County of Monterey

Saffron Room
1441 Schilling Place
Salinas, Ca 93901

Meeting Agenda

Wednesday, August 6, 2025

8:30 AM

Location: Saffron Room 1441 Schilling Place Salinas, Ca. 93901

Water Resources Agency Basin Management Advisory Committee

Matthew Simis - Chair
Deidre Sullivan
John Baillie
David Bunn
Richard Ortiz
Robin Lee
Patrick Breen
Marc Kelley

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2. For ZOOM participation please join by computer audio at:
https://montereycty.zoom.us/j/99621772720

OR to participate by phone call any of these numbers below: +1 669 900 6833 US (San Jose)
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Enter this Meeting ID number: 996 2177 2720 PASSWORD: 478310 when prompted. Please note there is no Participant Code, you will just hit # again after the recording prompts you. You will be placed in the meeting as an attendee; when you are ready to make a public comment, if joined by computer audio, please Raise your Hand; and by phone, please push *9 on your keypad.

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5. If you wish to make either a general public comment for items not on the day's agenda or to comment on a specific agenda item as it is being heard, please submit your comment, limited to 250 words or less, to the Monterey County Water Resources Agency at

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9. The Chair and/or Secretary may set reasonable rules as needed to conduct the meeting in an orderly manner.

PARA PARTICIPAR EN LA REUNIÓN DEL COMITE DE ASESOR DE GESTION DE LA CUENCA A TRAVES DE LOS SIGUIENTES METODOS:

1. Podar asistir personalmente a la reunion; o,

2. El público puede observar la reunión ZOOM a través de computadora haciendo clic en el siguiente enlace: https://montereycty.zoom.us/j/99621772720

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9. El Presidente y / o Secretario pueden establecer reglas razonables según sea necesario para llevar a cabo la reunión de manera ordenada.

Call to Order

Roll Call

Public Comment

Committee Member Comments

Consent Calendar

1. Approve the Minutes of the Basin Management Advisory Committee Meeting held on May 7, 2025.

Attachments: Draft BMAC Minutes May 7, 2025

Staff Reports

2. Review of the 2024 Groundwater Extraction Summary Report.

Attachments: Board Report

GW Ext Summary Report 2024

3. Discussion of the influence of hydrogeology on measured changes in groundwater elevation.

Attachments: Board Report

Calendar

4. Set next meeting date and discuss future agenda items.

Adjournment

County of Monterey

Board Report

Legistar File Number: WRABMAC 25-036

Item No.1

Board of Supervisors
Chambers
168 W. Alisal St., 1st Floor
Salinas, CA 93901

August 06, 2025

Introduced: 7/14/2025
Version: 1

Current Status: Agenda Ready
Matter Type: WRA BMAC Item

Approve the Minutes of the Basin Management Advisory Committee Meeting held on May 7, 2025.

County of Monterey

Cinnamon Room
1441 Schilling Place
Salinas, Ca. 93901

Meeting Minutes

Wednesday, May 7, 2025

8:30 AM

Cinnamon Room 1441 Schilling Place Salinas Ca. 93901

Water Resources Agency Basin Management Advisory Committee

Matthew Simis - Chair
Deidre Sullivan
John Baillie
David Bunn
Richard Ortiz
Robin Lee
Patrick Breen
Marc Kelley
Sophia Wendt
Mike McCollough

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**UNA
SOLUCIÓN, PERO LA REUNIÓN DEL COMITÉ ASESOR DE GESTIÓN DE LA CUENCA
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9. El Presidente y / o Secretario pueden establecer reglas razonables según sea necesario

para
llevar a cabo la reunión de manera ordenada.

Call to Order

The meeting was called to order at 8:30 am.

Roll Call

Present: Matthew Simis, John Baillie, David Bunn, Robin Lee, Patrick Breen, Marc Kelley, Sophia Wendt
Absent: Deidre Sullivan, Richard Ortiz, Mike McCollough

Public Comment

None

Committee Member Comments

None

Consent Calendar

1. Approve the Minutes of the Basin Management Advisory Committee Meeting held on March 5,2025, and the Minutes for the Special Groundwater Monitoring Program Regulatory Fee Stakeholder Workshop of the Basin Management Advisory Committee Meeting held on April 3, 2025.

Attachments: Draft BMAC Minutes March 5, 2025
Draft BMAC Special Workshop Minutes April 3,2025

Upon motion of John Baillie, Second by Patrick Breen the committee approved the Consent Calendar of
the Basin Management Advisory Committee.

Ayes: John Baillie, Patrick Breen, Matthew Simis, Marc Kelley, David Bunn, Sophia Wendt
Noes: None
Absent: Deidre Sullivan, Richard Ortiz, Mike McCollough
Abstained: Robin Lee

Staff Reports

2. Overview of Salinas Valley Water Condition report for Second Quarter of Water Year 2024-2025. (Staff Presenting: Guillermo Diaz-Moreno)

Attachments: Quarterly Rpt 2nd Qtr WY25

Committee Member Comments: John Baillie, Robin Lee, David Bunn, Matt Simis, Sophia Wendt
Public Comments: None

3. Update on groundwater extraction data reported for Water Year 2024. (Staff Presenting: Ricardo Carmona, Riley Clark)

Committee Member Comments: Matt Simis, David Bunn, John Baillie
Public Comments: None

4. Update on Proposition 1 project: Protection of Domestic Drinking Water Supplies for the Lower Salinas Valley. (Staff Presenting: Amy Woodrow)

Committee Member Comments: John Baillie, Robin Lee, Patrick Breen, Marc Kelley
Public Comments: None

5. Update on publication of Salinas Valley Hydrologic Models. (Staff Presenting: Amy Woodrow)

Committee Member Comments: David Bunn, John Baillie
Public Comments: None

Calendar

6. Set next meeting date and discuss future agenda items.

Adjournment

The meeting was adjourned at 9:11 am.

Introduced: 7/31/2025
Version: 1

Current Status: Agenda Ready
Matter Type: WRA BMAC Item

Review of the 2024 Groundwater Extraction Summary Report.

SUMMARY/DISCUSSION:
Staff have prepared the 2024 Groundwater Extraction Summary Report (Report). This annual report includes an overview of groundwater extraction data collected through the Groundwater Extraction Management System (GEMS) for reporting year 2024 from over 1,900 groundwater wells in Monterey County Water Resources Agency (Agency) Zones 2, 2A, and 2B (Attachment 1). The Report also provides information on water conservation practices and crop water usage within the reporting area.

Total groundwater extraction reported for the 2024 reporting year was 406,672 acre-feet (AF). This is an increase of 7,489 AF in the volume of groundwater extracted compared to reporting year 2023. The breakdown between agricultural extraction and urban extraction for reporting year 2024 was 369,270 AF (90.8%) and 37,402 AF (9.3%), respectively. The Agency received groundwater extraction reports from ninety-six percent (96%) of the 1,940 wells that were required to report data.

The Report also provides extraction information by subarea and crop type and provides a summary of the forecasted conservation practices for both agricultural and urban entities.

These activities align with Agency Strategic Plan Goals B7, *Use of data and analysis to make informed decisions based on science* and E1, *Improve public outreach to increase transparency, communication, education and information about Agency projects and programs*.

OTHER AGENCY INVOLVEMENT:
No other agencies were involved in production of the report, however, the groundwater extraction data that are foundational to the report are utilized by local Groundwater Sustainability Agencies.

FINANCING:
The collection and analysis of groundwater extraction data, and preparation of this report, that occurred during Fiscal Year 2024-2025 were funded by Fund 116. For Fiscal Year 2025-2026 (FY26), which begins on July 1, 2025, there are no appropriations in the Agency's Adopted Budget to pay for the Groundwater Monitoring Program, which includes groundwater extraction reporting activities.

Prepared by: Ricardo Carmona, Water Resources Hydrologist, (831) 755-4860
Riley Clark, Water Resources Technician, (831) 755-4860

Approved by: Ara Azhderian, General Manager, (831) 755-4860

Attachments:
2024 Groundwater Extraction Summary Report

County of Monterey

Board Report

Legistar File Number: WRABMAC 25-037

Item No.

Board of Supervisors
Chambers
168 W. Alisal St., 1st Floor
Salinas, CA 93901

August 06, 2025

Introduced: 7/31/2025
Version: 1

Current Status: Draft
Matter Type: WRA BMAC Item

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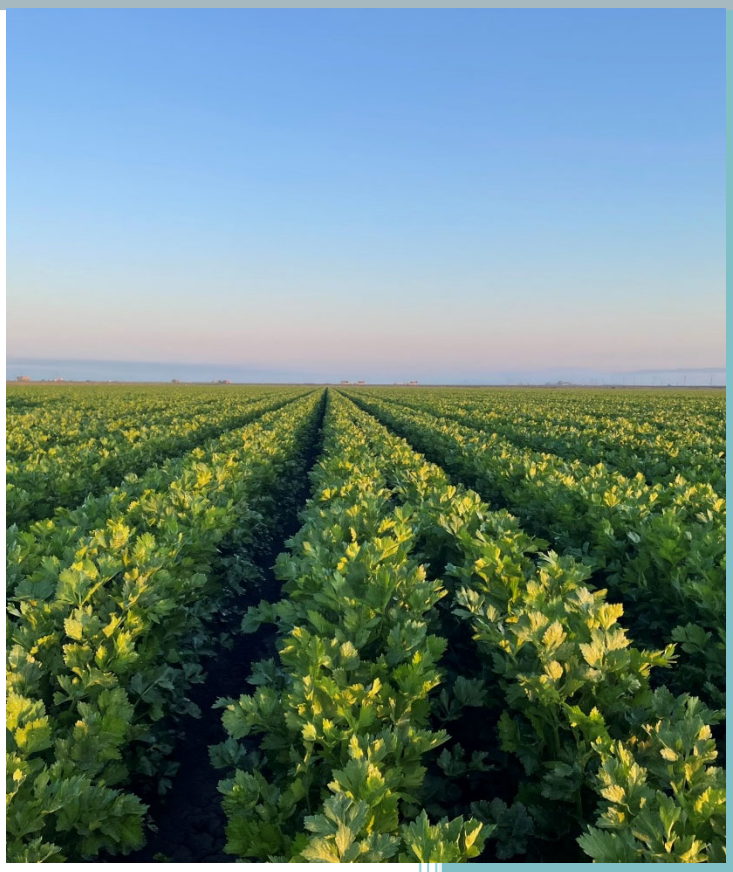
Attachments:
2024 Groundwater Extraction Summary Report

2024

Groundwater Extraction Summary Report



Monterey County Water Resources Agency

June 2025


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.

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. Beginning with the 2025 annual report, reporting will be on a Water Year basis, covering the period from October 1 through September 30, in accordance with Ordinance No. 5426. Information submitted by more than three hundred well operators throughout four hydrologic subareas of the Salinas Valley is utilized to prepare this report (Figure 1).

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. For extraction reporting purposes, the Agency divides a portion of the Salinas Valley Groundwater Basin into 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.

