Annual Report

# Pleasant Valley Basin Groundwater Sustainability Plan 2025 Annual Report: Covering Water Year 2024

**MARCH 2025**

*Prepared for:*

**FOX CANYON GROUNDWATER MANAGEMENT AGENCY**
800 South Victoria Avenue
Ventura, California 93009-1610
*Contact: Farai Kaseke, Ph. D., PH, PMP, CSM*

*Prepared by:*

DUDEK
605 Third Street
Encinitas, California 92024
*Contact: Jill Weinberger, Ph. D, P.G*


Jill Weinberger, Ph. D., P.G.
Principal Hydrogeologist

Printed on 30% post-consumer recycled material.

# Table of Contents

**SECTION** **PAGE NO.**



## TABLES

## FIGURES

INTENTIONALLY LEFT BLANK

# Executive Summary

The Fox Canyon Groundwater Management Agency (FCGMA), the Groundwater Sustainability Agency (GSA) for the portion of the Pleasant Valley Basin (PVB) (4-006) within its jurisdictional boundaries, in coordination with the other two GSAs in the basin, has prepared this sixth annual report for the Pleasant Valley Basin Groundwater Sustainability Plan (GSP) in compliance with the 2014 Sustainable Groundwater Management Act (SGMA) (California Water Code, Section 10720 et seq.). This annual report covers the entire PVB. The GSP for the PVB was submitted to the Department of Water Resources (DWR) on January 13, 2020, and was approved by DWR on November 18, 2021. SGMA regulations require that an annual report be submitted to the DWR by April 1 of each year following the adoption of the GSP. The data presented in the PVB GSP ends in water year 2015. This annual report for the PVB provides an update on the groundwater conditions for water year 2024 (October 1, 2023, through September 30, 2024).

Water year 2024 was an above average water year, in which precipitation was approximately 110% of the historical average precipitation within the PVB. Groundwater elevations measured in spring 2024 were higher than spring 2023 in six of the eight representative monitoring points, or key wells, in the PVB. Additionally, spring 2024 groundwater elevations were higher than the 2025 Interim Milestone groundwater elevations at all key wells that had established interim milestones in the GSP (FCGMA 2019a).

Groundwater in storage in the older alluvium increased by approximately 7,600 acre-feet (AF) during the 2024 water year, which is the largest single-year change in storage measured during the period from 2016 to 2023. In the Fox Canyon aquifer, groundwater in storage increased by approximately 250 AF. Cumulatively, since spring 2015, groundwater in storage increased in the older alluvium by approximately 4,700 AF and decreased in the Fox Canyon aquifer by approximately 700 AF.

Implementation of the GSP has begun to fill data gaps identified in the GSP. Spatial data gaps were reduced as groundwater elevations from two sets of nested groundwater monitoring wells (one set located in North Pleasant Valley Management Area, near the boundary between PVB and Las Posas Valley Basin [LPVB], and the other within the Pumping Depression Management Area in the Oxnard Subbasin, near the boundary with the PVB) were used to assess groundwater conditions across the PVB within the older alluvium and Fox Canyon aquifer. FCGMA installed two additional nested monitoring wells in the PVB in 2024 near Calleguas Creek with completions in shallow alluvium and in the older alluvium. The data gaps identified in the GSP will continue to be addressed as implementation of the GSP progresses.

FCGMA prepared its first Periodic Evaluation of the GSP, which provides an assessment of progress towards sustainability in the PVB. The Periodic Evaluation was submitted to DWR on January 13, 2025. The information presented in the Periodic Evaluation demonstrates that the PVB is on track to meet the sustainability goal set forth in the GSP. This has been accomplished through the development of policy that allocates groundwater extractions in a manner consistent with the GSP; diversification of water supplies and reduction in groundwater production from the PVB; implementation of projects that address data gaps; development, evaluation, and implementation of projects that increase the sustainable yield; and recharge via United Water Conservation District's spreading basins in the Forebay during the wet 2023 and 2024 water years.

INTENTIONALLY LEFT BLANK

# 1 Plan Area and Background

## 1.1 Background

FCGMA, the GSA for the portion of the Pleasant Valley Basin (PVB) within its jurisdictional boundaries, in coordination with the other two GSAs in the basin, has prepared this annual report for the GSP in compliance with SGMA (California Water Code, Section 10720 et seq.). SGMA requires that an annual report be submitted to the Department of Water Resources (DWR) by April 1 of each year following the adoption of the GSP. FCGMA adopted a GSP for the PVB in December 2019 and submitted the GSP to DWR on January 13, 2020 (DWR 2020). DWR approved the GSP for the PVB on November 18, 2021. FCGMA submitted its first Periodic Evaluation of the PVB GSP to DWR on January 13, 2025. The 2025 annual report is the sixth annual report for the PVB since the GSP was submitted.

FCGMA is one of three Groundwater Sustainability Agencies (GSAs) in the PVB. The other two GSAs are the Camrosa Water District (CWD)–Pleasant Valley GSA and the Pleasant Valley Outlying Areas GSA (County of Ventura). This annual report applies to the entirety of the PVB. To coordinate management and reporting in the basin, FCGMA and CWD have executed a Memorandum of Understanding, and FCGMA and the County have formed a Joint Powers Authority.

### 1.1.1 Fox Canyon Groundwater Management Agency

FCGMA is an independent special district formed by the California Legislature in 1982 to manage and protect the aquifers within its jurisdiction for the common benefit of the public and all agricultural and M&I users (FCGMA et al. 2007). FCGMA's boundaries include all land overlying the Fox Canyon Aquifer (FCA) and includes portions of the following DWR Bulletin 118 groundwater basins: PVB (DWR Basin No. 4-006), Arroyo Santa Rosa Valley Basin (ASRVB, DWR Basin No. 4-007), Las Posas Valley Basin (DWR Basin No. LPVB, 4-008), and Santa Clara River Valley Basin - Oxnard Subbasin (DWR Basin No. 4-004.02).

FCGMA is governed by a Board of Directors (Board) with five members who represent: (1) the County of Ventura (County), (2) United Water Conservation District (UWCD), (3) seven mutual water companies and water districts within the Agency[1], (4) five incorporated cities which are all or a portion of each is within the FCGMA jurisdictional area[2], and (5) a farmer representative. The Board members representing the County, UWCD, the mutual water companies and water districts, and the incorporated cities are appointed by their respective organizations or groups. The representative for the farmers is appointed by the other four seated Board members from a list of candidates jointly supplied by the Ventura County Farm Bureau and the Ventura County Agricultural Association. An alternate Board member is selected by each appointing agency or group in the same manner as the regular member and acts in place of the regular member in case of absence or inability to act. All members and alternates serve for a 2-year term of office, or until the member or alternate is no longer an eligible official of the member agency. Information regarding current FCGMA Board representatives can be found on the FCGMA website.

1 The seven mutual water companies and water districts are: Alta Mutual Water Company, Pleasant Valley County Water District (PVCWD), Berylwood Heights Mutual Water Company, Calleguas Municipal Water District (CMWD), CWD, Zone Mutual Water Company, and Del Norte Mutual Water Company.

2 The five incorporated cities which are all or in part within the FCGMA jurisdictional area are: Ventura, Oxnard, Camarillo, Port Hueneme, and Moorpark

### 1.1.2 PVB Groundwater Sustainability Plan

The GSP for the PVB defined the conditions under which the groundwater resources of the entire PVB will be managed sustainably in the future (FCGMA 2019a). Groundwater conditions were evaluated in four hydrostratigraphic units in the PVB. These hydrostratigraphic units are similar to the five principal aquifers in the Oxnard Subbasin, which adjoins the PVB, commonly grouped into an upper and lower aquifer system. In the PVB there are four principal aquifers: (1) the older alluvium, which is the time equivalent stratigraphic unit to the Upper Aquifer System (UAS) in the Oxnard Subbasin, (2) the Upper San Pedro Formation, (3) the Fox Canyon aquifer (FCA), and (4) Grimes Canyon aquifer (GCA). The Upper San Pedro Formation, FCA, and GCA compose the Lower Aquifer System (LAS) in the PVB. The primary sustainability goal for the PVB adopted in the GSP, is "to maintain a sufficient volume of groundwater in storage in the older alluvium and the Lower Aquifer System so that there is no net decline in groundwater elevation or storage over wet and dry climatic cycles." (FCGMA 2019a). Additionally, "groundwater levels in the PVB should be maintained at elevations that are high enough to not inhibit the ability of the Oxnard Subbasin to prevent net landward migration of the saline water impact front" in the Oxnard Subbasin after 2040 (FCGMA 2019a). These goals were established based on both historical and potential future undesirable results to the groundwater resources of the PVB from six sustainability indicators: chronic lowering of groundwater levels, reduction of groundwater storage, seawater intrusion, degraded water quality, land subsidence, and depletions of interconnected surface water. The PVB was found not to experience direct impacts from seawater intrusion or depletion of interconnected surface water.

The GSP established minimum threshold groundwater elevations, defined for the PVB, as groundwater levels that: allow declines during periods of future drought to be offset by recovery during future periods of above-average rainfall (FCGMA 2019a). These groundwater elevations were also found to limit seawater intrusion in the Oxnard Subbasin (FCGMA 2019a). In addition to minimum threshold groundwater elevations, the GSP also established measurable objective groundwater elevations. Measurable objective groundwater elevations were defined as "the groundwater levels throughout the PVB at which there is neither seawater flow into, nor freshwater flow out of the Upper Aquifer System or Lower Aquifer System in the Oxnard Subbasin" (FCGMA 2019a). Minimum threshold and measurable objective groundwater elevations were established at nine representative monitoring points (or "key wells") in the PVB (FCGMA 2019a).

The GSP documented conditions throughout the PVB through the fall of 2015. Previous annual reports evaluated progress toward sustainability based on a review of groundwater elevation data, groundwater extraction data, surface water supply available for use or surface water supply used, total water used and change in groundwater storage between the fall of 2015 and the end of water year 2023[3]. This sixth annual report for the PVB documents conditions and the progress toward sustainability for water year 2024.

## 1.2 Plan Area

The PVB (DWR Groundwater Basin 4-006) is bounded to the north by the Springville fault zone and Somis Gap, to the east by the ASRVB (DWR Bulletin 118 Groundwater Basin 4-007) and Conejo Mountain, to the southeast by the

3 A water year begins on October 1 and ends on September 30 of the following year. The convention for naming the water year is to name the water year based on the year in which it ends. For example, the 2023 water year begins on October 1, 2022, and ends on September 30, 2023.

Santa Monica Mountains, and to the west and southwest by the Oxnard Subbasin of the Santa Clara River Valley Groundwater Basin (DWR Groundwater Basin 4-004.02; Figure 1-1 and Figure 1-2).

In the west and southwest, the PVB is in hydrogeologic communication with the Oxnard Subbasin. The boundary between the PVB and Oxnard Subbasin is defined by a facies change between the predominantly coarser-grained sand and gravel deposits that compose the UAS in the Oxnard Subbasin and the finer-grained clay and silt-rich deposits of the UAS in the PVB. To the north, in the Camarillo Hills area, the Springville Fault Zone is believed to form a groundwater flow barrier at depth between the aquifers in the LPVB and the PVB, based on historical hydraulic head differences of up to 60 feet across the fault zone (DWR 1975). However, shallow alluvial deposits in the vicinity of Arroyo Las Posas and the Somis Gap are in hydraulic communication with the LPVB (CMWD 2017). The eastern boundary of the PVB is formed by a hydrogeologic constriction in Arroyo Santa Rosa Valley (SWRCB 1956; DWR 2003). The southern boundary of the PVB is delineated by the contact between the alluvial deposits and surface exposures of bedrock in the Santa Monica Mountains (DWR 2003).

The PVB is divided into three management areas that reflect the current understanding of the hydrogeologic characteristics of the Basin (FCGMA 2019a). These three management areas are the East Pleasant Valley Management Area (EPVMA), the North Pleasant Valley Management Area, and the Pleasant Valley (PV) Pumping Depression Management Area (Figure 1-2). These areas are distinguished by differing hydrogeologic and water quality characteristics (FCGMA 2019a).

### 1.2.1 Climate

The climate of Pleasant Valley is typical of coastal Southern California, with average daily temperatures ranging generally from 43°F to 80°F in summer and from 41°F to 74°F in winter (FCGMA 2019a). Typically, the majority of the precipitation in the Ventura County region falls between November and April. Precipitation is measured at several stations in the PVB (Figure 1-3; Precipitation and Stream Gauges in the Pleasant Valley Basin). Water year precipitation, measured at Stations 003 and 259[4], in west-central PVB is highly variable, ranging from 2.6 inches in 2021 to 34.9 inches in 1998 (Figure 1-4; Pleasant Valley Basin Historical Water Year Precipitation). In the 2024 water year, the PVB received a total of 14.5 inches of precipitation (Figure 1-4). On average, the PVB received approximately 13.4 inches of precipitation per water year between 1957 and 2024. Between 2016 and 2024, the PVB received an average of 11.6 inches of precipitation per water year, which is approximately 89% of the 1957 to 2024 average.

The GSP characterized water year types[5] for the PVB for precipitation measured between 1957 and 2015 (FCGMA 2019a). Since 2015, the PVB has experienced one wet water year (2023), three above normal water years (2017 2019, and 2024), one below normal water year (2020), one dry water year (2022), and three critical water years (2016, 2018, and 2021).

[4] Precipitation in the PVB was measured at Station 003 from water year 1903 through 1992. Precipitation has been measured at Station 259 since water year 1982. To characterize long-term precipitation and cumulative departure from mean precipitation, precipitation measurements from Station 003 were used for the period from 1903 through 1992, and precipitation measurements from Station 259 were used for the period from 1993 through 2023.

[5] Water years have been classified into five types based on their relationship to the mean water year precipitation. The five types are: critical, dry, below normal, above normal, and wet. Critical water years are < 50% of the mean annual precipitation. Dry water years are ≥ 50% and <75% of the mean annual precipitation. Below normal water years are ≥ 75% and <100% of the mean annual precipitation. Above normal water years are ≥ 100% and <150% of the mean annual precipitation. Wet water years are ≥ 150% of the mean annual precipitation.

### 1.2.2 Surface Water and Drainage Features

The dominant surface water bodies in Pleasant Valley are the Arroyo Las Posas, Calleguas Creek, and Conejo Creek, which drain watersheds that extend beyond the boundaries of the PVB (Figure 1-3). There is only one active streamflow gauging station in the PVB. This station, maintained by the Ventura County Public Works Agency - Watershed Protection, is located on Calleguas Creek near California State University Channel Islands (Station ID: 805), downstream of the confluence of Arroyo Las Posas and Conejo Creek (Figure 1-3). Streamflow measured at this gauge since 2010 is presented in Table 1-1 and shown on Figure 1-5.

The highest annual average daily flows (over 50 cubic feet per second [cfs]) in Calleguas Creek between 2010 and 2023 occurred in 2010, 2011 and 2023 (Table 1-1). Water year 2010 was an above normal water year. Water years 2011 and 2023 were both wet water years in which annual precipitation was approximately 160% and 172% of the long-term average.

**Table 1-1. Streamflow on Calleguas Creek for Water Years 2010 through 2024**

| Water Year | Average Daily Flow (cfs) at Gauge 805 |
|---|---|
| 2010 | 52.5 |
| 2011 | 67.1 |
| 2012 | 19.1 |
| 2013 | 12.9 |
| 2014 | 9.2 |
| 2015 | 9.1 |
| 2016 | 6.9 |
| 2017 | 44.9 |
| 2018 | 11.4 |
| 2019 | 35.2 |
| 2020 | 42.7 |
| 2021 | 9.49* |
| 2022 | 31.32* |
| 2023 | 52.6* |
| 2024 | 40.42* |

**Notes:** cfs = cubic feet per second
*VCWPD notes that data is provisional, subject to revision

## 1.3 Annual Report Organization

This is the sixth Annual Report prepared since the GSP for the PVB was submitted to DWR. This report is organized according to the GSP Emergency Regulations. Chapter 1 provides the background information on the GSP, the PVB, and the Fox Canyon Groundwater Management Agency. Chapter 2 provides information on the groundwater conditions in the PVB since 2015, including groundwater elevations, groundwater extractions, surface water supply, total water available, and change in groundwater storage. Chapter 3 provides an update on the GSP implementation process.

# 2 Groundwater Conditions

This chapter presents the change in groundwater conditions in the PVB since water year 2023. Comparison of water year 2024 to water year 2023 characterizes the impact that water year type, groundwater production, imported and recycled water availability, and surface water availability in water year 2024 have had on groundwater conditions in the PVB. Data from water years 2016 through 2023 are discussed in detail in the first five annual reports (FCGMA 2020a, FCGMA 2021, FCGMA 2022, FCGMA 2023, FCGMA 2024). Comparison of water year 2024 conditions to 2015, the last year of reporting included in the PVB GSP, is included for context.

## 2.1 Groundwater Elevations

Groundwater elevation contour maps for the older alluvium (Oxnard and Mugu aquifer age-equivalents) and the FCA are presented in Figures 2-1 through 2-6. These maps show the seasonal low (fall 2023) and high (spring 2024) groundwater elevations. Fall 2023 groundwater elevations were defined as any groundwater elevation measured between October 1 and October 31, 2023. Spring 2024 groundwater elevations were defined as any groundwater elevation measured between March 1 and March 31, 2024. The GSP recommended collecting groundwater elevations within a two-week window in the future (FCGMA 2019a). FCGMA is working to formalize agreements with partner agencies that monitor specific wells to help ensure that timely monitoring is conducted within the two-week window.

Groundwater elevations in the PVB are measured in both groundwater production and monitoring wells. However, the groundwater elevation contour maps are based on the groundwater elevations measured at wells screened solely within an individual aquifer. The intent of using groundwater elevations from wells screened within a single aquifer is to accurately represent groundwater flow directions within an aquifer, and vertical gradients between aquifers. It is important to note, however, that production wells in the PVB are typically screened across multiple aquifers. Therefore, using wells only screened within an individual aquifer limits the spatial coverage for each contour map. This limitation is particularly apparent in an area of high groundwater production in the PVB and adjoining Oxnard Subbasin that extends south from Highway 101 (FCGMA 2019a). This area was identified as being impacted by groundwater production based on groundwater elevations measured in wells screened in multiple aquifers and was identified in the GSP as a separate management area in the PVB (FCGMA 2019a).

At FCGMA's request, DWR installed a nested monitoring well cluster in the contiguous Oxnard Pumping Depression Management Area of the Oxnard Subbasin, which is in direct hydraulic communication with the PV Pumping Depression Management Area, through its Technical Support Services (TSS) program. The nested well cluster, which has two separate completions, is adjacent to the Revolon Slough. The shallow well cluster, which was completed in November 2019, contains three monitoring wells individually screened in the Oxnard, Mugu, and Hueneme aquifers. The Oxnard and Mugu aquifers are age-equivalent to the older alluvium in the PVB, and the Hueneme aquifer is age-equivalent to the Upper San Pedro aquifer in the PVB. The deep well cluster, which was completed in March 2020, contains three monitoring wells individually screened within the upper Fox Canyon aquifer, basal Fox Canyon aquifer, and the Grimes Canyon aquifer. Groundwater elevations measured at the shallow and deep well cluster have been used to help constrain groundwater conditions in the PVB and Oxnard Subbasin Pumping Depression Management Areas since the 2021 water year (Section 2.1.1).

