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WYANDOTTE CREEK SUBBASIN (5-021.69) GROUNDWATER SUSTAINABILITY PLAN ANNUAL REPORT – 2025

SUBMITTED BY

Wyandotte Creek
GROUNDWATER SUSTAINABILITY AGENCY

WYANDOTTE CREEK
GROUNDWATER SUSTAINABILITY AGENCY

PREPARED UNDER CONTRACT WITH

BUTTE COUNTY DEPARTMENT OF
WATER AND RESOURCE CONSERVATION

PREPARED BY

Luhdorff & Scalmanini Consulting Engineers

DAVIDS ENGINEERING, INC

Butte County CALIFORNIA

Prepared by Luhdorff and Scalmanini Consulting Engineers and Davids Engineering under contract with Butte County Department of Water and Resource Conservation on behalf of the GSA for the Wyandotte Subbasin.

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LIST OF ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
µS/cm	micro siemens per centimeter
AF	acre-feet
AFY	acre-feet per year
AMSL	above mean sea level
ARPA	American Rescue Plan Act
BBGM	Butte Basin Groundwater Model
Cal Water	California Water Service
CWC	Clean Water Consolidation
DMS	data management system
DWR	Department of Water Resources
eWRIMS	Electronic Water Rights Information Management System
GPS	global positioning system
GSP	groundwater sustainability plan
GSA	groundwater sustainability agency
IM	interim milestone
MA	management area
MO	measurable objective
MT	minimum threshold
PMAs	projects and management actions
RFP	request for proposals
RMS	representative monitoring site
SC	specific conductivity
SBFCA	Sutter Butte Flood Control Agency
SFWPA	South Feather Water and Power Agency
SI	sustainability indicator
SGM	Sustainable Groundwater Management
SGMA	Sustainable Groundwater Management Act
SMC	sustainable management criteria
Subbasin	Wyandotte Creek Subbasin
TWSD	Thermalito Water and Sewer District
WY	water year (October 1-September 30)

EXECUTIVE SUMMARY

The Wyandotte Creek Subbasin (Subbasin) (5-021.69) Annual Report was prepared on behalf of the Wyandotte Creek Groundwater Sustainability Agency (GSA) to fulfill the statutory requirements set by the Sustainable Groundwater Management Act (SGMA) legislation (§10728) and the Groundwater Sustainability Plan (GSP) regulations (§354.40 and §356.2) developed by the California Department of Water Resources (DWR). The GSA is formed through a Joint Powers Agreement (Agreement) of three member agencies, including Butte County, the City of Oroville, and Thermalito Water and Sewer District. The regulations mandate the submission of an annual report to DWR by April 1st after the reporting year, which spans the water year (WY) from October 1st to September 30th. This Annual Report includes information from the recent WY 2025 (October 1, 2024, to September 30, 2025) for the Subbasin.

Measured conditions in the Subbasin complied with all minimum thresholds (MTs) for all applicable sustainability indicators (SIs) with the exception of one well known to have high specific conductivity (SC) concentrations (**Appendix F**). An MT is a quantitative value that represents the groundwater conditions at a representative monitoring site that, when exceeded individually or in combination with minimum thresholds at other monitoring sites, may cause an undesirable result(s) in the basin per DWR's definition. Whether the MT represents a minimum or maximum value is dependent on the SI. As an example of a minimum, if groundwater levels are lower than the value of the measurable objective (MO) for that site, they are moving in the direction of the MT. As an example of a maximum, for the groundwater quality sustainable management criteria (SMC), as the value of the specific conductivity (SC) concentration increases from the MO established for that site, it moves in the direction of the MT. The SIs and SMC, including MTs, are summarized in **Table ES-1**. Note that seawater intrusion is not an applicable SI in this Subbasin. Each SI is measured at representative monitoring sites (RMS).

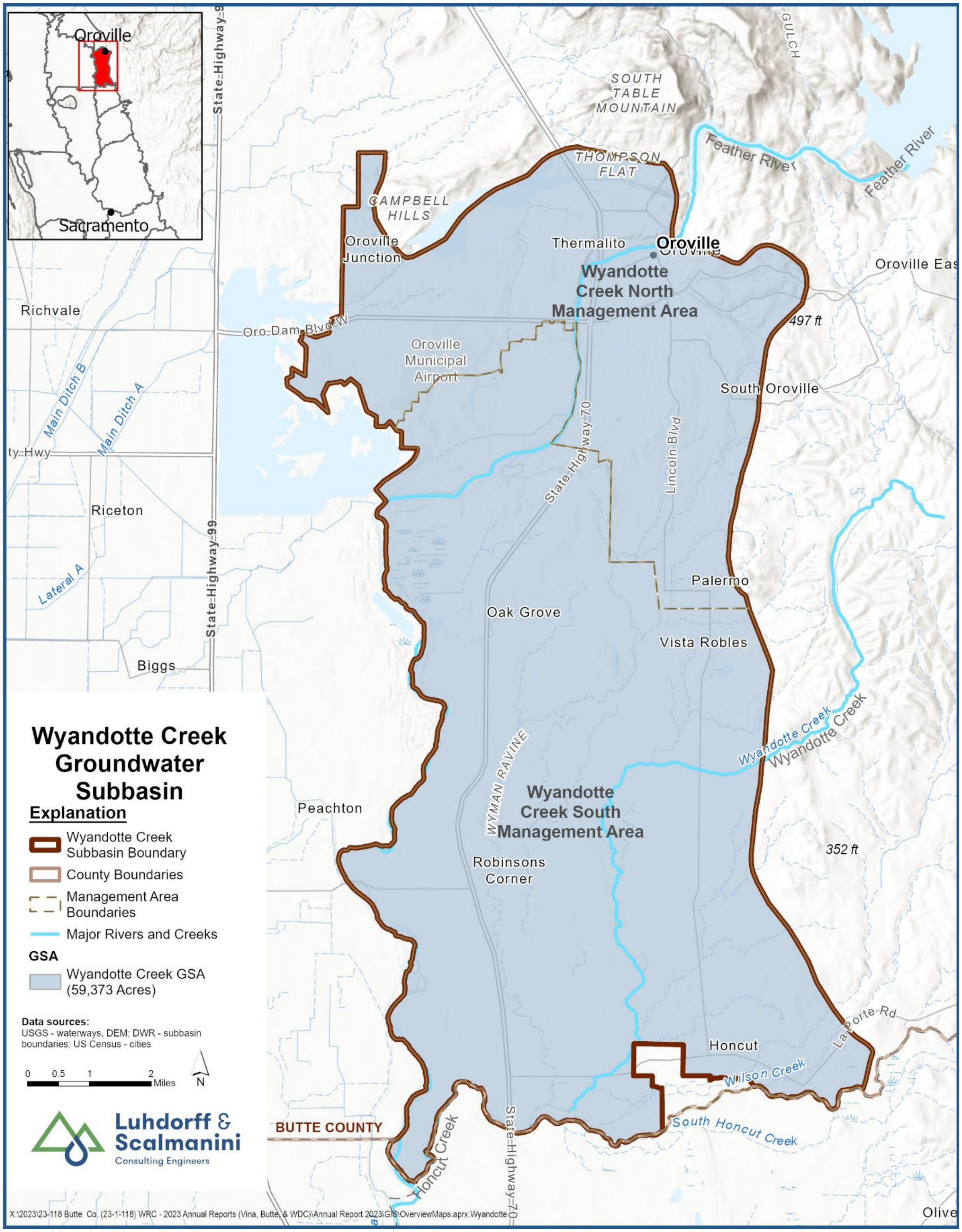

Figure ES-1. Wyandotte Creek Subbasin and Groundwater Sustainability Agency Boundaries

Table ES-1. Wyandotte Creek Subbasin Sustainability Indicator Summary			
2025 Status	**Undesirable Result Identification**	**Measurable Objective (MO) Definition**	**Minimum Threshold (MT) Definition**
Chronic Lowering of Groundwater Levels			
No indication of undesirable results There were no RMS wells with spring or fall 2025 groundwater level measurements below the MT.	When 2 RMS wells within a management area reach their MT for two consecutive non-dry year types.	The groundwater level based on the groundwater trend line for the dry periods (over the period of record) of observed short-term climatic cycles extended to 2030.	Elevation based on the 15th percentile of shallowest domestic wells using the refined DWR database (includes wells installed since 1980), based on the elevation of the bottom of the wells within a 3-mile radius of the RMS well.
Reduction of Groundwater Storage			
No indication of undesirable results There were no RMS wells with spring or fall 2025 groundwater level measurements below the MT.	Groundwater levels are used as a proxy, per SGMA regulations.	Groundwater levels are used as a proxy, per SGMA regulations.	Groundwater levels are used as a proxy, per SGMA regulations.
Degraded Water Quality			
No indication of undesirable results In August of 2025, the SC in portions of 1 RMS well (18N04E19D002-3M) known to have high baseline SC levels, exceeded the MT, however there was no indication of undesirable results	When 2 RMS wells exceed their MT for two consecutive non-dry years.	Measured specific conductivity less than or equal to the recommended Secondary Maximum Contaminant Level (900 µS/cm) based on State Secondary Drinking Water Standards at each well.	The upper limit of the Secondary Maximum Contaminant Level for specific conductivity (1,600 µS/cm) is based on the State Secondary Drinking Water Standards.

Table ES-1. Wyandotte Creek Subbasin Sustainability Indicator Summary			
2025 Status	**Undesirable Result Identification**	**Measurable Objective (MO) Definition**	**Minimum Threshold (MT) Definition**
Land Subsidence			
No indication of undesirable results There were no RMS wells with spring or fall 2025 groundwater level measurements below the MT.	Groundwater levels are used as a proxy, per SGMA regulations.	Groundwater levels are used as a proxy, per SGMA regulations.	Groundwater levels are used as a proxy, per SGMA regulations.
Depletion of Interconnected Surface Water			
No indication of undesirable results There were no RMS wells with spring or fall 2025 groundwater level measurements below the MT.	Groundwater levels are used as a proxy. GSP identifies the data gap and describes the "Interconnected Surface Water Sustainable Management Criteria Framework."	Groundwater levels are used as a proxy, per SGMA regulations.	Groundwater levels are used as a proxy, per SGMA regulations.

Notes:

Salinity is the primary water quality constituent of concern, evaluated by measuring specific conductivity.

MO = measurable objective, MT = minimum threshold, RMS = representative monitoring site, µS/cm = micro siemens per centimeter

Current Groundwater Level and Storage Conditions

The current groundwater conditions in the Subbasin are characterized by groundwater elevations that have remained consistently near or above the MO, staying well above the corresponding MT and remaining within the Subbasin’s established margin of operational flexibility for each RMS well. Importantly, none of the RMS wells experienced a decline below the MT for two non-dry WYs, per the current SMC hence avoiding undesirable results as defined in the GSP.

Groundwater elevations are, on average, 42 feet above the MT throughout the Subbasin and, on average, 17 feet above the MOs in WY 2025 over both spring and fall. Elevations are mostly near or slightly higher than those observed in recent years. This positive trend is influenced by the above-normal hydrologic conditions experienced in WY 2025, which resulted in increased natural recharge and surface water supplies. Fluctuations in groundwater levels and storage within the Subbasin are influenced by the balance between aquifer recharge and extraction. Groundwater levels serve as a proxy for estimating changes in groundwater storage, with observed patterns closely mirroring those in the broader Sacramento Valley. In years characterized by drought and low precipitation, diminished surface water supplies lead to increased extraction and reduced recharge, causing a decline in groundwater storage.

WY 2025, classified as an above-normal WY (CDEC, 2025), marked a spring-to-spring increase in groundwater storage of approximately 19,100 acre-feet (AF) in the subbasin (a 59% change from the previous WY). WY 2025 did have increased groundwater extraction relative to WY 2024, but the majority of that occurred after spring 2025. For context, in the past 25 years, the largest one-year decrease in groundwater storage is estimated to be -28,800 AF, and the greatest one-year increase was estimated to be 36,500 AF. **Figure ES-2** shows groundwater pumping, as well as an annual and cumulative change in groundwater storage from WY 2000 to WY 2025.