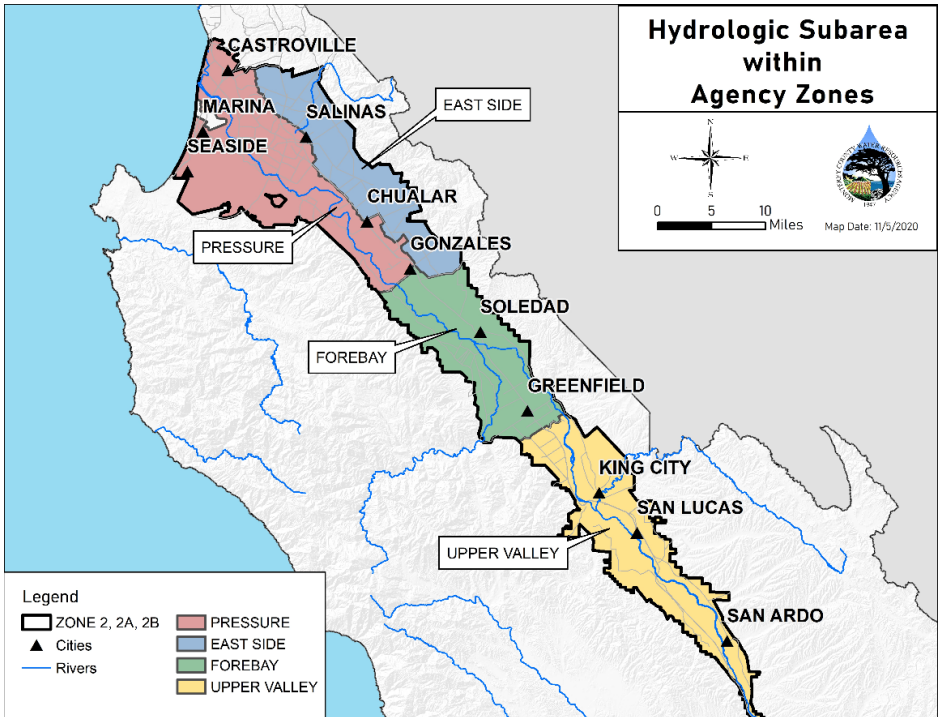
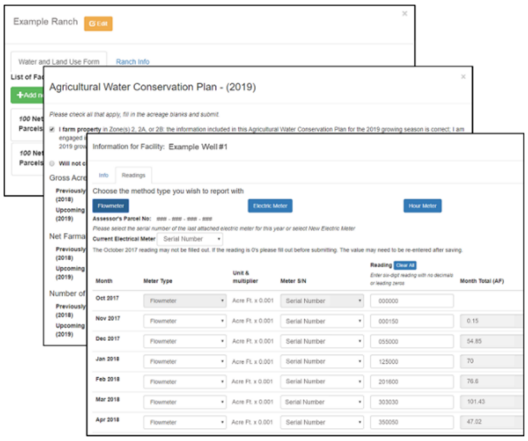


Figure 1. Hydrologic Subareas within Agency Zones 2, 2A, and 2B

Groundwater Summary Report

The purpose of this report is to summarize the data submitted to the Agency by well operators in January 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 data from the groundwater extraction program covers the reporting year of November 1, 2023, through October 31, 2024; the urban data covers calendar year 2024. The agricultural and urban water conservation plans for 2025 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-six percent (96%) of the 1,940 wells in Zones 2, 2A, and 2B of the Salinas Valley that were required to report for the 2024 reporting year. Agricultural and Urban Water Conservation Plan submittal compliance for 2024 was eighty-five percent (85%) and eighty-three percent (83%), 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 distribution of methods used for the 2024 reporting year was: 86% Flowmeter; 13% Electrical Meter; and <1% Hour Meter.

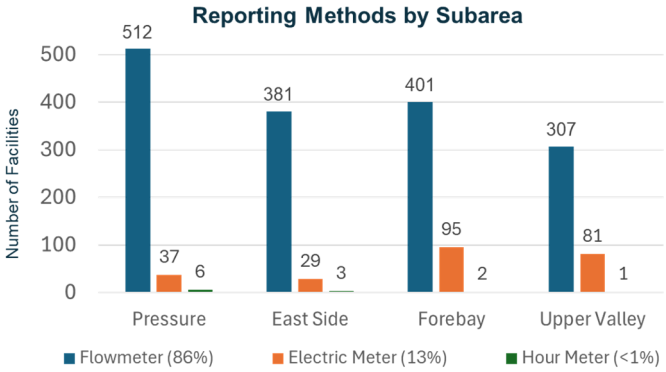


Figure 2. Reporting Method by Subarea

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	83,841	14,260	**98,101**
East Side	69,683	14,043	**83,726**
Forebay	104,387	6,621	**111,008**
Upper Valley	111,359	2,478	**113,837**
Total (AF)	**369,270**	**37,402**	**406,672**
Percent of Total	**90.8%**	**9.2%**	**100.0%**

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

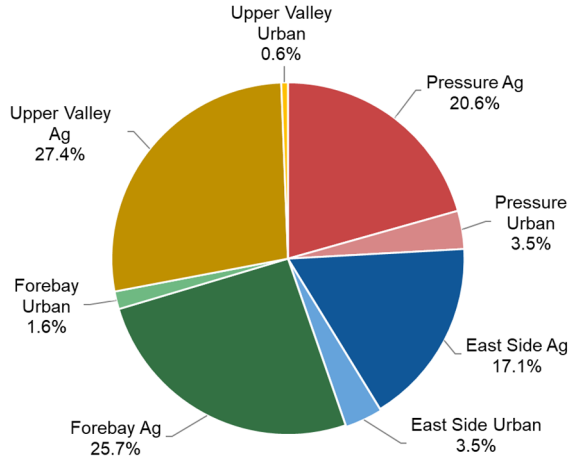


Figure 3. Percentage of Ag and Urban Extractions by Subarea.

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.

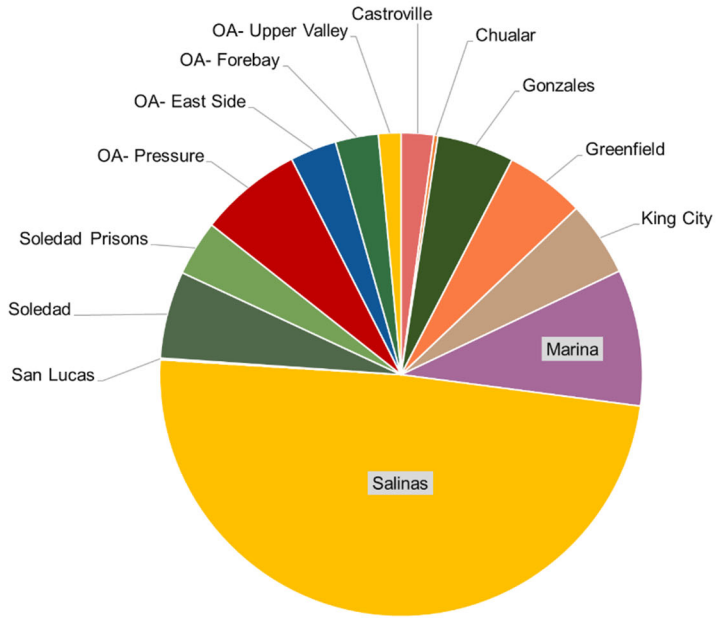


Figure 4. Distribution of Urban Extractions by City or Area.

Table 2. Urban Extractions by City or Area

City or Area	Urban Pumping (AF)	Percentage
Castroville	811	2.17%
Chualar	102	0.27%
Gonzales	1,921	5.15%
Greenfield	1,993	5.34%
King City	1,873	5.02%
Marina	3,404	9.12%
Salinas	18,249	48.91%
San Ardo	No Data	0.00%
San Lucas	41	0.11%
Soledad	2,176	5.83%
Soledad Prisons	1,380	3.70%
OA- Pressure	2,567	6.88%
OA- East Side	1,159	3.11%
OA- Forebay	1,073	2.87%
OA- Upper Valley	564	1.51%
Total	**37,313**	**100.00%**

OA=Other Area

Total Groundwater Extractions in Zones 2, 2A, 2B

This figure provides a spatial representation of groundwater extractions within Zones 2, 2A, and 2B for the 2024 reporting year. The figures and tables on the next six pages provide extraction information by subarea. The number of wells shown in Figures 4 to 15 may be different than the total number of wells in the program, as stated on Page 2, due to delinquent extraction reports.

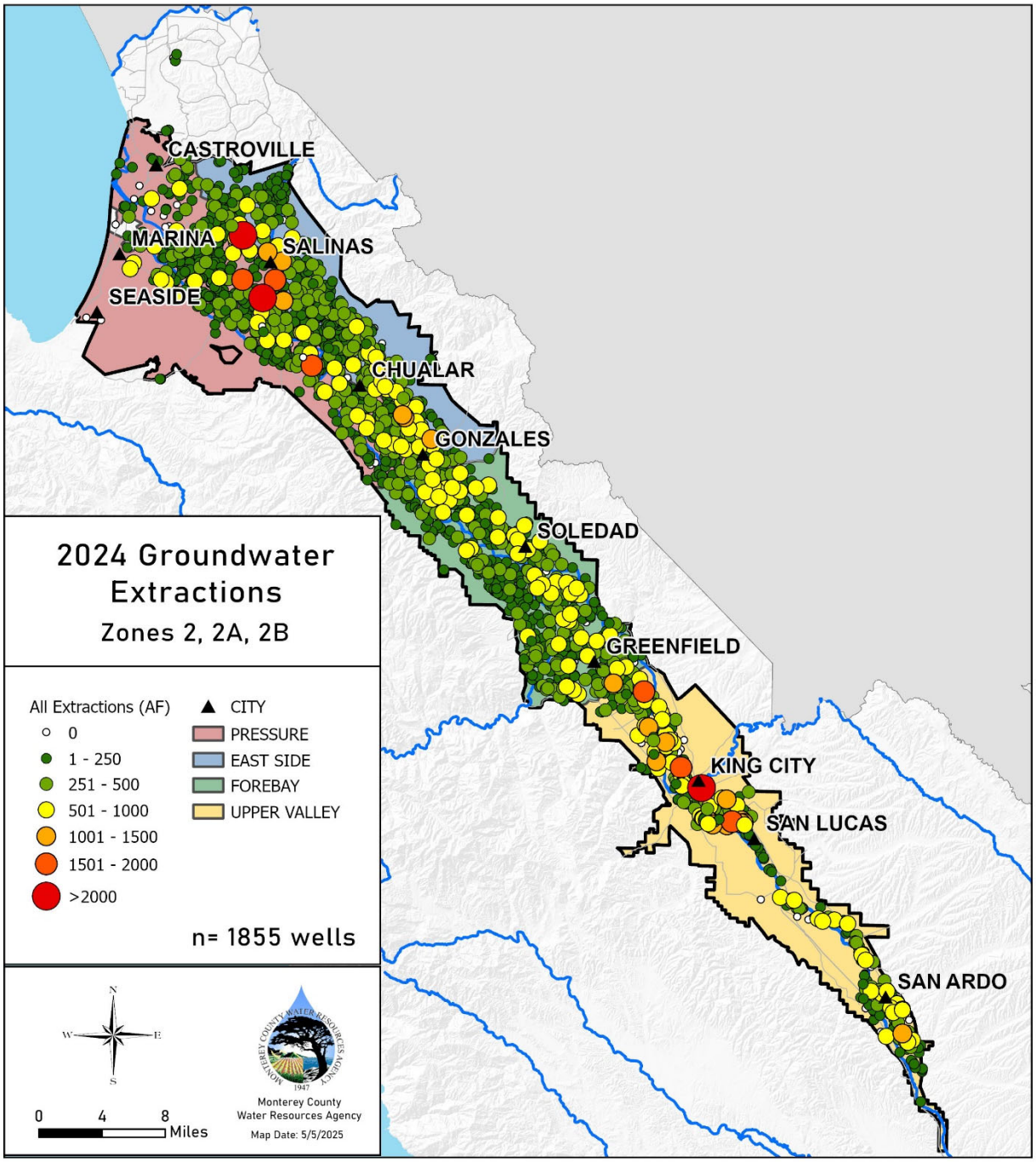


Figure 5. 2024 Groundwater Extractions (AF).