In addition to the nested well cluster in the Oxnard Subbasin Pumping Depression Management Area, DWR installed a second nested monitoring well cluster located in the northwestern portion of the PVB, adjacent to the Arroyo Las Posas per FCGMA's request and specifications (Figures 2-1 through 2-9). Like the monitoring well cluster installed within the Oxnard Pumping Depression Management Area, the PVB monitoring well was constructed using two separate well completions. The first well completion contains two monitoring wells, one of which is screened within the older alluvium (in age-equivalent stratigraphic units of the Mugu aquifer in the Oxnard Subbasin) and the second of which is screened in the Upper San Pedro Formation (age-equivalent to the Hueneme aquifer in the Oxnard Subbasin). The second completion contains three monitoring wells individually screened in the older alluvium (in the age-equivalent stratigraphic unit as the Oxnard aquifer in the adjacent Oxnard Subbasin), the upper Fox Canyon aquifer, and the basal Fox Canyon aquifer. Construction of the two separate well completions was completed in September 2019. Groundwater elevations measured at the shallow and deep well cluster have been used to help constrain groundwater conditions in the northwestern portion of the PVB since the 2021 water year (Section 2.1.1).

Groundwater elevation monitoring has also expanded in the central portion of the PVB, near the boundary between the PV Pumping Depression Management Area and North Pleasant Valley Management Area (Figure 1-2) through implementation of the North Pleasant Valley Desalter Project Monitoring and Contingency Plan (MCP). As part of this program, the City of Camarillo constructed three nested monitoring wells in early 2020. Each well includes three completions (one in the older alluvium, one in the Hueneme-equivalent of the Upper San Pedro Formation, and one in the Fox Canyon aquifer) for a total of nine (9) new monitoring wells in the PVB (Camarillo 2023). Each well is equipped with a pressure transducer and the City of Camarillo collects manual depth to water measurements quarterly (Camarillo 2023). The measurements collected at these wells were used to constrain groundwater conditions in the older alluvium and Fox Canyon aquifer beginning with the 2023 water year.

Lastly, in 2024, FCGMA, with support from DWR through the Sustainable Groundwater Management Grant Program, constructed two new nested monitoring wells located in the eastern part of the PVB near Calleguas Creek. The nested wells have completions in the Oxnard- and Mugu-equivalents of the older alluvium. Additionally, the two nested wells have a completion in shallow alluvium to improve characterization of groundwater-surface water interactions in the PVB. The first water level measurements from these wells will be reported in the 2026 annual report.

## 2.1.1 Groundwater Elevation Contour Maps

### 2.1.1.1 Older alluvium (Age Equivalent Oxnard and Mugu Aquifers)

#### Oxnard Aquifer Age Equivalent

In the age-equivalent stratigraphic unit of the Oxnard aquifer, fall 2023 groundwater elevations were measured in three wells: 02N21W34G05S (34G05) in the Pleasant Valley Pumping Depression Management Area, and 02N20W30C04S (30C04) and 02N20W20D03S (20D03) in the North Pleasant Valley Management Area (Figure 2-1). The fall 2023 groundwater elevations measured in these wells ranged from a high of approximately 112 feet mean sea level (ft. msl) at 20D03 to a low of approximately 21 ft. msl at 34G05 (Figure 2-1). These groundwater elevations ranged from 9 to 40 feet higher than fall 2022 (measured 30C04 and 34G05). Well 34G05 was the only well with measurements in both fall 2015 and 2023. Over this period, the groundwater elevation at this well increased by approximately 31 feet.

In spring 2024, groundwater elevations in these same three wells ranged from a high of approximately 164 ft. msl at 20D03 to a low of approximately 30 ft. msl at well 34G05. At well 20D03, in the far northern part of the North Pleasant Valley Management Area, the spring 2024 groundwater elevation was approximately 14 feet lower than in spring 2023. Comparatively, the spring 2024 groundwater elevation at well 34G05 was approximately 22 feet higher than spring 2023. Well 34G05 was the only well with measurements in both spring 2015 and 2024. Over this period, the groundwater elevation at this well increased by approximately 20 feet.

#### Mugu Aquifer Age Equivalent

In the age-equivalent stratigraphic unit of the Mugu aquifer, fall 2023 groundwater elevations were measured in five wells: two in the Pleasant Valley Pumping Depression Management Area (N21W34G04S [34G04] and 01N21W03K01S [03K01]) and three in the North Pleasant Valley Management Area (02N20W20D05S [20D05], 02N20W30L03S [30L03], and 02N21W26P06S [26P06]; Figure 2-3). The fall 2023 groundwater elevations measured in these wells ranged from a high of approximately 61 ft. msl at well 26P06 to a low of approximately -36 ft. msl at well 03K01 (Figure 2-3). These groundwater elevations were approximately 9 to 44 feet higher than fall 2022 (measured at wells 20D05 and 34G04). Well 34G04 was the only well with measurements in both fall 2015 and 2023. Over this period, the groundwater elevation at this well increased by approximately 52 feet.

Spring 2024 groundwater elevations ranged from a high of approximately 65 ft. msl at well 26P06 to a low of approximately -14 ft. msl at well 03K01 (Figure 2-4). Between spring 2023 and 2024, groundwater elevations increased by approximately 7 to 31 feet (measured at wells 20D05 and 34G04). The spring groundwater elevation in well 34G04 was approximately 46 feet higher than it was in spring of 2015.

### 2.1.1.2 Fox Canyon Aquifer

Fall 2023 groundwater elevations were measured in 14 wells screened in the FCA and ranged from a high of approximately 37 ft. msl at well 02N20W20D01S (20D01) to a low of approximately -96 ft. msl at well 02N21W33R02S (33R02) (Figure 2-5). Groundwater elevation changes varied geographically across the FCA between fall 2022 and 2023. In the North Pleasant Valley Management Area, fall 2023 groundwater elevations were approximately 4 feet lower than fall 2022 at well 02N20W19M05S (19M05), but 3 to 12 feet higher than fall 2022 at wells 20D01 and 02N20W30C03S (30C03). Farther south at well 02N20W30L02S (30L02), the fall 2023 groundwater elevation was approximately 18 feet higher than fall 2022. Within the Pleasant Valley Pumping Depression Management Area, fall 2023 groundwater elevations were approximately 52 to 61 feet higher than fall 2022 (measured at wells 01N21W03C01S [03C01] and 02N21W34G03S [34G03]). Since 2015, fall groundwater elevations in the North Pleasant Valley Management Area have declined by 19 to 46 feet (measured at wells 19M05 and 02N20W29B02S [29B02]). Over the same time period, fall groundwater elevations in the Pleasant Valley Pumping Depression Management Area have increased by 29 to 60 feet (measured at wells 33R02 and 34G03).

Spring 2024 groundwater elevations in the FCA ranged from a high of 42 ft. msl at well 20D01 to a low of approximately -54 ft. msl at well 03C01 (Figure 2-6). Spring 2024 groundwater elevations were higher than spring 2023 across the FCA, except at 19M05 where groundwater elevation declined by approximately 3 feet.. In the North Pleasant Valley Management Area, spring 2024 groundwater elevations were approximately 3 lower to 20 feet higher than 2023 (measured at wells 19M05 and 30L02). In the Pleasant Valley Pumping Depression Management Area, spring 2024 groundwater elevations were approximately 24 to 26 feet higher than spring 2023 (measured at wells 34G03 and 03C01). Since 2015, the spring groundwater elevation measured at 19M05, the only well with complete measurements in the North Pleasant Valley Management Area, has declined by approximately 46 feet. Over the same time period, spring groundwater elevations in the Pleasant Valley Pumping Depression Management Area have increased by 29 to 45 feet (measured at wells 03C01 and 34G03).

## 2.1.2 Groundwater Elevation Hydrographs

Groundwater elevation hydrographs for each of the key wells identified in the GSP are presented in Figures 2-7 through 2-9. These key wells are the designated representative monitoring points for the PVB (FCGMA 2019a). The fall 2023 and spring 2024 water levels measured at each representative monitoring point are presented in Table 2-1, which also provides a comparison of fall and spring water levels to: (i) water year 2015 and 2024 conditions, (ii) the established minimum threshold groundwater elevations, (iii) the established measurable objective groundwater elevations, and (iv) the interim milestones for average climate conditions. The GSP average climate interim milestone is used for comparison in this annual report because the average of the annual precipitation measured in the Basin between water years 2016 and 2024 is similar to the long-term average (Section 1.2.1).

### 2.1.2.1.1 Measurable Objectives

In 2015, the end of the GSP reporting period, groundwater elevations in the PVB were lower than the measurable objective groundwater elevations at all nine key wells. Under average climate conditions, the GSP targeted groundwater elevation recoveries in the PVB to the measurable objectives by 2040.

Fall 2023 and spring 2024 groundwater elevations were below the measurable objectives for all key wells in the PVB (Table 2-1; Figures 2-7 through 2-9).

### 2.1.2.1.2 Minimum Thresholds

In 2015, groundwater elevations were lower than the minimum threshold groundwater elevations at all key wells, except for 02N20W19M05S, which is the only key well located in the North Pleasant Valley Management Area. Under average climate conditions, the GSP targeted groundwater elevation recoveries to the minimum thresholds by 2035.

Fall 2023 groundwater elevations were higher than the minimum thresholds at two key wells in the PVB (Table 2-1; Figures 2-7 through 2-9). Of these, one well, 02N21W34G04S, is screened in the older alluvium within the Pleasant Valley Pumping Depression Management Area, and the other well, 02N20W19M05S, is screened in the FCA within the North Pleasant Valley Management Area. Between fall 2023 and spring 2024, groundwater elevations at the key wells in the Pleasant Valley Pumping Depression Management Area increased by an average of approximately 14 feet and decreased in the North Pleasant Valley Management Area by approximately 3 feet. Spring 2024 groundwater elevations were above the minimum thresholds at six of the eight representative monitoring points in the Basin with available measurements (Table 2-1; Figures 2-7 through 2-9).

#### 2.1.2.1.3 Interim Milestones

Fall 2023 and Spring 2024 groundwater elevations were above the 2025 Interim Milestone for Average Climate conditions at all key wells[6] in the PVB with available data and an assigned Interim Milestone (Table 2-1).

Groundwater elevations the PVB are influenced by water year type and the availability of surface water for recharge and use in lieu of groundwater. Because of this, there may be periods of declining groundwater elevations during dry water years. Despite this, FCGMA anticipates that groundwater elevations will continue to rise between 2025 and 2040 with the implementation of projects and management actions. The one exception to this is in the North Pleasant Valley Management Area, where operation of the North Pleasant Valley Groundwater Desalter Project is anticipated to cause groundwater elevation declines over the next 25 years. Future scenario modeling indicates that groundwater elevations in this part of the PVB will recover to pre-project levels by 2070 (FCGMA 2024b).

6 Interim milestones were not established for key well 02N20W19M05S.

## Table 2-1. Water Year 2024 Groundwater Elevations at Key Wells in the PVB

| State Well Number | Aquifer | Management Area | Fall Groundwater Elevations | | | Spring Groundwater Elevations | | | Minimum Threshold (ft. msl) | Measurable Objective (ft. msl) | 2025 Interim Milestone - Average Climate (ft. msl) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2023 (ft. msl) | Change from 2022 to 2023[a] (feet) | Change from 2015 to 2023[a] (feet) | 2024 (ft. msl) | Change from 2023 to 2024[a] (feet) | Change from 2015 to 2024[a] (feet) | | | |
| 02N21W34G05S | Older Alluvium (Oxnard) | PVPDMA | 20.58 | 39.62 | 30.77 | 30.41 | 22.09 | 20.29 | 32 | 40 | 2 |
| 01N21W03K01S | Older Alluvium (Mugu) | PVPDMA | -35.98[c] | — | — | -13.98[c] | — | 59.00 | -53 | 5 | -59 |
| 02N21W34G04S | Older Alluvium (Mugu) | PVPDMA | -27.99 | 43.86 | 52.29 | -12.88 | 30.74 | 46.37 | -48 | 5 | -59 |
| 01N21W03C01S | FCA | PVPDMA | -63.26 | 52.2 | 54.26 | -54.39 | 25.67 | 29.24 | -48 | 0 | -88 |
| 02N20W19M05S | FCA | NPVMA | -4.23 | **-3.50** | **-19.39** | -7.19 | **-2.83** | **-45.81** | -135 | 65 | —[b] |
| 02N21W34G02S | FCA | PVPDMA | -61.23 | 57.61 | 56.30 | -47.82 | 23.62 | 22.25 | -53 | 0 | -88 |
| 02N21W34G03S | FCA | PVPDMA | -61.14 | 60.80 | 59.48 | -47.63 | 23.80 | 44.90 | -53 | 0 | -90 |
| 01N21W04K01S | Multiple | PVPDMA | -49.14 | 69.80 | 84.28 | -24.08 | 31.58 | 66.00 | -48 | 0 | -100 |

**Notes:** ft. msl = feet mean sea level; PVPDMA = Pleasant Valley Pumping Depression Management Area; NM = Not Measured; NPVMA = North Pleasant Valley Management Area

[a] Positive (+) values indicate an increase in groundwater elevation over the referenced period. Negative (-) values indicate a decrease in groundwater elevation over the referenced period. Bolded where groundwater elevations have declined.

[b] Interim milestones were not established for well 02N20W19M05S because the 2015 groundwater elevation was higher than the established minimum threshold.

[c] Water levels were identified after the First Periodic Evaluation of the Groundwater Sustainability Plan for the Pleasant Valley Basin was developed.

## 2.2 Groundwater Extraction

The water year 2024 extractions presented in Table 2-2 represent the extractions reported to FCGMA as of January 23, 2025, and do not include estimates of extractions for the non-reporting wells. Consequently, water-year 2024 extraction data is considered preliminary and will be updated as additional data is available during preparation of the 2026 GSP annual report for the PVB. As of January 23, 2025, FCGMA had received reporting from approximately 90% of the operators in the basin for water year 2023 and the first half of water year 2024, and from approximately 30% of the operators for the second half of water year 2024.

Updated data for water year 2023 indicates that M&I extractions were approximately 15% higher in 2023 than the 2016 to 2022 average of approximately 4,500 AFY (Table 2-2). This increase in M&I extractions largely reflects the increase in groundwater extractions by the City of Camarillo as part of the North Pleasant Valley desalter project. The updated water year 2023 total extractions from the PVB were approximately 20% lower than the 2016 through 2022 average. Characterization of the water year 2024 groundwater extraction distribution and total groundwater extractions in the PVB will be updated during preparation of the 2026 GSP Annual Report.

## Table 2-2. Groundwater Extractions in the Pleasant Valley Basin by Aquifer System and Water Use Sector

| | | Upper Aquifer System (acre-feet) | | | Lower Aquifer System (acre-feet) | | | | Wells Screened in both the UAS and LAS (acre-feet) | | | | Wells in Unassigned Aquifer Systems (acre-feet) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Reporting Complete / Estimated Percentage Complete (%)[a] | AG | Dom | Sub-Total | AG | Dom | M&I | Sub-Total | AG | Dom | M&I[e] | Sub- Total | AG | Dom | Sub-Total | Total (acre-feet) |
| CY 2016 | Yes | 1,578 | 5 | 1,583 | 3,874 | 2 | 4,098 | 7,973 | 5,877 | 1 | 380 | 6,257 | 151 | 41 | 193 | 16,007 |
| CY 2017 | Yes | 1,165 | 5 | 1,170 | 3,397 | 2 | 3,928 | 7,327 | 6,668 | 1 | 628 | 7,297 | 163 | 9 | 172 | 15,966 |
| CY 2018 | Yes | 1,226 | 5 | 1,231 | 3,383 | 2 | 4,154 | 7,538 | 4,552 | 1 | 180 | 4,733 | 66 | 33 | 99 | 13,602 |
| CY 2019 | Yes | 821 | 6 | 826 | 2,787 | 2 | 3,421 | 6,209 | 3,247 | 1 | 825 | 4,073 | 14 | 25 | 39 | 11,149 |
| 2020[b] | Yes | 508 | 6 | 514 | 1,699 | 2 | 3,313 | 5,013 | 2,471 | 1 | 362 | 2,834 | 12 | 27 | 39 | 8,401 |
| WY 2021 | Yes | 1,803 | 7 | 1,810 | 3,560 | 3 | 3,797 | 7,360 | 5,277 | 1 | 469 | 5,747 | 27 | 23 | 49 | 14,967 |
| WY 2022 | Yes | 1,852 | 3 | 1,855 | 3,239 | 3 | 4,858 | 8,099 | 4,579 | 1 | 514 | 5,095 | 18 | 53 | 71 | 15,120 |
| WY 2023[c] | Yes | 643 | 2 | 645 | 929 | - | 5,218 | 6,148 | 2,220 | 3 | 1,526 | 3,749 | 13 | 25 | 38 | 10,579 |
| WY 2024[d] | No/60% | 202 | 50 | 251 | 308 | - | 1,862 | 2,170 | 1,149 | 1 | 984 | 2,134 | 16 | 7 | 23 | 4,579 |

**Notes:** CY = Calendar Year; WY = Water Year; AG = Agriculture; Dom = domestic; M&I = Municipal and Industrial

a Qualifier indicated whether extraction reporting is complete for the given year. “Yes” indicates no additional reporting is anticipated. “No” indicates that additional reporting is anticipated. The percentage included after the “No” qualifier represents the estimated total percentage of reporting received as of January 26, 2024.

b Groundwater extraction reporting is for the period from January 1, 2020, through September 30, 2020, due to transition to water year reporting.

c Groundwater extractions were updated based on receipt of additional extraction reports.

d Groundwater extractions reflect reporting received by FCGMA as of January 23, 2025. Water Year 2024 extractions will be updated upon receipt of additional data.

## 2.3 Surface Water Supply

The primary surface water supplies to the PVB are from the Santa Clara River, via the UWCD Freeman Diversion and the Pleasant Valley Pipeline (PVP), and Conejo Creek, via a diversion operated by CWD. Within the PVB, CWD supplies surface water to the Pleasant Valley County Water District (PVCWD) and distributes a portion of its diversions to other agricultural water users[7] (FCGMA 2019a). Surface water deliveries to the PVB for water years 2016 through 2024 are reported in Table 2-3. The total surface water available for use within the PVB in water year 2024 was 7,222 AF, which was approximately 35% higher than the 2016 through 2023 average.