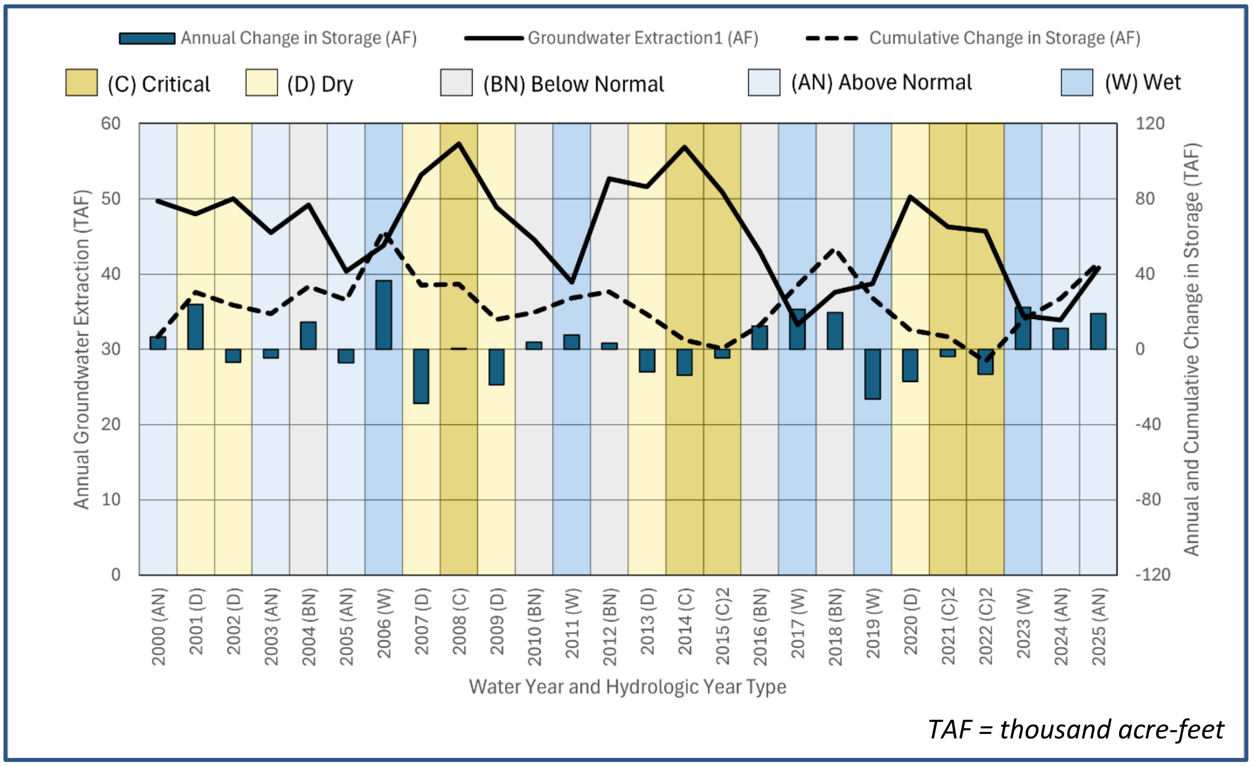

Figure ES-2. Wyandotte Creek Subbasin Groundwater Pumping, Annual and Cumulative Change in Storage from WY 2000 to WY 2025

Water Use

Total groundwater extraction was approximately 40,800 AF in WY 2025, slightly higher than the 33,900 AF extracted in WY 2024. The annual volume of surface water delivered to the Subbasin from surface water features such as the Feather River was about 21,000 AF in WY 2025, greater than the 20,400 AF delivered in WY 2024.

Groundwater provided the majority (71%) of the water for agriculture in the Subbasin, and surface water was the source for the remainder (29%) in WY 2025. The volume of groundwater and surface water used on an annual basis within the Subbasin is summarized directly from measured and reported groundwater pumping and surface water diversions when available; however, a water budget approach has been used to estimate the remaining unmeasured volume of groundwater extraction. The water use analysis methodology is discussed in **Appendix E. Table ES-2** provides a summary of water use by water sectors. Numbers are rounded to the nearest 100.

Table ES-2. Wyandotte Creek Subbasin Total Water Use by Water Use Sector					
Sector		WY 2025			
	Groundwater (AF)	Surface Water (AF)	Total (AF)	Percent of Total Water Use	Total Sector Area (ac)
Agricultural	38,100	15,300	**53,400**	**86%**	**13,300**
Municipal	1,800	5,700	**7,500**	**12%**	**18,500**
Rural Residential	900	--	**900**	**2%**	**n/a***
Total	**40,800**	**21,000**	**61,800**	**100%**	**31,800**
Percent of Total Water Use	**66%**	**34%**	**100%**		

Notes:

[*]Rural Residential water use is calculated based on population from census data, not area.

GSP Implementation Progress

The main activities and updates from the previous annual report are as follows:

1. All sustainability indicators (SIs) are in compliance with their MTs (see summary **Table 5-1**) with the exception of one well known to have high SC concentrations (**Appendix F**).
2. The GSA completed the WY 2025 Annual Report and other critical tasks related to monitoring and data collection.
3. The GSA continued to participate in ongoing intra- and inter-basin coordination.
4. In a previous water year, the GSA adopted a property-related service fee to fund its operations and implementation costs to comply with SGMA. In the 2025 Water Year the GSA Board voted to initiate an updated Fee Study to evaluate funding options for future operations and SGMA implementation.
5. The Wyandotte Creek GSA was recently awarded about $5.5 million to complete specific tasks ranging from, but not limited to, filling data gaps, conducting agricultural efficiency inventory and pilot projects, and expanding the capacity at one water treatment plant. This portfolio approach funds various phases of projects listed in the GSP. Implementation of these projects continued in the 2025 WY. More information is summarized in **Appendix G**.
6. Progress has been made on 13 PMAs since the last annual report (**Appendix G**).

The GSP was approved in July of 2023, and DWR proposed five recommended corrective actions that will enhance the GSP:

1. Providing additional information on historical and current groundwater quality conditions in the Subbasin and refining the definition of sustainable management criteria through a number of actions further described in the letter.
2. Providing more information regarding the criteria used to identify significant and unreasonable conditions, undesirable results, and the potential impacts to various beneficial uses and users of groundwater related to the chronic lowering of groundwater level minimum thresholds through a number of actions further described in the letter.
3. Revising the definition of undesirable results to remove the non-dry year condition or discuss how degradation during dry periods will be managed as necessary to ensure that adverse water quality conditions are offset during other periods.
4. Providing more information about the criteria used to identify undesirable results and sustainable management criteria for land subsidence through a number of actions further described in the letter.
5. Use future DWR guidance regarding estimations of the location, quantity, and timing of depletions of interconnected surface water and establish specific sustainable management criteria to sustainably manage depletions of interconnected surface water through a number of actions further described in the letter.

In 2025, the GSA continued implementing projects to address recommended corrective actions, largely funded by the SGM Implementation Grant Program. The ongoing implementation of PMAs, described in **Appendix G**, aims to address these corrective actions effectively through the Periodic Evaluation of the GSP, which is due in January 2027.

1. GENERAL INFORMATION §356.2(A)

The Annual Report for the Wyandotte Creek Subbasin (Subbasin) (5-021.69) was prepared on behalf of the Wyandotte Creek Groundwater Sustainability Agency (GSA) to fulfill the statutory requirements of the Sustainable Groundwater Management Act (SGMA) legislation (§10728) and regulatory requirements developed by the California Department of Water Resources (DWR) included in the Groundwater Sustainability Plan (GSP) regulations (§354.40 and §356.2). The regulations require the GSAs to submit an annual report to DWR by April 1st following the reporting year, which spans the water year (WY) from October 1st to September 30th. This Annual Report is the fifth annual report submitted on behalf of the Subbasin and includes data for the most recent WY 2025 (October 1, 2024, to September 30, 2025). The public seeking information on Wyandotte Creek Subbasin and GSP Implementation, Wyandotte Creek Advisory Board meeting schedules and recordings, and other resources should visit the **Wyandotte Creek Groundwater Sustainability Agency website** (www.wyandottecreekgsa.com).

1.1 Report Contents

This report is the fifth annual report prepared for the adopted Wyandotte Creek Subbasin GSP submitted in January 2022. The first annual report included data elements for the first reporting year, WY 2021, as well as a "bridge year," WY 2020. The second, third, and fourth annual reports contain data only for the current reporting year, WY 2022, WY 2023, and WY 2024, respectively. Data elements presented in this report refer to WY 2025, the 12-month period spanning October 1, 2024, through September 30, 2025, unless otherwise noted. Pursuant to GSP regulations, the Annual Report includes:

- Groundwater Elevation Data
- Water Supply and Use
- Change in Groundwater Storage
- GSP Implementation Progress

1.2 Subbasin Setting

The Subbasin is a 93-square-mile (59,373-acre) area on the eastern side of the Sacramento Valley. The Subbasin is managed by the Wyandotte Creek GSA, formed through a Joint Powers Agreement (Agreement) by three member agencies, including Butte County, the City of Oroville, and Thermalito Water and Sewer District. The GSA has worked to develop and submit a GSP for the Subbasin and to submit Annual Reports every year.

The Subbasin is shown in **Figure 1-1** and **Figure 1-2**. The Subbasin lies in the eastern central portion of the Sacramento Groundwater Basin (**Figure 1-1)**. The Subbasin's northern and eastern boundary is the alluvial basin, the western boundary is the Feather River and the Thermalito Afterbay, and the southern boundary is the Butte-Yuba County line (except for Ramirez Water District, which is fully within the North Yuba Subbasin) (DWR, 2018) (**Figure 1-2)**. The major surface water feature located in the Subbasin is the Feather River, which flows along the Subbasin's western border. Smaller local streams entering and traversing the Subbasin include North Honcut Creek, Wyandotte Creek, Ruddy Creek, and Wyman Ravine. Groundwater generally flows from north to south and northeast to southwest.

The Agreement defines two management areas (MAs) within the Wyandotte Creek Subbasin: Wyandotte Creek Oroville and Wyandotte Creek South. An MA refers to an area within a Subbasin for which a GSP may identify different minimum thresholds (MTs), measurable objectives (MOs), monitoring, and projects and management actions (PMAs) based on unique local conditions or other circumstances as described in the GSP regulations. The interests and vulnerabilities of stakeholders and groundwater use in these MAs vary based on the nature of the water demand (agricultural, domestic, municipal), numbers and characteristics of wells supplying groundwater, and, to some degree, the hydrogeology and mix of recharge sources. Although all stakeholders have a shared interest in the sustainable management of groundwater in this predominantly groundwater-dependent Subbasin, the landscape of beneficial users varies between MAs.

The Wyandotte Creek Oroville MA is predominantly an urban area with three water providers. California Water Service (Cal Water-Oroville) and Thermalito Water and Sewer District (TWSD) provide ground and surface water supplies for residential and municipal/industrial use. South Feather Water and Power Agency (SFWPA) provides surface water supplies for agricultural, residential, and municipal/industrial use. The Wyandotte Creek South MA is dominated by irrigated agriculture dependent on groundwater and, to a lesser extent, surface water diversions primarily from the Feather River. To a limited extent, private domestic wells provide the primary source of water for households or, in some cases, provide a secondary supply for outdoor water use.

The Wyandotte Creek Subbasin GSP estimates the sustainable yield of the Subbasin to be 46,100 acre-feet per year (AFY) based on historical groundwater pumping averages of 47,100 AFY and an average annual decrease in storage of 1,000 AFY (Geosyntec, 2021). In WY 2025, water use in the Subbasin was dominated by agricultural uses, including irrigation of nut and fruit trees, vineyards, row crops, grazing, and rice fields. Municipal and household water use accounts for the remaining water used. Groundwater constitutes the majority of the Subbasin’s water supplies, while surface water constitutes the remaining portion.

