Appendix 2-J

Tehama Integrated Hydrologic Model Documentation Report

Tehama County

Sustainable Groundwater Management Act

Groundwater Sustainability Plan

Tehama IHM Model Documentation

January 2022

Prepared For:

Tehama County Flood Control and Water Conservation District

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LIST OF ACRONYMS

AF	acre-feet
ASCE	American Society of Civil Engineers
BMP	Best Management Practices
CDEC	California Data Exchange Center
C2VSim	Central Valley Groundwater-Surface Water Simulation Model
CIMIS	California Irrigation Management Information System
CSS	Composite Scaled Sensitivity
CVP	Central Valley Project
DWR	California Department of Water Resources
ET	Evapotranspiration
Et_a	Actual Evapotranspiration
ET_{aw}	Evapotranspiration of Applied Water
ET_c	Crop Evapotranspiration
ET_o	Daily reference ET
ET_{pr}	Evapotranspiration of Precipitation
Et_r	Alfalfa Reference Evapotranspiration
eWRIMS	Electronic Water Rights Information Management System
ft/d	Feet Per Day
GDE	Groundwater Dependent Ecosystems
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWS	Groundwater System
IDC	Irrigation Demand Calculator
IWFM	Integrated Water Flow Model
Kh	Horizontal Hydraulic Conductivity
Kv	Vertical Hydraulic Conductivity
MAE	Mean of Absolute Residual Error
ME	Residual Error
METRIC	Mapping Evapotranspiration at High Resolution using Internalized Calibration
NRMSE	Normalized Root Mean of Squared Residual Error
PM	Penman-Monteith
PMAs	Projects and Management Actions
PRISM	Parameter Elevation Regression on Independent Slopes Model
R	Linear Correlation Coefficient
RMSE	Root Mean of Squared Residual Error
SEBAL	Surface Energy Balance Algorithm for Land
SGMA	Sustainable Groundwater Management Act
Ss	Specific Storage
SVSim	Sacramento Valley Groundwater-Surface Water Simulation Model
SWRCB	State Water Resources Control Board
SWS	Surface Water System
Sy	Specific Yield
TAF	Thousand Acre-Feet

Tehama IHM	Tehama Integrated Hydrologic Model
USACE	United States Army Corps of Engineers
USBR	United States Bureau of Reclamation
USGS	United States Geological Survey
VIC	Variable Infiltration Capacity
WCR	Well Completion Report
WD	Water District

1. INTRODUCTION

This report documents the development and calibration of the Tehama Integrated Hydrologic Model (Tehama IHM), a numerical groundwater flow model developed for four groundwater subbasins (Antelope, Bowman, Los Molinos, and Red Bluff) within Tehama County to support preparation of the Groundwater Sustainability Plans (GSPs) for the County, along with other future potential groundwater management and planning needs. This report includes a summary of the model platform, data sources, model development and calibration, model scenarios, and model results.

1.1. Background

To support GSP preparation the Tehama County Flood Control and Water Conservation District Groundwater Sustainability Agency (GSA) developed a numerical groundwater flow model covering the Antelope, Bowman, Los Molinos, and Red Bluff Subbasins to address GSP regulations requiring use of a numerical groundwater model, or equally effective approach, to evaluate historical and projected water budget conditions and potential impacts to groundwater conditions and users from the GSP implementation while also providing a broader tool for use in groundwater management decisions in the Subbasins. The development of Tehama IHM is intended primarily to support groundwater resources management activities associated with GSP development and implementation but is also envisioned as a tool that will also support water resources management activities less related to the GSP. Tehama IHM utilizes data and the hydrogeologic conceptualization that are presented and described in the four subbasin GSPs for to improve the understanding of hydrologic processes and their relationship to key sustainability metrics within the subbasins. Tehama IHM provides a platform to evaluate potential outcomes and impacts from future management actions, projects, and adaptive management strategies through predictive modeling scenarios.

1.2. Objectives and Approach

Numerical groundwater models are structured tools developed to represent the physical basin setting and simulate groundwater flow processes by integrating many data types (e.g., lithology, groundwater levels, surface water features, groundwater pumping) that represent the conceptualization of the hydrogeologic setting and processes. Tehama IHM was developed in a manner consistent with the Modeling Best Management Practices (BMP) guidance document prepared by the California Department of Water Resources (DWR) (DWR, 2016). The objective of Tehama IHM is to simulate hydrologic processes and effectively estimate historical and projected hydrologic conditions in the four subbasins related to Sustainable Groundwater Management Act (SGMA) sustainability indicators relevant to Tehama County including:

1. Lowering of Groundwater Levels
2. Reduction of Groundwater Storage
3. Depletion of Interconnected Surface Water

The development of Tehama IHM involved starting with and evaluating the beta version of DWR's Sacramento Valley Groundwater-Surface Water Simulation Model (SVSim) (release data April 29, 2020; DWR, 2020) and eventually carving out a local model domain and conducting local refinements to the model structure (e.g., nodes, elements) and modifying or replacing inputs as needed to sufficiently and accurately simulate local conditions in Tehama County areas within the model domain. SVSim utilizes the most current version of the Integrated Water Flow Model (IWFM) code available at the time of the Tehama IHM development. IWFM and SVSim were selected as the modeling platform due to the versatility

in simulating crop-water demands in the predominantly agricultural setting of the subbasins, groundwater surface-water interaction, the existing hydrologic inputs existing in the model for the time period through the end of water year 2015, and the ability to customize the existing SVSim model to be more representative of local conditions in the area of Tehama County. Tehama IHM was refined from SVSim and calibrated to a diverse set of available historical data using industry standard techniques.

1.3. Report Organization

This report is organized into the following sections:

- Section 2: Model Code and Platform
- Section 3: Groundwater Flow Model Development
- Section 4: Groundwater Flow Model Results
- Section 5: Sensitivity Analysis
- Section 6: Model Uncertainty and Limitations
- Section 7: Conclusions and Recommendations
- Section 8: References

2. MODEL CODE AND PLATFORM

The modeling code and platform utilized for Tehama IHM are described below. As required by GSP regulations, the selected model code is in the public domain. The decision to select the model codes for the Tehama IHM was based on providing Tehama County with a modeling tool that can be used for GSP development with sufficient representation of local conditions, while utilizing to the extent possible, previous modeling tools available, including regional models. With this objective in mind, the model tools and platforms described below were determined to be most suitable for adaptation for use in GSP analyses.

2.1. Integrated Water Flow Model

IWFM is a quasi-three-dimensional finite element modeling software that simulates groundwater, surface water, groundwater-surface water interaction, as well as other components of the hydrologic system (Dogrul et al., 2017). Tehama IHM is developed using the IWFM Version 2015 (IWFM-2015) code, which couples a three-dimensional finite element groundwater simulation process with one-dimensional land surface, river, lake, unsaturated zone, and small-stream watershed processes (Brush et al., 2016). A key feature of IWFM-2015 is its capability to simulate the water demand as a function of different land use and crop types and compare it to the historical or projected amount of water supply (Dogrul et al., 2017). IWFM uses a model layering structure in which model layers represent aquifer zones that are assigned aquifer properties relating to both horizontal and vertical groundwater movement (e.g., horizontal and vertical hydraulic conductivity) and storage characteristics (e.g., specific yield, specific storage) with the option to associate an aquitard to each layer, although represented aquitards are assigned a more limited set of properties relating primarily to their role in vertical flow (e.g., vertical hydraulic conductivity).

The IWFM-2015 source code and additional information and documentation relating to the IWFM-2015 code is available from DWR at the link below:

https://water.ca.gov/Library/Modeling-and-Analysis/Modeling-Platforms/Integrated-Water-Flow-Model

2.1.1. IWFM Demand Calculator

IWFM includes a stand-alone Integrated Water Flow Model Irrigation Demand Calculator (IDC) that calculates water demands. Agricultural water demands are calculated in IDC based on climate, land use, soil properties, and irrigation method whereas urban demands are calculated based on population and per-capita water use. Tehama IHM utilizes IDC to simulate root zone processes and water demands. The physically based IDC version 2015.0.88 (released August 25, 2020) is developed and maintained by DWR.

2.2. SVSim

The SVSim model utilizes the IWFM-2015 code and represents a refinement of the previous California Central Valley Groundwater-Surface Water Simulation Model (C2VSim) coarse grid (CG) and fine grid (FG) models. Refinements made in the development of SVSim include a finer horizontal discretization, an updated aquifer layering scheme, updated hydrogeology, and an extended simulation period through water year 2015 (DWR, 2020). When compared with C2VSim, SVSim improves the simulation of stream-groundwater interaction with thinner shallow model layers and a finer grid adjacent to waterways (DWR, 2020). The SVSim version available from DWR at the time of the initiation of modeling efforts to support GSP preparation in Tehama County was not a calibrated model version. In January 2021, a calibrated Version 1.0 release of SVSim was made available to the public through the California Natural Resources

Agency Open Data website (https://data.cnra.ca.gov/dataset/svsim) and was reviewed and considered during the development of the Tehama IHM. The SVSim Version 1.0 was subsequently removed from the Open Data website and as of the date of this report (September 2021), a calibrated version of SVSim is no longer available.

3. GROUNDWATER FLOW MODEL DEVELOPMENT

This section describes the spatial and temporal (time-series) structure of the model and the input data that was utilized for model development. The model development process utilized data and information that was available at the time of model development and is described in greater detail in the Subbasin GSPs.

3.1. Tehama IHM – Historical Model Simulation

The Tehama IHM historical model simulates the period from October 1985 through September 2019 at a monthly time step, with a calibration period of October 1989 through September 2018. Water years, as opposed to calendar years, are used as the time unit for defining analysis, following the DWR standard water year period (October 1 through September 30). Unless otherwise noted, all years referenced in this report are water years. The historical model calibration period extends from water years 1990 through 2018. Water years 1985 through 1989 are not included as part of the historical calibration period, but are simulated to allow the model sufficient time to adjust to the specified initial conditions and spin-up prior to the calibration period starting in October 1989.

3.1.1. Historical Base Period Selection

In accordance with GSP Regulations, the historical water budget for the Subbasins must quantify all required water budget components starting with the most recently available information and extending back a minimum of 10 years, or as is sufficient to calibrate and reduce the uncertainty of the water budget (23 CCR § 354.18(c)(2)(B)). The historical water budget period effectively represents long-term average hydrologic conditions and enables evaluation of the effects of historical hydrologic conditions and water demands on the water budget and groundwater conditions within the Subbasins over a period representative of long-term hydrologic conditions.

The historical water budget period was selected to evaluate conditions over discrete representative periods considering the following criteria: Sacramento Valley water year type; long-term mean annual water supply; inclusion of both wet and dry periods, antecedent dry conditions, adequate data availability; and inclusion of current hydrologic, cultural, and water management conditions in the Subbasins. The availability of historical data for use in developing model inputs is greatly increased for years since 1990 in the Subbasins.

Based on these criteria, the historical water budget period and model calibration period was selected as water years 1990-2018 (29 years) using historical hydrologic, climate, water supply, and land use data. The period from 1990-2018 is consistent with long-term average historical hydrologic conditions in the Subbasins as illustrated in **Table 3-1**. Further information and discussion of the historical water budget period, including discussion of historical hydrology and the historical base period selection considerations, are presented in **Section 2.3** of the Subbasin GSPs.

Table 3-1. Sacramento Valley Water Year Type Classification of the Historical Water Budget Period (1990-2018)

Sacramento Valley Water Year Type	Abbreviation	Number of Years, 1990-2018	Average Water Year Index	Average Precipitation	Percent Total Years, 1990-2018
Wet	W	8	11.87	28.8	28%
Above Normal	AN	4	8.55	28.1	14%
Below Normal	BN	5	7.07	21.0	17%
Dry	D	5	5.98	17.2	17%
Critical	C	7	4.48	17.1	24%
	Total	**29**	**7.78**	**22.5**	**100%**

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types: Wet (W) ≥9.2; Above Normal (AN) 7.8-9.2; Below Normal (BN) 6.5-7.8; Dry (D) 5.4-6.5; Critical (C) ≤5.4. Precipitation data is based on Red Bluff Municipal Airport station (NOAA station ID USW00024216).

3.1.2. Model Configuration

The Tehama IHM grid of nodes and elements was carved out of the regional SVSim model domain. While Tehama IHM focuses on the Antelope, Bowman, Los Molinos, and Red Bluff Subbasins, the model domain was extended outside the Subbasins to incorporate a buffer that includes area within the Corning, Vina, Anderson, Millville, South Battle Creek, Bend, and Colusa Subbasins. The extent of the buffer is approximately five miles outside of Tehama County, or to the extent of the SVSim model where that extent is less than five miles outside the County. The appropriate extent of the buffer was determined using DWR's C2VSimFG model (DWR, 2021), a calibrated regional model, by testing the radius of influence from pumping wells. The Tehama IHM domain, shown in **Figure 3-1**, encompasses a total of 942,227 acres. All SVSim model features (e.g., nodes, elements, streams, layers) within this domain were initially included in Tehama IHM with subsequent modifications and refinements made within Tehama IHM to these model components, as described in later sections of this report.

3.1.2.1. Nodes and Elements

The Tehama IHM grid contains 5,209 nodes and 5,398 elements (**Figure 3-1**). The X-Y coordinates for node locations are presented in the UTM Zone 10N, NAD83 (meters) projected coordinate system. While the number of nodes and elements within the Tehama IHM domain were not altered from SVSim, the locations of some nodes and elements were modified to more accurately align with added streams being simulated in Tehama IHM. **Figure 3-2** highlights the modified nodes and elements in Tehama IHM. **Table 3-2** presents Tehama IHM grid characteristics.

Table 3-2. Tehama IHM Grid Characteristics

Nodes	5,209
Elements	5,398
Average Element Size (acres)	*175*
Minimum Element Size (acres)	*0.72*
Maximum Element Size (acres)	*2,122*
Subregions	4
Aquifer Layers	9

3.1.2.2. Model Subregions

Model elements are grouped into subregions to assist in the summarization of model results and development of water budgets. Tehama IHM includes four subregions (listed in **Table 3-3**). Subregions were delineated by subbasin. While subregions are used as the basis for summarizing model results, the model simulates hydrologic processes and conditions at the resolution of elements or nodes. **Figure 3-3** shows the extent of the different subregions delineated in Tehama IHM.

Table 3-3. Model Subregions within Tehama IHM

Subregion Name	Actual Acreage	Modeled Acreage
Antelope Subbasin	19,091	19,057
Bowman Subbasin	122,534	122,760
Los Molinos Subbasin	99,422	99,351
Red Bluff Subbasin	271,794	272,155

3.1.2.3. Streams

Tehama IHM includes 29 stream reaches composed of 599 stream nodes. Most of the streams explicitly simulated in Tehama IHM were streams included in SVSim. Streams that were adapted from existing streams simulated in SVSim include Antelope Creek Group, Battle Creek, Cottonwood Creek, Deer Creek Group, Elder Creek, Glenn-Colusa Canal, Mill Creek, Paynes Creek, Sacramento River, Stoney Creek, and Thomes Creek. Streams added to Tehama IHM that were not included in SVSim include Dye Creek and Red Bank Creek. Some of the model nodes were shifted to better align with the actual stream configuration of added streams. The entire stream network included in Tehama IHM is shown in **Figure 3-4**.

3.1.2.4. Model Layers

No adjustments to the layering scheme from SVSim were made in the development of Tehama IHM. Tehama IHM includes a total of nine model layers; in the IWFM model code, model layers can be subdivided into aquifer layers and aquitard layers for representation of different hydrogeologic characteristics within a single model layer. None of the model layers specifically included simulation of an

aquitard layer, although finer-grained zones with potential to impede vertical flow in ways similar to an aquitard were simulated in accordance with the HCM (**Section 2.2 of the GSPs**) and available sediment texture data. **Table 3-4** presents the average thickness of each model layer in Tehama IHM. The uppermost layers are thin in order to better represent surface water-groundwater interaction. As described in the HCM presented in **Section 2.2 of the GSP**, the Subbasin has two primary aquifers: an unconfined to semi-confined Upper Aquifer and a confined to semi-confined Lower Aquifer. In general, model layers 1 through 5 correspond with the Upper Aquifer and layers 6 through 9 correspond with the Lower Aquifer. Further information about the local geology in the Tehama County Subbasins is presented in **Section 2.2 of the Subbasin GSPs**.

Table 3-4. Average Thicknesses of Tehama IHM Layers

Average Model Layer Thickness (feet)	
Layer 1	35
Layer 2	35
Layer 3	40
Layer 4	58
Layer 5	129
Layer 6	193
Layer 7	129
Layer 8	193
Layer 9	515

Elevations and thicknesses of each of the Tehama IHM model layers are shown in **Figures 3-5** through **3-23.**

3.1.3. Land Surface System Inputs

The IWFM Land Surface Process, which includes the IDC, calculates a water budget for four land use categories: non-ponded agricultural crops, ponded agricultural crops (i.e., rice), native and riparian vegetation, and urban areas. The Land Surface Process calculates water demand at the surface, allocates water to meet demands, and routes excess water through the root zone (Brush et al., 2016). The development of land surface system input files built on previous water budget data and analyses related to surface water system water budgets available for some areas of the Subbasins and was expanded to represent the entire Subbasins and a longer analysis period. The development of the land surface system model input files is described in the following section with additional detail provided in **Section 2.3 of the GSPs**.

3.1.3.1. Precipitation

For water years 1985-2019, monthly precipitation data for all elements and small watersheds in Tehama IHM were derived from the Parameter Elevation Regression on Independent Slopes Model (PRISM) system, which is operated by the PRISM Climate Group at Oregon State University. PRISM combines weather and climate data from various monitoring station networks, applies a range of modeling

techniques, and develops gridded spatial climate parameter datasets for grid cells across the United States at a spatial resolution of four kilometers (NACSE, 2021). Building on previous water budget analysis work, monthly precipitation data sets were downloaded for the coordinates nearest the centroid of each element or watershed in Tehama IHM. The monthly data sets were quality controlled and provided as model inputs for the nearest corresponding element or small watershed. PRISM gridded precipitation data were extracted and interpolated, as needed, for each element in the Tehama IHM model domain, and for the centroid of each small watershed upgradient to the Tehama IHM model domain. Precipitation inflows to each small watershed were calculated as the monthly precipitation depth derived from PRISM data, applied over the total area of that small watershed.

3.1.3.2. Evapotranspiration

Monthly evapotranspiration (ET) time series data were refined for water years 1985 through 2019. Monthly ET rates were developed for individual crop types using the best available science, as described in this section.

3.1.3.2.1 Reference Evapotranspiration Development

Daily reference ET (ET_o) values for calendar years 1985-2019 were based on measured weather data obtained from the California Irrigation Management Information System (CIMIS) "Gerber" station (CIMIS station ID 008) and "Gerber South" station (station ID 222). Data from the Gerber CIMIS station were used to represent average ET_o in the Tehama County Subbasins. The Gerber CIMIS station was used because of its long period of record and generally high-quality data compared to other CIMIS stations located in or near Tehama County. When the Gerber CIMIS station became inactive in 2014, data were obtained from the Gerber South CIMIS station. Daily time series data were evaluated following standard quality control procedures recommended by the American Society of Civil Engineers (ASCE) and others (Allen, 1996; Allen et al, 1998; Allen et al, 2005; ASCE, 2016).

For any days when quality control procedures resulted in refinements to any weather data, daily ET_o values were determined following the widely accepted standardized Penman-Monteith (PM) method, as described by the ASCE Task Committee Report on the Standardized Reference Evapotranspiration Equation (ASCE-EWRI, 2005). The Task Committee Report standardizes the ASCE PM method for application to a full-cover alfalfa reference (ET_r) and to a clipped cool season grass reference (ET_o). The clipped cool season grass reference is widely used throughout California and was selected for this application. For any days when quality control procedures did not result in refinements to weather data, ET_o values reported by the station were used directly. The combined daily ET_o time series record was used to calculate crop evapotranspiration inputs for all years in the Tehama IHM historical scenario.

3.1.3.2.2 Crop Evapotranspiration Development

Crop evapotranspiration (ET_c), or crop consumptive use, represents the volume of water that is lost to the atmosphere through both evaporation from soil and transpiration from crop surfaces. ET_c time series data are provided as inputs to the Tehama IHM. As part of the internal model processes, the Tehama IHM apportions these ET_c values between ET_{pr} and ET_{aw} by water use sector (based on land use type), as required by the GSP Regulations.

ET_c for each crop and land use class in the Tehama County Subbasins was calculated using the "crop coefficient – reference crop ET" methodology. In this method, daily ET_o values are adjusted to represent

the unique and varying daily ET_c rates of other specific crops throughout their growing seasons using specific crop coefficient curves. Daily crop coefficient curves for major crops, native vegetation, and urban areas were derived using spatial land use data, daily ET_o values, and actual ET (ET_a) estimates determined from satellite imagery using two remote sensing surface energy balance models – the Surface Energy Balance Algorithm for Land (SEBAL) (Bastiaanssen, et al. 2005) and Mapping Evapotranspiration at High Resolution using Internalized Calibration (METRIC) (Allen, et al. 2007a). SEBAL and METRIC estimates of ET_a account for actual, observed conditions in the Tehama County Subbasins that affect crop consumptive use, such as salinity, deficit irrigation, disease, fertilization, immature permanent crops, and crop canopy structure, and other factors. Studies by Bastiaanssen et al. (2005), Allen et al. (2007b, 2011), Thoreson et al. (2009), and others have found that when performed by an expert analyst, seasonal ET_a estimates by these models are expected to be within five percent of actual ET determined using other reliable methods.

Spatially distributed ET_a results were available with spatial cropping data for 2009 (SEBAL) and 2017 (METRIC). Crop coefficient curves developed using 2009 SEBAL results were used to calculate ET_c values during water years 1983-2014, and crop coefficient curves developed using 2017 METRIC results were used to calculate ET_c values during water years 2015-2019.

3.1.3.3. Land Use

Characterizing historical land use is foundational for accurately quantifying how and where water is beneficially used. Land use areas are also used to distinguish the water use sector in which water is consumed, as required by the GSP Regulations. In the Tehama County Subbasins, water use sectors include agricultural, urban, and native vegetation land uses. The urban water use sector covers all urban, residential, industrial, and semi-agricultural land uses. See **Section 2.1 of the Subbasin GSPs** for more detail on land use in the Subbasins.

In the Antelope Subbasin, on average, agricultural, urban, and native vegetation land uses covered approximately 8,900 acres, 1,900 acres, and 8,300 acres, respectively, between 1990 and 2018. The total acreage of each water use sector has remained relatively steady over time, with only a slight increase in native vegetation corresponding with a slight decrease in agricultural area during the late 2000s and early 2010s. Historically, a majority of the agricultural area in the Antelope Subbasin has been comprised of orchards (primarily walnuts, prunes, and almonds) and pasture, with varying acreage of grain and hay crops over time. The overall orchard acreage has generally increased since the early 2000s. **Figure 3-24** summarizes annual land use over the historical period (1990-2018) in the Antelope Subbasin.

In the Bowman Subbasin, on average, agricultural, urban, and native vegetation land uses covered an average of 5,800 acres, 1,500 acres, and 115,100 acres, respectively, between 1990 and 2018. Since 1990, approximately 1,200 acres of native vegetation in the Bowman Subbasin has been converted to agricultural and urban land uses. Historically, irrigated pasture has been the predominant agricultural land use in the Bowman Subbasin. Other irrigated crops include mainly alfalfa, grain, and various orchard crops, especially walnuts, almonds, and prunes. Flood irrigation is typically used to support pasture, alfalfa, and grain crops in the Bowman Subbasin. **Figure 3-25** summarizes annual land use over the historical period (1990-2018) in the Bowman Subbasin.

In the Los Molinos Subbasin, on average, agricultural, urban, and native vegetation land uses covered approximately 18,200 acres, 1,600 acres, and 79,500 acres, respectively, between 1990 and 2018. The total area of each water use sector has remained relatively constant over time, though slight expansion

of urban land uses in the 1990s coincided with a similar decrease in agricultural acreage. Historically, a majority of the agricultural area in the Los Molinos Subbasin has been comprised of pasture and various orchard crops, especially walnuts and prunes. The total area used to cultivate these primary crops has remained relatively constant over time, though the composition of orchard crops has shifted in recent years, with decreased acreage of prunes and increased acreage of walnuts. Slight decreases in agricultural land use have instead resulted from loss of other irrigated crop areas, such as alfalfa, grain, and safflower. **Figure 3-26** summarizes annual land use over the historical period (1990-2018) in the Los Molinos Subbasin.

In the Red Bluff Subbasin, on average, agricultural, urban, and native vegetation land uses covered approximately 36,000 acres, 6,400 acres, and 229,500 acres, respectively, between 1990 and 2018. Since 1990, the total area of native vegetation has decreased by approximately 10,000 acres, corresponding with a similar increase in agricultural acreage. Historically, a majority of the agricultural area in the Red Bluff Subbasin has been comprised of pasture, grain, and various orchard crops. Since the early 2000s, irrigated agricultural areas within the Red Bluff Subbasin have expanded, primarily due to increases in orchard acreage, especially walnuts and almonds. **Figure 3-27** summarizes annual land use over the historical period (1990-2018) in the Red Bluff Subbasin.

3.1.4. Surface Water System Inputs

The IWFM Surface Water Process calculates a water budget along each stream reach between inflows and outflows, including stream-groundwater interactions (Brush et al., 2016). The development of surface water system input files is explained in this section.

3.1.4.1. Stream Characteristics

Stream bed parameters were taken from SVSim for those stream nodes extracted from the SVSim regional model. For additional stream nodes in Tehama IHM, stream bed parameters were developed through review of stream characteristics of similar water features represented in SVSim and those characteristics were adopted for the new stream segments, as appropriate, using professional judgement and local knowledge of stream characteristics. Stream bed parameters, particularly stream bed conductivity, were further refined during the calibration process.

3.1.4.2. Surface Water Inflows

Surface water inflows into the model domain were specified in Tehama IHM for 16 surface water inflow locations shown in **Figure 3-28.** Surface water inflows to Tehama IHM were taken from SVSim or developed from data reported by the United States Geological Survey (USGS) or the United States Army Corps of Engineers (USACE), or some adjustment or correlation of these sources as noted in **Table 3-5**. Streamflow gage data were used to quantify surface water inflows, where available, through water year 2019.

Table 3-5. Information Sources to Quantify Surface Water Inflows

Waterway	Information Source
Antelope Creek	Correlation with USGS Gage 11381500
Battle Creek	USGS Gage 11376550
Black Butte Releases to Stony Creek	BLB report from USACE
Cottonwood Creek (North Fork, Middle Fork, South Fork)	SVSim inputs
Deer Creek	Correlation with USGS Gage 11383500
Dye Creek	SVSim inputs for small watershed 325
Elder Creek	USGS Gage 11379500
Mill Creek	USGS Gage 11381500
Paynes Creek (and Sevenmile Creek)	Correlation with USGS Gage 11381500
Red Bank Creek	USGS Gage 11379500 (assumed to be same as Elder Creek)
Sacramento River	SVSim inputs, adjusted to Tehama IHM model domain boundary
Stony Creek (North Fork, South Fork)	SVSim inputs
Thomes Creek	Correlation with USGS Gage 11376000

The primary surface water inflow to the Tehama IHM model domain is the Sacramento River, which flows along the boundaries of all four Subbasins. A regional SVSim model was run to adjust the Sacramento River inflows from the upstream inflow point simulated in the SVSim model domain to the inflow point in the Tehama IHM model domain.

Two additional stream reaches were added to the Tehama IHM representing inflows to Red Bank Creek and Dye Creek. Neither reach was discretely modeled in SVSim, though Dye Creek was taken to be equivalent to SVSim small watershed inflow 325. The Dye Creek inflow therefore replaced small watershed inflow 325.

3.1.4.3. Surface Water Diversions and Deliveries

Surface water diversions and deliveries were simulated in the model as diversions from a stream node with an assigned delivery destination (referred to as the element group). A total of 50 surface water diversions are included in Tehama IHM, with 30 adapted from SVSim and 20 newly added or revised in Tehama IHM. Diversion locations are shown in **Figure 3-29**. **Table 3-6** summarizes the data sources and used to quantify diversions and spillage within the four Subbasins in the Tehama IHM model domain.

Diversions and spillage of supply that is used within the four Subbasins are generally quantified based on outside data sources, including: delivery records reported by the United States Bureau of Reclamation (USBR), groundwater management or water planning documents developed by water agencies, and publicly available records maintained by the State Water Resources Control Board (SWRCB) in the

Electronic Water Rights Information Management System (eWRIMS). For water agencies without available spillage data, the percent spillage was estimated based on the conveyance system type (canal versus pipe), and the assumption that systems of adjacent suppliers or suppliers with similar systems have the same average spillage fraction.

Diversions of supply used outside the subbasins are generally assumed to be equal to diversions data specified in SVSim. Those diversions specified in SVSim that were retained unchanged, or with only slight area modifications in the Tehama IHM model domain are identified in **Table 3-6.**

Deliveries are generally calculated by Tehama IHM as the water supply used to meet simulated crop water demands, after accounting for seepage, evaporation, and spillage of the diverted supply.

For agencies that span portions of more than one subbasin, diversions, deliveries, and losses are also distributed across the relevant subbasins.

Table 3-6. Information Sources to Quantify Diversions and Spillage Within the Four Subbasins.[1]

Water Agency	Volume Specified		Delivery Location in Tehama IHM Domain Relative to Four Subbasins					Information Source	Note
	Diversion	Spillage	Antelope	Bowman	Los Molinos	Red Bluff	Outside		
Rio Alto Water District	X			X				USBR CVP delivery records (Sacramento River)	No reported volume in historical water budget period, not listed as CVP contractor in 2016.
Anderson-Cottonwood Irrigation District	X	X		X			X	USBR CVP delivery records (Sacramento River)	Service area boundaries partly overlie the Bowman Subbasin, areas in the Tehama IHM model domain but outside the subbasins, and areas outside the model domain; prorated diversion to percent irrigated area in the model domain; CVP delivery records available 1997-2019, estimated by average monthly volume earlier; Spillage fraction from 2012 Sacramento Valley Regional Water Management Plan, estimated to be similar in all years
Stanford Vina Ranch Irrigation	X	X			X			South Main Diversion: Water Data Library Site A04330 "SVWC Deer Creek South Diversion near Vina"; Cone Kimball and North Main Diversion: Tehama Regional Water Supply Inventory	South Main diversion records available 2002-2005, estimated in other years by correlation with Deer Creek Irrigation District diversion; Cone Kimball and North Main diversions estimated from relative fractions given in Table 4-9 of Tehama County Water Inventory and Analysis Report, estimated to be similar in all years; Spillage fraction estimated to be similar to Deer Creek Irrigation District
Deer Creek Irrigation District	X	X			X			Diversions: Water Data Library Site A43100 "DCID Deer Creek Diversion near Vina"; Spillage: 2011 Deer Creek Irrigation District	Diversion records available 1999-2016, estimated average monthly volume in other years; Spillage fraction from 2006-2007 water balance analysis, average estimated to be similar in all years

Water Agency	Volume Specified		Delivery Location in Tehama IHM Domain Relative to Four Subbasins					Information Source	Note
	Diversion	Spillage	Antelope	Bowman	Los Molinos	Red Bluff	Outside		
								Long Term System Improvements Feasibility Study	
Los Molinos Mutual Water Company	X	X	X		X			Upper Diversion and East Ditch Diversion: Los Molinos Mutual Water Company 2018 Northside Water Use Efficiency Master Plan; Ward Diversion: Los Molinos Mutual Water Company Southside Service Area Water Budget Results and Analysis	Diversion and spillage volumes based on Northside and Southside water budgets (2010-2017), diversions estimated by average monthly volume in other years, average spillage estimated to be similar in all years
Proberta Water District	X	X				X		USBR CVP delivery records (Corning Canal deliveries)	Volume of total CVP deliveries prorated based on contract amount; District has a piped conveyance system with approximately zero spillage, seepage, or evaporation.
Corning Water District	X	X					X	USBR CVP delivery records (Corning Canal deliveries)	Volume of total CVP deliveries prorated based on contract amount; District has a piped conveyance system with approximately zero spillage, seepage, or evaporation.
Thomes Creek Water District	X	X				X	X	USBR CVP delivery records (Corning Canal deliveries, prorated based on contract amount)	Volume of total CVP deliveries prorated based on contract amount; Spillage fraction estimated to be similar to Deer Creek Irrigation District
Thomes Creek Water Users Association	X						X	eWRIMS (S022584)	Diversion data in 2014, 2016-2019, estimated by average monthly volume in other years; Spillage estimated to

Water Agency	Volume Specified		Delivery Location in Tehama IHM Domain Relative to Four Subbasins					Information Source	Note
	Diversion	Spillage	Antelope	Bowman	Los Molinos	Red Bluff	Outside		
									occur through runoff (estimated zero spillage fraction; outside Subbasins)
Kirkwood Water District	X						X	USBR CVP delivery records (Tehama-Colusa Canal deliveries)	Spillage estimated to occur through runoff (estimated zero spillage fraction; outside Subbasins)
Edwards Ranch	X	X	X					eWRIMS (S003134, S016326)	Diversion data when available, estimated by average monthly volume in other years; Spillage fraction estimated to be similar to Los Molinos Mutual Water Company (northside)
The Nature Conservancy	X	X	X		X			eWRIMS (S020690, S028341, S028342, S028354)	Diversions are assumed to be applied to the Los Molinos Mutual Water Company service area; Diversion data when available, estimated by average monthly volume in other years; Spillage fraction estimated to be similar to Los Molinos Mutual Water Company (northside)
J.B. Unlimited, Inc.	X		X					USBR CVP delivery records (Sacramento River)	Diversion estimated by contract amount; Spillage estimated to be zero (Direct diverter, estimated to occur through runoff)
Leviathan, Inc.	X			X				USBR CVP delivery records (Sacramento River)	Diversion estimated by contract amount; Spillage estimated to be zero (Direct diverter, estimated to occur through runoff)
Micke, Daniel and Nina	X		X					USBR CVP delivery records (Sacramento River)	Diversion estimated by contract amount; Spillage estimated to be zero (Direct diverter, estimated to occur through runoff)
Sacramento River RM 273 to misc.	X			X			X	SVSim Div ID 14	Volume and specifications unchanged from SVSim (misc. diversions of relatively small volume mainly outside

Water Agency	Volume Specified		Delivery Location in Tehama IHM Domain Relative to Four Subbasins					Information Source	Note
	Diversion	Spillage	Antelope	Bowman	Los Molinos	Red Bluff	Outside		
Ag diverters (03_NA)									Bowman Subbasin; assumed that SVSim data were the best available)
Cottonwood Creek to misc. Ag diverters (02_NA)	X			X			X	SVSim Div ID 16	Volume and specifications unchanged from SVSim (misc. diversions of relatively small volume; assumed that SVSim data were the best available)
Elder Creek riparian diversions for Ag (04_NA)	X					X		SVSim Div ID 27	Volume and specifications unchanged from SVSim (misc. diversions of relatively small volume; assumed that SVSim data were the best available)
Tehama-Colusa Canal Losses (Import)	X					X	X	SVSim Div ID 35	Volume and specifications unchanged from SVSim (misc. canal losses; assumed that SVSim data were the best available)

[1] Other diversions specified in SVSim that are outside the four subbasins, but inside the Tehama IHM model domain, are retained with the same monthly volumes and specifications as established in SVSim, except those that are duplicates of diversions specified in this table.

3.1.4.4. Surface Water Bypasses

Surface water bypasses defined in the model simulate the movement of surface water between different waterways based on specified volumes or fractions. These bypasses can be used to simulate flood bypasses or water system operations. Twenty surface water bypasses were included in Tehama IHM. These bypasses represent conveyance losses from surface water diversions.

3.1.5. Groundwater System Inputs

The IFWM Groundwater Flow Process balances subsurface inflows and outflows and manages groundwater storage within each element and layer (Brush et al., 2016). The development of groundwater system input files is explained in this section.

3.1.5.1. Aquifer Parameters

At the time of the commencement of GSP analyses in the Subbasins, SVSim was not available in a calibrated form. Therefore, aquifer parameters were defined in Tehama IHM through subsurface lithologic textural analysis in conjunction with calibration of parameters based on texture. Aquifer parameters in Tehama IHM are assigned to each node for each model layer and were developed to represent subsurface hydrogeologic characteristics.

3.1.5.1.1 Lithologic Texture Data

A lithologic texture model was developed using borehole lithology data from 672 Well Completion Reports (WCRs) located within the model domain. Lithology and texture data for 615 of these well WCRs were obtained from the textural dataset developed utilized for SVSim and available from DWR, which included considerable textural data from the US Geological Survey (USGS) Central Valley Hydrologic Model (CVHM). Texture data were compiled from an additional 57 wells selected to fill spatial (lateral and vertical) gaps in the SVSim textural dataset using information available in WCRs. Textural classification of additionally compiled lithology data (i.e., identifying coarse or fine-grained texture categories based on lithological descriptions given in WCRs) was performed following procedures used by DWR and USGS in developing the initial textural dataset using lookup tables for classifying lithology descriptions by texture. Consistent with the approach by DWR in developing the SVSim textural dataset, the texture of “top soil” description given in WCRs was determined using the Natural Resources Conservation Service SSURGO soils data.

Translating the point textural dataset to a continuous textural model for use in Tehama IHM was done by assigning values for the percent coarse at each textural borehole datapoint to each model layer penetrated by the borehole and then interpolating percent coarse by layer across the entire model domain. In this process, the intervals of fine and coarse-grained textured sediments were calculated for model layers at each WCR location and the thickness-weighted percentage of coarse-grained materials within each model layer were estimated. Using values for percent coarse-grained materials by model layer at each borehole point, spatially continuous datasets representing the percentage of coarse-grained materials were developed for each model layer through point interpolation methods. Interpolation was performed using ordinary kriging interpolation tool in the ESRI ArcGIS software package, which applies a semivariogram approach. An appropriate semivariogram model was selected through exploration of the data. The resulting kriged spatial distribution of percent coarse by model layer is shown in **Figures 3-30** through **3-38**. During model development and calibration, aquifer parameters were assigned to model nodes and layers using parameter values specified for both the fine and coarse end members and relating

these to the percent coarse values developed from the textural model. The process used to assign and calibrate aquifer parameters in the model based on the percent coarse values are described in the discussions of model calibration in **Section 3.2** of this document.

3.1.5.1.2 Aquifer Parameter Zones

To better represent the geology within the Tehama IHM domain, a set of aquifer parameter zones were developed to enable for more refined assignment of aquifer parameters based on the lithologic texture values, especially recognizing that aquifer properties for similar textured materials (based on the textural model) may differ by geologic formation. Informed by the HCM, four zones (Alluvium, Tehama Formation, Tuscan Formation, and Non-Tehama/Non-Tuscan Zone) were delineated for using multipliers applied to parameter values derived from the textural data. The extents of the different geologic units used to delineate aquifer parameter zones are shown in **Figures 3-39** through **3-42**.

The alluvium zone is present in layers 1 and 2. The extent of this zone was developed after review of surficial geology maps. The Tehama Formation, Tuscan Formation, and Non-Tehama/Non-Tuscan Zone are present in all model layers. Maps illustrating the assignment of nodes to parameter zones within layers 1 and 2 are presented in **Figure 3-43**, and within layers 3 through 9 are presented in **Figure 3-44**. The discussion of the calibration of aquifer parameters using the parameter zones described above, and the results of the model calibration, are presented in **Sections 3.2 and 4.7** below.

3.1.5.2. Boundary Conditions

Tehama IHM utilizes time-varying general head boundary conditions to simulate groundwater levels and fluxes at the extent of the model domain. A map of nodes where general head boundary conditions were specified in the model is presented in **Figure 3-45**. In specifying general head boundary conditions, hydraulic conductance was estimated at each boundary node by layer based on average horizontal hydraulic conductivity (Kh), cross-sectional area associated with each boundary node (product of distance between nodes and saturated layer thickness), and the distance from the model boundary (set as 1,000-feet). Transient historical water level boundary conditions were developed by using the interpreted initial head conditions in 1985 and applying relative changes for each model time step based on simulated water levels from the calibrated version of SVSim provided by DWR for each model time step for the period 1985 to 2015. Because the available version of SVSim only simulates conditions through 2015, substitute years based on similar water year conditions were used to extend the simulated heads in SVSim through 2019 using relative water levels changes. Some additional refinements were made to the boundary conditions after comparing modeled water levels to observed data.

3.1.5.3. Groundwater Pumping

Pumping within Tehama IHM is primarily determined by element based on land use characteristics and simulated demand and is calculated internally by the IDC to meet both agricultural and urban demands after available surface water deliveries have been accounted for. The vertical distribution of pumping by layer in Tehama IHM was modified from SVSim based on review of well construction information in DWR's WCR database for wells within the model domain. Agricultural and urban pumping were distributed vertically based on well construction information data in DWR's Online System for Well Completion Reports (OSWCR) for respective well types. In an effort to represent wells that are likely or potentially active in the model area, WCRs classified as well constructions (as opposed to well destructions) since 1970 in the OSWCR database were used to assign the vertical distribution of pumping in Tehama IHM.

The vertical distribution of pumping does not change over the historical simulation period. Maps of the vertical distribution of agricultural pumping by layer are presented in **Figures 3-46** through **3-54** and for urban pumping by layer in **Figures 3-55** through **3-63**.

3.1.6. Small Watersheds

A total of 33 small watersheds were included in Tehama IHM from SVSim. **Table 3-7** summarizes the contributions of small watersheds to modeled streams. Modifications were made to SVSim small watersheds to properly route water through the additional streams modeled in Tehama IHM. Nodes receiving small watershed contributions are shown in **Figure 3-64**.

Table 3-7. Summary of Tehama IHM Small Watersheds

Streams Fed by Small Watersheds	Count of Contributing Watersheds	Total Contributing Watershed Acreage
Antelope Creek Group	7	34,861
Cottonwood Creek	1	1,904
Elder Creek	3	2,645
Mill Creek	1	272
Paynes Creek	2	3,021
Sacramento River	15	120,921
Thomes Creek	4	16,055
TOTAL	**33**	**179,679**

3.1.7. Initial Conditions

Initial groundwater levels conditions for Tehama IHM were generated from mapped groundwater conditions based on groundwater level contours developed from observed data in conjunction with simulated water level output from SVSim regional model for October 1984, which represents the start of the historical model period. Available historical groundwater level data were used to interpret groundwater elevations across the domain in Fall 1985 for use in representation of initial model water level (head) conditions. The Upper Aquifer (Layers 1 through 5) were assigned initial head conditions from the interpreted observed groundwater surface. Initial heads in the Lower Aquifer (Layers 6 through 9) were then assigned by applying an offset to the observed groundwater levels based on observed offsets between depths from nested monitoring wells. Initial water level conditions used in the historical Tehama IHM runs are shown in **Figures 3-65** through **3-73**. All other initial conditions (e.g., soil moisture) were specified using the simulated conditions in October 1984 from SVSim.

3.2. Model Calibration

Tehama IHM was calibrated using a trial and error approach in conjunction with utilization of automated calibration and parameter estimation techniques involving application of UCODE-2014, an inverse modeling computer code developed by the US Geological Survey. Automated techniques were used at stages during the calibration to explore model sensitivity and inform the trial and error calibration efforts.

The calibration process focused on adjusting key model parameter values to improve the fit of simulated historical groundwater levels and streamflows to observed (measured) data. The key model parameters included in calibration were aquifer properties and streambed properties.

Aquifer parameters were developed by assigning end member values to the percent coarse-grained materials in the textural model described in **Section 3.1.5.1.1** of this report. Texture end member values are the aquifer parameter values at the two ends of the percent coarse spectrum, either 100% (coarse) or 0% (fine). The equations used to calculate the aquifer parameter values for each node and layer from the specified end-member values are presented below. For aquifer parameter zones where a multiplier was included in the calibration, the multiplier was applied to the parameter values resulting from calculations using these equations. The equations used for estimating aquifer parameters from textural model information are consistent with the methods used and described in development of the hydrogeologic conceptual model and model parameterization for SVSim (DWR, 2020).

Horizontal hydraulic conductivity (Kh) is calculated using the following equation:

$$Kh = (PCT * ({Kh_{C0}}^{pKh}) \ + \ (1 - PCT) * ({Kh_{F0}}^{pKh}))^{\frac{1}{pKh}}$$

Where: PCT is the percent coarse

Kh_{C0} is the Kh end member of coarse materials

Kh_{F0} is the Kh end member of fine materials

pKh is the power law empirical parameter for Kh

Vertical hydraulic conductivity (Kv) end members are calculated through application of an anisotropy ratio ($Kv \ / \ Kh$) to the Kh endmember values. The Kv value at each node and layer is then calculated using the following equation:

$$Kv = (PCT * ({Kv_{C0}}^{pKv}) \ + \ (1 - PCT) * ({Kv_{F0}}^{pKv}))^{\frac{1}{pKv}}$$

Where: PCT is the percent coarse

Kv_{C0} is the Kv end member of coarse materials

Kv_{F0} is the Kv end member of fine materials

pKv is the power law empirical parameter for Kv

Specific storage (Ss) is calculated using the following equation:

$$Ss \ = \ PCT * Ss_C \ + \ (1 - PCT) * Ss_F$$

Where: PCT is the percent coarse

Ss_C is the Ss end member of coarse materials

Ss_F is the Ss end member of fine materials

Specific yield (Sy) is calculated using the following equation:

$$SY = PCT * Sy_C + (1 - PCT) * Sy_F$$

Where: PCT is the percent coarse

Sy_C is the Sy end member of coarse materials

Sy_F is the Sy end member of fine materials

Calibrated end member values are presented in **Section 4.9** of this report.

Observations used in the calibration of aquifer parameters included approximately 7,900 groundwater level observations from 93 wells across the model domain selected based on historical data record, well construction, and spatial representation (lateral and vertical distribution) (**Figure 3-74**).

Streambed properties adjusted during the calibration included streambed conductivity. Observations used to constrain stream bed parameters included approximately 3,900 stream flow measurements from 12 gage stations (**Figure 3-75**). The results of the model calibration are presented and discussed in **Section 4.8** below.

3.3. Tehama IHM – Projected Model Simulations

The projected model simulations are intended to evaluate the effects of anticipated future conditions of hydrology, water supply availability, and water demand on the Tehama County Subbasins water budget and groundwater conditions over a 51-year GSP planning period from WY 2022 through 2072 starting October 1, 2022 and ending September 30, 2072. The projected model scenarios incorporate consideration of potential climate change and water supply availability scenarios and evaluation of the need for and benefit of any projects and management actions to be implemented in the Subbasins to maintain or achieve sustainability. The projected model scenarios use hydrologic conditions representative of the most recent 50 years of hydrology in the Subbasins, with adjustments applied in scenarios for evaluating the water budgets under climate change and/or altered water supply and demand conditions. The entire projected simulation period runs from WY 2020 through 2072, on a monthly time step, although the 51-year GSP planning period evaluated in the projected modeling covers water years 2022 through 2072. The development of the projected scenarios in Tehama IHM is described in the following sections.

3.3.1. Projected Hydrology Selection and Development

Establishing a sequence of projected hydrology is key to the development of the projected model scenarios. Future hydrology model inputs were developed based on review and consideration of the recent 51 years of hydrology for 1969-2019 and utilization of a hydrologic sequence that replicates the hydrologic patterns and trends over this period. Because of the availability of higher quality data and characterization of conditions in the Subbasins during the most recent 29 years spanning the historical base period (1990-2018), the projected analyses used surrogate years from the historical period to construct a future hydrology and analysis period representative and consistent with hydrologic conditions over the 51-year period from 1969 to 2019. Surrogate years from the historical period were assigned to represent 51 years of future hydrology based on 1) the Sacramento Valley water year index from DWR for each year and 2) mimicking variability (wet and dry) in the historical precipitation conditions in the Subbasins and replicating precipitation consistent with the annual average historical precipitation.

The projected water year type and assigned surrogate water years for use in developing the projected hydrology are shown in **Table 3-8a.** The frequency of water year types used in the projected hydrology is representative of the 51 years of hydrology for the period 1969-2019 and includes approximately equal proportions of water years with above normal (wet and above normal; 49%) and below normal (below normal, dry, critical; 51%) hydrologic conditions (**Table 3-8b**). **Figures 3-76 and 3-77** show graphs of the precipitation cumulative departure from the mean based on data at the Red Bluff and Orland Stations, respectively, over the projected period. The overall averages and cumulative departure curves highlight how closely the projected hydrology (using surrogate years) mimics the recent 51-year period. The average annual precipitation in the projected simulation period is 22.9 inches at the Red Bluff Municipal Airport station (**Table 3-8b**), similar but slightly below the average annual precipitation over the 51-year historical period from 1969 through 2019 of 23.3 inches at the Red Bluff Municipal Airport station. For comparison, the average annual precipitation over the historical water budget period of 1990-2018 is 22.5 inches based on measurements at the Red Bluff Municipal Airport station (**Table 3-1b**).

Table 3-8a. Summary of Projected Water Years in Tehama IHM

Simulation WY	WY Type	WY Index
1991	C	4.21
1992	C	4.06
1993	AN	8.54
1994	C	5.02
1995	W	12.89
1996	W	10.26
1997	W	10.82
1998	W	13.31
1999	W	9.8
2000	AN	8.94
2001	D	5.76
2002	D	6.35
2003	AN	8.21
2004	BN	7.51
2005	AN	8.49
2006	W	13.2
2007	D	6.19
2008	C	5.16
2009	D	5.78
2010	BN	7.08
2011	W	10.54
2012	BN	6.89
2013	D	5.83
2014	C	4.07
2015	C	4
2016	BN	6.71
2017	W	14.14
2018	BN	7.14
2019	W	10.34

Simulation WY	Surrogate WY	WY Type	WY Index
2020*	2007	D	6.19
2021*	2014	C	4.07
2022	2019	W	10.34
2023	1996	W	10.26
2024	1996	W	10.26
2025	2018	BN	7.14
2026	1993	AN	8.54
2027	2006	W	13.2
2028	1999	W	9.8
2029	2008	C	5.16
2030	2014	C	4.07
2031	1993	AN	8.54
2032	2012	BN	6.89
2033	2000	AN	8.94
2034	2002	D	6.35
2035	2006	W	13.2
2036	1998	W	13.31
2037	1996	W	10.26
2038	2002	D	6.35
2039	1996	W	10.26
2040	2001	D	5.76
2041	1990	C	4.81
2042	2007	D	6.19
2043	1994	C	5.02
2044	1994	C	5.02
2045	1992	C	4.06
2046	1993	AN	8.54

Simulation WY	Surrogate WY	WY Type	WY Index
2047	1994	C	5.02
2048	1995	W	12.89
2049	1996	W	10.26
2050	1997	W	10.82
2051	1998	W	13.31
2052	1999	W	9.8
2053	2000	AN	8.94
2054	2001	D	5.76
2055	2002	D	6.35
2056	2003	AN	8.21
2057	2004	BN	7.51
2058	2005	AN	8.49
2059	2006	W	13.2
2060	2007	D	6.19
2061	2008	C	5.16
2062	2009	D	5.78
2063	2010	BN	7.08
2064	2011	W	10.54
2065	2012	BN	6.89
2066	2013	D	5.83
2067	2014	C	4.07
2068	2015	C	4
2069	2016	BN	6.71
2070	2017	W	14.14
2071	2018	BN	7.14
2072	2019	W	10.34

*Years 2020-2021 were used to span the transitional period between the historical model period 1990-2019 and the projected model period 2022-2072.

Table 3-8b. Sacramento Valley Water Year Type Classification of the Projected Water Budget Period (2022-2072)

Sacramento Valley Water Year Type	Abbreviation	Number of Years, 2022-2072	Average Water Year Index	Average Precipitation	Percent Total Years, 2022-2072
Wet	W	18	11.46	27.9	35%
Above Normal	AN	7	8.60	29.3	14%
Below Normal	BN	7	7.05	19.7	14%
Dry	D	9	6.06	17.4	18%
Critical	C	10	4.64	16.6	20%
Total		**51**	**8.17**	**22.9**	**100%**

3.3.2. Climate Change Adjustments

Climate change adjustments were also included in selected projected scenarios to evaluate the potential influence of climate change on future conditions. Adjustments to the projected hydrology were performed following DWR's Resource Guide on climate change in GSP development (DWR, 2018) using climate change adjustment factors provided by DWR for use in developing GSPs through the DWR SGMA Data Viewer (https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#waterbudget). Using the DWR-provided climate adjustment factors, adjustments were made to ET, precipitation, and surface water inflow model inputs to account for the potential effects of 2030 mean (or central tendency) and 2070 mean (or central tendency) climate change conditions. The climate change adjustment factors provided by DWR were calculated from data developed for the Variable Infiltration Capacity (VIC) model as described in the DWR Resource Guide and on the SGMA Data Viewer.

For ET and precipitation adjustments, monthly change factors were averaged across the VIC grids in the Tehama IHM model domain and applied to the individual precipitation and ET inputs. For surface water inflow adjustments, monthly streamflow change factors were summarized from the HUC 8 watershed covering the majority of the Tehama IHM model domain and applied to individual surface water inflows in the model.

For each of the model inputs adjusted in the climate change scenarios (e.g., ET, precipitation, surface water inflow), the baseline projected inputs were multiplied by the 2030 or 2070 change factors corresponding to the specific historical year that was used as a surrogate year in the projected simulations. Because climate change factors were only provided for historical years through 2011, the average factors (by water year type) for the period provided were applied to historical years after 2011. The average change factors applied by model input and water year type in the 2030 and 2070 climate change scenarios are presented in **Table 3-9**. As indicated in **Table 3-9**, on average the climate change adjustments tend to increase ET, increase precipitation, and increase stream inflow volumes by varying degrees. From a water budget standpoint, increases in ET will tend to increase the water demands (outflows), whereas increases to precipitation and stream inflows will tend to increase water supplies (inflows).

Table 3-9. Climate Change Adjustment Change Factors by Data Type and Water Year Type in Tehama IHM

	No Adjustment	Climate Change 2030	Climate Change 2070
	Evapotranspiration		
Wet (W)	1.00	1.04	1.09
Above Normal (AN)	1.00	1.04	1.09
Below Normal (BN)	1.00	1.04	1.09
Dry (D)	1.00	1.04	1.08
Critical (C)	1.00	1.04	1.09
TOTAL	**1.00**	**1.04**	**1.09**
	Precipitation		
Wet (W)	1.00	1.04	1.07
Above Normal (AN)	1.00	1.02	1.06
Below Normal (BN)	1.00	1.05	1.05
Dry (D)	1.00	1.05	1.05
Critical (C)	1.00	1.04	1.06
TOTAL	**1.00**	**1.04**	**1.06**
	Stream Inflow		
Wet (W)	1.00	1.04	1.12
Above Normal (AN)	1.00	1.01	1.04
Below Normal (BN)	1.00	1.03	1.06
Dry (D)	1.00	1.06	1.07
Critical (C)	1.00	1.02	1.05
TOTAL	**1.00**	**1.04**	**1.09**

3.3.3. Overview of Projected Scenarios

Multiple projected model scenarios were developed to compare potential outcomes and evaluate the future sustainability of the Subbasins. These scenarios include two baseline projected scenarios, one with a current land use condition and another with future land use conditions. Additional scenarios were developed with each of the baseline projected scenarios with both 2030 and 2070 climate change conditions. Lastly, a projected model scenario was developed to evaluate the benefits of potential projects and management actions. **Table 3-10** outlines the different model scenarios evaluated, including seven projected scenarios in addition to the historical base period model scenario. The projected current land use scenarios assume a static land use condition based on 2018 land use conditions. The projected future land use scenarios also assume a static land use condition based on a projected land use condition in 2072 reflective of anticipated land use changes within the four Subbasins. The projected scenarios with different climate change scenarios incorporate either the 2030 mean or the 2070 mean climate change condition adjustments for precipitation, ET, stream inflows, and surface water diversion volumes in accordance with guidance provided by DWR.

Table 3-10. Summary of Tehama IHM Projected Scenarios

Scenario #	Model Scenario Name/Description	Time Period (Water Years)	Land Use Conditions	Climate Change	Projects
	Historical/Calibration	1990-2018	Historical (Transient)	None	No
1	Projected (Current Land Use)	2022-2072	Current (2018)	None	No
2	Projected (Future Land Use)	2022-2072	Future (2072)	None	No
3	Projected (Current Land Use) with 2030 Climate Change	2022-2072	Current (2018)	2030	No
4	Projected (Future Land Use) with 2030 Climate Change	2022-2072	Future (2072)	2070	No
5	Projected (Current Land Use) with 2070 Climate Change	2022-2072	Current (2018)	2070	No
6	Projected (Future Land Use) with 2070 Climate Change	2022-2072	Future (2072)	2070	No
7	Projected (Future Land Use) with Projects and 2070 Climate Change	2022-2072	Future (2072)	2070	Yes

3.3.4. Land Surface System Inputs

The development of land surface system inputs for the projected model scenarios is described below.

3.3.4.1. Precipitation

The precipitation inputs for the projected simulation period were developed through use of surrogate years from the historical model as described in **Section 3.3.1** and presented in **Table 3-8a.** As described in **Section 3.3.2**, for scenarios including climate change, precipitation inputs were modified using the climate change adjustment factors for 2030 and 2070 central tendency climate change conditions using the guidance and adjustment factors provided by DWR.

3.3.4.2. Evapotranspiration

The evapotranspiration inputs for the projected simulation period were developed through use of surrogate years from the historical model as described in **Section 3.3.1** and presented in **Table 3-8a.** As described in **Section 3.3.2**, for scenarios including climate change, precipitation inputs were modified using the climate change adjustment factors for 2030 and 2070 central tendency climate change conditions using the guidance and adjustment factors provided by DWR.

3.3.4.3. Land Use

Characterizing projected land use is foundational for predicting how and where water is beneficially used in future scenarios. Land use areas are also used to distinguish the water use sector in which water is consumed. In Tehama County, water use sectors include agricultural, urban, and native vegetation land uses. The urban water use sector covers all urban, residential, industrial, and semi-agricultural land uses. The projected scenarios include two different land use conditions: a current land use condition representative of 2018 conditions held constant over the entire simulation period and a static future land use condition based on land use change anticipated to occur in Tehama County over a 50-year planning horizon and reflecting land use conditions estimated to exist in 2072. In the projected model simulations, the land use conditions outside of Tehama County are assumed to stay as they are represented in 2018 in the historical model simulation.

3.3.4.3.1 Current Land Use Scenarios

Projected scenarios with current land use conditions include a static land use condition based on 2018 conditions.

Figure 3-78 illustrates the unchanging land use areas over the projected period (2022-2072) in the Antelope Subbasin. In the current land use scenario, agricultural, urban, and native vegetation land uses covered approximately 9,100 acres, 1,900 acres, and 8,000 acres, respectively. A majority of the agricultural area in the Antelope Subbasin is comprised of deciduous crops, pasture, and grain crops.

Figure 3-79 illustrates the unchanging land use areas over the projected period (2022-2072) in the Bowman Subbasin. In the current land use scenario, agricultural, urban, and native vegetation land uses covered approximately 6,100 acres, 1,900 acres, and 115,000 acres, respectively. A majority of the agricultural area in the Bowman Subbasin is comprised of pasture and grain crops.

Figure 3-80 illustrates the unchanging land use areas over the projected period (2022-2072) in the Los Molinos Subbasin. In the current land use scenario, agricultural, urban, and native vegetation land uses covered approximately 18,000 acres, 1,600 acres, and 79,000 acres, respectively. A majority of the agricultural area in the Los Molinos Subbasin is comprised of pasture and various orchard crops.

Figure 3-81 illustrates the unchanging land use areas over the projected period (2022-2072) in the Red Bluff Subbasin. In the current land use scenario, agricultural, urban, and native vegetation land uses covered approximately 46,000 acres, 7,000 acres, and 207,000 acres, respectively. A majority of the agricultural area in the Red Bluff Subbasin is comprised of pasture, grain, and various orchard crops.

3.3.4.3.2 Future Land Use Scenarios

The projected scenarios with future land use conditions include a static land use condition based on anticipated changes by the Subbasins in the future. The future land use conditions were developed through discussion with local stakeholders and consultation with the Tehama County Planning Department. The future land use conditions include increases in urban area reflecting expansion of urban areas focused around each urban center with native vegetation and idle cropland areas decreasing by similar amounts within all of Tehama County. In Red Bluff, there was also an increase in almonds within orchard areas.

Figure 3-82 presents the annual land use areas over the projected period (2022-2072) in the Antelope Subbasin. In the future land use scenario, there is an increase in urban acreage with a corresponding decrease in native vegetation, and relatively no change in agricultural acreage.

Figure 3-83 presents the annual land use areas over the projected period (2022-2072) in the Bowman Subbasin. In the future land use scenario, there is a very slight increase in urban acreage with a corresponding decrease in native vegetation, but overall, there is relatively no change.

Figure 3-84 presents the annual land use areas over the projected period (2022-2072) in the Los Molinos Subbasin. In the future land use scenario, there is a very slight increase in urban acreage with a corresponding decrease in native vegetation, but overall, there is relatively no change.

Figure 3-85 presents the annual land use areas over the projected period (2022-2072) in the Red Bluff Subbasin. In the future land use scenario, there is an increase in agricultural area, specifically almonds and pistachios, with a corresponding decrease in urban acreage and native vegetation.

3.3.5. Surface Water System Inputs

The development of surface water system inputs for projected future scenarios is described below.

3.3.5.1. Stream Inflows

The stream inflow volumes in each future year was assumed to be equal to the amount in the historical water year assigned to that future year (**Table 3-8a**). For scenarios with climate change adjustments, the historical stream inflow volumes were adjusted by using the CalSim II 2030 mean or 2070 mean climate change scenario monthly water year type multiplier.

3.3.5.2. Surface Water Diversions and Deliveries

The diversion volumes of each projected year were assigned by considering the diversion volumes from the associated historical year (**Table 3-8a**). For all diversions where historical data suggest the diversion was continuously active throughout the historical model period, the volume of water diverted in the projected year was assigned based on the associated historical year. For any surface water diversions that ceased diverting during the historical period 1990 through 2019, the volumes associated with these diversions were assumed to be zero for the entire projected period. The historical time-series data for each surface water diversion were evaluated and if a long period without any diversions occurred at the end of the period of available historical data, the diversion was assumed to be discontinued and assigned zero diversions for the entirety of the projected model period.

3.3.6. Groundwater System Inputs

The development of groundwater system inputs for projected future scenarios is described below.

3.3.6.1. Boundary Conditions

As described above in **Section 3.3.1**, the hydrology for the 51-year projected simulations mimics the hydrology of the historical period from 1969 through 2019 and the model inputs were developed using comparable surrogate years from the historical model period (1990-2019). The groundwater level of year 2019 was used as the initial groundwater head in boundaries for the prediction run. The groundwater levels of general head boundary condition for the predictive analysis were developed by using the

associated historical boundary heads for each predictive year. For the last 31 years (2042-2072) of the projected model period , the general head boundary conditions were modified to represent long-term stability in general head conditions around the model domain. This is intended to reflect the expected achievement or maintenance of sustainable groundwater conditions around the extent of the model resulting from the implementation of groundwater management efforts associated with GSPs and elimination of any chronically declining trends in water levels.

3.3.6.2. Groundwater Pumping

The pumping specification inputs for all projected simulations used the same pumping specifications as the historical simulation, described in **Section 3.1.5.3**.

3.3.7. Initial Conditions

Initial conditions used for projected simulations starting in 2020 utilized the final conditions from the historical model at the end of 2019. The initial conditions included use of the final conditions of the historical simulation period for the unsaturated zone, root zone, small watersheds, and groundwater levels. Initial groundwater levels are shown in **Figures 3-86** through **3-94** by model layer**.**

3.3.8. Simulation of Potential Projects and Management Actions

Projects and management actions (PMAs) were developed to achieve and maintain the Red Bluff Subbasin sustainability goal by 2042 and avoid undesirable results over the GSP planning and implementation horizon. PMAs developed for implementation would help to achieve and maintain groundwater sustainability while supporting other local goals. These PMAs include a project that would divert available surface water from Thomes and Elder Creek onto fields in the Subbasin for direct or in-lieu recharge benefits, and an in-lieu recharge project that would expand use of existing Central Valley Project (CVP) contract supplies in Proberta Water District (WD) and Thomes Creek WD. Other PMAs developed for implementation include a proposed grower education program, a proposed multi-benefit groundwater recharge project that would supply groundwater recharge and provide habitat for migrating shorebirds, a proposed pump restoration project in El Camino Irrigation District, and two projects aimed at invasive species removal along various waterways in the Red Bluff Subbasin.

A projected simulation was conducted to evaluate the potential benefits that might occur from implementation of various project concepts. Stream diversions were added to the model in order to simulate the recharge projects along Thomes and Elder Creeks, while existing diversions were modified in order to simulate the recharge projects in Proberta WD and Thomes Creek WD. Additionally, in order to simulate a management action related to well permitting, all new agricultural pumping in the Red Bluff Subbasin was shifted from the Upper Aquifer to the Lower Aquifer. Maps of the vertical distribution of agricultural pumping by layer in with projects scenario are presented in **Figures 3-95** through **3-103**.

Additional detail about the projects and management actions implemented in the Red Bluff Subbasin are included in the **Red Bluff GSP Chapter 4**.

4. GROUNDWATER FLOW MODEL RESULTS

This section presents the results of Tehama IHM. Results presented in this section include Subbasin water budgets, groundwater levels, and streamflows for various scenarios, and calibrated aquifer parameters. The water budget results presented in this section are rounded to two significant digits consistent with the typical uncertainty associated with the methods and sources used in the analysis. Water budget component results may not sum to the totals presented because of rounding.

4.1. Antelope Subbasin

The following section summarizes the analyses and results relating to the Antelope Subbasin. Detailed water budget results for each of the individual model scenarios are presented in **Appendix A**.

4.1.1. Historical Water Budget Results

Annual inflows, outflows, and change in surface water system (SWS) root zone storage during the historical water budget period (1990-2018) are summarized in **Table 4-1**. Of particular note in the historical SWS water budget results are the volumes of groundwater discharge to surface water that make up a large part of the Subbasin SWS inflows. Over the historical period, groundwater discharge to surface water averaged a little over 53 thousand acre-feet (taf) per year. Surface water inflows and precipitation also represent larger SWS inflow components averaging about 43 taf per year and 41 taf per year, respectively. Groundwater extraction and uptake represent a smaller SWS inflow in the Subbasin averaging about 15 taf per year over the historical water budget period.

Among the outflows from the Subbasin SWS, surface water outflow makes up a large fraction of the total Subbasin SWS outflows. The surface water outflows total about 89 taf per year on average. By comparison, other SWS outflows in the Subbasin are relatively smaller, with values for ET of precipitation averaging about 25 taf per year and average ET of applied water totaling about 19 taf per year on average. All other outflow components from the SWS are relatively smaller. The outflow of deep percolation of precipitation and applied water to the groundwater system (GWS) are about 7.2 and 4.6 taf per year, respectively, and infiltration (seepage) of surface water to the GWS totals about 4.9 taf per year on average. ET of groundwater uptake averages about 1.5 taf per year and evaporation from surface water averages about 150 af per year over the historical water budget period.

Table 4-1. Antelope Subbasin Historical Surface System Annual Water Budget Summary (acre-feet)

Water Budget Component		Average (1990-2018)
Inflows	Surface Water Inflow	43,000
	Precipitation	41,000
	Groundwater Extraction	15,000
	Groundwater Discharge	53,000
Outflows	Surface Water Outflow	89,000
	ET of Applied Water	19,000
	ET of Groundwater Uptake	1,500
	ET of Precipitation	25,000
	Evaporation	150
	Deep Percolation of Applied Water	4,500
	Deep Percolation of Precipitation	7,200
	Infiltration of Surface Water	4,900
Annual Change in Root Zone Storage		**-88**

Summarized results for major components of the historical water budget as they relate to the GWS are presented in **Table 4-2**. Among the outflows from the Subbasin GWS, groundwater pumping makes up the largest fraction of the total GWS outflows (on average -13 taf per year). Highly negative net seepage values (on average -48 taf per year) represent net groundwater discharging to surface water features and leaving the GWS. Deep percolation is the largest net inflow component averaging about 12 taf per year. Positive net subsurface flows (on average 50 taf per year) represent the combined subsurface inflows from adjacent subbasins and upland areas. Groundwater (root water) uptake directly from shallow groundwater (on average -1.5 taf per year) represents a smaller outflow from the GWS. Overall, the water budget results for the 29-year historic period indicate a cumulative change in groundwater storage of about -7 taf, which equals an average annual change in groundwater storage of only about -610 acre-feet (af) per year. This change in storage estimates equate to total decreases in storage in the Subbasin of about 0.77 af per acre on average over the 29 years and an annual decrease of less than 0.07 af per acre across the entire Subbasin (approximately 9,130 acres).

Detailed results for each of the individual water budget components in the historical water budget are presented in **Appendix A-1**.

Table 4-2. Antelope Subbasin Historical Groundwater System Annual Water Budget Summary (acre-feet)

Water Budget Component	Average (1990-2018)
Total Net Seepage	-48,000
Deep Percolation	12,000
Groundwater Pumping	-13,000
Groundwater Uptake	-1,500
Total Net Subsurface Flows	50,000
Annual Change in Groundwater Storage	**-610**

4.1.2. Projected (Current Land Use) Water Budget Results

Annual inflows, outflows, and change in SWS root zone storage during the projected (current land use) water budget period (2022-2072) are summarized in **Table 4-3**. Of particular note in the projected (current land use) SWS water budget results are the volume of surface water inflows that makes up a large part of the Subbasin SWS inflows. Over the projected (current land use) period, surface water inflows average about 43 taf per year. Precipitation also represents a large SWS inflow component averaging about 43 taf per year. Groundwater extraction and groundwater discharge to surface water represent relatively smaller SWS inflows in the Subbasin averaging about 16 and 43 taf per year, respectively over the projected (current land use) water budget period.

Among the outflows from the Subbasin SWS, surface water outflow makes up a large fraction of the total Subbasin SWS outflows. The surface water outflows total about 81 taf per year on average. ET of applied water and ET of precipitation also represent large SWS outflow components, averaging about 20 taf and 26 taf, respectively, per year. By comparison, other SWS outflows in the Subbasin are relatively smaller, with values for deep percolation of applied water averaging about 4.2 taf per year. The outflows of deep percolation of precipitation and infiltration (seepage) of surface water are about 7.2 and 4.9 taf per year on average, respectively. ET of groundwater uptake averages about 1.2 taf per year and evaporation from surface water averages about 150 af per year over the projected (current land use) water budget period.

Table 4-3. Antelope Subbasin Projected (Current Land Use) Surface System Annual Water Budget Summary (acre-feet)

Water Budget Component		Average (2022-2072)
Inflows	Surface Water Inflow	43,000
	Precipitation	43,000
	Groundwater Extraction	16,000
	Groundwater Discharge	43,000
Outflows	Surface Water Outflow	81,000
	ET of Applied Water	20,000
	ET of Groundwater Uptake	1,200
	ET of Precipitation	26,000
	Evaporation	150
	Deep Percolation of Applied Water	4,200
	Deep Percolation of Precipitation	7,200
	Infiltration of Surface Water	4,900
Annual Change in Root Zone Storage		**5**

Summarized results for major components of the projected (current land use) water budget as they relate to the GWS are presented in **Table 4-4**. The positive net subsurface flows (on average 42 taf per year) represent the combined subsurface flows from adjacent subbasins and upland areas and deep percolation represents another large net inflow averaging about 11 taf per year. The large negative net seepage values (on average -38 taf per year) represent net stream seepage to groundwater and groundwater pumping (on average -15 taf per year) is another large outflow from the GWS. Groundwater (root water) uptake directly from shallow groundwater (on average -1.2 taf per year) represents a smaller outflow from the GWS. Overall, the water budget results for the 51-year projected (current land use) period indicate a cumulative change in groundwater storage of about -15 taf, which equals an average annual change in groundwater storage of only about -290 af per year. These change in storage estimates equate to total decreases in storage in the Subbasin of about 0.03 af per acre on average over the 51 years and an annual decrease of less than 0.002 af per acre across the entire Subbasin (approximately 9,130 acres).

Detailed results for each of the individual water budget components in the projected (current land use) water budget are presented in **Appendix A-2**.

Table 4-4. Antelope Subbasin Projected (Current Land Use) Groundwater System Annual Water Budget Summary (acre-feet)

Water Budget Component	Average (2022-2072)
Total Net Seepage	-38,000
Deep Percolation	11,000
Groundwater Pumping	-15,000
Groundwater Uptake	-1,200
Total Net Subsurface Flows	42,000
Annual Change in Groundwater Storage	**-290**

4.1.3. Projected (Future Land Use) Water Budget Results

Annual inflows, outflows, and change in SWS root zone storage during the projected (future land use) water budget period (2022-2072) are summarized in **Table 4-5**. Of particular note in the projected (future land use) SWS water budget results are the volume of surface water inflows and precipitation that make up a large part of the Subbasin SWS inflows. Over the projected (future land use) period, surface water inflows and precipitation each average about 43 taf per year. Groundwater Discharge to surface water also represents a large SWS inflow component averaging about 33 taf per year. Groundwater represents a relatively smaller SWS inflow in the Subbasin averaging about 16 taf per year over the projected (future land use) water budget period.

Among the outflows from the Subbasin SWS, surface water outflow makes up a large fraction of the total Subbasin SWS outflows. The surface water outflows total about 72 taf per year on average, a value that corresponds with the large volumes of surface water inflow. ET of applied water and ET of precipitation also represent large SWS outflow components, averaging about 20 taf and 26 taf, respectively, per year. By comparison, other SWS outflows in the Subbasin are relatively smaller, with values for deep percolation of precipitation averaging about 7 taf per year. The outflows of deep percolation of applied water and infiltration (seepage) of surface water are about 4.2 and 4.9 taf per year on average, respectively. Evaporation from surface water averages about 150 af per year over the projected (future land use) water budget period.

Table 4-5. Antelope Subbasin Projected (Future Land Use) Surface System Annual Water Budget Summary (acre-feet)

Water Budget Component		Average (2022-2072)
Inflows	Surface Water Inflow	43,000
	Precipitation	43,000
	Groundwater Extraction	16,000
	Groundwater Discharge	33,000
Outflows	Surface Water Outflow	72,000
	ET of Applied Water	20,000
	ET of Groundwater Uptake	820
	ET of Precipitation	26,000
	Evaporation	150
	Deep Percolation of Applied Water	4,200
	Deep Percolation of Precipitation	7,100
	Infiltration of Surface Water	4,900
Annual Change in Root Zone Storage		**5**

Summarized results for major components of the projected (future land use) water budget as they relate to the GWS are presented in **Table 4-6**. Among the outflows from the Subbasin GWS, net seepage makes up the largest fraction of the total GWS outflows (on average -28 taf per year). Net seepage represents net groundwater discharging to surface waterways and leaving the GWS. Groundwater pumping additionally makes up a large portion of GWS outflows (on average -15 taf per year). Positive net subsurface flows and deep percolation are the largest net inflow components averaging about 33 and 11 taf per year, respectively. Groundwater (root water) uptake directly from shallow groundwater (on average -820 af per year) represents a smaller outflow from the GWS. Overall, the water budget results for the 51-year projected (future land use) period indicate a cumulative change in groundwater storage of about -17 taf, which equals an average annual change in groundwater storage of only about -330 af per year. This change in storage estimates equate to total decreases in storage in the Subbasin of about 0.9 af per acre on average over the 51 years and an annual decrease of about 0.02 af per acre across the entire Subbasin (approximately 19,040 acres).

Detailed results for each of the individual water budget components in the projected (future land use) water budget are presented in **Appendix A-3**.

Table 4-6. Antelope Subbasin Projected (Future Land Use) Groundwater System Annual Water Budget Summary (acre-feet)

Water Budget Component	Average (2022-2072)
Total Net Seepage	-28,000
Deep Percolation	11,000
Groundwater Pumping	-15,000
Groundwater Uptake	-820
Total Net Subsurface Flows	33,000
Annual Change in Groundwater Storage	**-330**

4.1.4. Projected (Current Land Use) with Climate Change Water Budget Results

A comparison of the major components of the projected (current land use) with climate change water budget as they relate to the GWS are presented in **Table 4-7**. Net seepage becomes less negative under climate change scenarios, indicating less groundwater flow to SWS. Deep percolation and net subsurface flows remain nearly unchanged under climate change scenarios. Groundwater pumping increases under climate change scenarios, becoming a greater outflow from the groundwater system. Groundwater uptake remains nearly unchanged under climate change scenarios.

Detailed results for each of the individual water budget components in the projected (current land use) with climate change (2030) water budget are presented in **Appendix A-4**. Detailed results for each of the individual water budget components in the projected (current land use) with climate change (2070) water budget are presented in **Appendix A-5**.

Table 4-7. Comparison of Antelope Subbasin Projected (Current Land Use) Groundwater System Annual Water Budgets with Climate Change Adjustments (acre-feet)

GWS Water Budget Component	Projected (Current Land Use)		
	Baseline Scenario	Climate Change (2030)	Climate Change (2070)
Total Net Seepage	-38,000	-36,000	-33,000
Deep Percolation	11,000	12,000	11,000
Groundwater Pumping	-15,000	-16,000	-17,000
Groundwater Uptake	-1,200	-1,200	-1,100
Total Net Subsurface Flows	42,000	42,000	39,000
Annual Groundwater Storage Change	**-290**	**-300**	**-340**

4.1.5. Projected (Future Land Use) with Climate Change Water Budget Results

A comparison of the major components of the projected (future land use) with climate change water budget as they relate to the GWS are presented in **Table 4-8**. Overall, the climate change scenarios to not appear to change the overall Subbasin GWS water budget in a considerable way. Net seepage becomes less negative under climate change scenarios, indicating a reduction of the net volume of groundwater discharging to the surface waters. Deep percolation remains nearly unchanged under climate change scenarios. Net subsurface flows to the Subbasin decrease slightly under climate change scenarios, primarily a result of reduced subsurface inflows from Red Bluff Subbasin. Groundwater extractions increase vary slightly under climate change scenarios, becoming a greater outflow from the groundwater system.

Detailed results for each of the individual water budget components in the projected (future land use) with climate change (2030) water budget are presented in **Appendix A-6**. Detailed results for each of the individual water budget components in the projected (future land use) with climate change (2070) water budget are presented in **Appendix A-7**.

Table 4-8. Comparison of Antelope Subbasin Projected (Future Land Use) Groundwater System Annual Water Budgets with Climate Change Adjustments (acre-feet)

GWS Water Budget Component	Projected (Future Land Use)		
	Baseline Scenario	Climate Change (2030)	Climate Change (2070)
Total Net Seepage	-28,000	-26,000	-22,000
Deep Percolation	11,000	11,000	11,000
Groundwater Pumping	-15,000	-16,000	-18,000
Groundwater Uptake	-820	-830	-810
Total Net Subsurface Flows	33,000	32,000	29,000
Annual Groundwater Storage Change	**-330**	**-340**	**-390**

Note: positive values indicate inflows/increasing storage, negative values indicate outflows/decreasing storage.

4.1.6. Projected (Future Land Use) with Projects and Climate Change Water Budget Results

Summarized results for major components of the projected (future land use) with projects and climate change (2070) water budget as they relate to the GWS are presented in **Table 4-9**. Among the outflows from the Subbasin GWS, net seepage makes up the largest fraction of the total GWS outflows (on average -22 taf per year). Net seepage represents net groundwater discharging to surface waterways and leaving the GWS. Groundwater pumping additionally makes up a large portion of GWS outflows (on average -18 taf per year). Positive net subsurface flows and deep percolation are the largest net inflow components averaging about 29 and 11 taf per year, respectively. Groundwater (root water) uptake directly from shallow groundwater (on average -820 af per year) represents a smaller outflow from the GWS. Overall, the water budget results for the 51-year projected (future land use) with projects and climate change (2070) period indicate a cumulative change in groundwater storage of about -19 taf, which equals an average annual change in groundwater storage of only about -380 af per year. This change in storage estimates equate to total decreases in storage in the Subbasin of about -1.0 af per acre on average over

the 51 years and an annual decrease of about -0.02 af per acre across the entire Subbasin (approximately 19,040 acres).

Detailed results for each of the individual water budget components in the projected (future land use) with projects and climate change (2070) water budget are presented in **Appendix A-8**.

Table 4-9. Antelope Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Groundwater System Annual Water Budget Summary (acre-feet)

Water Budget Component	Average (2022-2072)
Total Net Seepage	-22,000
Deep Percolation	11,000
Groundwater Pumping	-18,000
Groundwater Uptake	-820
Total Net Subsurface Flows	29,000
Annual Change in Groundwater Storage	**-380**

4.2. Bowman Subbasin

The following section summarizes the analyses and results relating to the historical scenario for the Bowman Subbasin. Detailed water budget results for each of the individual model scenarios are presented in **Appendix B**.

4.2.1. Historical Water Budget Results

Annual inflows, outflows, and change in SWS root zone storage during the historical water budget period (1990-2018) are summarized in **Table 4-10**. Of particular note in the historical SWS water budget results are the volume of precipitation that makes up a large part of the Subbasin SWS inflows averaging about 290 taf per year over the historical period. By comparison, other SWS inflows in the Subbasin are relatively smaller. Surface water inflows average about 81 taf per year. Groundwater extraction and uptake represents a relatively small SWS inflow averaging about 9.1 taf per year, and groundwater discharge to surface water is negligible over the historical water budget period.

Among the outflows from the Subbasin SWS, ET of precipitation makes up a large fraction of the total Subbasin SWS outflows averaging about 160 taf per year over the historical period. The surface water outflows total about 110 taf per year on average. By comparison, other SWS outflows in the Subbasin are relatively smaller, with values for deep percolation of precipitation about 44 taf per year and infiltration (seepage) of surface water about 43 taf per year on average. ET of applied water and deep percolation of applied water are about 11 and 8.6 taf per year on average, respectively. The outflows of ET of groundwater uptake and evaporation from surface water average about 3.0 and 0.7 taf per year, respectively.

Table 4-10. Bowman Subbasin Historical Surface System Annual Water Budget Summary (acre-feet)

Water Budget Component		Average (1990-2018)
Inflows	Surface Water Inflow	81,000
	Precipitation	290,000
	Groundwater Extraction	9,100
	Groundwater Discharge	0
Outflows	Surface Water Outflow	110,000
	ET of Applied Water	11,000
	ET of Groundwater Uptake	3,000
	ET of Precipitation	160,000
	Evaporation	700
	Deep Percolation of Applied Water	8,600
	Deep Percolation of Precipitation	44,000
	Infiltration of Surface Water	43,000
Annual Change in Root Zone Storage		**-870**

Summarized results for major components of the historical water budget as they relate to the GWS are presented in **Table 4-11**. Deep percolation represents the largest inflow averaging nearly 53 taf per year while net seepage represents an inflow of about 43 taf per year. Net subsurface flows (combined subsurface flows with adjacent subbasins and upland areas) represent the largest net outflow totaling about -88 taf per year of outflow from the Bowman Subbasin on average. Groundwater pumping (on average -6.1 taf per year) and groundwater (root water) uptake directly from shallow groundwater (on average -3.0 taf per year) represent smaller outflows from the GWS. Overall, the water budget results for the 29-year historical period indicate a cumulative change in groundwater storage of about -50 taf, which equals an average annual change in groundwater storage of only about -1.7 taf per year. These changes in storage estimates equate to total decreases in storage in the Subbasin of about -0.41 af per acre over the 29 years and an annual decrease of less than -0.01 af per acre across the entire Subbasin (approximately 122,425 acres).

Detailed results for each of the individual water budget components in the historical water budget are presented in **Appendix B-1**.

Table 4-11. Bowman Subbasin Historical Groundwater System Annual Water Budget Summary (acre-feet)

Water Budget Component	Average (1990-2018)
Total Net Seepage	43,000
Deep Percolation	53,000
Groundwater Pumping	-6,100
Groundwater Uptake	-3,000
Total Net Subsurface Flows	-88,000
Annual Change in Groundwater Storage	**-1,700**

4.2.2. Projected (Current Land Use) Water Budget Results

Annual inflows, outflows, and change in SWS root zone storage during the projected (current land use) water budget period (2022-2072) are summarized in **Table 4-12**. Of particular note in the projected (current land use) SWS water budget results is the volume of precipitation that makes up the largest part of the Subbasin SWS inflows averaging about 300 taf per year over the projected period. By comparison, other SWS inflows in the Subbasin are relatively smaller. Surface water inflows average about 83 taf per year. Groundwater extraction and uptake represents a relatively small SWS inflow averaging about 9.1 taf per year, and groundwater discharge to surface water is negligible over the projected (current land use) water budget period.

Among the outflows from the Subbasin SWS, ET of precipitation makes up a large fraction of the total Subbasin SWS outflows averaging about 160 taf per year over the projected (current land use) period. The surface water outflows total about 120 taf per year on average. By comparison, other SWS outflows in the Subbasin are relatively smaller, with values for each deep percolation of precipitation totaling about 46 taf per year and infiltration (seepage) of surface water totaling about 43 taf per year, on average. ET of applied water and deep percolation of applied water are about 11 and 7.3 taf per year on average, respectively. The outflows of ET of groundwater uptake and evaporation from surface water average about 2.9 and 0.85 taf per year, respectively.

Table 4-12. Bowman Subbasin Projected (Current Land Use) Surface System Annual Water Budget Summary (acre-feet)

Water Budget Component		Average (2022-2072)
Inflows	Surface Water Inflow	83,000
	Precipitation	300,000
	Groundwater Extraction	9,100
	Groundwater Discharge	0
Outflows	Surface Water Outflow	120,000
	ET of Applied Water	11,000
	ET of Groundwater Uptake	2,900
	ET of Precipitation	160,000
	Evaporation	850
	Deep Percolation of Applied Water	7,300
	Deep Percolation of Precipitation	46,000
	Infiltration of Surface Water	46,000
Annual Change in Root Zone Storage		**-69**

Summarized results for major components of the projected (current land use) water budget as they relate to the GWS are presented in **Table 4-13**. Deep percolation represents the largest inflow averaging nearly 53 taf per year while net seepage represents an inflow of about 46 taf per year. Net subsurface flows (combined subsurface flows with adjacent subbasins and upland areas) represent the largest net outflow totaling about -90 taf per year of outflow from the Bowman Subbasin on average. Groundwater pumping (on average -6.2 taf per year) and groundwater (root water) uptake directly from shallow groundwater (on average -2.9 taf per year) represent smaller outflows from the GWS. Overall, the water budget results for the 51-year projected (current land use) period indicate a cumulative change in groundwater storage of about -11 taf, which equals an average annual change in groundwater storage of about -0.2 taf per year. These changes in storage estimates equate to total decreases in storage in the Subbasin of about -0.09 af per acre over the 51 years and an annual decrease of -0.002 af per acre across the entire Subbasin (approximately 122,425 acres).

Detailed results for each of the individual water budget components in the projected (current land use) water budget are presented in **Appendix B-2**.

Table 4-13. Bowman Subbasin Projected (Current Land Use) Groundwater System Annual Water Budget Summary (acre-feet)

Water Budget Component	Average (2022-2072)
Total Net Seepage	46,000
Deep Percolation	53,000
Groundwater Pumping	-6,200
Groundwater Uptake	-2,900
Total Net Subsurface Flows	-90,000
Annual Change in Groundwater Storage	**-210**

4.2.3. Projected (Future Land Use) Water Budget Results

Annual inflows, outflows, and change in SWS root zone storage during the projected (future land use) water budget period (2022-2072) are summarized in **Table 4-14**. Of particular note in the projected (future land use) SWS water budget results is the volume of precipitation that makes up the largest part of the Subbasin SWS inflows averaging about 300 taf per year over the projected period. By comparison, other SWS inflows in the Subbasin are relatively smaller. Surface water inflows average about 83 taf per year. Groundwater extraction and uptake represents a relatively small SWS inflow averaging about 9.2 taf per year, and groundwater discharge to surface water is negligible over the projected (future land use) water budget period.

Among the outflows from the Subbasin SWS, ET of precipitation makes up a large fraction of the total Subbasin SWS outflows averaging about 160 taf per year over the projected (future land use) period. The surface water outflows total about 120 taf per year on average. By comparison, other SWS outflows in the Subbasin are relatively smaller, with values for infiltration (seepage) of surface water and deep percolation of precipitation totaling about 47 taf and 46 taf per year on average, respectively. ET of applied water and deep percolation of applied water are about 11 and 7.3 taf per year on average, respectively. The outflows of ET of groundwater uptake and evaporation from surface water average about 2.8 and 0.85 taf per year, respectively.

Table 4-14. Bowman Subbasin Projected (Future Land Use) Surface System Annual Water Budget Summary (acre-feet)

Water Budget Component		Average (2022-2072)
Inflows	Surface Water Inflow	83,000
	Precipitation	300,000
	Groundwater Extraction	9,200
	Groundwater Discharge	0
Outflows	Surface Water Outflow	120,000
	ET of Applied Water	11,000
	ET of Groundwater Uptake	2,800
	ET of Precipitation	160,000
	Evaporation	850
	Deep Percolation of Applied Water	7,300
	Deep Percolation of Precipitation	46,000
	Infiltration of Surface Water	47,000
Annual Change in Root Zone Storage		**-70**

Summarized results for major components of the projected (future land use) water budget as they relate to the GWS are presented in **Table 4-15**. Deep percolation represents the largest inflow averaging nearly 53 taf per year while net seepage represents an inflow of about 47 taf per year. Net subsurface flows (combined subsurface flows with adjacent subbasins and upland areas) represent the largest net outflow totaling about -91 taf per year of outflow from the Bowman Subbasin on average. Groundwater pumping (on average -6.4 taf per year) and groundwater (root water) uptake directly from shallow groundwater (on average -2.8 taf per year) represent smaller outflows from the GWS. Overall, the water budget results for the 51-year projected (future land use) period indicate a cumulative change in groundwater storage of about -15 taf, which equals an average annual change in groundwater storage of about -0.30 taf per year. These changes in storage estimates equate to total decreases in storage in the Subbasin of about -0.13 af per acre over the 51 years and an annual decrease of -0.002 af per acre across the entire Subbasin (approximately 122,425 acres).

Detailed results for each of the individual water budget components in the projected (future land use) water budget are presented in **Appendix B-3**.

Table 4-15. Bowman Subbasin Projected (Future Land Use) Groundwater System Annual Water Budget Summary (acre-feet)

Water Budget Component	Average (2022-2072)
Total Net Seepage	47,000
Deep Percolation	53,000
Groundwater Pumping	-6,400
Groundwater Uptake	-2,800
Total Net Subsurface Flows	-91,000
Annual Change in Groundwater Storage	**-300**

4.2.4. Projected (Current Land Use) with Climate Change Water Budget Results

A comparison of the major components of the projected (current land use) with climate change water budget as they relate to the GWS are presented in **Table 4-16**. Net seepage increases under climate change scenarios, indicating greater stream seepage to groundwater. Deep percolation and net subsurface flows remain nearly unchanged under climate change scenarios. Groundwater pumping increases under climate change scenarios, becoming a greater outflow from the groundwater system. Groundwater uptake remains nearly unchanged under climate change scenarios.

Detailed results for each of the individual water budget components in the projected (current land use) with climate change (2030) water budget are presented in **Appendix B-4**. Detailed results for each of the individual water budget components in the projected (current land use) with climate change (2070) water budget are presented in **Appendix B-5**.

Table 4-16. Comparison of Bowman Subbasin Projected (Current Land Use) Groundwater System Annual Water Budgets with Climate Change Adjustments (acre-feet)

GWS Water Budget Component	Projected (Current Land Use)		
	Baseline Scenario	Climate Change (2030)	Climate Change (2070)
Total Net Seepage	46,000	47,000	48,000
Deep Percolation	53,000	53,000	51,000
Groundwater Pumping	-6,200	-6,400	-6,900
Groundwater Uptake	-2,900	-2,900	-2,900
Total Net Subsurface Flows	-90,000	-91,000	-89,000
Annual Groundwater Storage Change	**-210**	**-240**	**-420**

4.2.5. Projected (Future Land Use) with Climate Change Water Budget Results

A comparison of the major components of the projected (future land use) with climate change water budget as they relate to the GWS are presented in **Table 4-17**. Overall, the climate change scenarios do not appear to change the overall Subbasin GWS water budget in a considerable way. Net seepage increases under both 2030 and 2070 climate change scenarios and deep percolation decreases by a small amount. Net subsurface flows also do not change much under climate change scenarios. Groundwater pumping increases slightly under climate change scenarios. Groundwater uptake remains nearly unchanged under climate change scenarios.

Detailed results for each of the individual water budget components in the projected (future land use) with climate change (2030) water budget are presented in **Appendix B-6**. Detailed results for each of the individual water budget components in the projected (future land use) with climate change (2070) water budget are presented in **Appendix B-7**.

Table 4-17. Comparison of Bowman Subbasin Projected (Future Land Use) Groundwater System Annual Water Budgets with Climate Change Adjustments (acre-feet)

GWS Water Budget Component	Projected (Future Land Use)		
	Baseline Scenario	Climate Change (2030)	Climate Change (2070)
Total Net Seepage	47,000	48,000	49,000
Deep Percolation	53,000	53,000	51,000
Groundwater Pumping	-6,400	-6,600	-7,100
Groundwater Uptake	-2,800	-2,800	-2,800
Total Net Subsurface Flows	-91,000	-92,000	-90,000
Annual Groundwater Storage Change	**-300**	**-340**	**-530**

Note: positive values indicate inflows/increasing storage, negative values indicate outflows/decreasing storage.

4.2.6. Projected (Future Land Use) with Projects and Climate Change Water Budget Results

Summarized results for major components of the projected (future land use) with projects and climate change (2070) water budget as they relate to the GWS are presented in **Table 4-18**. Deep percolation represents the largest inflow averaging nearly 51 taf per year while net seepage represents an inflow of about 49 taf per year. Net subsurface flows (combined subsurface flows with adjacent subbasins and upland areas) represent the largest net outflow totaling about -91 taf per year of outflow from the Bowman Subbasin on average. Groundwater pumping (on average -7.1 taf per year) and groundwater (root water) uptake directly from shallow groundwater (on average -2.8 taf per year) represent smaller outflows from the GWS. Overall, the water budget results for the 51-year projected (future land use) with projects and climate change (2070) period indicate a cumulative change in groundwater storage of about -27 taf, which equals an average annual change in groundwater storage of about -530 af per year. These changes in storage estimates equate to decreases in storage in the Subbasin of about -0.22 af per acre over the 51 years and an annual decrease of about -0.004 af per acre across the entire Subbasin (approximately 122,425 acres).

Detailed results for each of the individual water budget components in the projected (future land use) with projects and climate change (2070) water budget are presented in **Appendix B-8**.

Table 4-18. Bowman Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Groundwater System Annual Water Budget Summary (acre-feet)

Water Budget Component	Average (2022-2072)
Total Net Seepage	49,000
Deep Percolation	51,000
Groundwater Pumping	-7,100
Groundwater Uptake	-2,800
Total Net Subsurface Flows	-91,000
Annual Change in Groundwater Storage	**-530**

4.3. Los Molinos Subbasin

The following section summarizes the analyses and results relating to the historical scenario for the Los Molinos Subbasin. Detailed water budget results for each of the individual model scenarios are presented in **Appendix C**.

4.3.1. Historical Water Budget Results

Annual inflows, outflows, and change in SWS root zone storage during the historical water budget period (1990-2018) are summarized in **Table 4-19**. Of particular note in the historical SWS water budget results are the volumes of surface water inflows that make up a large part of the Subbasin SWS inflows. Over the historical period, surface water inflows to surface water averaged about 630 taf per year. Precipitation also represents a large SWS inflow component averaging about 210 taf per year. Groundwater extraction and uptake represent a small SWS inflow in the Subbasin averaging about 33 taf per year over the historical water budget period. Groundwater discharge to surface water represents a smaller SWS inflow averaging about 2 taf per year.

Among the outflows from the Subbasin SWS, surface water outflow makes up a large fraction of the total Subbasin SWS outflows. The surface water outflows total about 620 taf per year on average. By comparison, other SWS outflows in the Subbasin are relatively smaller, with values for ET of precipitation about 120 taf per year and deep percolation of precipitation totaling about 39 taf per year on average. The outflow of ET of applied water, infiltration (seepage) of surface water, and ET of groundwater uptake are about 36, 35 and 17 taf per year on average, respectively. The outflows of deep percolation of applied water and evaporation from surface water are about 15 and 2.1 taf per year, respectively.

Table 4-19. Los Molinos Subbasin Historical Surface System Annual Water Budget Summary (acre-feet)

Water Budget Component		Average (1990-2018)
Inflows	Surface Water Inflow	630,000
	Precipitation	210,000
	Groundwater Extraction	33,000
	Groundwater Discharge	2,000
Outflows	Surface Water Outflow	620,000
	ET of Applied Water	36,000
	ET of Groundwater Uptake	17,000
	ET of Precipitation	120,000
	Evaporation	2,100
	Deep Percolation of Applied Water	15,000
	Deep Percolation of Precipitation	39,000
	Infiltration of Surface Water	35,000
Annual Change in Root Zone Storage		**-630**

Summarized results for major components of the historical water budget as they relate to the GWS are presented in **Table 4-20**. The positive net seepage values (on average 33 taf per year) and deep percolation values (on average 54 taf per year) represent the major inflows to the GWS. The net subsurface flows average about -56 taf per year represent the combined net subsurface outflows from the Subbasin to adjacent subbasins. Groundwater (root water) uptake directly from shallow groundwater (on average -17 taf per year) and groundwater pumping (on average -16 taf per year) are somewhat smaller outflows from the GWS. Overall, the water budget results for the 29-year historic period indicate a cumulative change in groundwater storage of about -74 taf, which equals an average annual decrease in groundwater storage of approximately -2.5 taf per year. This change in storage estimates equate to total decreases in storage in the Subbasin of about -0.74 af per acre over the 29 years and an annual decrease of about -0.03 af per acre across the entire Subbasin (approximately 99,000 acres).

Detailed results for each of the individual water budget components in the historical water budget are presented in **Appendix C-1**.

Table 4-20. Los Molinos Subbasin Historical Groundwater System Annual Water Budget Summary (acre-feet)

Water Budget Component	Average (1990-2018)
Total Net Seepage	33,000
Deep Percolation	54,000
Groundwater Pumping	-16,000
Groundwater Uptake	-17,000
Total Net Subsurface Flows	-56,000
Annual Change in Groundwater Storage	**-2,500**

4.3.2. Projected (Current Land Use) Water Budget Results

Annual inflows, outflows, and change in SWS root zone storage during the projected (current land use) water budget period (2022-2072) are summarized in **Table 4-21**. Of particular note in the projected (current land use) SWS water budget results are the volumes of surface water inflows that make up a large part of the Subbasin SWS inflows. Over the projected (current land use) period, surface water inflows to surface water averaged about 650 taf per year. Precipitation also represents a large SWS inflow component averaging about 220 taf per year. Groundwater extraction and uptake represent a small SWS inflow in the Subbasin averaging about 27 taf per year over the projected (current land use) water budget period. Groundwater discharge to surface water is negligible throughout the projected (current land use) period.

Among the outflows from the Subbasin SWS, surface water outflow makes up a large fraction of the total Subbasin SWS outflows. The surface water outflows total about 610 taf per year on average. By comparison, other SWS outflows in the Subbasin are relatively smaller, with values for ET of precipitation about 120 taf per year and infiltration (seepage) of surface water totaling about 59 taf per year on average. The outflow of ET of applied water, deep percolation of precipitation, and deep percolation of applied water are about 41, 38 and 14 taf per year on average, respectively. The outflows of ET of groundwater uptake and evaporation from surface water are about 7.3 and 2.2 taf per year, respectively.

Table 4-21. Los Molinos Subbasin Projected (Current Land Use) Surface System Annual Water Budget Summary (acre-feet)

Water Budget Component		Average (2022-2072)
Inflows	Surface Water Inflow	650,000
	Precipitation	220,000
	Groundwater Extraction	27,000
	Groundwater Discharge	0
Outflows	Surface Water Outflow	610,000
	ET of Applied Water	41,000
	ET of Groundwater Uptake	7,300
	ET of Precipitation	120,000
	Evaporation	2,200
	Deep Percolation of Applied Water	14,000
	Deep Percolation of Precipitation	38,000
	Infiltration of Surface Water	59,000
Annual Change in Root Zone Storage		**24**

Summarized results for major components of the projected (current land use) water budget as they relate to the GWS are presented in **Table 4-22**. The positive net seepage values (on average 59 taf per year) and deep percolation values (on average 52 taf per year) represent the major inflows to the GWS. The net subsurface flows average about -86 taf per year represent the combined net subsurface outflows from the Subbasin to adjacent subbasins. Groundwater pumping (on average -20 taf per year) and groundwater (root water) uptake directly from shallow groundwater (on average -7.3 taf per year) are somewhat smaller outflows from the GWS. Overall, the water budget results for the 51-year projected (current land use) period indicate a cumulative change in groundwater storage of about -93 taf, which equals an average annual decrease in groundwater storage of approximately -1.8 taf per year. This change in storage estimates equate to total decreases in storage in the Subbasin of about -0.94 af per acre over the 51 years and an annual decrease of about -0.02 af per acre across the entire Subbasin (approximately 99,000 acres).

Detailed results for each of the individual water budget components in the projected (current land use) water budget are presented in **Appendix C-2**.

Table 4-22. Los Molinos Subbasin Projected (Current Land Use) Groundwater System Annual Water Budget Summary (acre-feet)

Water Budget Component	Average (2022-2072)
Total Net Seepage	59,000
Deep Percolation	52,000
Groundwater Pumping	-20,000
Groundwater Uptake	-7,300
Total Net Subsurface Flows	-86,000
Annual Change in Groundwater Storage	**-1,800**

4.3.3. Projected (Future Land Use) Water Budget Results

Annual inflows, outflows, and change in SWS root zone storage during the projected (future land use) water budget period (2022-2072) are summarized in **Table 4-23**. Of particular note in the historical SWS water budget results are the volumes of surface water inflows that make up a large part of the Subbasin SWS inflows. Over the projected (future land use) period, surface water inflows to surface water averaged about 650 taf per year. Precipitation also represents a large SWS inflow component averaging about 220 taf per year. Groundwater extraction and uptake represent a small SWS inflow in the Subbasin averaging about 27 taf per year over the projected (current land use) water budget period. Groundwater discharge to surface water is negligible throughout the projected (current land use) period.

Among the outflows from the Subbasin SWS, surface water outflow makes up a large fraction of the total Subbasin SWS outflows. The surface water outflows total about 610 taf per year on average. By comparison, other SWS outflows in the Subbasin are relatively smaller, with values for ET of precipitation about 120 taf per year and infiltration (seepage) of surface water totaling about 63 taf per year on average. The outflow of ET of applied water, deep percolation of precipitation, and deep percolation of applied water are about 42, 38 and 14 taf per year on average, respectively. The outflows of ET of groundwater uptake and evaporation from surface water are about 6.1 and 2.2 taf per year, respectively.

Table 4-23. Los Molinos Subbasin Projected (Future Land Use) Surface System Annual Water Budget Summary (acre-feet)

Water Budget Component		Average (2022-2072)
Inflows	Surface Water Inflow	650,000
	Precipitation	220,000
	Groundwater Extraction	27,000
	Groundwater Discharge	0
Outflows	Surface Water Outflow	610,000
	ET of Applied Water	42,000
	ET of Groundwater Uptake	6,100
	ET of Precipitation	120,000
	Evaporation	2,200
	Deep Percolation of Applied Water	14,000
	Deep Percolation of Precipitation	38,000
	Infiltration of Surface Water	63,000
Annual Change in Root Zone Storage		**25**

Summarized results for major components of the projected (future land use) water budget as they relate to the GWS are presented in **Table 4-24**. The positive net seepage values (on average 63 taf per year) and deep percolation values (on average 51 taf per year) represent the major inflows to the GWS. The net subsurface flows average about -89 taf per year represent the combined net subsurface outflows from the Subbasin to adjacent subbasins. Groundwater pumping (on average -21 taf per year) and groundwater (root water) uptake directly from shallow groundwater (on average -6.1 taf per year) are somewhat smaller outflows from the GWS. Overall, the water budget results for the 51-year projected (future land use) period indicate a cumulative change in groundwater storage of about -100 taf, which equals an average annual decrease in groundwater storage of approximately -2.0 taf per year. This change in storage estimates equate to total decreases in storage in the Subbasin of about 1.0 af per acre over the 51 years and an annual decrease of about -0.02 af per acre across the entire Subbasin (approximately 99,000 acres).

Detailed results for each of the individual water budget components in the projected (future land use) water budget are presented in **Appendix C-3**.

Table 4-24. Los Molinos Subbasin Projected (Future Land Use) Groundwater System Annual Water Budget Summary (acre-feet)

Water Budget Component	Average (2022-2072)
Total Net Seepage	63,000
Deep Percolation	51,000
Groundwater Pumping	-21,000
Groundwater Uptake	-6,100
Total Net Subsurface Flows	-89,000
Annual Change in Groundwater Storage	**-2,000**

4.3.4. Projected (Current Land Use) with Climate Change Water Budget Results

A comparison of the major components of the projected (current land use) with climate change water budget as they relate to the GWS are presented in **Table 4-25**. Net seepage increases under climate change scenarios, indicating greater stream seepage to groundwater. Deep percolation and net subsurface flows decrease slightly under climate change scenarios. Groundwater pumping increases slightly under climate change scenarios, but the overall water budget results suggest that annual change in storage is only very slightly more negative under the climate change scenarios.

Detailed results for each of the individual water budget components in the projected (current land use) with climate change (2030) water budget are presented in **Appendix C-4**. Detailed results for each of the individual water budget components in the projected (current land use) with climate change (2070) water budget are presented in **Appendix C-5**.

Table 4-25. Comparison of Los Molinos Subbasin Projected (Current Land Use) Groundwater System Annual Water Budgets with Climate Change Adjustments (acre-feet)

GWS Water Budget Component	Projected (Current Land Use)		
	Baseline Scenario	Climate Change (2030)	Climate Change (2070)
Total Net Seepage	59,000	62,000	67,000
Deep Percolation	52,000	52,000	50,000
Groundwater Pumping	-20,000	-22,000	-24,000
Groundwater Uptake	-7,300	-7,100	-6,400
Total Net Subsurface Flows	-86,000	-87,000	-88,000
Annual Groundwater Storage Change	**-1,800**	**-1,900**	**-2,100**

4.3.5. Projected (Future Land Use) with Climate Change Water Budget Results

A comparison of the major components of the projected (future land use) with climate change water budget as they relate to the GWS are presented in **Table 4-26**. Overall, the climate change scenarios do not appear to change the overall Subbasin GWS water budget in a considerable way. Net seepage increases under climate change scenarios, indicating greater stream seepage to groundwater. Deep percolation and net subsurface flows decrease slightly under climate change scenarios. Groundwater pumping under climate change scenarios, but the overall change in storage is only slightly more negative under the climate change scenarios.

Detailed results for each of the individual water budget components in the projected (future land use) with climate change (2030) water budget are presented in **Appendix C-6**. Detailed results for each of the individual water budget components in the projected (future land use) with climate change (2070) water budget are presented in **Appendix C-7**.

Table 4-26. Comparison of Los Molinos Subbasin Projected (Future Land Use) Groundwater System Annual Water Budgets with Climate Change Adjustments (acre-feet)

GWS Water Budget Component	Projected (Future Land Use)		
	Baseline Scenario	Climate Change (2030)	Climate Change (2070)
Total Net Seepage	63,000	66,000	71,000
Deep Percolation	51,000	51,000	49,000
Groundwater Pumping	-21,000	-22,000	-25,000
Groundwater Uptake	-6,100	-5,900	-5,100
Total Net Subsurface Flows	-89,000	-91,000	-92,000
Annual Groundwater Storage Change	**-2,000**	**-2,100**	**-2,300**

Note: positive values indicate inflows/increasing storage, negative values indicate outflows/decreasing storage.

4.3.6. Projected (Future Land Use) with Projects and Climate Change Water Budget Results

Summarized results for major components of the projected (future land use) with projects and climate change (2070) water budget as they relate to the GWS are presented in **Table 4-27**. The positive net seepage values (on average 70 taf per year) and deep percolation values (on average 49 taf per year) represent the major inflows to the GWS. The net subsurface flows average about -92 taf per year represent the combined net subsurface outflows from the Subbasin to adjacent subbasins.

Groundwater pumping (on average -25 taf per year) and groundwater (root water) uptake directly from shallow groundwater (on average -5.2 taf per year) are somewhat smaller outflows from the GWS. Overall, the water budget results for the 51-year projected (future land use) with projects and climate change (2070) period indicate a cumulative change in groundwater storage of about -120 taf, which equals an average annual decrease in groundwater storage of approximately -2.3 taf per year. This change in storage estimates equate to total decreases in storage in the Subbasin of about -1.2 af per acre over the 51 years and an annual decrease of about -0.02 af per acre across the entire Subbasin (approximately 99,000 acres).

Detailed results for each of the individual water budget components in the projected (future land use) with projects and climate change (2070) water budget are presented in **Appendix C-8**.

Table 4-27. Los Molinos Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Groundwater System Annual Water Budget Summary (acre-feet)

Water Budget Component	Average (2022-2072)
Total Net Seepage	70,000
Deep Percolation	49,000
Groundwater Pumping	-25,000
Groundwater Uptake	-5,200
Total Net Subsurface Flows	-92,000
Annual Change in Groundwater Storage	**-2,300**

4.4. Red Bluff Subbasin

The following section summarizes the analyses and results relating to the historical scenario for the Red Bluff Subbasin. Detailed water budget results for each of the individual model scenarios are presented in **Appendix D**.

4.4.1. Historical Water Budget Results

Annual inflows, outflows, and change in SWS root zone storage during the historical water budget period (1990-2018) are summarized in **Table 4-28**. Of particular note in the historical SWS water budget results are the volume of precipitation that makes up a large part of the Subbasin SWS inflows. Over the historical period, precipitation to surface water averaged about 580 taf per year. Surface water inflows and groundwater extraction and uptake also represent large SWS inflow components averaging about 120 and 90 taf per year, respectively. Groundwater discharge to surface water represents a relatively smaller SWS inflow in the Subbasin, averaging about 42 taf per year over the historical water budget period.

Among the outflows from the Subbasin SWS, ET of precipitation and surface water outflow make up large fractions of the total Subbasin SWS outflows. ET of precipitation averages about 350 taf per year, while surface water outflows total about 340 taf per year on average. By comparison, other SWS outflows in the Subbasin are relatively smaller, with values for ET of applied water and deep percolation of precipitation averaging about 61 and 55 taf per year, respectively. The outflows of deep percolation of applied water, ET of groundwater uptake and infiltration (seepage) of surface water are about 15, 9.7, and 2.4 taf per year on average, respectively. Evaporation from surface water averages about 0.7 taf per year over the historical water budget period.

Table 4-28. Red Bluff Subbasin Historical Surface System Annual Water Budget Summary (acre-feet)

Water Budget Component		Average (1990-2018)
Inflows	Surface Water Inflow	120,000
	Precipitation	580,000
	Groundwater Extraction	90,000
	Groundwater Discharge	42,000
Outflows	Surface Water Outflow	340,000
	ET of Applied Water	61,000
	ET of Groundwater Uptake	9,700
	ET of Precipitation	350,000
	Evaporation	680
	Deep Percolation of Applied Water	15,000
	Deep Percolation of Precipitation	55,000
	Infiltration of Surface Water	2,400
Annual Change in Root Zone Storage		**-1,600**

Summarized results for major components of the historical water budget as they relate to the GWS are presented in **Table 4-29**. Among the outflows from the Subbasin GWS, groundwater pumping makes up the largest fraction of the total GWS outflows (on average -80 taf per year). Highly negative net seepage values (on average -39 taf per year) represent net groundwater discharging to surface waterways and leaving the GWS. Groundwater (root water) uptake directly from shallow groundwater (on average -9.7 taf per year) represents a smaller outflow from the GWS. Deep percolation is the largest net inflow component averaging about 70 taf per year. Positive net subsurface flows (on average 49 taf per year) represent the combined subsurface inflows from adjacent subbasins and upland areas. Overall, the water budget results for the 29-year historic period indicate a cumulative change in groundwater storage of about -310 taf, which equals an average annual change in groundwater storage of only about -11 taf per year. This change in storage estimates equate to total decreases in storage in the Subbasin of about 1.1 af per acre on average over the 29 years and an annual decrease of less than 0.04 af per acre across the entire Subbasin (approximately 272,000 acres).

Detailed results for each of the individual water budget components in the historical water budget are presented in **Appendix D-1**.

Table 4-29. Red Bluff Subbasin Historical Groundwater System Annual Water Budget Summary (acre-feet)

Water Budget Component	Average (1990-2018)
Total Net Seepage	-39,000
Deep Percolation	70,000
Groundwater Pumping	-80,000
Groundwater Uptake	-9,700
Total Net Subsurface Flows	49,000
Annual Change in Groundwater Storage	**-11,000**

4.4.2. Projected (Current Land Use) Water Budget Results

Annual inflows, outflows, and change in SWS root zone storage during the projected (current land use) water budget period (2022-2072) are summarized in **Table 4-30**. Of particular note in the projected (current land use) SWS water budget results are the volume of precipitation that makes up a large part of the Subbasin SWS inflows (average about 600 taf per year over the projected period). Surface water inflows and groundwater extraction also represent large SWS inflow components averaging about 120 and 100 taf per year, respectively. Groundwater discharge to surface water is a relatively smaller SWS inflow in the Subbasin averaging about 26 taf per year over the projected (current land use) water budget period.

Among the outflows from the Subbasin SWS, ET of precipitation and surface water outflow make up large fractions of the total Subbasin SWS outflows. ET of precipitation averages about 360 taf per year, while surface water outflows total about 330 taf per year on average. By comparison, other SWS outflows in the Subbasin are relatively smaller, with values for ET of applied water and deep percolation of precipitation averaging about 80 taf and 54 taf per year, respectively. The outflows of deep percolation of applied water, ET of groundwater uptake and infiltration (seepage) of surface water are about 13, 6.3, and 4.5 taf per year on average, respectively. Evaporation from surface water averages about 0.9 taf per year over the projected (current land use) water budget period.

Table 4-30. Red Bluff Subbasin Projected (Current Land Use) Surface System Annual Water Budget Summary (acre-feet)

Water Budget Component		Average (2022-2072)
Inflows	Surface Water Inflow	120,000
	Precipitation	600,000
	Groundwater Extraction	100,000
	Groundwater Discharge	26,000
Outflows	Surface Water Outflow	330,000
	ET of Applied Water	80,000
	ET of Groundwater Uptake	6,300
	ET of Precipitation	360,000
	Evaporation	910
	Deep Percolation of Applied Water	13,000
	Deep Percolation of Precipitation	54,000
	Infiltration of Surface Water	4,500
Annual Change in Root Zone Storage		**-46**

Summarized results for major components of the projected (current land use) water budget as they relate to the GWS are presented in **Table 4-31**. Among the outflows from the Subbasin GWS, groundwater pumping makes up the largest fraction of the total GWS outflows (on average -94 taf per year). Highly negative net seepage values (on average -21 taf per year) represent net groundwater discharging to surface waterways and leaving the GWS. Groundwater (root water) uptake directly from shallow groundwater (on average -6.3 taf per year) represents a smaller outflow from the GWS. Deep percolation is the largest net inflow component averaging about 67 taf per year. Positive net subsurface flows (on average 53 taf per year) represent the combined subsurface inflows from adjacent subbasins and upland areas. Overall, the water budget results for the 51-year projected (current land use) period indicate a cumulative change in groundwater storage of about -94 taf, which equals an average annual change in groundwater storage of only about -1.8 taf per year. This change in storage estimates equate to total decreases in storage in the Subbasin of about 0.34 af per acre on average over the 51 years and an annual decrease of less than 0.01 af per acre across the entire Subbasin (approximately 272,000 acres).

Detailed results for each of the individual water budget components in the projected (current land use) water budget are presented in **Appendix D-2**.

Table 4-31. Red Bluff Subbasin Projected (Current Land Use) Groundwater System Annual Water Budget Summary (acre-feet)

Water Budget Component	Average (2022-2072)
Total Net Seepage	-21,000
Deep Percolation	67,000
Groundwater Pumping	-94,000
Groundwater Uptake	-6,300
Total Net Subsurface Flows	53,000
Annual Change in Groundwater Storage	**-1,800**

4.4.3. Projected (Future Land Use) Water Budget Results

Annual inflows, outflows, and change in SWS root zone storage during the projected (future land use) water budget period (2022-2072) are summarized in **Table 4-32**. Of particular note in the projected (future land use) SWS water budget results are the volume of precipitation that makes up a large part of the Subbasin SWS inflows (average about 600 taf over the projected period). Groundwater extraction and surface water inflows also represent large SWS inflow components averaging about 140 and 120 taf per year, respectively. Groundwater discharge to surface water is a relatively smaller SWS inflow in the Subbasin averaging about 16 taf per year over the projected (future land use) water budget period.

Among the outflows from the Subbasin SWS, ET of precipitation and surface water outflow make up large fractions of the total Subbasin SWS outflows. ET of precipitation averages about 360 taf per year, while surface water outflows total about 330 taf per year on average. By comparison, other SWS outflows in the Subbasin are relatively smaller, with values for ET of applied water and deep percolation of precipitation averaging about 110 and 51 taf per year, respectively. The outflows of deep percolation of applied water, infiltration (seepage) of surface water, and ET of groundwater uptake are about 17, 7.1, and 4.8 taf per year on average, respectively. Evaporation from surface water averages about 0.97 taf per year over the projected (current land use) water budget period.

Table 4-32. Red Bluff Subbasin Projected (Future Land Use) Surface System Annual Water Budget Summary (acre-feet)

Water Budget Component		Average (2022-2072)
Inflows	Surface Water Inflow	120,000
	Precipitation	600,000
	Groundwater Extraction	140,000
	Groundwater Discharge	16,000
Outflows	Surface Water Outflow	330,000
	ET of Applied Water	110,000
	ET of Groundwater Uptake	4,800
	ET of Precipitation	360,000
	Evaporation	970
	Deep Percolation of Applied Water	17,000
	Deep Percolation of Precipitation	51,000
	Infiltration of Surface Water	7,100
Annual Change in Root Zone Storage		**-50**

Summarized results for major components of the projected (future land use) water budget as they relate to the GWS are presented in **Table 4-33**. Among the outflows from the Subbasin GWS, groundwater pumping makes up the largest fraction of the total GWS outflows (on average -130 taf per year). Negative net seepage values (on average -9.3 taf per year) represent net groundwater discharging to surface waterways and leaving the GWS. Groundwater (root water) uptake directly from shallow groundwater (on average -4.8 taf per year) represents a smaller outflow from the GWS. Positive net subsurface flows and deep percolation are the largest net inflow components averaging about 74 and 68 taf per year, respectively. Overall, the water budget results for the 51-year projected (future land use) period indicate a cumulative change in groundwater storage of about -150 taf, which equals an average annual change in groundwater storage of only about -2.9 taf per year. This change in storage estimates equate to total decreases in storage in the Subbasin of about 0.54 af per acre on average over the 51 years and an annual decrease of about 0.01 af per acre across the entire Subbasin (approximately 272,000 acres).

Detailed results for each of the individual water budget components in the projected (future land use) water budget are presented in **Appendix D-3**.

Table 4-33. Red Bluff Subbasin Projected (Future Land Use) Groundwater System Annual Water Budget Summary (acre-feet)

Water Budget Component	Average (2022-2072)
Total Net Seepage	-9,300
Deep Percolation	68,000
Groundwater Pumping	-130,000
Groundwater Uptake	-4,800
Total Net Subsurface Flows	74,000
Annual Change in Groundwater Storage	**-2,900**

4.4.4. Projected (Current Land Use) with Climate Change Water Budget Results

A comparison of the major components of the projected (current land use) with climate change water budget as they relate to the GWS are presented in **Table 4-34**. Net seepage becomes less negative under climate change scenarios, indicating less groundwater discharge to streams. Deep percolation decreases slightly, while net subsurface flows increase slightly under climate change scenarios. Groundwater pumping increases under climate change scenarios, becoming a greater outflow from the groundwater system. Overall, the annual change in groundwater storage becomes more negative under climate change scenarios.

Detailed results for each of the individual water budget components in the projected (current land use) with climate change (2030) water budget are presented in **Appendix D-4**. Detailed results for each of the individual water budget components in the projected (current land use) with climate change (2070) water budget are presented in **Appendix D-5**.

Table 4-34. Comparison of Red Bluff Subbasin Projected (Current Land Use) Groundwater System Annual Water Budgets with Climate Change Adjustments (acre-feet)

GWS Water Budget Component	Projected (Current Land Use)		
	Baseline Scenario	Climate Change (2030)	Climate Change (2070)
Total Net Seepage	-21,000	-18,000	-12,000
Deep Percolation	67,000	67,000	64,000
Groundwater Pumping	-94,000	-99,000	-110,000
Groundwater Uptake	-6,300	-6,200	-5,500
Total Net Subsurface Flows	53,000	54,000	56,000
Annual Groundwater Storage Change	**-1,800**	**-1,900**	**-2,400**

4.4.5. Projected (Future Land Use) with Climate Change Water Budget Results

A comparison of the major components of the projected (future land use) with climate change water budget as they relate to the GWS are presented in **Table 4-35**. Net seepage becomes less negative under 2030 climate change scenario indicating a reduction of groundwater discharge to streams. Net seepage becomes slightly positive under 2070 climate change scenario indicating seepage from surface water to groundwater. Deep percolation decreases slightly under climate change scenarios, while net subsurface flows increase slightly under climate change scenarios. Groundwater pumping increases under climate change scenarios, becoming a greater outflow from the groundwater system. Overall, the annual change in groundwater storage becomes more negative under climate change scenarios.

Detailed results for each of the individual water budget components in the projected (future land use) with climate change (2030) water budget are presented in **Appendix D-6**. Detailed results for each of the individual water budget components in the projected (future land use) with climate change (2070) water budget are presented in **Appendix D-7**.

Table 4-35. Comparison of Red Bluff Subbasin Projected (Future Land Use) Groundwater System Annual Water Budgets with Climate Change Adjustments (acre-feet)

GWS Water Budget Component	Projected (Future Land Use)		
	Baseline Scenario	Climate Change (2030)	Climate Change (2070)
Total Net Seepage	-9,300	-6,000	830
Deep Percolation	68,000	68,000	66,000
Groundwater Pumping	-130,000	-140,000	-150,000
Groundwater Uptake	-4,800	-4,600	-4,100
Total Net Subsurface Flows	74,000	77,000	80,000
Annual Groundwater Storage Change	**-2,900**	**-3,000**	**-4,100**

Note: positive values indicate inflows/increasing storage, negative values indicate outflows/decreasing storage.

4.4.6. Projected (Future Land Use) with Projects and Climate Change Water Budget Results

Summarized results for major components of the projected (future land use) with projects and climate change (2070) water budget as they relate to the GWS are presented in **Table 4-36**. Among the outflows from the Subbasin SWS, groundwater pumping makes up the largest fraction of the total SWS outflows (on average -150 taf per year). Groundwater (root water) uptake directly from shallow groundwater (on average -4.8 taf per year) represents a smaller outflow from the GWS. Positive net subsurface flows and deep percolation are the largest net inflow components averaging about 74 and 68 taf per year, respectively. Net seepage values (on average 0.3 taf per year) represents a smaller inflow to the GWS. Overall, the water budget results for the 51-year projected (future land use) with projects and climate change (2070) period indicate a cumulative change in groundwater storage of about -180 taf, which equals an average annual change in groundwater storage of only about -3.5 taf per year. This change in storage estimates equate to total decreases in storage in the Subbasin of about -0.66 af per acre on average over the 51 years and an annual decrease of about -0.01 af per acre across the entire Subbasin (approximately 272,000 acres).

Detailed results for each of the individual water budget components in the projected (future land use) with projects and climate change (2070) water budget are presented in **Appendix D-8**.

Table 4-36. Red Bluff Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Groundwater System Annual Water Budget Summary (acre-feet)

Water Budget Component	Average (2022-2072)
Total Net Seepage	300
Deep Percolation	67,000
Groundwater Pumping	-150,000
Groundwater Uptake	-4,300
Total Net Subsurface Flows	79,000
Annual Change in Groundwater Storage	**-3,500**

4.5. Summary of Subbasin Water Budget Results by Aquifer Zone

This section provides a summary comparison of the Subbasin water budget results for the different historical and projected conditions evaluated, including by primary aquifer zone.

4.5.1. Antelope Subbasin

Table 4-37 provides a summary comparison of the Antelope Subbasin water budget results for the different historical and projected conditions evaluated, including by primary aquifer zone. Net seepage becomes less negative in the projected scenarios as compared to the historical scenario, indicating less groundwater discharge to streams. The decrease in groundwater discharge to streams is greatest in the climate change scenarios which correlated with higher surface water inflows occurring under the climate change scenarios. Deep percolation from the SWS to the GWS is relatively stable between the historical and projected scenarios, but decreases slightly under the climate change scenarios. Net subsurface flows decrease in the projected scenarios as compared to the historical scenario, indicating decreased inflows to the Subbasin. These subsurface inflows decrease slightly under climate change scenarios. Groundwater pumping increases slightly in the projected scenarios as compared to the historical scenario and increases only modestly under climate change scenarios. Overall, all historical and projected water budgets suggest decreases in groundwater storage by varying magnitudes. The projected changes in storage are likely within the range of uncertainty in the water budget estimates.

As presented in **Table 4-37**, groundwater pumping in the Antelope Subbasin occurs primarily from the Upper Aquifer and historically averaged about 15 taf per year from the Upper Aquifer; in projected water budget scenarios, average groundwater pumping from the Upper Aquifer is estimated to range between 16 and 18 taf per year, depending on the water budget scenario. In the historical water budget period, groundwater pumping from the Lower Aquifer was estimated to average about 27 af per year; under projected water budget scenarios groundwater pumping from the Lower Aquifer is estimated to average between 36 and 45 af per year, depending on the water budget scenario.

Net subsurface flows in the Subbasin occur primarily from the Upper Aquifer and historically averaged about 51 taf per year of inflow to the Upper Aquifer; in projected water budget scenarios, average net subsurface flows to the Upper Aquifer are estimated to range between 29 and 42 taf per year of inflow, depending on the water budget scenario. All subsurface flows are inflows the Upper Aquifer along all boundaries. Net subsurface flows from the Red Bluff Subbasin were historically inflows to the Upper Aquifer, but shift to outflows in the projected (future land use) scenarios.

In the historical water budget period, net subsurface flows to the Lower Aquifer were estimated to average about 260 af per year of outflows; under projected water budget scenarios net subsurface flows to the Lower Aquifer are estimated to average between 99 and 140 af per year of outflows, depending on the water budget scenario. The majority of net subsurface inflows to the Lower Aquifer come from the Red Bluff Subbasin and Bend Subbasin. The majority of net subsurface outflows from the Lower Aquifer are to the Los Molinos Subbasin and to the Upper Aquifer.

The average change in groundwater storage within each of the two primary aquifers in the Subbasin are very minor under all historical and projected water budget scenarios. The water budget results suggest that slight decreases in groundwater storage are projected to occur in the Upper and Lower Aquifers, depending on the projected water budget scenario. The projected changes in storage are likely within the range of uncertainty in the water budget estimates.

Table 4-37. Comparison of Antelope Subbasin GWS Water Budgets (acre-feet)

GWS Water Budget Component	Historical	Projected (Current Land Use)			Projected (Future Land Use)		
		No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)	No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)
Upper Aquifer							
Net Seepage	-48,000	-38,000	-36,000	-33,000	-28,000	-26,000	-22,000
Deep Percolation	12,000	11,000	12,000	11,000	11,000	11,000	11,000
Groundwater Extraction	-15,000	-16,000	-17,000	-18,000	-16,000	-17,000	-18,000
Net Subsurface Flows	51,000	42,000	42,000	39,000	33,000	32,000	29,000
Horizontal flow from (+)/to (-) Los Molinos Subbasin	12,000	9,900	9,800	9,200	8,900	8,700	8,100
Horizontal flow from (+)/to (-) Red Bluff Subbasin	3,500	1,200	980	430	-2,500	-2,900	-3,700
Horizontal flow from (+)/to (-) Bend Subbasin	2,000	2,100	2,100	2,200	2,200	2,200	2,300
Vertical flow from (+)/to (-) Lower Aquifer	34,000	29,000	29,000	27,000	24,000	23,000	22,000
Annual Groundwater Storage Change	**-330**	**-160**	**-160**	**-180**	**-170**	**-180**	**-200**
Lower Aquifer							

GWS Water Budget Component	Historical	Projected (Current Land Use)			Projected (Future Land Use)		
		No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)	No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)
Net Seepage	0	0	0	0	0	0	0
Deep Percolation	0	0	0	0	0	0	0
Groundwater Extraction	-27	-36	-39	-45	-36	-39	-45
Net Subsurface Flows	-260	-99	-100	-110	-120	-120	-140
Horizontal flow from (+)/to (-) Los Molinos Subbasin	-6,900	-7,000	-7,000	-7,100	-6,200	-6,200	-6,200
Horizontal flow from (+)/to (-) Red Bluff Subbasin	22,000	17,000	16,000	15,000	10,000	9,700	8,100
Horizontal flow from (+)/to (-) Bend Subbasin	18,000	19,000	19,000	19,000	20,000	20,000	20,000
Vertical flow from (+)/to (-) Upper Aquifer	-34,000	-29,000	-29,000	-27,000	-24,000	-23,000	-22,000
Annual Groundwater Storage Change	**-290**	**-130**	**-140**	**-160**	**-160**	**-160**	**-180**
Entire Groundwater System							
Net Seepage	-48,000	-38,000	-36,000	-33,000	-28,000	-26,000	-22,000
Deep Percolation	12,000	11,000	12,000	11,000	11,000	11,000	11,000
Groundwater Extraction	-15,000	-16,000	-17,000	-18,000	-16,000	-17,000	-18,000
Net Subsurface Flows	50,000	42,000	42,000	39,000	33,000	32,000	29,000
Horizontal flow from (+)/to (-) Los Molinos Subbasin	4,700	2,900	2,800	2,100	2,600	2,600	1,900
Horizontal flow from (+)/to (-) Red Bluff Subbasin	25,000	18,000	17,000	15,000	8,000	6,800	4,400
Horizontal flow from (+)/to (-) Bend Subbasin	20,000	21,000	21,000	21,000	22,000	22,000	22,000
Annual Groundwater Storage Change	**-610**	**-290**	**-300**	**-340**	**-330**	**-340**	**-390**

4.5.2. Bowman Subbasin

Table 4-38 provides a summary comparison of the Bowman Subbasin water budget results for the different historical and projected conditions evaluated, including by primary aquifer zone. Net seepage increases in the projected scenarios as compared to the historical scenario, indicating greater stream seepage to groundwater. The increases in stream seepage are greatest in the climate change scenarios

which correlated with higher surface water inflows occurring under the climate change scenarios. Deep percolation from the SWS to the GWS is relatively stable between the historical and projected scenarios, but decreases slightly under the climate change scenarios. Net subsurface flows become slightly more negative in the projected scenarios as compared to the historical scenario, indicating greater outflows from the Subbasin. These subsurface outflows vary slightly under climate change scenarios. Groundwater pumping increases slightly in the projected scenarios as compared to the historical scenario, and increases under climate change scenarios. Overall, all historical and projected water budgets suggest decreases in groundwater storage by varying magnitudes. The projected changes in storage are likely within the range of uncertainty in the water budget estimates.

As presented in **Table 4-38**, groundwater pumping in the Bowman Subbasin occurs primarily from the Upper Aquifer and historically averaged about 6.9 taf per year from the Upper Aquifer; in projected water budget scenarios, average groundwater pumping from the Upper Aquifer is estimated to range between 7.1 and 7.6 taf per year, depending on the water budget scenario. In the historical water budget period, groundwater pumping from the Lower Aquifer was estimated to average about 2.2 af per year; under projected water budget scenarios groundwater pumping from the Lower Aquifer is estimated to average between 2 and 2.3 af per year, depending on the water budget scenario.

Net subsurface flows in the Subbasin occur primarily from the Upper Aquifer and historically averaged about 89 taf per year of outflow from the Upper Aquifer; in projected water budget scenarios, average net subsurface flows from the Upper Aquifer are estimated to range between 91 and 94 taf per year of outflow, depending on the water budget scenario. The majority of net subsurface inflows to the Upper Aquifer come from the Anderson Subbasin and South Battle Creek Subbasin. The majority of net subsurface outflows from the Upper Aquifer are to the Red Bluff Subbasin and to the Lower Aquifer.

In the historical water budget period, net subsurface flows to the Lower Aquifer were estimated to average about 1.1 taf per year of inflows; under projected water budget scenarios net subsurface flows to the Lower Aquifer are estimated to average between 2.1 and 2.2 taf per year of inflows, depending on the water budget scenario. The majority of net subsurface inflows to the Lower Aquifer come from the Anderson Subbasin, South Battle Creek Subbasin, and Upper Aquifer. The majority of net subsurface outflows from the Lower Aquifer are to the Red Bluff Subbasin.

The average change in groundwater storage within each of the two primary aquifers in the Subbasin are very minor under all historical and projected water budget scenarios. The water budget results suggest that slight decreases in groundwater storage are projected to occur in the Upper and Lower Aquifers, depending on the projected water budget scenario. The projected changes in storage are likely within the range of uncertainty in the water budget estimates.

Table 4-38. Comparison of Bowman Subbasin GWS Water Budgets (acre-feet)

GWS Water Budget Component	Historical	Projected (Current Land Use)			Projected (Future Land Use)		
		No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)	No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)
Upper Aquifer							
Net Seepage	43,000	46,000	47,000	48,000	47,000	48,000	49,000
Deep Percolation	53,000	53,000	53,000	51,000	53,000	53,000	51,000
Groundwater Extraction	-6,900	-7,100	-7,300	-7,600	-7,100	-7,300	-7,600
Net Subsurface Flows	-89,000	-92,000	-93,000	-91,000	-94,000	-94,000	-93,000
Horizontal flow from (+)/to (-) Red Bluff Subbasin	-10,000	-11,000	-11,000	-11,000	-11,000	-11,000	-11,000
Horizontal flow from (+)/to (-) Anderson Subbasin	960	1,200	1,200	1,400	1,200	1,300	1,400
Horizontal flow from (+)/to (-) South Battle Creek Subbasin	4,200	4,400	4,500	4,500	4,600	4,600	4,600
Vertical flow from (+)/ to (-) Lower Aquifer	-84,000	-87,000	-88,000	-87,000	-89,000	-89,000	-88,000
Annual Groundwater Storage Change	**-620**	**-320**	**-330**	**-380**	**-340**	**-350**	**-400**
Lower Aquifer							
Net Seepage	0	0	0	0	0	0	0
Deep Percolation	0	0	0	0	0	0	0
Groundwater Extraction	-2,200	-2,000	-2,100	-2,200	-2,100	-2,200	-2,300
Net Subsurface Flows	1,100	2,100	2,200	2,100	2,200	2,200	2,100
Horizontal flow from (+)/to (-) Red Bluff Subbasin	-110,000	-110,000	-110,000	-110,000	-110,000	-110,000	-110,000
Horizontal flow from (+)/to (-) Anderson Subbasin	21,000	21,000	21,000	21,000	22,000	22,000	22,000
Horizontal flow from (+)/to (-) South Battle Creek Subbasin	5,300	5,800	5,900	5,900	6,200	6,200	6,300
Vertical flow from (+)/to (-) Upper Aquifer	84,000	87,000	88,000	87,000	89,000	89,000	88,000
Annual Groundwater Storage Change	**-1,100**	**110**	**91**	**-33**	**35**	**11**	**-120**

GWS Water Budget Component	Historical	Projected (Current Land Use)			Projected (Future Land Use)		
		No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)	No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)
Entire Groundwater System							
Net Seepage	43,000	46,000	47,000	48,000	47,000	48,000	49,000
Deep Percolation	53,000	53,000	53,000	51,000	53,000	53,000	51,000
Groundwater Extraction	-9,100	-9,100	-9,300	-9,800	-9,200	-9,500	-9,900
Net Subsurface Flows	-88,000	-90,000	-91,000	-89,000	-91,000	-92,000	-90,000
Horizontal flow from (+)/to (-) Red Bluff Subbasin	-120,000	-120,000	-120,000	-120,000	-130,000	-130,000	-130,000
Horizontal flow from (+)/to (-) Anderson Subbasin	22,000	22,000	22,000	23,000	23,000	23,000	24,000
Horizontal flow from (+)/to (-) South Battle Creek Subbasin	9,400	10,000	10,000	10,000	11,000	11,000	11,000
Annual Groundwater Storage Change	**-1,700**	**-210**	**-240**	**-420**	**-300**	**-340**	**-530**

4.5.3. Los Molinos Subbasin

Table 4-39 provides a summary comparison of the Los Molinos Subbasin water budget results for the different historical and projected conditions evaluated, including by primary aquifer zone. Net seepage increases in the projected scenarios as compared to the historical scenario, indicating greater stream seepage to groundwater. The increases in stream seepage are greatest in the climate change scenarios which correlated with higher surface water inflows occurring under the climate change scenarios. Deep percolation from the SWS to the GWS decreases in the projected scenarios as compared to the historical scenario, and decreases slightly under the climate change scenarios. Net subsurface flows become more negative in the projected scenarios as compared to the historical scenario, indicating greater outflows from the Subbasin. These subsurface outflows become more negative under climate change scenarios. Groundwater pumping decreases slightly in the projected scenarios as compared to the historical scenario, and increases under climate change scenarios. Overall, all historical and projected water budgets suggest decreases in groundwater storage by varying magnitudes.

As presented in **Table 4-39**, groundwater pumping in the Los Molinos Subbasin occurs primarily from the Upper Aquifer and historically averaged about 30 taf per year from the Upper Aquifer; in projected water budget scenarios, average groundwater pumping from the Upper Aquifer is estimated to range between 24 and 27 taf per year, depending on the water budget scenario. In the historical water budget period, groundwater pumping from the Lower Aquifer was estimated to average about 2.7 af per year; under projected water budget scenarios groundwater pumping from the Lower Aquifer is estimated to average between 3.2 and 3.7 af per year, depending on the water budget scenario.

Net subsurface flows in the Subbasin occur primarily from the Upper Aquifer and historically averaged about 57 taf per year of outflow from the Upper Aquifer; in projected water budget scenarios, average net subsurface flows from the Upper Aquifer are estimated to range between 88 and 95 taf per year of outflow, depending on the water budget scenario. All subsurface flows from the Upper Aquifer are outflows from the Los Molinos Subbasin.

In the historical water budget period, net subsurface flows to the Lower Aquifer were estimated to average about 2.7 taf per year of inflows; under projected water budget scenarios net subsurface flows to the Lower Aquifer are estimated to average between 3.2 and 3.7 taf per year of inflows, depending on the water budget scenario. The majority of net subsurface inflows to the Lower Aquifer come from the Antelope Subbasin, Red Bluff Subbasin, and Upper Aquifer. The majority of net subsurface outflows from the Lower Aquifer are to the Corning Subbasin and Vina Subbasin.

The average change in groundwater storage within each of the two primary aquifers in the Subbasin are very minor under all historical and projected water budget scenarios. The water budget results suggest that slight decreases in groundwater storage are projected to occur in the Upper and Lower Aquifers, depending on the projected water budget scenario.

Table 4-39. Comparison of Los Molinos Subbasin GWS Water Budgets (acre-feet)

GWS Water Budget Component	Historical	Projected (Current Land Use)			Projected (Future Land Use)		
		No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)	No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)
Upper Aquifer							
Net Seepage	33,000	59,000	62,000	67,000	63,000	66,000	71,000
Deep Percolation	54,000	52,000	52,000	50,000	51,000	51,000	49,000
Groundwater Extraction	-30,000	-24,000	-25,000	-27,000	-24,000	-25,000	-26,000
Net Subsurface Flows	-57,000	-88,000	-90,000	-91,000	-92,000	-93,000	-95,000
Horizontal flow from (+)/to (-) Antelope Subbasin	-12,000	-9,900	-9,800	-9,200	-8,900	-8,700	-8,100
Horizontal flow from (+)/to (-) Red Bluff Subbasin	-3,200	-2,400	-2,500	-2,500	-2,900	-3,000	-3,000
Horizontal flow from (+)/to (-) Corning Subbasin	-390	-3,200	-3,400	-3,900	-3,500	-3,800	-4,300
Horizontal flow from (+)/to (-) Vina Subbasin	-13,000	-16,000	-16,000	-16,000	-16,000	-16,000	-16,000
Vertical flow from (+)/to (-) Lower Aquifer	-30,000	-58,000	-59,000	-61,000	-62,000	-63,000	-65,000
Annual Groundwater Storage Change	**-1,100**	**-1,100**	**-1,100**	**-1,300**	**-1,200**	**-1,200**	**-1,400**

GWS Water Budget Component	Historical	Projected (Current Land Use)			Projected (Future Land Use)		
		No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)	No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)
Lower Aquifer							
Net Seepage	0	0	0	0	0	0	0
Deep Percolation	0	0	0	0	0	0	0
Groundwater Extraction	-2,700	-3,200	-3,400	-3,700	-3,200	-3,400	-3,700
Net Subsurface Flows	1,300	2,500	2,700	2,800	2,400	2,600	2,700
Horizontal flow from (+)/to (-) Antelope Subbasin	6,900	7,000	7,000	7,100	6,200	6,200	6,200
Horizontal flow from (+)/to (-) Red Bluff Subbasin	5,400	3,300	2,900	2,100	870	320	-620
Horizontal flow from (+)/to (-) Corning Subbasin	840	-4,000	-4,500	-5,400	-5,100	-5,700	-6,700
Horizontal flow from (+)/to (-) Vina Subbasin	-43,000	-62,000	-63,000	-63,000	-62,000	-62,000	-62,000
Vertical flow from (+)/to (-) Upper Aquifer	30,000	58,000	59,000	61,000	62,000	63,000	65,000
Annual Groundwater Storage Change	**-1,400**	**-730**	**-760**	**-860**	**-810**	**-850**	**-960**
Entire Groundwater System							
Net Seepage	33,000	59,000	62,000	67,000	63,000	66,000	71,000
Deep Percolation	54,000	52,000	52,000	50,000	51,000	51,000	49,000
Groundwater Extraction	-33,000	-27,000	-29,000	-31,000	-27,000	-28,000	-30,000
Net Subsurface Flows	-56,000	-86,000	-87,000	-88,000	-89,000	-91,000	-92,000
Horizontal flow from (+)/to (-) Antelope Subbasin	-4,700	-2,900	-2,800	-2,100	-2,600	-2,600	-1,900
Horizontal flow from (+)/to (-) Red Bluff Subbasin	2,200	880	390	-360	-2,000	-2,600	-3,700
Horizontal flow from (+)/to (-) Corning Subbasin	450	-7,100	-7,900	-9,300	-8,700	-9,600	-11,000
Horizontal flow from (+)/to (-) Vina Subbasin	-56,000	-79,000	-79,000	-79,000	-78,000	-78,000	-78,000
Annual Groundwater Storage Change	**-2,500**	**-1,800**	**-1,900**	**-2,100**	**-2,000**	**-2,100**	**-2,300**

4.5.4. Red Bluff Subbasin

Table 4-40 provides a summary comparison of the Red Bluff Subbasin water budget results for the different historical and projected conditions evaluated, including by primary aquifer zone. Net seepage becomes less negative in the projected scenarios as compared to the historical scenario, indicating less groundwater discharge to streams. The decreases in groundwater discharge to streams are greatest in the climate change scenarios which correlated with higher surface water inflows occurring under the climate change scenarios. Deep percolation from the SWS to the GWS decreases between the historical and projected scenarios, and decreases slightly under the climate change scenarios. Net subsurface flows increase in the projected scenarios as compared to the historical scenario, indicating greater inflows to the Subbasin. These subsurface inflows increase under climate change scenarios. Groundwater pumping increases in the projected scenarios as compared to the historical scenario, and increases under climate change scenarios. Overall, all historical and projected water budgets suggest decreases in groundwater storage by varying magnitudes.

As presented in **Table 4-40**, groundwater pumping in the Red Bluff Subbasin occurs primarily from the Upper Aquifer and historically averaged about 78 taf per year from the Upper Aquifer; in projected water budget scenarios, average groundwater pumping from the Upper Aquifer is estimated to range between 84 and 130 taf per year, depending on the water budget scenario. In the historical water budget period, groundwater pumping from the Lower Aquifer was estimated to average about 12 af per year; under projected water budget scenarios groundwater pumping from the Lower Aquifer is estimated to average between 16 and 21 af per year, depending on the water budget scenario.

Net subsurface flows in the Subbasin occur primarily from the Upper Aquifer and historically averaged about 43 taf per year of inflow from the Upper Aquifer; in projected water budget scenarios, average net subsurface flows from the Upper Aquifer are estimated to range between 39 and 62 taf per year of inflow, depending on the water budget scenario. The majority of net subsurface inflows to the Upper Aquifer come from the Bowman Subbasin, Los Molinos Subbasin, South Battle Creek Subbasin, and the Lower Aquifer. The majority of net subsurface outflows from the Upper Aquifer are to the Corning Subbasin and to the Bend Subbasin. Net subsurface flows from the Antelope Subbasin were historically outflows to the Upper Aquifer, but shift to inflows in the projected (future land use) scenarios.

In the historical water budget period, net subsurface flows to the Lower Aquifer were estimated to average about 5.3 taf per year of inflows; under projected water budget scenarios net subsurface flows to the Lower Aquifer are estimated to average between 15 and 18 taf per year of inflows, depending on the water budget scenario. The majority of net subsurface inflows to the Lower Aquifer come from the Bowman Subbasin and South Battle Creek Subbasin. The majority of net subsurface outflows from the Lower Aquifer are to the Antelope Subbasin, Los Molinos Subbasin, Corning Subbasin, and Bend Subbasin, and Upper Aquifer.

The average change in groundwater storage within each of the two primary aquifers in the Subbasin are very minor under all historical and projected water budget scenarios. The water budget results suggest that slight decreases in groundwater storage are projected to occur in the Upper and Lower Aquifers, depending on the projected water budget scenario.

Table 4-40. Comparison of Red Bluff Subbasin GWS Water Budgets (acre-feet)

GWS Water Budget Component	Historical	Projected (Current Land Use)			Projected (Future Land Use)		
		No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)	No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)
Upper Aquifer							
Net Seepage	-39,000	-21,000	-18,000	-12,000	-9,300	-6,000	830
Deep Percolation	70,000	67,000	67,000	64,000	68,000	68,000	66,000
Groundwater Extraction	-78,000	-84,000	-88,000	-93,000	-120,000	-120,000	-130,000
Net Subsurface Flows	43,000	39,000	39,000	40,000	58,000	59,000	62,000
Horizontal flow from (+)/to (-) Antelope Subbasin	-3,500	-1,200	-980	-430	2,500	2,900	3,700
Horizontal flow from (+)/to (-) Bowman Subbasin	10,000	11,000	11,000	11,000	11,000	11,000	11,000
Horizontal flow from (+)/to (-) Los Molinos Subbasin	3,200	2,400	2,500	2,500	2,900	3,000	3,000
Horizontal flow from (+)/to (-) Corning Subbasin	-4,700	-5,800	-5,900	-5,900	-4,300	-4,300	-4,200
Horizontal flow from (+)/to (-) Bend Subbasin	-3,900	-3,700	-3,700	-3,700	-3,500	-3,500	-3,400
Horizontal flow from (+)/to (-) South Battle Creek Subbasin	660	670	670	660	670	670	660
Vertical flow from (+)/to (-) Lower Aquifer	41,000	35,000	35,000	36,000	48,000	49,000	51,000
Annual Groundwater Storage Change	**-3,500**	**-510**	**-560**	**-750**	**-740**	**-810**	**-1,000**
Lower Aquifer							
Net Seepage	0	0	0	0	0	0	0
Deep Percolation	0	0	0	0	0	0	0
Groundwater Extraction	-12,000	-16,000	-17,000	-18,000	-19,000	-20,000	-21,000
Net Subsurface Flows	5,300	15,000	15,000	16,000	16,000	17,000	18,000
Horizontal flow from (+)/to (-) Antelope Subbasin	-22,000	-17,000	-16,000	-15,000	-10,000	-9,700	-8,100

GWS Water Budget Component	Historical	Projected (Current Land Use)			Projected (Future Land Use)		
		No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)	No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)
Horizontal flow from (+)/to (-) Bowman Subbasin	110,000	110,000	110,000	110,000	110,000	110,000	110,000
Horizontal flow from (+)/to (-) Los Molinos Subbasin	-5,400	-3,300	-2,900	-2,100	-870	-320	620
Horizontal flow from (+)/to (-) Corning Subbasin	-23,000	-30,000	-30,000	-31,000	-27,000	-27,000	-27,000
Horizontal flow from (+)/to (-) Bend Subbasin	-14,000	-14,000	-14,000	-13,000	-13,000	-13,000	-13,000
Horizontal flow from (+)/to (-) South Battle Creek Subbasin	850	860	860	860	860	870	860
Vertical flow from (+)/to (-) Upper Aquifer	-41,000	-35,000	-35,000	-36,000	-48,000	-49,000	-51,000
Annual Groundwater Storage Change	**-7,100**	**-1,300**	**-1,400**	**-1,700**	**-2,100**	**-2,200**	**-2,600**
Entire Groundwater System							
Net Seepage	-39,000	-21,000	-18,000	-12,000	-9,300	-6,000	830
Deep Percolation	70,000	67,000	67,000	64,000	68,000	68,000	66,000
Groundwater Extraction	-90,000	-100,000	-100,000	-110,000	-140,000	-140,000	-150,000
Net Subsurface Flows	49,000	53,000	54,000	56,000	74,000	77,000	80,000
Horizontal flow from (+)/to (-) Antelope Subbasin	-25,000	-18,000	-17,000	-15,000	-8,000	-6,800	-4,400
Horizontal flow from (+)/to (-) Bowman Subbasin	120,000	120,000	120,000	120,000	130,000	130,000	130,000
Horizontal flow from (+)/to (-) Los Molinos Subbasin	-2,200	-880	-390	360	2,000	2,600	3,700
Horizontal flow from (+)/to (-) Corning Subbasin	-28,000	-36,000	-36,000	-37,000	-31,000	-31,000	-31,000
Horizontal flow from (+)/to (-) Bend Subbasin	-18,000	-17,000	-17,000	-17,000	-16,000	-16,000	-16,000

GWS Water Budget Component	Historical	Projected (Current Land Use)			Projected (Future Land Use)		
		No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)	No Climate Adjust-ment	Climate Change (2030)	Climate Change (2070)
Horizontal flow from (+)/to (-) South Battle Creek Subbasin	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Annual Groundwater Storage Change	**-11,000**	**-1,800**	**-1,900**	**-2,400**	**-2,900**	**-3,000**	**-3,600**

4.6. Modeled Groundwater Levels

A number of wells were selected to evaluate simulated groundwater elevations within Tehama IHM. Wells with constructions data and a long period of record were selected to provide good horizontal and vertical spatial representation and to represent various aquifer parameter zones. Hydrographs of simulated groundwater elevations are presented in **Appendix E**. In general, water levels in the projected (current land use) and projected (future land use) scenarios follow the same trends as the historical scenario. In the climate change scenarios, water levels begin showing slight declines over the projected period. Maps of historical simulated groundwater elevation for key time periods are presented in **Appendix F**.

4.7. Modeled Streamflows

A number of stream nodes were selected to evaluate simulated streamflows within Tehama IHM. These nodes represent flows through Antelope Creek Group, Cottonwood Creek , Deer Creek Group, Dye Creek, Elder Creek, Mill Creek, Red Bank Creek, Sacramento River, and Thomes Creek. Hydrographs of historical simulated streamflows are presented in **Appendix G**. In general, average monthly flows in the projected (current land use) and projected (future land use) scenarios are slightly increased in the winter and spring months and relatively unchanged in the summer and fall months. In general, average monthly flows in the winter months are significantly increased during the winter months under climate change scenarios. Flows are decreased slightly in the spring to early summer months and are relatively unchanged in the late summer through fall months under climate change scenarios.

4.8. Model Calibration Results

Model calibration was achieved through comparison of observed groundwater levels and measured stream flows to model results. Observations used to constrain aquifer parameter values included approximately 7,900 groundwater level observations from 93 wells. Observations used to constrain stream bed parameters included approximately 3,900 stream flow measurements from 12 gage stations.

Calibration quality quantifies the ability of the groundwater model to simulate observed groundwater levels. These results are evaluated with respect to fit statistics outlined by Anderson and Woessner (2002). More qualitative measures of model fit are also commonly used to evaluate model calibration quality and included in the model results.

4.8.1. Statistical Measures of Model Fit

Model calibration was evaluated through five common residual error statistics used to characterize model fit. These include the mean of residual error (ME), mean of absolute residual error (MAE), root mean of squared residual error ($RMSE$), Normalized RMSE ($NRMSE$), and linear correlation coefficient (R). The residual error here is calculated by subtracting the observed value from the simulated value at a specific physical location and time.

The mean of residual error (ME) is a measure of the general model tendency to overestimate (+) or underestimate (-) measured values. In general, it is a quantification of the model bias given by:

$$ME = \frac{1}{N}\sum_{i=1}^{N}(y_i - \hat{y}_i)$$

Where: N is the total number of observations

y_i is the ith observed value

$\hat{y}_i$ is the ith simulated value of a model dependent variable

The mean absolute residual errors (MAE) is more robust to represent the goodness of fit as no individual errors will be canceled in the estimation as ME. The MAE estimates the average magnitude of the error between modeled and observed values and is defined as:

$$MAE = \frac{1}{N}\sum_{i=1}^{N}|(y_i - \hat{y}_i)|$$

The root mean of squared residual error ($RMSE$) is defined as the square root of the second moment of the differences between observed and simulated error. Since the error between each observed and simulated value is squared, larger errors tend to have a greater impact on the value of the $RMSE$, therefore RMSE is generally more sensitive to outliers than the MAE.

$$RMSE = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(y_i - \hat{y}_i)^{\,2}}$$

The normalized root mean squared error ($NRMSE$) is calculated to account for the scale dependency of the $RMSE$ and is a measure of the $RMSE$ divided by the range of observations (Anderson and Woessner, 2002).

The linear correlation coefficient (R) is defined in the following equations:

$$R = \frac{COV(y, \hat{y})}{\sigma_y . \sigma_{\hat{y}}}$$

Where: $COV(y, \hat{y}_i)$ is the covariance between the observed (y) and simulated ($\hat{y}$) values

σ_y is the standard deviation of the observed values

$\sigma_{\hat{y}}$ is the standard deviation of the simulated values

The value of R lies between 1 (perfect linear correlation) and -1 (perfect linear correlation in the opposite direction). Usually, simulated and observed quantity is plotted in a scatter diagram to represent the model calibration results graphically with associated linear correlation coefficient R.

There are no uniform calibration standards used to determine an acceptable calibration of a groundwater flow model (Anderson and Woessner, 2002; Anderson et al., 2015). Summary statistics, such as those discussed in this section, should be used to evaluate the fit of simulated values to observed data and to minimize the error between these values (Murray-Darling Basin Commission, 2001; ASTM, 2008). For the purposes of calibrating Tehama IHM, calibration targets were set to minimize the model error to within 10% of the range of observed values.

4.8.2. Groundwater Level Calibration

A subset of the approximately 2,400 wells that have observed groundwater levels in the study area was selected for model calibration. Wells were selected to provide a broad representation of the model domain based on the spatial distribution, availability of associated well construction information, depth zone of well completion, and period of record of available water level data. A total of 93 wells were selected to be used in calibration of Tehama IHM with a total of 7,913 water level observations during the calibration period. Simulated and observed groundwater elevations were compared over the 1990 through 2018 calibration period. To summarize calibration results, a single model layer was selected to compare to observed water levels. In some cases, a well is constructed across multiple model layers, or no construction details were available to determine where the well was screened. In these cases, a single model layer was chosen for each well based on a qualitative review of the hydrograph.

Groundwater level calibration statistics are presented in **Table 4-41**. As stated in **Section 4.7.1**, the calibration targets for Tehama IHM were set to minimize the model error to within 10% of the range of observed values. Observed groundwater level measurements used for calibration range from 44 to 499 feet, therefore an acceptable *RMSE* for Tehama IHM would be 45 feet.

The final calibrated *RMSE* was 21.6 feet, resulting in a *NRMSE* of 5%, well within acceptable limits. The calculated *MAE* is 13.6 ft, a small value when compared to the range of observed groundwater levels in the model domain (**Figure 4-1**). The calculated *ME* (-0.97 ft) indicates that the model tends to simulate slightly lower groundwater levels than observed (under-predict) by an average of about 1 foot. The relation between observed and simulated groundwater elevations is shown by layer in **Figure 4-2**. Points plotting above 1-to-1 correlation line represent observations where Tehama IHM is simulating higher than observed groundwater elevations, while points plotting below the 1-to-1 correlation line represent observations where Tehama IHM simulating lower than observed groundwater elevations. In general, while points are plotting close to the 1-to-1 correlation line (R = 0.98), the model tends to under simulate water levels at higher observed groundwater elevations. Groundwater hydrographs of simulated and observed groundwater elevations used for model calibration are included in **Appendix H.**

Table 4-41. Groundwater Level Calibration Statistics

Calibration Statistic	Result	Target
Mean of Residual Error (ME)	-0.97 feet	-
Mean Absolute Residual Error (MAE)	13.6 feet	-
Root Mean of Squared Residual Error (RMSE)	21.6 feet	45 feet
Normalized Root Mean of Squared Residual Error (NRMSE)	5%	10%
Linear Correlation Coefficient (R)	0.98	1

The spatial distribution of residual errors in the simulated levels are presented in **Figure 4-3**. Tehama IHM is generally well calibrated. Residuals tend to be randomly distributed, indicating no clear bias in the model. The spatial distribution of residual errors in the simulated levels by layer are presented in **Figure 4-4**. Residuals are randomly distributed by layer, indicating no clear vertical bias in the model.

4.8.3. Streamflow Calibration

Observed stream flow was compared to simulated stream flow at 12 locations. Observed stream flow data were available from the California Data Exchange Center (CDEC) and the USGS. Hydrographs of observed versus simulated stream flows are available in **Appendix I**. In general, simulated stream flows generally match observed stream flows, where data are available. Streambed parameters were adjusted during the calibration process. The final streambed conductance values, by node, are shown in **Figure 4-5.**

4.9. Aquifer Parameters

Initial aquifer parameter values assigned to each aquifer parameter zone were based on reported literature values. These values were further refined and adjusted during the calibration process. Final calibrated values for each of the parameter zones are presented in **Table 4-42**. These parameter values were applied to the percent coarse textural model to generate aquifer parameter values for each model node in each model layer.

Table 4-42. Summary of Tehama IHM Calibrated Aquifer Parameters

		Horizontal Hydraulic Conductivity (feet/day)	Vertical Hydraulic Conductivity (feet/day)	Specific Yield (-)	Specific Storage ($feet^{-1}$)	Anisotropy Ratio (Kv/Kh)
Percent Coarse End Member Values	Fine	5	-	0.01	1.00E-04	0.25
	Coarse	550	-	0.2	1.00E-06	
Zone Multipliers	Alluvium	1	1	1	1	
	Tuscan Formation	0.6	0.75	0.6	0.6	
	Tehama Formation	0.35	0.15	0.25	0.25	
	Non-Tuscan/Non-Tehama Zone	0.5	0.4	0.5	0.5	

NOTE: Power law empirical parameter for KH (pKh) = 1.00; for KV (pKv) = -0.62

4.9.1. Hydraulic Conductivity

The calibrated horizontal hydraulic conductivity (Kh) values range from 3.66 feet per day (ft/d) in layer 4 to 446.45 ft/d in layer 2 (**Table 4-43**). The final Kh values in the calibrated model area shown by model layer in **Figures 4-6** through **4-14**. Calibrated vertical hydraulic conductivity (Kv) values range from 0.19 ft/d in layer 4 to 13.02 ft/d in layer 2 (**Table 4-43**). The Kv values in the calibrated model are shown by model layer in **Figures 4-15** through **4-23**.

Table 4-43. Summary of Tehama IHM Calibrated Hydraulic Conductivity

	Horizontal Hydraulic Conductivity (feet/day)			Vertical Hydraulic Conductivity (feet/day)		
Model Layer	Minimum	Maximum	Average	Minimum	Maximum	Average
1	13.20	419.20	159.43	0.21	9.67	2.22
2	5.57	446.45	130.07	0.19	13.02	1.99
3	9.38	222.09	79.01	0.20	4.74	1.02
4	3.66	166.50	75.63	0.19	2.63	0.89
5	11.29	199.20	66.32	0.20	3.62	0.82
6	11.29	199.20	61.01	0.20	3.62	0.77
7	15.10	225.36	84.07	0.21	4.94	1.07
8	24.64	228.63	73.27	0.23	5.16	0.90
9	9.38	107.64	39.00	0.20	1.68	0.62
Total	**3.66**	**446.45**	**85.31**	**0.19**	**13.02**	**1.14**

4.9.2. Storage Coefficients

Final calibrated specific yield (Sy) values range from 0.003 in layers 2 and 4 to 0.164 in layer 2 (**Table 4-44**). The final Sy values in the calibrated model area shown by model layer in **Figures 4-24** through **4-32**. Calibrated specific storage (Ss) values range from 6.69E-06 ft^{-1} in layer 2 to 9.70E-05 ft^{-1} in layer 2 (**Table 4-44**). The Ss values in the calibrated model are shown by model layer in **Figures 4-33** through **4-41**.

Table 4-44. Summary of Tehama IHM Calibrated Storage Coefficients

	Specific Yield (-)			Specific Storage ($feet^{-1}$)		
Model Layer	Minimum	Maximum	Average	Minimum	Maximum	Average
1	0.005	0.154	0.059	7.68E-06	9.21E-05	3.67E-05
2	0.003	0.164	0.049	6.69E-06	9.70E-05	4.19E-05
3	0.004	0.082	0.029	8.42E-06	5.41E-05	2.69E-05
4	0.003	0.063	0.027	1.02E-05	5.47E-05	2.77E-05
5	0.005	0.074	0.024	1.39E-05	5.64E-05	2.92E-05
6	0.005	0.074	0.022	1.44E-05	5.64E-05	3.01E-05
7	0.006	0.084	0.030	1.04E-05	5.52E-05	2.62E-05
8	0.008	0.085	0.026	9.41E-06	4.87E-05	2.82E-05
9	0.004	0.042	0.015	1.71E-05	5.70E-05	3.40E-05
Total	**0.003**	**0.164**	**0.031**	**6.69E-06**	**9.70E-05**	**3.12E-05**

5. SENSITIVITY ANALYSIS AND MODEL UNCERTAINTY

5.1. Sensitivity Analysis

A model response or prediction depends on the governing equations it solves, the mechanisms and structure of the model, and the values of the model parameters. Sensitivity analysis is a means of evaluating model uncertainty due to parameter estimates by systematically altering one of the model parameters and examining the associated change in the model response. After the groundwater flow model was calibrated, a quantitative sensitivity analysis was performed using the flow model parameters that were most uncertain and likely to affect the flow simulation results. The calibrated flow model was used as the baseline simulation and sensitivity simulations were compared with those of the baseline simulation at all observation points. Model sensitivity was evaluated for model parameters using UCODE-2014. The basis of a model parameters sensitivity was based on groundwater elevation observations given a 1% parameter value perturbation. Sensitivity was evaluated through the Composite Scaled Sensitivity (CSS) statistic described by Hill and Tiedman (2007).

Sensitivity of simulated groundwater elevations to parameter perturbation are presented in **Figure 5-1**. The CSS statistic shows the model is most sensitive to the Horizontal Hydraulic Conductivity of Coarse Materials (KHC) parameter within the aquifer system defined in **Table 4-43**.

5.2. Model Uncertainty and Limitations

All groundwater flow models are a simplification of the natural environment, and therefore have uncertainty and limitations that are important to recognize. For this reason, uncertainty exists in the ability of any numerical model to completely represent groundwater flow. Some of the uncertainty is associated with limitations in available data. Considerable effort was made to reduce model uncertainty by using measured values as model inputs whenever available, and by conducting quality assurance and quality control assessments of data that were obtained. Where limited data exist to develop input values for parameters or other inputs with high uncertainty, a conservative approach to assigning input values was followed.

Uncertainty associated with water budget results estimated using the Tehama IHM depends in part on the model inputs relating to the surface water system with additional sources of uncertainty associated with model inputs relating to the groundwater system, including aquifer and streambed properties, specification of boundary conditions, and other factors. The uncertainty estimates associated with surface water system water budget components that are also inputs or outputs of the groundwater system water budget are noted in **Section 2.3 of the GSPs**. Recognizing the uncertainty of the surface water system water budget components, the overall uncertainty of other water budget components simulated for the groundwater system, including subsurface flows, groundwater discharging to surface water, and change in groundwater storage are estimated to be in the range of 10 to 30 percent. These groundwater system water budget components are subject to slightly higher uncertainty as they incorporate uncertainty in the surface water system water inflows and outflows with additional uncertainty resulting from limitations in available input data and simplification required in modeling of the subsurface heterogeneity. However, the uncertainty in the groundwater system water budget derived from a numerical model such as the Tehama IHM depends to a considerable degree on the calibration of the model and can vary by location and depth within the Subbasin. The Tehama IHM is a product of local refinement and improvements made to the SVSim model. The Tehama IHM simulates the integrated groundwater and surface water systems

and metrics relating to the calibration of the model indicate the model is reasonably well calibrated in accordance with generally accepted professional guidelines and is sufficient for GSP-related applications.

The finding and conclusions of this study are focused on a Subbasin scale and use of the model for site-specific analysis should be conducted with an understanding that representation of local site-specific conditions may be approximate and should be verified with local site-specific investigations. The flow model was developed in a manner consistent with the level of care and skill normally exercised by professionals practicing under similar conditions in the area. There is no warranty, expressed or implied, that this modeling study has considered or addresses all hydrogeological, hydrological, environmental, geotechnical, or other characteristics and properties associated with the subject model domain and the simulated system.

6. CONCLUSIONS

Based on the calibration of Tehama IHM using historical conditions over the calibration period from water year 1990 to 2018 and accompanying assessment of model sensitivity, the Tehama IHM groundwater flow model is suitable for use as a tool for analyses to support development and implementation of the Tehama County Subbasins' GSP and other water resource management interests within the Tehama County Subbasins.