Pressure Subarea – Extraction Data

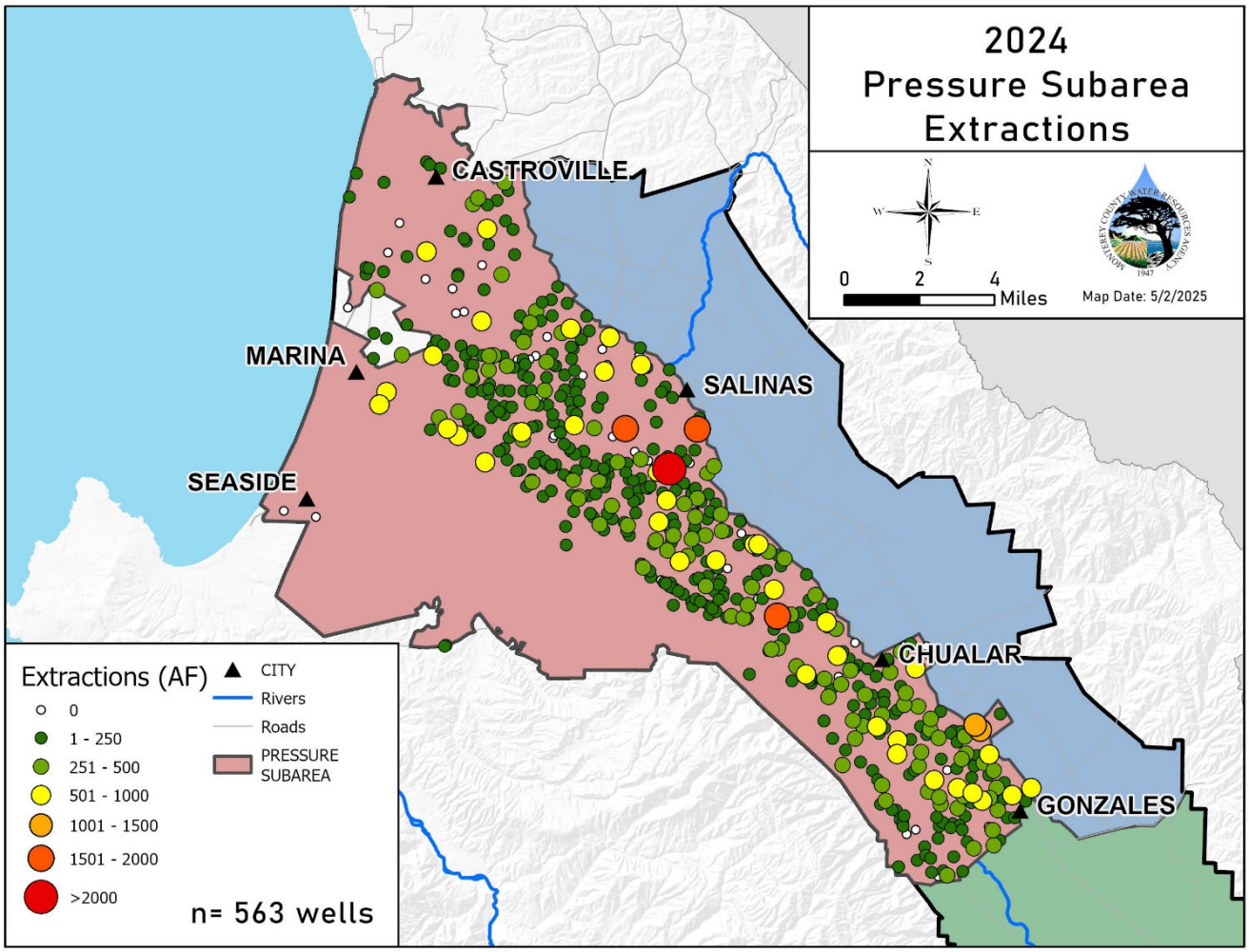


Figure 6. 2024 Groundwater Extractions in the Pressure Subarea.

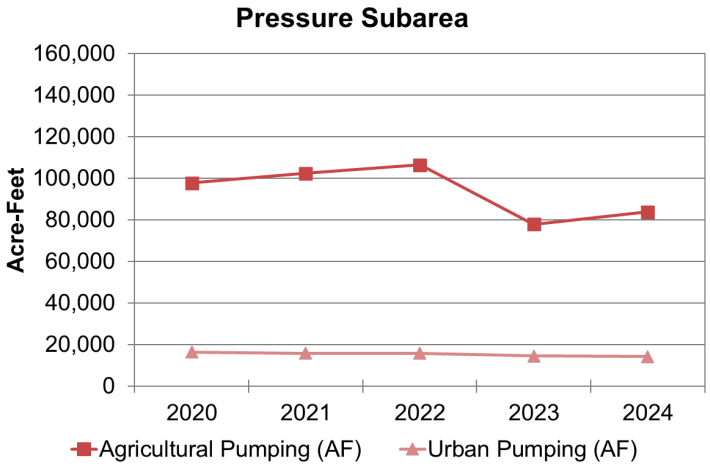


Figure 7. Agricultural and Urban Extractions (AF) in the Pressure Subarea 2020-2024.

Year	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
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**
2020	97,821	16,452	**114,273**

Table 3. Total, Agricultural, and Urban Extractions (AF) in the Pressure Subarea 2020-2024.

CSIP, Zone 2B and Area of Impact – 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 ten 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). Groundwater within the Area of Impact is considered vulnerable due to the presence of pathways for seawater intrusion to migrate vertically from the impaired overlying aquifers (Figure 7, Table 4). The data shown below is a subset of the Pressure Subarea extractions on the previous page.

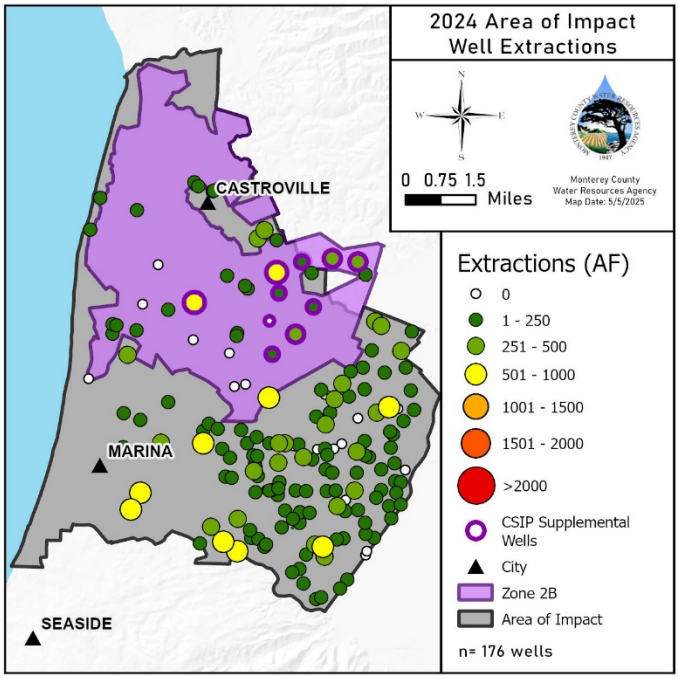


Figure 8. 2024 Groundwater Extractions (AF) in the Area of Impact.

Aquifer	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
180-Ft Aquifer or East Side Shallow	0	0	**1,484**
180 and 400-Ft Aquifer	869	301	**1,170**
400-Ft Aquifer or East Side Deep	10,501	0	**10,501**
Deep Aquifers	8,441	1,924	**10,365**
Unknown	2,566	0	**2,566**
Total (AF)	22,378	2,225	**27,575**

Table 4. 2024 Extraction Data in the Area of Impact by Aquifer and Type of Use

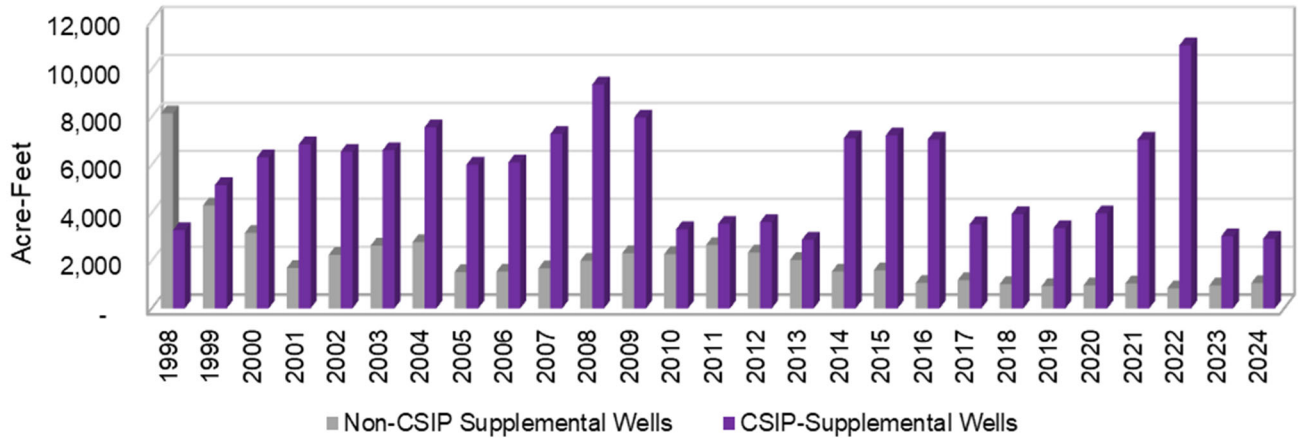


Figure 9. Groundwater Extractions in Zone 2B from CSIP and Non-CSIP Supplemental Wells, 1998-2024