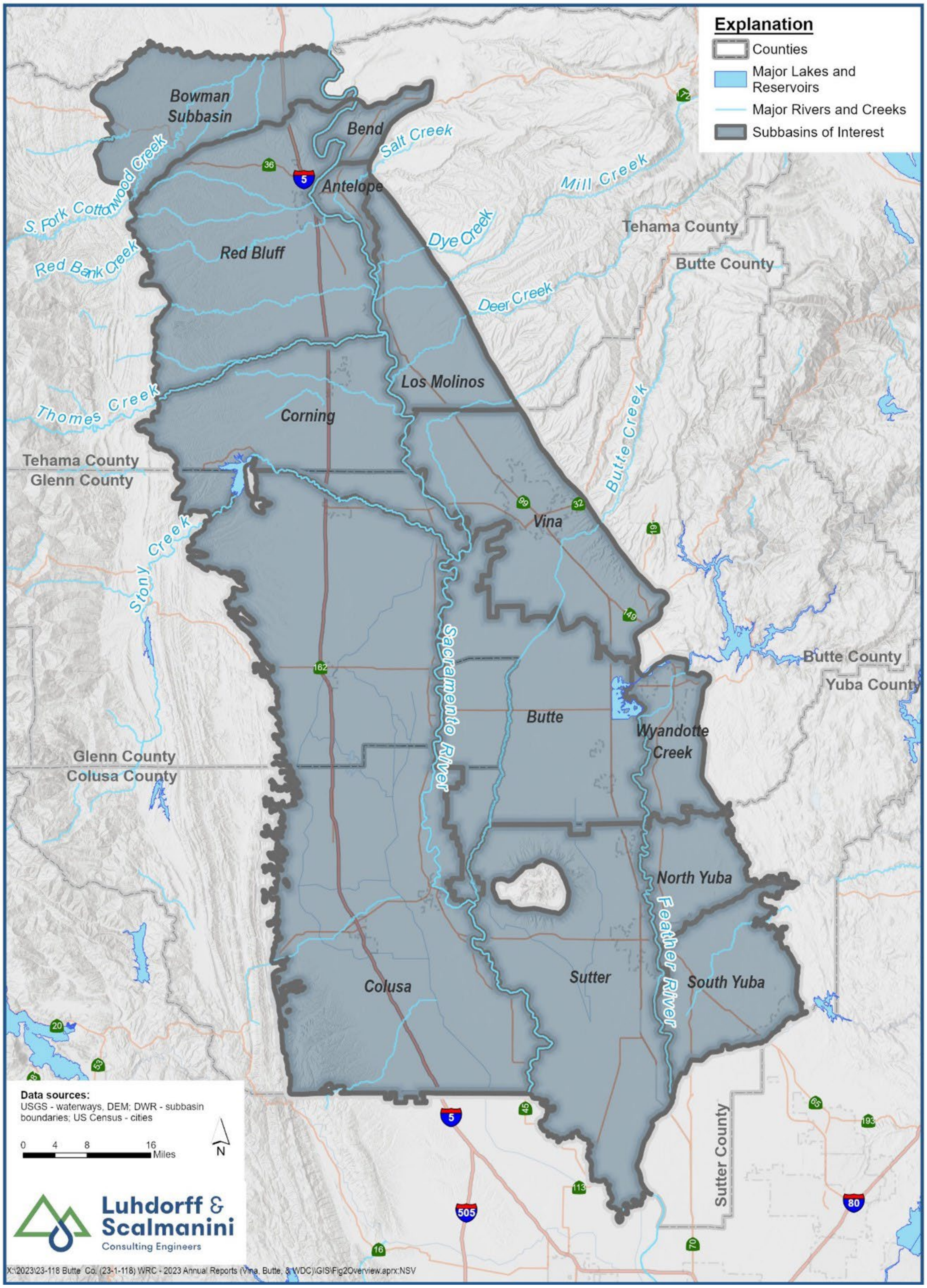

Figure 1-1. Subbasins in the Northern Sacramento Valley

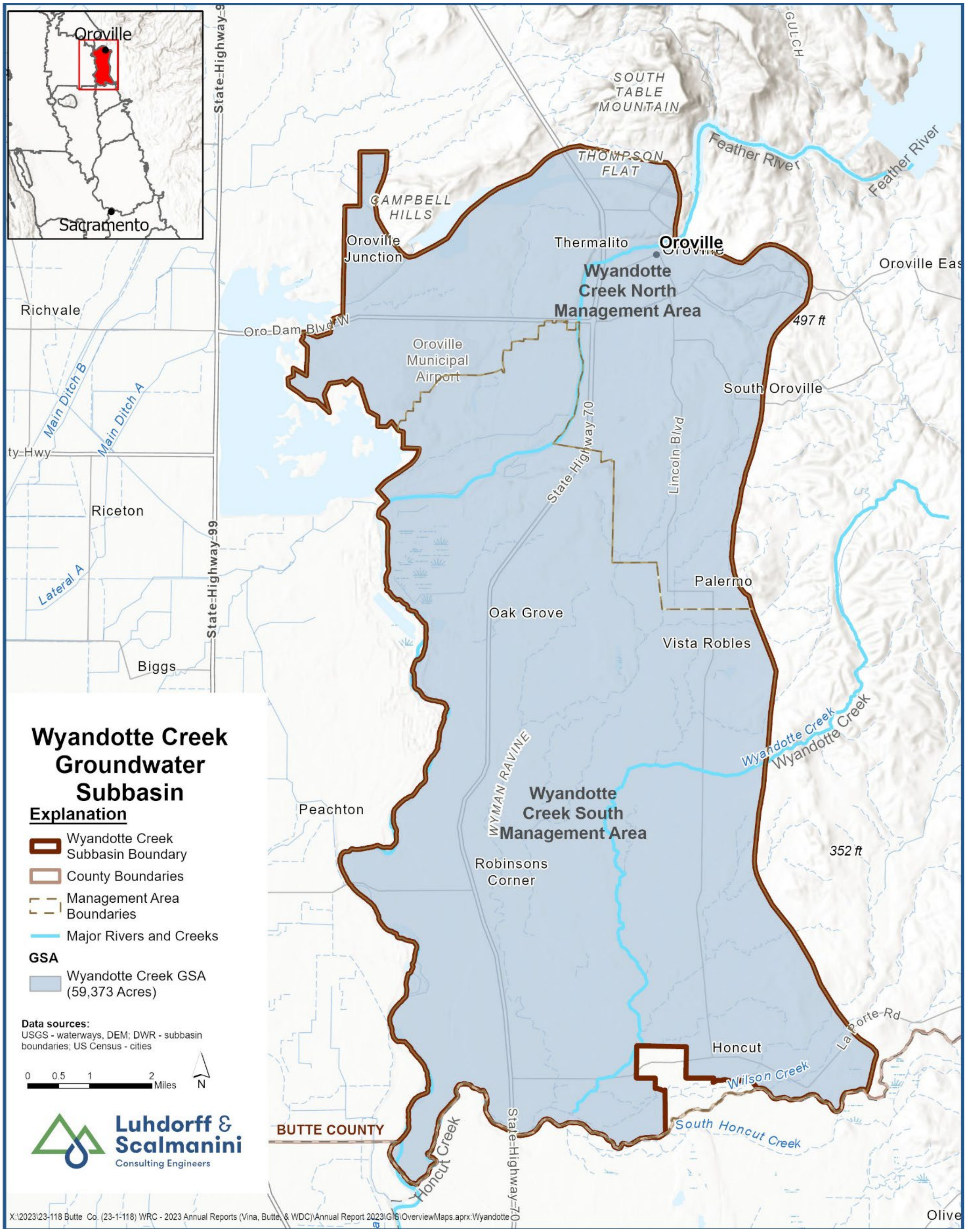

Figure 1-2. Wyandotte Creek Subbasin Groundwater Sustainability Agency Boundaries

2. GROUNDWATER ELEVATIONS §356.2(b)(1)

Groundwater elevations in the Subbasin typically fluctuate seasonally between and within water years, particularly in groundwater-dependent areas or during drought years when groundwater is used to compensate for diminished surface water supplies. Seasonal fluctuations in groundwater levels occur in response to groundwater pumping and recovery, land and water use activities (such as rice flood-up), recharge, and natural discharge. Sources of recharge into the groundwater system include precipitation, applied irrigation water, and seepage from local creeks and rivers.

Groundwater pumping for irrigation typically occurs from April to September, although depending on the timing of rainfall, it may shift earlier and/or later into the season. Consequently, groundwater levels are usually highest in the spring and lowest during the summer irrigation season. Fall groundwater measurements (typically measured in October) provide an indication of groundwater conditions after the primary irrigation season. Groundwater levels follow a variety of patterns in different areas of the Subbasin; however, groundwater generally ranges from about 20 to 140 ft below ground surface and is relatively stable in most of the Subbasin.

Groundwater levels in the Subbasin are monitored at representative monitoring site (RMS) wells that were selected in the GSP to represent localized groundwater conditions for specified areas of the Subbasin. RMS wells include a mixture of domestic wells, irrigation wells, and dedicated observation wells. In total, nine RMS wells are used to monitor conditions in the Subbasin. **Appendix A** includes a map of the approximate locations of the RMS wells and hydrographs depicting groundwater elevations in the RMS wells. The Sustainable Management Criteria (SMC) described in **Appendix B** are assigned to groundwater levels at the RMS wells.

Certain RMS wells, measured by DWR and Butte County, are equipped with data loggers and pressure transducers, which continuously monitor and record hourly changes in groundwater levels. These and the remaining wells in the network are measured by hand at least twice a year (spring and fall) but up to four times each year in March, July, August, and October. Data from groundwater level monitoring wells are available from DWR's online SGMA Data Viewer tool (https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer).

Spring and fall 2025 groundwater elevation measurements from RMS wells in the Subbasin systems are summarized in **Table 5-2**. Groundwater elevation data in the Subbasin is collected by DWR and Butte County and is publicly available from DWR's online SGMA Data Viewer tool (https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer). The groundwater level monitoring methods are consistent with the protocols described in the Wyandotte Creek Subbasin GSP. Depending on the well, groundwater elevations are measured using steel tape, an electric sounder, or a pressure transducer. The accuracy of groundwater level measurements is typically either 0.01 feet or 0.1 feet, depending on the equipment used.

Groundwater elevations have remained on average 17 feet above their MOs over both seasons and well above their corresponding MTs and, therefore, remained within the Subbasin's margin of operational flexibility established for each RMS well. Therefore, none of the RMS wells fell below the MT for two consecutive non-dry years, hence avoiding undesirable results as defined in the GSP.

The following sections provide a summary of groundwater elevations and conditions during WY 2025 through the presentation and description of groundwater elevation contours (**Section 2.1**) and hydrographs of groundwater elevations (**Section 2.2**).

2.1 Groundwater Elevation Contour Maps – §356.2(b)(1)(A)

Groundwater elevation contour maps for spring and fall 2025 were prepared for the Subbasin, as shown in **Figures 2-1** and **2-2**. Spring contours are intended to generally represent seasonal high groundwater elevations (shallower depth to water), while fall contours are intended to generally represent seasonal low groundwater elevations (a deeper depth to water). Groundwater elevation contours were developed by creating a continuous groundwater elevation surface based on available monitoring well data (e.g., monitoring well measurements recorded in March of WY 2025 and the average of February and April measurements recorded for Cal Water wells) using the kriging interpolation method. Questionable groundwater elevation measurements were excluded, and minor adjustments to the contours were made based on professional judgment.

The contour maps of the Subbasin (**Figures 2-1 and 2-2**) each show that groundwater elevations are generally higher in the northern and eastern areas of the Subbasin versus the southern and western areas, indicating a general gradient – and thus groundwater flow from north to south and northeast to southwest.

The contour maps illustrate several general features of the groundwater flow system in the Wyandotte Creek Subbasin, including:

- Overall, west-southwest groundwater flow is consistent with recharge from the north and along the eastern foothills.
- The higher concentration of contours in the central portion of the Subbasin indicates a steeper gradient and could suggest higher groundwater flow. The contours are consistent with the current understanding of recharge coming from the lower foothills.
- New sources of information and data may improve understanding of this area.

Average elevations in fall 2025 tend to be approximately 7 feet lower than elevations in spring 2025 throughout the Subbasin and on elevations in fall 2025 tend to be roughly 3 feet lower than elevations in fall 2024 throughout the Subbasin; groundwater levels are typically lower in the fall months at valley-floor locations due to irrigation-season pumping. However, groundwater levels have increased relative to the same season in the prior year (e.g., spring 2024 to spring 2025) for spring measurements due to above-normal hydrological conditions in 2025.