**Table 2-3. Summary of Surface Water Deliveries to the Pleasant Valley Basin**

| Water Year | CWD | | PVCWD | United Water Conservation District | | Total (acre-feet) |
|---|---|---|---|---|---|---|
| | | | | PVP (Pleasant Valley Basin) (acre-feet) | | |
| | Conejo Creek for M&I (acre-feet) | Conejo Creek for Agriculture (acre-feet) | Conejo Creek Flows Delivered to PVCWD for Agriculture (acre-feet) | Diversions of Santa Clara River Water Used for Agriculture (PVP) | Recharged Spreading Water Pumped and Used for Agriculture (Saticoy Wells) | |
| 2016 | 740 | 2,804 | 816 | 0 | 0 | 4,360 |
| 2017 | 802 | 3,207 | 1,394 | 0 | 0 | 5,403 |
| 2018 | 777 | 3,107 | 1,456 | 0 | 0 | 5,340 |
| 2019 | 598 | 2,389 | 2,196 | 243 | 0 | 5,426 |
| 2020 | 541 | 2,099 | 1,815 | 759 | 0 | 5,214 |
| 2021 | 624 | 2,401 | 1,551 | 824 | 0 | 5,400 |
| 2022 | 557 | 2,199 | 1,880 | 334 | 0 | 4,970 |
| 2023 | 1,181 | 1,727 | 1,748 | 1,795 | 0 | 6,451 |
| 2024 | 673 | 1,617 | 2,132 | 2,330 | 470 | 7,222 |

**Notes:** CWD = Camrosa Water District, PVCWD = Pleasant Valley County Water District; PVP = Pleasant Valley Pipeline

## 2.4 Total Water Available

Total water available was tabulated from the groundwater extractions reported in Table 2-2, the surface water supply reported in Table 2-3, and imported water and recycled water used in the PVB. The total water available is reported in Table 2-4 by water year. For Table 2-2, in order to convert the reported groundwater production from calendar year to water year prior to water year 2020, 25% of the groundwater production from a given calendar year was assigned to the following water year, and the 75% of the calendar year production was assigned to the current water year. Similar to the division of surface water deliveries, this division, is based on the monthly split between water year and calendar year, with January through September (75% of the calendar year) belonging to the current water year, and October through December (25% of the calendar year) belonging to the following water year. Because the reported 2020 groundwater extractions covered the period from January 1 through September 30,

7 44% of the total CWD deliveries to PVCWD, and 44% of the total PVP surface water deliveries from UWCD, were assigned to the PVB based on an analysis of the size of PVCWD's service area (FCGMA 2019a).

total water year extractions for 2020 were estimated by adding 25% of the 2019 calendar year extractions to the reported 2020 water year extractions.

Calleguas Municipal Water District (CMWD) provides imported water to Camrosa Water District, the City of Camarillo, and Pleasant Valley Mutual Water Company. CMWD provided monthly delivery volumes to each customer but did not report "imported water use" by sector. Therefore, the total reported CMWD water use was divided among the water use sectors based on the average reported water use, by sector, in the PVB GSP since 2010 (FCGMA 2019a).

Similar to Table 2-2, the groundwater extractions for water year 2024 presented in Table 2-4 represent extractions reported to FCGMA as of January 23, 2025. The reported extraction volumes are preliminary and anticipated to change based on receipt of additional data.

**Table 2-4. Total Water Available in the Pleasant Valley Basin**

| Water Year | Groundwater[a] (acre-feet) | | | Surface Water (acre-feet) | Recycled Water (acre-feet)[b] | | Imported Water (acre-feet) | | Total (acre-feet) |
|---|---|---|---|---|---|---|---|---|---|
| | Ag | Dom | M&I | Ag | Ag | M&I | Ag | M&I | |
| 2016 | 12,681 | 88 | 3,698 | 4,360 | 2,458 | 577 | 128 | 7,812 | 31,802 |
| 2017 | 11,415 | 24 | 4,536 | 5,403 | 2,637 | 650 | 152 | 8,241 | 33,058 |
| 2018 | 9,768 | 36 | 4,389 | 5,340 | 2,573 | 604 | 157 | 8,585 | 31,452 |
| 2019 | 7,457 | 36 | 4,268 | 5,426 | 2,583 | 411 | 146 | 7,987 | 28,314 |
| 2020 | 6,406 | 45 | 4,737 | 5,214 | 2,754 | 494 | 144 | 8,159 | 27,953 |
| 2021 | 10,666 | 34 | 4,266 | 5,400 | 2,384 | 411 | 127 | 8,421 | 31,709 |
| 2022 | 9,688 | 60 | 5,372 | 4,970 | 2,967 | 369 | 118 | 7,636 | 31,180 |
| 2023 | 3,805 | 30 | 6,744 | 6,451 | 2,167 | 269 | 113 | 5,069 | 24,649 |
| 2024[c] | 1,675 | 58 | 2,846 | 7,222 | 1,748 | 465 | 78 | 4,835 | 18,927 |

Notes:

[a] Groundwater production by water year (2016 through 2019) is estimated from groundwater production by calendar year. Water Year 2020 extractions represent groundwater extractions reported for the period from January 1, 2020, through September 30, 2020, plus 25% of the Calendar Year 2019 extractions.

[b] Updated during development of the 2025 Periodic Evaluation of the PVB GSP based on additional information provided by CWD.

[c] Groundwater production is preliminary and expected to change. Additional extraction reporting is anticipated.

## 2.5 Change in Groundwater Storage

Since adoption of the GSP, FCGMA has estimated the change in groundwater in storage in the PVB annually using a series of linear regressions that relate measured groundwater elevations to simulated values of change in storage extracted from the Ventura Regional Groundwater Flow Model (VRGWFM; UWCD 2018). As part of the 2025 Periodic Evaluation of the Pleasant Valley Basin GSP, UWCD updated the VRGWFM and simulated groundwater conditions in the Pleasant Valley Basin, Oxnard Subbasin, and West Las Posas Management Area of the Las Posas Valley Basin through September 30, 2022 (FCGMA 2024b). Accordingly, the estimates of change in groundwater in storage in the PVB have been updated through water year 2022 using the updated modeling results (Tables 2-5a and 2-5b; Figures 2-12 through 2-16).

Because neither model simulates water years 2023 and 2024, the change in storage for those two water years was calculated using the series of linear regressions used in previous annual reports (FCGMA 2022, 2023, 2024a).

The estimated change in storage calculated using this method differs from the estimates presented in the Periodic Evaluation, which were based on measured groundwater elevation changes from a smaller subset of wells. The series of linear regressions employed here better capture the spatial variability in storage change (Tables 2-5a and 2-5b; Figures 2-12 through 2-16).

### 2.5.1 Older Alluvium

Groundwater in storage increased by approximately 7,600 AF in the older alluvium between spring 2023 and 2024 (Table 2-5a). The majority of this increase occurred in the age-equivalent stratigraphic unit to the Oxnard aquifer (Figure 2-14). Storage change within this part of the older alluvium is estimated using a single well, 02N21W34G05S, which is located in the Pumping Depression Management Area, near the boundary with the Oxnard Subbasin. Between spring 2023 and 2024, the groundwater elevation at this well increased by approximately 22 feet (Table 2-1).

Since 2015, groundwater in storage in the older alluvium has increased by a total of approximately 4,700 AF (Table 2-5b).

### 2.5.2 Fox Canyon Aquifer

Groundwater in storage in the Fox Canyon aquifer increased by approximately 240 AF between spring 2023 and 2024 (Table 2-5a). This estimate of groundwater storage change is based on linear regression models developed using groundwater elevations measured at four wells: 02N20W19M05S, 02N21W34G03S, 01N21W03C01S, and 01N21W09C04S (Figure 2-16). The spring 2024 measurements suggest that groundwater in storage declined in the North PV Management Area by approximately 160 AF. This decline in groundwater in storage corresponds to an approximately 3-foot decline in spring groundwater elevations measured at well 02N20W19M05S (Figure 2-16). In the PV Pumping Depression Management Area, spring groundwater elevations increased by approximately 24 to 26 feet, and groundwater in storage increased by an estimated 390 AF (Figure 2-16).

Since 2015, groundwater in storage has declined by an estimated 680 AF in the Fox Canyon aquifer (Table 2-5b).

**Table 2-5a. Annual Change in Groundwater Storage in the Pleasant Valley Basin**

| Water Year | Water Year Type | Method | Pleasant Valley Basin (Acre-Feet)[a] | | | | |
|---|---|---|---|---|---|---|---|
| | | | Older Alluvium | | | Fox Canyon aquifer | Combined Annual |
| | | | Oxnard equivalent | Mugu equivalent | Total | | |
| 2016 | Critical | VRGWFM | -3,460 | | **-3,460** | -1,078 | **-4,443** |
| 2017 | Above Normal | VRGWFM | -895 | | **-895** | 153 | **2,931** |
| 2018 | Critical | VRGWFM | -3,439 | | **-3,439** | -866 | **-5,808** |
| 2019 | Above Normal | VRGWFM | 704 | | **704** | 233 | **2,698** |
| 2020 | Below Normal | VRGWFM | -126 | | **-126** | 90 | **1,252** |
| 2021 | Critical | VRGWFM | -1,332 | | **-1,332** | -166 | **-3,283** |
| 2022 | Below Normal | VRGWFM | -790 | | **-790** | -73 | **-2,112** |

**Table 2-5a. Annual Change in Groundwater Storage in the Pleasant Valley Basin**

| Water Year | Water Year Type | Method | Pleasant Valley Basin (Acre-Feet)[a] | | | | |
|---|---|---|---|---|---|---|---|
| | | | Older Alluvium | | | Fox Canyon aquifer | Combined Annual |
| | | | Oxnard equivalent | Mugu equivalent | Total | | |
| 2023 | Wet | System of Linear Regressions | 6,393 | 7 | 6,400 | -244 | 6,156 |
| 2024 | Above Normal | System of Linear Regressions | 7,580 | 32 | 7,612 | 240 | 7,852 |

a Change in storage for water years 2016 through 2022 were updated based on numerical modeling results from the VRGWFM.

**Table 2-5b. Cumulative Change in Groundwater Storage in the Pleasant Valley Basin**

| Water Year | Water Year Type | Method | Pleasant Valley Basin (Acre-Feet)[a] | | |
|---|---|---|---|---|---|
| | | | Older Alluvium Cumulative | Fox Canyon Aquifer/LAS Cumulative | Combined Cumulative |
| 2016 | Critical | VRGWFM | -3,460 | -359 | -3,819 |
| 2017 | Above Normal | VRGWFM | -4,355 | -147 | -4,502 |
| 2018 | Critical | VRGWFM | -7,794 | -404 | -8,198 |
| 2019 | Above Normal | VRGWFM | -7,090 | -97 | -7,187 |
| 2020 | Below Normal | VRGWFM | -7,216 | 105 | -7,111 |
| 2021 | Critical | VRGWFM | -8,548 | -753 | -9,301 |
| 2022 | Below Normal | VRGWFM | -9,338 | -674 | -10,012 |
| 2023 | Wet | System of Linear Regressions | -2,938 | -918 | -3,856 |
| 2024 | Above Normal | System of Linear Regressions | 4,674 | -678 | 3,996 |

a Change in storage for water years 2016 through 2022 were updated based on numerical modeling results from the VRGWFM.

## 2.5.3 Total Change in Storage

Total change in groundwater in storage for the PVB was calculated as the sum of the groundwater storage change in the older alluvium and Fox Canyon aquifer. Groundwater storage change for the age-equivalent Hueneme aquifer and Grimes Canyon aquifer were not estimated because groundwater elevations were not historically collected from wells screened solely within these aquifers in the PVB.

Between spring 2023 and spring 2024, groundwater in storage increased by approximately 7,850 AF (Table 2-5a), which resulted in an overall increase in the cumulative volume of groundwater in storage since 2015 to approximately 4,000 AF (Table 2-5b). More than 90% of the change in groundwater in storage in water years 2023 and 2024 was estimated to have occurred in the older alluvium, within the age equivalent stratigraphic unit to the Oxnard aquifer. As noted in Section 2.5.1, groundwater storage change in this stratigraphic unit is estimated using a single well; while this approach does not capture local variations in water levels, there is a good correlation between groundwater elevations measured at this well and simulated storage change extracted from the UWCD numerical model (FCGMA 2022).

Annual and cumulative change in storage from 1985 through 2015 and 2016 through 2022 were reported in the GSP and Periodic Evaluation, respectively (FCGMA 2019a, FCGMA 2024b). The change in storage volumes reported in these two reports were extracted from the VRGWFM and incorporated local responses to changing recharge and pumping conditions. The results presented here for water years 2023 and 2024 provide an estimate of storage change based on a subset of wells screened solely within individual aquifers across the PVB and therefore do not capture local variations in storage change simulated by the VRGWFM.

# 3 GSP Implementation Progress

The GSP for the PVB was submitted to DWR in January 2020 and approved on November 18, 2021. This is the sixth annual report prepared since the GSP was submitted. The GSP implementation progress reported in this report covers work begun during development of the GSP as well as development of projects and management actions over the five years since the GSP was submitted.

## 3.1 2025 Periodic Evaluation of the PVB GSP

On December 13, 2024, the FCGMA Board of Directors approved the first GSP Periodic Evaluation, which provides an assessment of progress towards sustainability in the PVB, discusses new significant information since adoption of the GSP, includes recommendations that support project implementation and ongoing coordination with stakeholders, and summarizes key actions taken by FCGMA to support implementation of the GSP. The key findings from the Periodic Evaluation are summarized below.

### 3.1.1 Progress towards Sustainability

The primary sustainability goal for the PVB is to "maintain a sufficient volume of groundwater in storage in the older alluvium and the [Lower Aquifer System] so that there is no net decline in groundwater elevation or storage over wet and dry climatic cycles" (FCGMA 2019). Additionally, the PVB GSP considered groundwater elevation impacts to the Oxnard Subbasin and set a goal to maintain groundwater levels at a high enough elevation "to not inhibit the ability of the Oxnard Subbasin to prevent net landward migration of the saline water impact front" (FCGMA 2019). GSP implementation, thus far, is on track to meet the sustainability goals set forth in the GSP. This has been accomplished through:

- Development of policy that allocates groundwater extractions in a manner consistent with the GSP and SGMA.
- Diversification of water supplies and reduction in groundwater production from the PVB.
- Ongoing groundwater elevation and quality monitoring.
- Implementation of projects that address data gaps,
- Development, evaluation, and implementation of projects that increase water supplies and the sustainable yield of the PVB.
- Recharge to the groundwater aquifers from two consecutive water years (2023 and 2024) with above average precipitation

The information collected through the implementation of projects to address data gaps and ongoing groundwater elevation, and quality monitoring has resulted in improved estimates of the sustainable yield of the PVB and potential improvements to the sustainable management criteria that will guide management over the next five years.

Significantly, adjudication proceedings have been undertaken in the PVB. At this time, it is unclear what legal effect the adjudication action will have on FCGMA's continued ability to implement the GSP and sustainably manage the PVB. Over the next five-years, FCGMA will continue to work towards sustainability and will re-evaluate the impacts of climate, water usage, project implementation, and legal actions on groundwater conditions and groundwater management in the PVB in accordance with the ongoing GSP evaluation process and adaptive management approach outlined in SGMA.

### 3.1.2 Significant New Information

Since adoption of the GSP, FCGMA and stakeholders in the PVB have coordinated to improve understanding of future water supplies, expand the suite of projects that may increase the sustainable yield of the PVB, and improve groundwater monitoring. These improvements have resulted in:

- Expanded project suite to include projects that increase the availability and use of recycled water in lieu of groundwater; projects that increase the availability Santa Clara River water for delivery on pipeline and recharge in the Oxnard Subbasin Forebay.
- Revised projections of future water supplies to the PVB, which were incorporated into updated numerical modeling and used to update estimates of the sustainable yield of the PVB.
- The construction of new monitoring wells to improve aquifer-specific and shallow groundwater monitoring in the PVB.
- Incorporation of DWR's InSAR data into the GSP monitoring network to improve land subsidence monitoring in the PVB.

### 3.1.3 Recommendations

The Periodic Evaluation process, which included input from stakeholders, resulted in the development of several planning recommendations that should be implemented or investigated before the next periodic evaluation. These recommendations are:

- Continue coordination and collaboration with agencies and stakeholders in the PVB to support project implementation and effective management of the Basin.
- Develop a long-term master plan, including infrastructure development, to guide the timing and manage accountability and progress in advancing projects in the Subbasin.
- Formalize agreements between FCGMA and partner agencies that collect groundwater elevation and groundwater quality data from the GSP monitoring network in each basin. The intent of these agreements is to ensure that data are collected at the intervals required in the GSPs and avoid data gaps that limit FCGMA's understanding of basin conditions.
- Continue improvements to the monitoring well network.
- Conduct additional modeling analyses to quantify the impact of inland pumping on seawater intrusion in the Oxnard Subbasin and investigate the impacts of projects and management actions on boundary flows between basins.
- Develop an infrastructure master plan that provides a framework to guide the timing and coordinated implementation of projects.
- Convene a project implementation task force to assist FCGMA with understanding the project options available in the basins and act as a centralized project planning and implementation advisory body.

- Develop a storage accounting framework or other mechanism to protect the investments that entities make in creating new water supplies that improve basin sustainability.
- Discuss notable changes in the spatial distribution of pumping in the management areas in the annual reports.

### 3.1.4 Actions Taken by FCGMA

FCGMA took multiple actions to address data gaps identified in the GSP and improve the agency's ability to sustainably manage the groundwater resources of the PVB. These include:

- Adoption of resolutions to impose, and adjust, groundwater extraction fees and surcharge rates.
- Adoption of ordinances that allocate groundwater extractions in a manner consistent with the GSP and SGMA that went into effect on October 1, 2020.
- Pursuit of grant funding through DWR's Sustainable Groundwater Management Grant Program to support construction of additional monitoring wells and procurement of additional groundwater monitoring equipment.
- Evaluation of a replenishment fee that could be used to purchase water for recharge in the PVB or to help fund a voluntary temporary fallowing program to reduce groundwater demand.
- Adoption of a formal process for evaluating and prioritizing projects in the PVB.

## 3.2 Project Implementation Progress

During development of the GSP, FCGMA identified the Oxnard Pumping Depression Management Area, adjacent to the boundary between the Oxnard Subbasin and the PVB, as a critical area in which aquifer specific groundwater elevations were not available due to a lack of monitoring wells. This is an area of known groundwater production, with wells in the area typically screened in multiple aquifers in the LAS. At the FCGMA's request, DWR, under its Technical Services Support program, installed two nested monitoring well clusters to monitor water levels in the individual principal aquifers in the Oxnard Subbasin Pumping Depression Management Area based on FCGMA's design. These nested monitoring wells were installed specifically to address the spatial data gap identified in the GSP. Groundwater elevation data from these wells has been included GSP Annual Reports since 2022 to better represent groundwater conditions in the Oxnard Subbasin and PVB.

Since completing the GSP, FCGMA was awarded grant funds through DWR's Sustainable Groundwater Management Grant Program to support implementation of projects developed during the GSP and subsequent stakeholder discussions. The final contract agreement between DWR and FCGMA was signed on September 23, 2022, and FCGMA, acting as the grant administrator, has coordinated activities with the various agencies that are overseeing project component implementation. These projects support increased water supply availability in the PVB through construction of a recycled water pipeline interconnection, incentivizing the use of existing private reservoirs for surface water capture, and investigating the potential for stormwater diversion to increase recycled water supplies.