Deep Aquifers – Extraction Data

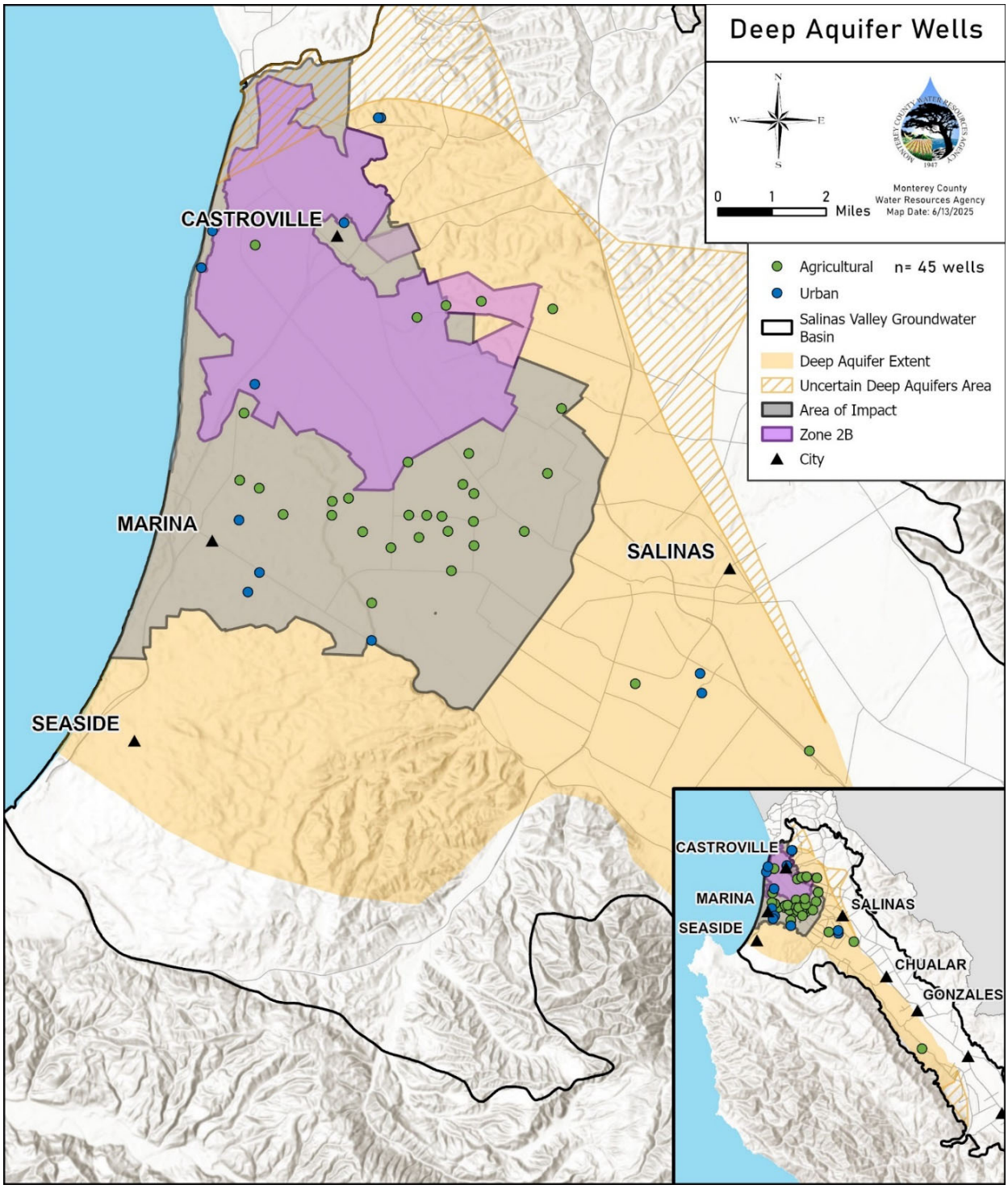


Figure 10. Deep Aquifers Wells by Type of Use

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. For the first time, 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)
2024	8,970	4,718	**13,688**
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, 1993-2024

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.

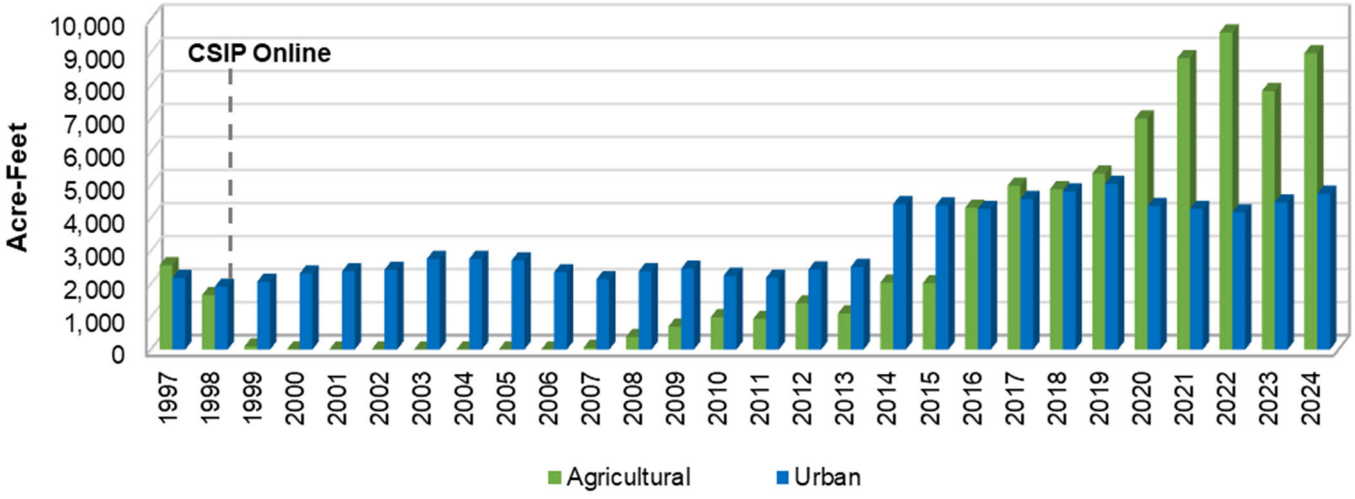


Figure 11. Deep Aquifers Groundwater Extractions by Type of Use, 1997-2024

East Side Subarea – Extraction Data

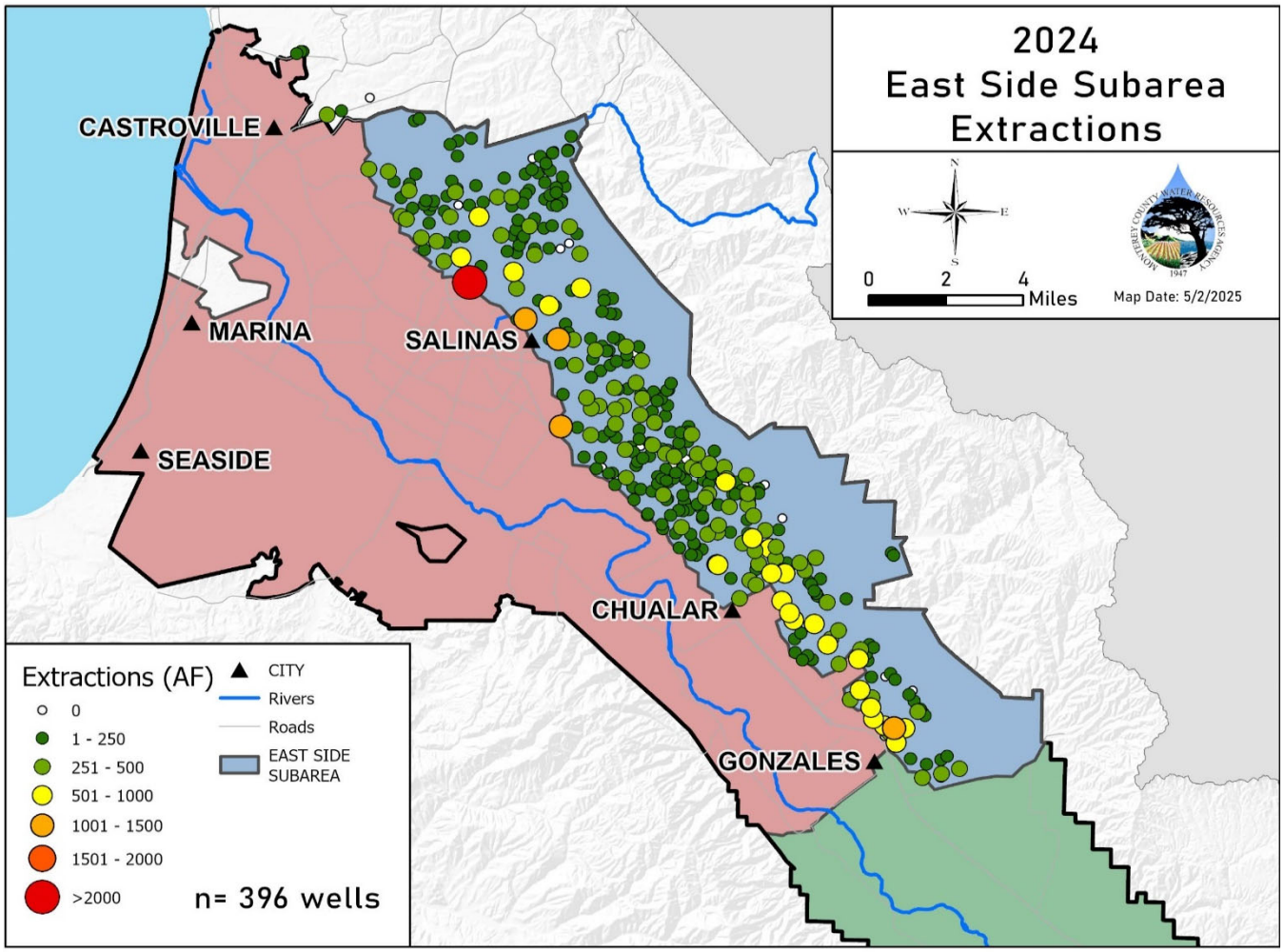


Figure 12. 2024 Groundwater Extractions in the East Side Subarea.

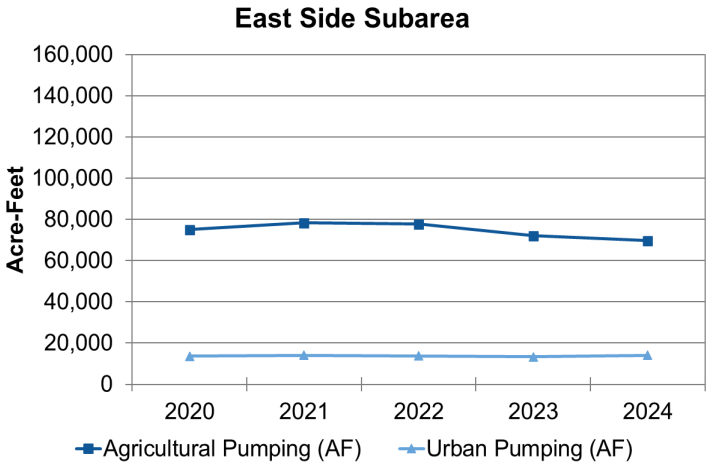


Figure 13. Agricultural and Urban Extractions (AF) in the East Side Subarea 2020-2024.

Year	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
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**
2020	75,125	13,617	**88,742**

Table 6. Total, Agricultural, and Urban Extractions (AF) in the East Side Subarea 2020-2024.