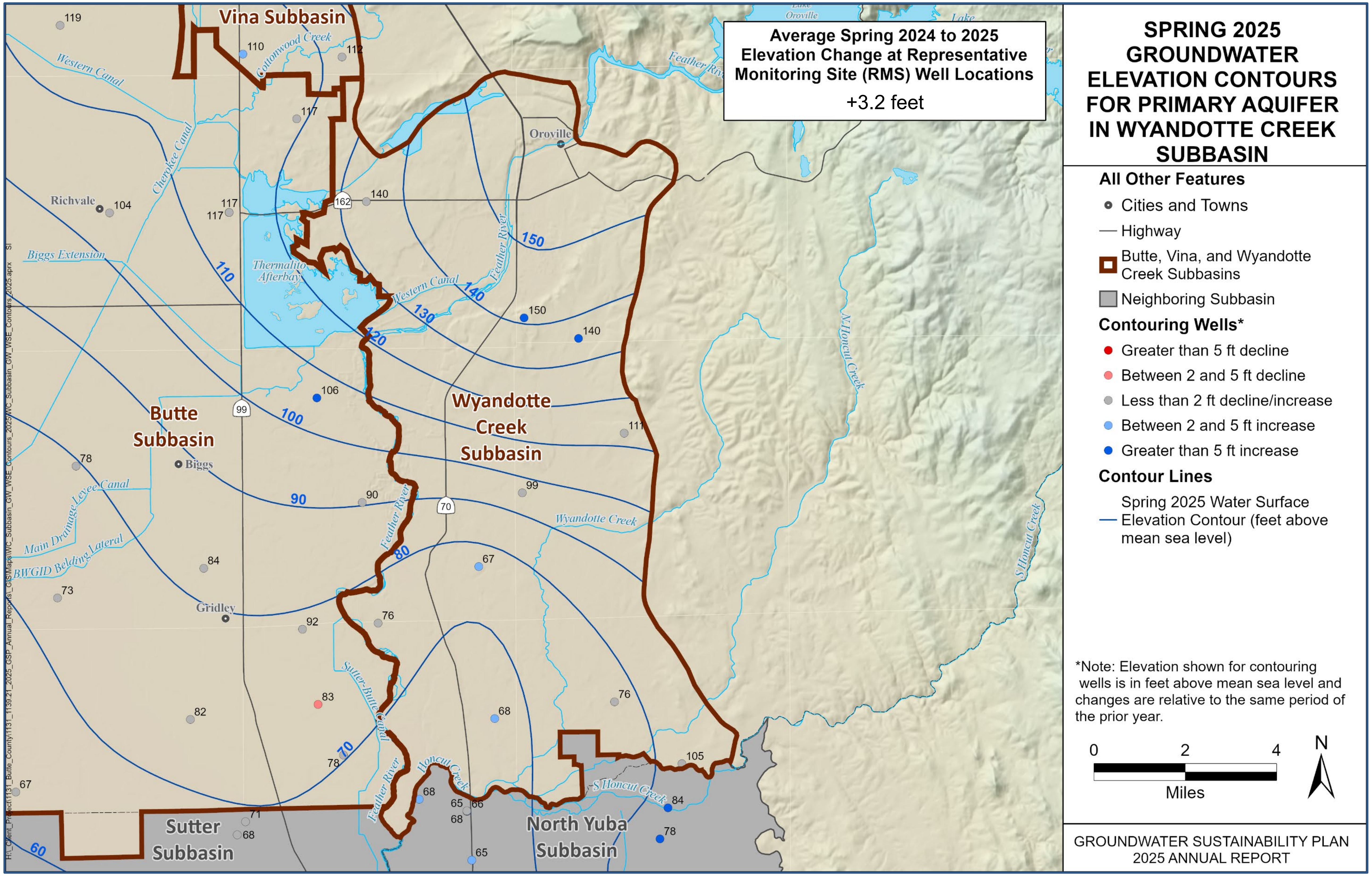

Figure 2-1. Wyandotte Creek Subbasin Contours of Equal Groundwater Elevation, Spring 2025 (Seasonal High)

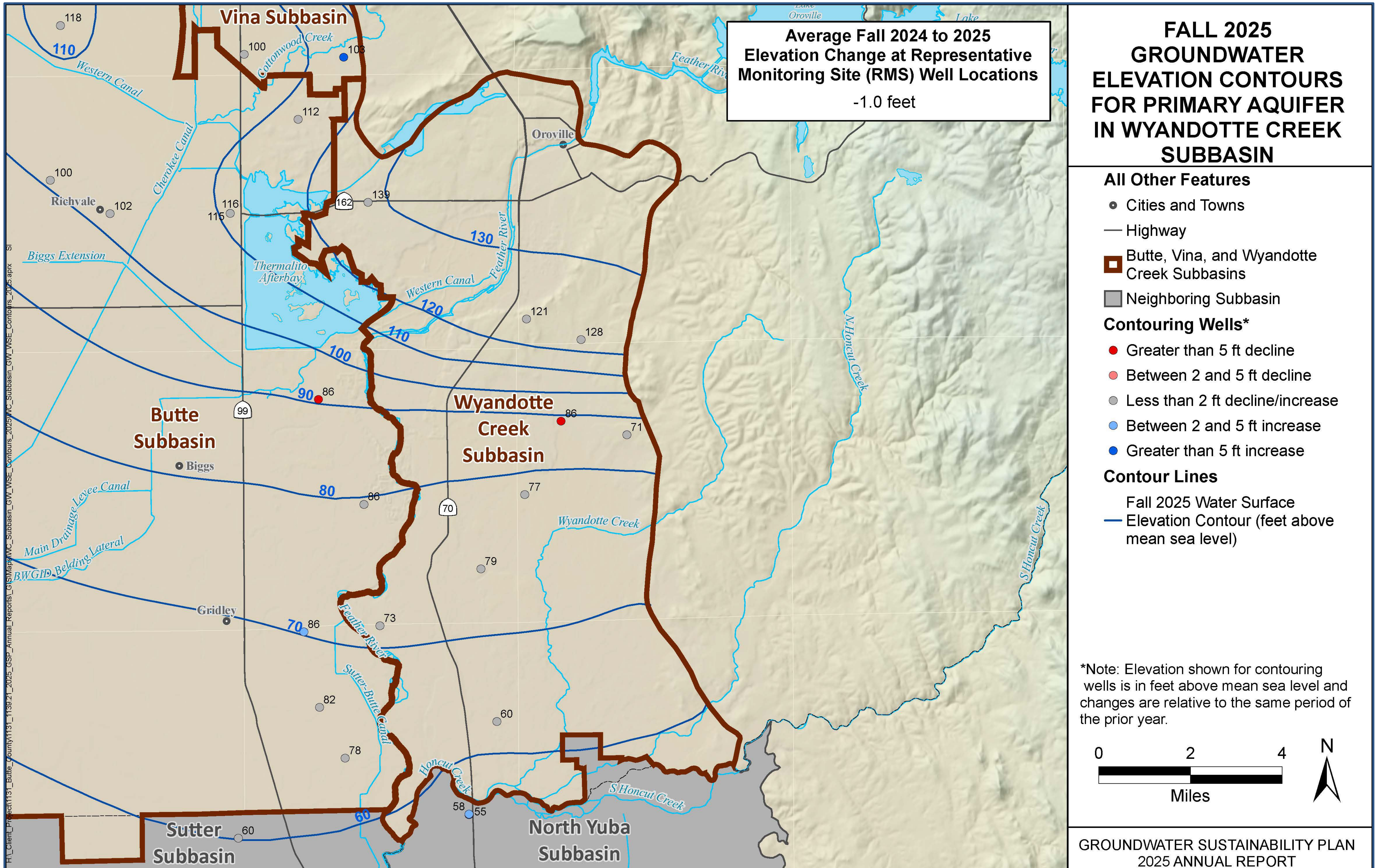

Figure 2-2. Wyandotte Creek Subbasin Contours of Equal Groundwater Elevation, Fall 2025 (Seasonal Low)

2.2 Hydrographs of Groundwater Elevations – §356.2(b)(1)(B)

Groundwater elevation hydrographs for each RMS well are presented in **Appendix A**. The groundwater hydrographs also include a calculation of recent trends at each well. These are calculated based on spring measurements over the previous 10 years (or a shorter period depending on data availability). A linear regression is performed on spring elevations (excluding questionable measurements), and the slope of the regression line is used as the calculated rate of change over this period in feet per year. **Appendix B** provides an explanation of the SMC terminology defined in Section 3 of the GSP (e.g., MT, MO, interim milestone [IM]). **Table 5-1** summarizes the MOs, MTs, and identification of undesirable results for all applicable SIs in WY 2025, and **Table 5-2** contains a summary of the spring 2025 (seasonal high) and fall 2025 (seasonal low) groundwater elevations measured at each RMS well. **Table 5-2** also summarizes the MA each RMS well is located within, the established MO and MT for groundwater elevations, the IMs for 2027, the changes in groundwater elevations from WY 2024 to WY 2025, and the differences between the 2025 groundwater elevations and the MO for each RMS well in the spring and fall.

Groundwater levels have historically remained at or near the MOs in the Subbasin and well above the MTs. The GSP established IMs equal to the MOs in the RMS wells to provide numerical metrics for the GSA to track the Subbasin's conditions relative to the overall sustainability goal every five years, ensuring that the groundwater management in the Subbasin remains sustainable.

Spring and fall 2025 groundwater elevations were generally near or slightly higher than seasonal groundwater elevations in previous years, particularly WY 2024. In WY 2025, the average seasonal high was 111 feet above mean sea level (AMSL), and the average seasonal low was 106 feet AMSL for RMS wells. The WY 2024 average seasonal high was 108 feet AMSL, and the average seasonal low was 103 feet AMSL. Rises in groundwater level elevations generally were expected to result from recharge resulting from above-average WY 2024 and WY 2025 hydrological conditions.

All RMS well groundwater levels remained above the MO during the spring of 2025, as well as most in the fall of 2025. All measured groundwater elevations remained above the corresponding MT of that RMS well, avoiding undesirable results related to groundwater levels as defined in the GSP. On average, groundwater levels in RMS wells were roughly 42 feet higher than MT elevations in fall 2025. All measured groundwater levels remained within the Subbasin's margin of operational flexibility and above the MTs.

3. WATER SUPPLY AND USE

As required by §356.2, this section summarizes water supply and use in the Subbasin, categorized by groundwater, surface water, and total water supply. The total water available for use in the Subbasin was tabulated from groundwater extraction volumes reported in **Table 3-1** and the surface water supply reported in **Table 3-2**. The total water available is summarized in **Table 3-3** for WY 2025. Groundwater extraction volumes are either based on measured data or estimated from a water use analysis based on 2024 land use data and climate conditions. Water use in the Subbasin is reported in **Appendix D**. The water-use analysis methodology is described in **Appendix E**. Surface water use was estimated using historic diversions when records were not available. Groundwater use data was supplied by water districts/municipalities when available.

3.1 Groundwater Extraction – §356.2(b)(2)

Groundwater extraction volumes and percentages by sector in the Subbasin are summarized in **Table 3-1**. Groundwater extraction is reported from pumping records where available, while the remaining groundwater extraction is estimated through the water use analysis approach described in the previous section and in **Appendix E**. In summary, the water use analysis approach uses a Groundwater Extraction Estimates from Earth Observations (GEEEO) model, which estimates unmeasured groundwater extraction for agricultural irrigation by integrating satellite-based evapotranspiration (available from OpenET), land use, climate, and locally available water supply data in lieu of annually updating the groundwater flow model. The methodology quantifies monthly spatially distributed results for applied water demand, effective precipitation, and known surface water supplies, and estimates groundwater extraction to meet the remaining applied water demand on irrigated lands.

The majority of the Subbasin uses groundwater for agricultural irrigation, although portions of the Subbasin may rely on surface water for irrigation. In years characterized by drought and low precipitation, increased agricultural irrigation demand occurs due to less rainfall (i.e., a dry winter or spring may require earlier or additional irrigation) and diminished surface water supplies lead to increased extraction and reduced recharge and can cause a decline in groundwater storage. In contrast, in wet and above-normal years such as WY 2023, WY 2024, and WY 2025, increased precipitation and substantial surface water supplies help to increase recharge and offset extraction and can increase groundwater storage.

Municipal water users extracted approximately 1,800 acre-feet (AF) of groundwater in the Subbasin in WY 2025. Municipal water supplies are measured and provided by Cal Water-Oroville and TWSD. The record of municipal supplies does not distinguish between urban and industrial water uses.

Rural residential water users rely on private domestic wells to meet their household water needs, and approximately 900 AF was extracted in WY 2025. Rural residential groundwater extraction was quantified based on average per capita water use and estimated population. The average per capita water use reported in the California Water Service Chico-Hamilton City District 2020 Urban Water Management Plan 2020 (Cal Water-Chico, 2020) was 181 gallons per capita per day. This is considered representative of rural residential per capita water use in the region. Population estimates were based on average household sizes from the US census and aggregated to those living outside city water district boundaries. Population estimates were used to estimate residential groundwater pumping.