Tehama IHM provides a useful tool for evaluating a wide variety of future scenarios and inform the decision-making process to achieve and maintain sustainable groundwater management in the Tehama County subbasins. A numerical model can be a convenient and cost-efficient tool for providing insights into groundwater responses to various perturbations including natural variability and change, and also changes associated with management decisions or other humanmade conditions. However, as with any other modeling tool, information obtained from a numerical model also has a level of uncertainty, especially for long-term predictions or forecasts. The level of uncertainty associated with model simulations likely increases the more the scenarios extend beyond the range of historical conditions and processes over which the model was calibrated, such as for long-term predictive scenarios or predictive scenarios with extreme alterations to the hydrologic conditions.

Future and ongoing updates to Tehama IHM will be valuable for improving the model performance and evaluating the accuracy of the model predictions. Using data from the ongoing historical monitoring efforts and forthcoming GSP monitoring, Tehama IHM should be updated periodically, including through extending of the model period and associated inputs. Although the frequency of conducting model updates may depend on a variety of factors, including evaluation of the model performance in predicting future conditions, trends in projected hydrology, and intended model applications, such an update could initially be considered every five years. This frequency of model update should be adequate and cost effective to test and improve Tehama IHM periodically with new site-specific and monitoring information. In accordance with monitoring and reporting requirements associated with the GSP, high-quality groundwater elevation, pumping, surface water deliveries, ET, and stream discharge data will especially benefit the future improvement of the model. New groundwater observation data should be compared with simulated model results to assess the performance of the model in predictive applications. If the differences between the measured groundwater data and Tehama IHM's predicted results are significant, adjustment and modification may be applied to the model input parameters.

Further refinement to Tehama IHM should be made by addressing key data gaps. Upon release of a calibrated SVSim model, an evaluation should be done to consider the benefits of incorporating any relevant aspects from the calibrated SVSim into the Tehama IHM. Through upcoming GSP-related monitoring, additional groundwater level data can be used to refine boundary condition water levels and improve model calibration. Additional improvements to model calibration can be made by the potential linking of additional well construction information to calibration wells, incorporation of additional stream flow data on ungaged streams, and refinements to the simulation of surface water distribution systems. Further refinements to Tehama IHM can be made by keeping the historical model simulations current through periodic updating of the model and review of model calibration in preparation for 5-year GSP update reports. Additional model revisions should be conducted in areas outside the Tehama County Subbasins as such data are obtained from adjacent Subbasins and determined to be beneficial in the evaluation of conditions within the Tehama County Subbasins.

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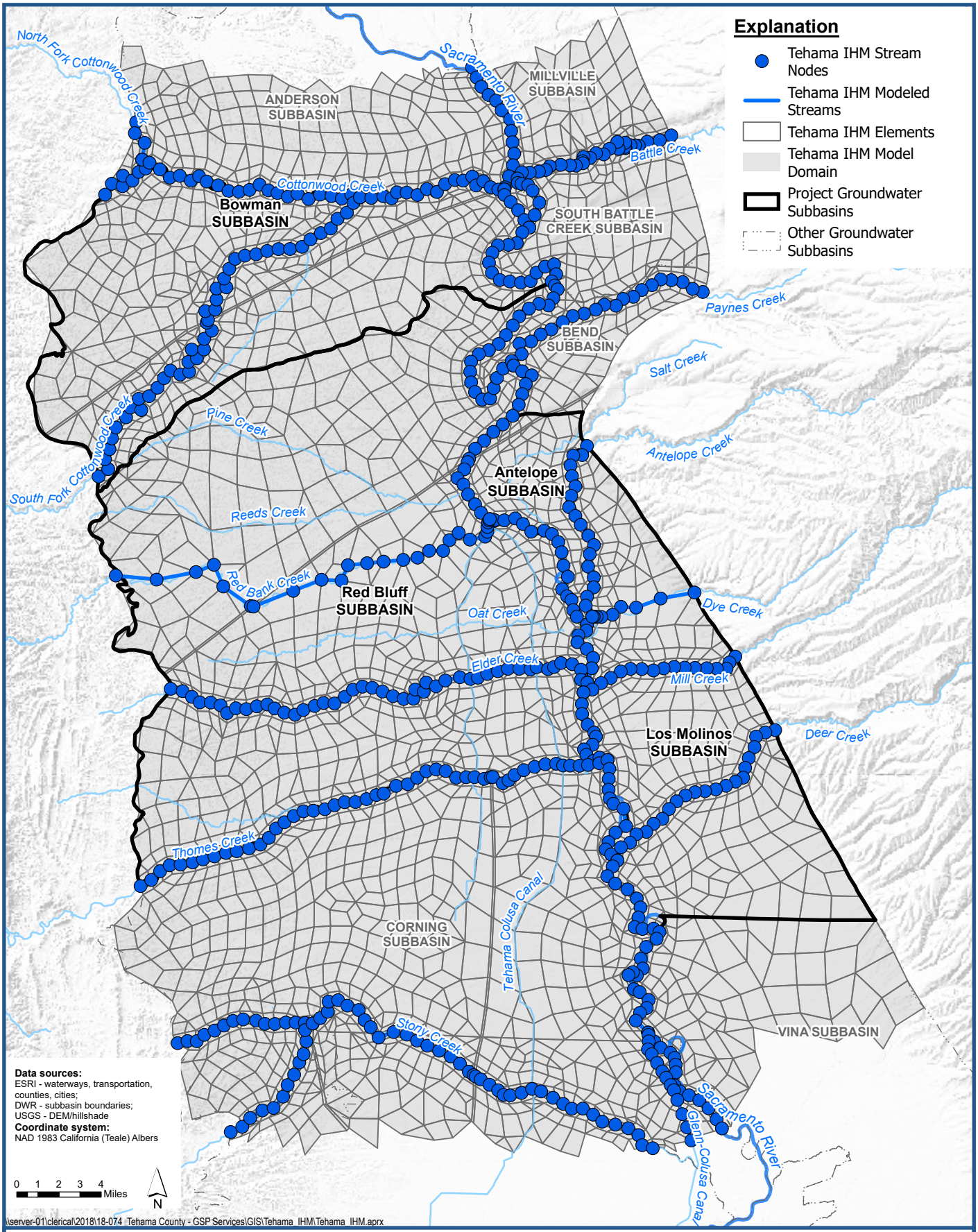
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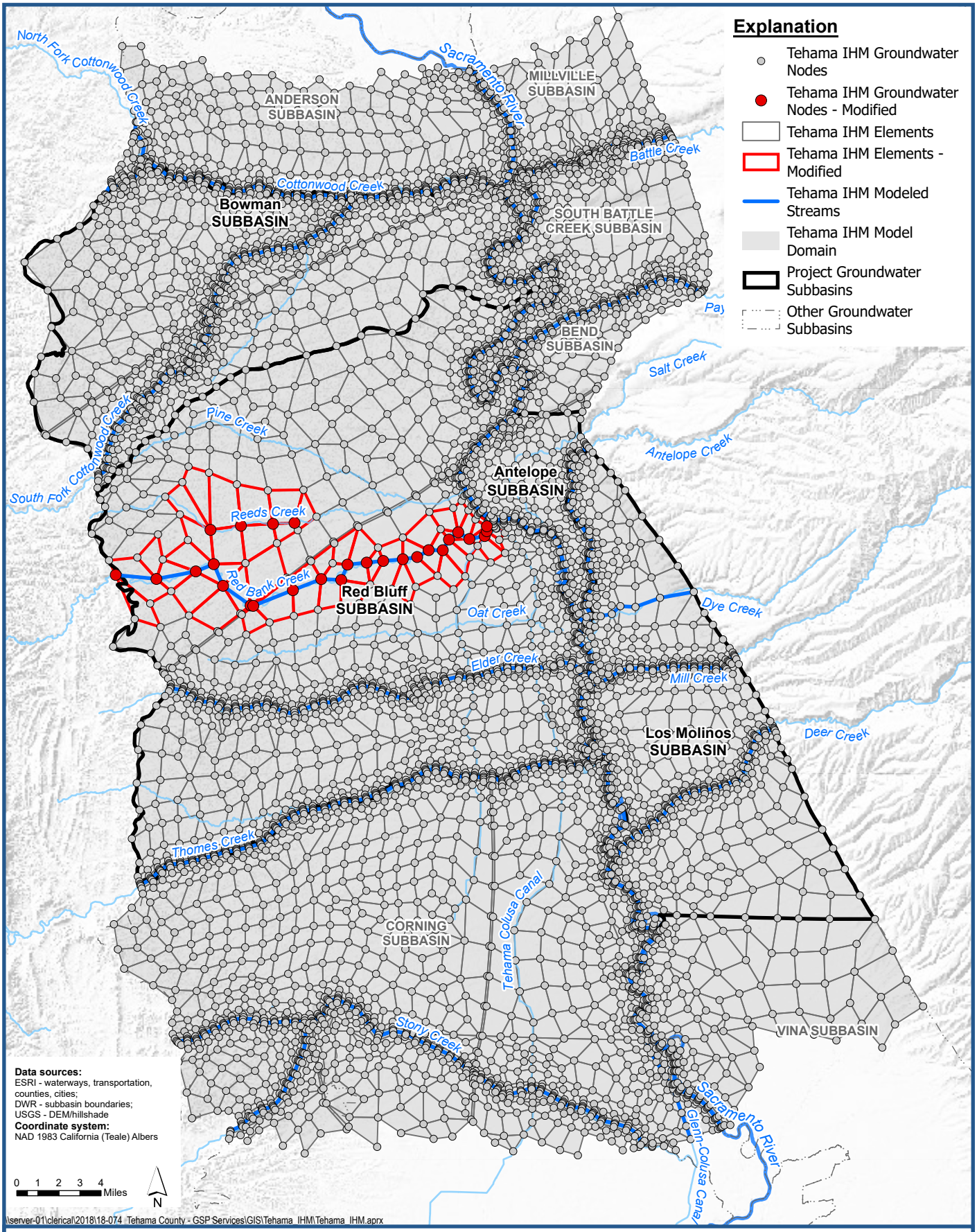
TEHAMA COUNTY

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Tehama Integrated Hydrologic Model (IHM) Domain

Groundwater Sustainability Planning
Tehama County, California

Figure 3-1



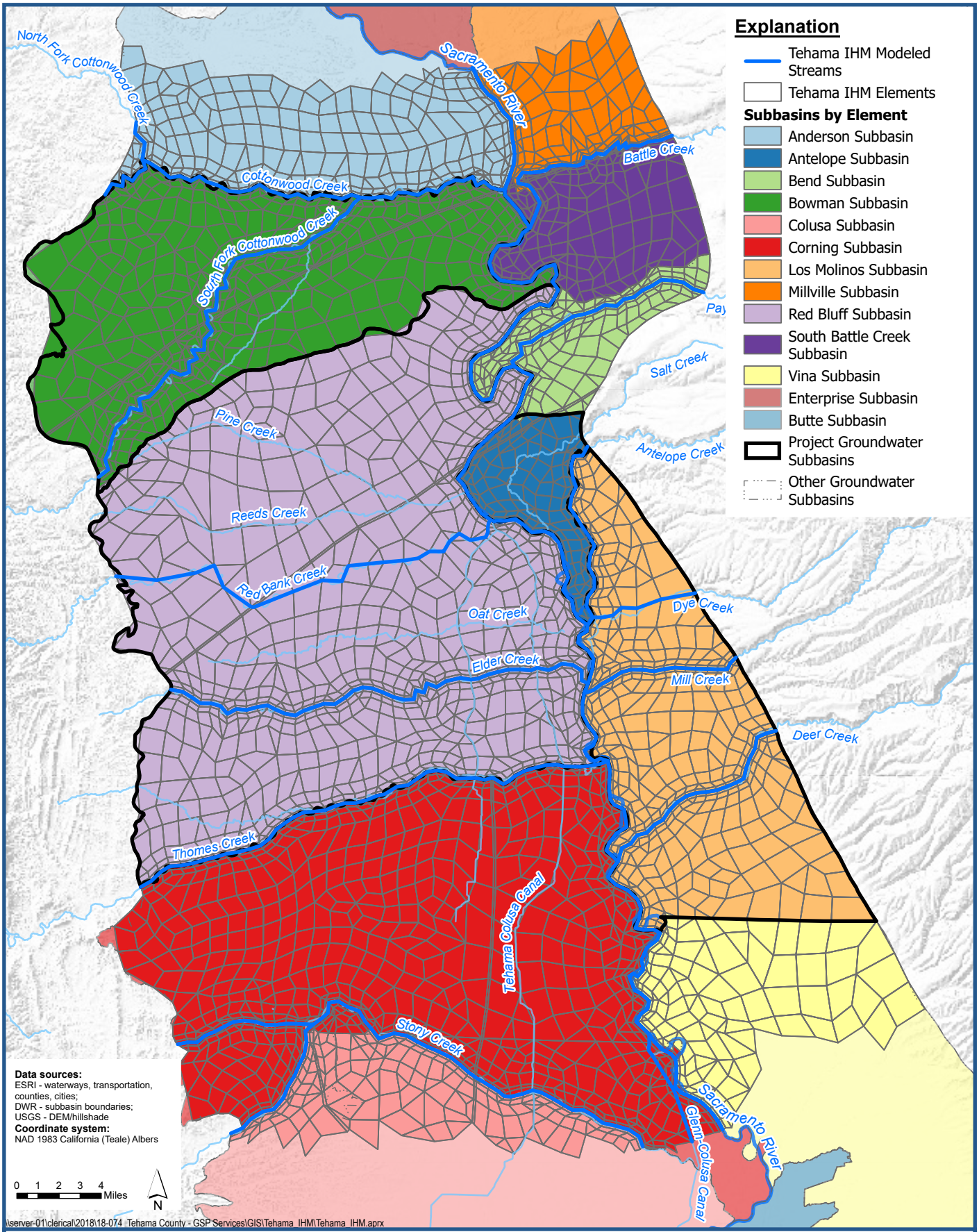
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Modified Nodes and Elements in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-2



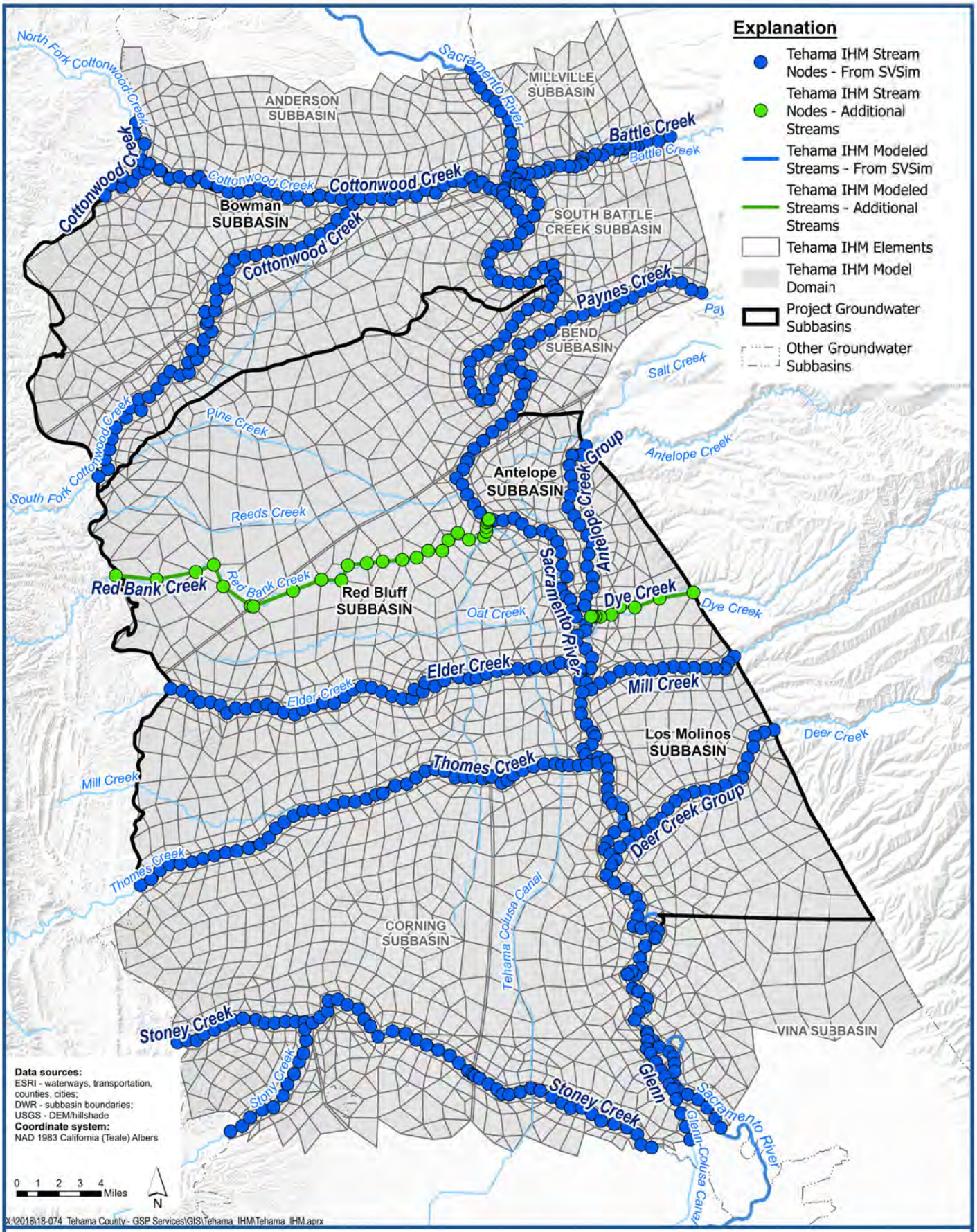
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Model Subregions within Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-3



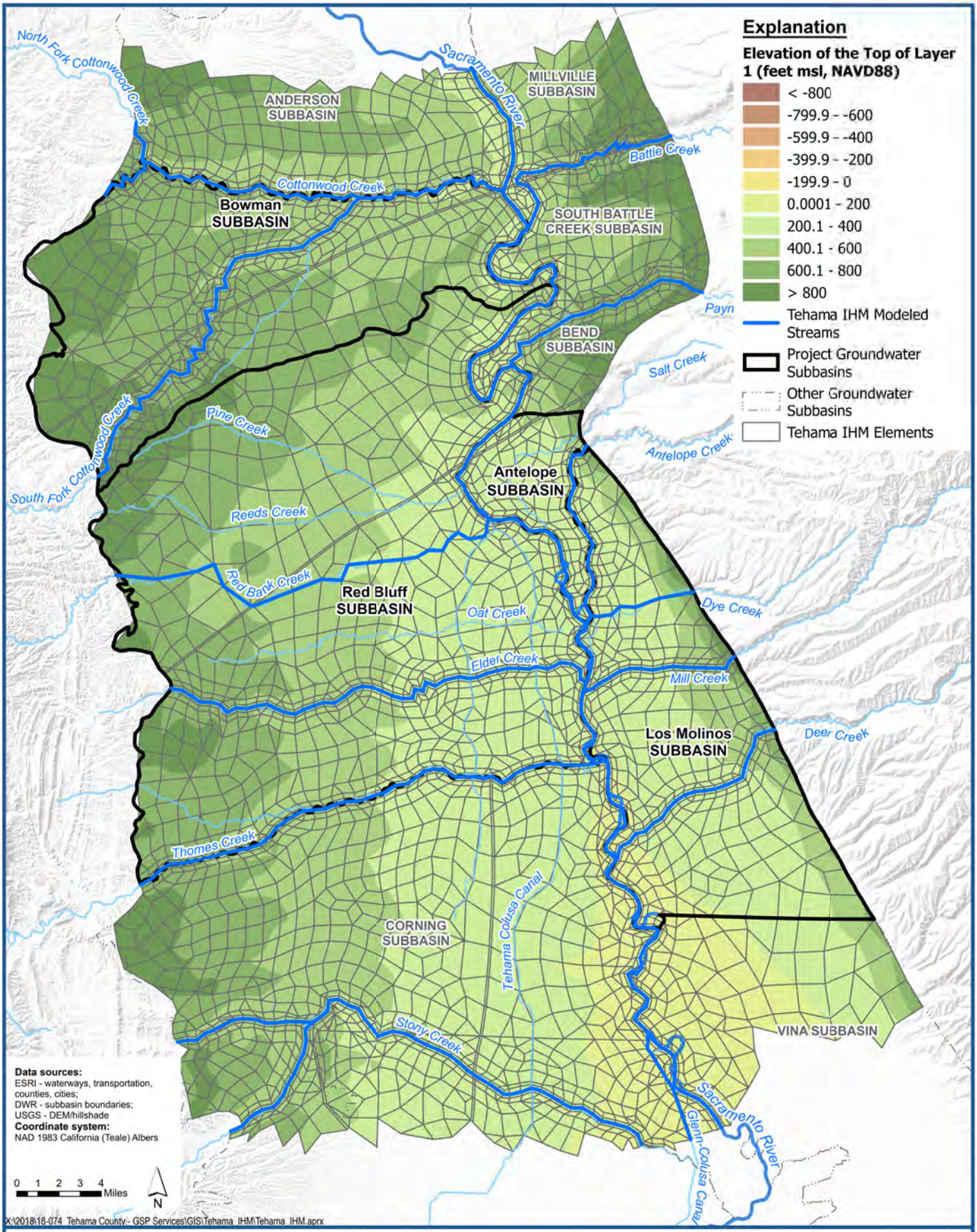
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Tehama IHM Stream Network

Groundwater Sustainability Planning
Tehama County, California

Figure 3-4



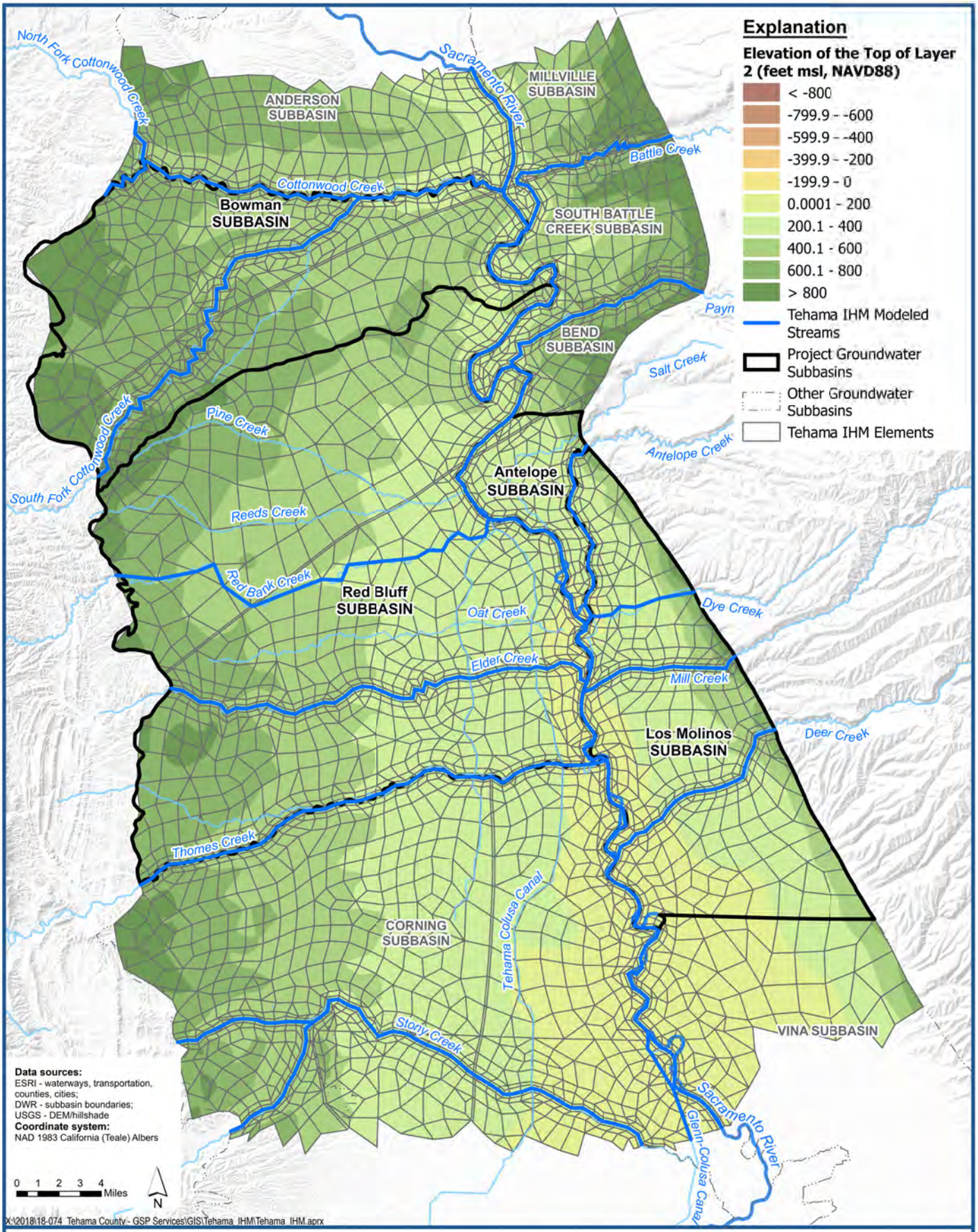
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Elevation of the Top of Layer 1 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-5



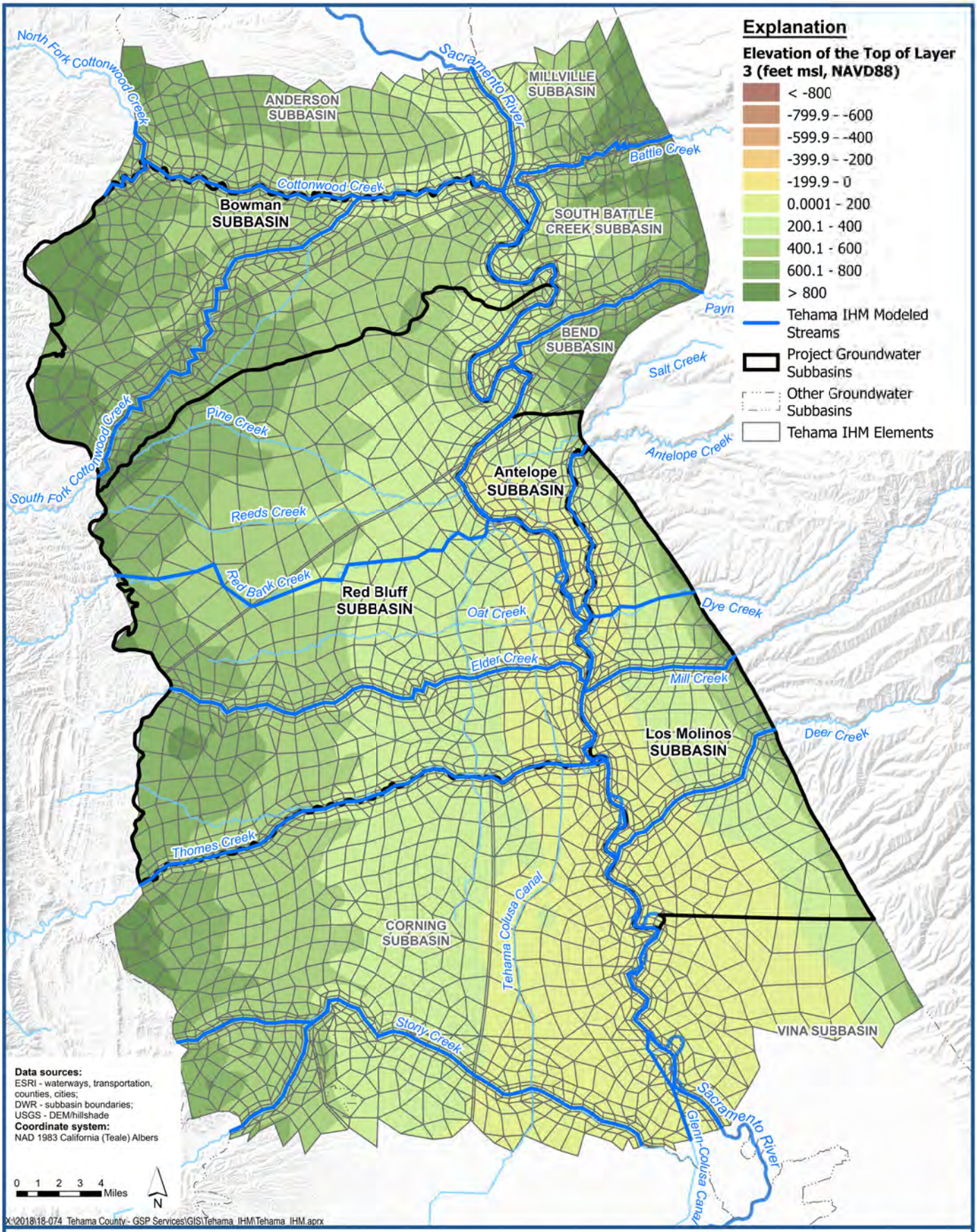
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Elevation of the Top of Layer 2 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-6



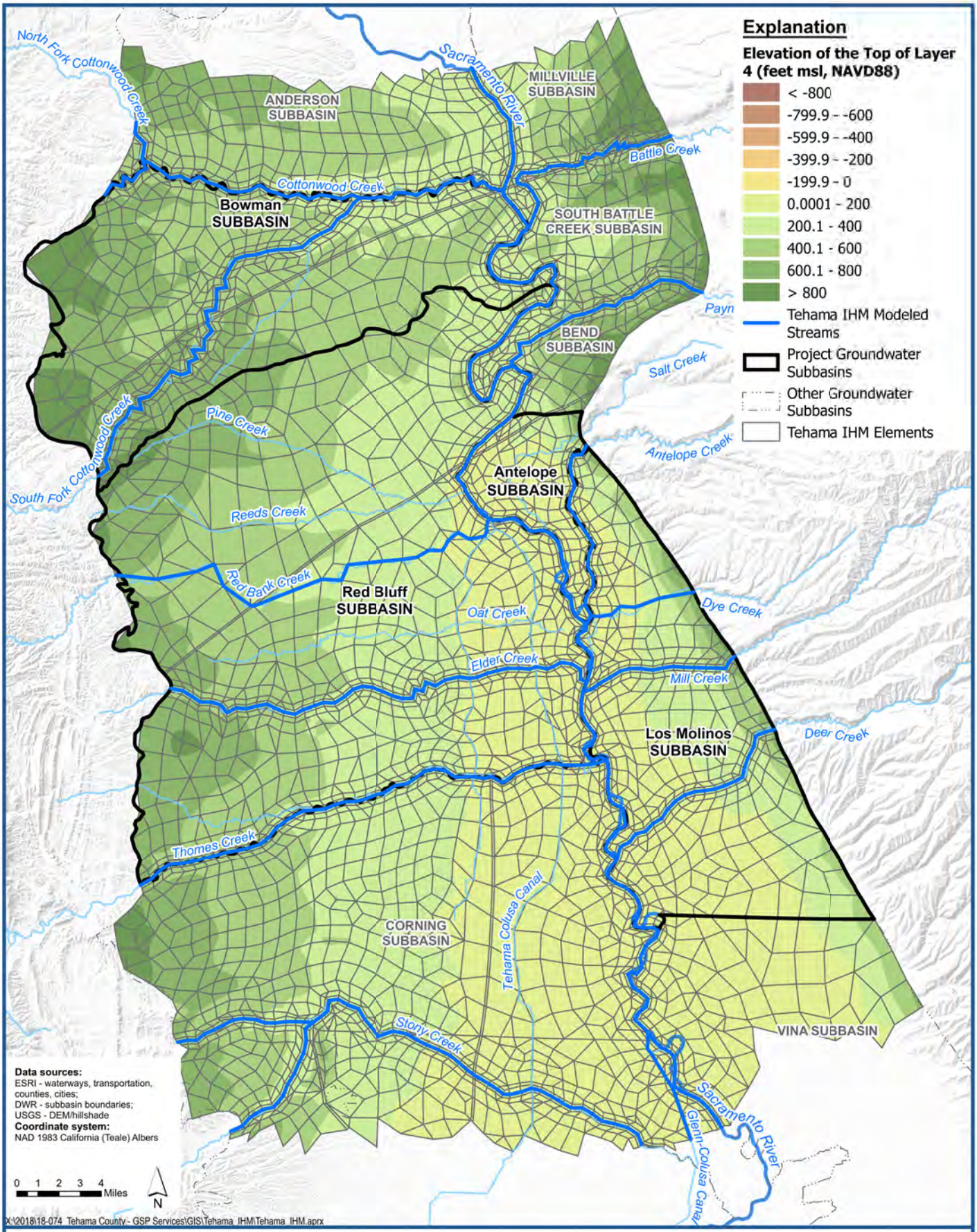
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Elevation of the Top of Layer 3 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-7



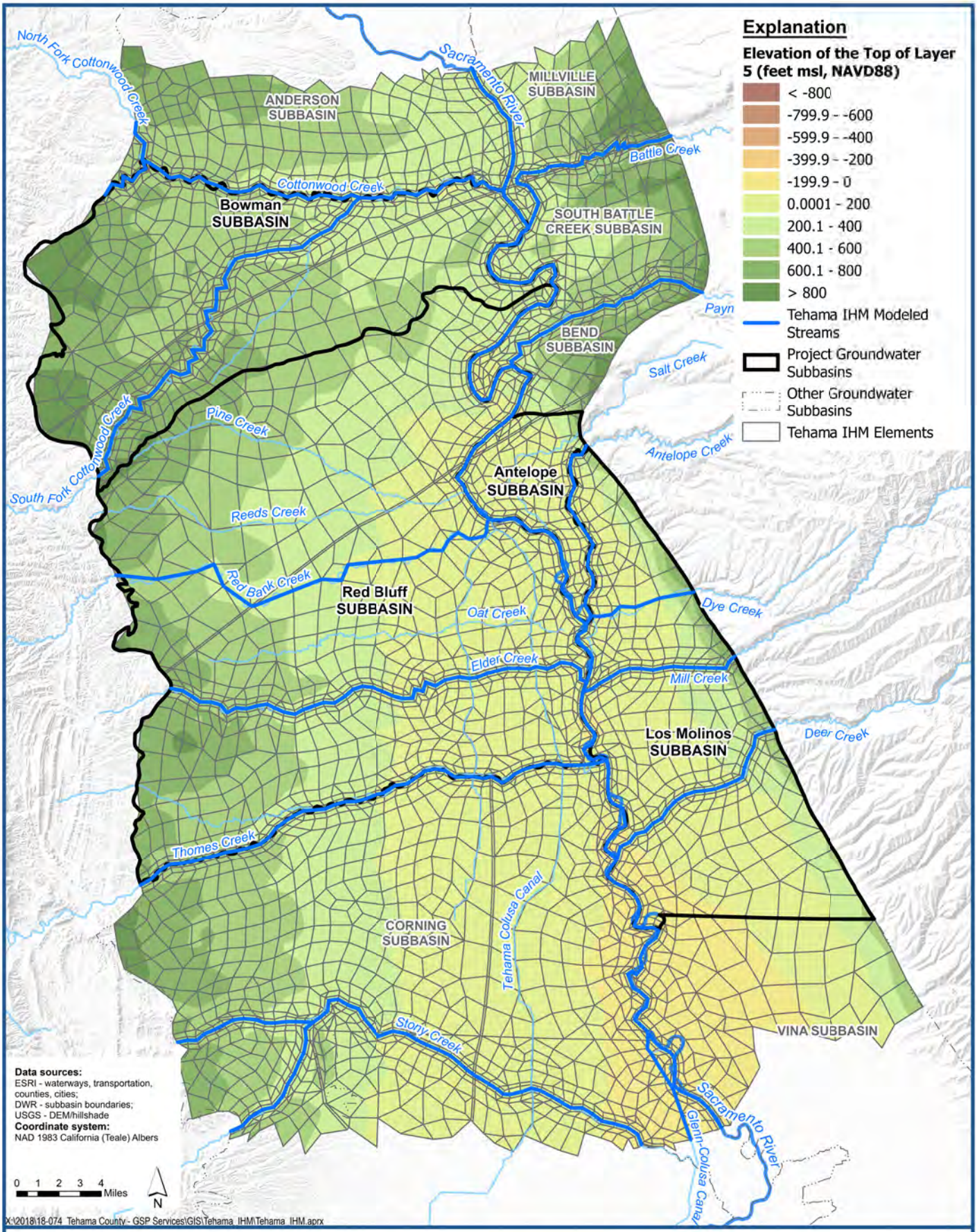
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Elevation of the Top of Layer 4 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-8



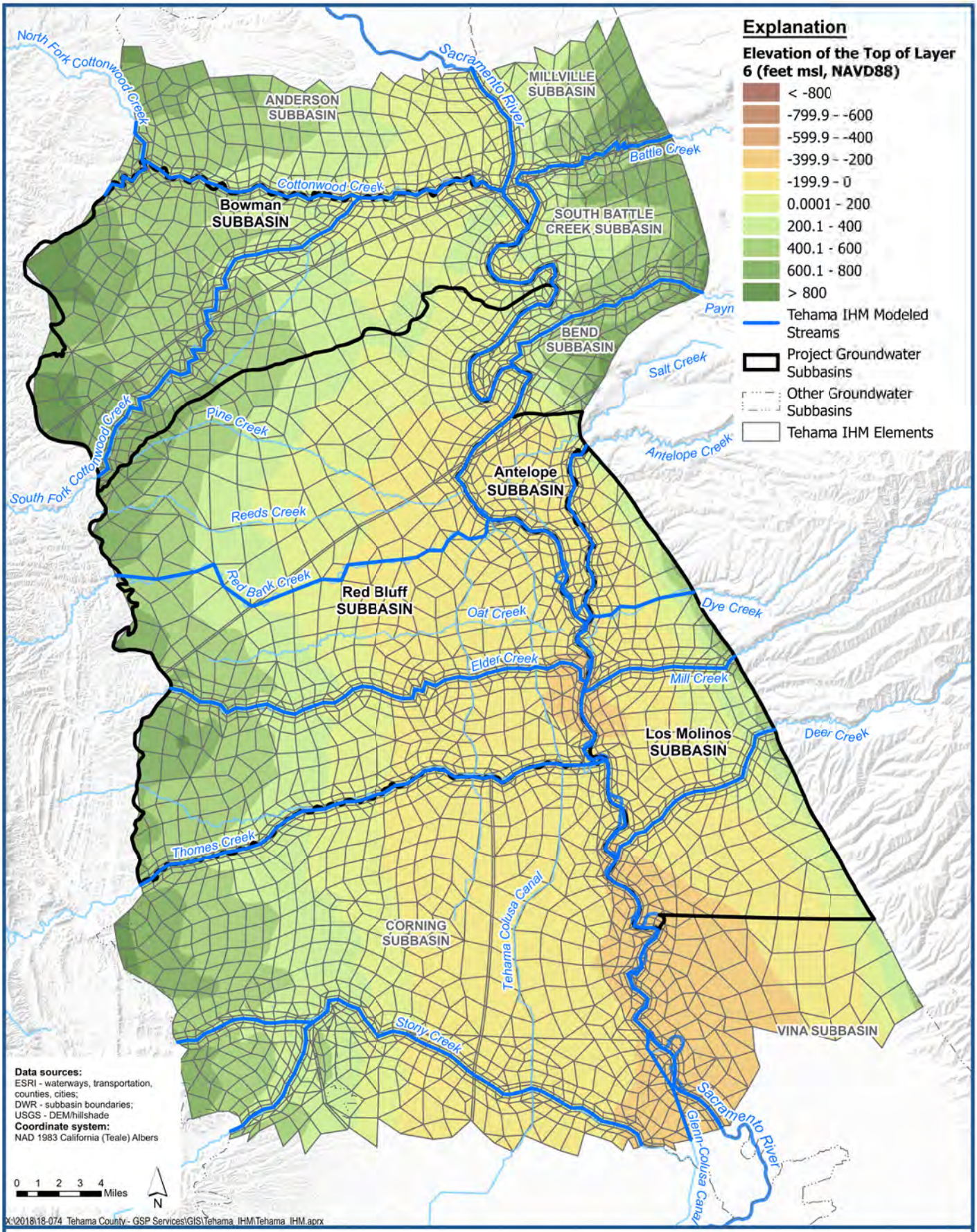
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Elevation of the Top of Layer 5 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-9



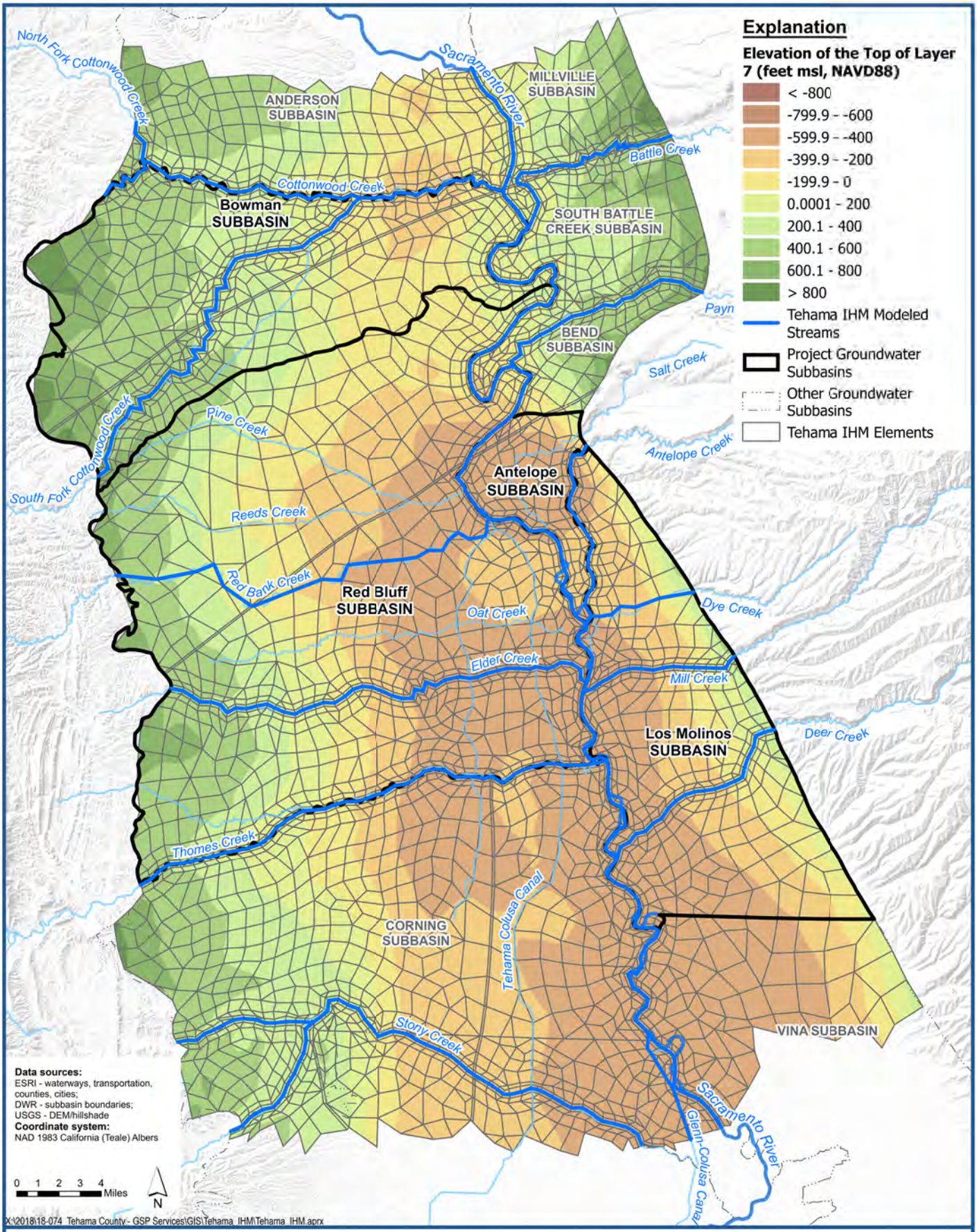
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Elevation of the Top of Layer 6 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-10



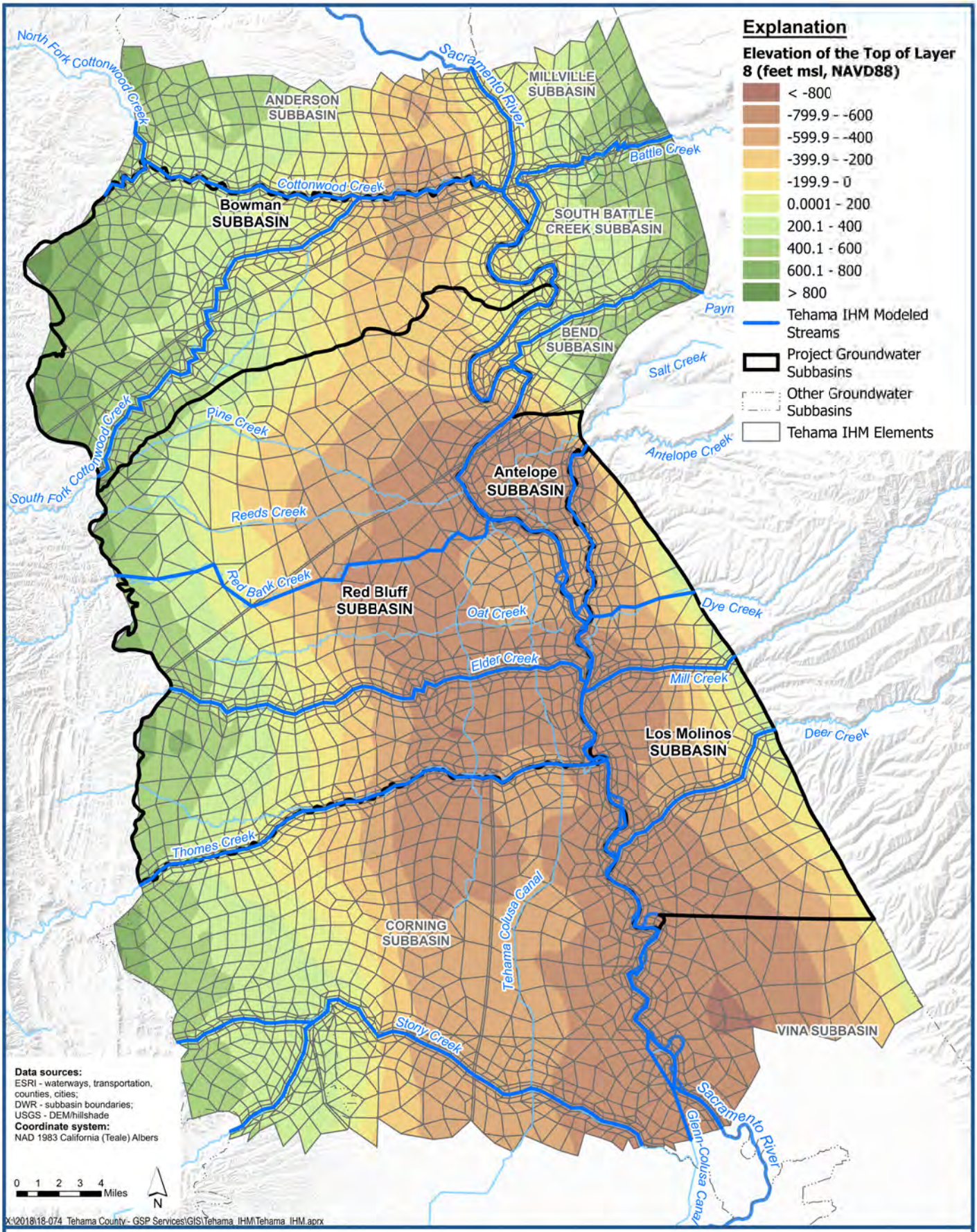
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Elevation of the Top of Layer 7 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-11



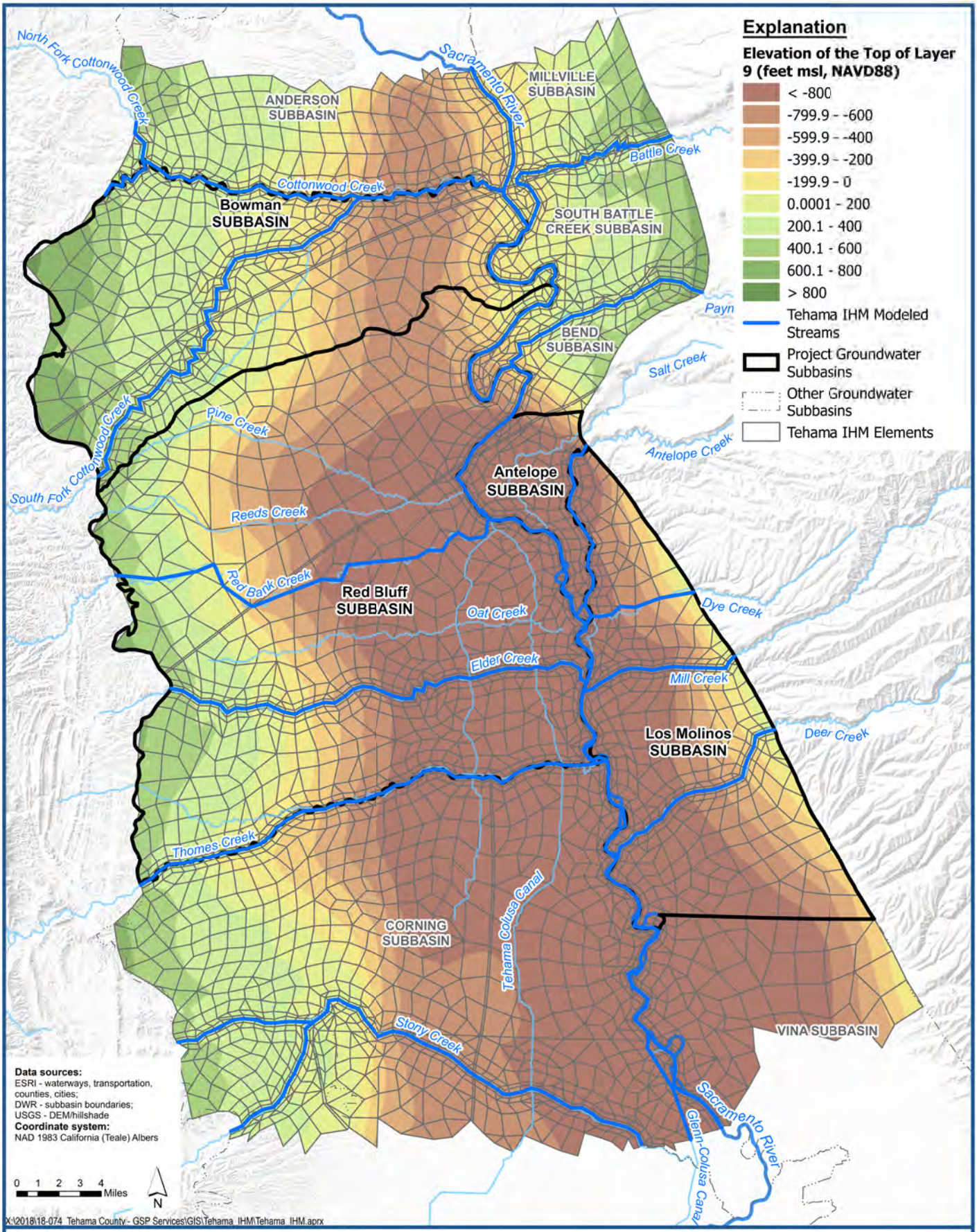
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Elevation of the Top of Layer 8 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-12



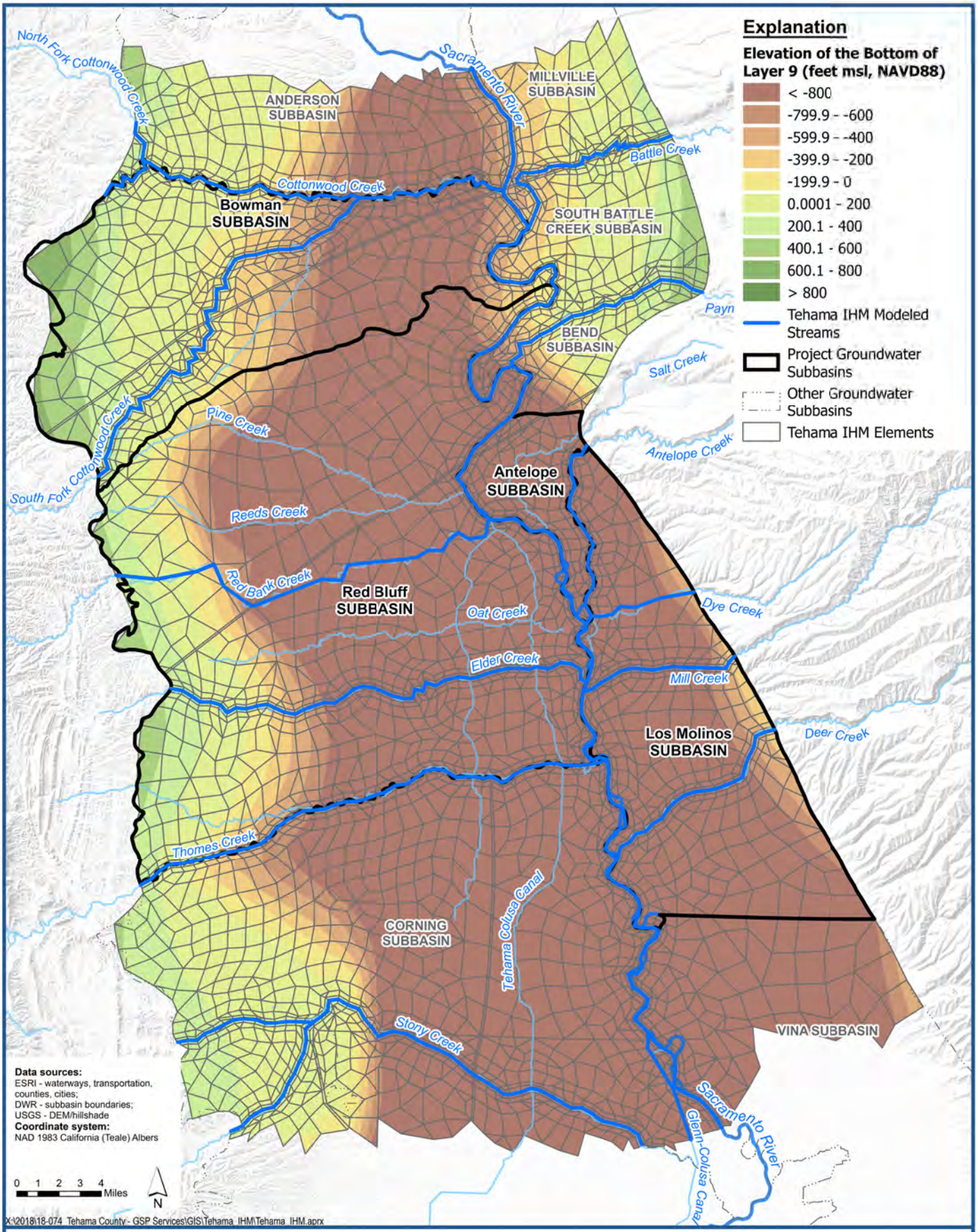
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Elevation of the Top of Layer 9 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-13



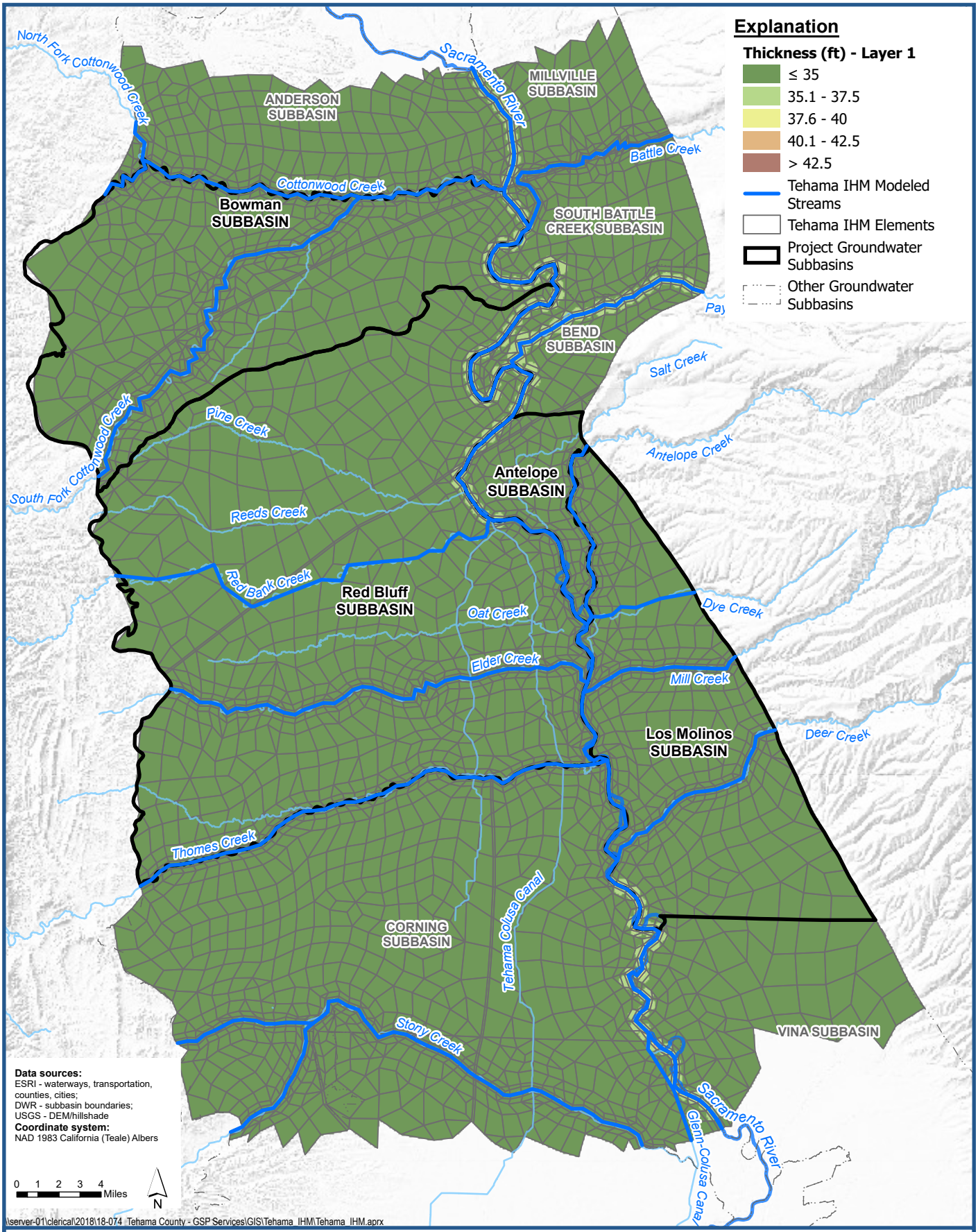
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Elevation of the Bottom of Layer 9 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-14



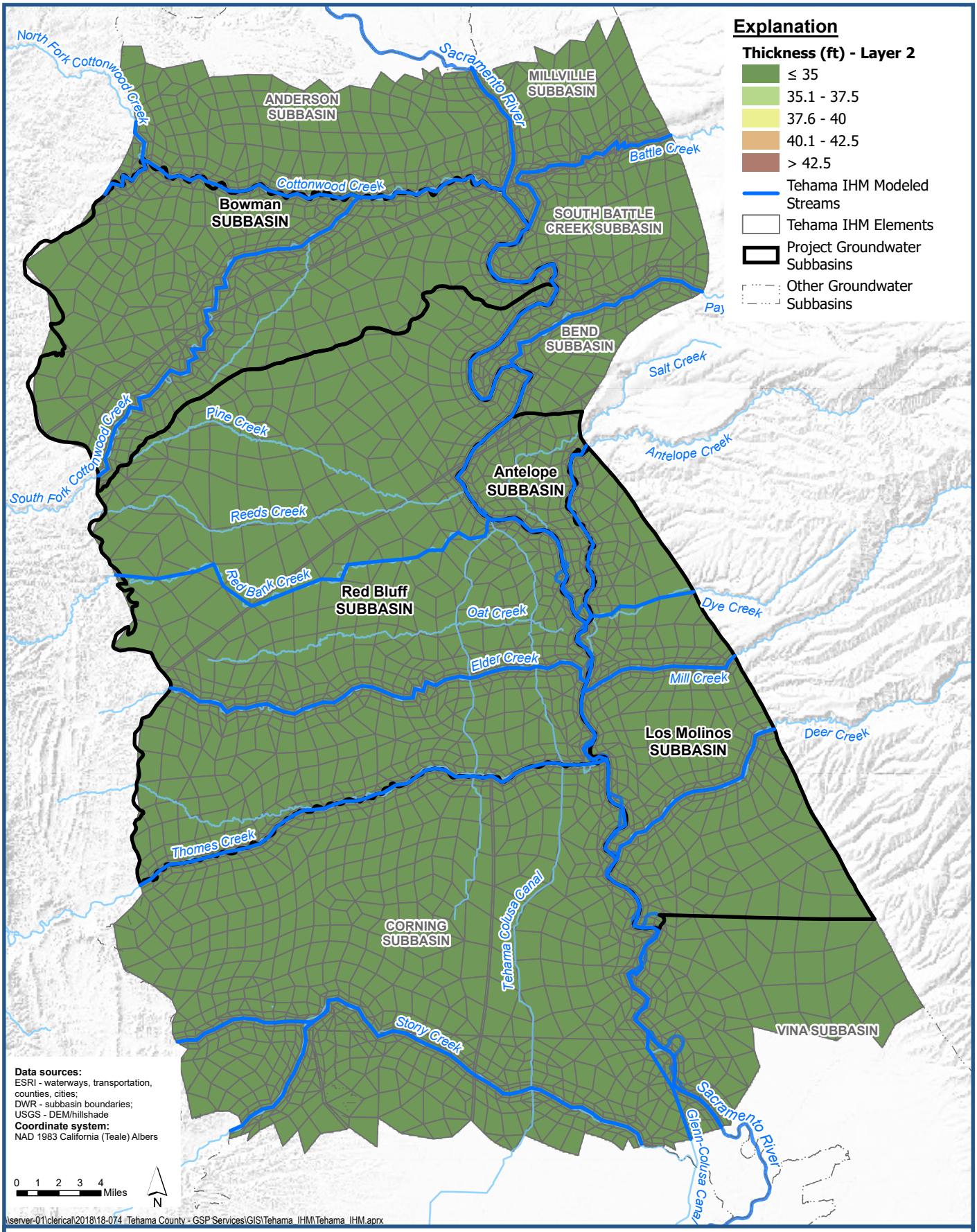
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Thickness of Layer 1 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-15



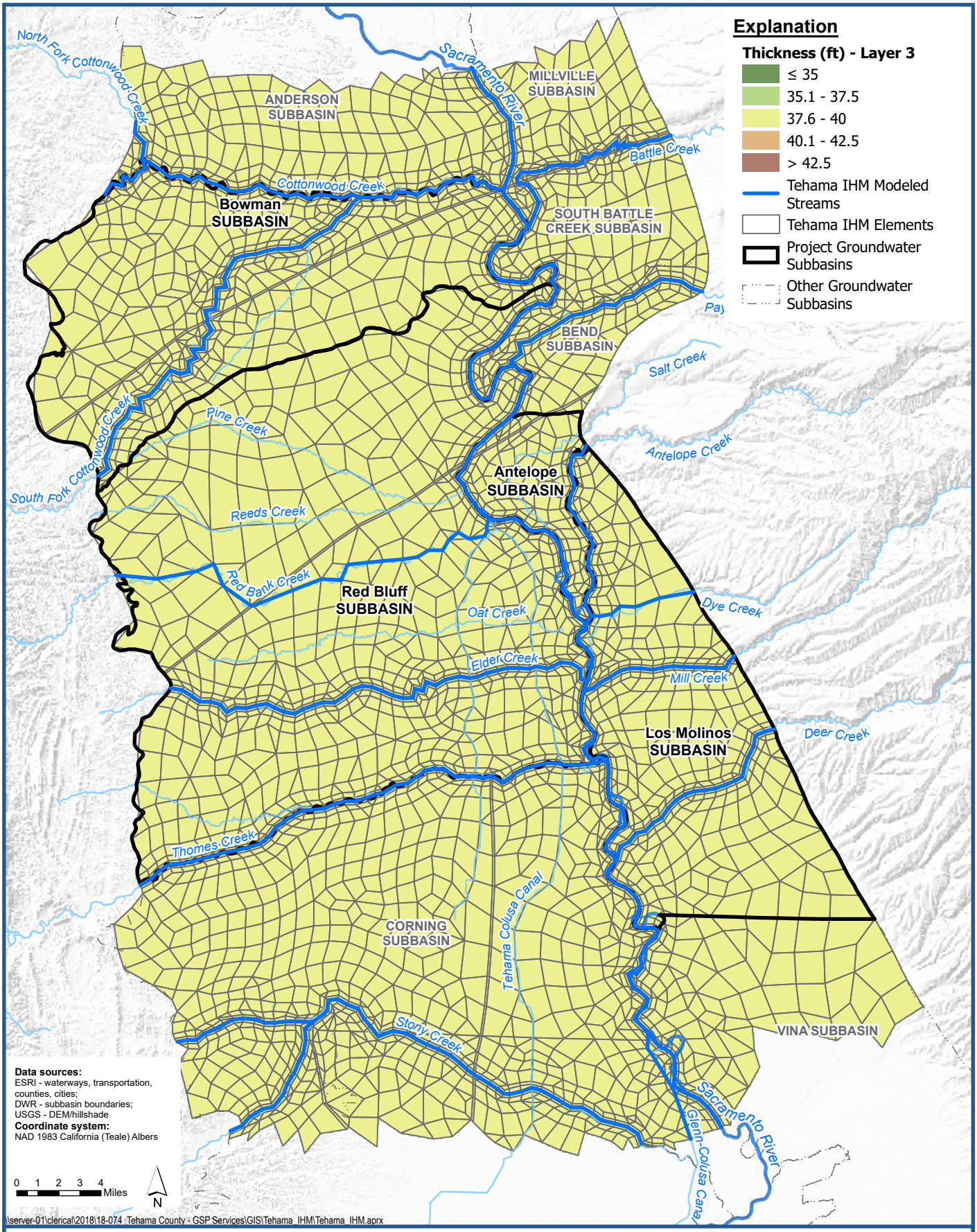
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Thickness of Layer 2 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-16



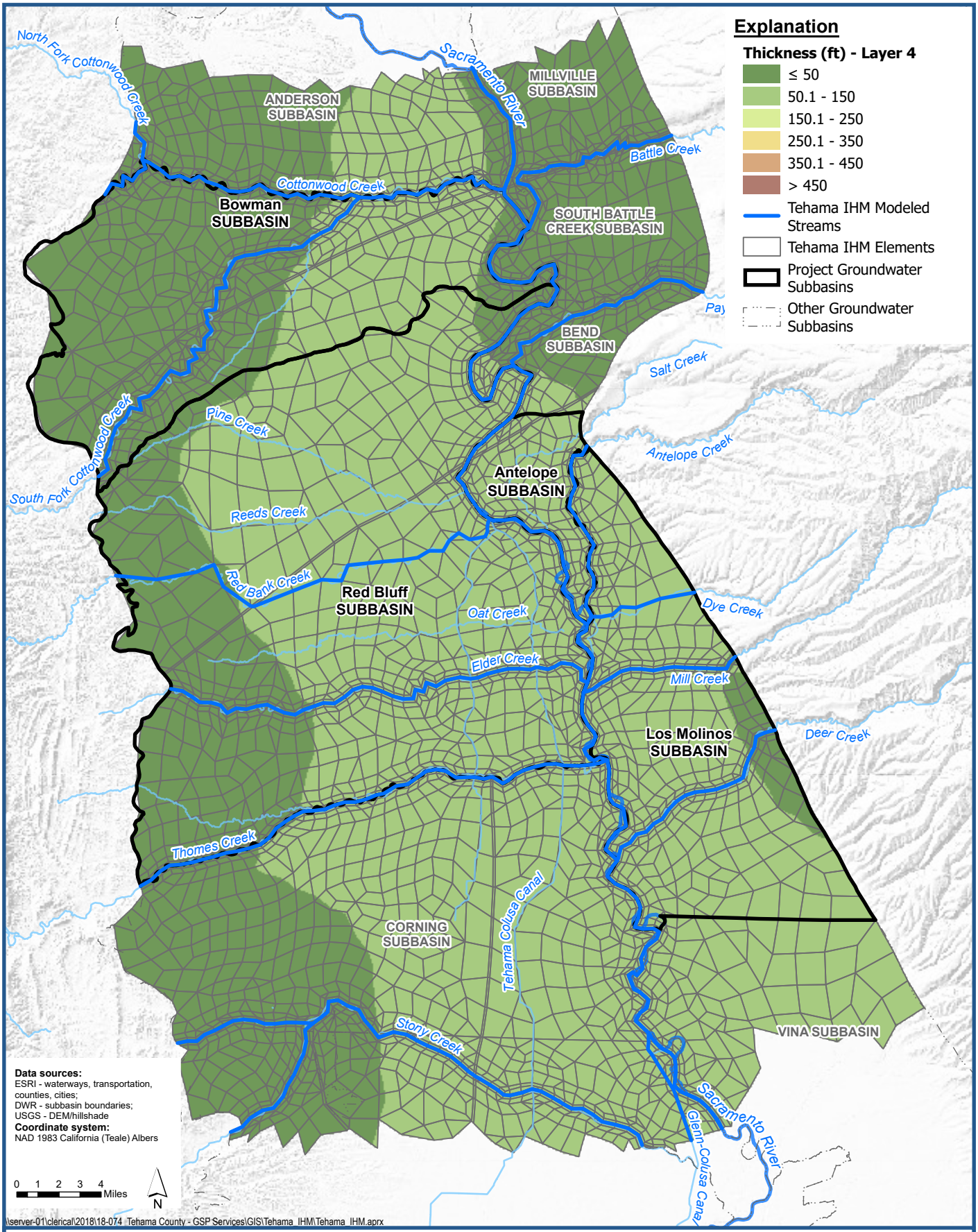
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Thickness of Layer 3 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-17



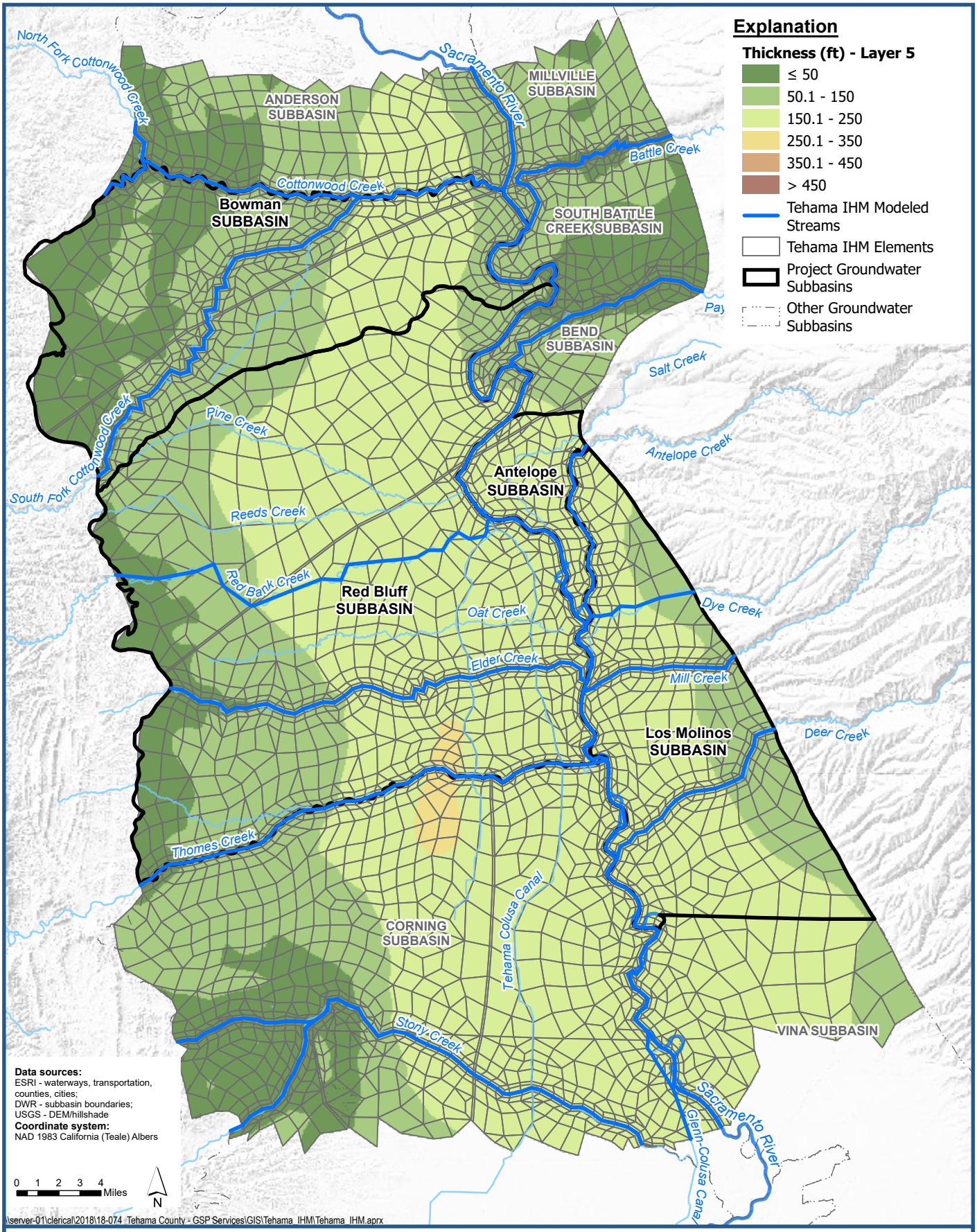
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Thickness of Layer 4 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-18



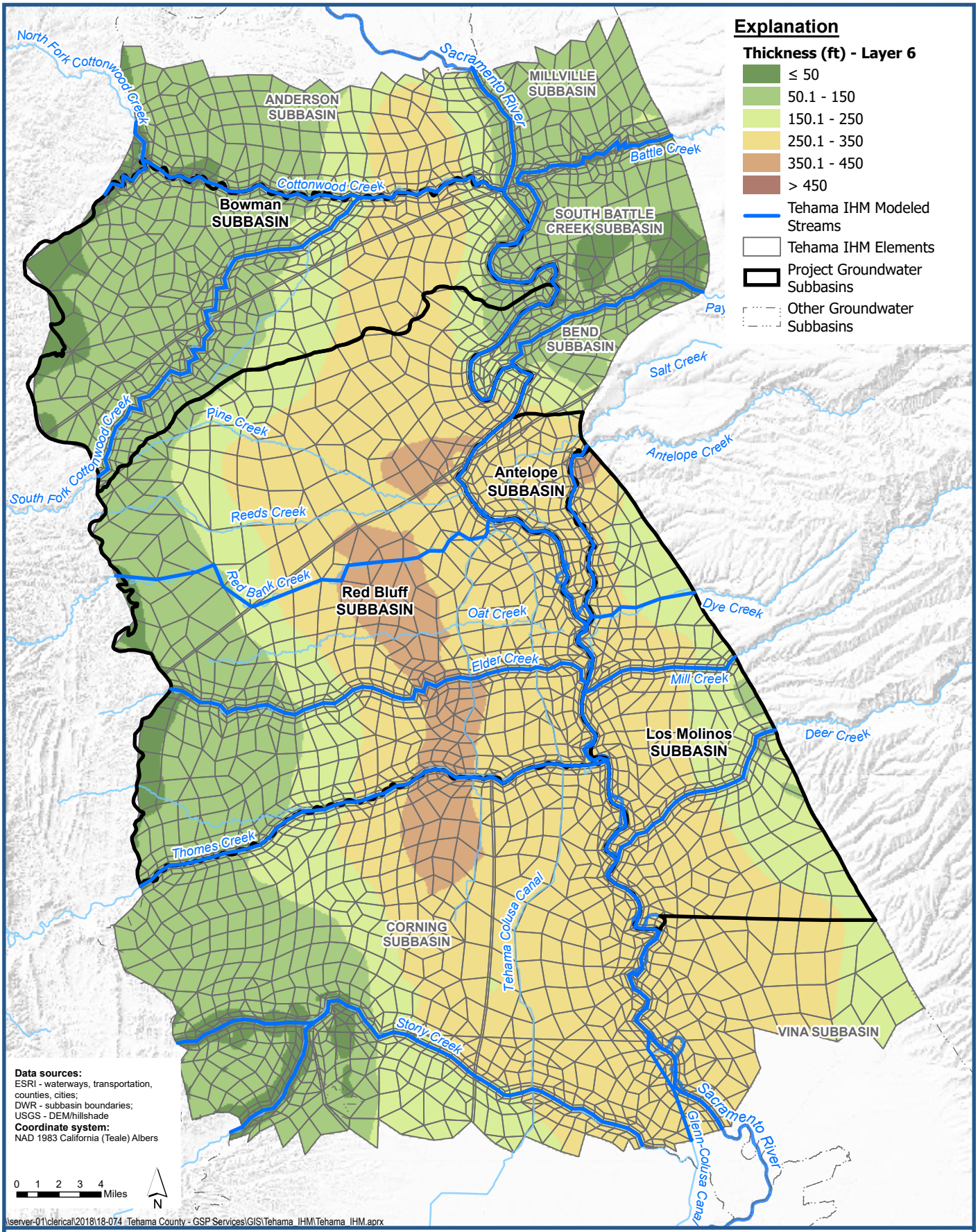
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Thickness of Layer 5 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-19



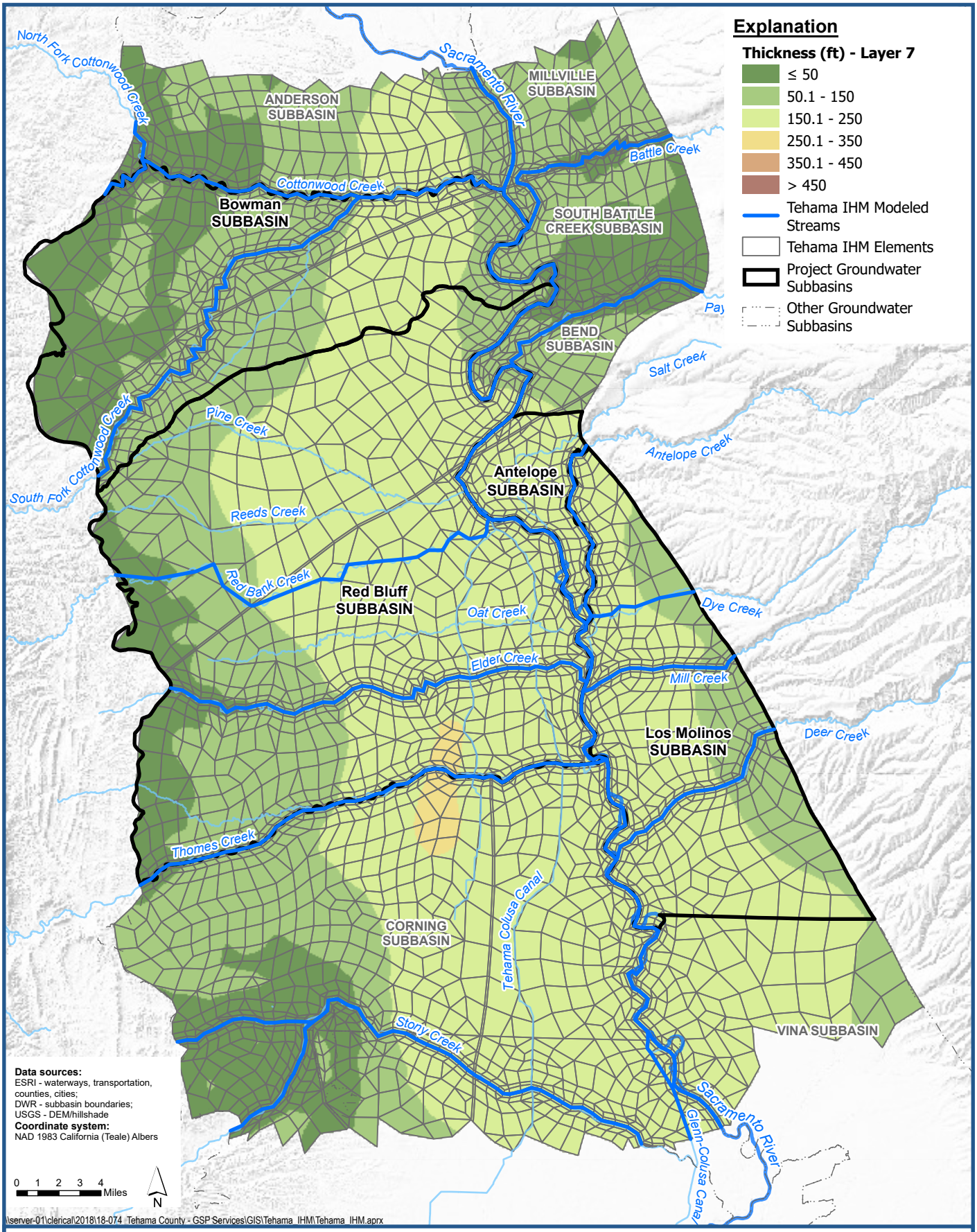
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Thickness of Layer 6 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-20



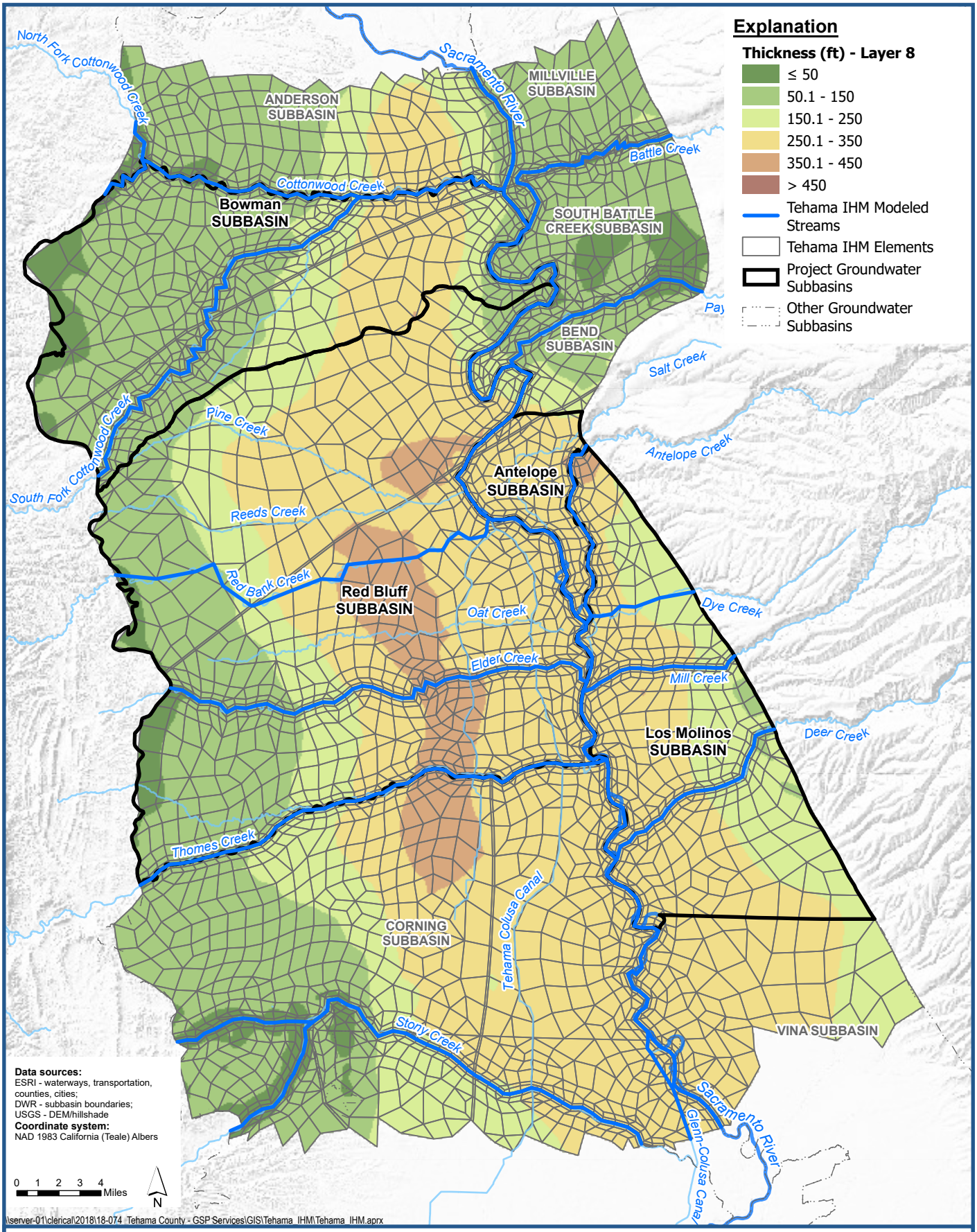
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Thickness of Layer 7 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-21



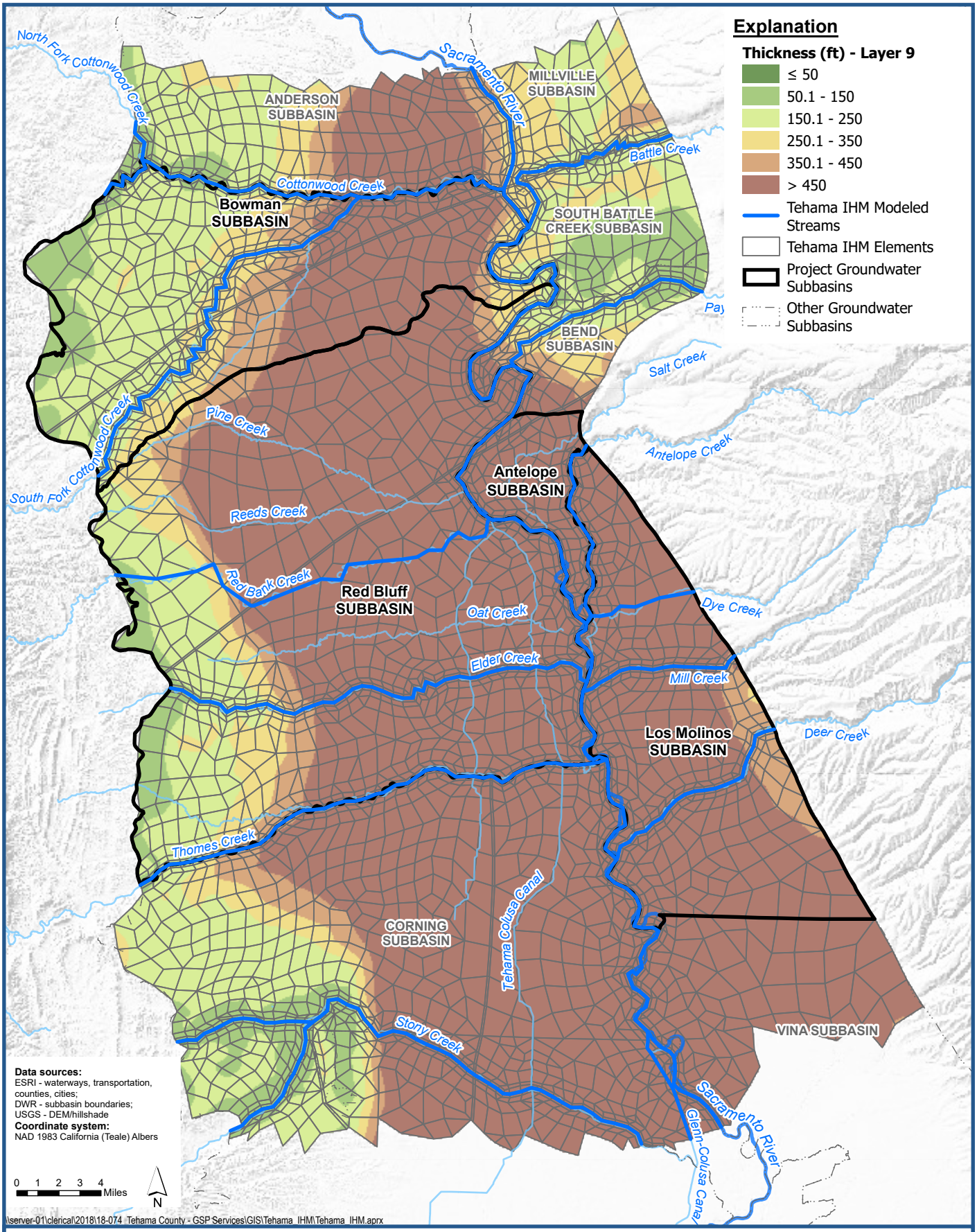
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Thickness of Layer 8 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-22



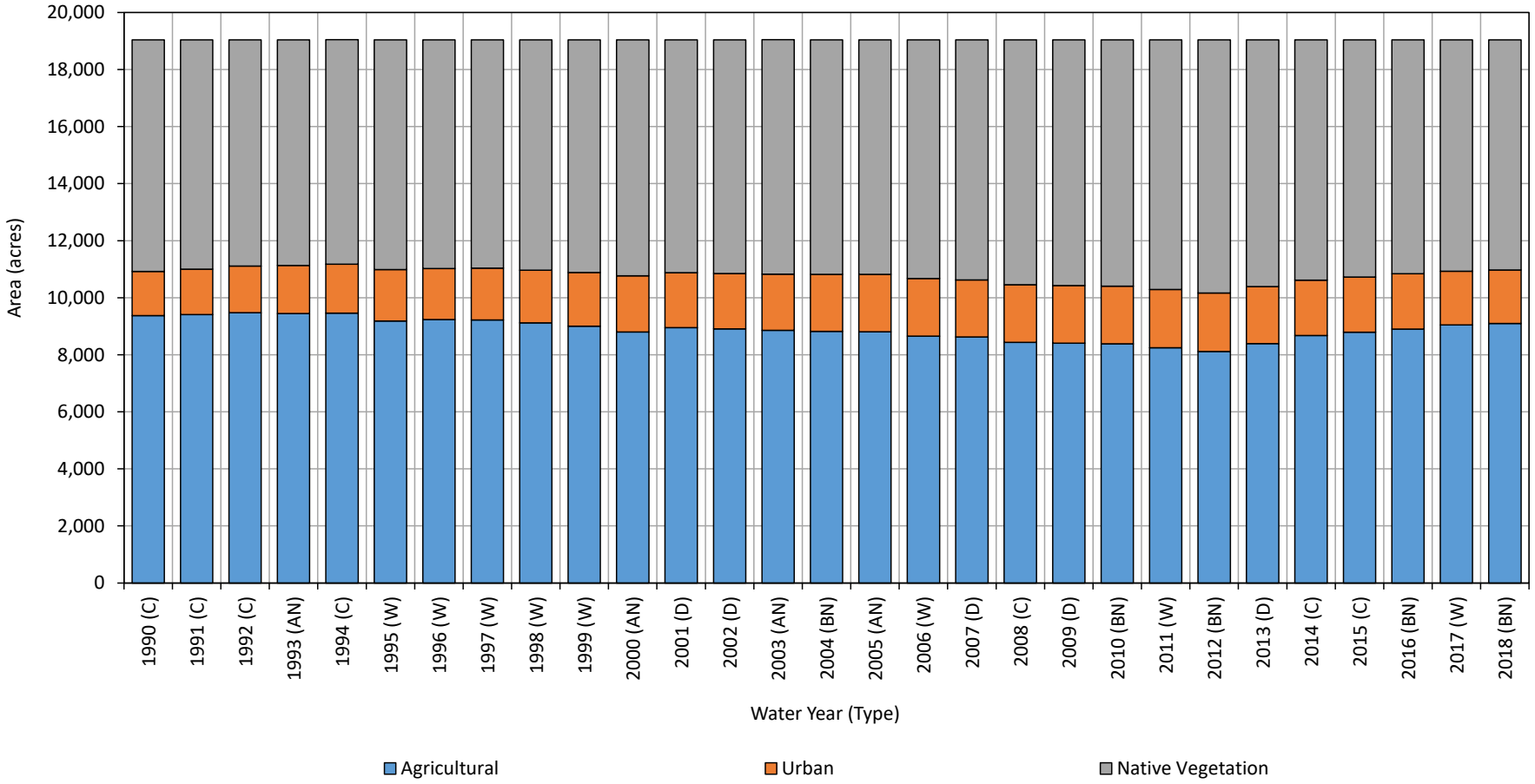
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Thickness of Layer 9 in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-23



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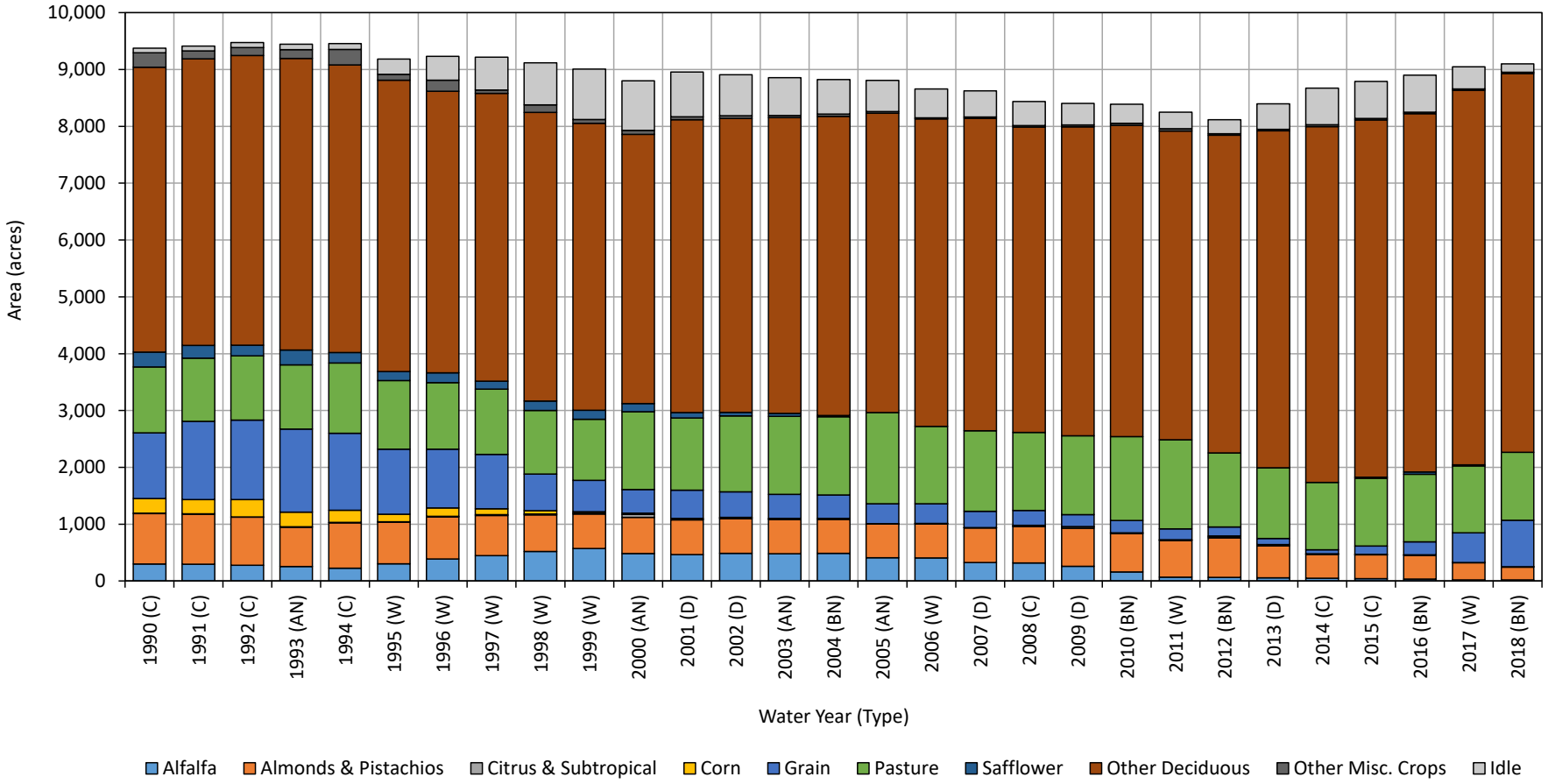
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Historical Land Use in Tehama IHM – Antelope Subbasin

Groundwater Sustainability Planning
Tehama County, California

Figure 3-24a



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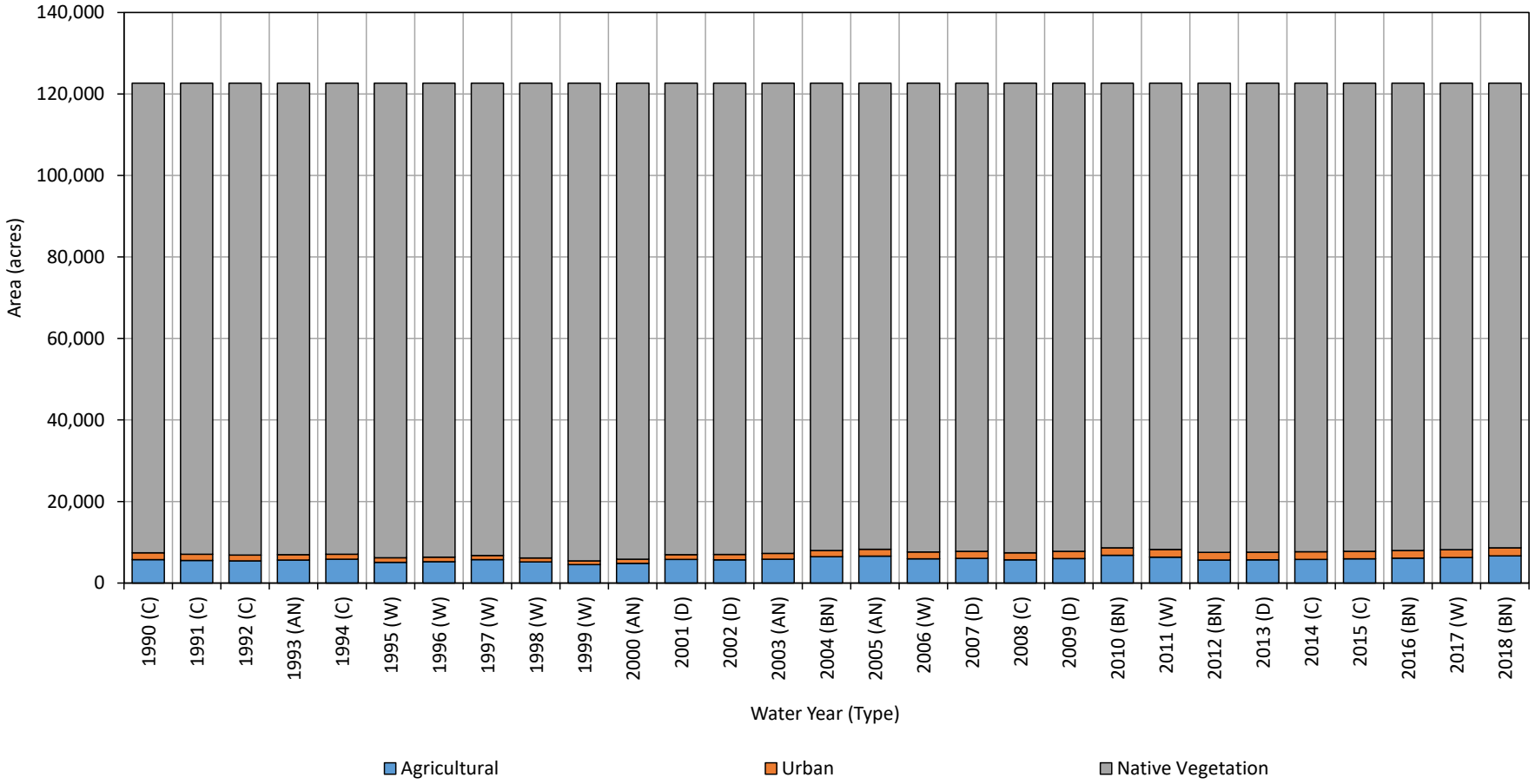
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Historical Agricultural Land Use in Tehama IHM – Antelope Subbasin

Groundwater Sustainability Planning
Tehama County, California

Figure 3-24b



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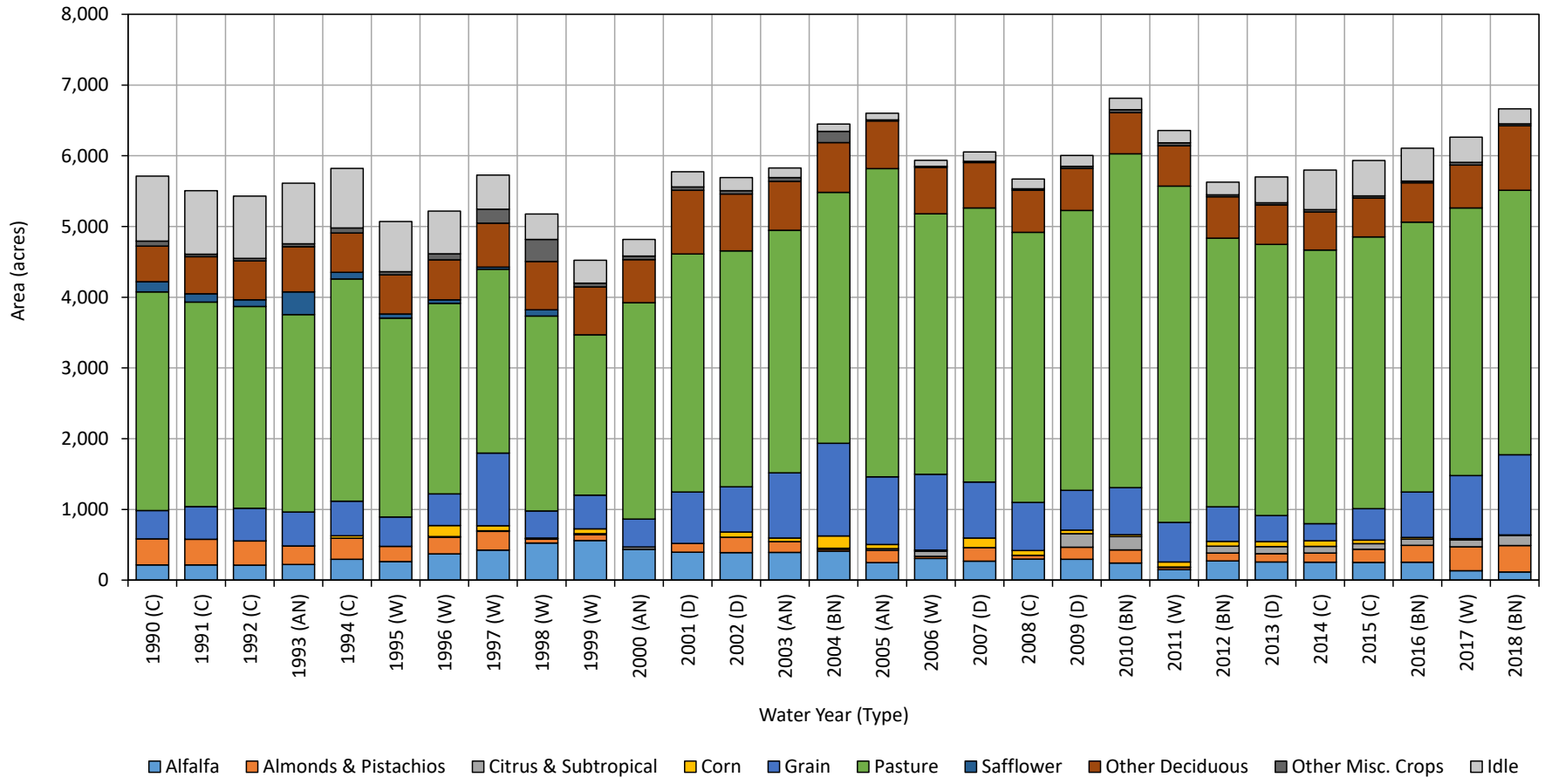
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Historical Land Use in Tehama IHM – Bowman Subbasin

Groundwater Sustainability Planning
Tehama County, California

Figure 3-25a



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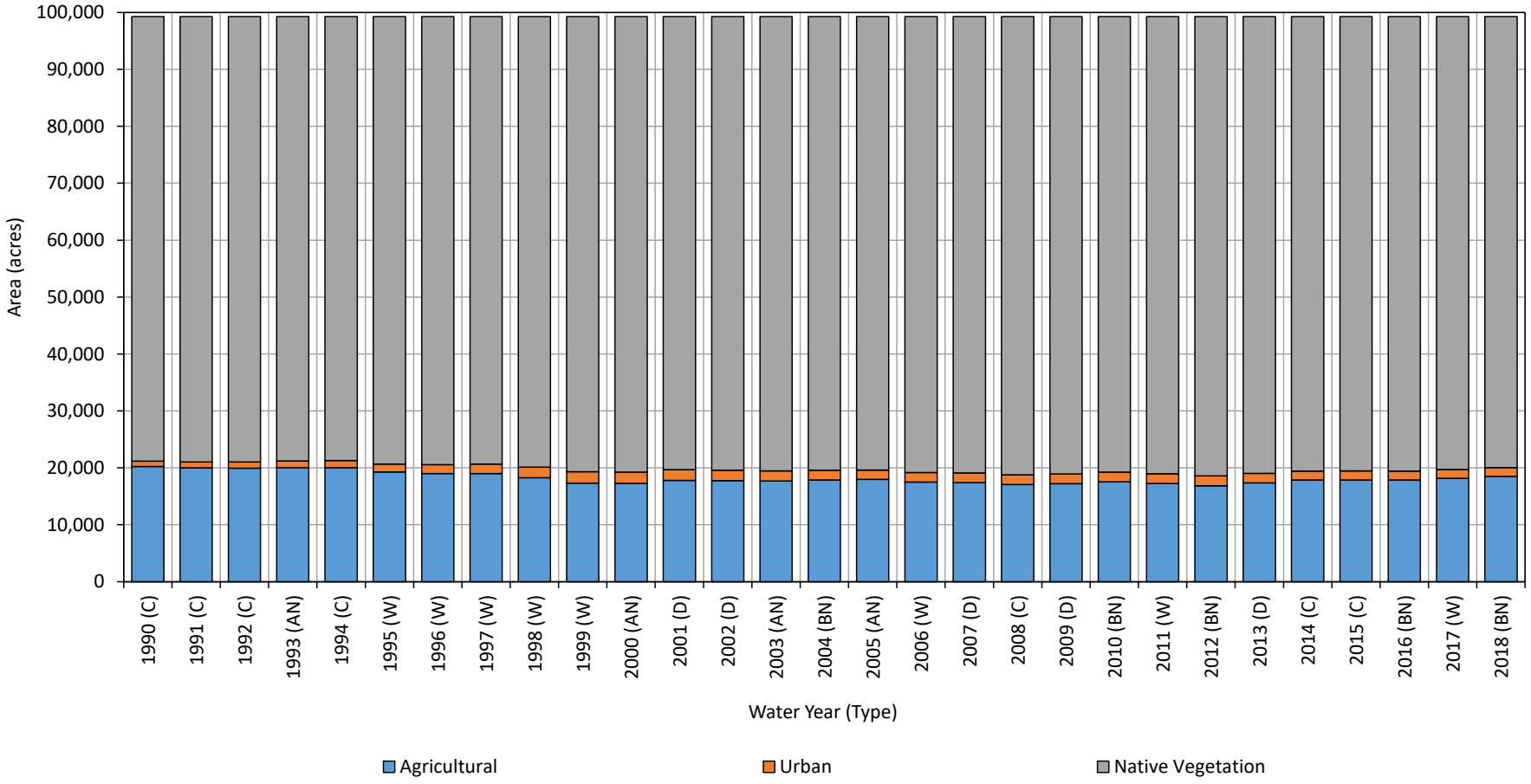
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Historical Agricultural Land Use in Tehama IHM – Bowman Subbasin

Groundwater Sustainability Planning
Tehama County, California

Figure 3-25b



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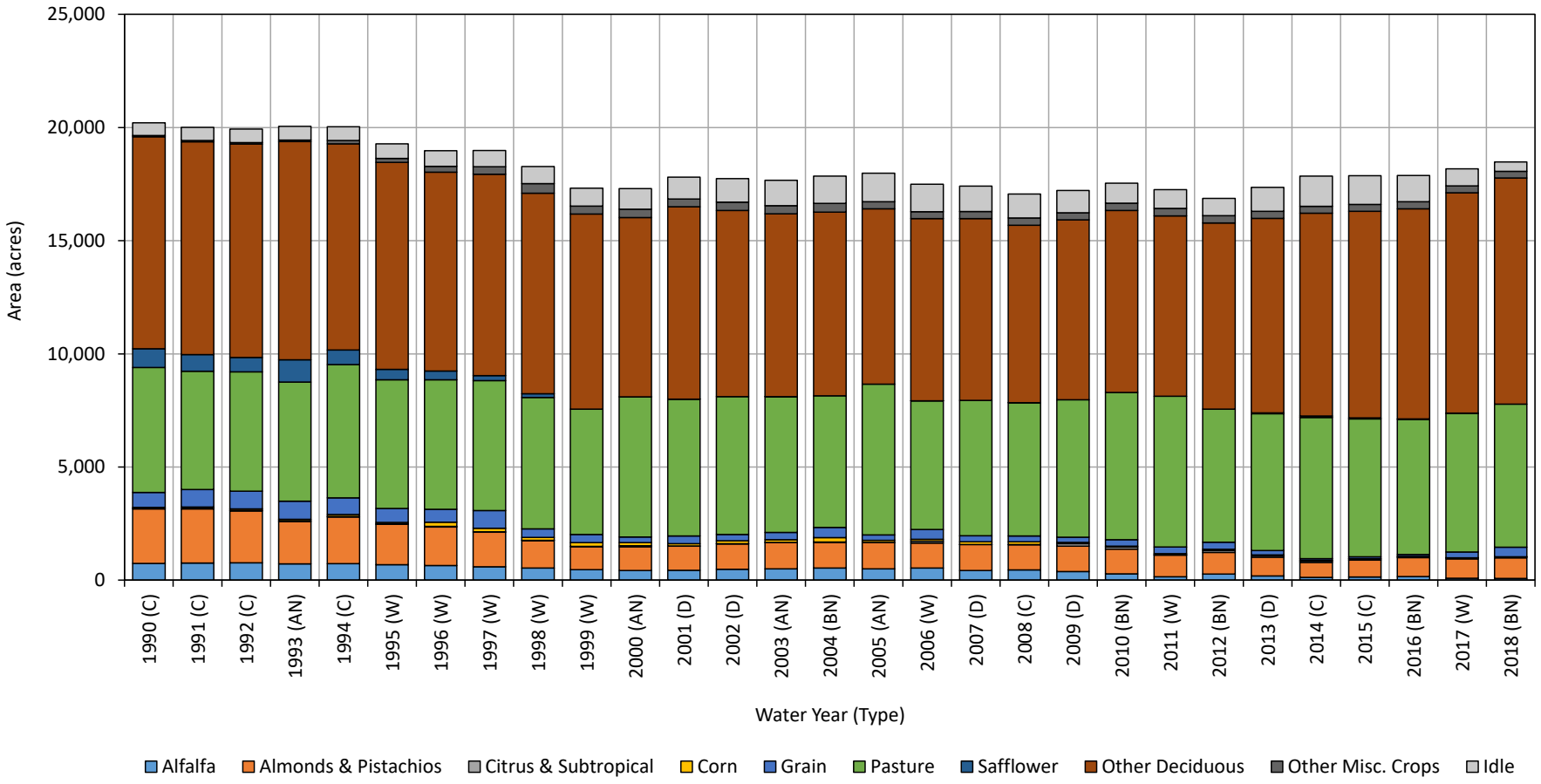
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Historical Land Use in Tehama IHM – Los Molinos Subbasin

Groundwater Sustainability Planning
Tehama County, California

Figure 3-26a



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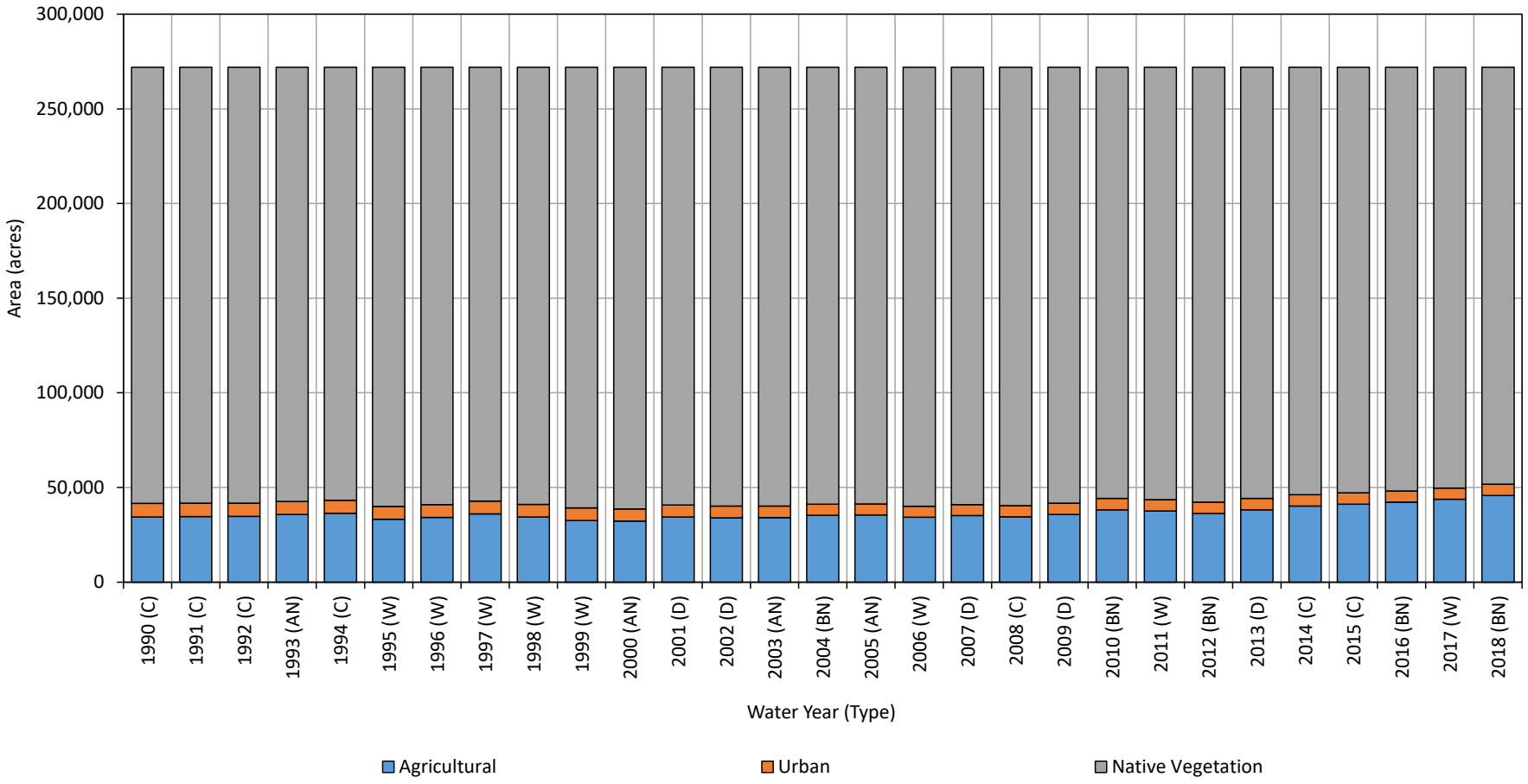
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Historical Agricultural Land Use in Tehama IHM – Los Molinos Subbasin

Groundwater Sustainability Planning
Tehama County, California

Figure 3-26b



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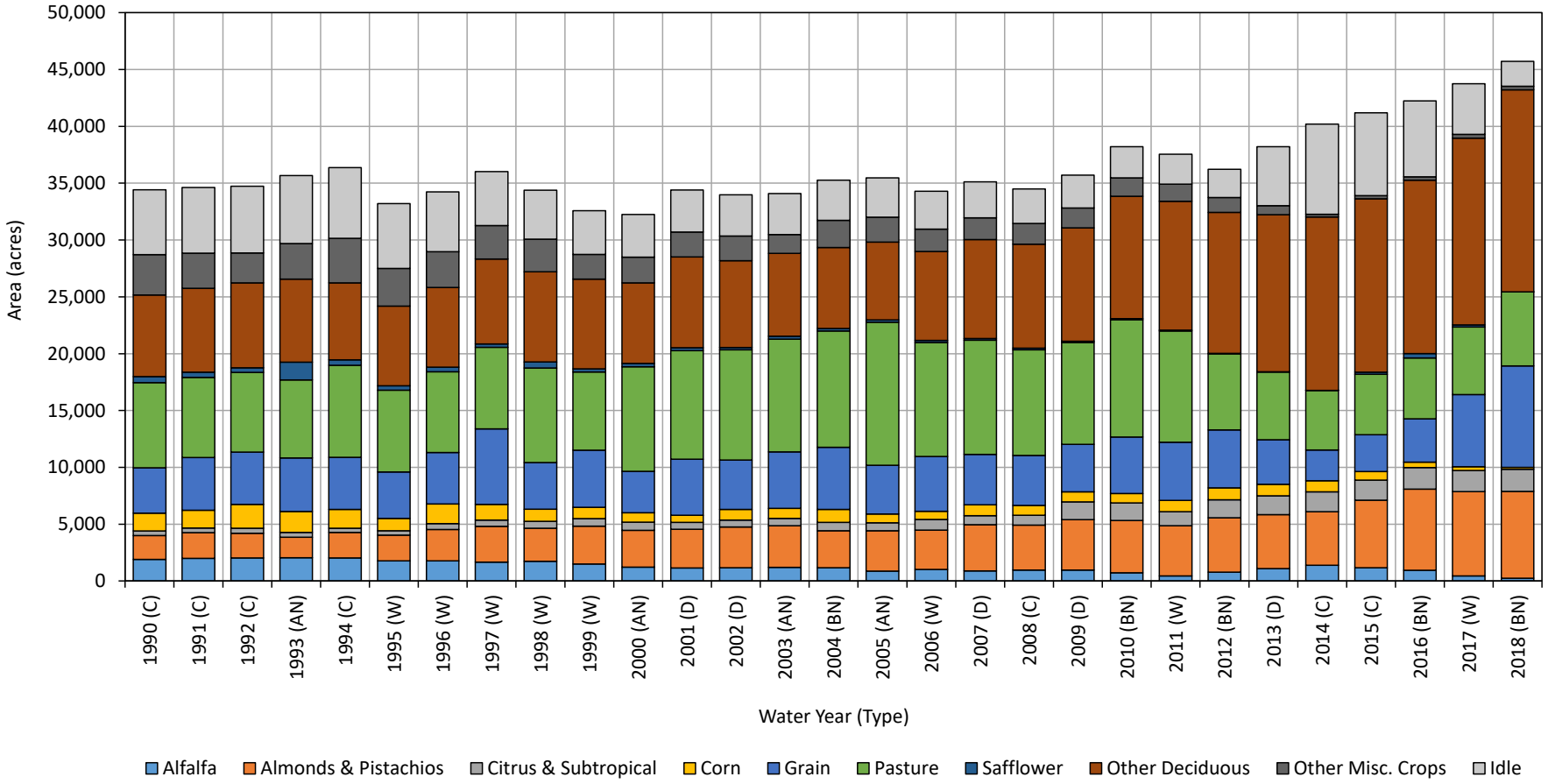
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Historical Land Use in Tehama IHM – Red Bluff Subbasin

Groundwater Sustainability Planning
Tehama County, California

Figure 3-27a



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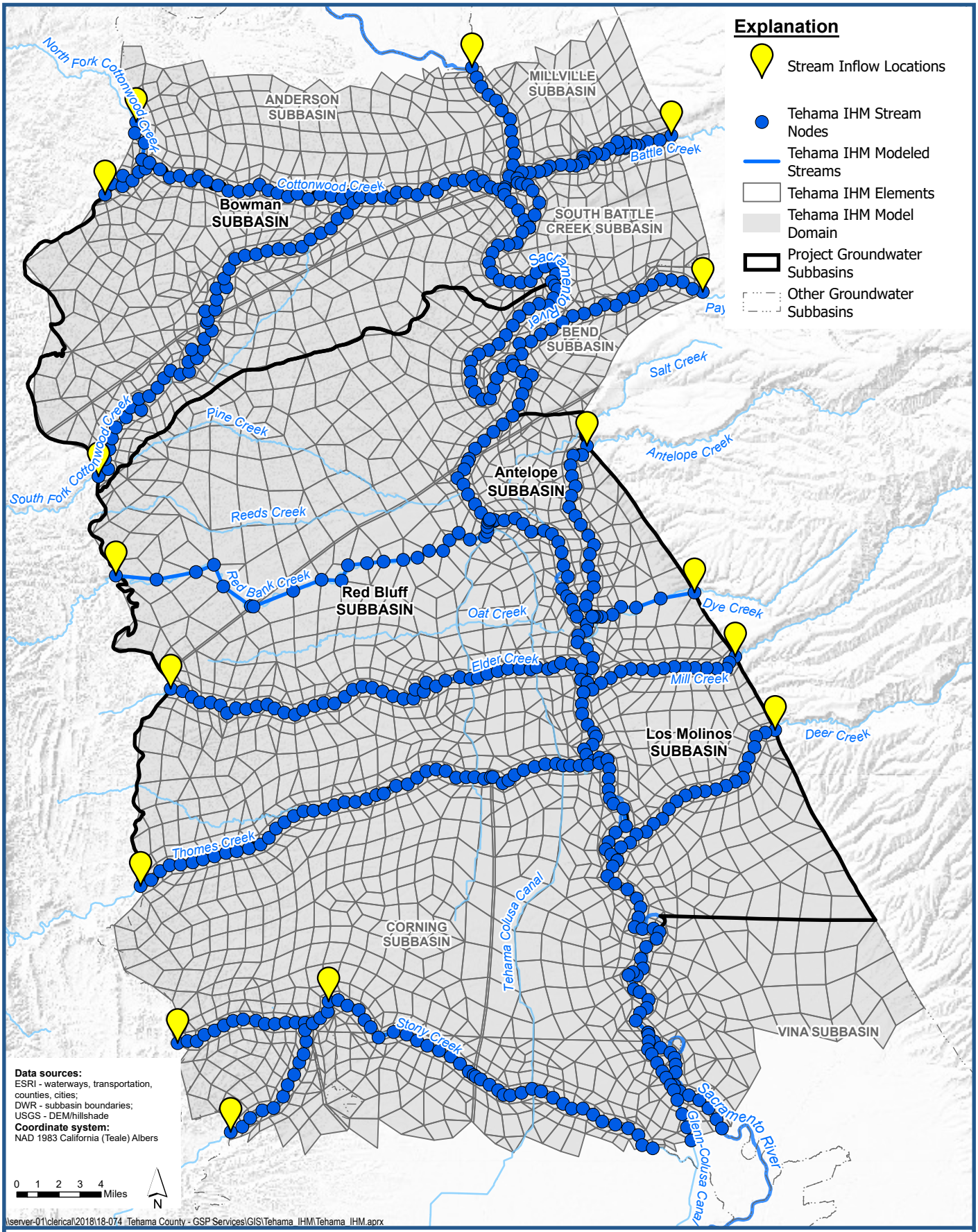
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Historical Agricultural Land Use in Tehama IHM – Red Bluff Subbasin

Groundwater Sustainability Planning
Tehama County, California

Figure 3-27b



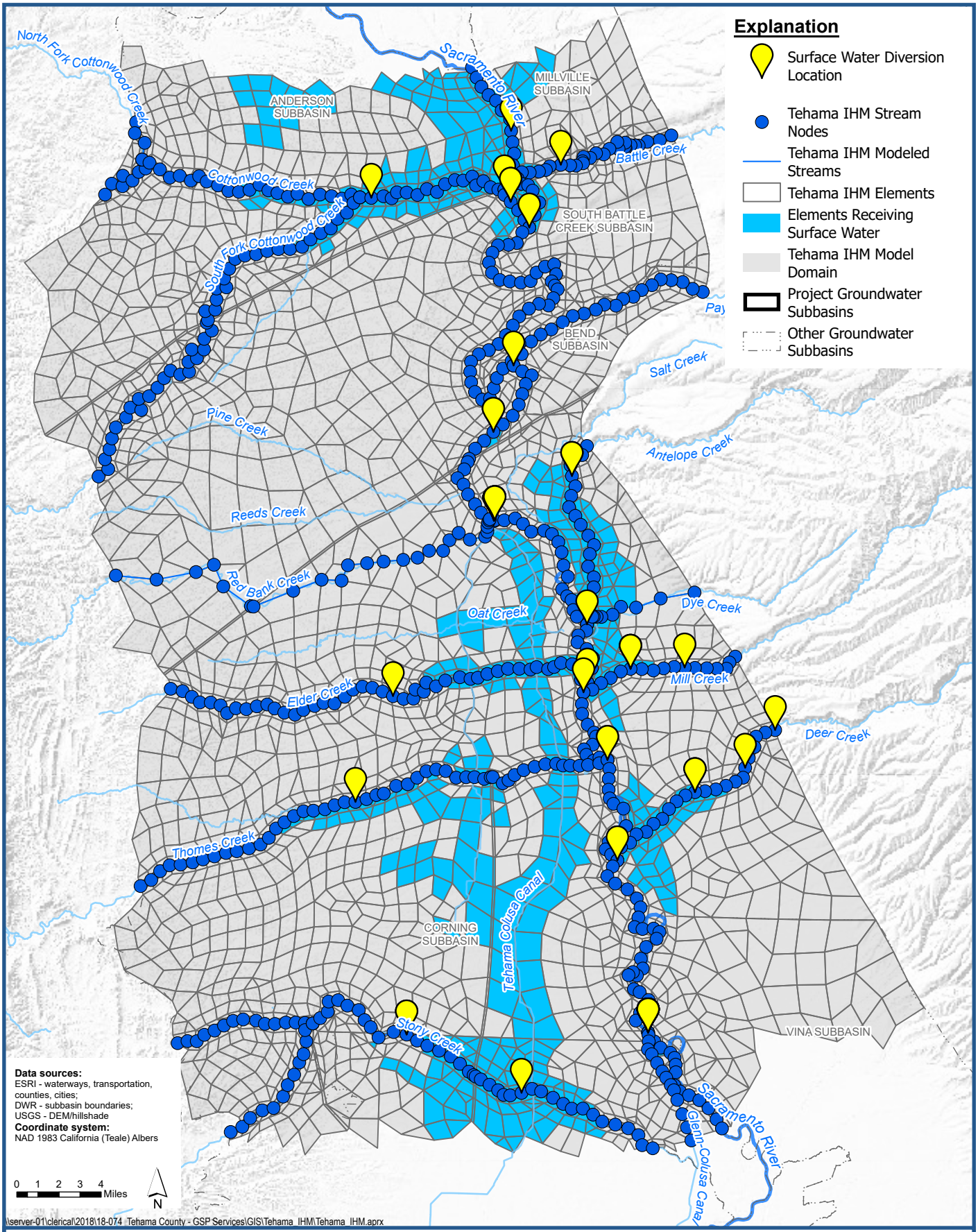
TEHAMA COUNTY

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Tehama IHM Surface Water Inflow Locations

Groundwater Sustainability Planning
Tehama County, California

Figure 3-28



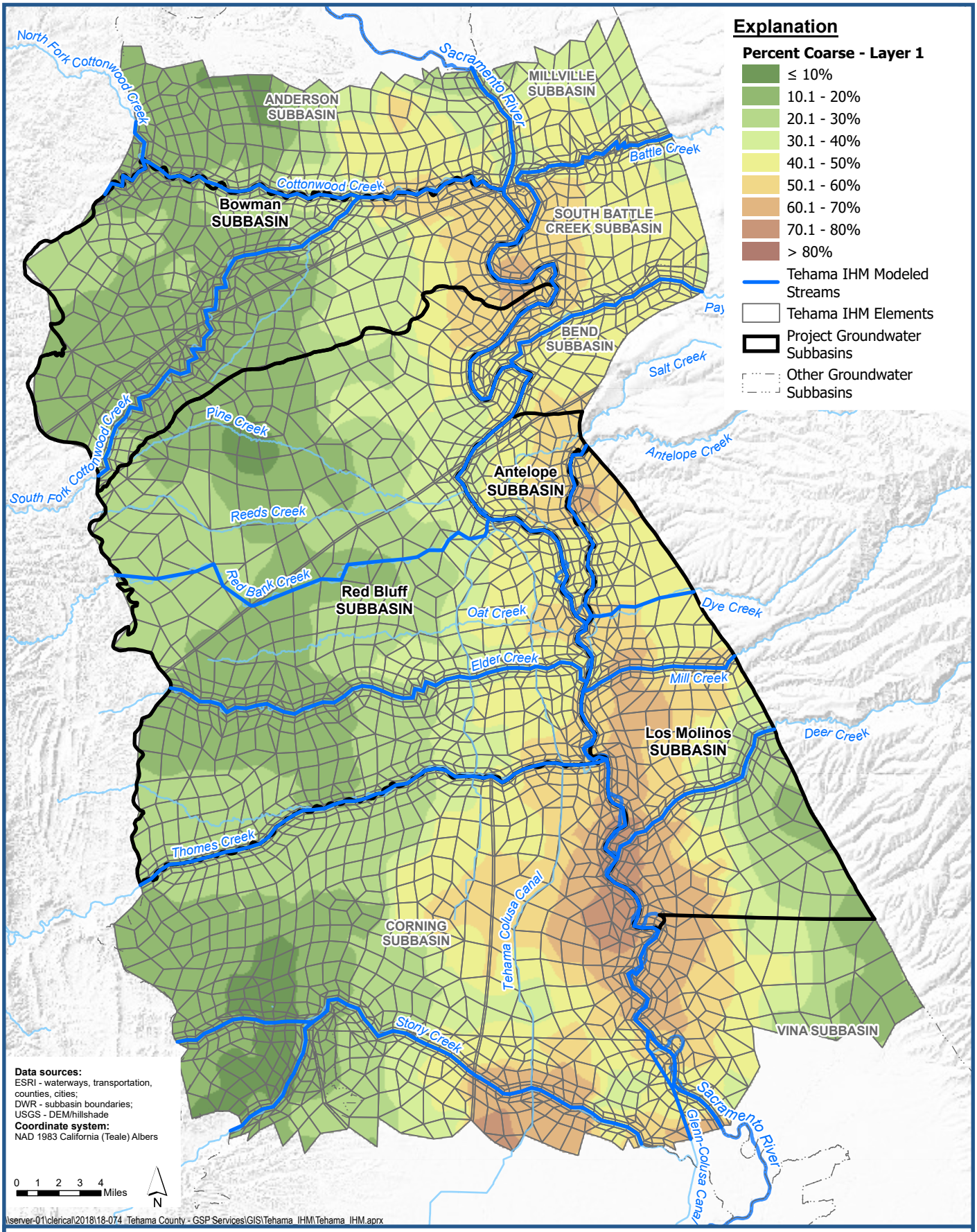
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Historical Surface Water Diversion Locations in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-29



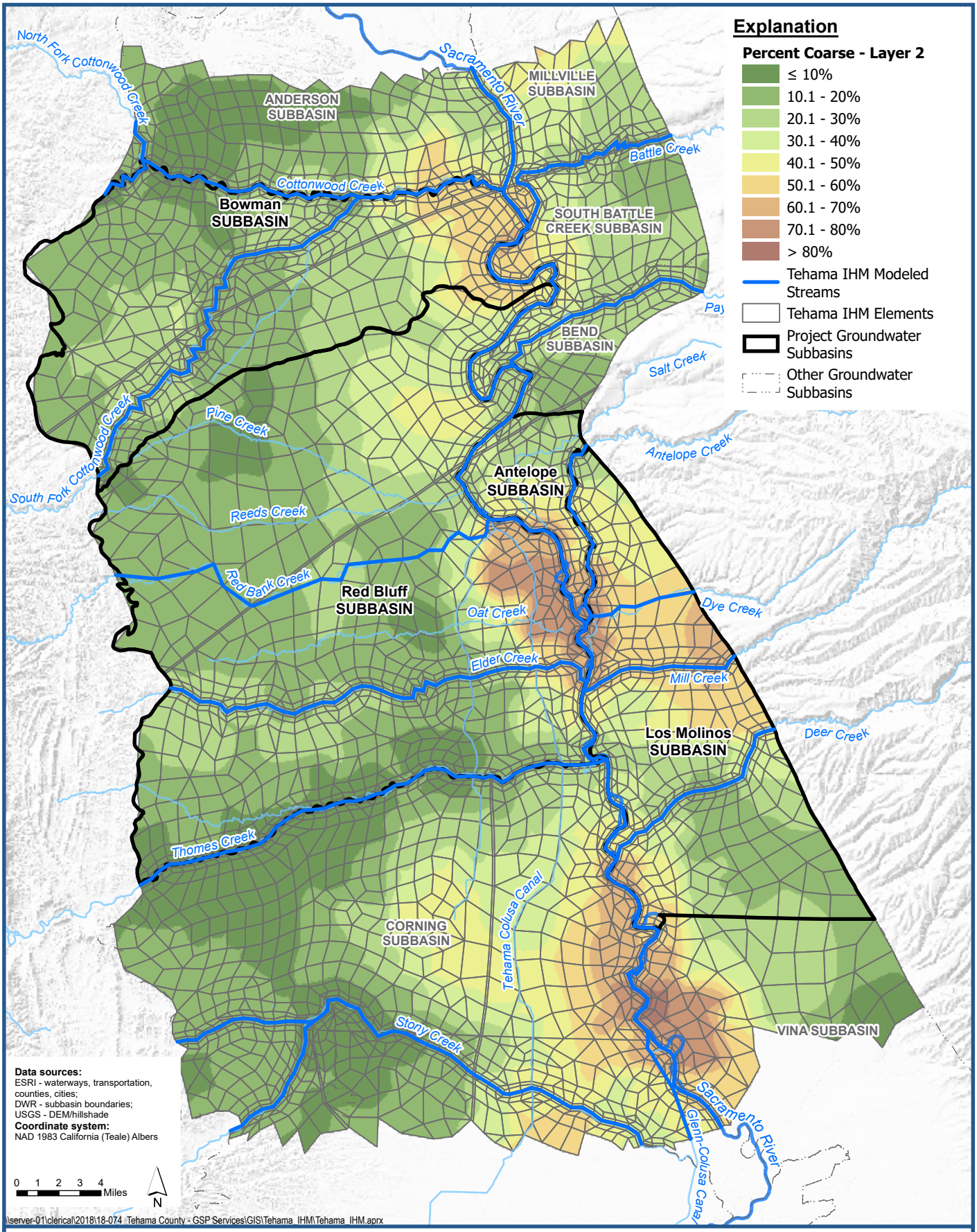
TEHAMA COUNTY

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Tehama IHM Percent Coarse - Layer 1

Groundwater Sustainability Planning
Tehama County, California

Figure 3-30



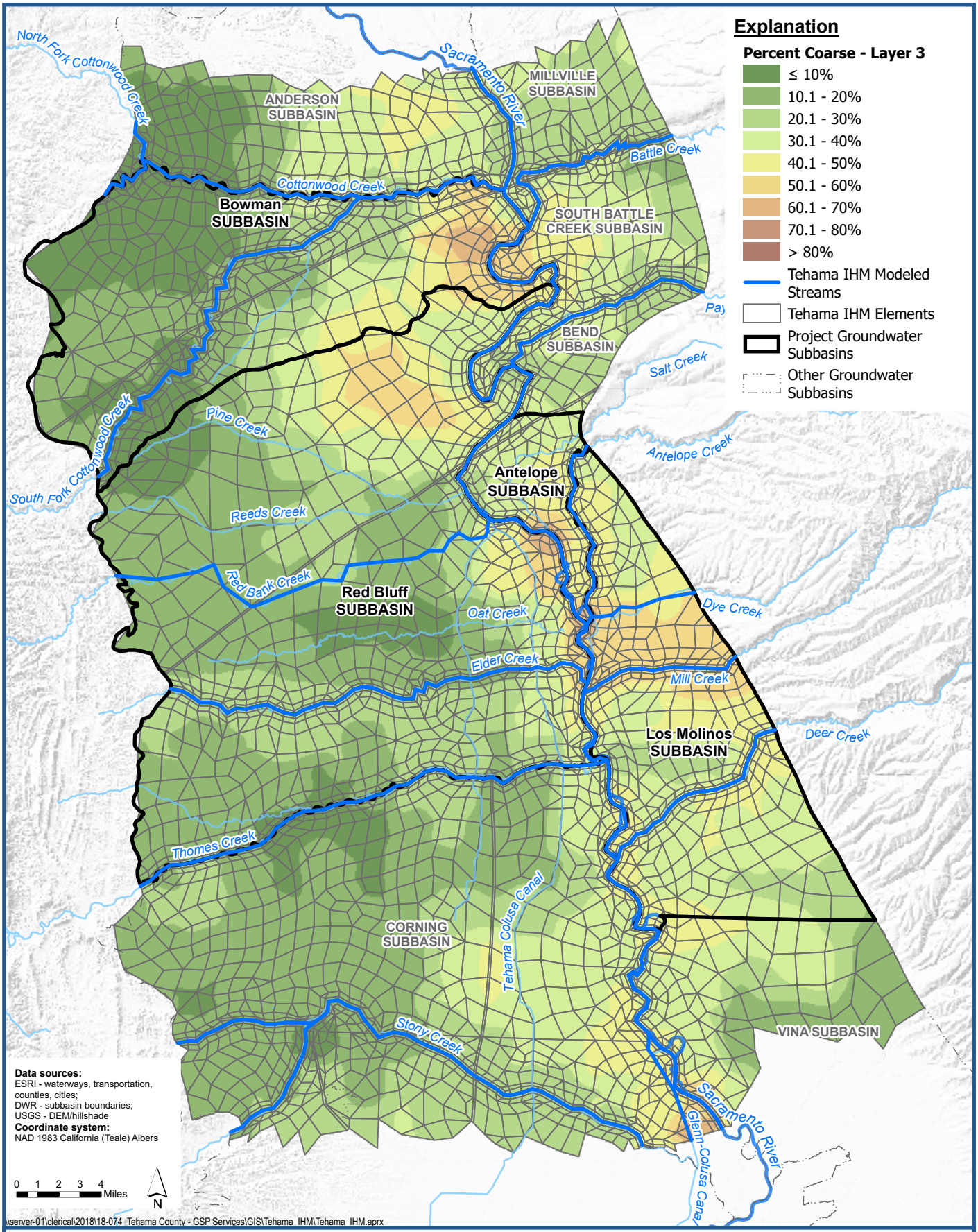
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Tehama IHM Percent Coarse - Layer 2

Groundwater Sustainability Planning
Tehama County, California

Figure 3-31



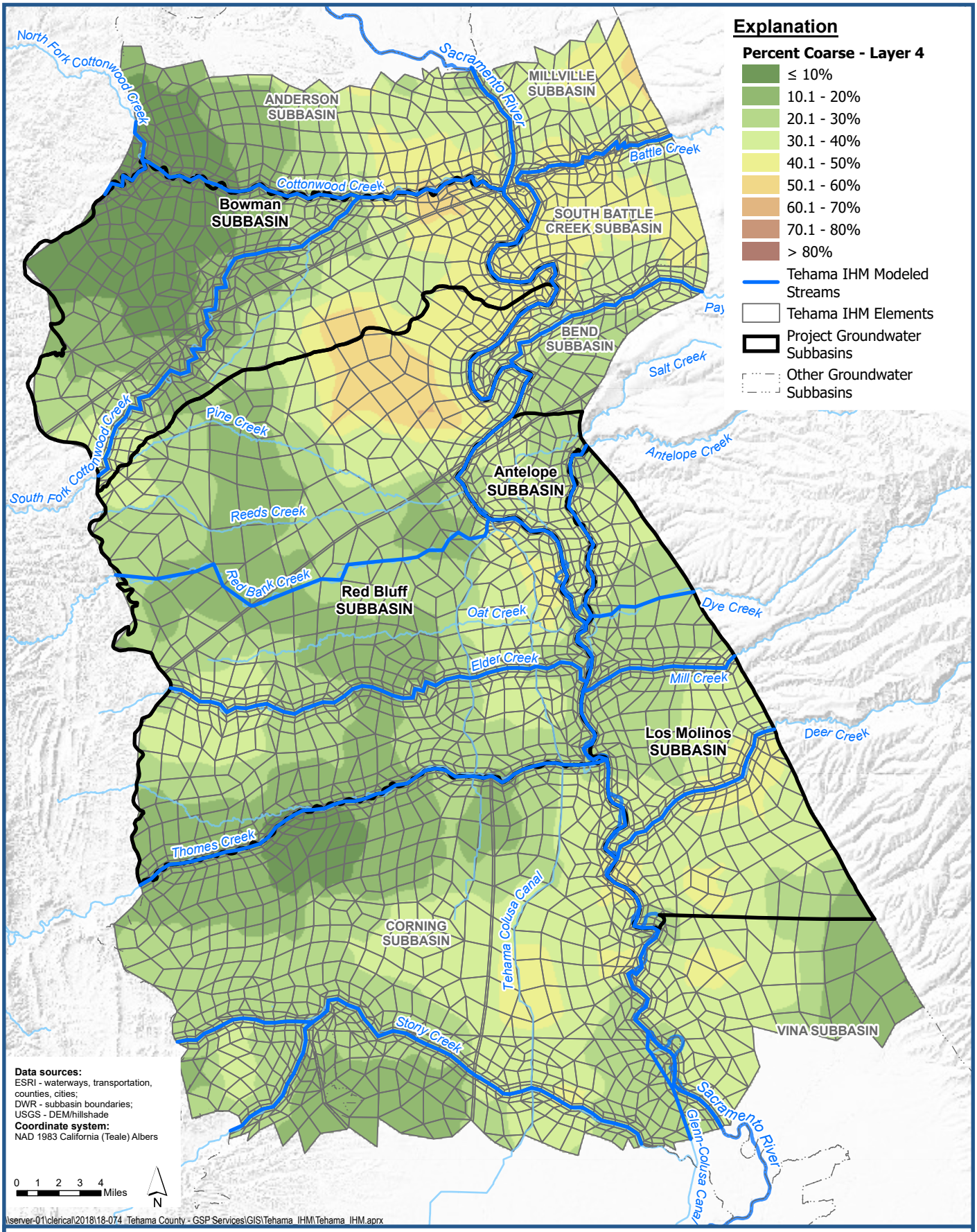
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Tehama IHM Percent Coarse - Layer 3

Groundwater Sustainability Planning
Tehama County, California

Figure 3-32



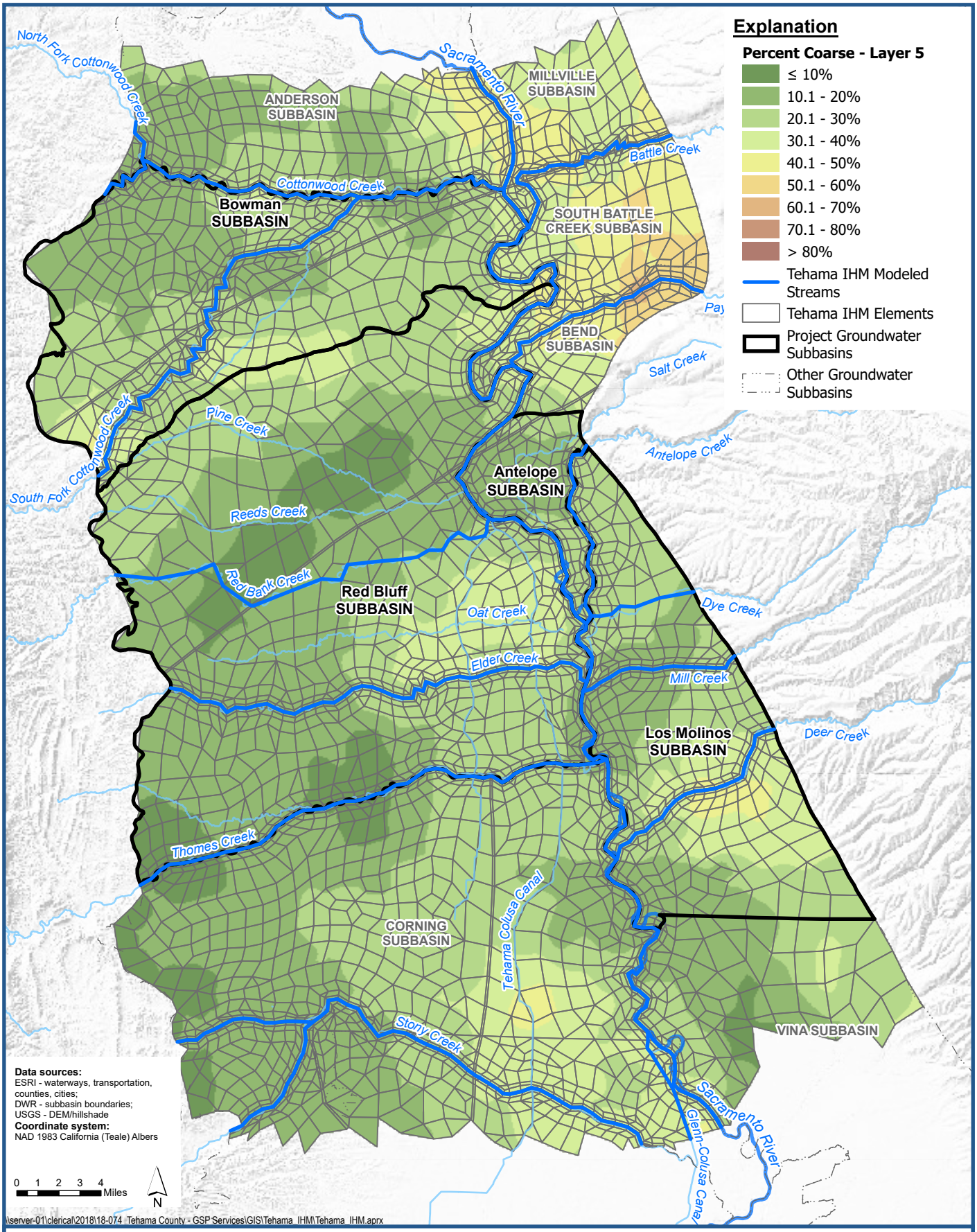
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Tehama IHM Percent Coarse - Layer 4

Groundwater Sustainability Planning
Tehama County, California

Figure 3-33



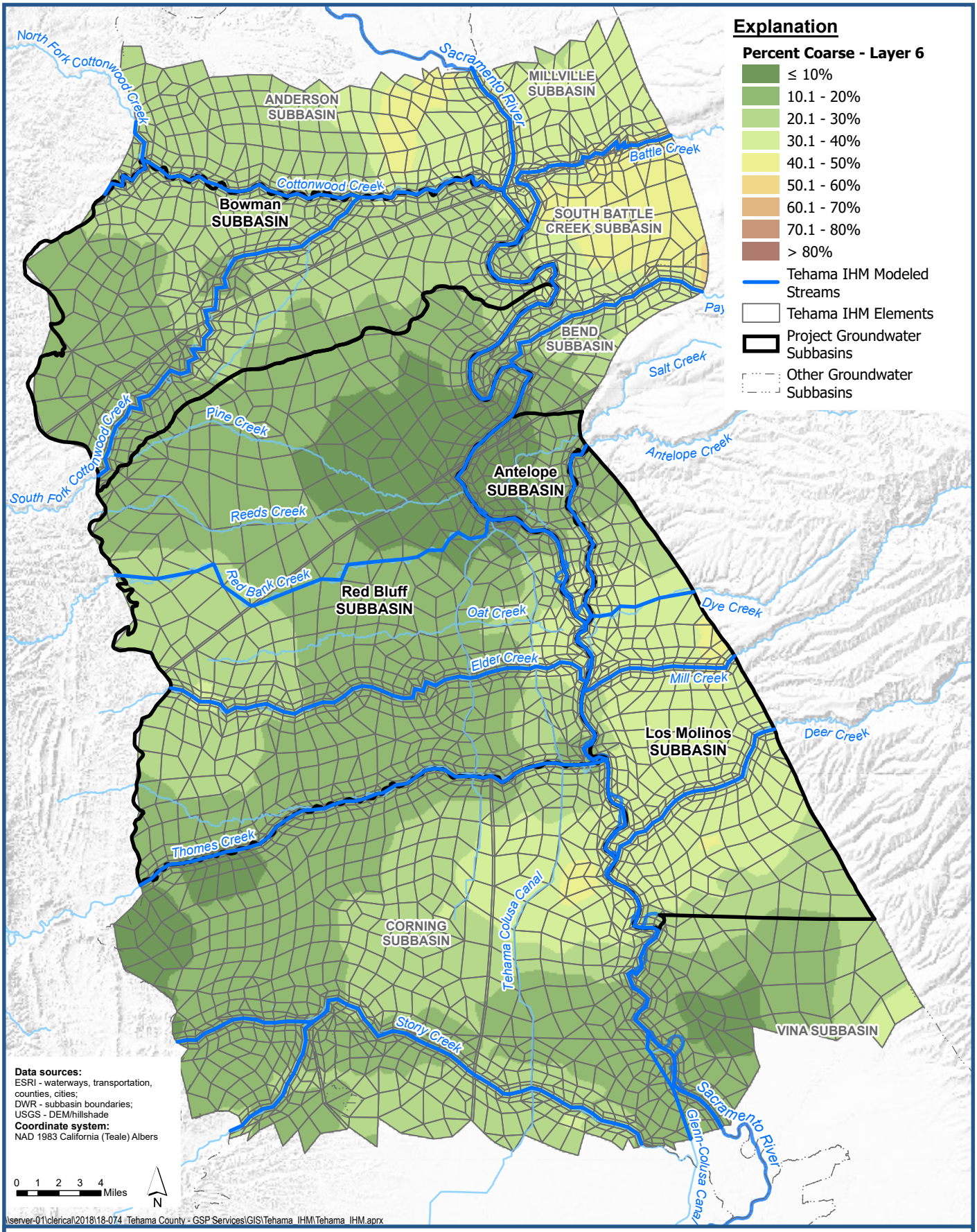
TEHAMA COUNTY

LSCE Team

Tehama IHM Percent Coarse - Layer 5

Groundwater Sustainability Planning
Tehama County, California

Figure 3-34



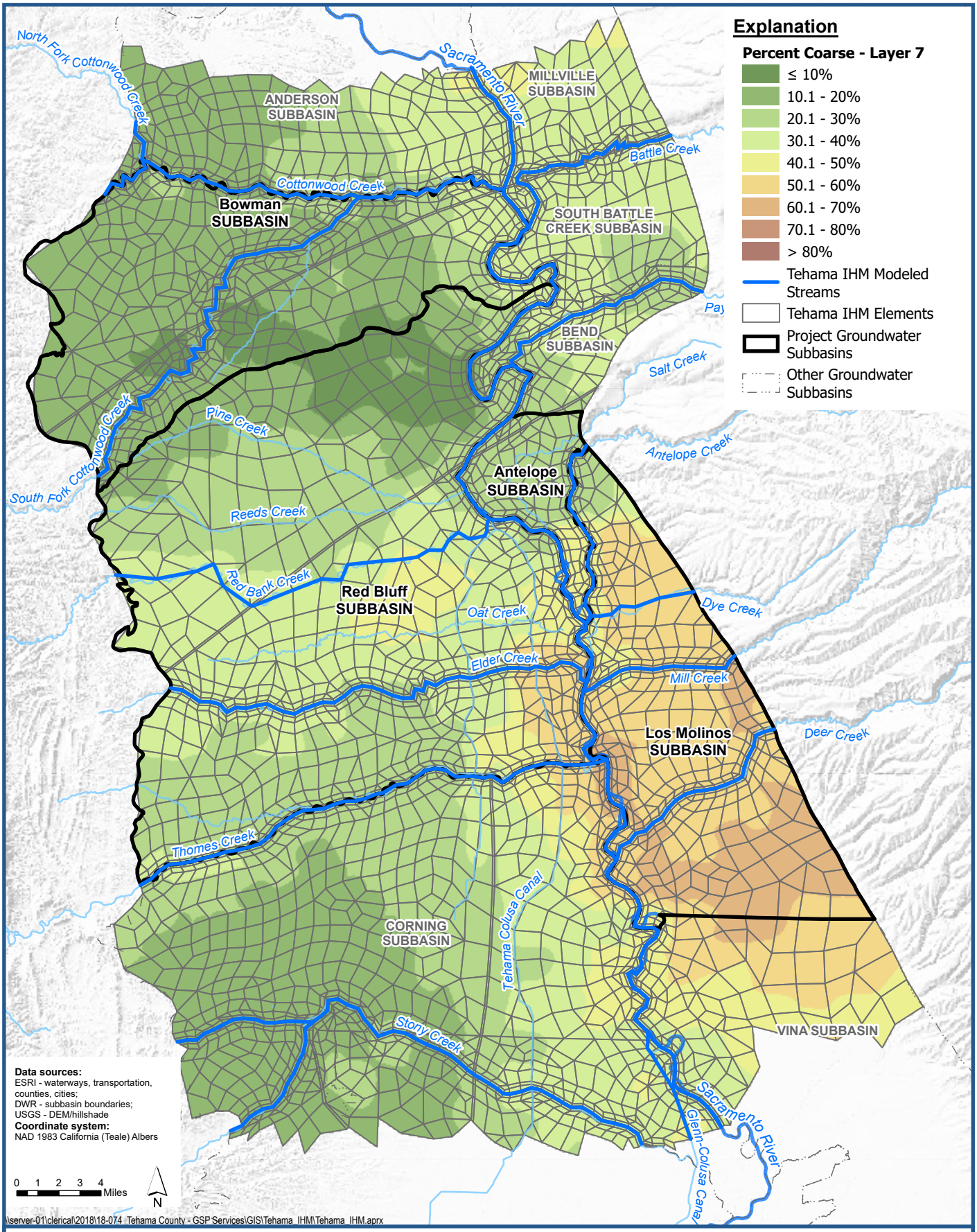
TEHAMA COUNTY

LSCE Team

Tehama IHM Percent Coarse - Layer 6

Groundwater Sustainability Planning
Tehama County, California

Figure 3-35



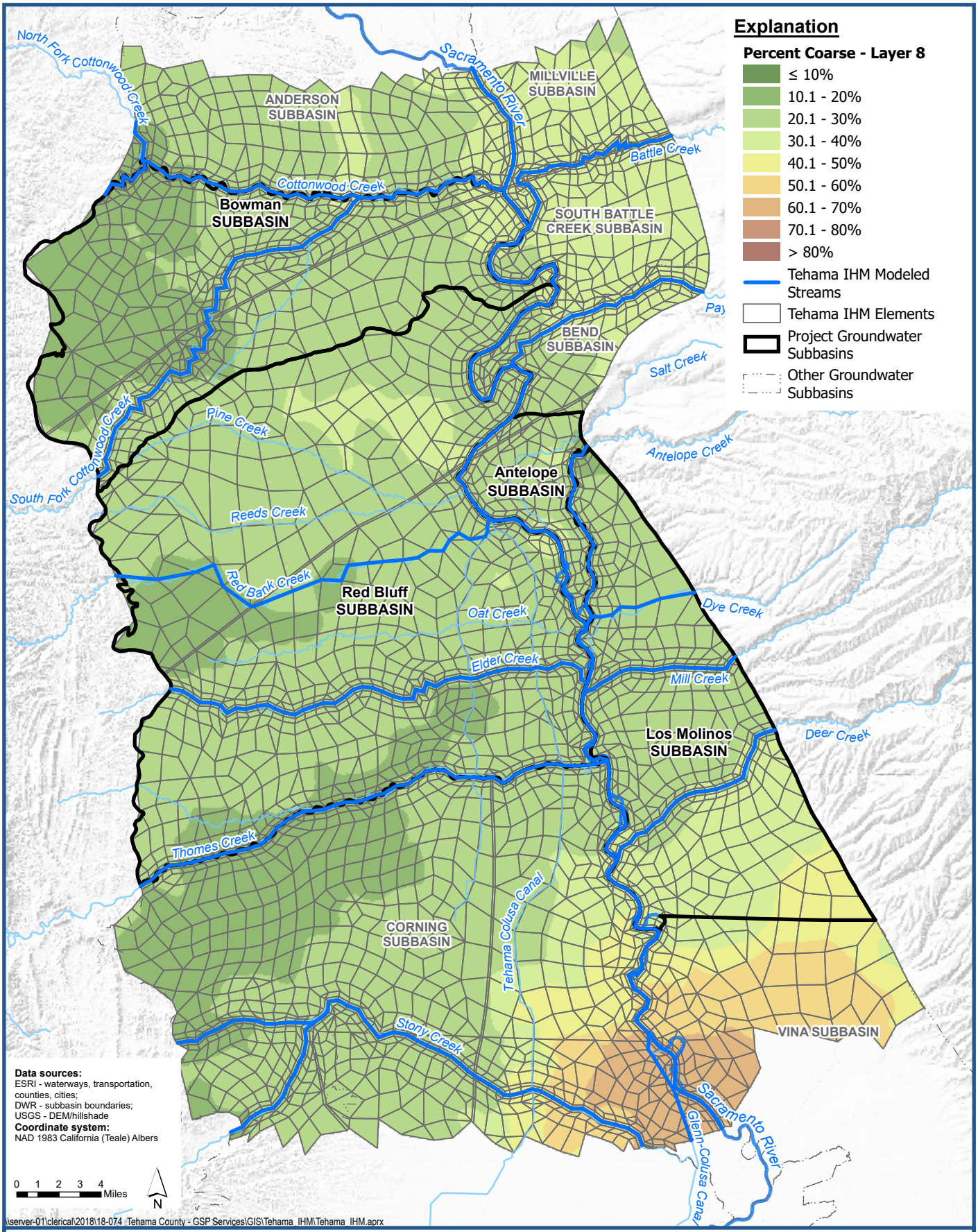
TEHAMA COUNTY

LSCE Team

Tehama IHM Percent Coarse - Layer 7

Groundwater Sustainability Planning
Tehama County, California

Figure 3-36



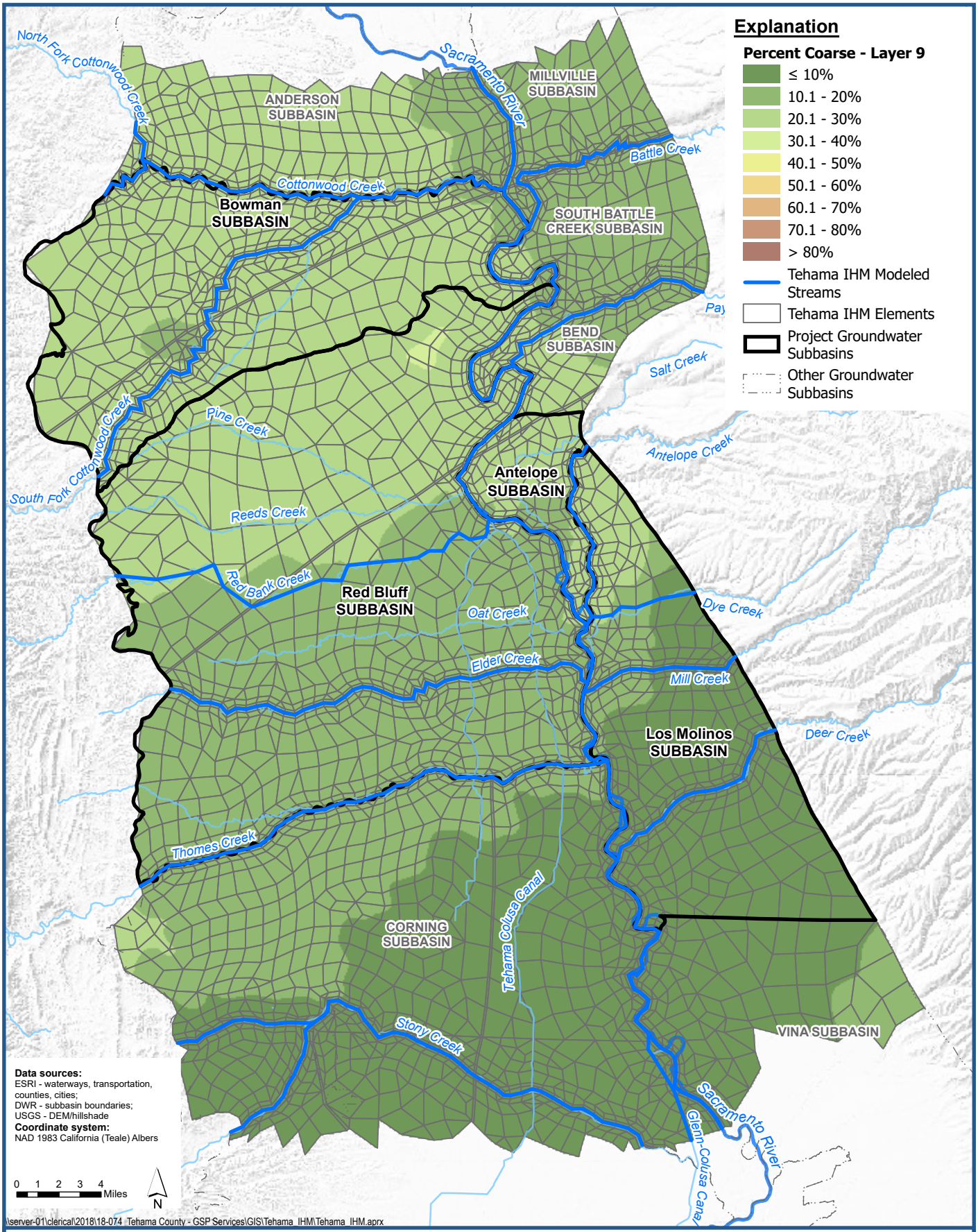
TEHAMA COUNTY

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Tehama IHM Percent Coarse - Layer 8

Groundwater Sustainability Planning
Tehama County, California

Figure 3-37



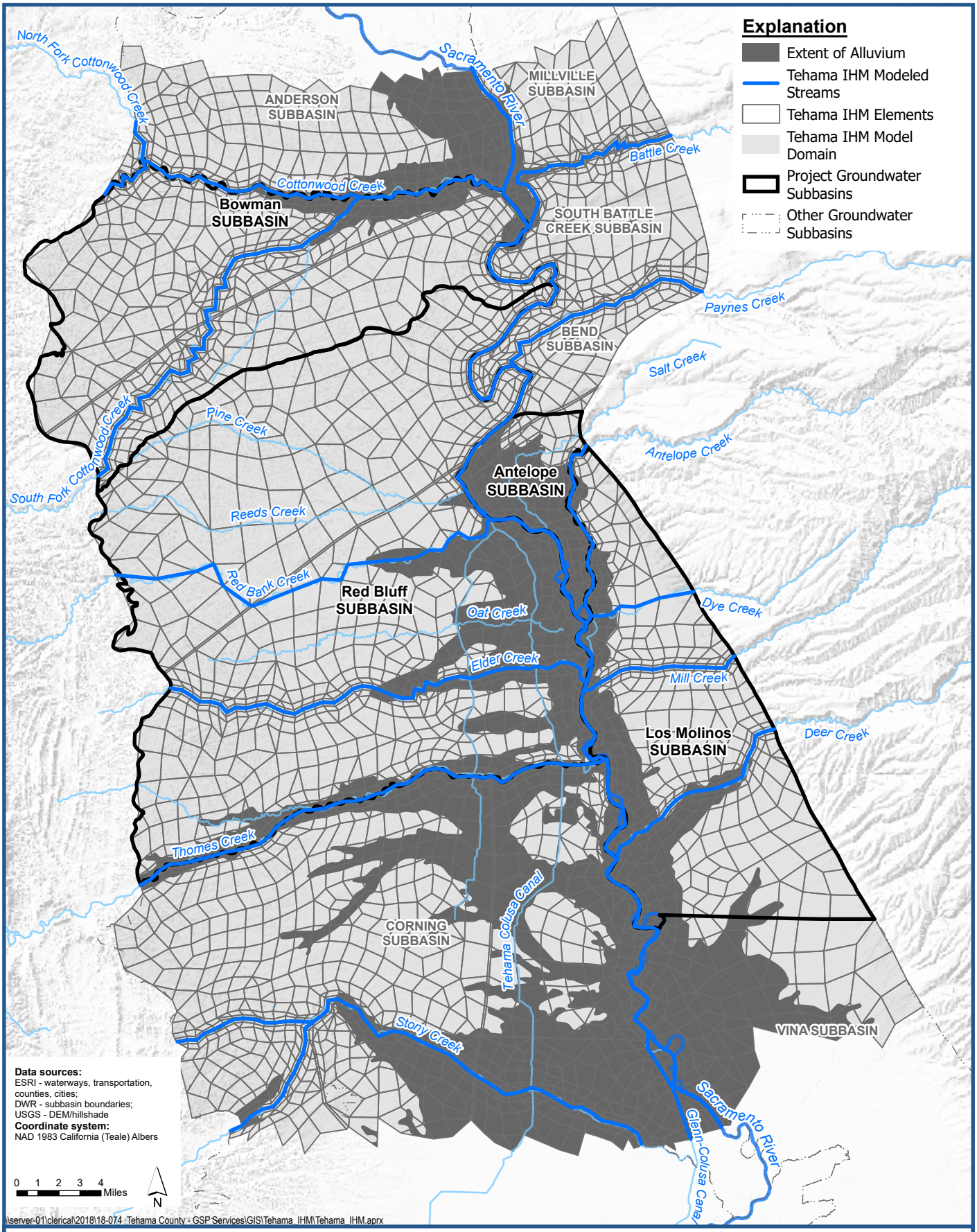
TEHAMA COUNTY

LSCE Team

Tehama IHM Percent Coarse - Layer 9

Groundwater Sustainability Planning
Tehama County, California

Figure 3-38



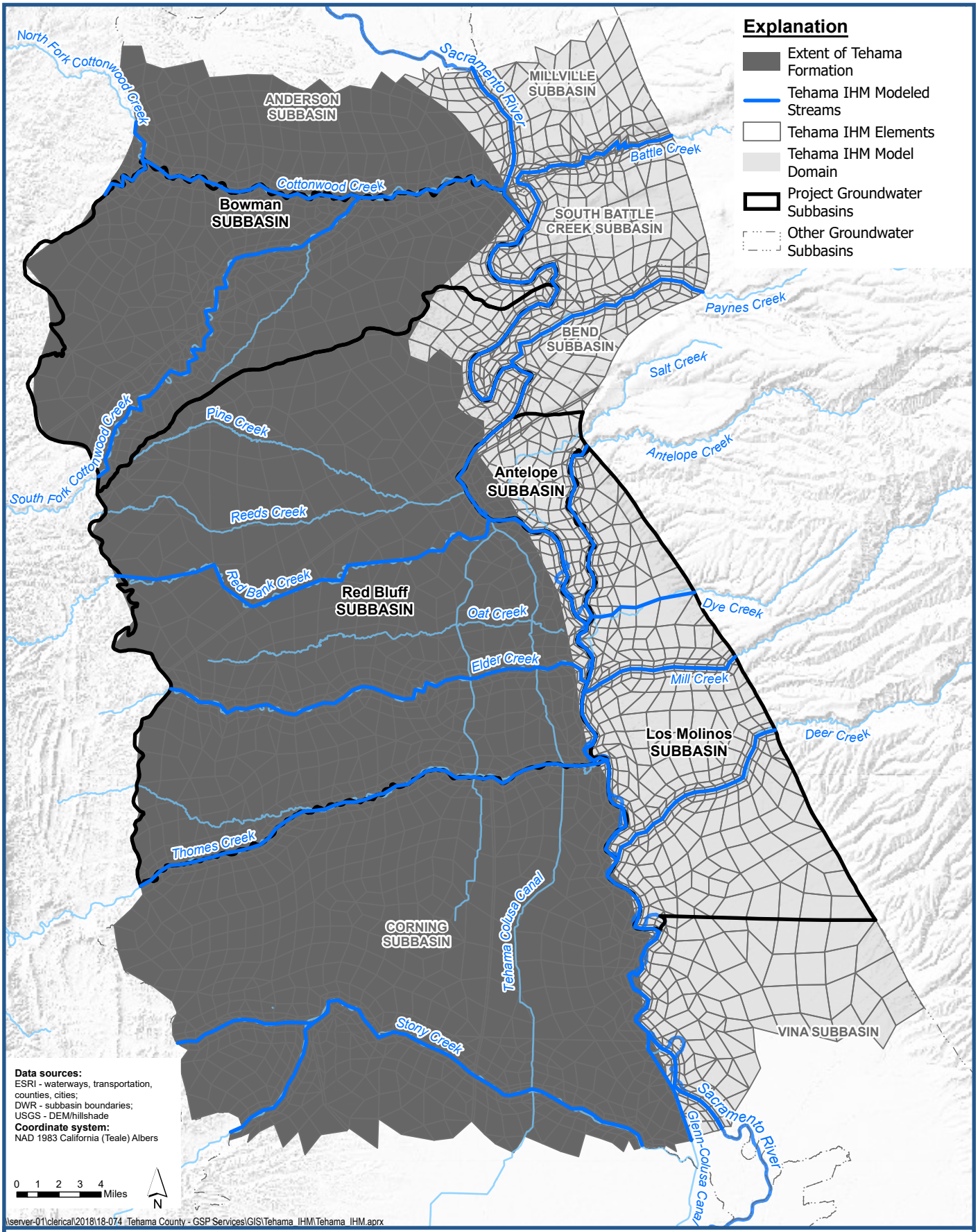
TEHAMA COUNTY

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Extent of Alluvium in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-39