Forebay Subarea – Extraction Data

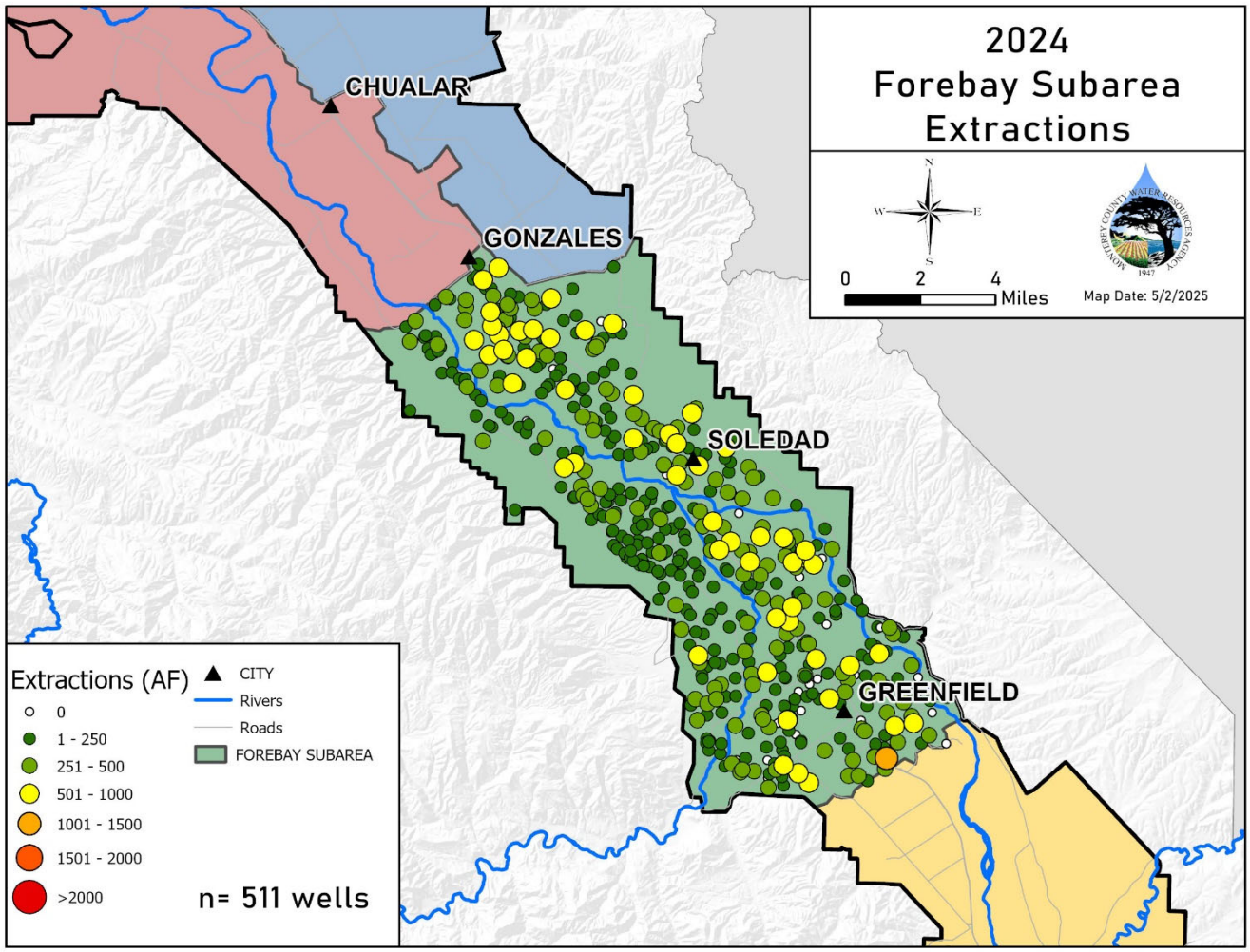


Figure 14. 2024 Groundwater Extractions in the Forebay Subarea.

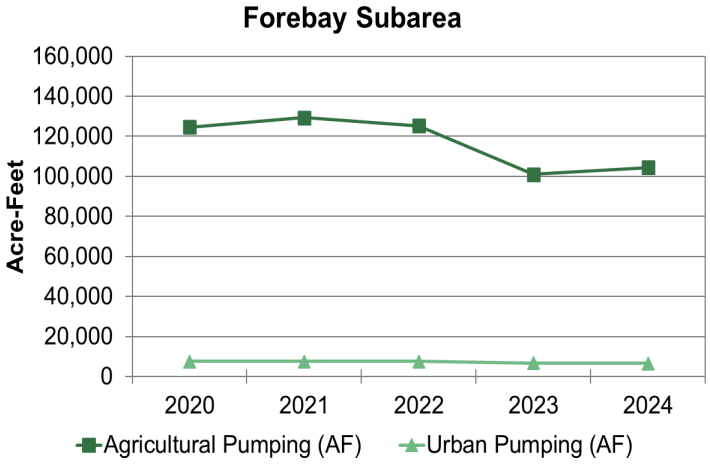


Figure 15. Agricultural and Urban Extractions (AF) in the Forebay Subarea 2020-2024.

Year	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
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**
2020	124,643	7,590	**132,233**

Table 7. Total, Agricultural, and Urban Extractions (AF) in the Forebay Subarea 2020-2024.

Upper Valley Subarea – Extraction Data

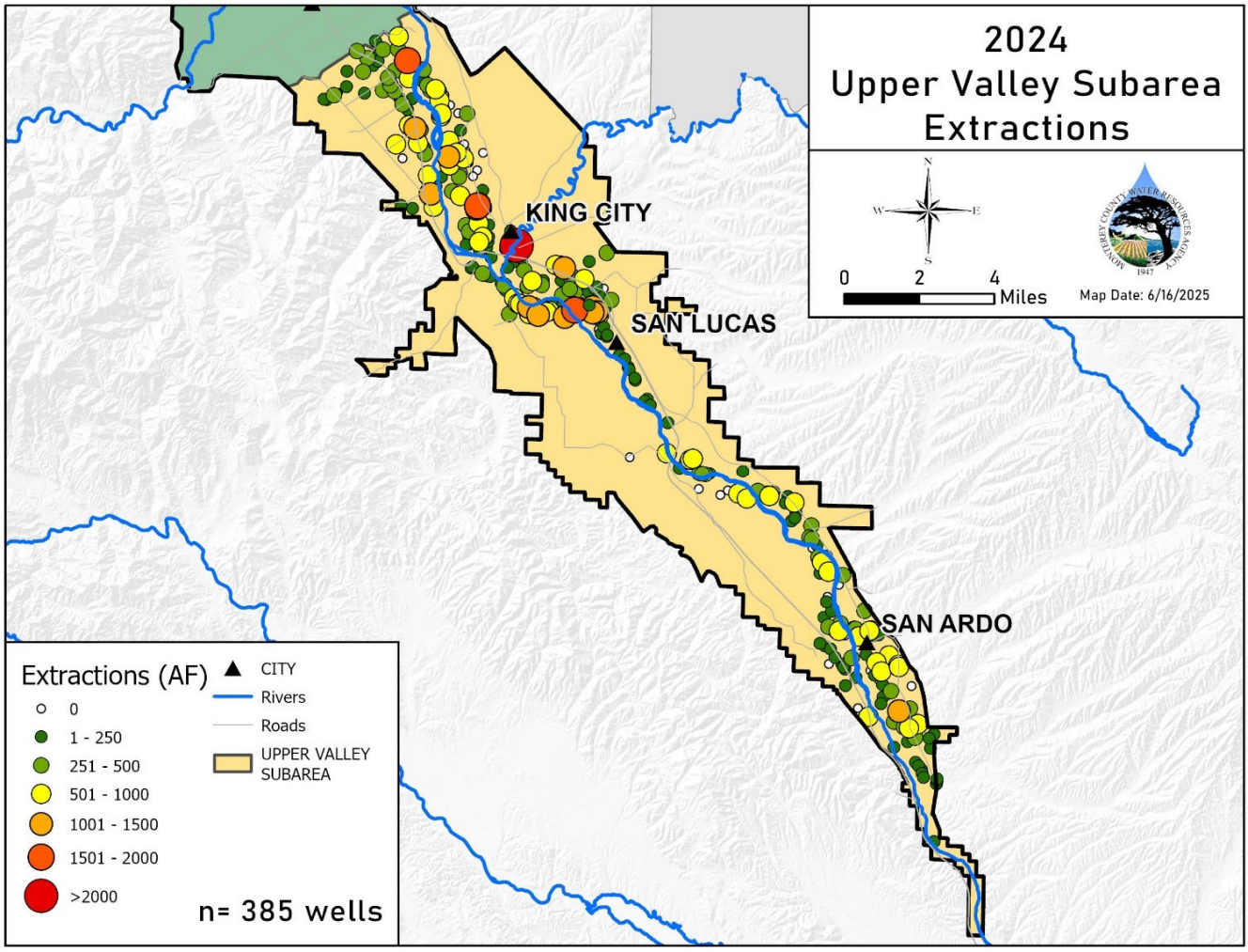


Figure 16. 2024 Groundwater Extractions in the Upper Valley Subarea

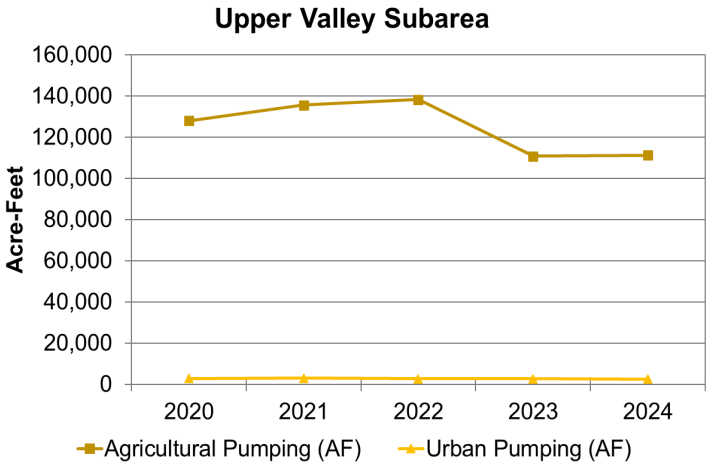


Figure 17. Agricultural and Urban Extractions (AF) in the Upper Valley Subarea 2020-2024

Year	Agricultural Pumping (AF)	Urban Pumping (AF)	Total Pumping (AF)
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**
2020	128,016	2,827	**130,843**

Table 8. Total, Agricultural, and Urban Extractions (AF) in the Upper Valley Subarea 2020-2024.

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 GEMS program and Figure 20 shows the top ten Best Management Practices (BMPs) to be implemented in 2025.

