Agency has collected data on Urban Water Conservation Plans. Tables 10 and 11 show the top ten Best Management Practices (BMPs) for 2026 as a percentage of total acreage reported for "large" water systems (200 or more customer connections), and "small" water systems (between 15 and 199 customer connections). The reported water use per connection for different connection classes are summarized for small (Table 12, Figure 24) and large water systems (Table 13, Figure 25).

Top Ten BMPs Implemented for Large Water Systems	2026
Advise customers when it appears possible that leaks exist on customer's side of water meter	100%
Perform distribution system leak detection and repair whenever the audit reveals that it would be cost-effective	100%
Provide individual historical water use information on water bills	100%
Offer free interior and exterior water audits to identify water conservation opportunities	97%
Establish a program to retrofit any existing unmetered connections and bill by volume of use	97%
Implement requirements that all new connections be metered and billed by volume of use	97%
Identify irrigators of large landscapes (3 acres or more) and offer landscape audits to determine conservation opportunities	96%
Enforcement and support of water conserving plumbing fixture standards, including gradual requirement for High Efficiency Toilets (HET) in all new construction	96%
Enact and enforce measure prohibiting water waste as specified in Monterey County Water Resources Agency Ordinance No. 3932 or as subsequently amended, and encourage the efficient use of water	96%
Provide guidelines, information, and/or incentives for installation of more efficient landscapes and water saving practices	96%

Table 10. Top Ten BMPs – Large Water Systems.

Top Ten BMPs Implemented for Small Water Systems	2026
Advise customers when it appears possible that leaks exist on customer's side of water meter	88%
Perform distribution system leak detection and repair whenever the audit reveals that it would be cost-effective	87%
Support of legislation prohibiting sale of toilets using more than 1.6 gpf	87%
Implement requirements that all new connections be metered and billed by volume of use	86%
Establish a program to retrofit any existing unmetered connections and bill by volume of use	85%
Implementation of conservation pricing policy	85%
Encourage and promote the elimination of non-conserving pricing and adoption of conservation pricing policies	85%
Provide individual historical water use information on water bills	84%
Encourage local nurseries to promote use of low water use plants	84%
Provide guidelines, information, and/or incentives for installation of more efficient landscapes and water saving practices	57%

Table 11. Top Ten BMPs – Small Water Systems.

Small Water Systems: Water Use (AF) Per Connection Class	2021	2022	2023	2024	2025
Single-Family Residential	0.423	0.454	0.300	0.342	0.282
Multi-Family Residential	0.600	0.998	0.234	0.166	0.695
Commercial/ Institutional	1.276	1.115	0.996	0.872	0.892
Industrial	52.108	43.073	35.402	38.906	0.324
Landscape Irrigation	2.369	1.832	0.741	0.825	1.238
Other	8.035	13.451	8.166	10.934	26.917

Table 12. Water Use per Connection – Small Water Systems (2021-2025).