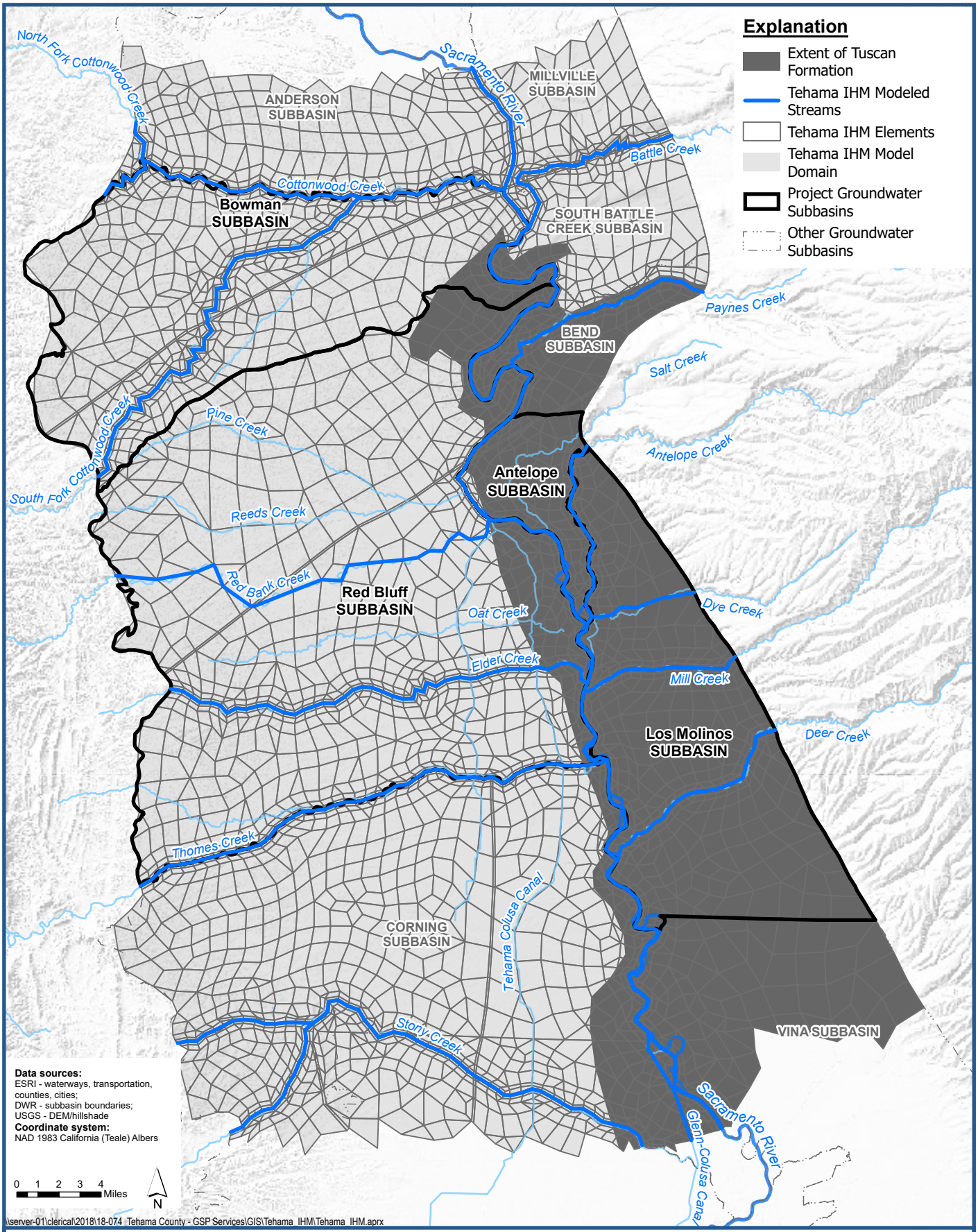
TEHAMA COUNTY

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Extent of the Tehama Formation in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-40



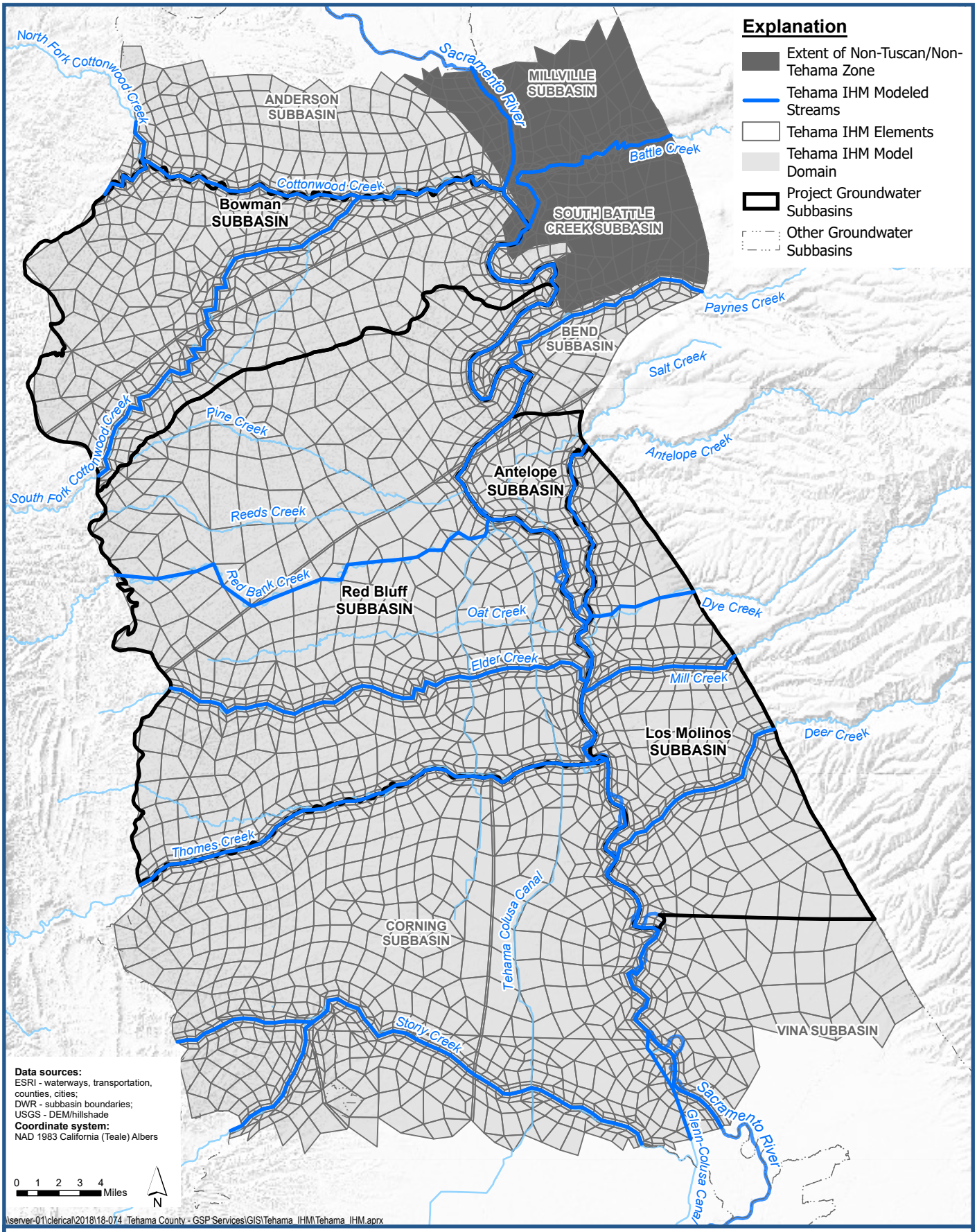
TEHAMA COUNTY

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Extent of the Tuscan Formation in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-41



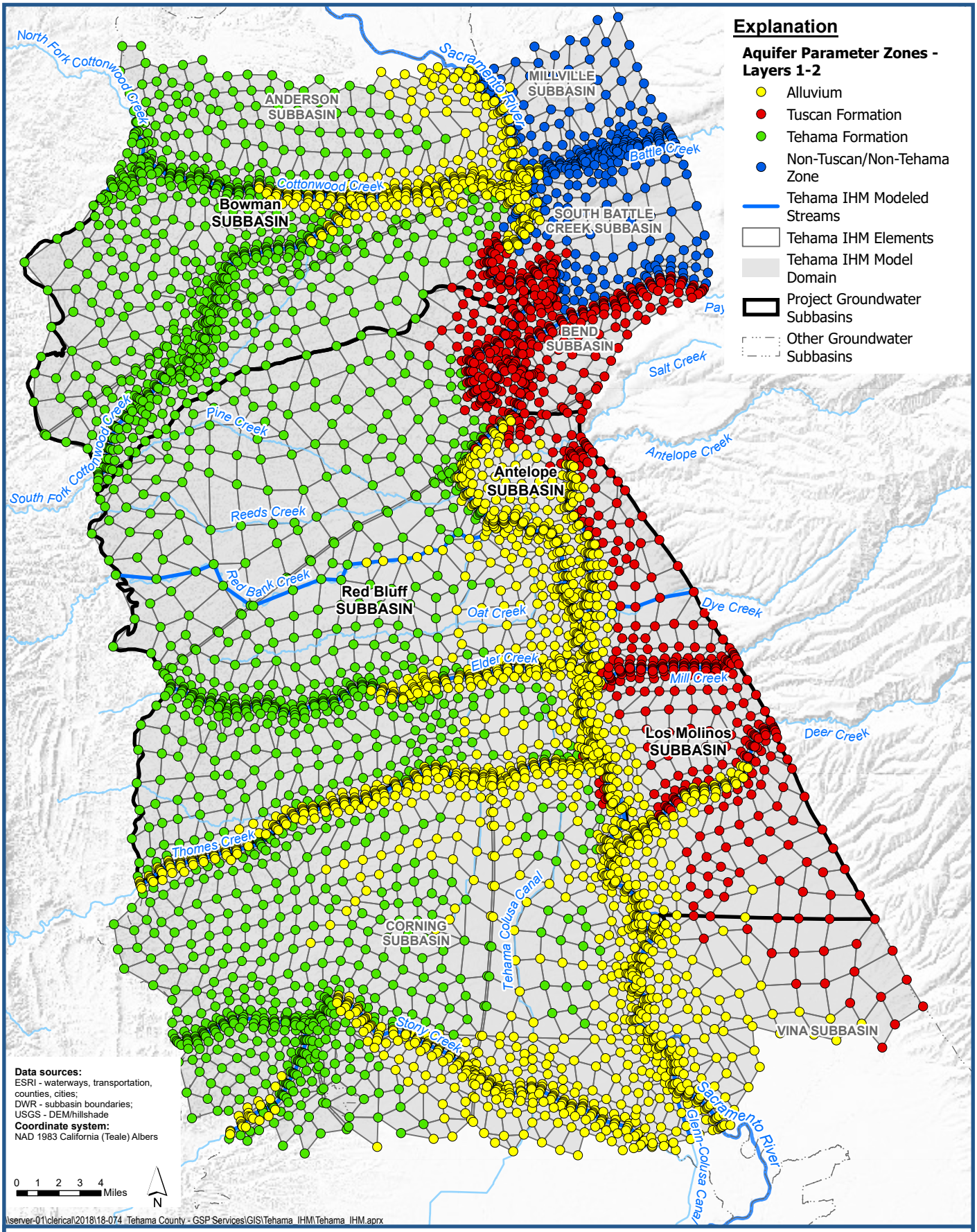
TEHAMA COUNTY

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Extent of the Non-Tuscan/Non-Tehama Zone in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-42



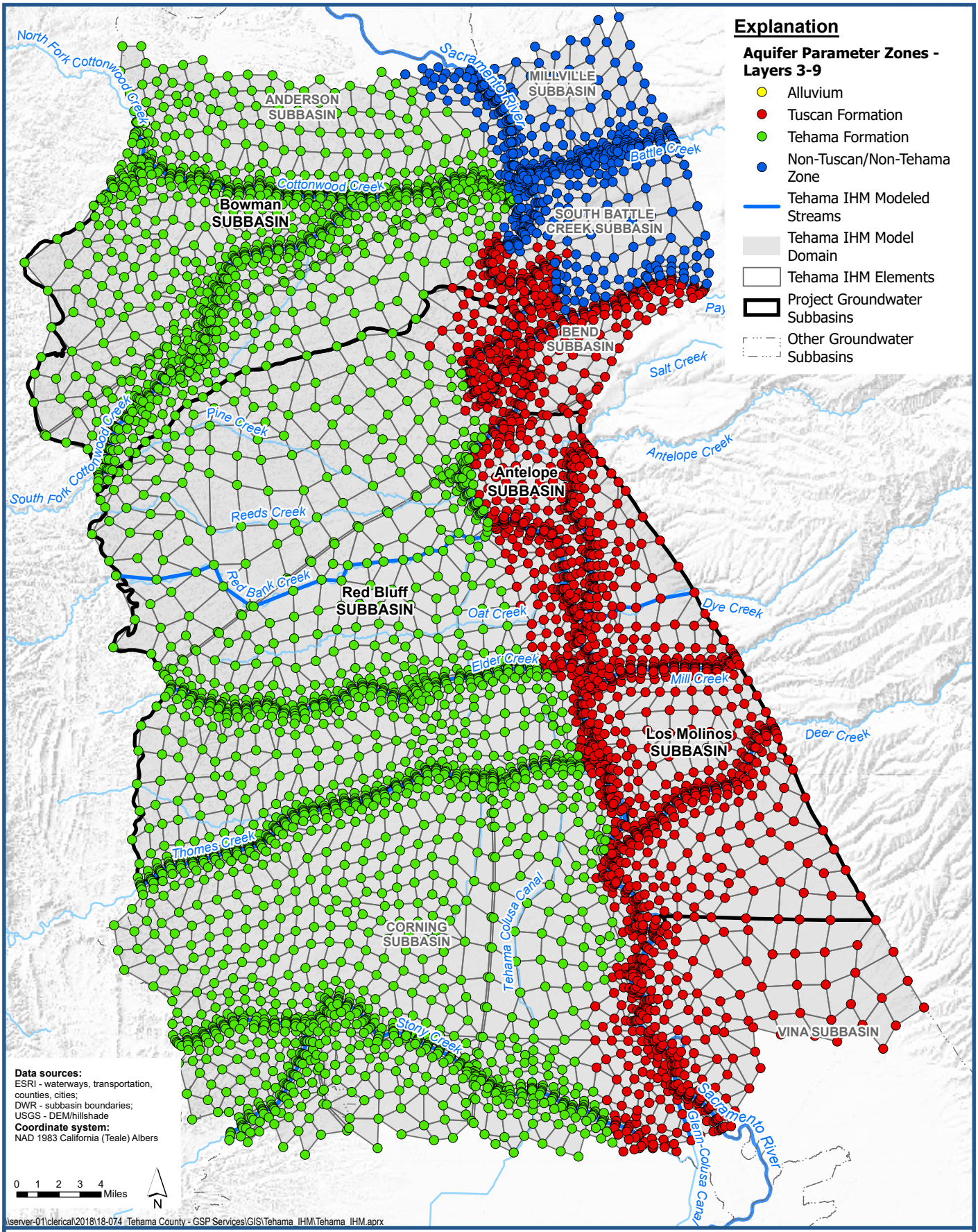
TEHAMA COUNTY

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Assigned Aquifer Parameter Zone by Node in Tehama IHM - Layers 1-2

Groundwater Sustainability Planning
Tehama County, California

Figure 3-43



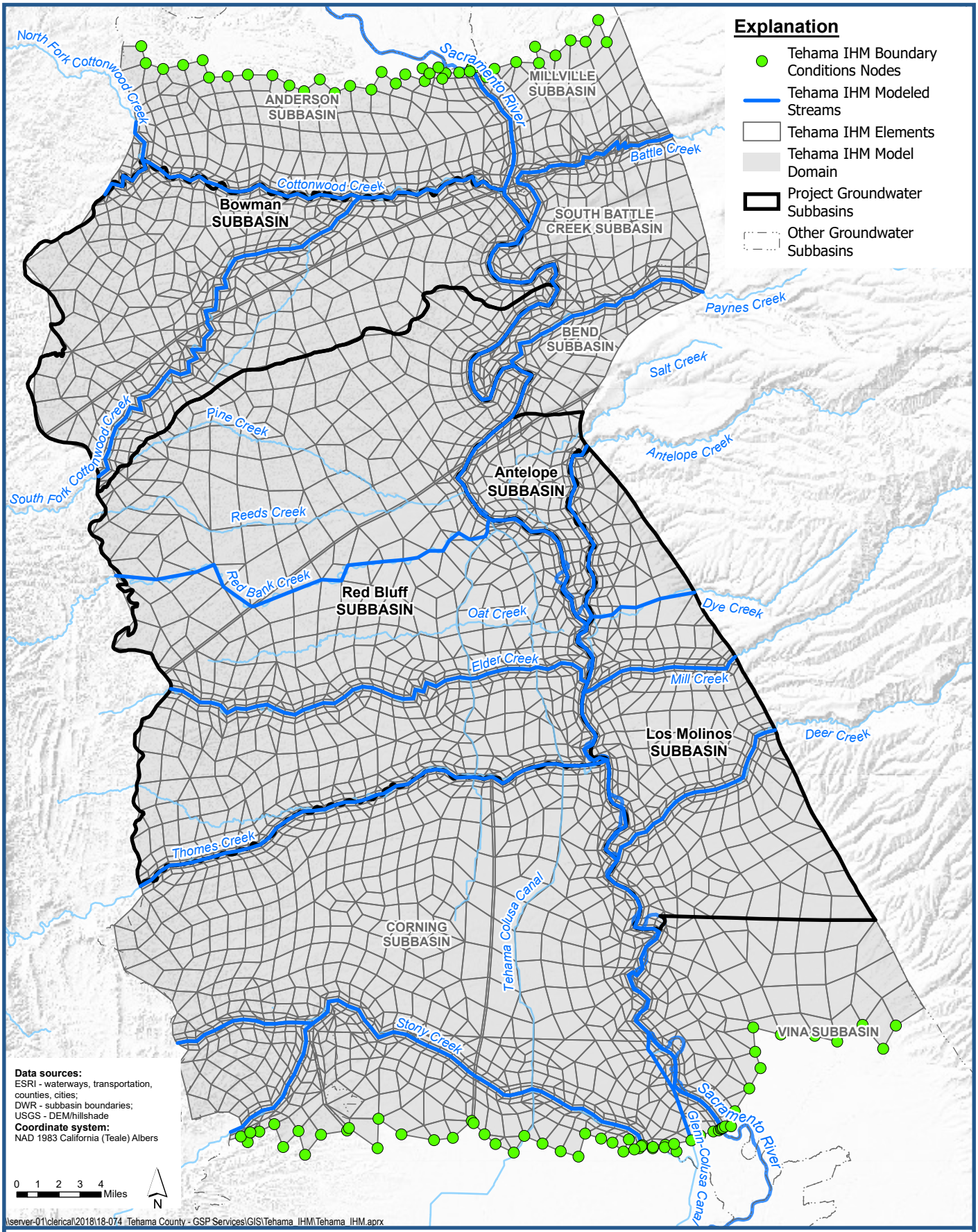
TEHAMA COUNTY

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Assigned Aquifer Parameter Zone by Node in Tehama IHM - Layers 3-9

Groundwater Sustainability Planning
Tehama County, California

Figure 3-44



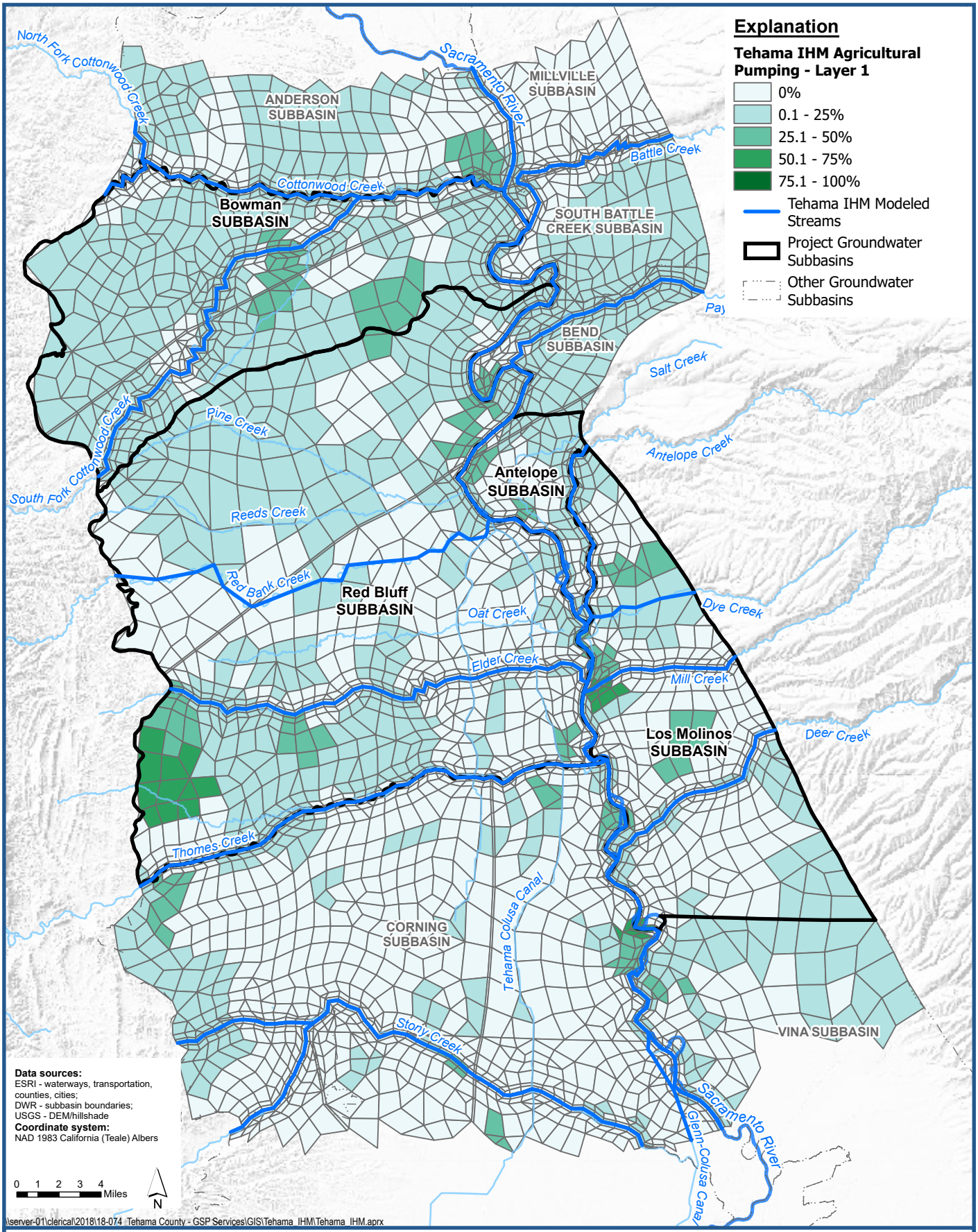
TEHAMA COUNTY

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Tehama IHM Groundwater Nodes with Boundary Conditions

Groundwater Sustainability Planning
Tehama County, California

Figure 3-45



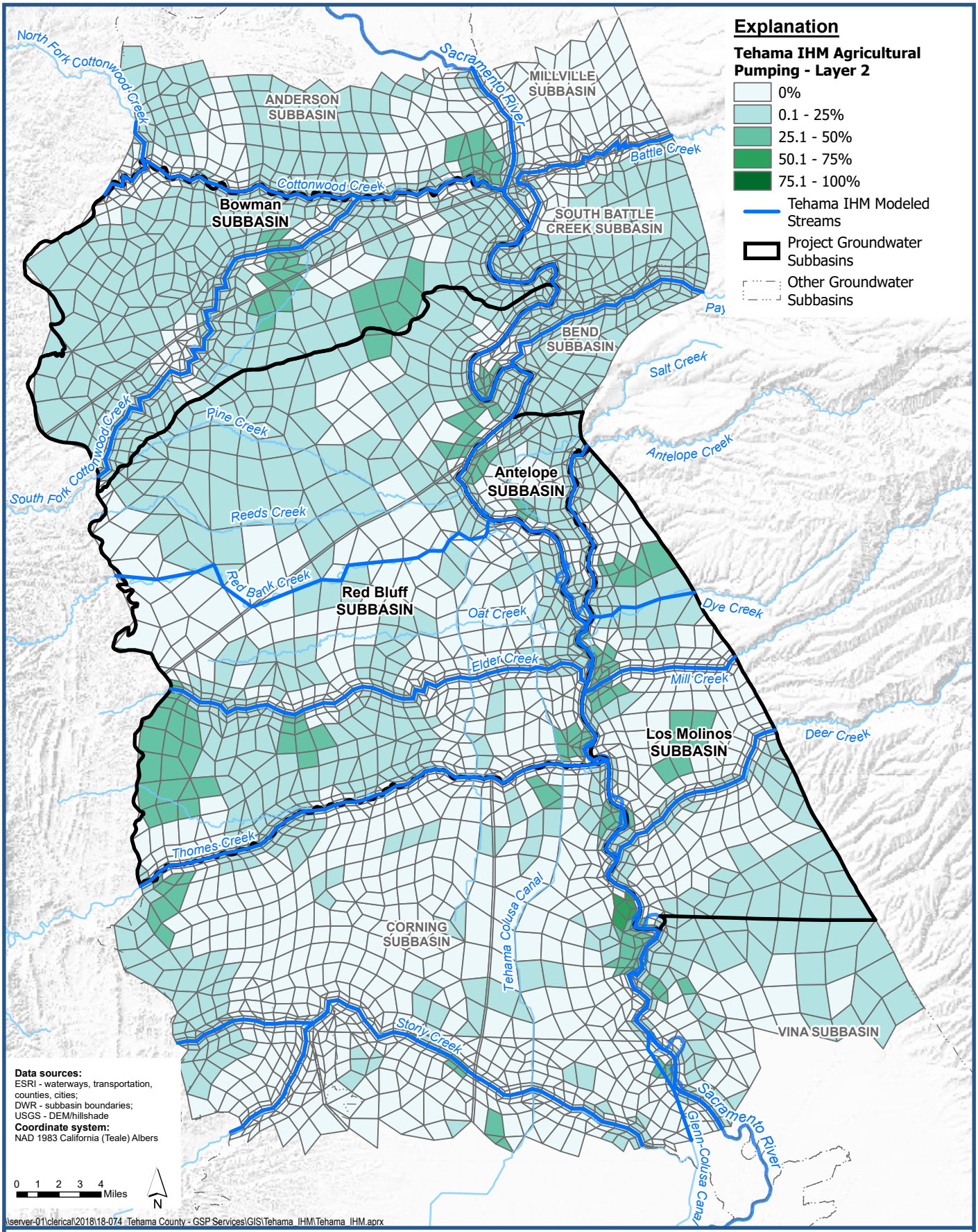
TEHAMA COUNTY

LSCE Team

Vertical Distribution of Historical Agricultural Pumping in Tehama IHM - Layer 1

Groundwater Sustainability Planning
Tehama County, California

Figure 3-46



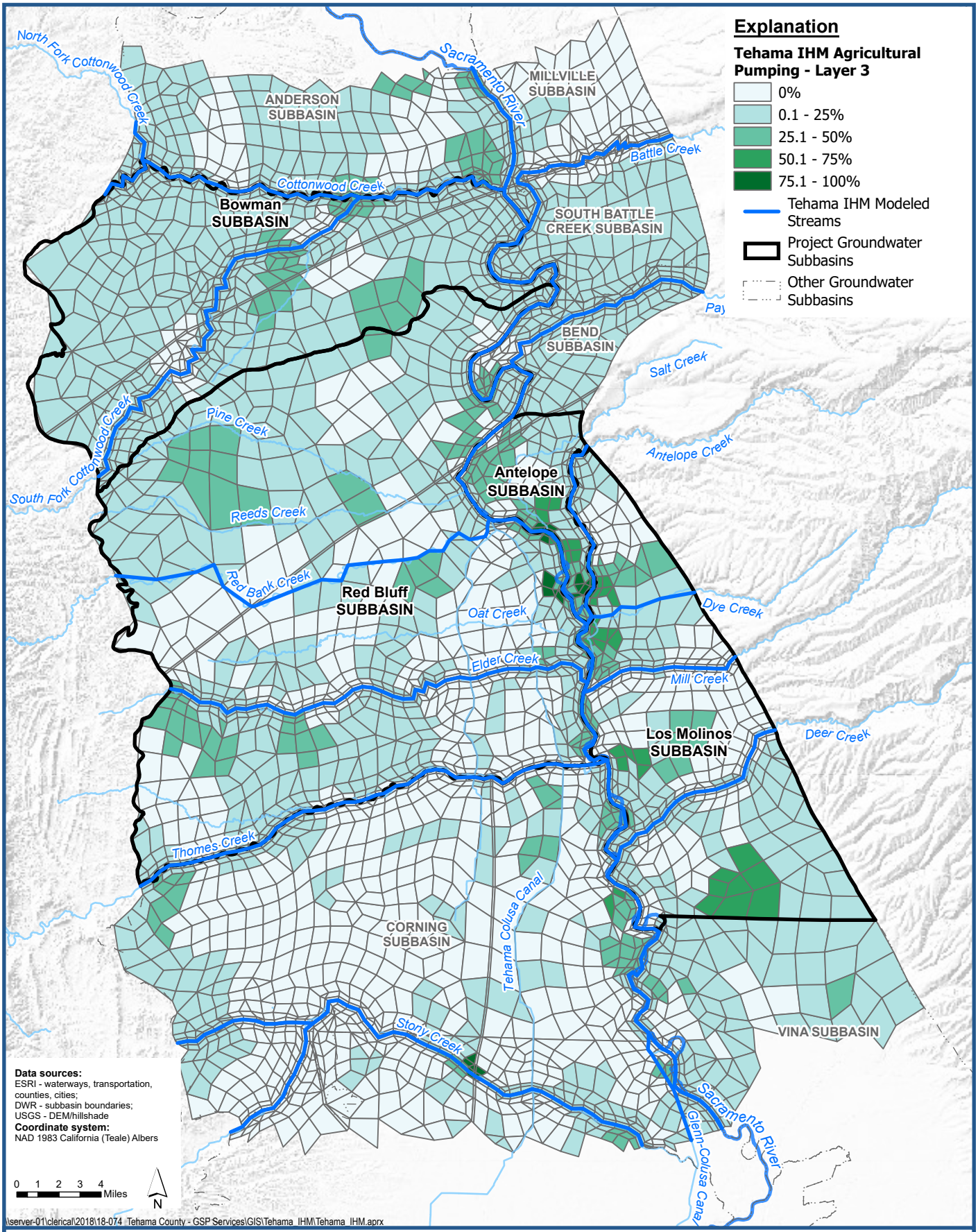
TEHAMA COUNTY

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Vertical Distribution of Historical Agricultural Pumping in Tehama IHM - Layer 2

Groundwater Sustainability Planning
Tehama County, California

Figure 3-47



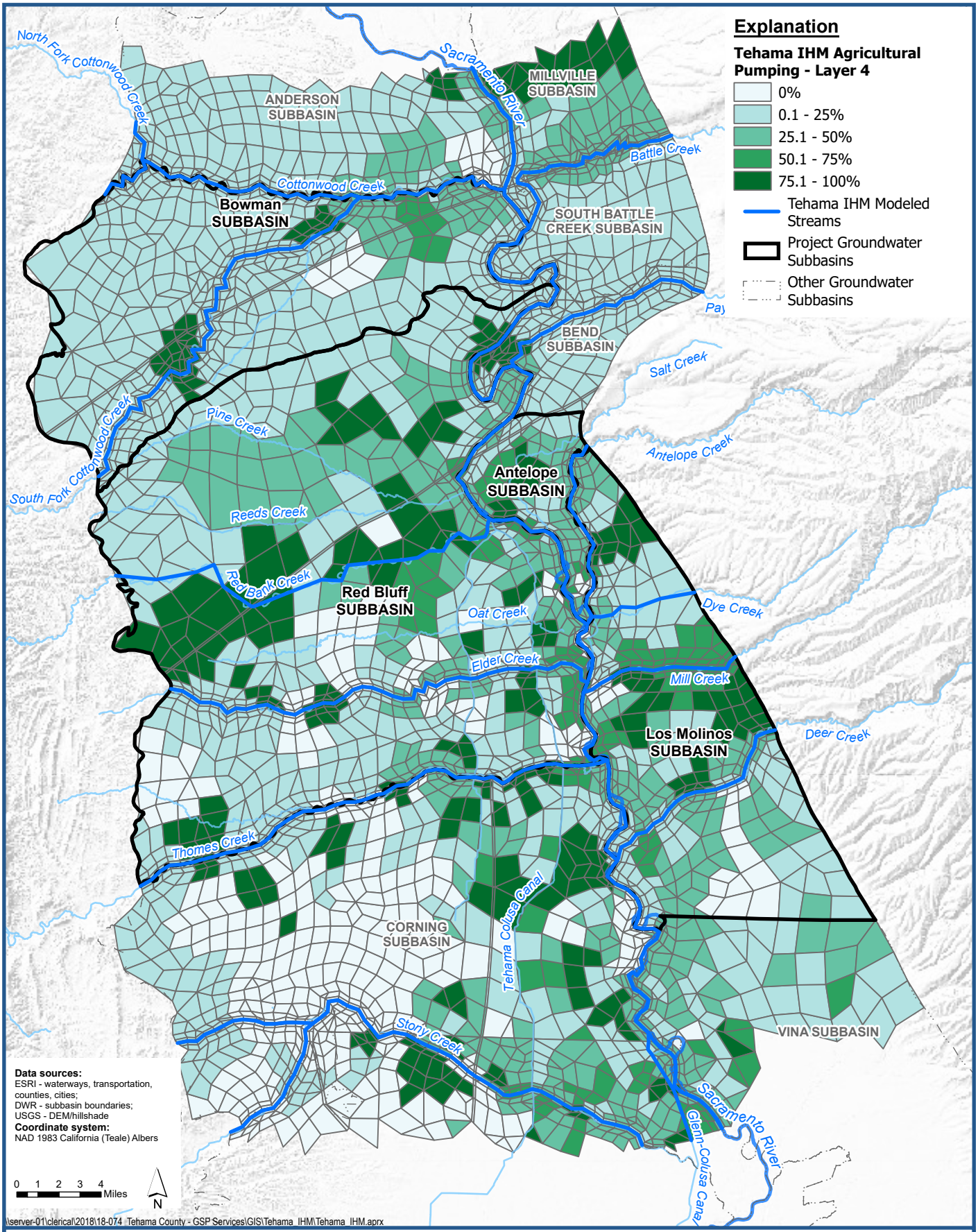
TEHAMA COUNTY

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Vertical Distribution of Historical Agricultural Pumping in Tehama IHM - Layer 3

Groundwater Sustainability Planning
Tehama County, California

Figure 3-48



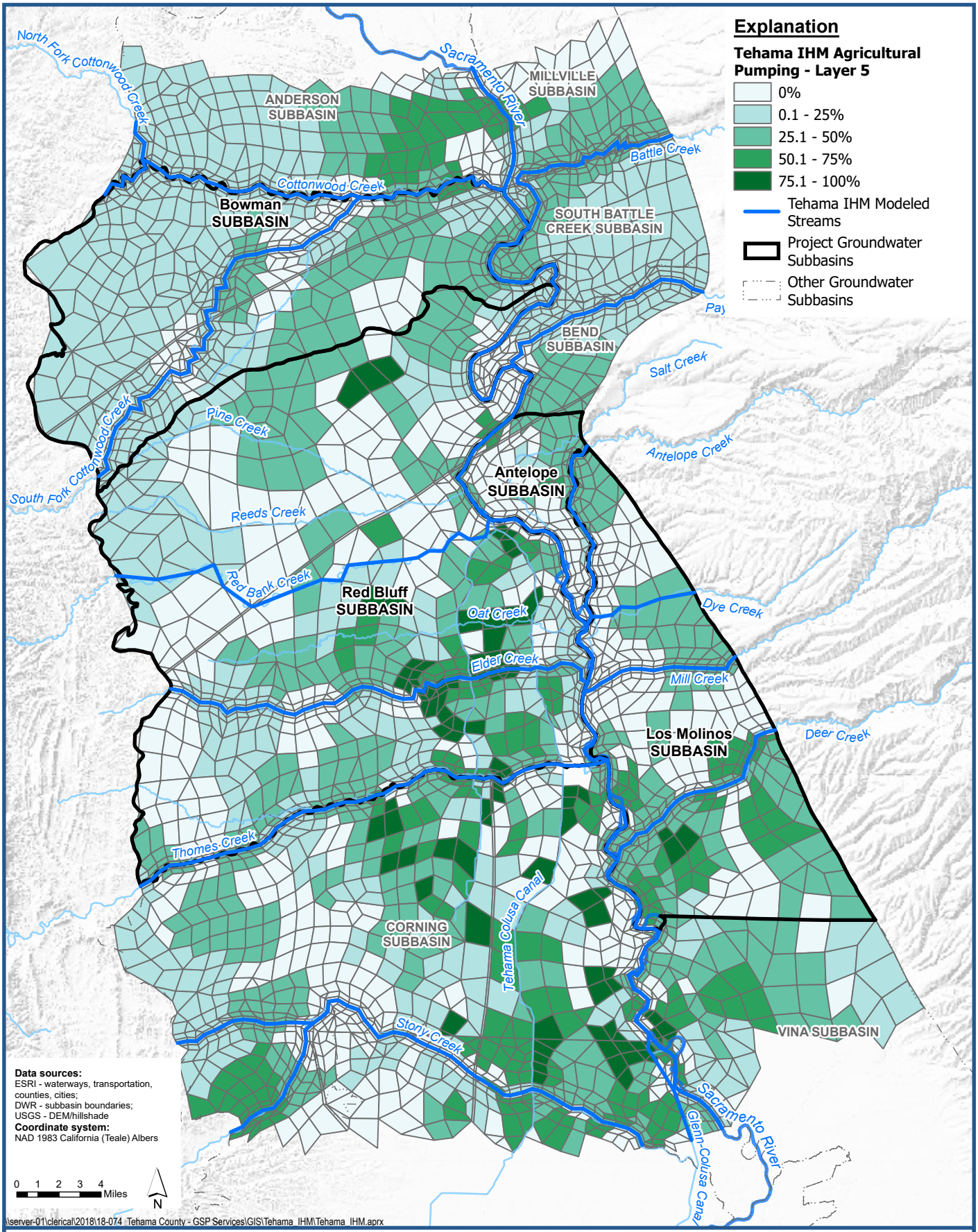
TEHAMA COUNTY

LSCE Team

Vertical Distribution of Historical Agricultural Pumping in Tehama IHM - Layer 4

Groundwater Sustainability Planning
Tehama County, California

Figure 3-49



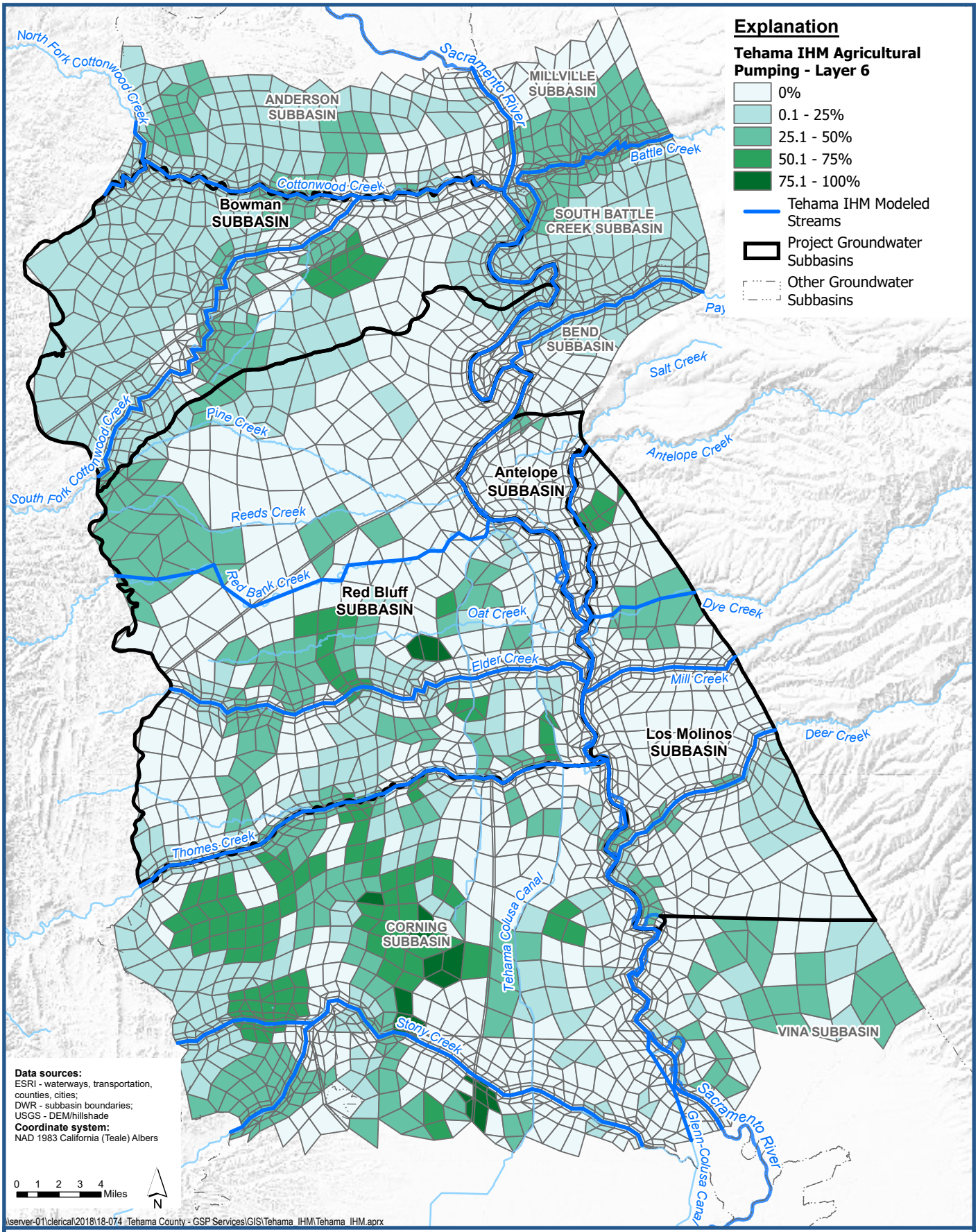
TEHAMA COUNTY

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Vertical Distribution of Historical Agricultural Pumping in Tehama IHM - Layer 5

Groundwater Sustainability Planning
Tehama County, California

Figure 3-50



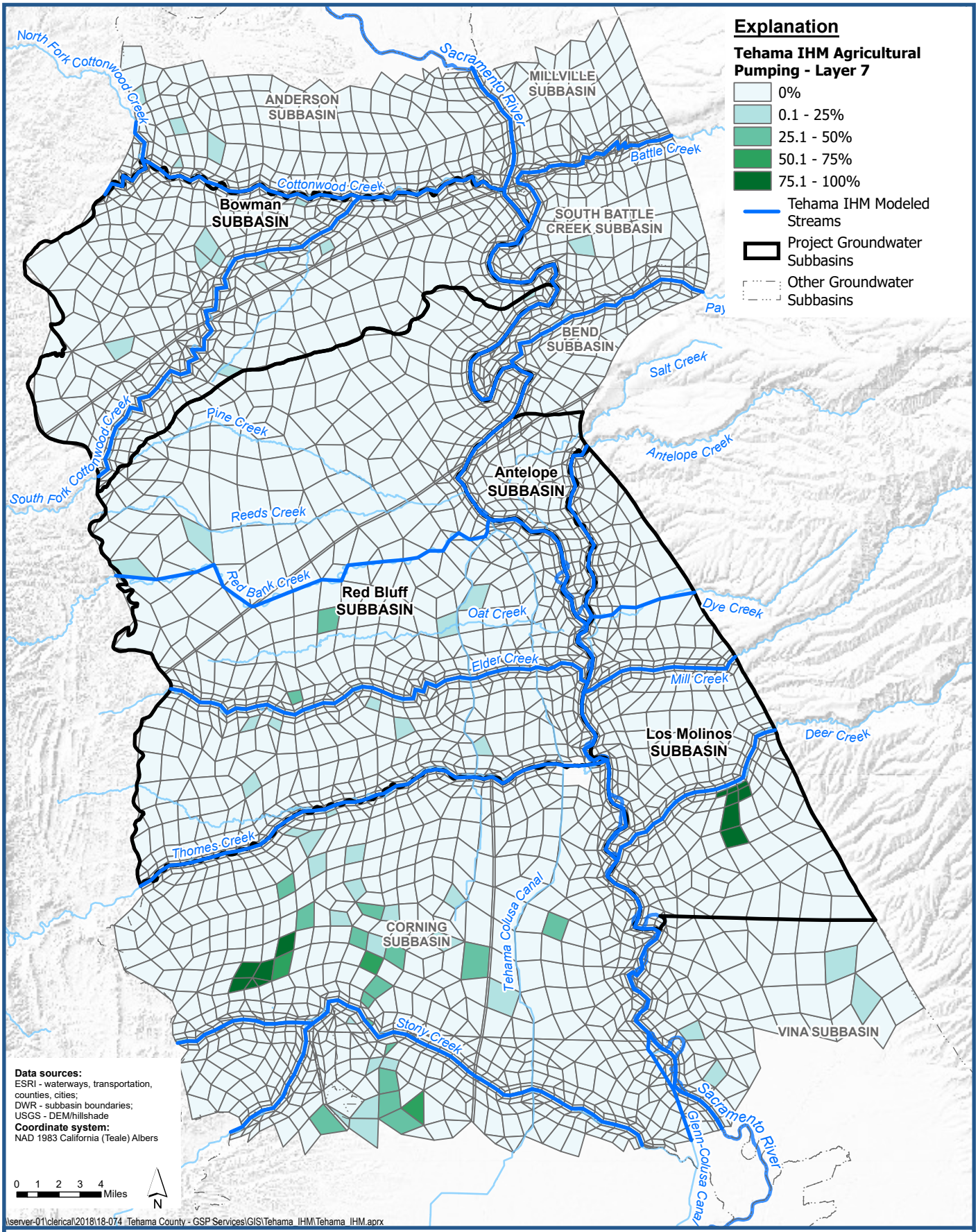
TEHAMA COUNTY

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Vertical Distribution of Historical Agricultural Pumping in Tehama IHM - Layer 6

Groundwater Sustainability Planning
Tehama County, California

Figure 3-51



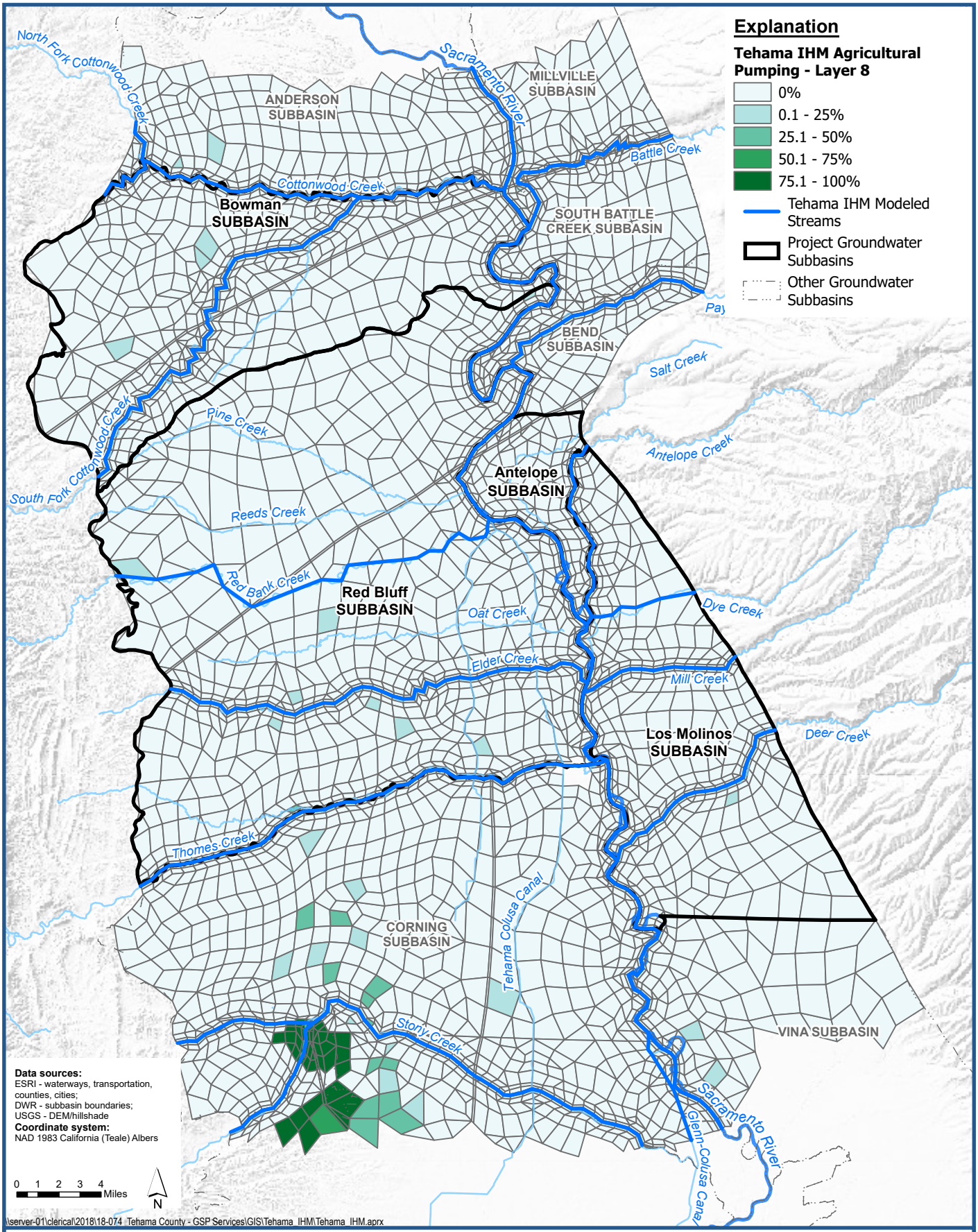
TEHAMA COUNTY

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Vertical Distribution of Historical Agricultural Pumping in Tehama IHM - Layer 7

Groundwater Sustainability Planning
Tehama County, California

Figure 3-52



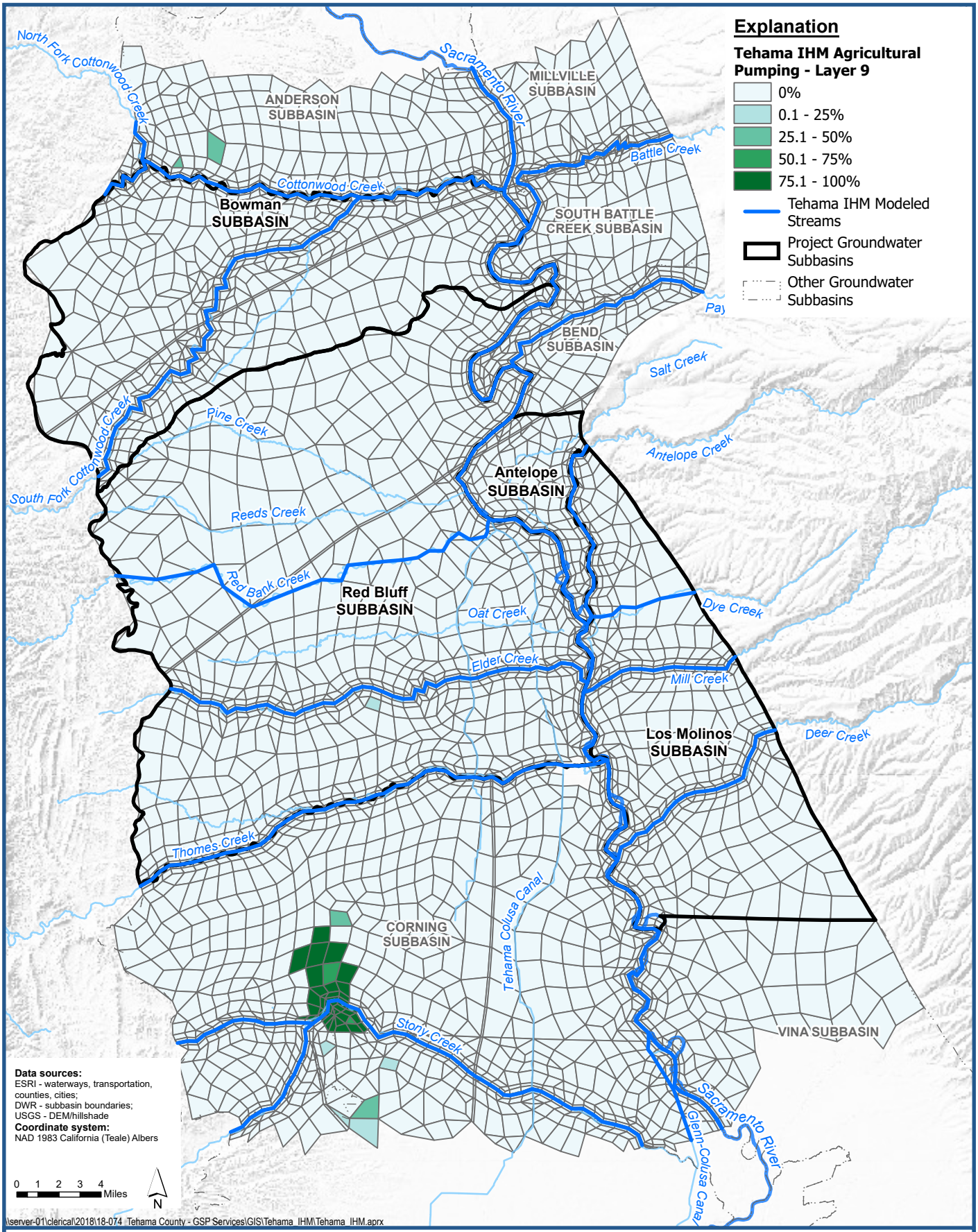
TEHAMA COUNTY

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Vertical Distribution of Historical Agricultural Pumping in Tehama IHM - Layer 8

Groundwater Sustainability Planning
Tehama County, California

Figure 3-53



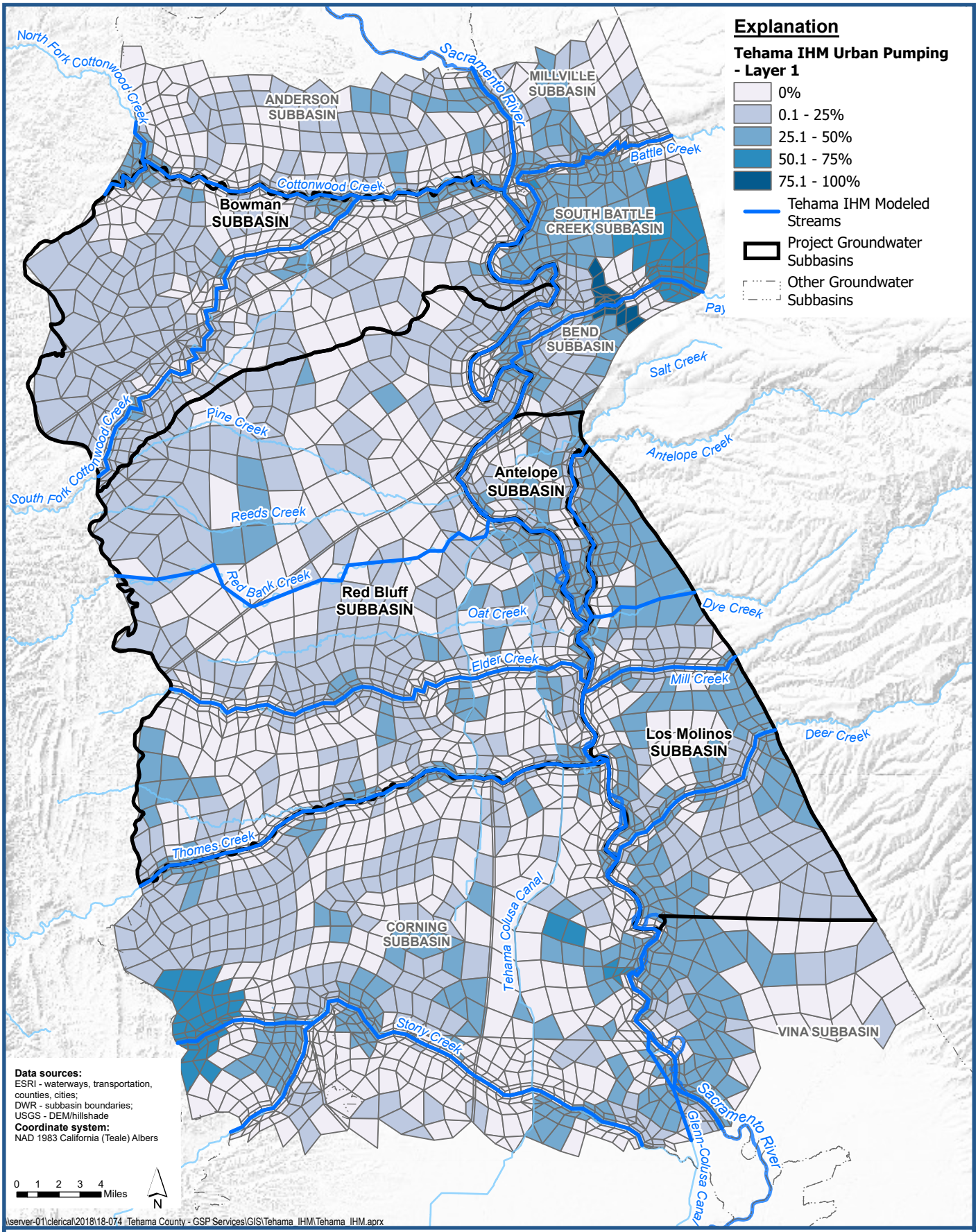
TEHAMA COUNTY

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Vertical Distribution of Historical Agricultural Pumping in Tehama IHM - Layer 9

Groundwater Sustainability Planning
Tehama County, California

Figure 3-54



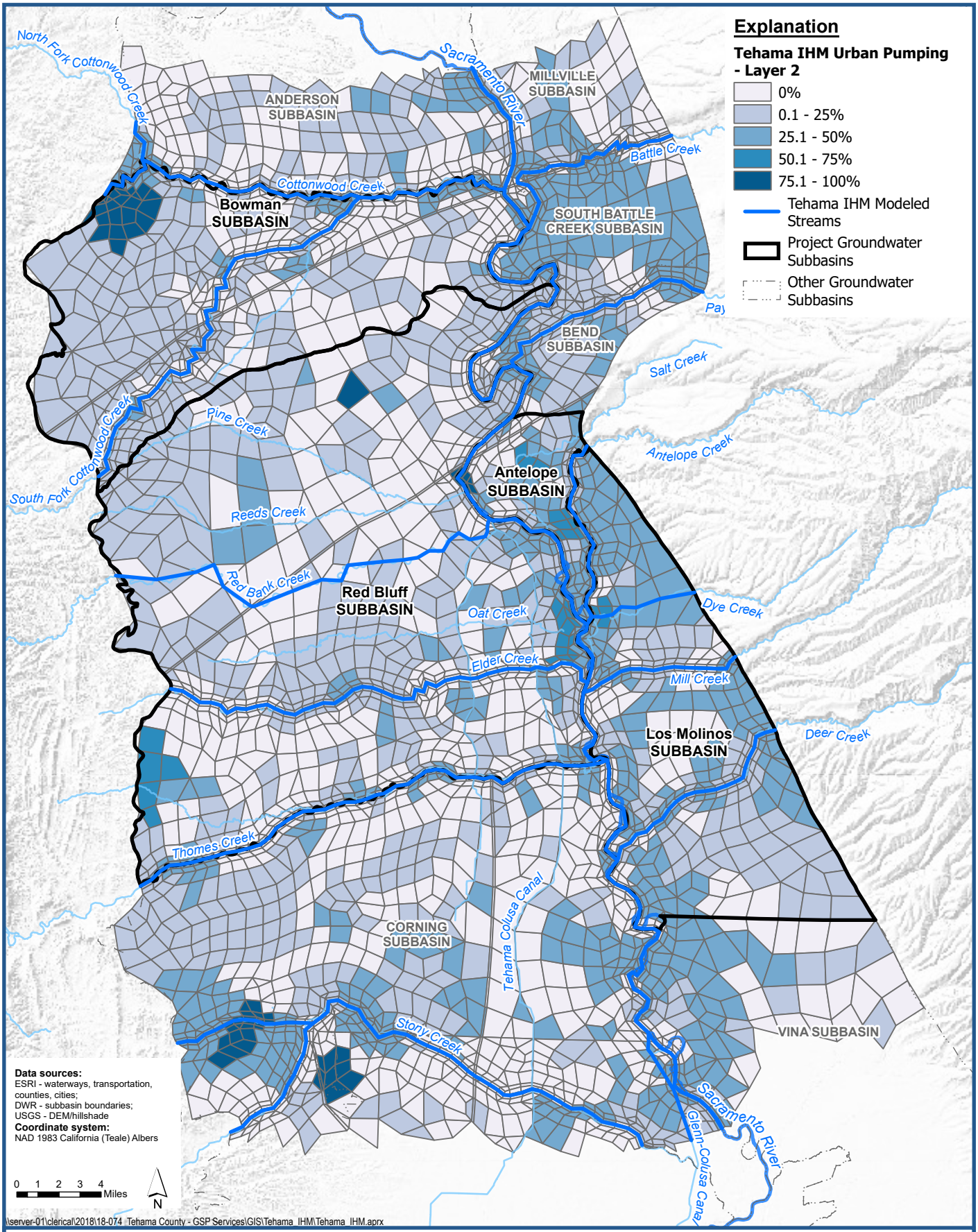
TEHAMA COUNTY

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Vertical Distribution of Historical Urban Pumping in Tehama IHM - Layer 1

Groundwater Sustainability Planning
Tehama County, California

Figure 3-55



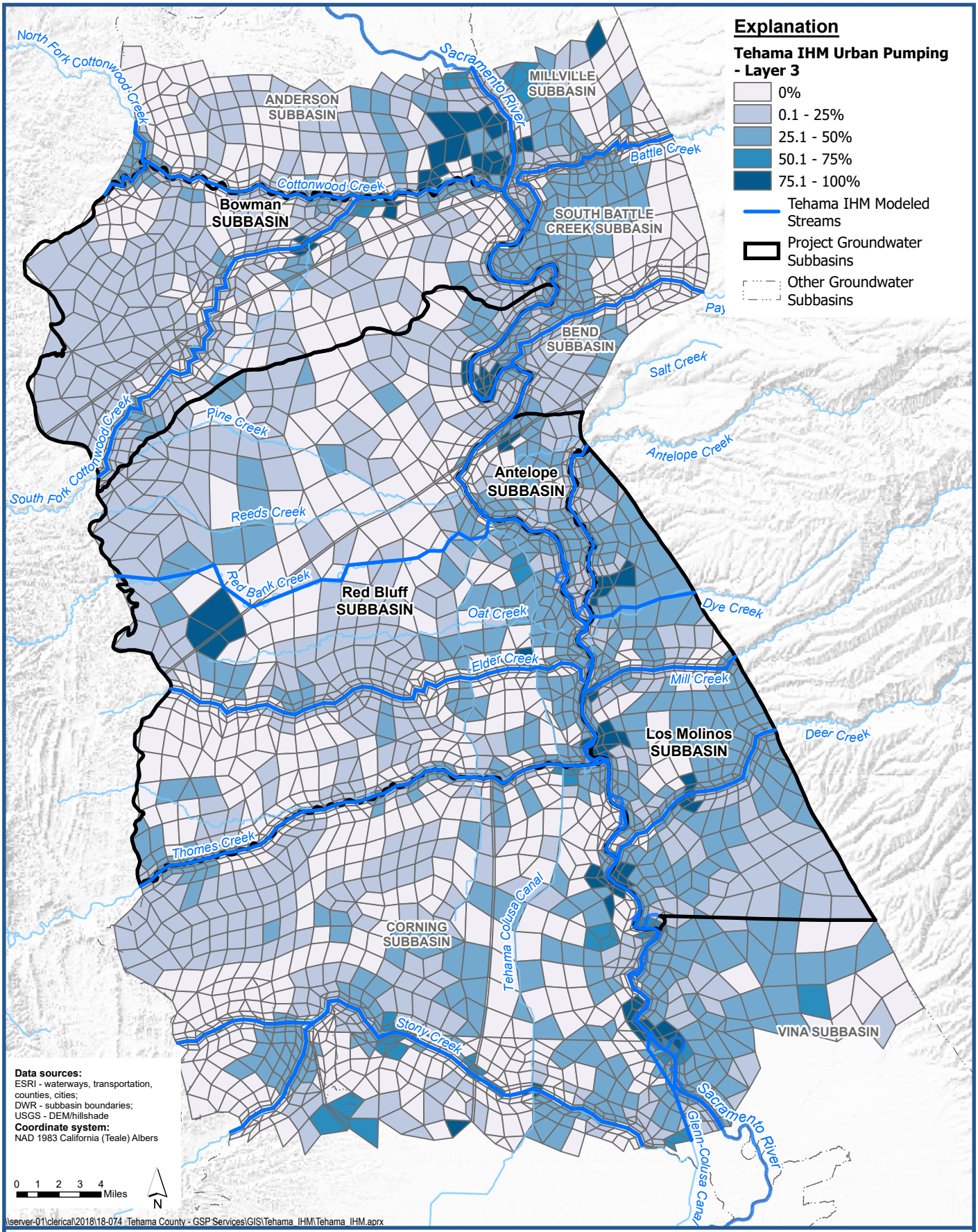
TEHAMA COUNTY

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Vertical Distribution of Historical Urban Pumping in Tehama IHM - Layer 2

Groundwater Sustainability Planning
Tehama County, California

Figure 3-56



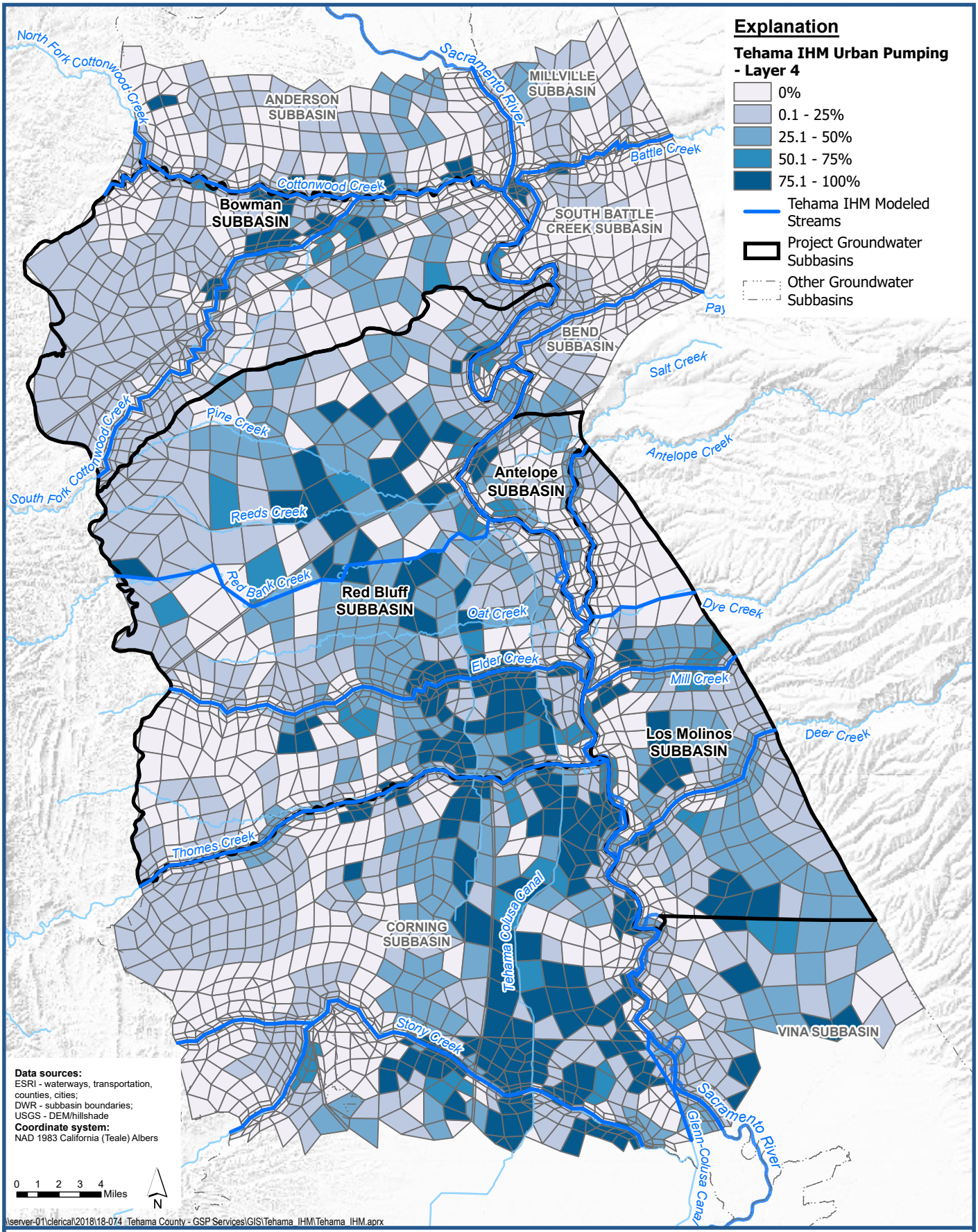
TEHAMA COUNTY

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Vertical Distribution of Historical Urban Pumping in Tehama IHM - Layer 3

Groundwater Sustainability Planning
Tehama County, California

Figure 3-57



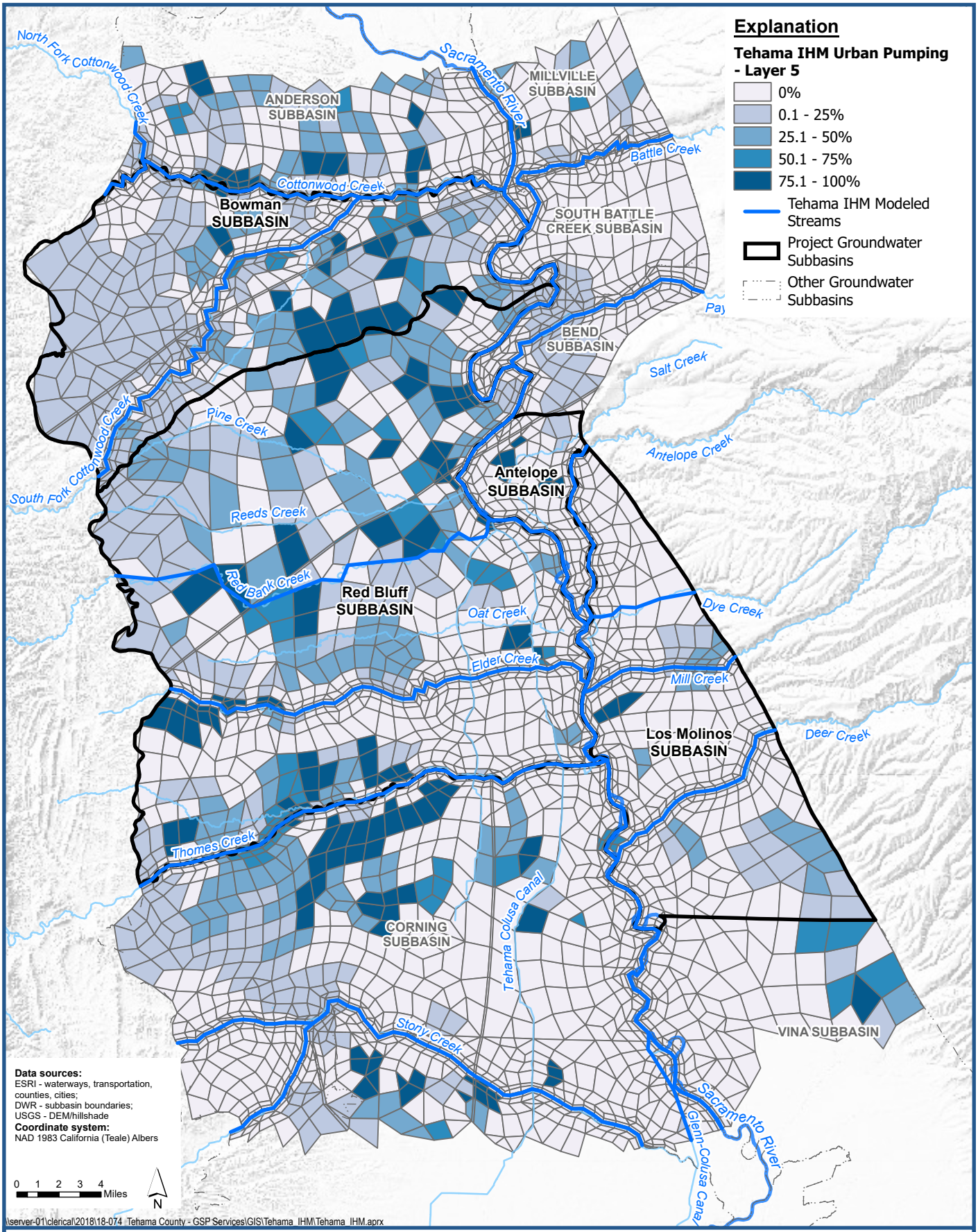
TEHAMA COUNTY

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Vertical Distribution of Historical Urban Pumping in Tehama IHM - Layer 4

Groundwater Sustainability Planning
Tehama County, California

Figure 3-58



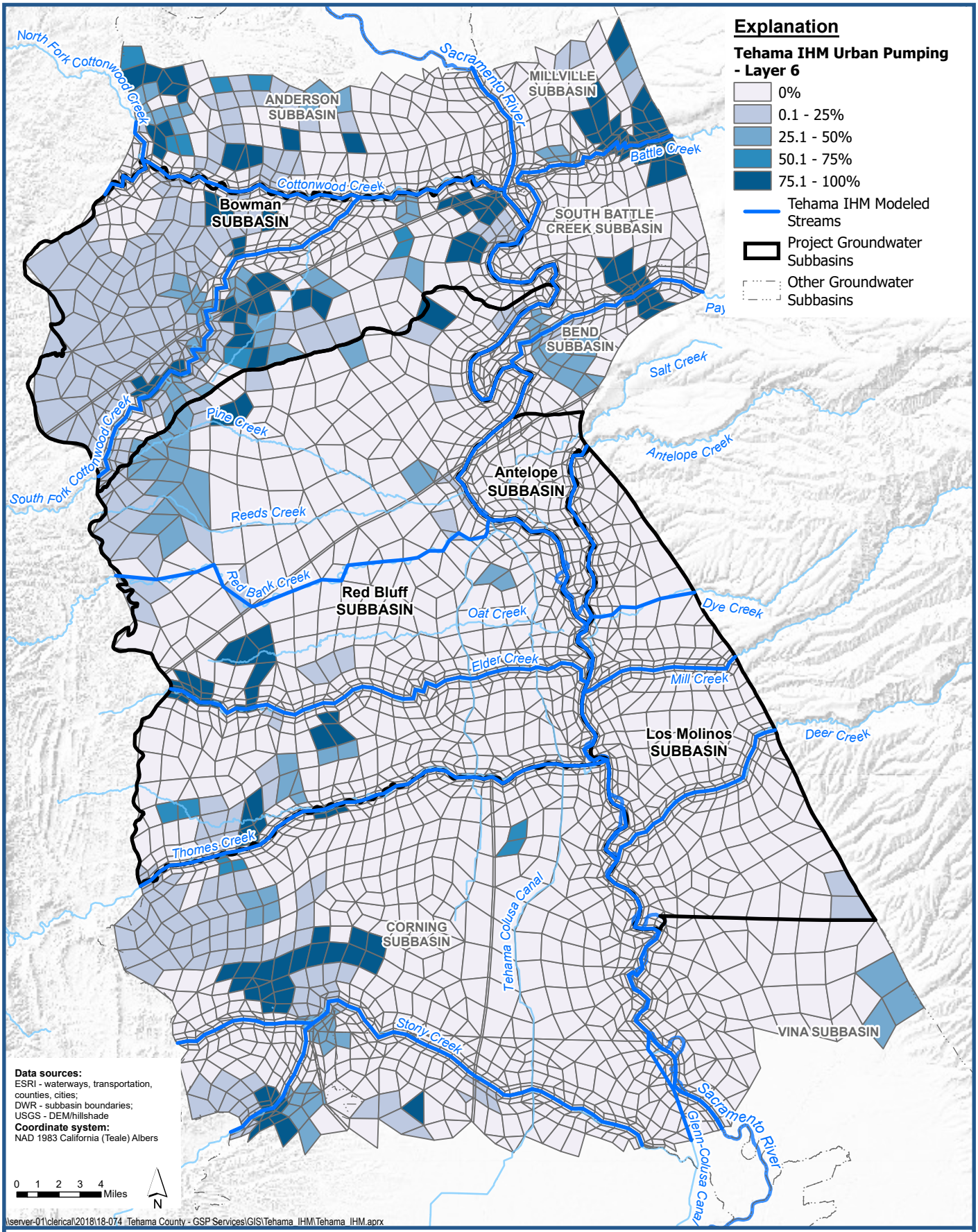
TEHAMA COUNTY

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Vertical Distribution of Historical Urban Pumping in Tehama IHM - Layer 5

Groundwater Sustainability Planning
Tehama County, California

Figure 3-59



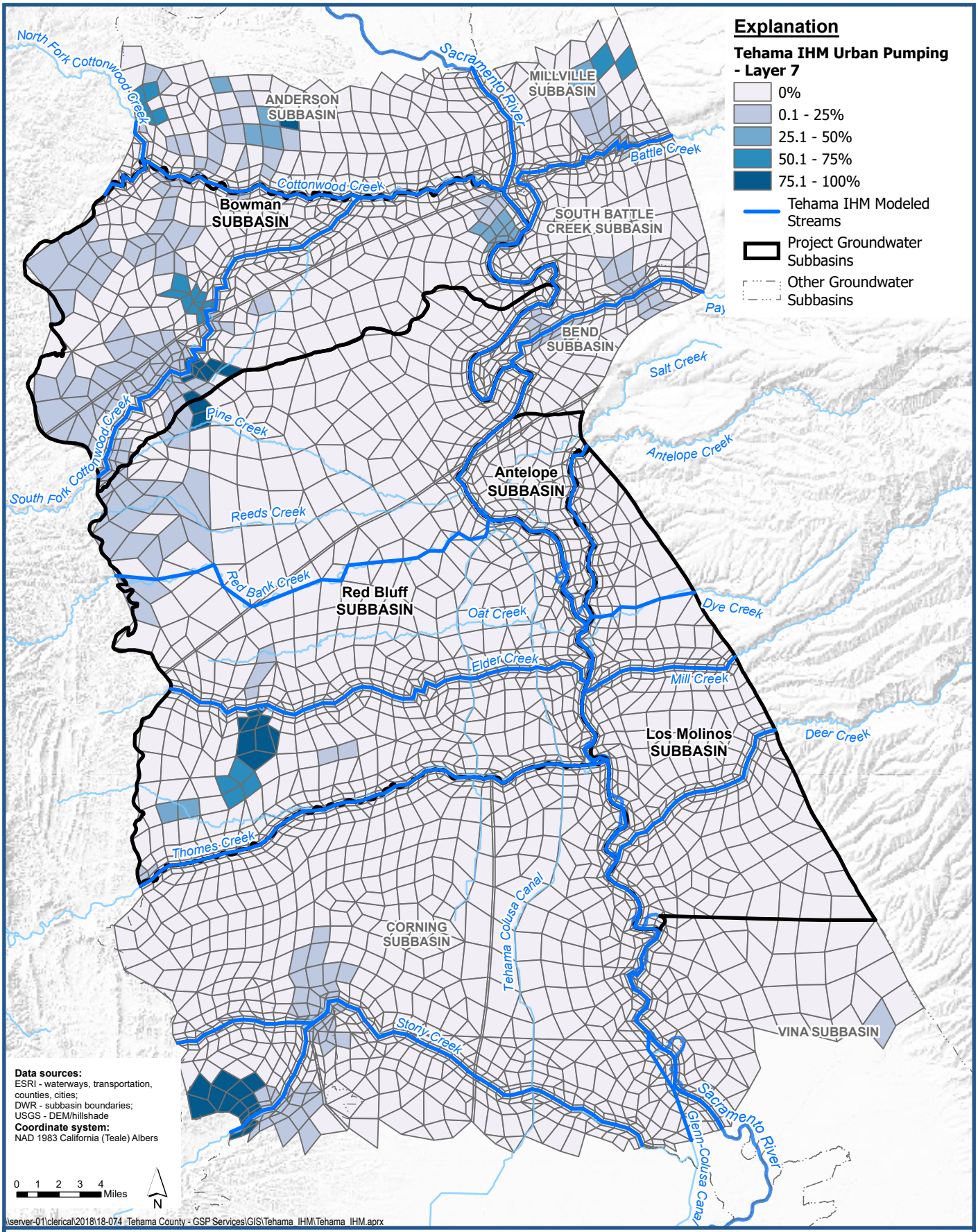
TEHAMA COUNTY

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Vertical Distribution of Historical Urban Pumping in Tehama IHM - Layer 6

Groundwater Sustainability Planning
Tehama County, California

Figure 3-60



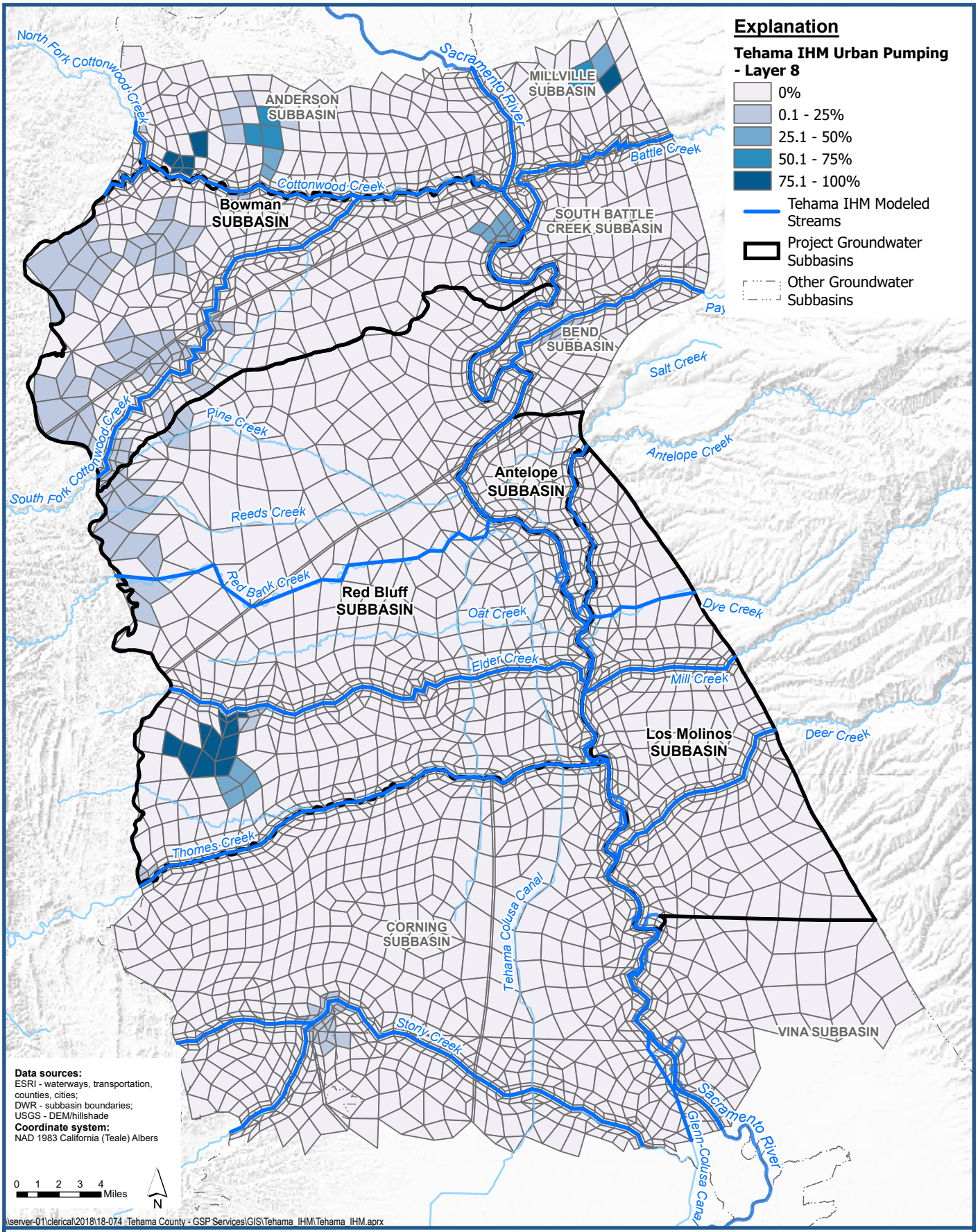
TEHAMA COUNTY

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Vertical Distribution of Historical Urban Pumping in Tehama IHM - Layer 7

Groundwater Sustainability Planning
Tehama County, California

Figure 3-61



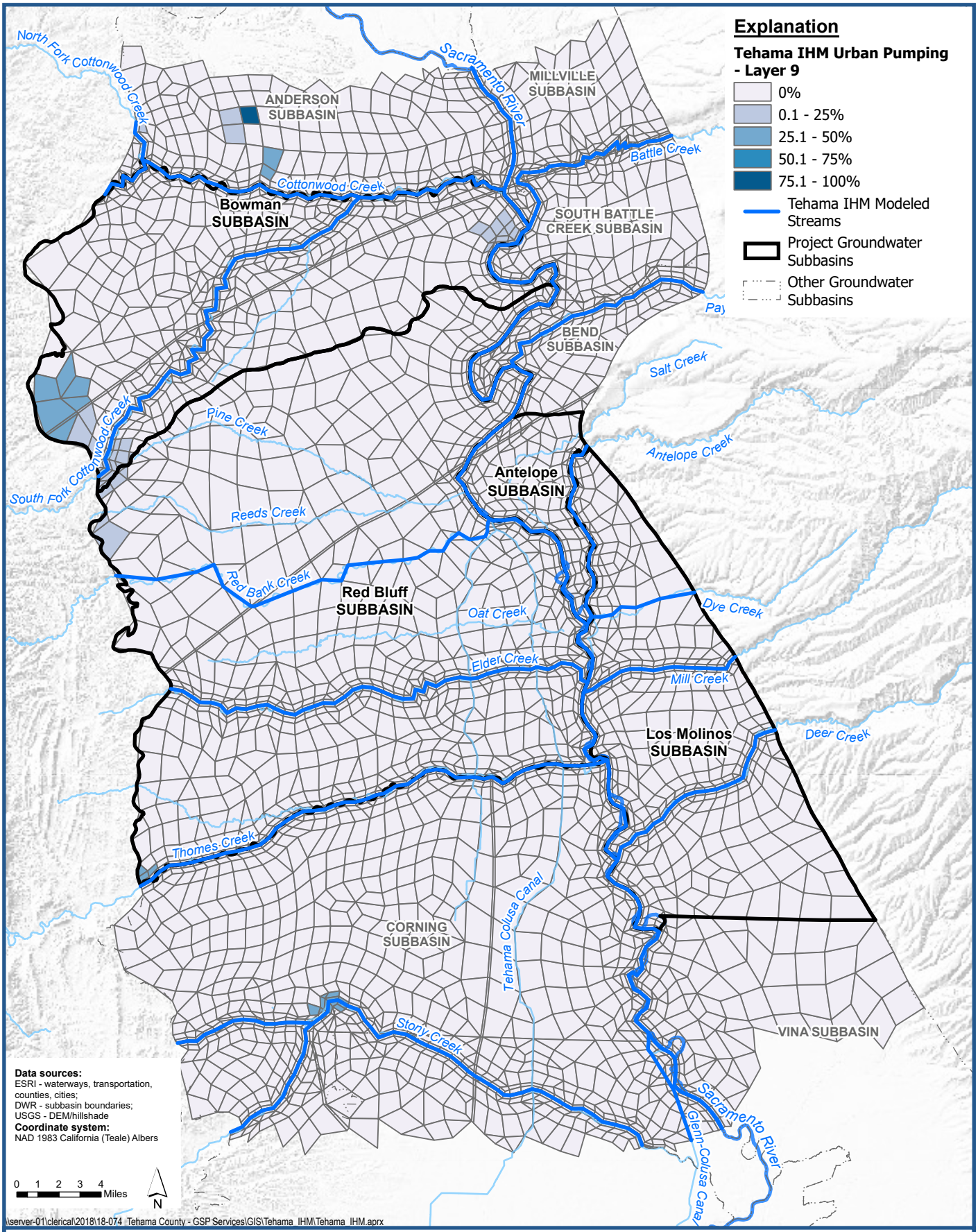
TEHAMA COUNTY

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Vertical Distribution of Historical Urban Pumping in Tehama IHM - Layer 8

Groundwater Sustainability Planning
Tehama County, California

Figure 3-62



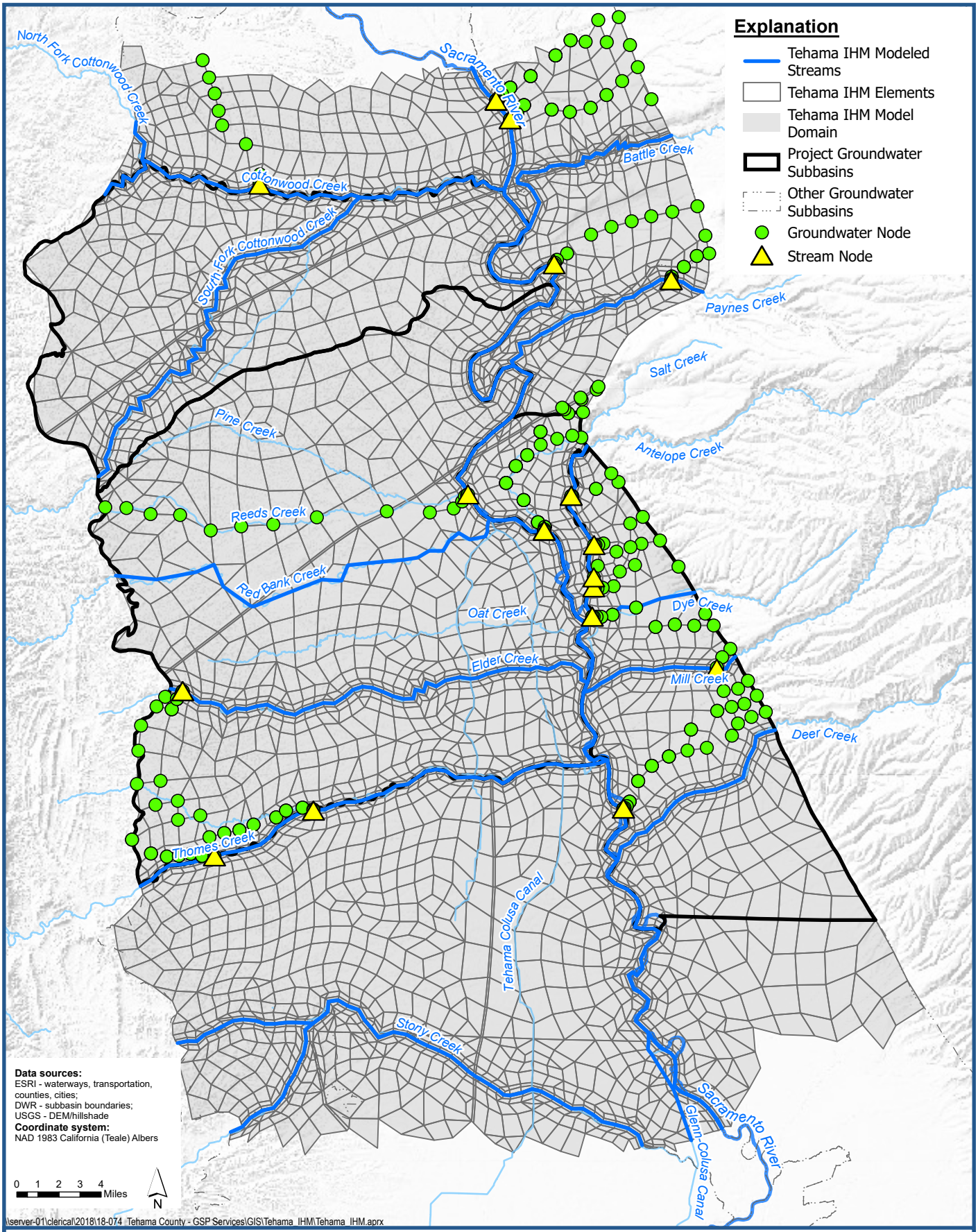
TEHAMA COUNTY

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Vertical Distribution of Historical Urban Pumping in Tehama IHM - Layer 9

Groundwater Sustainability Planning
Tehama County, California

Figure 3-63



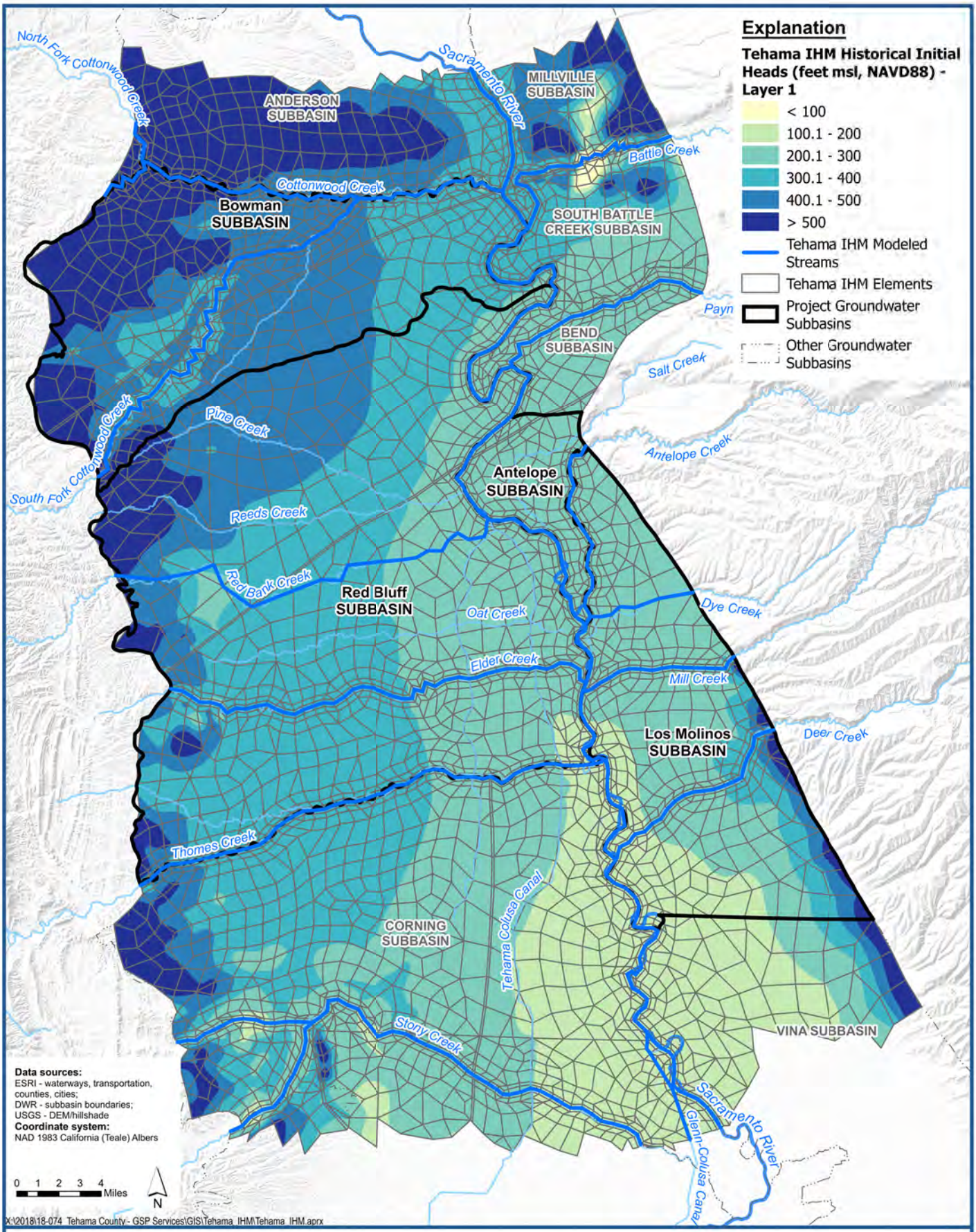
TEHAMA COUNTY

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Tehama IHM Nodes Receiving Small Watershed Contributions

Groundwater Sustainability Planning
Tehama County, California

Figure 3-64



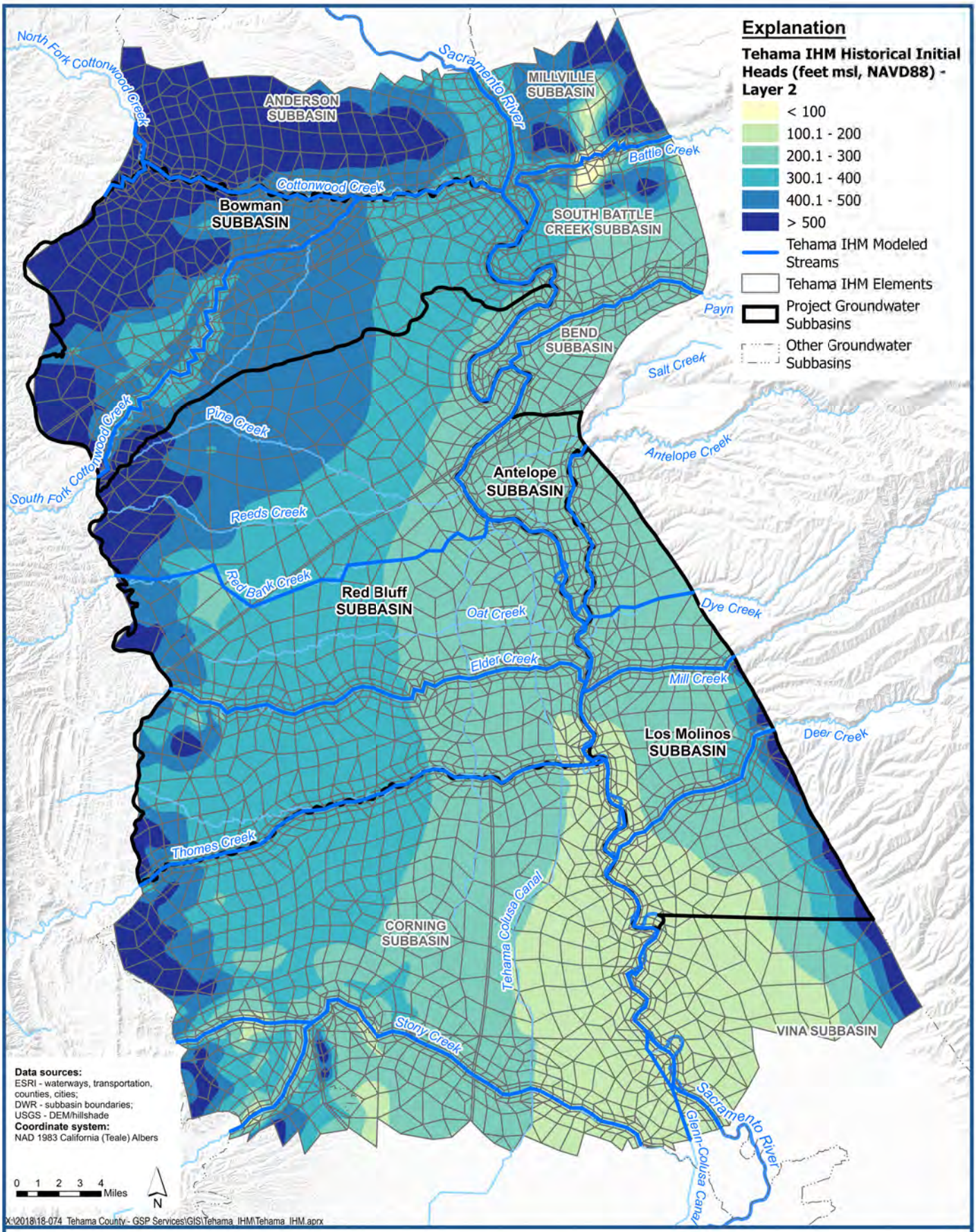
TEHAMA COUNTY

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Historical Initial Groundwater Heads in Tehama IHM - Layer 1

Groundwater Sustainability Plan
Tehama County, California

Figure 3-65



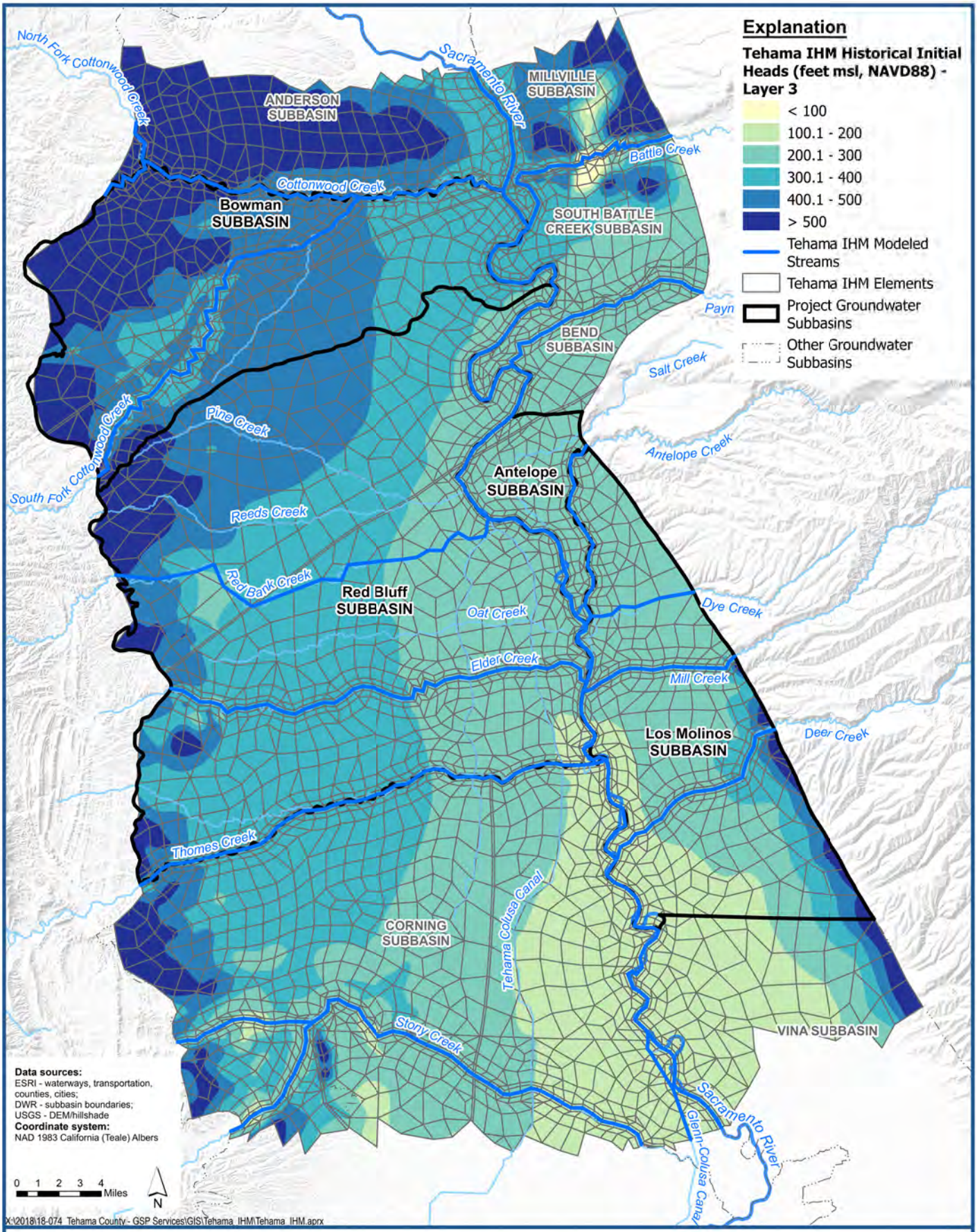
TEHAMA COUNTY

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Historical Initial Groundwater Heads in Tehama IHM - Layer 2

Groundwater Sustainability Plan
Tehama County, California

Figure 3-66



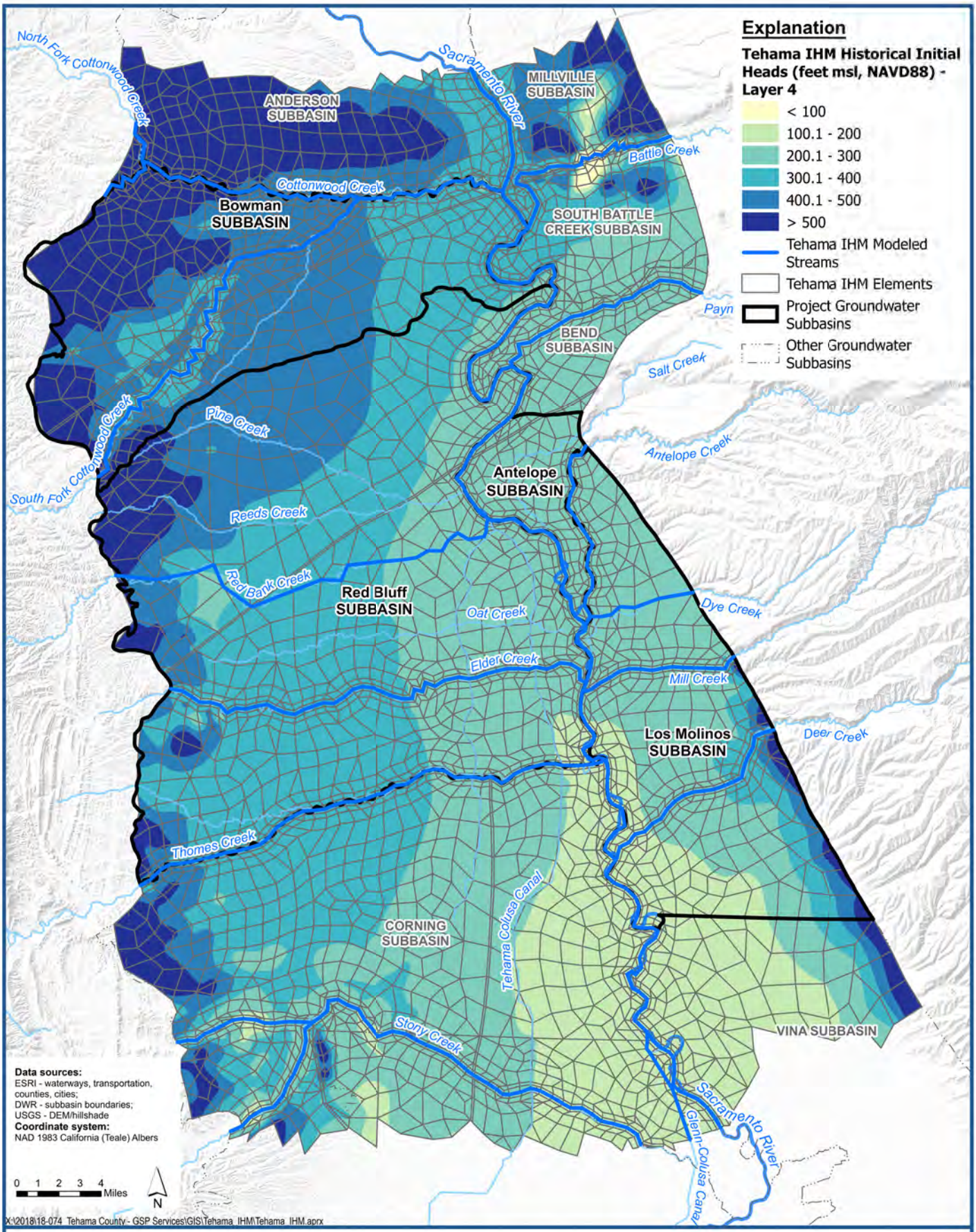
TEHAMA COUNTY

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Historical Initial Groundwater Heads in Tehama IHM - Layer 3

Groundwater Sustainability Plan
Tehama County, California

Figure 3-67



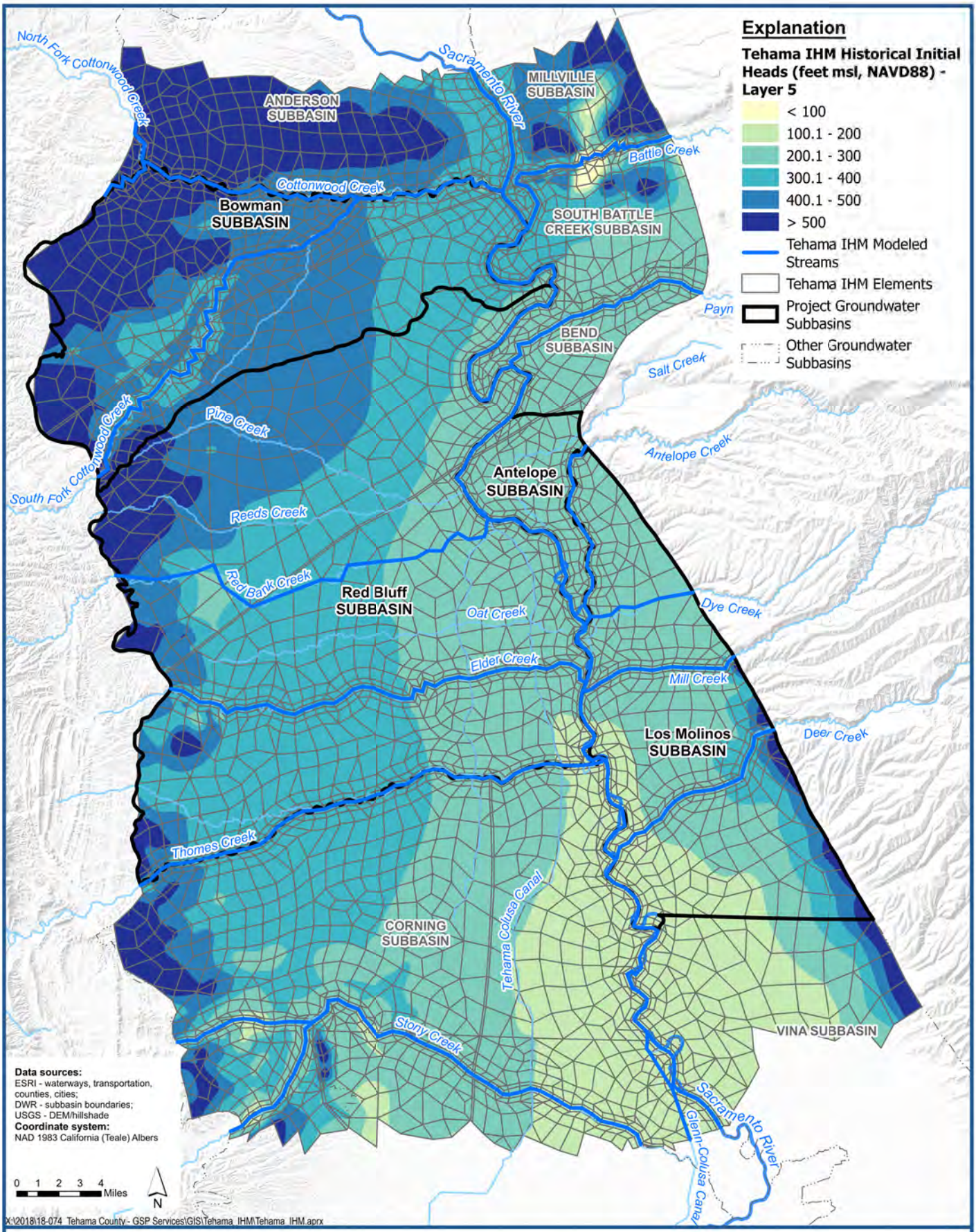
TEHAMA COUNTY

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Historical Initial Groundwater Heads in Tehama IHM - Layer 4

Groundwater Sustainability Plan
Tehama County, California

Figure 3-68



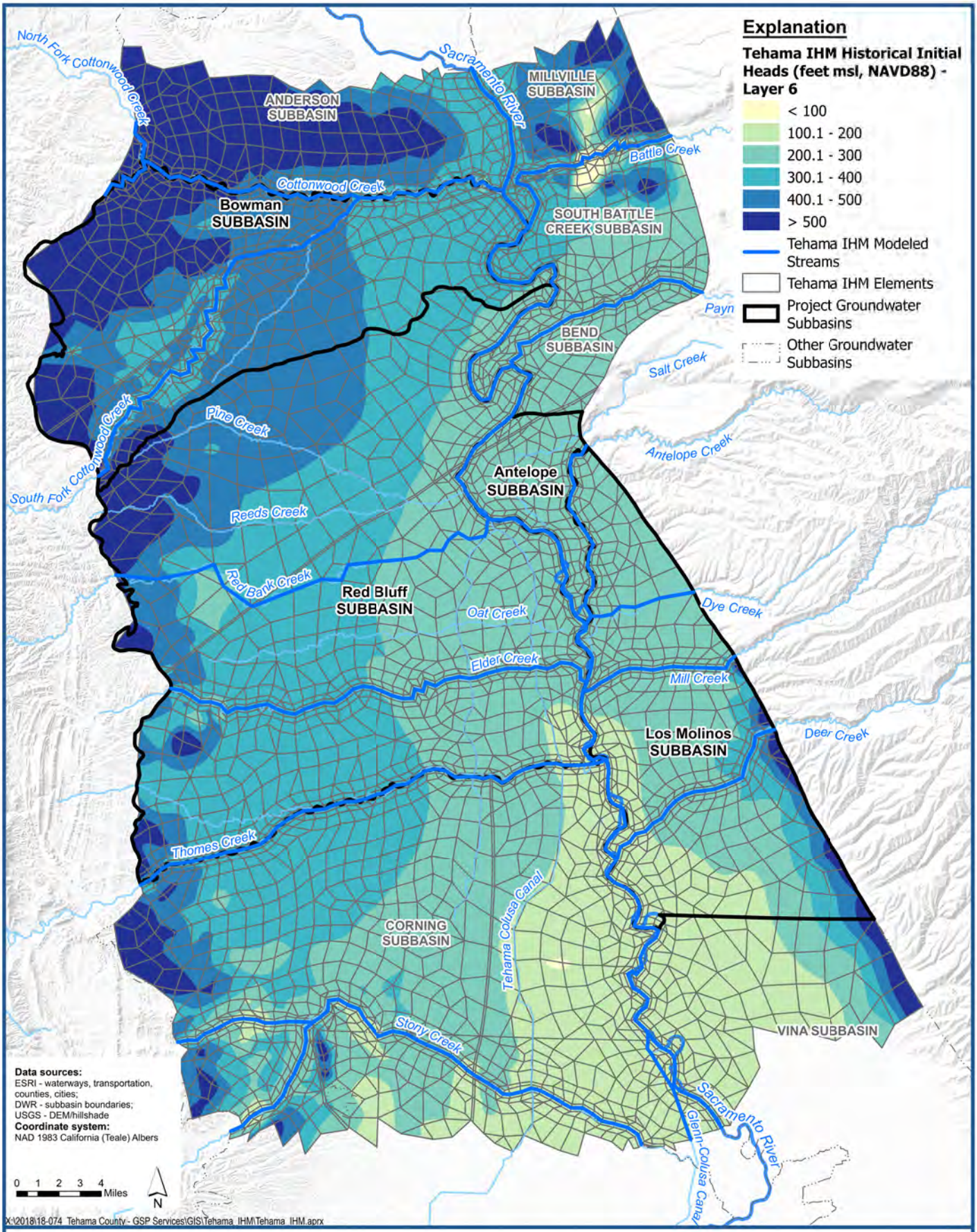
TEHAMA COUNTY

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Historical Initial Groundwater Heads in Tehama IHM - Layer 5

Groundwater Sustainability Plan
Tehama County, California

Figure 3-69



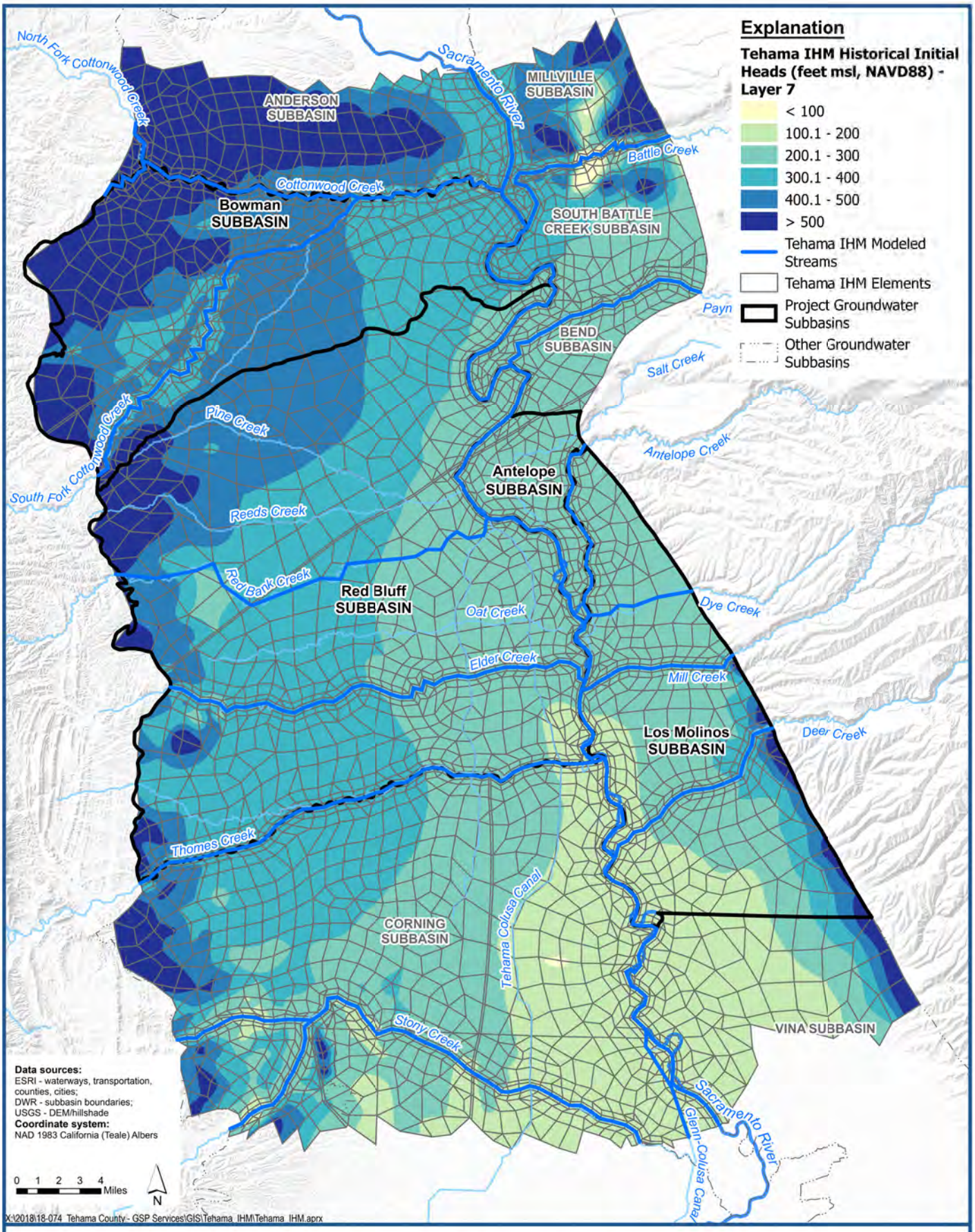
TEHAMA COUNTY

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Historical Initial Groundwater Heads in Tehama IHM - Layer 6

Groundwater Sustainability Plan
Tehama County, California

Figure 3-70



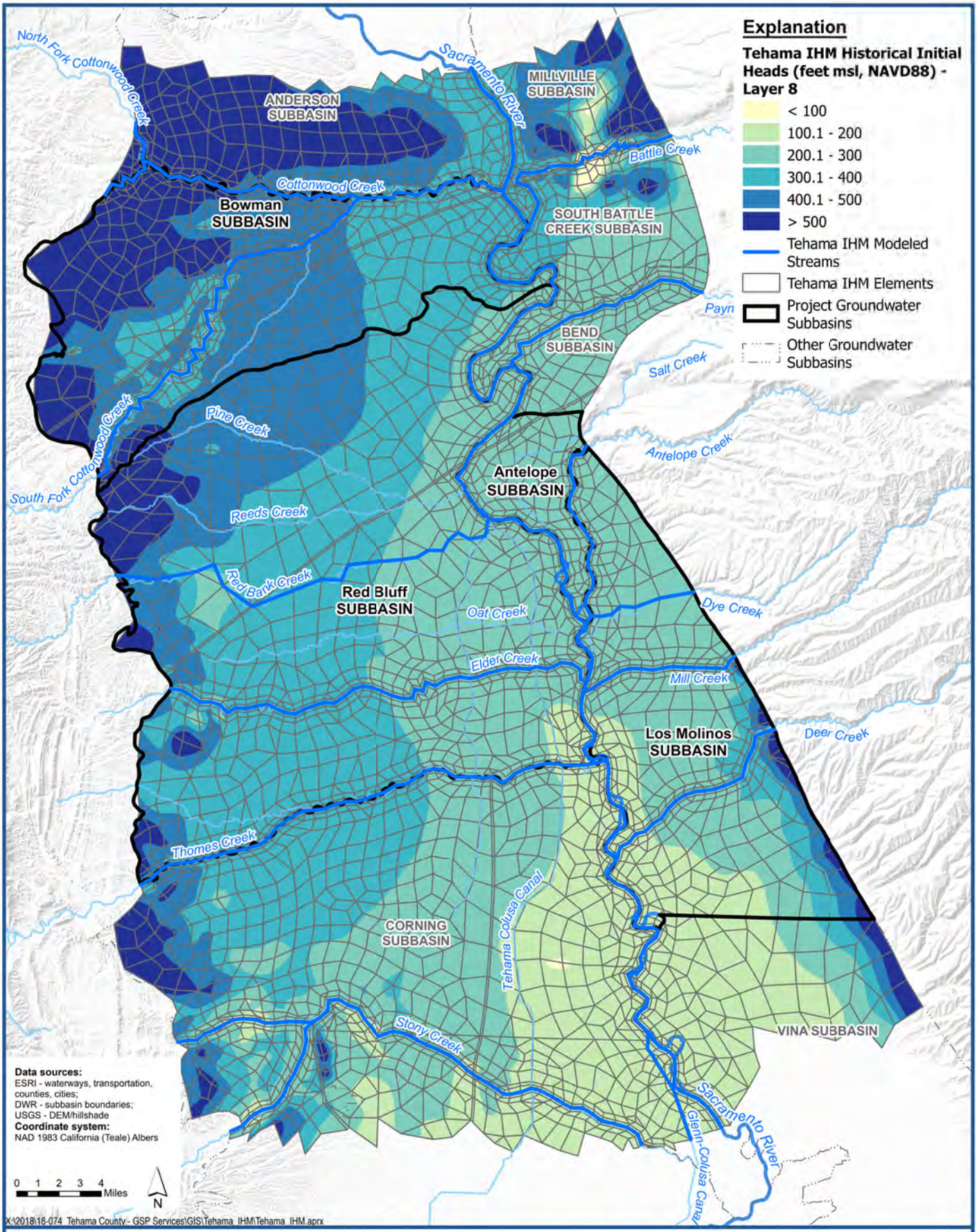
TEHAMA COUNTY

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Historical Initial Groundwater Heads in Tehama IHM - Layer 7

Groundwater Sustainability Plan
Tehama County, California

Figure 3-71



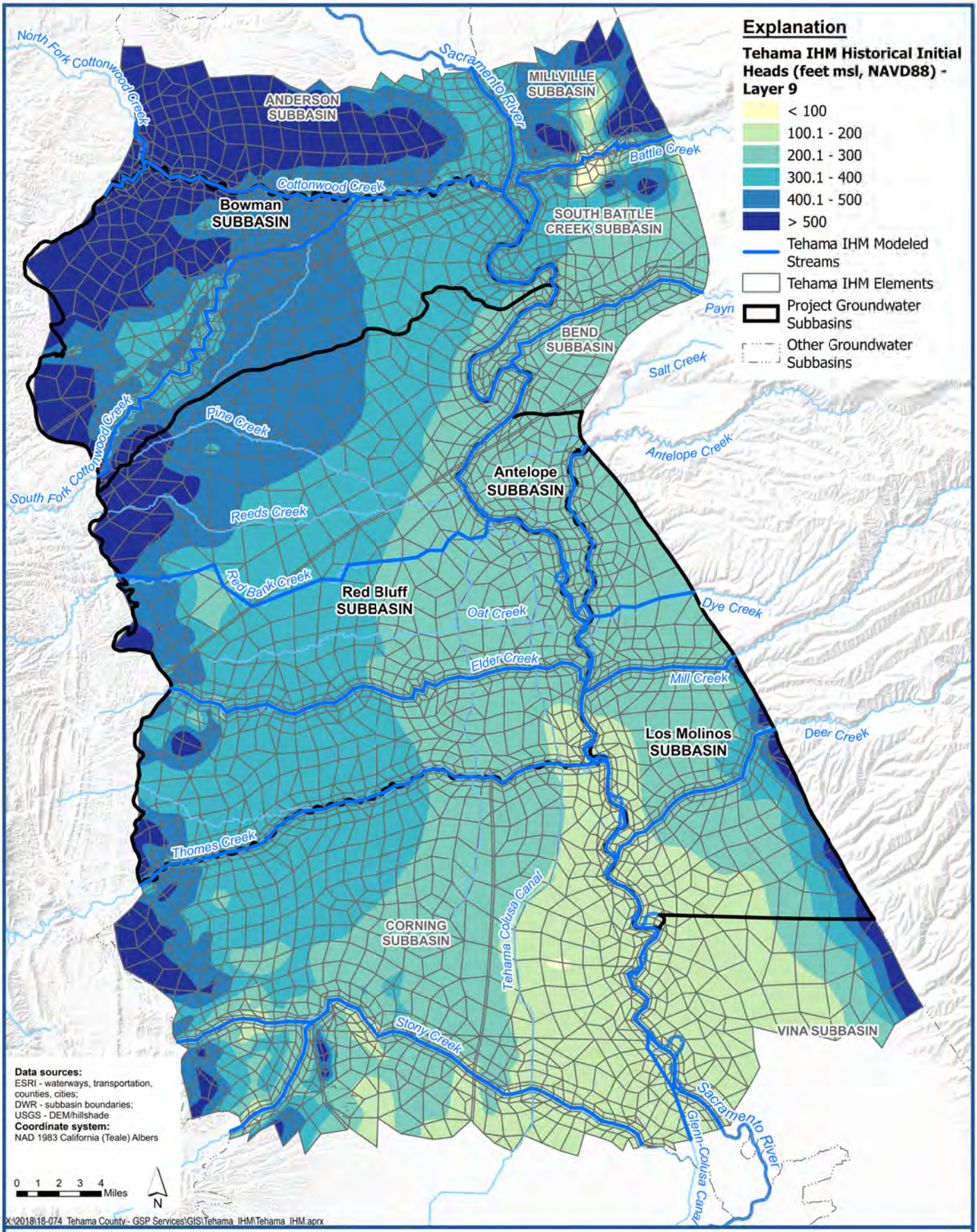
TEHAMA COUNTY

LSCE Team

Historical Initial Groundwater Heads in Tehama IHM - Layer 8

Groundwater Sustainability Plan
Tehama County, California

Figure 3-72



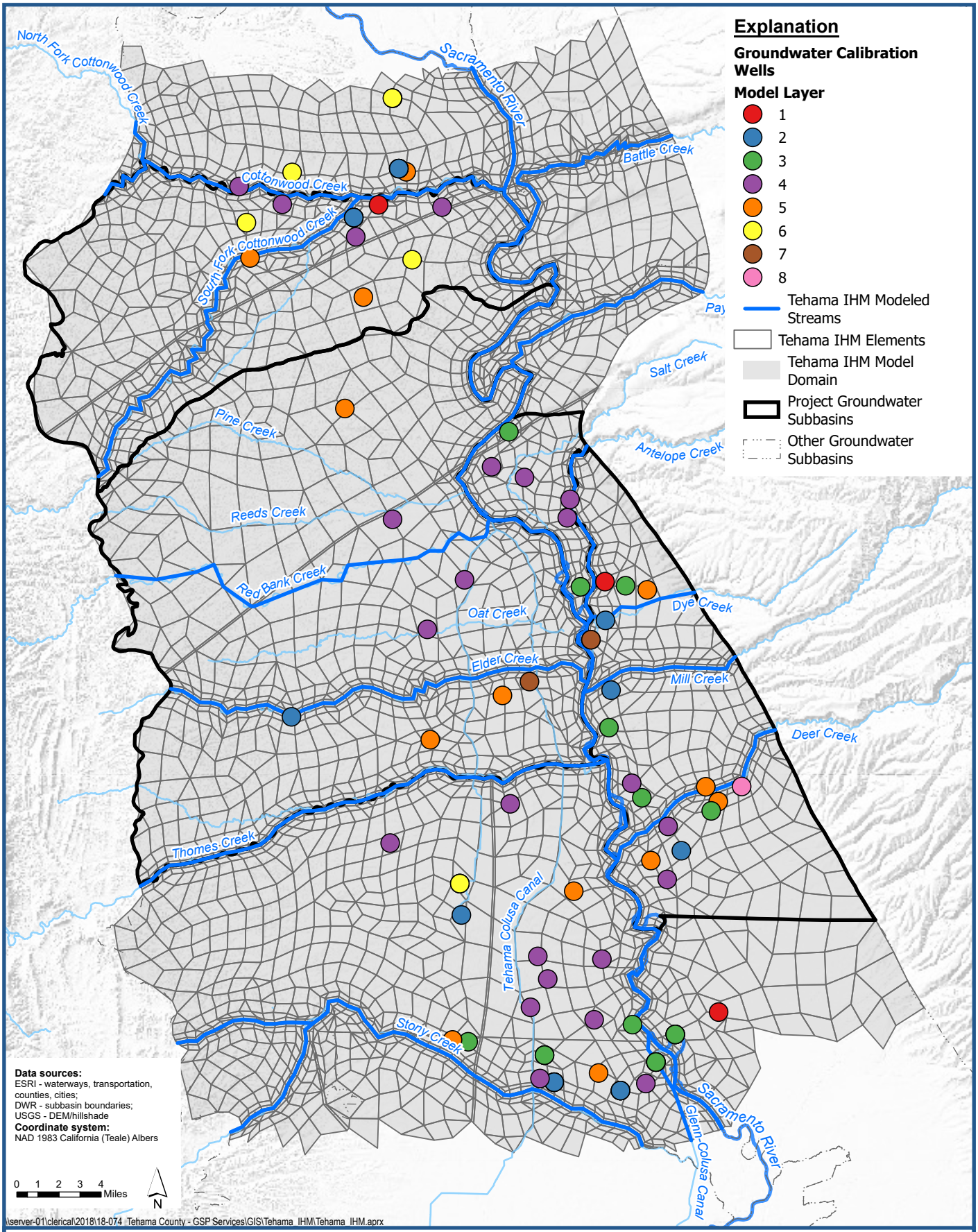
TEHAMA COUNTY

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Historical Initial Groundwater Heads in Tehama IHM - Layer 9

Groundwater Sustainability Plan
Tehama County, California

Figure 3-73



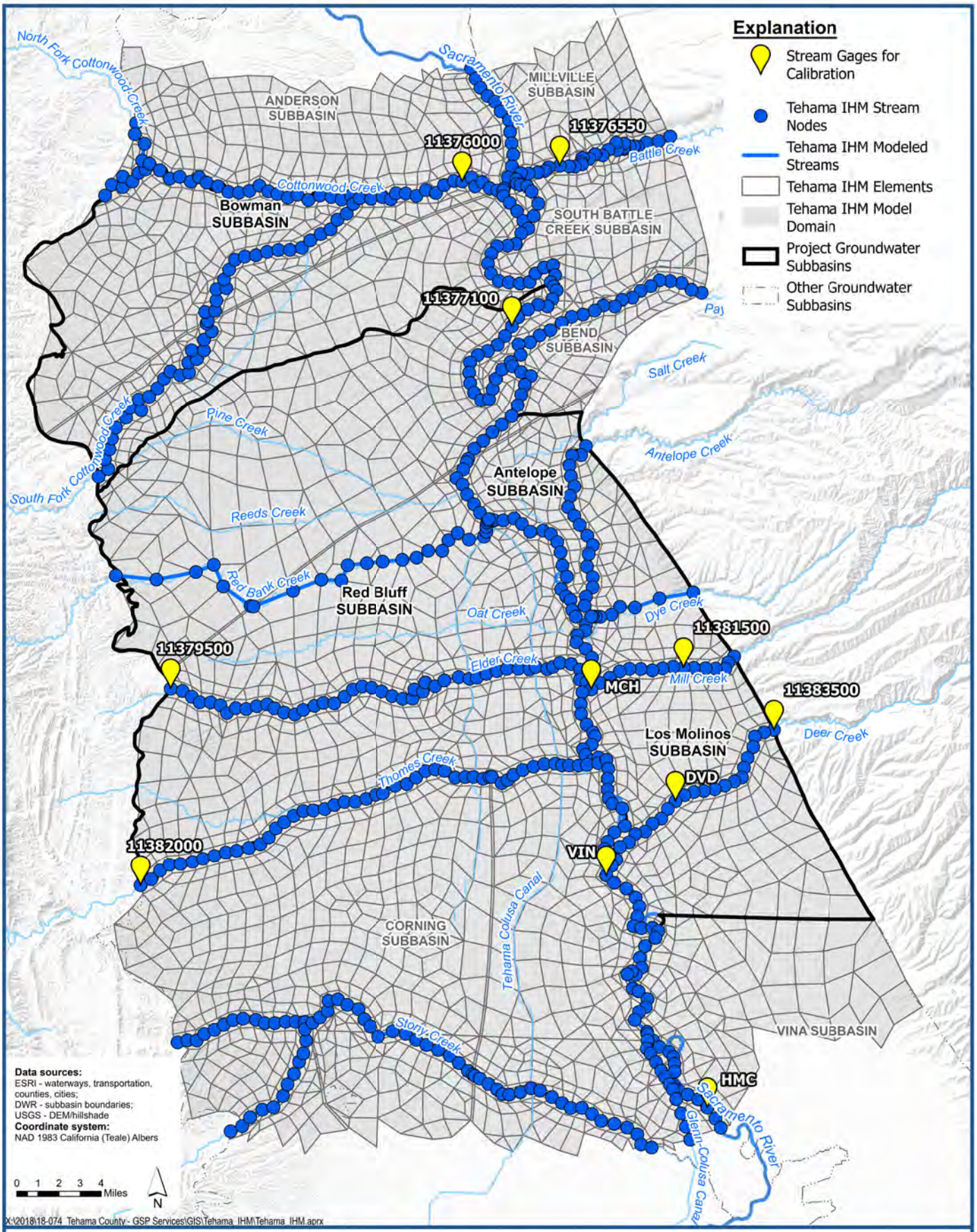
TEHAMA COUNTY

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Map of Groundwater Level Calibration Wells in Tehama IHM

Groundwater Sustainability Planning
Tehama County, California

Figure 3-74



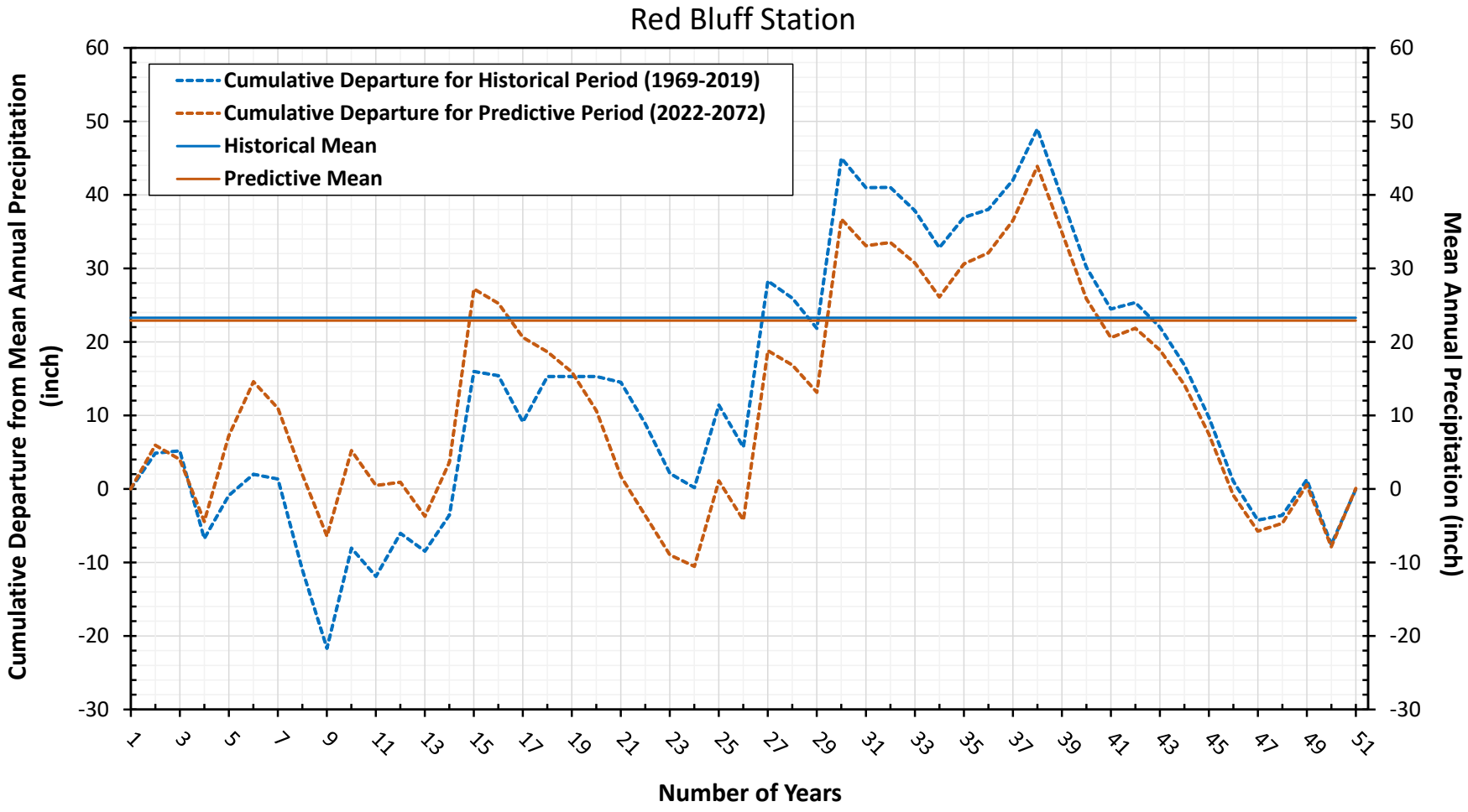
TEHAMA COUNTY

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Map of Streamflow Calibration Gages in Tehama IHM

Figure 3-75

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Tehama County, California



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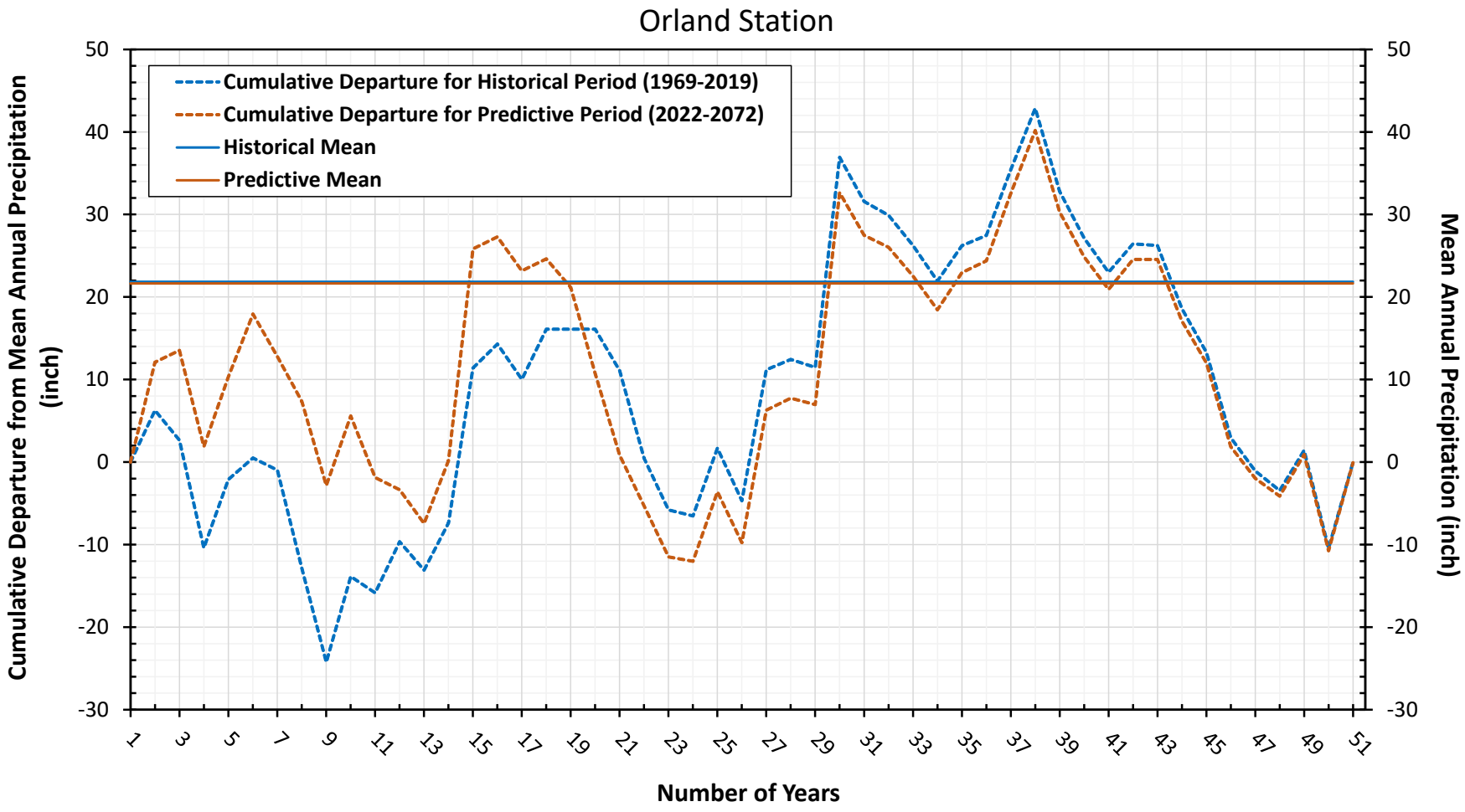
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FLOOD CONTROL AND WATER CONSERVATION DISTRICT

LSCE Team

Cumulative Departure of Precipitation Data – Red Bluff Station

Groundwater Sustainability Planning
Tehama County, California

Figure 3-76



X:\2018\18-074 Tehama County - GSP Services\GIS\Tehama_IHM\Report Figures\Figure 3-77 Cumulative Departure of Precipitation Data – Orland Station.mxd

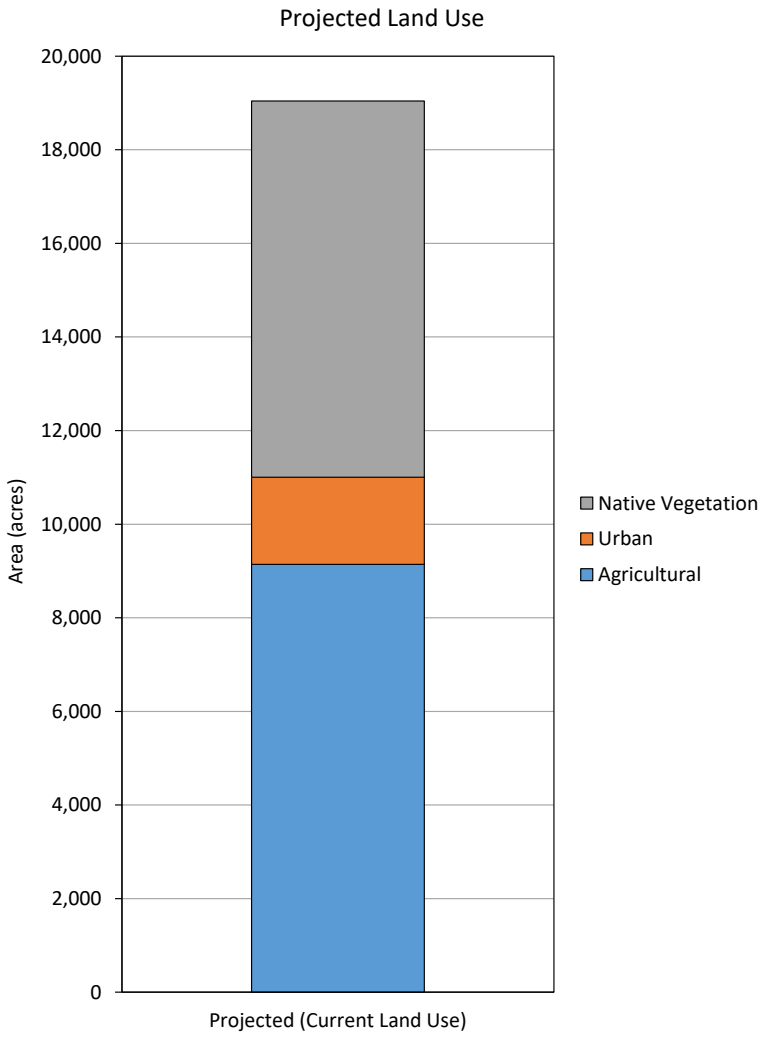
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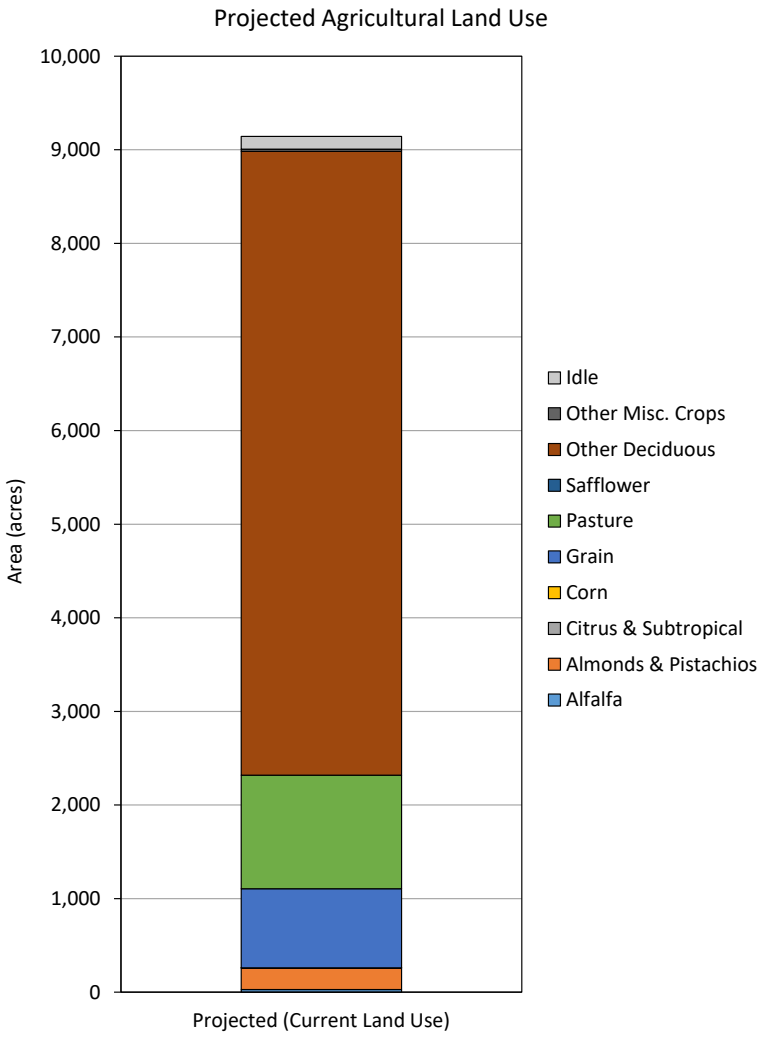
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Cumulative Departure of Precipitation Data – Orland Station

Groundwater Sustainability Planning
Tehama County, California

Figure 3-77





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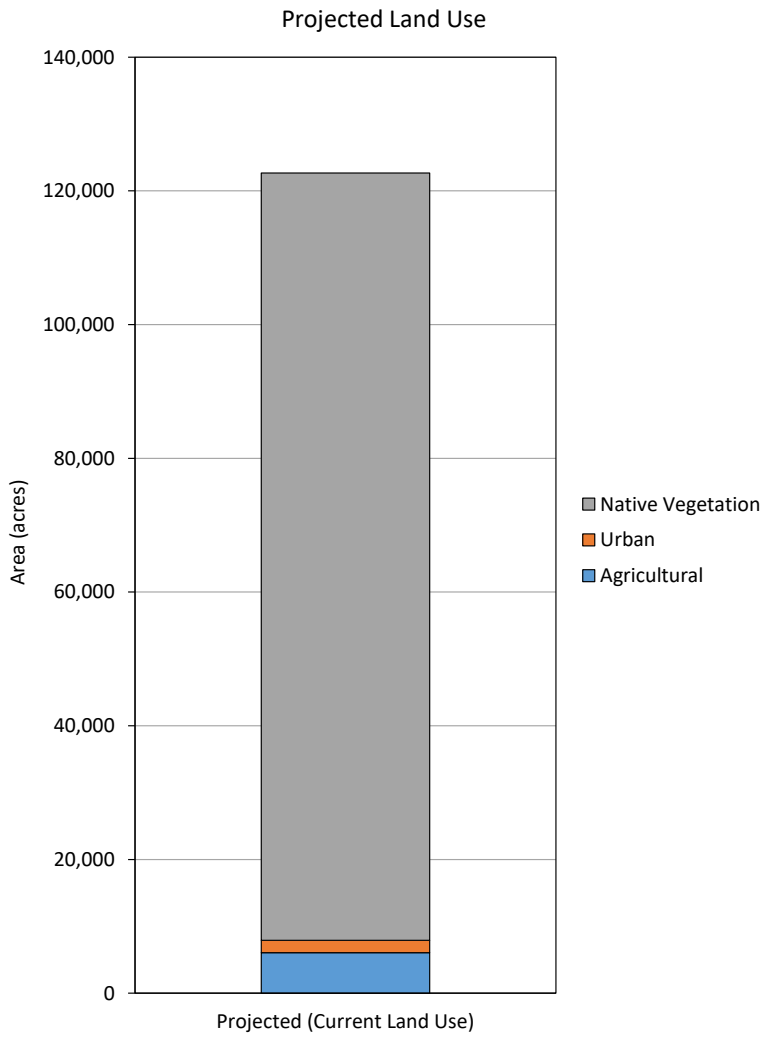
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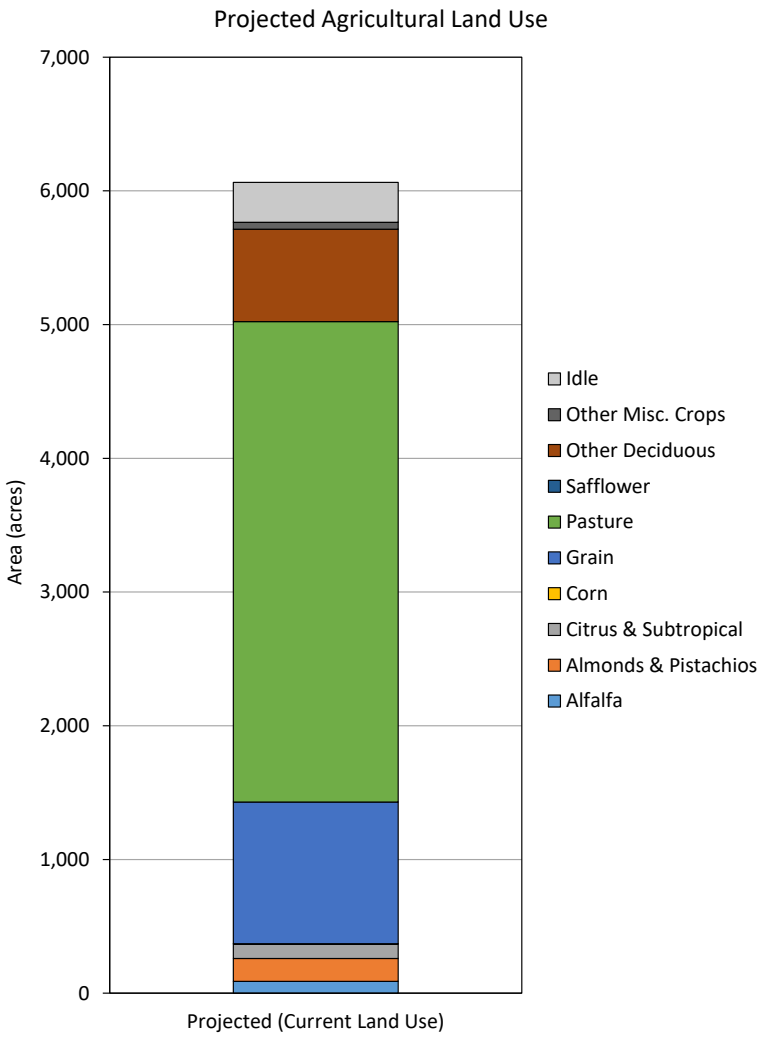
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Projected Land Use in Current Land Use Scenario in Tehama IHM – Antelope Subbasin

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Tehama County, California

Figure 3-78





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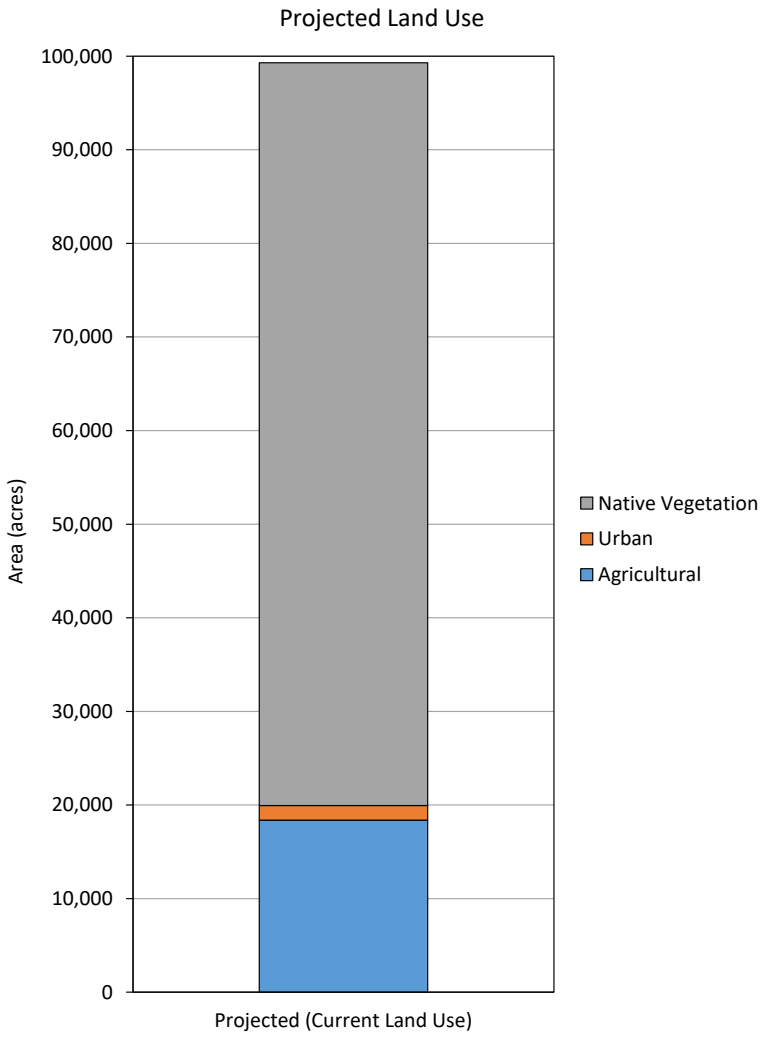
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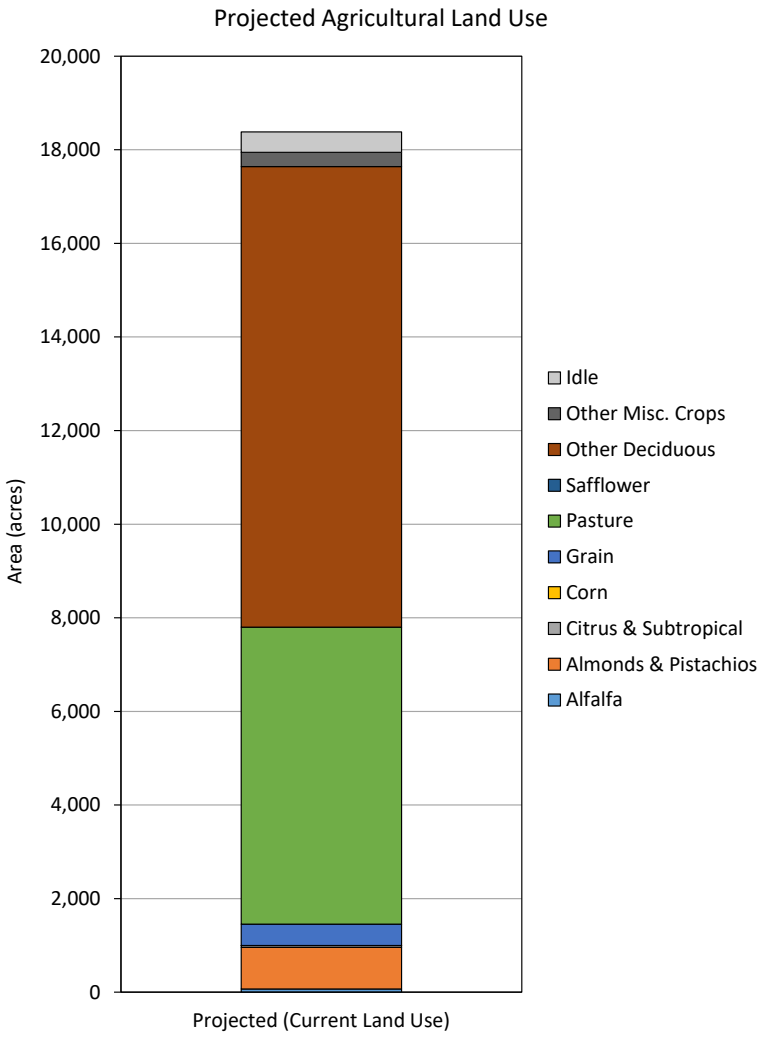
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Projected Land Use in Current Land Use Scenario in Tehama IHM – Bowman Subbasin

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Tehama County, California

Figure 3-79





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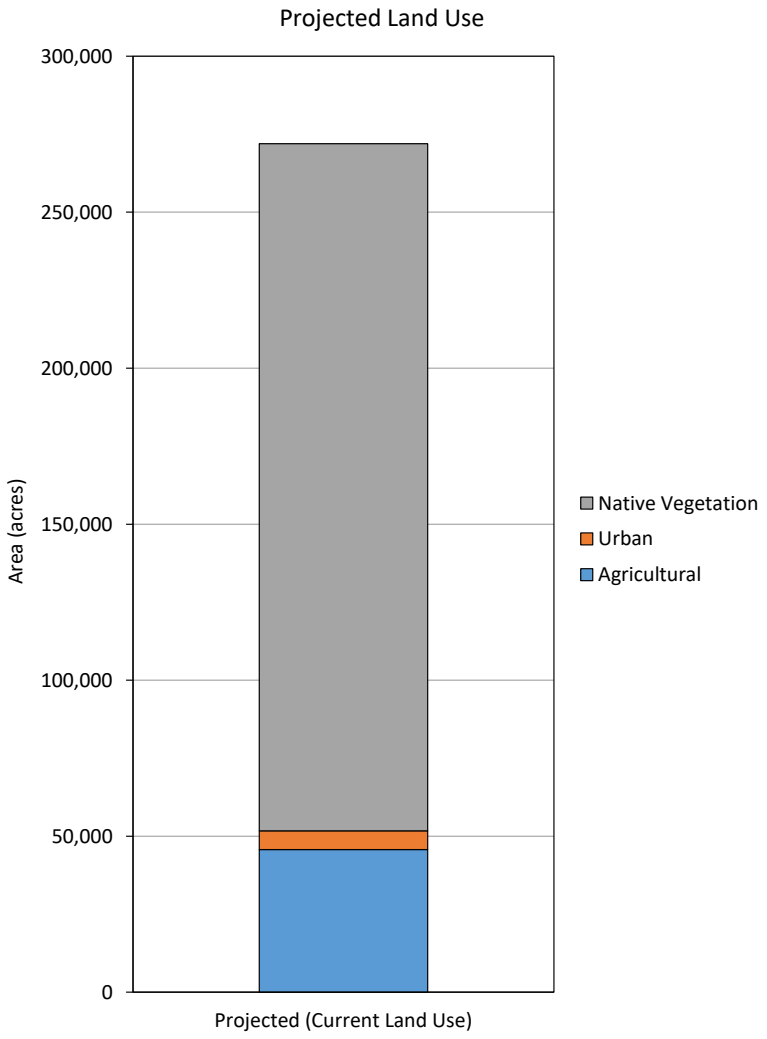
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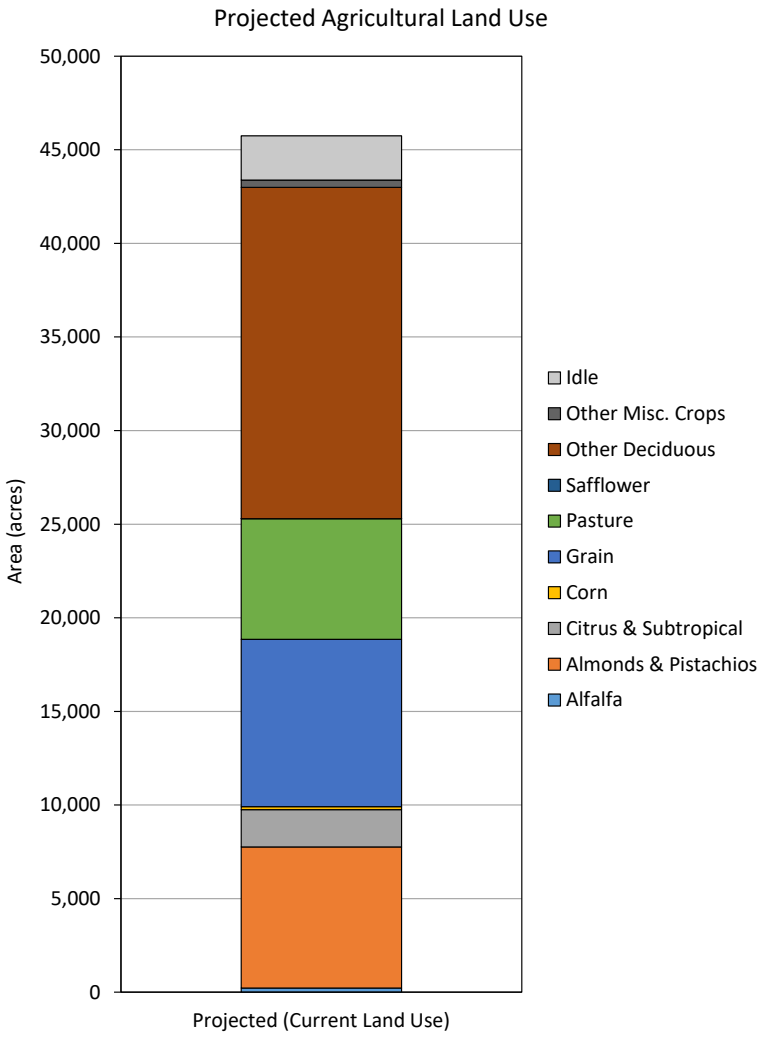
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Projected Land Use in Current Land Use Scenario in Tehama IHM – Los Molinos Subbasin