In addition to administering the grant funds for these projects, FCGMA used a portion of the awarded funds to construct new nested monitoring well clusters and shallow single completion wells in the PVB. These new monitoring wells, which were completed between August and October of 2024, were constructed to provide additional characterization of:

- Groundwater elevation gradients and underflows between the PVB and the Oxnard Subbasin.
- Groundwater elevations, and the lateral extent, of the pumping depression that spans the boundary between the PVB and the Oxnard Subbasin.
- Groundwater-surface water interactions in the PVB.

The first groundwater level measurements from these wells will be reported in the 2026 annual report.

INTENTIONALLY LEFT BLANK

# 4 References

Camarillo (City of Camarillo). 2023. North Pleasant Valley (NPV) Groundwater Desalter Project Monitoring and Contingency Plan. 2022 Annual Report. Prepared by Bondy Groundwater Consulting and GSI Water Solutions, Inc. March 31. 2023. Submitted to Fox Canyon Groundwater Management Agency.

DWR (California Department of Water Resources). 2020. DWR SGMA Portal Website: All submitted GSPs. https://sgma.water.ca.gov/portal/gsp/all. Accessed February 17, 2020.

DWR (California Department of Water Resources). 2018. *California's Groundwater, Bulletin 118*. 2018 Groundwater Basin Boundaries – 4-004.02 Santa Clara River Valley- Oxnard. Published https://water.ca.gov/SearchResults?sort=asc&search=B118%20Basin%20Boundary%20Description%20 2016&primaryFilters=&secondaryFilters=&tab=documents. Accessed February 17,2020.

FCGMA (Fox Canyon Groundwater Management Agency). 2019a. Groundwater Sustainability Plan for the Pleasant Valley Basin.

FCGMA (Fox Canyon Groundwater Management Agency). 2019b. Groundwater Sustainability Plan for the Las Posas Valley Basin: Appendix K.

FCGMA (Fox Canyon Groundwater Management Agency). 2019c. Ordinance to Establish a New Pumping Allocation System for the Oxnard and Pleasant Valley Basins.

FCGMA (Fox Canyon Groundwater Management Agency). 2020a. Pleasant Valley Basin Groundwater Sustainability Plan 2020 Annual Report: Covering Water Years 2016 through 2019.

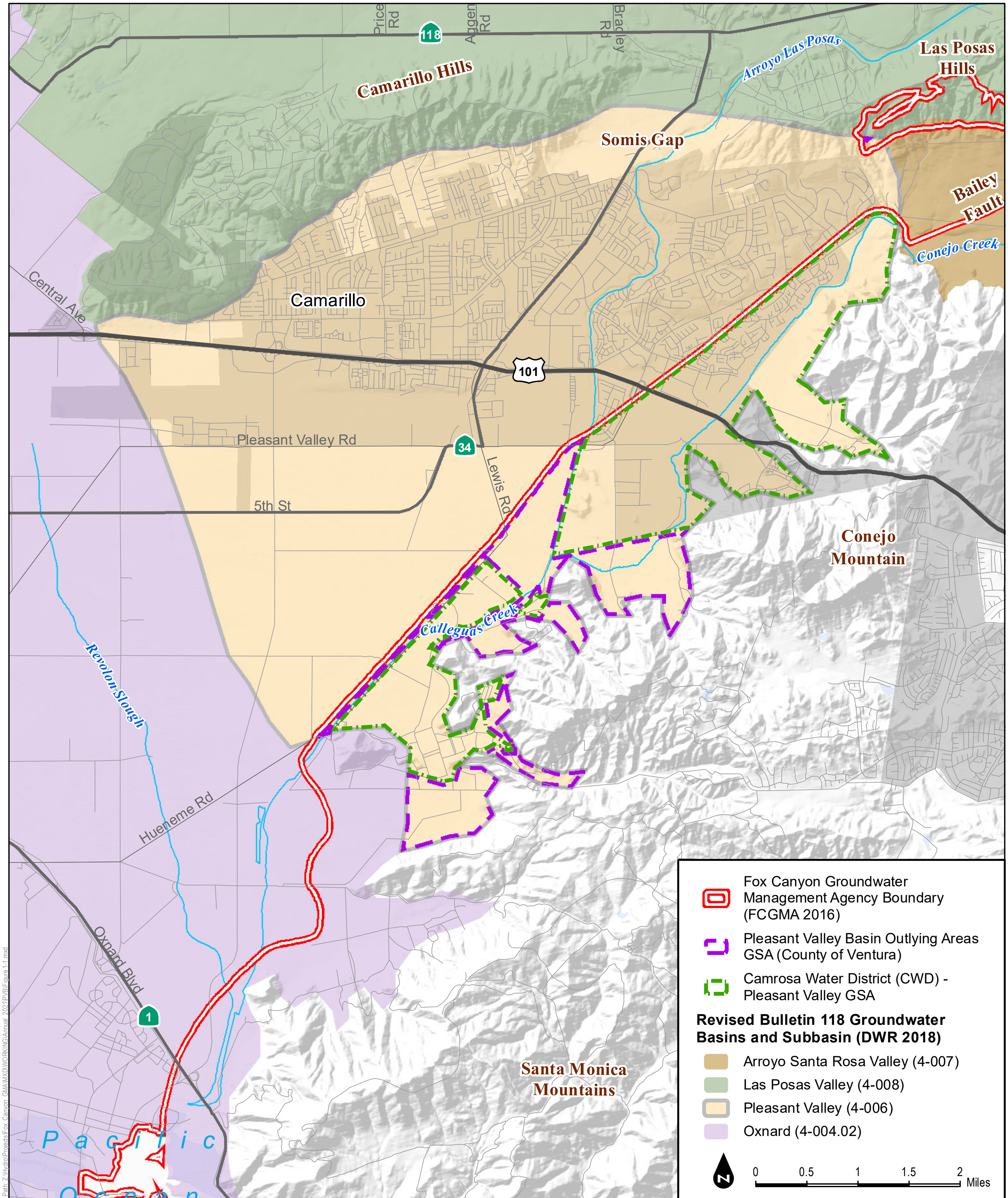
FCGMA (Fox Canyon Groundwater Management Agency). 2021. Pleasant Valley Basin Groundwater Sustainability Plan 2021 Annual Report: Covering Water Year 2020.

FCGMA (Fox Canyon Groundwater Management Agency). 2022. Pleasant Valley Basin Groundwater Sustainability Plan 2021 Annual Report: Covering Water Year 2021.

FCGMA (Fox Canyon Groundwater Management Agency). 2023. Pleasant Valley Basin Groundwater Sustainability Plan 2021 Annual Report: Covering Water Year 2022.

# 5 Figures

INTENTIONALLY LEFT BLANK




DUDEK

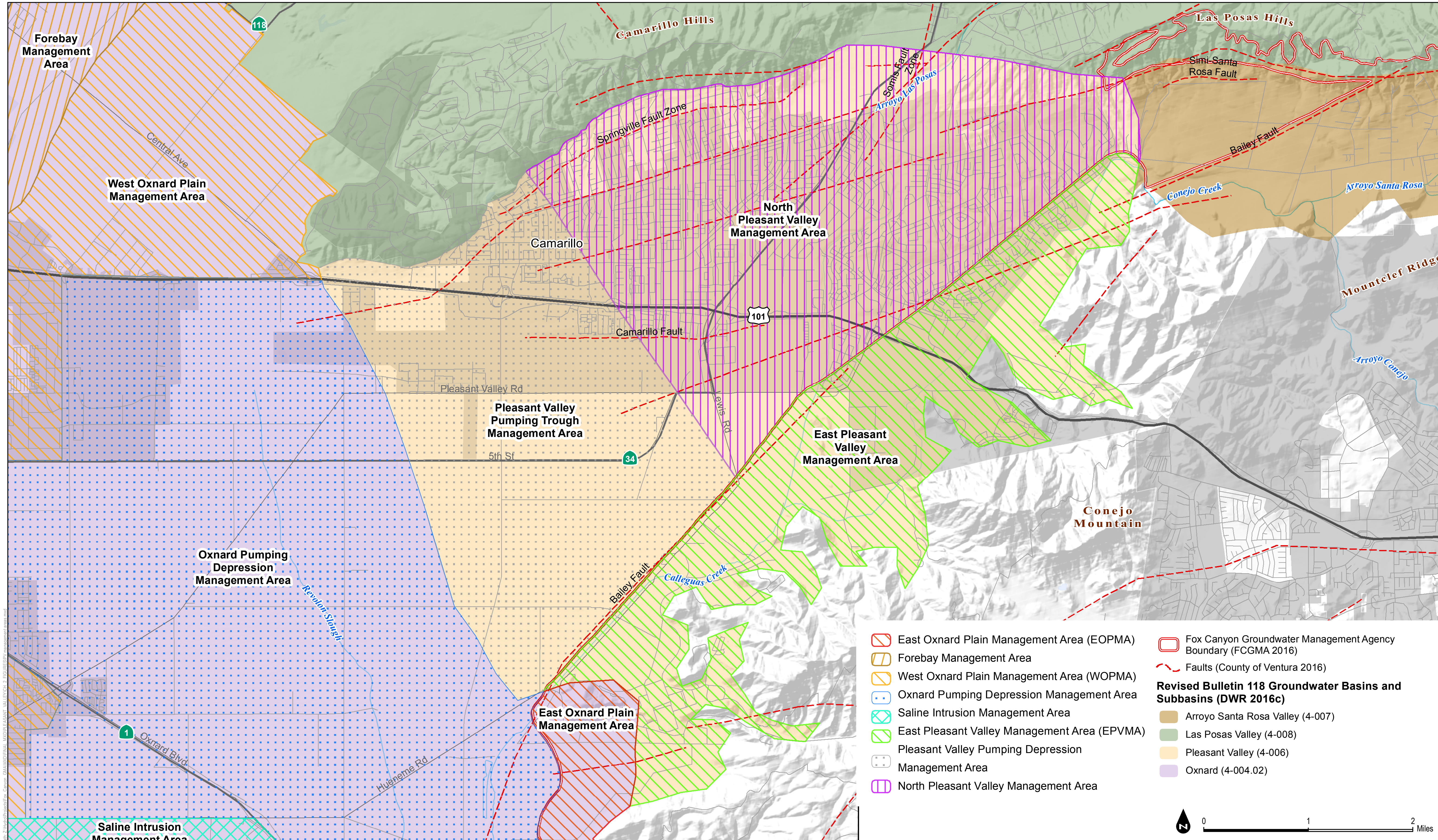
SOURCE: DWR; Ventura County; FCGMA

**FIGURE 1-1**

Vicinity Map for the Pleasant Valley Basin

Pleasant Valley Basin Groundwater Sustainability Plan 2025 Annual Report

INTENTIONALLY LEFT BLANK



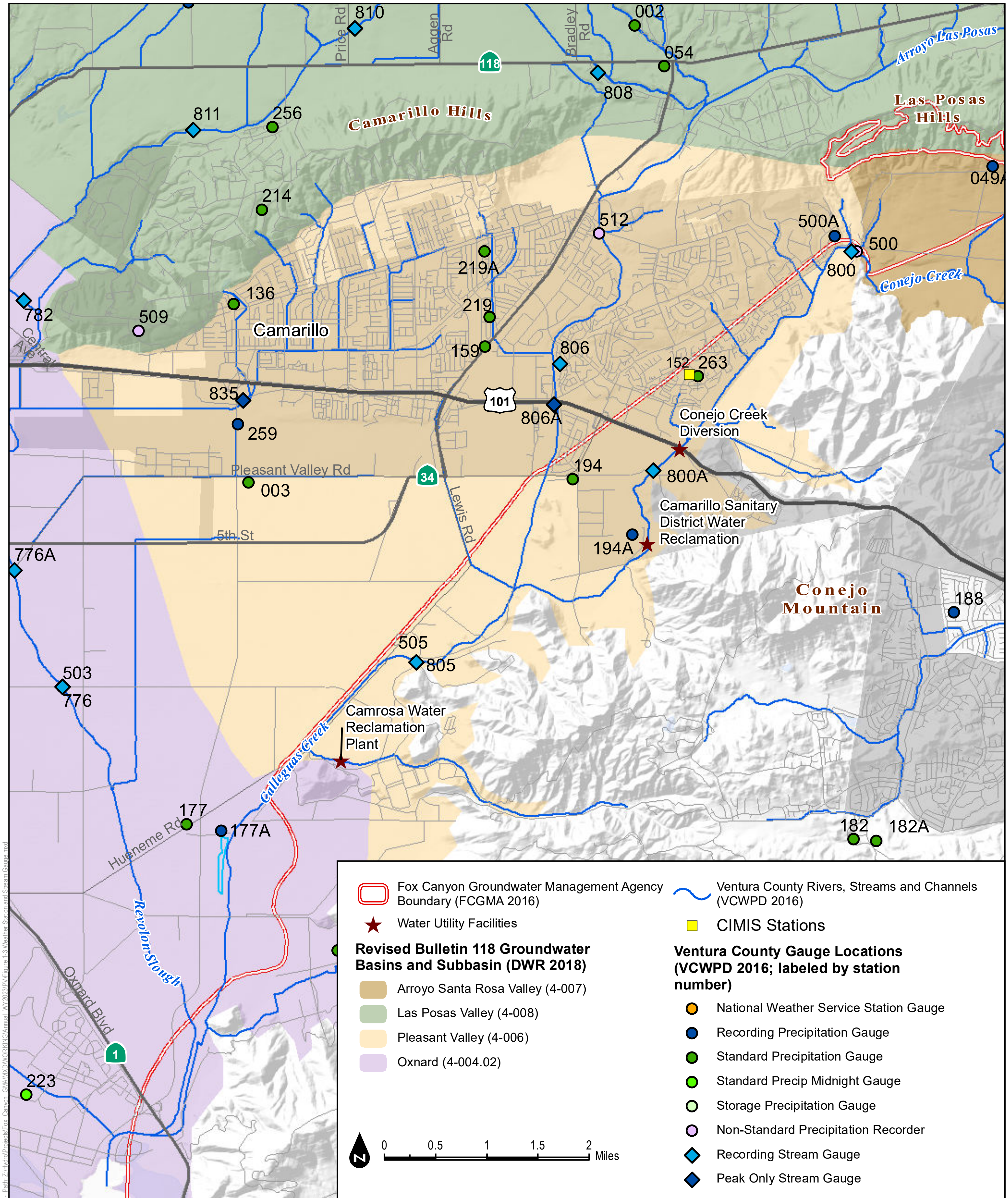

DUDEK

SOURCE: DWR; County of Ventura

**FIGURE 1-2**

Pleasant Valley Basin Management Areas

INTENTIONALLY LEFT BLANK




SOURCE: DWR; Ventura County; VCWPD

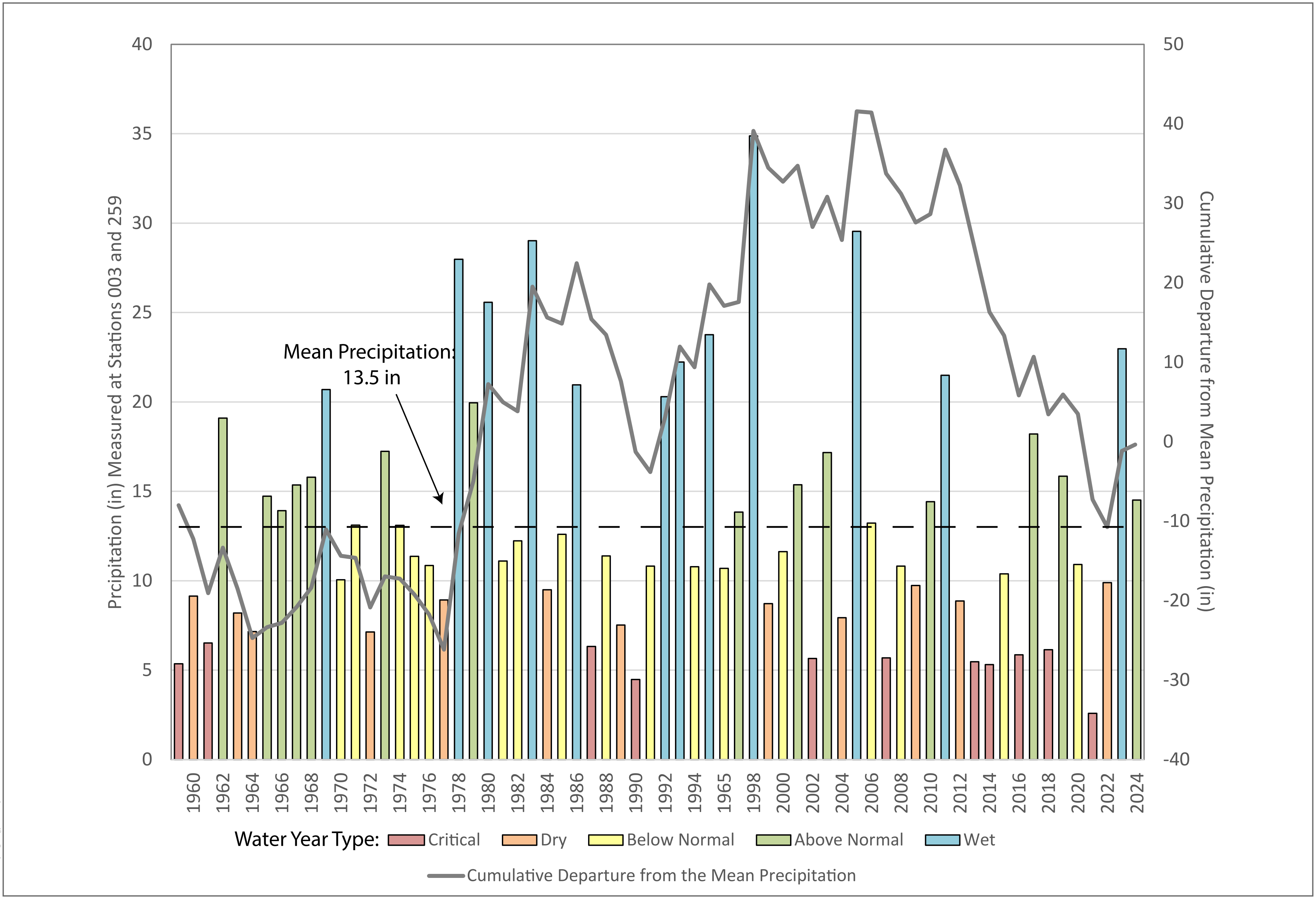
DUDEK

**FIGURE 1-3**

Pleasant Valley Basin Weather Station and Stream Gauge Locations

Pleasant Valley Basin Groundwater Sustainability Plan 2025 Annual Report

INTENTIONALLY LEFT BLANK




Note: Water year is from October 1 through September 30. Water year type is based on the percentage of the water year precipitation compared to the mean precipitation. Precipitation records prior to 1992 were adjusted from Station 003 based on a linear regression analysis between Stations 003 and 259. Since 1992, precipitation records are from Station 259. Types are defined as: Critical (<50% of mean), Dry (≥50% to <75% of average), Below Normal (≥75% to <100% of mean), Above Normal (≥100% to <150% of mean), and Wet (≥150% of mean).