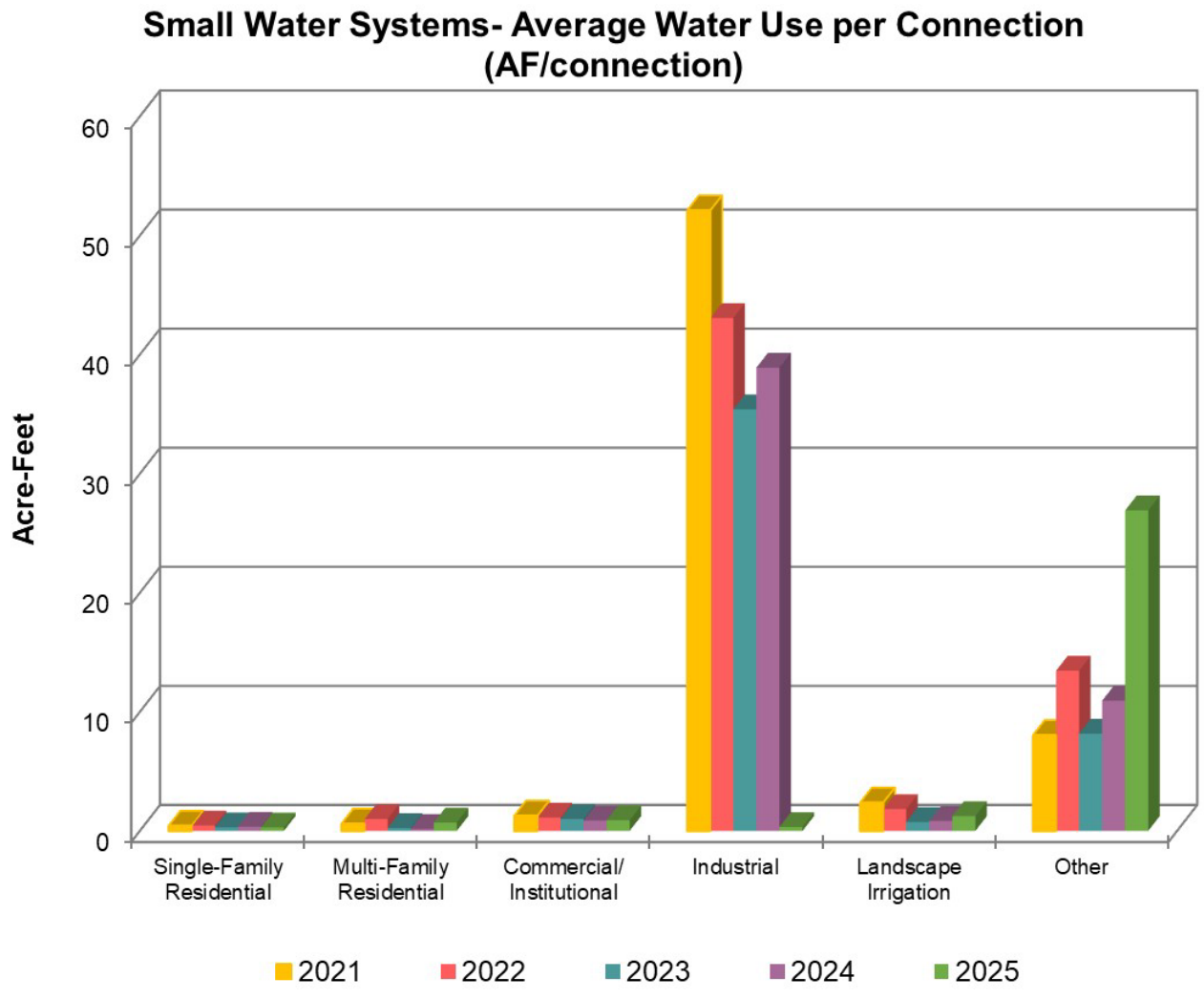


Figure 24. Urban Water Use per Connection – For Small Water Systems

Large Water Systems: Water Use (AF) Per Connection Class	2021	2022	2023	2024	2025
Single-Family Residential	0.282	0.281	0.262	0.257	0.261
Multi-Family Residential	0.836	0.873	0.815	0.739	0.732
Commercial/ Institutional	1.380	1.316	1.763	1.406	1.463
Industrial	20.227	20.472	10.501	13.487	15.726
Landscape Irrigation	2.433	2.245	1.926	2.066	2.080
Agricultural Irrigation	161.299	47.313	26.659	31.679	79.499
Other	2.176	2.553	2.021	4.816	5.253

Table 13. Water Use per Connection – Large Water Systems (2021-2025).