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Tehama County, California

Figure 3-80





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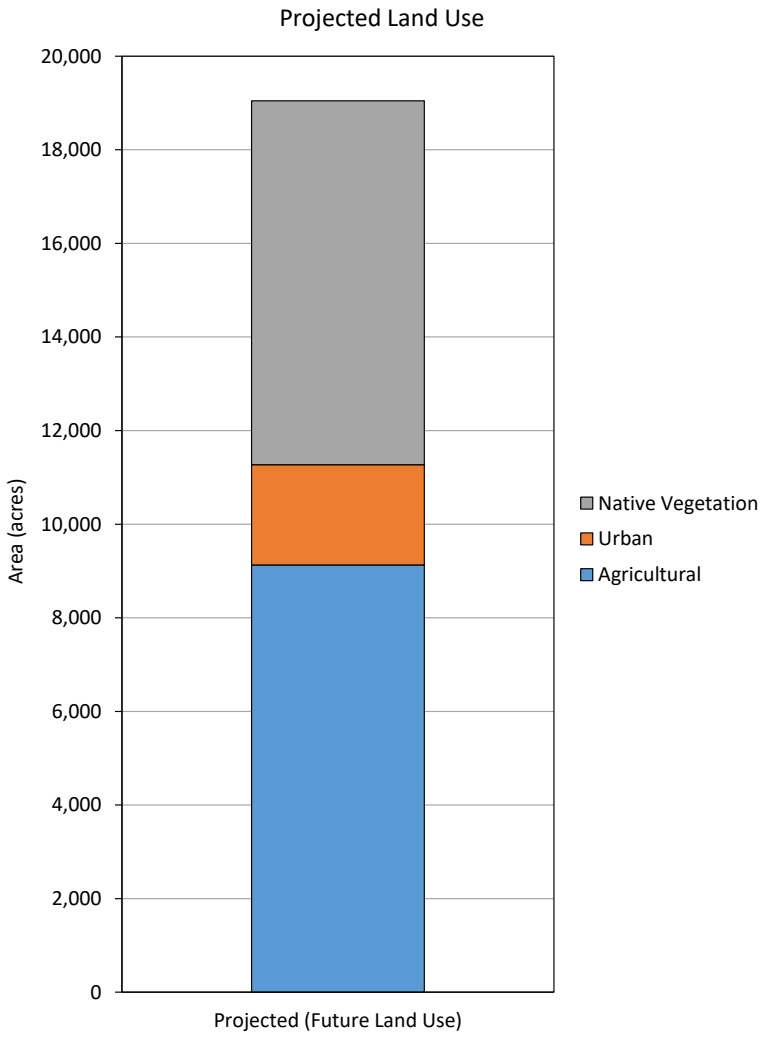
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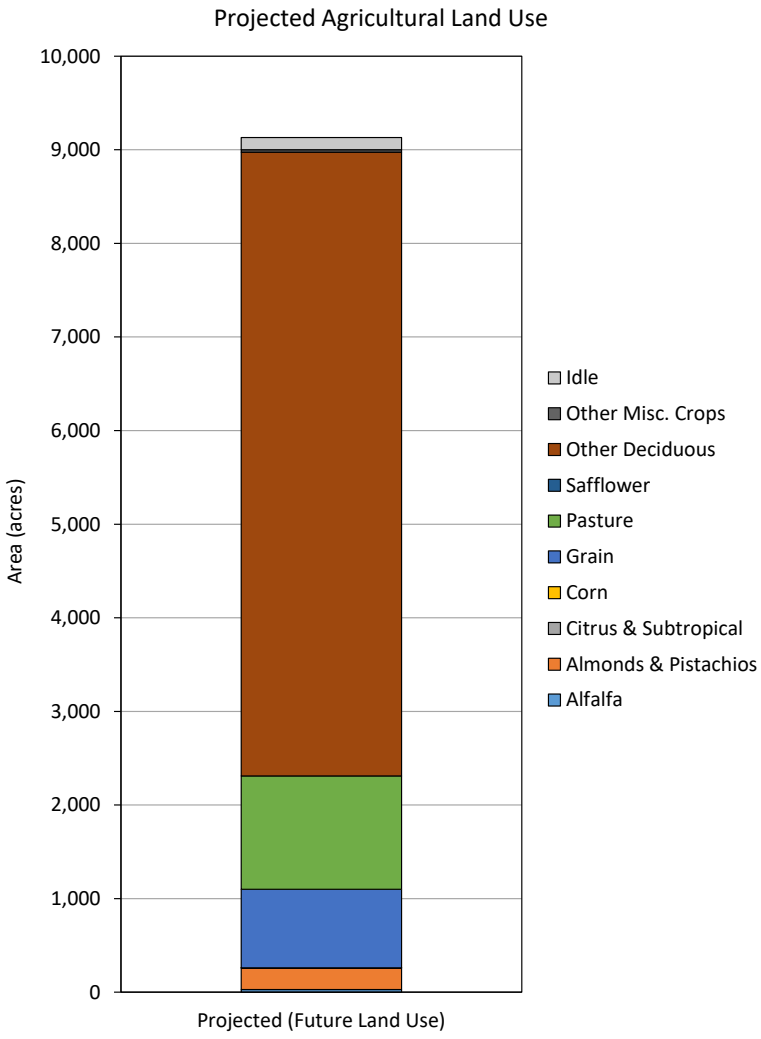
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Projected Land Use in Current Land Use Scenario in Tehama IHM – Red Bluff Subbasin

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Figure 3-81





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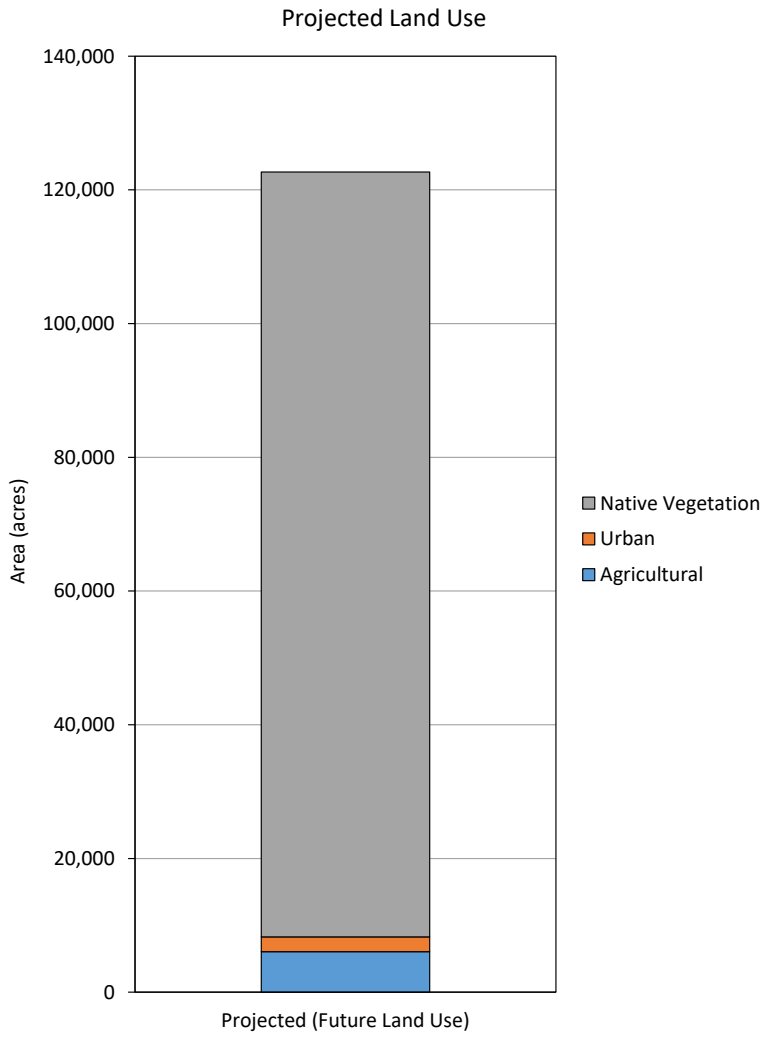
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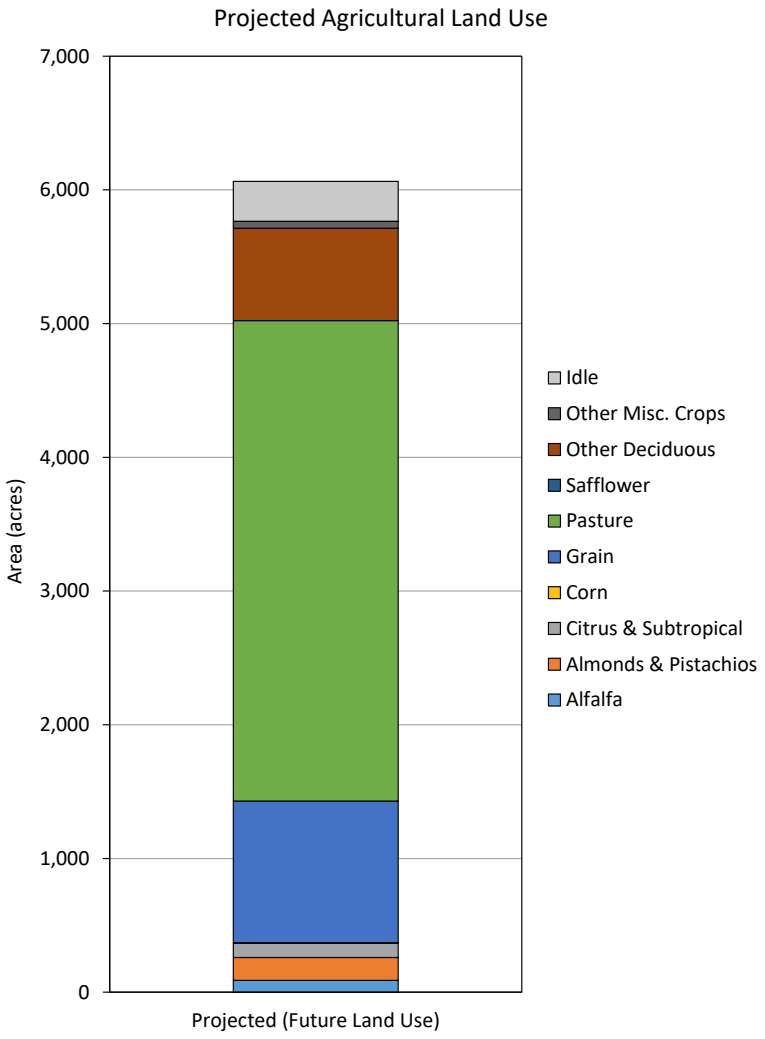
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Projected Land Use in Future Land Use Scenario in Tehama IHM – Antelope Subbasin

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Tehama County, California

Figure 3-82





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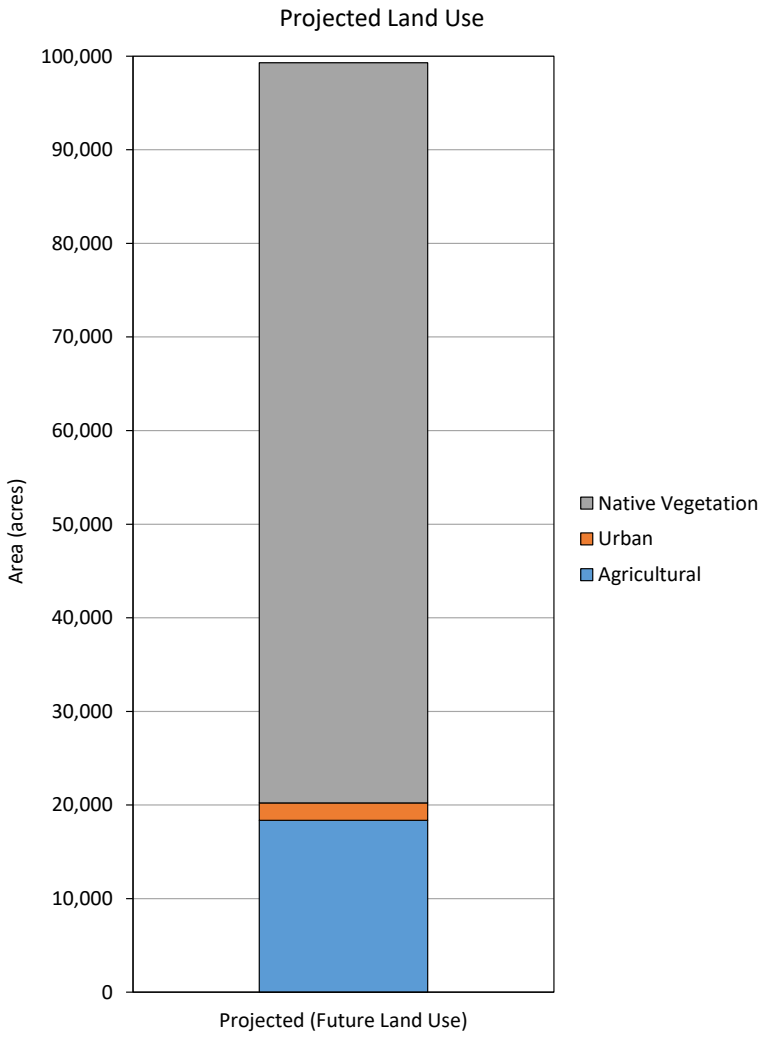
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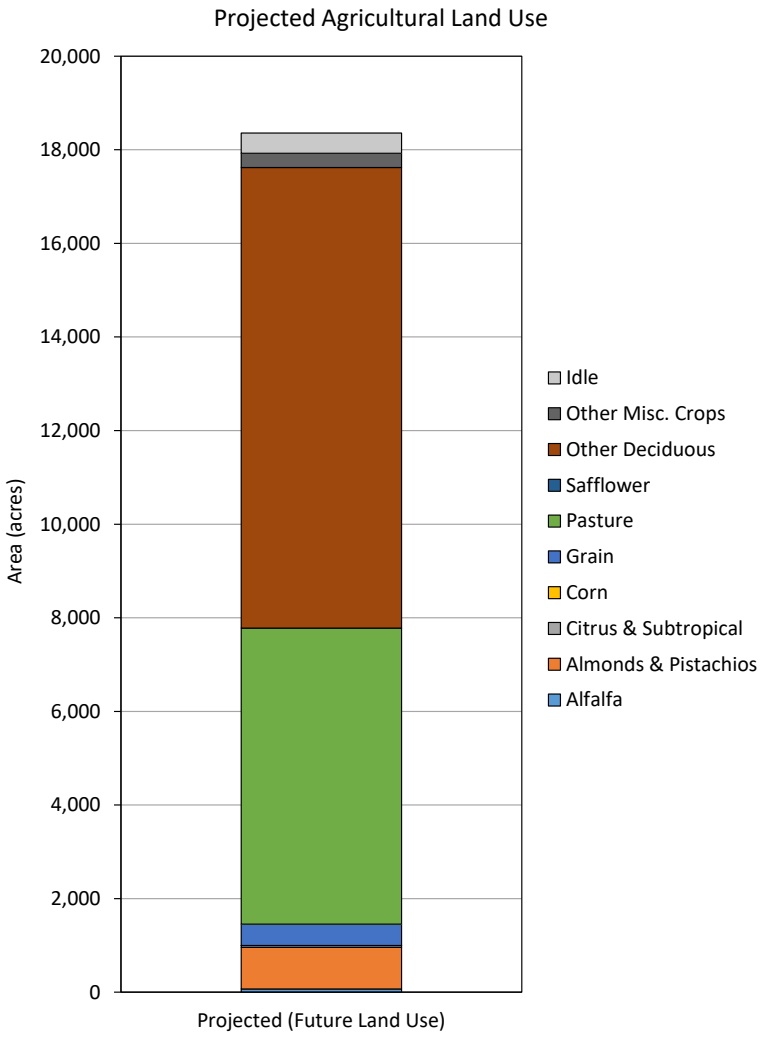
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Projected Land Use in Future Land Use Scenario in Tehama IHM – Bowman Subbasin

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Figure 3-83





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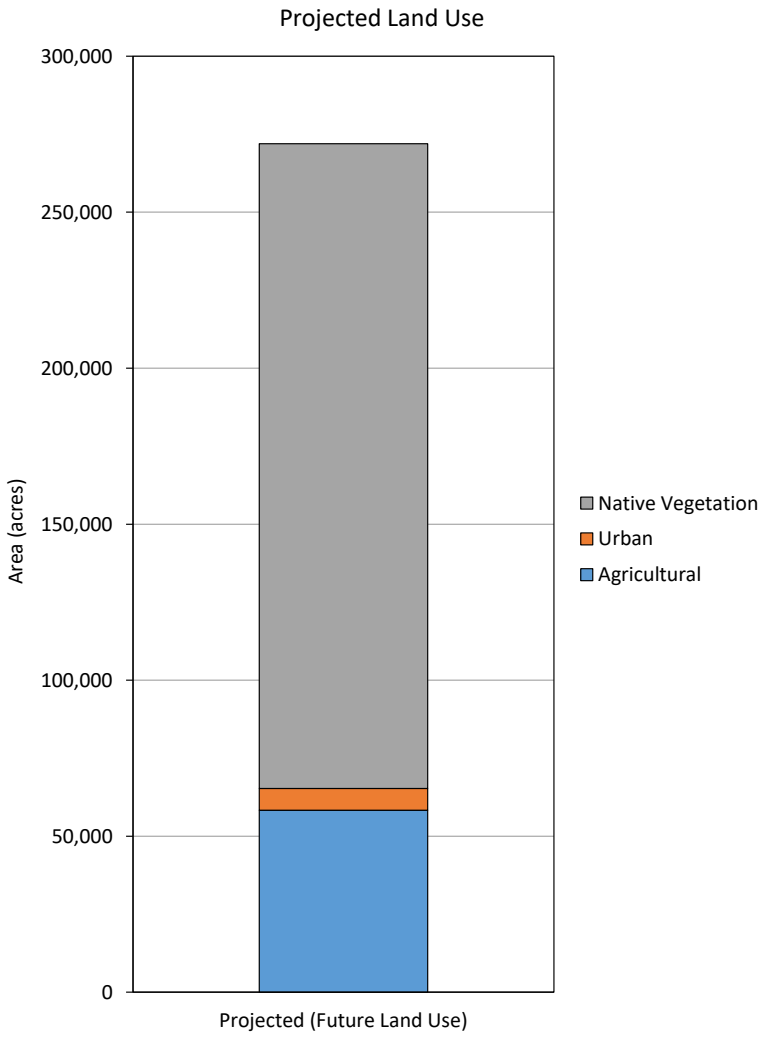
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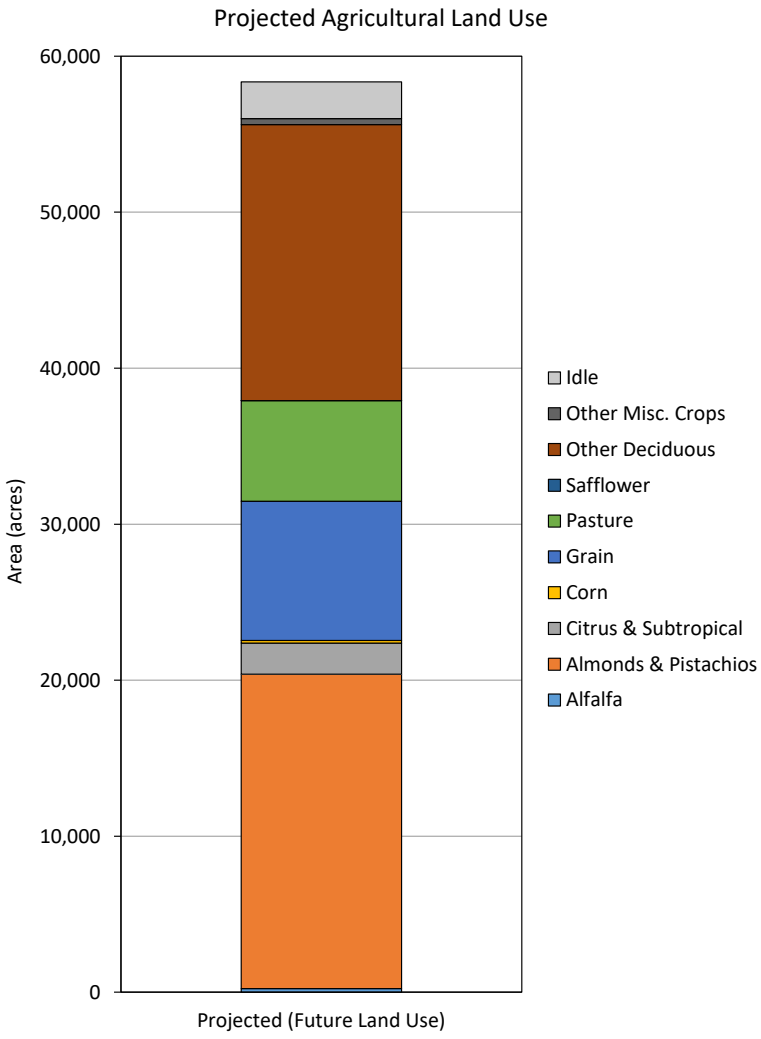
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Projected Land Use in Future Land Use Scenario in Tehama IHM – Los Molinos Subbasin

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Figure 3-84





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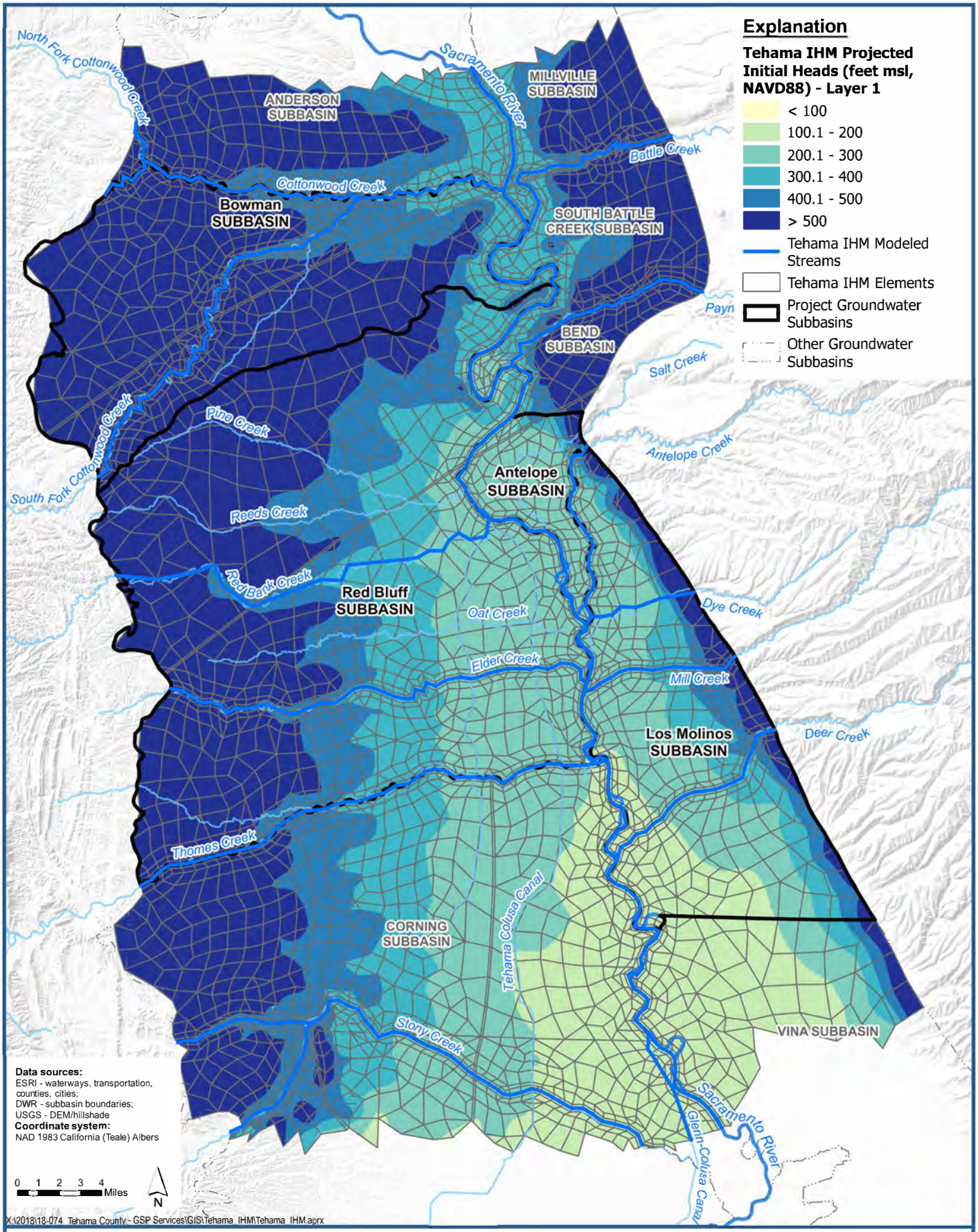
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Projected Land Use in Future Land Use Scenario in Tehama IHM – Red Bluff Subbasin

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Figure 3-85



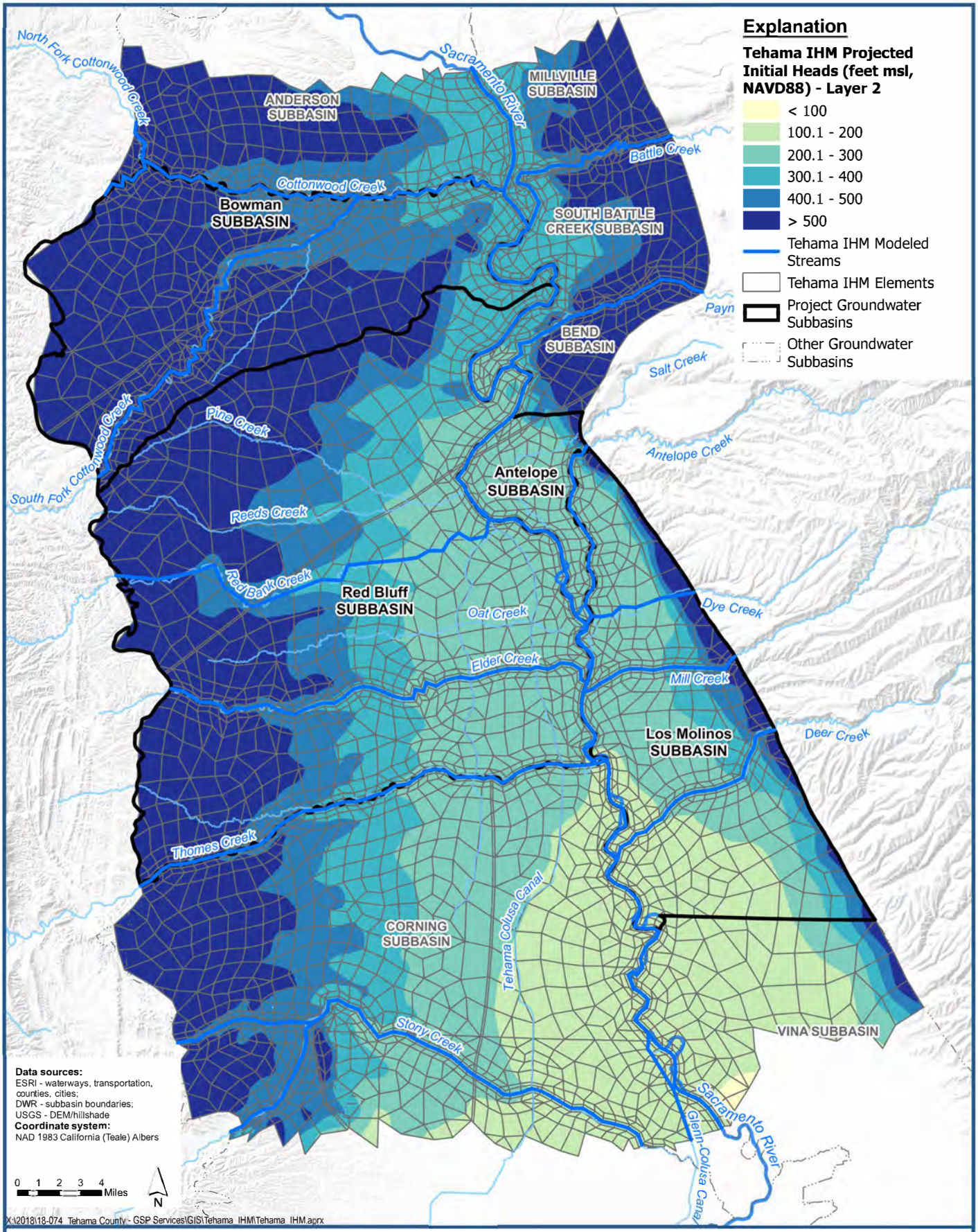
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Projected Initial Groundwater Heads in Tehama IHM - Layer 1

Groundwater Sustainability Plan
Tehama County, California

Figure 3-86



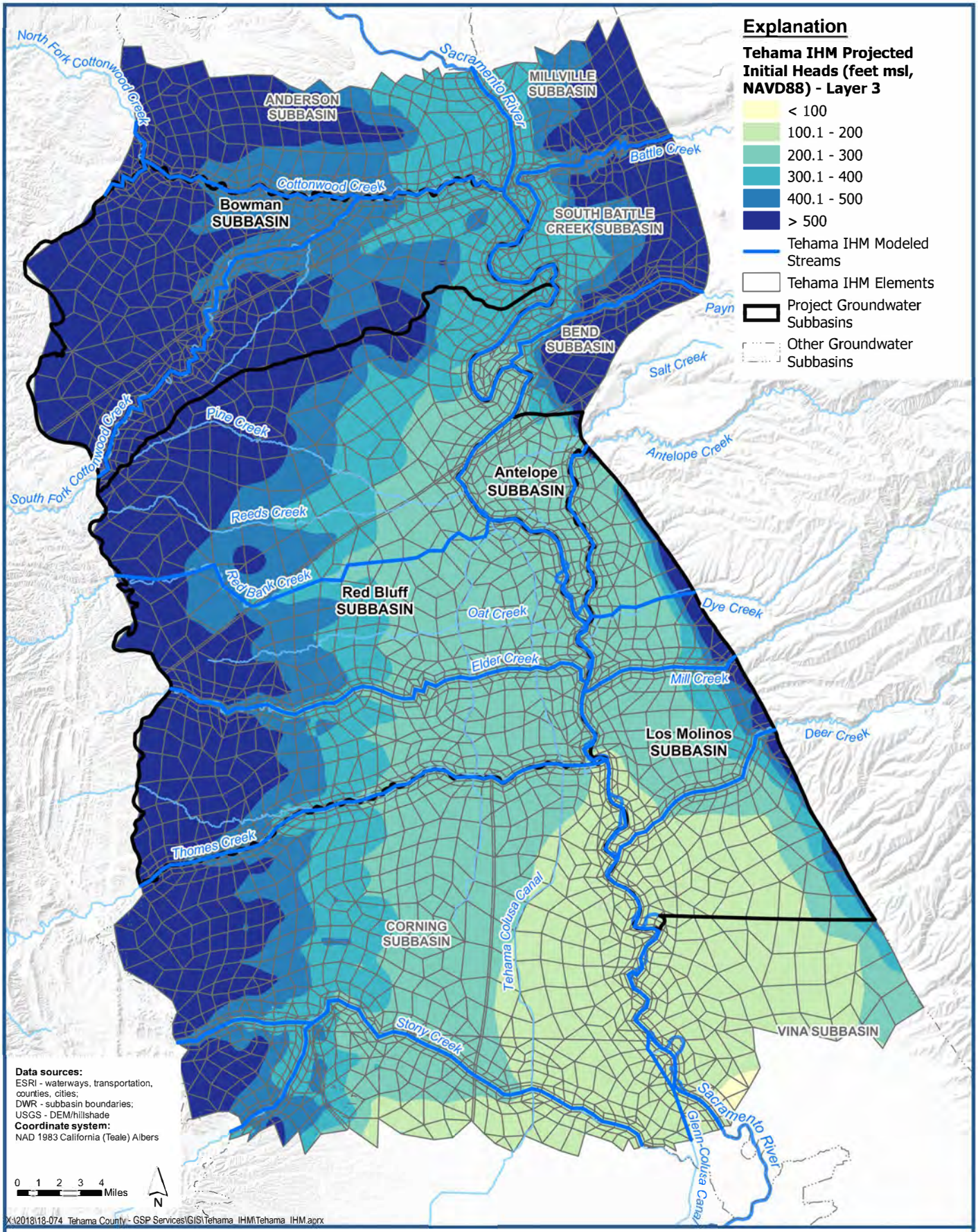
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Projected Initial Groundwater Heads in Tehama IHM - Layer 2

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Tehama County, California

Figure 3-87



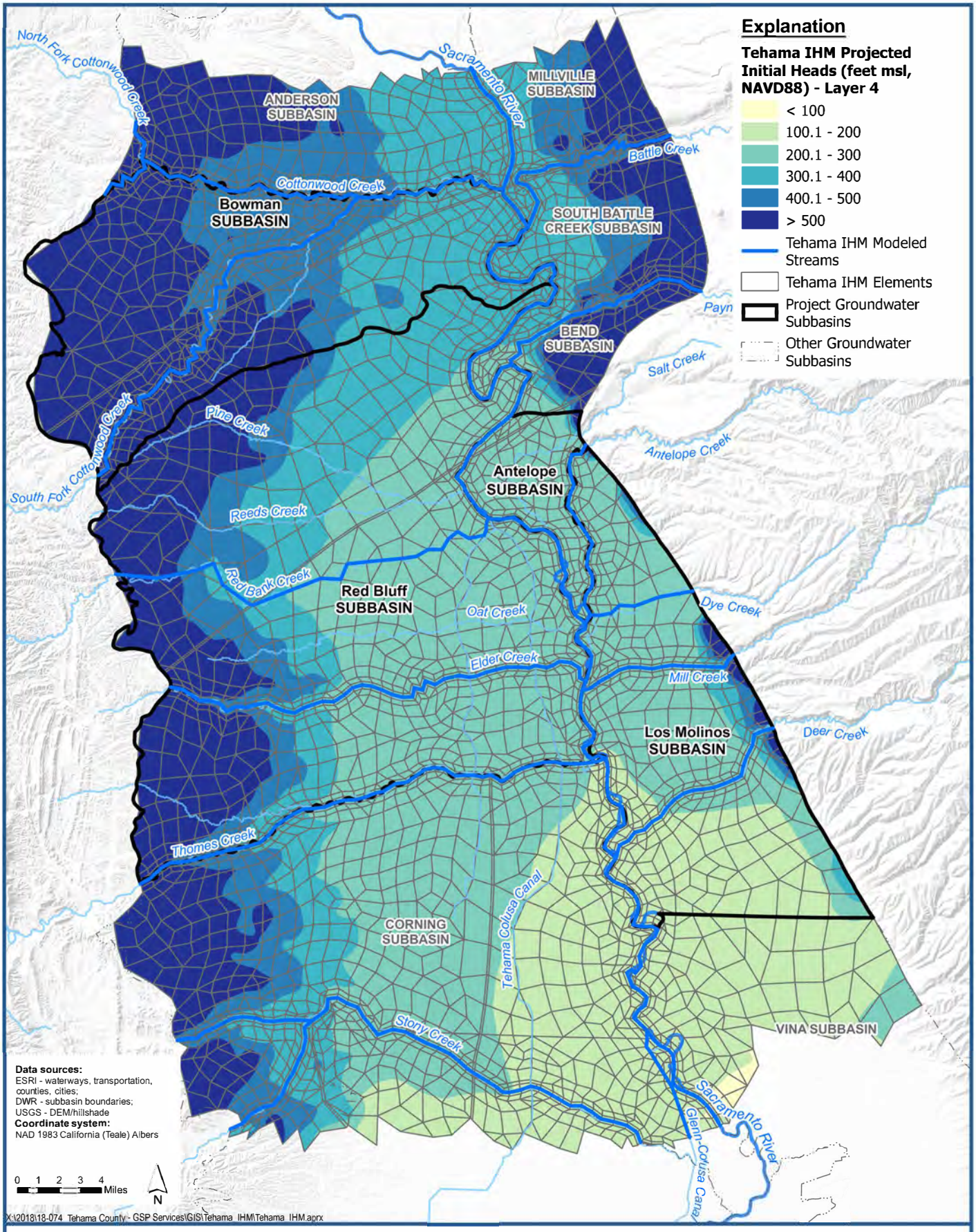
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Projected Initial Groundwater Heads in Tehama IHM - Layer 3

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Tehama County, California

Figure 3-88



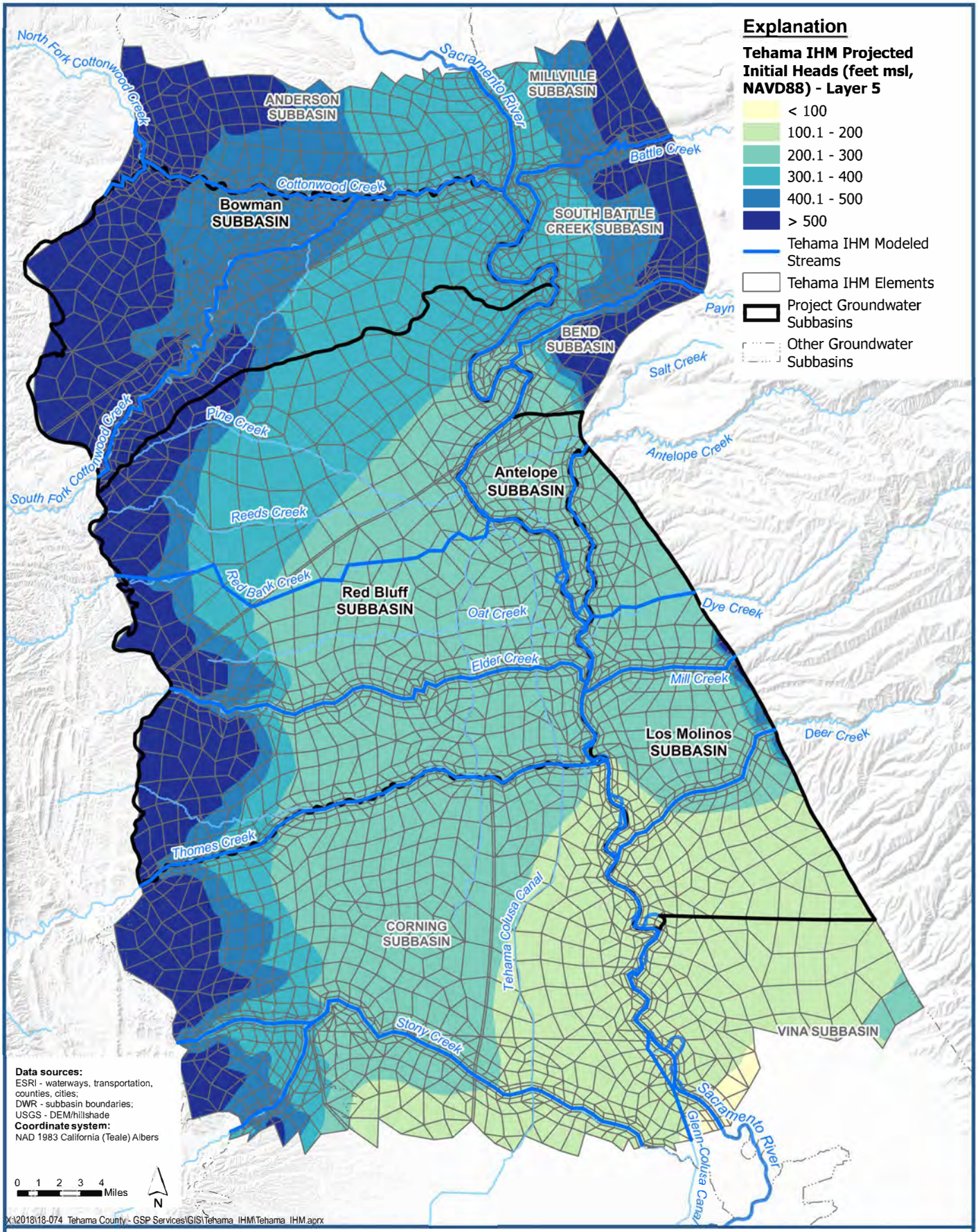
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Projected Initial Groundwater Heads in Tehama IHM - Layer 4

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Tehama County, California

Figure 3-89



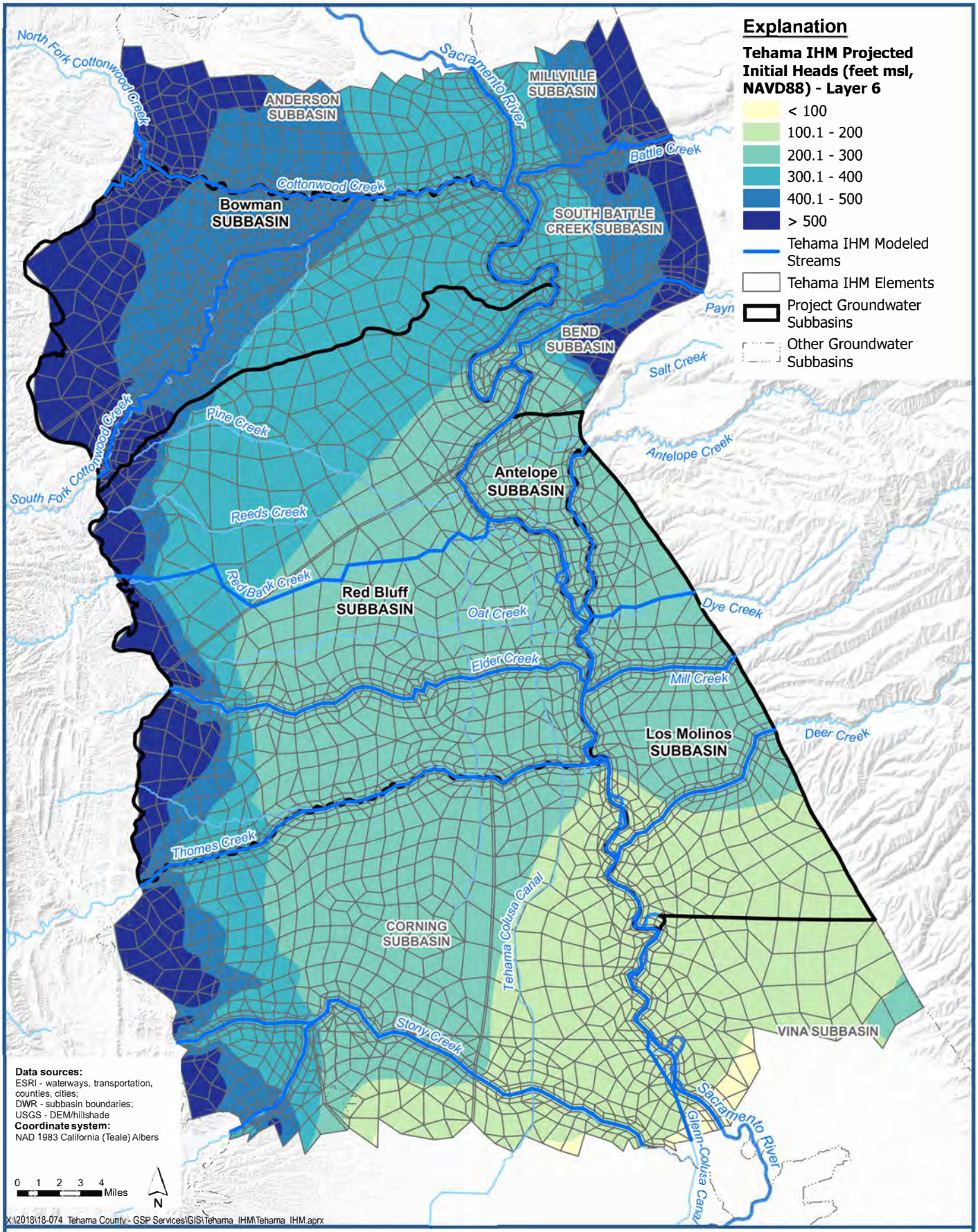
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Projected Initial Groundwater Heads in Tehama IHM - Layer 5

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Tehama County, California

Figure 3-90



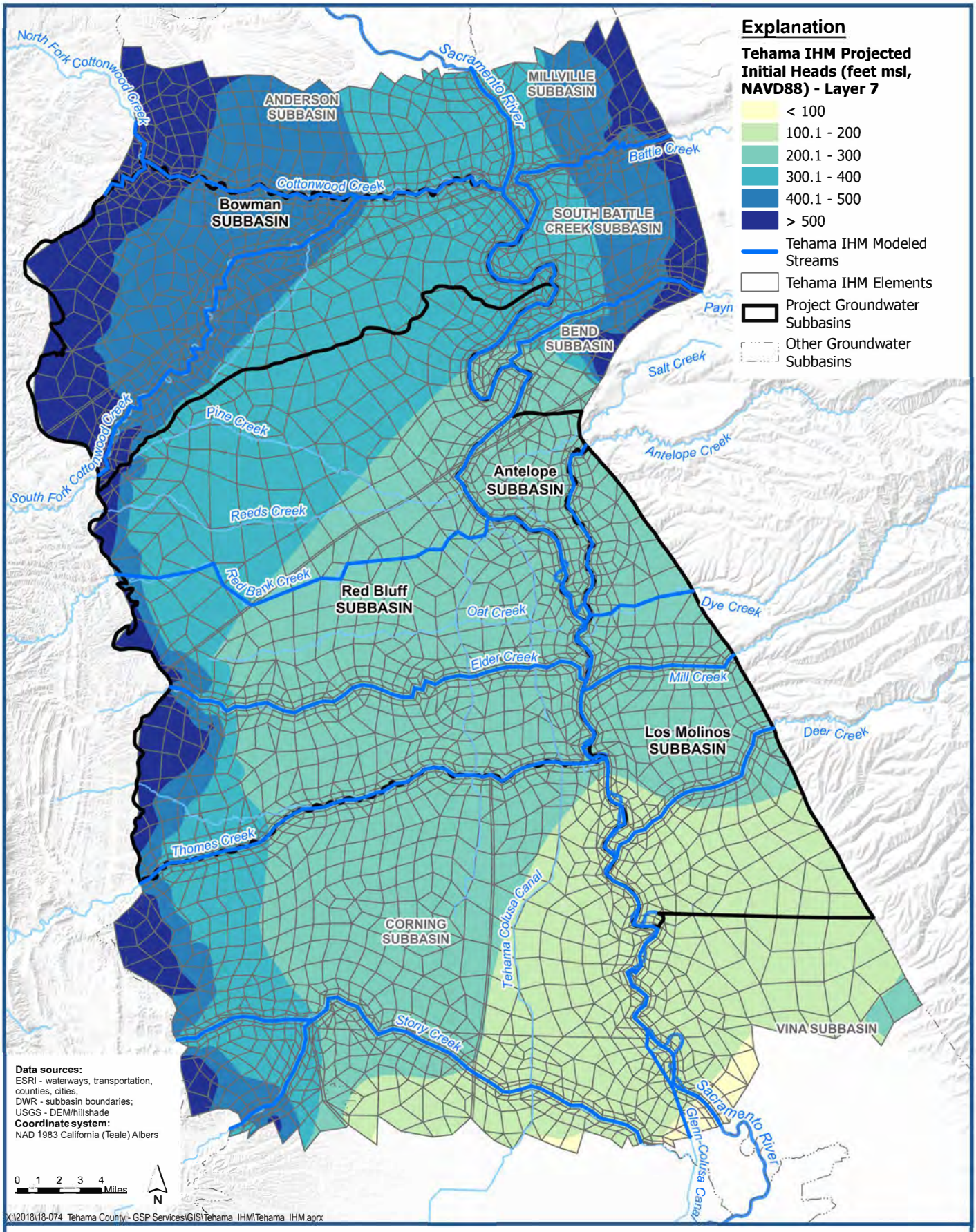
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Projected Initial Groundwater Heads in Tehama IHM - Layer 6

Groundwater Sustainability Plan
Tehama County, California

Figure 3-91



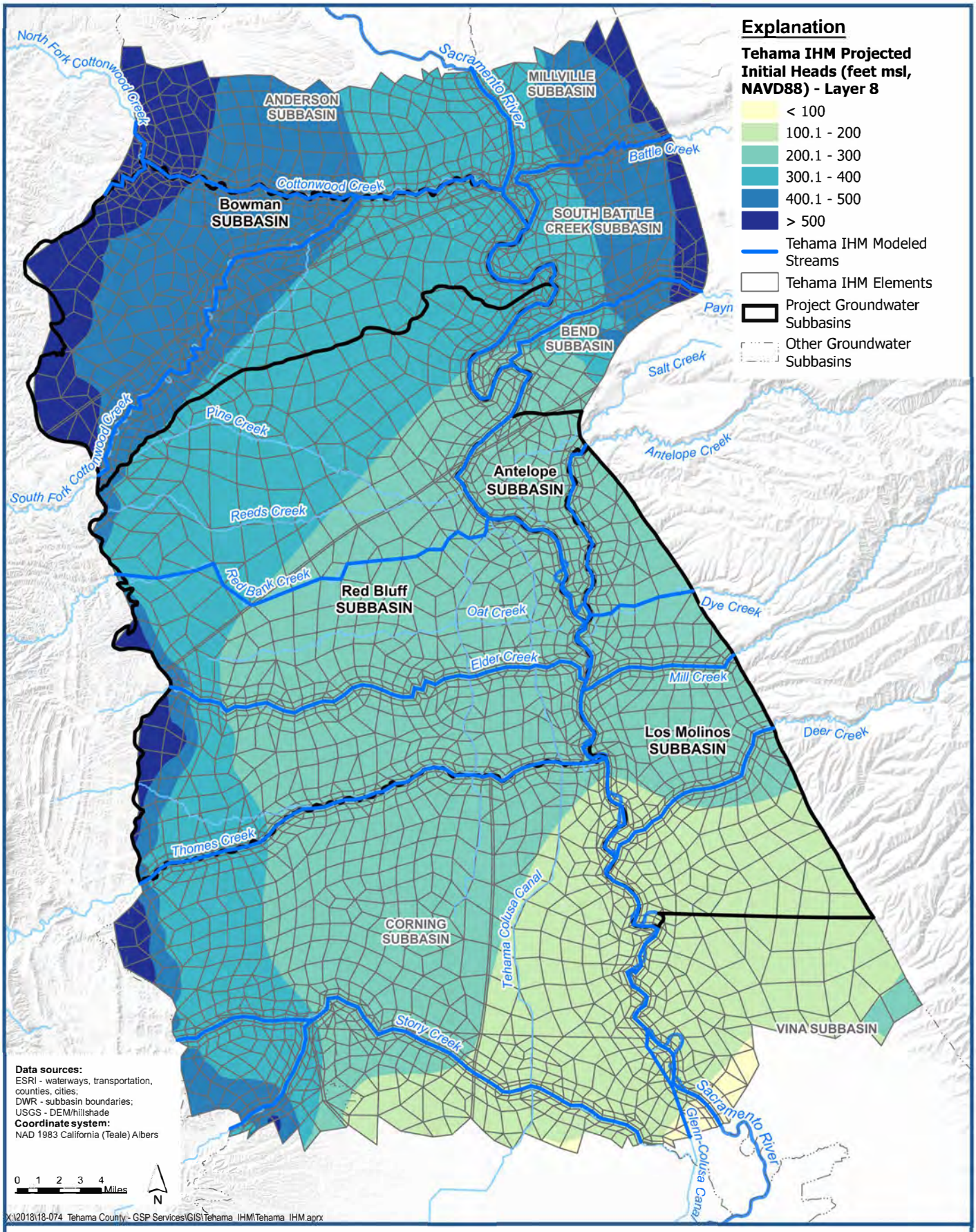
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Projected Initial Groundwater Heads in Tehama IHM - Layer 7

Groundwater Sustainability Plan
Tehama County, California

Figure 3-92



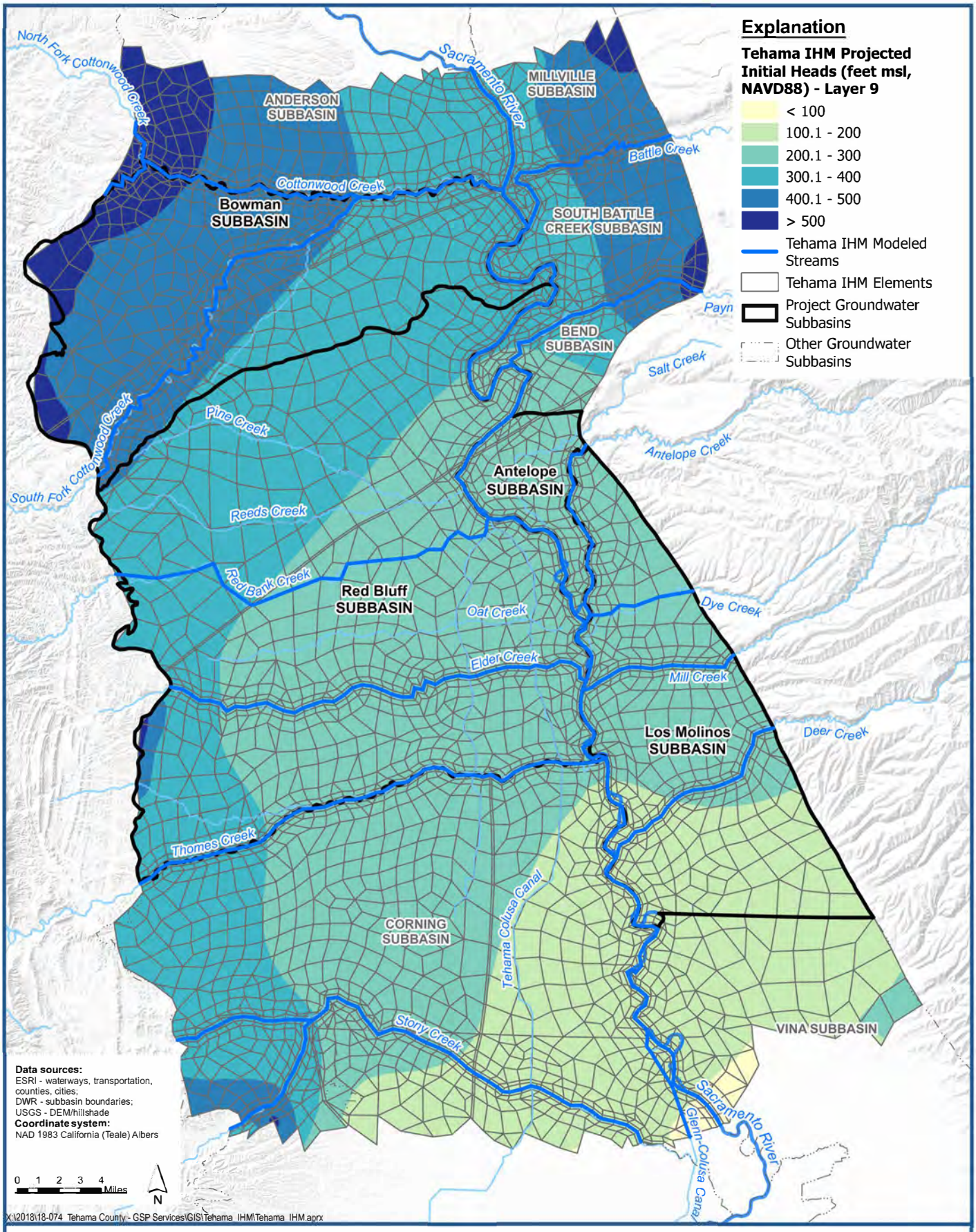
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Projected Initial Groundwater Heads in Tehama IHM - Layer 8

Groundwater Sustainability Plan
Tehama County, California

Figure 3-93



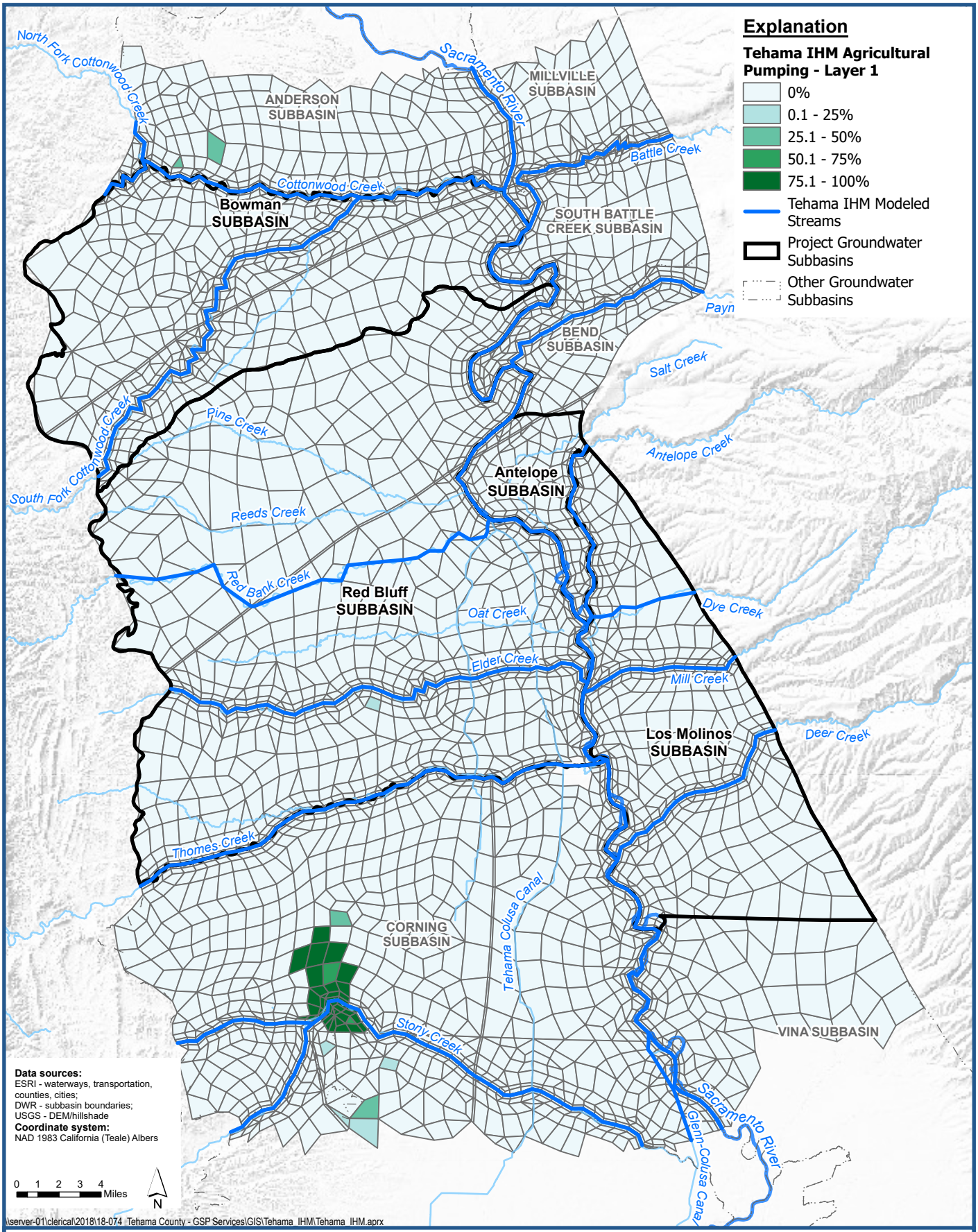
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Projected Initial Groundwater Heads in Tehama IHM - Layer 9

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Tehama County, California

Figure 3-94



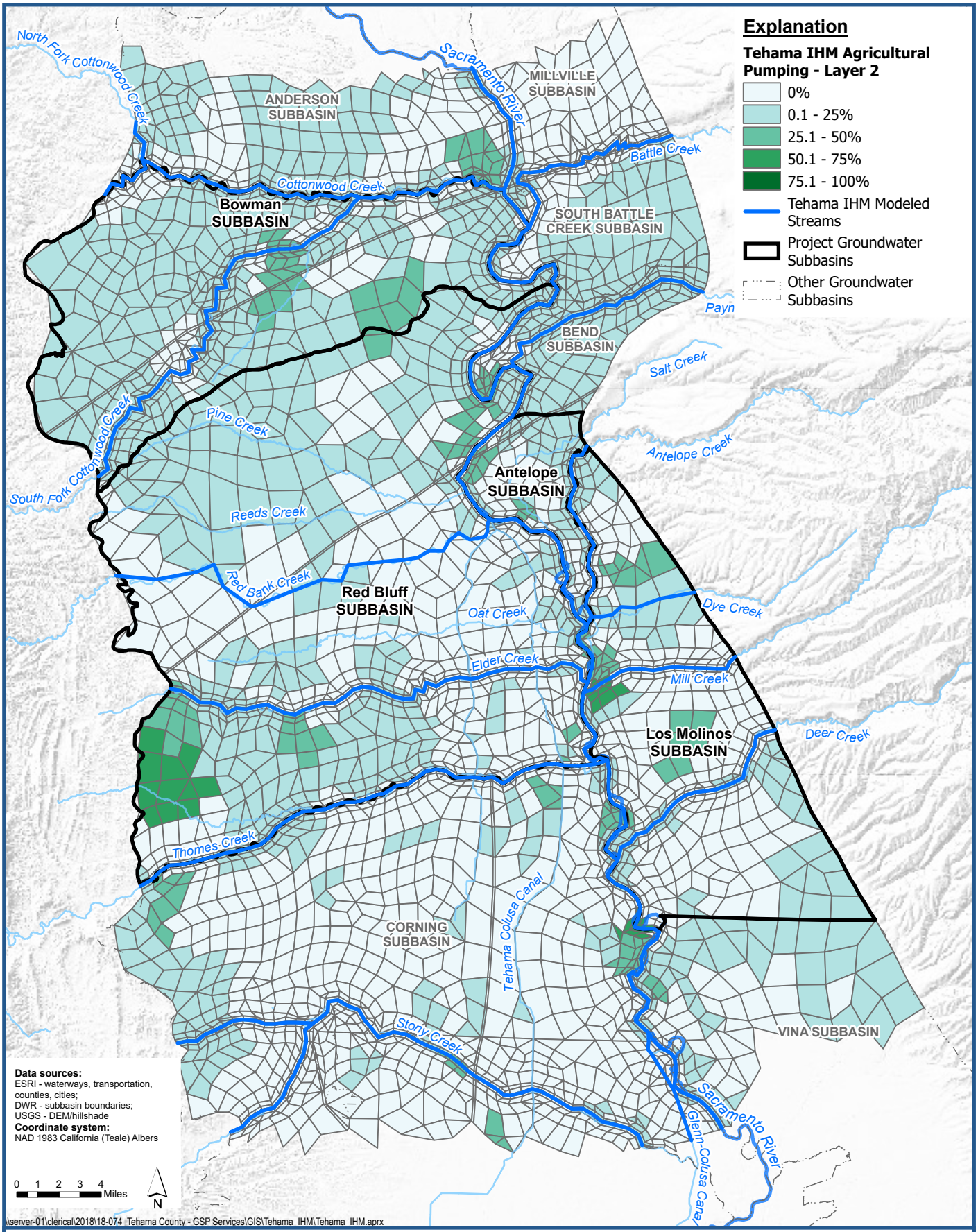
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Vertical Distribution of Projected (with Projects) Agricultural Pumping in Tehama IHM - Layer 1

Groundwater Sustainability Planning
Tehama County, California

Figure 3-95



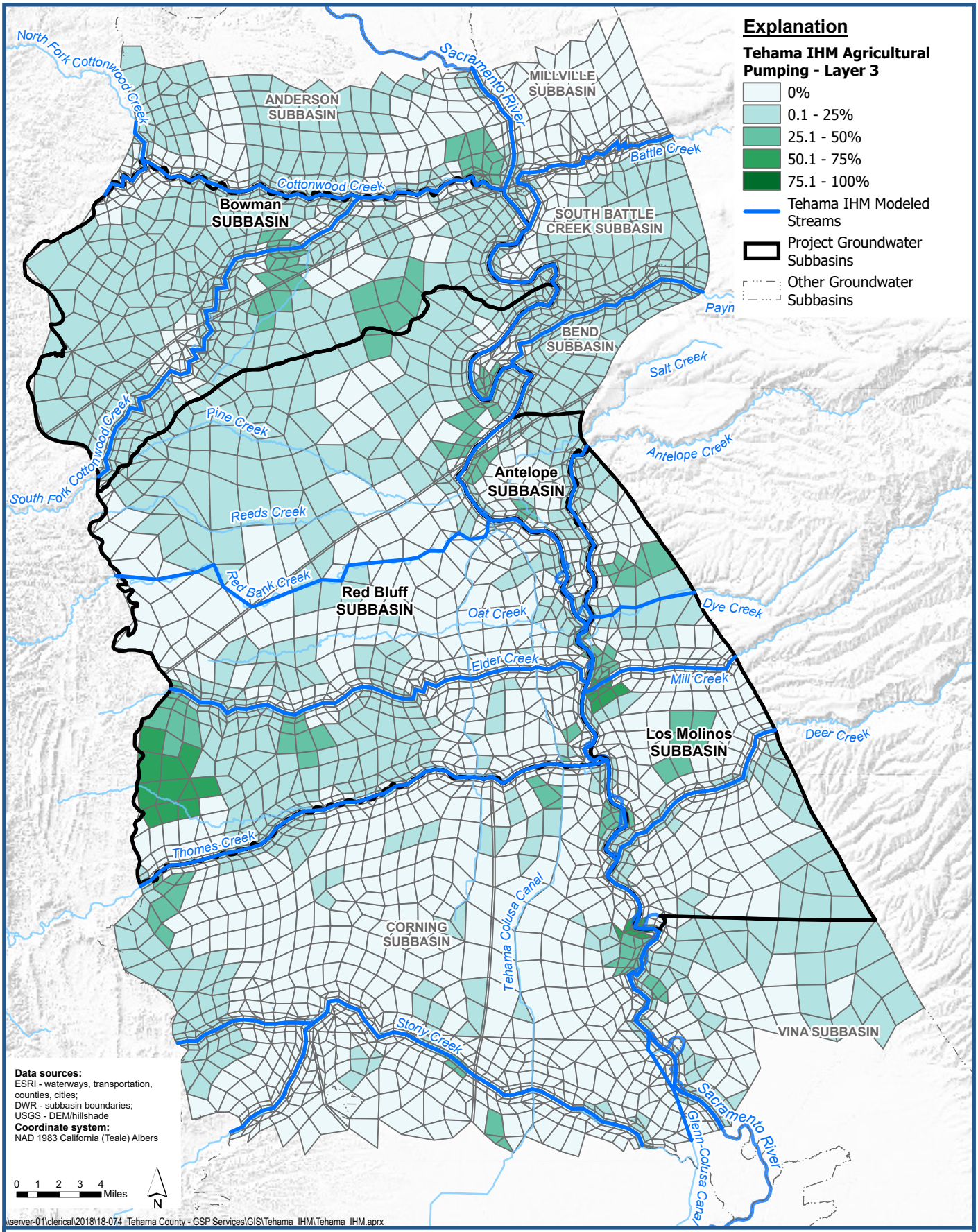
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Vertical Distribution of Projected (with Projects) Agricultural Pumping in Tehama IHM - Layer 2

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Tehama County, California

Figure 3-96



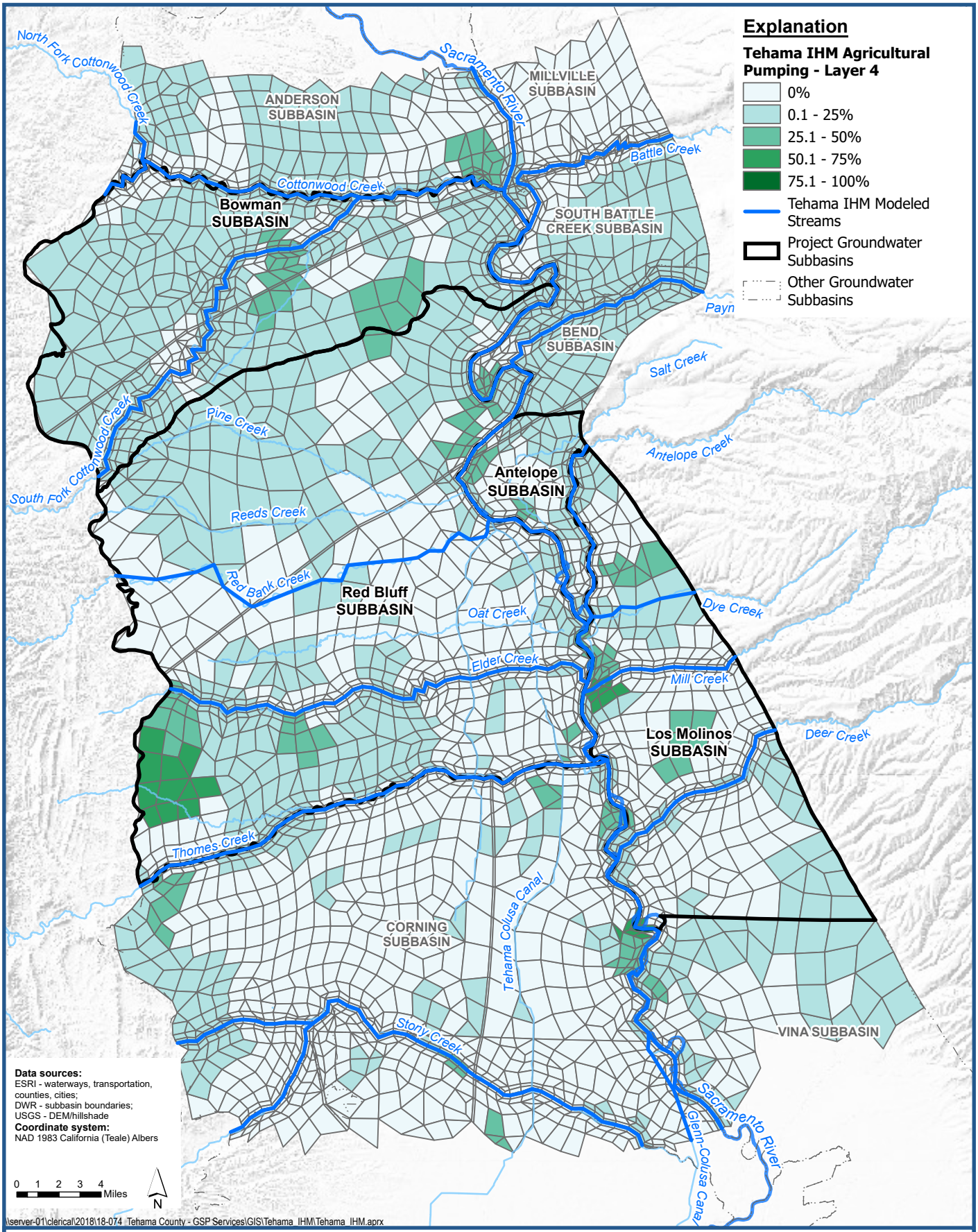
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Vertical Distribution of Projected (with Projects) Agricultural Pumping in Tehama IHM - Layer 3

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Tehama County, California

Figure 3-97



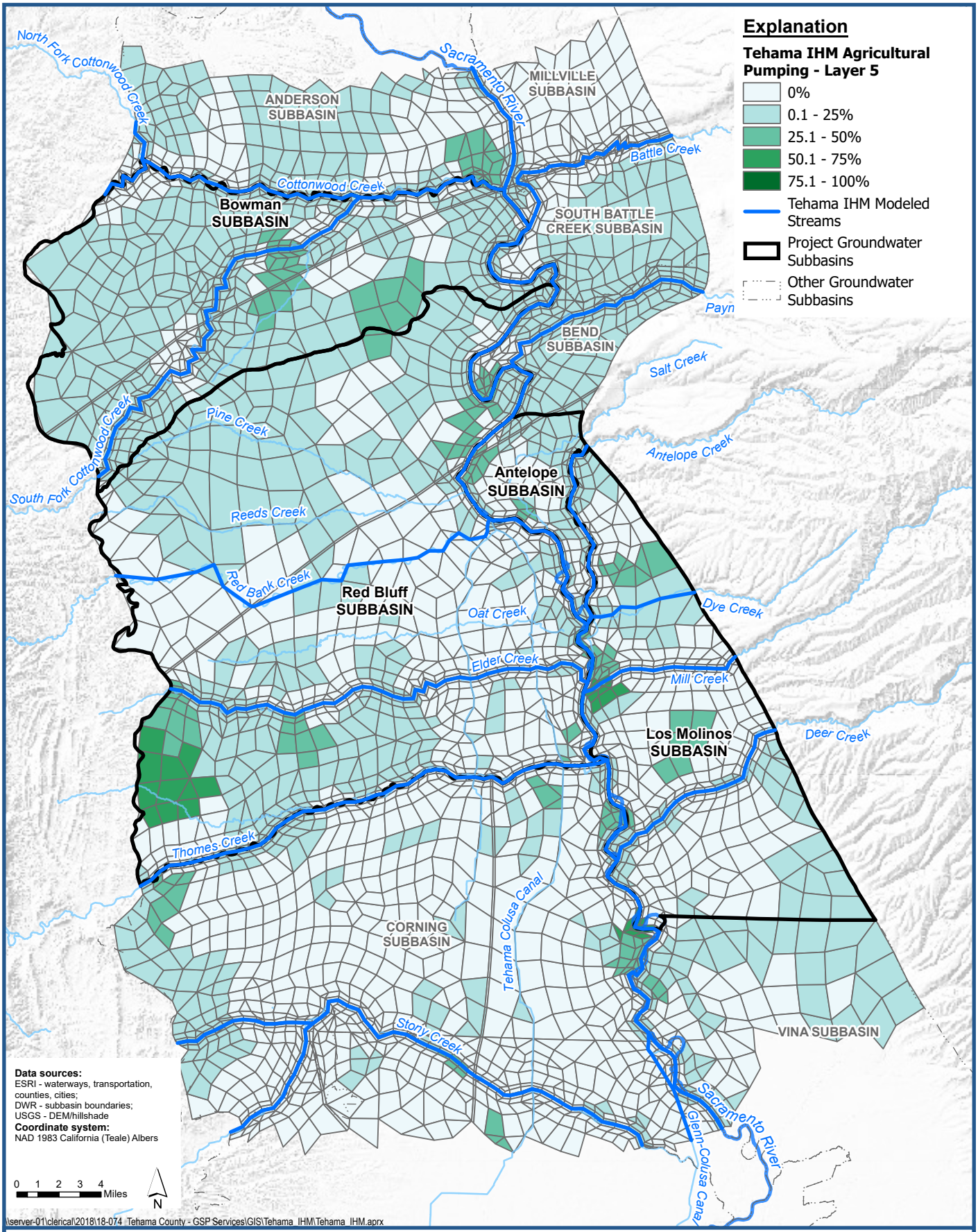
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Vertical Distribution of Projected (with Projects) Agricultural Pumping in Tehama IHM - Layer 4

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Tehama County, California

Figure 3-98



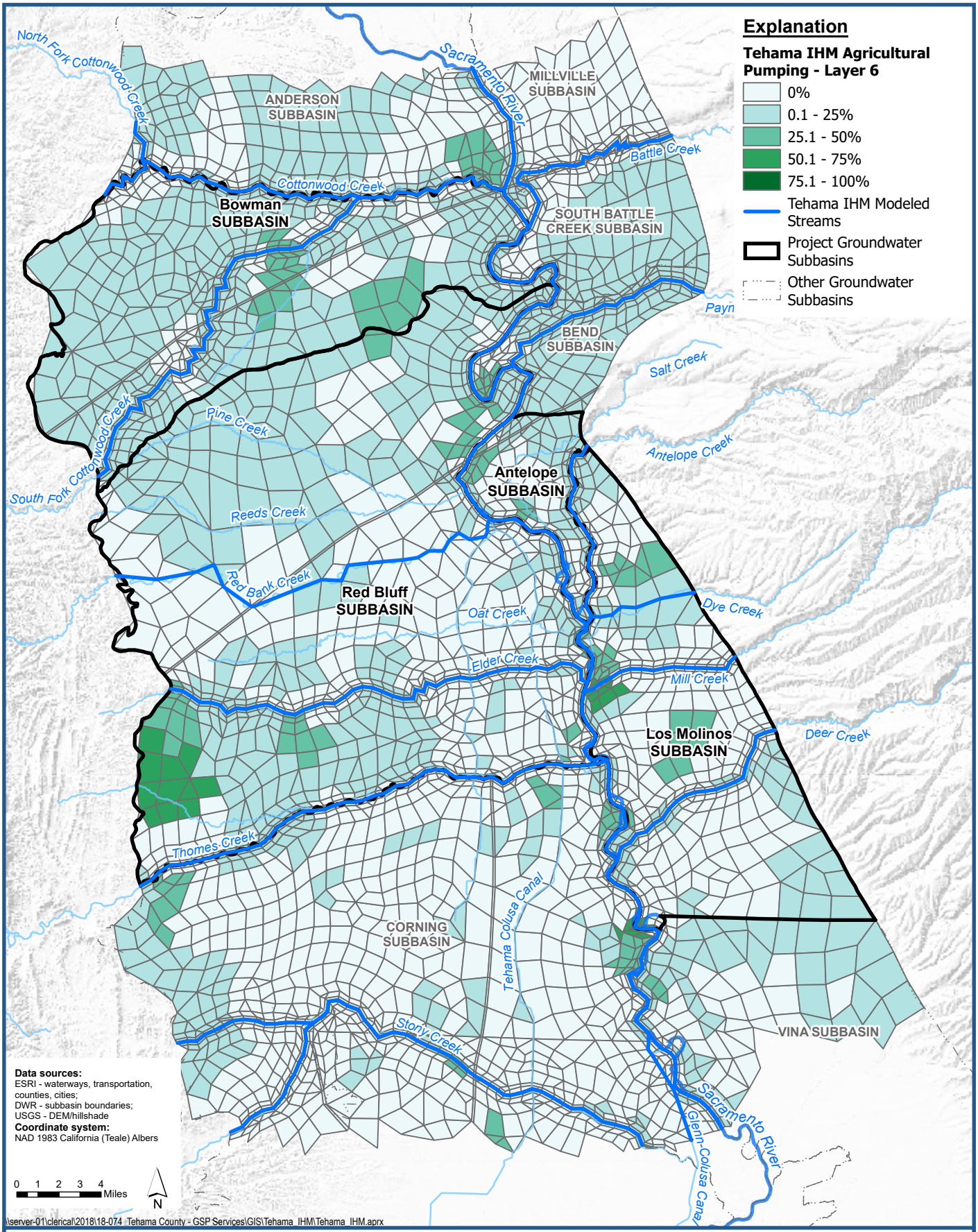
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Vertical Distribution of Projected (with Projects) Agricultural Pumping in Tehama IHM - Layer 5

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Tehama County, California

Figure 3-99



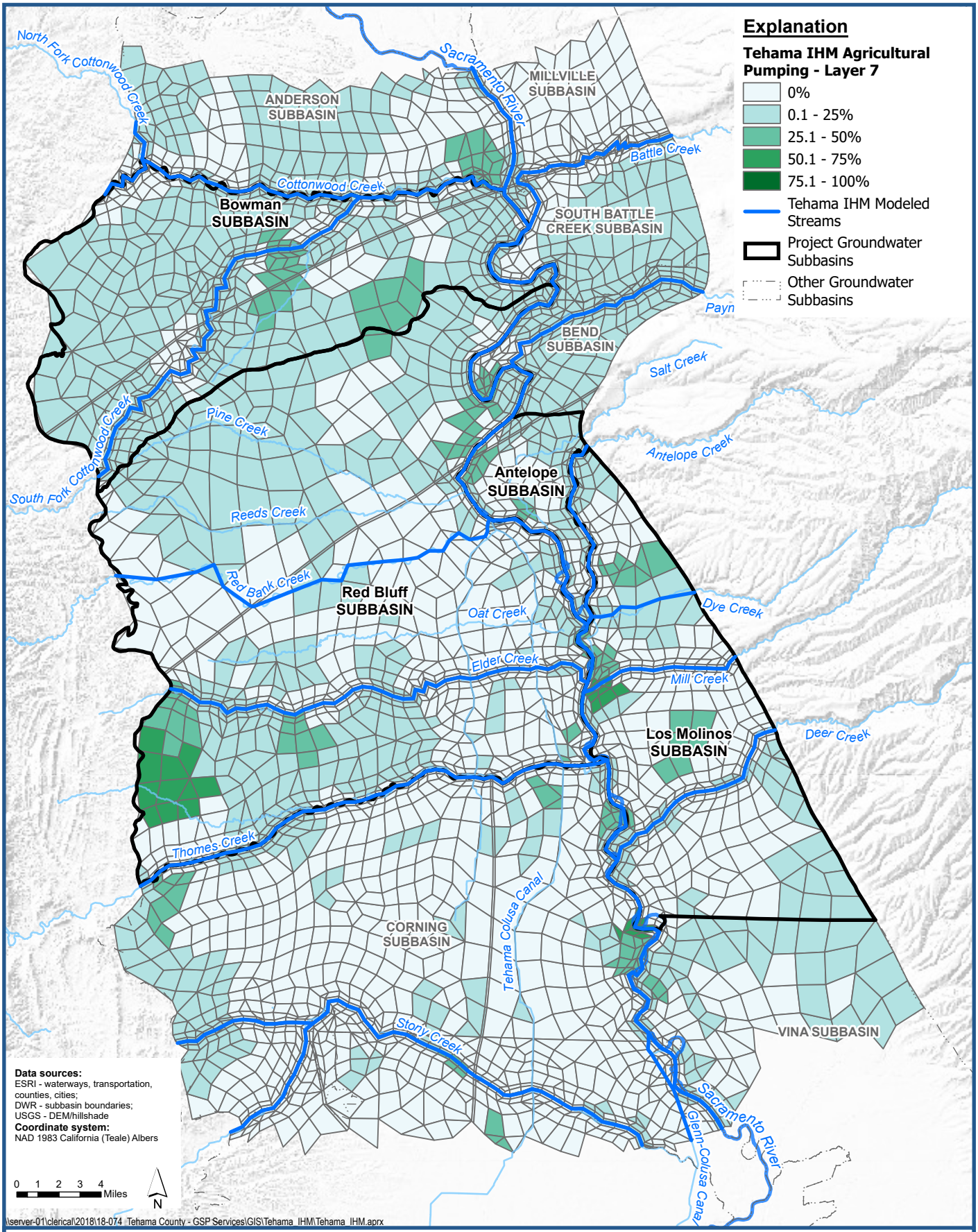
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Vertical Distribution of Projected (with Projects) Agricultural Pumping in Tehama IHM - Layer 6

Figure 3-100

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Tehama County, California



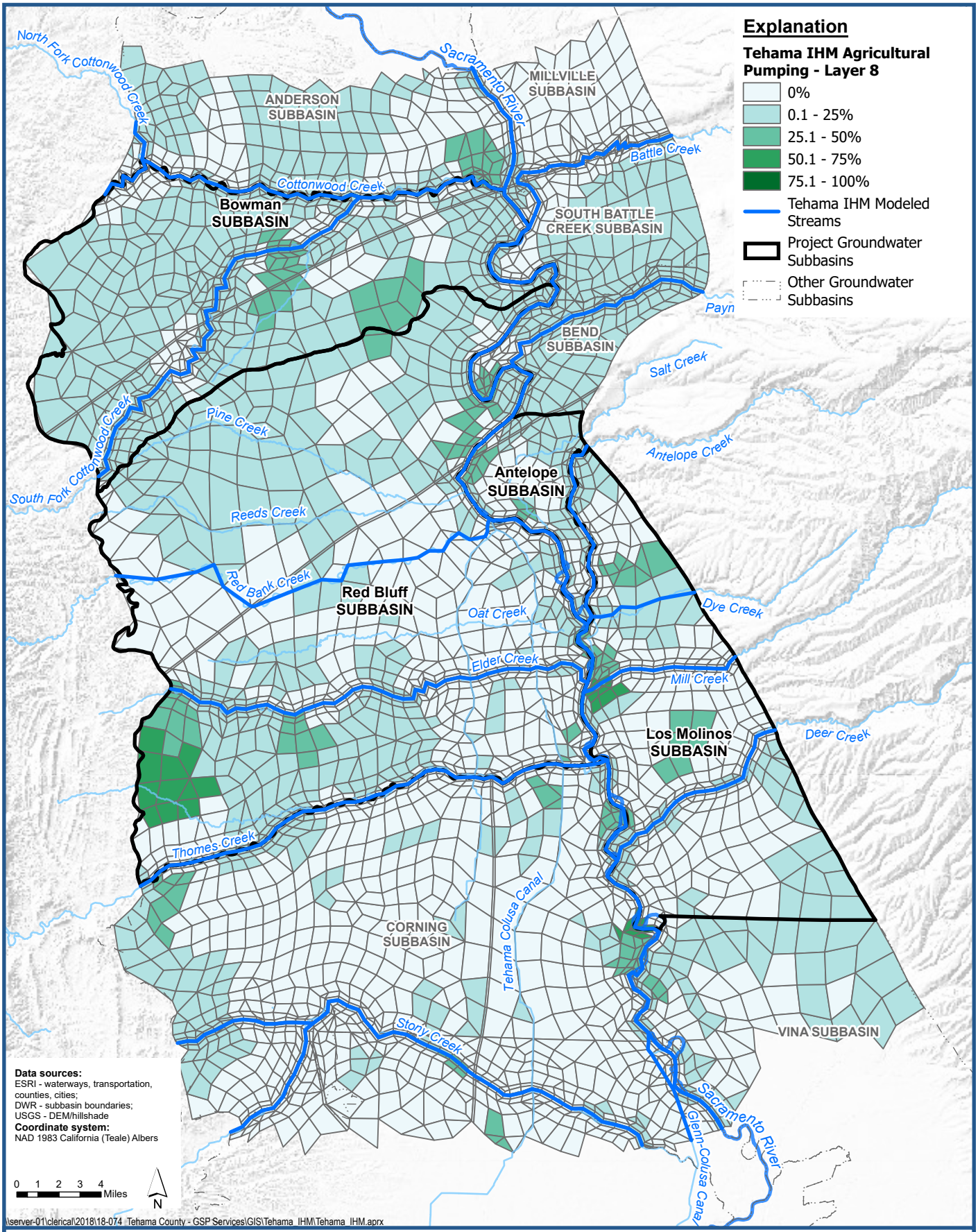
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Vertical Distribution of Projected (with Projects) Agricultural Pumping in Tehama IHM - Layer 7

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Tehama County, California

Figure 3-101



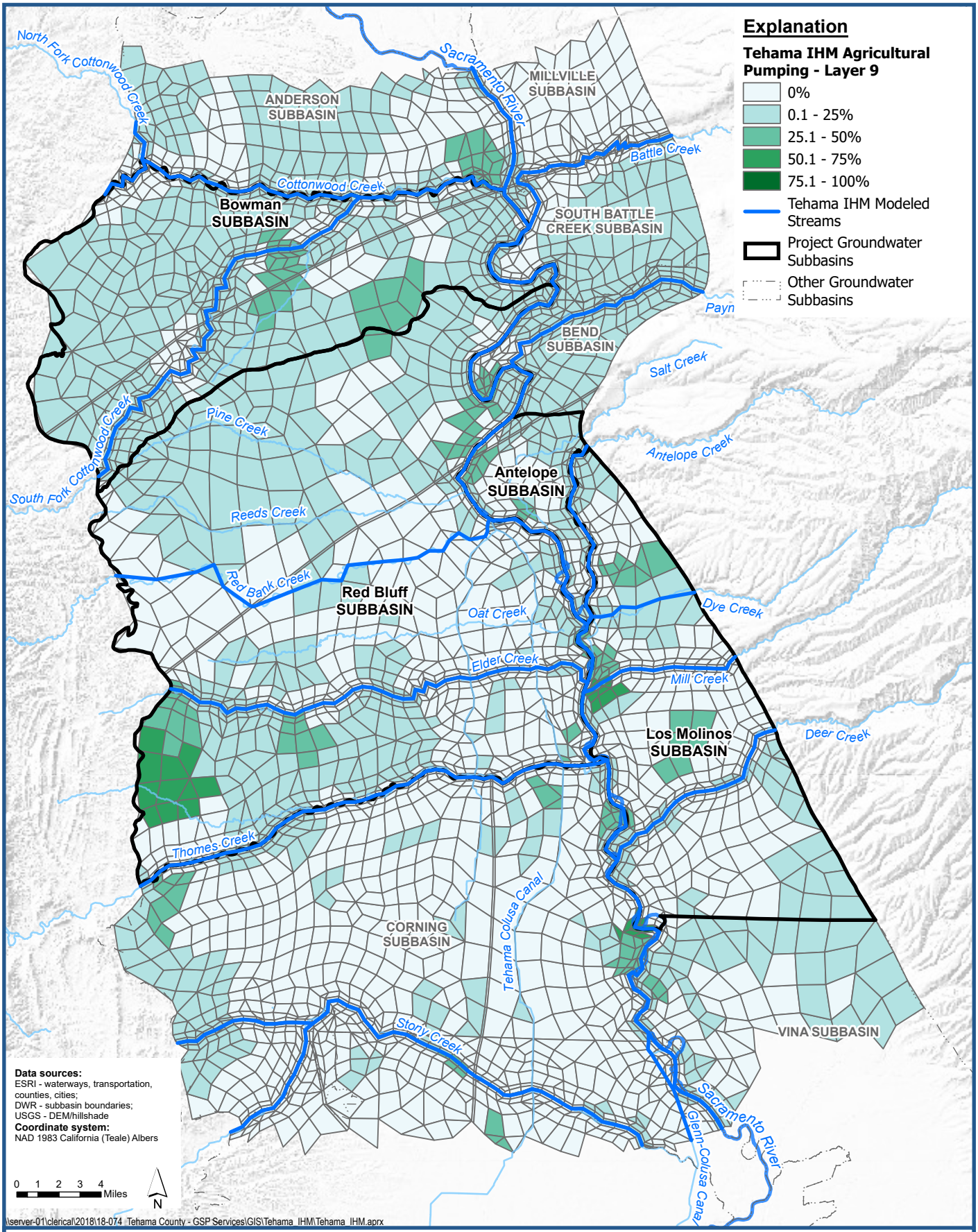
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Vertical Distribution of Projected (with Projects) Agricultural Pumping in Tehama IHM - Layer 8

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Tehama County, California

Figure 3-102



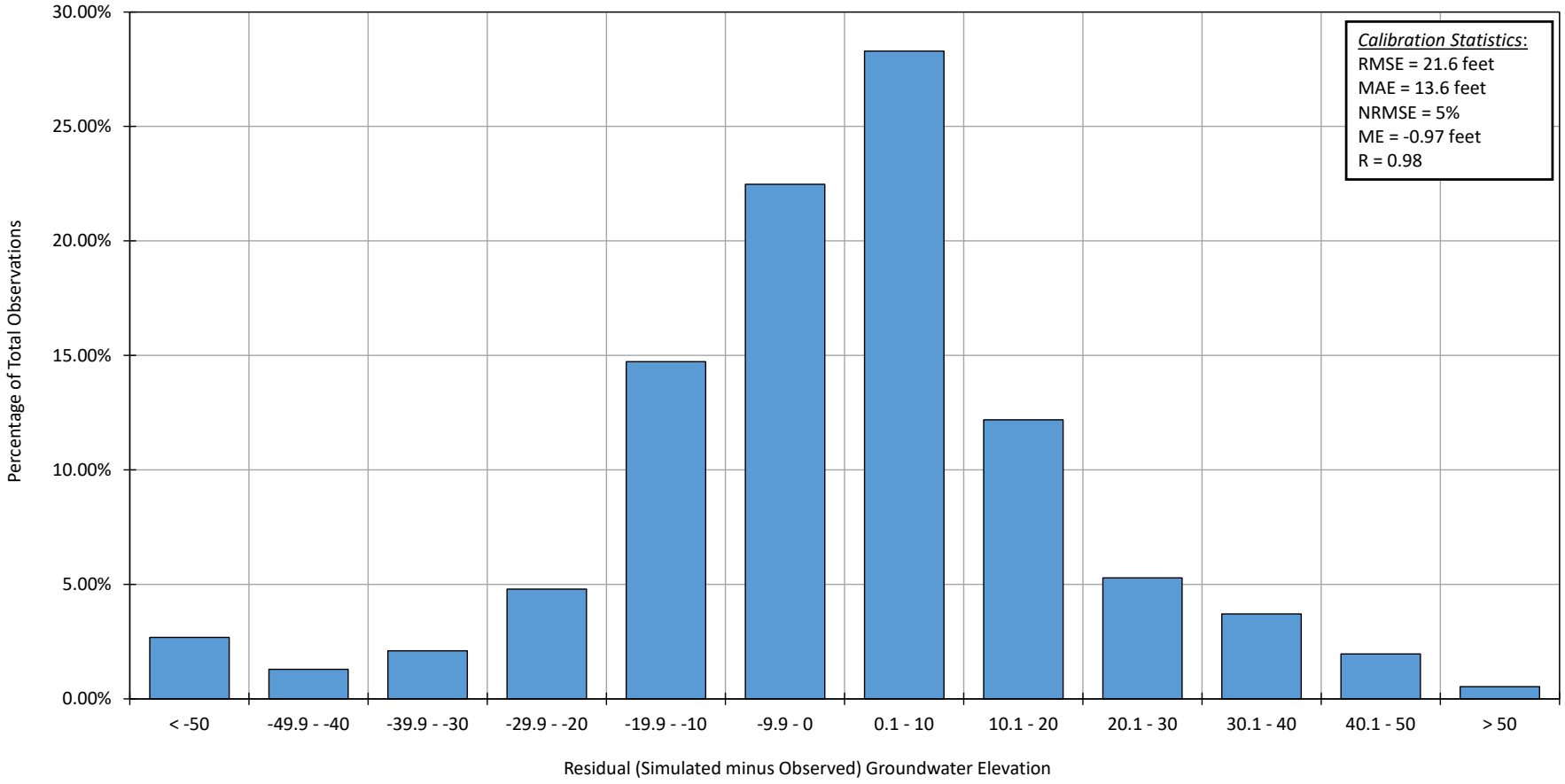
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Vertical Distribution of Projected (with Projects) Agricultural Pumping in Tehama IHM - Layer 9

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Tehama County, California

Figure 3-103



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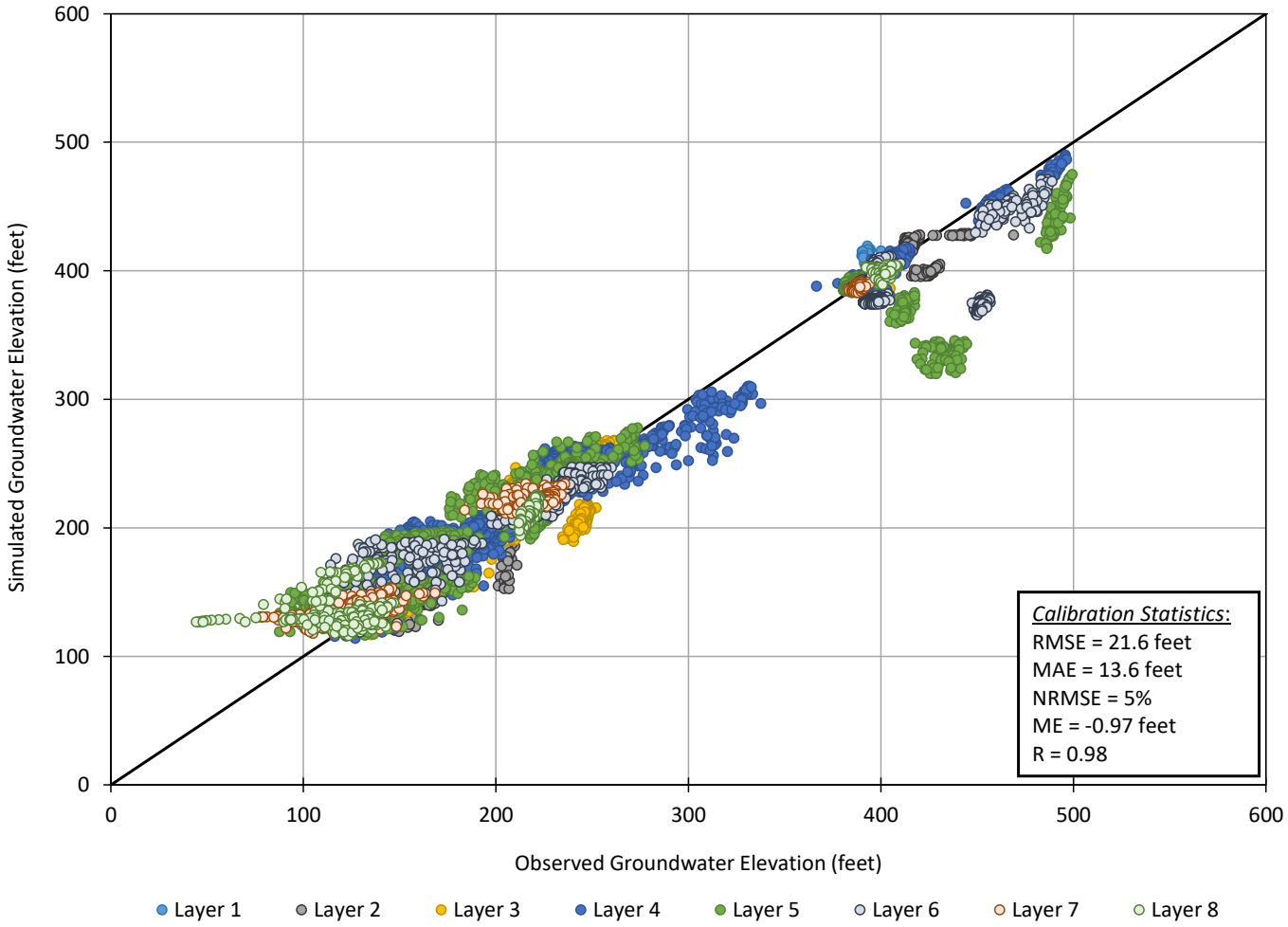
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Histogram of Residual (Simulated minus Observed) Groundwater Elevations in Tehama IHM for All Observations

Groundwater Sustainability Planning
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Figure 4-1



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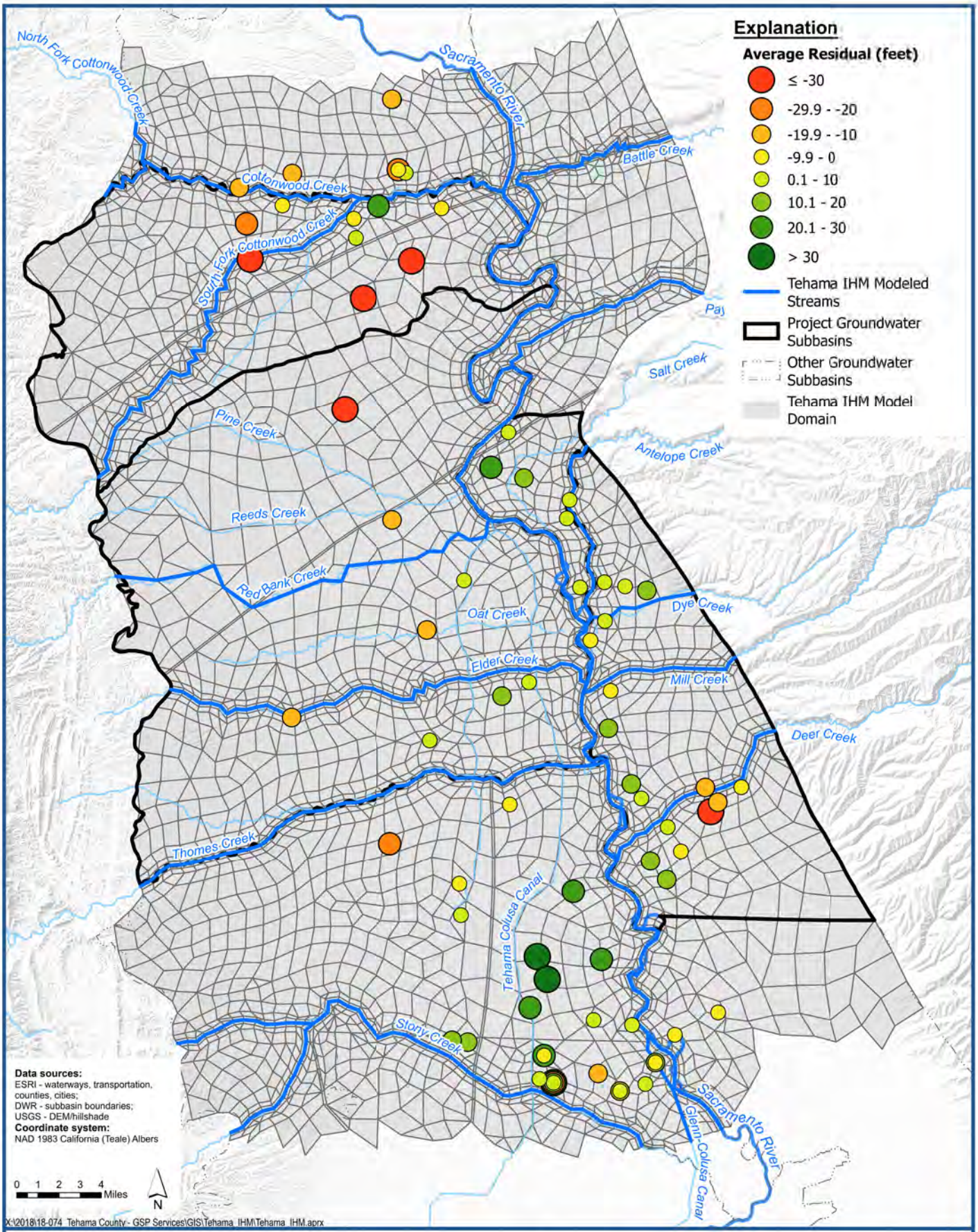
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Tehama IHM Simulated vs. Observed Groundwater Elevations, By Layer

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Figure 4-2



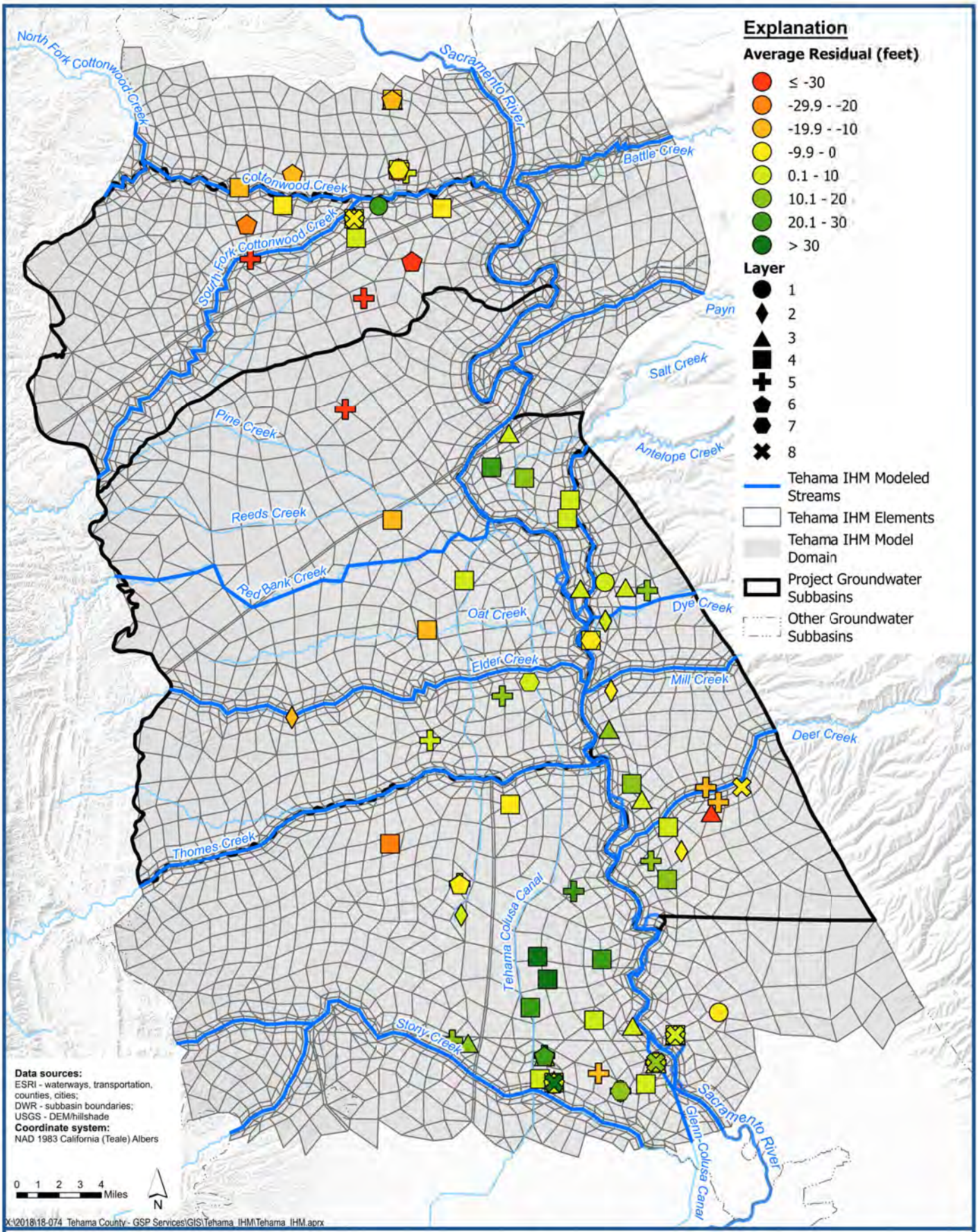
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Tehama IHM Average Residual Groundwater Elevation by Calibration Well

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Figure 4-3



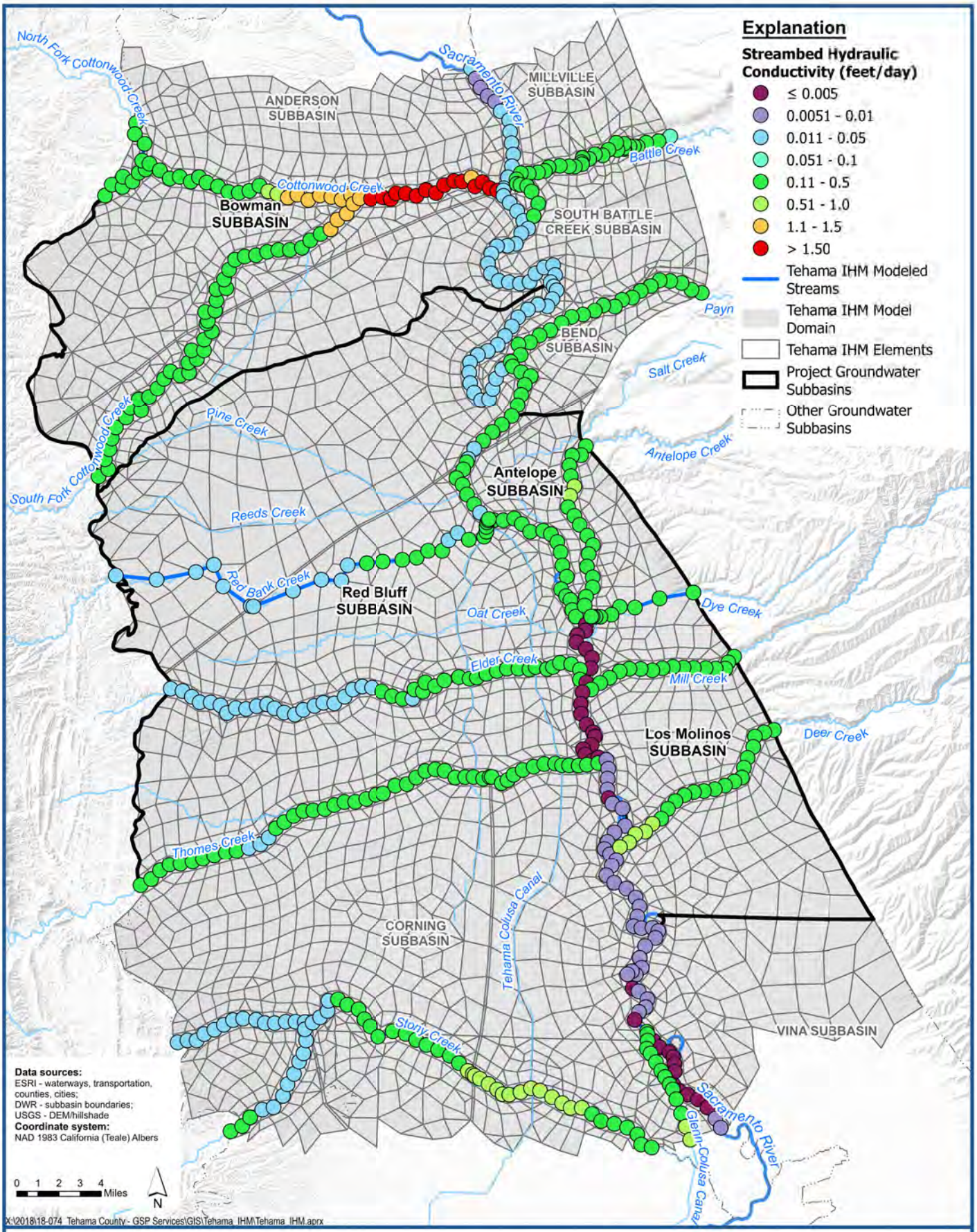
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Tehama IHM Average Residual Groundwater Elevation by Model Layer

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Figure 4-4



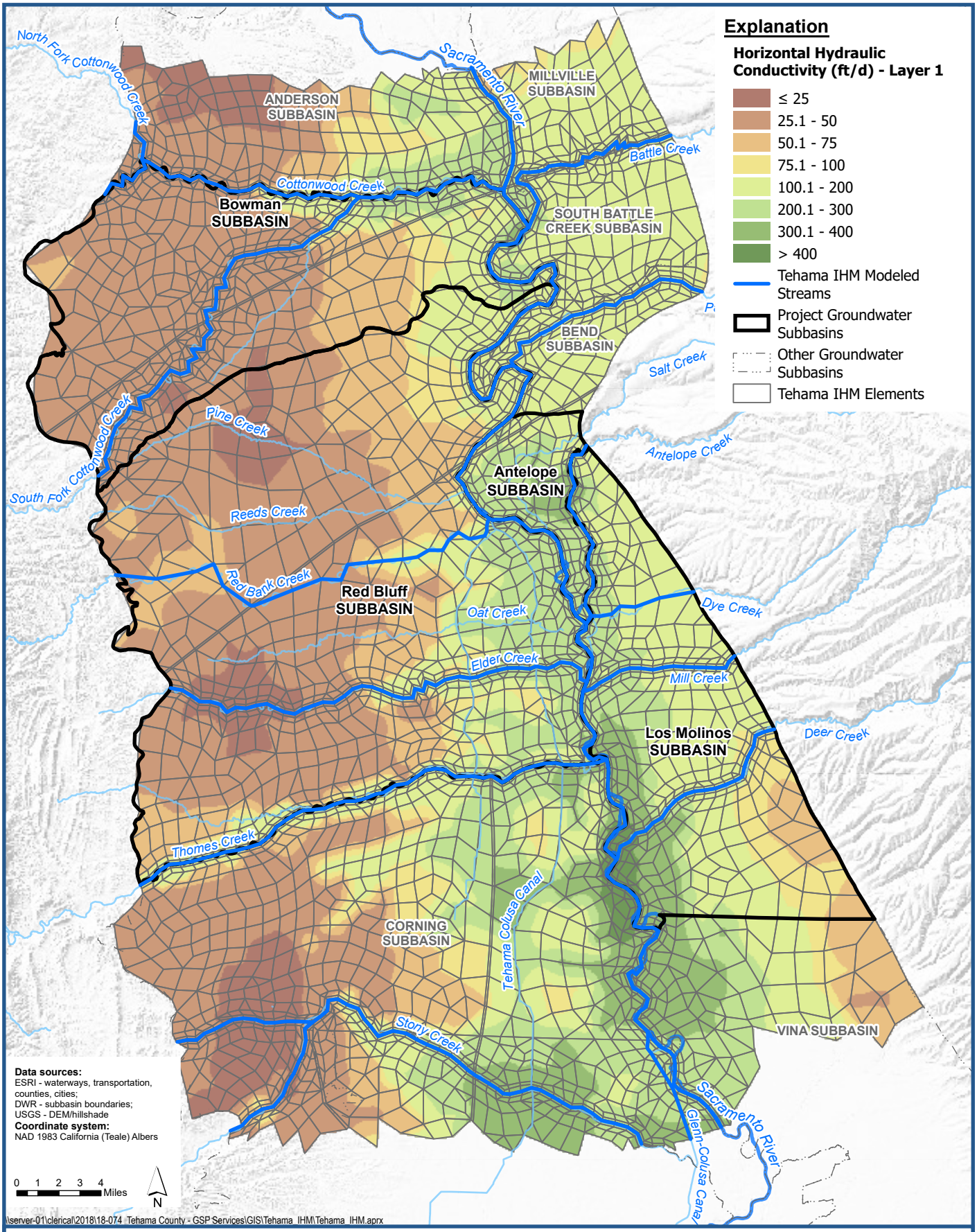
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Tehama IHM Calibrated Streambed Conductance

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Tehama County, California

Figure 4-5



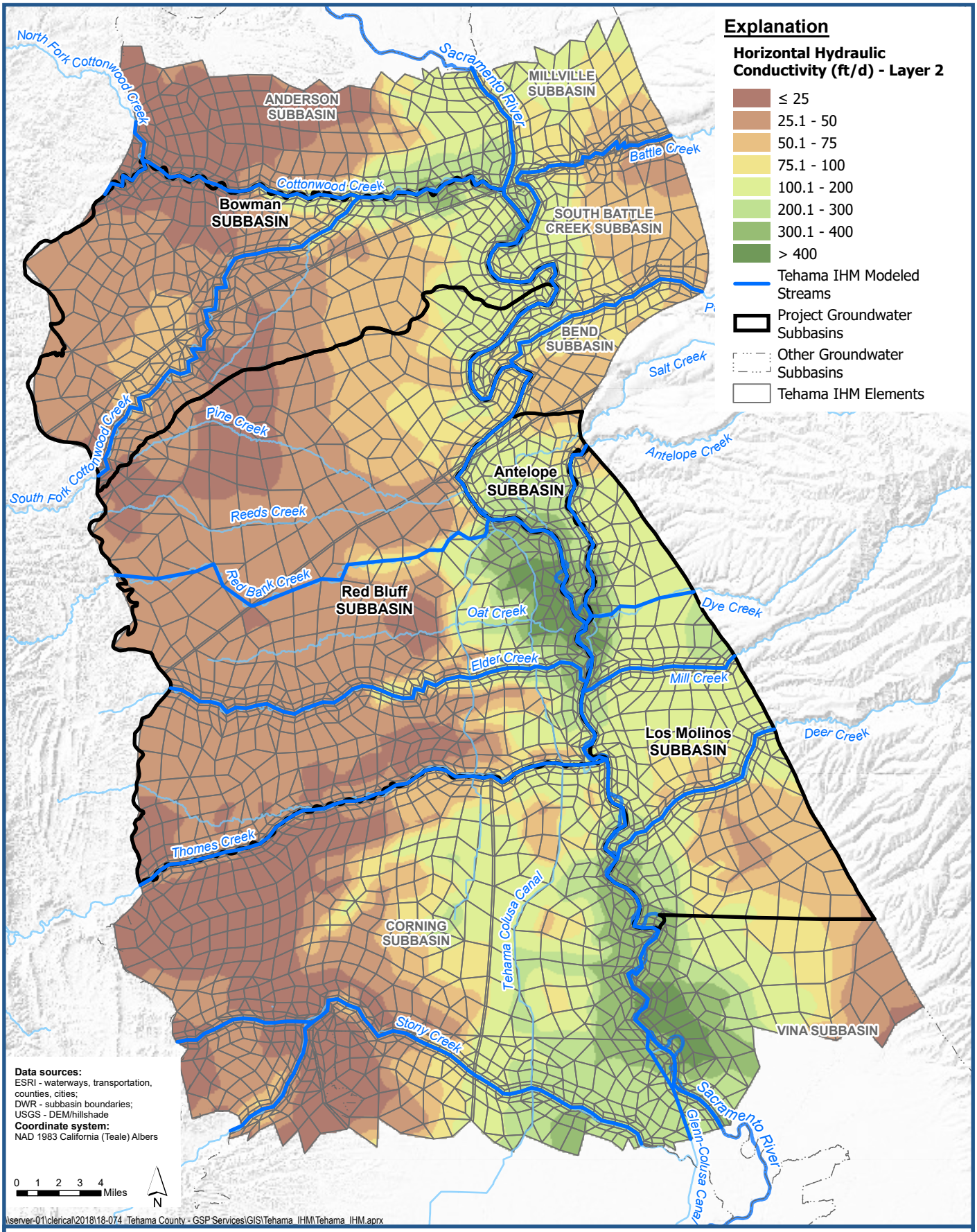
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Calibrated Horizontal Hydraulic Conductivity (Kh) in Tehama IHM - Layer 1

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Tehama County, California

Figure 4-6



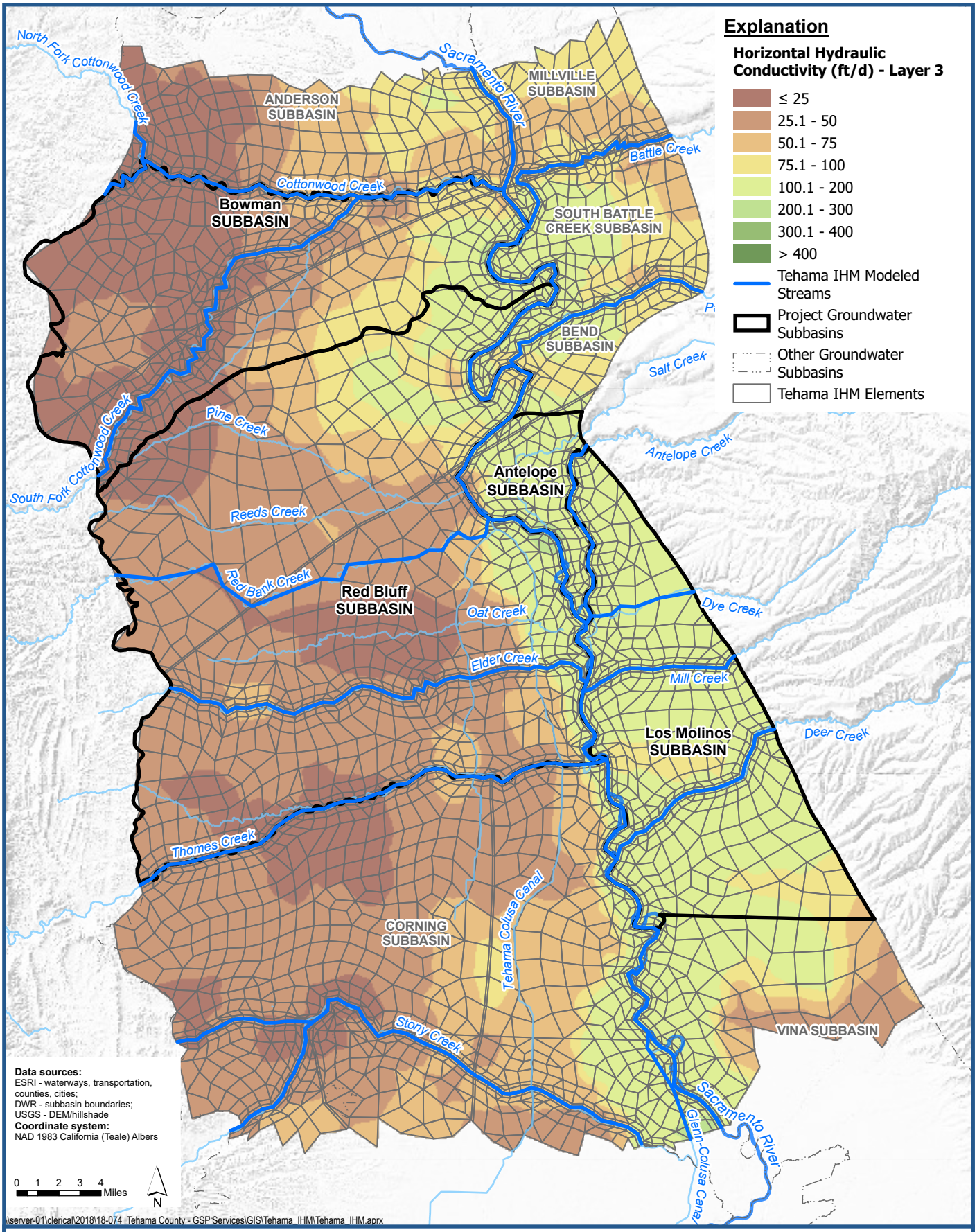
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Calibrated Horizontal Hydraulic Conductivity (Kh) in Tehama IHM - Layer 2

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Figure 4-7



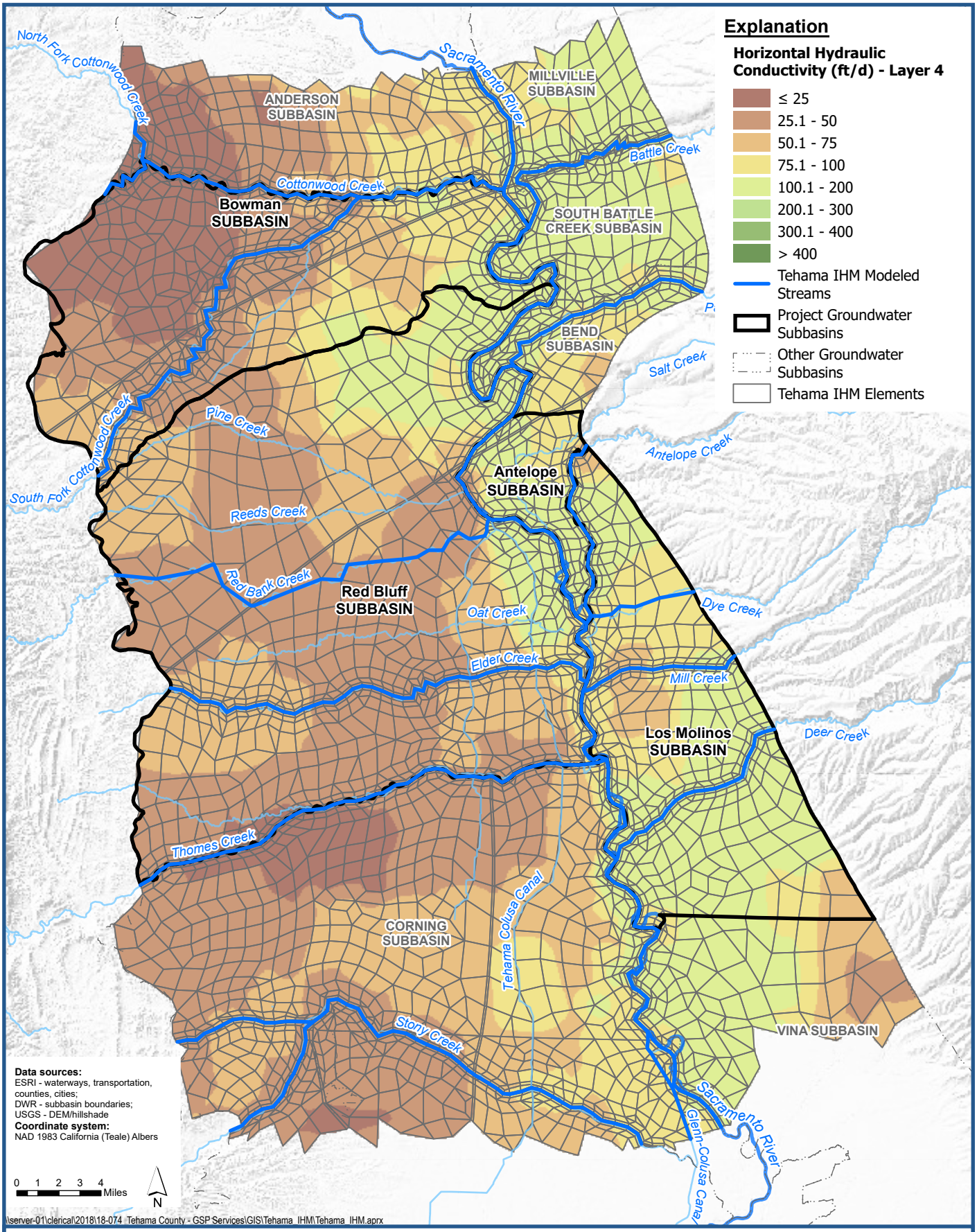
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Calibrated Horizontal Hydraulic Conductivity (Kh) in Tehama IHM - Layer 3

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Tehama County, California

Figure 4-8



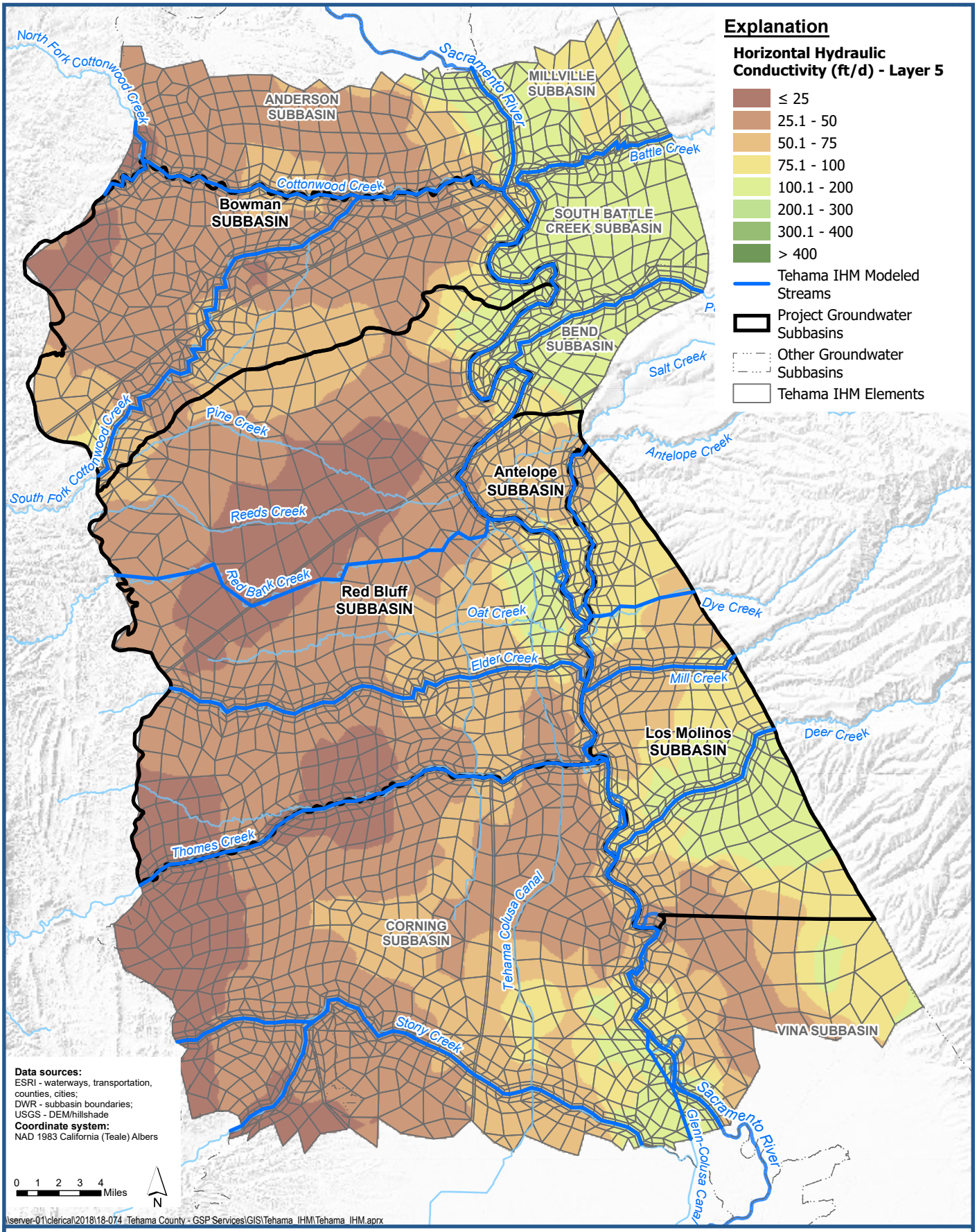
TEHAMA COUNTY

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Calibrated Horizontal Hydraulic Conductivity (Kh) in Tehama IHM - Layer 4

Groundwater Sustainability Planning
Tehama County, California

Figure 4-9



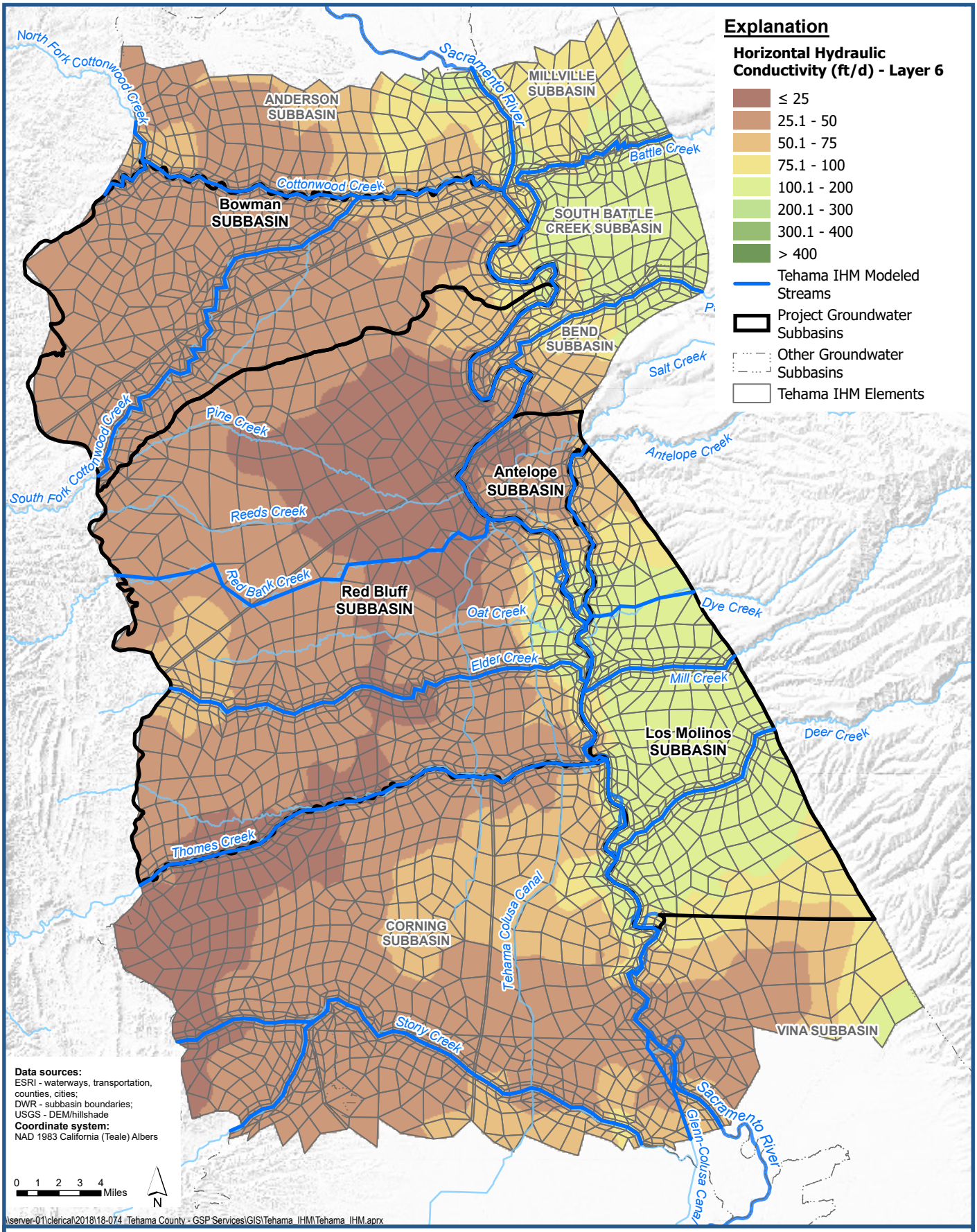
TEHAMA COUNTY

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Calibrated Horizontal Hydraulic Conductivity (Kh) in Tehama IHM - Layer 5

Groundwater Sustainability Planning
Tehama County, California

Figure 4-10



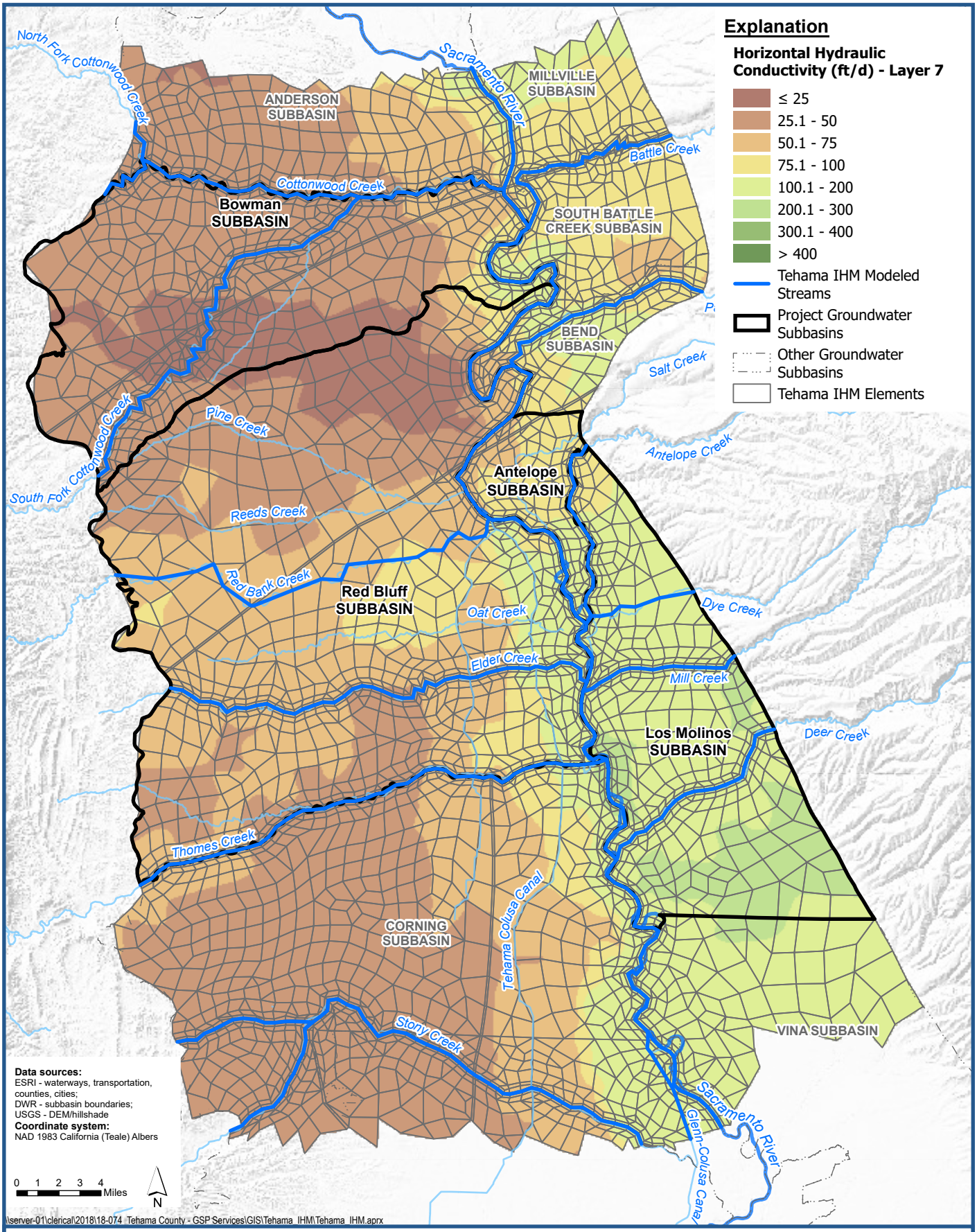
TEHAMA COUNTY
FLOOD CONTROL AND WATER CONSERVATION DISTRICT

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Calibrated Horizontal Hydraulic Conductivity (Kh) in Tehama IHM - Layer 6

Groundwater Sustainability Planning
Tehama County, California

Figure 4-11



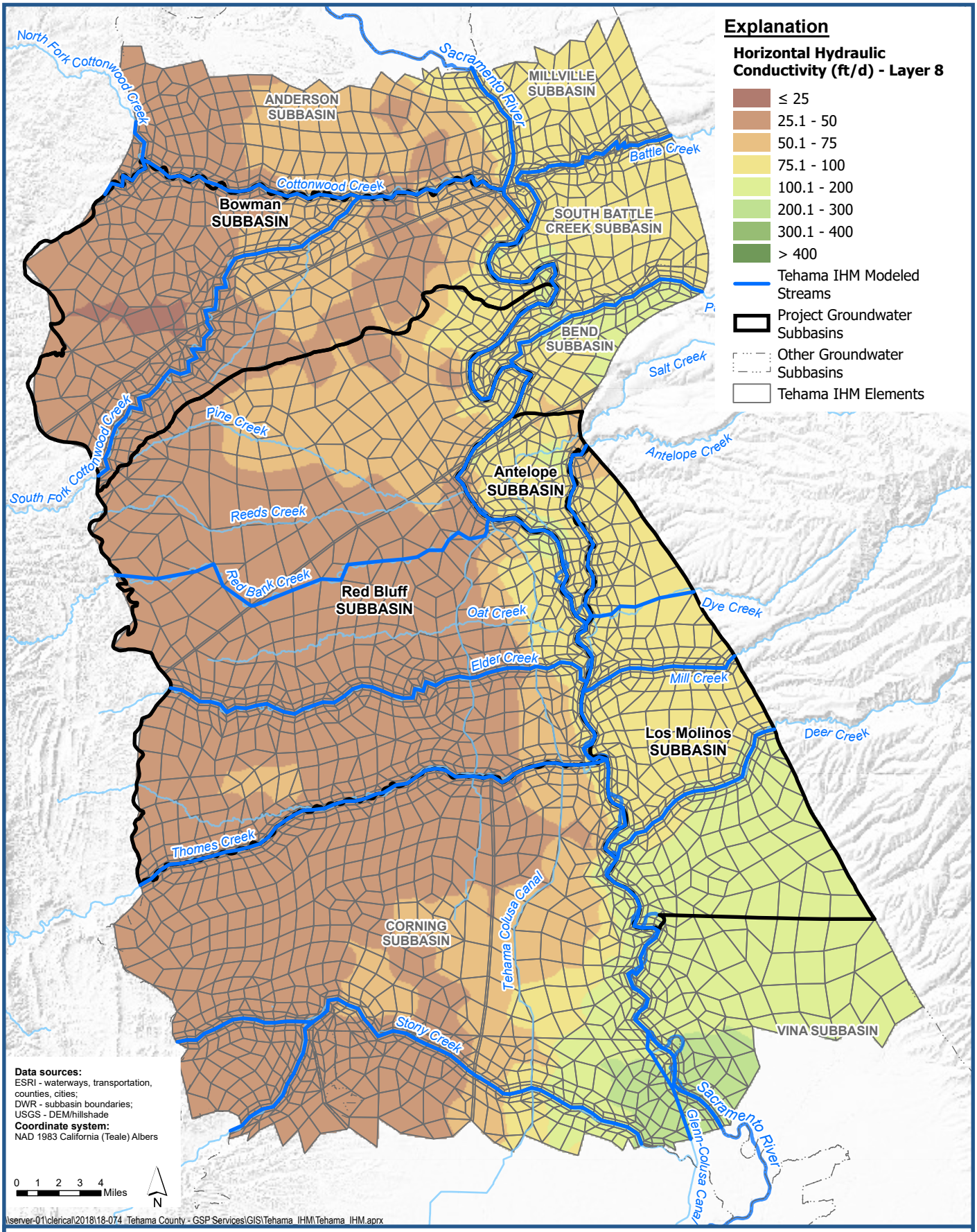
TEHAMA COUNTY

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Calibrated Horizontal Hydraulic Conductivity (Kh) in Tehama IHM - Layer 7

Groundwater Sustainability Planning
Tehama County, California

Figure 4-12



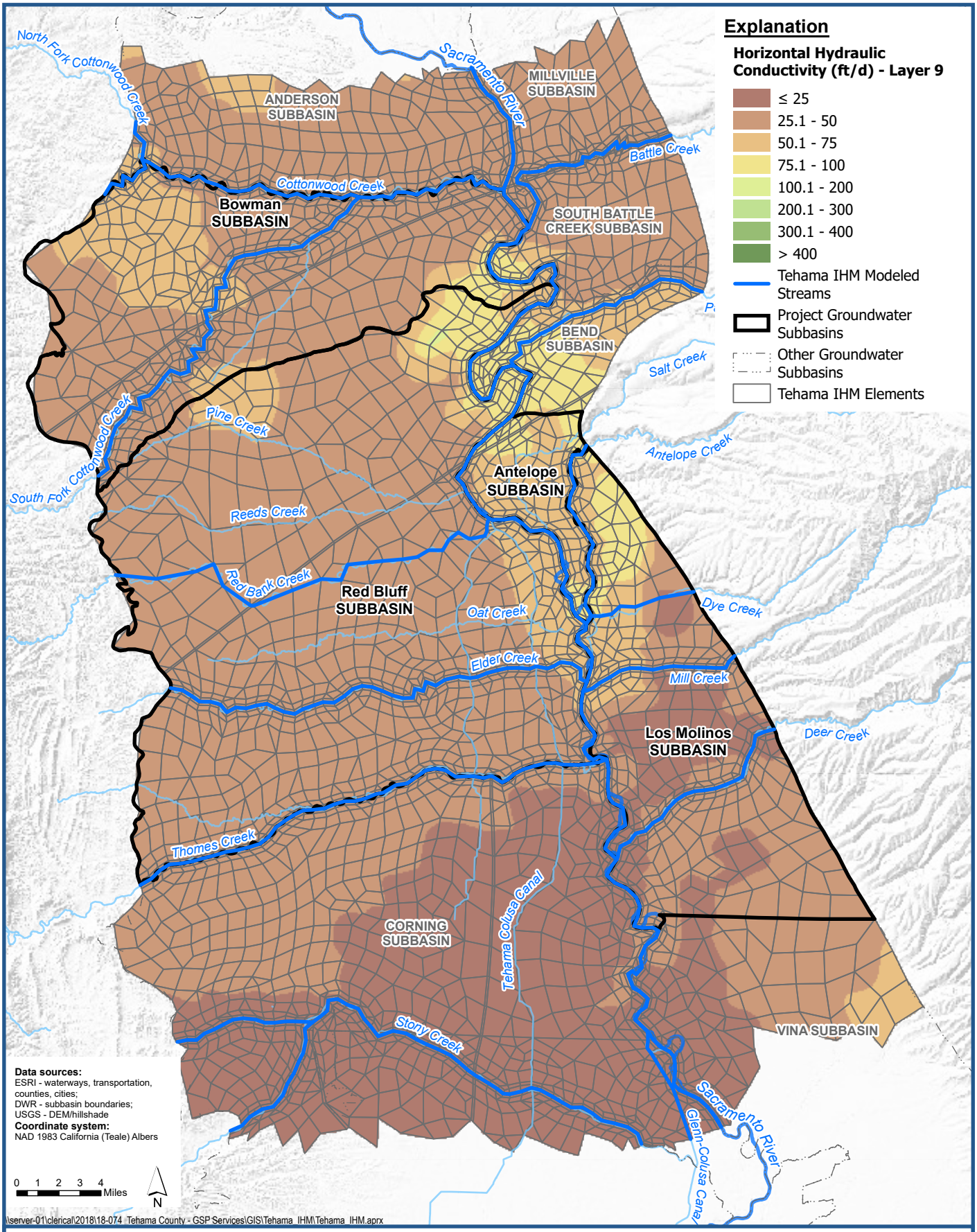
TEHAMA COUNTY

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Calibrated Horizontal Hydraulic Conductivity (Kh) in Tehama IHM - Layer 8

Groundwater Sustainability Planning
Tehama County, California

Figure 4-13



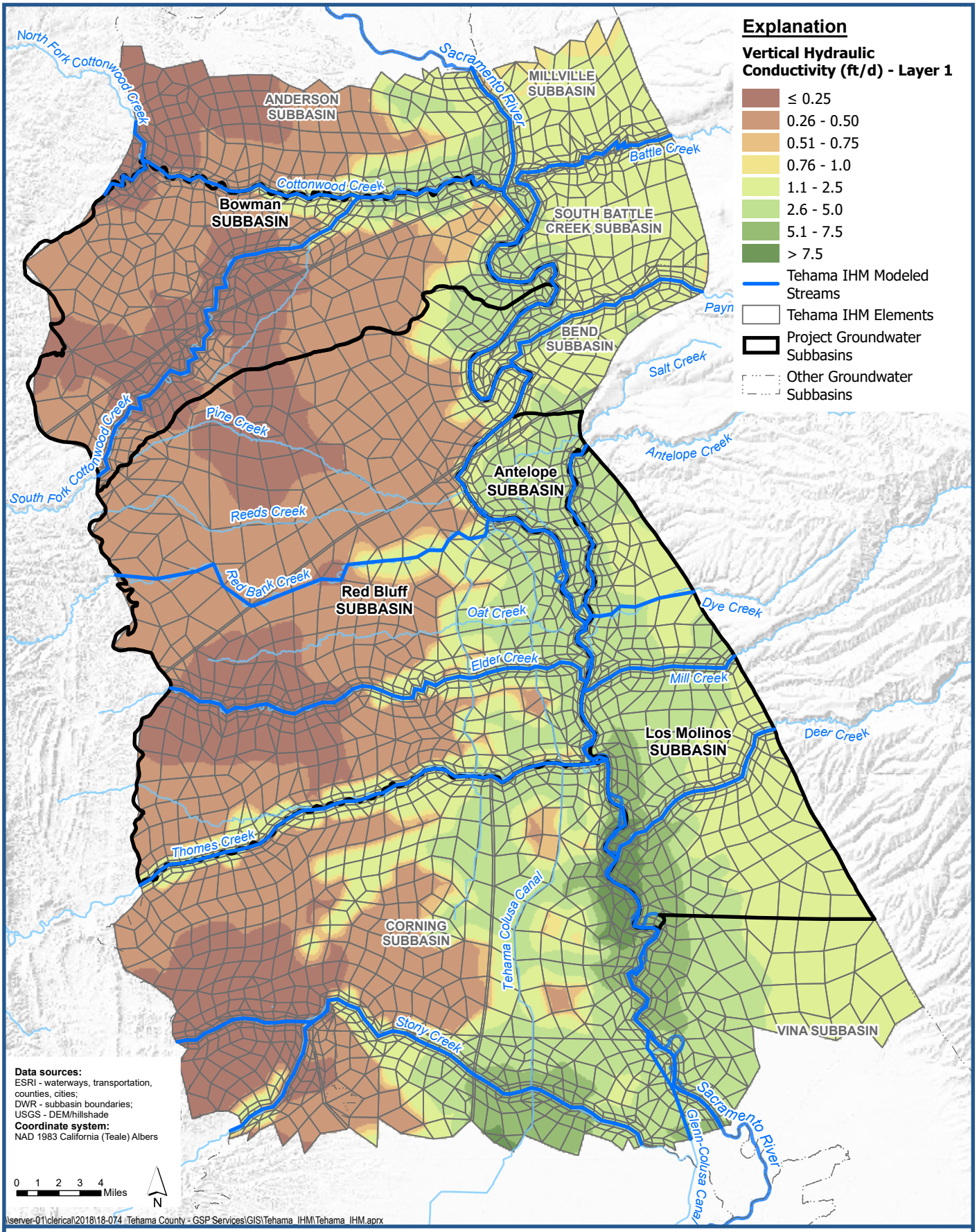
TEHAMA COUNTY

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Calibrated Horizontal Hydraulic Conductivity (Kh) in Tehama IHM - Layer 9

Groundwater Sustainability Planning
Tehama County, California

Figure 4-14



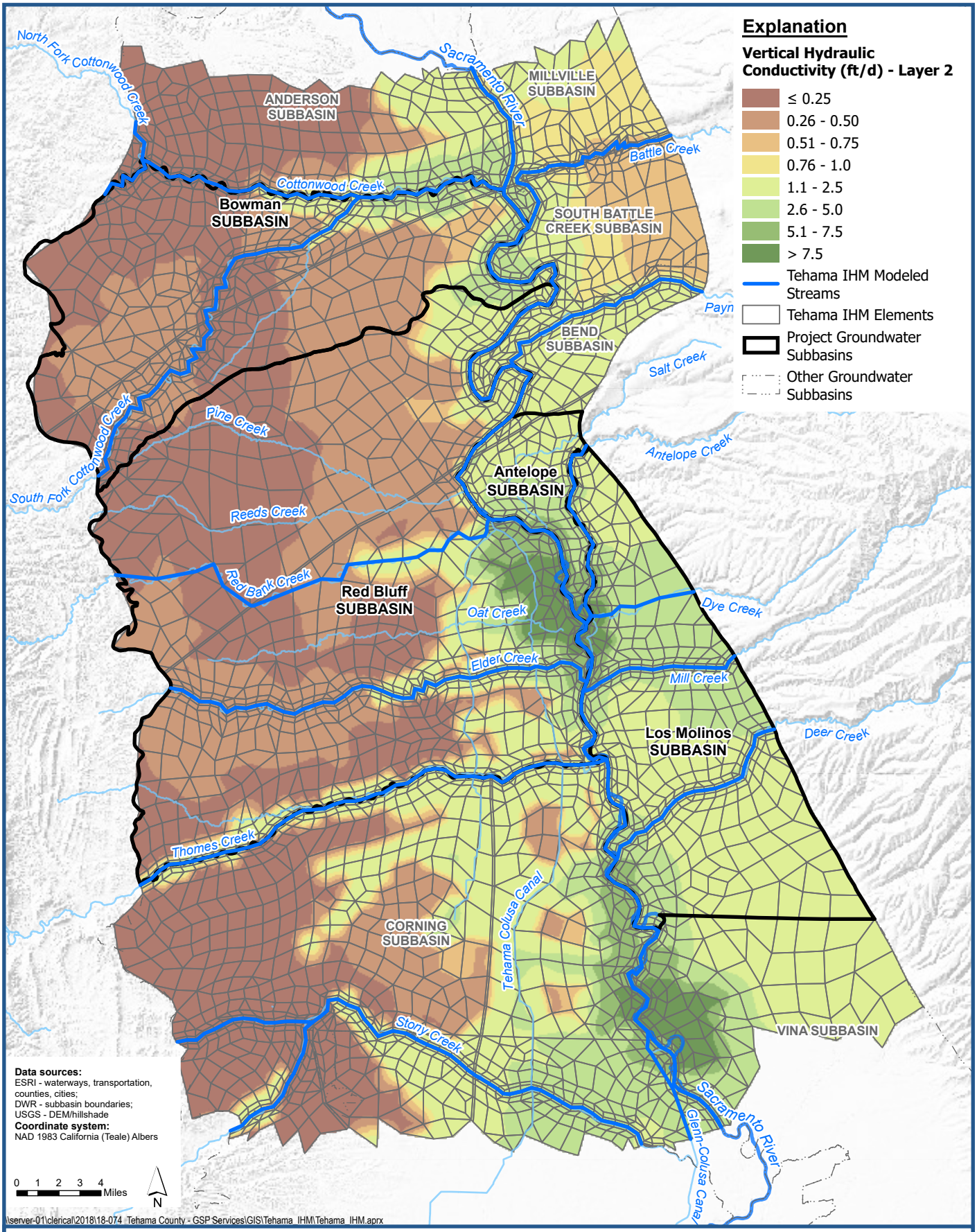
TEHAMA COUNTY

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Calibrated Vertical Hydraulic Conductivity (Kv) in Tehama IHM - Layer 1

Groundwater Sustainability Planning
Tehama County, California

Figure 4-15



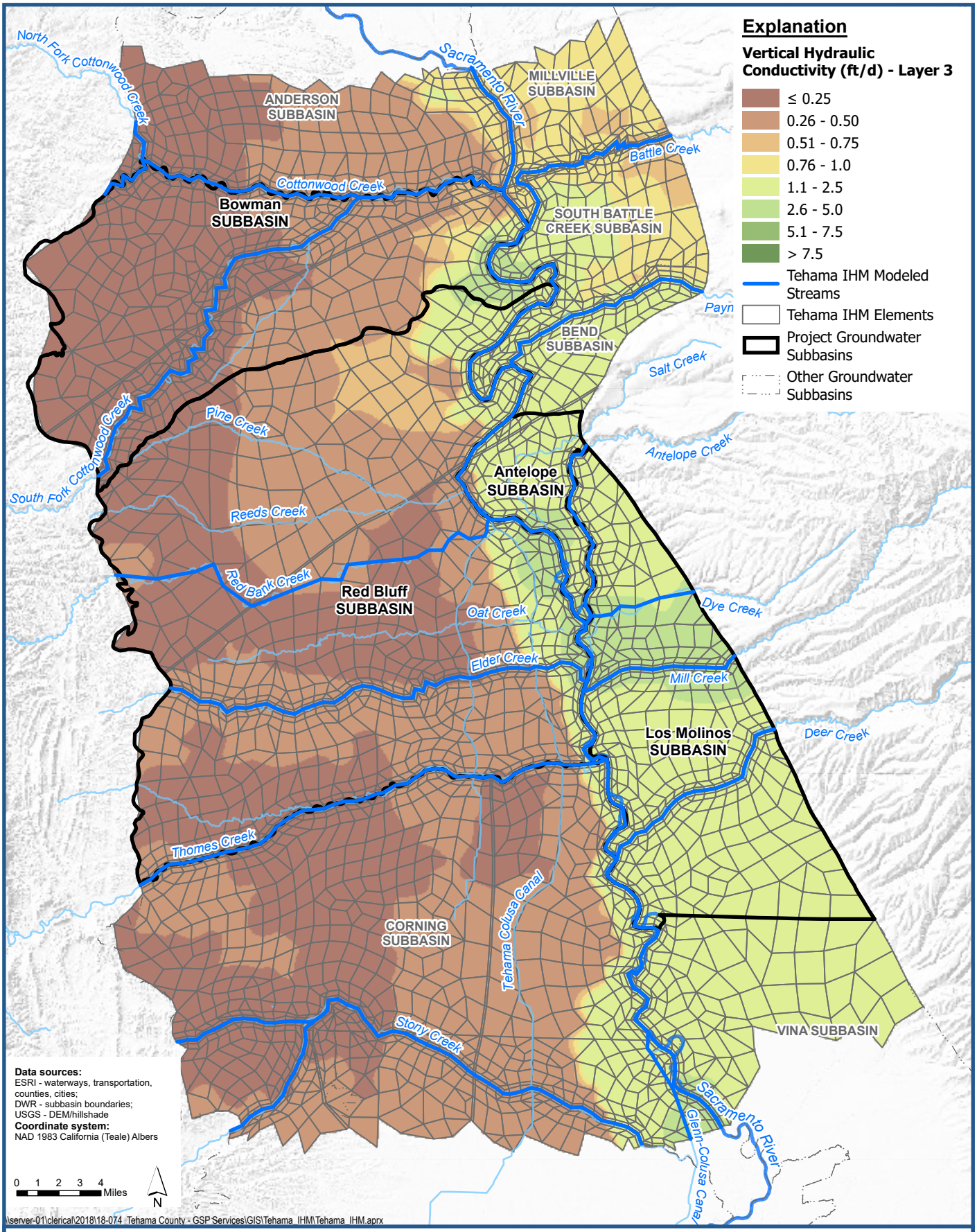
TEHAMA COUNTY

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Calibrated Vertical Hydraulic Conductivity (Kv) in Tehama IHM - Layer 2

Groundwater Sustainability Planning
Tehama County, California

Figure 4-16



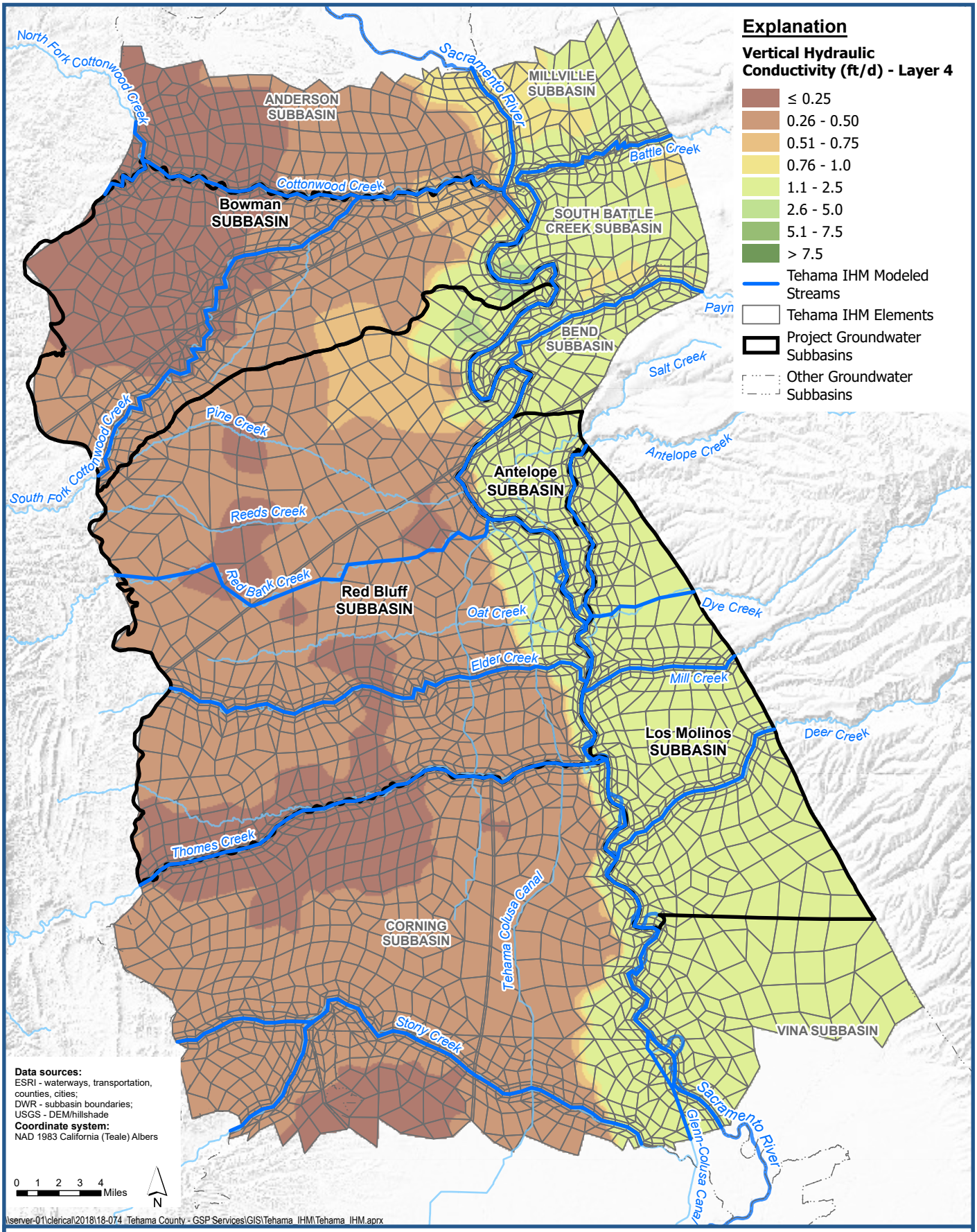
TEHAMA COUNTY

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Calibrated Vertical Hydraulic Conductivity (Kv) in Tehama IHM - Layer 3

Groundwater Sustainability Planning
Tehama County, California

Figure 4-17



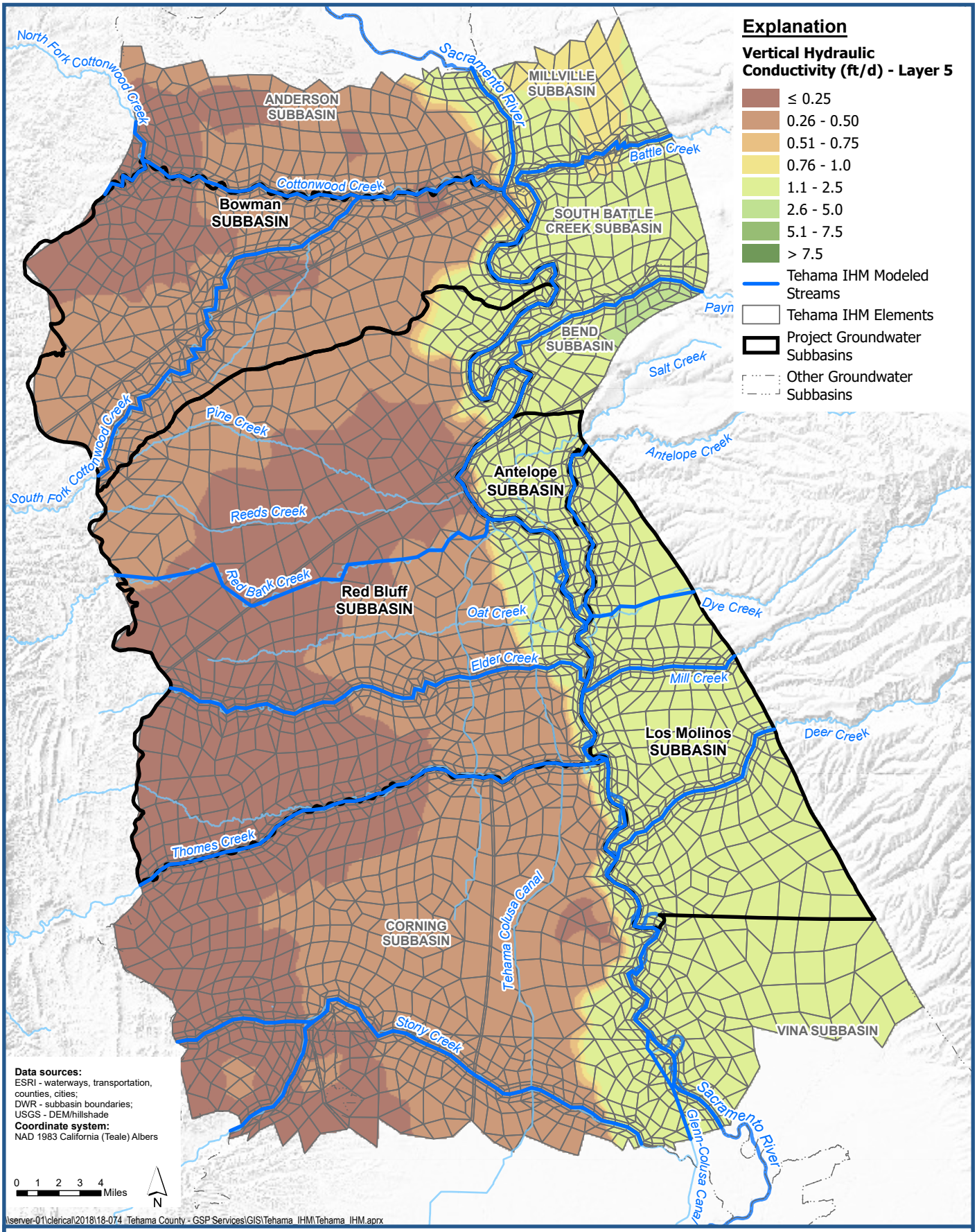
TEHAMA COUNTY

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Calibrated Vertical Hydraulic Conductivity (Kv) in Tehama IHM - Layer 4