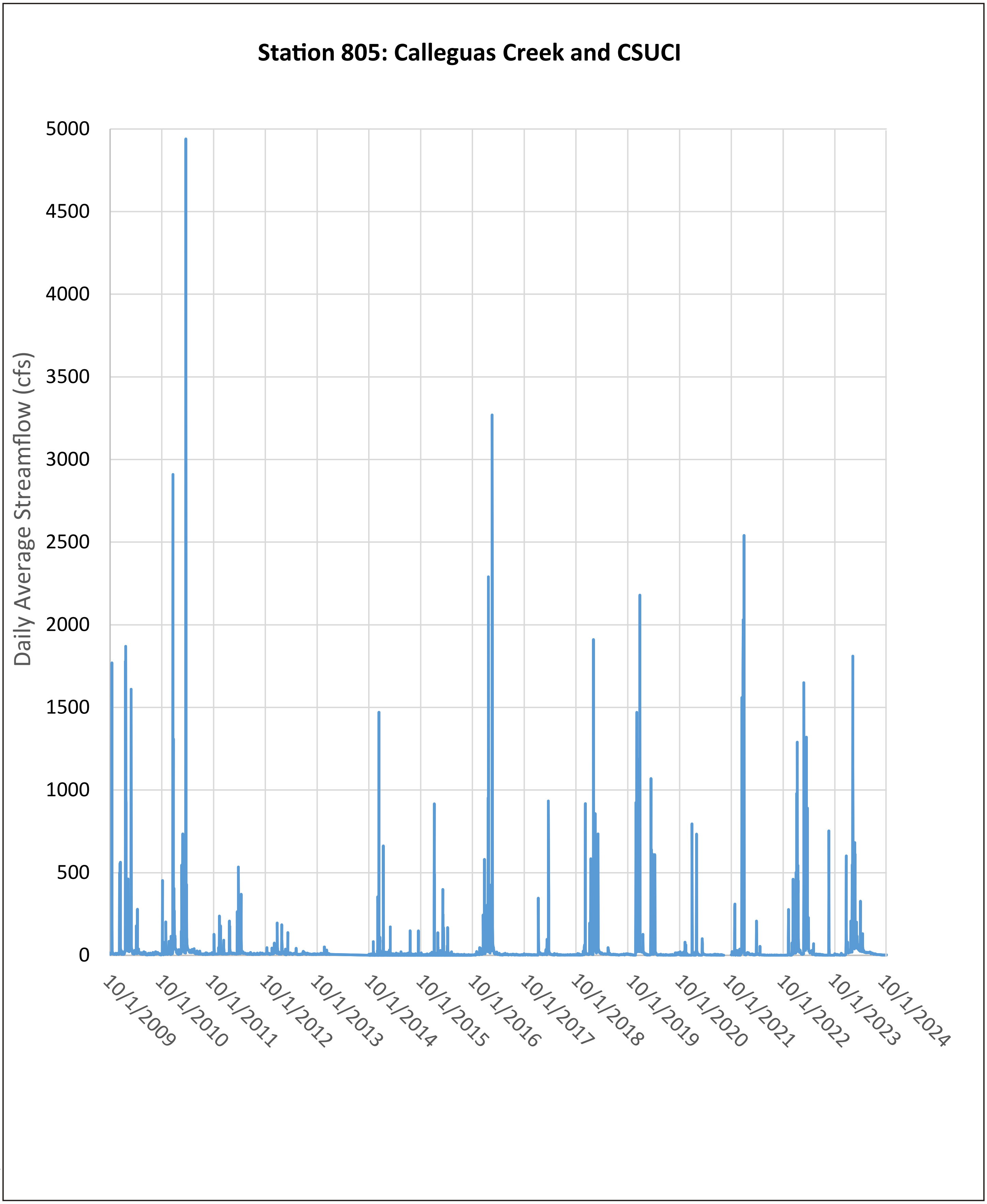
DUDEK

**FIGURE 1-4**

Pleasant Valley Basin Historical Water Year Precipitation

Pleasant Valley Basin Groundwater Sustainability Plan 2025 Annual Report

INTENTIONALLY LEFT BLANK

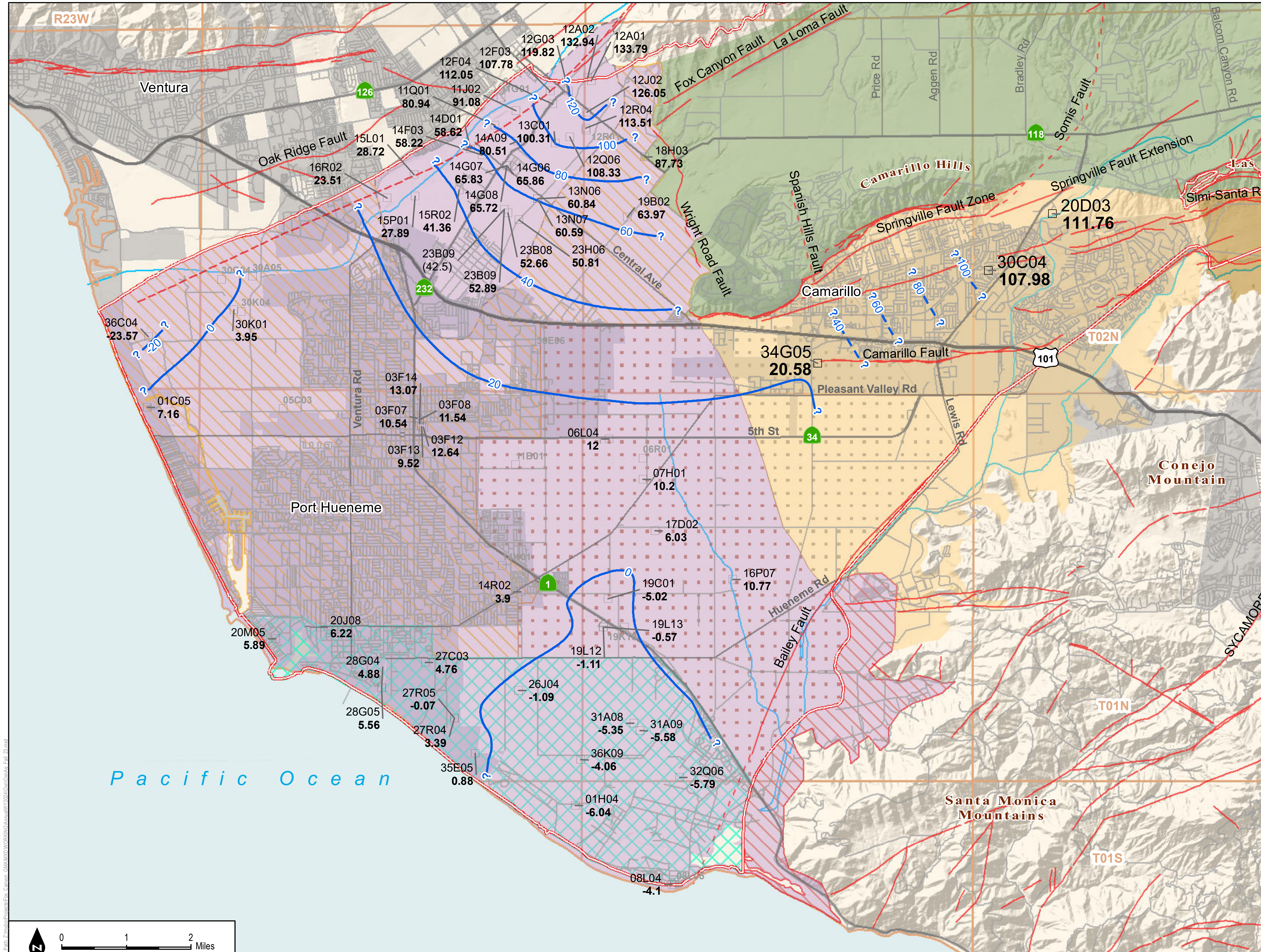



SOURCE: Ventura County Watershed Protection District (VCWPD) Hydrologic Data Server (https://www.vcwatershed.net/hydrodata/)

**FIGURE 1-5**

Pleasant Valley Basin Stream Gauge Data

INTENTIONALLY LEFT BLANK




## Legend

- Contour of equal groundwater elevation (feet). Dashed where approximate; queried where inferred. See Note 3.
- Wells screened in the Oxnard Aquifer
- 15P01 Abbreviated State Well Number (see notes)
- **14.7** Groundwater Elevations (ft msl)
- (-14.7) Groundwater elevations not used for contouring
- Fox Canyon Groundwater Management Agency Boundary
- Faults (Dashed Where Inferred)
- Forebay Management Area
- East Oxnard Plain Management Area (EOPMA)
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management
- Pleasant Valley Pumping Depression Management Area
- Township (North-South) and Range (East-West)

**Bulletin 118 Groundwater Basins and Subbasin (DWR 2018)**

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:
1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
2) Gray SWN abbreviation with no water level indicates no water level measurement was collected within the specified time window.
3) Groundwater elevations not used to create contours are shown in parentheses.
4) All elevation values are in feet mean sea level (ft msl).
5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD

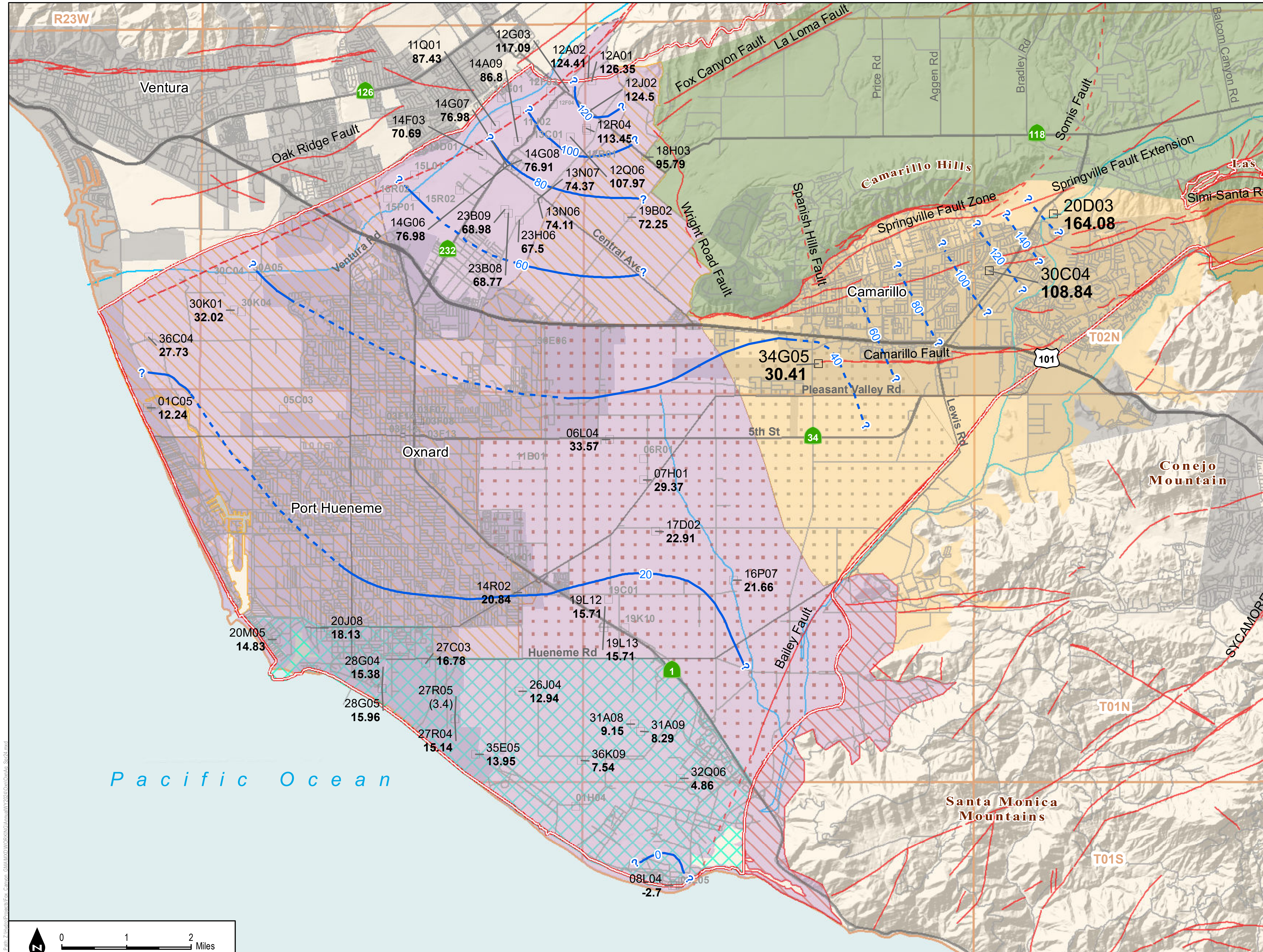
DUDEK

SOURCE: DWR; Ventura County; UWCD; CMWD

**FIGURE 2-1**

Groundwater Elevation Contours in the Oxnard Aquifer, October 1 to October 31, 2023

INTENTIONALLY LEFT BLANK




## Legend

- Contour of equal groundwater elevation (feet MSL). Dashed where approximate; queried where inferred. See Note 3.
- Wells screened in the Oxnard Aquifer
- 15P01 Abbreviated State Well Number (see notes)
- 14.7 Groundwater Elevations (ft msl)
- (-14.7) Groundwater elevations not used for contouring
- Fox Canyon Groundwater Management Agency Boundary
- Faults (Dashed Where Inferred)
- Forebay Management Area
- East Oxnard Plain Management Area (EOPMA)
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management Area
- Pleasant Valley Pumping Depression Management Area
- Township (North-South) and Range (East-West)

**Bulletin 118 Groundwater Basins and Subbasin (DWR 2018)**

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:
1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
2) Gray SWN abbreviation with no water level indicates no water level measurement was collected within the specified time window.
3) Groundwater elevations not used to create contours are shown in parentheses.
4) All elevation values are in feet mean sea level (ft msl).
5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD

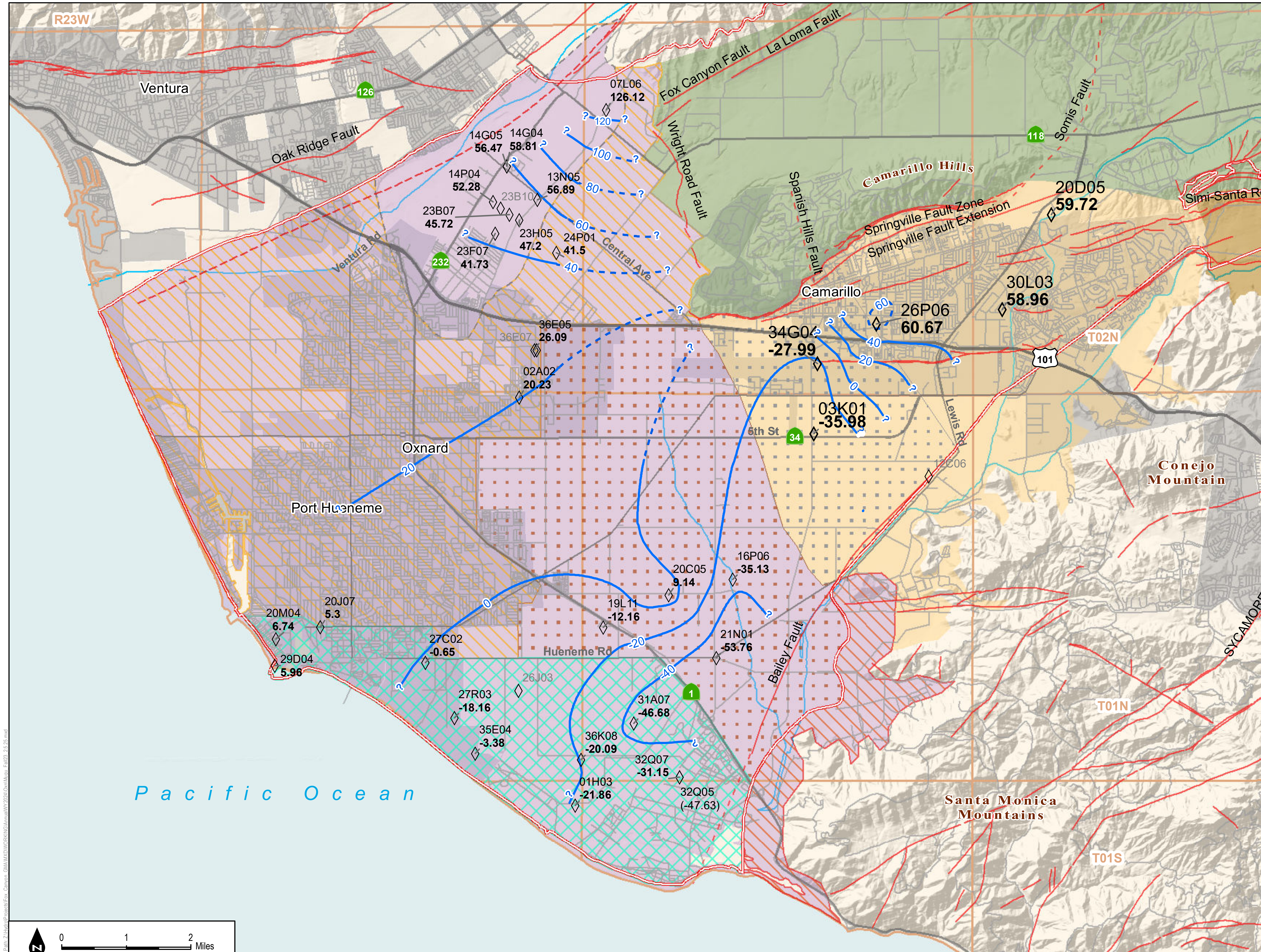
DUDEK

SOURCE: DWR; Ventura County; UWCD; CMWD

**FIGURE 2-2**

Groundwater Elevation Contours in the Oxnard Aquifer, March 1 to March 31, 2024

INTENTIONALLY LEFT BLANK




## Legend

Contour of equal groundwater elevation (feet MSL). Dashed where approximate; queried where inferred. See Note 3.

Wells screened in the Mugu Aquifer

15P01 Abbreviated State Well Number (see notes)

**14.7** Groundwater elevation (feet msl)

(14.7) Groundwater elevation not used to create contours

Faults (Dashed Where Inferred)

Fox Canyon Groundwater Management Agency Boundary

Forebay Management Area

East Oxnard Plain Management Area (EOPMA)

West Oxnard Plain Management Area (WOPMA)

Oxnard Pumping Depression Management Area

Saline Intrusion Management

Pleasant Valley Pumping Depression Management Area

Township (North-South) and Range (East-West)

**Bulletin 118 Groundwater Basins and Subbasin (DWR 2018)**

Arroyo Santa Rosa Valley (4-007)

Las Posas Valley (4-008)

Pleasant Valley (4-006)

Oxnard (4-004.02)

Notes:

1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.