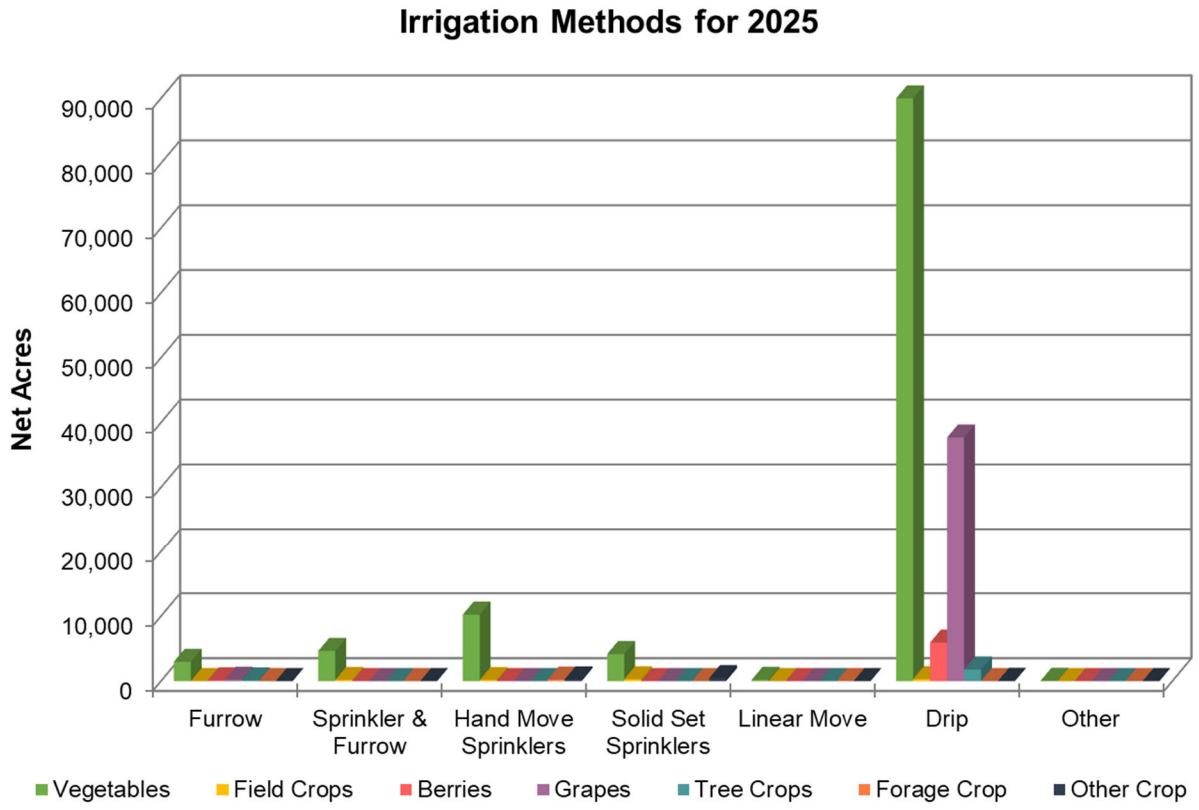


Figure 18. 2025 Forecasted Net Acre Distribution of Irrigation Methods by Crop Type.

2025	Furrow	Sprinkler & Furrow	Hand Move Sprinklers	Solid Set Sprinklers	Linear Move	Drip	Other	Total
Vegetables	2,959	4,636	10,223	4,161	194	103,405	50	125,628
Field Crops	0	160	148	271	0	289	0	868
Berries	116	0	0	0	0	5,929	0	6,045
Grapes	200	0	0	0	0	37,688	0	37,888
Tree Crops	105	0	0	0	0	1,771	0	1,876
Forage Crop	0	0	223	0	15	0	0	238
Other Crop	0	0	268	455	0	38	0	761
Unirrigated	0	0	0	0	0	0	1,251	1,251
Total	**3,380**	**4,796**	**10,862**	**4,887**	**209**	**149,120**	**1,301**	**174,555**

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

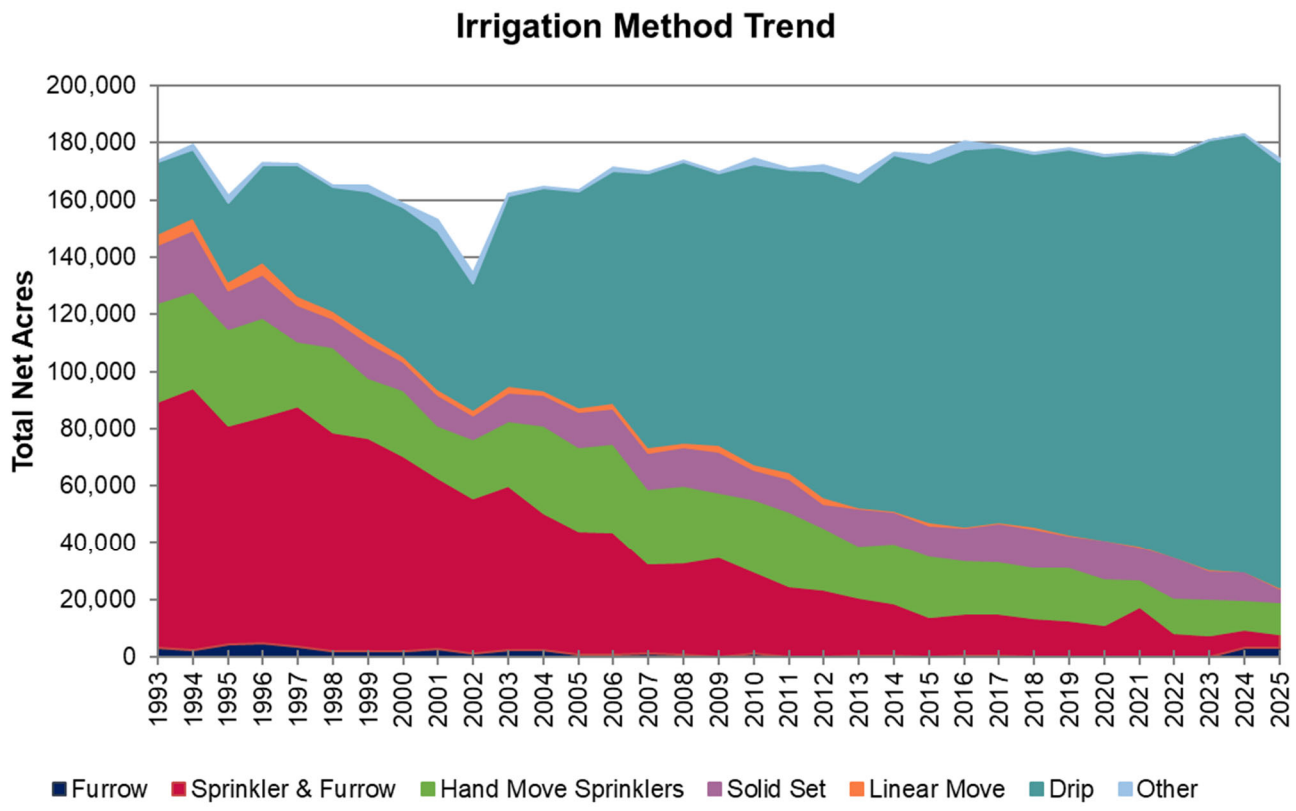


Figure 19. Changes in Irrigation Methods Used Over Time (1993 – 2025) in Zones 2, 2A, and 2B.

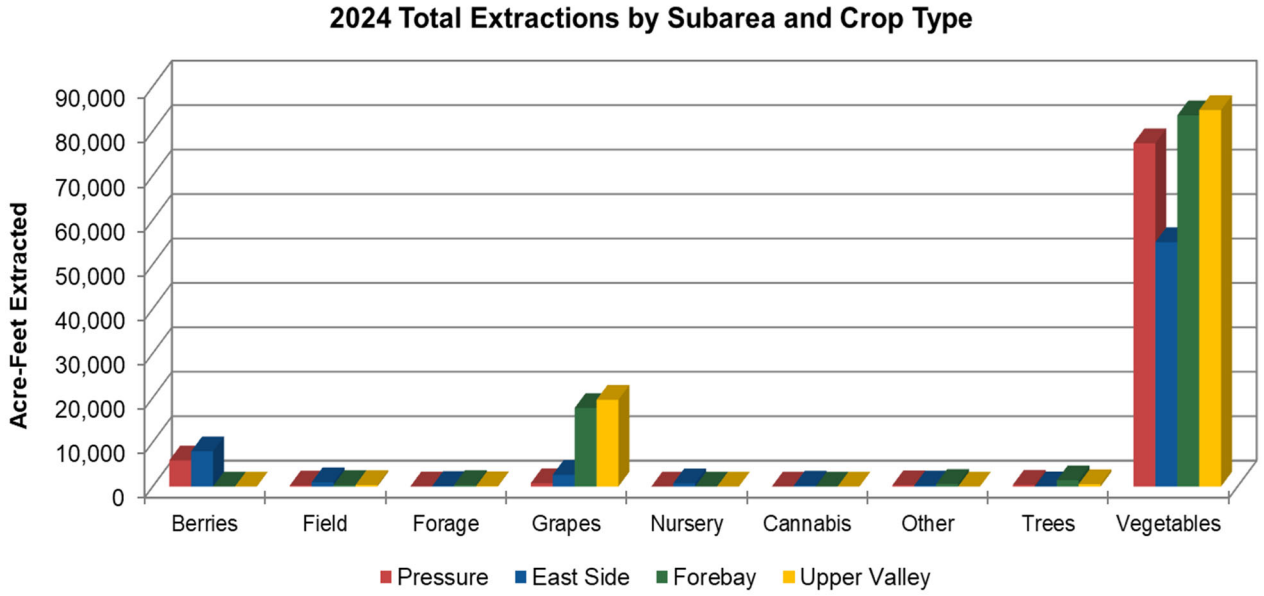
Figure 20. Top Ten BMPs Forecasted for 2025 Based on Reported Net Acres.

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.

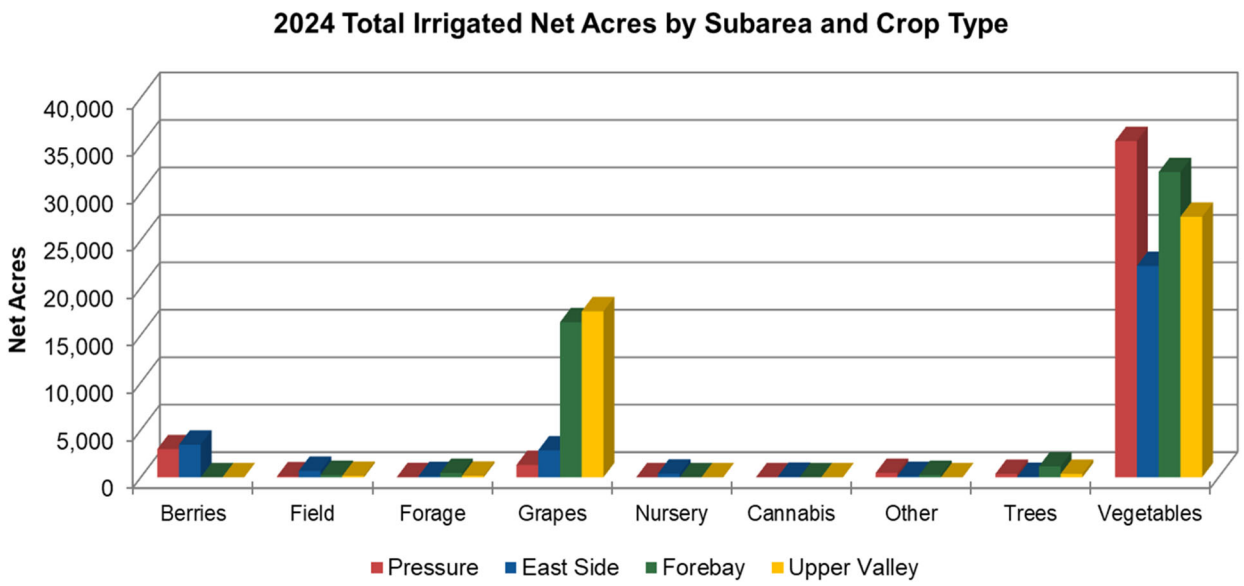
Changing weather patterns, variable soil types, and crop types affect the amount of water needed for efficient irrigation. Even during a normal rain year, pumping rates will vary from one subarea to another, and crop types will vary depending on economic demand.