Groundwater Sustainability Planning
Tehama County, California

Figure 4-18



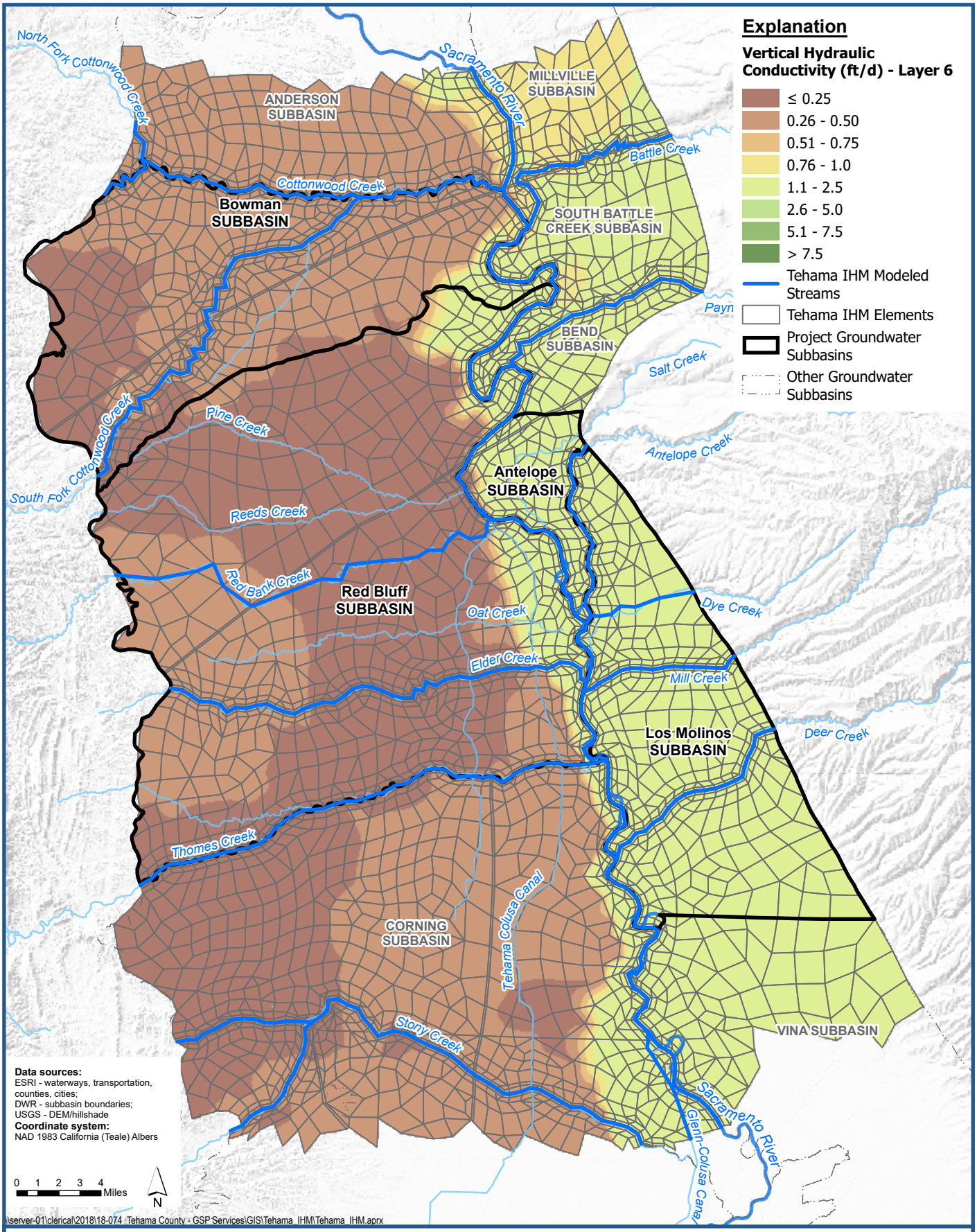
TEHAMA COUNTY

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Calibrated Vertical Hydraulic Conductivity (Kv) in Tehama IHM - Layer 5

Groundwater Sustainability Planning
Tehama County, California

Figure 4-19



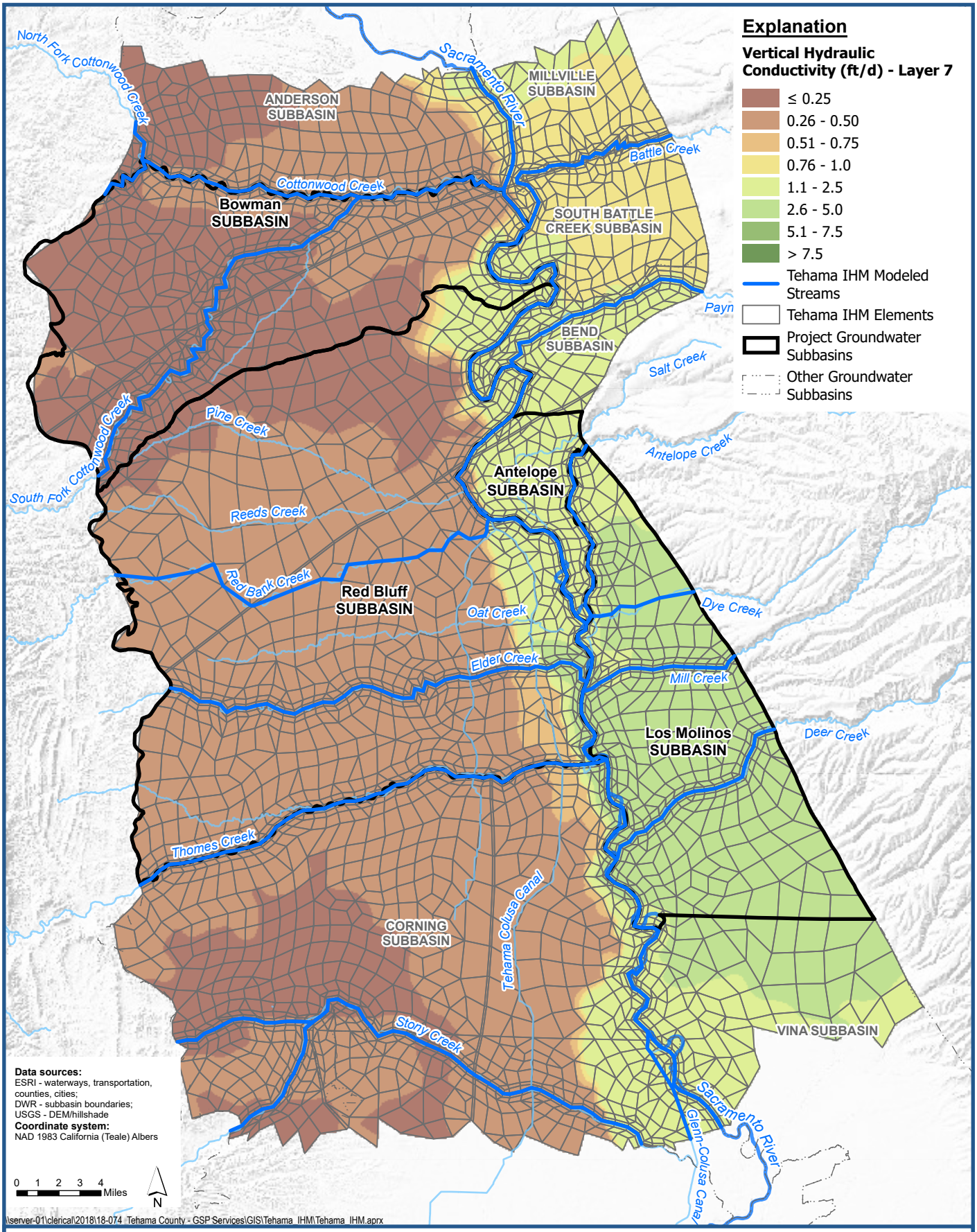
TEHAMA COUNTY

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Calibrated Vertical Hydraulic Conductivity (Kv) in Tehama IHM - Layer 6

Groundwater Sustainability Planning
Tehama County, California

Figure 4-20



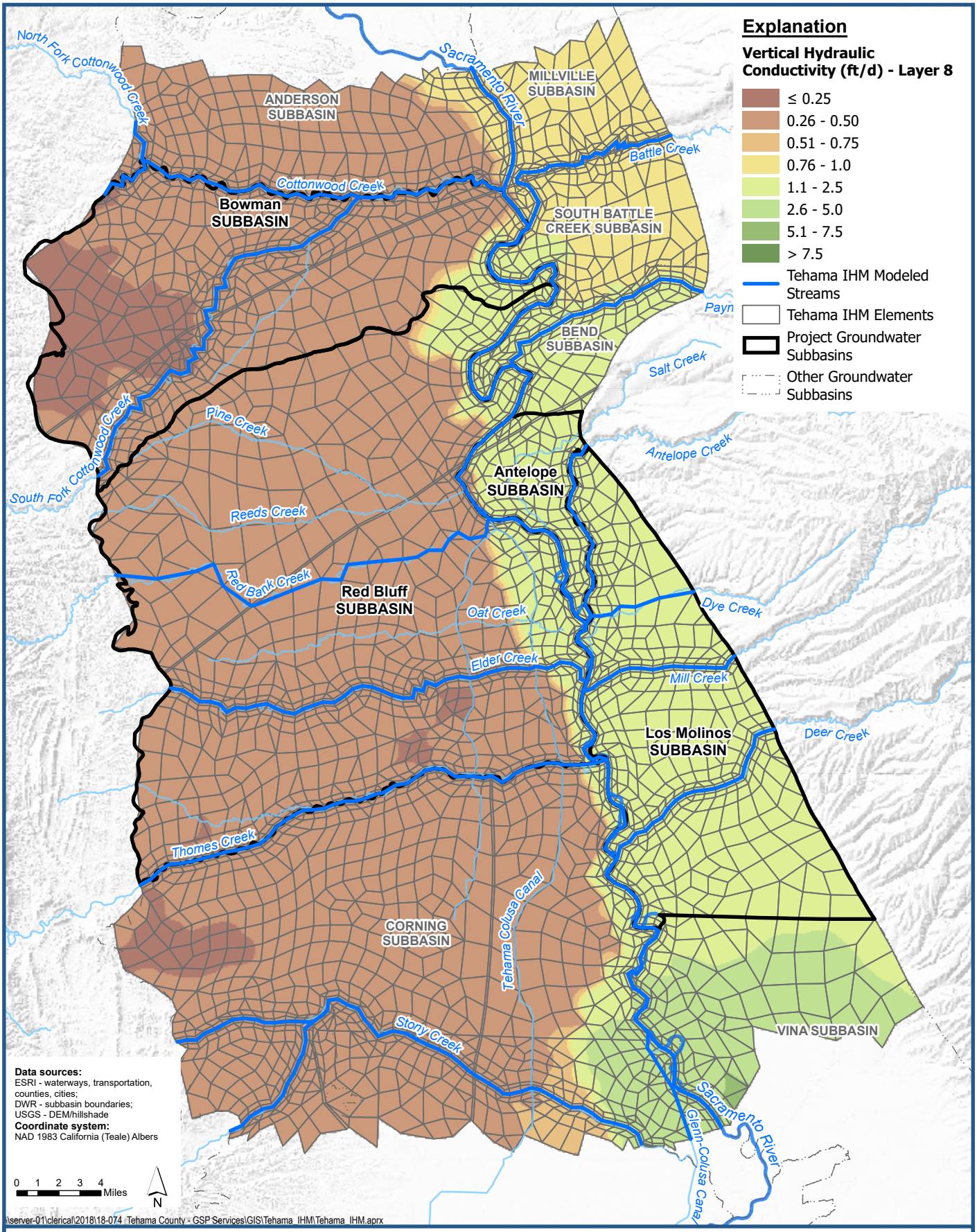
TEHAMA COUNTY

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Calibrated Vertical Hydraulic Conductivity (Kv) in Tehama IHM - Layer 7

Groundwater Sustainability Planning
Tehama County, California

Figure 4-21



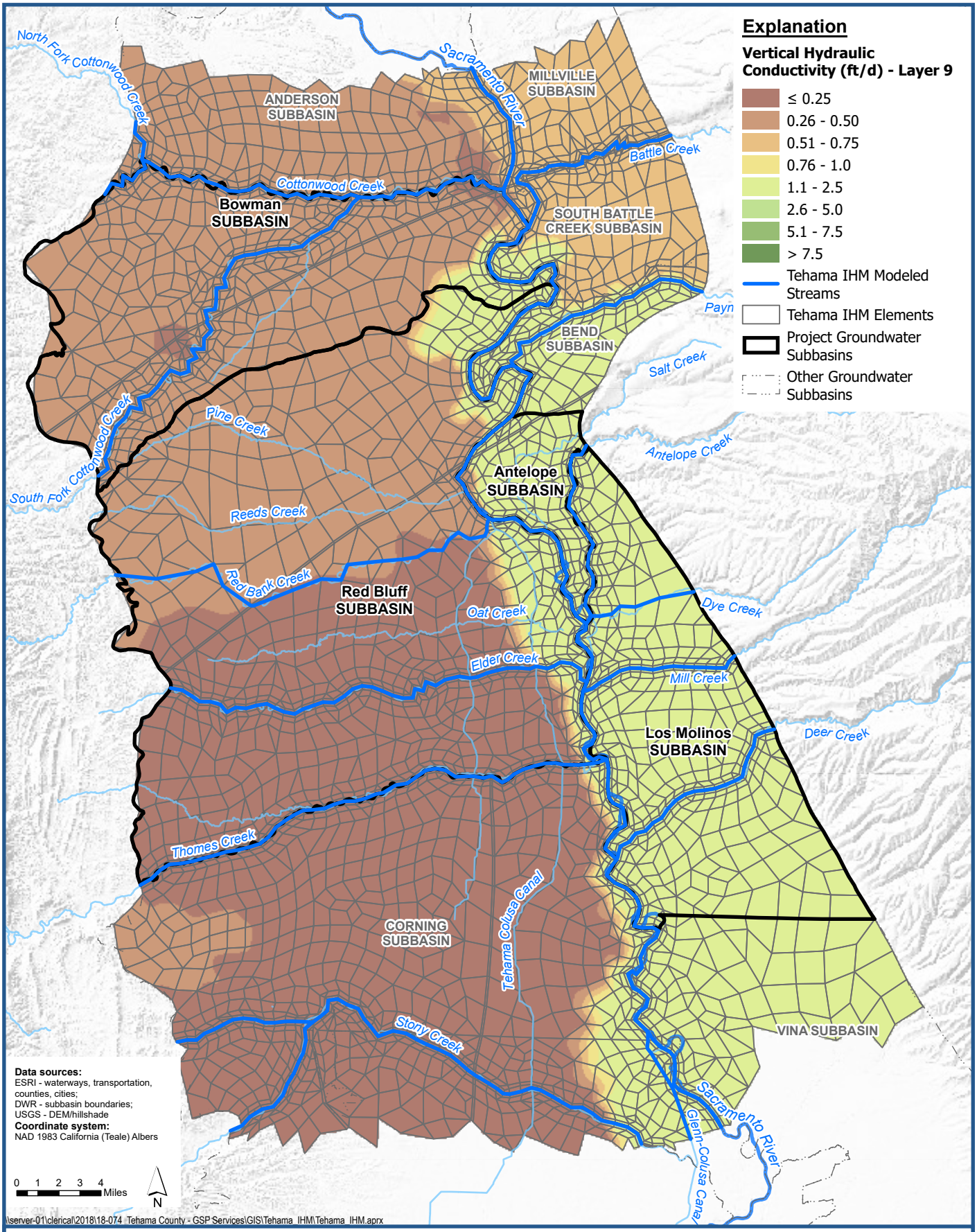
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Calibrated Vertical Hydraulic Conductivity (Kv) in Tehama IHM - Layer 8

Groundwater Sustainability Planning
Tehama County, California

Figure 4-22



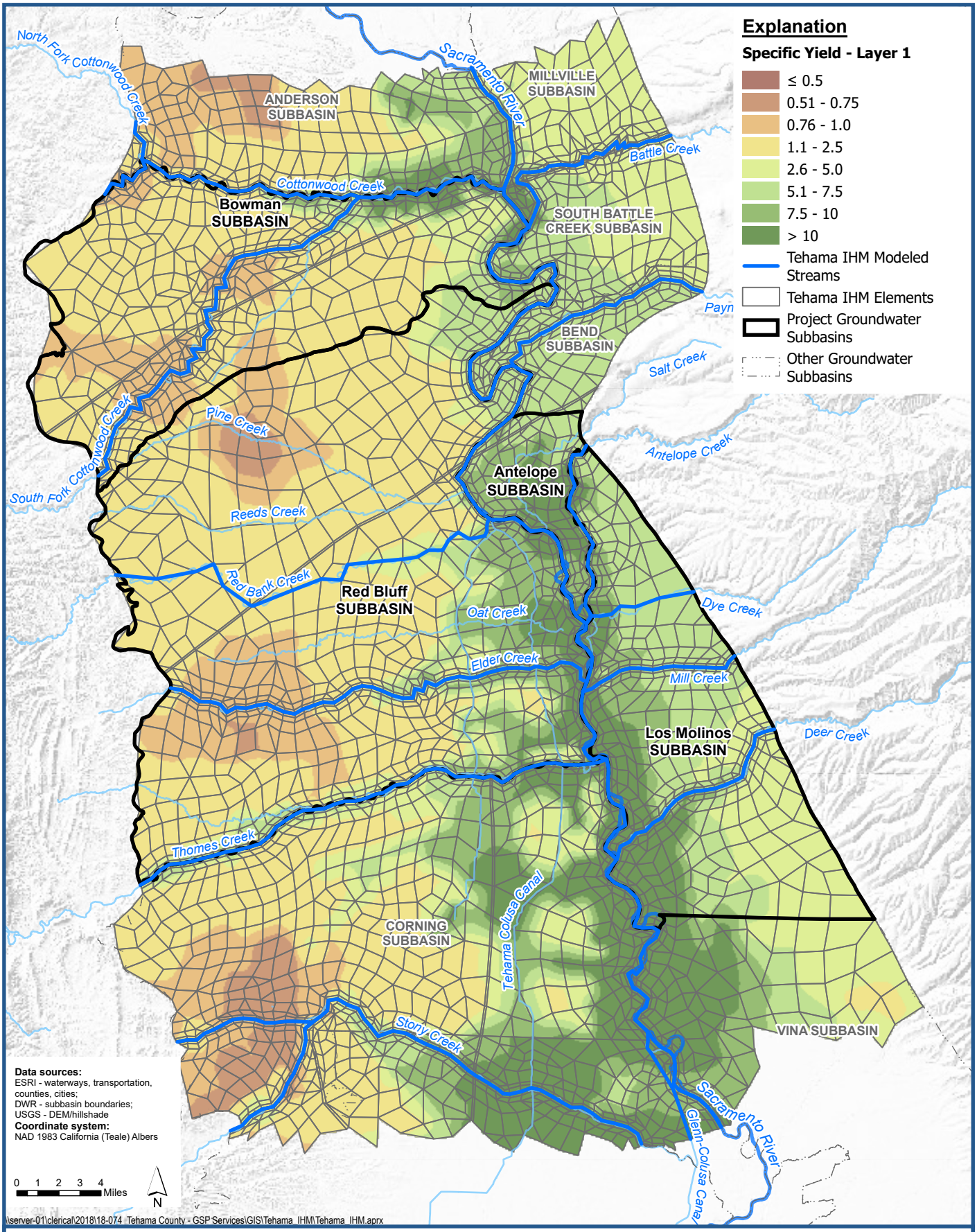
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Calibrated Vertical Hydraulic Conductivity (Kv) in Tehama IHM - Layer 9

Groundwater Sustainability Planning
Tehama County, California

Figure 4-23



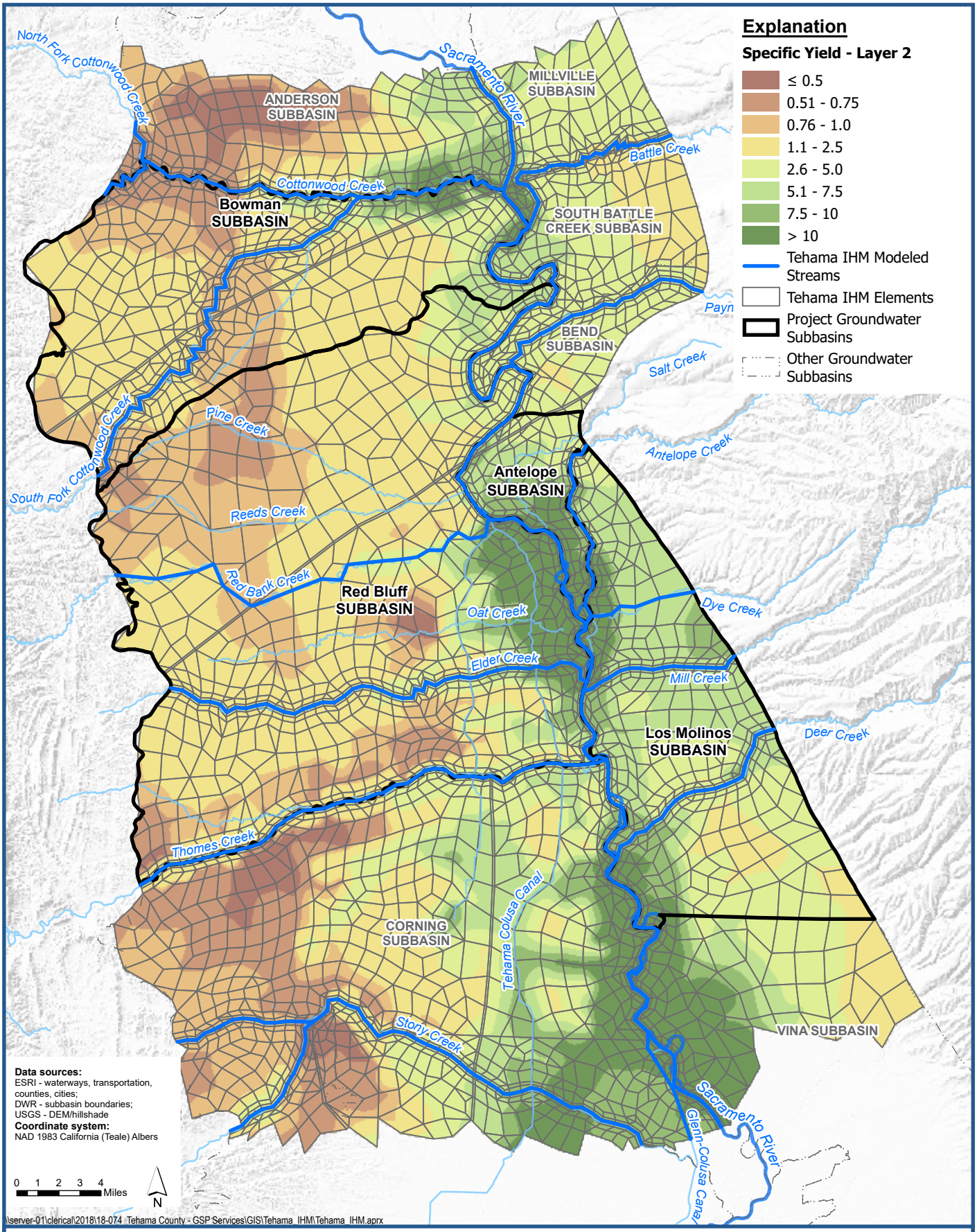
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Calibrated Specific Yield (Sy) in Tehama IHM - Layer 1

Groundwater Sustainability Planning
Tehama County, California

Figure 4-24



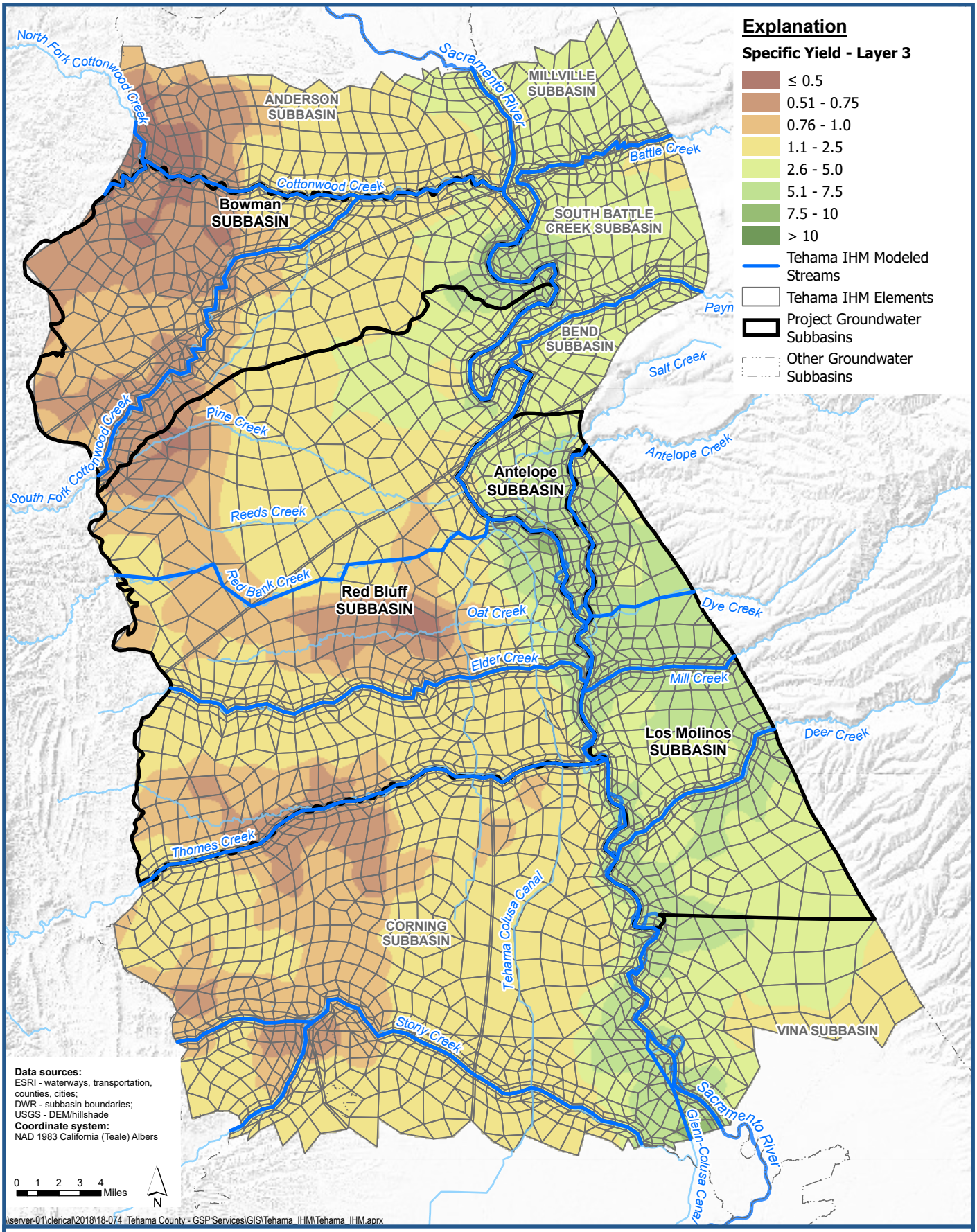
TEHAMA COUNTY

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Calibrated Specific Yield (Sy) in Tehama IHM - Layer 2

Groundwater Sustainability Planning
Tehama County, California

Figure 4-25



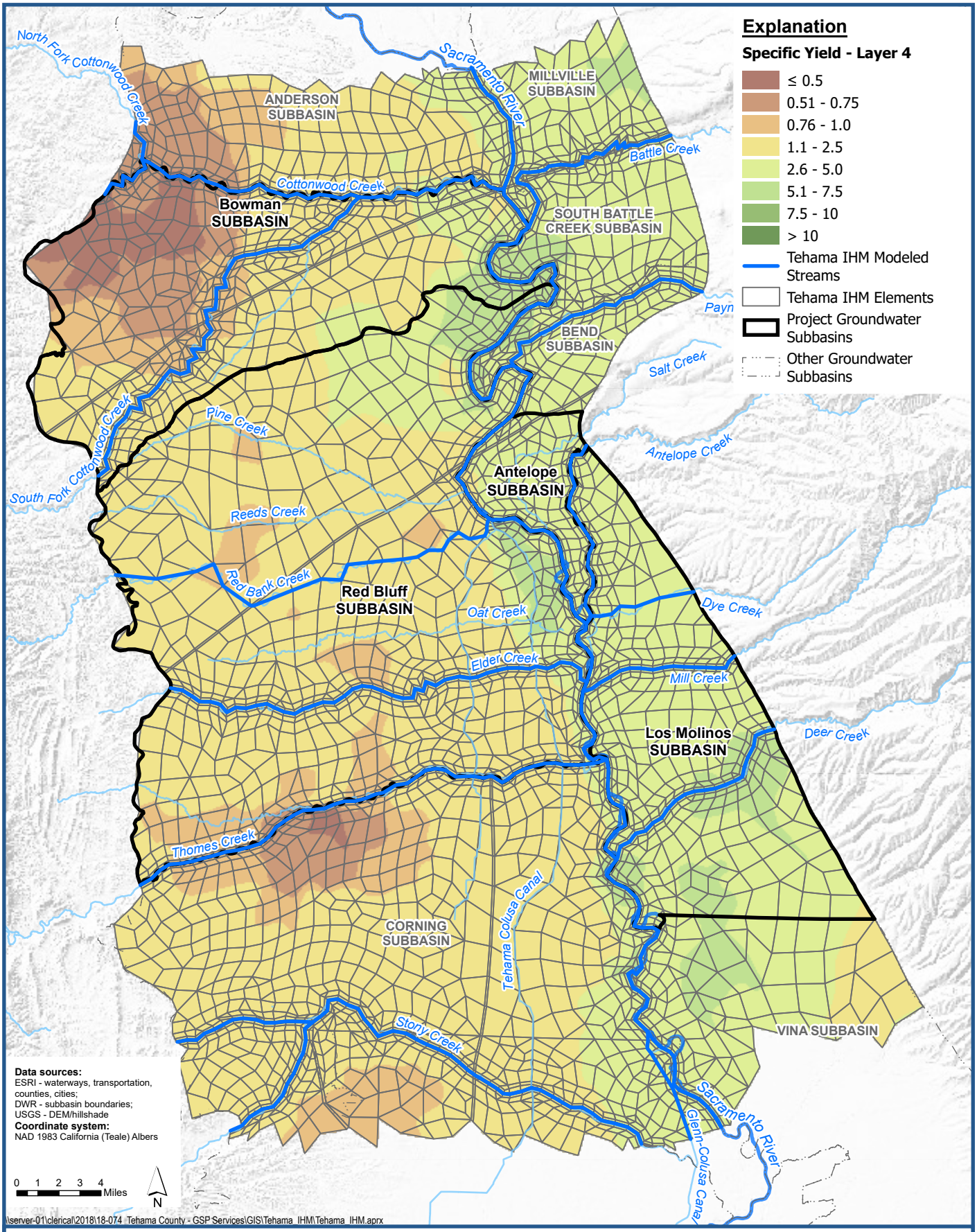
TEHAMA COUNTY

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Calibrated Specific Yield (Sy) in Tehama IHM - Layer 3

Groundwater Sustainability Planning
Tehama County, California

Figure 4-26



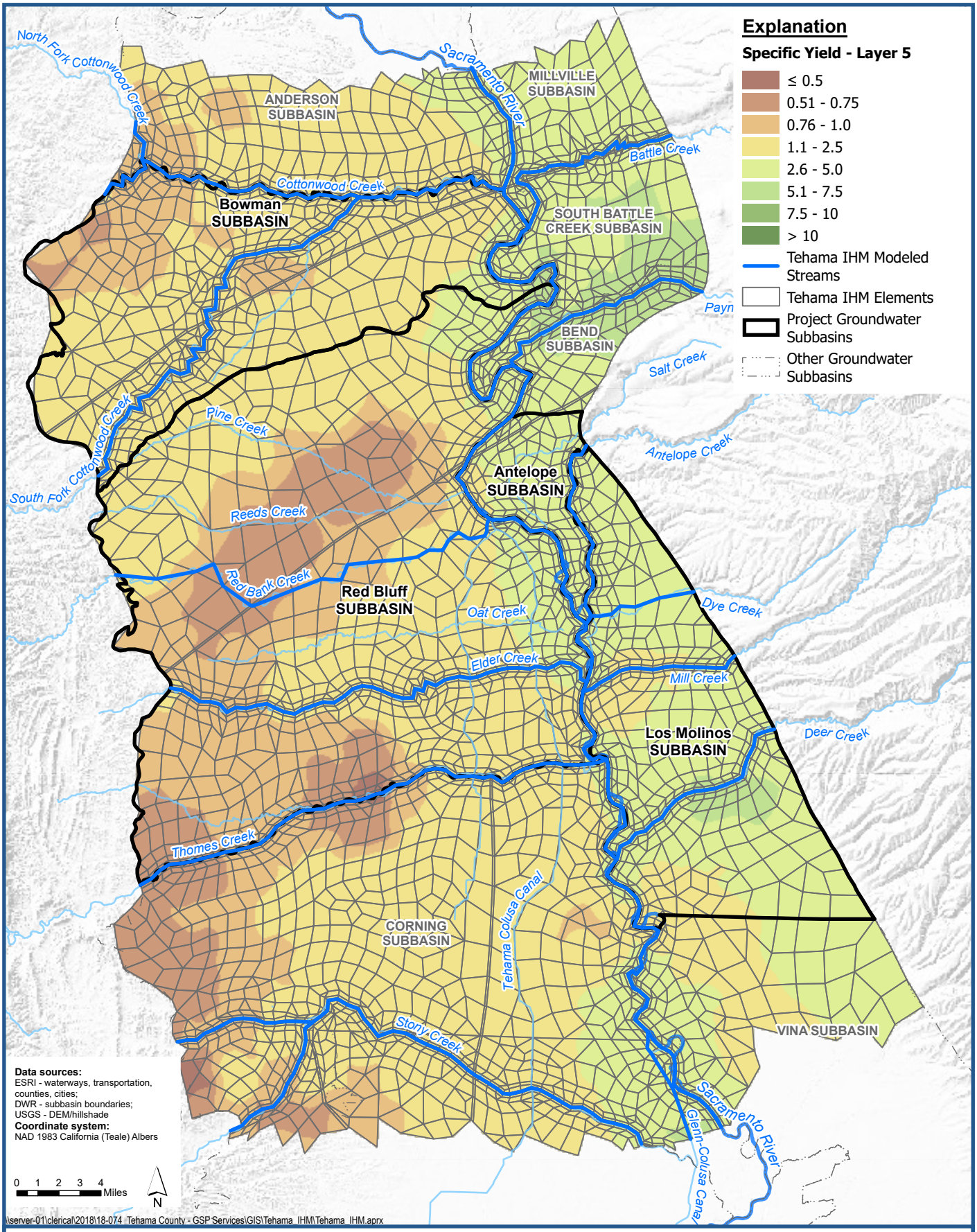
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Calibrated Specific Yield (Sy) in Tehama IHM - Layer 4

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Tehama County, California

Figure 4-27



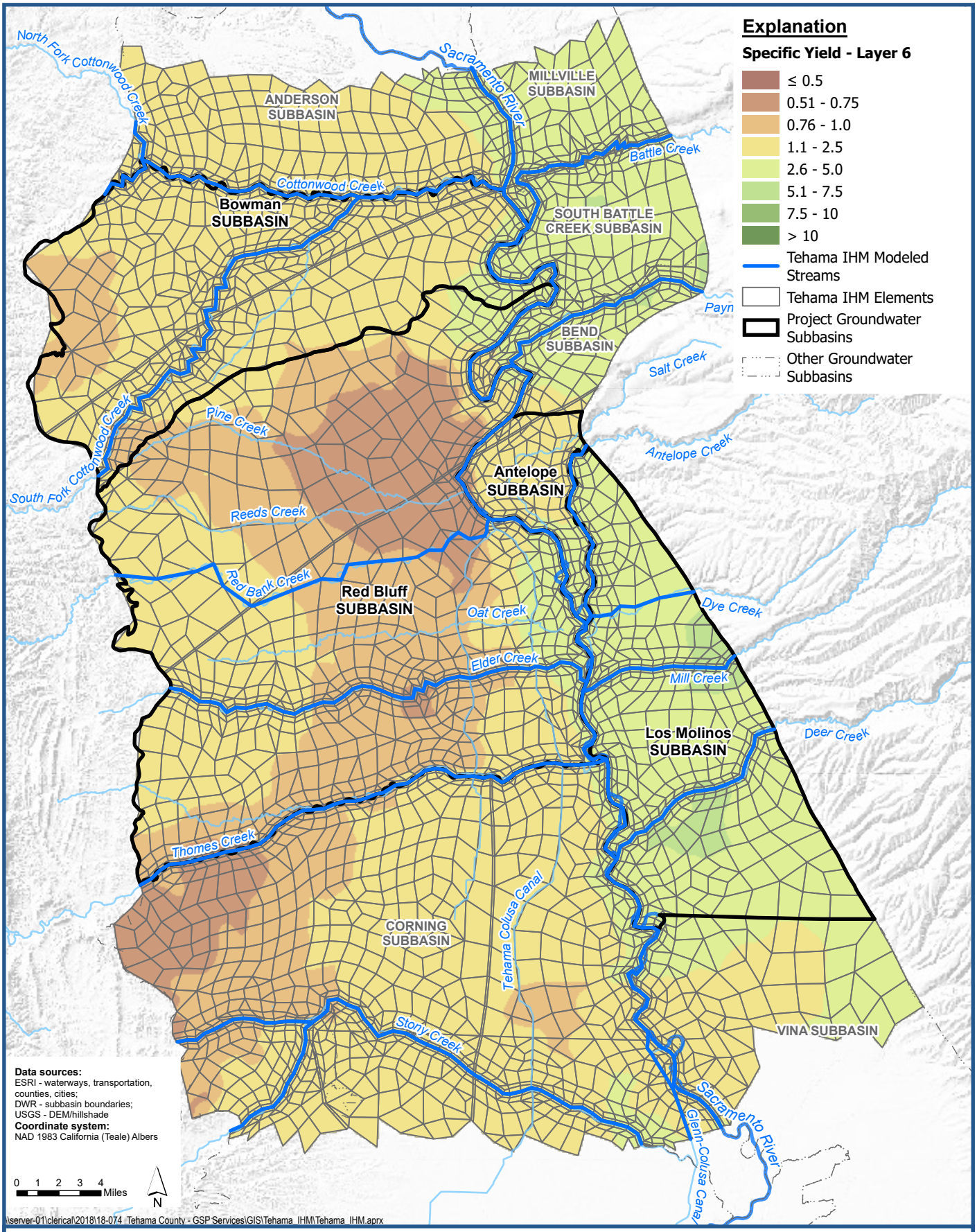
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Calibrated Specific Yield (Sy) in Tehama IHM - Layer 5

Groundwater Sustainability Planning
Tehama County, California

Figure 4-28



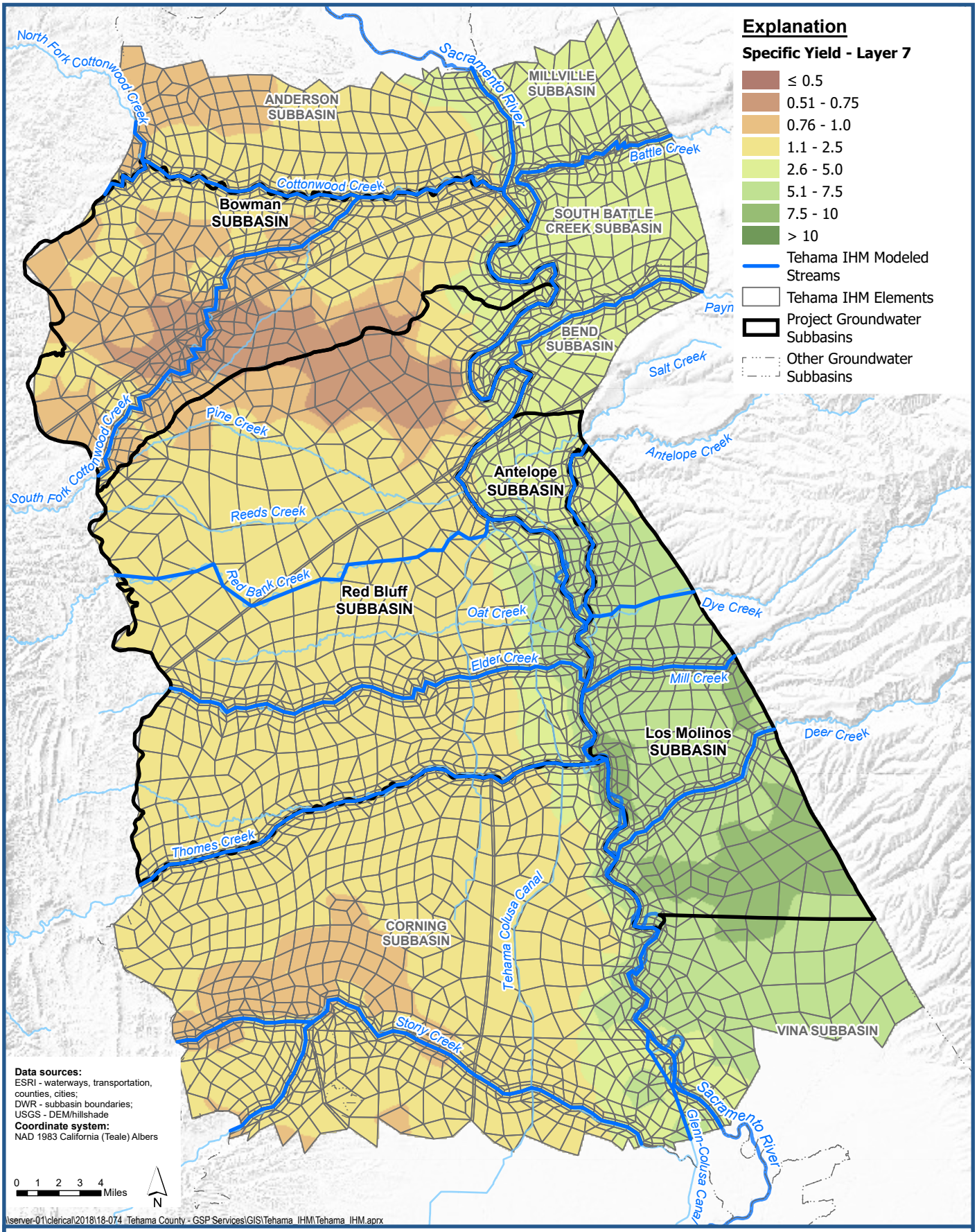
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Calibrated Specific Yield (Sy) in Tehama IHM - Layer 6

Groundwater Sustainability Planning
Tehama County, California

Figure 4-29



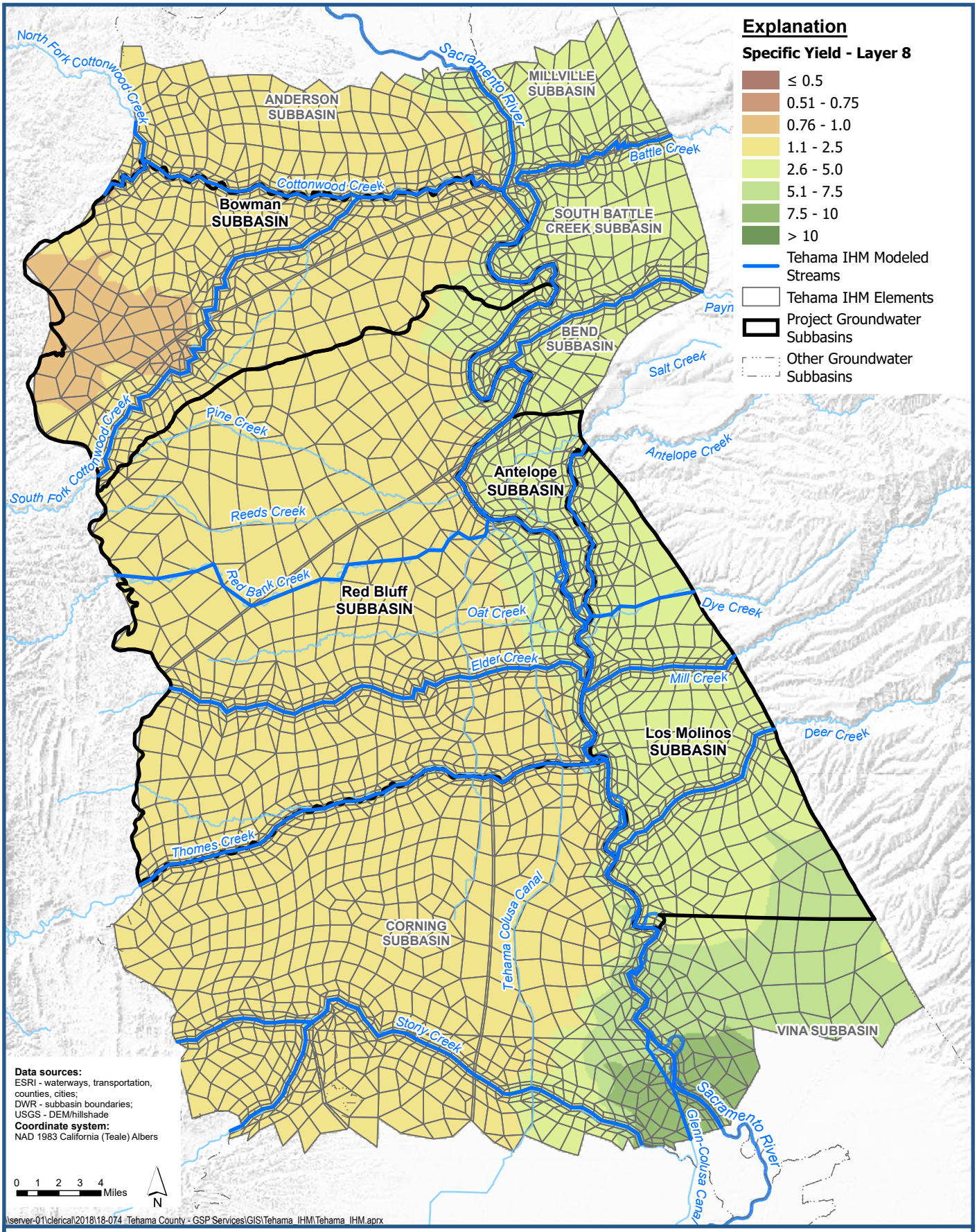
TEHAMA COUNTY

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Calibrated Specific Yield (Sy) in Tehama IHM - Layer 7

Groundwater Sustainability Planning
Tehama County, California

Figure 4-30



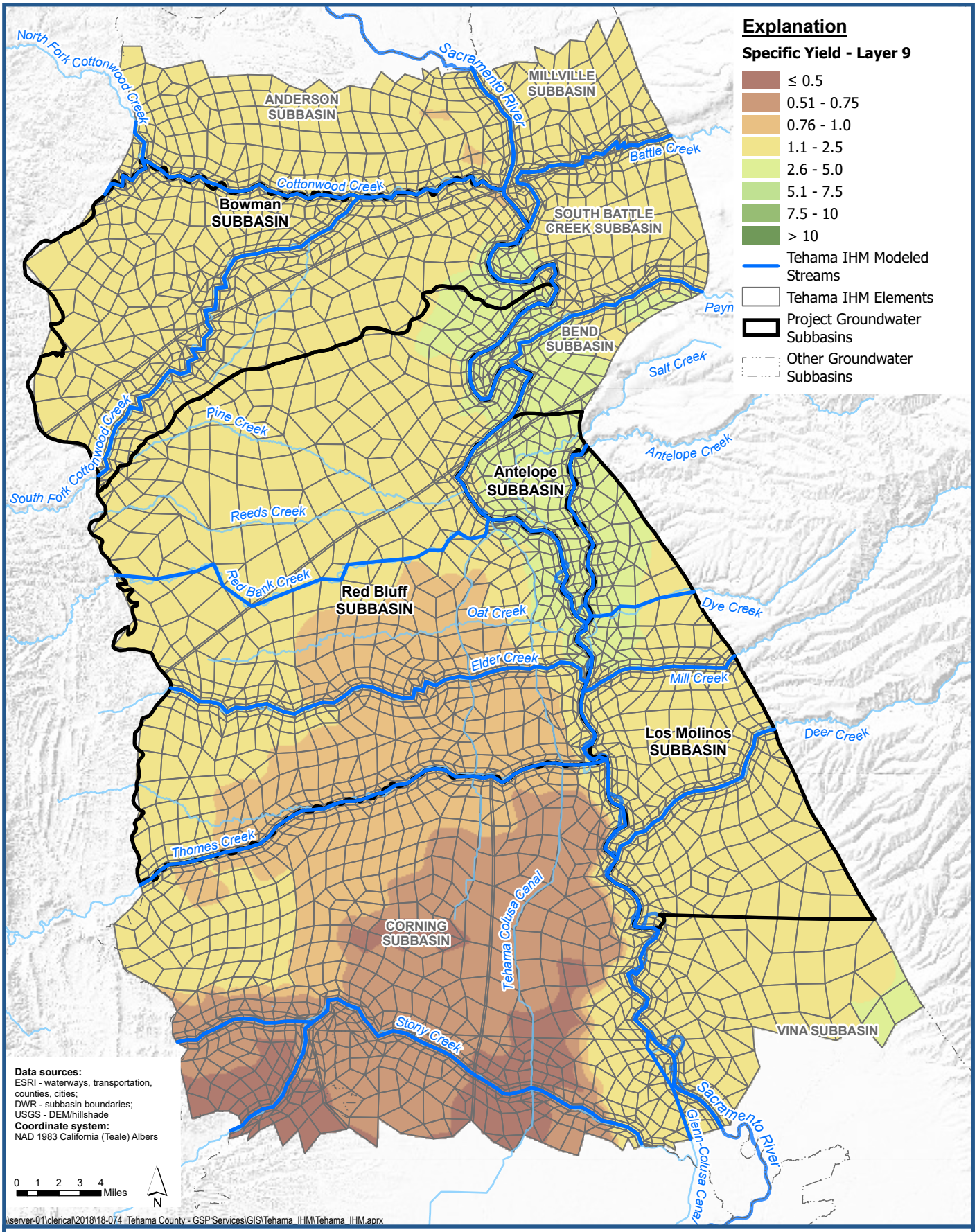
TEHAMA COUNTY

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Calibrated Specific Yield (Sy) in Tehama IHM - Layer 8

Groundwater Sustainability Planning
Tehama County, California

Figure 4-31



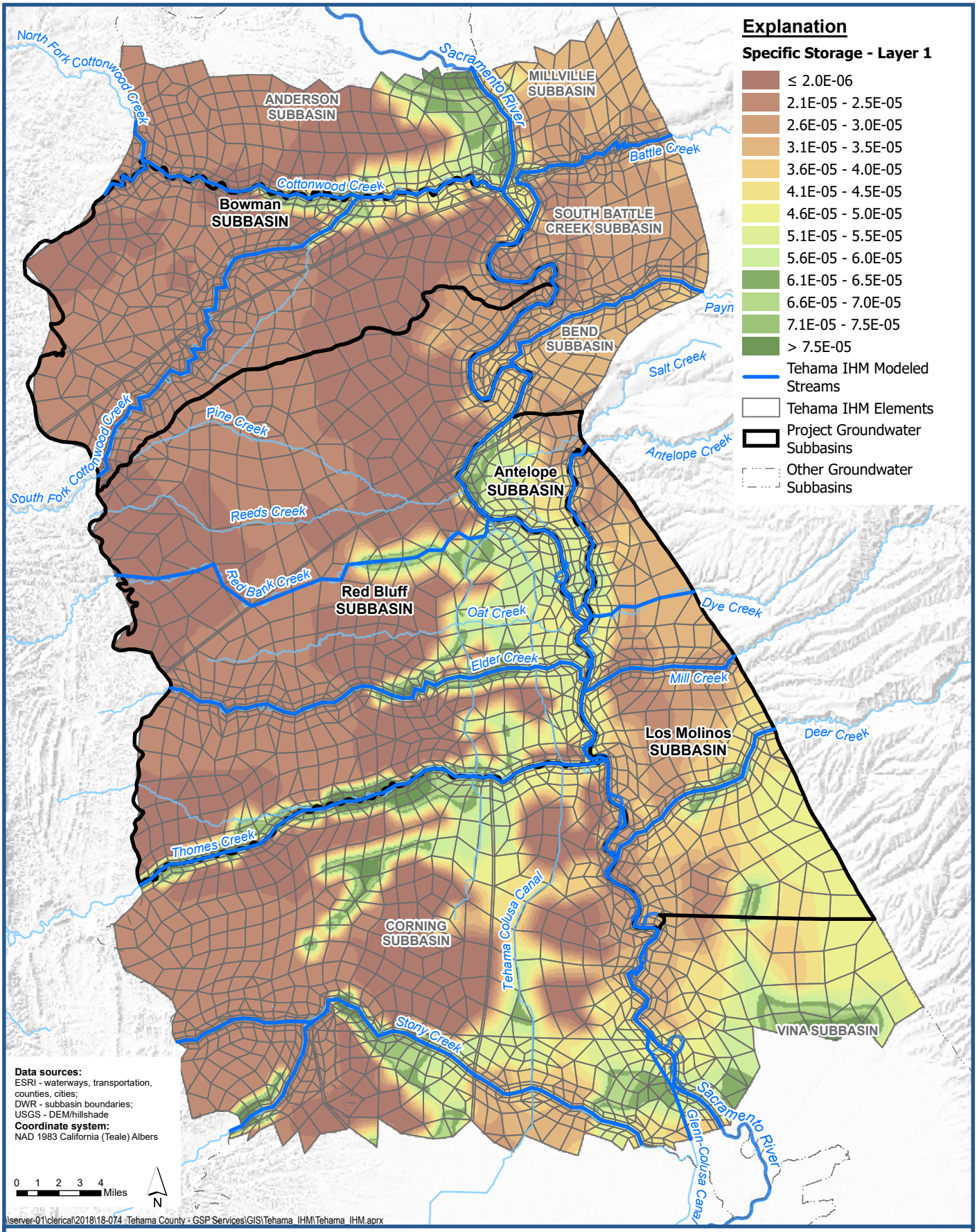
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Calibrated Specific Yield (Sy) in Tehama IHM - Layer 9

Groundwater Sustainability Planning
Tehama County, California

Figure 4-32



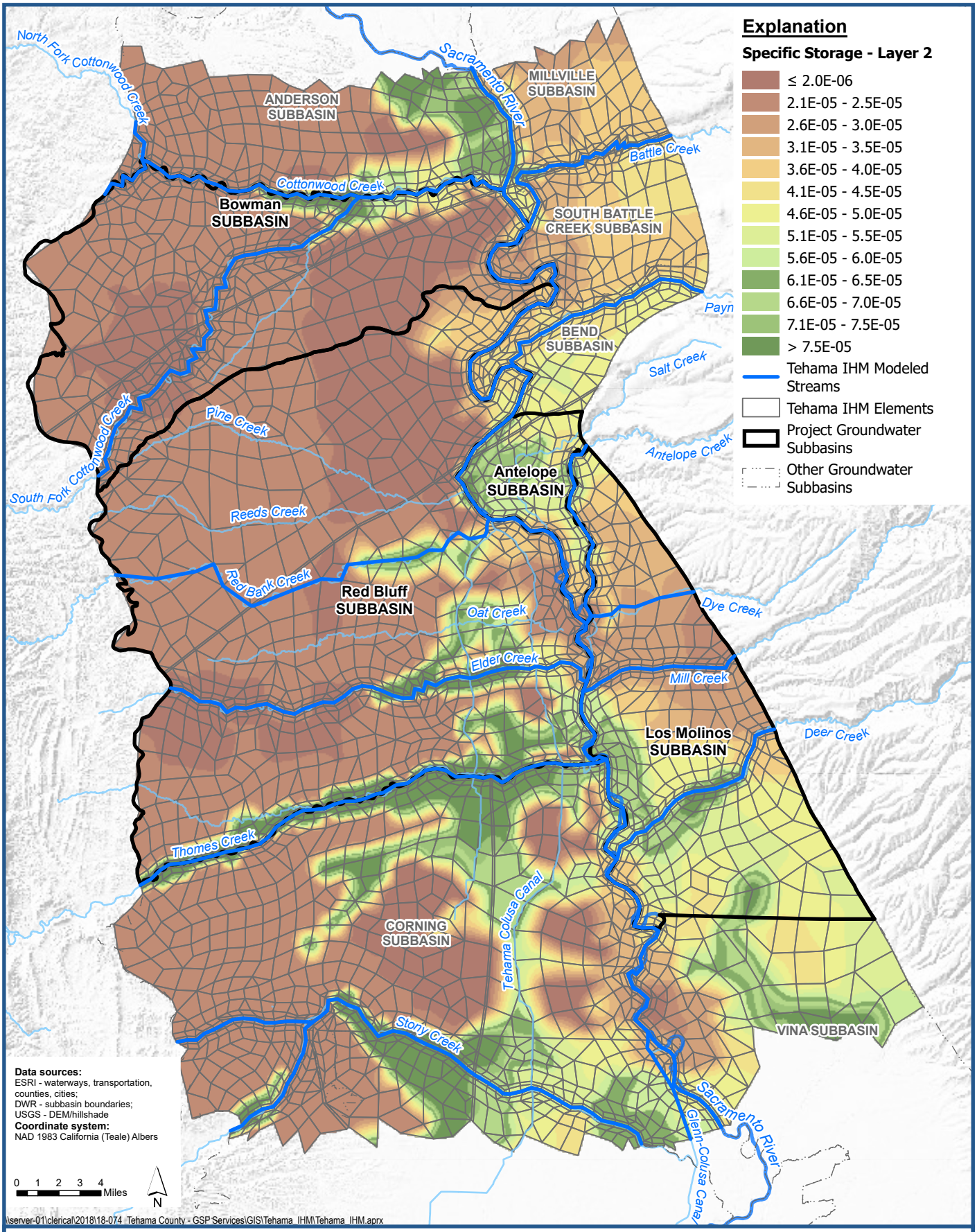
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Calibrated Specific Storage (SS) in Tehama IHM - Layer 1

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Tehama County, California

Figure 4-33



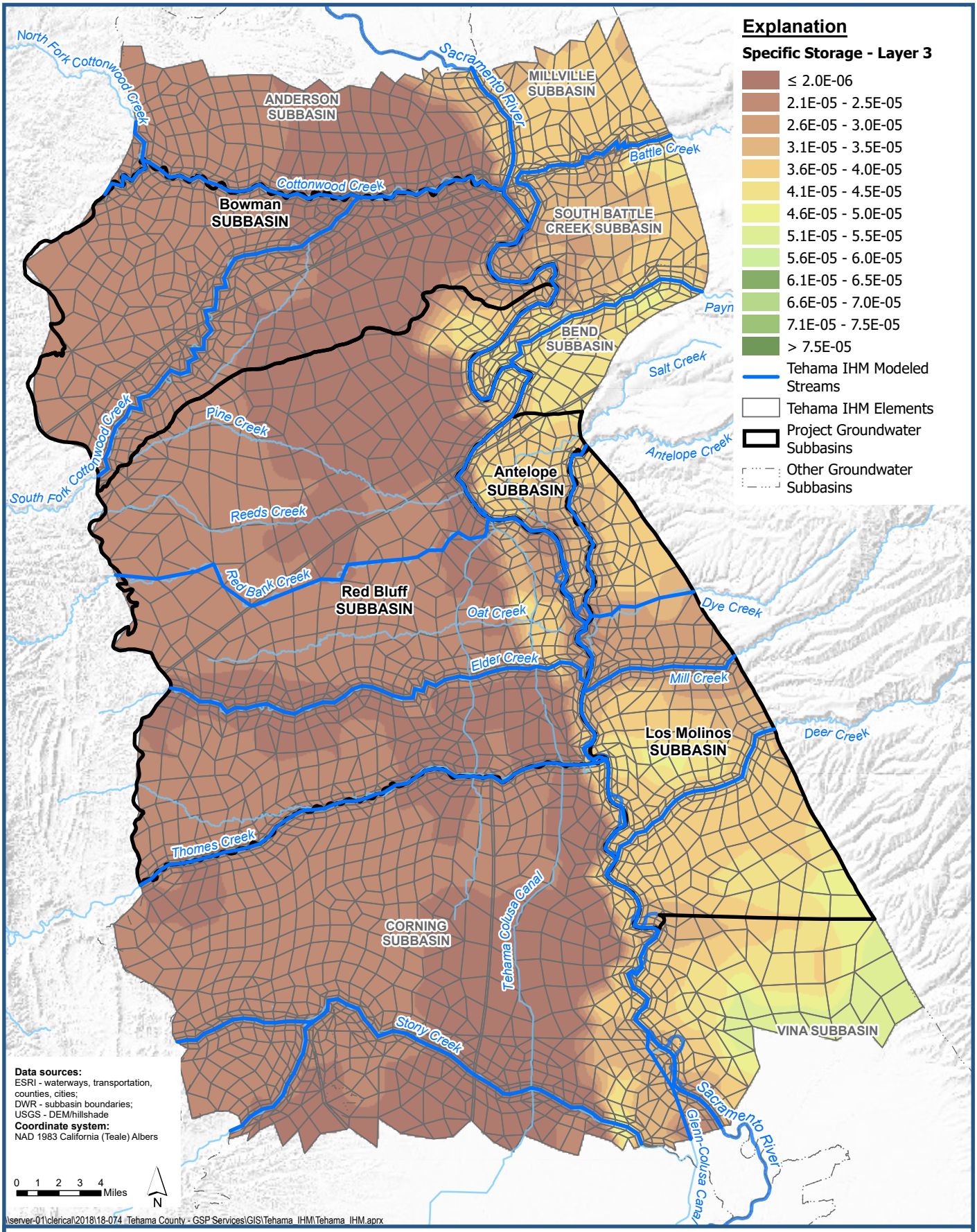
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Calibrated Specific Storage (SS) in Tehama IHM - Layer 2

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Tehama County, California

Figure 4-34



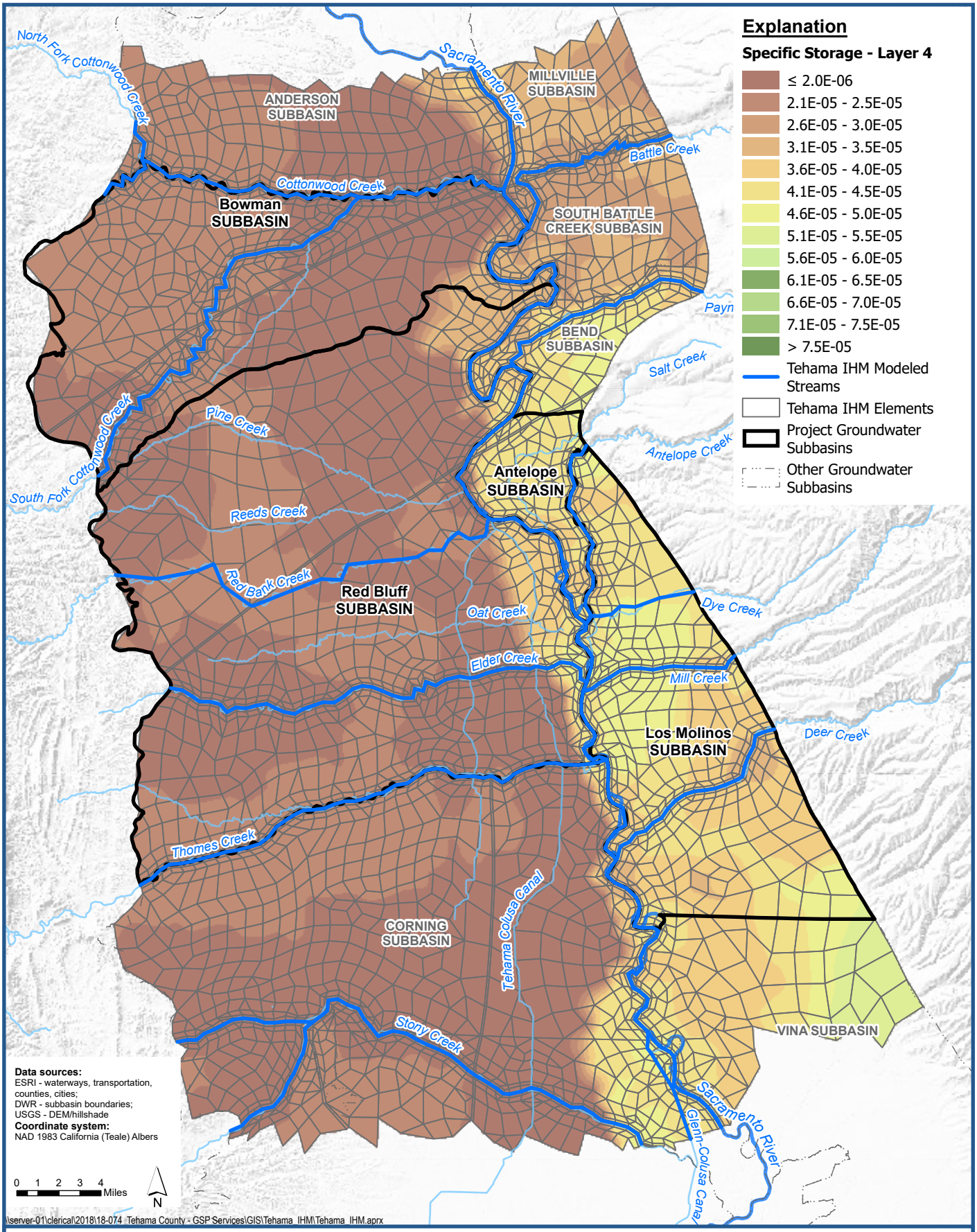
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Calibrated Specific Storage (SS) in Tehama IHM - Layer 3

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Tehama County, California

Figure 4-35



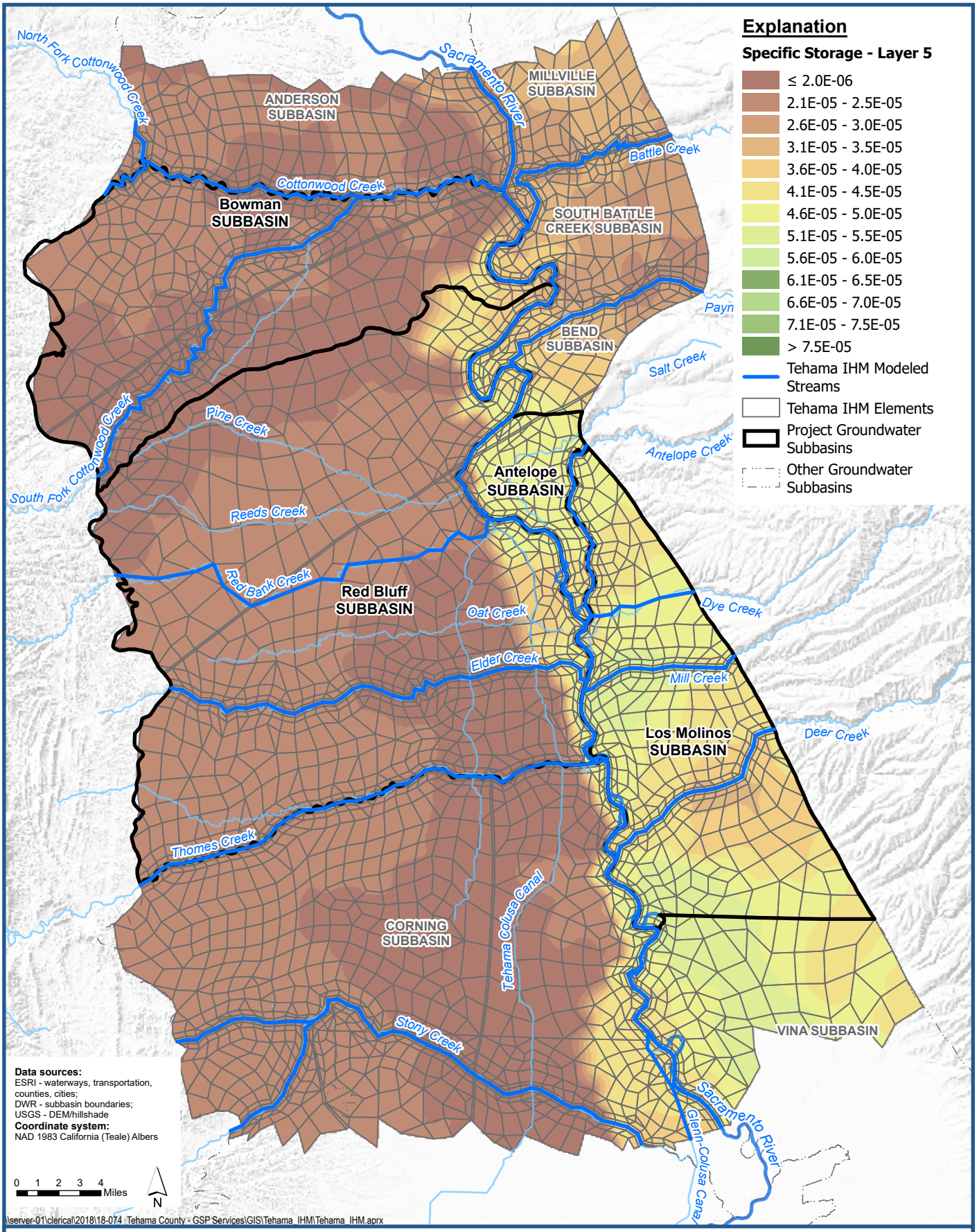
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Calibrated Specific Storage (SS) in Tehama IHM - Layer 4

Groundwater Sustainability Planning
Tehama County, California

Figure 4-36



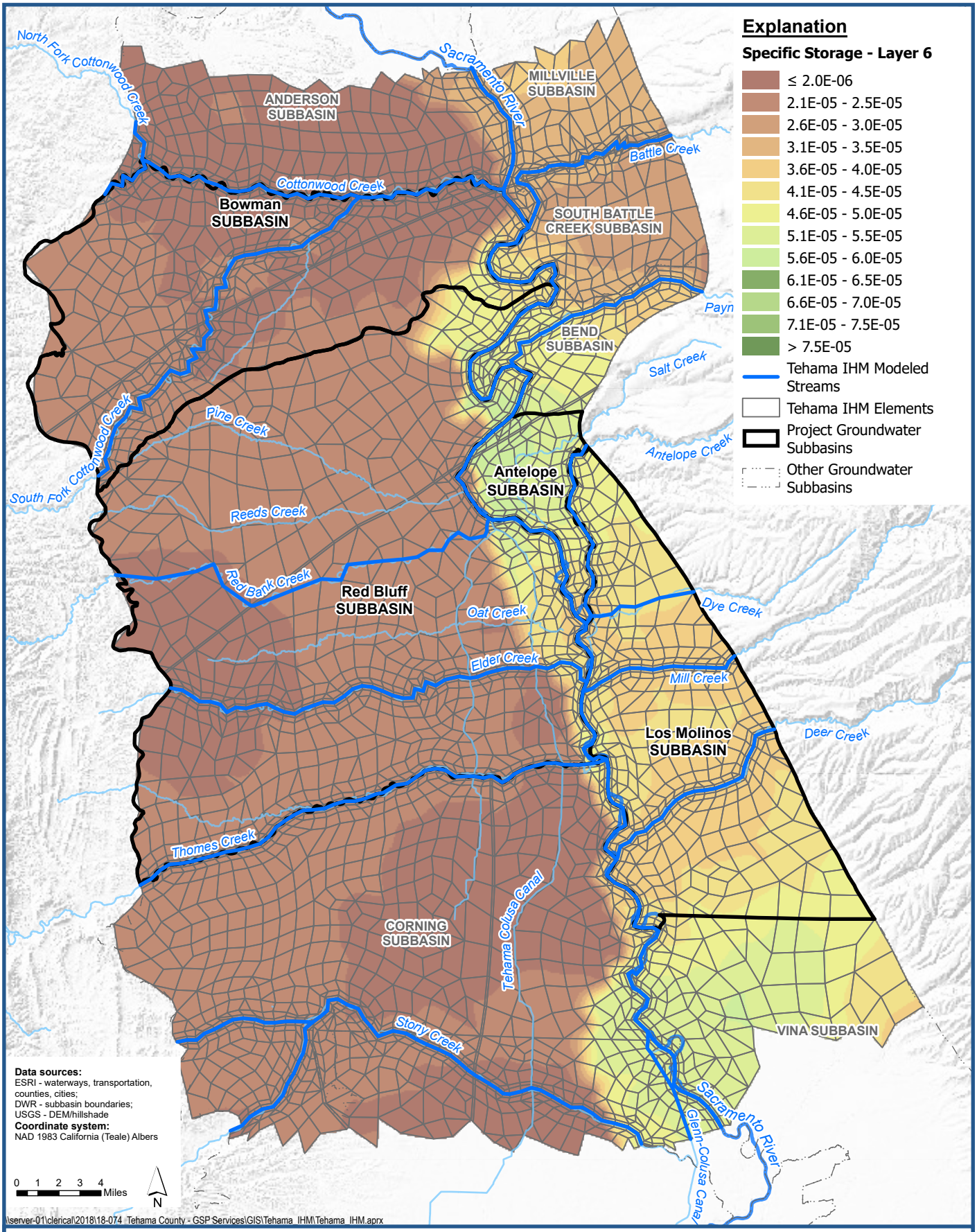
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Calibrated Specific Storage (SS) in Tehama IHM - Layer 5

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Tehama County, California

Figure 4-37



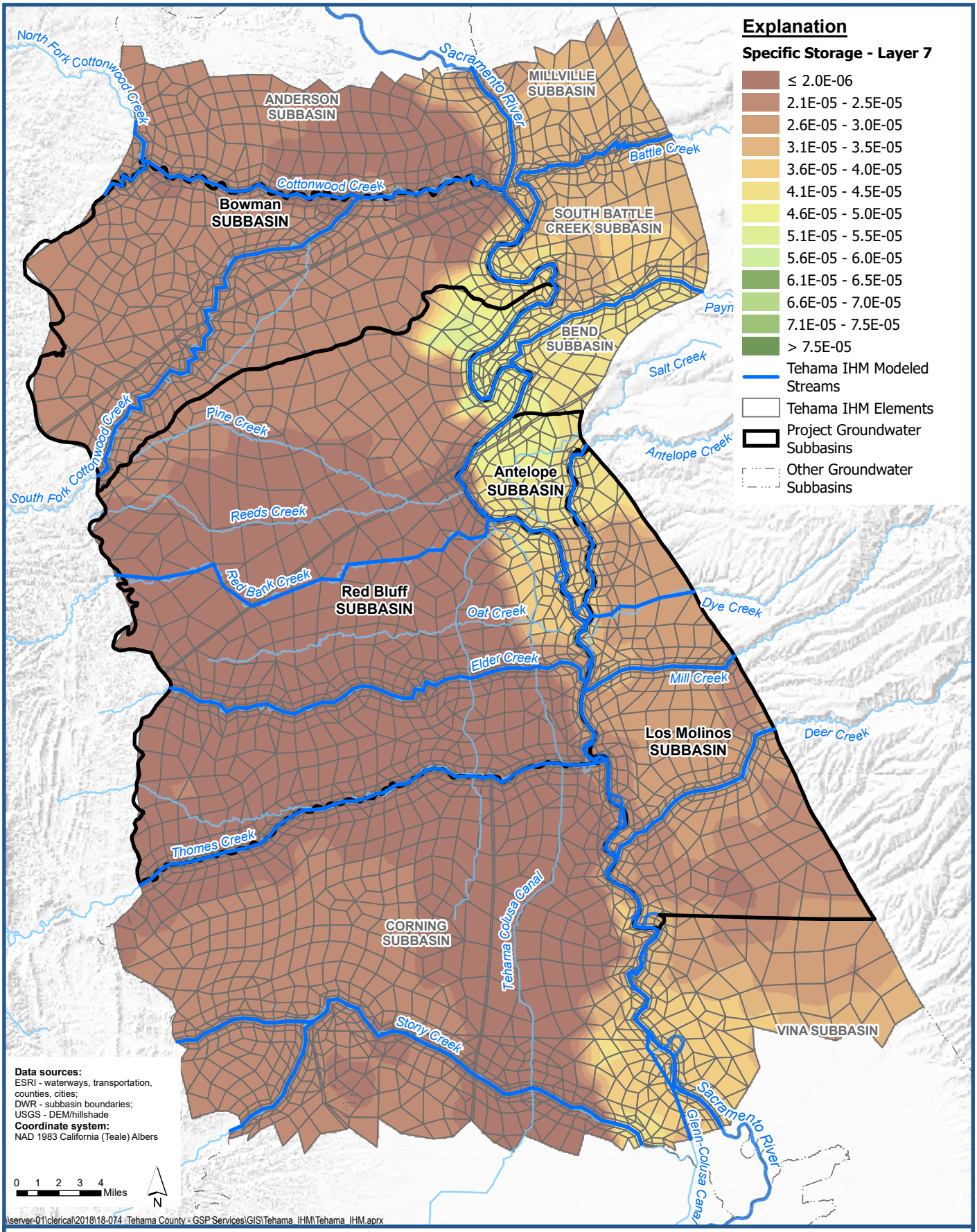
TEHAMA COUNTY

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Calibrated Specific Storage (SS) in Tehama IHM - Layer 6

Groundwater Sustainability Planning
Tehama County, California

Figure 4-38



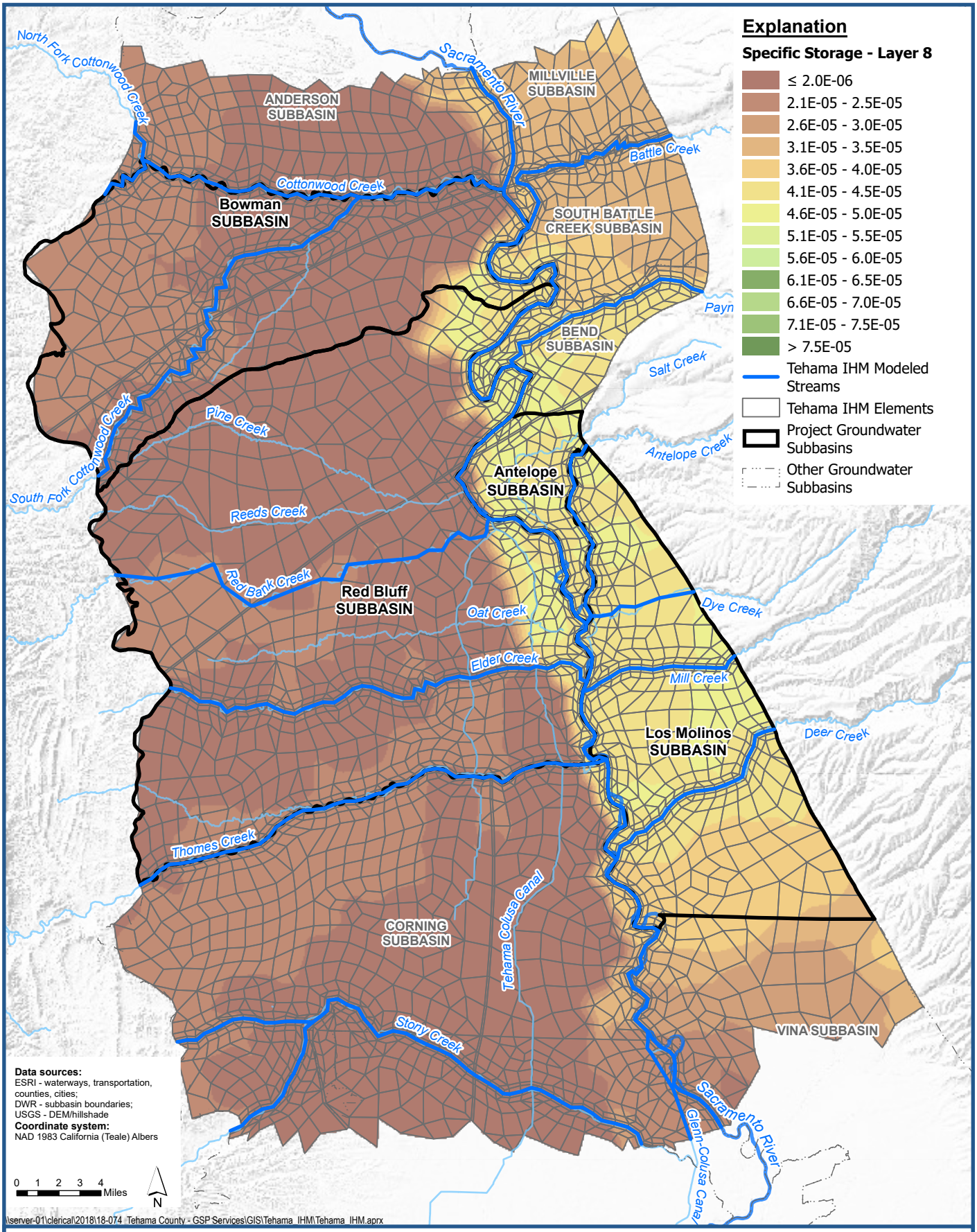
TEHAMA COUNTY

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Calibrated Specific Storage (SS) in Tehama IHM - Layer 7

Groundwater Sustainability Planning
Tehama County, California

Figure 4-39



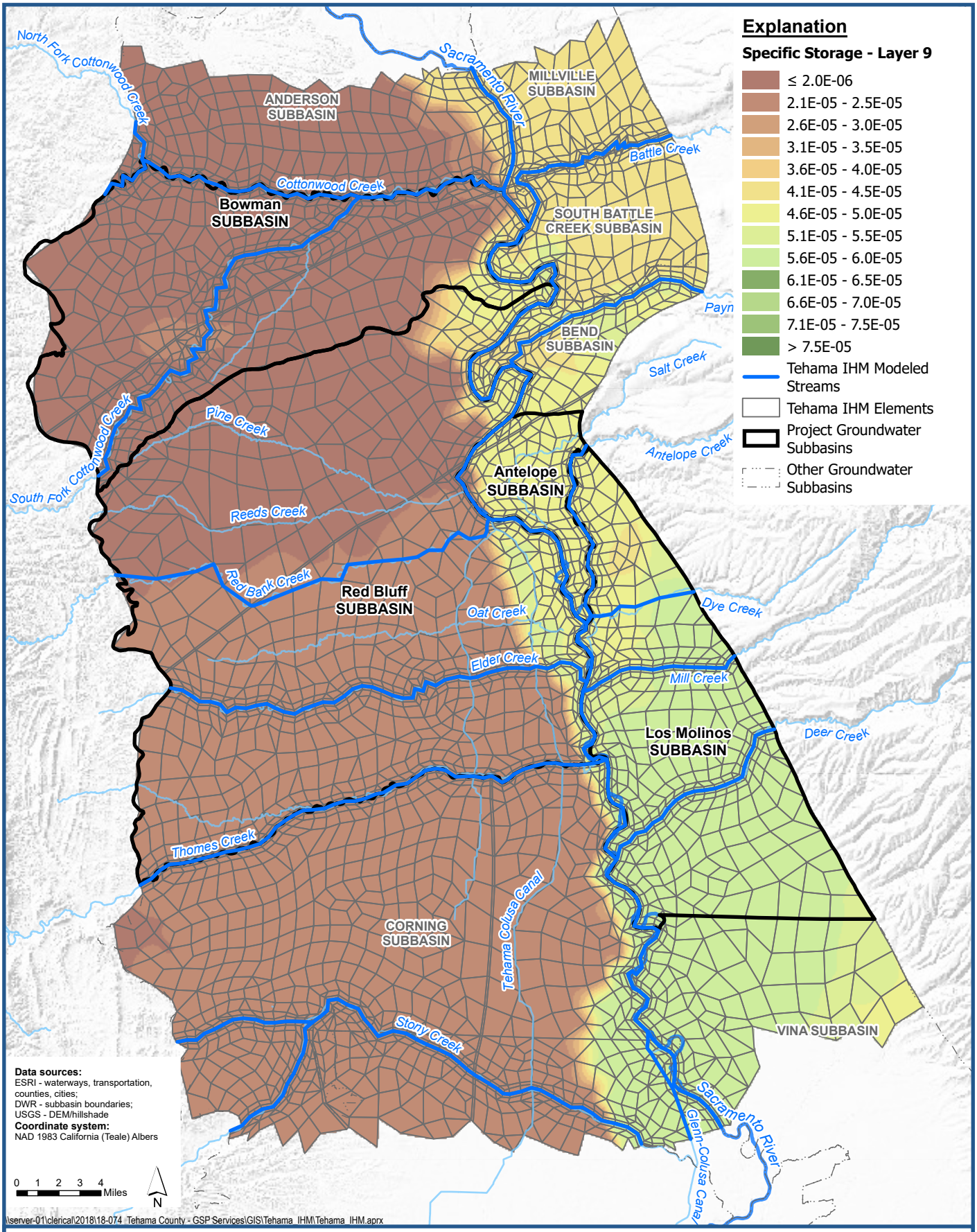
TEHAMA COUNTY

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Calibrated Specific Storage (SS) in Tehama IHM - Layer 8

Groundwater Sustainability Planning
Tehama County, California

Figure 4-40



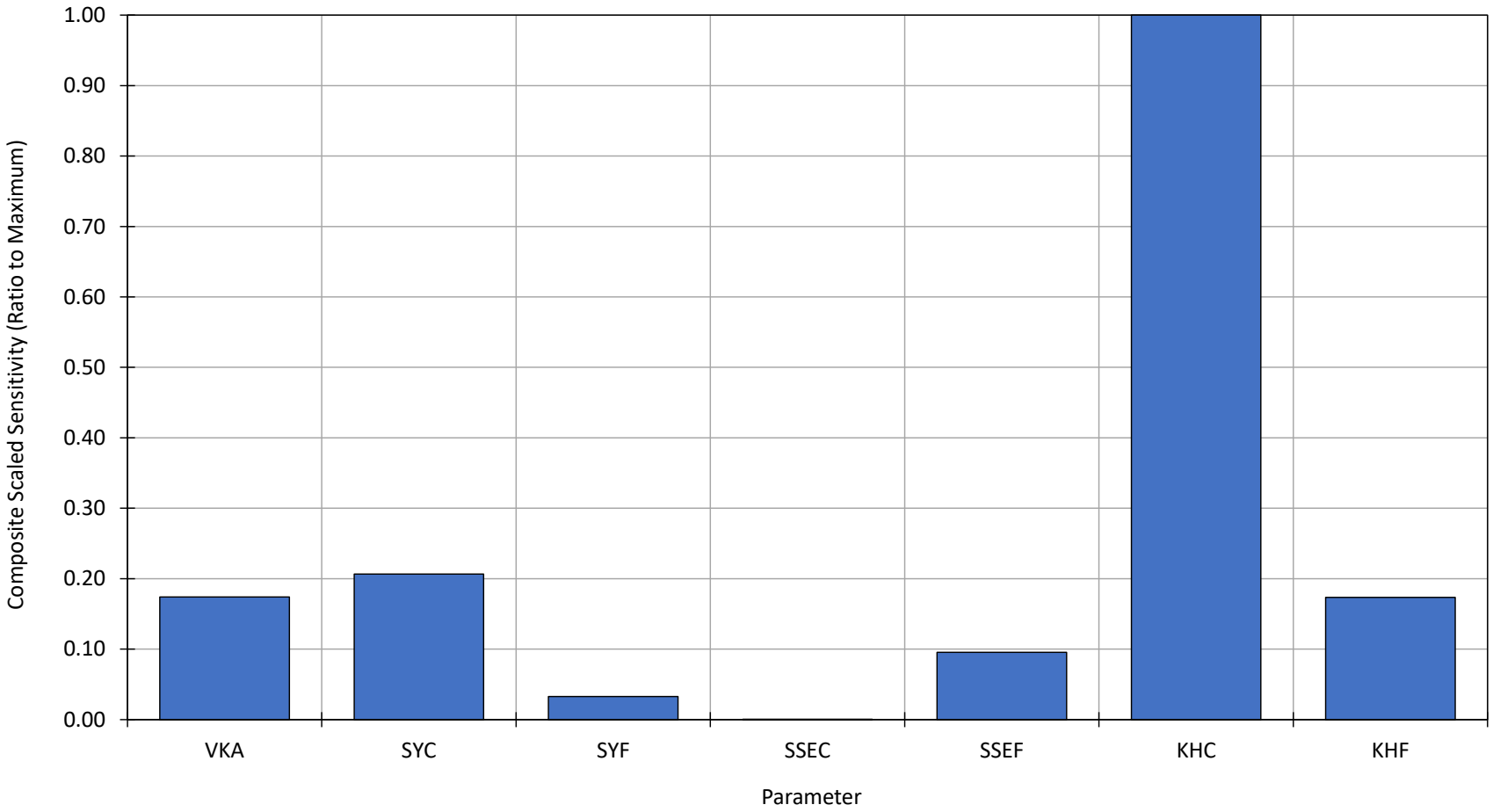
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Calibrated Specific Storage (SS) in Tehama IHM - Layer 9

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Tehama County, California

Figure 4-41



NOTE:
VKA - Anisotropy Ratio (Kv/Kh); SYC - Specific Yield of Coarse Materials; SYF - Specific Yield of Fine Materials; SSC - Specific Storage of Coarse Materials; SSF - Specific Storage of Fine Materials; KHC - Horizontal Hydraulic Conductivity of Coarse Materials; KHF - Horizontal Hydraulic Conductivity of Fine Materials

X:\2018\18-074 Tehama County - GSP Services\GIS\Tehama_IHM\Report Figures\Figure 5-1 CSS of Simulated GWEL to Model Parameter Values.mxd

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Composite Scaled Sensitivity of Simulated Groundwater Elevations to Model Parameter Values

Groundwater Sustainability Planning
Tehama County, California

Figure 5-1

Appendix A. Detailed Antelope Subbasin Water Budget Results

APPENDIX A

Detailed Antelope Subbasin Water Budget Results

A-1 Historical Model Results

A-2 Projected (Current Land Use) Model Results

A-3 Projected (Future Land Use) Model Results

A-4 Projected (Current Land Use) with Climate Change (2030) Model Results

A-5 Projected (Current Land Use) with Climate Change (2070) Model Results

A-6 Projected (Future Land Use) with Climate Change (2030) Model Results

A-7 Projected (Future Land Use) with Climate Change (2070) Model Results

A-8 Projected (Future Land Use) with Projects and Climate Change (2070) Model Results

APPENDIX A-1

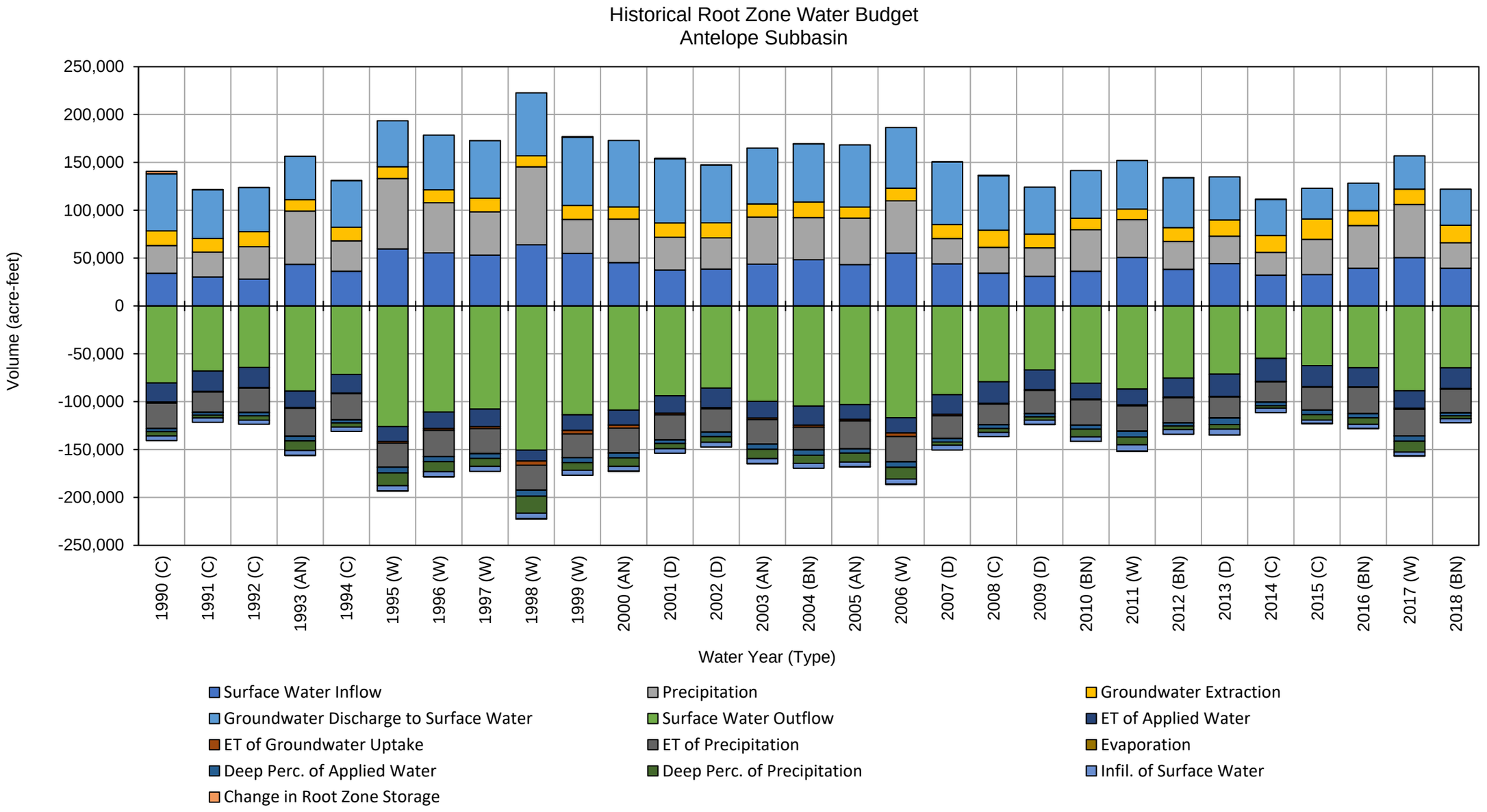
Detailed Antelope Subbasin Water Budget Results:

Historical Model Results

APPENDIX A-1a

Detailed Antelope Subbasin Water Budget Results:

Historical Model Results – Surface Water System

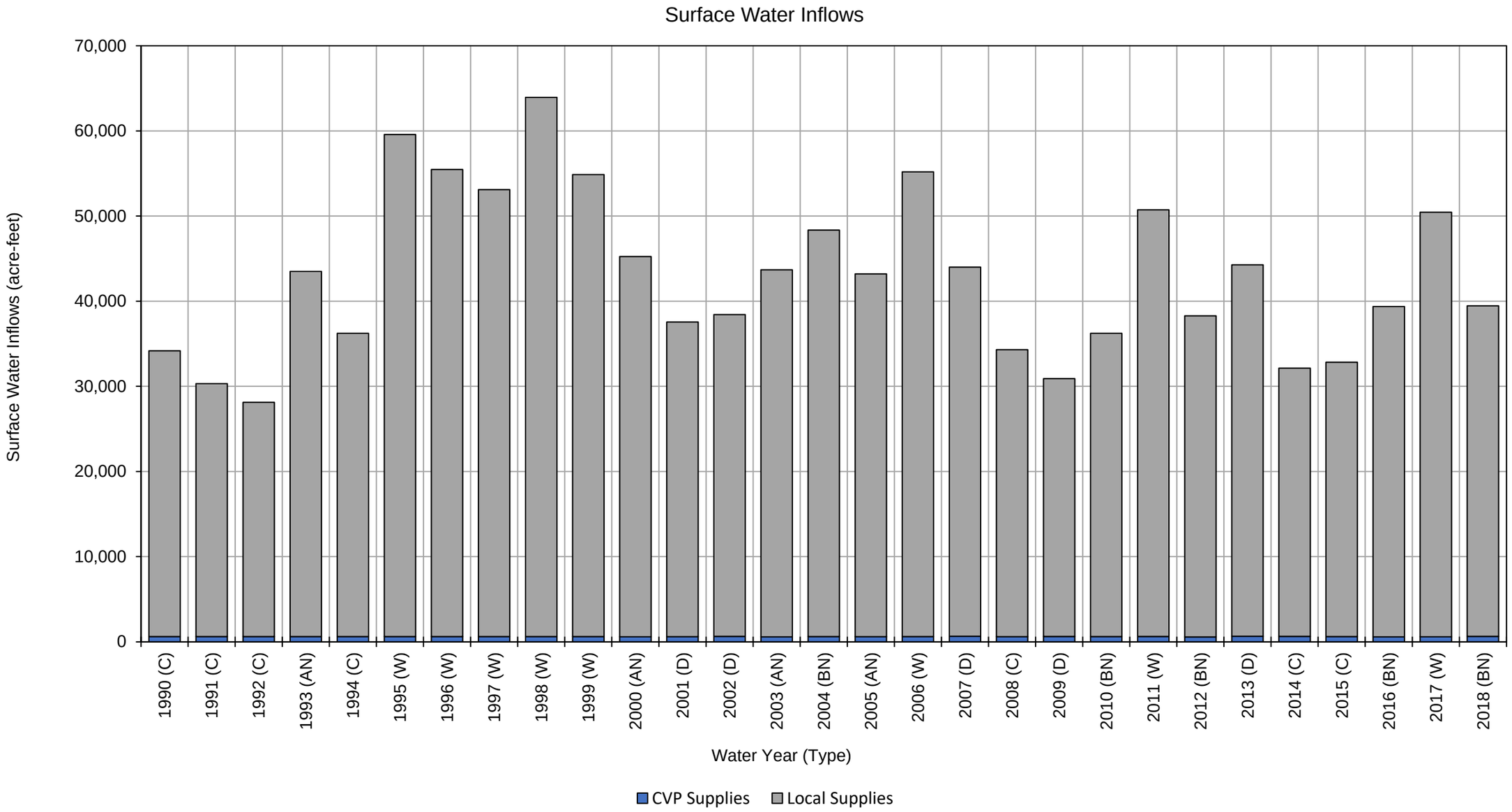

Historical Root Zone Water Budget
Antelope Subbasin
Volume (acre-feet)
250,000
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
-250,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Surface Water Inflow
Precipitation
Groundwater Extraction
Groundwater Discharge to Surface Water
Surface Water Outflow
ET of Applied Water
ET of Groundwater Uptake
ET of Precipitation
Evaporation
Deep Perc. of Applied Water
Deep Perc. of Precipitation
Infil. of Surface Water
Change in Root Zone Storage

Antelope Subbasin Historical Root Zone Water Budget Summary (acre-feet, rounded)

WY (Type)		Inflows				Outflows								Change in Root Zone Storage
		Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
1990 (C)		34,000	29,000	15,000	60,000	80,000	20,000	1,000	26,000	150	3,100	4,700	4,700	-2,600
1991 (C)		30,000	26,000	14,000	51,000	68,000	21,000	620	21,000	150	2,900	2,900	4,600	-320
1992 (C)		28,000	34,000	16,000	46,000	64,000	21,000	550	25,000	130	3,500	4,500	4,200	-48
1993 (AN)		43,000	56,000	12,000	45,000	89,000	17,000	870	29,000	150	4,700	10,000	5,000	350
1994 (C)		36,000	32,000	14,000	48,000	72,000	19,000	620	27,000	140	3,200	4,300	4,500	-420
1995 (W)		60,000	74,000	12,000	48,000	130,000	15,000	1,900	25,000	150	6,000	13,000	5,400	220
1996 (W)		55,000	52,000	14,000	57,000	110,000	17,000	1,900	27,000	150	5,300	10,000	5,300	77
1997 (W)		53,000	45,000	14,000	60,000	110,000	18,000	2,100	26,000	150	5,000	8,300	5,200	-250
1998 (W)		64,000	81,000	12,000	66,000	150,000	11,000	4,400	26,000	150	6,300	18,000	5,500	500
1999 (W)		55,000	36,000	15,000	71,000	110,000	16,000	3,600	25,000	150	5,100	7,900	5,200	-710
2000 (AN)		45,000	45,000	13,000	69,000	110,000	16,000	3,200	26,000	150	5,100	8,800	5,000	230
2001 (D)		38,000	34,000	15,000	67,000	94,000	18,000	1,800	26,000	150	3,700	5,400	4,700	-52
2002 (D)		38,000	33,000	16,000	60,000	86,000	21,000	1,300	24,000	150	4,800	5,900	4,800	-250
2003 (AN)		44,000	49,000	14,000	58,000	100,000	17,000	1,800	25,000	150	5,400	9,700	5,000	360
2004 (BN)		48,000	44,000	16,000	61,000	100,000	20,000	2,200	23,000	150	5,600	8,400	5,100	-290
2005 (AN)		43,000	49,000	12,000	65,000	100,000	15,000	1,700	29,000	150	4,400	9,300	5,000	300
2006 (W)		55,000	55,000	13,000	63,000	120,000	16,000	3,800	26,000	170	5,800	12,000	5,600	39
2007 (D)		44,000	26,000	15,000	65,000	93,000	20,000	1,600	23,000	160	3,600	3,400	5,000	-54
2008 (C)		34,000	27,000	18,000	57,000	79,000	22,000	920	22,000	130	3,900	4,100	4,400	-500
2009 (D)		31,000	30,000	14,000	49,000	67,000	21,000	670	24,000	140	3,200	3,500	4,400	290
2010 (BN)		36,000	43,000	12,000	50,000	81,000	17,000	700	26,000	140	4,200	8,000	4,600	130
2011 (W)		51,000	39,000	11,000	51,000	87,000	17,000	980	26,000	230	6,000	8,100	6,600	270
2012 (BN)		38,000	29,000	14,000	52,000	75,000	20,000	740	26,000	160	3,300	3,600	5,000	-240
2013 (D)		44,000	29,000	17,000	45,000	71,000	23,000	680	22,000	210	6,800	4,900	6,100	86
2014 (C)		32,000	24,000	18,000	38,000	55,000	24,000	560	21,000	150	3,700	2,500	4,700	-45
2015 (C)		33,000	37,000	21,000	32,000	62,000	22,000	490	24,000	110	4,800	5,600	3,700	54
2016 (BN)		39,000	45,000	16,000	29,000	65,000	20,000	570	27,000	130	4,300	6,800	4,300	160
2017 (W)		50,000	56,000	16,000	35,000	89,000	18,000	1,200	28,000	100	5,400	11,000	4,200	69
2018 (BN)		39,000	27,000	18,000	38,000	65,000	22,000	600	25,000	120	2,900	2,900	4,200	64
Average (1990-2018)		43,000	41,000	15,000	53,000	89,000	19,000	1,500	25,000	150	4,500	7,200	4,900	-88
1990-2018	W	55,000	55,000	13,000	56,000	110,000	16,000	2,500	26,000	160	5,600	11,000	5,400	28
	AN	44,000	50,000	12,000	60,000	100,000	16,000	1,900	27,000	150	4,900	9,500	5,000	310
	BN	40,000	38,000	15,000	46,000	78,000	20,000	960	26,000	140	4,100	6,000	4,600	-34
	D	39,000	30,000	15,000	57,000	82,000	21,000	1,200	24,000	160	4,400	4,600	5,000	5
	C	33,000	30,000	17,000	47,000	69,000	21,000	690	24,000	140	3,600	4,100	4,400	-550

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

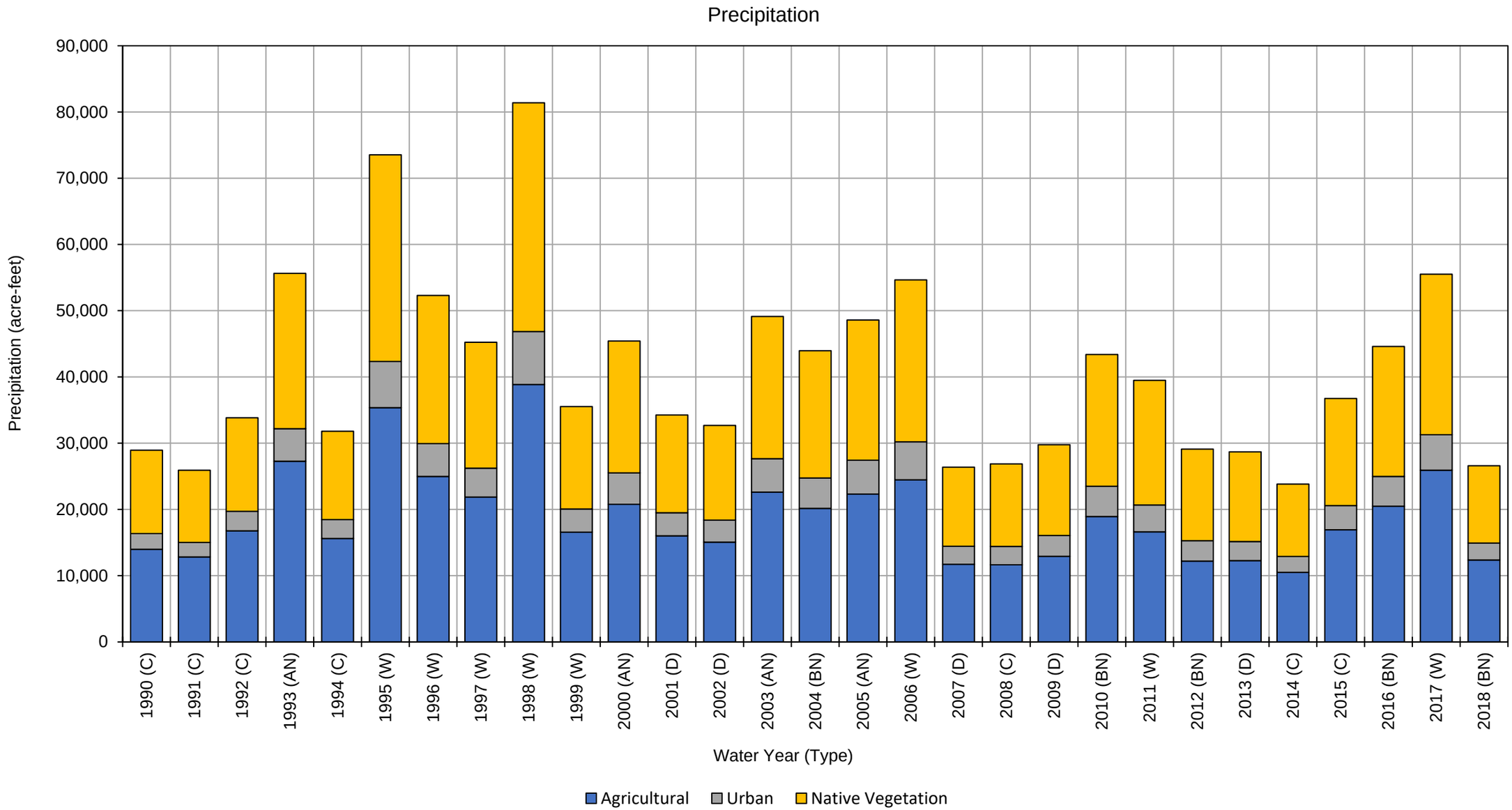

Surface Water Inflows
Surface Water Inflows (acre-feet)
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
CVP Supplies
Local Supplies

Antelope Subbasin Historical Surface Water Inflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Total
1990 (C)		610	34,000	35,000
1991 (C)		610	30,000	31,000
1992 (C)		610	28,000	29,000
1993 (AN)		610	43,000	44,000
1994 (C)		610	36,000	37,000
1995 (W)		610	59,000	60,000
1996 (W)		610	55,000	56,000
1997 (W)		610	52,000	53,000
1998 (W)		610	63,000	64,000
1999 (W)		620	54,000	55,000
2000 (AN)		580	45,000	46,000
2001 (D)		600	37,000	38,000
2002 (D)		640	38,000	39,000
2003 (AN)		580	43,000	44,000
2004 (BN)		620	48,000	49,000
2005 (AN)		600	43,000	44,000
2006 (W)		610	55,000	56,000
2007 (D)		650	43,000	44,000
2008 (C)		600	34,000	35,000
2009 (D)		620	30,000	31,000
2010 (BN)		610	36,000	37,000
2011 (W)		630	50,000	51,000
2012 (BN)		560	38,000	39,000
2013 (D)		650	44,000	45,000
2014 (C)		640	31,000	32,000
2015 (C)		610	32,000	33,000
2016 (BN)		580	39,000	40,000
2017 (W)		580	50,000	51,000
2018 (BN)		630	39,000	40,000
Average (1990-2018)		610	42,000	43,000
1990-2018	W	610	55,000	56,000
	AN	590	43,000	44,000
	BN	600	40,000	41,000
	D	630	38,000	39,000
	C	610	32,000	33,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

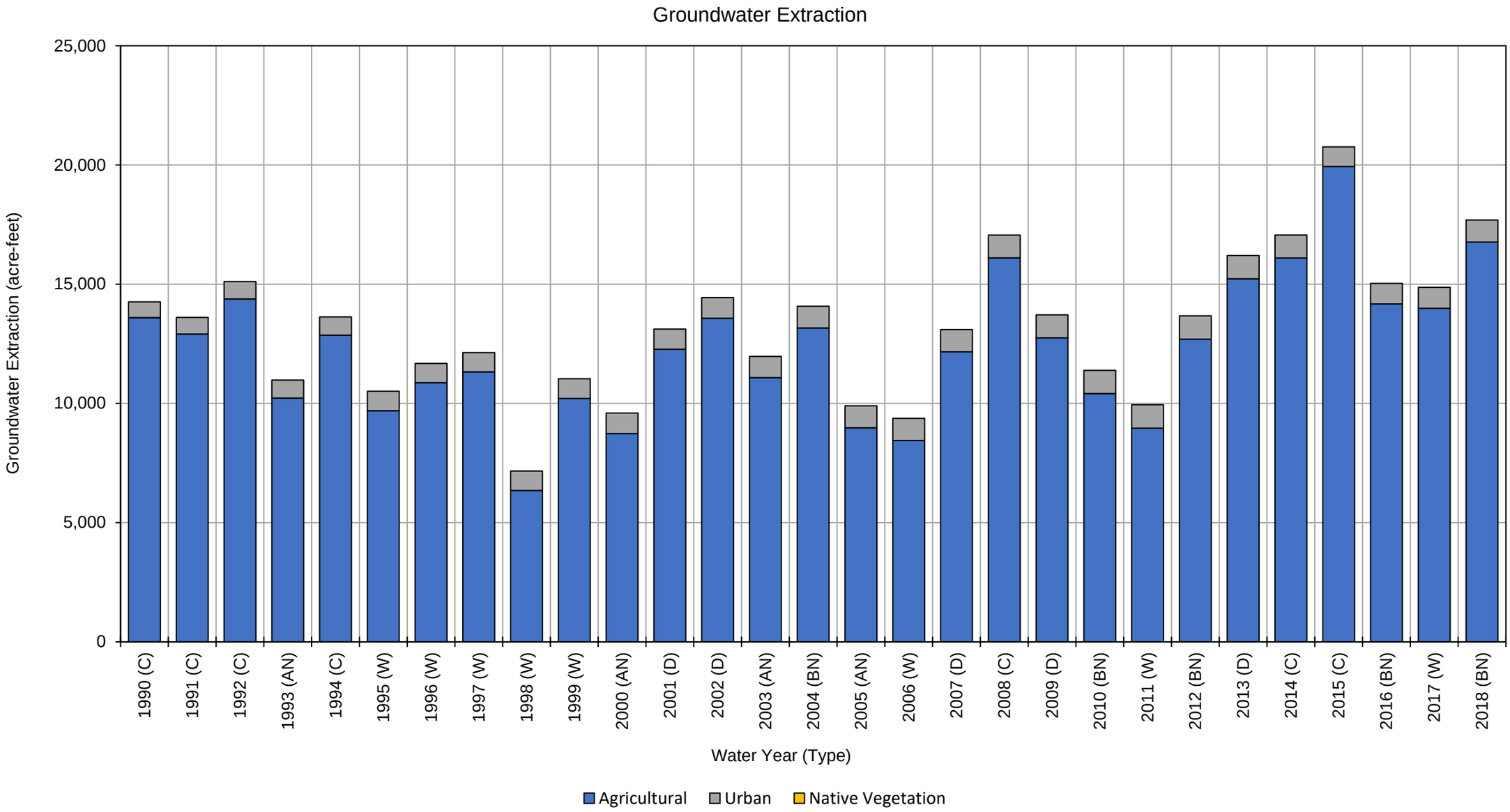

Precipitation
Precipitation (acre-feet)
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Antelope Subbasin Historical Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		14,000	2,400	13,000	29,000
1991 (C)		13,000	2,200	11,000	26,000
1992 (C)		17,000	2,900	14,000	34,000
1993 (AN)		27,000	4,900	23,000	55,000
1994 (C)		16,000	2,900	13,000	32,000
1995 (W)		35,000	7,000	31,000	73,000
1996 (W)		25,000	5,000	22,000	52,000
1997 (W)		22,000	4,400	19,000	45,000
1998 (W)		39,000	8,000	35,000	82,000
1999 (W)		17,000	3,500	15,000	36,000
2000 (AN)		21,000	4,700	20,000	46,000
2001 (D)		16,000	3,500	15,000	35,000
2002 (D)		15,000	3,300	14,000	32,000
2003 (AN)		23,000	5,100	21,000	49,000
2004 (BN)		20,000	4,600	19,000	44,000
2005 (AN)		22,000	5,100	21,000	48,000
2006 (W)		24,000	5,700	24,000	54,000
2007 (D)		12,000	2,700	12,000	27,000
2008 (C)		12,000	2,800	12,000	27,000
2009 (D)		13,000	3,100	14,000	30,000
2010 (BN)		19,000	4,600	20,000	44,000
2011 (W)		17,000	4,100	19,000	40,000
2012 (BN)		12,000	3,100	14,000	29,000
2013 (D)		12,000	2,900	14,000	29,000
2014 (C)		10,000	2,400	11,000	23,000
2015 (C)		17,000	3,600	16,000	37,000
2016 (BN)		20,000	4,500	20,000	45,000
2017 (W)		26,000	5,400	24,000	55,000
2018 (BN)		12,000	2,600	12,000	27,000
Average (1990-2018)		19,000	4,000	18,000	41,000
1990-2018	W	26,000	5,400	24,000	55,000
	AN	23,000	5,000	21,000	49,000
	BN	17,000	3,900	17,000	38,000
	D	14,000	3,100	14,000	31,000
	C	14,000	2,700	13,000	30,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



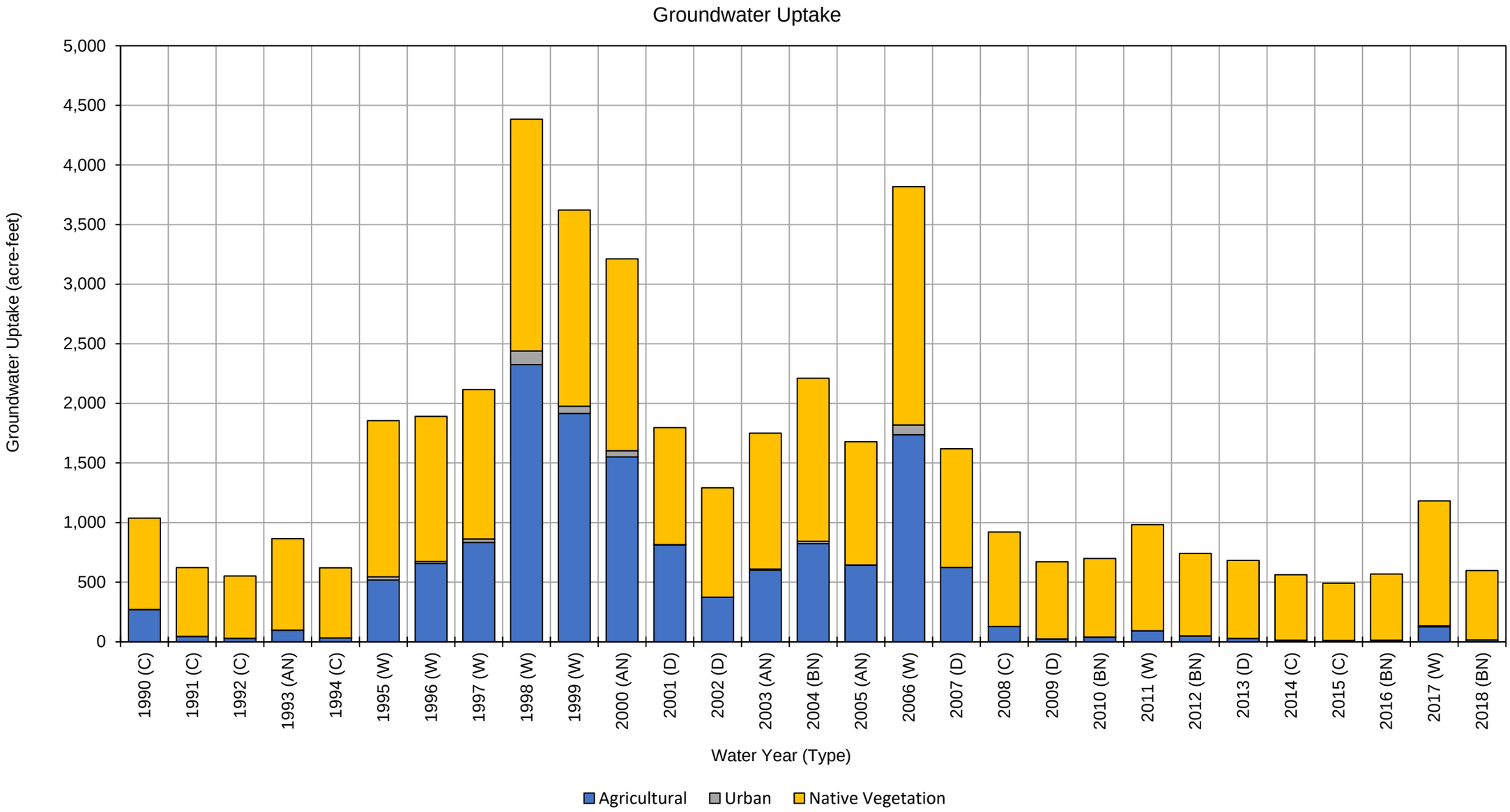
Tehama IHM - Historical

Antelope Subbasin Historical Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		14,000	660	0	15,000
1991 (C)		13,000	700	0	14,000
1992 (C)		14,000	730	0	15,000
1993 (AN)		10,000	750	0	11,000
1994 (C)		13,000	770	0	14,000
1995 (W)		9,700	820	0	11,000
1996 (W)		11,000	810	0	12,000
1997 (W)		11,000	810	0	12,000
1998 (W)		6,300	820	0	7,100
1999 (W)		10,000	830	0	11,000
2000 (AN)		8,700	860	0	9,600
2001 (D)		12,000	850	0	13,000
2002 (D)		14,000	870	0	15,000
2003 (AN)		11,000	890	0	12,000
2004 (BN)		13,000	910	0	14,000
2005 (AN)		9,000	920	0	9,900
2006 (W)		8,400	930	0	9,300
2007 (D)		12,000	930	0	13,000
2008 (C)		16,000	960	0	17,000
2009 (D)		13,000	960	0	14,000
2010 (BN)		10,000	970	0	11,000
2011 (W)		9,000	980	0	10,000
2012 (BN)		13,000	980	0	14,000
2013 (D)		15,000	980	0	16,000
2014 (C)		16,000	960	0	17,000
2015 (C)		20,000	820	0	21,000
2016 (BN)		14,000	860	0	15,000
2017 (W)		14,000	880	0	15,000
2018 (BN)		17,000	930	0	18,000
Average (1990-2018)		12,000	870	0	13,000
1990-2018	W	10,000	860	0	11,000
	AN	9,800	860	0	11,000
	BN	13,000	930	0	14,000
	D	13,000	920	0	14,000
	C	15,000	800	0	16,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

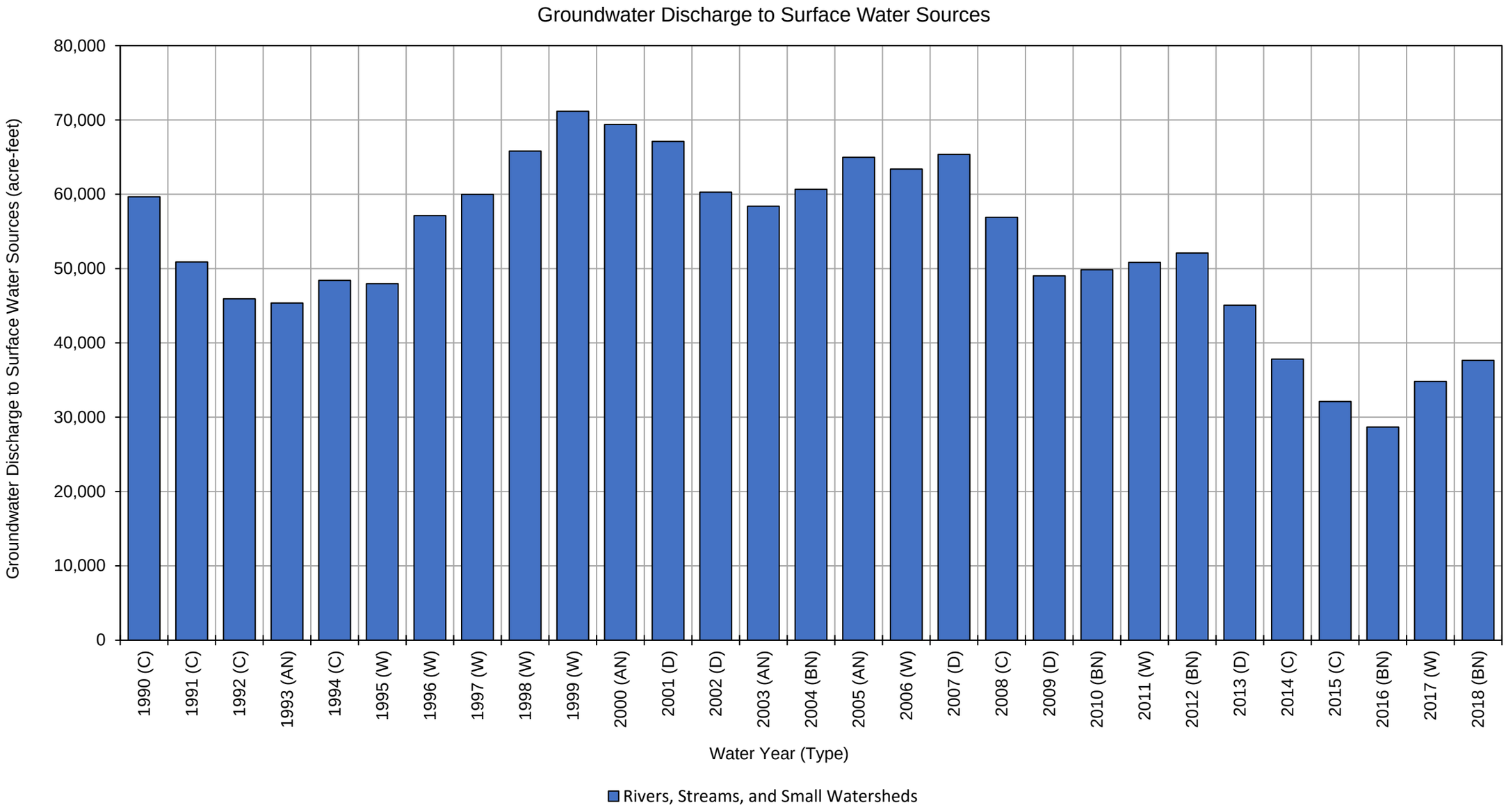

Groundwater Uptake
Groundwater Uptake (acre-feet)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Antelope Subbasin Historical Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		270	0	770	1,000
1991 (C)		46	0	580	630
1992 (C)		29	0	520	550
1993 (AN)		96	1	770	870
1994 (C)		33	0	590	620
1995 (W)		520	28	1,300	1,800
1996 (W)		660	17	1,200	1,900
1997 (W)		830	30	1,300	2,200
1998 (W)		2,300	110	1,900	4,300
1999 (W)		1,900	61	1,600	3,600
2000 (AN)		1,600	51	1,600	3,300
2001 (D)		810	2	980	1,800
2002 (D)		370	0	920	1,300
2003 (AN)		600	9	1,100	1,700
2004 (BN)		820	21	1,400	2,200
2005 (AN)		640	2	1,000	1,600
2006 (W)		1,700	82	2,000	3,800
2007 (D)		620	0	1,000	1,600
2008 (C)		130	0	790	920
2009 (D)		24	0	650	670
2010 (BN)		39	0	660	700
2011 (W)		92	1	890	980
2012 (BN)		50	0	690	740
2013 (D)		29	0	650	680
2014 (C)		13	0	550	560
2015 (C)		11	0	480	490
2016 (BN)		13	0	560	570
2017 (W)		130	7	1,000	1,100
2018 (BN)		15	0	580	600
Average (1990-2018)		500	15	970	1,500
1990-2018	W	1,000	43	1,400	2,400
	AN	720	16	1,100	1,800
	BN	190	4	770	960
	D	370	0	840	1,200
	C	76	0	610	690

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

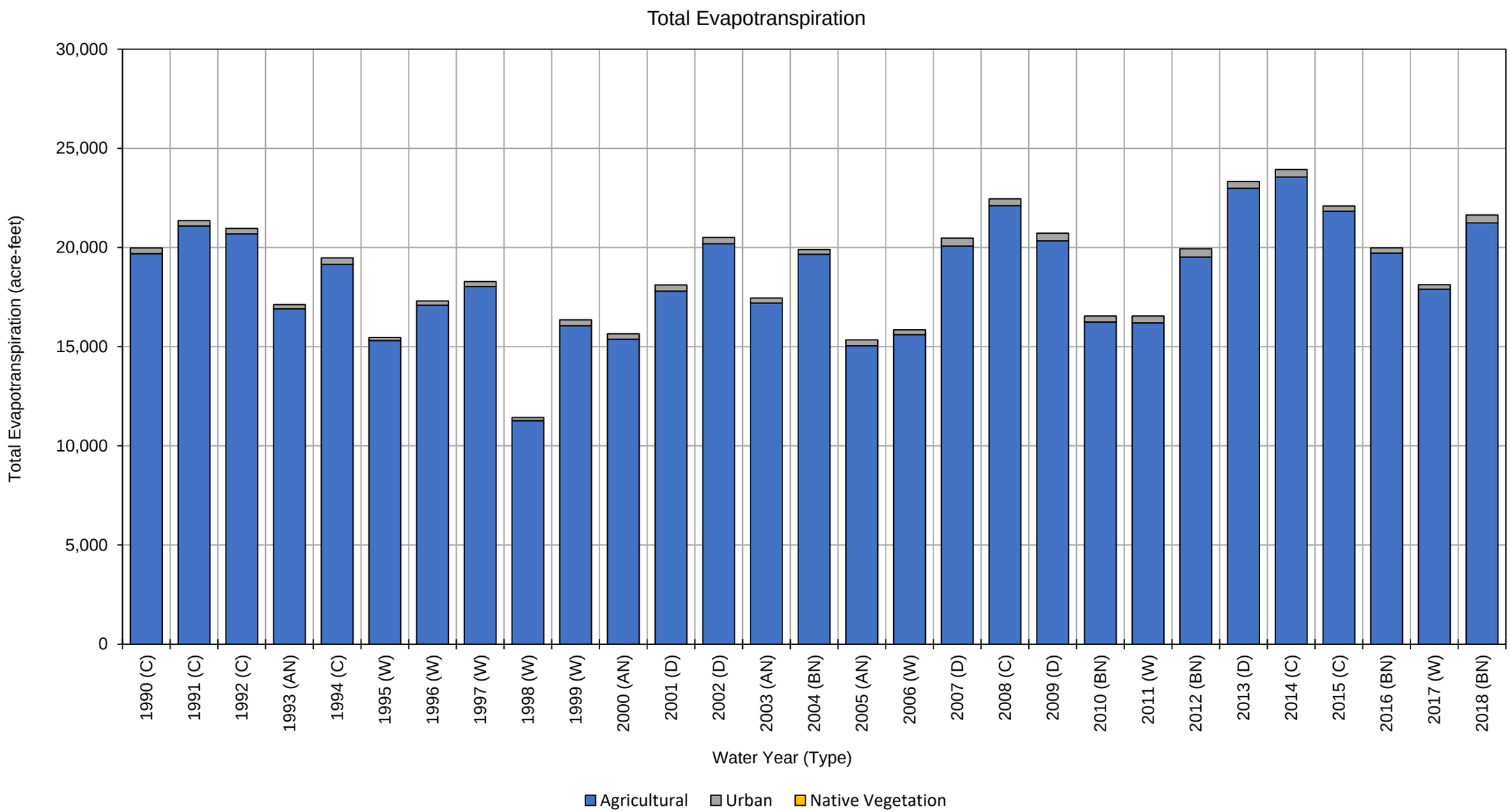

Groundwater Discharge to Surface Water Sources
Groundwater Discharge to Surface Water Sources (acre-feet)
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Rivers, Streams, and Small Watersheds

Antelope Subbasin Historical Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

WY (Type)		Rivers, Streams, and Small Watersheds
1990 (C)		60,000
1991 (C)		51,000
1992 (C)		46,000
1993 (AN)		45,000
1994 (C)		48,000
1995 (W)		48,000
1996 (W)		57,000
1997 (W)		60,000
1998 (W)		66,000
1999 (W)		71,000
2000 (AN)		69,000
2001 (D)		67,000
2002 (D)		60,000
2003 (AN)		58,000
2004 (BN)		61,000
2005 (AN)		65,000
2006 (W)		63,000
2007 (D)		65,000
2008 (C)		57,000
2009 (D)		49,000
2010 (BN)		50,000
2011 (W)		51,000
2012 (BN)		52,000
2013 (D)		45,000
2014 (C)		38,000
2015 (C)		32,000
2016 (BN)		29,000
2017 (W)		35,000
2018 (BN)		38,000
Average (1990-2018)		53,000
1990-2018	W	56,000
	AN	60,000
	BN	46,000
	D	57,000
	C	47,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



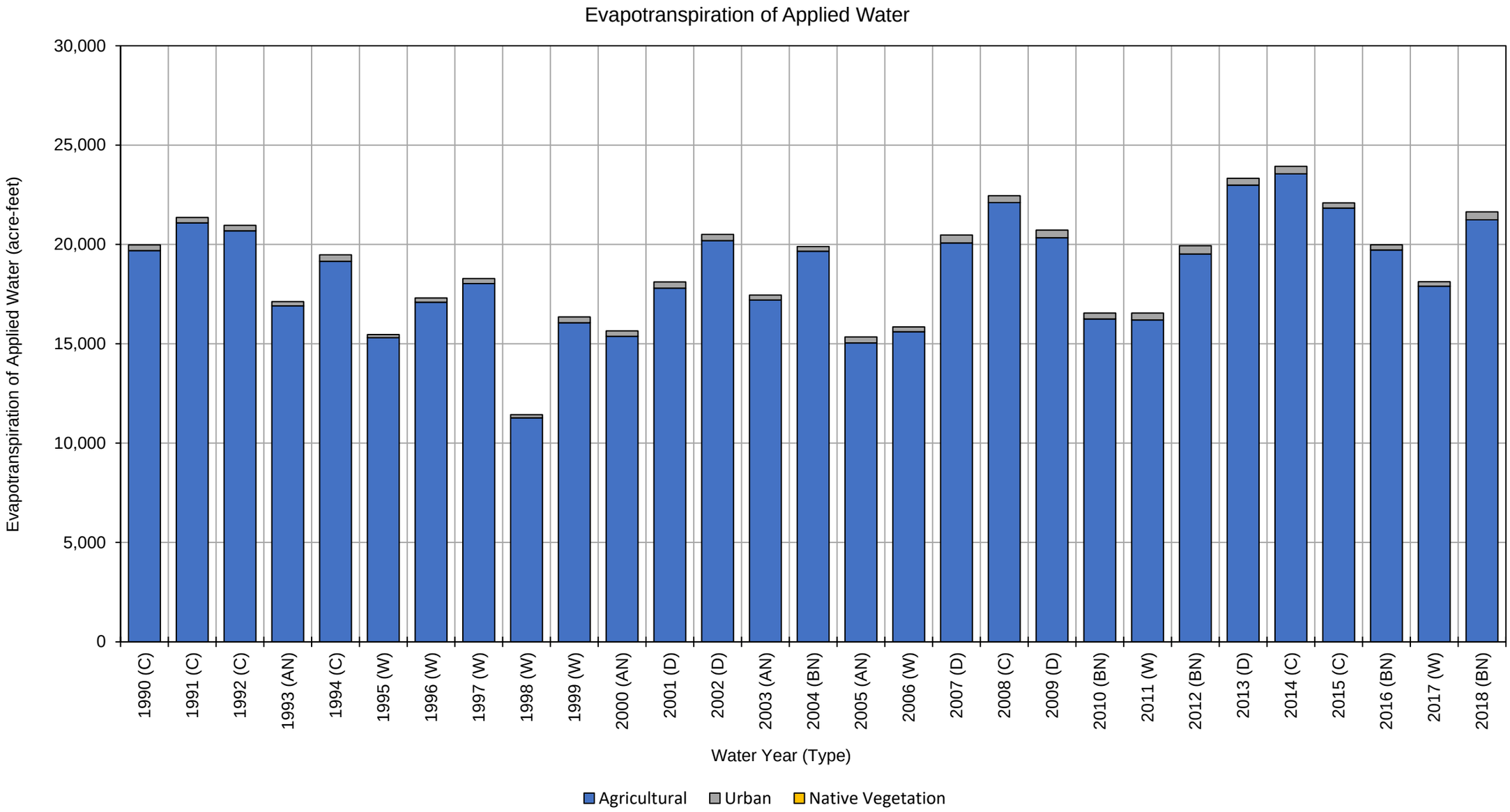
Tehama IHM - Historical

Antelope Subbasin Historical Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		32,000	1,300	14,000	47,000
1991 (C)		30,000	1,100	12,000	43,000
1992 (C)		32,000	1,400	14,000	47,000
1993 (AN)		31,000	1,600	15,000	48,000
1994 (C)		32,000	1,600	14,000	48,000
1995 (W)		28,000	1,500	13,000	43,000
1996 (W)		30,000	1,600	15,000	47,000
1997 (W)		31,000	1,600	14,000	47,000
1998 (W)		26,000	1,700	14,000	42,000
1999 (W)		29,000	1,500	14,000	45,000
2000 (AN)		28,000	1,800	15,000	45,000
2001 (D)		30,000	1,600	15,000	47,000
2002 (D)		30,000	1,500	14,000	46,000
2003 (AN)		29,000	1,700	14,000	45,000
2004 (BN)		30,000	1,400	14,000	45,000
2005 (AN)		28,000	2,000	16,000	46,000
2006 (W)		29,000	1,700	15,000	46,000
2007 (D)		30,000	1,600	14,000	46,000
2008 (C)		30,000	1,300	14,000	45,000
2009 (D)		29,000	1,600	15,000	46,000
2010 (BN)		27,000	1,700	15,000	44,000
2011 (W)		26,000	1,800	16,000	44,000
2012 (BN)		29,000	1,700	16,000	47,000
2013 (D)		30,000	1,400	14,000	45,000
2014 (C)		31,000	1,300	13,000	45,000
2015 (C)		31,000	1,400	14,000	46,000
2016 (BN)		31,000	1,700	15,000	48,000
2017 (W)		31,000	1,600	15,000	48,000
2018 (BN)		32,000	1,500	14,000	48,000
Average (1990-2018)		30,000	1,600	14,000	46,000
1990-2018	W	29,000	1,600	15,000	46,000
	AN	29,000	1,800	15,000	46,000
	BN	30,000	1,600	15,000	47,000
	D	30,000	1,500	14,000	46,000
	C	31,000	1,400	14,000	46,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

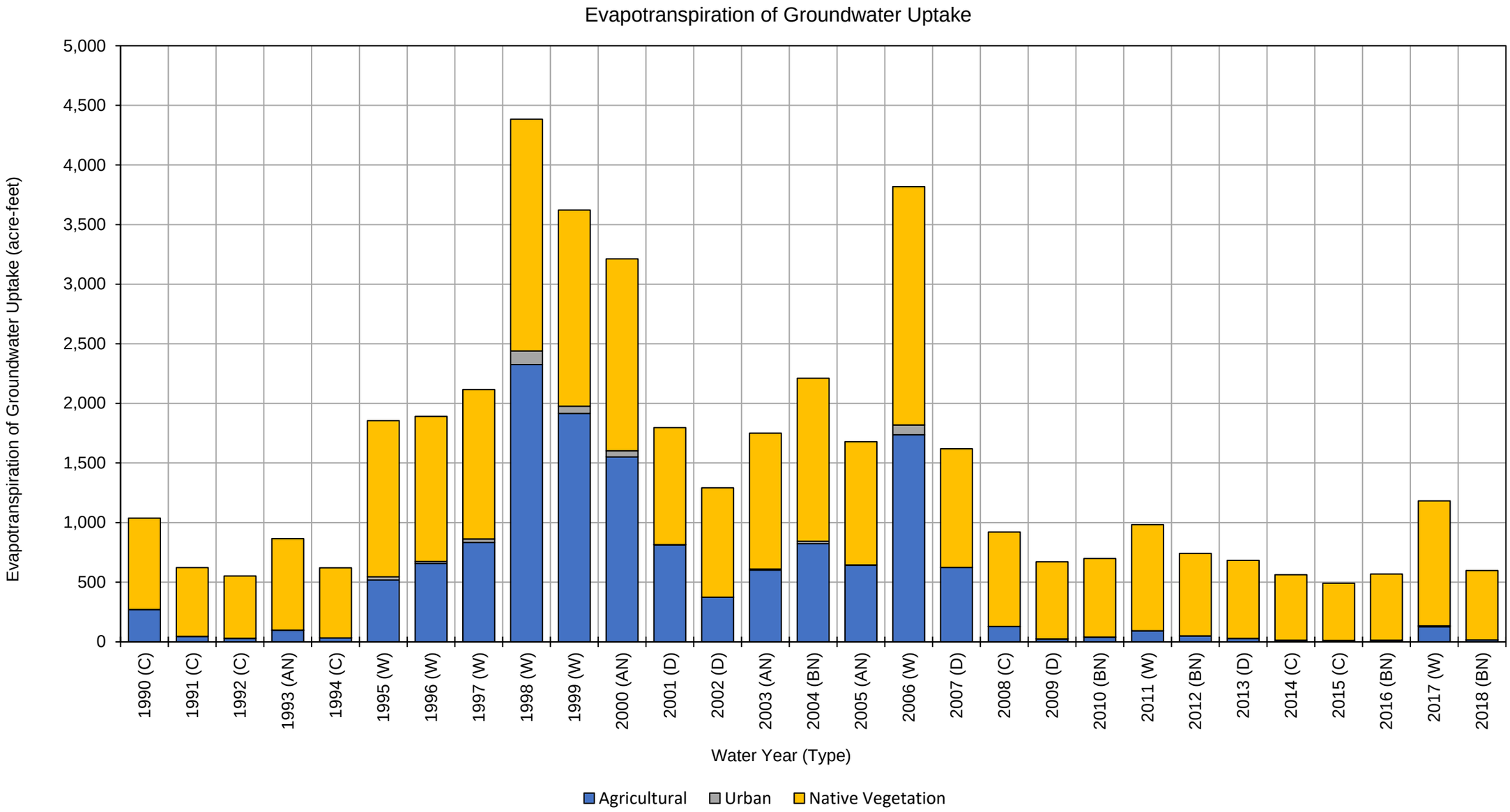

Evapotranspiration of Applied Water
Evapotranspiration of Applied Water (acre-feet)
30,000
25,000
20,000
15,000
10,000
5,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Antelope Subbasin Historical Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		20,000	290	0	20,000
1991 (C)		21,000	270	0	21,000
1992 (C)		21,000	270	0	21,000
1993 (AN)		17,000	210	0	17,000
1994 (C)		19,000	330	0	19,000
1995 (W)		15,000	160	0	15,000
1996 (W)		17,000	220	0	17,000
1997 (W)		18,000	250	0	18,000
1998 (W)		11,000	150	0	11,000
1999 (W)		16,000	290	0	16,000
2000 (AN)		15,000	270	0	15,000
2001 (D)		18,000	310	0	18,000
2002 (D)		20,000	310	0	20,000
2003 (AN)		17,000	250	0	17,000
2004 (BN)		20,000	240	0	20,000
2005 (AN)		15,000	300	0	15,000
2006 (W)		16,000	240	0	16,000
2007 (D)		20,000	400	0	20,000
2008 (C)		22,000	340	0	22,000
2009 (D)		20,000	390	0	20,000
2010 (BN)		16,000	300	0	16,000
2011 (W)		16,000	350	0	16,000
2012 (BN)		20,000	420	0	20,000
2013 (D)		23,000	350	0	23,000
2014 (C)		24,000	380	0	24,000
2015 (C)		22,000	260	0	22,000
2016 (BN)		20,000	270	0	20,000
2017 (W)		18,000	220	0	18,000
2018 (BN)		21,000	400	0	21,000
Average (1990-2018)		19,000	290	0	19,000
1990-2018	W	16,000	240	0	16,000
	AN	16,000	260	0	16,000
	BN	19,000	320	0	19,000
	D	20,000	350	0	20,000
	C	21,000	310	0	21,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



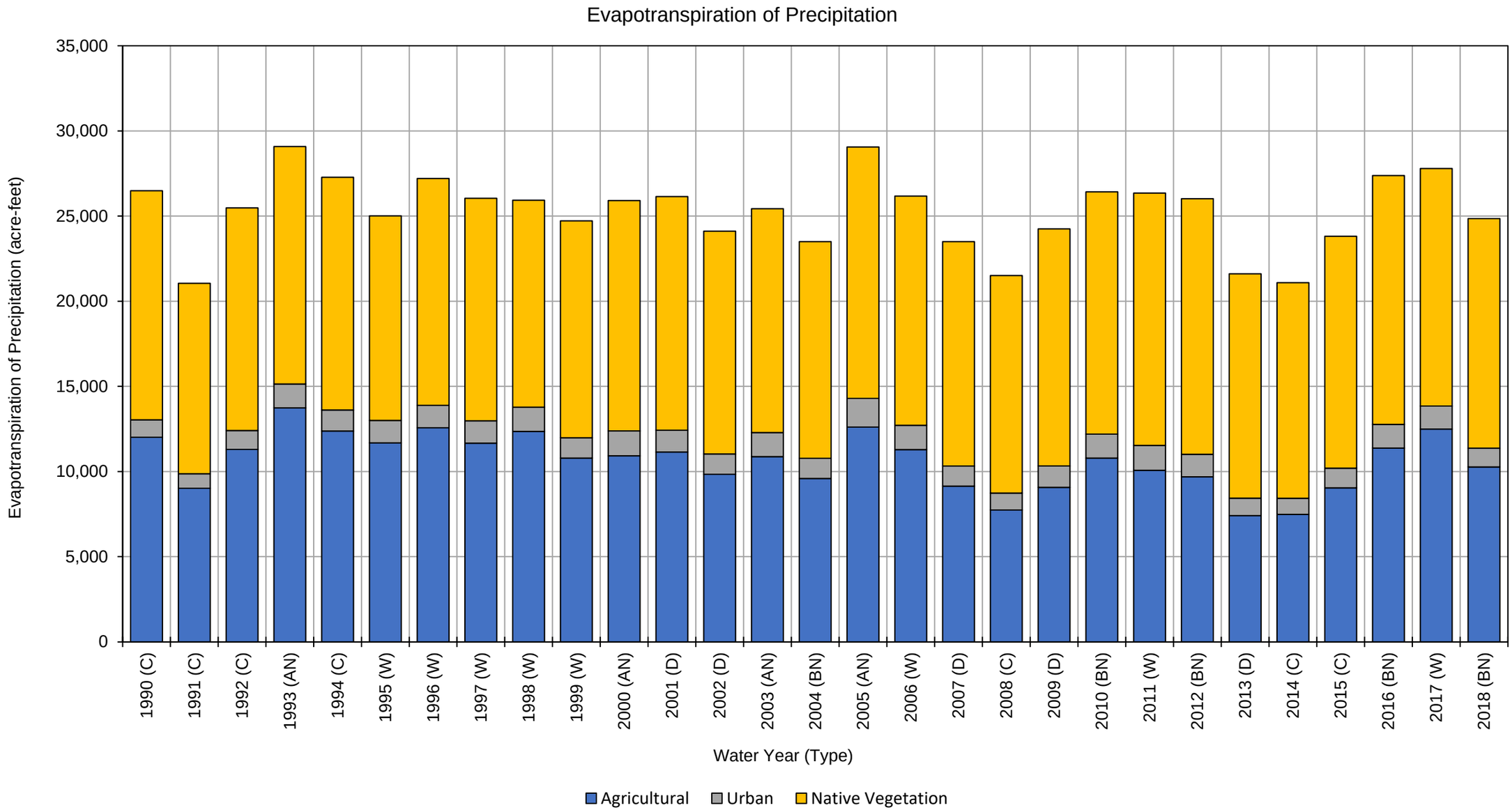
Tehama IHM - Historical

Antelope Subbasin Historical Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		270	0	770	1,000
1991 (C)		46	0	580	630
1992 (C)		29	0	520	550
1993 (AN)		96	1	770	870
1994 (C)		33	0	590	620
1995 (W)		520	28	1,300	1,800
1996 (W)		660	17	1,200	1,900
1997 (W)		830	30	1,300	2,200
1998 (W)		2,300	110	1,900	4,300
1999 (W)		1,900	61	1,600	3,600
2000 (AN)		1,600	51	1,600	3,300
2001 (D)		810	2	980	1,800
2002 (D)		370	0	920	1,300
2003 (AN)		600	9	1,100	1,700
2004 (BN)		820	21	1,400	2,200
2005 (AN)		640	2	1,000	1,600
2006 (W)		1,700	82	2,000	3,800
2007 (D)		620	0	1,000	1,600
2008 (C)		130	0	790	920
2009 (D)		24	0	650	670
2010 (BN)		39	0	660	700
2011 (W)		92	1	890	980
2012 (BN)		50	0	690	740
2013 (D)		29	0	650	680
2014 (C)		13	0	550	560
2015 (C)		11	0	480	490
2016 (BN)		13	0	560	570
2017 (W)		130	7	1,000	1,100
2018 (BN)		15	0	580	600
Average (1990-2018)		500	15	970	1,500
1990-2018	W	1,000	43	1,400	2,400
	AN	720	16	1,100	1,800
	BN	190	4	770	960
	D	370	0	840	1,200
	C	76	0	610	690

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
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BN Below Normal
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C Critical



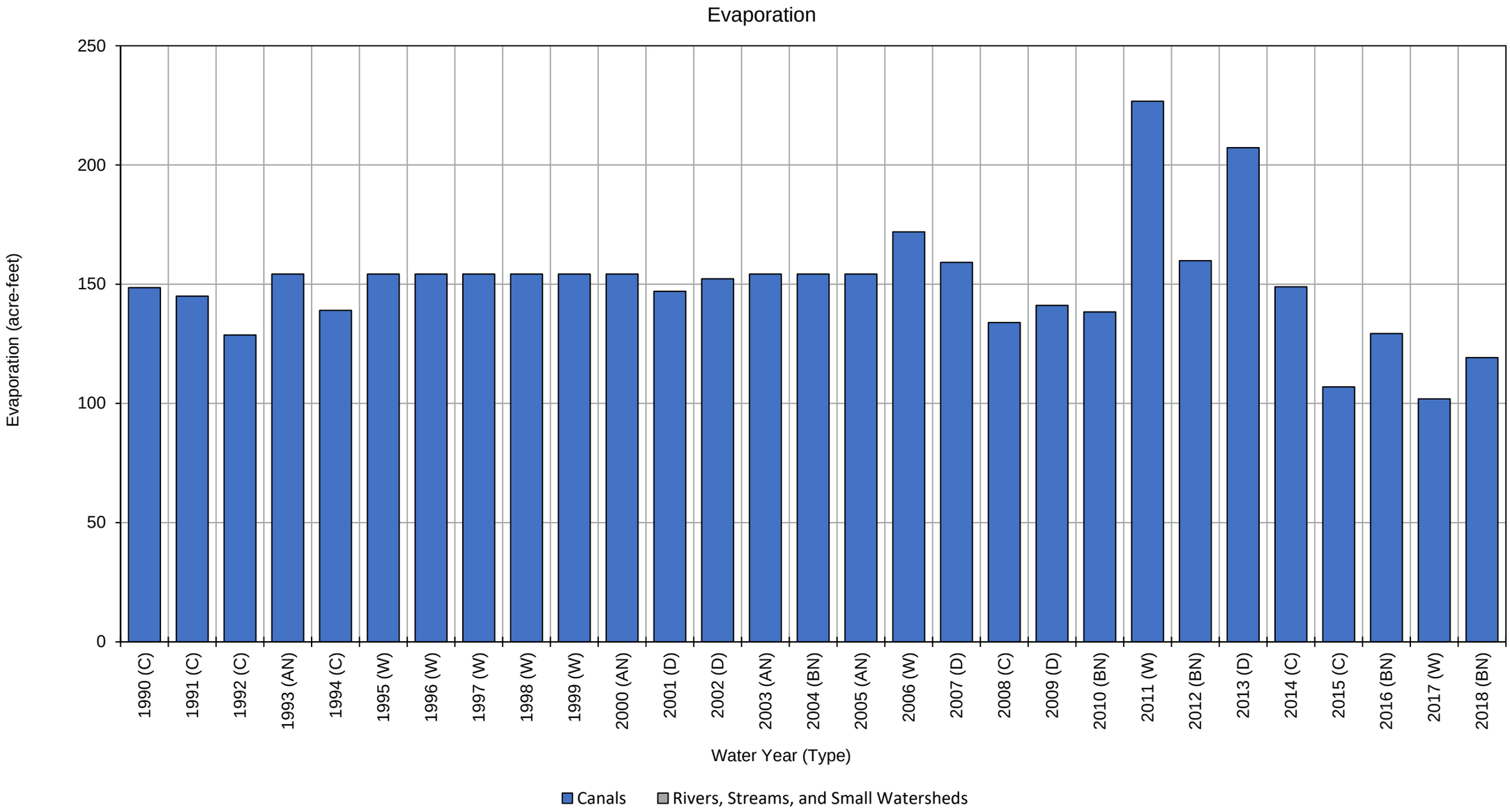
Tehama IHM - Historical

Antelope Subbasin Historical Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		12,000	1,000	13,000	26,000
1991 (C)		9,000	850	11,000	21,000
1992 (C)		11,000	1,100	13,000	25,000
1993 (AN)		14,000	1,400	14,000	29,000
1994 (C)		12,000	1,200	14,000	27,000
1995 (W)		12,000	1,300	12,000	25,000
1996 (W)		13,000	1,300	13,000	27,000
1997 (W)		12,000	1,300	13,000	26,000
1998 (W)		12,000	1,400	12,000	25,000
1999 (W)		11,000	1,200	13,000	25,000
2000 (AN)		11,000	1,500	14,000	27,000
2001 (D)		11,000	1,300	14,000	26,000
2002 (D)		9,800	1,200	13,000	24,000
2003 (AN)		11,000	1,400	13,000	25,000
2004 (BN)		9,600	1,200	13,000	24,000
2005 (AN)		13,000	1,700	15,000	30,000
2006 (W)		11,000	1,400	13,000	25,000
2007 (D)		9,100	1,200	13,000	23,000
2008 (C)		7,700	1,000	13,000	22,000
2009 (D)		9,100	1,300	14,000	24,000
2010 (BN)		11,000	1,400	14,000	26,000
2011 (W)		10,000	1,500	15,000	27,000
2012 (BN)		9,700	1,300	15,000	26,000
2013 (D)		7,400	1,000	13,000	21,000
2014 (C)		7,500	940	13,000	21,000
2015 (C)		9,000	1,200	14,000	24,000
2016 (BN)		11,000	1,400	15,000	27,000
2017 (W)		12,000	1,400	14,000	27,000
2018 (BN)		10,000	1,100	13,000	24,000
Average (1990-2018)		11,000	1,300	13,000	25,000
1990-2018	W	12,000	1,400	13,000	26,000
	AN	12,000	1,500	14,000	28,000
	BN	10,000	1,300	14,000	25,000
	D	9,300	1,200	13,000	24,000
	C	9,900	1,000	13,000	24,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

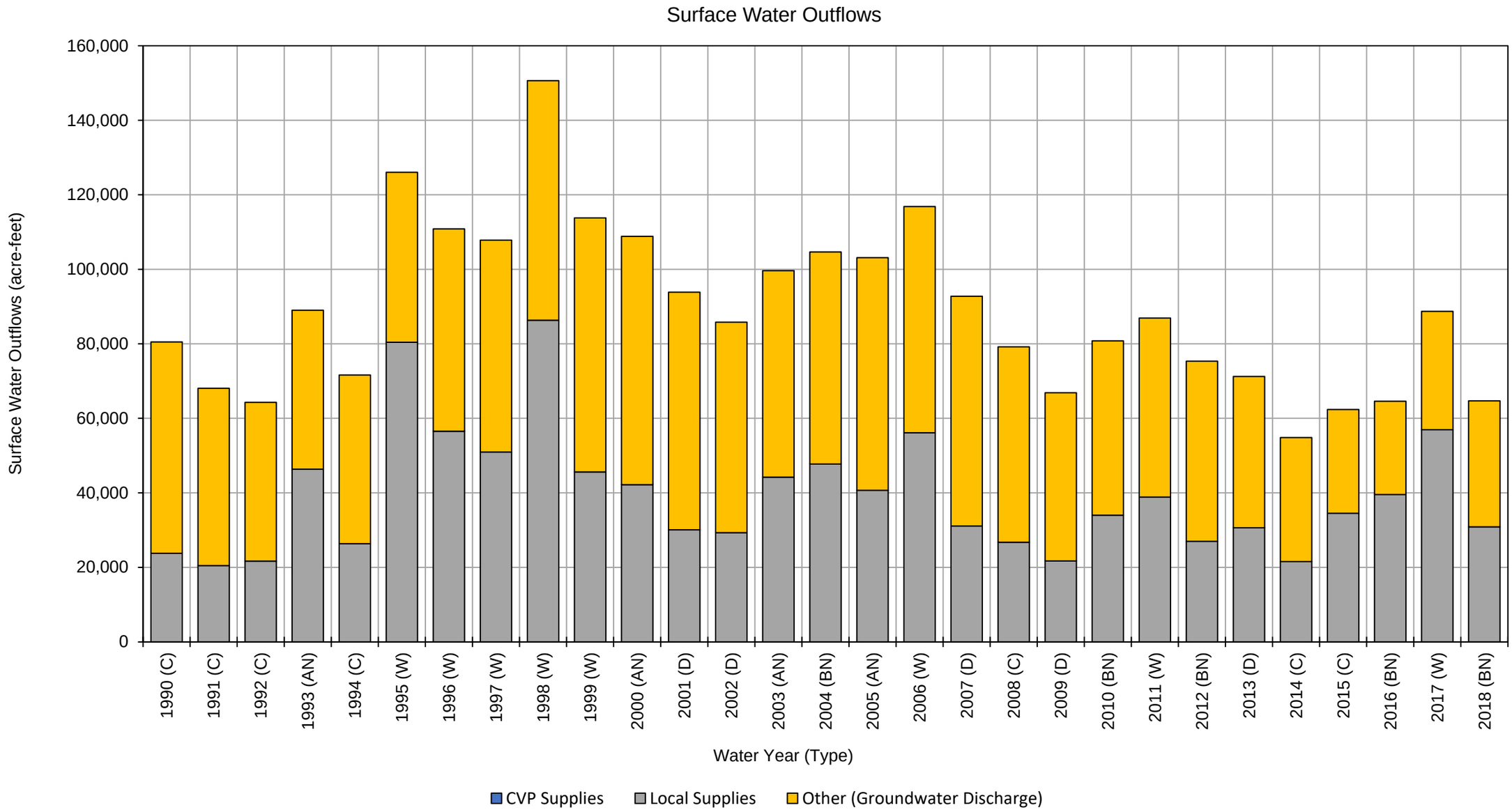

Evaporation
Evaporation (acre-feet)
250
200
150
100
50
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Canals
Rivers, Streams, and Small Watersheds

Antelope Subbasin Historical Evaporation (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Watersheds	Total
1990 (C)		150	0	150
1991 (C)		150	0	150
1992 (C)		130	0	130
1993 (AN)		150	0	150
1994 (C)		140	0	140
1995 (W)		150	0	150
1996 (W)		150	0	150
1997 (W)		150	0	150
1998 (W)		150	0	150
1999 (W)		150	0	150
2000 (AN)		150	0	150
2001 (D)		150	0	150
2002 (D)		150	0	150
2003 (AN)		150	0	150
2004 (BN)		150	0	150
2005 (AN)		150	0	150
2006 (W)		170	0	170
2007 (D)		160	0	160
2008 (C)		130	0	130
2009 (D)		140	0	140
2010 (BN)		140	0	140
2011 (W)		230	0	230
2012 (BN)		160	0	160
2013 (D)		210	0	210
2014 (C)		150	0	150
2015 (C)		110	0	110
2016 (BN)		130	0	130
2017 (W)		100	0	100
2018 (BN)		120	0	120
Average (1990-2018)		150	0	150
1990-2018	W	160	0	160
	AN	150	0	150
	BN	140	0	140
	D	160	0	160
	C	140	0	140

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

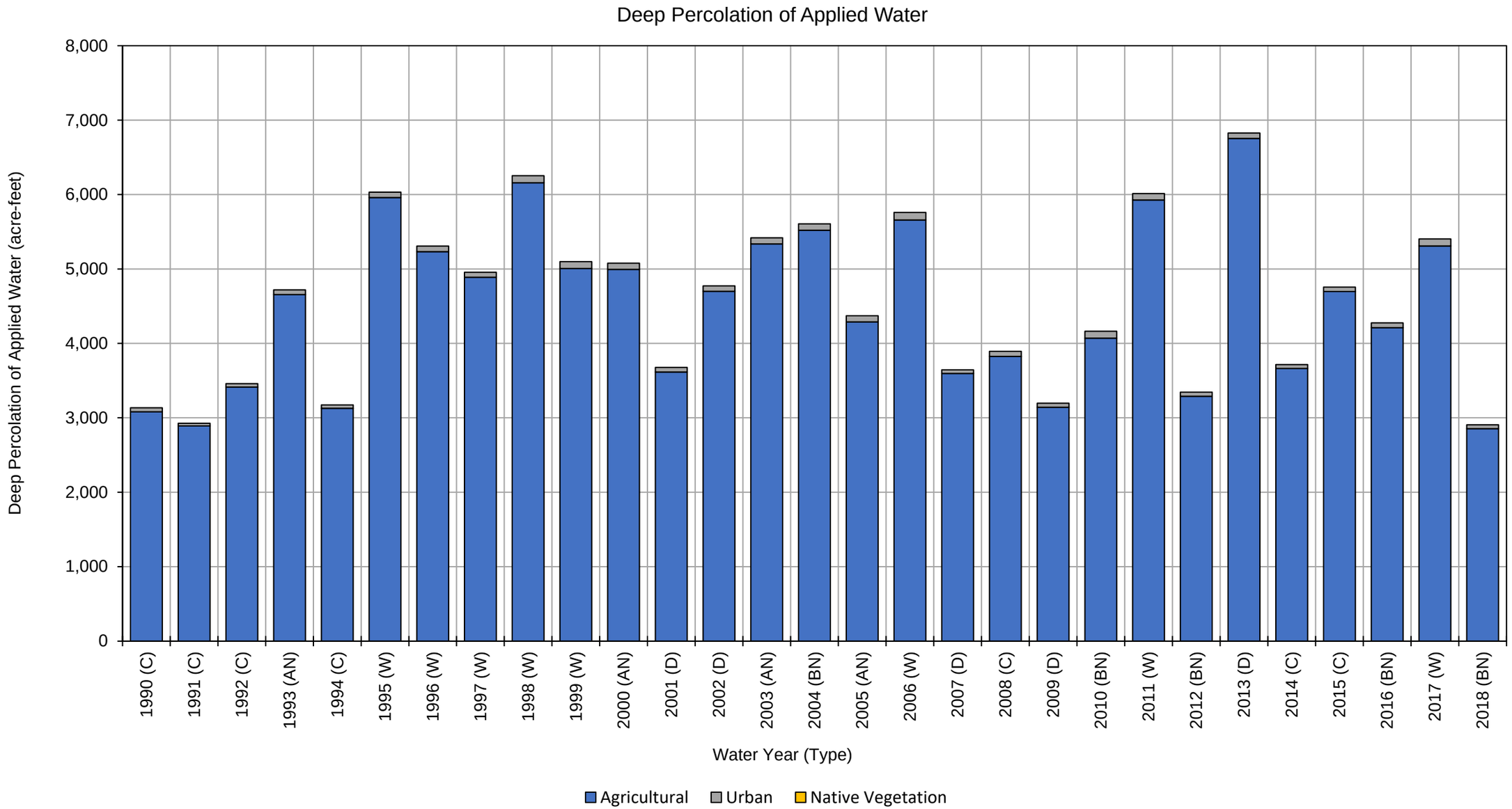

Surface Water Outflows
Surface Water Outflows (acre-feet)
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
CVP Supplies
Local Supplies
Other (Groundwater Discharge)

Antelope Subbasin Historical Surface Water Outflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
1990 (C)		0	24,000	57,000	81,000
1991 (C)		0	20,000	48,000	68,000
1992 (C)		0	22,000	43,000	65,000
1993 (AN)		0	46,000	43,000	89,000
1994 (C)		0	26,000	45,000	71,000
1995 (W)		0	80,000	46,000	130,000
1996 (W)		0	57,000	54,000	110,000
1997 (W)		0	51,000	57,000	110,000
1998 (W)		0	86,000	64,000	150,000
1999 (W)		0	46,000	68,000	110,000
2000 (AN)		0	42,000	67,000	110,000
2001 (D)		0	30,000	64,000	94,000
2002 (D)		0	29,000	56,000	85,000
2003 (AN)		0	44,000	55,000	99,000
2004 (BN)		0	48,000	57,000	110,000
2005 (AN)		0	41,000	62,000	100,000
2006 (W)		0	56,000	61,000	120,000
2007 (D)		0	31,000	62,000	93,000
2008 (C)		0	27,000	52,000	79,000
2009 (D)		0	22,000	45,000	67,000
2010 (BN)		0	34,000	47,000	81,000
2011 (W)		0	39,000	48,000	87,000
2012 (BN)		0	27,000	48,000	75,000
2013 (D)		0	31,000	41,000	72,000
2014 (C)		0	22,000	33,000	55,000
2015 (C)		0	35,000	28,000	63,000
2016 (BN)		0	40,000	25,000	65,000
2017 (W)		0	57,000	32,000	89,000
2018 (BN)		0	31,000	34,000	65,000
Average (1990-2018)		0	39,000	50,000	89,000
1990-2018	W	0	59,000	54,000	110,000
	AN	0	43,000	57,000	100,000
	BN	0	36,000	42,000	78,000
	D	0	29,000	54,000	83,000
	C	0	25,000	44,000	69,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
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D Dry
C Critical

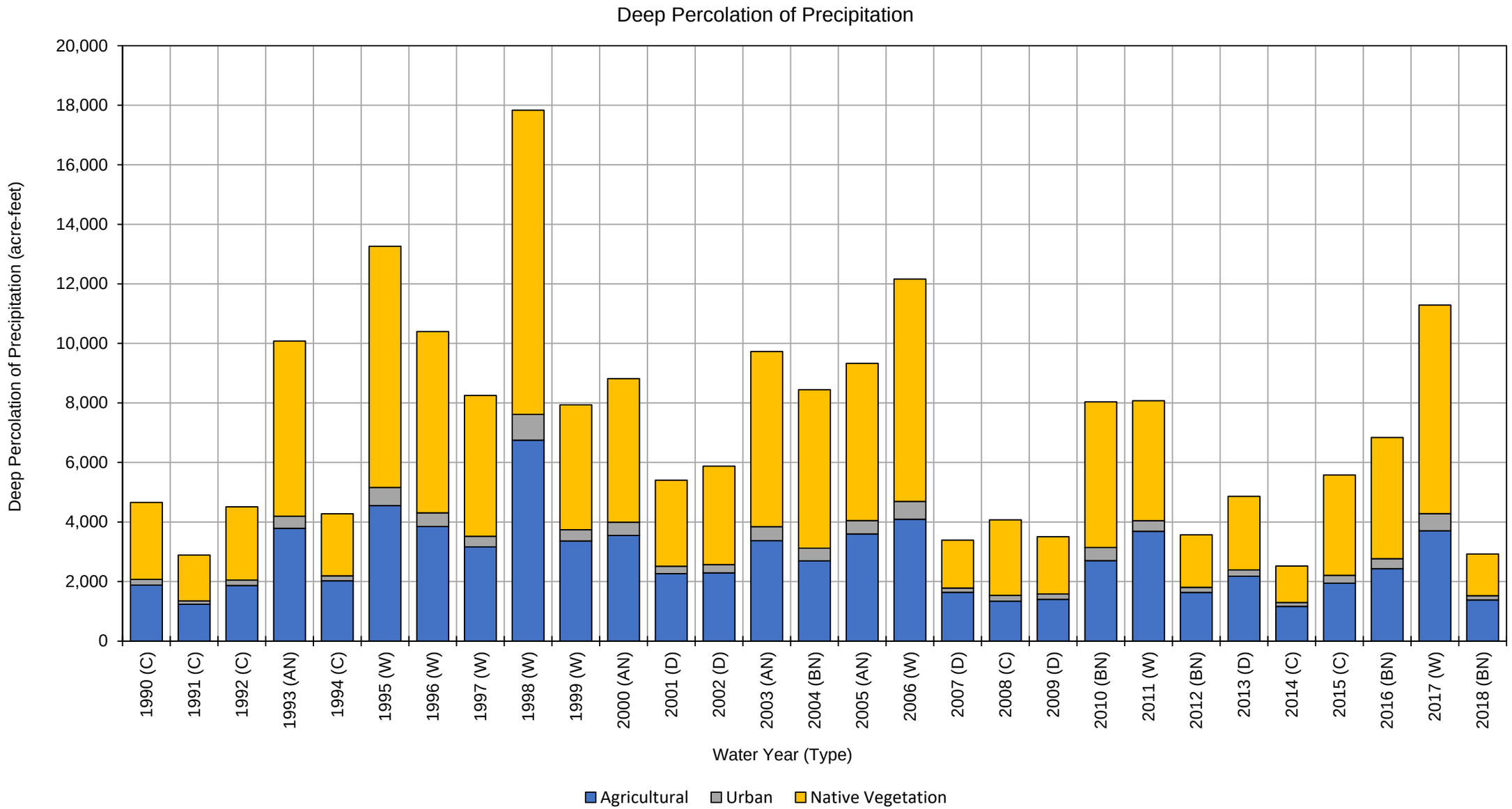

Deep Percolation of Applied Water
Deep Percolation of Applied Water (acre-feet)
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Antelope Subbasin Historical Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		3,100	54	0	3,200
1991 (C)		2,900	35	0	2,900
1992 (C)		3,400	46	0	3,400
1993 (AN)		4,700	62	0	4,800
1994 (C)		3,100	45	0	3,100
1995 (W)		6,000	73	0	6,100
1996 (W)		5,200	75	0	5,300
1997 (W)		4,900	67	0	5,000
1998 (W)		6,200	94	0	6,300
1999 (W)		5,000	92	0	5,100
2000 (AN)		5,000	82	0	5,100
2001 (D)		3,600	61	0	3,700
2002 (D)		4,700	73	0	4,800
2003 (AN)		5,300	82	0	5,400
2004 (BN)		5,500	86	0	5,600
2005 (AN)		4,300	81	0	4,400
2006 (W)		5,700	100	0	5,800
2007 (D)		3,600	48	0	3,600
2008 (C)		3,800	68	0	3,900
2009 (D)		3,100	55	0	3,200
2010 (BN)		4,100	93	0	4,200
2011 (W)		5,900	86	0	6,000
2012 (BN)		3,300	55	0	3,400
2013 (D)		6,800	72	0	6,900
2014 (C)		3,700	52	0	3,800
2015 (C)		4,700	59	0	4,800
2016 (BN)		4,200	65	0	4,300
2017 (W)		5,300	94	0	5,400
2018 (BN)		2,900	52	0	3,000
Average (1990-2018)		4,500	69	0	4,600
1990-2018	W	5,500	85	0	5,600
	AN	4,800	77	0	4,900
	BN	4,000	70	0	4,100
	D	4,400	62	0	4,500
	C	3,500	51	0	3,600