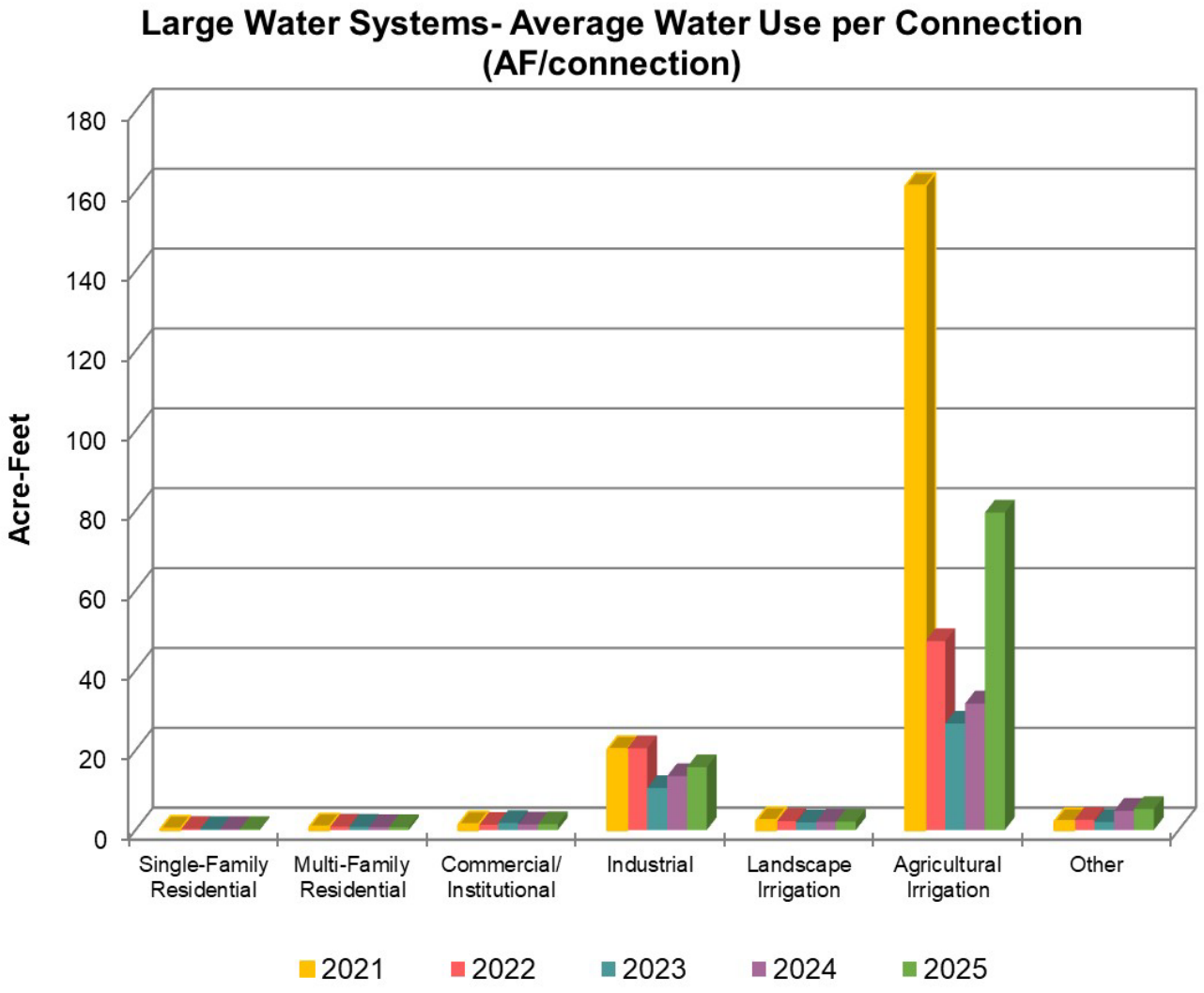


Figure 25. Urban Water Use per Connection – For Large Water Systems

Monterey County Water Resources Agency
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Glenn Church	District #2
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Monterey County Water Resources Agency
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Shaunna Murray, Deputy General Manager

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Ricardo Carmona, Water Resources Hydrologist
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