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.



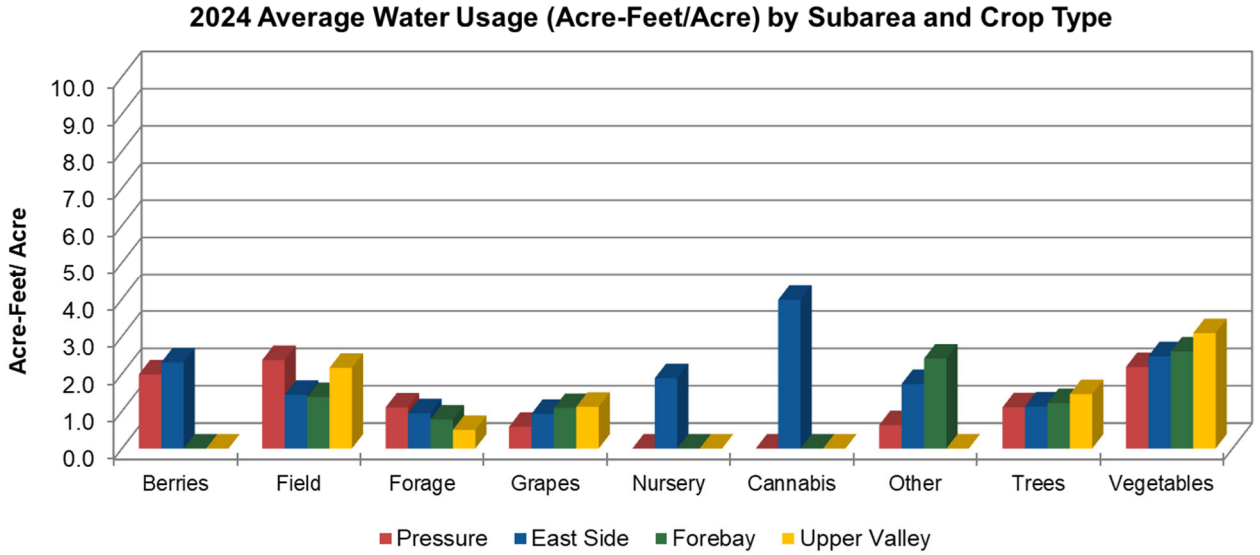
2024	Berries	Field	Forage	Grapes	Nursery	Cannabis	Other	Trees	Vegetables
Pressure	5,868	234	12.3	755	-	-	292	396	77,246
East Side	7,924	975	117	2,631	729	198	243	45.0	54,999
Forebay	-	347	356	17,674	-	-	596	1,393	83,520
Upper Valley	-	335	79.5	19,524	-	-	-	524	84,728

Figure 21. 2024 Extractions in Acre-Feet Reported by Crop Type and Subarea.



2024	Berries	Field	Forage	Grapes	Nursery	Cannabis	Other	Trees	Vegetables
Pressure	2,961	98.8	11.2	1,301	-	-	466	359	35,437
East Side	3,441	678	124	2,837	388	49.6	141	40.0	22,268
Forebay	-	252	460	16,333	-	-	248	1,145	32,157
Upper Valley	-	155	160	17,496	-	-	-	360	27,456

Figure 22. 2024 Irrigated Net Acres Reported by Crop Type and Subarea.



2024	Berries	Field	Forage	Grapes	Nursery	Cannabis	Other	Trees	Vegetables
Pressure	2.0	2.4	1.1	0.6	-	-	0.6	1.1	2.2
East Side	2.3	1.4	0.9	0.9	1.9	4.0	1.7	1.1	2.5
Forebay	-	1.4	0.8	1.1	-	-	2.4	1.2	2.6
Upper Valley	-	2.2	0.5	1.1	-	-	-	1.5	3.1

Figure 23. 2024 Average Water Use in Acre-Feet/Acre Reported 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 2025 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	2025
Advise customers when it appears possible that leaks exist on customer's side of water meter	100%
Implement requirements that all new connections be metered and billed by volume of use	100%
Perform distribution system leak detection and repair whenever the audit reveals that it would be cost-effective	99%
Complete an audit of water distribution system at least every three years as prescribed by American Water Works Association	99%
Provide conservation information in bill inserts	99%
Review proposed water uses for new commercial and industrial water service, and make recommendations for improving efficiency before completion of building permit process	99%
Provide individual historical water use information on water bills	98%
Establish a program to retrofit any existing unmetered connections and bill by volume of use	97%
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%
Enforcement and support of water conserving plumbing fixture standards, including gradual requirement for High Efficiency Toilets (HET) in all new construction	96%

Table 10. Top Ten BMPs – Large Water Systems.

Top Ten BMPs Implemented for Small Water Systems	2025
Advise customers when it appears possible that leaks exist on customer's side of water meter	92%
Implement requirements that all new connections be metered and billed by volume of use	91%
Provide individual historical water use information on water bills	58%
Establish a program to retrofit any existing unmetered connections and bill by volume of use	58%
Perform distribution system leak detection and repair whenever the audit reveals that it would be cost-effective	57%
Support of legislation prohibiting sale of toilets using more than 1.6 gpf	57%
Encourage and promote the elimination of non-conserving pricing and adoption of conservation pricing policies	56%
Implementation of conservation pricing policy	56%
Designate a water conservation coordinator responsible for preparing the water conservation plan, managing its implementation, and evaluating its results	55%
Encourage local nurseries to promote use of low water use plants	54%

Table 11. Top Ten BMPs – Small Water Systems.

Small Water Systems: Water Use (AF) Per Connection Class	2020	2021	2022	2023	2024
Single-Family Residential	0.429	0.423	0.454	0.300	0.342
Multi-Family Residential	0.738	0.600	0.998	0.234	0.166
Commercial/ Institutional	0.806	1.276	1.115	0.996	0.872
Industrial	37.142	52.108	43.073	35.402	38.906
Landscape Irrigation	6.565	2.369	1.832	0.741	0.825
Other	4.702	8.035	13.451	8.166	10.934

Table 12. Water Use per Connection – Small Water Systems (2020-2024).

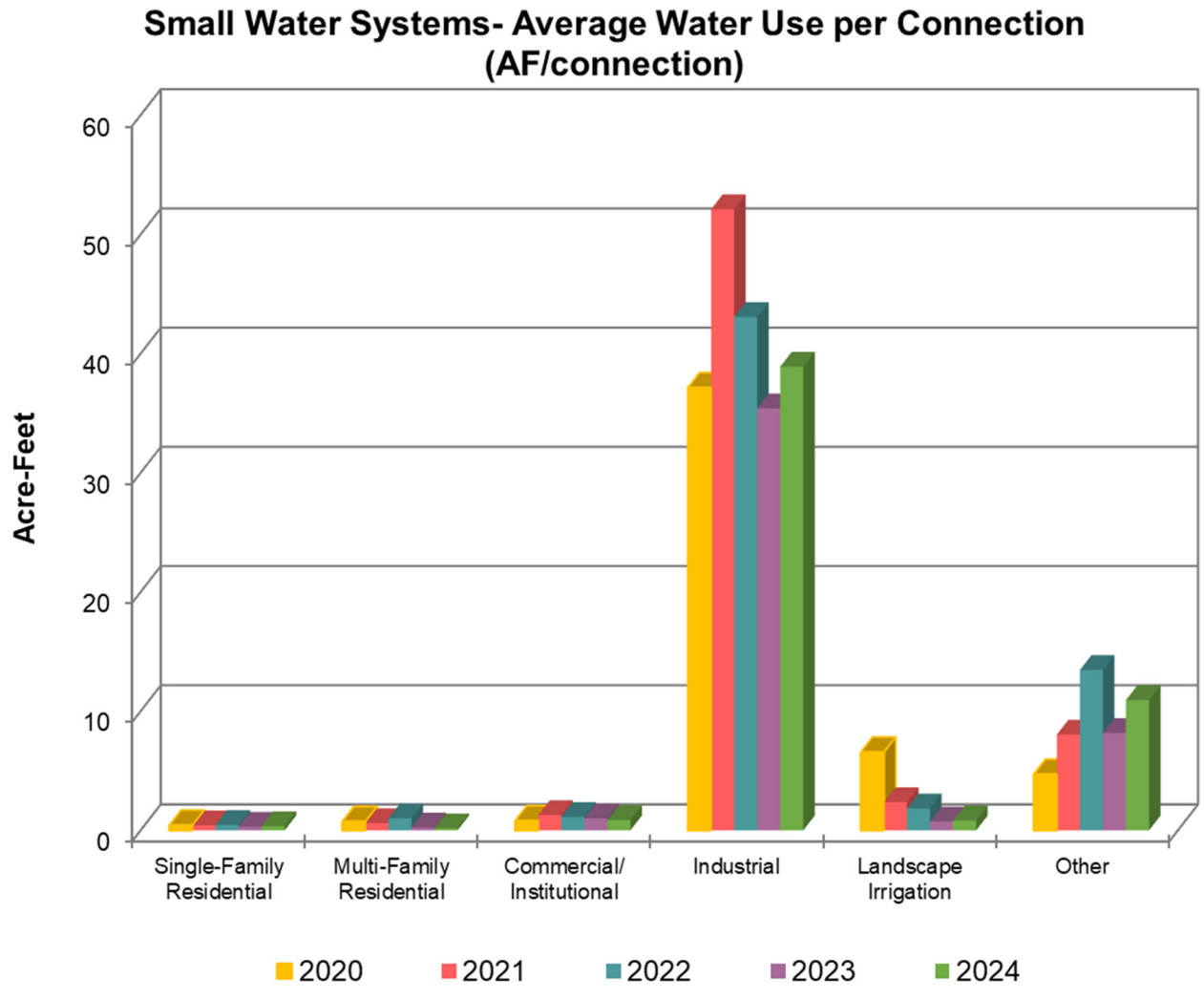


Figure 24. Urban Water Use per Connection – For Small Water Systems

Large Water Systems: Water Use (AF) Per Connection Class	2020	2021	2022	2023	2024
Single-Family Residential	0.273	0.282	0.281	0.262	0.257
Multi-Family Residential	1.032	0.836	0.873	0.815	0.739
Commercial/ Institutional	1.414	1.380	1.316	1.763	1.406
Industrial	20.480	20.227	20.472	10.501	13.487
Landscape Irrigation	2.318	2.433	2.245	1.926	2.066
Agricultural Irrigation	124.190	161.299	47.313	26.659	31.679
Other	2.191	2.176	2.553	2.021	4.816

Table 13. Water Use per Connection – Large Water Systems (2020-2024).