Table 3-1. Wyandotte Creek Subbasin Groundwater Use by Water Use Sector

Sector	WY 2025 (AF)	Percent of Total Groundwater Use
Agricultural	38,100	93%
Municipal	1,800	4%
Rural Residential	900	2%
Total	**40,800**	**100%**

**Percentages may not add up to 100% due to rounding.*

The total estimated groundwater extraction was approximately 40,800 AF in WY 2025, the majority of which was used to meet agricultural water demands (approximately 38,100 AF). The total groundwater extraction is about 5,000 AF lower than the historical (2000-2024) groundwater pumping average (45,800 AFY; **Table 4--1**) and lower than 42,400 AF, which was the average annual extraction of the last four above-normal WYs on record (2000, 2003, 2005, 2024). **Figure 3-1** shows the general areas where extraction occurs by sector. **Figure 3-1** was generated using the following approach: water use by sector was first divided up by water source type as reported by water suppliers (e.g., surface water, groundwater, etc.) and then further divided into sectors based on use type (e.g., agriculture, municipal, mixed use, etc.). The area of municipal extraction is shown alongside areas of agricultural extraction which are limited to coverage of irrigated lands and are divided into those with access to surface water and groundwater and those with access to only groundwater. Most of the total groundwater extraction was used by the agricultural sector, while the remaining amount was used for municipal and rural residential needs.

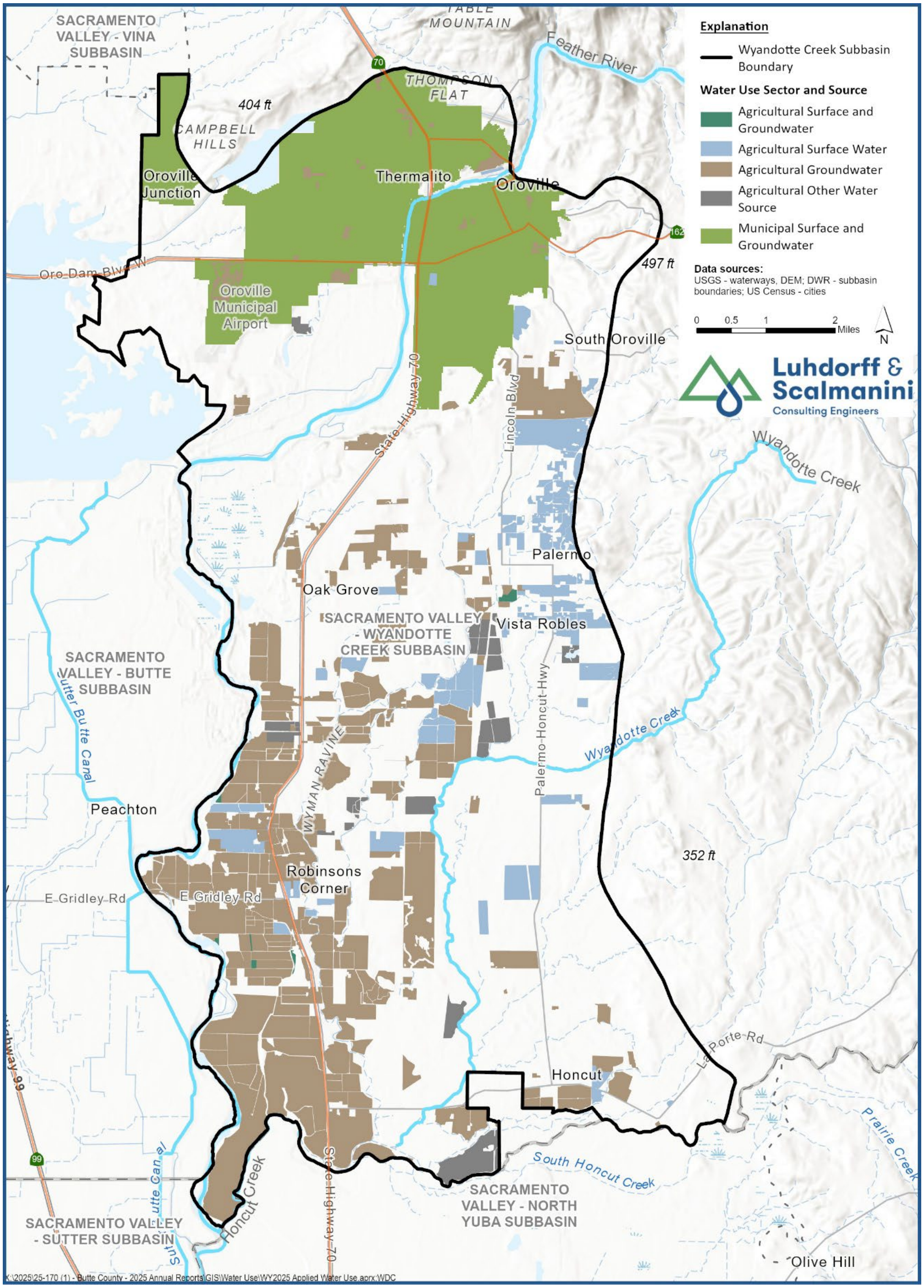

Figure 3-1. Wyandotte Creek Subbasin areas of Groundwater Extraction – WY 2025

3.2 Surface Water Supply – §356.2(b)(3)

Surface water supplies used or available for use in the Subbasin by sector are summarized in **Table 3-2.** Surface water supplies are reported directly from water supplier records or collected from publicly available sources (water rights diversion records, etc.) where available. Missing surface water supply data were estimated based on available historical diversions data in similar water years.

Surface water provided a small portion of the agricultural water demand in the Subbasin for WY 2025. Diversions from the Feather River and Honcut Creek outside of district areas are estimated based on the historic State Water Resources Control Board's (SWRCB) Electronic Water Rights Information Management System (CalWATRS) (SWRCB, 2025) data for total diversions or direct requests from diverters. For the appropriative water rights outside of surface water suppliers, the face value of the water right was taken and multiplied by a local factor of 59%. The local factor is based on an overview of measured deliveries in the area.

Surface water is a significant source of water supply for municipal and/or industrial use (municipal and industrial use are not differentiated in Table 3-2). In total, approximately 21,000 AF of surface water was applied for beneficial uses in the Subbasin in WY 2025, supplying mostly agriculture and also the municipal sector. This includes surface water sourced from the Feather River and Honcut Creek. Surface water use volumes were assembled from multiple sources. For agricultural water use, conveyance losses between points of diversion and application have been estimated. For municipal water use, not enough information is currently known to estimate the differences between diverted and applied (i.e., used or consumed) volumes. However, the difference between diverted and applied volumes represents estimated conveyance losses between these points, such as seepage, evaporation, or spillage.

In contrast with the reduced surface water supplies experienced in WY 2022 (16,200 AF), WY 2025 was an above-normal WY with more substantial surface water supplies (similar to WY 2024). These, combined with above-normal hydrological conditions, supported groundwater recharge and offset groundwater extraction volumes compared to WY 2024.

Table 3-2. Wyandotte Creek Subbasin Surface Water Use by Water Use Sector for WY 2025

Sector	Diverted (AF)	Applied (AF)	Percent of Total Surface Water Use
Agricultural	16,900	15,300	75%
Municipal	5,700	5,700	25%
Total	**22,600**	**21,000**	**100%**

3.3 Total Water Use by Sector – §356.2(b)(4)

Total water demand in the Subbasin for WY 2025 was supplied mostly by groundwater (66%) and surface water (34%). The total water available for use in the Subbasin was tabulated from groundwater extraction volumes reported in **Table 3-1** and the surface water supply reported in **Table 3-2**. The total water available is summarized in **Table 3-3** for WY 2025. The results are either based on measured data or estimates, as described in the previous two sections. **Table 3-3** also shows the total irrigated area in WY 2025 within the Subbasin.

Table 3-3. Wyandotte Creek Subbasin Total Water Use by Water Use Sector

Sector		WY 2025			
	Groundwater (AF)	Surface Water (AF)	Total (AF)	Percent of Total Water Use	Total Sector Area (ac)
Agricultural	38,100	15,300	**53,400**	**86%**	**13,300**
Municipal	1,800	5,700	**7,500**	**12%**	**18,500**
Rural Residential	900	--	**900**	**2%**	**n/a***
Total	**40,800**	**21,000**	**61,800**	**100%**	**31,800**
Percent of Total Water Use	**66%**	**34%**	**100%**		

Notes:

[*] Rural Residential water use is calculated based on population from census data, not area.

3.4 Uncertainties in Water Use Estimates

Estimated uncertainties in the water budget components are presented in **Table 3-4**. The uncertainty of these water budget components is based on typical accuracies given in technical literature and the cumulative estimated accuracy of all inputs used to calculate the components.

Table 3-4. Wyandotte Creek Subbasin Estimated Uncertainty in Water Use Estimates

Water Budget Component	Data Source	Estimated Uncertainty (%)	Source
Groundwater			
Agricultural	Measurement	20%	Typical uncertainty from water balance calculation.
Municipal/Industrial	Measurement / Estimate	5%	Typical accuracy of municipal water system reporting.
Rural Residential	Calculation	15%	Estimated from per capita water use and Census information.
Surface Water			
Agricultural	Calculation	10%[1]	Estimated from the Senate Bill 88 measurement accuracy standards

[1] *Higher uncertainty of 10%-20% is typical for estimated surface water inflows, including un-gauged inflows from small watersheds into creeks that enter the Subbasin.*

4. GROUNDWATER STORAGE

Long-term fluctuations in groundwater levels and groundwater in storage occur when there is an imbalance between the volume of water recharged into the aquifer and the volume of water removed from the aquifer, either by extraction or natural discharge to surface water bodies. If, over a period of years, the amount of water recharged to the aquifer exceeds the amount of water removed from the aquifer, then groundwater levels will increase and groundwater storage increases (i.e., positive change in storage). Conversely, if, over time, the amount of water removed from the aquifer exceeds the amount of water recharged, then groundwater levels decline, and groundwater storage decreases. These long-term changes can be linked to various factors, including increased or decreased groundwater extraction or variations in recharge associated with wet or dry hydrologic cycles.

A review of the RMS well hydrographs (**Appendix A**) indicates that groundwater elevations are relatively stable over time. Since groundwater storage is closely related to groundwater levels, measured changes in groundwater levels can serve as a proxy for and be utilized to estimate changes in groundwater storage. Changes in groundwater storage in the Subbasin follow a pattern typically seen in the majority of the Sacramento Valley. During normal-to-wet years, groundwater is withdrawn during the summer for irrigation and is replenished during the winter through recharge of precipitation and surface water inflows, allowing groundwater storage to potentially rebound by the following spring. During dry years and drought conditions, this pattern is disrupted when more groundwater may be pumped to meet irrigation demand, and less recharge may occur due to reduced precipitation, diminished or curtailed surface water supplies, and lower stream levels resulting in lower groundwater levels and therefore reduced groundwater in storage.

In WY 2025 (an above-normal WY), groundwater storage increased by approximately 19,100 AF in the Subbasin. Factors influencing this storage change include higher precipitation in WY 2025 relative to WY 2024 (which was also an above-normal WY), differing precipitation patterns (which impact effective precipitation), and increased estimated groundwater extractions in WY 2025 relative to WY 2024 (which would result in a decrease in storage if considered in isolation). WY 2025 was the third consecutive year with an increase in storage (corresponding to the third consecutive year with wet or above-normal conditions); this period follows multiple consecutive years with a decrease in storage previously (corresponding to three consecutive years with dry or critical conditions).

The following sections present a summary of groundwater use and change in storage over time, along with a description of the uncertainty in storage change estimates.

4.1 Change in Groundwater Storage – §356.2(b)(5)(B)

Annual groundwater pumping, groundwater storage changes, and the cumulative change in storage over time are presented for WY 2000 through WY 2025 in **Table 4-1** and **Figure 4-1**. In contrast to the dry to critical conditions of WY 2020 through 2022, WY 2025 was an above-normal WY. It continued the trend of wetter conditions in WY 2023 and 2024 and correspondingly saw an increase in groundwater storage of approximately 19,100 AF in the Subbasin.

The historical record since 2000 includes multiple data sources. Groundwater extractions for WY 2000 through WY 2018 were obtained from the Butte Basin Groundwater Model (BBGM) (BCDWRC, 2021), and the water budgets were prepared as part of the Wyandotte Creek Subbasin GSP (Geosyntec, 2021). The WY 2019 and WY 2020 groundwater extraction values were calculated as the average based on the hydrologic year type from WY 2000 to WY 2018. The WY 2021 groundwater extraction estimates were based on a drought-impact analysis conducted around the time of annual report development that year (LSCE, 2022). The WY 2022, WY 2023, and WY 2024 groundwater extraction values were obtained from prior annual reports and were developed using the same methods as WY 2025, as described in **Section 3** and **Appendix E**. Groundwater extractions for the entire period include pumping for agricultural, municipal, and rural residential purposes.