2) Gray SWN abbreviation with no water level indicates no water level measurement was collected within the specified time window.

3) Groundwater elevations not used to create contours are shown in parentheses.

4) All elevation values are in feet mean sea level (ft msl).

5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD

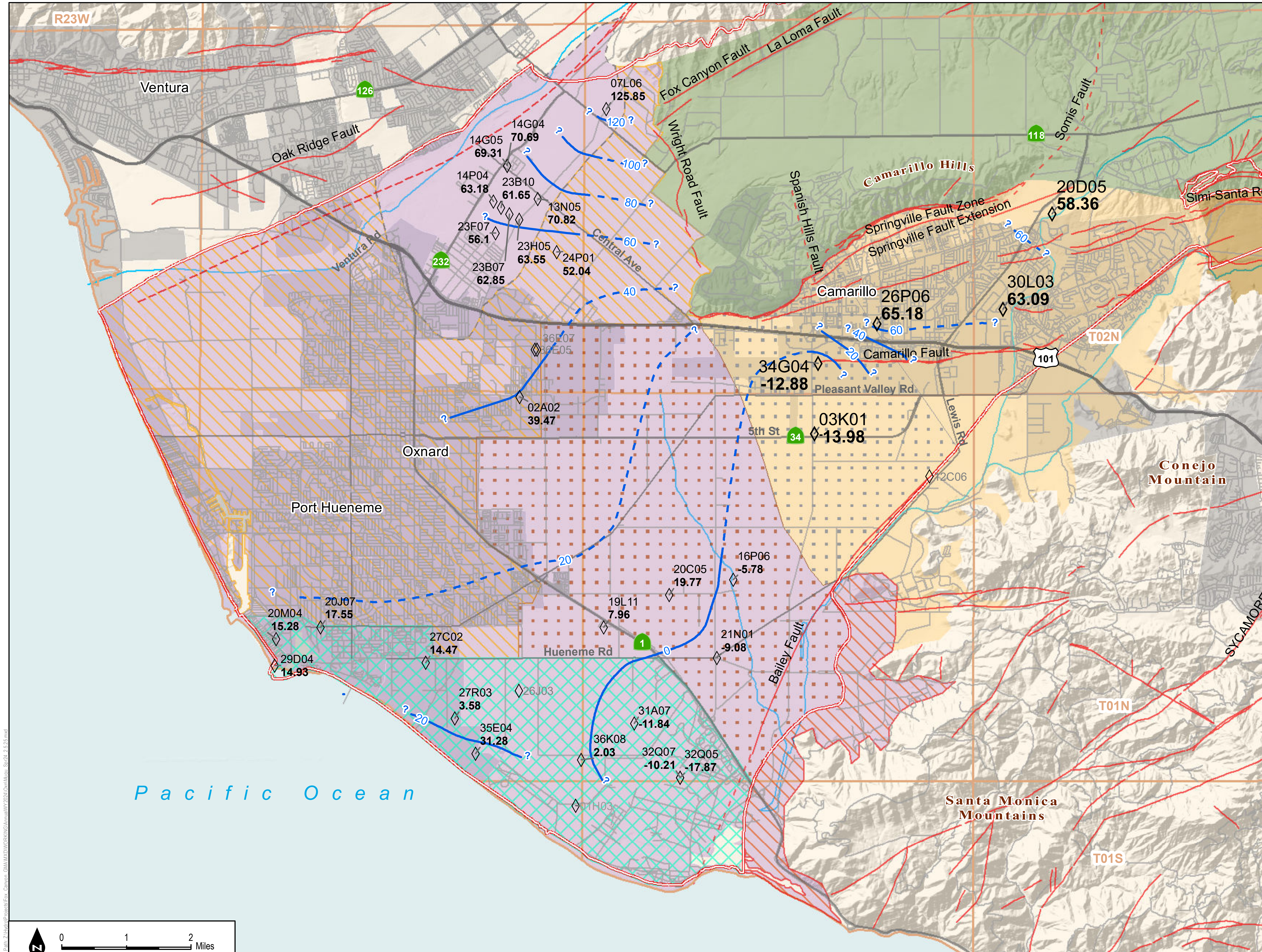
DUDEK

SOURCE: DWR; Ventura County; UWCD; CMWD

**FIGURE 2-3**

Groundwater Elevation Contours in the Mugu Aquifer, October 1 to October 31, 2023

INTENTIONALLY LEFT BLANK




## Legend

Contour of equal groundwater elevation (feet MSL). Dashed where approximate; queried where inferred. See Note 3.

◊ Wells screened in the Mugu Aquifer

15P01 Abbreviated State Well Number (see notes)

14.7 Groundwater Elevation (ft MSL)

Faults (Dashed Where Inferred)

Fox Canyon Groundwater Management Agency Boundary

Forebay Management Area

East Oxnard Plain Management Area (EOPMA)

West Oxnard Plain Management Area (WOPMA)

Oxnard Pumping Depression Management Area

Saline Intrusion Management Area

Pleasant Valley Pumping Depression Management Area

Township (North-South) and Range (East-West)

**Bulletin 118 Groundwater Basins and Subbasin (DWR 2018)**

Arroyo Santa Rosa Valley (4-007)

Las Posas Valley (4-008)

Pleasant Valley (4-006)

Oxnard (4-004.02)

Notes:

1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.

2) Gray SWN abbreviation with no water level indicates no water level measurement was collected within the specified time window.

3) Groundwater elevations not used to create contours are shown in parentheses.

4) All elevation values are in feet mean sea level (ft msl).

5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD

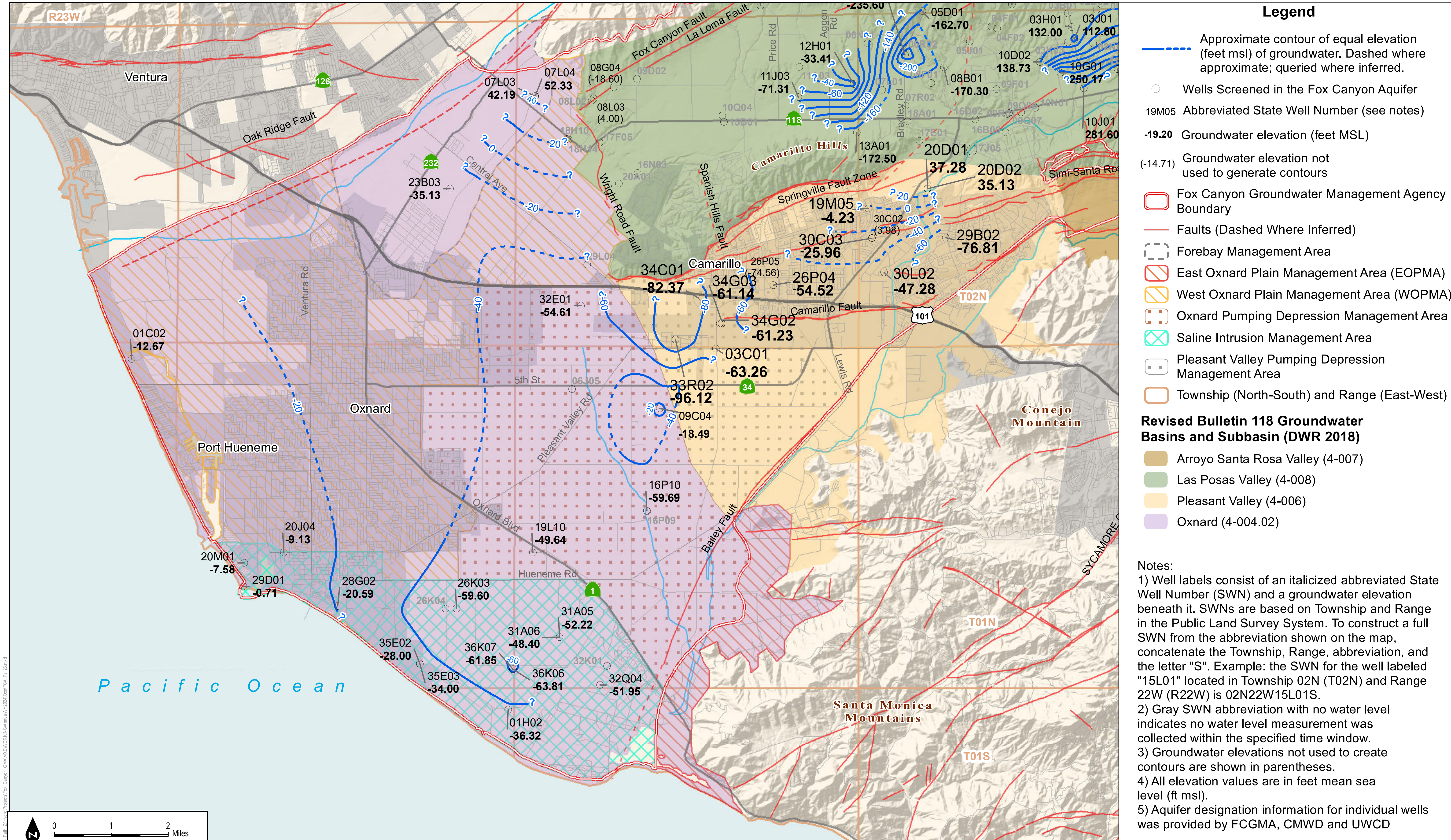
DUDEK

SOURCE: DWR; Ventura County; UWCD; CMWD

**FIGURE 2-4**

Groundwater Elevation Contours in the Mugu Aquifer, March 1 to March 31, 2024

INTENTIONALLY LEFT BLANK



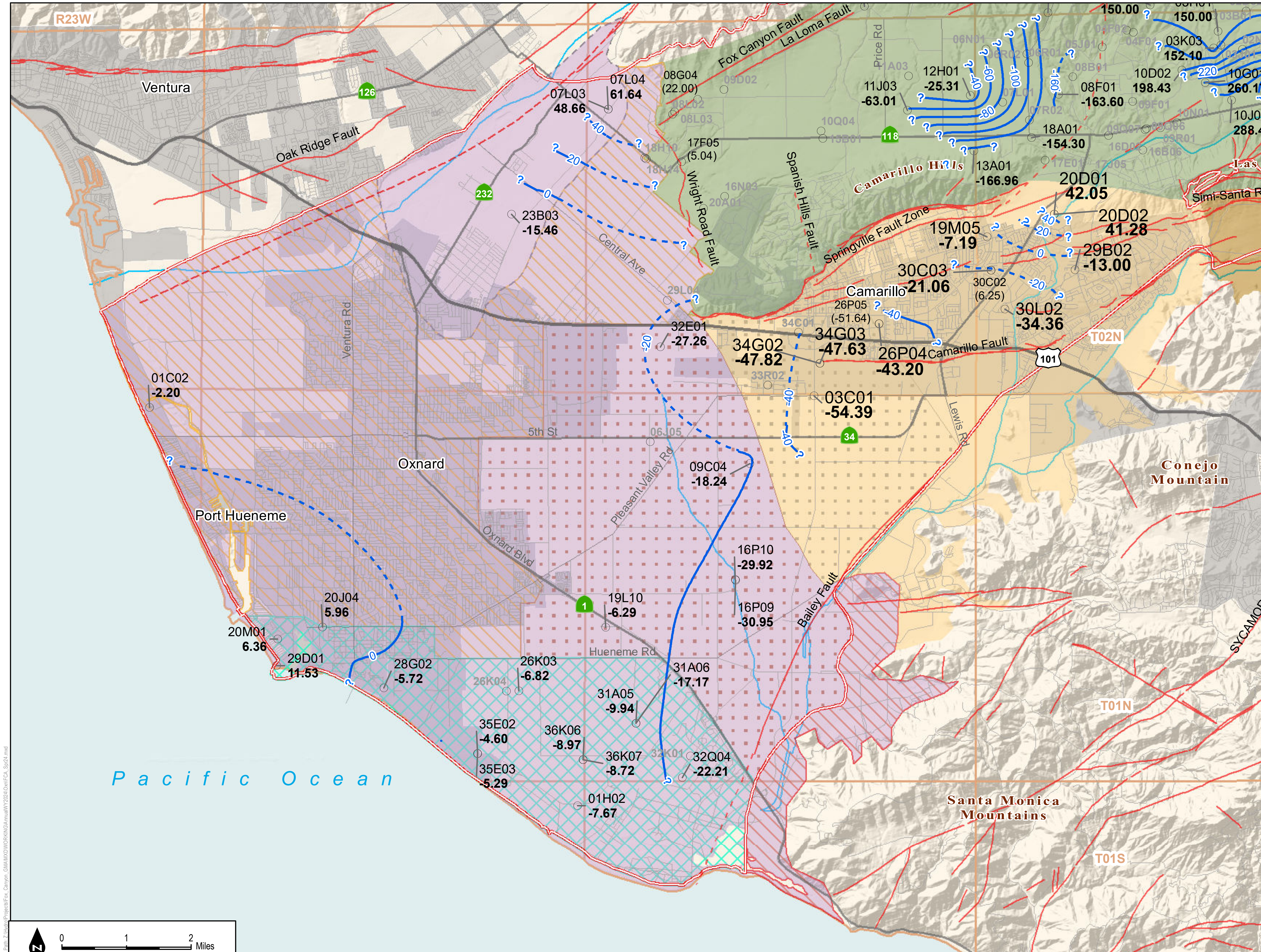

SOURCE: DWR; Ventura County; UWCD; CMWD

**FIGURE 2-5**

Groundwater Elevation Contours in the Fox Canyon Aquifer, October 1 to October 31, 2023

DUDEK

INTENTIONALLY LEFT BLANK




## Legend

- Approximate contour of equal elevation (feet msl) of groundwater. Dashed where approximate; queried where inferred.
- Wells Screened in the Fox Canyon Aquifer
- 19M05 Abbreviated State Well Number (see notes)
- **-19.20** Groundwater elevation (feet MSL)
- (-14.71) Groundwater elevation not used to generate contours
- Fox Canyon Groundwater Management Agency Boundary
- Faults (Dashed Where Inferred)
- Forebay Management Area
- East Oxnard Plain Management Area (EOPMA)
- West Oxnard Plain Management Area (WOPMA)
- Oxnard Pumping Depression Management Area
- Saline Intrusion Management Area
- Pleasant Valley Pumping Depression Management Area
- Township (North-South) and Range (East-West)

**Revised Bulletin 118 Groundwater Basins and Subbasin (DWR 2018)**

- Arroyo Santa Rosa Valley (4-007)
- Las Posas Valley (4-008)
- Pleasant Valley (4-006)
- Oxnard (4-004.02)

Notes:
1) Well labels consist of an italicized abbreviated State Well Number (SWN) and a groundwater elevation beneath it. SWNs are based on Township and Range in the Public Land Survey System. To construct a full SWN from the abbreviation shown on the map, concatenate the Township, Range, abbreviation, and the letter "S". Example: the SWN for the well labeled "15L01" located in Township 02N (T02N) and Range 22W (R22W) is 02N22W15L01S.
2) Gray SWN abbreviation with no water level indicates no water level measurement was collected within the specified time window.
3) Groundwater elevations not used to create contours are shown in parentheses.
4) All elevation values are in feet mean sea level (ft msl).
5) Aquifer designation information for individual wells was provided by FCGMA, CMWD and UWCD

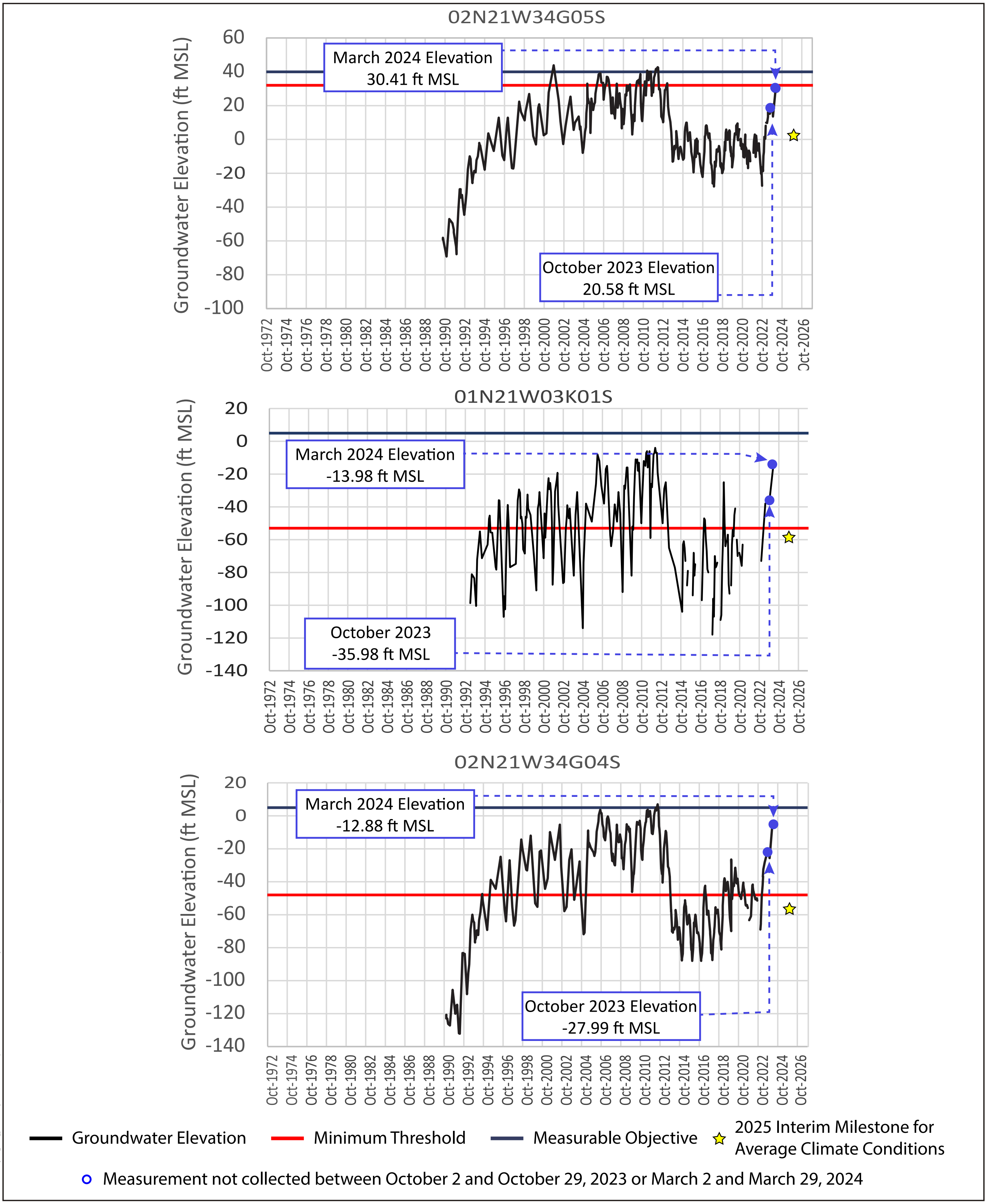
DUDEK

SOURCE: DWR; Ventura County; UWCD; CMWD

**FIGURE 2-6**

Groundwater Elevation Contours in the Fox Canyon Aquifer, March 1 to March 31, 2024