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

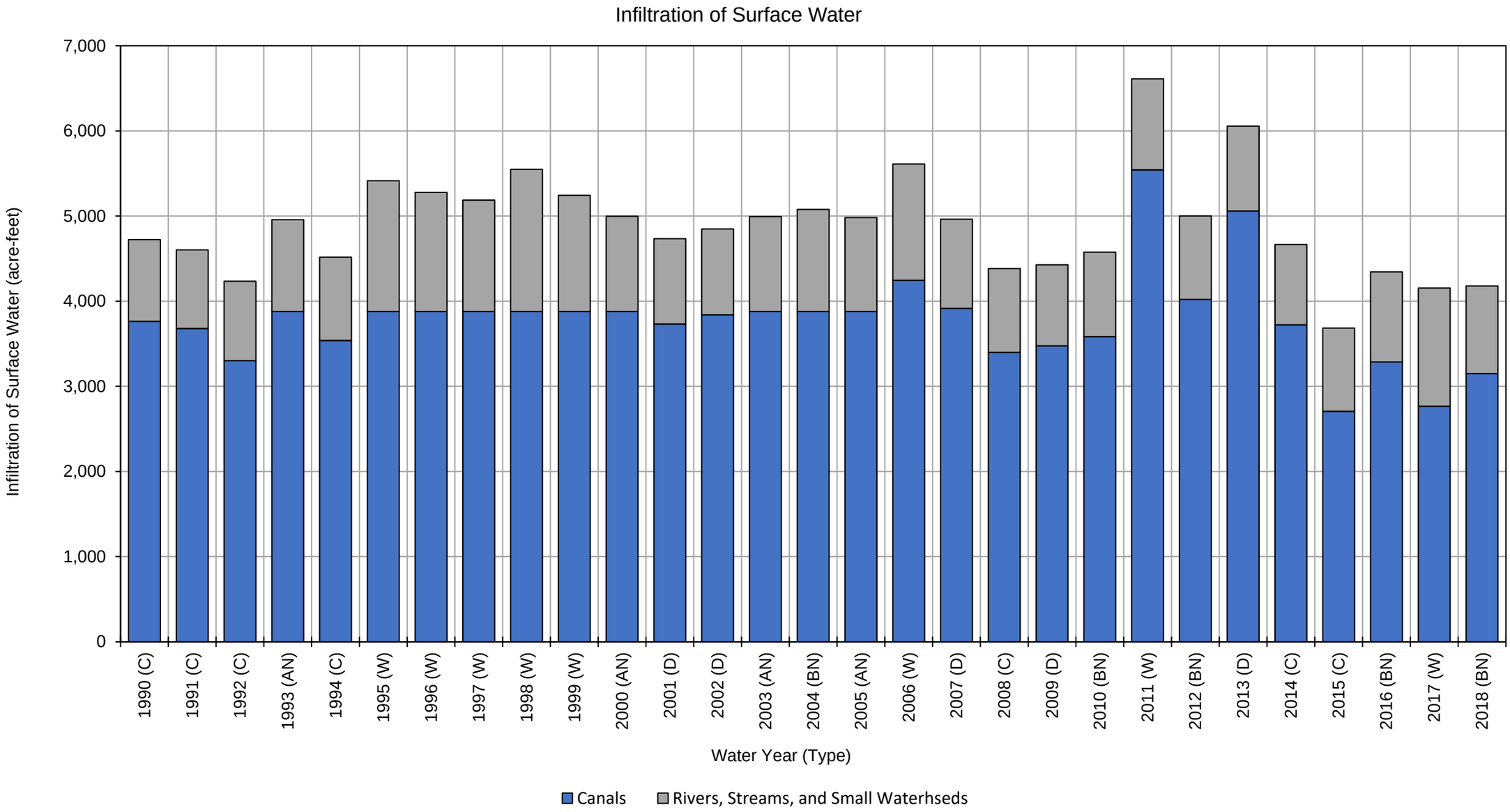

Deep Percolation of Precipitation
Deep Percolation of Precipitation (acre-feet)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Antelope Subbasin Historical Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		1,900	190	2,600	4,700
1991 (C)		1,200	110	1,500	2,800
1992 (C)		1,900	180	2,500	4,600
1993 (AN)		3,800	410	5,900	10,000
1994 (C)		2,000	170	2,100	4,300
1995 (W)		4,500	610	8,100	13,000
1996 (W)		3,800	460	6,100	10,000
1997 (W)		3,200	360	4,700	8,300
1998 (W)		6,700	860	10,000	18,000
1999 (W)		3,400	380	4,200	8,000
2000 (AN)		3,500	440	4,800	8,700
2001 (D)		2,300	250	2,900	5,500
2002 (D)		2,300	280	3,300	5,900
2003 (AN)		3,400	470	5,900	9,800
2004 (BN)		2,700	430	5,300	8,400
2005 (AN)		3,600	450	5,300	9,400
2006 (W)		4,100	600	7,500	12,000
2007 (D)		1,600	140	1,600	3,300
2008 (C)		1,300	200	2,500	4,000
2009 (D)		1,400	180	1,900	3,500
2010 (BN)		2,700	440	4,900	8,000
2011 (W)		3,700	360	4,000	8,100
2012 (BN)		1,600	170	1,800	3,600
2013 (D)		2,200	210	2,500	4,900
2014 (C)		1,200	130	1,200	2,500
2015 (C)		1,900	260	3,400	5,600
2016 (BN)		2,400	340	4,100	6,800
2017 (W)		3,700	570	7,000	11,000
2018 (BN)		1,400	140	1,400	2,900
Average (1990-2018)		2,700	340	4,100	7,100
1990-2018	W	4,100	520	6,500	11,000
	AN	3,600	440	5,500	9,500
	BN	2,200	300	3,500	6,000
	D	2,000	210	2,400	4,600
	C	1,600	180	2,300	4,100

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

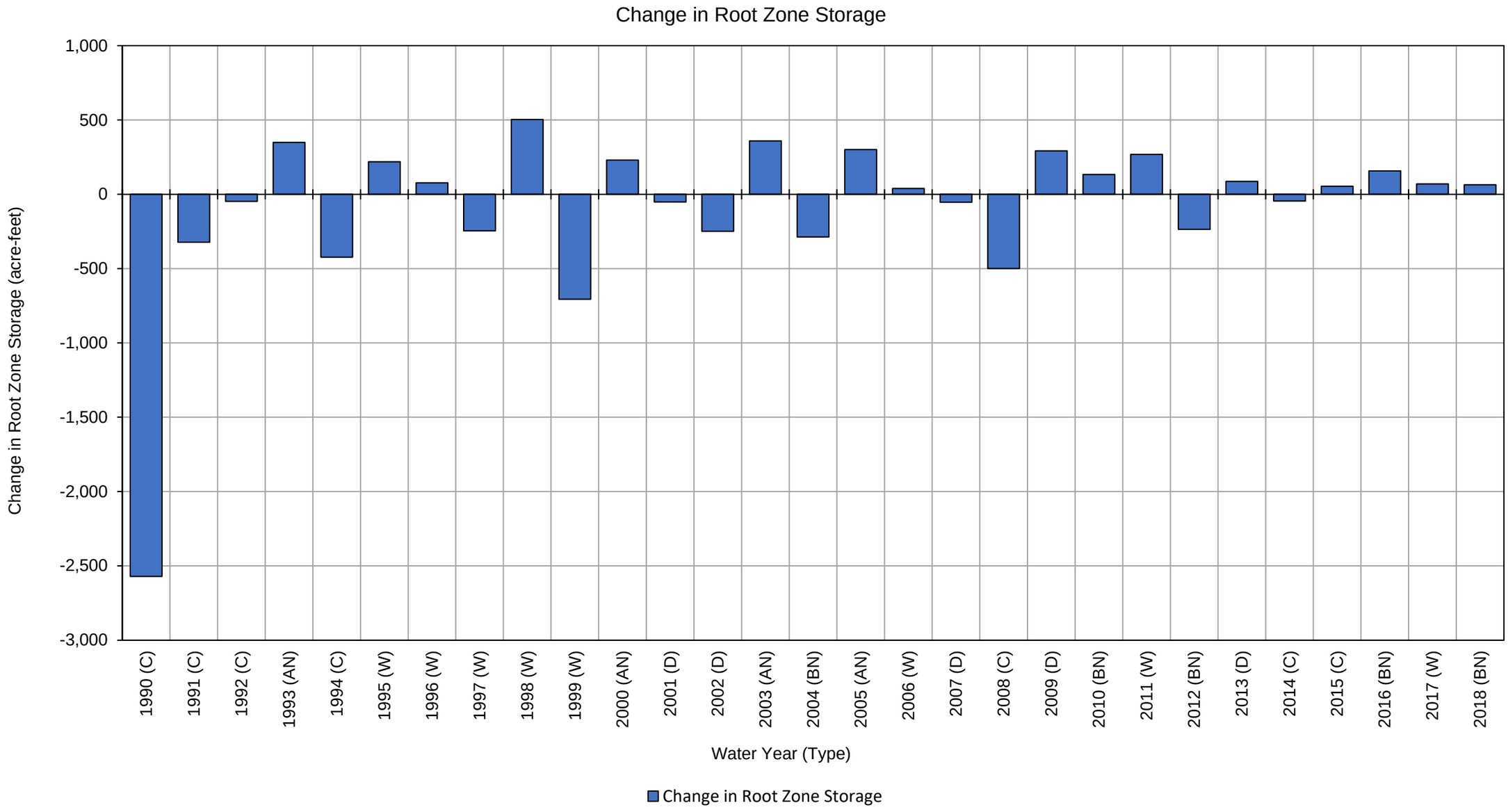

Infiltration of Surface Water
Infiltration of Surface Water (acre-feet)
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Canals
Rivers, Streams, and Small Waterhseds

Antelope Subbasin Historical Infiltration of Surface Water (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Waterhseds	Total
1990 (C)		3,800	960	4,800
1991 (C)		3,700	920	4,600
1992 (C)		3,300	930	4,200
1993 (AN)		3,900	1,100	5,000
1994 (C)		3,500	980	4,500
1995 (W)		3,900	1,500	5,400
1996 (W)		3,900	1,400	5,300
1997 (W)		3,900	1,300	5,200
1998 (W)		3,900	1,700	5,600
1999 (W)		3,900	1,400	5,300
2000 (AN)		3,900	1,100	5,000
2001 (D)		3,700	1,000	4,700
2002 (D)		3,800	1,000	4,800
2003 (AN)		3,900	1,100	5,000
2004 (BN)		3,900	1,200	5,100
2005 (AN)		3,900	1,100	5,000
2006 (W)		4,200	1,400	5,600
2007 (D)		3,900	1,000	4,900
2008 (C)		3,400	980	4,400
2009 (D)		3,500	950	4,500
2010 (BN)		3,600	990	4,600
2011 (W)		5,500	1,100	6,600
2012 (BN)		4,000	980	5,000
2013 (D)		5,100	1,000	6,100
2014 (C)		3,700	940	4,600
2015 (C)		2,700	980	3,700
2016 (BN)		3,300	1,100	4,400
2017 (W)		2,800	1,400	4,200
2018 (BN)		3,200	1,000	4,200
Average (1990-2018)		3,800	1,100	4,900
1990-2018	W	4,000	1,400	5,400
	AN	3,900	1,100	5,000
	BN	3,600	1,100	4,700
	D	4,000	1,000	5,000
	C	3,400	960	4,400

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical


Change in Root Zone Storage
Change in Root Zone Storage (acre-feet)
1,000
500
0
-500
-1,000
-1,500
-2,000
-2,500
-3,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Change in Root Zone Storage

Antelope Subbasin Historical Change in Root Zone Storage (acre-feet, rounded)

WY (Type)		Change in Root Zone Storage
1990 (C)		-2,600
1991 (C)		-320
1992 (C)		-48
1993 (AN)		350
1994 (C)		-420
1995 (W)		220
1996 (W)		77
1997 (W)		-250
1998 (W)		500
1999 (W)		-710
2000 (AN)		230
2001 (D)		-52
2002 (D)		-250
2003 (AN)		360
2004 (BN)		-290
2005 (AN)		300
2006 (W)		39
2007 (D)		-54
2008 (C)		-500
2009 (D)		290
2010 (BN)		130
2011 (W)		270
2012 (BN)		-240
2013 (D)		86
2014 (C)		-45
2015 (C)		54
2016 (BN)		160
2017 (W)		69
2018 (BN)		64
Average (1990-2018)		-88
1990-2018	W	28
	AN	310
	BN	-34
	D	5
	C	-550

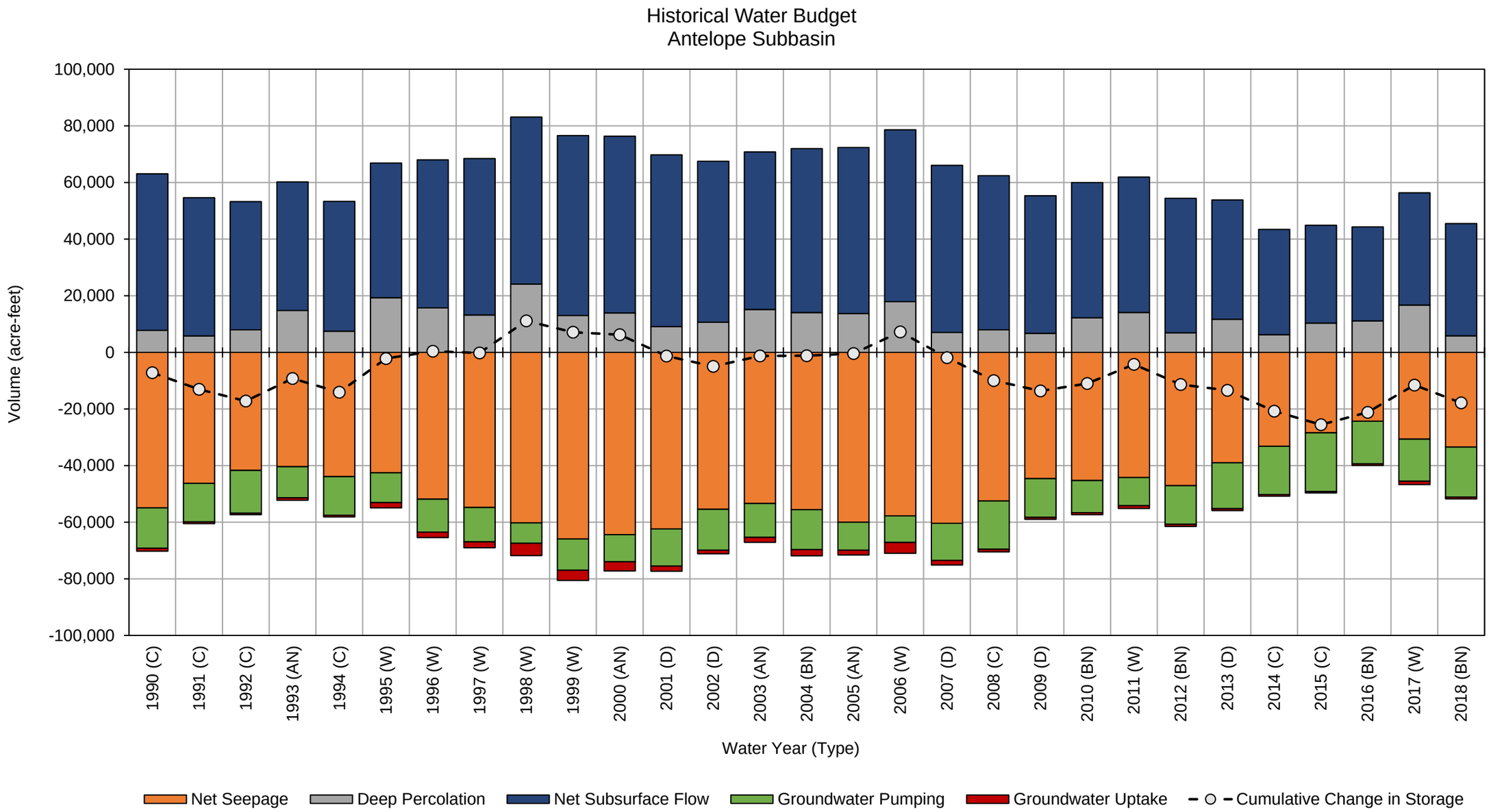
Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX A-1b

Detailed Antelope Subbasin Water Budget Results:

Historical Model Results – Groundwater System

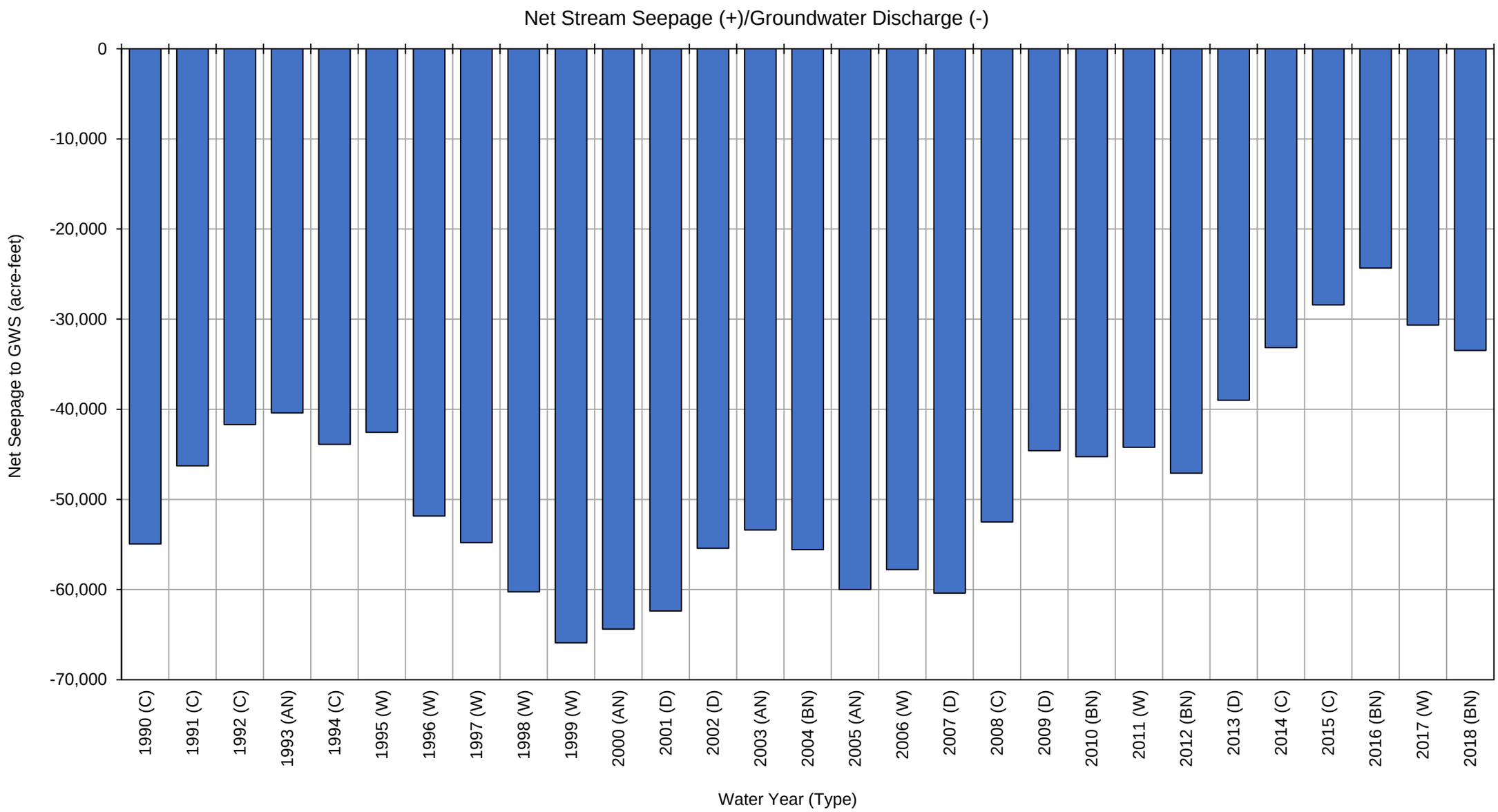

Historical Water Budget
Antelope Subbasin
Volume (acre-feet)
100,000
80,000
60,000
40,000
20,000
0
-20,000
-40,000
-60,000
-80,000
-100,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Antelope Subbasin Historical Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
1990 (C)		-55,000	7,800	-14,000	-1,000	55,000	-7,200	-7,200
1991 (C)		-46,000	5,800	-14,000	-620	49,000	-5,900	-13,000
1992 (C)		-42,000	8,000	-15,000	-550	45,000	-4,100	-17,000
1993 (AN)		-40,000	15,000	-11,000	-870	45,000	8,000	-9,200
1994 (C)		-44,000	7,400	-14,000	-620	46,000	-4,800	-14,000
1995 (W)		-43,000	19,000	-11,000	-1,900	48,000	12,000	-2,200
1996 (W)		-52,000	16,000	-12,000	-1,900	52,000	2,600	400
1997 (W)		-55,000	13,000	-12,000	-2,100	55,000	-600	-200
1998 (W)		-60,000	24,000	-7,200	-4,400	59,000	11,000	11,000
1999 (W)		-66,000	13,000	-11,000	-3,600	64,000	-4,000	7,100
2000 (AN)		-64,000	14,000	-9,600	-3,200	62,000	-880	6,200
2001 (D)		-62,000	9,100	-13,000	-1,800	61,000	-7,500	-1,300
2002 (D)		-55,000	11,000	-14,000	-1,300	57,000	-3,700	-5,000
2003 (AN)		-53,000	15,000	-12,000	-1,800	56,000	3,700	-1,300
2004 (BN)		-56,000	14,000	-14,000	-2,200	58,000	81	-1,200
2005 (AN)		-60,000	14,000	-9,900	-1,700	59,000	780	-410
2006 (W)		-58,000	18,000	-9,400	-3,800	61,000	7,600	7,200
2007 (D)		-60,000	7,000	-13,000	-1,600	59,000	-9,100	-1,800
2008 (C)		-53,000	8,000	-17,000	-920	54,000	-8,100	-10,000
2009 (D)		-45,000	6,700	-14,000	-670	49,000	-3,700	-14,000
2010 (BN)		-45,000	12,000	-11,000	-700	48,000	2,600	-11,000
2011 (W)		-44,000	14,000	-9,900	-980	48,000	6,800	-4,200
2012 (BN)		-47,000	6,900	-14,000	-740	47,000	-7,100	-11,000
2013 (D)		-39,000	12,000	-16,000	-680	42,000	-2,000	-13,000
2014 (C)		-33,000	6,200	-17,000	-560	37,000	-7,300	-21,000
2015 (C)		-28,000	10,000	-21,000	-490	35,000	-4,800	-26,000
2016 (BN)		-24,000	11,000	-15,000	-570	33,000	4,400	-21,000
2017 (W)		-31,000	17,000	-15,000	-1,200	40,000	9,600	-12,000
2018 (BN)		-33,000	5,800	-18,000	-600	40,000	-6,300	-18,000
Average (1990-2018)		-48,000	12,000	-13,000	-1,500	50,000	-610	
1990-2018	W	-51,000	17,000	-11,000	-2,500	53,000		
	AN	-55,000	14,000	-11,000	-1,900	56,000		
	BN	-41,000	10,000	-14,000	-960	45,000		
	D	-52,000	9,000	-14,000	-1,200	53,000		
	C	-43,000	7,700	-16,000	-690	46,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

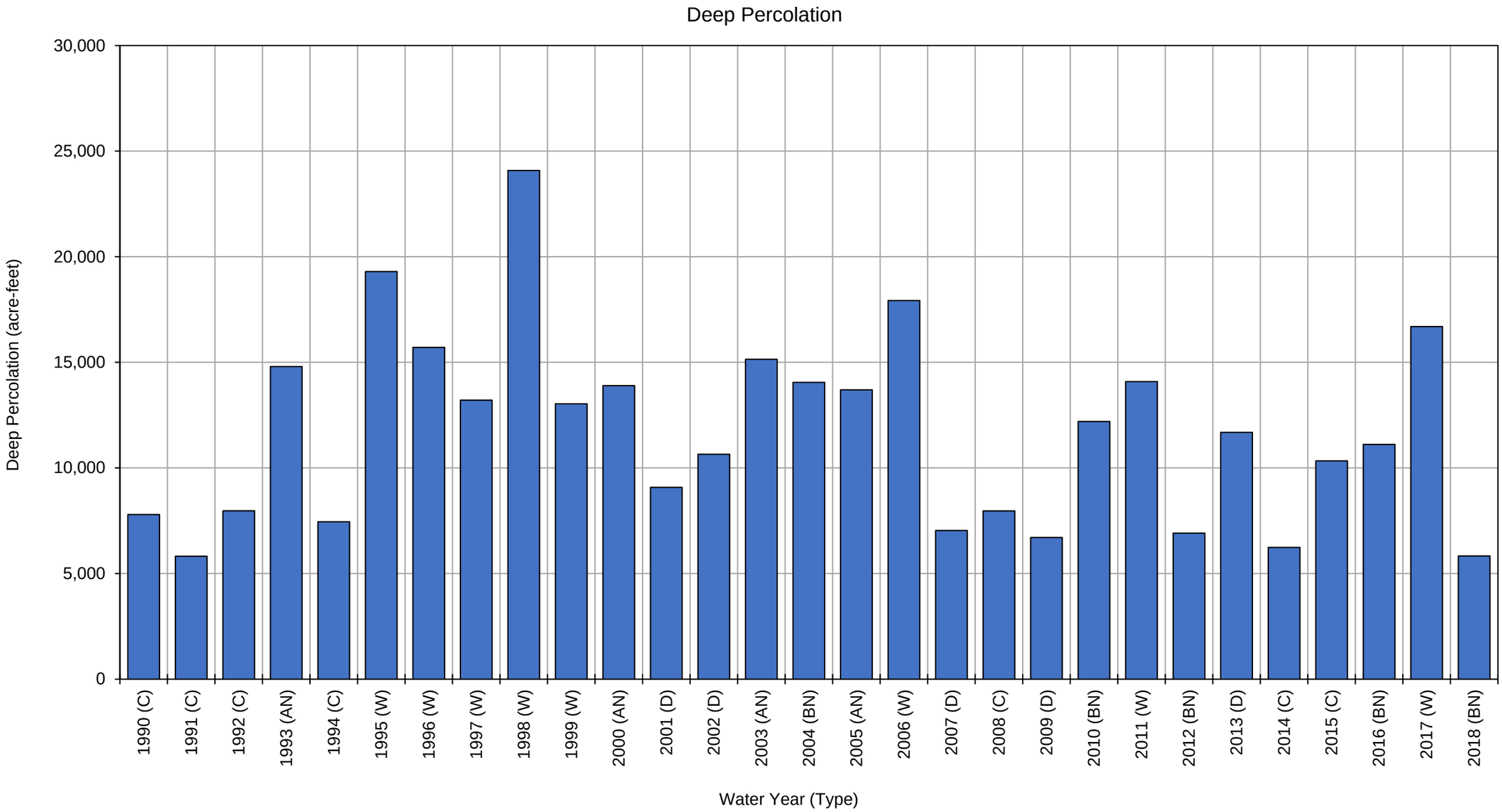

Net Stream Seepage (+)/Groundwater Discharge (-)
Net Seepage to GWS (acre-feet)
0
-10,000
-20,000
-30,000
-40,000
-50,000
-60,000
-70,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)

Antelope Subbasin Historical Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
1990 (C)		-55,000
1991 (C)		-46,000
1992 (C)		-42,000
1993 (AN)		-40,000
1994 (C)		-44,000
1995 (W)		-43,000
1996 (W)		-52,000
1997 (W)		-55,000
1998 (W)		-60,000
1999 (W)		-66,000
2000 (AN)		-64,000
2001 (D)		-62,000
2002 (D)		-55,000
2003 (AN)		-53,000
2004 (BN)		-56,000
2005 (AN)		-60,000
2006 (W)		-58,000
2007 (D)		-60,000
2008 (C)		-53,000
2009 (D)		-45,000
2010 (BN)		-45,000
2011 (W)		-44,000
2012 (BN)		-47,000
2013 (D)		-39,000
2014 (C)		-33,000
2015 (C)		-28,000
2016 (BN)		-24,000
2017 (W)		-31,000
2018 (BN)		-33,000
Average (1990-2018)		-48,000
1990-2018	W	-51,000
	AN	-55,000
	BN	-41,000
	D	-52,000
	C	-43,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

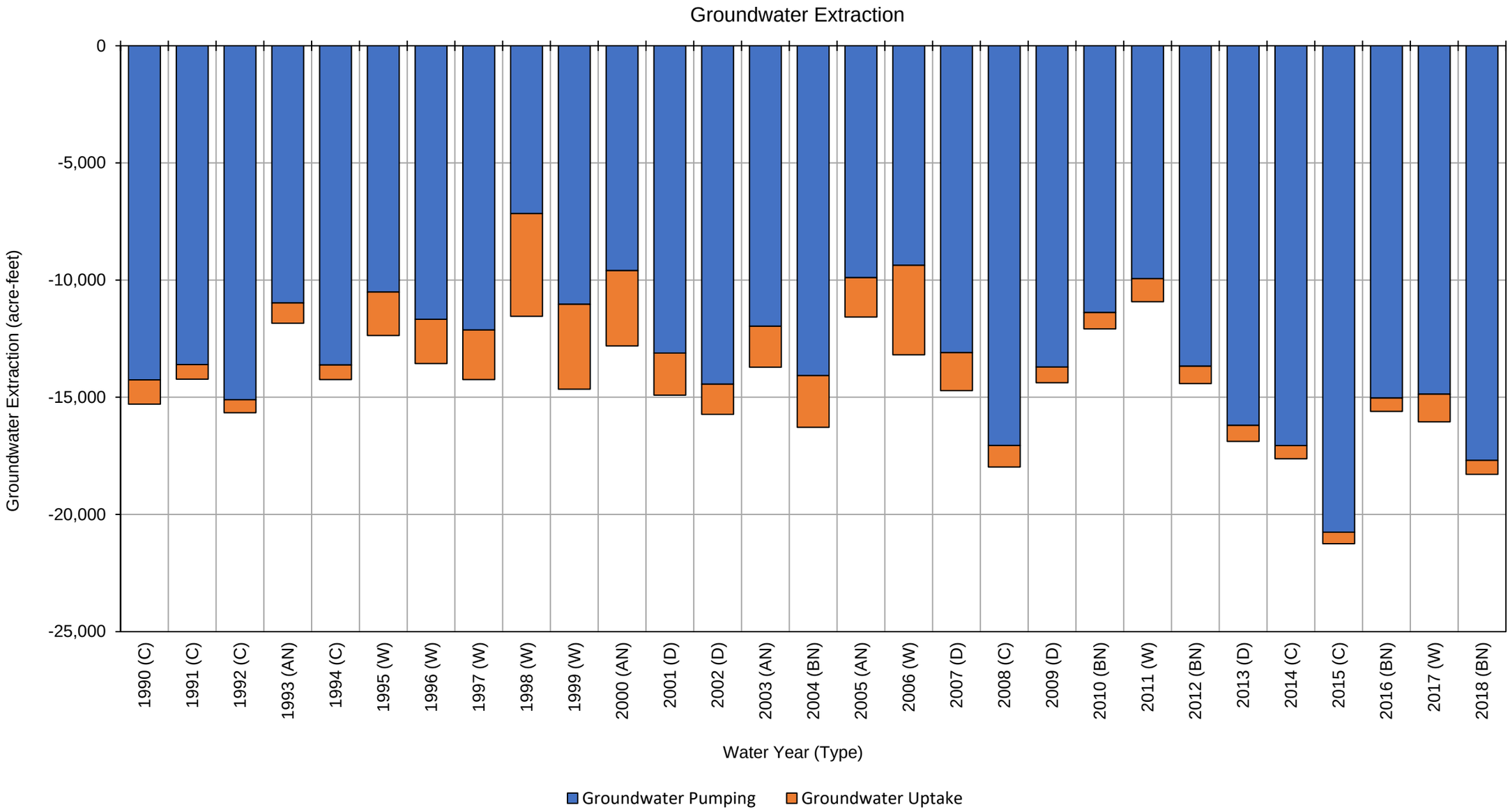

Deep Percolation
Deep Percolation (acre-feet)
30,000
25,000
20,000
15,000
10,000
5,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)

Antelope Subbasin Historical Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
1990 (C)		7,800
1991 (C)		5,800
1992 (C)		8,000
1993 (AN)		15,000
1994 (C)		7,400
1995 (W)		19,000
1996 (W)		16,000
1997 (W)		13,000
1998 (W)		24,000
1999 (W)		13,000
2000 (AN)		14,000
2001 (D)		9,100
2002 (D)		11,000
2003 (AN)		15,000
2004 (BN)		14,000
2005 (AN)		14,000
2006 (W)		18,000
2007 (D)		7,000
2008 (C)		8,000
2009 (D)		6,700
2010 (BN)		12,000
2011 (W)		14,000
2012 (BN)		6,900
2013 (D)		12,000
2014 (C)		6,200
2015 (C)		10,000
2016 (BN)		11,000
2017 (W)		17,000
2018 (BN)		5,800
Average (1990-2018)		12,000
1990-2018	W	17,000
	AN	14,000
	BN	10,000
	D	9,000
	C	7,700

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

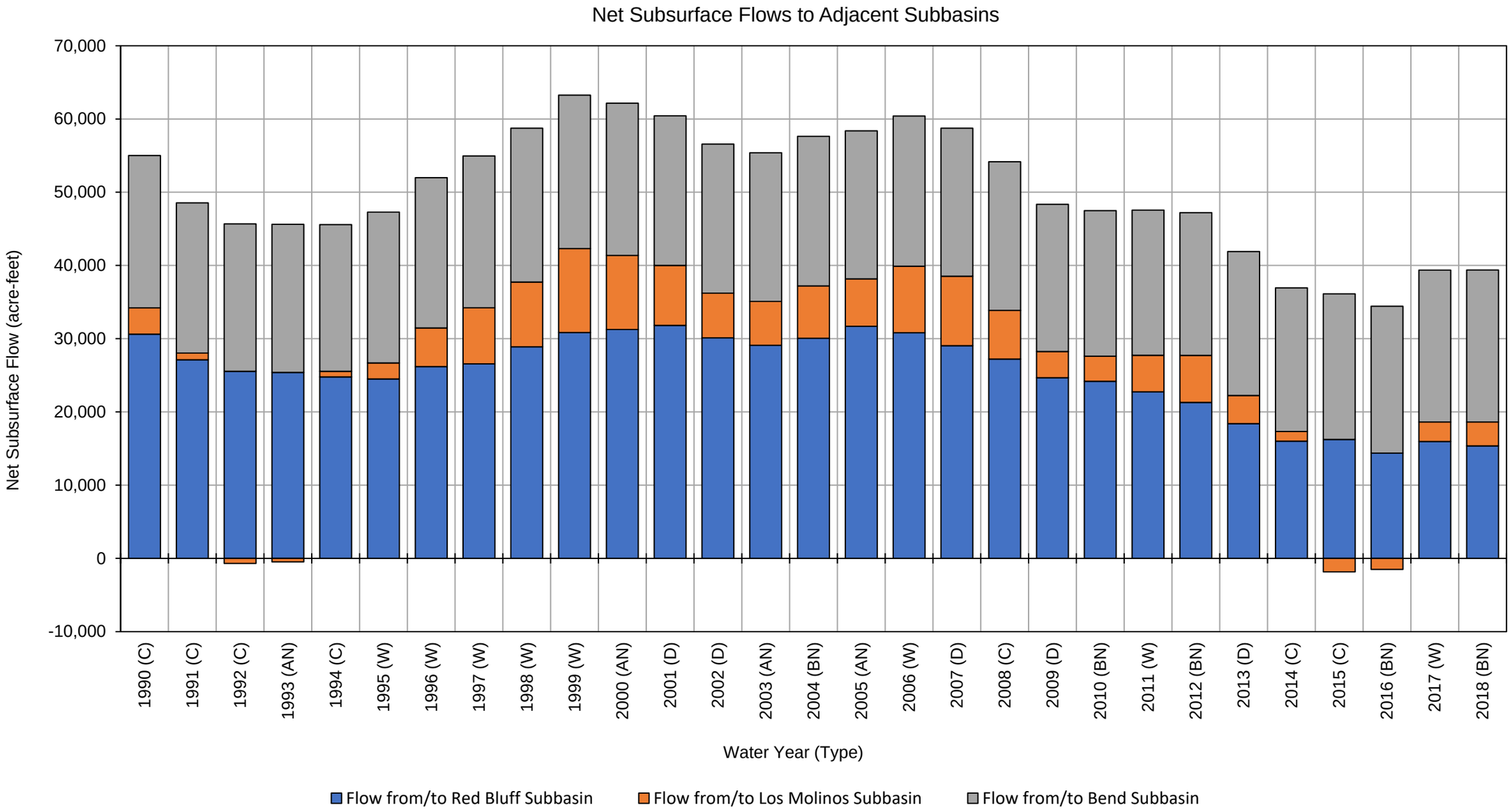

Groundwater Extraction
Groundwater Extraction (acre-feet)
0
-5,000
-10,000
-15,000
-20,000
-25,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Groundwater Pumping
Groundwater Uptake

Antelope Subbasin Historical Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
1990 (C)		-14,000	-1,000	-15,000
1991 (C)		-14,000	-620	-14,000
1992 (C)		-15,000	-550	-16,000
1993 (AN)		-11,000	-870	-12,000
1994 (C)		-14,000	-620	-14,000
1995 (W)		-11,000	-1,900	-12,000
1996 (W)		-12,000	-1,900	-14,000
1997 (W)		-12,000	-2,100	-14,000
1998 (W)		-7,200	-4,400	-12,000
1999 (W)		-11,000	-3,600	-15,000
2000 (AN)		-9,600	-3,200	-13,000
2001 (D)		-13,000	-1,800	-15,000
2002 (D)		-14,000	-1,300	-16,000
2003 (AN)		-12,000	-1,800	-14,000
2004 (BN)		-14,000	-2,200	-16,000
2005 (AN)		-9,900	-1,700	-12,000
2006 (W)		-9,400	-3,800	-13,000
2007 (D)		-13,000	-1,600	-15,000
2008 (C)		-17,000	-920	-18,000
2009 (D)		-14,000	-670	-14,000
2010 (BN)		-11,000	-700	-12,000
2011 (W)		-9,900	-980	-11,000
2012 (BN)		-14,000	-740	-14,000
2013 (D)		-16,000	-680	-17,000
2014 (C)		-17,000	-560	-18,000
2015 (C)		-21,000	-490	-21,000
2016 (BN)		-15,000	-570	-16,000
2017 (W)		-15,000	-1,200	-16,000
2018 (BN)		-18,000	-600	-18,000
Average (1990-2018)		-13,000	-1,500	-15,000
1990-2018	W	-11,000	-2,500	-13,000
	AN	-11,000	-1,900	-12,000
	BN	-14,000	-960	-15,000
	D	-14,000	-1,200	-15,000
	C	-16,000	-690	-17,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



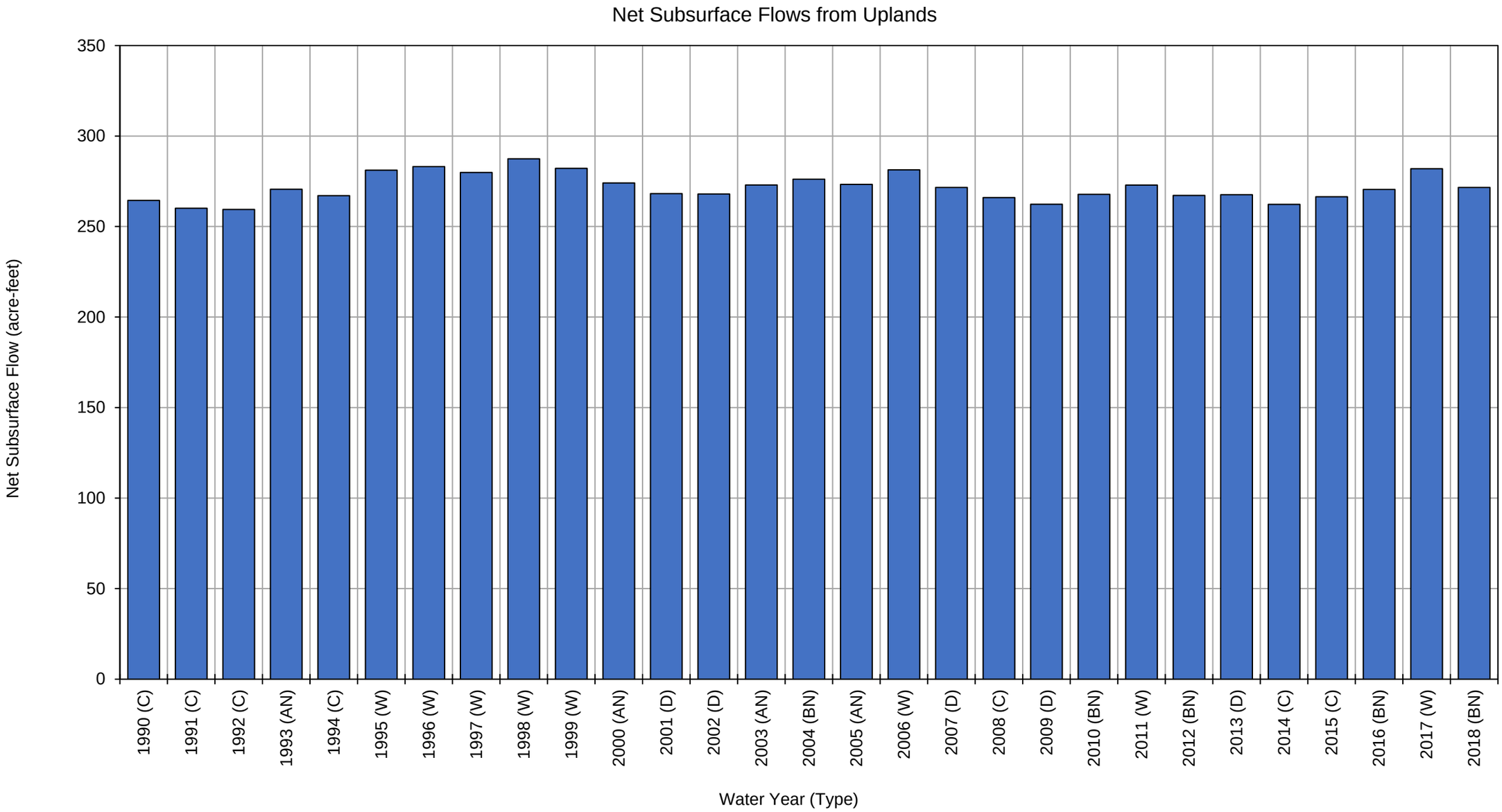
Tehama IHM - Historical

Antelope Subbasin Historical Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
1990 (C)		31,000	3,600	21,000	55,000
1991 (C)		27,000	930	21,000	49,000
1992 (C)		26,000	-690	20,000	45,000
1993 (AN)		25,000	-480	20,000	45,000
1994 (C)		25,000	770	20,000	46,000
1995 (W)		25,000	2,200	21,000	47,000
1996 (W)		26,000	5,300	21,000	52,000
1997 (W)		27,000	7,700	21,000	55,000
1998 (W)		29,000	8,800	21,000	59,000
1999 (W)		31,000	11,000	21,000	63,000
2000 (AN)		31,000	10,000	21,000	62,000
2001 (D)		32,000	8,200	20,000	60,000
2002 (D)		30,000	6,100	20,000	57,000
2003 (AN)		29,000	6,000	20,000	55,000
2004 (BN)		30,000	7,100	20,000	58,000
2005 (AN)		32,000	6,500	20,000	58,000
2006 (W)		31,000	9,100	21,000	60,000
2007 (D)		29,000	9,500	20,000	59,000
2008 (C)		27,000	6,700	20,000	54,000
2009 (D)		25,000	3,600	20,000	48,000
2010 (BN)		24,000	3,400	20,000	47,000
2011 (W)		23,000	5,000	20,000	48,000
2012 (BN)		21,000	6,400	19,000	47,000
2013 (D)		18,000	3,800	20,000	42,000
2014 (C)		16,000	1,300	20,000	37,000
2015 (C)		16,000	-1,800	20,000	34,000
2016 (BN)		14,000	-1,500	20,000	33,000
2017 (W)		16,000	2,700	21,000	39,000
2018 (BN)		15,000	3,300	21,000	39,000
Average (1990-2018)		25,000	4,700	20,000	50,000
1990-2018	W	26,000	6,500	21,000	53,000
	AN	29,000	5,500	20,000	55,000
	BN	21,000	3,700	20,000	45,000
	D	27,000	6,200	20,000	53,000
	C	24,000	1,500	20,000	46,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

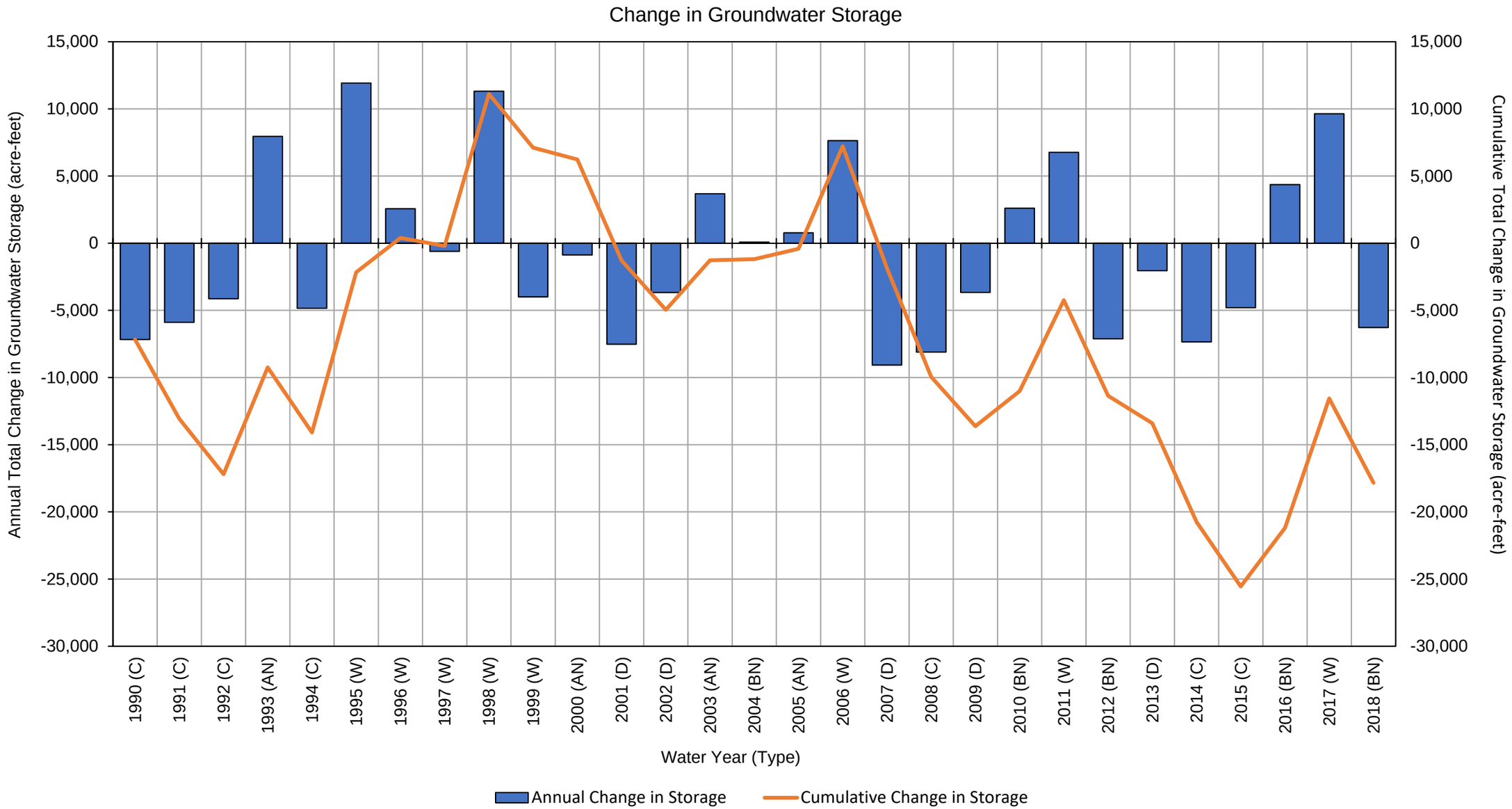

Net Subsurface Flows from Uplands
Net Subsurface Flow (acre-feet)
350
300
250
200
150
100
50
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)

Antelope Subbasin Historical Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
1990 (C)		260
1991 (C)		260
1992 (C)		260
1993 (AN)		270
1994 (C)		270
1995 (W)		280
1996 (W)		280
1997 (W)		280
1998 (W)		290
1999 (W)		280
2000 (AN)		270
2001 (D)		270
2002 (D)		270
2003 (AN)		270
2004 (BN)		280
2005 (AN)		270
2006 (W)		280
2007 (D)		270
2008 (C)		270
2009 (D)		260
2010 (BN)		270
2011 (W)		270
2012 (BN)		270
2013 (D)		270
2014 (C)		260
2015 (C)		270
2016 (BN)		270
2017 (W)		280
2018 (BN)		270
Average (1990-2018)		270
1990-2018	W	280
	AN	270
	BN	270
	D	270
	C	260

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical


Change in Groundwater Storage
Annual Total Change in Groundwater Storage (acre-feet)
Cumulative Total Change in Groundwater Storage (acre-feet)
15,000
10,000
5,000
0
-5,000
-10,000
-15,000
-20,000
-25,000
-30,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Annual Change in Storage
Cumulative Change in Storage

Antelope Subbasin Historical Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
1990 (C)	-7,200	-7,200
1991 (C)	-5,900	-13,000
1992 (C)	-4,100	-17,000
1993 (AN)	8,000	-9,200
1994 (C)	-4,800	-14,000
1995 (W)	12,000	-2,200
1996 (W)	2,600	400
1997 (W)	-600	-200
1998 (W)	11,000	11,000
1999 (W)	-4,000	7,100
2000 (AN)	-880	6,200
2001 (D)	-7,500	-1,300
2002 (D)	-3,700	-5,000
2003 (AN)	3,700	-1,300
2004 (BN)	81	-1,200
2005 (AN)	780	-410
2006 (W)	7,600	7,200
2007 (D)	-9,100	-1,800
2008 (C)	-8,100	-10,000
2009 (D)	-3,700	-14,000
2010 (BN)	2,600	-11,000
2011 (W)	6,800	-4,200
2012 (BN)	-7,100	-11,000
2013 (D)	-2,000	-13,000
2014 (C)	-7,300	-21,000
2015 (C)	-4,800	-26,000
2016 (BN)	4,400	-21,000
2017 (W)	9,600	-12,000
2018 (BN)	-6,300	-18,000
Average (1990-2018)	-610	
1990-2018 W		
1990-2018 AN		
1990-2018 BN		
1990-2018 D		
1990-2018 C		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX A-2

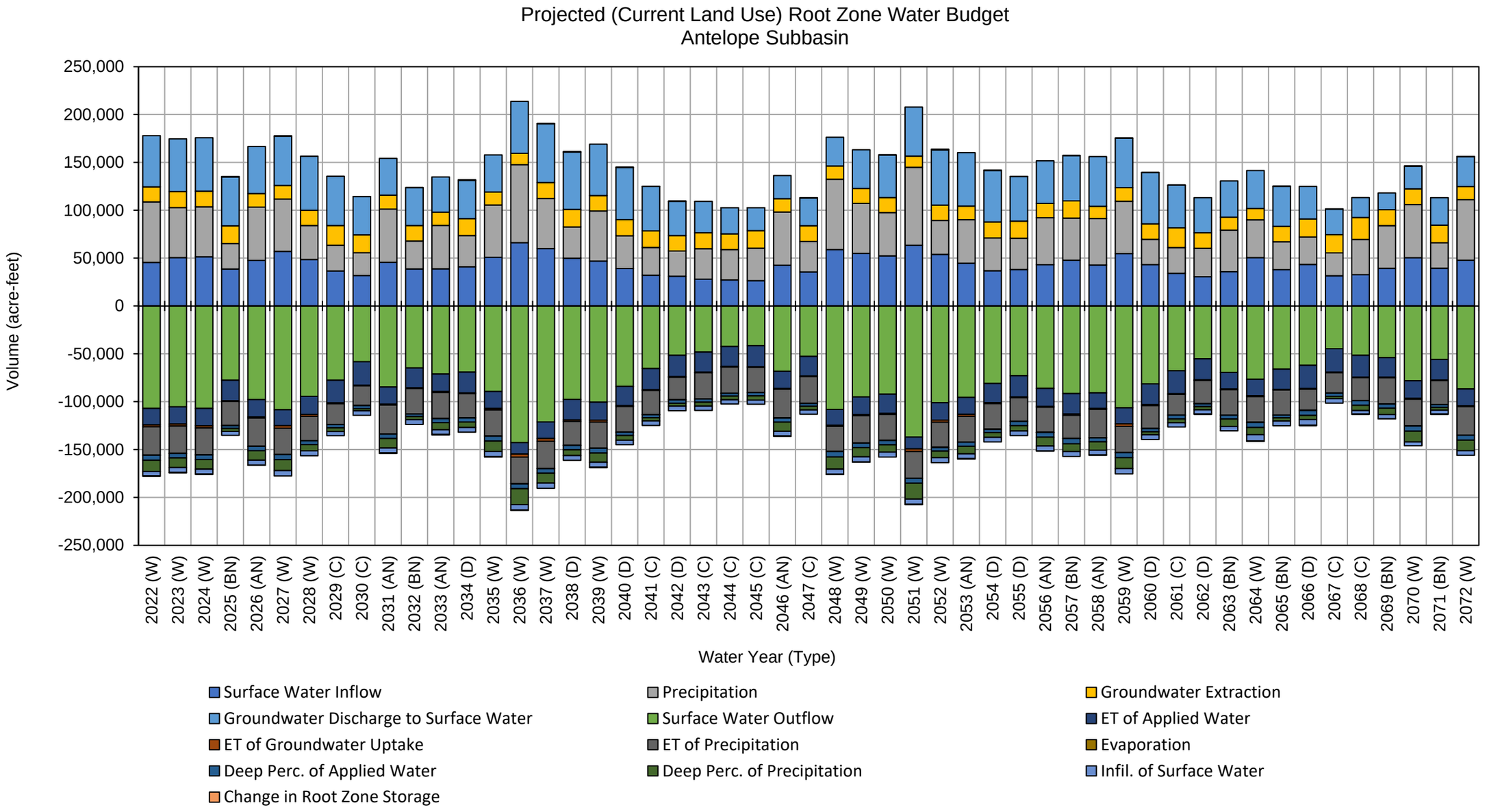
Detailed Antelope Subbasin Water Budget Results:

Projected (Current Land Use) Model Results

APPENDIX A-2a

Detailed Antelope Subbasin Water Budget Results:

Projected (Current Land Use) Model Results – Surface Water System


Projected (Current Land Use) Root Zone Water Budget
Antelope Subbasin
Volume (acre-feet)
250,000
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
-250,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
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2061 (C)
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2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Surface Water Inflow
Precipitation
Groundwater Extraction
Groundwater Discharge to Surface Water
Surface Water Outflow
ET of Applied Water
ET of Groundwater Uptake
ET of Precipitation
Evaporation
Deep Perc. of Applied Water
Deep Perc. of Precipitation
Infil. of Surface Water
Change in Root Zone Storage

Antelope Subbasin Projected (Current Land Use) Root Zone Water Budget Summary (acre-feet, rounded)

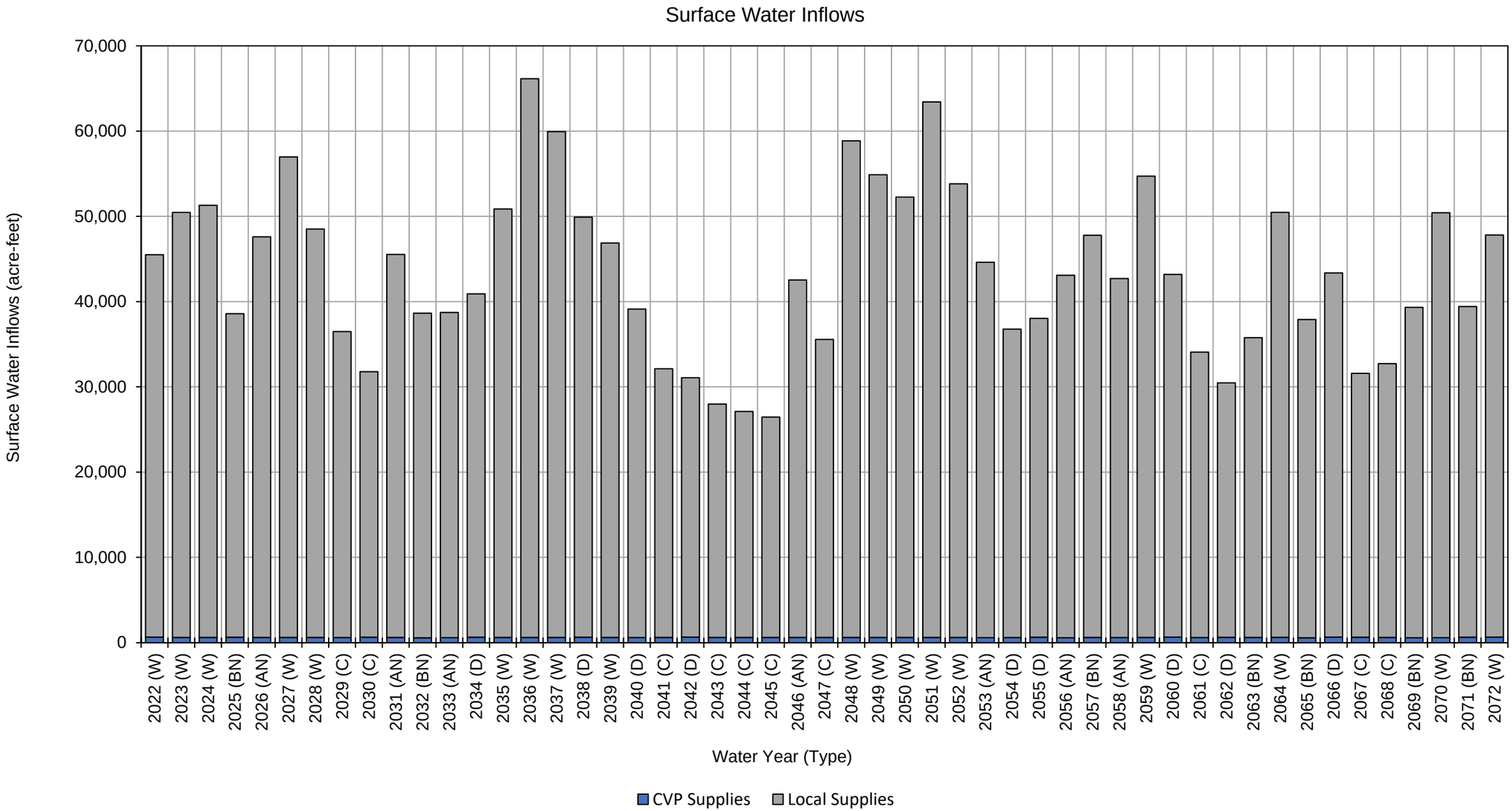
WY (Type)	Inflows				Outflows								Change in Root Zone Storage
	Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2022 (W)	45,000	63,000	16,000	54,000	110,000	17,000	2,000	30,000	140	5,300	12,000	4,800	280
2023 (W)	50,000	52,000	17,000	55,000	110,000	18,000	2,200	28,000	150	4,700	10,000	5,200	540
2024 (W)	51,000	52,000	16,000	56,000	110,000	18,000	2,300	28,000	150	4,800	10,000	5,200	3
2025 (BN)	39,000	27,000	18,000	51,000	78,000	21,000	810	25,000	120	2,900	3,100	4,200	-540
2026 (AN)	48,000	56,000	14,000	49,000	98,000	18,000	1,200	29,000	150	4,600	9,800	5,100	350
2027 (W)	57,000	55,000	14,000	52,000	110,000	17,000	2,700	27,000	170	5,200	11,000	5,700	-140
2028 (W)	49,000	36,000	16,000	56,000	94,000	19,000	2,000	25,000	150	4,000	6,500	5,100	-180
2029 (C)	36,000	27,000	21,000	51,000	78,000	24,000	820	22,000	130	3,400	3,800	4,400	-250
2030 (C)	32,000	24,000	19,000	40,000	58,000	25,000	600	20,000	150	3,200	2,300	4,700	-62
2031 (AN)	46,000	56,000	15,000	38,000	85,000	18,000	810	30,000	150	4,500	10,000	5,000	630
2032 (BN)	39,000	29,000	16,000	39,000	65,000	21,000	640	27,000	160	2,600	3,200	5,000	-340
2033 (AN)	39,000	45,000	14,000	37,000	71,000	18,000	920	27,000	150	4,100	7,400	4,900	580
2034 (D)	41,000	33,000	18,000	40,000	69,000	22,000	670	25,000	150	4,300	5,600	4,900	-660
2035 (W)	51,000	55,000	14,000	39,000	89,000	18,000	1,400	27,000	170	5,200	11,000	5,500	260
2036 (W)	66,000	81,000	12,000	54,000	140,000	12,000	3,200	28,000	150	5,000	17,000	5,600	520
2037 (W)	60,000	52,000	17,000	61,000	120,000	17,000	2,900	28,000	150	4,700	10,000	5,500	-160
2038 (D)	50,000	33,000	18,000	60,000	98,000	21,000	1,600	25,000	150	4,600	5,900	5,100	-610
2039 (W)	47,000	52,000	16,000	54,000	100,000	19,000	2,000	27,000	150	4,900	9,700	5,100	600
2040 (D)	39,000	34,000	17,000	54,000	84,000	20,000	950	27,000	150	3,400	5,000	4,800	-350
2041 (C)	32,000	29,000	17,000	46,000	65,000	22,000	650	25,000	150	3,200	3,400	4,700	-34
2042 (D)	31,000	26,000	16,000	36,000	52,000	22,000	620	24,000	160	3,400	3,000	4,800	-150
2043 (C)	28,000	32,000	17,000	33,000	48,000	21,000	550	27,000	140	3,400	4,100	4,500	-13
2044 (C)	27,000	32,000	16,000	27,000	42,000	21,000	510	27,000	140	2,900	3,800	4,500	0
2045 (C)	26,000	34,000	18,000	24,000	41,000	22,000	460	26,000	130	3,500	4,400	4,200	-89
2046 (AN)	43,000	56,000	14,000	24,000	68,000	18,000	620	30,000	150	4,300	9,500	4,900	440
2047 (C)	36,000	32,000	16,000	29,000	53,000	20,000	510	28,000	140	2,900	3,900	4,500	-350
2048 (W)	59,000	74,000	14,000	30,000	110,000	17,000	1,100	26,000	150	5,700	13,000	5,400	330
2049 (W)	55,000	52,000	16,000	40,000	95,000	19,000	1,000	29,000	150	4,600	9,600	5,300	200
2050 (W)	52,000	45,000	16,000	44,000	92,000	20,000	1,200	27,000	150	4,500	7,700	5,200	-270
2051 (W)	63,000	81,000	12,000	51,000	140,000	12,000	2,900	28,000	150	5,000	17,000	5,500	450
2052 (W)	54,000	36,000	16,000	58,000	100,000	18,000	2,200	26,000	150	3,900	6,800	5,200	-660
2053 (AN)	45,000	45,000	14,000	56,000	96,000	18,000	2,000	27,000	150	4,300	7,900	5,000	570
2054 (D)	37,000	34,000	17,000	54,000	81,000	20,000	900	27,000	150	3,400	5,000	4,700	-430
2055 (D)	38,000	33,000	18,000	47,000	73,000	22,000	790	25,000	150	4,400	5,500	4,800	-250
2056 (AN)	43,000	49,000	15,000	44,000	86,000	19,000	1,000	26,000	150	5,000	9,200	5,000	310
2057 (BN)	48,000	44,000	18,000	47,000	92,000	21,000	1,300	24,000	150	5,500	8,100	5,100	-250
2058 (AN)	43,000	49,000	13,000	52,000	91,000	16,000	890	30,000	150	4,000	8,800	5,000	370
2059 (W)	55,000	55,000	14,000	52,000	110,000	17,000	2,700	27,000	170	5,100	11,000	5,600	-150
2060 (D)	43,000	26,000	16,000	54,000	81,000	22,000	900	24,000	160	3,300	3,100	5,000	-200
2061 (C)	34,000	27,000	21,000	45,000	68,000	24,000	700	22,000	130	4,000	4,000	4,400	-230
2062 (D)	30,000	30,000	16,000	37,000	55,000	22,000	590	24,000	140	3,000	3,300	4,400	110
2063 (BN)	36,000	43,000	14,000	38,000	70,000	17,000	590	27,000	140	4,000	7,700	4,600	100
2064 (W)	50,000	39,000	12,000	40,000	77,000	17,000	800	27,000	230	5,200	7,600	6,600	390
2065 (BN)	38,000	29,000	16,000	42,000	66,000	21,000	650	26,000	160	2,800	3,300	5,000	-370

Antelope Subbasin Projected (Current Land Use) Root Zone Water Budget Summary (acre-feet, rounded)

WY (Type)		Inflows				Outflows								Change in Root Zone Storage
		Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2066 (D)		43,000	29,000	19,000	34,000	62,000	24,000	600	22,000	210	5,100	4,400	6,100	86
2067 (C)		32,000	24,000	19,000	27,000	45,000	25,000	500	21,000	150	3,300	2,400	4,700	-380
2068 (C)		33,000	37,000	23,000	21,000	52,000	23,000	430	24,000	110	4,800	5,500	3,700	240
2069 (BN)		39,000	45,000	17,000	17,000	54,000	21,000	480	27,000	130	4,200	6,700	4,300	130
2070 (W)		50,000	56,000	16,000	24,000	78,000	18,000	970	28,000	100	5,300	11,000	4,200	-100
2071 (BN)		39,000	27,000	18,000	29,000	56,000	22,000	550	25,000	120	2,900	2,900	4,200	18
2072 (W)		48,000	63,000	14,000	31,000	87,000	18,000	810	30,000	140	5,100	11,000	4,800	-26
Average (2022-2072)		43,000	43,000	16,000	43,000	81,000	20,000	1,200	26,000	150	4,200	7,200	4,900	5
2022-2072	W	54,000	56,000	15,000	47,000	100,000	17,000	1,900	28,000	160	4,900	11,000	5,300	100
	AN	44,000	51,000	14,000	43,000	85,000	18,000	1,100	29,000	150	4,400	8,900	5,000	470
	BN	40,000	35,000	17,000	38,000	68,000	21,000	720	26,000	140	3,600	5,000	4,600	-180
	D	39,000	31,000	17,000	46,000	73,000	22,000	840	25,000	160	3,900	4,500	5,000	-270
	C	32,000	30,000	19,000	34,000	55,000	23,000	570	24,000	140	3,500	3,700	4,400	-120

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

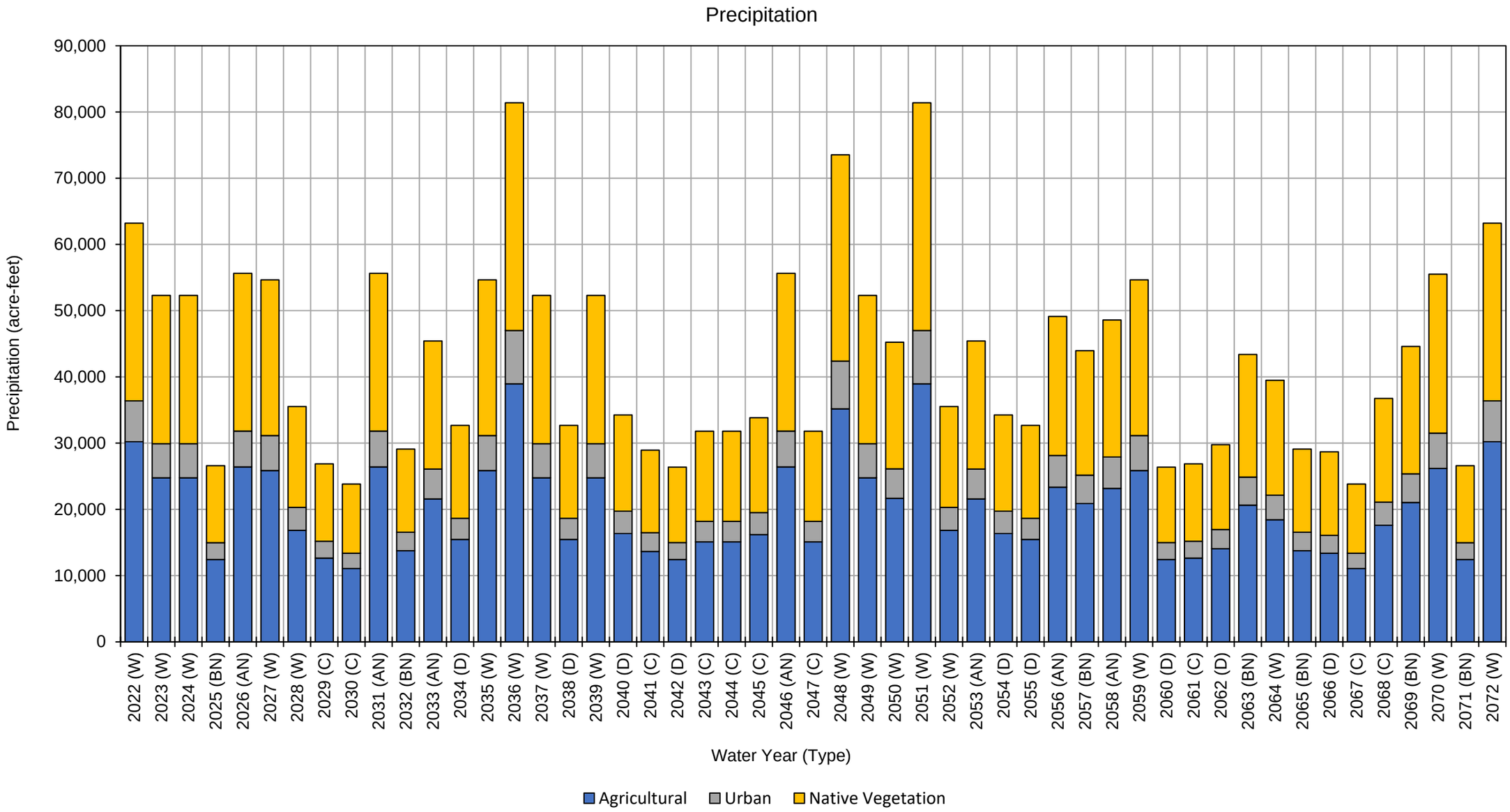
WY (Type)	CVP Supplies	Local Supplies	Total
2022 (W)	650	45,000	46,000
2023 (W)	610	50,000	51,000
2024 (W)	610	51,000	52,000
2025 (BN)	630	38,000	39,000
2026 (AN)	610	47,000	48,000
2027 (W)	610	56,000	57,000
2028 (W)	620	48,000	49,000
2029 (C)	600	36,000	37,000
2030 (C)	640	31,000	32,000
2031 (AN)	610	45,000	46,000
2032 (BN)	560	38,000	39,000
2033 (AN)	580	38,000	39,000
2034 (D)	640	40,000	41,000
2035 (W)	610	50,000	51,000
2036 (W)	610	66,000	67,000
2037 (W)	610	59,000	60,000
2038 (D)	640	49,000	50,000
2039 (W)	610	46,000	47,000
2040 (D)	600	39,000	40,000
2041 (C)	610	32,000	33,000
2042 (D)	650	30,000	31,000
2043 (C)	610	27,000	28,000
2044 (C)	610	27,000	28,000
2045 (C)	610	26,000	27,000
2046 (AN)	610	42,000	43,000
2047 (C)	610	35,000	36,000
2048 (W)	610	58,000	59,000
2049 (W)	610	54,000	55,000
2050 (W)	610	52,000	53,000
2051 (W)	610	63,000	64,000
2052 (W)	620	53,000	54,000
2053 (AN)	580	44,000	45,000
2054 (D)	600	36,000	37,000
2055 (D)	640	37,000	38,000
2056 (AN)	580	43,000	44,000
2057 (BN)	620	47,000	48,000
2058 (AN)	600	42,000	43,000
2059 (W)	610	54,000	55,000
2060 (D)	650	43,000	44,000
2061 (C)	600	33,000	34,000
2062 (D)	620	30,000	31,000
2063 (BN)	610	35,000	36,000

Antelope Subbasin Projected (Current Land Use) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Total
2064 (W)		630	50,000	51,000
2065 (BN)		560	37,000	38,000
2066 (D)		650	43,000	44,000
2067 (C)		640	31,000	32,000
2068 (C)		610	32,000	33,000
2069 (BN)		580	39,000	40,000
2070 (W)		580	50,000	51,000
2071 (BN)		630	39,000	40,000
2072 (W)		650	47,000	48,000
Average (2022-2072)		610	43,000	44,000
2022-2072	W	620	53,000	54,000
	AN	600	43,000	44,000
	BN	600	39,000	40,000
	D	630	39,000	40,000
	C	610	31,000	32,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Precipitation, by Water Use Sector (acre-feet, rounded)

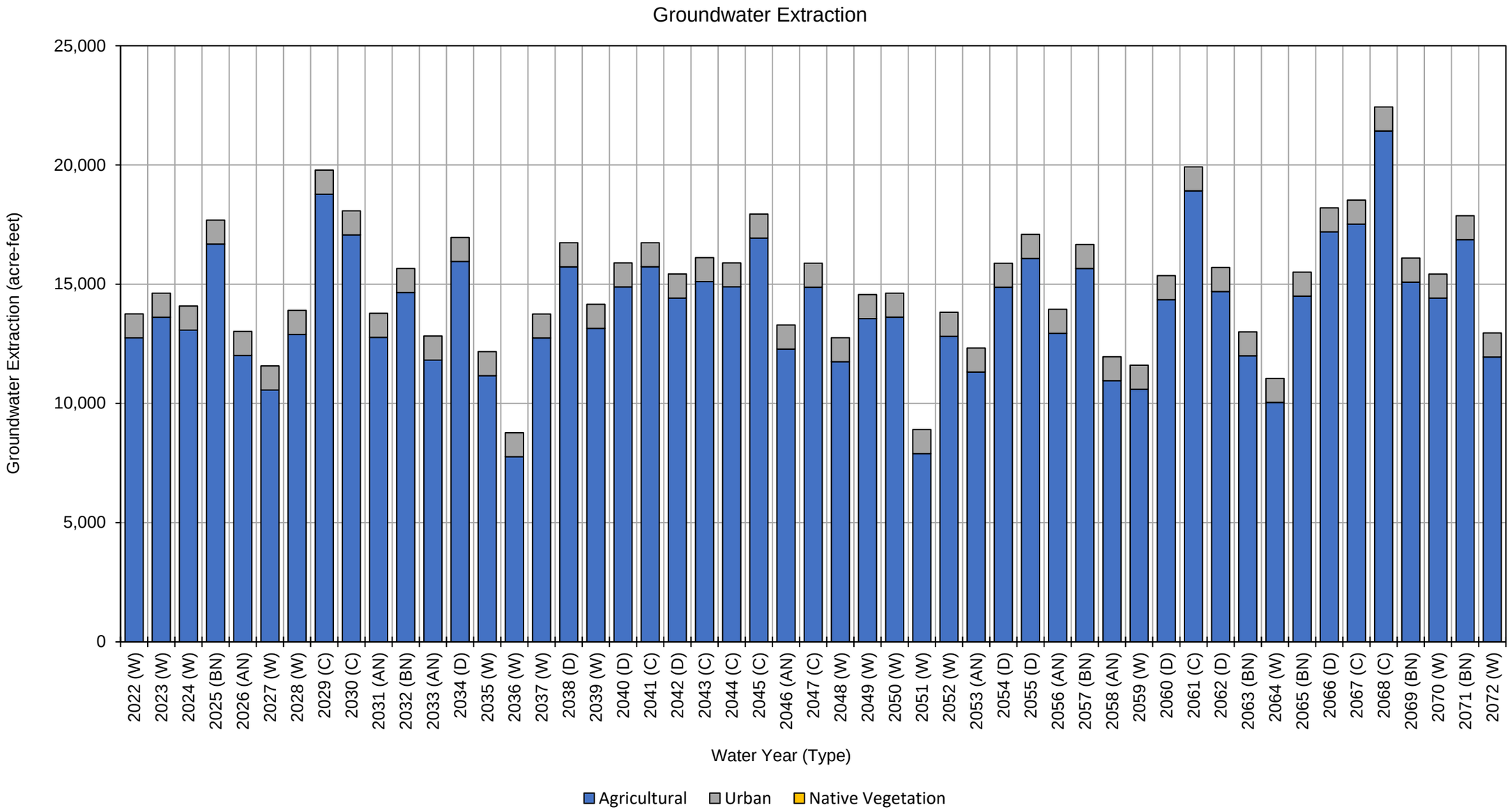
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	30,000	6,200	27,000	63,000
2023 (W)	25,000	5,100	22,000	52,000
2024 (W)	25,000	5,100	22,000	52,000
2025 (BN)	12,000	2,500	12,000	27,000
2026 (AN)	26,000	5,400	24,000	55,000
2027 (W)	26,000	5,300	24,000	55,000
2028 (W)	17,000	3,500	15,000	36,000
2029 (C)	13,000	2,500	12,000	28,000
2030 (C)	11,000	2,300	10,000	23,000
2031 (AN)	26,000	5,400	24,000	55,000
2032 (BN)	14,000	2,800	13,000	30,000
2033 (AN)	22,000	4,500	19,000	46,000
2034 (D)	15,000	3,200	14,000	32,000
2035 (W)	26,000	5,300	24,000	55,000
2036 (W)	39,000	8,000	34,000	81,000
2037 (W)	25,000	5,100	22,000	52,000
2038 (D)	15,000	3,200	14,000	32,000
2039 (W)	25,000	5,100	22,000	52,000
2040 (D)	16,000	3,400	15,000	34,000
2041 (C)	14,000	2,800	12,000	29,000
2042 (D)	12,000	2,500	11,000	26,000
2043 (C)	15,000	3,100	14,000	32,000
2044 (C)	15,000	3,100	14,000	32,000
2045 (C)	16,000	3,300	14,000	33,000
2046 (AN)	26,000	5,400	24,000	55,000
2047 (C)	15,000	3,100	14,000	32,000
2048 (W)	35,000	7,200	31,000	73,000
2049 (W)	25,000	5,100	22,000	52,000
2050 (W)	22,000	4,400	19,000	45,000
2051 (W)	39,000	8,000	34,000	81,000
2052 (W)	17,000	3,500	15,000	36,000
2053 (AN)	22,000	4,500	19,000	46,000
2054 (D)	16,000	3,400	15,000	34,000
2055 (D)	15,000	3,200	14,000	32,000
2056 (AN)	23,000	4,800	21,000	49,000
2057 (BN)	21,000	4,300	19,000	44,000
2058 (AN)	23,000	4,700	21,000	49,000
2059 (W)	26,000	5,300	24,000	55,000
2060 (D)	12,000	2,500	11,000	26,000
2061 (C)	13,000	2,500	12,000	28,000
2062 (D)	14,000	2,900	13,000	30,000
2063 (BN)	21,000	4,200	19,000	44,000

Antelope Subbasin Projected (Current Land Use) Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		18,000	3,700	17,000	39,000
2065 (BN)		14,000	2,800	13,000	30,000
2066 (D)		13,000	2,700	13,000	29,000
2067 (C)		11,000	2,300	10,000	23,000
2068 (C)		18,000	3,500	16,000	38,000
2069 (BN)		21,000	4,300	19,000	44,000
2070 (W)		26,000	5,300	24,000	55,000
2071 (BN)		12,000	2,500	12,000	27,000
2072 (W)		30,000	6,200	27,000	63,000
Average (2022-2072)		20,000	4,100	18,000	42,000
2022-2072	W	26,000	5,400	24,000	55,000
	AN	24,000	5,000	22,000	51,000
	BN	16,000	3,400	15,000	34,000
	D	15,000	3,000	13,000	31,000
	C	14,000	2,900	13,000	30,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

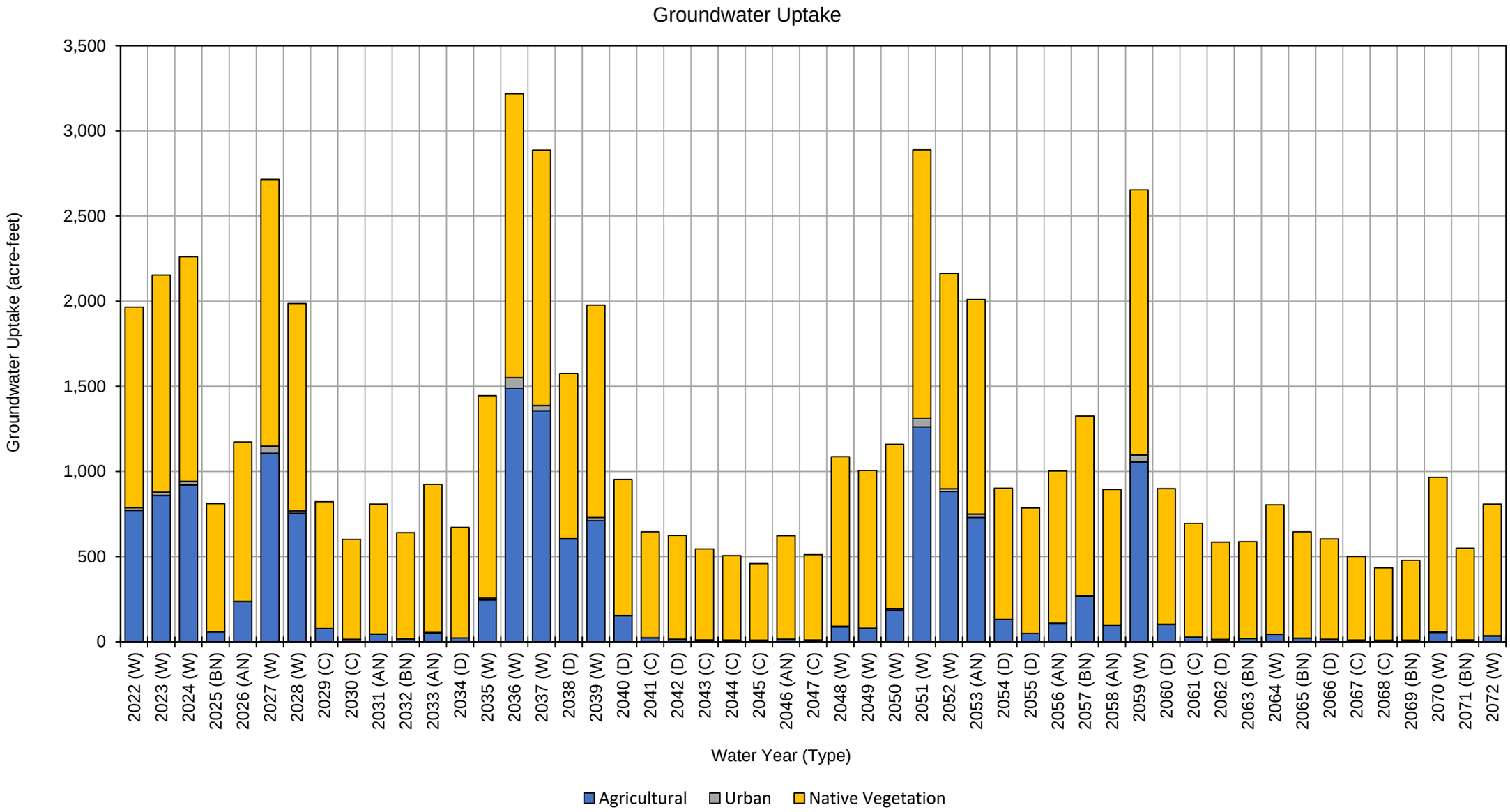
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	13,000	1,000	0	14,000
2023 (W)	14,000	1,000	0	15,000
2024 (W)	13,000	1,000	0	14,000
2025 (BN)	17,000	1,000	0	18,000
2026 (AN)	12,000	1,000	0	13,000
2027 (W)	11,000	1,000	0	12,000
2028 (W)	13,000	1,000	0	14,000
2029 (C)	19,000	1,000	0	20,000
2030 (C)	17,000	1,000	0	18,000
2031 (AN)	13,000	1,000	0	14,000
2032 (BN)	15,000	1,000	0	16,000
2033 (AN)	12,000	1,000	0	13,000
2034 (D)	16,000	1,000	0	17,000
2035 (W)	11,000	1,000	0	12,000
2036 (W)	7,800	1,000	0	8,800
2037 (W)	13,000	1,000	0	14,000
2038 (D)	16,000	1,000	0	17,000
2039 (W)	13,000	1,000	0	14,000
2040 (D)	15,000	1,000	0	16,000
2041 (C)	16,000	1,000	0	17,000
2042 (D)	14,000	1,000	0	15,000
2043 (C)	15,000	1,000	0	16,000
2044 (C)	15,000	1,000	0	16,000
2045 (C)	17,000	1,000	0	18,000
2046 (AN)	12,000	1,000	0	13,000
2047 (C)	15,000	1,000	0	16,000
2048 (W)	12,000	1,000	0	13,000
2049 (W)	14,000	1,000	0	15,000
2050 (W)	14,000	1,000	0	15,000
2051 (W)	7,900	1,000	0	8,900
2052 (W)	13,000	1,000	0	14,000
2053 (AN)	11,000	1,000	0	12,000
2054 (D)	15,000	1,000	0	16,000
2055 (D)	16,000	1,000	0	17,000
2056 (AN)	13,000	1,000	0	14,000
2057 (BN)	16,000	1,000	0	17,000
2058 (AN)	11,000	1,000	0	12,000
2059 (W)	11,000	1,000	0	12,000
2060 (D)	14,000	1,000	0	15,000
2061 (C)	19,000	1,000	0	20,000
2062 (D)	15,000	1,000	0	16,000
2063 (BN)	12,000	1,000	0	13,000

Antelope Subbasin Projected (Current Land Use) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		10,000	1,000	0	11,000
2065 (BN)		14,000	1,000	0	15,000
2066 (D)		17,000	1,000	0	18,000
2067 (C)		18,000	1,000	0	19,000
2068 (C)		21,000	1,000	0	22,000
2069 (BN)		15,000	1,000	0	16,000
2070 (W)		14,000	1,000	0	15,000
2071 (BN)		17,000	1,000	0	18,000
2072 (W)		12,000	1,000	0	13,000
Average (2022-2072)		14,000	1,000	0	15,000
2022-2072	W	12,000	1,000	0	13,000
	AN	12,000	1,000	0	13,000
	BN	15,000	1,000	0	16,000
	D	15,000	1,000	0	16,000
	C	17,000	1,000	0	18,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Groundwater Uptake, by Water Use Sector (acre feet, rounded)

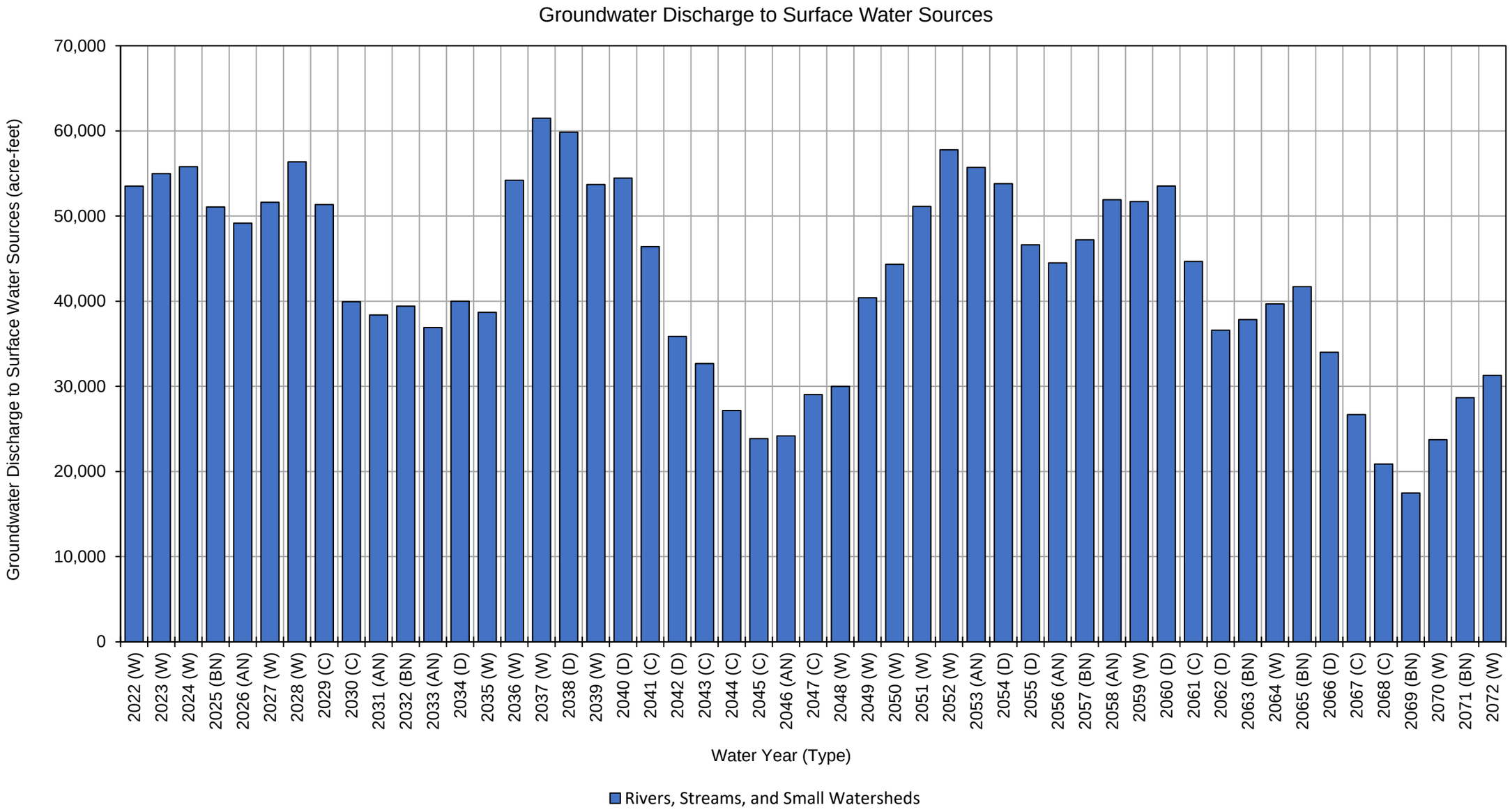
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	770	16	1,200	2,000
2023 (W)	860	19	1,300	2,200
2024 (W)	920	22	1,300	2,200
2025 (BN)	58	0	750	810
2026 (AN)	240	2	940	1,200
2027 (W)	1,100	42	1,600	2,700
2028 (W)	750	15	1,200	2,000
2029 (C)	78	0	740	820
2030 (C)	14	0	590	600
2031 (AN)	45	0	760	810
2032 (BN)	17	0	620	640
2033 (AN)	53	2	870	920
2034 (D)	22	0	650	670
2035 (W)	250	11	1,200	1,500
2036 (W)	1,500	61	1,700	3,300
2037 (W)	1,400	31	1,500	2,900
2038 (D)	600	1	970	1,600
2039 (W)	710	19	1,200	1,900
2040 (D)	150	0	800	950
2041 (C)	23	0	620	640
2042 (D)	15	0	610	630
2043 (C)	11	0	530	540
2044 (C)	10	0	500	510
2045 (C)	9	0	450	460
2046 (AN)	15	0	610	630
2047 (C)	10	0	500	510
2048 (W)	87	4	1,000	1,100
2049 (W)	78	1	930	1,000
2050 (W)	190	9	960	1,200
2051 (W)	1,300	52	1,600	3,000
2052 (W)	880	16	1,300	2,200
2053 (AN)	730	20	1,300	2,100
2054 (D)	130	0	770	900
2055 (D)	48	0	740	790
2056 (AN)	110	0	890	1,000
2057 (BN)	270	6	1,100	1,400
2058 (AN)	98	0	800	900
2059 (W)	1,100	41	1,600	2,700
2060 (D)	100	0	800	900
2061 (C)	28	0	670	700
2062 (D)	13	0	570	580
2063 (BN)	18	0	570	590

Antelope Subbasin Projected (Current Land Use) Groundwater Uptake, by Water Use Sector (acre feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		44	0	760	800
2065 (BN)		21	0	630	650
2066 (D)		15	0	590	610
2067 (C)		10	0	490	500
2068 (C)		8	0	430	440
2069 (BN)		9	0	470	480
2070 (W)		55	4	910	970
2071 (BN)		11	0	540	550
2072 (W)		35	1	770	810
Average (2022-2072)		290	8	880	1,200
2022-2072	W	660	20	1,200	1,900
	AN	180	4	870	1,100
	BN	57	1	660	720
	D	120	0	720	840
	C	20	0	550	570

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

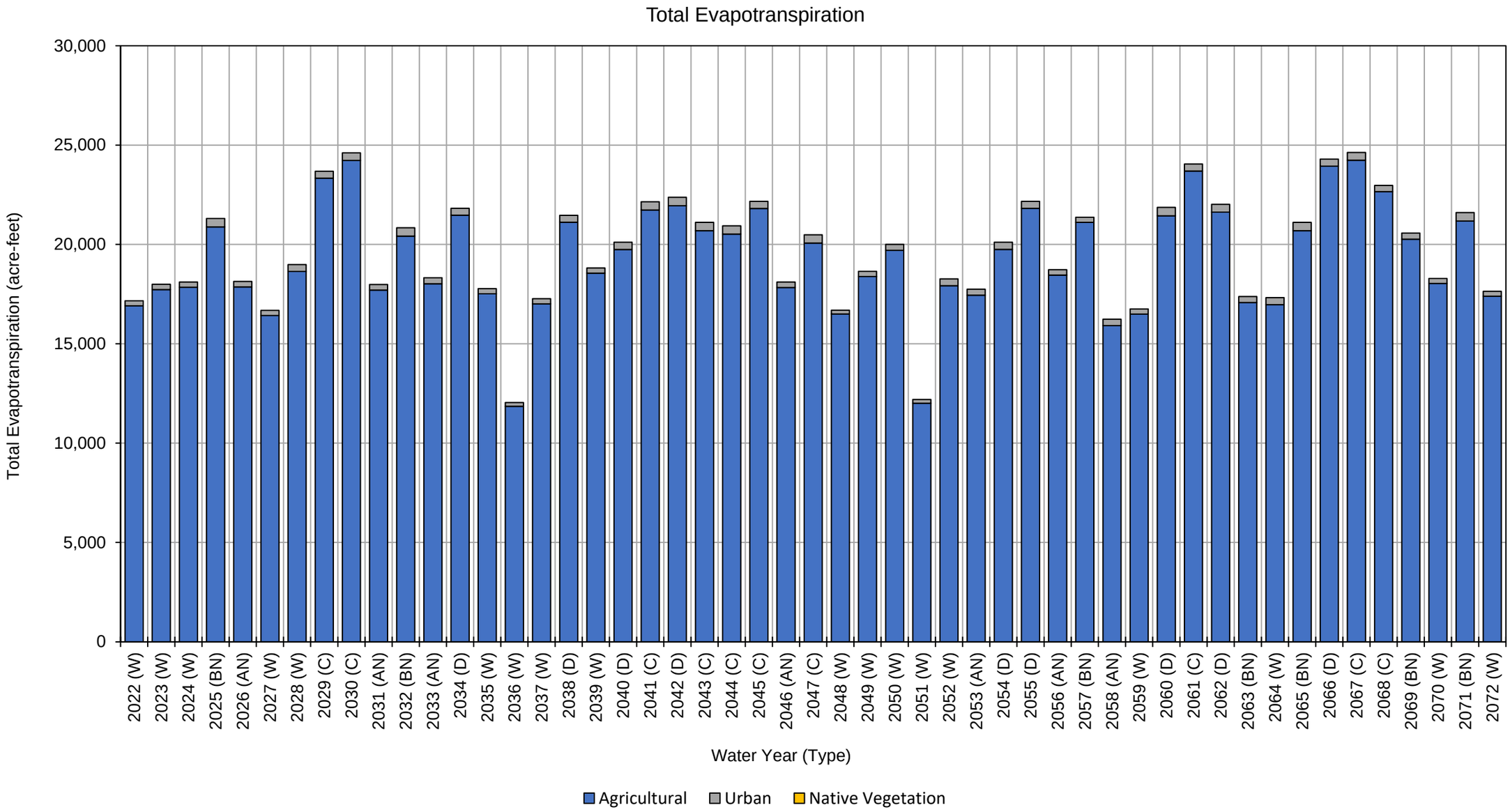
WY (Type)	Rivers, Streams, and Small Watersheds
2022 (W)	54,000
2023 (W)	55,000
2024 (W)	56,000
2025 (BN)	51,000
2026 (AN)	49,000
2027 (W)	52,000
2028 (W)	56,000
2029 (C)	51,000
2030 (C)	40,000
2031 (AN)	38,000
2032 (BN)	39,000
2033 (AN)	37,000
2034 (D)	40,000
2035 (W)	39,000
2036 (W)	54,000
2037 (W)	61,000
2038 (D)	60,000
2039 (W)	54,000
2040 (D)	54,000
2041 (C)	46,000
2042 (D)	36,000
2043 (C)	33,000
2044 (C)	27,000
2045 (C)	24,000
2046 (AN)	24,000
2047 (C)	29,000
2048 (W)	30,000
2049 (W)	40,000
2050 (W)	44,000
2051 (W)	51,000
2052 (W)	58,000
2053 (AN)	56,000
2054 (D)	54,000
2055 (D)	47,000
2056 (AN)	44,000
2057 (BN)	47,000
2058 (AN)	52,000
2059 (W)	52,000
2060 (D)	54,000
2061 (C)	45,000
2062 (D)	37,000
2063 (BN)	38,000

Antelope Subbasin Projected (Current Land Use) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

WY (Type)		Rivers, Streams, and Small Watersheds
2064 (W)		40,000
2065 (BN)		42,000
2066 (D)		34,000
2067 (C)		27,000
2068 (C)		21,000
2069 (BN)		17,000
2070 (W)		24,000
2071 (BN)		29,000
2072 (W)		31,000
Average (2022-2072)		43,000
2022-2072	W	47,000
	AN	43,000
	BN	38,000
	D	46,000
	C	34,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

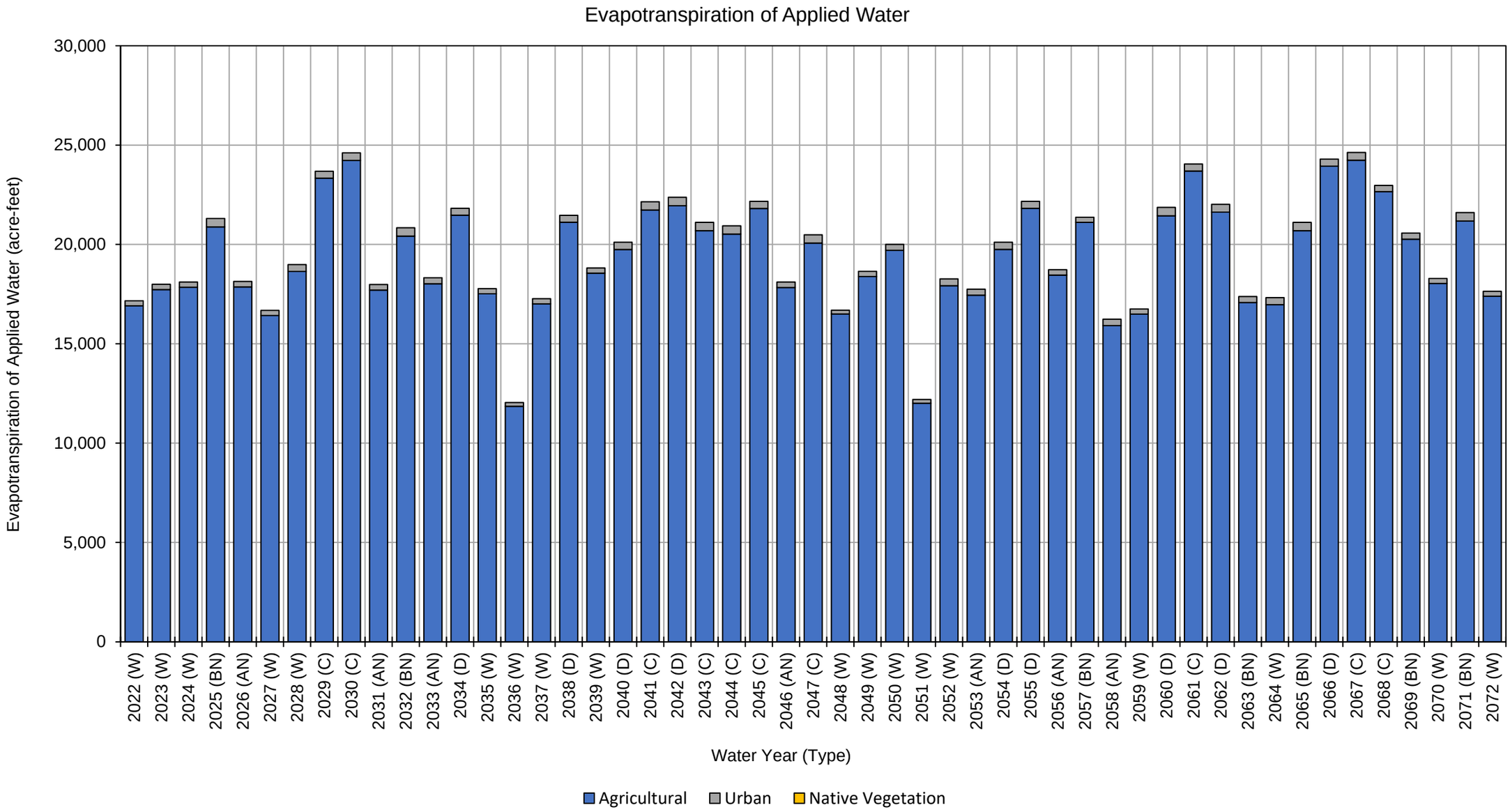
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	31,000	1,800	16,000	49,000
2023 (W)	32,000	1,600	15,000	49,000
2024 (W)	32,000	1,600	15,000	49,000
2025 (BN)	32,000	1,500	14,000	48,000
2026 (AN)	32,000	1,800	15,000	49,000
2027 (W)	30,000	1,600	15,000	47,000
2028 (W)	31,000	1,500	14,000	47,000
2029 (C)	32,000	1,200	13,000	46,000
2030 (C)	32,000	1,300	12,000	45,000
2031 (AN)	32,000	1,800	16,000	50,000
2032 (BN)	32,000	1,600	15,000	49,000
2033 (AN)	30,000	1,700	15,000	47,000
2034 (D)	32,000	1,500	14,000	48,000
2035 (W)	30,000	1,600	15,000	47,000
2036 (W)	27,000	1,700	14,000	43,000
2037 (W)	32,000	1,600	15,000	49,000
2038 (D)	32,000	1,500	14,000	48,000
2039 (W)	32,000	1,600	15,000	49,000
2040 (D)	32,000	1,600	15,000	49,000
2041 (C)	32,000	1,600	14,000	48,000
2042 (D)	32,000	1,500	13,000	47,000
2043 (C)	32,000	1,700	15,000	49,000
2044 (C)	32,000	1,700	15,000	49,000
2045 (C)	33,000	1,600	14,000	49,000
2046 (AN)	32,000	1,800	15,000	49,000
2047 (C)	32,000	1,700	15,000	49,000
2048 (W)	29,000	1,500	14,000	45,000
2049 (W)	32,000	1,600	15,000	49,000
2050 (W)	32,000	1,600	15,000	49,000
2051 (W)	27,000	1,700	14,000	43,000
2052 (W)	31,000	1,500	14,000	47,000
2053 (AN)	30,000	1,700	15,000	47,000
2054 (D)	32,000	1,600	15,000	49,000
2055 (D)	32,000	1,500	14,000	48,000
2056 (AN)	30,000	1,600	14,000	46,000
2057 (BN)	32,000	1,300	14,000	47,000
2058 (AN)	30,000	1,900	15,000	47,000
2059 (W)	30,000	1,600	15,000	47,000
2060 (D)	32,000	1,500	14,000	48,000
2061 (C)	32,000	1,200	13,000	46,000
2062 (D)	32,000	1,500	14,000	48,000
2063 (BN)	29,000	1,600	14,000	45,000

Antelope Subbasin Projected (Current Land Use) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		29,000	1,700	15,000	46,000
2065 (BN)		32,000	1,600	14,000	48,000
2066 (D)		33,000	1,300	13,000	47,000
2067 (C)		32,000	1,300	13,000	46,000
2068 (C)		32,000	1,400	14,000	47,000
2069 (BN)		32,000	1,600	15,000	49,000
2070 (W)		31,000	1,600	15,000	48,000
2071 (BN)		32,000	1,500	14,000	48,000
2072 (W)		31,000	1,800	15,000	48,000
Average (2022-2072)		31,000	1,600	14,000	47,000
2022-2072	W	30,000	1,600	15,000	47,000
	AN	31,000	1,700	15,000	48,000
	BN	31,000	1,500	14,000	47,000
	D	32,000	1,500	14,000	48,000
	C	32,000	1,500	14,000	48,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

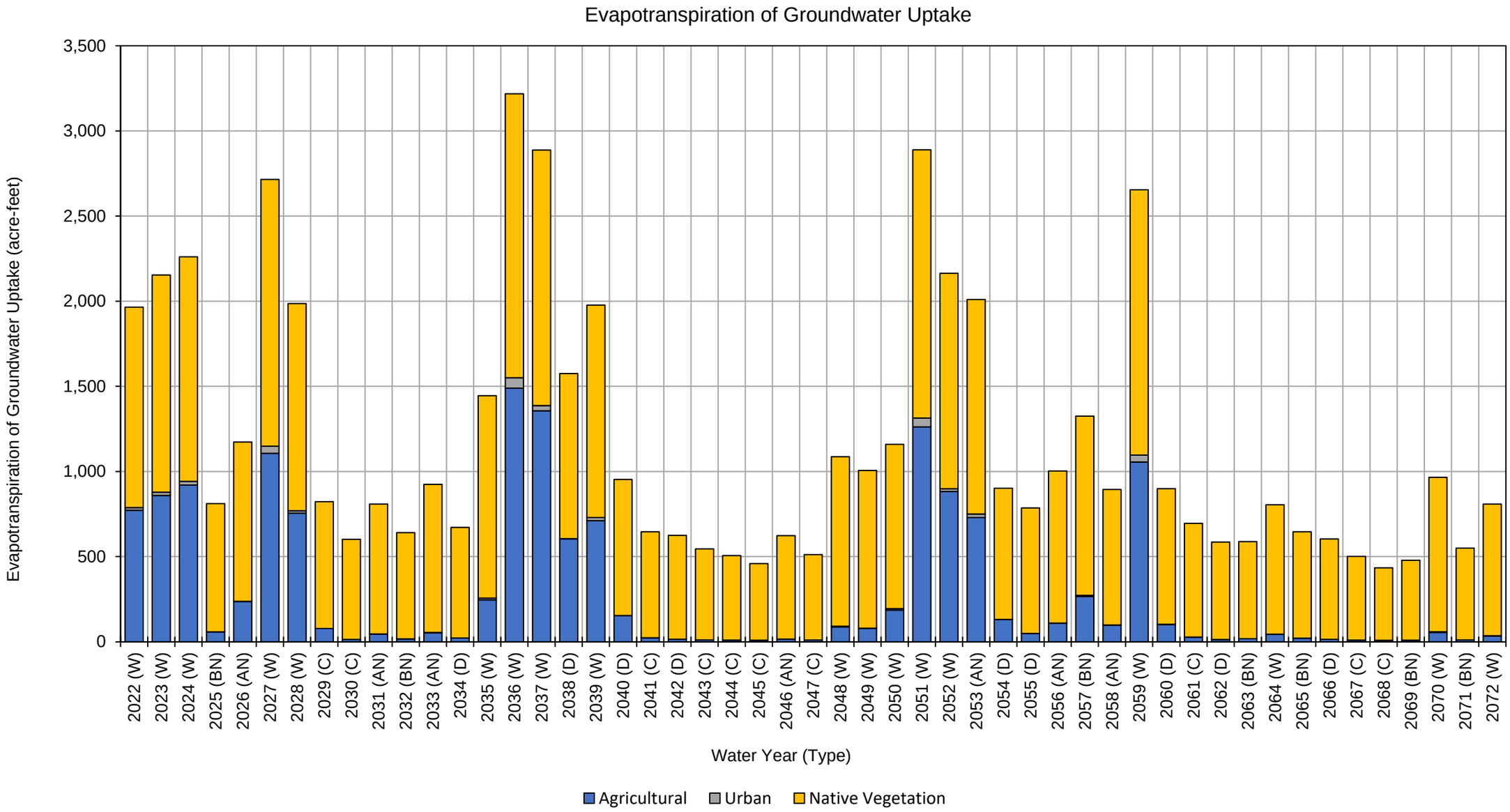
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	17,000	250	0	17,000
2023 (W)	18,000	270	0	18,000
2024 (W)	18,000	260	0	18,000
2025 (BN)	21,000	430	0	21,000
2026 (AN)	18,000	280	0	18,000
2027 (W)	16,000	260	0	16,000
2028 (W)	19,000	340	0	19,000
2029 (C)	23,000	350	0	23,000
2030 (C)	24,000	380	0	24,000
2031 (AN)	18,000	280	0	18,000
2032 (BN)	20,000	420	0	20,000
2033 (AN)	18,000	300	0	18,000
2034 (D)	21,000	350	0	21,000
2035 (W)	18,000	260	0	18,000
2036 (W)	12,000	190	0	12,000
2037 (W)	17,000	260	0	17,000
2038 (D)	21,000	350	0	21,000
2039 (W)	19,000	260	0	19,000
2040 (D)	20,000	360	0	20,000
2041 (C)	22,000	410	0	22,000
2042 (D)	22,000	430	0	22,000
2043 (C)	21,000	420	0	21,000
2044 (C)	21,000	410	0	21,000
2045 (C)	22,000	360	0	22,000
2046 (AN)	18,000	280	0	18,000
2047 (C)	20,000	420	0	20,000
2048 (W)	17,000	190	0	17,000
2049 (W)	18,000	260	0	18,000
2050 (W)	20,000	300	0	20,000
2051 (W)	12,000	190	0	12,000
2052 (W)	18,000	340	0	18,000
2053 (AN)	17,000	300	0	17,000
2054 (D)	20,000	360	0	20,000
2055 (D)	22,000	350	0	22,000
2056 (AN)	18,000	270	0	18,000
2057 (BN)	21,000	260	0	21,000
2058 (AN)	16,000	320	0	16,000
2059 (W)	16,000	260	0	16,000
2060 (D)	21,000	420	0	21,000
2061 (C)	24,000	350	0	24,000
2062 (D)	22,000	390	0	22,000
2063 (BN)	17,000	300	0	17,000

Antelope Subbasin Projected (Current Land Use) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		17,000	360	0	17,000
2065 (BN)		21,000	420	0	21,000
2066 (D)		24,000	350	0	24,000
2067 (C)		24,000	390	0	24,000
2068 (C)		23,000	320	0	23,000
2069 (BN)		20,000	310	0	20,000
2070 (W)		18,000	250	0	18,000
2071 (BN)		21,000	430	0	21,000
2072 (W)		17,000	250	0	17,000
Average (2022-2072)		19,000	320	0	19,000
2022-2072	W	17,000	260	0	17,000
	AN	18,000	290	0	18,000
	BN	20,000	370	0	20,000
	D	21,000	370	0	21,000
	C	22,000	380	0	22,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

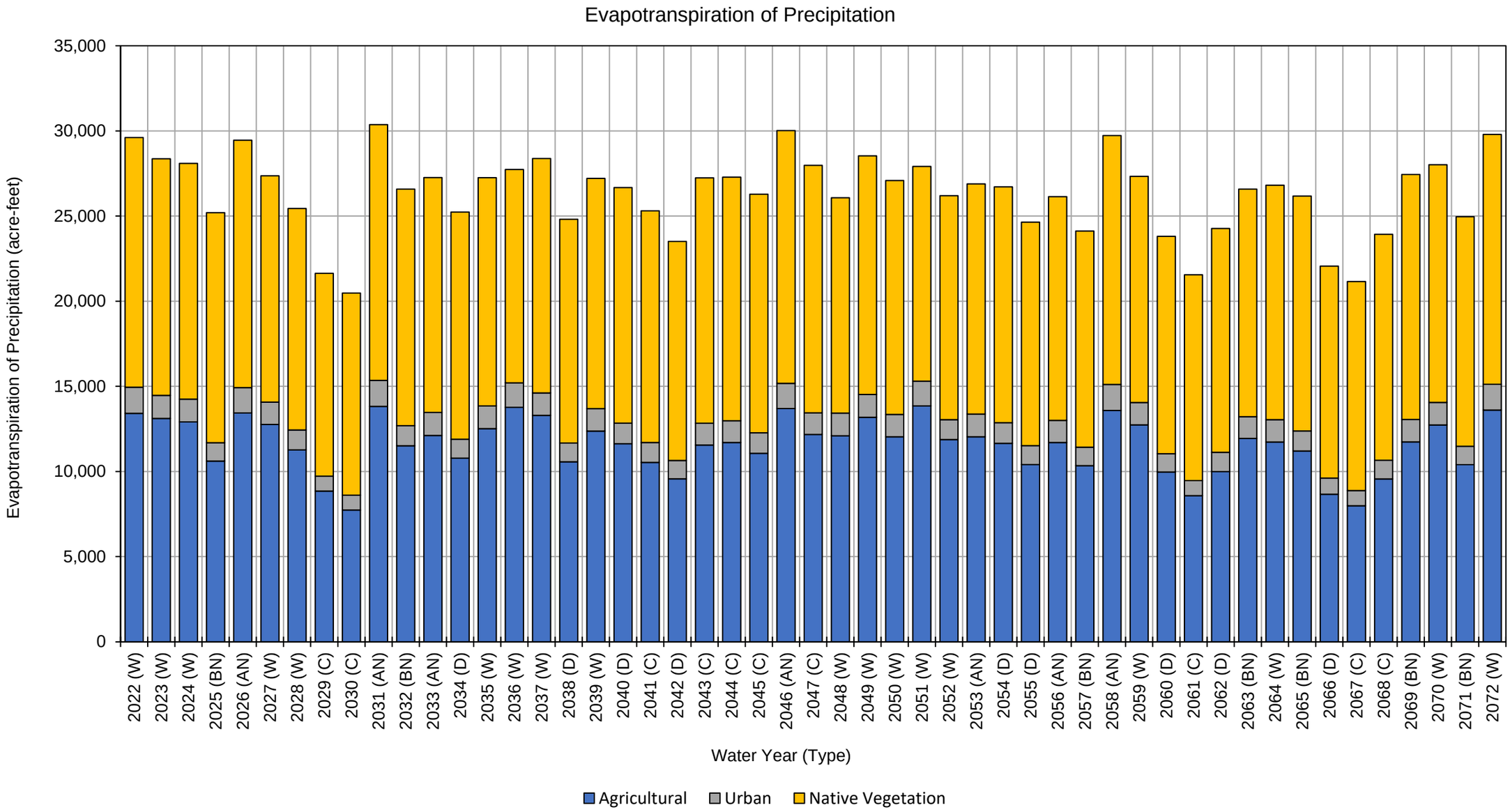
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	770	16	1,200	2,000
2023 (W)	860	19	1,300	2,200
2024 (W)	920	22	1,300	2,200
2025 (BN)	58	0	750	810
2026 (AN)	240	2	940	1,200
2027 (W)	1,100	42	1,600	2,700
2028 (W)	750	15	1,200	2,000
2029 (C)	78	0	740	820
2030 (C)	14	0	590	600
2031 (AN)	45	0	760	810
2032 (BN)	17	0	620	640
2033 (AN)	53	2	870	920
2034 (D)	22	0	650	670
2035 (W)	250	11	1,200	1,500
2036 (W)	1,500	61	1,700	3,300
2037 (W)	1,400	31	1,500	2,900
2038 (D)	600	1	970	1,600
2039 (W)	710	19	1,200	1,900
2040 (D)	150	0	800	950
2041 (C)	23	0	620	640
2042 (D)	15	0	610	630
2043 (C)	11	0	530	540
2044 (C)	10	0	500	510
2045 (C)	9	0	450	460
2046 (AN)	15	0	610	630
2047 (C)	10	0	500	510
2048 (W)	87	4	1,000	1,100
2049 (W)	78	1	930	1,000
2050 (W)	190	9	960	1,200
2051 (W)	1,300	52	1,600	3,000
2052 (W)	880	16	1,300	2,200
2053 (AN)	730	20	1,300	2,100
2054 (D)	130	0	770	900
2055 (D)	48	0	740	790
2056 (AN)	110	0	890	1,000
2057 (BN)	270	6	1,100	1,400
2058 (AN)	98	0	800	900
2059 (W)	1,100	41	1,600	2,700
2060 (D)	100	0	800	900
2061 (C)	28	0	670	700
2062 (D)	13	0	570	580
2063 (BN)	18	0	570	590

Antelope Subbasin Projected (Current Land Use) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		44	0	760	800
2065 (BN)		21	0	630	650
2066 (D)		15	0	590	610
2067 (C)		10	0	490	500
2068 (C)		8	0	430	440
2069 (BN)		9	0	470	480
2070 (W)		55	4	910	970
2071 (BN)		11	0	540	550
2072 (W)		35	1	770	810
Average (2022-2072)		290	8	880	1,200
2022-2072	W	660	20	1,200	1,900
	AN	180	4	870	1,100
	BN	57	1	660	720
	D	120	0	720	840
	C	20	0	550	570

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

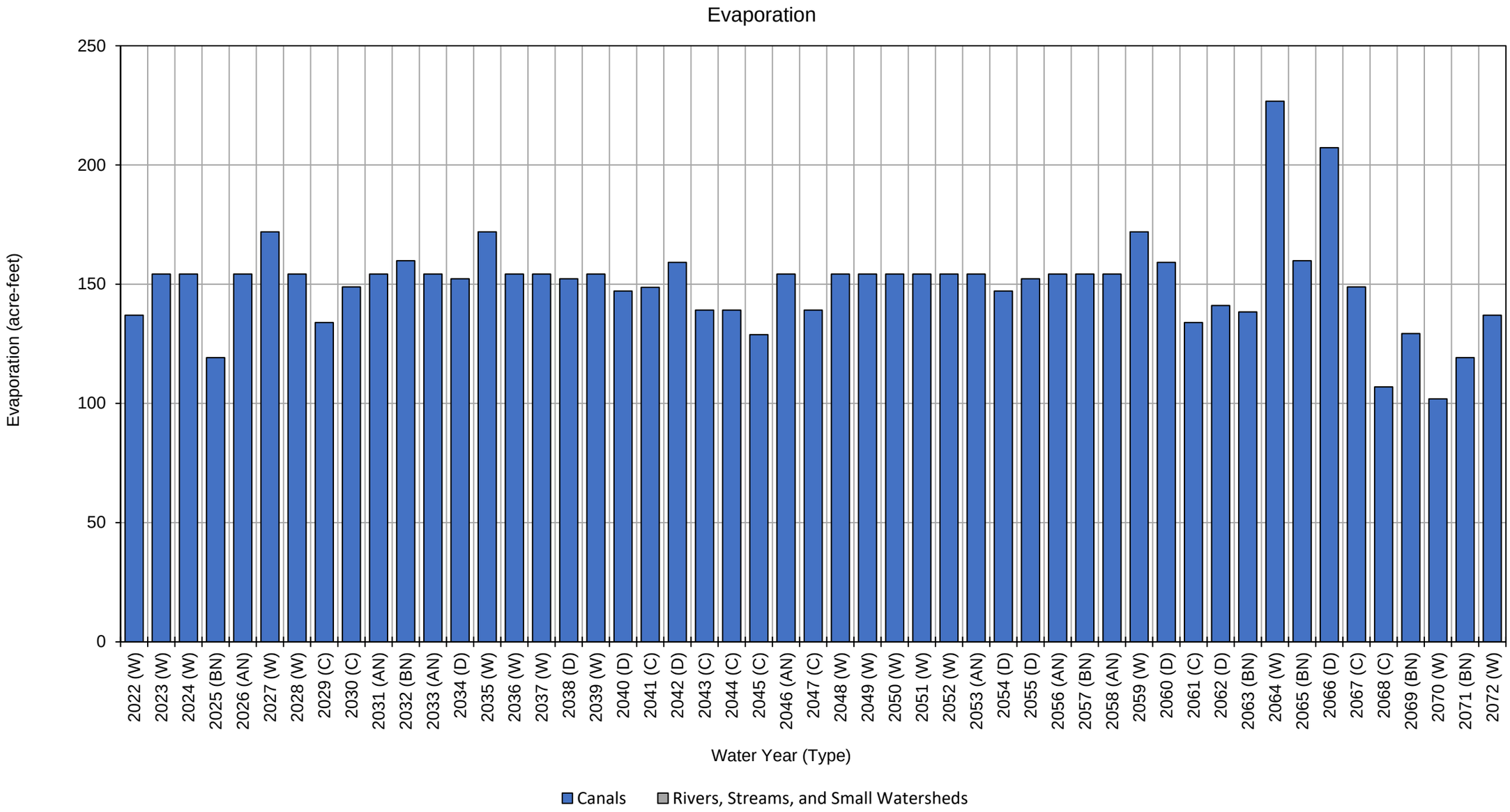
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	13,000	1,500	15,000	30,000
2023 (W)	13,000	1,400	14,000	28,000
2024 (W)	13,000	1,300	14,000	28,000
2025 (BN)	11,000	1,100	14,000	26,000
2026 (AN)	13,000	1,500	15,000	30,000
2027 (W)	13,000	1,300	13,000	27,000
2028 (W)	11,000	1,200	13,000	25,000
2029 (C)	8,800	880	12,000	22,000
2030 (C)	7,700	870	12,000	21,000
2031 (AN)	14,000	1,500	15,000	31,000
2032 (BN)	12,000	1,200	14,000	27,000
2033 (AN)	12,000	1,400	14,000	27,000
2034 (D)	11,000	1,100	13,000	25,000
2035 (W)	13,000	1,300	13,000	27,000
2036 (W)	14,000	1,400	13,000	28,000
2037 (W)	13,000	1,300	14,000	28,000
2038 (D)	11,000	1,100	13,000	25,000
2039 (W)	12,000	1,300	14,000	27,000
2040 (D)	12,000	1,200	14,000	27,000
2041 (C)	11,000	1,200	14,000	26,000
2042 (D)	9,600	1,100	13,000	24,000
2043 (C)	12,000	1,300	14,000	27,000
2044 (C)	12,000	1,300	14,000	27,000
2045 (C)	11,000	1,200	14,000	26,000
2046 (AN)	14,000	1,500	15,000	31,000
2047 (C)	12,000	1,300	15,000	28,000
2048 (W)	12,000	1,300	13,000	26,000
2049 (W)	13,000	1,300	14,000	28,000
2050 (W)	12,000	1,300	14,000	27,000
2051 (W)	14,000	1,500	13,000	29,000
2052 (W)	12,000	1,200	13,000	26,000
2053 (AN)	12,000	1,300	14,000	27,000
2054 (D)	12,000	1,200	14,000	27,000
2055 (D)	10,000	1,100	13,000	24,000
2056 (AN)	12,000	1,300	13,000	26,000
2057 (BN)	10,000	1,100	13,000	24,000
2058 (AN)	14,000	1,500	15,000	31,000
2059 (W)	13,000	1,300	13,000	27,000
2060 (D)	10,000	1,100	13,000	24,000
2061 (C)	8,600	890	12,000	21,000
2062 (D)	10,000	1,100	13,000	24,000
2063 (BN)	12,000	1,300	13,000	26,000

Antelope Subbasin Projected (Current Land Use) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		12,000	1,300	14,000	27,000
2065 (BN)		11,000	1,200	14,000	26,000
2066 (D)		8,700	940	12,000	22,000
2067 (C)		8,000	890	12,000	21,000
2068 (C)		9,600	1,100	13,000	24,000
2069 (BN)		12,000	1,300	14,000	27,000
2070 (W)		13,000	1,300	14,000	28,000
2071 (BN)		10,000	1,100	13,000	24,000
2072 (W)		14,000	1,500	15,000	31,000
Average (2022-2072)		12,000	1,200	14,000	27,000
2022-2072	W	13,000	1,300	14,000	28,000
	AN	13,000	1,400	14,000	28,000
	BN	11,000	1,200	14,000	26,000
	D	10,000	1,100	13,000	24,000
	C	10,000	1,100	13,000	24,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Evaporation (acre-feet, rounded)

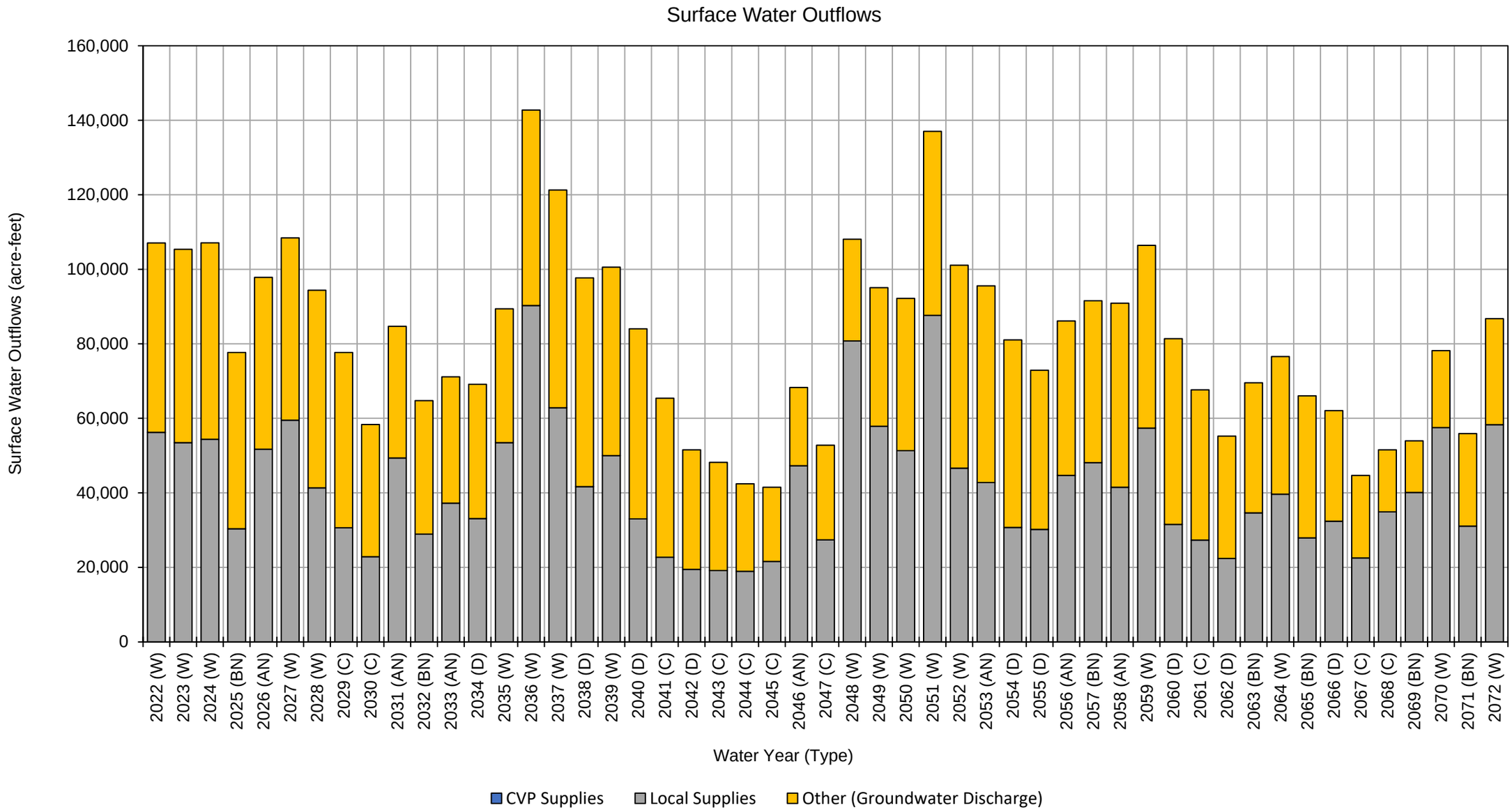
WY (Type)	Canals	Rivers, Streams, and Small Watersheds	Total
2022 (W)	140	0	140
2023 (W)	150	0	150
2024 (W)	150	0	150
2025 (BN)	120	0	120
2026 (AN)	150	0	150
2027 (W)	170	0	170
2028 (W)	150	0	150
2029 (C)	130	0	130
2030 (C)	150	0	150
2031 (AN)	150	0	150
2032 (BN)	160	0	160
2033 (AN)	150	0	150
2034 (D)	150	0	150
2035 (W)	170	0	170
2036 (W)	150	0	150
2037 (W)	150	0	150
2038 (D)	150	0	150
2039 (W)	150	0	150
2040 (D)	150	0	150
2041 (C)	150	0	150
2042 (D)	160	0	160
2043 (C)	140	0	140
2044 (C)	140	0	140
2045 (C)	130	0	130
2046 (AN)	150	0	150
2047 (C)	140	0	140
2048 (W)	150	0	150
2049 (W)	150	0	150
2050 (W)	150	0	150
2051 (W)	150	0	150
2052 (W)	150	0	150
2053 (AN)	150	0	150
2054 (D)	150	0	150
2055 (D)	150	0	150
2056 (AN)	150	0	150
2057 (BN)	150	0	150
2058 (AN)	150	0	150
2059 (W)	170	0	170
2060 (D)	160	0	160
2061 (C)	130	0	130
2062 (D)	140	0	140
2063 (BN)	140	0	140

Antelope Subbasin Projected (Current Land Use) Evaporation (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Watersheds	Total
2064 (W)		230	0	230
2065 (BN)		160	0	160
2066 (D)		210	0	210
2067 (C)		150	0	150
2068 (C)		110	0	110
2069 (BN)		130	0	130
2070 (W)		100	0	100
2071 (BN)		120	0	120
2072 (W)		140	0	140
Average (2022-2072)		150	0	150
2022-2072	W	160	0	160
	AN	150	0	150
	BN	140	0	140
	D	160	0	160
	C	140	0	140

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

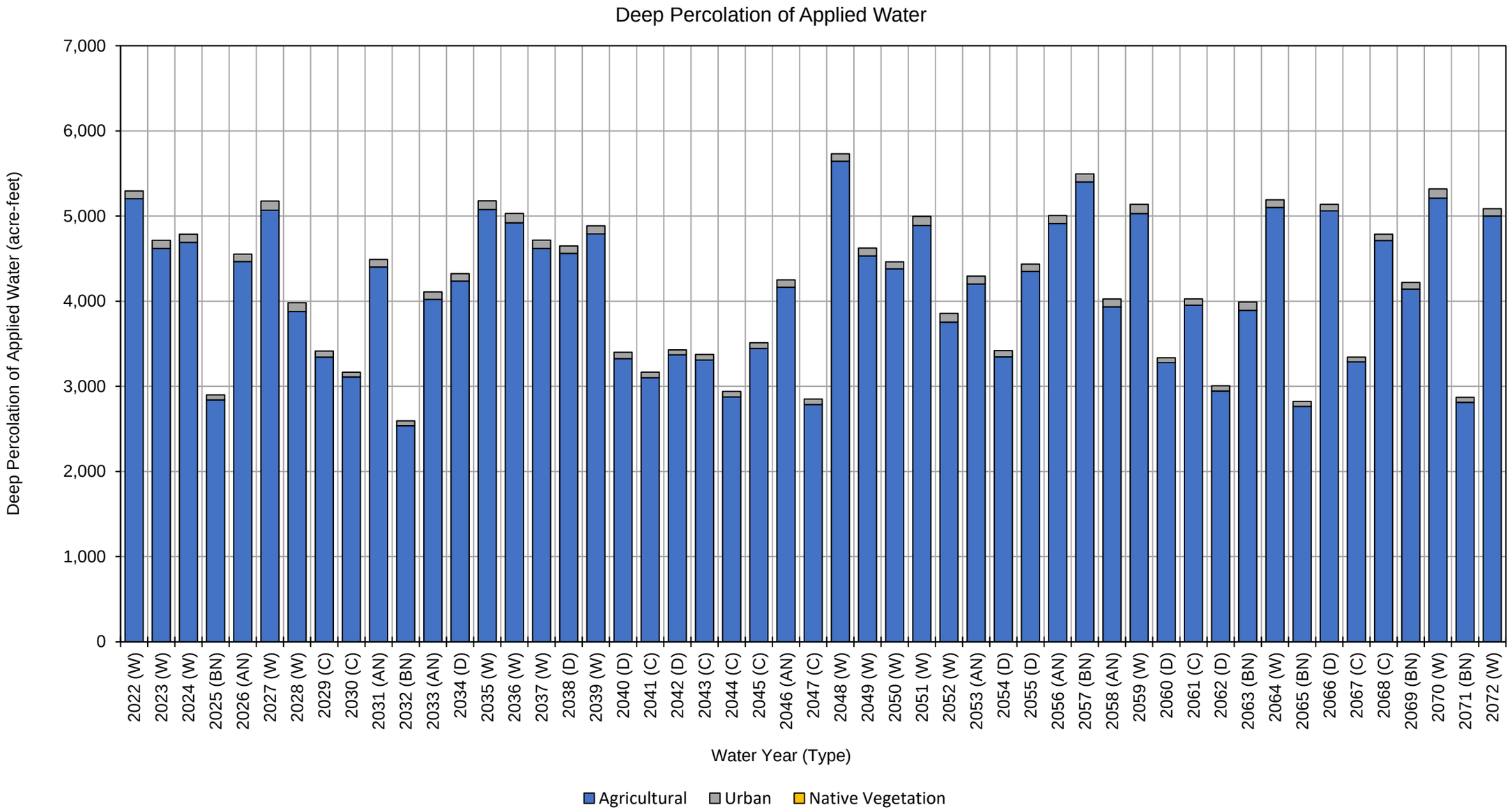
WY (Type)	CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2022 (W)	0	56,000	51,000	110,000
2023 (W)	0	53,000	52,000	110,000
2024 (W)	0	54,000	53,000	110,000
2025 (BN)	0	30,000	47,000	77,000
2026 (AN)	0	52,000	46,000	98,000
2027 (W)	0	59,000	49,000	110,000
2028 (W)	0	41,000	53,000	94,000
2029 (C)	0	31,000	47,000	78,000
2030 (C)	0	23,000	35,000	58,000
2031 (AN)	0	49,000	35,000	84,000
2032 (BN)	0	29,000	36,000	65,000
2033 (AN)	0	37,000	34,000	71,000
2034 (D)	0	33,000	36,000	69,000
2035 (W)	0	53,000	36,000	89,000
2036 (W)	0	90,000	52,000	140,000
2037 (W)	0	63,000	58,000	120,000
2038 (D)	0	42,000	56,000	98,000
2039 (W)	0	50,000	51,000	100,000
2040 (D)	0	33,000	51,000	84,000
2041 (C)	0	23,000	43,000	66,000
2042 (D)	0	19,000	32,000	51,000
2043 (C)	0	19,000	29,000	48,000
2044 (C)	0	19,000	24,000	43,000
2045 (C)	0	22,000	20,000	42,000
2046 (AN)	0	47,000	21,000	68,000
2047 (C)	0	27,000	25,000	52,000
2048 (W)	0	81,000	27,000	110,000
2049 (W)	0	58,000	37,000	95,000
2050 (W)	0	51,000	41,000	92,000
2051 (W)	0	88,000	49,000	140,000
2052 (W)	0	47,000	54,000	100,000
2053 (AN)	0	43,000	53,000	96,000
2054 (D)	0	31,000	50,000	81,000
2055 (D)	0	30,000	43,000	73,000
2056 (AN)	0	45,000	41,000	86,000
2057 (BN)	0	48,000	43,000	91,000
2058 (AN)	0	42,000	49,000	91,000
2059 (W)	0	57,000	49,000	110,000
2060 (D)	0	32,000	50,000	82,000
2061 (C)	0	27,000	40,000	67,000
2062 (D)	0	22,000	33,000	55,000
2063 (BN)	0	35,000	35,000	70,000

Antelope Subbasin Projected (Current Land Use) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2064 (W)		0	40,000	37,000	77,000
2065 (BN)		0	28,000	38,000	66,000
2066 (D)		0	32,000	30,000	62,000
2067 (C)		0	23,000	22,000	45,000
2068 (C)		0	35,000	17,000	52,000
2069 (BN)		0	40,000	14,000	54,000
2070 (W)		0	58,000	21,000	79,000
2071 (BN)		0	31,000	25,000	56,000
2072 (W)		0	58,000	28,000	86,000
Average (2022-2072)		0	42,000	39,000	81,000
2022-2072	W	0	59,000	44,000	100,000
	AN	0	45,000	40,000	85,000
	BN	0	34,000	34,000	68,000
	D	0	30,000	42,000	72,000
	C	0	25,000	30,000	55,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

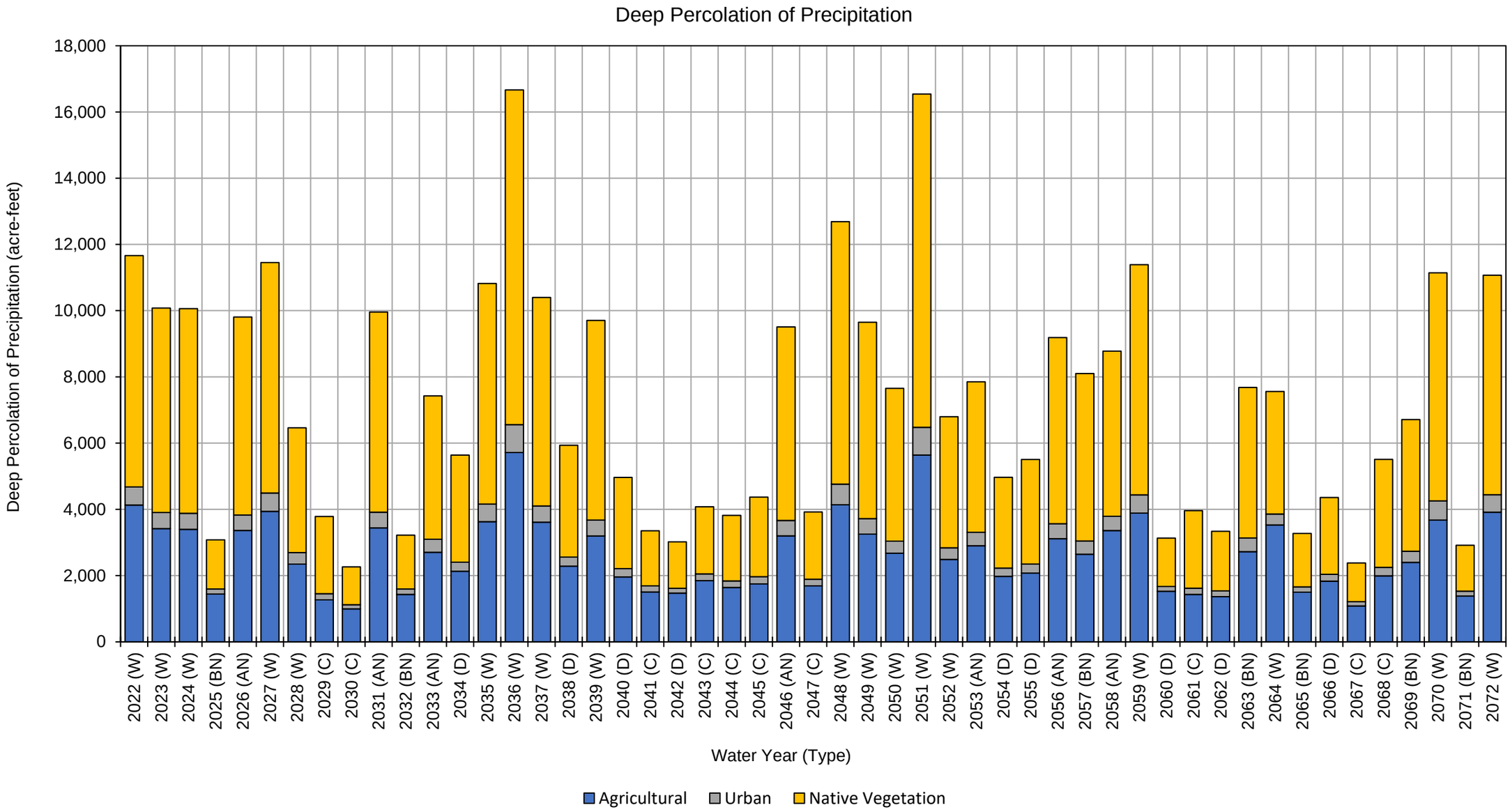
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	5,200	91	0	5,300
2023 (W)	4,600	96	0	4,700
2024 (W)	4,700	96	0	4,800
2025 (BN)	2,800	59	0	2,900
2026 (AN)	4,500	87	0	4,600
2027 (W)	5,100	110	0	5,200
2028 (W)	3,900	100	0	4,000
2029 (C)	3,300	73	0	3,400
2030 (C)	3,100	55	0	3,200
2031 (AN)	4,400	89	0	4,500
2032 (BN)	2,500	58	0	2,600
2033 (AN)	4,000	88	0	4,100
2034 (D)	4,200	87	0	4,300
2035 (W)	5,100	100	0	5,200
2036 (W)	4,900	110	0	5,000
2037 (W)	4,600	98	0	4,700
2038 (D)	4,600	87	0	4,700
2039 (W)	4,800	95	0	4,900
2040 (D)	3,300	75	0	3,400
2041 (C)	3,100	66	0	3,200
2042 (D)	3,400	58	0	3,500
2043 (C)	3,300	65	0	3,400
2044 (C)	2,900	64	0	3,000
2045 (C)	3,400	66	0	3,500
2046 (AN)	4,200	87	0	4,300
2047 (C)	2,800	65	0	2,900
2048 (W)	5,600	87	0	5,700
2049 (W)	4,500	92	0	4,600
2050 (W)	4,400	83	0	4,500
2051 (W)	4,900	110	0	5,000
2052 (W)	3,800	100	0	3,900
2053 (AN)	4,200	92	0	4,300
2054 (D)	3,300	75	0	3,400
2055 (D)	4,300	87	0	4,400
2056 (AN)	4,900	95	0	5,000
2057 (BN)	5,400	95	0	5,500
2058 (AN)	3,900	92	0	4,000
2059 (W)	5,000	110	0	5,100
2060 (D)	3,300	58	0	3,400
2061 (C)	4,000	74	0	4,100
2062 (D)	2,900	62	0	3,000
2063 (BN)	3,900	98	0	4,000

Antelope Subbasin Projected (Current Land Use) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		5,100	89	0	5,200
2065 (BN)		2,800	58	0	2,900
2066 (D)		5,100	76	0	5,200
2067 (C)		3,300	56	0	3,400
2068 (C)		4,700	74	0	4,800
2069 (BN)		4,100	78	0	4,200
2070 (W)		5,200	110	0	5,300
2071 (BN)		2,800	59	0	2,900
2072 (W)		5,000	86	0	5,100
Average (2022-2072)		4,100	83	0	4,200
2022-2072	W	4,800	98	0	4,900
	AN	4,300	90	0	4,400
	BN	3,500	72	0	3,600
	D	3,800	74	0	3,900
	C	3,400	66	0	3,500

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

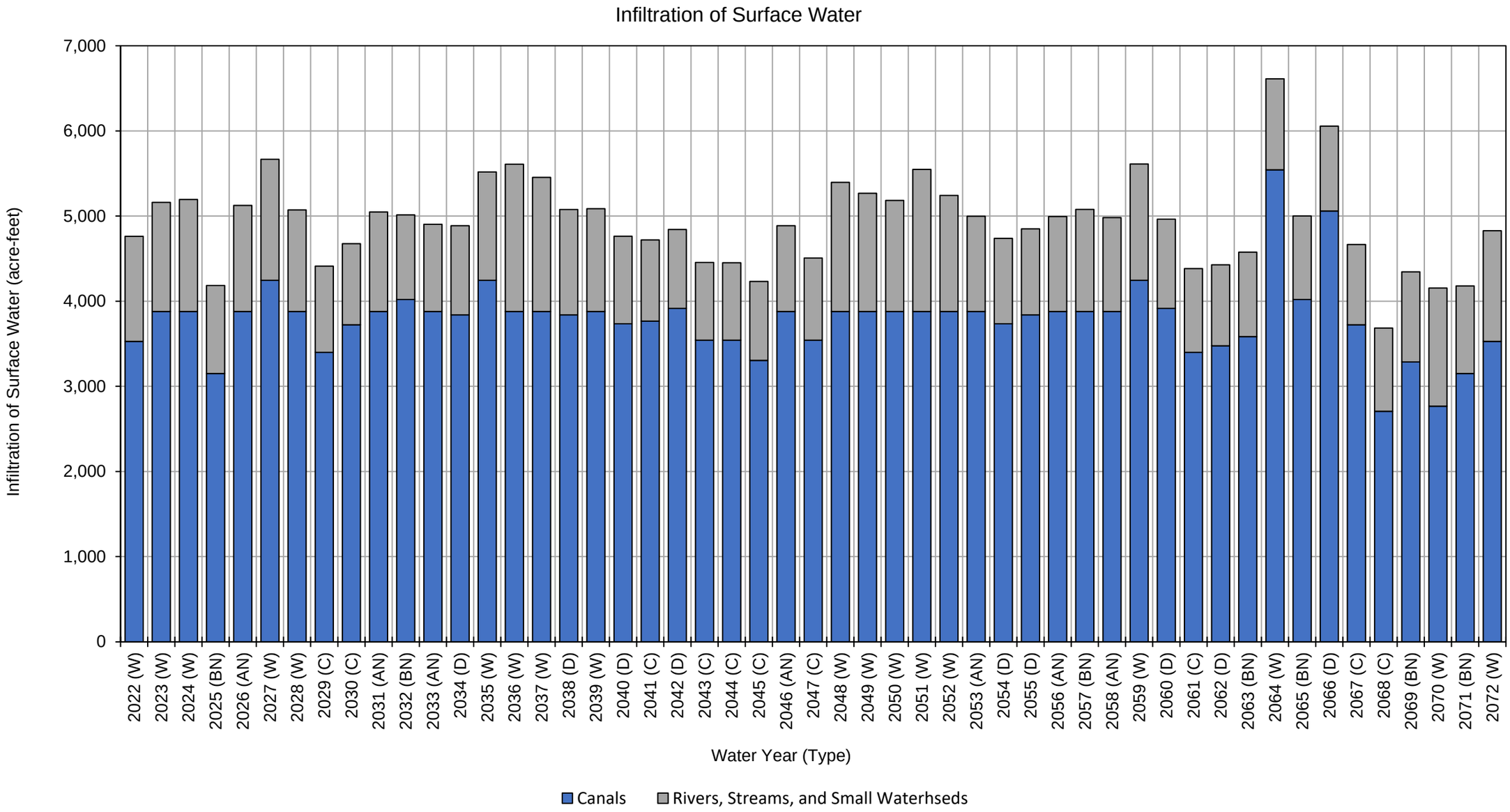
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	4,100	550	7,000	12,000
2023 (W)	3,400	480	6,200	10,000
2024 (W)	3,400	480	6,200	10,000
2025 (BN)	1,400	150	1,500	3,100
2026 (AN)	3,400	470	6,000	9,900
2027 (W)	3,900	550	7,000	11,000
2028 (W)	2,300	350	3,800	6,500
2029 (C)	1,300	180	2,300	3,800
2030 (C)	990	130	1,100	2,200
2031 (AN)	3,400	480	6,000	9,900
2032 (BN)	1,400	160	1,600	3,200
2033 (AN)	2,700	390	4,300	7,400
2034 (D)	2,100	270	3,200	5,600
2035 (W)	3,600	530	6,700	11,000
2036 (W)	5,700	840	10,000	17,000
2037 (W)	3,600	490	6,300	10,000
2038 (D)	2,300	270	3,400	6,000
2039 (W)	3,200	480	6,000	9,700
2040 (D)	2,000	250	2,800	5,100
2041 (C)	1,500	190	1,700	3,400
2042 (D)	1,500	150	1,400	3,100
2043 (C)	1,800	200	2,000	4,000
2044 (C)	1,600	200	2,000	3,800
2045 (C)	1,700	220	2,400	4,300
2046 (AN)	3,200	470	5,800	9,500
2047 (C)	1,700	200	2,000	3,900
2048 (W)	4,100	620	7,900	13,000
2049 (W)	3,200	470	5,900	9,600
2050 (W)	2,700	360	4,600	7,700
2051 (W)	5,600	840	10,000	16,000
2052 (W)	2,500	350	4,000	6,900
2053 (AN)	2,900	410	4,500	7,800
2054 (D)	2,000	250	2,700	5,000
2055 (D)	2,100	270	3,200	5,600
2056 (AN)	3,100	450	5,600	9,200
2057 (BN)	2,600	400	5,100	8,100
2058 (AN)	3,400	430	5,000	8,800
2059 (W)	3,900	550	6,900	11,000
2060 (D)	1,500	150	1,500	3,200
2061 (C)	1,400	190	2,300	3,900
2062 (D)	1,400	180	1,800	3,400
2063 (BN)	2,700	410	4,600	7,700

Antelope Subbasin Projected (Current Land Use) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		3,500	330	3,700	7,500
2065 (BN)		1,500	160	1,600	3,300
2066 (D)		1,800	200	2,300	4,300
2067 (C)		1,100	130	1,200	2,400
2068 (C)		2,000	260	3,300	5,600
2069 (BN)		2,400	340	4,000	6,700
2070 (W)		3,700	580	6,900	11,000
2071 (BN)		1,400	150	1,400	3,000
2072 (W)		3,900	530	6,600	11,000
Average (2022-2072)		2,600	360	4,200	7,200
2022-2072	W	3,700	520	6,400	11,000
	AN	3,200	440	5,300	8,900
	BN	1,900	250	2,800	5,000
	D	1,800	220	2,500	4,500
	C	1,500	190	2,000	3,700

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Infiltration of Surface Water (acre-feet, rounded)

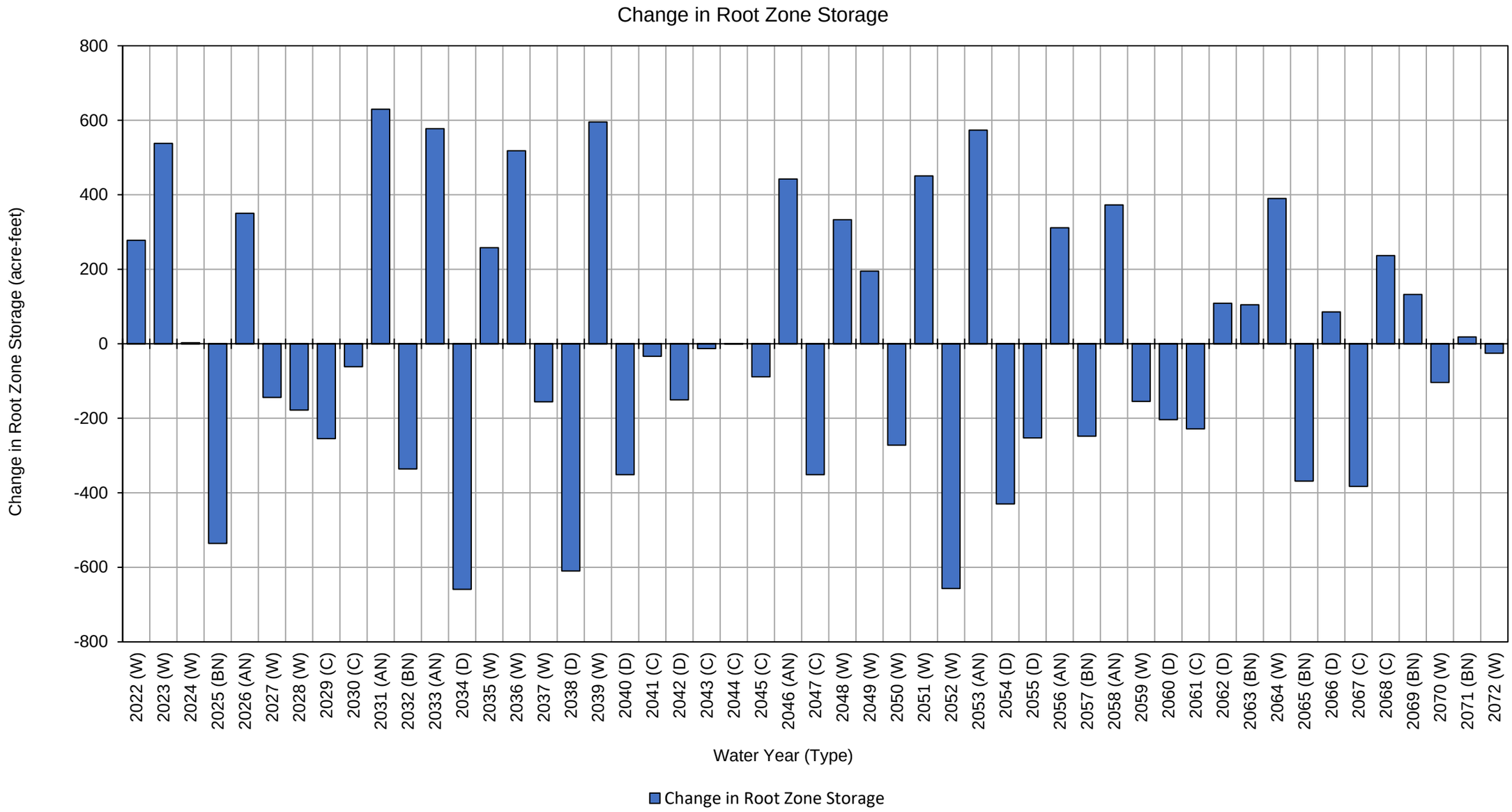
WY (Type)	Canals	Rivers, Streams, and Small Waterhseds	Total
2022 (W)	3,500	1,200	4,700
2023 (W)	3,900	1,300	5,200
2024 (W)	3,900	1,300	5,200
2025 (BN)	3,200	1,000	4,200
2026 (AN)	3,900	1,200	5,100
2027 (W)	4,200	1,400	5,600
2028 (W)	3,900	1,200	5,100
2029 (C)	3,400	1,000	4,400
2030 (C)	3,700	950	4,700
2031 (AN)	3,900	1,200	5,100
2032 (BN)	4,000	990	5,000
2033 (AN)	3,900	1,000	4,900
2034 (D)	3,800	1,000	4,800
2035 (W)	4,200	1,300	5,500
2036 (W)	3,900	1,700	5,600
2037 (W)	3,900	1,600	5,500
2038 (D)	3,800	1,200	5,000
2039 (W)	3,900	1,200	5,100
2040 (D)	3,700	1,000	4,700
2041 (C)	3,800	950	4,800
2042 (D)	3,900	930	4,800
2043 (C)	3,500	910	4,400
2044 (C)	3,500	910	4,400
2045 (C)	3,300	930	4,200
2046 (AN)	3,900	1,000	4,900
2047 (C)	3,500	960	4,500
2048 (W)	3,900	1,500	5,400
2049 (W)	3,900	1,400	5,300
2050 (W)	3,900	1,300	5,200
2051 (W)	3,900	1,700	5,600
2052 (W)	3,900	1,400	5,300
2053 (AN)	3,900	1,100	5,000
2054 (D)	3,700	1,000	4,700
2055 (D)	3,800	1,000	4,800
2056 (AN)	3,900	1,100	5,000
2057 (BN)	3,900	1,200	5,100
2058 (AN)	3,900	1,100	5,000
2059 (W)	4,200	1,400	5,600
2060 (D)	3,900	1,000	4,900
2061 (C)	3,400	980	4,400
2062 (D)	3,500	950	4,500
2063 (BN)	3,600	990	4,600

Antelope Subbasin Projected (Current Land Use) Infiltration of Surface Water (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Waterhseds	Total
2064 (W)		5,500	1,100	6,600
2065 (BN)		4,000	980	5,000
2066 (D)		5,100	1,000	6,100
2067 (C)		3,700	940	4,600
2068 (C)		2,700	980	3,700
2069 (BN)		3,300	1,100	4,400
2070 (W)		2,800	1,400	4,200
2071 (BN)		3,200	1,000	4,200
2072 (W)		3,500	1,300	4,800
Average (2022-2072)		3,800	1,100	4,900
2022-2072	W	3,900	1,400	5,300
	AN	3,900	1,100	5,000
	BN	3,600	1,000	4,600
	D	3,900	1,000	4,900
	C	3,500	950	4,500

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)	Change in Root Zone Storage
2022 (W)	280
2023 (W)	540
2024 (W)	3
2025 (BN)	-540
2026 (AN)	350
2027 (W)	-140
2028 (W)	-180
2029 (C)	-250
2030 (C)	-62
2031 (AN)	630
2032 (BN)	-340
2033 (AN)	580
2034 (D)	-660
2035 (W)	260
2036 (W)	520
2037 (W)	-160
2038 (D)	-610
2039 (W)	600
2040 (D)	-350
2041 (C)	-34
2042 (D)	-150
2043 (C)	-13
2044 (C)	0
2045 (C)	-89
2046 (AN)	440
2047 (C)	-350
2048 (W)	330
2049 (W)	200
2050 (W)	-270
2051 (W)	450
2052 (W)	-660
2053 (AN)	570
2054 (D)	-430
2055 (D)	-250
2056 (AN)	310
2057 (BN)	-250
2058 (AN)	370
2059 (W)	-150
2060 (D)	-200
2061 (C)	-230
2062 (D)	110
2063 (BN)	100

Antelope Subbasin Projected (Current Land Use) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)		Change in Root Zone Storage
2064 (W)		390
2065 (BN)		-370
2066 (D)		86
2067 (C)		-380
2068 (C)		240
2069 (BN)		130
2070 (W)		-100
2071 (BN)		18
2072 (W)		-26
Average (2022-2072)		5
2022-2072	W	100
	AN	470
	BN	-180
	D	-270
	C	-120

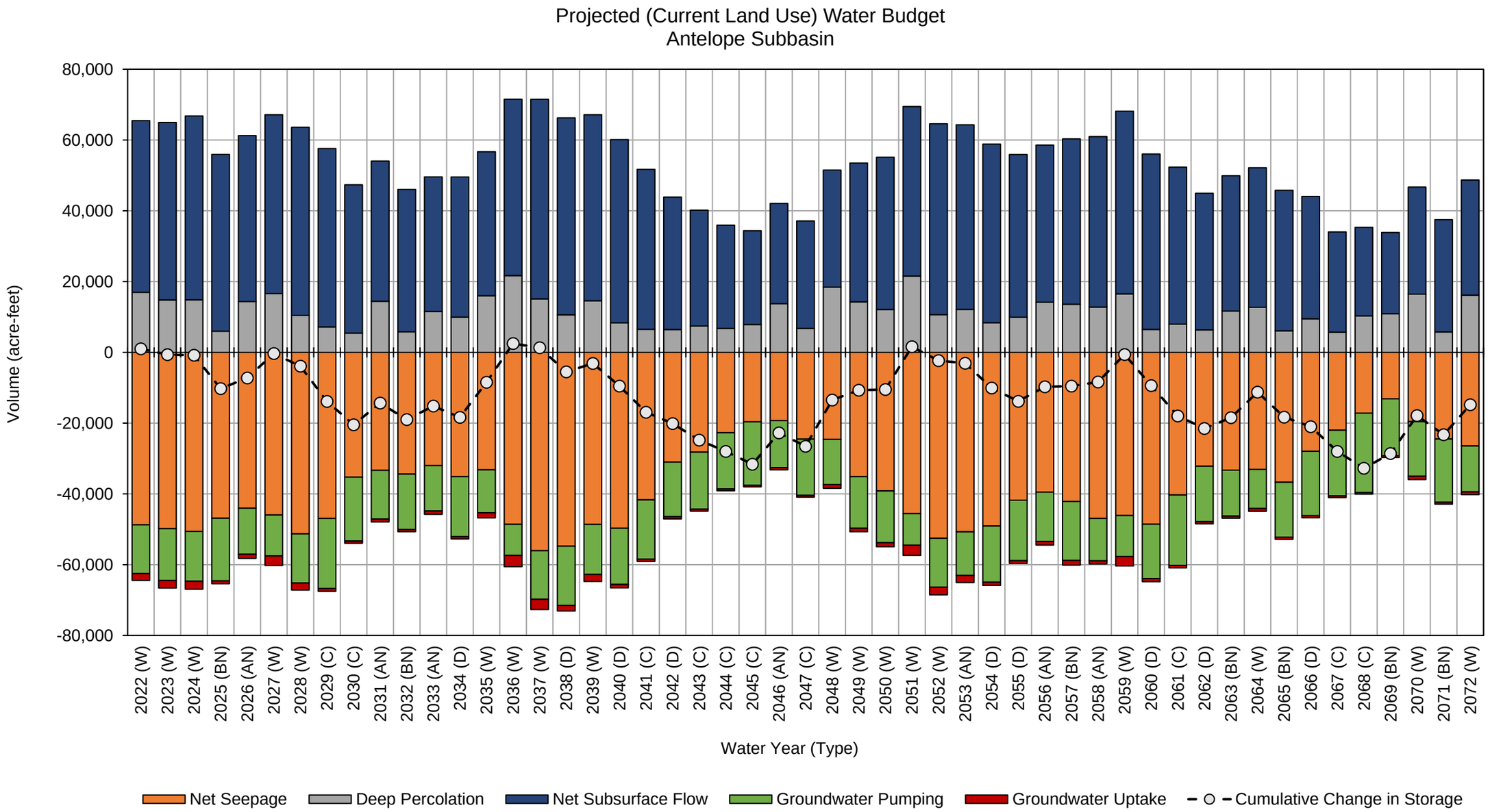
Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX A-2b

Detailed Antelope Subbasin Water Budget Results:

Projected (Current Land Use) Model Results – Groundwater System


Projected (Current Land Use) Water Budget
Antelope Subbasin
Volume (acre-feet)
80,000
60,000
40,000
20,000
0
-20,000
-40,000
-60,000
-80,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Antelope Subbasin Projected (Current Land Use) Water Budget Summary (acre-feet, rounded)