The annual and cumulative changes in groundwater storage are calculated for the period from WY 2000 through WY 2025 based on the methodology described below in **Section 4.2**. This methodology differs from the change in groundwater storage estimates available through the BBGM (which is not shown). An evaluation of a total of 20 pairs of concurrent annual storage changes over the period from WY 1999 through WY 2018 was assembled from the BBGM, and the methodology described in **Section 4.2** was completed to evaluate the consistency of the new methodology with the BBGM results. Although groundwater storage changes differ in some cases, the general trends are similar for this period, and there is agreement between the methodologies. It is anticipated that the methodology described in **Section 4.2** will be utilized for annual report updates until the BBGM model is updated from 2018 through the present (anticipated to be completed as part of the Periodic Evaluation of the GSP due in January 2027, if not sooner).

Table 4-1. Groundwater Extraction, Annual Groundwater Storage Change and Cumulative Change in Storage

Water Year & Type	Groundwater Extraction[1] (AF)	Annual Change in Storage (AF)	Cumulative Change in Storage (AF)
2000 (AN)	49,700	6,600	6,600
2001 (D)	48,000	23,800	30,400
2002 (D)	50,000	-6,800	23,600
2003 (AN)	45,500	-4,600	19,000
2004 (BN)	49,200	14,500	33,500
2005 (AN)	40,400	-7,100	26,400
2006 (W)	43,800	36,500	62,900
2007 (D)	53,200	-28,800	34,100
2008 (C)	57,300	600	34,700
2009 (D)	48,900	-18,800	15,900
2010 (BN)	44,600	3,800	19,700
2011 (W)	38,900	7,600	27,300

2012 (BN)	52,700	3,300	30,600
2013 (D)	51,600	-12,000	18,600
2014 (C)	56,900	-13,600	5,000
2015 (C)[2]	50,900	-4,600	400
2016 (BN)	43,000	12,400	12,800
2017 (W)	33,300	21,400	34,200
2018 (BN)	37,600	19,500	53,700
2019 (W)	38,700	-26,300	27,400
2020 (D)	50,300	-17,000	10,400
2021 (C)[2]	46,300	-3,700	6,700
2022 (C)[2]	45,700	-13,200	-6,500
2023 (W)	34,500	22,300	15,800
2024 (AN)	33,900	11,200	27,000
2025 (AN)	40,800	19,100	46,100
Historic Averages (2000 – 2024)*			
2000-2024 (25 years)	45,800	1,100	
W (5 years)	37,800	12,300	
AN (4 years)	42,400	1,500	
BN (5 years)	45,400	10,700	
D (6 years)	50,300	-9,900	
C (5 years)	51,400	-6,900	

Notes:
GW = Groundwater
Positive values indicate inflows to the groundwater system and negative values indicate outflows from the groundwater system.
Water Year Types Classified According to the Sacramento Valley Water Year Index:
AN = Above-Normal, BN = Below-Normal, C = Critical, D = Dry, W = Wet
[1] *Groundwater extraction values from 2000 to 2018 were determined using BBGM (Davids, 2021). Values for 2019-2020 are averages from that period* based on the hydrologic year type*. Estimates for 2021 were based on a drought impact analysis (**Appendix E**), while estimates for 2022-2024 are based on a GEEEO process, described in the same appendix.*
[2] *Indicates cutback year with reduced surface water supply allocations to water districts and users.*
[3] *The historical average calculation covers the period from 2000 to 2022, excluding the current water year.*

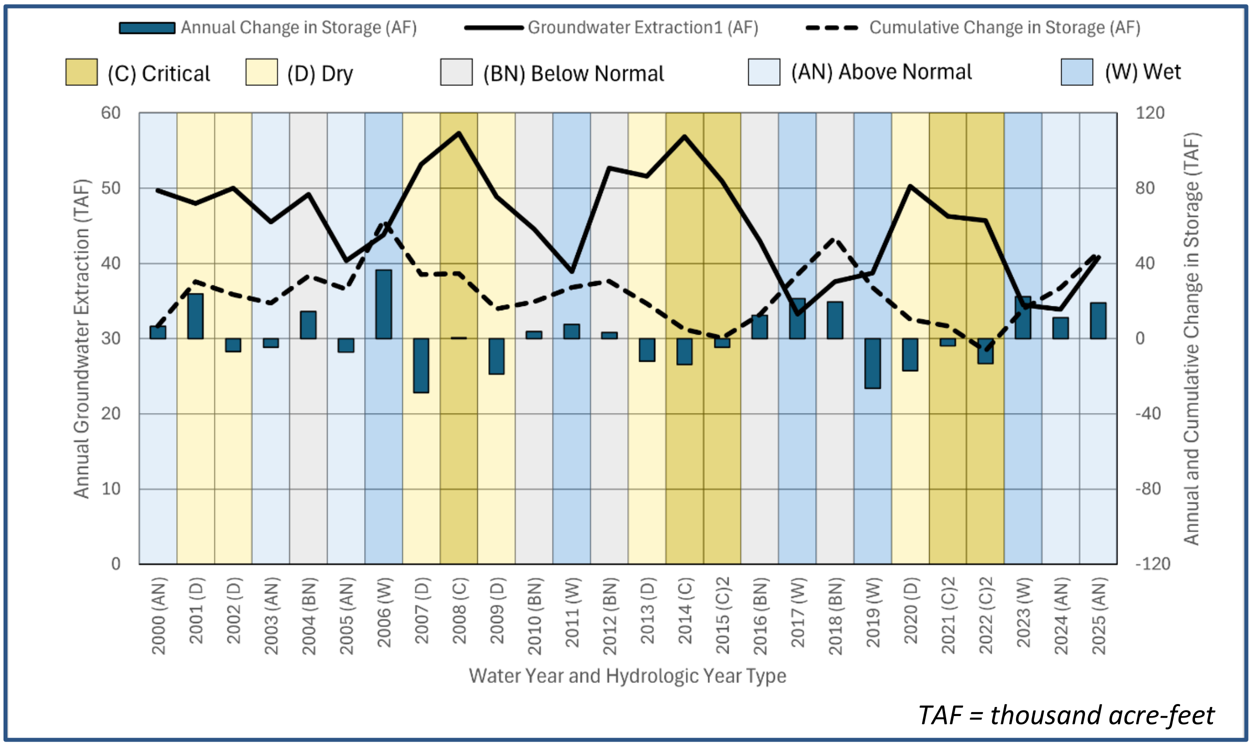

Figure 4-1. Wyandotte Creek Subbasin Groundwater Pumping and Annual and Cumulative Change in Storage from WY 2000 to WY 2025

4.2 Groundwater Storage Maps – §356.2(b)(5)(A)

The spatial distribution of estimated changes in groundwater storage for the Subbasin for the period from spring 2024 to spring 2025 is shown in **Figure 4-2**. Since groundwater storage is closely related to groundwater levels, measured changes in groundwater levels can serve as a proxy for and be utilized to estimate changes in groundwater storage. The change in groundwater storage was estimated based on the change in measured spring-to-spring groundwater levels at each RMS well, multiplied by the area of a Thiessen polygon surrounding that RMS well (defining a representative area for each RMS well) and a representative storage coefficient of 0.1 for the Subbasin.

Spring measurements, as depicted in **Table 5-2**, were used to calculate the change in groundwater storage. The representative storage coefficient was established by roughly calibrating the estimated change in storage based on changes in observed groundwater levels (i.e., calculated using groundwater level data, representative area, and a storage coefficient parameter) with estimated change in storage outputs from the BBGM, as reported in the GSP to aggregate characteristics across all zones of the Subbasin system. A total of 20 pairs of concurrent annual storage changes assembled from both methods over the period from WY 1999 through WY 2018 were used for calibration. Determination of a representative storage coefficient allows for estimating the change in volume of groundwater storage based on the measured change in groundwater levels and known representative area (i.e., Thiessen polygon) associated with each groundwater level measurement.

Negative changes in storage values indicate lowering groundwater levels and depletion of groundwater storage, whereas positive changes in storage values represent rising groundwater levels and accretion of groundwater in storage. As shown in **Figure 4-2**, the change in storage for each representative area (i.e., Thiessen polygon) in the Subbasin over the previous year ranged from no change to over 4,000 AF of positive change. The representative areas in the northern central and central portions of the Subbasin had a larger positive change in storage than other parts of the Subbasin. Total groundwater storage change in the Subbasin was estimated to be approximately 19,100 AF between spring 2024 and spring 2025.

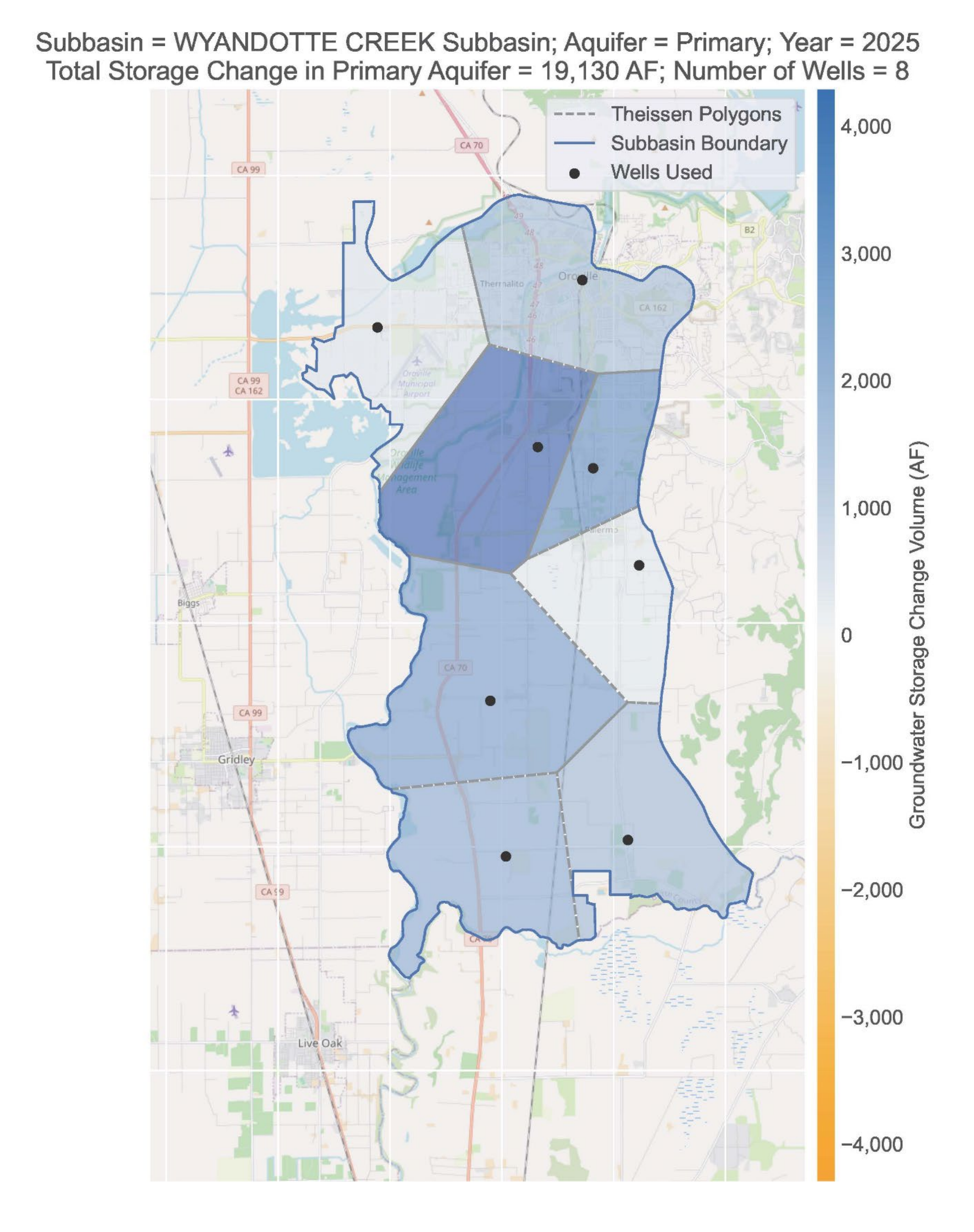

Figure 4-2. Wyandotte Creek Subbasin Change in Groundwater Storage from Spring 2024 to Spring 2025

4.3 Uncertainty in Groundwater Storage Estimates

The uncertainty associated with the change in groundwater storage estimates depends in part on the underlying uncertainty of the groundwater level data, the representative area (i.e., Thiessen polygon), and the calibrated storage coefficient parameter used to calculate the change in groundwater storage. As described in **Section 4.2**, a calibration process was conducted to roughly align the estimated change in groundwater storage based on observed groundwater levels to the estimated change in groundwater storage outputs from the BBGM. Thus, the uncertainty of the estimated change in groundwater storage reported in **Table 4-1** and **Figure 4-2** is estimated to be approximately equal to the uncertainty of the estimated change in groundwater storage outputs from the BBGM (typically 20-30% for integrated hydrologic models).