INTENTIONALLY LEFT BLANK

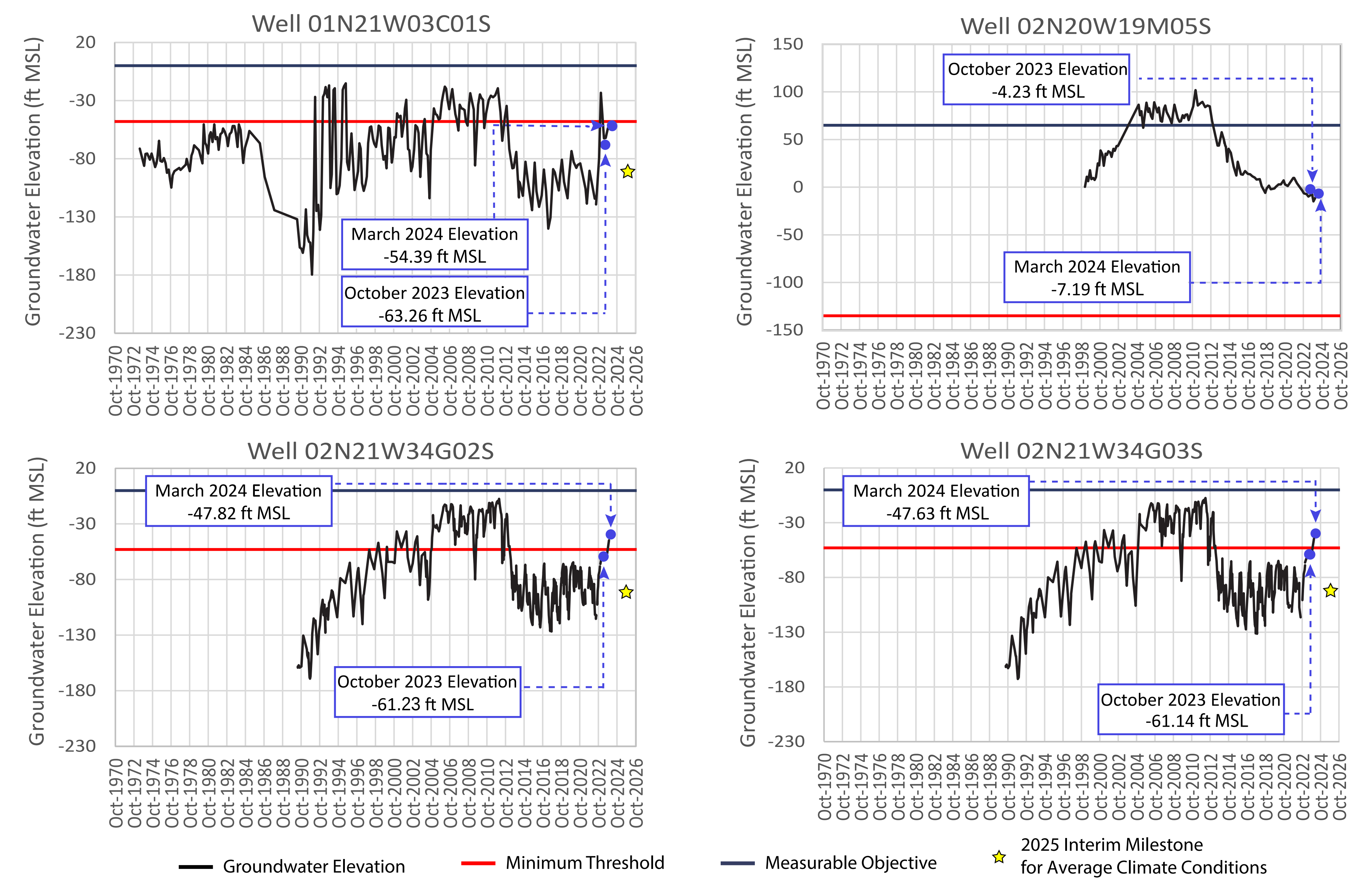



SOURCE: UWCD, VCWPD

**FIGURE 2-7**

Groundwater Elevation Hydrographs for Representative Monitoring Points in the Older Alluvium

INTENTIONALLY LEFT BLANK



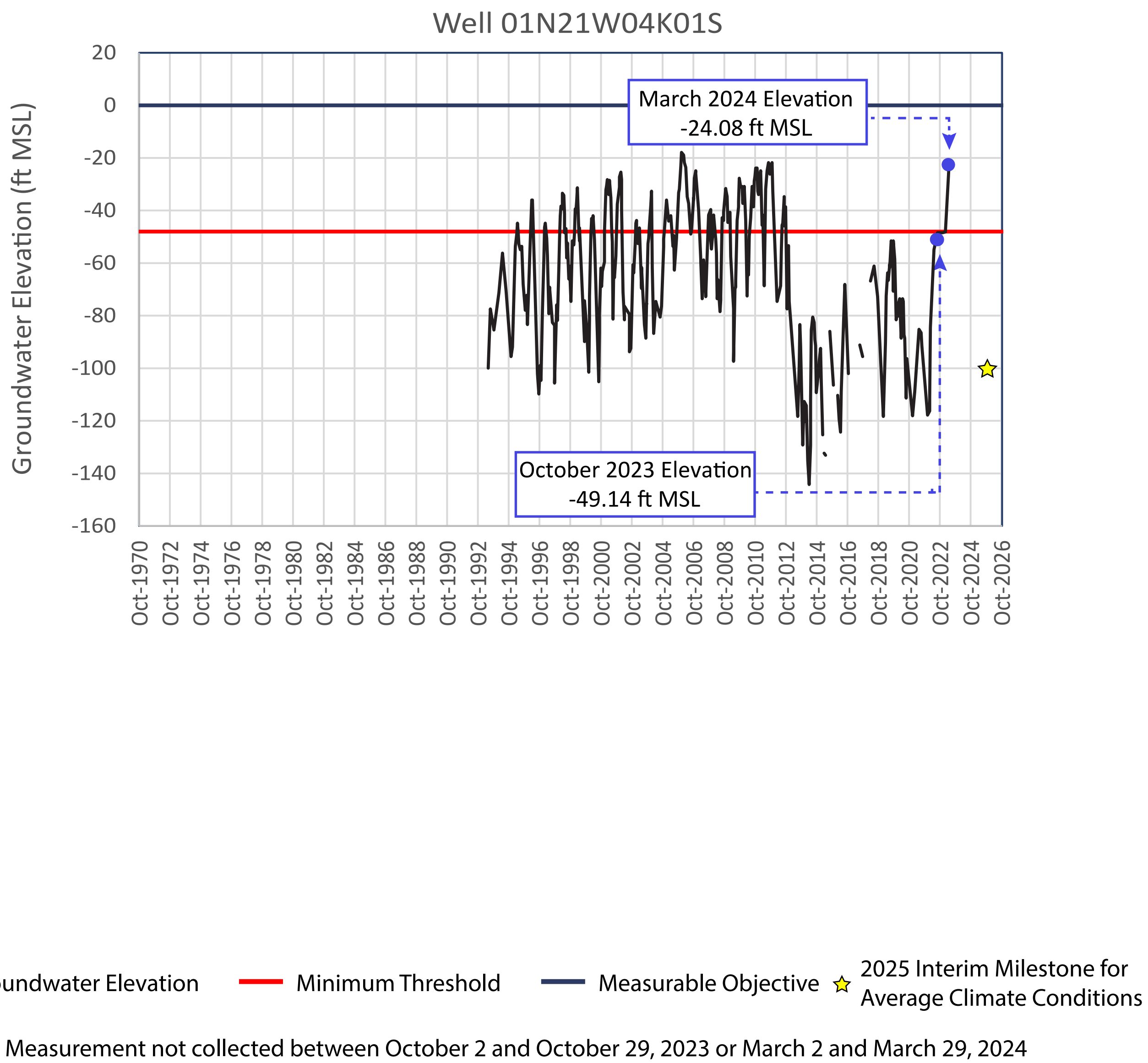

Note: 2025 interim milestone groundwater elevation has not been established for 02N20W19M05S because groundwater elevations are more than 100 feet higher than the established minimim threshold groundwater elevation.

SOURCE: UWCD, VCWPD

**FIGURE 2-8**

Groundwater Elevation Hydrographs for Representative Wells Screened in the Fox Canyon Aquifer

INTENTIONALLY LEFT BLANK

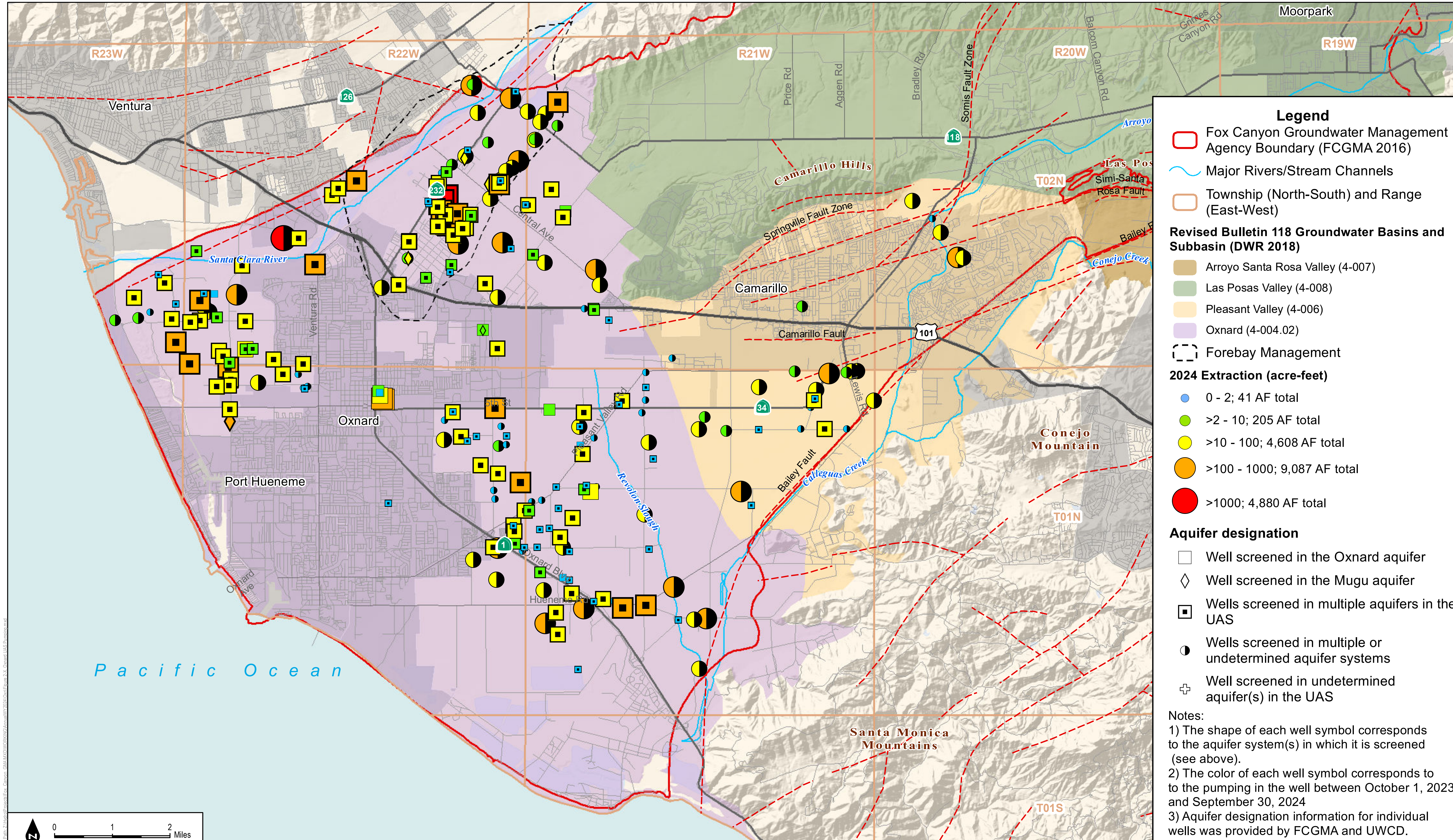



SOURCE: UWCD, VCWPD

**FIGURE 2-9**

Groundwater Elevation Hydrographs for Representative Monitoring Points in Multiple Aquifers

INTENTIONALLY LEFT BLANK




SOURCE: DWR, FCGMA, VCWPD, UWCD

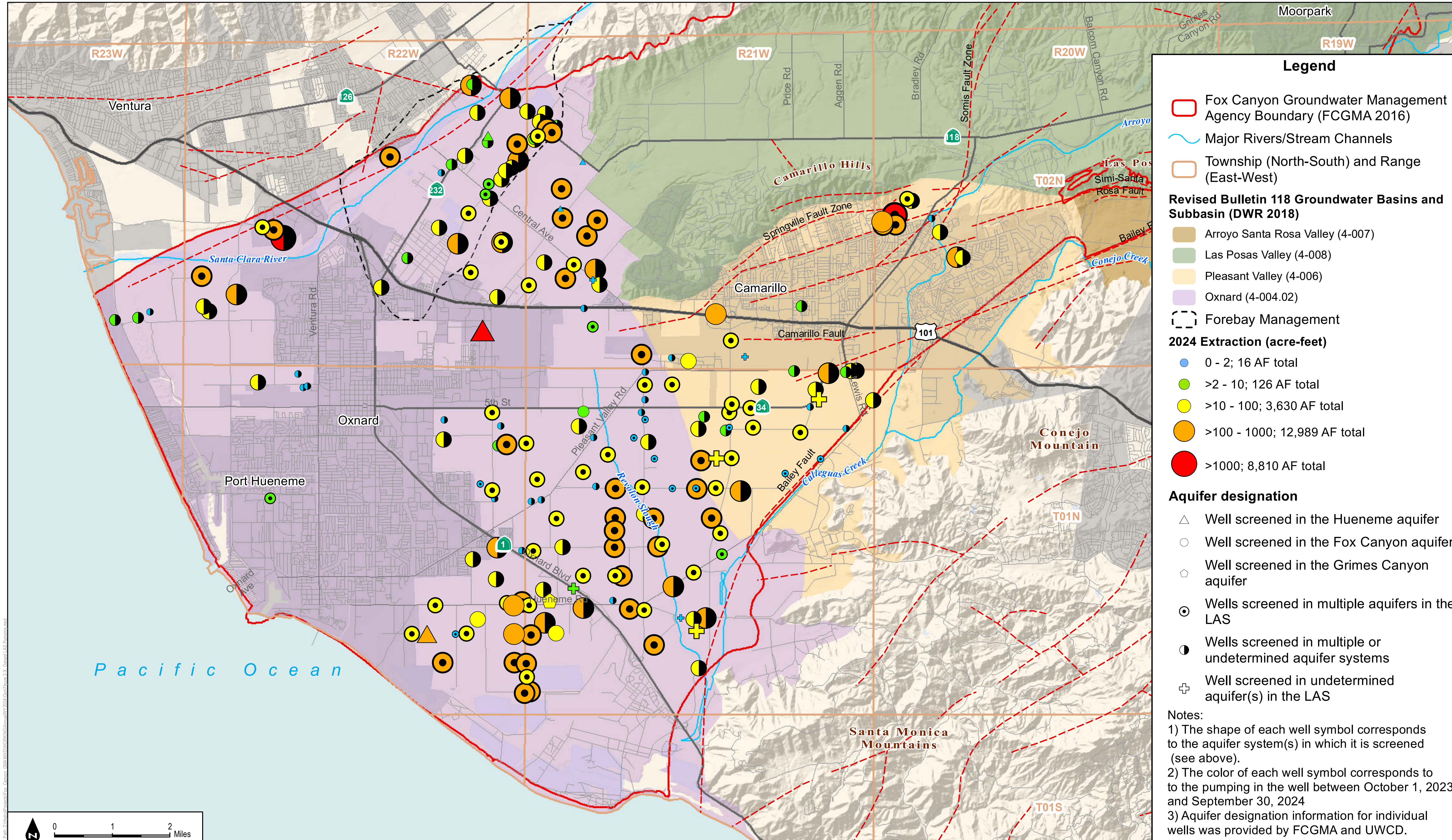
**FIGURE 2-10**

Groundwater Production from the UAS between October 1, 2023 and September 30, 2024

DUDEK

Pleasant Valley Basin Groundwater Sustainability Plan 2025 Annual Report

INTENTIONALLY LEFT BLANK



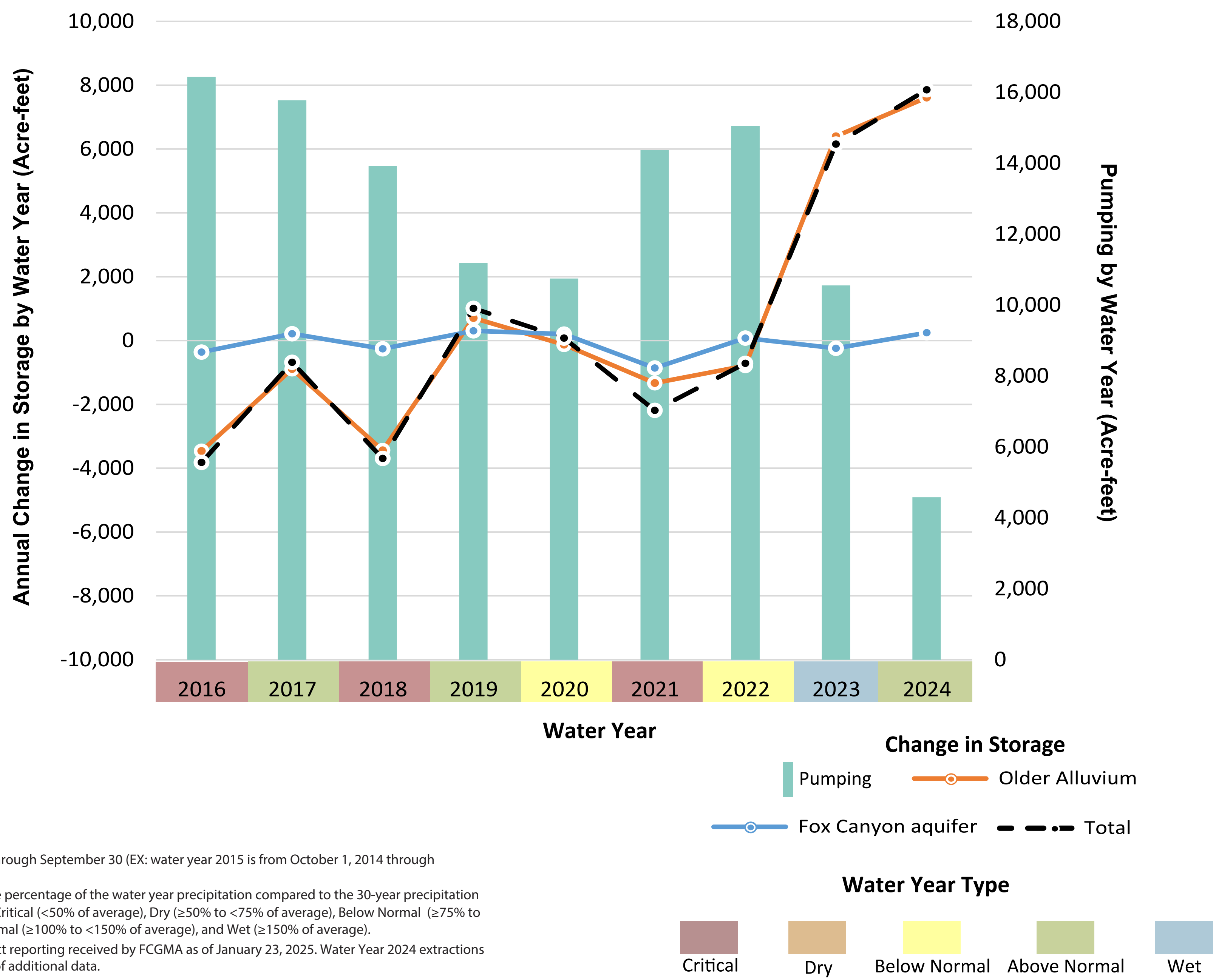

SOURCE: DWR, FCGMA, VCWPD, UWCD

**DUDEK**

**FIGURE 2-11**

Groundwater Production from the LAS between October 1, 2023 and September 30, 2024