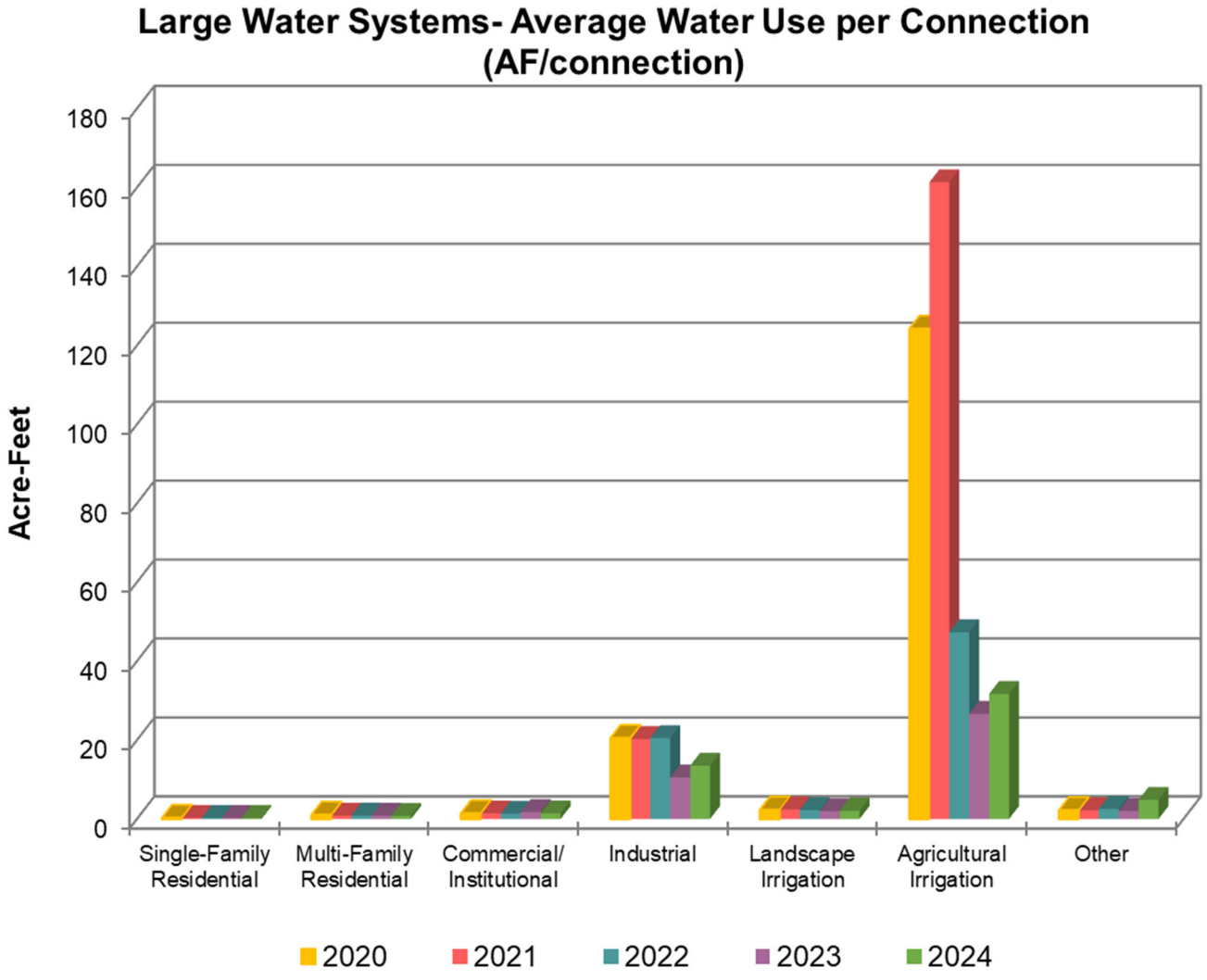


Figure 25. Urban Water Use per Connection – For Large Water Systems

Monterey County Water Resources Agency
Board of Supervisors

Luis Alejo	District #1
Glenn Church	District #2
Chris Lopez, Chair	District #3
Wendy Root Askew, Vice Chair	District #4
Kate Daniels	District #5

Monterey County Water Resources Agency
Board of Directors

Mark Gonzalez	District #1
Mike Scattini	District #2
Jon Conatser	District #3
Deidre Sullivan	District #4
Ken Ekelund	District #5
Matt Simis, Vice Chair	Grower-Shipper Association
Jason Smith	Monterey County Farm Bureau
John Baillie	Agricultural Advisory Committee
Mike LeBarre, Chair	City Select Committee

Monterey County Water Resources Agency

Ara Azhderian, General Manager
Shaunna Murray, Deputy General Manager

Groundwater Extraction Summary Report Team

Amy Woodrow, Senior Water Resources Hydrologist
Ricardo Carmona, Water Resources Hydrologist
Guillermo Diaz-Moreno, Water Resources Hydrologist
Riley Clark, Water Resources Technician

For more information, contact:

Monterey County Water Resources Agency

1441 Schilling Place, Salinas

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831.755.4860
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www.mcwater.info

Introduced: 7/31/2025 **Current Status:** Agenda Ready

Version: 1 **Matter Type:** WRA BMAC Item

Discussion of the influence of hydrogeology on measured changes in groundwater elevation.

SUMMARY:

At the May 2025 meeting of the Basin Management Advisory Committee (BMAC), staff was asked to prepare an informational presentation on the differences between confined and unconfined aquifers, with a focus on how groundwater levels respond in each type of aquifer as a result of changing conditions in the water balance such as groundwater pumping or recharge. In response, Monterey County Water Resources Agency (Agency) staff is providing the following summary and an accompanying presentation that will be reviewed at the July 9, 2025 BMAC meeting.

DISCUSSION:

The potential of a geologic formation to store and yield water as a productive aquifer depends on the type of geologic material (lithology) and layering of the geologic material (stratigraphy) within the distinct geologic unit (formation). Properties of the sediment or rock constituting the aquifer, as well as the presence and properties of any confining layers, will change how the aquifer stores and transmits water, how it recharges, and how its water table or potentiometric surface responds to pumping.

A confined aquifer is one in which the aquifer below land surface is completely saturated with water. A confined aquifer has layers of impermeable material above and below it, causing it to be under pressure. When a confined aquifer is penetrated with a well, groundwater in the well will rise to a level that is above the top of the aquifer surface, though not necessarily above the land surface. The level to which water rises in a well that is screened (i.e., open to receiving groundwater) in a confined aquifer is referred to as the potentiometric surface.1,2

An unconfined aquifer, sometimes referred to as a “water table” aquifer” is one in which the upper water surface is at atmospheric pressure.1 The aquifer materials of an unconfined aquifer are only partially filled with water and the groundwater surface freely rises and falls along the boundary between the unsaturated and saturated zone.2

When confined aquifers are pumped, groundwater is released from storage by slightly compressing the aquifer material, or by the expansion of water molecules. In other words, there is no loss of saturated thickness when water is released from storage under confined conditions, rather there is only a decrease in the fluid pressure. The measure of how much water a confined aquifer releases from storage per unit surface area of the aquifer per unit decline in hydraulic head is the “storativity” of the aquifer. Confined aquifers, such as the Deep Aquifers in the Salinas Valley Groundwater Basin, have a low storativity value which means that less water is released from aquifer storage per unit of change in

the elevation of the groundwater surface, than would occur in an unconfined aquifer. This results in much larger drawdown and a wider cone of depression when wells are pumped and a significant drawdown of the potentiometric surface seasonally when regional pumping increases. As extractions decline, the potentiometric surface rebounds. This recovery in the potentiometric surface occurring after extractions were reduced for a prolonged period was observed in the Deep Aquifers when the CSIP project came online in 1998. Similarly, seasonal recovery of groundwater levels was observed in the Deep Aquifers in Water Year 2023, following substantial decreases in groundwater pumping following a very wet winter period.

When pumping occurs in an unconfined aquifer, the aquifer materials are dewatered through gravity drainage of the space between grains or cracks in the aquifer material. The pumped groundwater is replaced by air entering the drained space from above.

Unconfined aquifers are more closely connected to the land surface and, therefore, often show fluctuations in groundwater level in response to rain or drought conditions. Conversely, groundwater levels in a confined aquifer are not as responsive to short-term variations in precipitation.5 Depending upon the depth and nature of the geologic materials comprising the confined aquifer, it may take millennia for surface precipitation to reach a confined aquifer.

In summary, the distinctions between confined and unconfined aquifers have implications for reasons including, but not limited to: the spatial extent of an aquifer that is impacted by groundwater pumping; the residence time of water within the aquifer; and the degree of responsiveness, if any, to variations in precipitation.

Discussion of the concepts associated with groundwater level monitoring aligns with Agency Strategic Plan Goals B7, *Use of data and analysis to make informed decisions based on science* and E1, *Improve public outreach to increase transparency, communication, education and information about Agency projects and programs*.

OTHER AGENCY INVOLVEMENT:
No other agencies were involved with preparation of this report.

FINANCING:
The collection and analysis of groundwater level data, and preparation of this report, that occurred during Fiscal Year 2024-2025 were funded by Fund 116. For Fiscal Year 2025-2026 (FY26), which begins on July 1, 2025, there are no appropriations in the Agency's Adopted Budget to pay for the Groundwater Monitoring Program, which includes groundwater level monitoring activities.

Prepared by: Amy Woodrow, Senior Hydrologist, (831) 755-4860
Approved by: Ara Azhderian, General Manager, (831) 755-4860

U.S. Geological Survey.
<https://www.usgs.gov/faqs/what-difference-between-a-confined-and-unconfined-water-table-aquifer>
North Carolina Division of Water Resources via Utah Division of Water Rights
<https://waterrights.utah.gov/wellinfo/theis/hydrogeology_discussion.asp>

Kansas Geological Survey <https://www.kgs.ku.edu/Publications/Bulletins/239/Macfarlane/>
Poehls, D.J. and G.J. Smith (2009) Encyclopedic Dictionary of Hydrogeology.
The Groundwater Project
<https://books.gw-project.org/groundwater-in-our-water-cycle/chapter/aquifer-storage/>
Based on graphic from U.S. Bureau of Reclamation
<https://www.usbr.gov/lc/yuma/programs/YAWMS/GROUNDWATER_aquifer.html>

Introduced: 7/31/2025 **Current Status:** Draft

Version: 1 **Matter Type:** WRA BMAC Item

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The Groundwater Project
<https://books.gw-project.org/groundwater-in-our-water-cycle/chapter/aquifer-storage/>
Based on graphic from U.S. Bureau of Reclamation
<https://www.usbr.gov/lc/yuma/programs/YAWMS/GROUNDWATER_aquifer.html>

County of Monterey

Board Report

Legistar File Number: WRABMAC 25-035

Item No.4

Board of Supervisors
Chambers
168 W. Alisal St., 1st Floor
Salinas, CA 93901

August 06, 2025

Introduced: 7/14/2025
Version: 1

Current Status: Agenda Ready
Matter Type: WRA BMAC Item

Set next meeting date and discuss future agenda items.