5. GSP IMPLEMENTATION PROGRESS – §356.2(B)(5)(C)

5.1 Main Activities of Water Year 2025

The main activities and updates from the previous annual report are as follows:

1. All sustainability indicators (SIs) are in compliance with their MTs (see summary **Table 5-1**) with the exception of one well known to have high specific conductivity (SC) concentrations (**Appendix F**).
2. The GSA completed the WY 2025 Annual Report and other critical tasks related to monitoring and data collection.
3. The GSA continued to participate in ongoing intra- and inter-basin coordination.
4. In a previous water year, the GSA adopted a property-related service fee to fund its operations and implementation costs to comply with SGMA. In the 2025 Water Year the GSA Board voted to initiate an updated Fee Study to evaluate funding options for future operations and SGMA implementation.
5. The Wyandotte Creek GSA was awarded about $5.5 million in 2024 to complete specific tasks ranging from, but not limited to, filling data gaps, conducting agricultural efficiency inventory and pilot projects and expanding the capacity at one water treatment plant. This portfolio approach funds various phases of projects listed in the GSP. Implementation of these projects continued in the 2025 WY. More information is summarized in **Appendix G**.
6. Progress has been made on 13 PMAs since the last annual report (**Appendix G**).

The GSP was approved in July of 2023, and DWR proposed five recommended corrective actions that will enhance the GSP:

1. Providing additional information on historical and current groundwater quality conditions in the Subbasin and refining the definition of sustainable management criteria through a number of actions further described in the letter.

2. Providing more information regarding criteria used to identify significant and unreasonable conditions, undesirable results, and the potential impacts to various beneficial uses and users of groundwater related to the chronic lowering of groundwater level minimum thresholds through a number of actions further described in the letter.
3. Revising the definition of undesirable results to remove the non-dry year condition or discuss how degradation during dry periods will be managed as necessary to ensure that adverse water quality conditions are offset during other periods.
4. Providing more information about the criteria used to identify undesirable results and sustainable management criteria for land subsidence through a number of actions further described in the letter.
5. Use future DWR guidance regarding estimations of the location, quantity, and timing of depletions of interconnected surface water and establish specific sustainable management criteria to sustainably manage depletions of interconnected surface water through a number of actions further described in the letter.

In 2025, the GSA continued to implement projects to address recommended corrective actions, largely funded by the SGM Implementation Grant Program. The ongoing implementation of PMAs, described in **Appendix G**, aims to address these corrective actions effectively through the Periodic Evaluation of the GSP, which is due in January 2027.

5.2 Progress Toward Achieving Interim Milestones

Observed conditions for all SIs are in compliance with their MTs (see summary **Table 5-1**). An MT is a quantitative value that represents the groundwater conditions at an RMS that, when exceeded individually or in combination with MTs at other monitoring sites, may cause an undesirable result in the basin per DWR's definition. Whether the MT represents a minimum or maximum value is dependent on the SI. As an example of a minimum, if groundwater levels are lower than the value of the MO for that site, they are moving in the direction of the MT. As an example of a maximum, for the groundwater quality SMC, as the value of the specific conductivity concentration increases from the MO established for that site, it is moving in the direction of the MT. The SIs and SMC, including MTs, are summarized in **Table 5-2**. Seawater Intrusion is not an applicable SI in this Subbasin.

Table 5-1. Wyandotte Creek Subbasin Sustainability Indicator Summary			
2025 Status	**Undesirable Result Identification**	**Measurable Objective (MO) Definition**	**Minimum Threshold (MT) Definition**
Chronic Lowering of Groundwater Levels			
No indication of undesirable results There were no RMS wells with spring or fall 2025 groundwater level measurements below the MT.	When 2 RMS wells within a management area reach their MT for two consecutive non-dry year types.	The groundwater level based on the groundwater trend line for the dry periods (over the period of record) of observed short-term climatic cycles extended to 2030.	Elevation based on the 15th percentile of shallowest domestic wells using the refined DWR database (includes wells installed since 1980), based on the elevation of the bottom of the wells within a 3-mile radius of the RMS well.
Reduction of Groundwater Storage			
No indication of undesirable results There were no RMS wells with spring or fall 2025 groundwater level measurements below the MT.	Groundwater levels are used as a proxy, per SGMA regulations.	Groundwater levels are used as a proxy, per SGMA regulations.	Groundwater levels are used as a proxy, per SGMA regulations.
Degraded Water Quality			
No indication of undesirable results In August of 2025, the SC in portions of 1 RMS well (18N04E19D002-3M) known to have high baseline SC levels, exceeded the MT, however there was no indication of undesirable results	When 2 RMS wells exceed their MT for two consecutive non-dry years.	Measured specific conductivity less than or equal to the recommended Secondary Maximum Contaminant Level (900 µS/cm) based on State Secondary Drinking Water Standards at each well.	The upper limit of the Secondary Maximum Contaminant Level for specific conductivity (1,600 µS/cm) is based on the State Secondary Drinking Water Standards.

Table 5-1. Wyandotte Creek Subbasin Sustainability Indicator Summary			
2025 Status	**Undesirable Result Identification**	**Measurable Objective (MO) Definition**	**Minimum Threshold (MT) Definition**
Land Subsidence			
No indication of undesirable results There were no RMS wells with spring or fall 2025 groundwater level measurements below the MT.	Groundwater levels are used as a proxy, per SGMA regulations.	Groundwater levels are used as a proxy, per SGMA regulations.	Groundwater levels are used as a proxy, per SGMA regulations.
Depletion of Interconnected Surface Water			
No indication of undesirable results There were no RMS wells with spring or fall 2025 groundwater level measurements below the MT.	Groundwater levels are used as a proxy. GSP identifies the data gap and describes the "Interconnected Surface Water Sustainable Management Criteria Framework."	Groundwater levels are used as a proxy, per SGMA regulations.	Groundwater levels are used as a proxy, per SGMA regulations.

Notes:

Salinity is the primary water quality constituent of concern, evaluated by measuring specific conductivity.

MO = measurable objective, MT = minimum threshold, RMS = representative monitoring site, µS/cm = micro siemens per centimeter

5.2.1 Chronic Lowering of Groundwater Levels and Reduction in Groundwater Storage SMC

The reduction in groundwater storage SMC utilizes the chronic lowering of groundwater levels SMC as a proxy (**Table 5-1**). Thus, groundwater conditions related to storage and chronic lowering of groundwater levels are discussed together. Groundwater conditions in the Subbasin are on track to meet the first 5-year 2027 IMs and avoid undesirable results for groundwater levels at each of the RMS wells. In spring 2025, all groundwater elevations were above the established MOs and all were above MTs (DWR, 2025), as indicated in **Table 5-2** which shows measurements from 2025 for spring seasonal highs and fall seasonal lows, along with MOs and MTs. Water level data for non-Cal-Water wells was recorded from measurements taken during the month of March, while water level data for Cal Water wells was recorded as the average of both the February and April measurement for each well. **Table 5-2** also compares the 2025 measurements to those from 2024 and to the measurable objectives. On average, higher water levels were observed in spring 2025 compared to spring 2024 due to continuing above-normal conditions, which has helped to increase recharge and offset extraction, bolstering groundwater storage in the Subbasin.

Table 5-2. Wyandotte Creek Measurable Objectives, Minimum Thresholds, and Seasonal Groundwater Elevations of Representative Monitoring Site Wells

State Well Number	Groundwater Elevation (feet above mean sea level)				MO	MT	Spring 2025 vs. MO (ft)	Fall 2025 vs. MO (ft)	Spring 2025 vs. Spring 2024 (ft) (seasonal high)	Fall 2025 vs. Fall 2024 (ft) (seasonal low)
	2025 Measurements									
	Date Measured	Spring (seasonal high)	Date Measured	Fall (seasonal low)						
Wyandotte Creek North Management Area										
19N03E**16Q001M**	3/20/2025	140.42	10/9/2025	139.12	133	85	7.42	6.12	0.5	-0.4
19N04E**32P001M**	3/20/2025	139.90	10/9/2025	127.50	107	78	32.9	20.5	8.0	2.0
CWS-03	2/1/2025; 4/1/2025*	134.50	10/1/2025	129.00	133	102	1.50	-4	0.5	0
Wyandotte Creek South Management Area										
17N03E**13B002M**	3/20/2025	67.57	10/10/2025	59.57	47	35	20.57	12.57	2.9	2.0
17N04E**09N002M**	3/21/2025	76.26	10/10/2025**	--	49	35	27.26	--	2.4	--
18N03E**25N001M**	3/20/2025	66.56	10/9/2025	79.26	52	37	14.56	27.26	2.3	--
18N04E**08M001M**	3/20/2025**	--	10/9/2025	85.56	86	59	--	-0.44	--	-10.2
18N04E**16C001M**	3/20/2025	110.96	10/9/2025**	--	95	71	15.96	--	0.6	--
19N04E**31F001M**	3/20/2025	150.07	10/9/2025	120.97	99	76	51.07	21.97	8.1	0.9

** Value averaged across two measurements; ** and -- = Indicates missing or questionable measurements.*

[1] The portion of the State Well Number shown in bold, underlined text is the RMS ID.

MO = measurable objective, MT = minimum threshold

5.2.2 Degraded Water Quality SMC

The degraded water quality MT and MO are summarized in **Table 5-1**. Salinity is the main constituent of concern in the Subbasin and is evaluated by SC. Salinity (i.e., SC) is measured at RMS wells throughout the Subbasin, and Butte County collected data in WY 2025. In August of 2025, a non-dry year, portions of one of the multi-completion wells had SC levels exceeding its MT. Measured conditions in the Subbasin were in compliance with minimum thresholds (MTs) for all applicable sustainability indicators (SIs), with the exception of one multi-completion well 18N04E19D001-3M measuring three discrete zones of the aquifer (shallow, intermediate and deep). The intermediate and deep zones of this well had specific conductivity (SC) levels in the groundwater higher than the MT of 1,600 micro siemens per centimeter (µS/cm). The SC value in the intermediate zone of the aquifer was 3,041 µS/cm and the deep zone of the aquifer had an SC value of 6,110 µS/cm in 2025. However, upon completion of this well in 2021, after drilling, this well had high baseline measurements of 2,480 µS/cm and 3,910 µS/cm, in the deep and intermediate zones of the aquifer respectively (see **Appendix F** for more information). Even with this well exceeding its MT, there was no indication of undesirable results as indicated by the GSP.

5.2.3 Land Subsidence SMC

The land subsidence MT and MO are summarized in **Table 5-1**. Only inelastic subsidence, solely due to lowered groundwater elevations, will be considered relevant to the SMC. Data from monuments in the Sacramento Valley Global Positioning System (GPS) Subsidence Monitoring Network were utilized to track cumulative subsidence in the area in 2008 and 2017 (DWR, 2024a) and were used for identifying undesirable results in the GSP; however, these sites have not been measured since then. Observations from the Sacramento Valley GPS Subsidence Monitoring Network are supplemented by Interferometric Synthetic Aperture Radar (InSAR) data provided by DWR on an annual basis (DWR, 2024b) to assess this SMC. InSAR data has a resolution of 0.5 ft and represents average vertical displacement over 100m × 100m areas. Rasters were interpolated from these point measurements. InSAR data was analyzed from October 2024 to October 2025 to track annual changes (**Figure 5-1**), from October 2020 to October 2025 to track net 5-year changes (**Figure 5-2**).

Conditions indicate that there has not been any inelastic land subsidence historically or during the reporting period. Subsidence measured by InSAR from October 2024 to October 2025 was negligible and ranged from 0.002 to 0.05 feet of subsidence within the Subbasin. Uplift measured by InSAR over the 5-year period from WY 2020 to WY 2025 ranged from 0.015 feet to 0.072 feet; no subsidence was recorded. Groundwater conditions in the Subbasin are on track to meet the first 5-year 2027 IMs and avoid undesirable results for land subsidence.