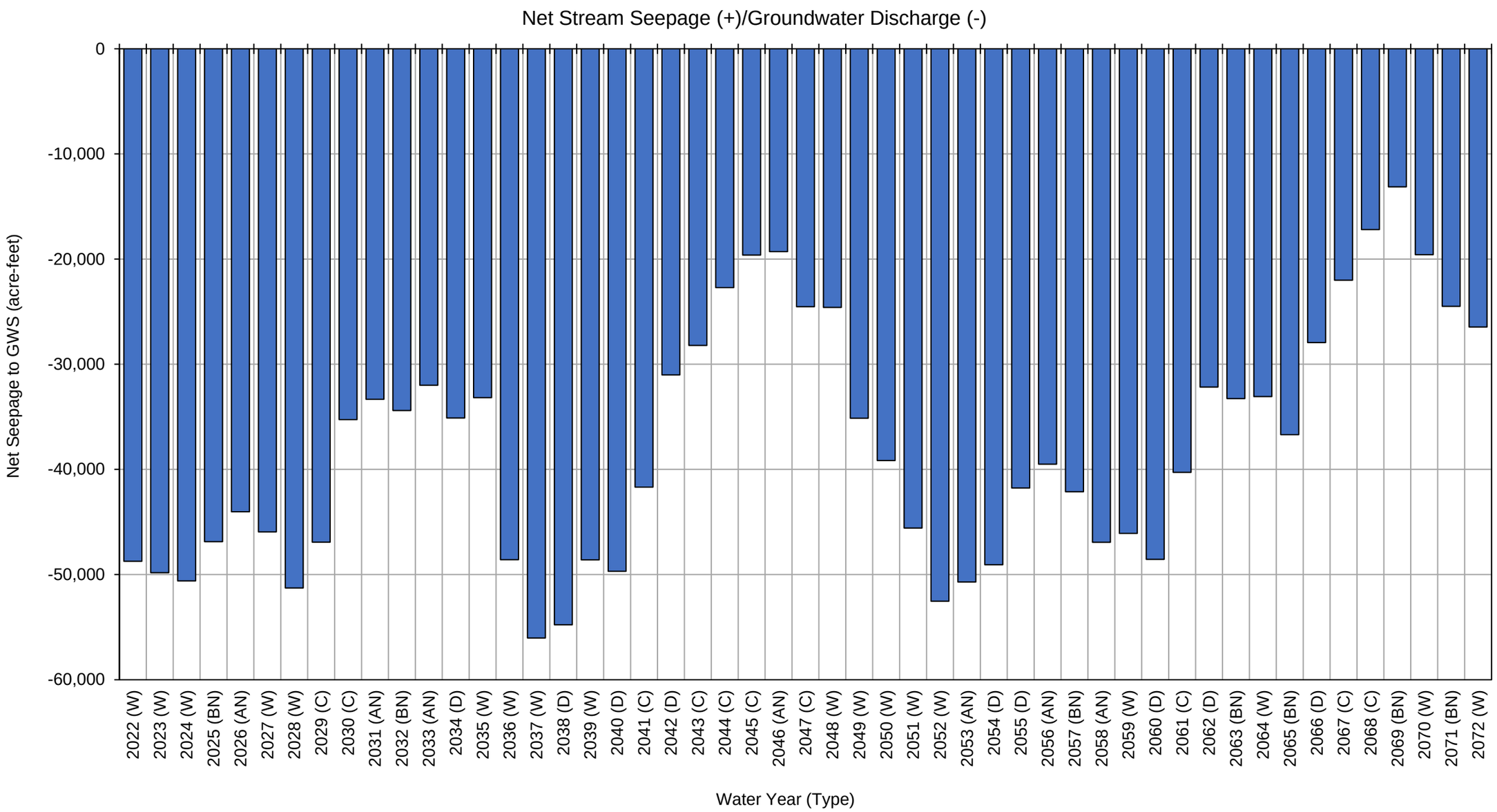
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	-49,000	17,000	-14,000	-2,000	49,000	1,000	1,000
2023 (W)	-50,000	15,000	-15,000	-2,200	50,000	-1,700	-650
2024 (W)	-51,000	15,000	-14,000	-2,300	52,000	-150	-800
2025 (BN)	-47,000	6,000	-18,000	-810	50,000	-9,500	-10,000
2026 (AN)	-44,000	14,000	-13,000	-1,200	47,000	3,000	-7,200
2027 (W)	-46,000	17,000	-12,000	-2,700	51,000	6,900	-330
2028 (W)	-51,000	10,000	-14,000	-2,000	53,000	-3,600	-3,900
2029 (C)	-47,000	7,200	-20,000	-820	50,000	-9,900	-14,000
2030 (C)	-35,000	5,400	-18,000	-600	42,000	-6,600	-20,000
2031 (AN)	-33,000	14,000	-14,000	-810	40,000	6,100	-14,000
2032 (BN)	-34,000	5,800	-16,000	-640	40,000	-4,700	-19,000
2033 (AN)	-32,000	12,000	-13,000	-920	38,000	3,800	-15,000
2034 (D)	-35,000	10,000	-17,000	-670	40,000	-3,200	-18,000
2035 (W)	-33,000	16,000	-12,000	-1,400	41,000	9,900	-8,500
2036 (W)	-49,000	22,000	-8,800	-3,200	50,000	11,000	2,500
2037 (W)	-56,000	15,000	-14,000	-2,900	56,000	-1,200	1,300
2038 (D)	-55,000	11,000	-17,000	-1,600	56,000	-6,800	-5,500
2039 (W)	-49,000	15,000	-14,000	-2,000	53,000	2,400	-3,100
2040 (D)	-50,000	8,400	-16,000	-950	52,000	-6,400	-9,500
2041 (C)	-42,000	6,500	-17,000	-650	45,000	-7,400	-17,000
2042 (D)	-31,000	6,400	-15,000	-620	37,000	-3,200	-20,000
2043 (C)	-28,000	7,500	-16,000	-550	33,000	-4,700	-25,000
2044 (C)	-23,000	6,800	-16,000	-510	29,000	-3,200	-28,000
2045 (C)	-20,000	7,900	-18,000	-460	27,000	-3,600	-32,000
2046 (AN)	-19,000	14,000	-13,000	-620	28,000	8,900	-23,000
2047 (C)	-25,000	6,800	-16,000	-510	30,000	-3,800	-27,000
2048 (W)	-25,000	18,000	-13,000	-1,100	33,000	13,000	-13,000
2049 (W)	-35,000	14,000	-15,000	-1,000	39,000	2,800	-11,000
2050 (W)	-39,000	12,000	-15,000	-1,200	43,000	190	-10,000
2051 (W)	-46,000	22,000	-8,900	-2,900	48,000	12,000	1,600
2052 (W)	-53,000	11,000	-14,000	-2,200	54,000	-3,900	-2,300
2053 (AN)	-51,000	12,000	-12,000	-2,000	52,000	-740	-3,100
2054 (D)	-49,000	8,400	-16,000	-900	50,000	-7,000	-10,000
2055 (D)	-42,000	9,900	-17,000	-790	46,000	-3,800	-14,000
2056 (AN)	-40,000	14,000	-14,000	-1,000	44,000	4,100	-9,700
2057 (BN)	-42,000	14,000	-17,000	-1,300	47,000	190	-9,500
2058 (AN)	-47,000	13,000	-12,000	-890	48,000	1,200	-8,400
2059 (W)	-46,000	17,000	-12,000	-2,700	52,000	7,800	-600
2060 (D)	-49,000	6,500	-15,000	-900	50,000	-8,800	-9,400
2061 (C)	-40,000	8,000	-20,000	-700	44,000	-8,600	-18,000
2062 (D)	-32,000	6,300	-16,000	-590	39,000	-3,500	-21,000
2063 (BN)	-33,000	12,000	-13,000	-590	38,000	3,000	-18,000
2064 (W)	-33,000	13,000	-11,000	-800	39,000	7,200	-11,000
2065 (BN)	-37,000	6,100	-16,000	-650	40,000	-7,100	-18,000

Antelope Subbasin Projected (Current Land Use) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-28,000	9,500	-18,000	-600	35,000	-2,700	-21,000
2067 (C)		-22,000	5,700	-19,000	-500	28,000	-7,000	-28,000
2068 (C)		-17,000	10,000	-22,000	-430	25,000	-4,800	-33,000
2069 (BN)		-13,000	11,000	-16,000	-480	23,000	4,200	-29,000
2070 (W)		-20,000	16,000	-15,000	-970	30,000	11,000	-18,000
2071 (BN)		-24,000	5,800	-18,000	-550	32,000	-5,400	-23,000
2072 (W)		-26,000	16,000	-13,000	-810	33,000	8,500	-15,000
Average (2022-2072)		-38,000	11,000	-15,000	-1,200	42,000	-290	
2022-2072	W	-42,000	16,000	-13,000	-1,900	46,000		
	AN	-38,000	13,000	-13,000	-1,100	43,000		
	BN	-33,000	8,600	-16,000	-720	38,000		
	D	-41,000	8,400	-16,000	-840	45,000		
	C	-30,000	7,200	-18,000	-570	35,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Net Stream Seepage (net flows as acre-feet, rounded)

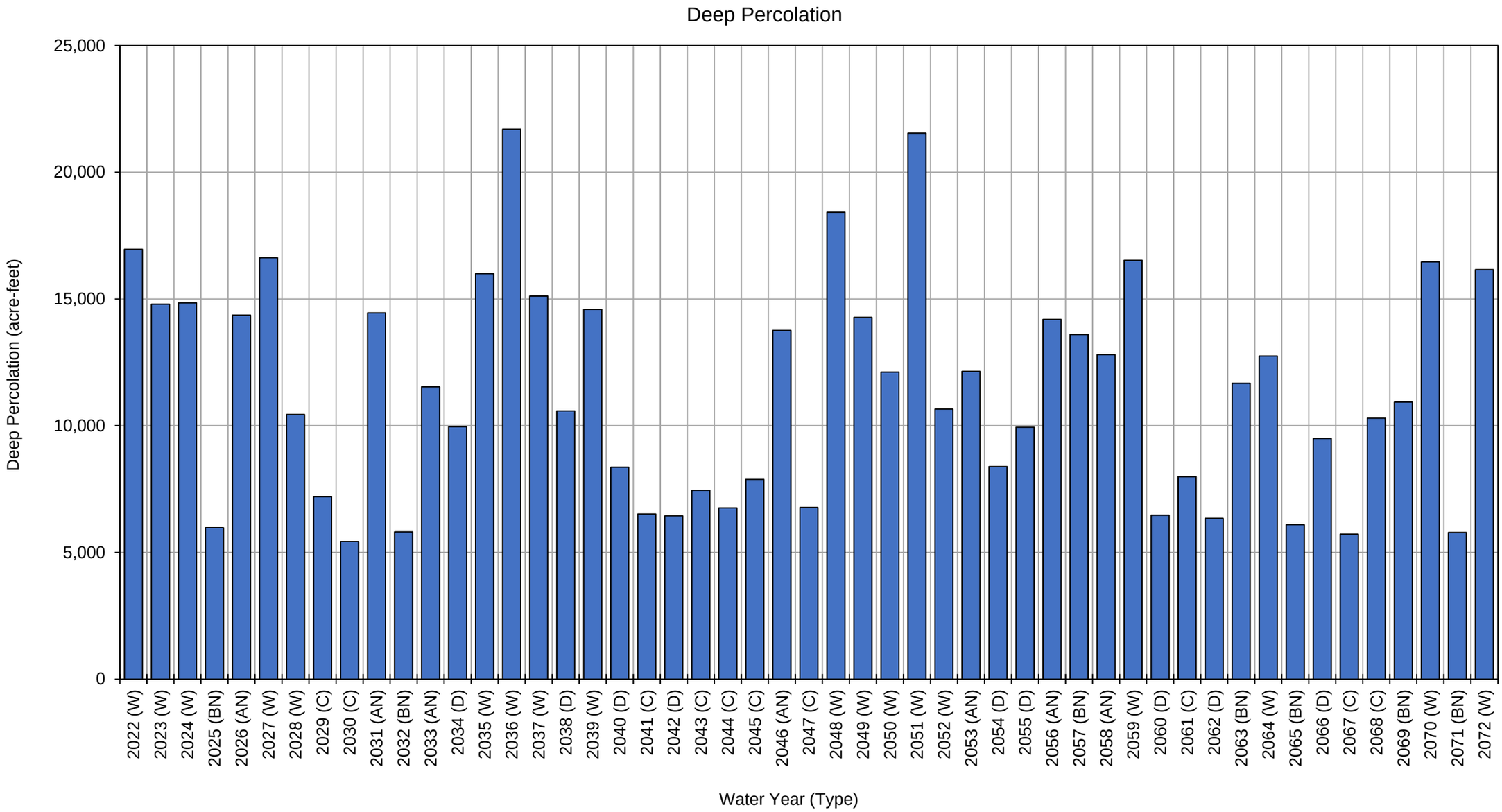
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	-49,000
2023 (W)	-50,000
2024 (W)	-51,000
2025 (BN)	-47,000
2026 (AN)	-44,000
2027 (W)	-46,000
2028 (W)	-51,000
2029 (C)	-47,000
2030 (C)	-35,000
2031 (AN)	-33,000
2032 (BN)	-34,000
2033 (AN)	-32,000
2034 (D)	-35,000
2035 (W)	-33,000
2036 (W)	-49,000
2037 (W)	-56,000
2038 (D)	-55,000
2039 (W)	-49,000
2040 (D)	-50,000
2041 (C)	-42,000
2042 (D)	-31,000
2043 (C)	-28,000
2044 (C)	-23,000
2045 (C)	-20,000
2046 (AN)	-19,000
2047 (C)	-25,000
2048 (W)	-25,000
2049 (W)	-35,000
2050 (W)	-39,000
2051 (W)	-46,000
2052 (W)	-53,000
2053 (AN)	-51,000
2054 (D)	-49,000
2055 (D)	-42,000
2056 (AN)	-40,000
2057 (BN)	-42,000
2058 (AN)	-47,000
2059 (W)	-46,000
2060 (D)	-49,000
2061 (C)	-40,000
2062 (D)	-32,000
2063 (BN)	-33,000

Antelope Subbasin Projected (Current Land Use) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		-33,000
2065 (BN)		-37,000
2066 (D)		-28,000
2067 (C)		-22,000
2068 (C)		-17,000
2069 (BN)		-13,000
2070 (W)		-20,000
2071 (BN)		-24,000
2072 (W)		-26,000
Average (2022-2072)		-38,000
2022-2072	W	-42,000
	AN	-38,000
	BN	-33,000
	D	-41,000
	C	-30,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Deep Percolation from the SWS (acre-feet, rounded)

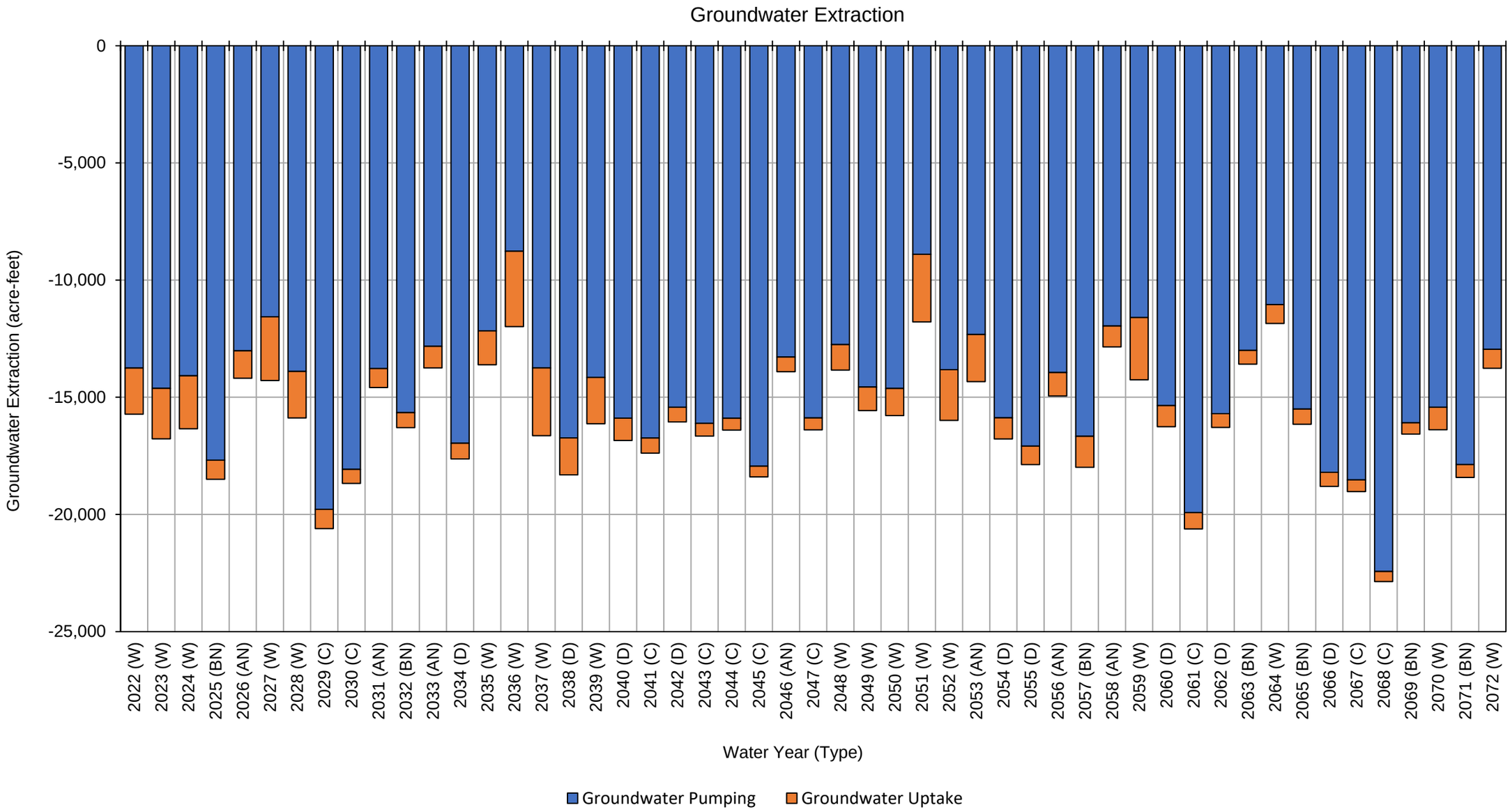
WY (Type)	Deep Percolation from the SWS
2022 (W)	17,000
2023 (W)	15,000
2024 (W)	15,000
2025 (BN)	6,000
2026 (AN)	14,000
2027 (W)	17,000
2028 (W)	10,000
2029 (C)	7,200
2030 (C)	5,400
2031 (AN)	14,000
2032 (BN)	5,800
2033 (AN)	12,000
2034 (D)	10,000
2035 (W)	16,000
2036 (W)	22,000
2037 (W)	15,000
2038 (D)	11,000
2039 (W)	15,000
2040 (D)	8,400
2041 (C)	6,500
2042 (D)	6,400
2043 (C)	7,500
2044 (C)	6,800
2045 (C)	7,900
2046 (AN)	14,000
2047 (C)	6,800
2048 (W)	18,000
2049 (W)	14,000
2050 (W)	12,000
2051 (W)	22,000
2052 (W)	11,000
2053 (AN)	12,000
2054 (D)	8,400
2055 (D)	9,900
2056 (AN)	14,000
2057 (BN)	14,000
2058 (AN)	13,000
2059 (W)	17,000
2060 (D)	6,500
2061 (C)	8,000
2062 (D)	6,300
2063 (BN)	12,000

Antelope Subbasin Projected (Current Land Use) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		13,000
2065 (BN)		6,100
2066 (D)		9,500
2067 (C)		5,700
2068 (C)		10,000
2069 (BN)		11,000
2070 (W)		16,000
2071 (BN)		5,800
2072 (W)		16,000
Average (2022-2072)		11,000
2022-2072	W	16,000
	AN	13,000
	BN	8,600
	D	8,400
	C	7,200

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Groundwater Extractions (acre-feet, rounded)

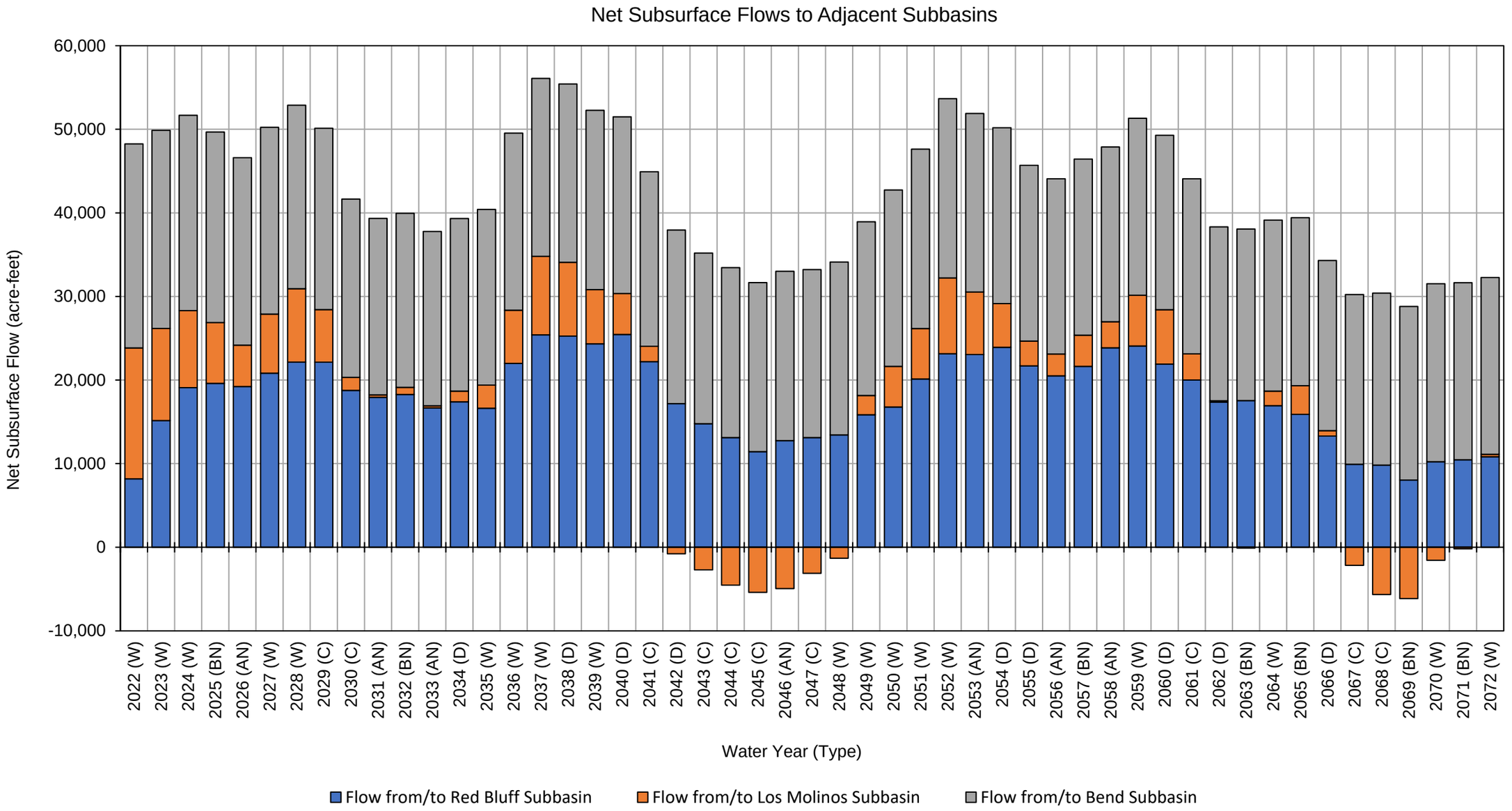
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-14,000	-2,000	-16,000
2023 (W)	-15,000	-2,200	-17,000
2024 (W)	-14,000	-2,300	-16,000
2025 (BN)	-18,000	-810	-18,000
2026 (AN)	-13,000	-1,200	-14,000
2027 (W)	-12,000	-2,700	-14,000
2028 (W)	-14,000	-2,000	-16,000
2029 (C)	-20,000	-820	-21,000
2030 (C)	-18,000	-600	-19,000
2031 (AN)	-14,000	-810	-15,000
2032 (BN)	-16,000	-640	-16,000
2033 (AN)	-13,000	-920	-14,000
2034 (D)	-17,000	-670	-18,000
2035 (W)	-12,000	-1,400	-14,000
2036 (W)	-8,800	-3,200	-12,000
2037 (W)	-14,000	-2,900	-17,000
2038 (D)	-17,000	-1,600	-18,000
2039 (W)	-14,000	-2,000	-16,000
2040 (D)	-16,000	-950	-17,000
2041 (C)	-17,000	-650	-17,000
2042 (D)	-15,000	-620	-16,000
2043 (C)	-16,000	-550	-17,000
2044 (C)	-16,000	-510	-16,000
2045 (C)	-18,000	-460	-18,000
2046 (AN)	-13,000	-620	-14,000
2047 (C)	-16,000	-510	-16,000
2048 (W)	-13,000	-1,100	-14,000
2049 (W)	-15,000	-1,000	-16,000
2050 (W)	-15,000	-1,200	-16,000
2051 (W)	-8,900	-2,900	-12,000
2052 (W)	-14,000	-2,200	-16,000
2053 (AN)	-12,000	-2,000	-14,000
2054 (D)	-16,000	-900	-17,000
2055 (D)	-17,000	-790	-18,000
2056 (AN)	-14,000	-1,000	-15,000
2057 (BN)	-17,000	-1,300	-18,000
2058 (AN)	-12,000	-890	-13,000
2059 (W)	-12,000	-2,700	-14,000
2060 (D)	-15,000	-900	-16,000
2061 (C)	-20,000	-700	-21,000
2062 (D)	-16,000	-590	-16,000
2063 (BN)	-13,000	-590	-14,000

Antelope Subbasin Projected (Current Land Use) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-11,000	-800	-12,000
2065 (BN)		-16,000	-650	-16,000
2066 (D)		-18,000	-600	-19,000
2067 (C)		-19,000	-500	-19,000
2068 (C)		-22,000	-430	-23,000
2069 (BN)		-16,000	-480	-17,000
2070 (W)		-15,000	-970	-16,000
2071 (BN)		-18,000	-550	-18,000
2072 (W)		-13,000	-810	-14,000
Average (2022-2072)		-15,000	-1,200	-16,000
2022-2072	W	-13,000	-1,900	-15,000
	AN	-13,000	-1,100	-14,000
	BN	-16,000	-720	-17,000
	D	-16,000	-840	-17,000
	C	-18,000	-570	-19,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

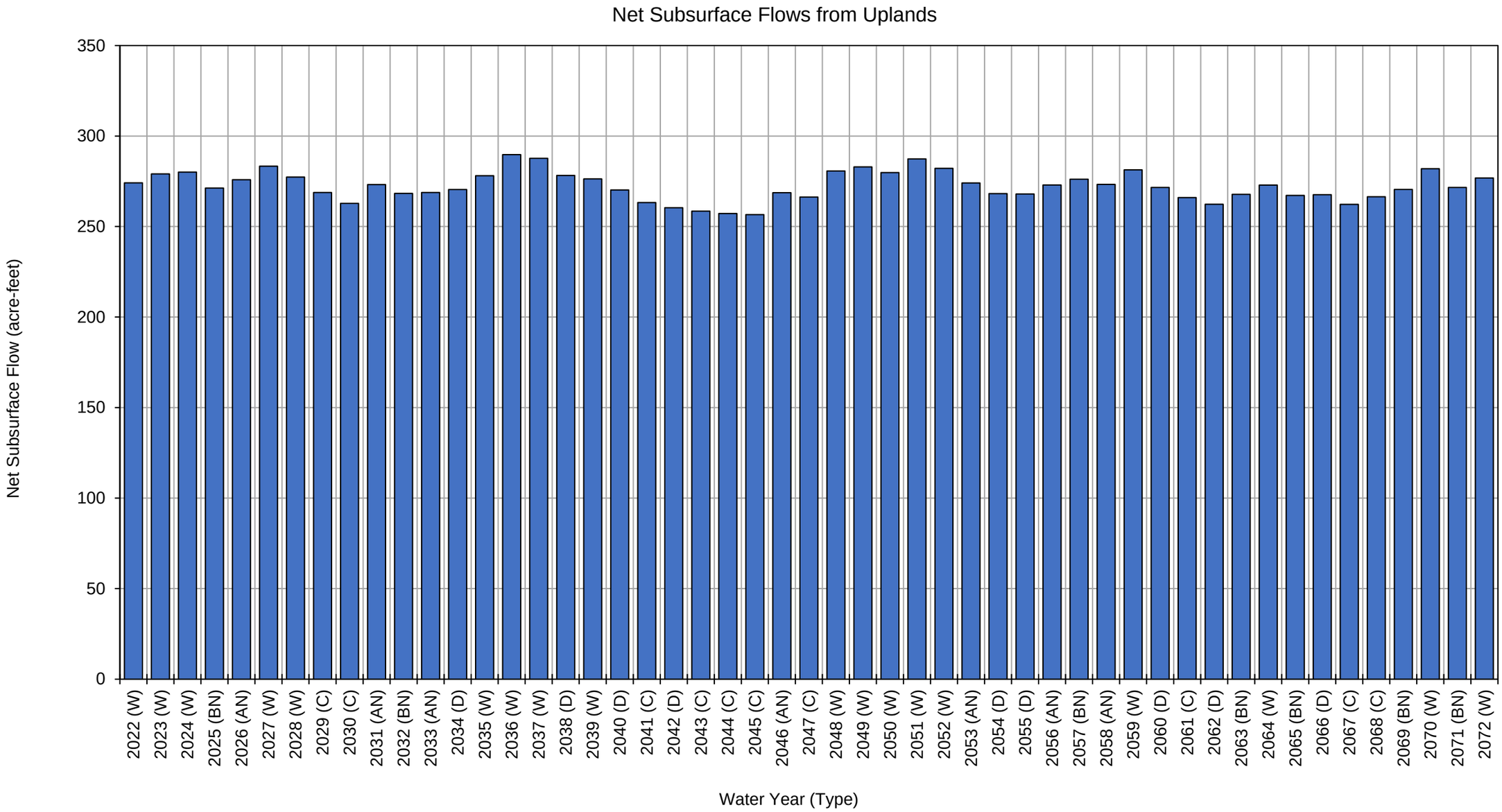
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	8,200	16,000	24,000	48,000
2023 (W)	15,000	11,000	24,000	50,000
2024 (W)	19,000	9,200	23,000	52,000
2025 (BN)	20,000	7,300	23,000	50,000
2026 (AN)	19,000	4,900	22,000	47,000
2027 (W)	21,000	7,100	22,000	50,000
2028 (W)	22,000	8,800	22,000	53,000
2029 (C)	22,000	6,300	22,000	50,000
2030 (C)	19,000	1,600	21,000	42,000
2031 (AN)	18,000	290	21,000	39,000
2032 (BN)	18,000	850	21,000	40,000
2033 (AN)	17,000	260	21,000	38,000
2034 (D)	17,000	1,300	21,000	39,000
2035 (W)	17,000	2,800	21,000	40,000
2036 (W)	22,000	6,400	21,000	50,000
2037 (W)	25,000	9,400	21,000	56,000
2038 (D)	25,000	8,800	21,000	55,000
2039 (W)	24,000	6,500	21,000	52,000
2040 (D)	25,000	4,900	21,000	51,000
2041 (C)	22,000	1,800	21,000	45,000
2042 (D)	17,000	-780	21,000	37,000
2043 (C)	15,000	-2,700	20,000	32,000
2044 (C)	13,000	-4,500	20,000	29,000
2045 (C)	11,000	-5,400	20,000	26,000
2046 (AN)	13,000	-5,000	20,000	28,000
2047 (C)	13,000	-3,100	20,000	30,000
2048 (W)	13,000	-1,300	21,000	33,000
2049 (W)	16,000	2,300	21,000	39,000
2050 (W)	17,000	4,900	21,000	43,000
2051 (W)	20,000	6,000	21,000	48,000
2052 (W)	23,000	9,100	21,000	54,000
2053 (AN)	23,000	7,500	21,000	52,000
2054 (D)	24,000	5,200	21,000	50,000
2055 (D)	22,000	3,000	21,000	46,000
2056 (AN)	21,000	2,600	21,000	44,000
2057 (BN)	22,000	3,700	21,000	46,000
2058 (AN)	24,000	3,100	21,000	48,000
2059 (W)	24,000	6,100	21,000	51,000
2060 (D)	22,000	6,500	21,000	49,000
2061 (C)	20,000	3,100	21,000	44,000
2062 (D)	17,000	150	21,000	38,000
2063 (BN)	18,000	-110	21,000	38,000

Antelope Subbasin Projected (Current Land Use) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2064 (W)		17,000	1,700	20,000	39,000
2065 (BN)		16,000	3,400	20,000	39,000
2066 (D)		13,000	650	20,000	34,000
2067 (C)		9,900	-2,200	20,000	28,000
2068 (C)		9,800	-5,700	21,000	25,000
2069 (BN)		8,000	-6,100	21,000	23,000
2070 (W)		10,000	-1,600	21,000	30,000
2071 (BN)		10,000	-200	21,000	31,000
2072 (W)		11,000	290	21,000	32,000
Average (2022-2072)		18,000	2,900	21,000	42,000
2022-2072	W	18,000	5,800	22,000	46,000
	AN	19,000	2,000	21,000	42,000
	BN	16,000	1,300	21,000	38,000
	D	20,000	3,300	21,000	45,000
	C	16,000	-1,100	21,000	35,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

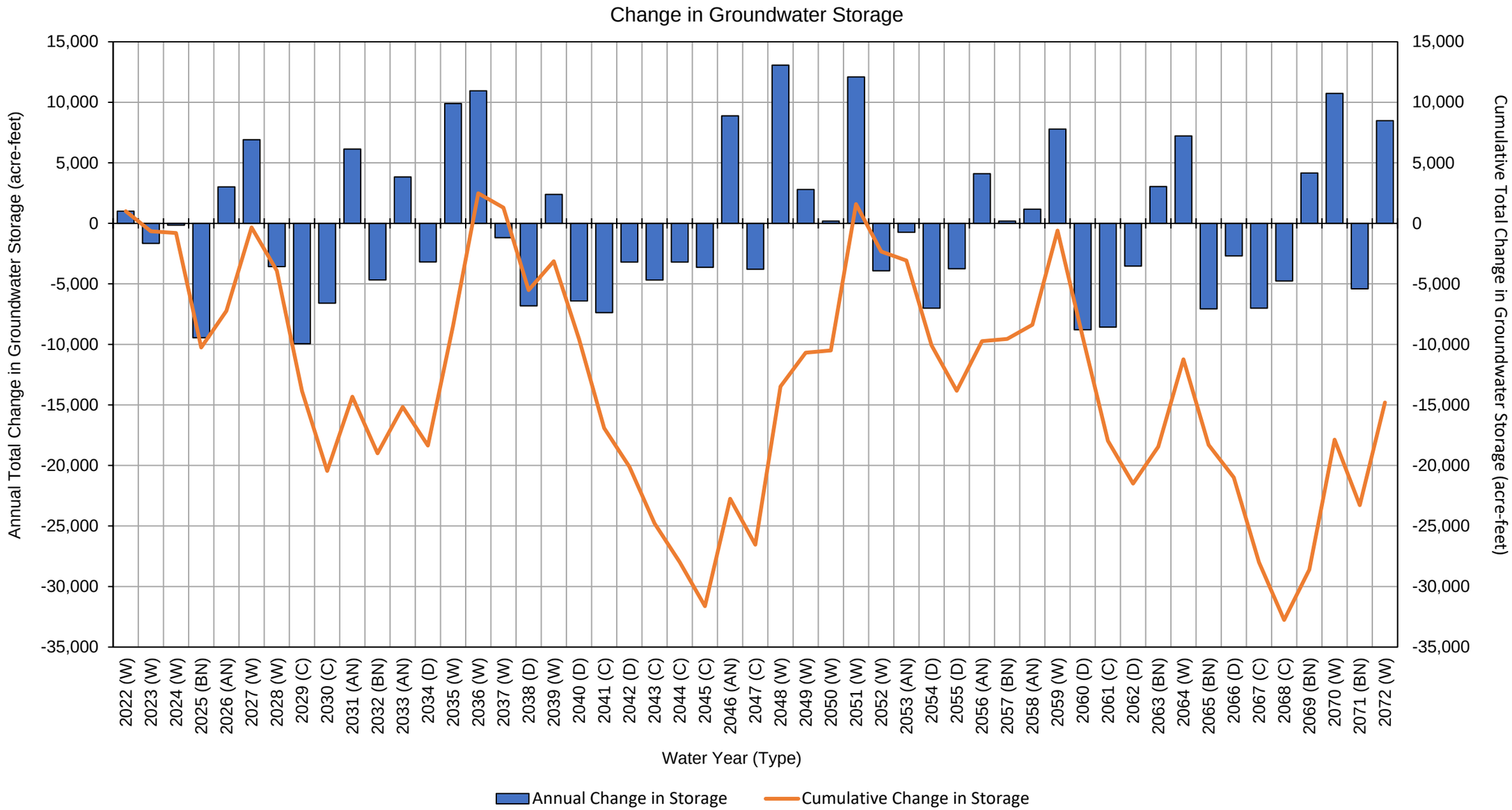
WY (Type)	Subsurface Flows from Uplands
2022 (W)	270
2023 (W)	280
2024 (W)	280
2025 (BN)	270
2026 (AN)	280
2027 (W)	280
2028 (W)	280
2029 (C)	270
2030 (C)	260
2031 (AN)	270
2032 (BN)	270
2033 (AN)	270
2034 (D)	270
2035 (W)	280
2036 (W)	290
2037 (W)	290
2038 (D)	280
2039 (W)	280
2040 (D)	270
2041 (C)	260
2042 (D)	260
2043 (C)	260
2044 (C)	260
2045 (C)	260
2046 (AN)	270
2047 (C)	270
2048 (W)	280
2049 (W)	280
2050 (W)	280
2051 (W)	290
2052 (W)	280
2053 (AN)	270
2054 (D)	270
2055 (D)	270
2056 (AN)	270
2057 (BN)	280
2058 (AN)	270
2059 (W)	280
2060 (D)	270
2061 (C)	270
2062 (D)	260
2063 (BN)	270

Antelope Subbasin Projected (Current Land Use) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		270
2065 (BN)		270
2066 (D)		270
2067 (C)		260
2068 (C)		270
2069 (BN)		270
2070 (W)		280
2071 (BN)		270
2072 (W)		280
Average (2022-2072)		270
2022-2072	W	280
	AN	270
	BN	270
	D	270
	C	260

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Antelope Subbasin Projected (Current Land Use) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	1,000	1,000
2023 (W)	-1,700	-650
2024 (W)	-150	-800
2025 (BN)	-9,500	-10,000
2026 (AN)	3,000	-7,200
2027 (W)	6,900	-330
2028 (W)	-3,600	-3,900
2029 (C)	-9,900	-14,000
2030 (C)	-6,600	-20,000
2031 (AN)	6,100	-14,000
2032 (BN)	-4,700	-19,000
2033 (AN)	3,800	-15,000
2034 (D)	-3,200	-18,000
2035 (W)	9,900	-8,500
2036 (W)	11,000	2,500
2037 (W)	-1,200	1,300
2038 (D)	-6,800	-5,500
2039 (W)	2,400	-3,100
2040 (D)	-6,400	-9,500
2041 (C)	-7,400	-17,000
2042 (D)	-3,200	-20,000
2043 (C)	-4,700	-25,000
2044 (C)	-3,200	-28,000
2045 (C)	-3,600	-32,000
2046 (AN)	8,900	-23,000
2047 (C)	-3,800	-27,000
2048 (W)	13,000	-13,000
2049 (W)	2,800	-11,000
2050 (W)	190	-10,000
2051 (W)	12,000	1,600
2052 (W)	-3,900	-2,300
2053 (AN)	-740	-3,100
2054 (D)	-7,000	-10,000
2055 (D)	-3,800	-14,000
2056 (AN)	4,100	-9,700
2057 (BN)	190	-9,500
2058 (AN)	1,200	-8,400
2059 (W)	7,800	-600
2060 (D)	-8,800	-9,400
2061 (C)	-8,600	-18,000
2062 (D)	-3,500	-21,000
2063 (BN)	3,000	-18,000

Antelope Subbasin Projected (Current Land Use) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		7,200	-11,000
2065 (BN)		-7,100	-18,000
2066 (D)		-2,700	-21,000
2067 (C)		-7,000	-28,000
2068 (C)		-4,800	-33,000
2069 (BN)		4,200	-29,000
2070 (W)		11,000	-18,000
2071 (BN)		-5,400	-23,000
2072 (W)		8,500	-15,000
Average (2022-2072)		-290	
2022-2072	W		
	AN		
	BN		
	D		
	C		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX A-3

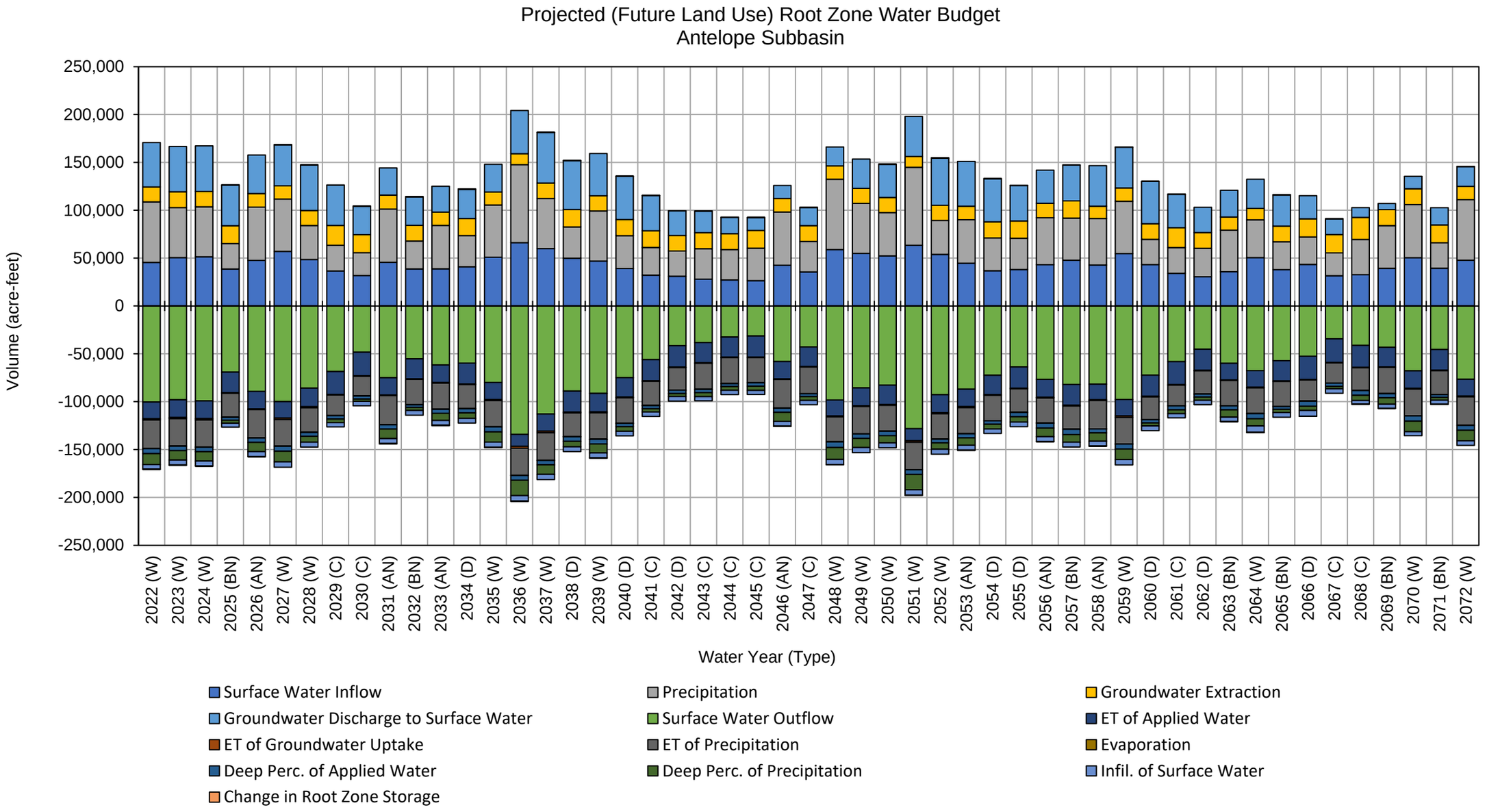
Detailed Antelope Subbasin Water Budget Results:

Projected (Future Land Use) Model Results

APPENDIX A-3a

Detailed Antelope Subbasin Water Budget Results:

Projected (Future Land Use) Model Results– Surface Water System


Projected (Future Land Use) Root Zone Water Budget
Antelope Subbasin
Volume (acre-feet)
250,000
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
-250,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Surface Water Inflow
Precipitation
Groundwater Extraction
Groundwater Discharge to Surface Water
Surface Water Outflow
ET of Applied Water
ET of Groundwater Uptake
ET of Precipitation
Evaporation
Deep Perc. of Applied Water
Deep Perc. of Precipitation
Infil. of Surface Water
Change in Root Zone Storage

Antelope Subbasin Projected (Future Land Use) Root Zone Water Budget Summary (acre-feet, rounded)

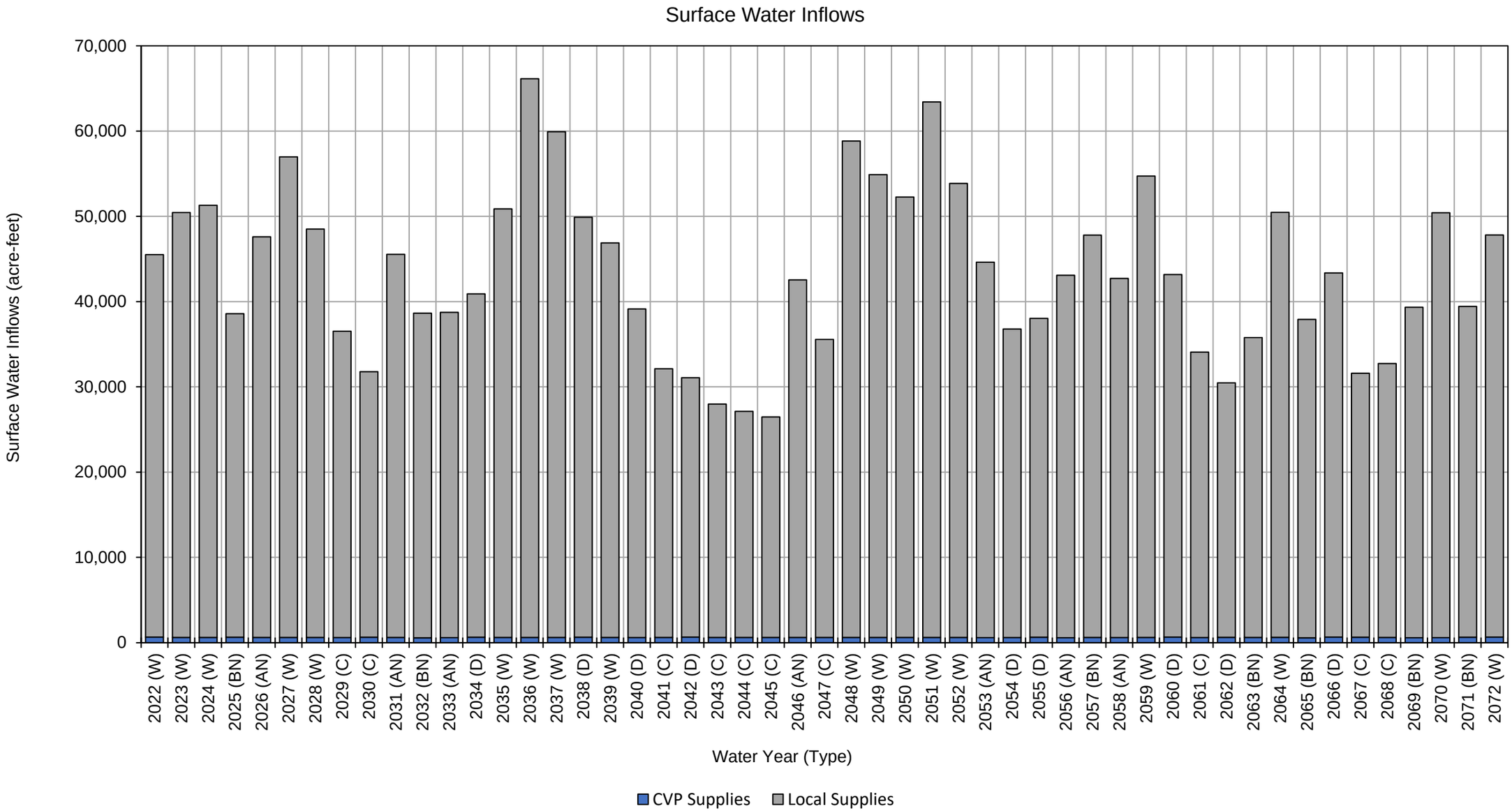
WY (Type)	Inflows				Outflows								Change in Root Zone Storage
	Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2022 (W)	46,000	63,000	16,000	46,000	100,000	17,000	1,300	30,000	140	5,300	11,000	4,800	250
2023 (W)	50,000	52,000	17,000	47,000	98,000	18,000	1,300	29,000	150	4,700	9,800	5,200	540
2024 (W)	51,000	52,000	16,000	48,000	99,000	19,000	1,300	28,000	150	4,800	9,700	5,200	1
2025 (BN)	39,000	27,000	19,000	42,000	69,000	21,000	660	25,000	120	3,000	3,100	4,200	-490
2026 (AN)	48,000	56,000	14,000	40,000	89,000	18,000	820	29,000	150	4,600	9,700	5,100	320
2027 (W)	57,000	55,000	14,000	43,000	100,000	17,000	1,700	28,000	170	5,100	11,000	5,700	-150
2028 (W)	49,000	36,000	16,000	48,000	86,000	19,000	1,100	26,000	150	4,000	6,200	5,100	-160
2029 (C)	37,000	27,000	21,000	42,000	69,000	24,000	660	22,000	130	3,500	3,800	4,400	-230
2030 (C)	32,000	24,000	19,000	30,000	48,000	25,000	530	20,000	150	3,300	2,300	4,700	-82
2031 (AN)	46,000	56,000	15,000	28,000	75,000	18,000	660	30,000	150	4,600	9,900	5,000	620
2032 (BN)	39,000	29,000	16,000	30,000	55,000	21,000	560	26,000	160	2,700	3,200	5,000	-310
2033 (AN)	39,000	45,000	14,000	27,000	62,000	18,000	750	27,000	150	4,200	7,300	4,900	550
2034 (D)	41,000	33,000	18,000	30,000	60,000	22,000	580	25,000	150	4,400	5,600	4,900	-630
2035 (W)	51,000	55,000	14,000	29,000	80,000	18,000	1,000	27,000	170	5,300	11,000	5,500	230
2036 (W)	66,000	81,000	12,000	45,000	130,000	12,000	2,000	28,000	150	5,000	16,000	5,600	470
2037 (W)	60,000	52,000	16,000	53,000	110,000	18,000	1,700	29,000	150	4,700	10,000	5,500	-130
2038 (D)	50,000	33,000	18,000	51,000	89,000	22,000	860	25,000	150	4,600	5,800	5,100	-560
2039 (W)	47,000	52,000	16,000	44,000	91,000	19,000	1,100	27,000	150	4,900	9,400	5,100	560
2040 (D)	39,000	34,000	17,000	45,000	75,000	20,000	680	27,000	150	3,500	4,900	4,800	-320
2041 (C)	32,000	29,000	18,000	37,000	56,000	22,000	560	25,000	150	3,300	3,400	4,700	-30
2042 (D)	31,000	26,000	16,000	26,000	42,000	22,000	540	23,000	160	3,500	3,000	4,800	-150
2043 (C)	28,000	32,000	17,000	23,000	38,000	21,000	480	27,000	140	3,500	4,100	4,500	-11
2044 (C)	27,000	32,000	17,000	17,000	33,000	21,000	440	27,000	140	3,000	3,800	4,500	-1
2045 (C)	26,000	34,000	19,000	13,000	31,000	22,000	410	26,000	130	3,600	4,400	4,200	-89
2046 (AN)	43,000	56,000	14,000	14,000	58,000	18,000	540	30,000	150	4,300	9,400	4,900	420
2047 (C)	36,000	32,000	17,000	19,000	43,000	21,000	450	28,000	140	2,900	3,900	4,500	-330
2048 (W)	59,000	74,000	14,000	20,000	98,000	17,000	850	26,000	150	5,800	13,000	5,400	300
2049 (W)	55,000	52,000	16,000	31,000	86,000	19,000	800	28,000	150	4,700	9,500	5,300	190
2050 (W)	52,000	45,000	16,000	35,000	83,000	20,000	840	27,000	150	4,500	7,500	5,200	-250
2051 (W)	63,000	81,000	11,000	42,000	130,000	13,000	1,700	28,000	150	4,900	16,000	5,500	390
2052 (W)	54,000	36,000	16,000	49,000	93,000	19,000	1,200	26,000	150	3,900	6,500	5,200	-600
2053 (AN)	45,000	45,000	14,000	47,000	87,000	18,000	1,200	27,000	150	4,300	7,600	5,000	560
2054 (D)	37,000	34,000	17,000	45,000	72,000	20,000	670	27,000	150	3,500	4,900	4,700	-400
2055 (D)	38,000	33,000	18,000	37,000	64,000	22,000	650	25,000	150	4,500	5,500	4,800	-240
2056 (AN)	43,000	49,000	15,000	35,000	77,000	19,000	750	26,000	150	5,100	9,100	5,000	280
2057 (BN)	48,000	44,000	18,000	37,000	82,000	22,000	900	24,000	150	5,600	8,000	5,100	-230
2058 (AN)	43,000	49,000	13,000	42,000	82,000	16,000	680	30,000	150	4,100	8,700	5,000	350
2059 (W)	55,000	55,000	14,000	43,000	98,000	17,000	1,600	28,000	170	5,100	11,000	5,600	-160
2060 (D)	43,000	26,000	16,000	44,000	72,000	22,000	690	24,000	160	3,400	3,100	5,000	-180
2061 (C)	34,000	27,000	21,000	35,000	58,000	24,000	590	21,000	130	4,100	3,900	4,400	-210
2062 (D)	30,000	30,000	16,000	26,000	45,000	22,000	510	24,000	140	3,100	3,300	4,400	100
2063 (BN)	36,000	43,000	14,000	28,000	60,000	17,000	510	26,000	140	4,100	7,600	4,600	91
2064 (W)	50,000	39,000	12,000	30,000	68,000	17,000	680	27,000	230	5,300	7,500	6,600	380
2065 (BN)	38,000	29,000	16,000	33,000	57,000	21,000	570	26,000	160	2,900	3,300	5,000	-340

Antelope Subbasin Projected (Future Land Use) Root Zone Water Budget Summary (acre-feet, rounded)

WY (Type)		Inflows				Outflows								Change in Root Zone Storage
		Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2066 (D)		43,000	29,000	19,000	24,000	53,000	24,000	530	22,000	210	5,200	4,400	6,100	78
2067 (C)		32,000	24,000	19,000	16,000	34,000	25,000	450	21,000	150	3,500	2,400	4,700	-390
2068 (C)		33,000	37,000	23,000	10,000	41,000	23,000	380	24,000	110	4,900	5,500	3,700	250
2069 (BN)		39,000	45,000	17,000	6,400	43,000	21,000	410	27,000	130	4,300	6,700	4,300	120
2070 (W)		50,000	56,000	16,000	13,000	68,000	18,000	770	28,000	100	5,400	11,000	4,200	-110
2071 (BN)		39,000	27,000	19,000	18,000	46,000	22,000	480	25,000	120	3,000	2,900	4,200	33
2072 (W)		48,000	63,000	14,000	21,000	77,000	18,000	660	30,000	140	5,200	11,000	4,800	-55
Average (2022-2072)		43,000	43,000	16,000	33,000	72,000	20,000	820	26,000	150	4,200	7,100	4,900	5
2022-2072	W	54,000	56,000	15,000	38,000	94,000	18,000	1,200	28,000	160	4,900	10,000	5,300	94
	AN	44,000	51,000	14,000	33,000	76,000	18,000	770	29,000	150	4,500	8,800	5,000	440
	BN	40,000	35,000	17,000	28,000	59,000	21,000	590	26,000	140	3,600	5,000	4,600	-160
	D	39,000	31,000	17,000	37,000	63,000	22,000	640	25,000	160	4,000	4,500	5,000	-260
	C	32,000	30,000	19,000	24,000	45,000	23,000	500	24,000	140	3,600	3,700	4,400	-110

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

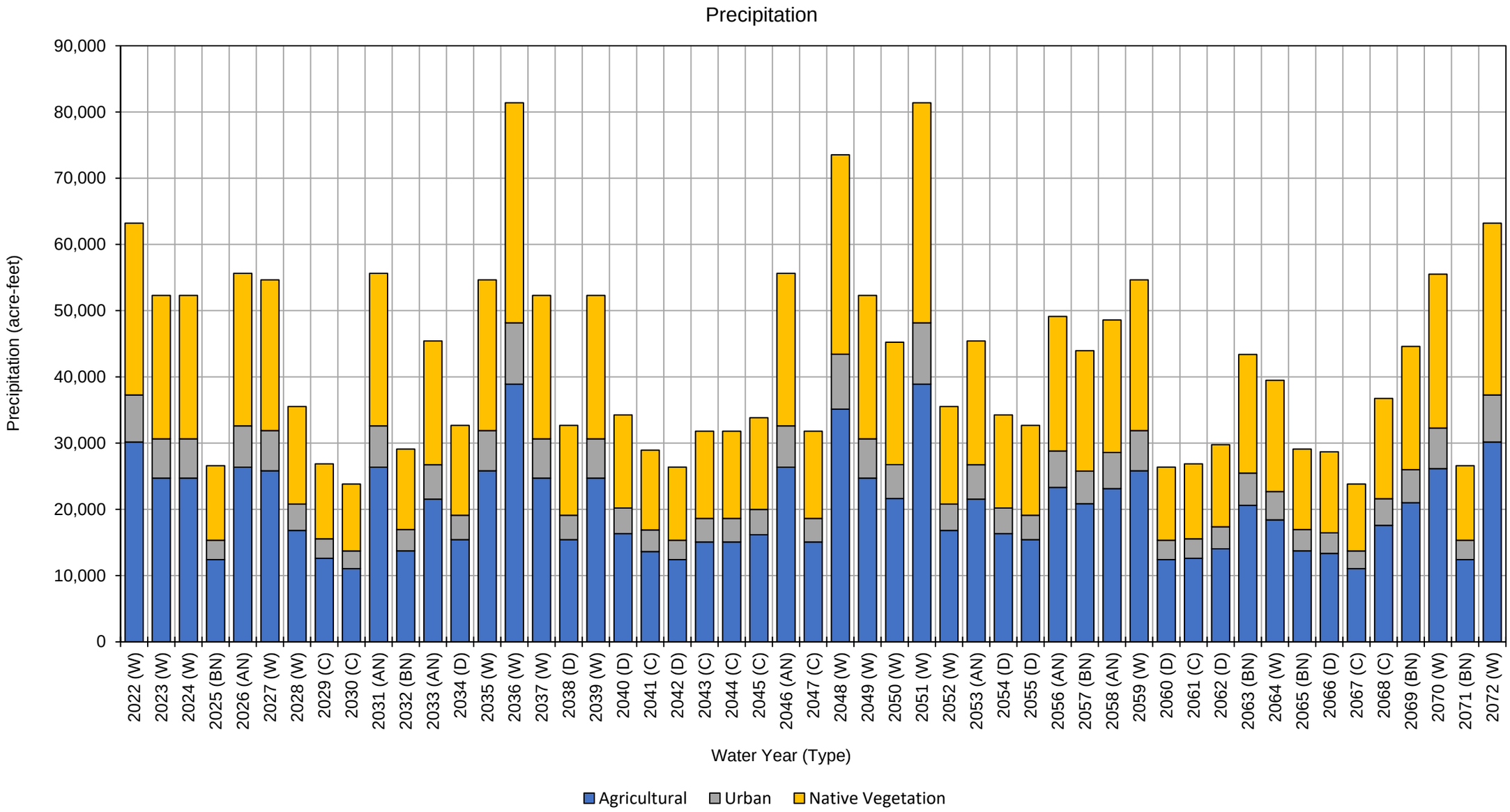
WY (Type)	CVP Supplies	Local Supplies	Total
2022 (W)	650	45,000	46,000
2023 (W)	610	50,000	51,000
2024 (W)	610	51,000	52,000
2025 (BN)	630	38,000	39,000
2026 (AN)	610	47,000	48,000
2027 (W)	610	56,000	57,000
2028 (W)	620	48,000	49,000
2029 (C)	600	36,000	37,000
2030 (C)	640	31,000	32,000
2031 (AN)	610	45,000	46,000
2032 (BN)	560	38,000	39,000
2033 (AN)	580	38,000	39,000
2034 (D)	640	40,000	41,000
2035 (W)	610	50,000	51,000
2036 (W)	610	66,000	67,000
2037 (W)	610	59,000	60,000
2038 (D)	640	49,000	50,000
2039 (W)	610	46,000	47,000
2040 (D)	600	39,000	40,000
2041 (C)	610	32,000	33,000
2042 (D)	650	30,000	31,000
2043 (C)	610	27,000	28,000
2044 (C)	610	27,000	28,000
2045 (C)	610	26,000	27,000
2046 (AN)	610	42,000	43,000
2047 (C)	610	35,000	36,000
2048 (W)	610	58,000	59,000
2049 (W)	610	54,000	55,000
2050 (W)	610	52,000	53,000
2051 (W)	610	63,000	64,000
2052 (W)	620	53,000	54,000
2053 (AN)	580	44,000	45,000
2054 (D)	600	36,000	37,000
2055 (D)	640	37,000	38,000
2056 (AN)	580	43,000	44,000
2057 (BN)	620	47,000	48,000
2058 (AN)	600	42,000	43,000
2059 (W)	610	54,000	55,000
2060 (D)	650	43,000	44,000
2061 (C)	600	33,000	34,000
2062 (D)	620	30,000	31,000
2063 (BN)	610	35,000	36,000

Antelope Subbasin Projected (Future Land Use) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Total
2064 (W)		630	50,000	51,000
2065 (BN)		560	37,000	38,000
2066 (D)		650	43,000	44,000
2067 (C)		640	31,000	32,000
2068 (C)		610	32,000	33,000
2069 (BN)		580	39,000	40,000
2070 (W)		580	50,000	51,000
2071 (BN)		630	39,000	40,000
2072 (W)		650	47,000	48,000
Average (2022-2072)		610	43,000	44,000
2022-2072	W	620	53,000	54,000
	AN	600	43,000	44,000
	BN	600	39,000	40,000
	D	630	39,000	40,000
	C	610	31,000	32,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Precipitation, by Water Use Sector (acre-feet, rounded)

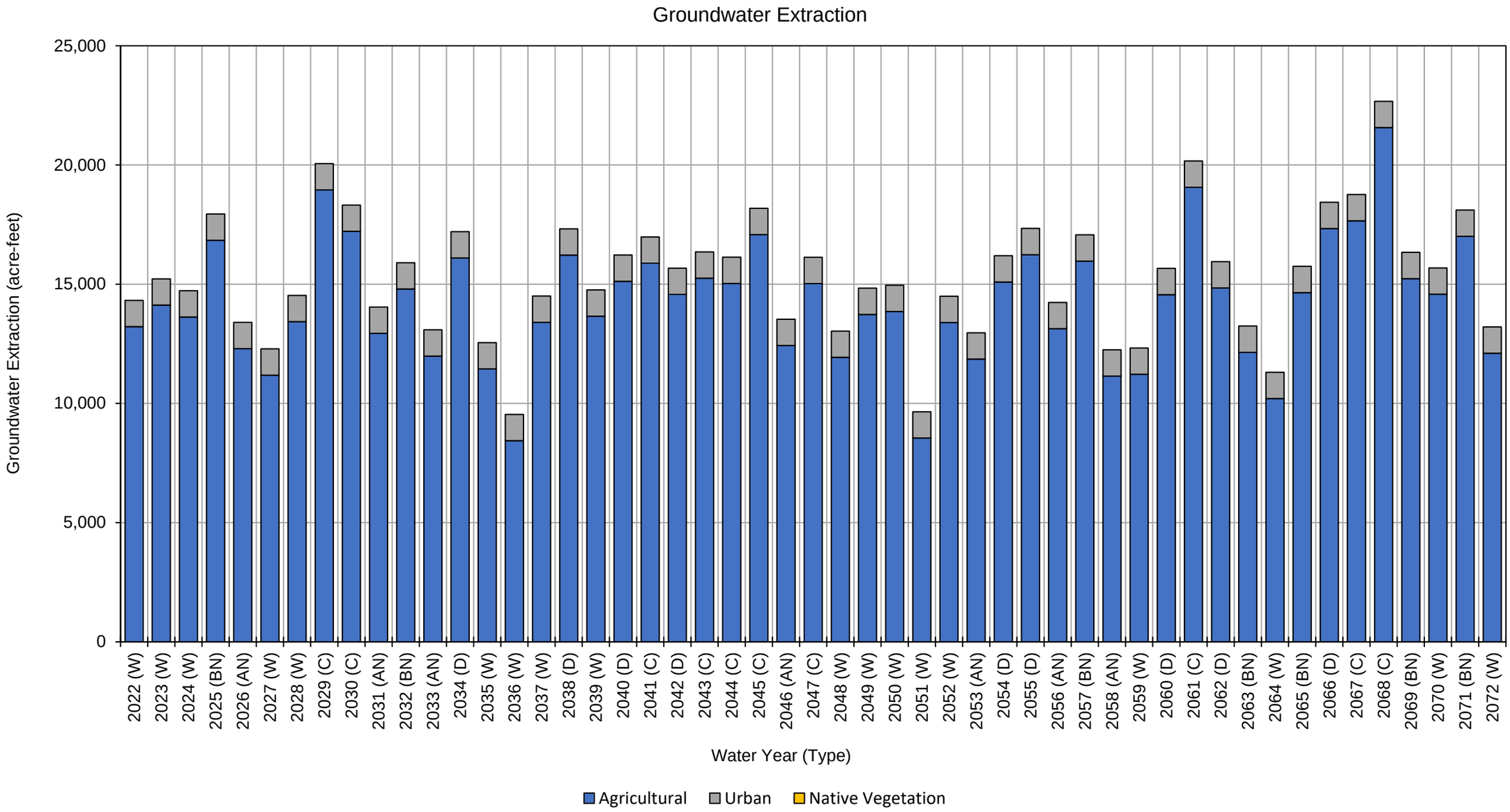
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	30,000	7,100	26,000	63,000
2023 (W)	25,000	5,900	22,000	53,000
2024 (W)	25,000	5,900	22,000	53,000
2025 (BN)	12,000	2,900	11,000	26,000
2026 (AN)	26,000	6,200	23,000	55,000
2027 (W)	26,000	6,100	23,000	55,000
2028 (W)	17,000	4,000	15,000	36,000
2029 (C)	13,000	2,900	11,000	27,000
2030 (C)	11,000	2,700	10,000	24,000
2031 (AN)	26,000	6,200	23,000	55,000
2032 (BN)	14,000	3,200	12,000	29,000
2033 (AN)	22,000	5,200	19,000	46,000
2034 (D)	15,000	3,700	14,000	33,000
2035 (W)	26,000	6,100	23,000	55,000
2036 (W)	39,000	9,300	33,000	81,000
2037 (W)	25,000	5,900	22,000	53,000
2038 (D)	15,000	3,700	14,000	33,000
2039 (W)	25,000	5,900	22,000	53,000
2040 (D)	16,000	3,900	14,000	34,000
2041 (C)	14,000	3,300	12,000	29,000
2042 (D)	12,000	2,900	11,000	26,000
2043 (C)	15,000	3,600	13,000	32,000
2044 (C)	15,000	3,600	13,000	32,000
2045 (C)	16,000	3,800	14,000	34,000
2046 (AN)	26,000	6,200	23,000	55,000
2047 (C)	15,000	3,600	13,000	32,000
2048 (W)	35,000	8,300	30,000	73,000
2049 (W)	25,000	5,900	22,000	53,000
2050 (W)	22,000	5,100	18,000	45,000
2051 (W)	39,000	9,300	33,000	81,000
2052 (W)	17,000	4,000	15,000	36,000
2053 (AN)	22,000	5,200	19,000	46,000
2054 (D)	16,000	3,900	14,000	34,000
2055 (D)	15,000	3,700	14,000	33,000
2056 (AN)	23,000	5,500	20,000	49,000
2057 (BN)	21,000	4,900	18,000	44,000
2058 (AN)	23,000	5,500	20,000	49,000
2059 (W)	26,000	6,100	23,000	55,000
2060 (D)	12,000	2,900	11,000	26,000
2061 (C)	13,000	2,900	11,000	27,000
2062 (D)	14,000	3,300	12,000	29,000
2063 (BN)	21,000	4,900	18,000	44,000

Antelope Subbasin Projected (Future Land Use) Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		18,000	4,300	17,000	39,000
2065 (BN)		14,000	3,200	12,000	29,000
2066 (D)		13,000	3,100	12,000	28,000
2067 (C)		11,000	2,700	10,000	24,000
2068 (C)		18,000	4,000	15,000	37,000
2069 (BN)		21,000	5,000	19,000	45,000
2070 (W)		26,000	6,100	23,000	55,000
2071 (BN)		12,000	2,900	11,000	26,000
2072 (W)		30,000	7,100	26,000	63,000
Average (2022-2072)		20,000	4,800	18,000	43,000
2022-2072	W	26,000	6,200	23,000	55,000
	AN	24,000	5,700	21,000	51,000
	BN	16,000	3,900	15,000	35,000
	D	15,000	3,500	13,000	32,000
	C	14,000	3,300	12,000	29,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

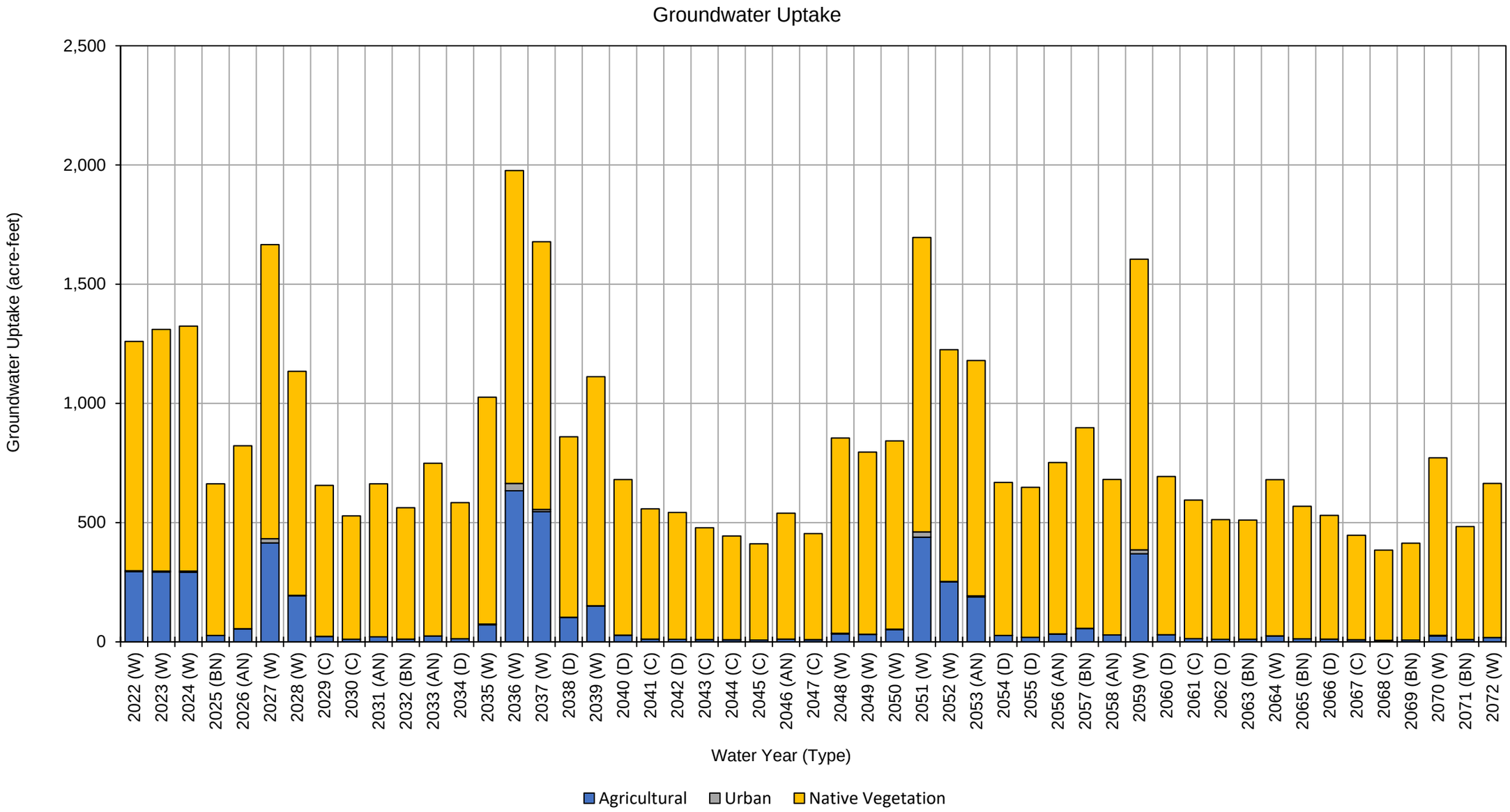
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	13,000	1,100	0	14,000
2023 (W)	14,000	1,100	0	15,000
2024 (W)	14,000	1,100	0	15,000
2025 (BN)	17,000	1,100	0	18,000
2026 (AN)	12,000	1,100	0	13,000
2027 (W)	11,000	1,100	0	12,000
2028 (W)	13,000	1,100	0	14,000
2029 (C)	19,000	1,100	0	20,000
2030 (C)	17,000	1,100	0	18,000
2031 (AN)	13,000	1,100	0	14,000
2032 (BN)	15,000	1,100	0	16,000
2033 (AN)	12,000	1,100	0	13,000
2034 (D)	16,000	1,100	0	17,000
2035 (W)	11,000	1,100	0	12,000
2036 (W)	8,400	1,100	0	9,500
2037 (W)	13,000	1,100	0	14,000
2038 (D)	16,000	1,100	0	17,000
2039 (W)	14,000	1,100	0	15,000
2040 (D)	15,000	1,100	0	16,000
2041 (C)	16,000	1,100	0	17,000
2042 (D)	15,000	1,100	0	16,000
2043 (C)	15,000	1,100	0	16,000
2044 (C)	15,000	1,100	0	16,000
2045 (C)	17,000	1,100	0	18,000
2046 (AN)	12,000	1,100	0	13,000
2047 (C)	15,000	1,100	0	16,000
2048 (W)	12,000	1,100	0	13,000
2049 (W)	14,000	1,100	0	15,000
2050 (W)	14,000	1,100	0	15,000
2051 (W)	8,500	1,100	0	9,600
2052 (W)	13,000	1,100	0	14,000
2053 (AN)	12,000	1,100	0	13,000
2054 (D)	15,000	1,100	0	16,000
2055 (D)	16,000	1,100	0	17,000
2056 (AN)	13,000	1,100	0	14,000
2057 (BN)	16,000	1,100	0	17,000
2058 (AN)	11,000	1,100	0	12,000
2059 (W)	11,000	1,100	0	12,000
2060 (D)	15,000	1,100	0	16,000
2061 (C)	19,000	1,100	0	20,000
2062 (D)	15,000	1,100	0	16,000
2063 (BN)	12,000	1,100	0	13,000

Antelope Subbasin Projected (Future Land Use) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		10,000	1,100	0	11,000
2065 (BN)		15,000	1,100	0	16,000
2066 (D)		17,000	1,100	0	18,000
2067 (C)		18,000	1,100	0	19,000
2068 (C)		22,000	1,100	0	23,000
2069 (BN)		15,000	1,100	0	16,000
2070 (W)		15,000	1,100	0	16,000
2071 (BN)		17,000	1,100	0	18,000
2072 (W)		12,000	1,100	0	13,000
Average (2022-2072)		14,000	1,100	0	15,000
2022-2072	W	12,000	1,100	0	13,000
	AN	12,000	1,100	0	13,000
	BN	15,000	1,100	0	16,000
	D	16,000	1,100	0	17,000
	C	17,000	1,100	0	18,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

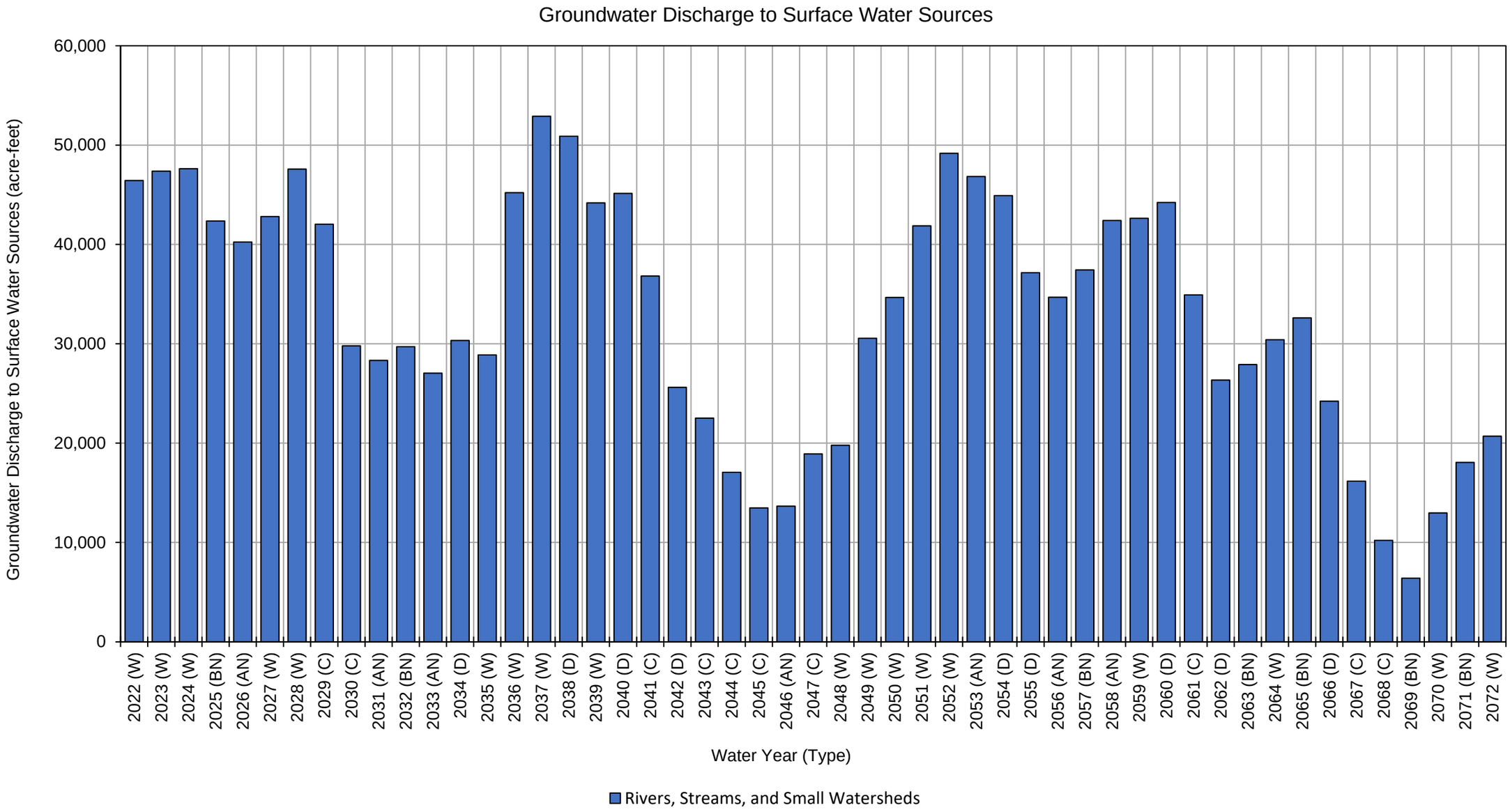
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	290	4	960	1,300
2023 (W)	290	4	1,000	1,300
2024 (W)	290	5	1,000	1,300
2025 (BN)	26	0	640	670
2026 (AN)	54	0	770	820
2027 (W)	410	18	1,200	1,600
2028 (W)	190	2	940	1,100
2029 (C)	23	0	630	650
2030 (C)	11	0	520	530
2031 (AN)	21	0	640	660
2032 (BN)	11	0	550	560
2033 (AN)	24	1	720	750
2034 (D)	13	0	570	580
2035 (W)	71	3	950	1,000
2036 (W)	630	31	1,300	2,000
2037 (W)	550	9	1,100	1,700
2038 (D)	100	0	760	860
2039 (W)	150	2	960	1,100
2040 (D)	28	0	650	680
2041 (C)	11	0	550	560
2042 (D)	10	0	530	540
2043 (C)	9	0	470	480
2044 (C)	9	0	440	450
2045 (C)	8	0	400	410
2046 (AN)	11	0	530	540
2047 (C)	9	0	440	450
2048 (W)	33	3	820	860
2049 (W)	31	1	760	790
2050 (W)	51	2	790	840
2051 (W)	440	22	1,200	1,700
2052 (W)	250	2	970	1,200
2053 (AN)	190	5	990	1,200
2054 (D)	27	0	640	670
2055 (D)	19	0	630	650
2056 (AN)	33	0	720	750
2057 (BN)	55	1	840	900
2058 (AN)	29	0	650	680
2059 (W)	370	16	1,200	1,600
2060 (D)	30	0	660	690
2061 (C)	13	0	580	590
2062 (D)	10	0	500	510
2063 (BN)	11	0	500	510

Antelope Subbasin Projected (Future Land Use) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		25	0	660	690
2065 (BN)		12	0	560	570
2066 (D)		11	0	520	530
2067 (C)		9	0	440	450
2068 (C)		6	0	380	390
2069 (BN)		7	0	410	420
2070 (W)		24	3	740	770
2071 (BN)		10	0	470	480
2072 (W)		18	1	650	670
Average (2022-2072)		98	3	720	820
2022-2072	W	230	7	960	1,200
	AN	51	1	720	770
	BN	19	0	570	590
	D	28	0	610	640
	C	11	0	480	490

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
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C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

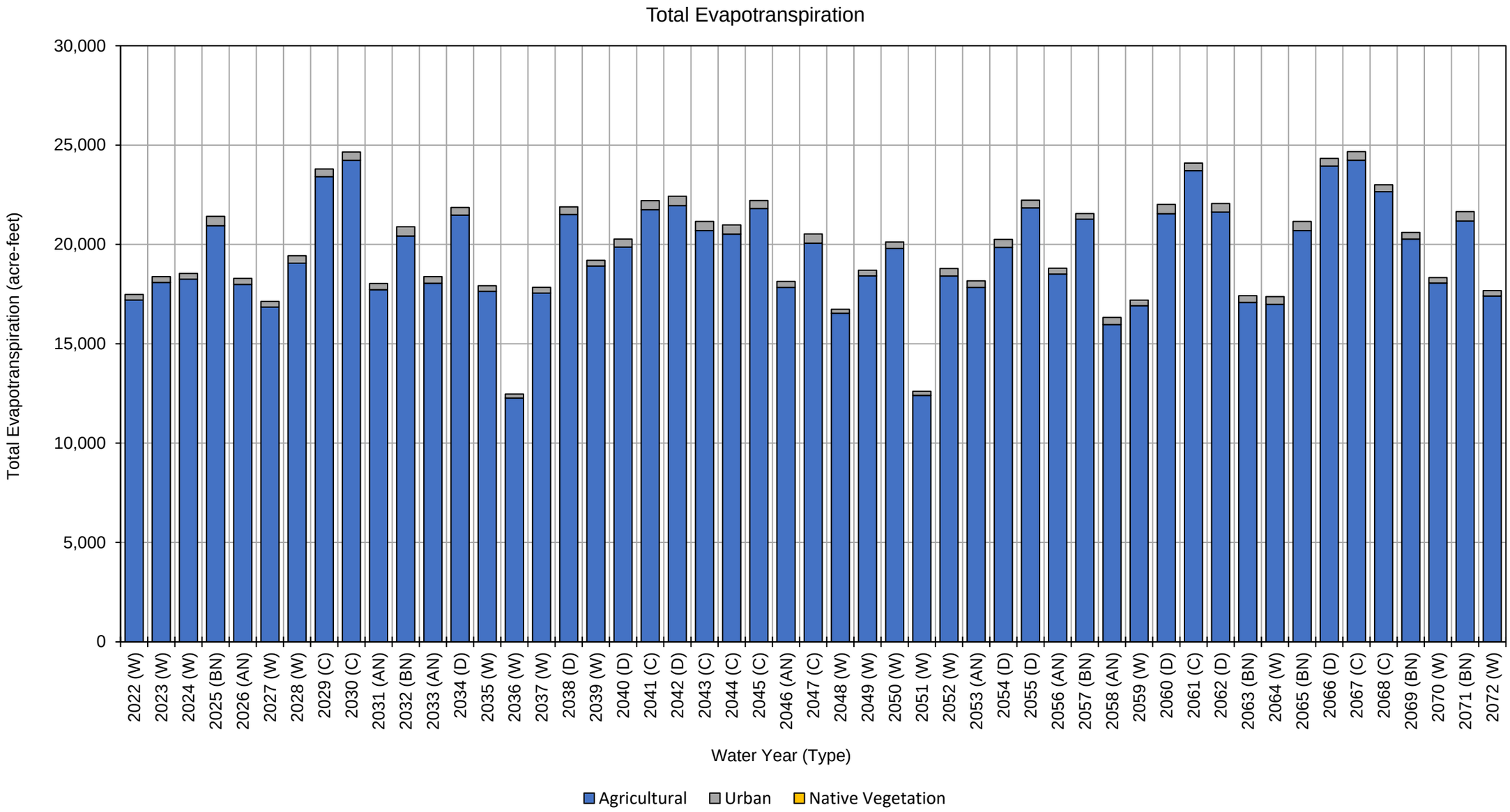
WY (Type)	Rivers, Streams, and Small Watersheds
2022 (W)	46,000
2023 (W)	47,000
2024 (W)	48,000
2025 (BN)	42,000
2026 (AN)	40,000
2027 (W)	43,000
2028 (W)	48,000
2029 (C)	42,000
2030 (C)	30,000
2031 (AN)	28,000
2032 (BN)	30,000
2033 (AN)	27,000
2034 (D)	30,000
2035 (W)	29,000
2036 (W)	45,000
2037 (W)	53,000
2038 (D)	51,000
2039 (W)	44,000
2040 (D)	45,000
2041 (C)	37,000
2042 (D)	26,000
2043 (C)	23,000
2044 (C)	17,000
2045 (C)	13,000
2046 (AN)	14,000
2047 (C)	19,000
2048 (W)	20,000
2049 (W)	31,000
2050 (W)	35,000
2051 (W)	42,000
2052 (W)	49,000
2053 (AN)	47,000
2054 (D)	45,000
2055 (D)	37,000
2056 (AN)	35,000
2057 (BN)	37,000
2058 (AN)	42,000
2059 (W)	43,000
2060 (D)	44,000
2061 (C)	35,000
2062 (D)	26,000
2063 (BN)	28,000

Antelope Subbasin Projected (Future Land Use) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

WY (Type)		Rivers, Streams, and Small Watersheds
2064 (W)		30,000
2065 (BN)		33,000
2066 (D)		24,000
2067 (C)		16,000
2068 (C)		10,000
2069 (BN)		6,400
2070 (W)		13,000
2071 (BN)		18,000
2072 (W)		21,000
Average (2022-2072)		33,000
2022-2072	W	38,000
	AN	33,000
	BN	28,000
	D	37,000
	C	24,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

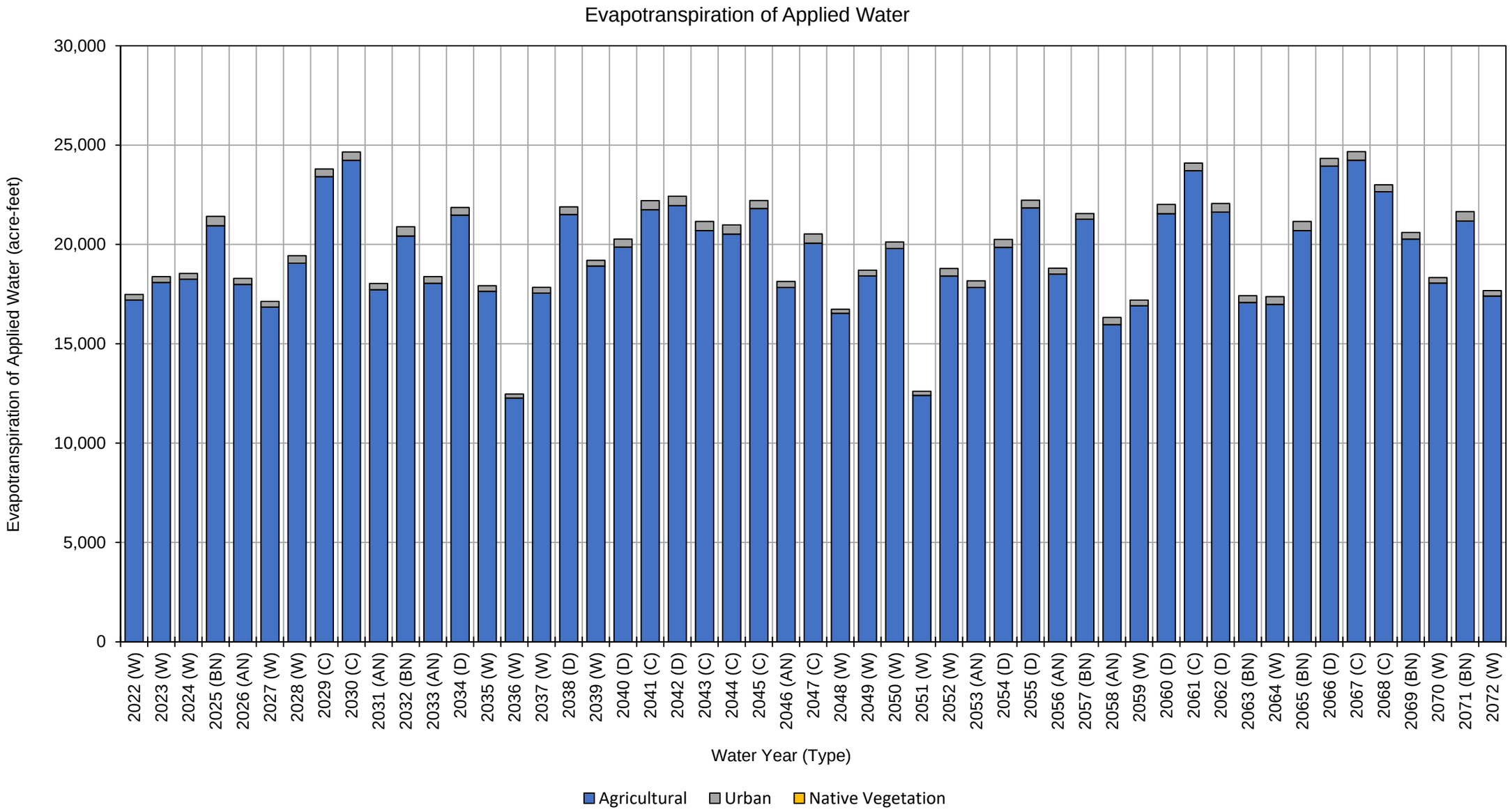
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	31,000	2,100	15,000	48,000
2023 (W)	32,000	1,900	15,000	49,000
2024 (W)	32,000	1,900	15,000	49,000
2025 (BN)	32,000	1,700	14,000	48,000
2026 (AN)	32,000	2,000	15,000	49,000
2027 (W)	30,000	1,800	14,000	46,000
2028 (W)	31,000	1,700	14,000	47,000
2029 (C)	32,000	1,400	12,000	45,000
2030 (C)	32,000	1,400	12,000	45,000
2031 (AN)	32,000	2,100	15,000	49,000
2032 (BN)	32,000	1,800	14,000	48,000
2033 (AN)	30,000	1,900	14,000	46,000
2034 (D)	32,000	1,700	14,000	48,000
2035 (W)	30,000	1,800	14,000	46,000
2036 (W)	27,000	1,900	14,000	43,000
2037 (W)	32,000	1,800	15,000	49,000
2038 (D)	32,000	1,700	14,000	48,000
2039 (W)	32,000	1,800	14,000	48,000
2040 (D)	32,000	1,800	14,000	48,000
2041 (C)	32,000	1,800	14,000	48,000
2042 (D)	32,000	1,700	13,000	47,000
2043 (C)	32,000	2,000	15,000	49,000
2044 (C)	32,000	1,900	14,000	48,000
2045 (C)	33,000	1,800	14,000	49,000
2046 (AN)	32,000	2,000	15,000	49,000
2047 (C)	32,000	1,900	15,000	49,000
2048 (W)	29,000	1,700	13,000	44,000
2049 (W)	32,000	1,800	15,000	49,000
2050 (W)	32,000	1,900	14,000	48,000
2051 (W)	27,000	1,900	14,000	43,000
2052 (W)	31,000	1,700	14,000	47,000
2053 (AN)	30,000	1,900	14,000	46,000
2054 (D)	32,000	1,800	14,000	48,000
2055 (D)	32,000	1,700	13,000	47,000
2056 (AN)	30,000	1,800	14,000	46,000
2057 (BN)	32,000	1,500	13,000	47,000
2058 (AN)	30,000	2,100	15,000	47,000
2059 (W)	30,000	1,800	14,000	46,000
2060 (D)	31,000	1,700	13,000	46,000
2061 (C)	32,000	1,400	12,000	45,000
2062 (D)	32,000	1,800	13,000	47,000
2063 (BN)	29,000	1,800	14,000	45,000

Antelope Subbasin Projected (Future Land Use) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		29,000	1,900	14,000	45,000
2065 (BN)		32,000	1,800	14,000	48,000
2066 (D)		33,000	1,500	13,000	48,000
2067 (C)		32,000	1,500	12,000	46,000
2068 (C)		32,000	1,600	13,000	47,000
2069 (BN)		32,000	1,900	14,000	48,000
2070 (W)		31,000	1,800	14,000	47,000
2071 (BN)		32,000	1,700	14,000	48,000
2072 (W)		31,000	2,000	15,000	48,000
Average (2022-2072)		31,000	1,800	14,000	47,000
2022-2072	W	30,000	1,900	14,000	46,000
	AN	31,000	2,000	15,000	48,000
	BN	31,000	1,800	14,000	47,000
	D	32,000	1,700	14,000	48,000
	C	32,000	1,700	13,000	47,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

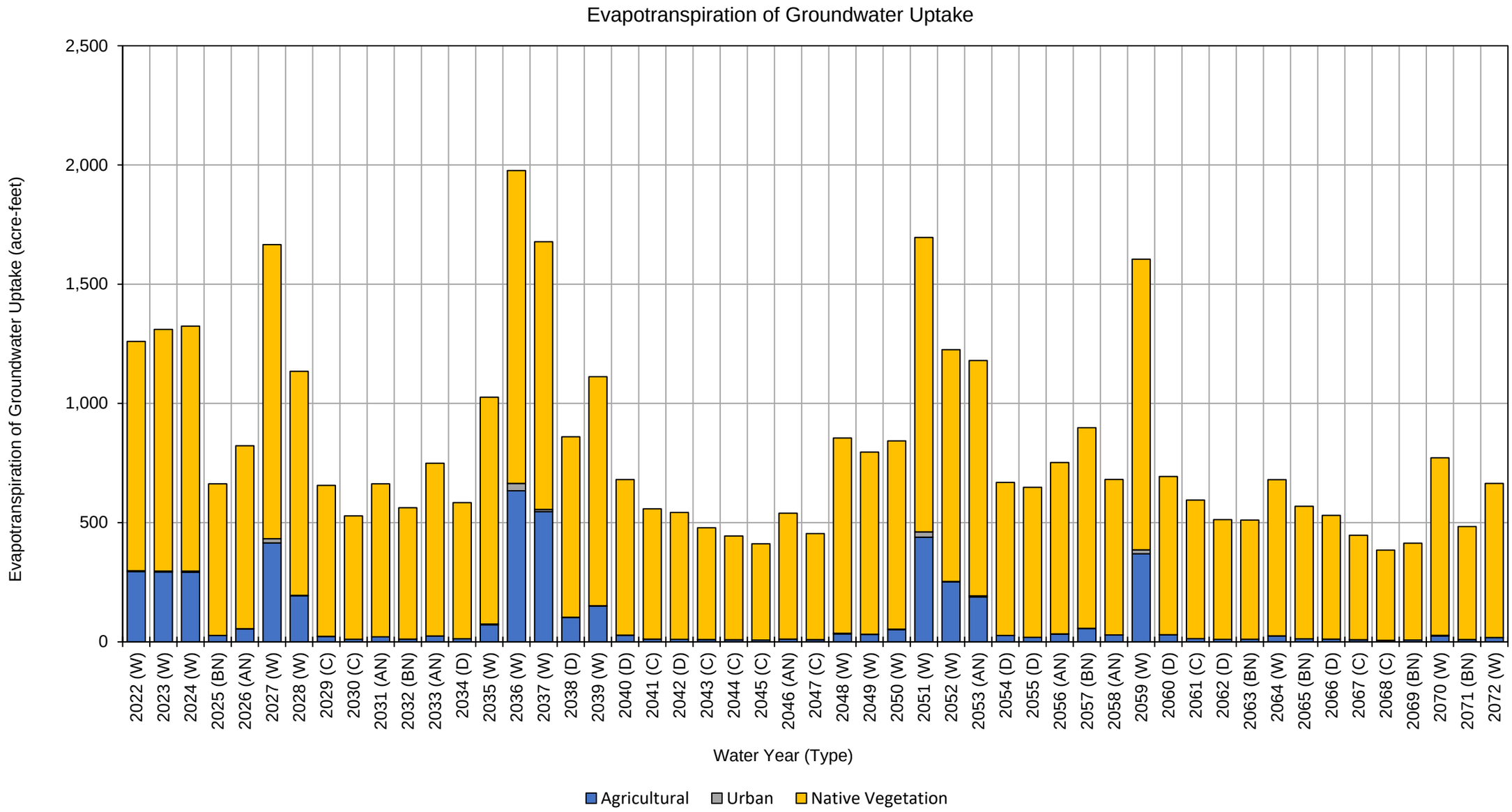
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	17,000	280	0	17,000
2023 (W)	18,000	290	0	18,000
2024 (W)	18,000	290	0	18,000
2025 (BN)	21,000	470	0	21,000
2026 (AN)	18,000	300	0	18,000
2027 (W)	17,000	280	0	17,000
2028 (W)	19,000	380	0	19,000
2029 (C)	23,000	380	0	23,000
2030 (C)	24,000	420	0	24,000
2031 (AN)	18,000	310	0	18,000
2032 (BN)	20,000	470	0	20,000
2033 (AN)	18,000	330	0	18,000
2034 (D)	21,000	380	0	21,000
2035 (W)	18,000	280	0	18,000
2036 (W)	12,000	210	0	12,000
2037 (W)	18,000	290	0	18,000
2038 (D)	22,000	380	0	22,000
2039 (W)	19,000	290	0	19,000
2040 (D)	20,000	400	0	20,000
2041 (C)	22,000	460	0	22,000
2042 (D)	22,000	470	0	22,000
2043 (C)	21,000	460	0	21,000
2044 (C)	21,000	460	0	21,000
2045 (C)	22,000	400	0	22,000
2046 (AN)	18,000	300	0	18,000
2047 (C)	20,000	460	0	20,000
2048 (W)	17,000	200	0	17,000
2049 (W)	18,000	290	0	18,000
2050 (W)	20,000	330	0	20,000
2051 (W)	12,000	210	0	12,000
2052 (W)	18,000	380	0	18,000
2053 (AN)	18,000	330	0	18,000
2054 (D)	20,000	400	0	20,000
2055 (D)	22,000	380	0	22,000
2056 (AN)	19,000	300	0	19,000
2057 (BN)	21,000	280	0	21,000
2058 (AN)	16,000	360	0	16,000
2059 (W)	17,000	280	0	17,000
2060 (D)	22,000	470	0	22,000
2061 (C)	24,000	390	0	24,000
2062 (D)	22,000	440	0	22,000
2063 (BN)	17,000	340	0	17,000

Antelope Subbasin Projected (Future Land Use) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		17,000	390	0	17,000
2065 (BN)		21,000	470	0	21,000
2066 (D)		24,000	390	0	24,000
2067 (C)		24,000	430	0	24,000
2068 (C)		23,000	350	0	23,000
2069 (BN)		20,000	340	0	20,000
2070 (W)		18,000	280	0	18,000
2071 (BN)		21,000	470	0	21,000
2072 (W)		17,000	270	0	17,000
Average (2022-2072)		19,000	360	0	19,000
2022-2072	W	17,000	290	0	17,000
	AN	18,000	320	0	18,000
	BN	20,000	400	0	20,000
	D	22,000	410	0	22,000
	C	22,000	420	0	22,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

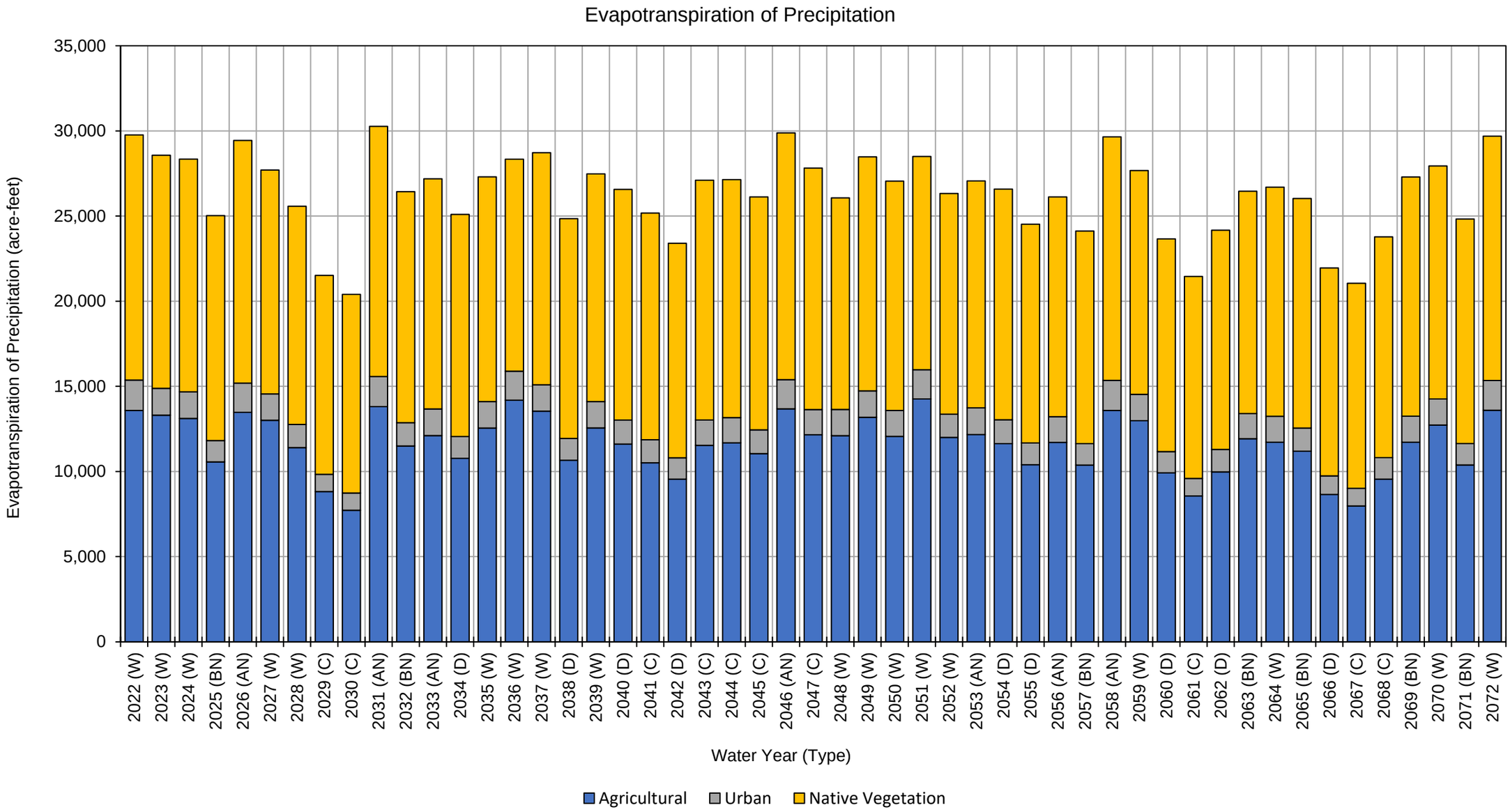
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	290	4	960	1,300
2023 (W)	290	4	1,000	1,300
2024 (W)	290	5	1,000	1,300
2025 (BN)	26	0	640	670
2026 (AN)	54	0	770	820
2027 (W)	410	18	1,200	1,600
2028 (W)	190	2	940	1,100
2029 (C)	23	0	630	650
2030 (C)	11	0	520	530
2031 (AN)	21	0	640	660
2032 (BN)	11	0	550	560
2033 (AN)	24	1	720	750
2034 (D)	13	0	570	580
2035 (W)	71	3	950	1,000
2036 (W)	630	31	1,300	2,000
2037 (W)	550	9	1,100	1,700
2038 (D)	100	0	760	860
2039 (W)	150	2	960	1,100
2040 (D)	28	0	650	680
2041 (C)	11	0	550	560
2042 (D)	10	0	530	540
2043 (C)	9	0	470	480
2044 (C)	9	0	440	450
2045 (C)	8	0	400	410
2046 (AN)	11	0	530	540
2047 (C)	9	0	440	450
2048 (W)	33	3	820	860
2049 (W)	31	1	760	790
2050 (W)	51	2	790	840
2051 (W)	440	22	1,200	1,700
2052 (W)	250	2	970	1,200
2053 (AN)	190	5	990	1,200
2054 (D)	27	0	640	670
2055 (D)	19	0	630	650
2056 (AN)	33	0	720	750
2057 (BN)	55	1	840	900
2058 (AN)	29	0	650	680
2059 (W)	370	16	1,200	1,600
2060 (D)	30	0	660	690
2061 (C)	13	0	580	590
2062 (D)	10	0	500	510
2063 (BN)	11	0	500	510

Antelope Subbasin Projected (Future Land Use) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		25	0	660	690
2065 (BN)		12	0	560	570
2066 (D)		11	0	520	530
2067 (C)		9	0	440	450
2068 (C)		6	0	380	390
2069 (BN)		7	0	410	420
2070 (W)		24	3	740	770
2071 (BN)		10	0	470	480
2072 (W)		18	1	650	670
Average (2022-2072)		98	3	720	820
2022-2072	W	230	7	960	1,200
	AN	51	1	720	770
	BN	19	0	570	590
	D	28	0	610	640
	C	11	0	480	490

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

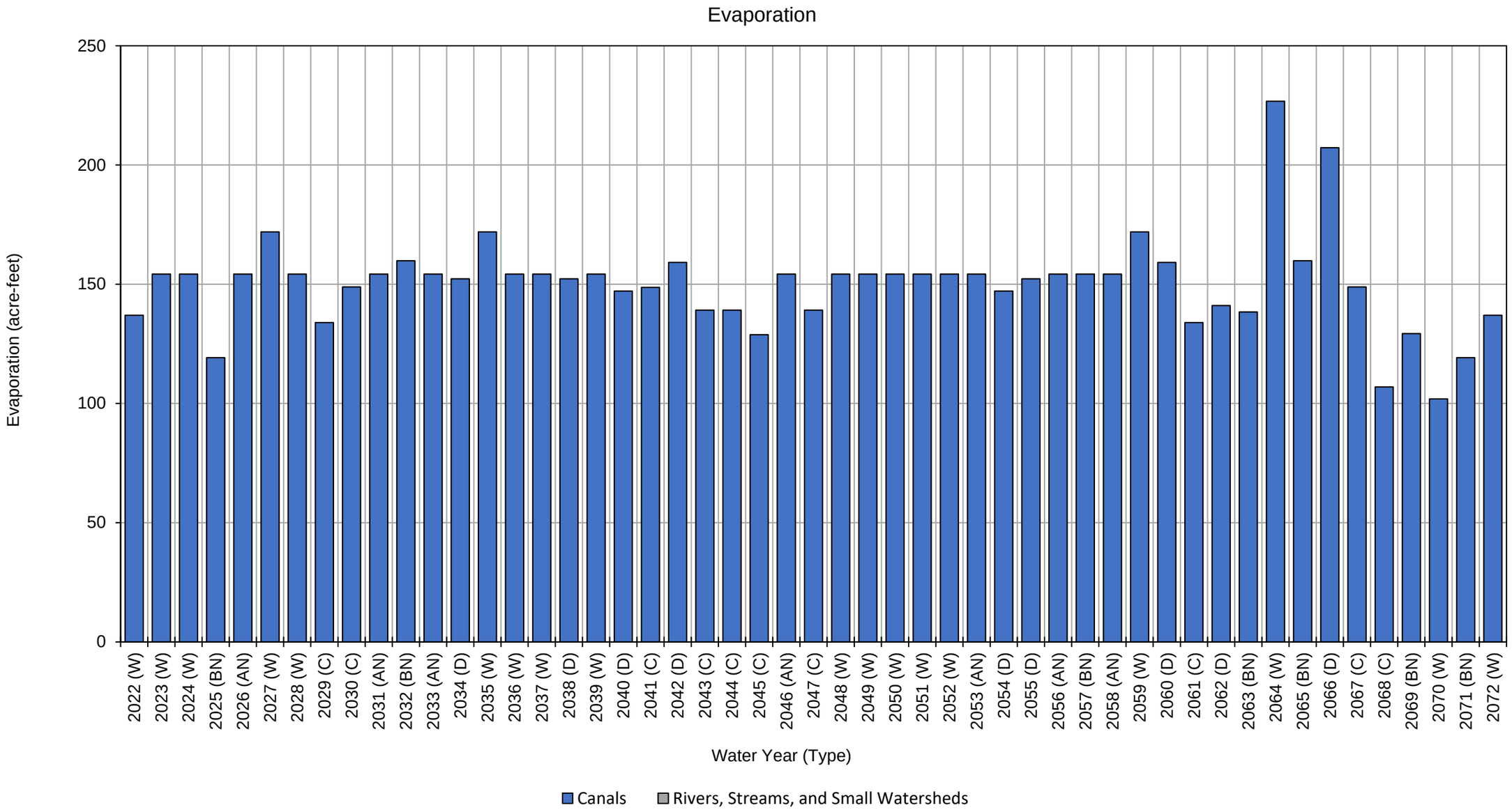
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	14,000	1,800	14,000	30,000
2023 (W)	13,000	1,600	14,000	29,000
2024 (W)	13,000	1,600	14,000	29,000
2025 (BN)	11,000	1,300	13,000	25,000
2026 (AN)	13,000	1,700	14,000	29,000
2027 (W)	13,000	1,500	13,000	28,000
2028 (W)	11,000	1,400	13,000	25,000
2029 (C)	8,800	1,000	12,000	22,000
2030 (C)	7,700	1,000	12,000	21,000
2031 (AN)	14,000	1,800	15,000	31,000
2032 (BN)	11,000	1,400	14,000	26,000
2033 (AN)	12,000	1,600	14,000	28,000
2034 (D)	11,000	1,300	13,000	25,000
2035 (W)	13,000	1,600	13,000	28,000
2036 (W)	14,000	1,700	12,000	28,000
2037 (W)	14,000	1,500	14,000	30,000
2038 (D)	11,000	1,300	13,000	25,000
2039 (W)	13,000	1,500	13,000	28,000
2040 (D)	12,000	1,400	14,000	27,000
2041 (C)	11,000	1,400	13,000	25,000
2042 (D)	9,600	1,300	13,000	24,000
2043 (C)	12,000	1,500	14,000	28,000
2044 (C)	12,000	1,500	14,000	28,000
2045 (C)	11,000	1,400	14,000	26,000
2046 (AN)	14,000	1,700	14,000	30,000
2047 (C)	12,000	1,500	14,000	28,000
2048 (W)	12,000	1,500	12,000	26,000
2049 (W)	13,000	1,600	14,000	29,000
2050 (W)	12,000	1,500	13,000	27,000
2051 (W)	14,000	1,700	13,000	29,000
2052 (W)	12,000	1,400	13,000	26,000
2053 (AN)	12,000	1,600	13,000	27,000
2054 (D)	12,000	1,400	14,000	27,000
2055 (D)	10,000	1,300	13,000	24,000
2056 (AN)	12,000	1,500	13,000	27,000
2057 (BN)	10,000	1,300	12,000	23,000
2058 (AN)	14,000	1,800	14,000	30,000
2059 (W)	13,000	1,500	13,000	28,000
2060 (D)	9,900	1,200	12,000	23,000
2061 (C)	8,600	1,000	12,000	22,000
2062 (D)	10,000	1,300	13,000	24,000
2063 (BN)	12,000	1,500	13,000	27,000

Antelope Subbasin Projected (Future Land Use) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		12,000	1,500	13,000	27,000
2065 (BN)		11,000	1,400	13,000	25,000
2066 (D)		8,700	1,100	12,000	22,000
2067 (C)		8,000	1,000	12,000	21,000
2068 (C)		9,500	1,300	13,000	24,000
2069 (BN)		12,000	1,500	14,000	28,000
2070 (W)		13,000	1,500	14,000	29,000
2071 (BN)		10,000	1,300	13,000	24,000
2072 (W)		14,000	1,700	14,000	30,000
Average (2022-2072)		12,000	1,400	13,000	26,000
2022-2072	W	13,000	1,600	13,000	28,000
	AN	13,000	1,700	14,000	29,000
	BN	11,000	1,400	13,000	25,000
	D	10,000	1,300	13,000	24,000
	C	10,000	1,300	13,000	24,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical


Evaporation
Evaporation (acre-feet)
250
200
150
100
50
0
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Canals
Rivers, Streams, and Small Watersheds

Antelope Subbasin Projected (Future Land Use) Evaporation (acre-feet, rounded)

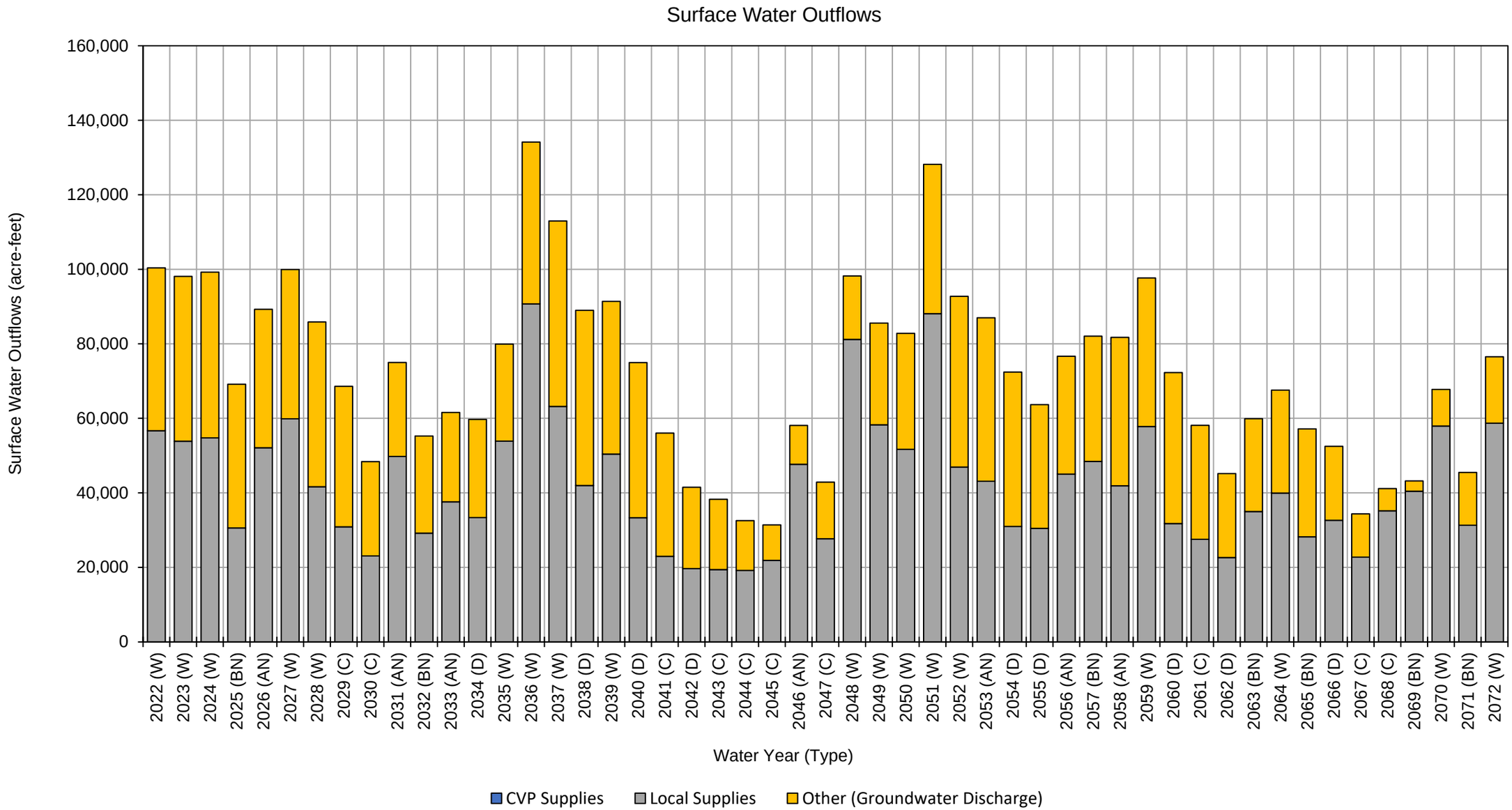
WY (Type)	Canals	Rivers, Streams, and Small Watersheds	Total
2022 (W)	140	0	140
2023 (W)	150	0	150
2024 (W)	150	0	150
2025 (BN)	120	0	120
2026 (AN)	150	0	150
2027 (W)	170	0	170
2028 (W)	150	0	150
2029 (C)	130	0	130
2030 (C)	150	0	150
2031 (AN)	150	0	150
2032 (BN)	160	0	160
2033 (AN)	150	0	150
2034 (D)	150	0	150
2035 (W)	170	0	170
2036 (W)	150	0	150
2037 (W)	150	0	150
2038 (D)	150	0	150
2039 (W)	150	0	150
2040 (D)	150	0	150
2041 (C)	150	0	150
2042 (D)	160	0	160
2043 (C)	140	0	140
2044 (C)	140	0	140
2045 (C)	130	0	130
2046 (AN)	150	0	150
2047 (C)	140	0	140
2048 (W)	150	0	150
2049 (W)	150	0	150
2050 (W)	150	0	150
2051 (W)	150	0	150
2052 (W)	150	0	150
2053 (AN)	150	0	150
2054 (D)	150	0	150
2055 (D)	150	0	150
2056 (AN)	150	0	150
2057 (BN)	150	0	150
2058 (AN)	150	0	150
2059 (W)	170	0	170
2060 (D)	160	0	160
2061 (C)	130	0	130
2062 (D)	140	0	140
2063 (BN)	140	0	140

Antelope Subbasin Projected (Future Land Use) Evaporation (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Watersheds	Total
2064 (W)		230	0	230
2065 (BN)		160	0	160
2066 (D)		210	0	210
2067 (C)		150	0	150
2068 (C)		110	0	110
2069 (BN)		130	0	130
2070 (W)		100	0	100
2071 (BN)		120	0	120
2072 (W)		140	0	140
Average (2022-2072)		150	0	150
2022-2072	W	160	0	160
	AN	150	0	150
	BN	140	0	140
	D	160	0	160
	C	140	0	140

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

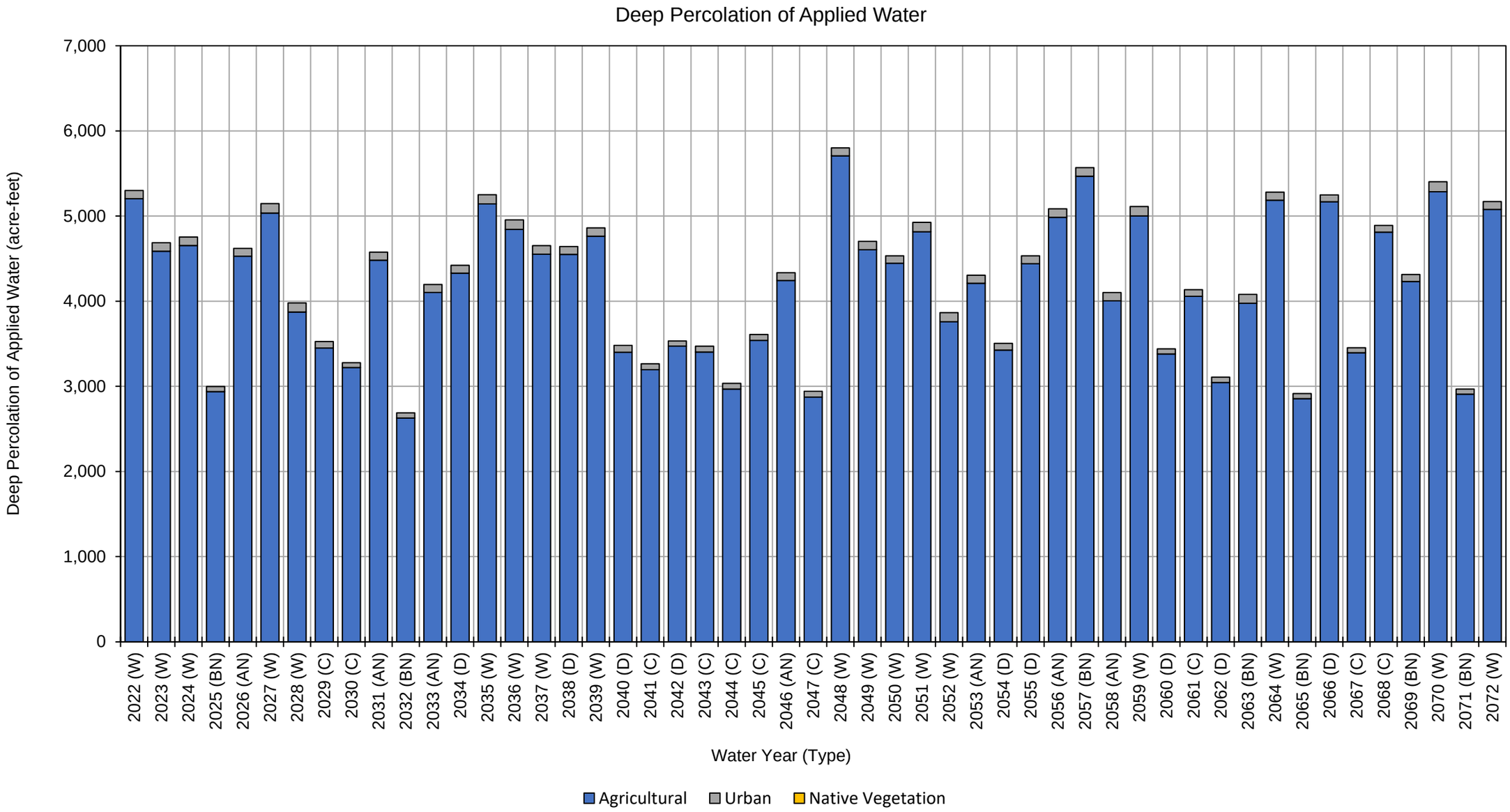
WY (Type)	CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2022 (W)	0	57,000	44,000	100,000
2023 (W)	0	54,000	44,000	98,000
2024 (W)	0	55,000	44,000	99,000
2025 (BN)	0	31,000	39,000	70,000
2026 (AN)	0	52,000	37,000	89,000
2027 (W)	0	60,000	40,000	100,000
2028 (W)	0	42,000	44,000	86,000
2029 (C)	0	31,000	38,000	69,000
2030 (C)	0	23,000	25,000	48,000
2031 (AN)	0	50,000	25,000	75,000
2032 (BN)	0	29,000	26,000	55,000
2033 (AN)	0	38,000	24,000	62,000
2034 (D)	0	33,000	26,000	59,000
2035 (W)	0	54,000	26,000	80,000
2036 (W)	0	91,000	43,000	130,000
2037 (W)	0	63,000	50,000	110,000
2038 (D)	0	42,000	47,000	89,000
2039 (W)	0	50,000	41,000	91,000
2040 (D)	0	33,000	42,000	75,000
2041 (C)	0	23,000	33,000	56,000
2042 (D)	0	20,000	22,000	42,000
2043 (C)	0	19,000	19,000	38,000
2044 (C)	0	19,000	13,000	32,000
2045 (C)	0	22,000	9,500	32,000
2046 (AN)	0	48,000	10,000	58,000
2047 (C)	0	28,000	15,000	43,000
2048 (W)	0	81,000	17,000	98,000
2049 (W)	0	58,000	27,000	85,000
2050 (W)	0	52,000	31,000	83,000
2051 (W)	0	88,000	40,000	130,000
2052 (W)	0	47,000	46,000	93,000
2053 (AN)	0	43,000	44,000	87,000
2054 (D)	0	31,000	41,000	72,000
2055 (D)	0	30,000	33,000	63,000
2056 (AN)	0	45,000	32,000	77,000
2057 (BN)	0	48,000	34,000	82,000
2058 (AN)	0	42,000	40,000	82,000
2059 (W)	0	58,000	40,000	98,000
2060 (D)	0	32,000	41,000	73,000
2061 (C)	0	28,000	31,000	59,000
2062 (D)	0	23,000	23,000	46,000
2063 (BN)	0	35,000	25,000	60,000

Antelope Subbasin Projected (Future Land Use) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2064 (W)		0	40,000	28,000	68,000
2065 (BN)		0	28,000	29,000	57,000
2066 (D)		0	33,000	20,000	53,000
2067 (C)		0	23,000	12,000	35,000
2068 (C)		0	35,000	6,000	41,000
2069 (BN)		0	40,000	2,800	43,000
2070 (W)		0	58,000	9,800	68,000
2071 (BN)		0	31,000	14,000	45,000
2072 (W)		0	59,000	18,000	77,000
Average (2022-2072)		0	42,000	30,000	72,000
2022-2072	W	0	59,000	35,000	94,000
	AN	0	45,000	30,000	75,000
	BN	0	35,000	24,000	59,000
	D	0	31,000	33,000	64,000
	C	0	25,000	20,000	45,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

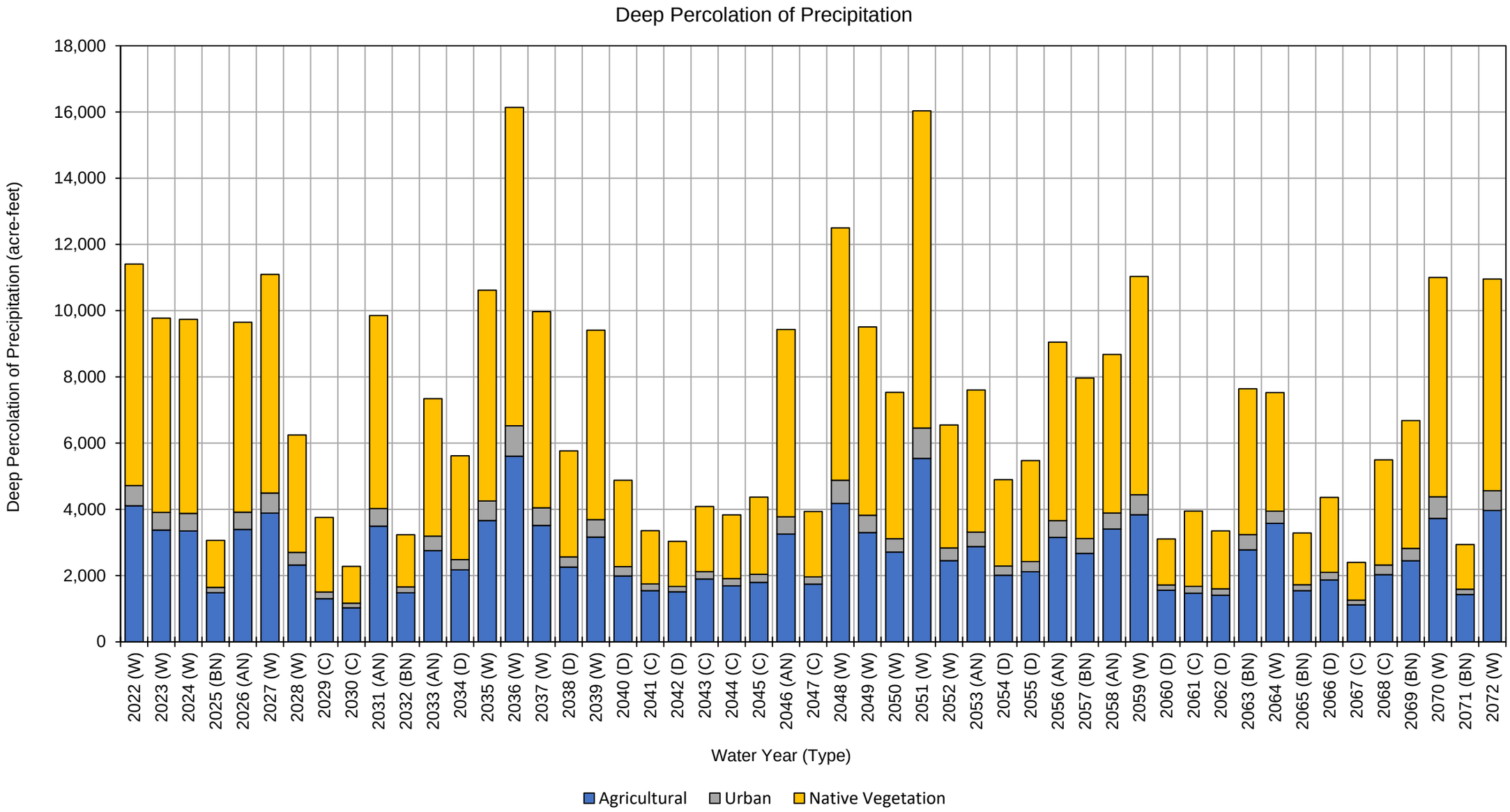
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	5,200	95	0	5,300
2023 (W)	4,600	99	0	4,700
2024 (W)	4,700	99	0	4,800
2025 (BN)	2,900	61	0	3,000
2026 (AN)	4,500	92	0	4,600
2027 (W)	5,000	110	0	5,100
2028 (W)	3,900	110	0	4,000
2029 (C)	3,400	77	0	3,500
2030 (C)	3,200	57	0	3,300
2031 (AN)	4,500	94	0	4,600
2032 (BN)	2,600	61	0	2,700
2033 (AN)	4,100	93	0	4,200
2034 (D)	4,300	93	0	4,400
2035 (W)	5,100	110	0	5,200
2036 (W)	4,800	110	0	4,900
2037 (W)	4,600	100	0	4,700
2038 (D)	4,500	93	0	4,600
2039 (W)	4,800	98	0	4,900
2040 (D)	3,400	80	0	3,500
2041 (C)	3,200	69	0	3,300
2042 (D)	3,500	60	0	3,600
2043 (C)	3,400	68	0	3,500
2044 (C)	3,000	67	0	3,100
2045 (C)	3,500	70	0	3,600
2046 (AN)	4,200	92	0	4,300
2047 (C)	2,900	67	0	3,000
2048 (W)	5,700	93	0	5,800
2049 (W)	4,600	98	0	4,700
2050 (W)	4,400	87	0	4,500
2051 (W)	4,800	110	0	4,900
2052 (W)	3,800	110	0	3,900
2053 (AN)	4,200	94	0	4,300
2054 (D)	3,400	80	0	3,500
2055 (D)	4,400	93	0	4,500
2056 (AN)	5,000	100	0	5,100
2057 (BN)	5,500	100	0	5,600
2058 (AN)	4,000	98	0	4,100
2059 (W)	5,000	110	0	5,100
2060 (D)	3,400	60	0	3,500
2061 (C)	4,100	78	0	4,200
2062 (D)	3,000	64	0	3,100
2063 (BN)	4,000	100	0	4,100

Antelope Subbasin Projected (Future Land Use) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		5,200	95	0	5,300
2065 (BN)		2,900	61	0	3,000
2066 (D)		5,200	81	0	5,300
2067 (C)		3,400	58	0	3,500
2068 (C)		4,800	79	0	4,900
2069 (BN)		4,200	83	0	4,300
2070 (W)		5,300	120	0	5,400
2071 (BN)		2,900	60	0	3,000
2072 (W)		5,100	92	0	5,200
Average (2022-2072)		4,200	87	0	4,300
2022-2072	W	4,800	100	0	4,900
	AN	4,400	95	0	4,500
	BN	3,600	76	0	3,700
	D	3,900	78	0	4,000
	C	3,500	69	0	3,600

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

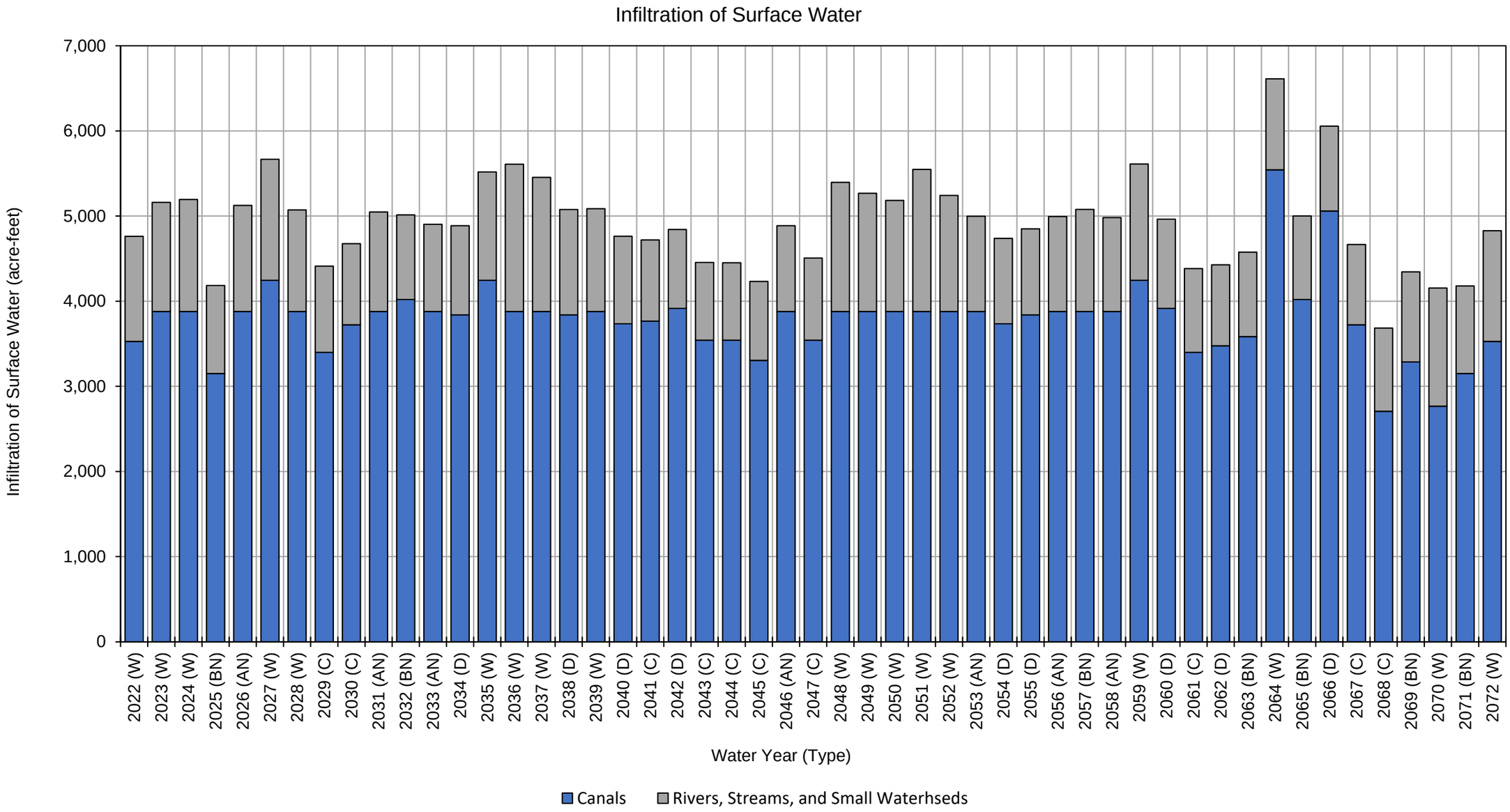
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	4,100	610	6,700	11,000
2023 (W)	3,400	530	5,900	9,800
2024 (W)	3,300	530	5,900	9,700
2025 (BN)	1,500	160	1,400	3,100
2026 (AN)	3,400	520	5,700	9,600
2027 (W)	3,900	600	6,600	11,000
2028 (W)	2,300	380	3,500	6,200
2029 (C)	1,300	200	2,300	3,800
2030 (C)	1,000	140	1,100	2,200
2031 (AN)	3,500	530	5,800	9,800
2032 (BN)	1,500	180	1,600	3,300
2033 (AN)	2,800	440	4,200	7,400
2034 (D)	2,200	310	3,100	5,600
2035 (W)	3,700	590	6,400	11,000
2036 (W)	5,600	920	9,600	16,000
2037 (W)	3,500	530	5,900	9,900
2038 (D)	2,300	310	3,200	5,800
2039 (W)	3,200	530	5,700	9,400
2040 (D)	2,000	280	2,600	4,900
2041 (C)	1,500	200	1,600	3,300
2042 (D)	1,500	160	1,400	3,100
2043 (C)	1,900	220	2,000	4,100
2044 (C)	1,700	220	1,900	3,800
2045 (C)	1,800	240	2,300	4,300
2046 (AN)	3,300	520	5,700	9,500
2047 (C)	1,700	220	2,000	3,900
2048 (W)	4,200	700	7,600	13,000
2049 (W)	3,300	530	5,700	9,500
2050 (W)	2,700	400	4,400	7,500
2051 (W)	5,500	920	9,600	16,000
2052 (W)	2,400	390	3,700	6,500
2053 (AN)	2,900	440	4,300	7,600
2054 (D)	2,000	280	2,600	4,900
2055 (D)	2,100	310	3,100	5,500
2056 (AN)	3,200	510	5,400	9,100
2057 (BN)	2,700	450	4,800	8,000
2058 (AN)	3,400	480	4,800	8,700
2059 (W)	3,800	600	6,600	11,000
2060 (D)	1,600	160	1,400	3,200
2061 (C)	1,500	210	2,300	4,000
2062 (D)	1,400	190	1,800	3,400
2063 (BN)	2,800	460	4,400	7,700

Antelope Subbasin Projected (Future Land Use) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		3,600	370	3,600	7,600
2065 (BN)		1,500	180	1,600	3,300
2066 (D)		1,900	230	2,300	4,400
2067 (C)		1,100	140	1,100	2,300
2068 (C)		2,000	290	3,200	5,500
2069 (BN)		2,400	370	3,900	6,700
2070 (W)		3,700	650	6,600	11,000
2071 (BN)		1,400	160	1,400	3,000
2072 (W)		4,000	590	6,400	11,000
Average (2022-2072)		2,600	390	4,000	7,000
2022-2072	W	3,700	580	6,100	10,000
	AN	3,200	490	5,100	8,800
	BN	2,000	280	2,700	5,000
	D	1,900	250	2,400	4,600
	C	1,600	210	2,000	3,800

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Infiltration of Surface Water (acre-feet, rounded)

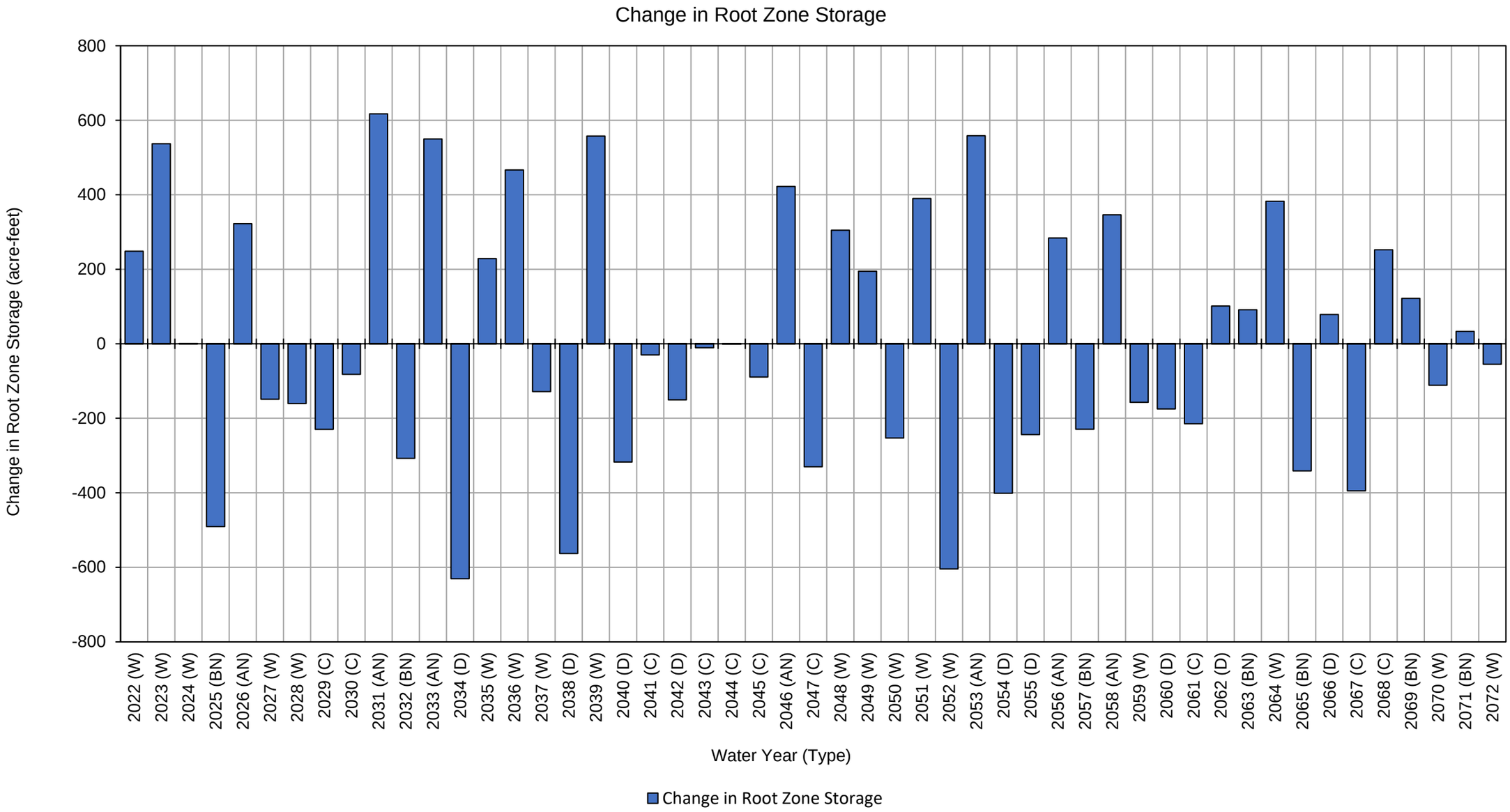
WY (Type)	Canals	Rivers, Streams, and Small Waterhseds	Total
2022 (W)	3,500	1,200	4,700
2023 (W)	3,900	1,300	5,200
2024 (W)	3,900	1,300	5,200
2025 (BN)	3,200	1,000	4,200
2026 (AN)	3,900	1,200	5,100
2027 (W)	4,200	1,400	5,600
2028 (W)	3,900	1,200	5,100
2029 (C)	3,400	1,000	4,400
2030 (C)	3,700	950	4,700
2031 (AN)	3,900	1,200	5,100
2032 (BN)	4,000	990	5,000
2033 (AN)	3,900	1,000	4,900
2034 (D)	3,800	1,000	4,800
2035 (W)	4,200	1,300	5,500
2036 (W)	3,900	1,700	5,600
2037 (W)	3,900	1,600	5,500
2038 (D)	3,800	1,200	5,000
2039 (W)	3,900	1,200	5,100
2040 (D)	3,700	1,000	4,700
2041 (C)	3,800	950	4,800
2042 (D)	3,900	930	4,800
2043 (C)	3,500	910	4,400
2044 (C)	3,500	910	4,400
2045 (C)	3,300	930	4,200
2046 (AN)	3,900	1,000	4,900
2047 (C)	3,500	960	4,500
2048 (W)	3,900	1,500	5,400
2049 (W)	3,900	1,400	5,300
2050 (W)	3,900	1,300	5,200
2051 (W)	3,900	1,700	5,600
2052 (W)	3,900	1,400	5,300
2053 (AN)	3,900	1,100	5,000
2054 (D)	3,700	1,000	4,700
2055 (D)	3,800	1,000	4,800
2056 (AN)	3,900	1,100	5,000
2057 (BN)	3,900	1,200	5,100
2058 (AN)	3,900	1,100	5,000
2059 (W)	4,200	1,400	5,600
2060 (D)	3,900	1,000	4,900
2061 (C)	3,400	980	4,400
2062 (D)	3,500	950	4,500
2063 (BN)	3,600	990	4,600

Antelope Subbasin Projected (Future Land Use) Infiltration of Surface Water (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Waterhseds	Total
2064 (W)		5,500	1,100	6,600
2065 (BN)		4,000	980	5,000
2066 (D)		5,100	1,000	6,100
2067 (C)		3,700	940	4,600
2068 (C)		2,700	980	3,700
2069 (BN)		3,300	1,100	4,400
2070 (W)		2,800	1,400	4,200
2071 (BN)		3,200	1,000	4,200
2072 (W)		3,500	1,300	4,800
Average (2022-2072)		3,800	1,100	4,900
2022-2072	W	3,900	1,400	5,300
	AN	3,900	1,100	5,000
	BN	3,600	1,000	4,600
	D	3,900	1,000	4,900
	C	3,500	950	4,500

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)	Change in Root Zone Storage
2022 (W)	250
2023 (W)	540
2024 (W)	1
2025 (BN)	-490
2026 (AN)	320
2027 (W)	-150
2028 (W)	-160
2029 (C)	-230
2030 (C)	-82
2031 (AN)	620
2032 (BN)	-310
2033 (AN)	550
2034 (D)	-630
2035 (W)	230
2036 (W)	470
2037 (W)	-130
2038 (D)	-560
2039 (W)	560
2040 (D)	-320
2041 (C)	-30
2042 (D)	-150
2043 (C)	-11
2044 (C)	-1
2045 (C)	-89
2046 (AN)	420
2047 (C)	-330
2048 (W)	300
2049 (W)	190
2050 (W)	-250
2051 (W)	390
2052 (W)	-600
2053 (AN)	560
2054 (D)	-400
2055 (D)	-240
2056 (AN)	280
2057 (BN)	-230
2058 (AN)	350
2059 (W)	-160
2060 (D)	-180
2061 (C)	-210
2062 (D)	100
2063 (BN)	91

Antelope Subbasin Projected (Future Land Use) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)		Change in Root Zone Storage
2064 (W)		380
2065 (BN)		-340
2066 (D)		78
2067 (C)		-390
2068 (C)		250
2069 (BN)		120
2070 (W)		-110
2071 (BN)		33
2072 (W)		-55
Average (2022-2072)		5
2022-2072	W	94
	AN	440
	BN	-160
	D	-260
	C	-110

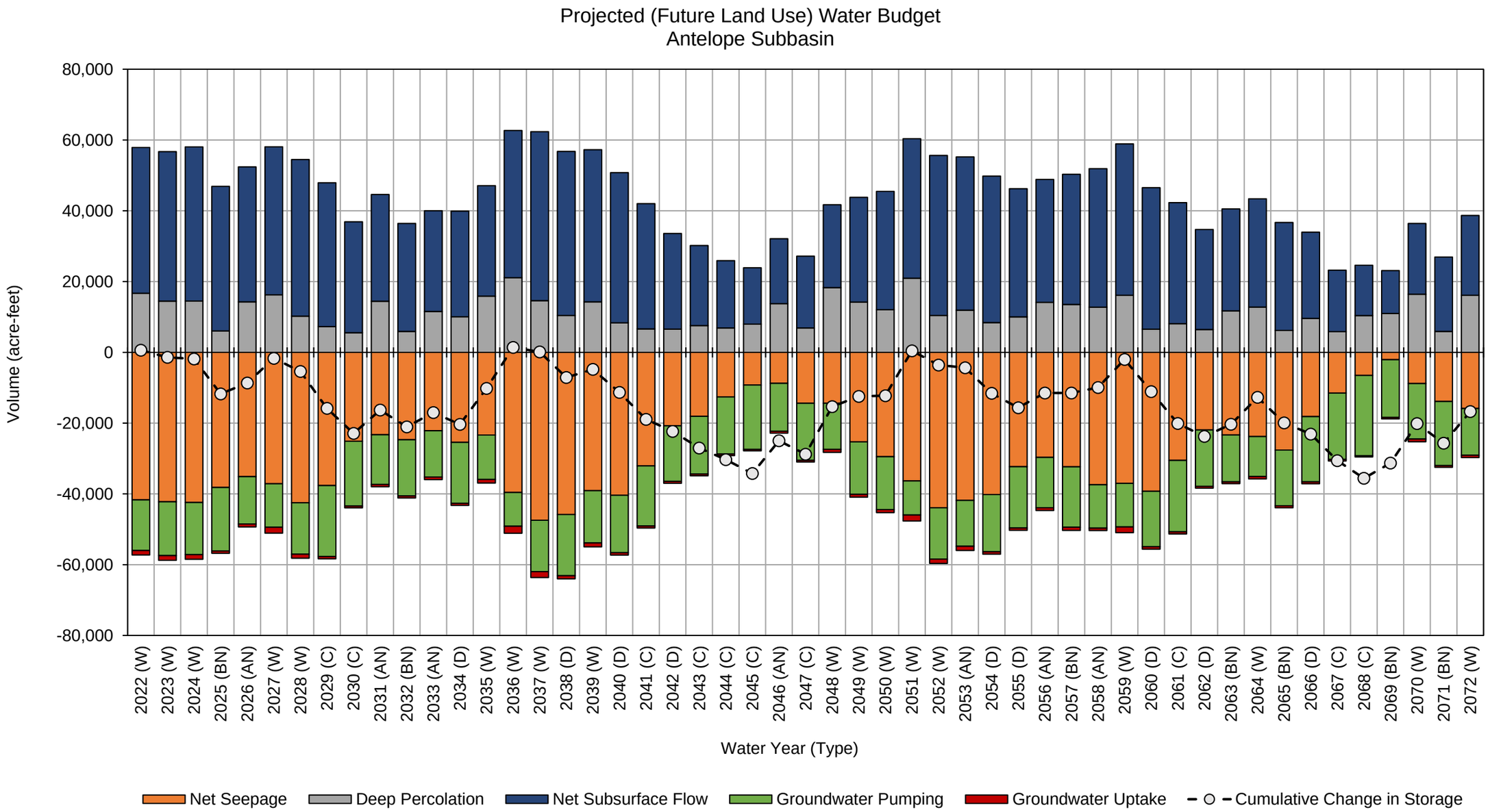
Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX A-3b

Detailed Antelope Subbasin Water Budget Results:

Projected (Future Land Use) Model Results – Groundwater System


Projected (Future Land Use) Water Budget
Antelope Subbasin
Volume (acre-feet)
80,000
60,000
40,000
20,000
0
-20,000
-40,000
-60,000
-80,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Antelope Subbasin Projected (Future Land Use) Water Budget Summary (acre-feet, rounded)

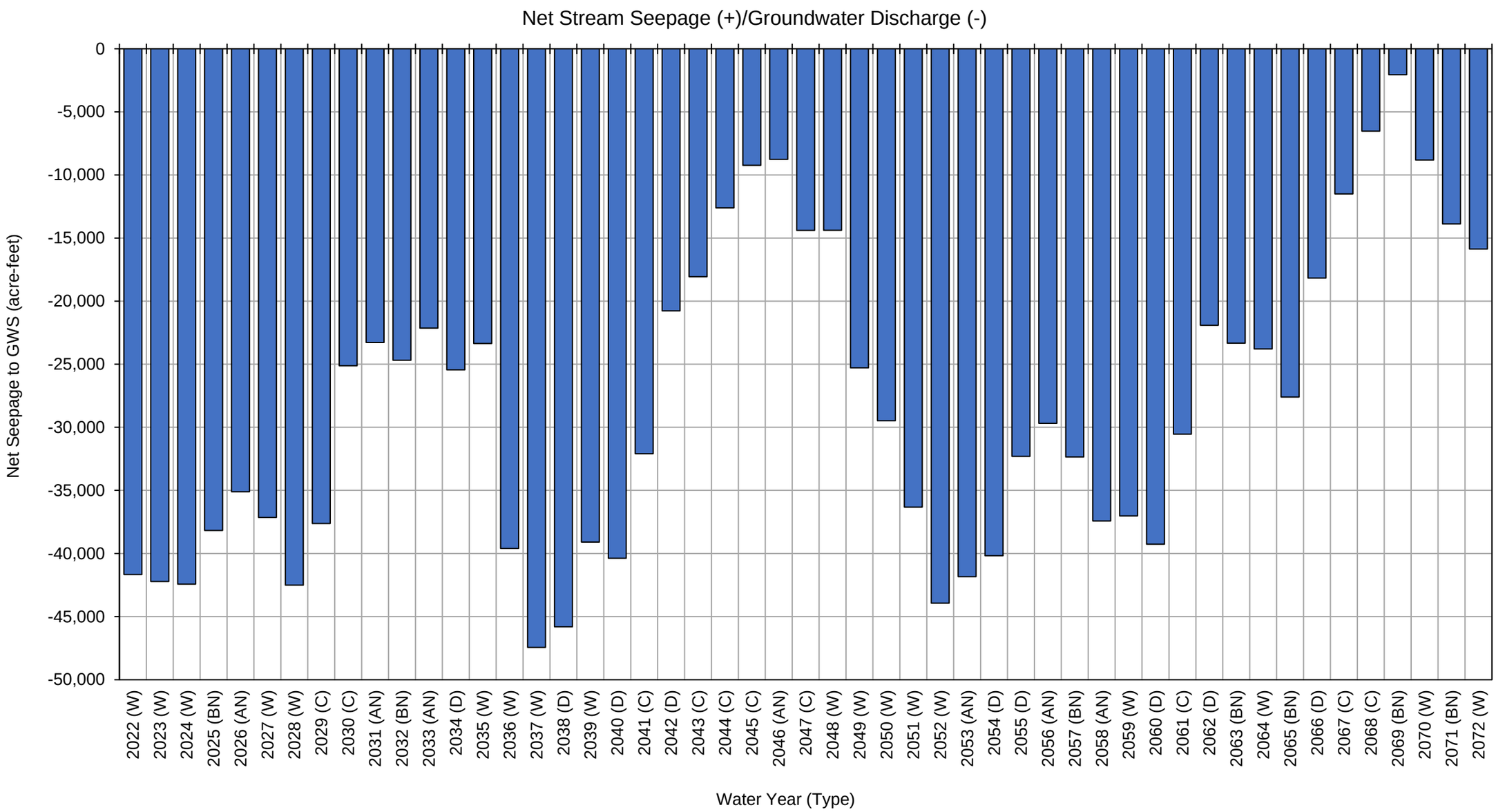
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	-42,000	17,000	-14,000	-1,300	41,000	620	620
2023 (W)	-42,000	14,000	-15,000	-1,300	42,000	-2,000	-1,400
2024 (W)	-42,000	14,000	-15,000	-1,300	44,000	-440	-1,800
2025 (BN)	-38,000	6,100	-18,000	-660	41,000	-9,900	-12,000
2026 (AN)	-35,000	14,000	-13,000	-820	38,000	3,100	-8,700
2027 (W)	-37,000	16,000	-12,000	-1,700	42,000	7,000	-1,700
2028 (W)	-43,000	10,000	-15,000	-1,100	44,000	-3,700	-5,400
2029 (C)	-38,000	7,300	-20,000	-660	41,000	-10,000	-16,000
2030 (C)	-25,000	5,600	-18,000	-530	31,000	-7,100	-23,000
2031 (AN)	-23,000	14,000	-14,000	-660	30,000	6,600	-16,000
2032 (BN)	-25,000	5,900	-16,000	-560	30,000	-4,700	-21,000
2033 (AN)	-22,000	12,000	-13,000	-750	28,000	4,000	-17,000
2034 (D)	-25,000	10,000	-17,000	-580	30,000	-3,300	-20,000
2035 (W)	-23,000	16,000	-13,000	-1,000	31,000	10,000	-10,000
2036 (W)	-40,000	21,000	-9,500	-2,000	42,000	12,000	1,400
2037 (W)	-47,000	15,000	-15,000	-1,700	48,000	-1,300	120
2038 (D)	-46,000	10,000	-17,000	-860	46,000	-7,200	-7,100
2039 (W)	-39,000	14,000	-15,000	-1,100	43,000	2,300	-4,800
2040 (D)	-40,000	8,400	-16,000	-680	42,000	-6,500	-11,000
2041 (C)	-32,000	6,600	-17,000	-560	35,000	-7,600	-19,000
2042 (D)	-21,000	6,600	-16,000	-540	27,000	-3,400	-22,000
2043 (C)	-18,000	7,600	-16,000	-480	23,000	-4,700	-27,000
2044 (C)	-13,000	6,900	-16,000	-440	19,000	-3,300	-30,000
2045 (C)	-9,200	8,000	-18,000	-410	16,000	-3,900	-34,000
2046 (AN)	-8,800	14,000	-14,000	-540	18,000	9,300	-25,000
2047 (C)	-14,000	6,900	-16,000	-450	20,000	-3,800	-29,000
2048 (W)	-14,000	18,000	-13,000	-850	23,000	13,000	-15,000
2049 (W)	-25,000	14,000	-15,000	-800	30,000	2,900	-12,000
2050 (W)	-29,000	12,000	-15,000	-840	33,000	200	-12,000
2051 (W)	-36,000	21,000	-9,600	-1,700	39,000	13,000	440
2052 (W)	-44,000	10,000	-14,000	-1,200	45,000	-4,000	-3,600
2053 (AN)	-42,000	12,000	-13,000	-1,200	43,000	-760	-4,300
2054 (D)	-40,000	8,400	-16,000	-670	41,000	-7,200	-12,000
2055 (D)	-32,000	10,000	-17,000	-650	36,000	-4,100	-16,000
2056 (AN)	-30,000	14,000	-14,000	-750	35,000	4,200	-11,000
2057 (BN)	-32,000	14,000	-17,000	-900	37,000	-1	-11,000
2058 (AN)	-37,000	13,000	-12,000	-680	39,000	1,500	-9,900
2059 (W)	-37,000	16,000	-12,000	-1,600	43,000	7,900	-2,000
2060 (D)	-39,000	6,500	-16,000	-690	40,000	-9,100	-11,000
2061 (C)	-31,000	8,100	-20,000	-590	34,000	-9,000	-20,000
2062 (D)	-22,000	6,500	-16,000	-510	28,000	-3,700	-24,000
2063 (BN)	-23,000	12,000	-13,000	-510	29,000	3,400	-20,000
2064 (W)	-24,000	13,000	-11,000	-680	31,000	7,600	-13,000
2065 (BN)	-28,000	6,200	-16,000	-570	31,000	-7,200	-20,000

Antelope Subbasin Projected (Future Land Use) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-18,000	9,600	-18,000	-530	24,000	-3,200	-23,000
2067 (C)		-12,000	5,800	-19,000	-450	17,000	-7,500	-31,000
2068 (C)		-6,500	10,000	-23,000	-380	14,000	-5,000	-36,000
2069 (BN)		-2,100	11,000	-16,000	-410	12,000	4,300	-31,000
2070 (W)		-8,800	16,000	-16,000	-770	20,000	11,000	-20,000
2071 (BN)		-14,000	5,900	-18,000	-480	21,000	-5,500	-26,000
2072 (W)		-16,000	16,000	-13,000	-660	23,000	8,900	-17,000
Average (2022-2072)		-28,000	11,000	-15,000	-820	33,000	-330	
2022-2072	W	-33,000	15,000	-13,000	-1,200	37,000		
	AN	-28,000	13,000	-13,000	-770	33,000		
	BN	-23,000	8,600	-16,000	-590	29,000		
	D	-32,000	8,500	-17,000	-640	35,000		
	C	-20,000	7,300	-18,000	-500	25,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Net Stream Seepage (net flows as acre-feet, rounded)

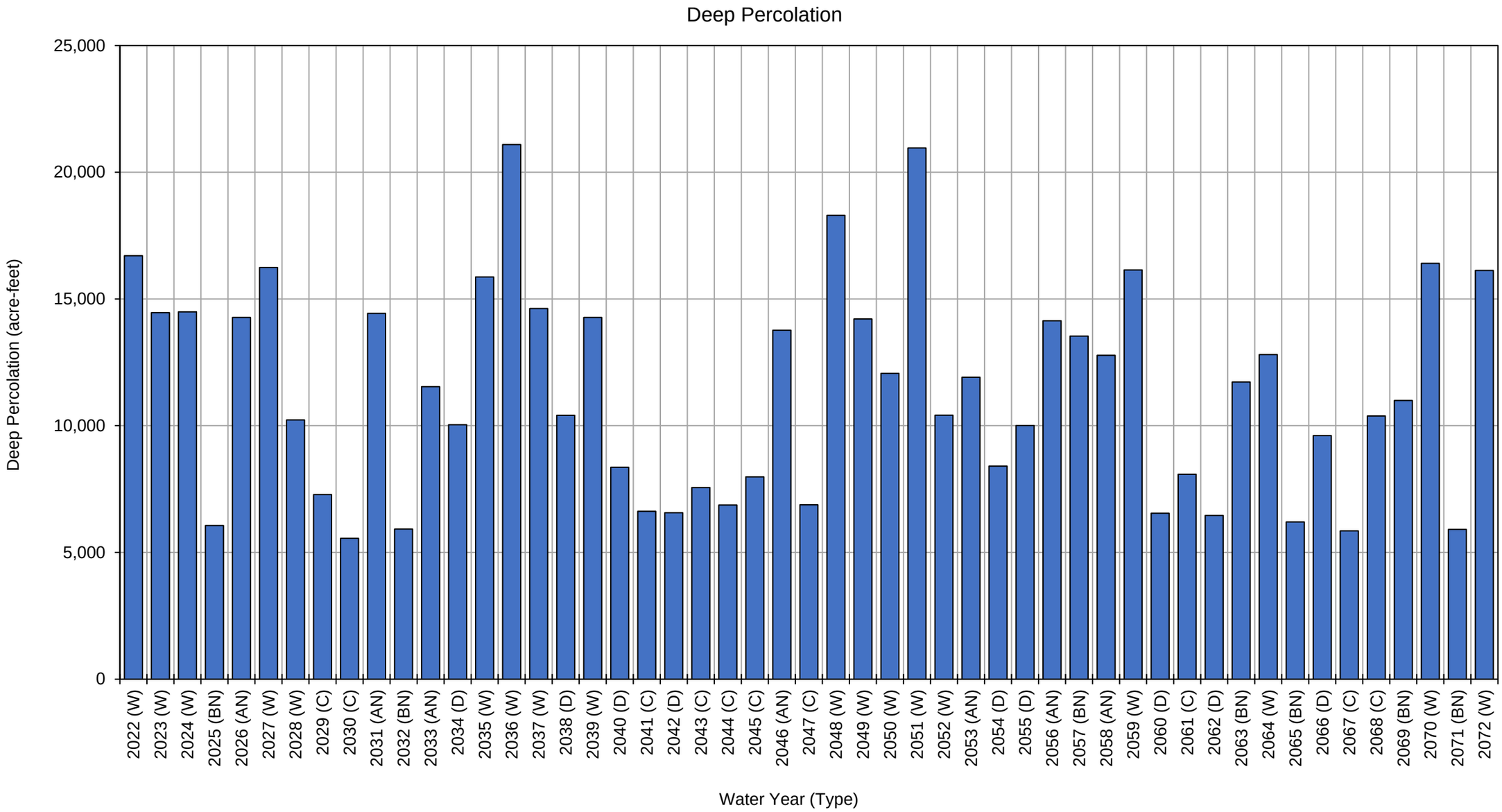
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	-42,000
2023 (W)	-42,000
2024 (W)	-42,000
2025 (BN)	-38,000
2026 (AN)	-35,000
2027 (W)	-37,000
2028 (W)	-43,000
2029 (C)	-38,000
2030 (C)	-25,000
2031 (AN)	-23,000
2032 (BN)	-25,000
2033 (AN)	-22,000
2034 (D)	-25,000
2035 (W)	-23,000
2036 (W)	-40,000
2037 (W)	-47,000
2038 (D)	-46,000
2039 (W)	-39,000
2040 (D)	-40,000
2041 (C)	-32,000
2042 (D)	-21,000
2043 (C)	-18,000
2044 (C)	-13,000
2045 (C)	-9,200
2046 (AN)	-8,800
2047 (C)	-14,000
2048 (W)	-14,000
2049 (W)	-25,000
2050 (W)	-29,000
2051 (W)	-36,000
2052 (W)	-44,000
2053 (AN)	-42,000
2054 (D)	-40,000
2055 (D)	-32,000
2056 (AN)	-30,000
2057 (BN)	-32,000
2058 (AN)	-37,000
2059 (W)	-37,000
2060 (D)	-39,000
2061 (C)	-31,000
2062 (D)	-22,000
2063 (BN)	-23,000

Antelope Subbasin Projected (Future Land Use) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		-24,000
2065 (BN)		-28,000
2066 (D)		-18,000
2067 (C)		-12,000
2068 (C)		-6,500
2069 (BN)		-2,100
2070 (W)		-8,800
2071 (BN)		-14,000
2072 (W)		-16,000
Average (2022-2072)		-28,000
2022-2072	W	-33,000
	AN	-28,000
	BN	-23,000
	D	-32,000
	C	-20,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Deep Percolation from the SWS (acre-feet, rounded)

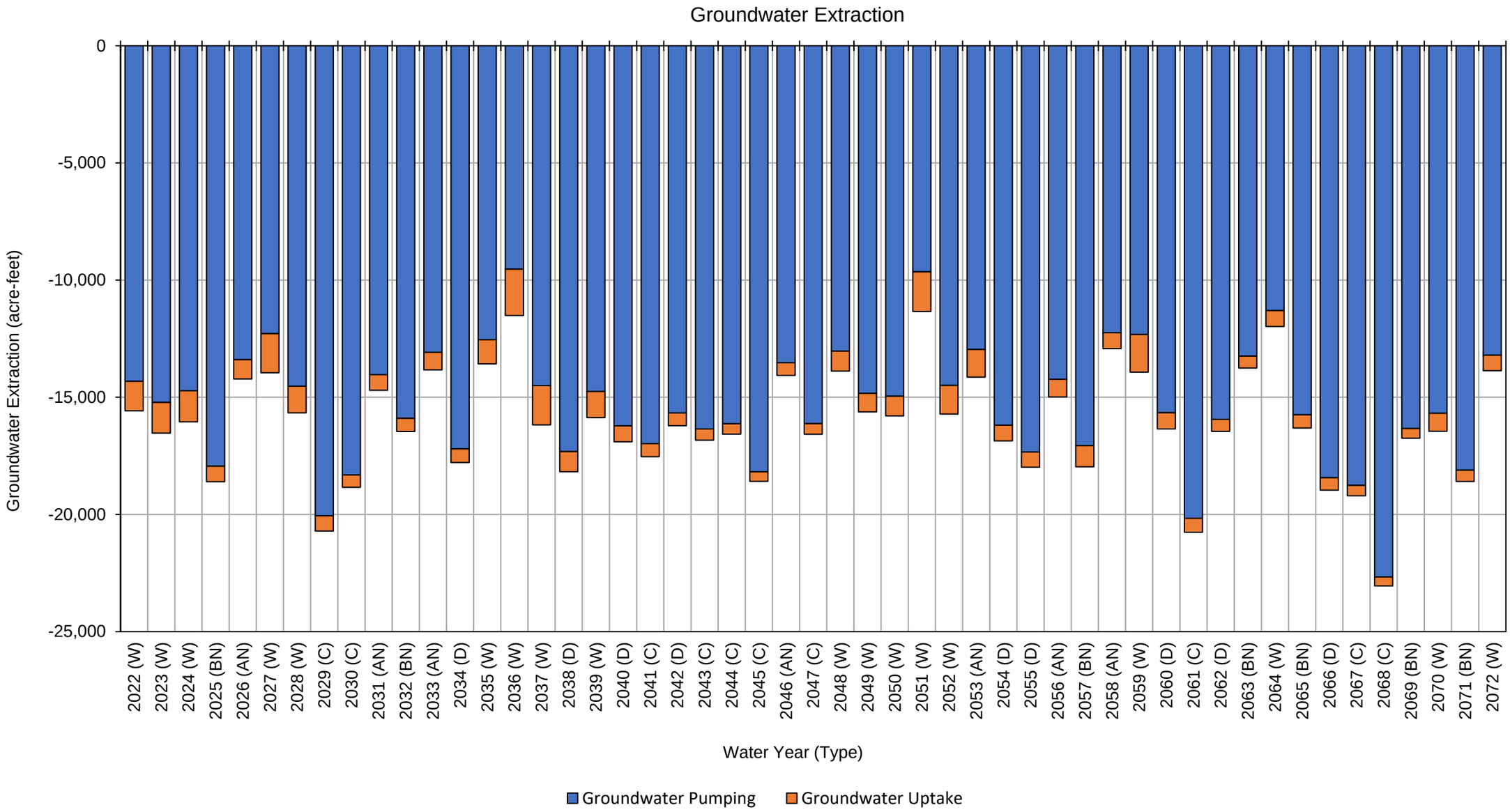
WY (Type)	Deep Percolation from the SWS
2022 (W)	17,000
2023 (W)	14,000
2024 (W)	14,000
2025 (BN)	6,100
2026 (AN)	14,000
2027 (W)	16,000
2028 (W)	10,000
2029 (C)	7,300
2030 (C)	5,600
2031 (AN)	14,000
2032 (BN)	5,900
2033 (AN)	12,000
2034 (D)	10,000
2035 (W)	16,000
2036 (W)	21,000
2037 (W)	15,000
2038 (D)	10,000
2039 (W)	14,000
2040 (D)	8,400
2041 (C)	6,600
2042 (D)	6,600
2043 (C)	7,600
2044 (C)	6,900
2045 (C)	8,000
2046 (AN)	14,000
2047 (C)	6,900
2048 (W)	18,000
2049 (W)	14,000
2050 (W)	12,000
2051 (W)	21,000
2052 (W)	10,000
2053 (AN)	12,000
2054 (D)	8,400
2055 (D)	10,000
2056 (AN)	14,000
2057 (BN)	14,000
2058 (AN)	13,000
2059 (W)	16,000
2060 (D)	6,500
2061 (C)	8,100
2062 (D)	6,500
2063 (BN)	12,000