INTENTIONALLY LEFT BLANK



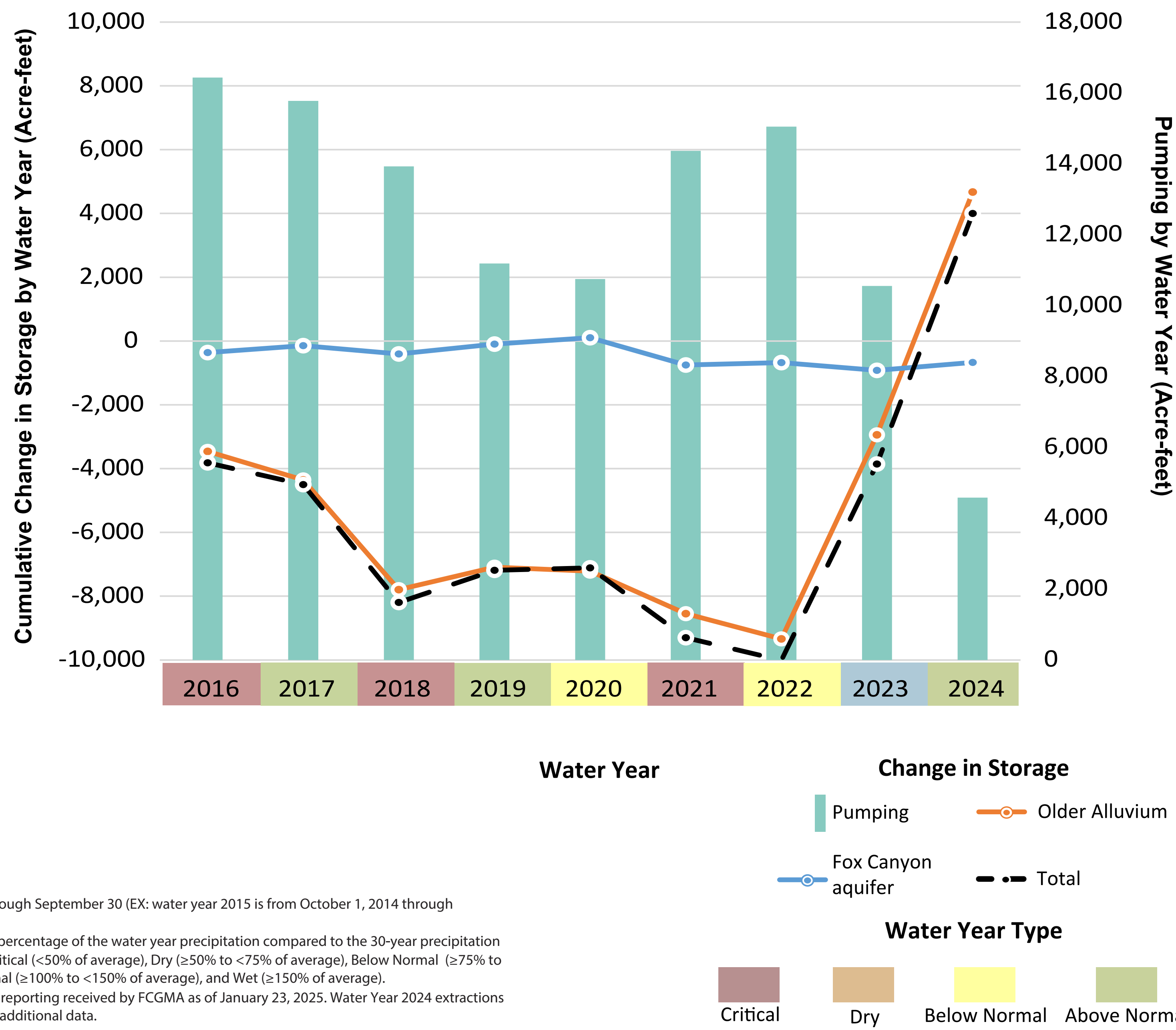

**Notes:**

1) Water year is from October 1 through September 30 (EX: water year 2015 is from October 1, 2014 through September 30, 2015).
2) Water year type is based on the percentage of the water year precipitation compared to the 30-year precipitation average. Types are defined as Critical (<50% of average), Dry (≥50% to <75% of average), Below Normal (≥75% to <100% of average), Above Normal (≥100% to <150% of average), and Wet (≥150% of average).
3) Groundwater extractions reflect reporting received by FCGMA as of January 23, 2025. Water Year 2024 extractions will be updated upon receipt of additional data.

**FIGURE 2-12**

Water Year Type, Groundwater Use, and Annual Change in Storage in the Pleasant Valley Basin

INTENTIONALLY LEFT BLANK



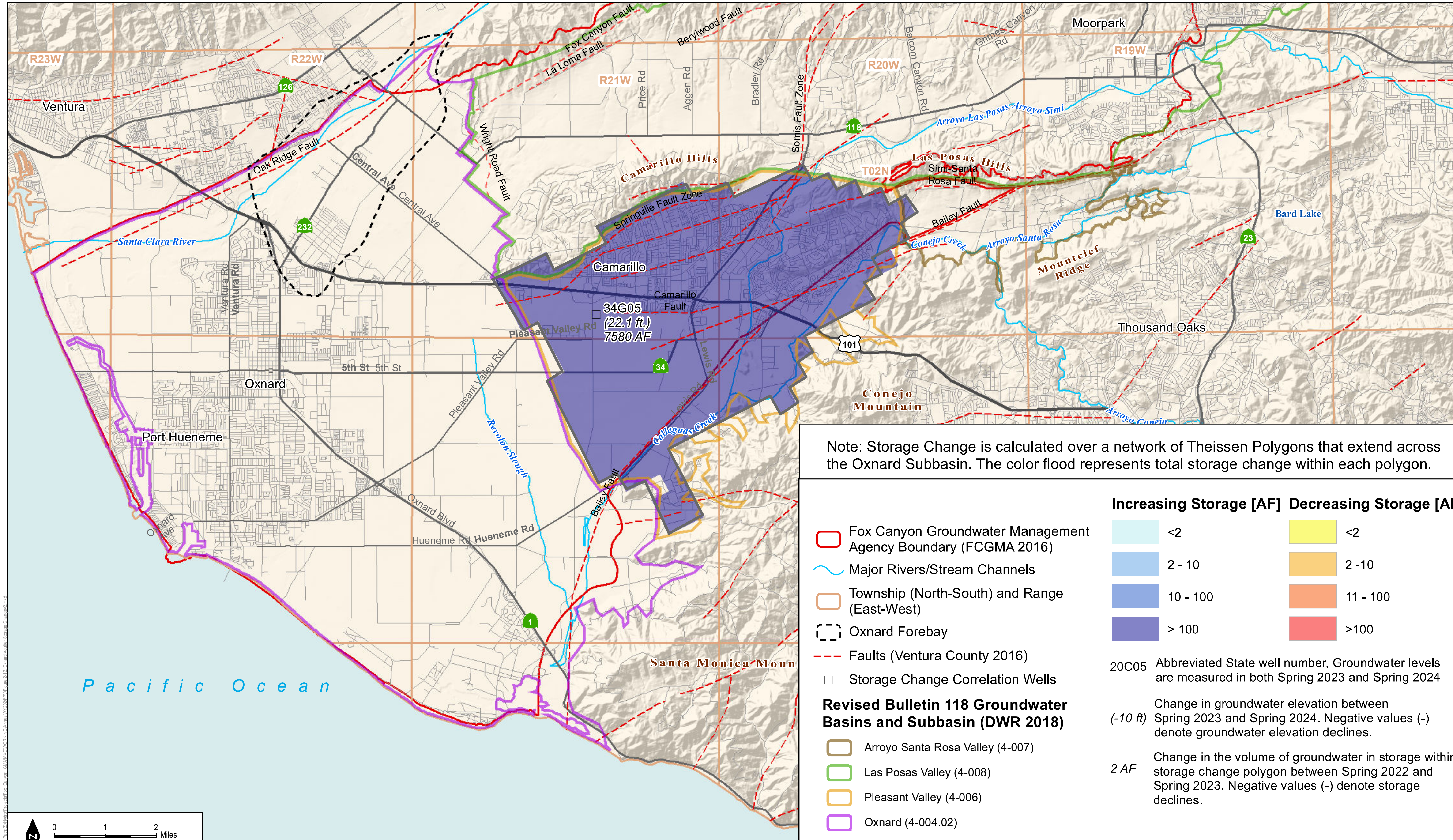

**Notes:**

1) Water year is from October 1 through September 30 (EX: water year 2015 is from October 1, 2014 through September 30, 2015).
2) Water year type is based on the percentage of the water year precipitation compared to the 30-year precipitation average. Types are defined as Critical (<50% of average), Dry (≥50% to <75% of average), Below Normal (≥75% to <100% of average), Above Normal (≥100% to <150% of average), and Wet (≥150% of average).
3) Groundwater extractions reflect reporting received by FCGMA as of January 23, 2025. Water Year 2024 extractions will be updated upon receipt of additional data.

**FIGURE 2-13**

Water Year Type, Groundwater Use, and Cumulative Change in Storage in the Pleasant Valley Basin

INTENTIONALLY LEFT BLANK




DUDEK

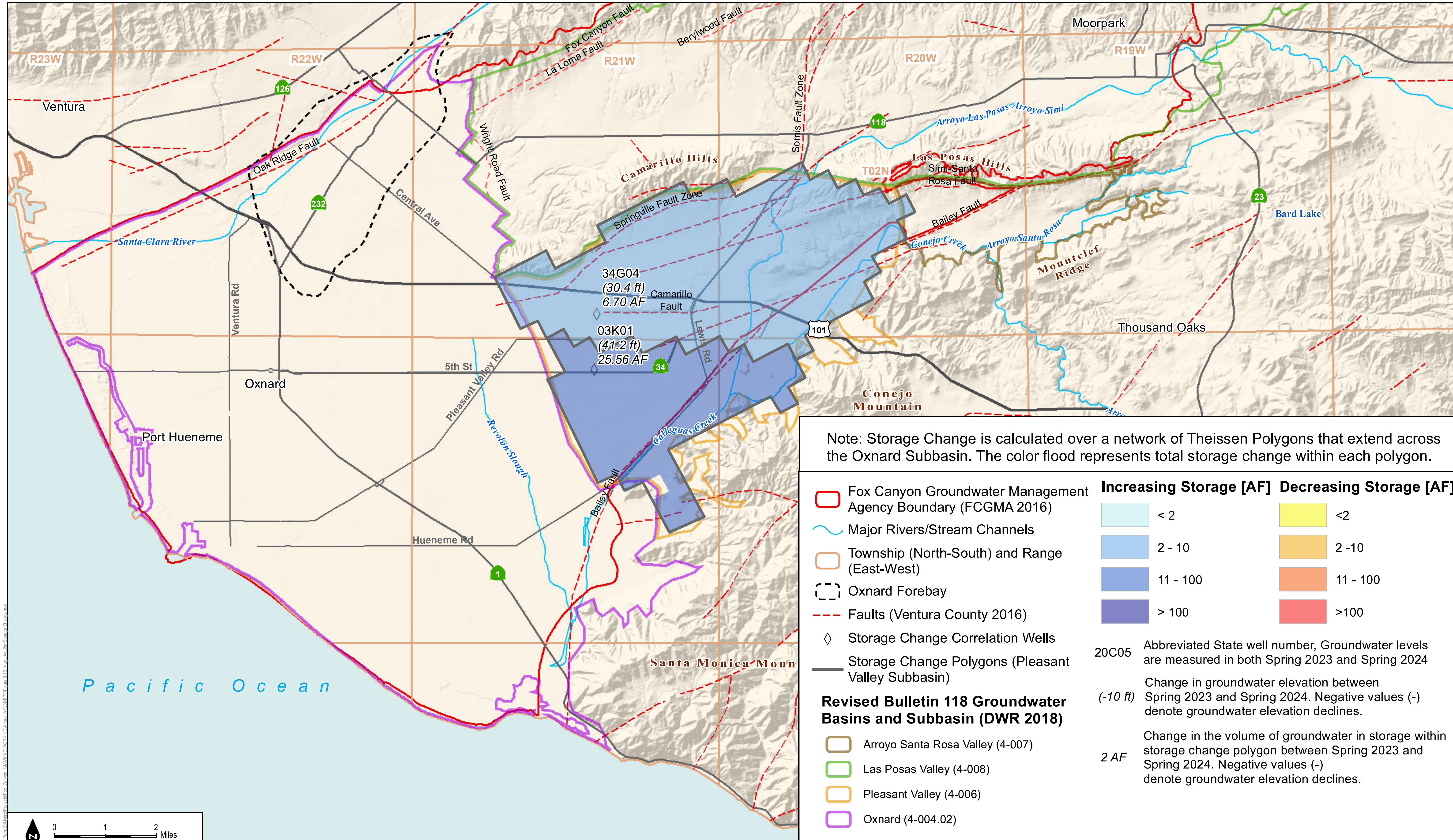
SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

**FIGURE 2-14**

Change in Storage in the Oxnard Aquifer: Spring 2023 to Spring 2024

Pleasant Valley Basin Groundwater Sustainability Plan 2025 Annual Report

INTENTIONALLY LEFT BLANK



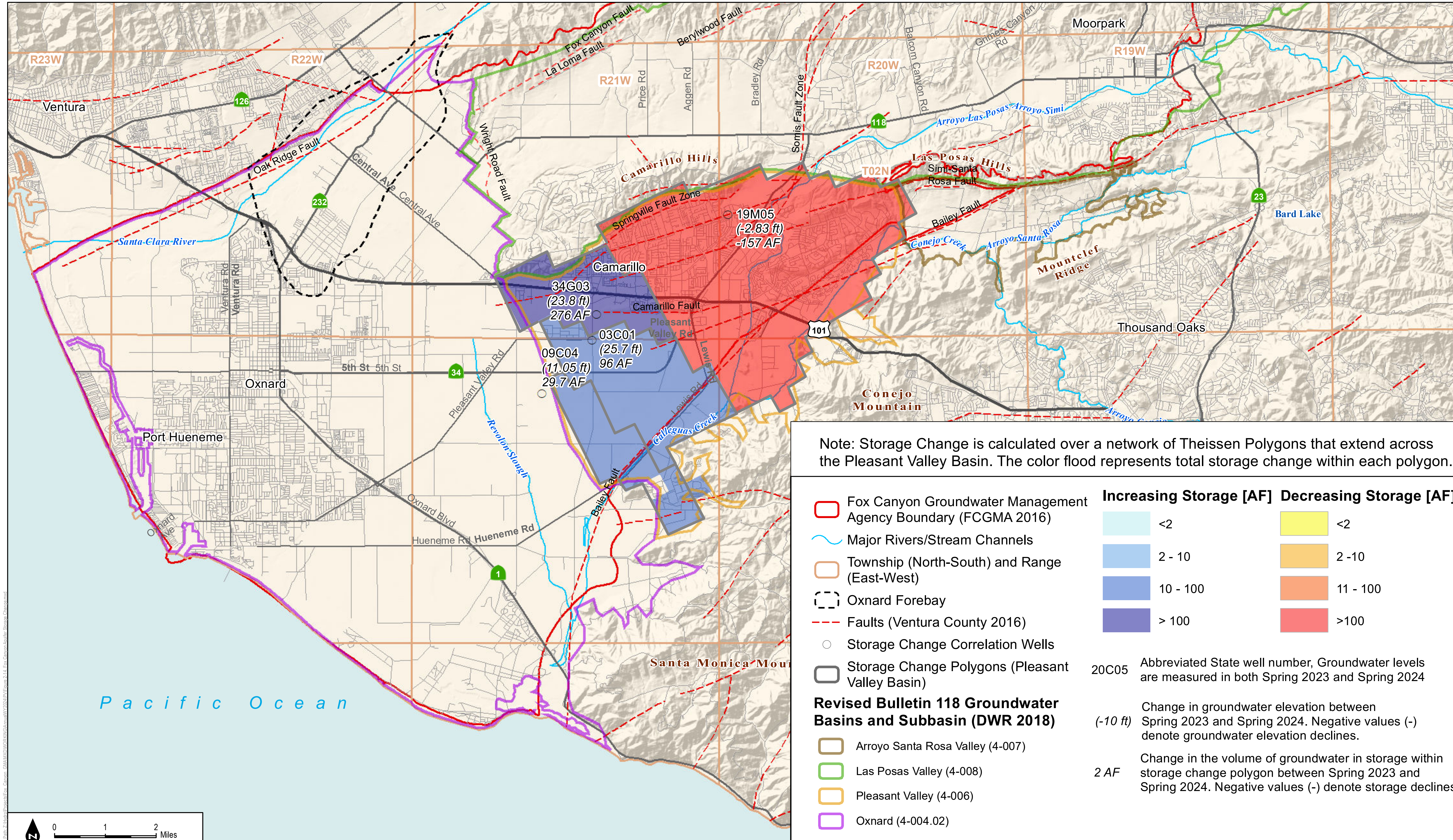

DUDEK

SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

**FIGURE 2-15**

Change in Storage in the Mugu Aquifer: Spring 2023 to Spring 2024

INTENTIONALLY LEFT BLANK




SOURCE: DWR, FCGMA, VCWPD, CMWD, UWCD

**FIGURE 2-16**

Change in Storage in the Fox Canyon Aquifer: Spring 2023 to Spring 2024

DUDEK

INTENTIONALLY LEFT BLANK