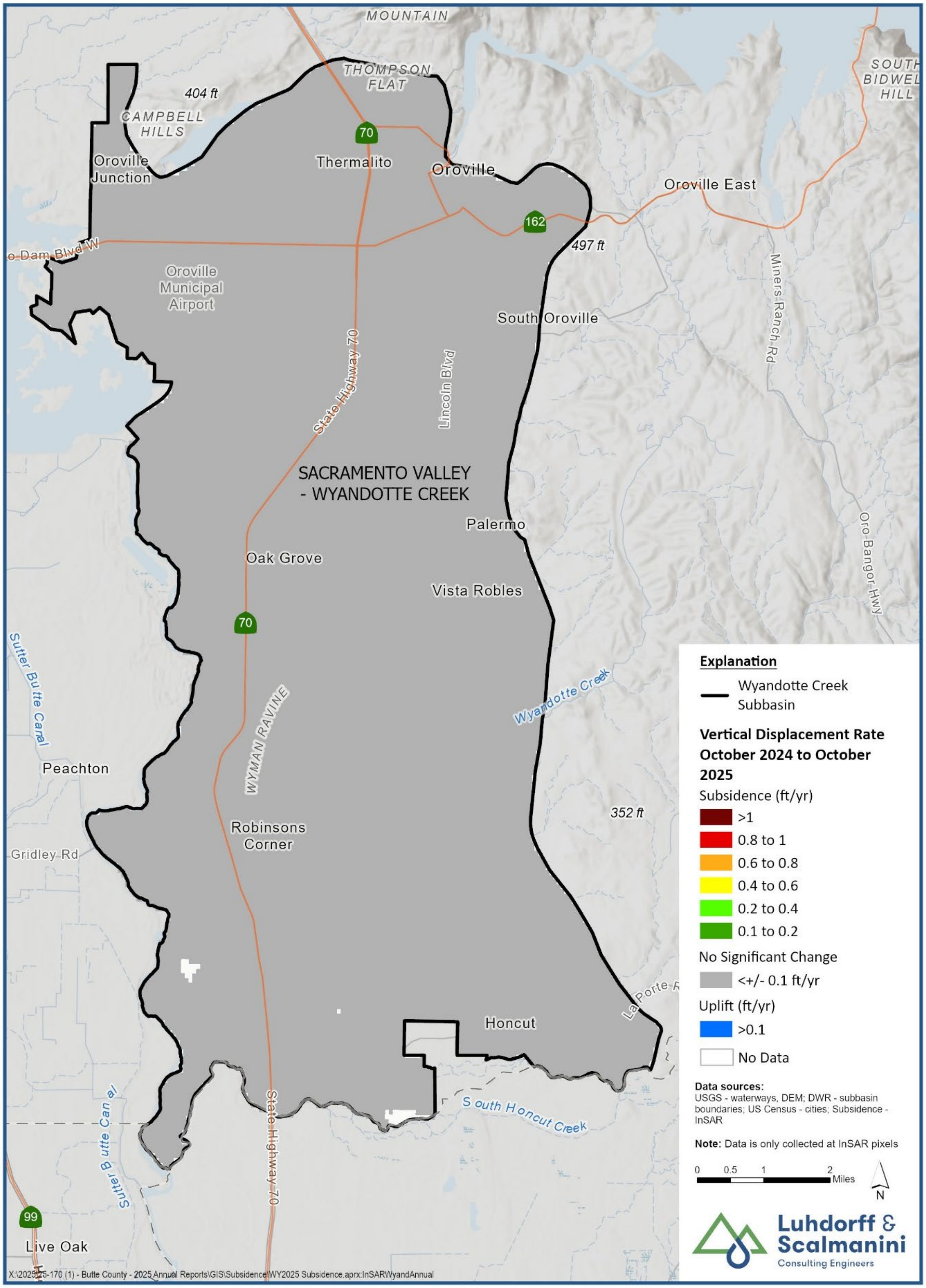

Figure 5-1. Wyandotte Creek Subbasin Vertical Displacement of Ground Surface from 10/2024 to 10/2025 (1-year)

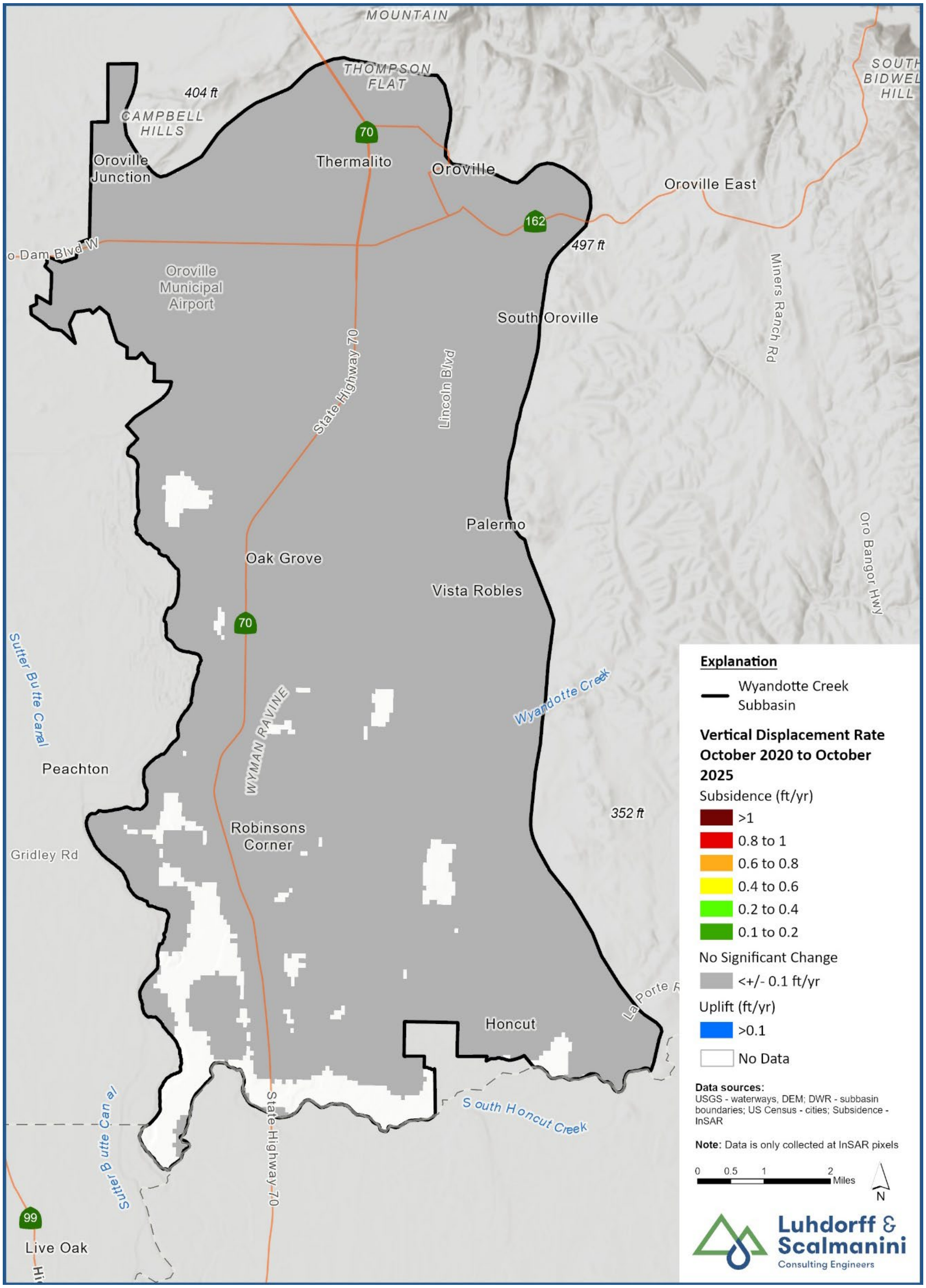

Figure 5-2. Wyandotte Creek Subbasin Vertical Displacement of Ground Surface from 10/2020 to 10/2025 (5-year)

5.2.4 Depletion of Interconnected Surface Water SMC

The depletion of interconnected surface water utilizes the chronic lowering of groundwater levels SMC as a proxy (**Table 5-1**). Groundwater conditions in the Subbasin are on track to meet the first 5-year 2027 IMs and to avoid undesirable results for groundwater levels at each of the RMS wells.

5.3 Progress Toward PMA Implementation

The Wyandotte Creek GSP includes a description of the projects and management actions the GSA has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin. A description of progress towards implementing projects and management actions in the GSP are included in the PMA Module in **Appendix G.**

Groundwater users in the Subbasin benefit from generally stable and shallow groundwater levels supported by naturally occurring recharge and recharge resulting from surface water use in the Subbasin. Surface water supplies available to diverters in the Subbasin are used, when available, for irrigation, agronomic practices, and other projects described in the GSP. Ongoing access to surface water supplies is crucial to preserving the sustainability of the Subbasin.

6. Conclusions

The GSA adopted and submitted the GSP to DWR in January 2022 and continues to actively work on sustainable groundwater management in the Subbasin. As presented in **Section 5** of this report, recent progress made on activities applicable to the GSP demonstrates the commitment of the GSA to implement the GSP by allocating the necessary time and resources to achieve long-term sustainable management of the groundwater resources in the Wyandotte Creek Subbasin.

7. References

Butte County Department of Water and Resource Conservation (BCDWRC). 2021. Model Documentation v 1.0. Butte Basin Groundwater Model. November 30. Available at: https://link.edgepilot.com/s/a85b8542/ed-MKzXTRE2s6z75gqTWxA?u=https://www.buttecounty.net/1117/Water-Resource-Conservation.

Butte County. 2022. Wyandotte Creek Subbasin Annual Report WY 2021. Available at: https://sgma.water.ca.gov/portal/gspar/preview/93. Prepared by Luhdorff & Scalmanini Consulting Engineers and Davids Engineering.

Butte County. 2023. Wyandotte Creek Subbasin Annual Report WY 2022. Available at: https://sgma.water.ca.gov/portal/gspar/preview/246. Prepared by Luhdorff & Scalmanini Consulting Engineers and Davids Engineering.

Butte County. 2024. Wyandotte Creek Subbasin Annual Report WY 2023. Available at: https://sgma.water.ca.gov/portal/gspar/preview/291. Prepared by Luhdorff & Scalmanini Consulting Engineers and Davids Engineering.

Butte County. 2025. Wyandotte Creek Subbasin Annual Report WY 2024. Available at: https://sgma.water.ca.gov/portal/gspar/preview/435. Prepared by Luhdorff & Scalmanini Consulting Engineers and Davids Engineering.

California Data Exchange Center (CDEC). 2024. Water Year Type. Retrieved at: CDEC Water Year Type Dataset - Dataset - California Open Data

California Department of Water Resources (DWR). 2018. 5-021.70 Sacramento Valley-Butte Basin Boundaries Description. Retrieved at: https://data.cnra.ca.gov/dataset/ca-gw-basin-boundary-descriptions/resource/2385b4bd-4858-4902-b98d-19936ee3f21e.

California Department of Water Resources (DWR). 2024. Periodic Groundwater Level Measurements - Datasets - California Natural Resources Agency Open Data. Downloaded November 2024. Available at: https://data.cnra.ca.gov/dataset/periodic-groundwater-level-measurements.

California Department of Water Resources (DWR). 2025. TRE ALTAMIRA InSAR Subsidence Data. Available at: https://data.ca.gov/dataset/tre-altamira-insar-subsidence-data.

California State Water Resources Control Board (SWRCB). 2024. California Water Accounting, Tracking, and Reporting System (CalWATRS). Available at: https://www.waterboards.ca.gov/upward/calwatrs/.

California Water Service Company (Cal Water-Chico). 2020. 2020 Urban Water Management Plan's (UWMP) 2020 Chico-Hamilton City District. Available at: https://www.calwater.com/docs/uwmp2020/CH_2020_UWMP_FINAL.pdf.

Geosyntec Consultants, Inc. 2021. Wyandotte Creek Groundwater Sustainability Plan. Available at: https://sgma.water.ca.gov/portal/gsp/preview/99.

Luhdorff Scalmanini Consulting Engineers (LSCE). 2022. Drought Impact Analysis Study. Prepared for the County of Butte Water and Resource Conversation Department. Available at https://www.buttecounty.net/1240/Drought-Impact-Analysis-Study