Antelope Subbasin Projected (Future Land Use) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		13,000
2065 (BN)		6,200
2066 (D)		9,600
2067 (C)		5,800
2068 (C)		10,000
2069 (BN)		11,000
2070 (W)		16,000
2071 (BN)		5,900
2072 (W)		16,000
Average (2022-2072)		11,000
2022-2072	W	15,000
	AN	13,000
	BN	8,600
	D	8,500
	C	7,300

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Groundwater Extractions (acre-feet, rounded)

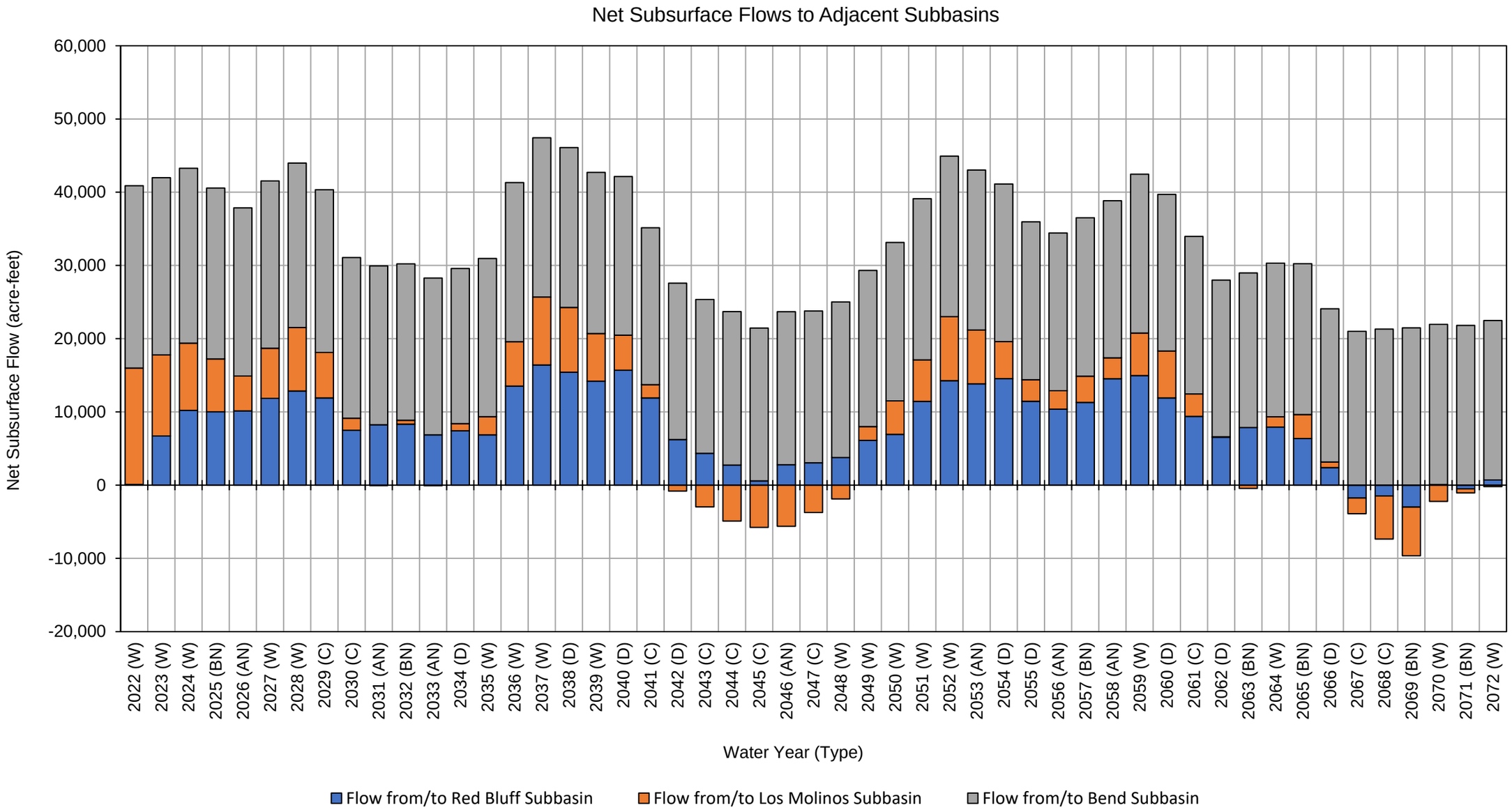
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-14,000	-1,300	-16,000
2023 (W)	-15,000	-1,300	-17,000
2024 (W)	-15,000	-1,300	-16,000
2025 (BN)	-18,000	-660	-19,000
2026 (AN)	-13,000	-820	-14,000
2027 (W)	-12,000	-1,700	-14,000
2028 (W)	-15,000	-1,100	-16,000
2029 (C)	-20,000	-660	-21,000
2030 (C)	-18,000	-530	-19,000
2031 (AN)	-14,000	-660	-15,000
2032 (BN)	-16,000	-560	-16,000
2033 (AN)	-13,000	-750	-14,000
2034 (D)	-17,000	-580	-18,000
2035 (W)	-13,000	-1,000	-14,000
2036 (W)	-9,500	-2,000	-12,000
2037 (W)	-15,000	-1,700	-16,000
2038 (D)	-17,000	-860	-18,000
2039 (W)	-15,000	-1,100	-16,000
2040 (D)	-16,000	-680	-17,000
2041 (C)	-17,000	-560	-18,000
2042 (D)	-16,000	-540	-16,000
2043 (C)	-16,000	-480	-17,000
2044 (C)	-16,000	-440	-17,000
2045 (C)	-18,000	-410	-19,000
2046 (AN)	-14,000	-540	-14,000
2047 (C)	-16,000	-450	-17,000
2048 (W)	-13,000	-850	-14,000
2049 (W)	-15,000	-800	-16,000
2050 (W)	-15,000	-840	-16,000
2051 (W)	-9,600	-1,700	-11,000
2052 (W)	-14,000	-1,200	-16,000
2053 (AN)	-13,000	-1,200	-14,000
2054 (D)	-16,000	-670	-17,000
2055 (D)	-17,000	-650	-18,000
2056 (AN)	-14,000	-750	-15,000
2057 (BN)	-17,000	-900	-18,000
2058 (AN)	-12,000	-680	-13,000
2059 (W)	-12,000	-1,600	-14,000
2060 (D)	-16,000	-690	-16,000
2061 (C)	-20,000	-590	-21,000
2062 (D)	-16,000	-510	-16,000
2063 (BN)	-13,000	-510	-14,000

Antelope Subbasin Projected (Future Land Use) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-11,000	-680	-12,000
2065 (BN)		-16,000	-570	-16,000
2066 (D)		-18,000	-530	-19,000
2067 (C)		-19,000	-450	-19,000
2068 (C)		-23,000	-380	-23,000
2069 (BN)		-16,000	-410	-17,000
2070 (W)		-16,000	-770	-16,000
2071 (BN)		-18,000	-480	-19,000
2072 (W)		-13,000	-660	-14,000
Average (2022-2072)		-15,000	-820	-16,000
2022-2072	W	-13,000	-1,200	-15,000
	AN	-13,000	-770	-14,000
	BN	-16,000	-590	-17,000
	D	-17,000	-640	-17,000
	C	-18,000	-500	-19,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

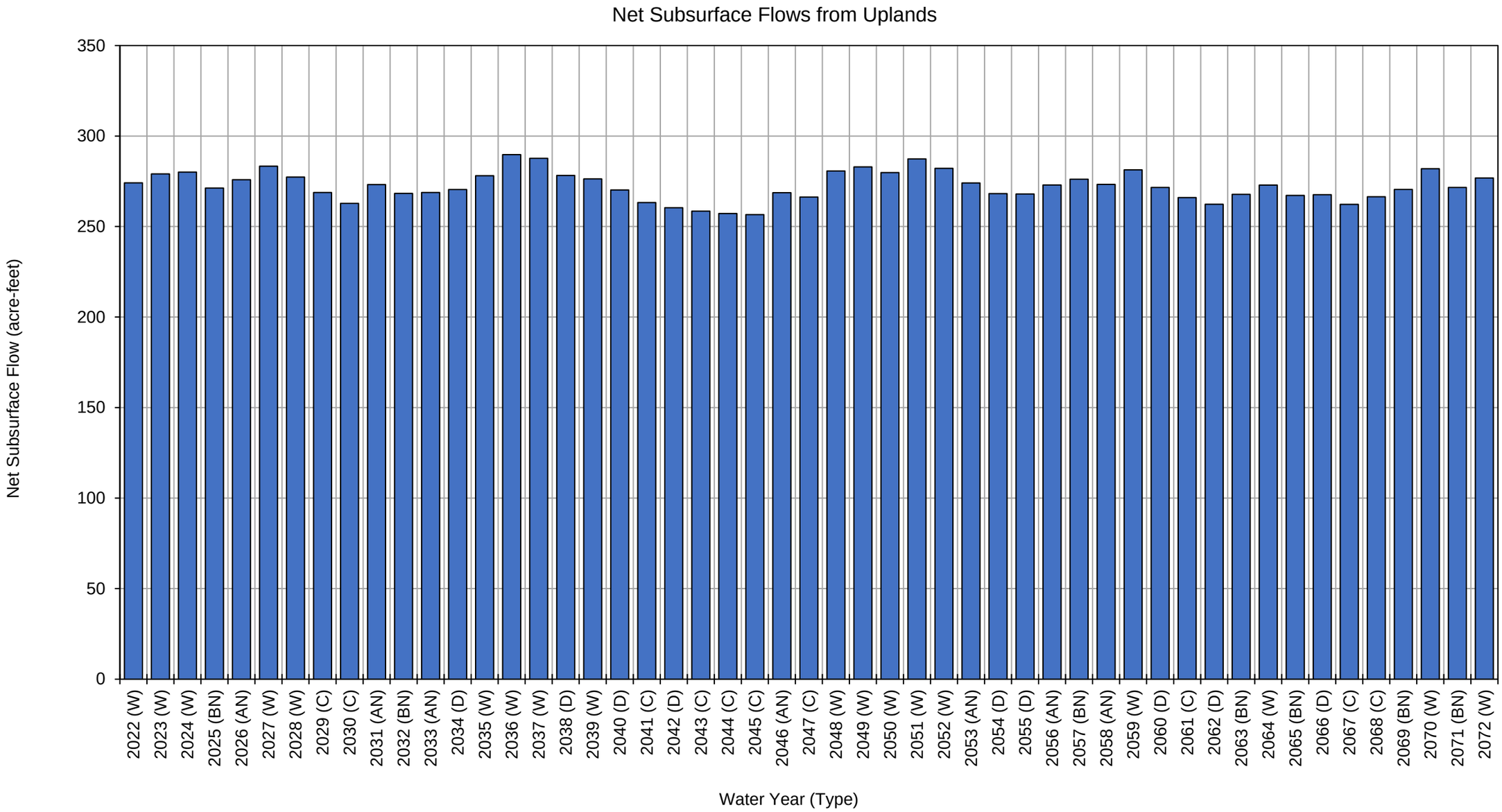
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	88	16,000	25,000	41,000
2023 (W)	6,700	11,000	24,000	42,000
2024 (W)	10,000	9,200	24,000	43,000
2025 (BN)	10,000	7,200	23,000	41,000
2026 (AN)	10,000	4,800	23,000	38,000
2027 (W)	12,000	6,800	23,000	42,000
2028 (W)	13,000	8,700	22,000	44,000
2029 (C)	12,000	6,200	22,000	40,000
2030 (C)	7,500	1,600	22,000	31,000
2031 (AN)	8,200	-53	22,000	30,000
2032 (BN)	8,300	520	21,000	30,000
2033 (AN)	6,900	-65	21,000	28,000
2034 (D)	7,400	970	21,000	30,000
2035 (W)	6,900	2,500	22,000	31,000
2036 (W)	14,000	6,100	22,000	41,000
2037 (W)	16,000	9,300	22,000	47,000
2038 (D)	15,000	8,800	22,000	46,000
2039 (W)	14,000	6,500	22,000	43,000
2040 (D)	16,000	4,800	22,000	42,000
2041 (C)	12,000	1,800	21,000	35,000
2042 (D)	6,200	-820	21,000	27,000
2043 (C)	4,300	-3,000	21,000	22,000
2044 (C)	2,700	-4,900	21,000	19,000
2045 (C)	590	-5,800	21,000	16,000
2046 (AN)	2,800	-5,600	21,000	18,000
2047 (C)	3,000	-3,700	21,000	20,000
2048 (W)	3,800	-1,900	21,000	23,000
2049 (W)	6,100	1,900	21,000	29,000
2050 (W)	6,900	4,600	22,000	33,000
2051 (W)	11,000	5,700	22,000	39,000
2052 (W)	14,000	8,800	22,000	45,000
2053 (AN)	14,000	7,400	22,000	43,000
2054 (D)	15,000	5,100	22,000	41,000
2055 (D)	11,000	2,900	22,000	36,000
2056 (AN)	10,000	2,500	22,000	34,000
2057 (BN)	11,000	3,600	22,000	37,000
2058 (AN)	15,000	2,900	21,000	39,000
2059 (W)	15,000	5,800	22,000	42,000
2060 (D)	12,000	6,400	21,000	40,000
2061 (C)	9,400	3,100	22,000	34,000
2062 (D)	6,500	76	21,000	28,000
2063 (BN)	7,900	-450	21,000	29,000

Antelope Subbasin Projected (Future Land Use) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2064 (W)		7,900	1,400	21,000	30,000
2065 (BN)		6,400	3,300	21,000	30,000
2066 (D)		2,400	760	21,000	24,000
2067 (C)		-1,800	-2,100	21,000	17,000
2068 (C)		-1,500	-5,900	21,000	14,000
2069 (BN)		-3,000	-6,600	21,000	12,000
2070 (W)		83	-2,200	22,000	20,000
2071 (BN)		-500	-560	22,000	21,000
2072 (W)		710	-200	22,000	22,000
Average (2022-2072)		8,000	2,600	22,000	32,000
2022-2072	W	8,800	5,500	22,000	37,000
	AN	9,500	1,700	22,000	33,000
	BN	5,800	990	22,000	28,000
	D	10,000	3,200	21,000	35,000
	C	4,800	-1,300	21,000	25,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

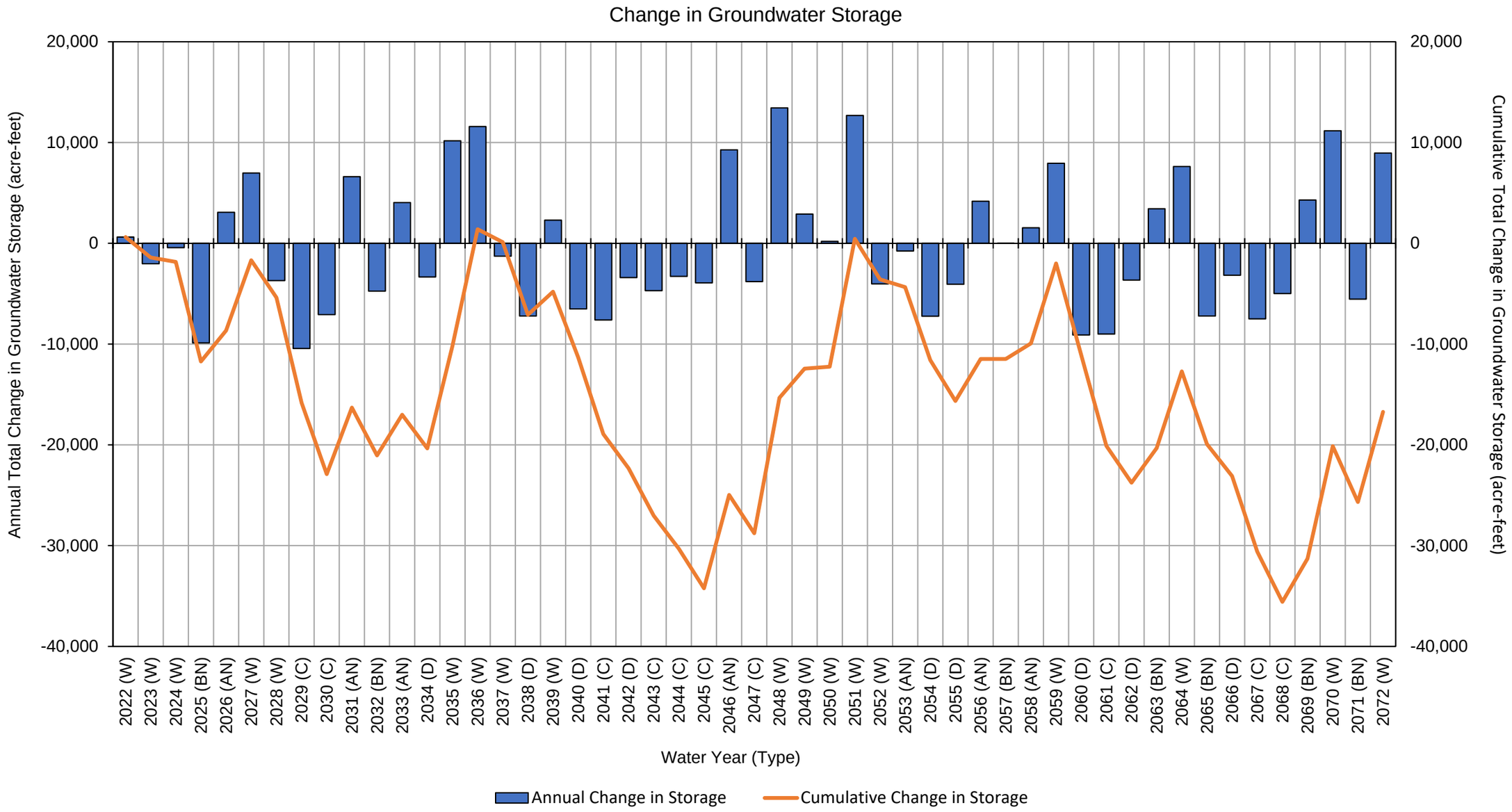
WY (Type)	Subsurface Flows from Uplands
2022 (W)	270
2023 (W)	280
2024 (W)	280
2025 (BN)	270
2026 (AN)	280
2027 (W)	280
2028 (W)	280
2029 (C)	270
2030 (C)	260
2031 (AN)	270
2032 (BN)	270
2033 (AN)	270
2034 (D)	270
2035 (W)	280
2036 (W)	290
2037 (W)	290
2038 (D)	280
2039 (W)	280
2040 (D)	270
2041 (C)	260
2042 (D)	260
2043 (C)	260
2044 (C)	260
2045 (C)	260
2046 (AN)	270
2047 (C)	270
2048 (W)	280
2049 (W)	280
2050 (W)	280
2051 (W)	290
2052 (W)	280
2053 (AN)	270
2054 (D)	270
2055 (D)	270
2056 (AN)	270
2057 (BN)	280
2058 (AN)	270
2059 (W)	280
2060 (D)	270
2061 (C)	270
2062 (D)	260
2063 (BN)	270

Antelope Subbasin Projected (Future Land Use) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		270
2065 (BN)		270
2066 (D)		270
2067 (C)		260
2068 (C)		270
2069 (BN)		270
2070 (W)		280
2071 (BN)		270
2072 (W)		280
Average (2022-2072)		270
2022-2072	W	280
	AN	270
	BN	270
	D	270
	C	260

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Antelope Subbasin Projected (Future Land Use) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	620	620
2023 (W)	-2,000	-1,400
2024 (W)	-440	-1,800
2025 (BN)	-9,900	-12,000
2026 (AN)	3,100	-8,700
2027 (W)	7,000	-1,700
2028 (W)	-3,700	-5,400
2029 (C)	-10,000	-16,000
2030 (C)	-7,100	-23,000
2031 (AN)	6,600	-16,000
2032 (BN)	-4,700	-21,000
2033 (AN)	4,000	-17,000
2034 (D)	-3,300	-20,000
2035 (W)	10,000	-10,000
2036 (W)	12,000	1,400
2037 (W)	-1,300	120
2038 (D)	-7,200	-7,100
2039 (W)	2,300	-4,800
2040 (D)	-6,500	-11,000
2041 (C)	-7,600	-19,000
2042 (D)	-3,400	-22,000
2043 (C)	-4,700	-27,000
2044 (C)	-3,300	-30,000
2045 (C)	-3,900	-34,000
2046 (AN)	9,300	-25,000
2047 (C)	-3,800	-29,000
2048 (W)	13,000	-15,000
2049 (W)	2,900	-12,000
2050 (W)	200	-12,000
2051 (W)	13,000	440
2052 (W)	-4,000	-3,600
2053 (AN)	-760	-4,300
2054 (D)	-7,200	-12,000
2055 (D)	-4,100	-16,000
2056 (AN)	4,200	-11,000
2057 (BN)	-1	-11,000
2058 (AN)	1,500	-9,900
2059 (W)	7,900	-2,000
2060 (D)	-9,100	-11,000
2061 (C)	-9,000	-20,000
2062 (D)	-3,700	-24,000
2063 (BN)	3,400	-20,000

Antelope Subbasin Projected (Future Land Use) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		7,600	-13,000
2065 (BN)		-7,200	-20,000
2066 (D)		-3,200	-23,000
2067 (C)		-7,500	-31,000
2068 (C)		-5,000	-36,000
2069 (BN)		4,300	-31,000
2070 (W)		11,000	-20,000
2071 (BN)		-5,500	-26,000
2072 (W)		8,900	-17,000
Average (2022-2072)		-330	
2022-2072	W		
	AN		
	BN		
	D		
	C		

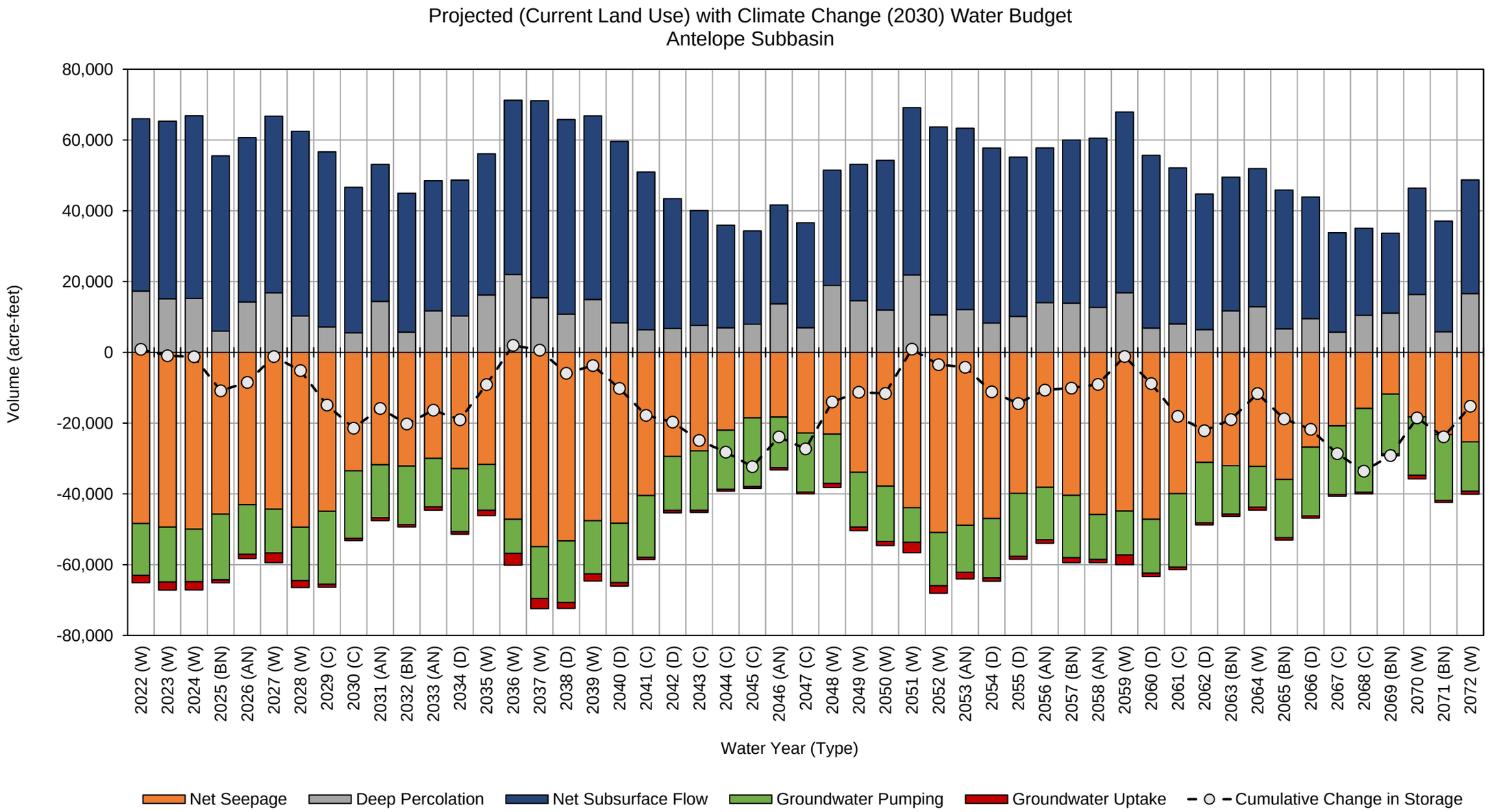
Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX A-4

Detailed Antelope Subbasin Water Budget Results:

Projected (Current Land Use) with Climate Change (2030) Model Results


Projected (Current Land Use) with Climate Change (2030) Water Budget
Antelope Subbasin
Volume (acre-feet)
80,000
60,000
40,000
20,000
0
-20,000
-40,000
-60,000
-80,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Antelope Subbasin Projected (Current Land Use) with Climate Change (2030) Water Budget Summary (acre-feet, rounded)

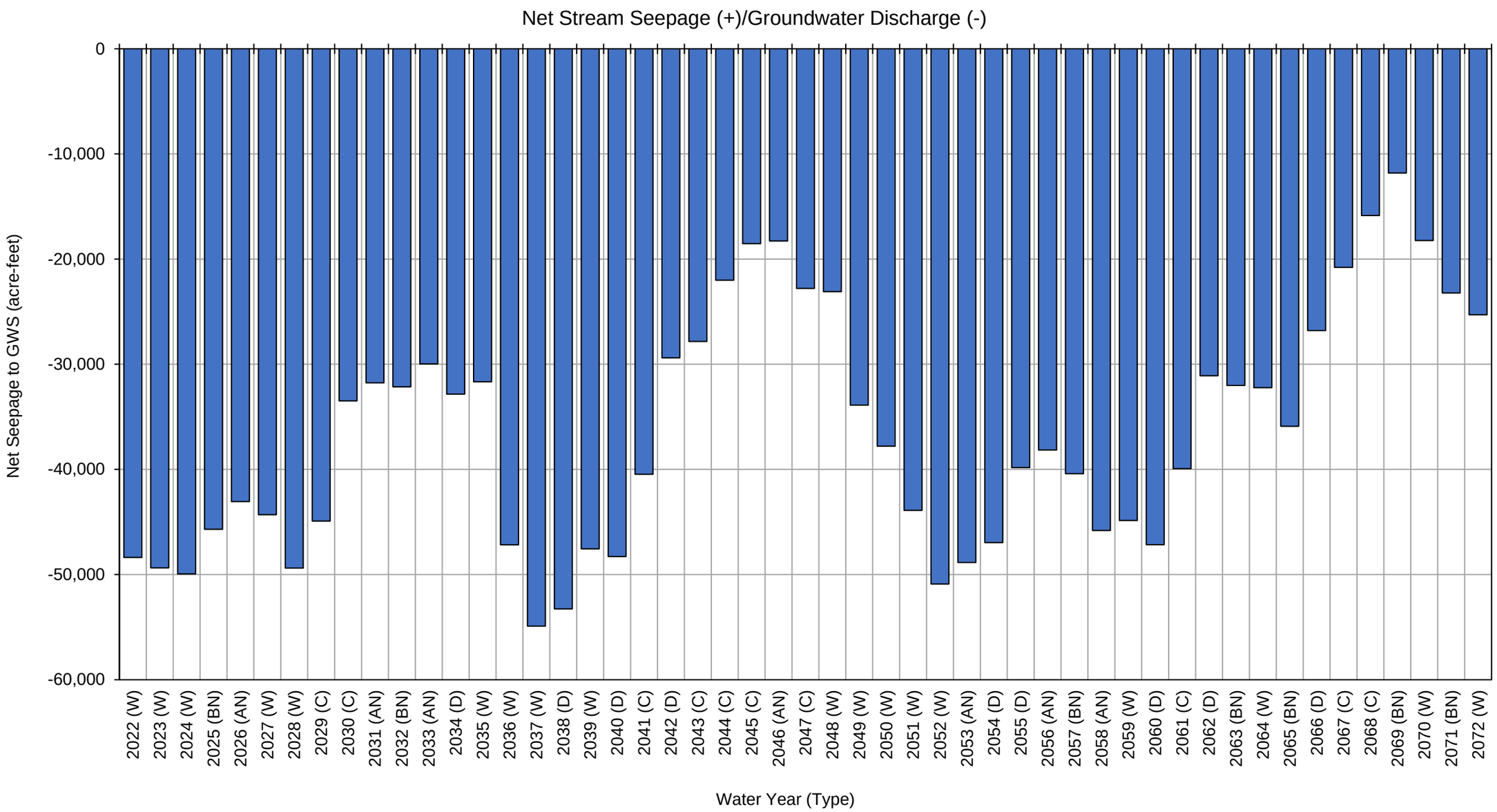
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	-48,000	17,000	-15,000	-2,100	49,000	870	870
2023 (W)	-49,000	15,000	-16,000	-2,300	50,000	-1,800	-960
2024 (W)	-50,000	15,000	-15,000	-2,300	52,000	-290	-1,200
2025 (BN)	-46,000	6,000	-19,000	-820	50,000	-9,600	-11,000
2026 (AN)	-43,000	14,000	-14,000	-1,200	46,000	2,400	-8,500
2027 (W)	-44,000	17,000	-12,000	-2,800	50,000	7,300	-1,200
2028 (W)	-49,000	10,000	-15,000	-1,900	52,000	-4,000	-5,200
2029 (C)	-45,000	7,200	-21,000	-810	49,000	-9,700	-15,000
2030 (C)	-33,000	5,500	-19,000	-610	41,000	-6,500	-21,000
2031 (AN)	-32,000	14,000	-15,000	-800	39,000	5,600	-16,000
2032 (BN)	-32,000	5,700	-17,000	-640	39,000	-4,400	-20,000
2033 (AN)	-30,000	12,000	-14,000	-920	37,000	3,900	-16,000
2034 (D)	-33,000	10,000	-18,000	-700	38,000	-2,700	-19,000
2035 (W)	-32,000	16,000	-13,000	-1,500	40,000	9,900	-9,100
2036 (W)	-47,000	22,000	-9,600	-3,300	49,000	11,000	2,000
2037 (W)	-55,000	15,000	-15,000	-2,900	56,000	-1,300	640
2038 (D)	-53,000	11,000	-17,000	-1,700	55,000	-6,600	-5,900
2039 (W)	-48,000	15,000	-15,000	-2,000	52,000	2,200	-3,700
2040 (D)	-48,000	8,300	-17,000	-970	51,000	-6,500	-10,000
2041 (C)	-40,000	6,400	-17,000	-650	45,000	-7,600	-18,000
2042 (D)	-29,000	6,800	-15,000	-660	37,000	-1,900	-20,000
2043 (C)	-28,000	7,600	-17,000	-570	32,000	-5,200	-25,000
2044 (C)	-22,000	6,900	-17,000	-520	29,000	-3,300	-28,000
2045 (C)	-19,000	8,000	-19,000	-470	26,000	-4,100	-32,000
2046 (AN)	-18,000	14,000	-14,000	-620	28,000	8,400	-24,000
2047 (C)	-23,000	7,000	-17,000	-520	30,000	-3,400	-27,000
2048 (W)	-23,000	19,000	-14,000	-1,200	33,000	13,000	-14,000
2049 (W)	-34,000	15,000	-15,000	-1,000	39,000	2,700	-11,000
2050 (W)	-38,000	12,000	-16,000	-1,100	42,000	-330	-12,000
2051 (W)	-44,000	22,000	-9,800	-3,000	47,000	13,000	910
2052 (W)	-51,000	11,000	-15,000	-2,100	53,000	-4,400	-3,500
2053 (AN)	-49,000	12,000	-13,000	-1,900	51,000	-740	-4,200
2054 (D)	-47,000	8,300	-17,000	-890	49,000	-6,900	-11,000
2055 (D)	-40,000	10,000	-18,000	-820	45,000	-3,300	-14,000
2056 (AN)	-38,000	14,000	-15,000	-1,000	44,000	3,800	-11,000
2057 (BN)	-40,000	14,000	-18,000	-1,400	46,000	560	-10,000
2058 (AN)	-46,000	13,000	-13,000	-910	48,000	1,100	-9,000
2059 (W)	-45,000	17,000	-12,000	-2,800	51,000	7,900	-1,100
2060 (D)	-47,000	6,800	-15,000	-950	49,000	-7,700	-8,800
2061 (C)	-40,000	8,000	-21,000	-720	44,000	-9,300	-18,000
2062 (D)	-31,000	6,400	-17,000	-600	38,000	-4,000	-22,000
2063 (BN)	-32,000	12,000	-14,000	-600	38,000	3,100	-19,000
2064 (W)	-32,000	13,000	-11,000	-850	39,000	7,400	-12,000
2065 (BN)	-36,000	6,700	-16,000	-660	39,000	-7,200	-19,000

Antelope Subbasin Projected (Current Land Use) with Climate Change (2030) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-27,000	9,500	-19,000	-620	34,000	-2,900	-22,000
2067 (C)		-21,000	5,700	-19,000	-510	28,000	-6,900	-29,000
2068 (C)		-16,000	10,000	-24,000	-440	25,000	-5,000	-34,000
2069 (BN)		-12,000	11,000	-17,000	-500	23,000	4,400	-29,000
2070 (W)		-18,000	16,000	-17,000	-1,000	30,000	11,000	-19,000
2071 (BN)		-23,000	5,800	-19,000	-560	31,000	-5,400	-24,000
2072 (W)		-25,000	17,000	-14,000	-840	32,000	8,600	-15,000
Average (2022-2072)		-36,000	12,000	-16,000	-1,200	42,000	-300	
2022-2072	W	-41,000	16,000	-14,000	-1,900	45,000		
	AN	-37,000	13,000	-14,000	-1,100	42,000		
	BN	-32,000	8,700	-17,000	-740	38,000		
	D	-40,000	8,600	-17,000	-870	44,000		
	C	-29,000	7,300	-19,000	-580	35,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Antelope Subbasin Projected (Current Land Use) with Climate Change (2030) Net Stream Seepage (net flows as acre-feet, rounded)

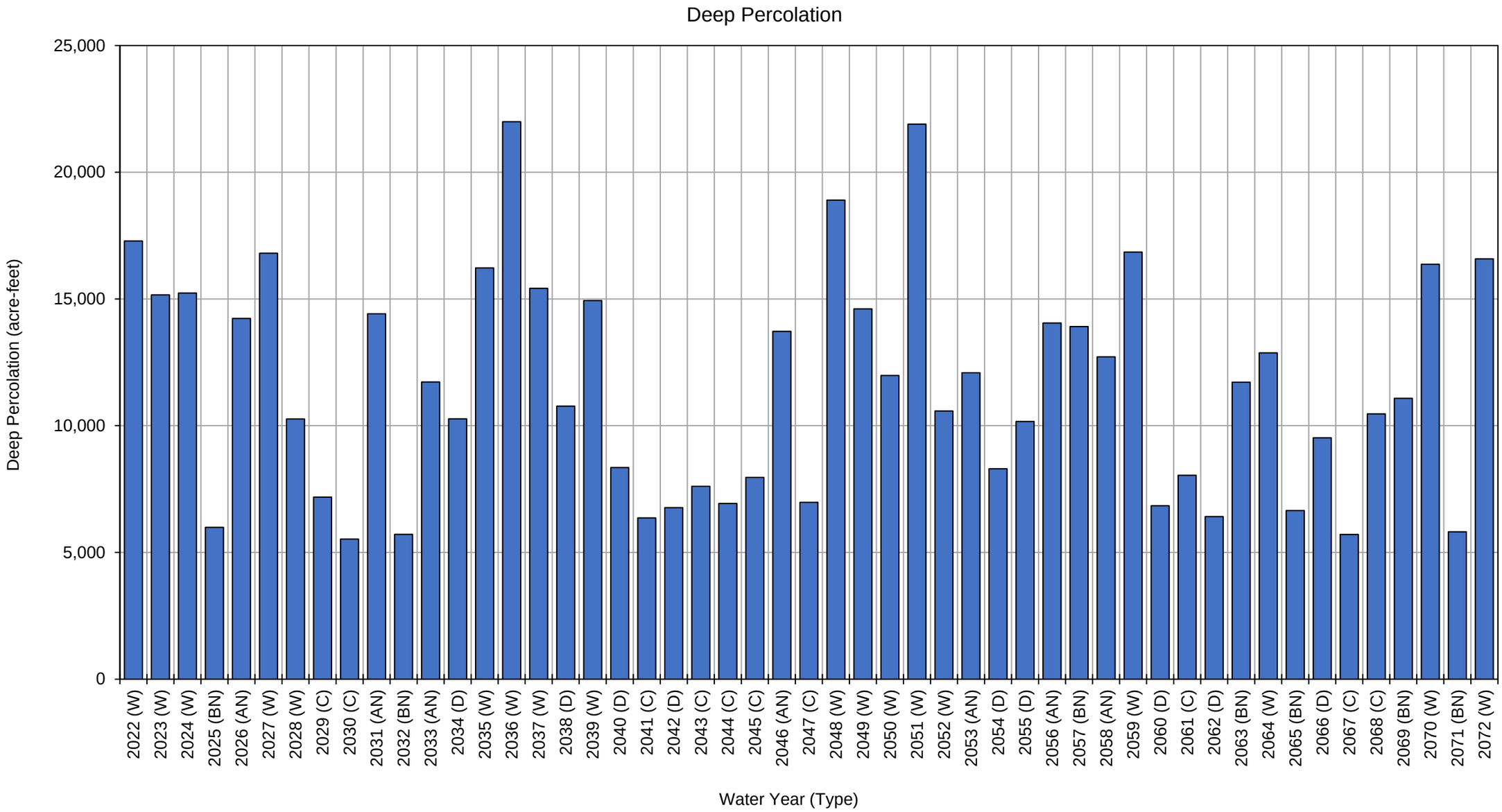
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	-48,000
2023 (W)	-49,000
2024 (W)	-50,000
2025 (BN)	-46,000
2026 (AN)	-43,000
2027 (W)	-44,000
2028 (W)	-49,000
2029 (C)	-45,000
2030 (C)	-33,000
2031 (AN)	-32,000
2032 (BN)	-32,000
2033 (AN)	-30,000
2034 (D)	-33,000
2035 (W)	-32,000
2036 (W)	-47,000
2037 (W)	-55,000
2038 (D)	-53,000
2039 (W)	-48,000
2040 (D)	-48,000
2041 (C)	-40,000
2042 (D)	-29,000
2043 (C)	-28,000
2044 (C)	-22,000
2045 (C)	-19,000
2046 (AN)	-18,000
2047 (C)	-23,000
2048 (W)	-23,000
2049 (W)	-34,000
2050 (W)	-38,000
2051 (W)	-44,000
2052 (W)	-51,000
2053 (AN)	-49,000
2054 (D)	-47,000
2055 (D)	-40,000
2056 (AN)	-38,000
2057 (BN)	-40,000
2058 (AN)	-46,000
2059 (W)	-45,000
2060 (D)	-47,000
2061 (C)	-40,000
2062 (D)	-31,000
2063 (BN)	-32,000

Antelope Subbasin Projected (Current Land Use) with Climate Change (2030) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		-32,000
2065 (BN)		-36,000
2066 (D)		-27,000
2067 (C)		-21,000
2068 (C)		-16,000
2069 (BN)		-12,000
2070 (W)		-18,000
2071 (BN)		-23,000
2072 (W)		-25,000
Average (2022-2072)		-36,000
2022-2072	W	-41,000
	AN	-37,000
	BN	-32,000
	D	-40,000
	C	-29,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Antelope Subbasin Projected (Current Land Use) with Climate Change (2030) Deep Percolation from the SWS (acre-feet, rounded)

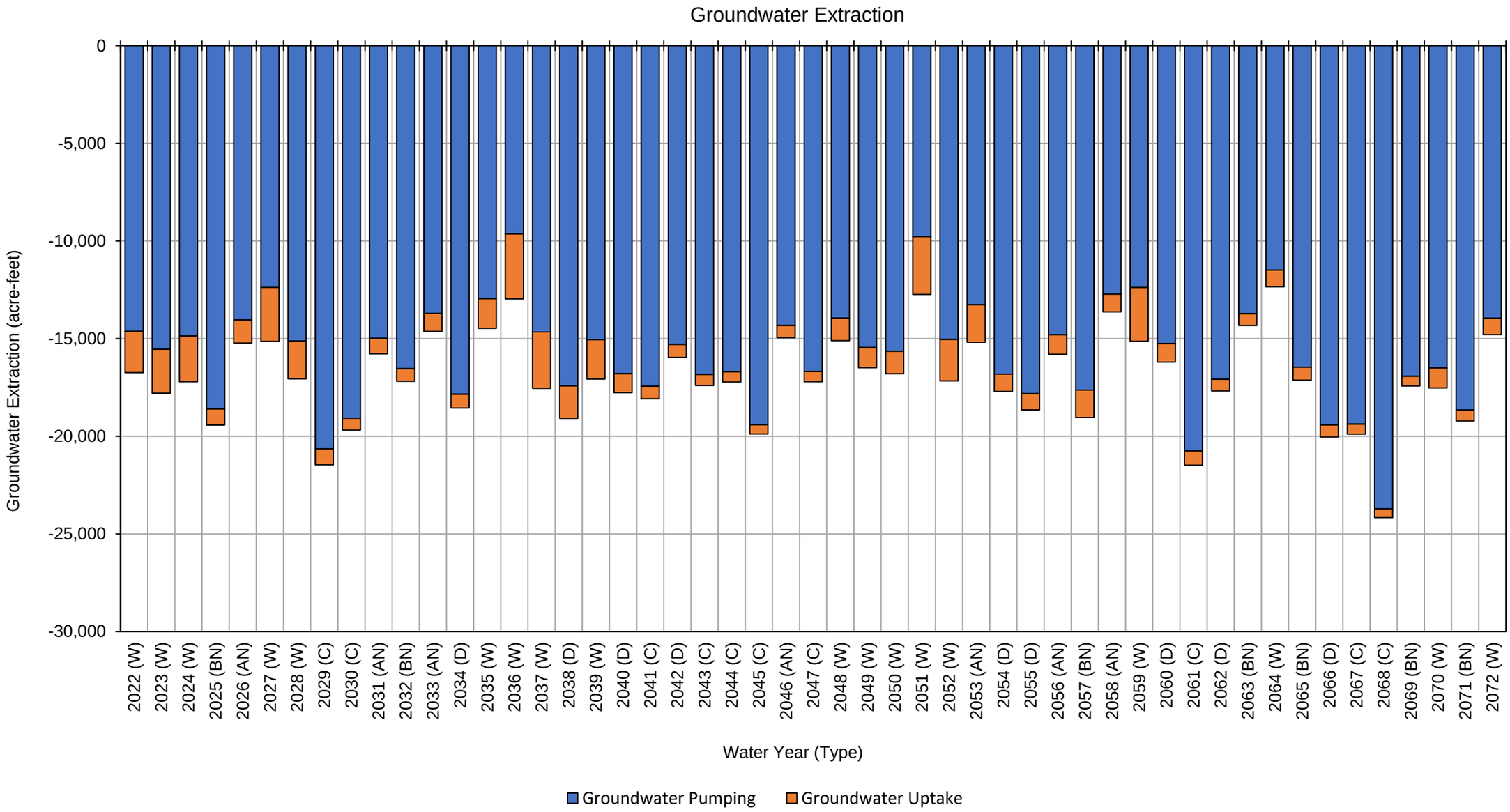
WY (Type)	Deep Percolation from the SWS
2022 (W)	17,000
2023 (W)	15,000
2024 (W)	15,000
2025 (BN)	6,000
2026 (AN)	14,000
2027 (W)	17,000
2028 (W)	10,000
2029 (C)	7,200
2030 (C)	5,500
2031 (AN)	14,000
2032 (BN)	5,700
2033 (AN)	12,000
2034 (D)	10,000
2035 (W)	16,000
2036 (W)	22,000
2037 (W)	15,000
2038 (D)	11,000
2039 (W)	15,000
2040 (D)	8,300
2041 (C)	6,400
2042 (D)	6,800
2043 (C)	7,600
2044 (C)	6,900
2045 (C)	8,000
2046 (AN)	14,000
2047 (C)	7,000
2048 (W)	19,000
2049 (W)	15,000
2050 (W)	12,000
2051 (W)	22,000
2052 (W)	11,000
2053 (AN)	12,000
2054 (D)	8,300
2055 (D)	10,000
2056 (AN)	14,000
2057 (BN)	14,000
2058 (AN)	13,000
2059 (W)	17,000
2060 (D)	6,800
2061 (C)	8,000
2062 (D)	6,400
2063 (BN)	12,000

Antelope Subbasin Projected (Current Land Use) with Climate Change (2030) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		13,000
2065 (BN)		6,700
2066 (D)		9,500
2067 (C)		5,700
2068 (C)		10,000
2069 (BN)		11,000
2070 (W)		16,000
2071 (BN)		5,800
2072 (W)		17,000
Average (2022-2072)		12,000
2022-2072	W	16,000
	AN	13,000
	BN	8,700
	D	8,600
	C	7,300

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Antelope Subbasin Projected (Current Land Use) with Climate Change (2030) Groundwater Extractions (acre-feet, rounded)

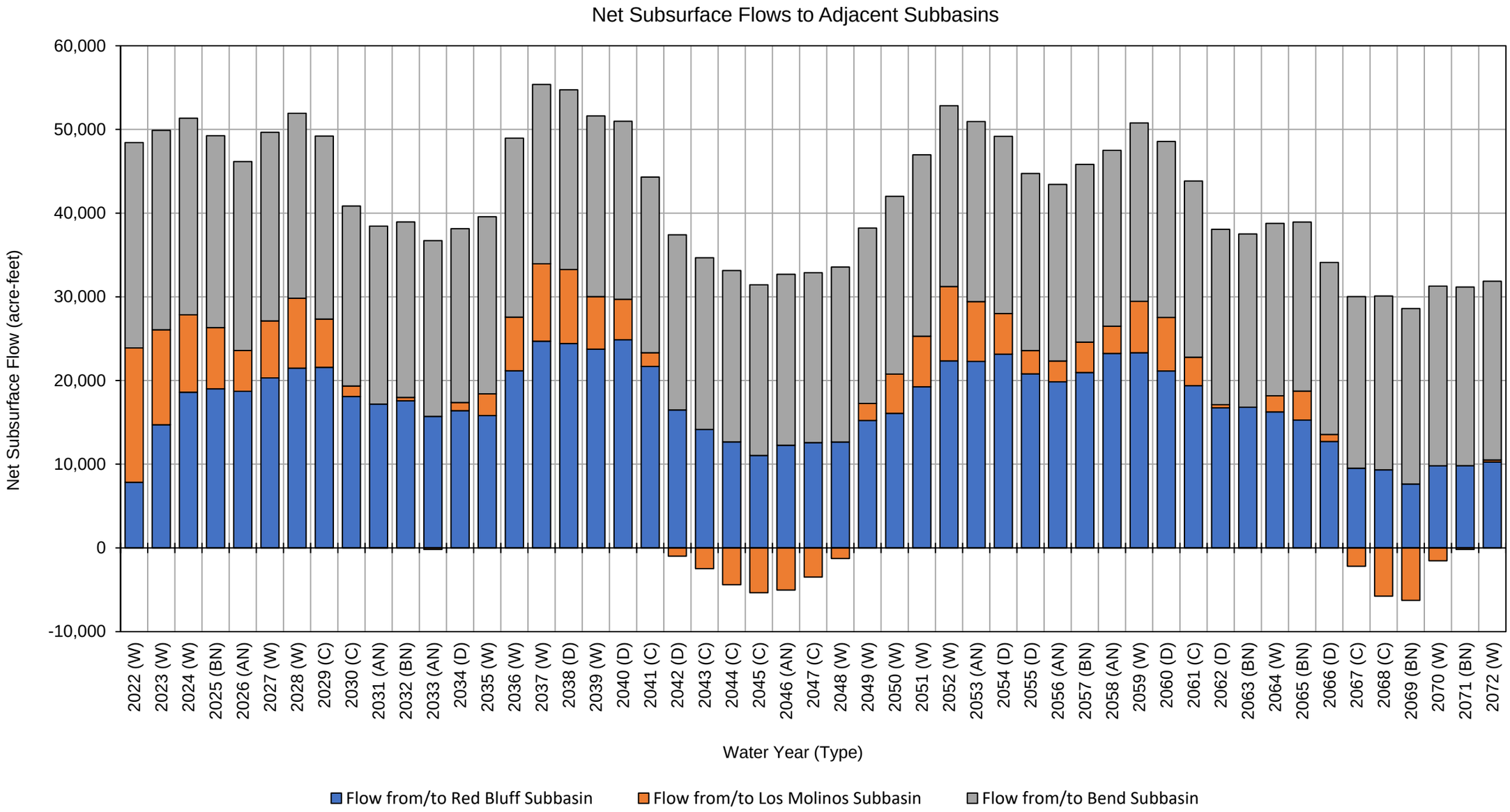
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-15,000	-2,100	-17,000
2023 (W)	-16,000	-2,300	-18,000
2024 (W)	-15,000	-2,300	-17,000
2025 (BN)	-19,000	-820	-19,000
2026 (AN)	-14,000	-1,200	-15,000
2027 (W)	-12,000	-2,800	-15,000
2028 (W)	-15,000	-1,900	-17,000
2029 (C)	-21,000	-810	-21,000
2030 (C)	-19,000	-610	-20,000
2031 (AN)	-15,000	-800	-16,000
2032 (BN)	-17,000	-640	-17,000
2033 (AN)	-14,000	-920	-15,000
2034 (D)	-18,000	-700	-19,000
2035 (W)	-13,000	-1,500	-14,000
2036 (W)	-9,600	-3,300	-13,000
2037 (W)	-15,000	-2,900	-18,000
2038 (D)	-17,000	-1,700	-19,000
2039 (W)	-15,000	-2,000	-17,000
2040 (D)	-17,000	-970	-18,000
2041 (C)	-17,000	-650	-18,000
2042 (D)	-15,000	-660	-16,000
2043 (C)	-17,000	-570	-17,000
2044 (C)	-17,000	-520	-17,000
2045 (C)	-19,000	-470	-20,000
2046 (AN)	-14,000	-620	-15,000
2047 (C)	-17,000	-520	-17,000
2048 (W)	-14,000	-1,200	-15,000
2049 (W)	-15,000	-1,000	-16,000
2050 (W)	-16,000	-1,100	-17,000
2051 (W)	-9,800	-3,000	-13,000
2052 (W)	-15,000	-2,100	-17,000
2053 (AN)	-13,000	-1,900	-15,000
2054 (D)	-17,000	-890	-18,000
2055 (D)	-18,000	-820	-19,000
2056 (AN)	-15,000	-1,000	-16,000
2057 (BN)	-18,000	-1,400	-19,000
2058 (AN)	-13,000	-910	-14,000
2059 (W)	-12,000	-2,800	-15,000
2060 (D)	-15,000	-950	-16,000
2061 (C)	-21,000	-720	-21,000
2062 (D)	-17,000	-600	-18,000
2063 (BN)	-14,000	-600	-14,000

Antelope Subbasin Projected (Current Land Use) with Climate Change (2030) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-11,000	-850	-12,000
2065 (BN)		-16,000	-660	-17,000
2066 (D)		-19,000	-620	-20,000
2067 (C)		-19,000	-510	-20,000
2068 (C)		-24,000	-440	-24,000
2069 (BN)		-17,000	-500	-17,000
2070 (W)		-17,000	-1,000	-18,000
2071 (BN)		-19,000	-560	-19,000
2072 (W)		-14,000	-840	-15,000
Average (2022-2072)		-16,000	-1,200	-17,000
2022-2072	W	-14,000	-1,900	-16,000
	AN	-14,000	-1,100	-15,000
	BN	-17,000	-740	-18,000
	D	-17,000	-870	-18,000
	C	-19,000	-580	-20,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Antelope Subbasin Projected (Current Land Use) with Climate Change (2030) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

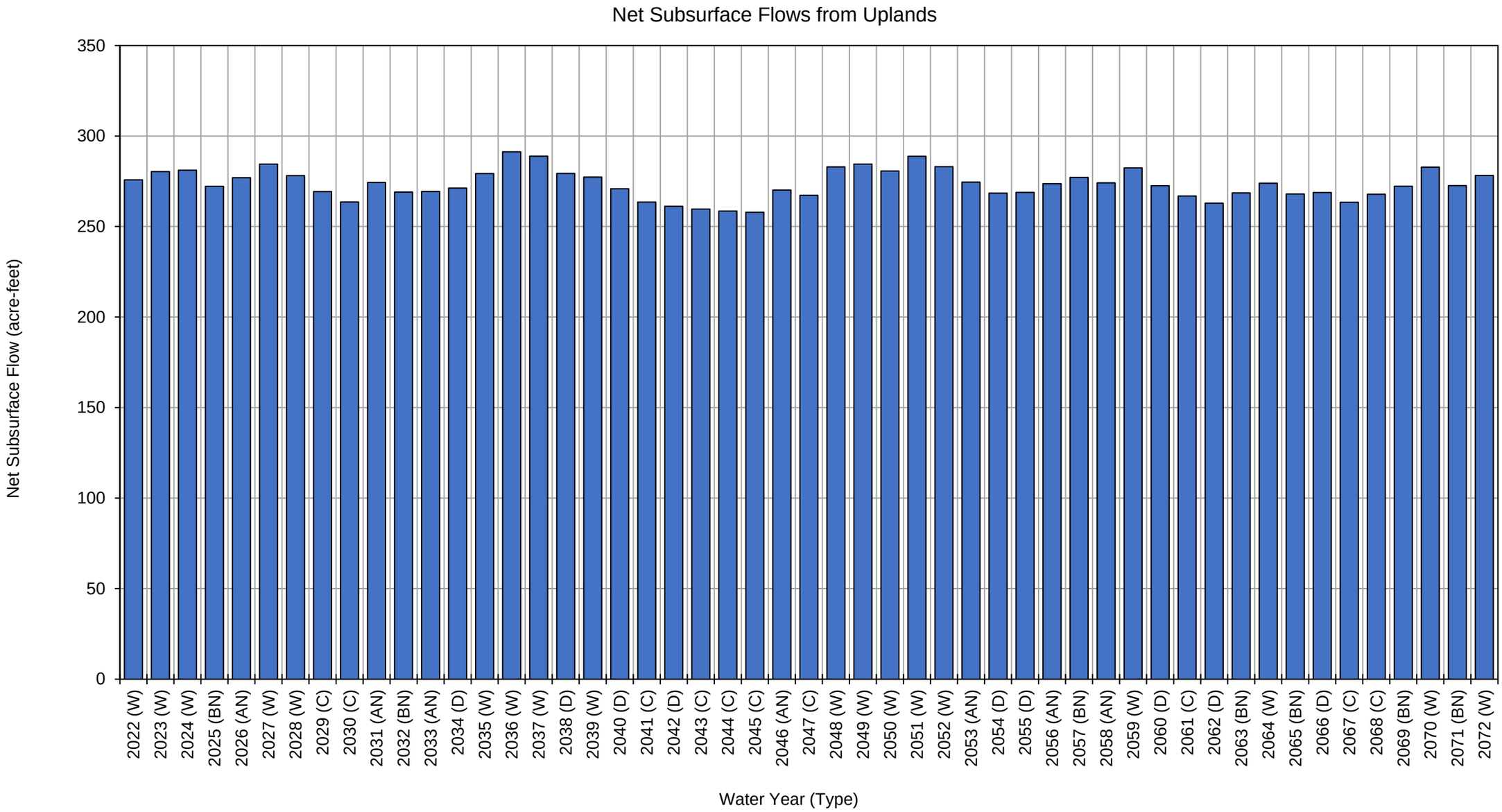
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	7,800	16,000	25,000	48,000
2023 (W)	15,000	11,000	24,000	50,000
2024 (W)	19,000	9,300	23,000	51,000
2025 (BN)	19,000	7,300	23,000	49,000
2026 (AN)	19,000	4,900	23,000	46,000
2027 (W)	20,000	6,800	23,000	50,000
2028 (W)	21,000	8,400	22,000	52,000
2029 (C)	22,000	5,800	22,000	49,000
2030 (C)	18,000	1,300	22,000	41,000
2031 (AN)	17,000	-8	21,000	38,000
2032 (BN)	18,000	400	21,000	39,000
2033 (AN)	16,000	-190	21,000	37,000
2034 (D)	16,000	970	21,000	38,000
2035 (W)	16,000	2,600	21,000	40,000
2036 (W)	21,000	6,400	21,000	49,000
2037 (W)	25,000	9,300	21,000	55,000
2038 (D)	24,000	8,900	21,000	55,000
2039 (W)	24,000	6,300	22,000	52,000
2040 (D)	25,000	4,800	21,000	51,000
2041 (C)	22,000	1,600	21,000	44,000
2042 (D)	16,000	-980	21,000	36,000
2043 (C)	14,000	-2,500	21,000	32,000
2044 (C)	13,000	-4,400	20,000	29,000
2045 (C)	11,000	-5,300	20,000	26,000
2046 (AN)	12,000	-5,000	20,000	28,000
2047 (C)	13,000	-3,500	20,000	29,000
2048 (W)	13,000	-1,300	21,000	32,000
2049 (W)	15,000	2,000	21,000	38,000
2050 (W)	16,000	4,700	21,000	42,000
2051 (W)	19,000	6,000	22,000	47,000
2052 (W)	22,000	8,900	22,000	53,000
2053 (AN)	22,000	7,100	22,000	51,000
2054 (D)	23,000	4,900	21,000	49,000
2055 (D)	21,000	2,800	21,000	45,000
2056 (AN)	20,000	2,500	21,000	43,000
2057 (BN)	21,000	3,600	21,000	46,000
2058 (AN)	23,000	3,300	21,000	48,000
2059 (W)	23,000	6,200	21,000	51,000
2060 (D)	21,000	6,400	21,000	49,000
2061 (C)	19,000	3,400	21,000	44,000
2062 (D)	17,000	370	21,000	38,000
2063 (BN)	17,000	-2	21,000	38,000

Antelope Subbasin Projected (Current Land Use) with Climate Change (2030) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2064 (W)		16,000	1,900	21,000	39,000
2065 (BN)		15,000	3,500	20,000	39,000
2066 (D)		13,000	840	21,000	34,000
2067 (C)		9,500	-2,200	21,000	28,000
2068 (C)		9,300	-5,800	21,000	24,000
2069 (BN)		7,600	-6,300	21,000	22,000
2070 (W)		9,800	-1,500	21,000	30,000
2071 (BN)		9,800	-180	21,000	31,000
2072 (W)		10,000	250	21,000	32,000
Average (2022-2072)		17,000	2,800	21,000	41,000
2022-2072	W	17,000	5,800	22,000	45,000
	AN	18,000	1,800	21,000	42,000
	BN	15,000	1,200	21,000	38,000
	D	20,000	3,200	21,000	44,000
	C	15,000	-1,200	21,000	35,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Antelope Subbasin Projected (Current Land Use) with Climate Change (2030) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

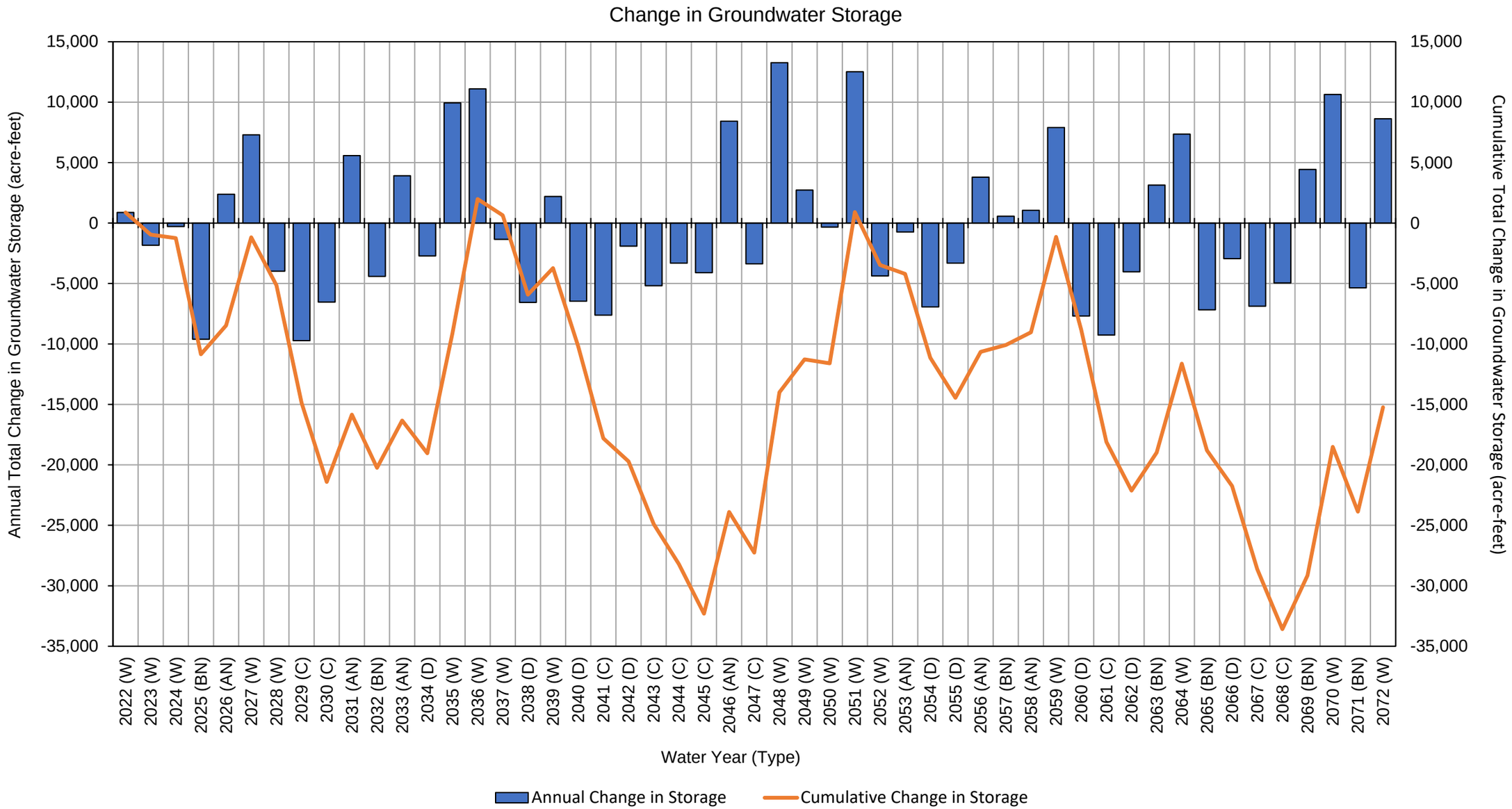
WY (Type)	Subsurface Flows from Uplands
2022 (W)	280
2023 (W)	280
2024 (W)	280
2025 (BN)	270
2026 (AN)	280
2027 (W)	280
2028 (W)	280
2029 (C)	270
2030 (C)	260
2031 (AN)	270
2032 (BN)	270
2033 (AN)	270
2034 (D)	270
2035 (W)	280
2036 (W)	290
2037 (W)	290
2038 (D)	280
2039 (W)	280
2040 (D)	270
2041 (C)	260
2042 (D)	260
2043 (C)	260
2044 (C)	260
2045 (C)	260
2046 (AN)	270
2047 (C)	270
2048 (W)	280
2049 (W)	280
2050 (W)	280
2051 (W)	290
2052 (W)	280
2053 (AN)	270
2054 (D)	270
2055 (D)	270
2056 (AN)	270
2057 (BN)	280
2058 (AN)	270
2059 (W)	280
2060 (D)	270
2061 (C)	270
2062 (D)	260
2063 (BN)	270

Antelope Subbasin Projected (Current Land Use) with Climate Change (2030) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		270
2065 (BN)		270
2066 (D)		270
2067 (C)		260
2068 (C)		270
2069 (BN)		270
2070 (W)		280
2071 (BN)		270
2072 (W)		280
Average (2022-2072)		270
2022-2072	W	280
	AN	270
	BN	270
	D	270
	C	260

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Antelope Subbasin Projected (Current Land Use) with Climate Change (2030) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	870	870
2023 (W)	-1,800	-960
2024 (W)	-290	-1,200
2025 (BN)	-9,600	-11,000
2026 (AN)	2,400	-8,500
2027 (W)	7,300	-1,200
2028 (W)	-4,000	-5,200
2029 (C)	-9,700	-15,000
2030 (C)	-6,500	-21,000
2031 (AN)	5,600	-16,000
2032 (BN)	-4,400	-20,000
2033 (AN)	3,900	-16,000
2034 (D)	-2,700	-19,000
2035 (W)	9,900	-9,100
2036 (W)	11,000	2,000
2037 (W)	-1,300	640
2038 (D)	-6,600	-5,900
2039 (W)	2,200	-3,700
2040 (D)	-6,500	-10,000
2041 (C)	-7,600	-18,000
2042 (D)	-1,900	-20,000
2043 (C)	-5,200	-25,000
2044 (C)	-3,300	-28,000
2045 (C)	-4,100	-32,000
2046 (AN)	8,400	-24,000
2047 (C)	-3,400	-27,000
2048 (W)	13,000	-14,000
2049 (W)	2,700	-11,000
2050 (W)	-330	-12,000
2051 (W)	13,000	910
2052 (W)	-4,400	-3,500
2053 (AN)	-740	-4,200
2054 (D)	-6,900	-11,000
2055 (D)	-3,300	-14,000
2056 (AN)	3,800	-11,000
2057 (BN)	560	-10,000
2058 (AN)	1,100	-9,000
2059 (W)	7,900	-1,100
2060 (D)	-7,700	-8,800
2061 (C)	-9,300	-18,000
2062 (D)	-4,000	-22,000
2063 (BN)	3,100	-19,000

Antelope Subbasin Projected (Current Land Use) with Climate Change (2030) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		7,400	-12,000
2065 (BN)		-7,200	-19,000
2066 (D)		-2,900	-22,000
2067 (C)		-6,900	-29,000
2068 (C)		-5,000	-34,000
2069 (BN)		4,400	-29,000
2070 (W)		11,000	-19,000
2071 (BN)		-5,400	-24,000
2072 (W)		8,600	-15,000
Average (2022-2072)		-300	
2022-2072	W		
	AN		
	BN		
	D		
	C		

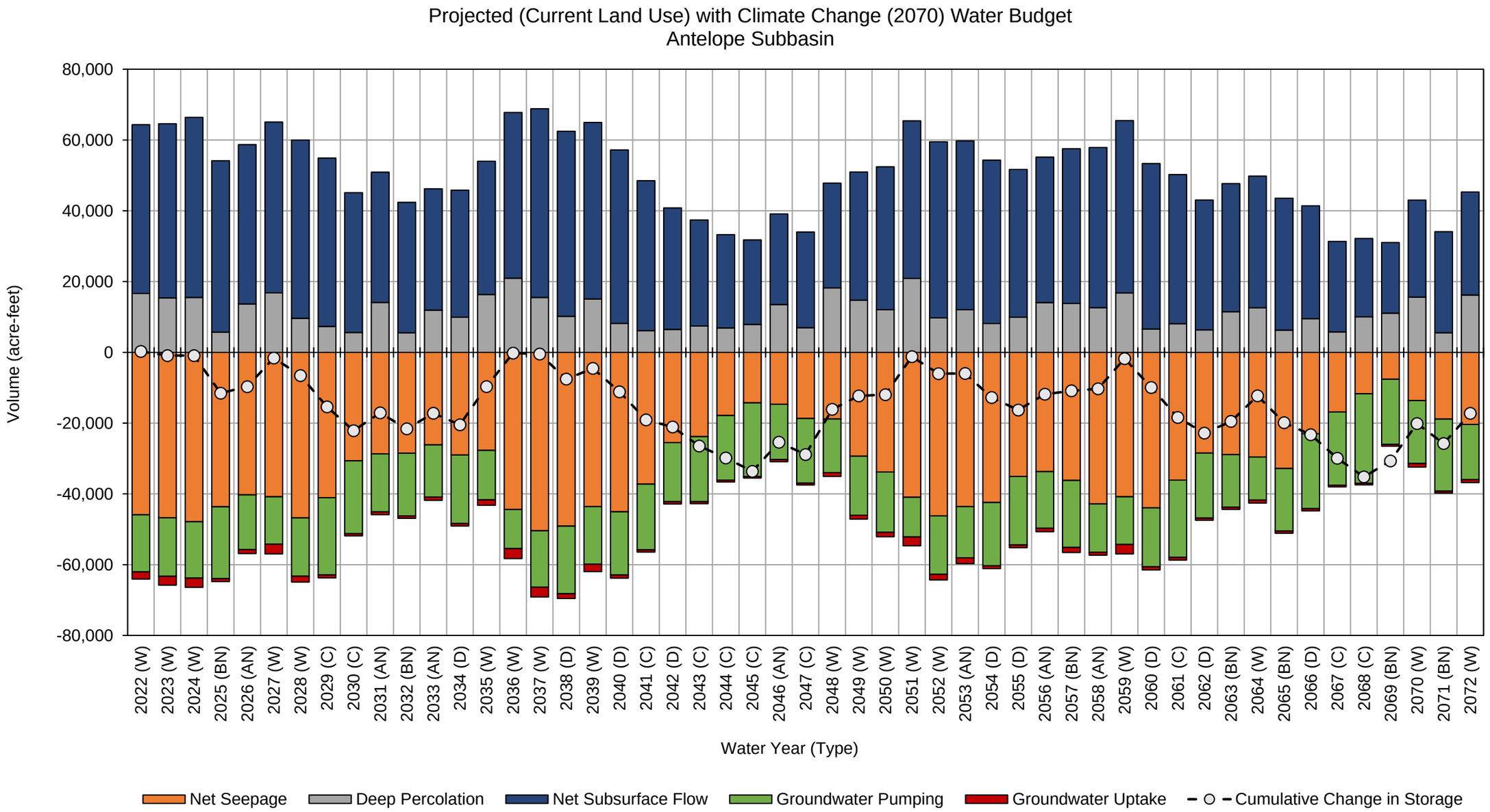
Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX A-5

Detailed Antelope Subbasin Water Budget Results:

Projected (Current Land Use) with Climate Change (2070) Model Results


Projected (Current Land Use) with Climate Change (2070) Water Budget
Antelope Subbasin
Volume (acre-feet)
80,000
60,000
40,000
20,000
0
-20,000
-40,000
-60,000
-80,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Antelope Subbasin Projected (Current Land Use) with Climate Change (2070) Water Budget Summary (acre-feet, rounded)

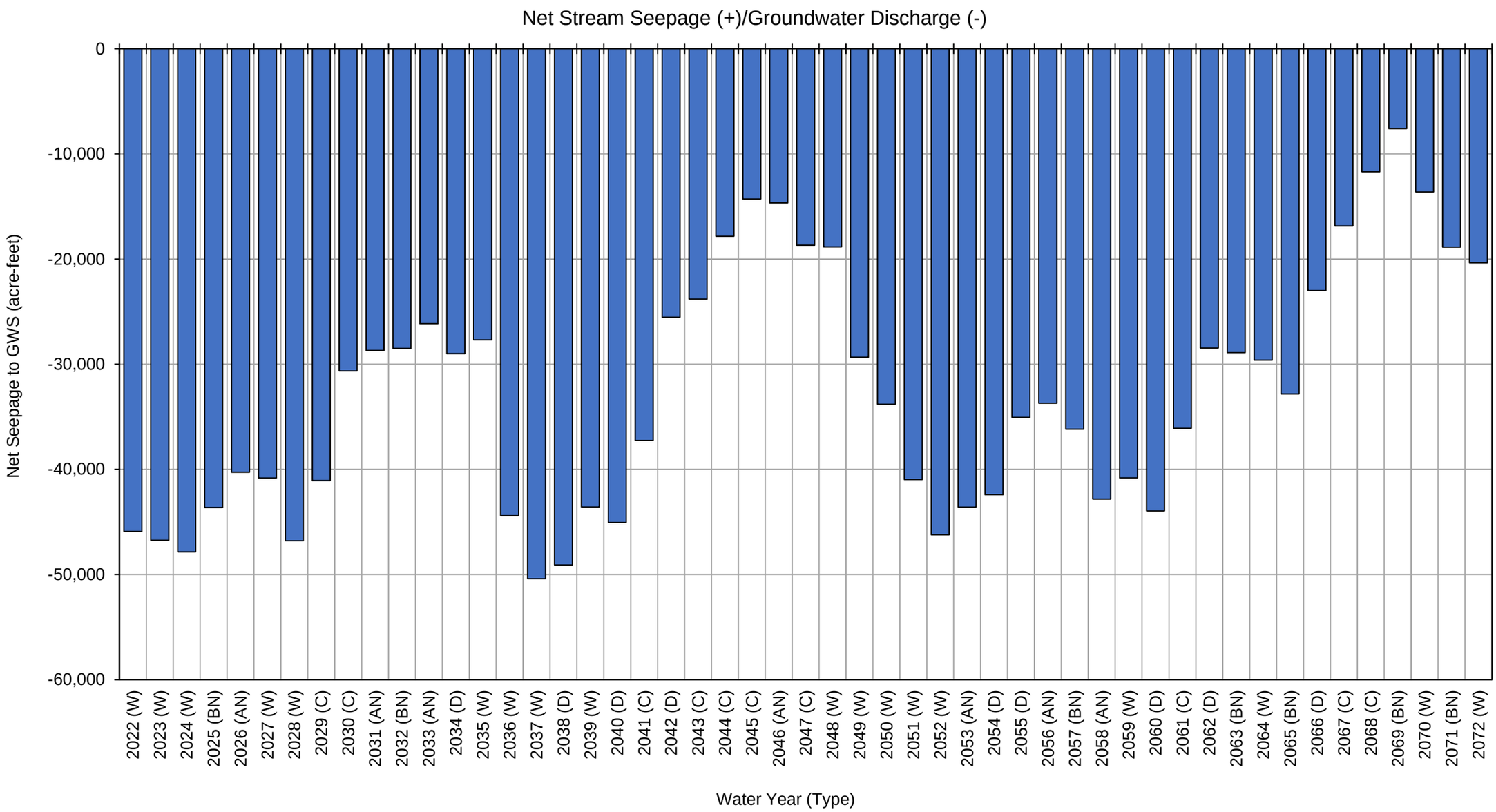
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	-46,000	17,000	-16,000	-2,000	48,000	270	270
2023 (W)	-47,000	15,000	-17,000	-2,500	49,000	-1,200	-910
2024 (W)	-48,000	16,000	-16,000	-2,600	51,000	-10	-920
2025 (BN)	-44,000	5,700	-20,000	-810	48,000	-11,000	-12,000
2026 (AN)	-40,000	14,000	-15,000	-1,100	45,000	1,800	-9,700
2027 (W)	-41,000	17,000	-13,000	-2,700	48,000	8,100	-1,600
2028 (W)	-47,000	9,600	-16,000	-1,700	50,000	-5,000	-6,500
2029 (C)	-41,000	7,300	-22,000	-830	48,000	-8,800	-15,000
2030 (C)	-31,000	5,600	-21,000	-600	39,000	-6,800	-22,000
2031 (AN)	-29,000	14,000	-16,000	-790	37,000	5,000	-17,000
2032 (BN)	-28,000	5,500	-18,000	-630	37,000	-4,500	-22,000
2033 (AN)	-26,000	12,000	-15,000	-930	34,000	4,400	-17,000
2034 (D)	-29,000	9,900	-19,000	-690	36,000	-3,200	-20,000
2035 (W)	-28,000	16,000	-14,000	-1,500	38,000	11,000	-9,700
2036 (W)	-44,000	21,000	-11,000	-2,800	47,000	9,500	-210
2037 (W)	-50,000	16,000	-16,000	-2,800	53,000	-270	-480
2038 (D)	-49,000	10,000	-19,000	-1,300	52,000	-7,100	-7,600
2039 (W)	-44,000	15,000	-16,000	-2,100	50,000	3,000	-4,500
2040 (D)	-45,000	8,200	-18,000	-890	49,000	-6,600	-11,000
2041 (C)	-37,000	6,100	-19,000	-620	42,000	-7,900	-19,000
2042 (D)	-26,000	6,500	-17,000	-650	34,000	-2,000	-21,000
2043 (C)	-24,000	7,400	-18,000	-550	30,000	-5,400	-26,000
2044 (C)	-18,000	6,900	-18,000	-510	26,000	-3,400	-30,000
2045 (C)	-14,000	7,900	-21,000	-470	24,000	-3,800	-34,000
2046 (AN)	-15,000	14,000	-16,000	-620	26,000	8,200	-25,000
2047 (C)	-19,000	7,000	-18,000	-510	27,000	-3,500	-29,000
2048 (W)	-19,000	18,000	-15,000	-1,100	30,000	13,000	-16,000
2049 (W)	-29,000	15,000	-17,000	-1,100	36,000	3,800	-12,000
2050 (W)	-34,000	12,000	-17,000	-1,200	40,000	330	-12,000
2051 (W)	-41,000	21,000	-11,000	-2,500	45,000	11,000	-1,200
2052 (W)	-46,000	9,700	-16,000	-1,600	50,000	-4,800	-6,000
2053 (AN)	-44,000	12,000	-14,000	-1,600	48,000	53	-6,000
2054 (D)	-42,000	8,200	-18,000	-800	46,000	-6,800	-13,000
2055 (D)	-35,000	9,900	-19,000	-780	42,000	-3,500	-16,000
2056 (AN)	-34,000	14,000	-16,000	-980	41,000	4,400	-12,000
2057 (BN)	-36,000	14,000	-19,000	-1,400	44,000	970	-11,000
2058 (AN)	-43,000	13,000	-14,000	-810	45,000	570	-10,000
2059 (W)	-41,000	17,000	-13,000	-2,700	49,000	8,500	-1,800
2060 (D)	-44,000	6,600	-17,000	-880	47,000	-8,200	-9,900
2061 (C)	-36,000	8,100	-22,000	-750	42,000	-8,500	-18,000
2062 (D)	-28,000	6,300	-18,000	-600	37,000	-4,400	-23,000
2063 (BN)	-29,000	11,000	-15,000	-620	36,000	3,300	-20,000
2064 (W)	-30,000	13,000	-12,000	-840	37,000	7,200	-12,000
2065 (BN)	-33,000	6,300	-18,000	-650	37,000	-7,600	-20,000

Antelope Subbasin Projected (Current Land Use) with Climate Change (2070) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-23,000	9,500	-21,000	-600	32,000	-3,400	-23,000
2067 (C)		-17,000	5,800	-21,000	-500	26,000	-6,700	-30,000
2068 (C)		-12,000	10,000	-25,000	-430	22,000	-5,300	-35,000
2069 (BN)		-7,600	11,000	-18,000	-490	20,000	4,500	-31,000
2070 (W)		-14,000	16,000	-18,000	-1,000	27,000	11,000	-20,000
2071 (BN)		-19,000	5,500	-20,000	-540	29,000	-5,700	-26,000
2072 (W)		-20,000	16,000	-16,000	-810	29,000	8,500	-17,000
Average (2022-2072)		-33,000	11,000	-17,000	-1,100	39,000	-340	
2022-2072	W	-37,000	15,000	-15,000	-1,900	43,000		
	AN	-33,000	13,000	-15,000	-990	39,000		
	BN	-28,000	8,500	-18,000	-740	36,000		
	D	-36,000	8,400	-19,000	-800	42,000		
	C	-25,000	7,200	-20,000	-580	33,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Current Land Use) with Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

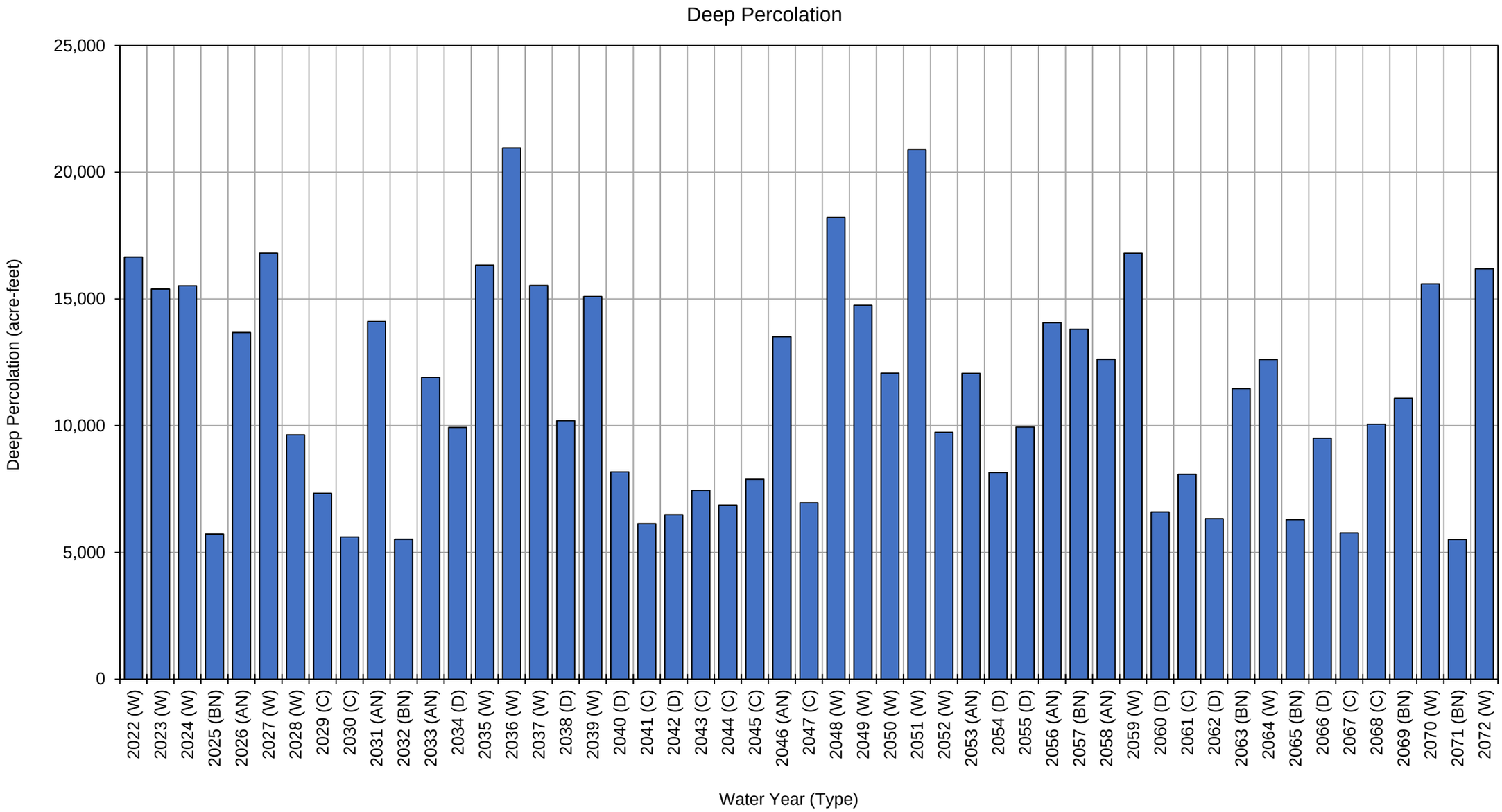
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	-46,000
2023 (W)	-47,000
2024 (W)	-48,000
2025 (BN)	-44,000
2026 (AN)	-40,000
2027 (W)	-41,000
2028 (W)	-47,000
2029 (C)	-41,000
2030 (C)	-31,000
2031 (AN)	-29,000
2032 (BN)	-28,000
2033 (AN)	-26,000
2034 (D)	-29,000
2035 (W)	-28,000
2036 (W)	-44,000
2037 (W)	-50,000
2038 (D)	-49,000
2039 (W)	-44,000
2040 (D)	-45,000
2041 (C)	-37,000
2042 (D)	-26,000
2043 (C)	-24,000
2044 (C)	-18,000
2045 (C)	-14,000
2046 (AN)	-15,000
2047 (C)	-19,000
2048 (W)	-19,000
2049 (W)	-29,000
2050 (W)	-34,000
2051 (W)	-41,000
2052 (W)	-46,000
2053 (AN)	-44,000
2054 (D)	-42,000
2055 (D)	-35,000
2056 (AN)	-34,000
2057 (BN)	-36,000
2058 (AN)	-43,000
2059 (W)	-41,000
2060 (D)	-44,000
2061 (C)	-36,000
2062 (D)	-28,000
2063 (BN)	-29,000

Antelope Subbasin Projected (Current Land Use) with Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		-30,000
2065 (BN)		-33,000
2066 (D)		-23,000
2067 (C)		-17,000
2068 (C)		-12,000
2069 (BN)		-7,600
2070 (W)		-14,000
2071 (BN)		-19,000
2072 (W)		-20,000
Average (2022-2072)		-33,000
2022-2072	W	-37,000
	AN	-33,000
	BN	-28,000
	D	-36,000
	C	-25,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Current Land Use) with Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

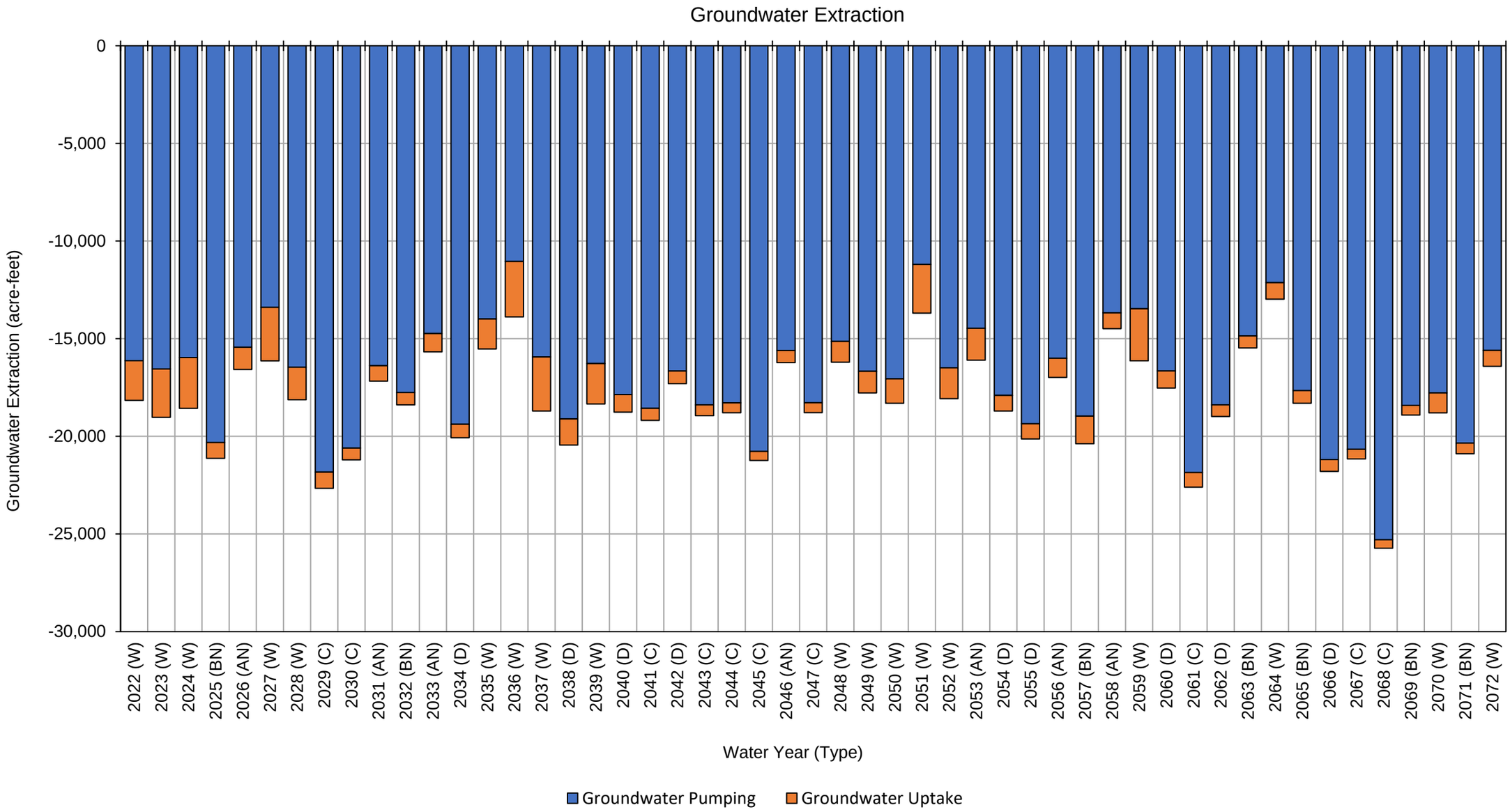
WY (Type)	Deep Percolation from the SWS
2022 (W)	17,000
2023 (W)	15,000
2024 (W)	16,000
2025 (BN)	5,700
2026 (AN)	14,000
2027 (W)	17,000
2028 (W)	9,600
2029 (C)	7,300
2030 (C)	5,600
2031 (AN)	14,000
2032 (BN)	5,500
2033 (AN)	12,000
2034 (D)	9,900
2035 (W)	16,000
2036 (W)	21,000
2037 (W)	16,000
2038 (D)	10,000
2039 (W)	15,000
2040 (D)	8,200
2041 (C)	6,100
2042 (D)	6,500
2043 (C)	7,400
2044 (C)	6,900
2045 (C)	7,900
2046 (AN)	14,000
2047 (C)	7,000
2048 (W)	18,000
2049 (W)	15,000
2050 (W)	12,000
2051 (W)	21,000
2052 (W)	9,700
2053 (AN)	12,000
2054 (D)	8,200
2055 (D)	9,900
2056 (AN)	14,000
2057 (BN)	14,000
2058 (AN)	13,000
2059 (W)	17,000
2060 (D)	6,600
2061 (C)	8,100
2062 (D)	6,300
2063 (BN)	11,000

Antelope Subbasin Projected (Current Land Use) with Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		13,000
2065 (BN)		6,300
2066 (D)		9,500
2067 (C)		5,800
2068 (C)		10,000
2069 (BN)		11,000
2070 (W)		16,000
2071 (BN)		5,500
2072 (W)		16,000
Average (2022-2072)		11,000
2022-2072	W	15,000
	AN	13,000
	BN	8,500
	D	8,400
	C	7,200

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Current Land Use) with Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

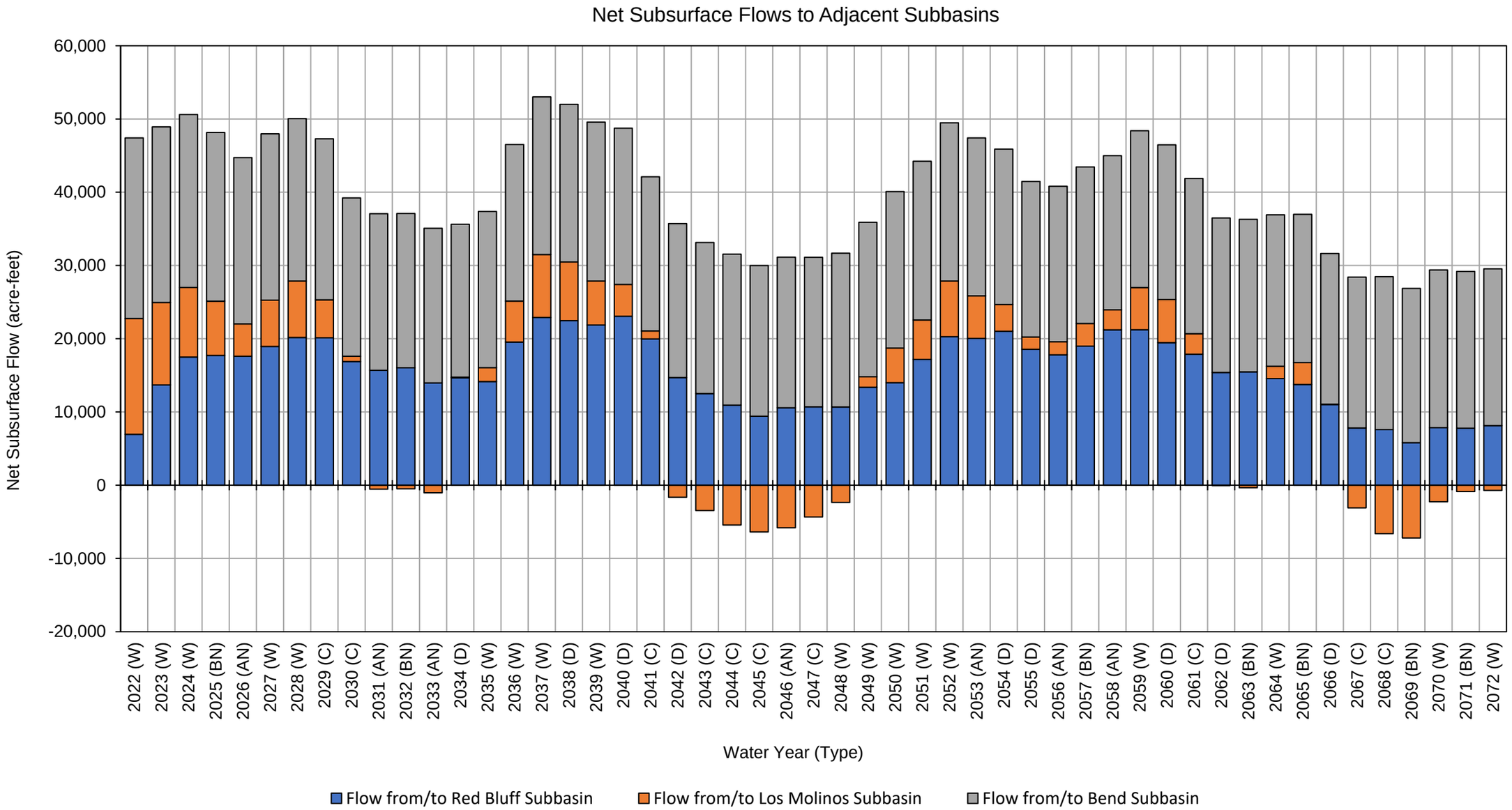
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-16,000	-2,000	-18,000
2023 (W)	-17,000	-2,500	-19,000
2024 (W)	-16,000	-2,600	-19,000
2025 (BN)	-20,000	-810	-21,000
2026 (AN)	-15,000	-1,100	-17,000
2027 (W)	-13,000	-2,700	-16,000
2028 (W)	-16,000	-1,700	-18,000
2029 (C)	-22,000	-830	-23,000
2030 (C)	-21,000	-600	-21,000
2031 (AN)	-16,000	-790	-17,000
2032 (BN)	-18,000	-630	-18,000
2033 (AN)	-15,000	-930	-16,000
2034 (D)	-19,000	-690	-20,000
2035 (W)	-14,000	-1,500	-16,000
2036 (W)	-11,000	-2,800	-14,000
2037 (W)	-16,000	-2,800	-19,000
2038 (D)	-19,000	-1,300	-20,000
2039 (W)	-16,000	-2,100	-18,000
2040 (D)	-18,000	-890	-19,000
2041 (C)	-19,000	-620	-19,000
2042 (D)	-17,000	-650	-17,000
2043 (C)	-18,000	-550	-19,000
2044 (C)	-18,000	-510	-19,000
2045 (C)	-21,000	-470	-21,000
2046 (AN)	-16,000	-620	-16,000
2047 (C)	-18,000	-510	-19,000
2048 (W)	-15,000	-1,100	-16,000
2049 (W)	-17,000	-1,100	-18,000
2050 (W)	-17,000	-1,200	-18,000
2051 (W)	-11,000	-2,500	-14,000
2052 (W)	-16,000	-1,600	-18,000
2053 (AN)	-14,000	-1,600	-16,000
2054 (D)	-18,000	-800	-19,000
2055 (D)	-19,000	-780	-20,000
2056 (AN)	-16,000	-980	-17,000
2057 (BN)	-19,000	-1,400	-20,000
2058 (AN)	-14,000	-810	-14,000
2059 (W)	-13,000	-2,700	-16,000
2060 (D)	-17,000	-880	-18,000
2061 (C)	-22,000	-750	-23,000
2062 (D)	-18,000	-600	-19,000
2063 (BN)	-15,000	-620	-15,000

Antelope Subbasin Projected (Current Land Use) with Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-12,000	-840	-13,000
2065 (BN)		-18,000	-650	-18,000
2066 (D)		-21,000	-600	-22,000
2067 (C)		-21,000	-500	-21,000
2068 (C)		-25,000	-430	-26,000
2069 (BN)		-18,000	-490	-19,000
2070 (W)		-18,000	-1,000	-19,000
2071 (BN)		-20,000	-540	-21,000
2072 (W)		-16,000	-810	-16,000
Average (2022-2072)		-17,000	-1,100	-18,000
2022-2072	W	-15,000	-1,900	-17,000
	AN	-15,000	-990	-16,000
	BN	-18,000	-740	-19,000
	D	-19,000	-800	-19,000
	C	-20,000	-580	-21,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Current Land Use) with Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

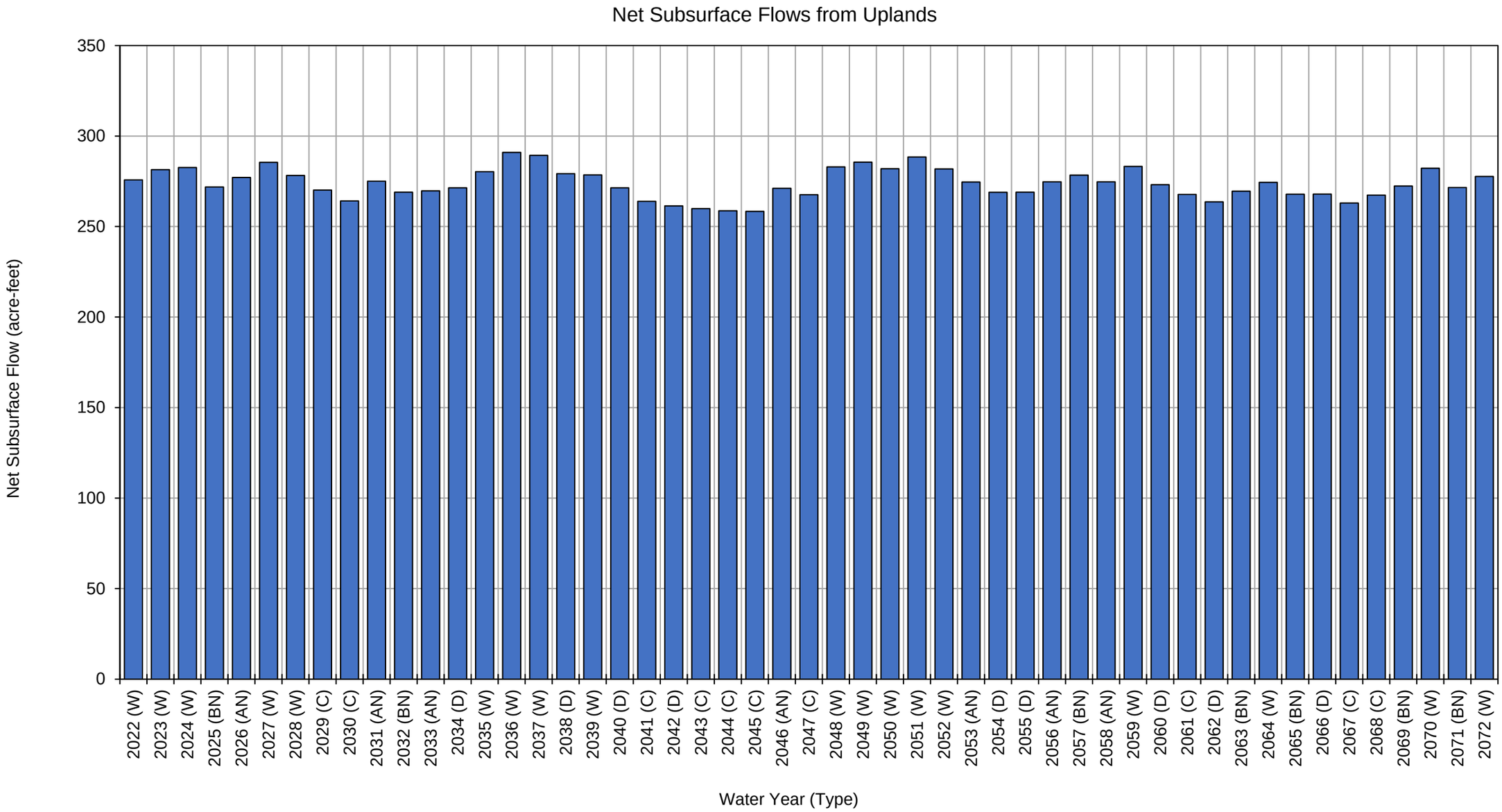
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	6,900	16,000	25,000	47,000
2023 (W)	14,000	11,000	24,000	49,000
2024 (W)	17,000	9,500	24,000	51,000
2025 (BN)	18,000	7,400	23,000	48,000
2026 (AN)	18,000	4,400	23,000	45,000
2027 (W)	19,000	6,300	23,000	48,000
2028 (W)	20,000	7,700	22,000	50,000
2029 (C)	20,000	5,200	22,000	47,000
2030 (C)	17,000	720	22,000	39,000
2031 (AN)	16,000	-550	21,000	37,000
2032 (BN)	16,000	-500	21,000	37,000
2033 (AN)	14,000	-1,000	21,000	34,000
2034 (D)	15,000	92	21,000	36,000
2035 (W)	14,000	1,900	21,000	37,000
2036 (W)	20,000	5,600	21,000	47,000
2037 (W)	23,000	8,600	22,000	53,000
2038 (D)	22,000	8,000	22,000	52,000
2039 (W)	22,000	6,000	22,000	50,000
2040 (D)	23,000	4,300	21,000	49,000
2041 (C)	20,000	1,100	21,000	42,000
2042 (D)	15,000	-1,600	21,000	34,000
2043 (C)	13,000	-3,500	21,000	30,000
2044 (C)	11,000	-5,400	21,000	26,000
2045 (C)	9,400	-6,400	21,000	24,000
2046 (AN)	11,000	-5,800	21,000	25,000
2047 (C)	11,000	-4,300	20,000	27,000
2048 (W)	11,000	-2,400	21,000	29,000
2049 (W)	13,000	1,400	21,000	36,000
2050 (W)	14,000	4,700	21,000	40,000
2051 (W)	17,000	5,400	22,000	44,000
2052 (W)	20,000	7,600	22,000	49,000
2053 (AN)	20,000	5,800	22,000	47,000
2054 (D)	21,000	3,600	21,000	46,000
2055 (D)	19,000	1,700	21,000	41,000
2056 (AN)	18,000	1,800	21,000	41,000
2057 (BN)	19,000	3,100	21,000	43,000
2058 (AN)	21,000	2,700	21,000	45,000
2059 (W)	21,000	5,800	21,000	48,000
2060 (D)	19,000	5,900	21,000	46,000
2061 (C)	18,000	2,800	21,000	42,000
2062 (D)	15,000	-38	21,000	36,000
2063 (BN)	15,000	-350	21,000	36,000

Antelope Subbasin Projected (Current Land Use) with Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2064 (W)		15,000	1,700	21,000	37,000
2065 (BN)		14,000	3,000	20,000	37,000
2066 (D)		11,000	41	21,000	32,000
2067 (C)		7,800	-3,100	21,000	25,000
2068 (C)		7,600	-6,600	21,000	22,000
2069 (BN)		5,800	-7,200	21,000	20,000
2070 (W)		7,900	-2,300	22,000	27,000
2071 (BN)		7,800	-860	21,000	28,000
2072 (W)		8,100	-710	21,000	29,000
Average (2022-2072)		15,000	2,100	21,000	39,000
2022-2072	W	16,000	5,200	22,000	43,000
	AN	17,000	1,000	21,000	39,000
	BN	14,000	660	21,000	36,000
	D	18,000	2,400	21,000	41,000
	C	13,000	-2,000	21,000	32,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Current Land Use) with Climate Change (2070) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

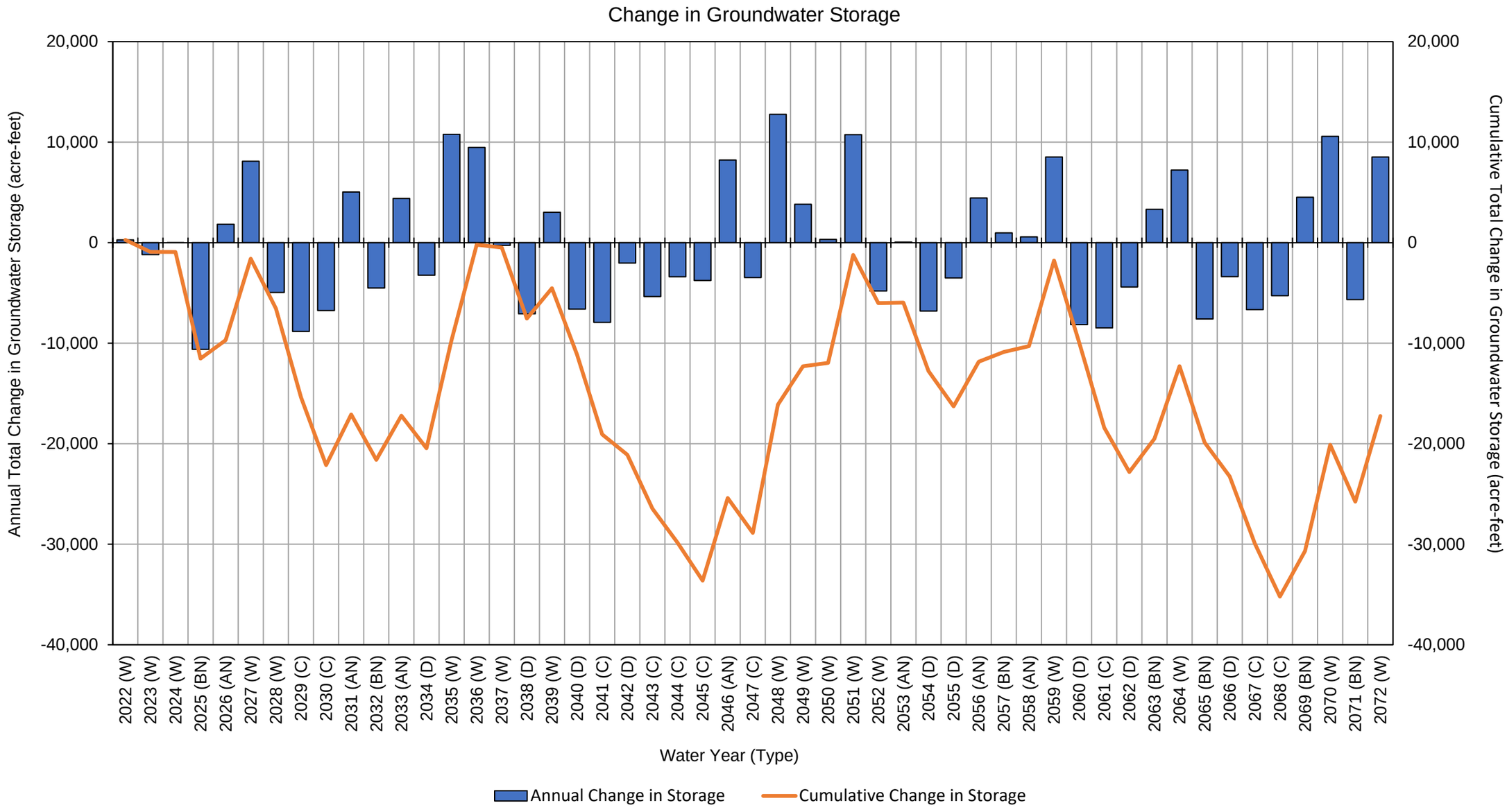
WY (Type)	Subsurface Flows from Uplands
2022 (W)	280
2023 (W)	280
2024 (W)	280
2025 (BN)	270
2026 (AN)	280
2027 (W)	290
2028 (W)	280
2029 (C)	270
2030 (C)	260
2031 (AN)	280
2032 (BN)	270
2033 (AN)	270
2034 (D)	270
2035 (W)	280
2036 (W)	290
2037 (W)	290
2038 (D)	280
2039 (W)	280
2040 (D)	270
2041 (C)	260
2042 (D)	260
2043 (C)	260
2044 (C)	260
2045 (C)	260
2046 (AN)	270
2047 (C)	270
2048 (W)	280
2049 (W)	290
2050 (W)	280
2051 (W)	290
2052 (W)	280
2053 (AN)	270
2054 (D)	270
2055 (D)	270
2056 (AN)	270
2057 (BN)	280
2058 (AN)	270
2059 (W)	280
2060 (D)	270
2061 (C)	270
2062 (D)	260
2063 (BN)	270

Antelope Subbasin Projected (Current Land Use) with Climate Change (2070) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		270
2065 (BN)		270
2066 (D)		270
2067 (C)		260
2068 (C)		270
2069 (BN)		270
2070 (W)		280
2071 (BN)		270
2072 (W)		280
Average (2022-2072)		270
2022-2072	W	280
	AN	270
	BN	270
	D	270
	C	260

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Current Land Use) with Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	270	270
2023 (W)	-1,200	-910
2024 (W)	-10	-920
2025 (BN)	-11,000	-12,000
2026 (AN)	1,800	-9,700
2027 (W)	8,100	-1,600
2028 (W)	-5,000	-6,500
2029 (C)	-8,800	-15,000
2030 (C)	-6,800	-22,000
2031 (AN)	5,000	-17,000
2032 (BN)	-4,500	-22,000
2033 (AN)	4,400	-17,000
2034 (D)	-3,200	-20,000
2035 (W)	11,000	-9,700
2036 (W)	9,500	-210
2037 (W)	-270	-480
2038 (D)	-7,100	-7,600
2039 (W)	3,000	-4,500
2040 (D)	-6,600	-11,000
2041 (C)	-7,900	-19,000
2042 (D)	-2,000	-21,000
2043 (C)	-5,400	-26,000
2044 (C)	-3,400	-30,000
2045 (C)	-3,800	-34,000
2046 (AN)	8,200	-25,000
2047 (C)	-3,500	-29,000
2048 (W)	13,000	-16,000
2049 (W)	3,800	-12,000
2050 (W)	330	-12,000
2051 (W)	11,000	-1,200
2052 (W)	-4,800	-6,000
2053 (AN)	53	-6,000
2054 (D)	-6,800	-13,000
2055 (D)	-3,500	-16,000
2056 (AN)	4,400	-12,000
2057 (BN)	970	-11,000
2058 (AN)	570	-10,000
2059 (W)	8,500	-1,800
2060 (D)	-8,200	-9,900
2061 (C)	-8,500	-18,000
2062 (D)	-4,400	-23,000
2063 (BN)	3,300	-20,000

Antelope Subbasin Projected (Current Land Use) with Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		7,200	-12,000
2065 (BN)		-7,600	-20,000
2066 (D)		-3,400	-23,000
2067 (C)		-6,700	-30,000
2068 (C)		-5,300	-35,000
2069 (BN)		4,500	-31,000
2070 (W)		11,000	-20,000
2071 (BN)		-5,700	-26,000
2072 (W)		8,500	-17,000
Average (2022-2072)		-340	
2022-2072	W		
	AN		
	BN		
	D		
	C		

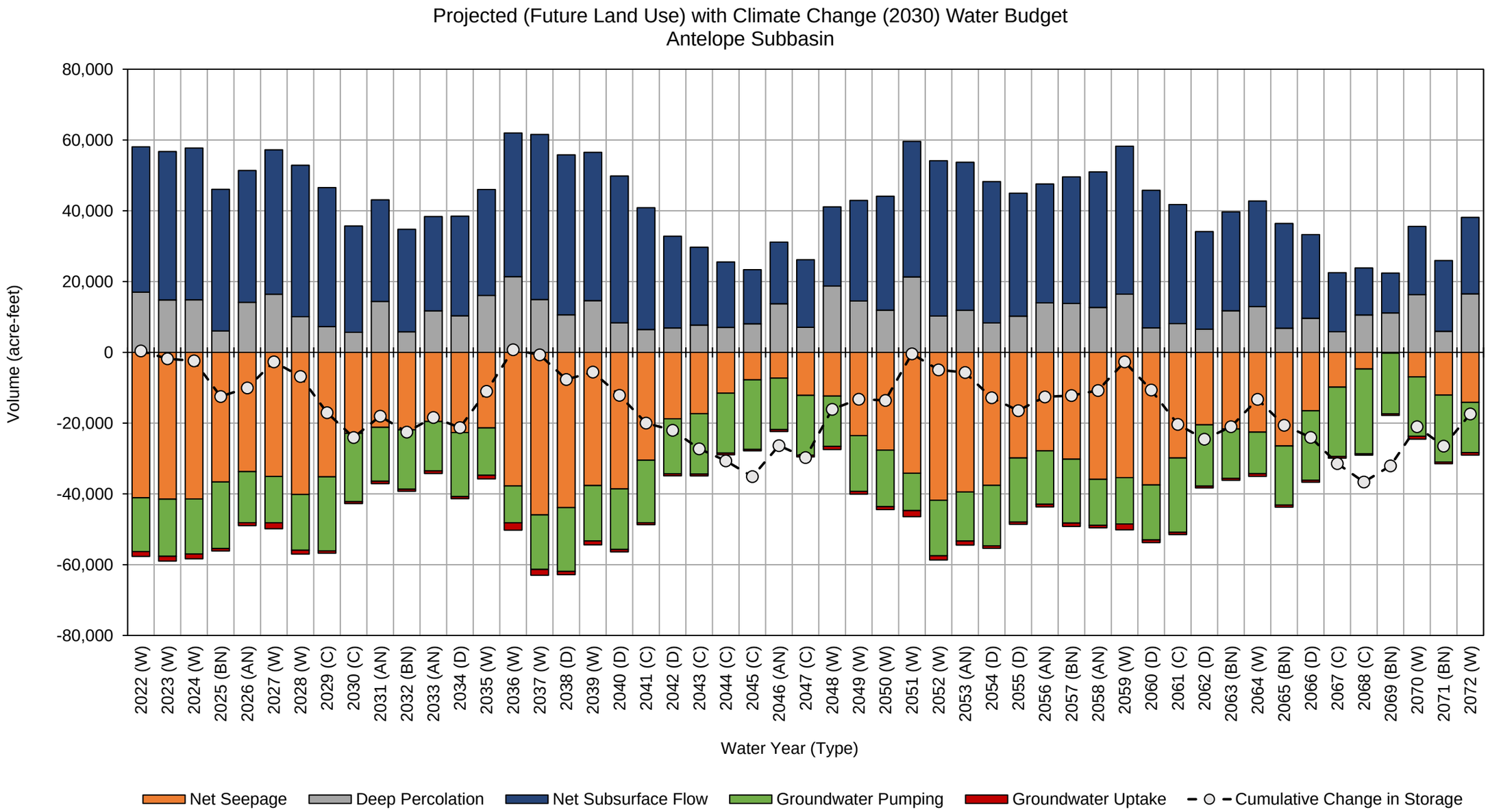
Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX A-6

Detailed Antelope Subbasin Water Budget Results:

Projected (Future Land Use) with Climate Change (2030) Model Results


Projected (Future Land Use) with Climate Change (2030) Water Budget
Antelope Subbasin
Volume (acre-feet)
80,000
60,000
40,000
20,000
0
-20,000
-40,000
-60,000
-80,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Antelope Subbasin Projected (Future Land Use) with Climate Change (2030) Water Budget Summary (acre-feet, rounded)

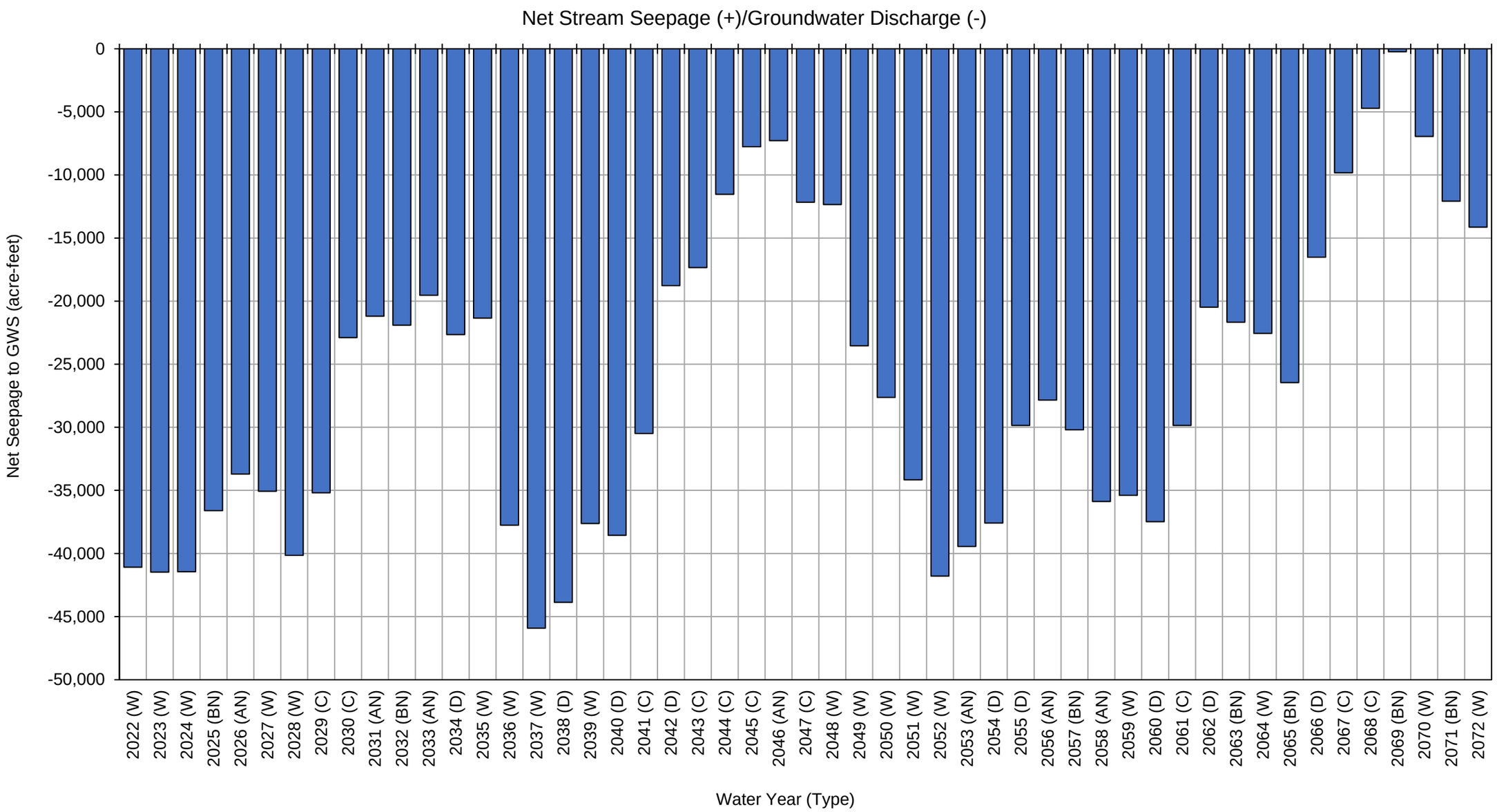
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	-41,000	17,000	-15,000	-1,400	41,000	420	420
2023 (W)	-41,000	15,000	-16,000	-1,400	42,000	-2,200	-1,800
2024 (W)	-41,000	15,000	-16,000	-1,400	43,000	-580	-2,400
2025 (BN)	-37,000	6,100	-19,000	-670	40,000	-10,000	-12,000
2026 (AN)	-34,000	14,000	-14,000	-820	37,000	2,400	-10,000
2027 (W)	-35,000	16,000	-13,000	-1,700	41,000	7,400	-2,700
2028 (W)	-40,000	10,000	-16,000	-1,100	43,000	-4,100	-6,800
2029 (C)	-35,000	7,300	-21,000	-660	39,000	-10,000	-17,000
2030 (C)	-23,000	5,600	-19,000	-530	30,000	-7,000	-24,000
2031 (AN)	-21,000	14,000	-15,000	-650	29,000	6,000	-18,000
2032 (BN)	-22,000	5,800	-17,000	-560	29,000	-4,500	-23,000
2033 (AN)	-20,000	12,000	-14,000	-740	27,000	4,100	-18,000
2034 (D)	-23,000	10,000	-18,000	-600	28,000	-2,900	-21,000
2035 (W)	-21,000	16,000	-13,000	-1,100	30,000	10,000	-11,000
2036 (W)	-38,000	21,000	-10,000	-2,000	41,000	12,000	740
2037 (W)	-46,000	15,000	-15,000	-1,700	47,000	-1,400	-690
2038 (D)	-44,000	11,000	-18,000	-890	45,000	-7,000	-7,700
2039 (W)	-38,000	15,000	-16,000	-1,100	42,000	2,100	-5,600
2040 (D)	-39,000	8,300	-17,000	-700	41,000	-6,600	-12,000
2041 (C)	-30,000	6,500	-18,000	-560	34,000	-7,800	-20,000
2042 (D)	-19,000	6,900	-16,000	-570	26,000	-2,100	-22,000
2043 (C)	-17,000	7,700	-17,000	-490	22,000	-5,200	-27,000
2044 (C)	-12,000	7,000	-17,000	-460	18,000	-3,400	-31,000
2045 (C)	-7,800	8,100	-20,000	-420	15,000	-4,500	-35,000
2046 (AN)	-7,300	14,000	-15,000	-530	17,000	8,800	-26,000
2047 (C)	-12,000	7,100	-17,000	-460	19,000	-3,400	-30,000
2048 (W)	-12,000	19,000	-14,000	-890	22,000	14,000	-16,000
2049 (W)	-24,000	15,000	-16,000	-810	28,000	2,900	-13,000
2050 (W)	-28,000	12,000	-16,000	-840	32,000	-340	-14,000
2051 (W)	-34,000	21,000	-11,000	-1,700	38,000	13,000	-410
2052 (W)	-42,000	10,000	-16,000	-1,200	44,000	-4,500	-4,900
2053 (AN)	-39,000	12,000	-14,000	-1,100	42,000	-750	-5,700
2054 (D)	-38,000	8,300	-17,000	-670	40,000	-7,100	-13,000
2055 (D)	-30,000	10,000	-18,000	-670	35,000	-3,600	-16,000
2056 (AN)	-28,000	14,000	-15,000	-750	34,000	3,900	-13,000
2057 (BN)	-30,000	14,000	-18,000	-940	36,000	390	-12,000
2058 (AN)	-36,000	13,000	-13,000	-690	38,000	1,400	-11,000
2059 (W)	-35,000	16,000	-13,000	-1,700	42,000	8,100	-2,700
2060 (D)	-37,000	6,900	-16,000	-730	39,000	-8,000	-11,000
2061 (C)	-30,000	8,100	-21,000	-610	34,000	-9,700	-20,000
2062 (D)	-20,000	6,500	-17,000	-520	28,000	-4,200	-25,000
2063 (BN)	-22,000	12,000	-14,000	-520	28,000	3,500	-21,000
2064 (W)	-23,000	13,000	-12,000	-710	30,000	7,700	-13,000
2065 (BN)	-26,000	6,800	-17,000	-580	30,000	-7,300	-21,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2030) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-17,000	9,600	-20,000	-540	24,000	-3,400	-24,000
2067 (C)		-9,800	5,800	-20,000	-450	17,000	-7,400	-31,000
2068 (C)		-4,700	11,000	-24,000	-390	13,000	-5,200	-37,000
2069 (BN)		-230	11,000	-17,000	-420	11,000	4,600	-32,000
2070 (W)		-6,900	16,000	-17,000	-800	19,000	11,000	-21,000
2071 (BN)		-12,000	5,900	-19,000	-490	20,000	-5,500	-26,000
2072 (W)		-14,000	17,000	-14,000	-680	22,000	9,100	-17,000
Average (2022-2072)		-26,000	11,000	-16,000	-830	32,000	-340	
2022-2072	W	-31,000	16,000	-14,000	-1,200	36,000		
	AN	-26,000	13,000	-14,000	-760	32,000		
	BN	-21,000	8,800	-17,000	-600	28,000		
	D	-30,000	8,600	-17,000	-650	34,000		
	C	-18,000	7,400	-19,000	-500	24,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2030) Net Stream Seepage (net flows as acre-feet, rounded)

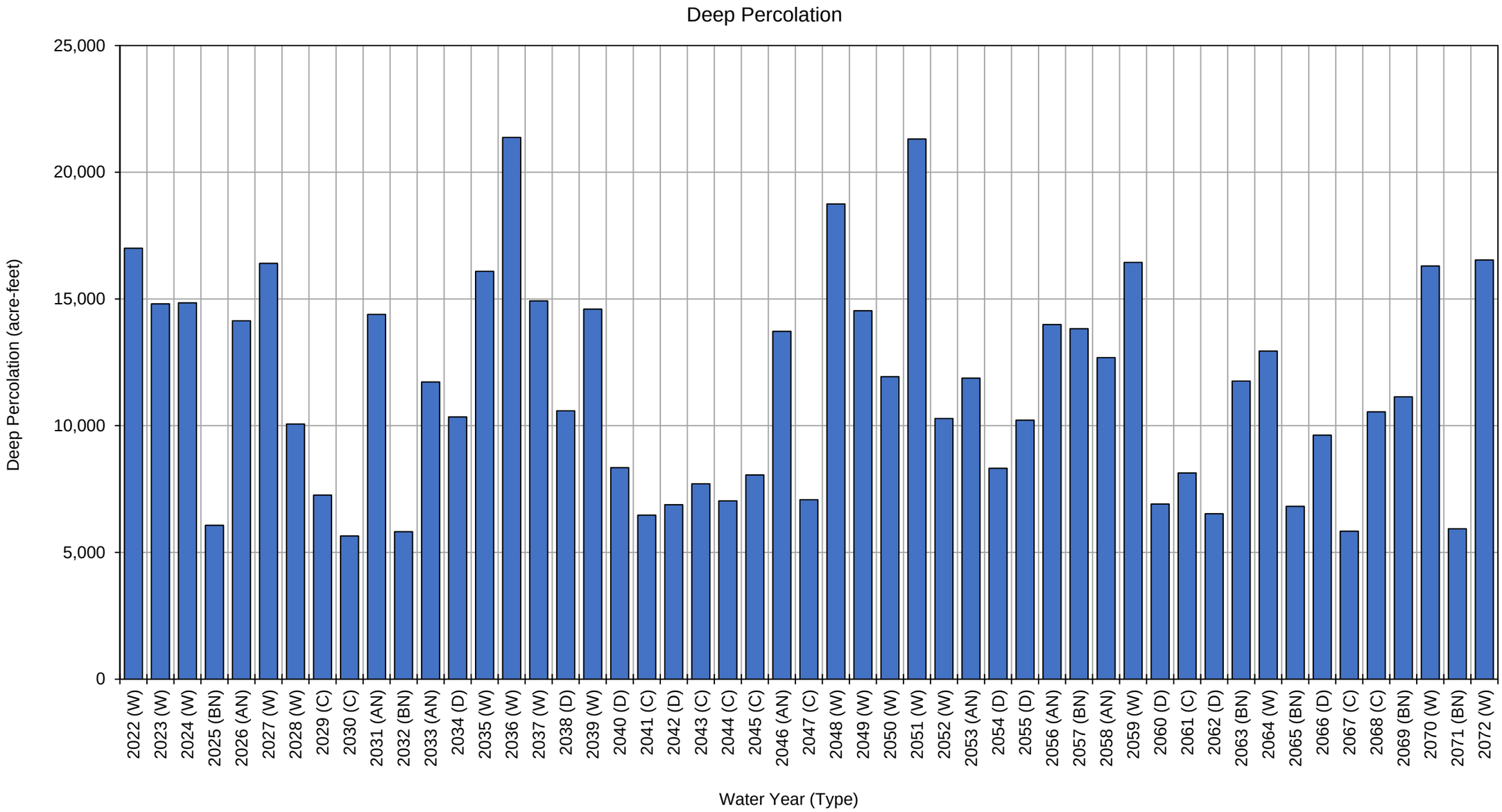
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	-41,000
2023 (W)	-41,000
2024 (W)	-41,000
2025 (BN)	-37,000
2026 (AN)	-34,000
2027 (W)	-35,000
2028 (W)	-40,000
2029 (C)	-35,000
2030 (C)	-23,000
2031 (AN)	-21,000
2032 (BN)	-22,000
2033 (AN)	-20,000
2034 (D)	-23,000
2035 (W)	-21,000
2036 (W)	-38,000
2037 (W)	-46,000
2038 (D)	-44,000
2039 (W)	-38,000
2040 (D)	-39,000
2041 (C)	-30,000
2042 (D)	-19,000
2043 (C)	-17,000
2044 (C)	-12,000
2045 (C)	-7,800
2046 (AN)	-7,300
2047 (C)	-12,000
2048 (W)	-12,000
2049 (W)	-24,000
2050 (W)	-28,000
2051 (W)	-34,000
2052 (W)	-42,000
2053 (AN)	-39,000
2054 (D)	-38,000
2055 (D)	-30,000
2056 (AN)	-28,000
2057 (BN)	-30,000
2058 (AN)	-36,000
2059 (W)	-35,000
2060 (D)	-37,000
2061 (C)	-30,000
2062 (D)	-20,000
2063 (BN)	-22,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2030) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		-23,000
2065 (BN)		-26,000
2066 (D)		-17,000
2067 (C)		-9,800
2068 (C)		-4,700
2069 (BN)		-230
2070 (W)		-6,900
2071 (BN)		-12,000
2072 (W)		-14,000
Average (2022-2072)		-26,000
2022-2072	W	-31,000
	AN	-26,000
	BN	-21,000
	D	-30,000
	C	-18,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2030) Deep Percolation from the SWS (acre-feet, rounded)

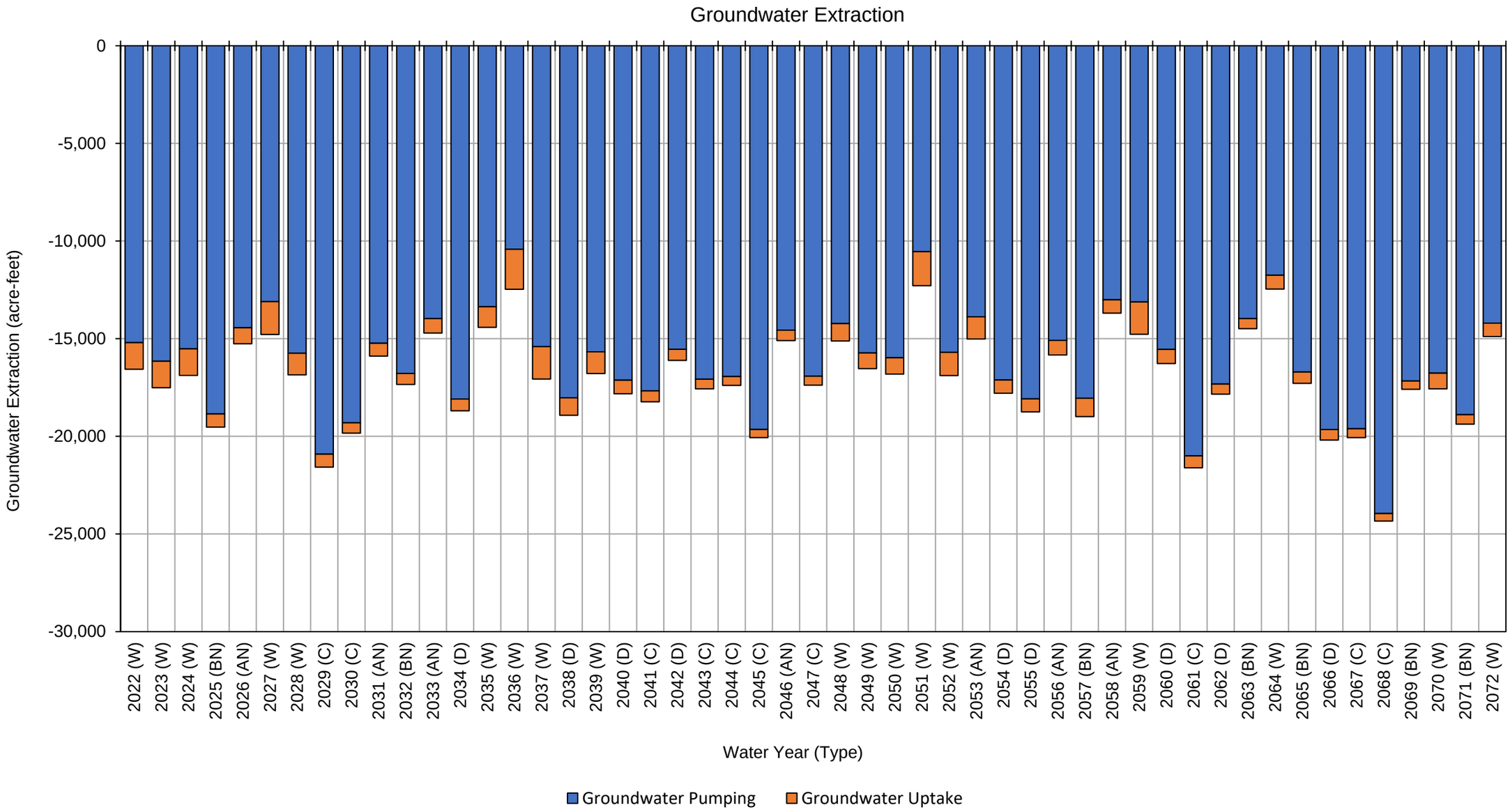
WY (Type)	Deep Percolation from the SWS
2022 (W)	17,000
2023 (W)	15,000
2024 (W)	15,000
2025 (BN)	6,100
2026 (AN)	14,000
2027 (W)	16,000
2028 (W)	10,000
2029 (C)	7,300
2030 (C)	5,600
2031 (AN)	14,000
2032 (BN)	5,800
2033 (AN)	12,000
2034 (D)	10,000
2035 (W)	16,000
2036 (W)	21,000
2037 (W)	15,000
2038 (D)	11,000
2039 (W)	15,000
2040 (D)	8,300
2041 (C)	6,500
2042 (D)	6,900
2043 (C)	7,700
2044 (C)	7,000
2045 (C)	8,100
2046 (AN)	14,000
2047 (C)	7,100
2048 (W)	19,000
2049 (W)	15,000
2050 (W)	12,000
2051 (W)	21,000
2052 (W)	10,000
2053 (AN)	12,000
2054 (D)	8,300
2055 (D)	10,000
2056 (AN)	14,000
2057 (BN)	14,000
2058 (AN)	13,000
2059 (W)	16,000
2060 (D)	6,900
2061 (C)	8,100
2062 (D)	6,500
2063 (BN)	12,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2030) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		13,000
2065 (BN)		6,800
2066 (D)		9,600
2067 (C)		5,800
2068 (C)		11,000
2069 (BN)		11,000
2070 (W)		16,000
2071 (BN)		5,900
2072 (W)		17,000
Average (2022-2072)		11,000
2022-2072	W	16,000
	AN	13,000
	BN	8,800
	D	8,600
	C	7,400

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2030) Groundwater Extractions (acre-feet, rounded)

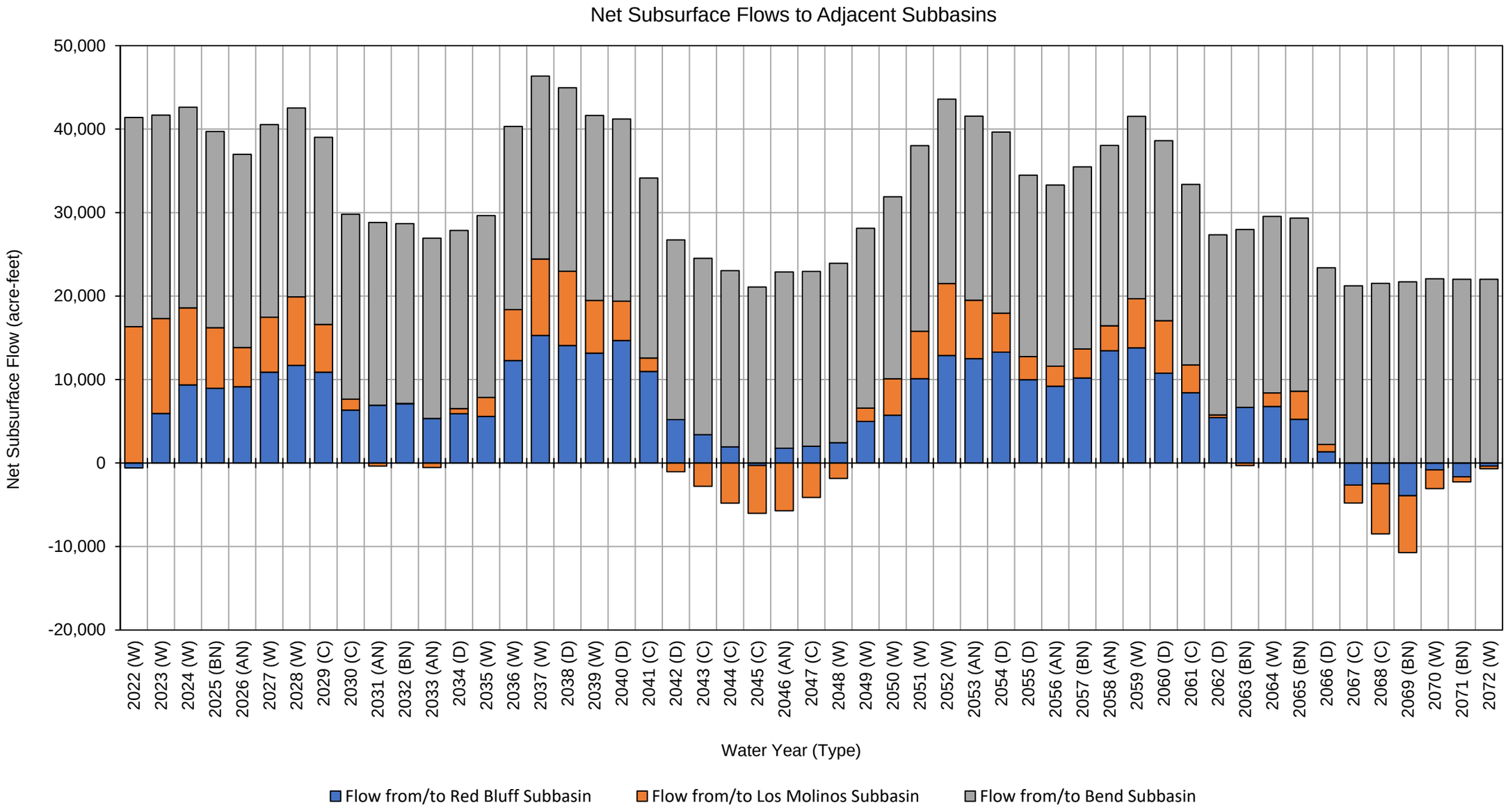
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-15,000	-1,400	-17,000
2023 (W)	-16,000	-1,400	-18,000
2024 (W)	-16,000	-1,400	-17,000
2025 (BN)	-19,000	-670	-20,000
2026 (AN)	-14,000	-820	-15,000
2027 (W)	-13,000	-1,700	-15,000
2028 (W)	-16,000	-1,100	-17,000
2029 (C)	-21,000	-660	-22,000
2030 (C)	-19,000	-530	-20,000
2031 (AN)	-15,000	-650	-16,000
2032 (BN)	-17,000	-560	-17,000
2033 (AN)	-14,000	-740	-15,000
2034 (D)	-18,000	-600	-19,000
2035 (W)	-13,000	-1,100	-14,000
2036 (W)	-10,000	-2,000	-12,000
2037 (W)	-15,000	-1,700	-17,000
2038 (D)	-18,000	-890	-19,000
2039 (W)	-16,000	-1,100	-17,000
2040 (D)	-17,000	-700	-18,000
2041 (C)	-18,000	-560	-18,000
2042 (D)	-16,000	-570	-16,000
2043 (C)	-17,000	-490	-18,000
2044 (C)	-17,000	-460	-17,000
2045 (C)	-20,000	-420	-20,000
2046 (AN)	-15,000	-530	-15,000
2047 (C)	-17,000	-460	-17,000
2048 (W)	-14,000	-890	-15,000
2049 (W)	-16,000	-810	-17,000
2050 (W)	-16,000	-840	-17,000
2051 (W)	-11,000	-1,700	-12,000
2052 (W)	-16,000	-1,200	-17,000
2053 (AN)	-14,000	-1,100	-15,000
2054 (D)	-17,000	-670	-18,000
2055 (D)	-18,000	-670	-19,000
2056 (AN)	-15,000	-750	-16,000
2057 (BN)	-18,000	-940	-19,000
2058 (AN)	-13,000	-690	-14,000
2059 (W)	-13,000	-1,700	-15,000
2060 (D)	-16,000	-730	-16,000
2061 (C)	-21,000	-610	-22,000
2062 (D)	-17,000	-520	-18,000
2063 (BN)	-14,000	-520	-14,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2030) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-12,000	-710	-12,000
2065 (BN)		-17,000	-580	-17,000
2066 (D)		-20,000	-540	-20,000
2067 (C)		-20,000	-450	-20,000
2068 (C)		-24,000	-390	-24,000
2069 (BN)		-17,000	-420	-18,000
2070 (W)		-17,000	-800	-18,000
2071 (BN)		-19,000	-490	-19,000
2072 (W)		-14,000	-680	-15,000
Average (2022-2072)		-16,000	-830	-17,000
2022-2072	W	-14,000	-1,200	-16,000
	AN	-14,000	-760	-15,000
	BN	-17,000	-600	-18,000
	D	-17,000	-650	-18,000
	C	-19,000	-500	-20,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2030) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

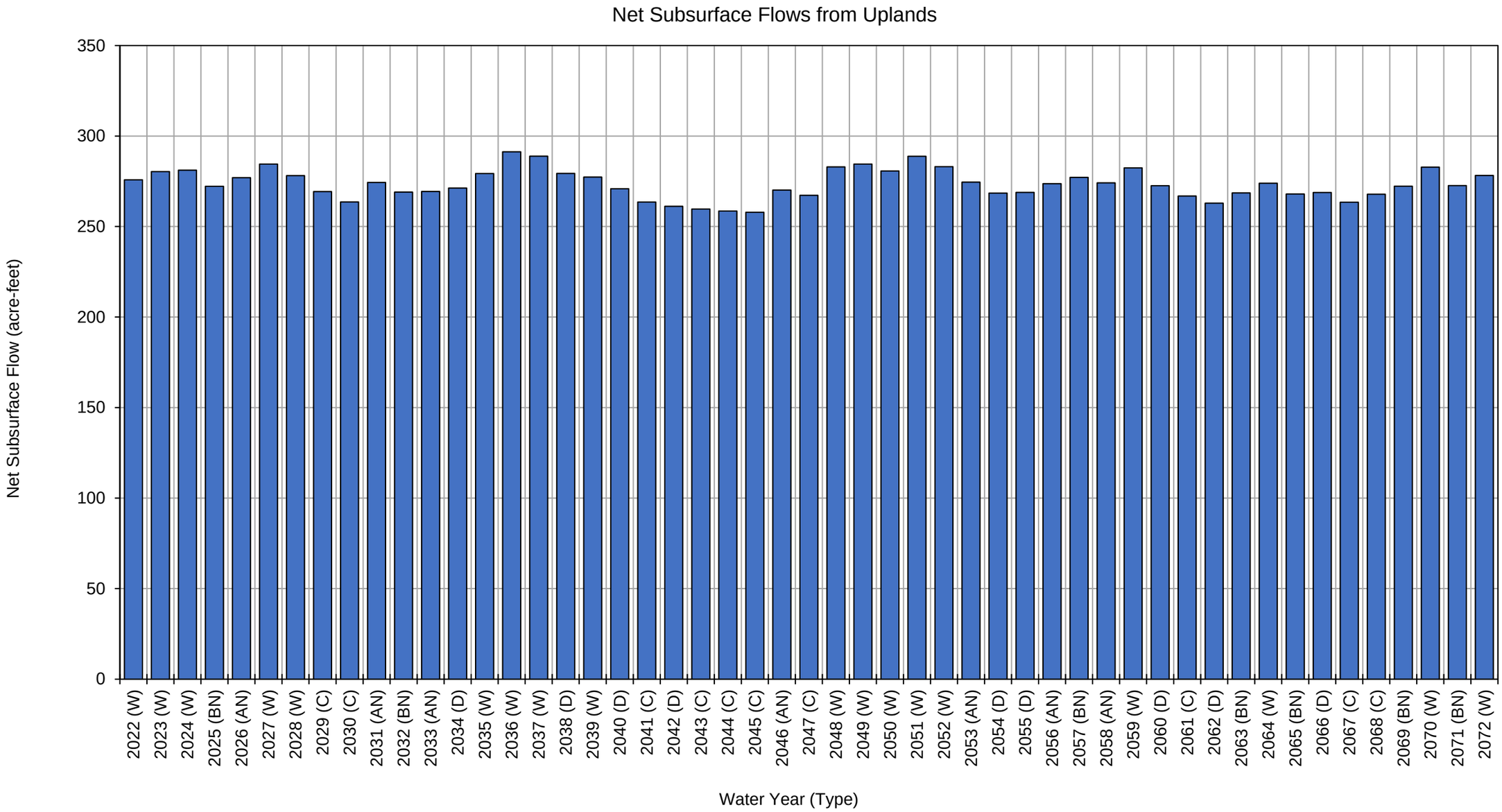
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-590	16,000	25,000	41,000
2023 (W)	5,900	11,000	24,000	42,000
2024 (W)	9,400	9,200	24,000	43,000
2025 (BN)	9,000	7,300	24,000	40,000
2026 (AN)	9,100	4,700	23,000	37,000
2027 (W)	11,000	6,600	23,000	41,000
2028 (W)	12,000	8,200	23,000	43,000
2029 (C)	11,000	5,700	22,000	39,000
2030 (C)	6,300	1,300	22,000	30,000
2031 (AN)	6,900	-370	22,000	28,000
2032 (BN)	7,100	48	22,000	29,000
2033 (AN)	5,300	-550	22,000	26,000
2034 (D)	5,900	620	21,000	28,000
2035 (W)	5,600	2,300	22,000	30,000
2036 (W)	12,000	6,100	22,000	40,000
2037 (W)	15,000	9,200	22,000	46,000
2038 (D)	14,000	8,900	22,000	45,000
2039 (W)	13,000	6,300	22,000	42,000
2040 (D)	15,000	4,700	22,000	41,000
2041 (C)	11,000	1,600	22,000	34,000
2042 (D)	5,200	-1,000	22,000	26,000
2043 (C)	3,400	-2,800	21,000	22,000
2044 (C)	1,900	-4,800	21,000	18,000
2045 (C)	-300	-5,700	21,000	15,000
2046 (AN)	1,800	-5,700	21,000	17,000
2047 (C)	2,000	-4,100	21,000	19,000
2048 (W)	2,400	-1,800	21,000	22,000
2049 (W)	5,000	1,600	22,000	28,000
2050 (W)	5,700	4,400	22,000	32,000
2051 (W)	10,000	5,700	22,000	38,000
2052 (W)	13,000	8,600	22,000	44,000
2053 (AN)	12,000	7,000	22,000	42,000
2054 (D)	13,000	4,700	22,000	40,000
2055 (D)	10,000	2,800	22,000	34,000
2056 (AN)	9,200	2,400	22,000	33,000
2057 (BN)	10,000	3,500	22,000	35,000
2058 (AN)	13,000	3,000	22,000	38,000
2059 (W)	14,000	5,900	22,000	42,000
2060 (D)	11,000	6,300	22,000	39,000
2061 (C)	8,400	3,300	22,000	33,000
2062 (D)	5,400	320	22,000	27,000
2063 (BN)	6,700	-310	21,000	28,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2030) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2064 (W)		6,800	1,600	21,000	30,000
2065 (BN)		5,200	3,400	21,000	29,000
2066 (D)		1,300	890	21,000	23,000
2067 (C)		-2,600	-2,200	21,000	16,000
2068 (C)		-2,500	-6,000	22,000	13,000
2069 (BN)		-3,900	-6,800	22,000	11,000
2070 (W)		-820	-2,200	22,000	19,000
2071 (BN)		-1,600	-610	22,000	20,000
2072 (W)		-380	-320	22,000	21,000
Average (2022-2072)		6,800	2,600	22,000	31,000
2022-2072	W	7,700	5,500	22,000	36,000
	AN	8,300	1,500	22,000	32,000
	BN	4,700	910	22,000	27,000
	D	9,000	3,100	22,000	34,000
	C	3,800	-1,400	21,000	24,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2030) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

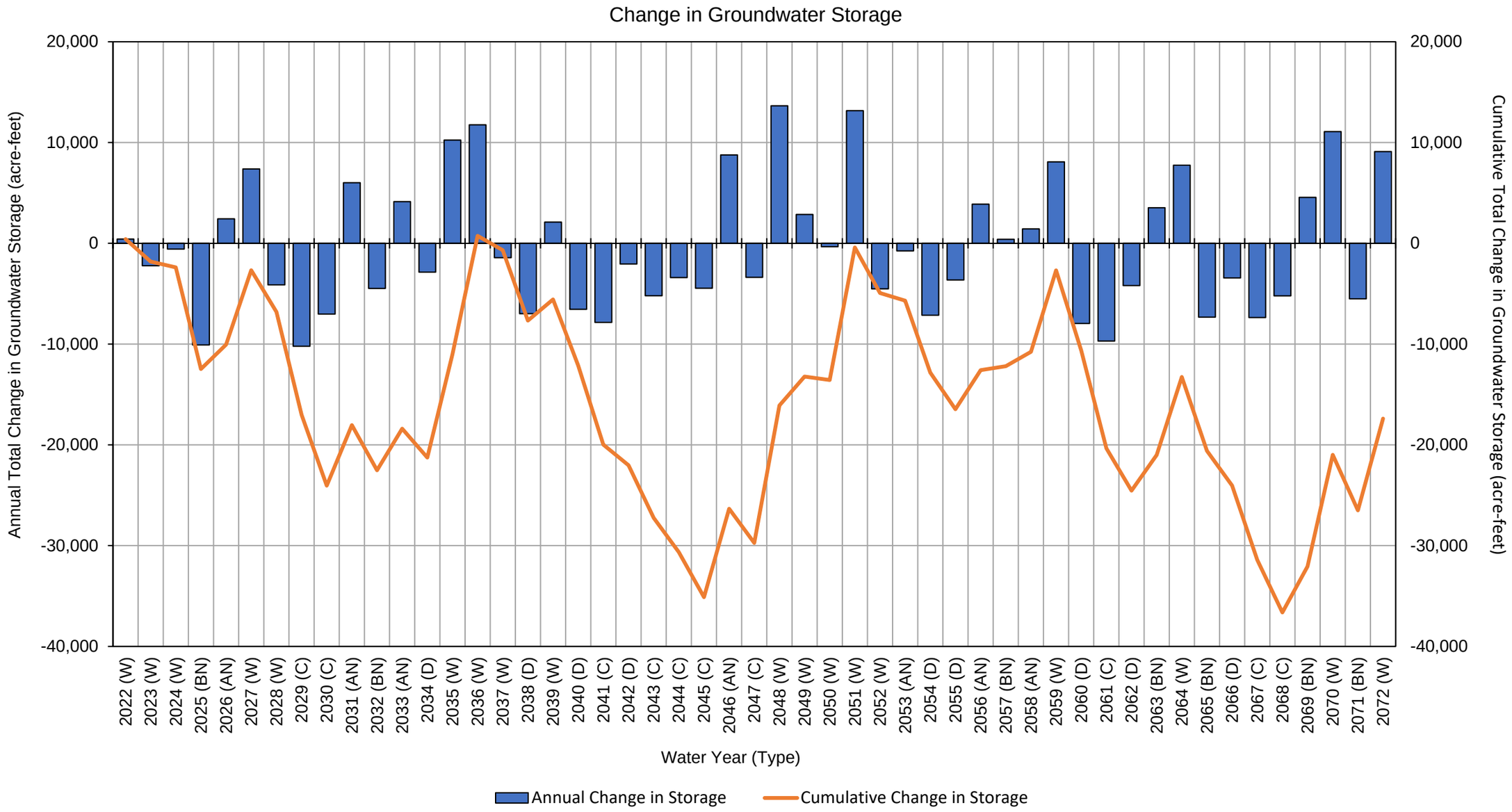
WY (Type)	Subsurface Flows from Uplands
2022 (W)	280
2023 (W)	280
2024 (W)	280
2025 (BN)	270
2026 (AN)	280
2027 (W)	280
2028 (W)	280
2029 (C)	270
2030 (C)	260
2031 (AN)	270
2032 (BN)	270
2033 (AN)	270
2034 (D)	270
2035 (W)	280
2036 (W)	290
2037 (W)	290
2038 (D)	280
2039 (W)	280
2040 (D)	270
2041 (C)	260
2042 (D)	260
2043 (C)	260
2044 (C)	260
2045 (C)	260
2046 (AN)	270
2047 (C)	270
2048 (W)	280
2049 (W)	280
2050 (W)	280
2051 (W)	290
2052 (W)	280
2053 (AN)	270
2054 (D)	270
2055 (D)	270
2056 (AN)	270
2057 (BN)	280
2058 (AN)	270
2059 (W)	280
2060 (D)	270
2061 (C)	270
2062 (D)	260
2063 (BN)	270

Antelope Subbasin Projected (Future Land Use) with Climate Change (2030) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		270
2065 (BN)		270
2066 (D)		270
2067 (C)		260
2068 (C)		270
2069 (BN)		270
2070 (W)		280
2071 (BN)		270
2072 (W)		280
Average (2022-2072)		270
2022-2072	W	280
	AN	270
	BN	270
	D	270
	C	260

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2030) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	420	420
2023 (W)	-2,200	-1,800
2024 (W)	-580	-2,400
2025 (BN)	-10,000	-12,000
2026 (AN)	2,400	-10,000
2027 (W)	7,400	-2,700
2028 (W)	-4,100	-6,800
2029 (C)	-10,000	-17,000
2030 (C)	-7,000	-24,000
2031 (AN)	6,000	-18,000
2032 (BN)	-4,500	-23,000
2033 (AN)	4,100	-18,000
2034 (D)	-2,900	-21,000
2035 (W)	10,000	-11,000
2036 (W)	12,000	740
2037 (W)	-1,400	-690
2038 (D)	-7,000	-7,700
2039 (W)	2,100	-5,600
2040 (D)	-6,600	-12,000
2041 (C)	-7,800	-20,000
2042 (D)	-2,100	-22,000
2043 (C)	-5,200	-27,000
2044 (C)	-3,400	-31,000
2045 (C)	-4,500	-35,000
2046 (AN)	8,800	-26,000
2047 (C)	-3,400	-30,000
2048 (W)	14,000	-16,000
2049 (W)	2,900	-13,000
2050 (W)	-340	-14,000
2051 (W)	13,000	-410
2052 (W)	-4,500	-4,900
2053 (AN)	-750	-5,700
2054 (D)	-7,100	-13,000
2055 (D)	-3,600	-16,000
2056 (AN)	3,900	-13,000
2057 (BN)	390	-12,000
2058 (AN)	1,400	-11,000
2059 (W)	8,100	-2,700
2060 (D)	-8,000	-11,000
2061 (C)	-9,700	-20,000
2062 (D)	-4,200	-25,000
2063 (BN)	3,500	-21,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2030) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		7,700	-13,000
2065 (BN)		-7,300	-21,000
2066 (D)		-3,400	-24,000
2067 (C)		-7,400	-31,000
2068 (C)		-5,200	-37,000
2069 (BN)		4,600	-32,000
2070 (W)		11,000	-21,000
2071 (BN)		-5,500	-26,000
2072 (W)		9,100	-17,000
Average (2022-2072)		-340	
2022-2072	W		
	AN		
	BN		
	D		
	C		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX A-7

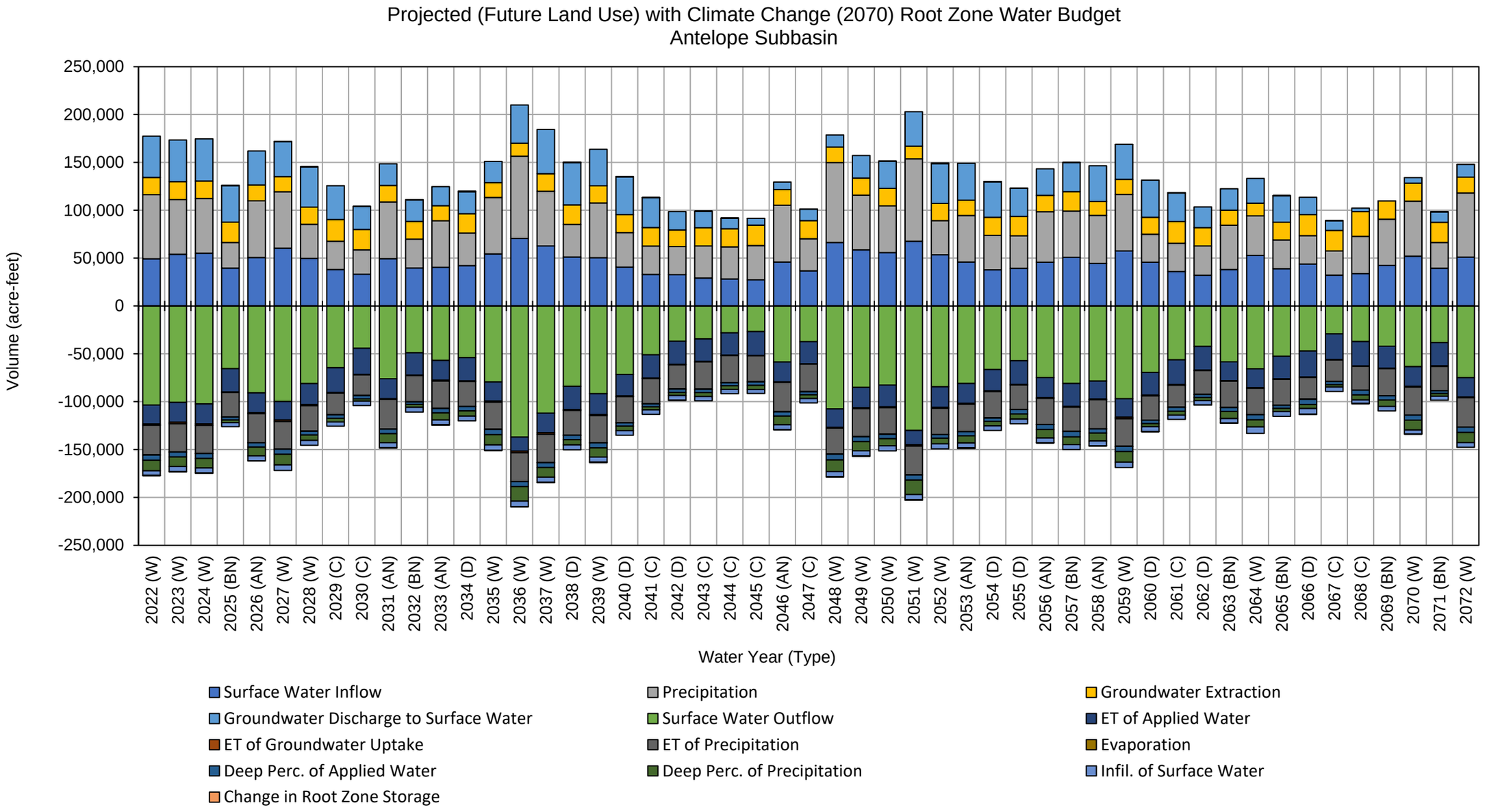
Detailed Antelope Subbasin Water Budget Results:

Projected (Future Land Use) with Climate Change (2070) Model Results

APPENDIX A-7a

Detailed Antelope Subbasin Water Budget Results:

Projected (Future Land Use) with Climate Change (2070) Model Results – Surface Water System


Projected (Future Land Use) with Climate Change (2070) Root Zone Water Budget
Antelope Subbasin
Volume (acre-feet)
250,000
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
-250,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Surface Water Inflow
Precipitation
Groundwater Extraction
Groundwater Discharge to Surface Water
Surface Water Outflow
ET of Applied Water
ET of Groundwater Uptake
ET of Precipitation
Evaporation
Deep Perc. of Applied Water
Deep Perc. of Precipitation
Infil. of Surface Water
Change in Root Zone Storage

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Root Zone Water Budget Summary (acre-feet, rounded)

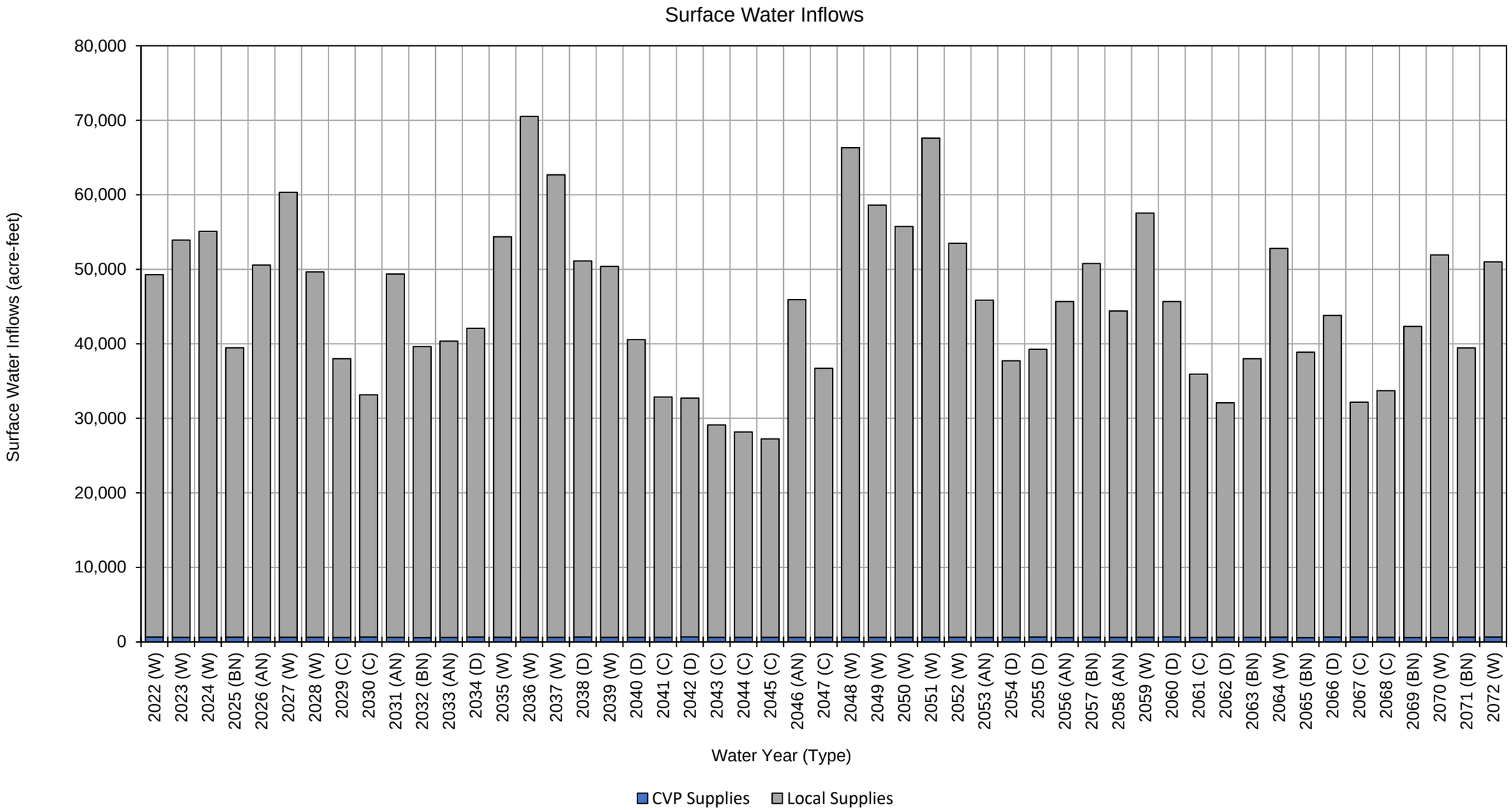
WY (Type)	Inflows				Outflows								Change in Root Zone Storage
	Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2022 (W)	49,000	67,000	18,000	43,000	100,000	20,000	1,300	31,000	140	5,400	11,000	4,900	350
2023 (W)	54,000	57,000	19,000	44,000	100,000	21,000	1,500	29,000	150	5,000	10,000	5,300	500
2024 (W)	55,000	57,000	18,000	44,000	100,000	21,000	1,600	29,000	150	5,100	10,000	5,300	1
2025 (BN)	39,000	27,000	21,000	38,000	66,000	24,000	670	26,000	120	3,000	2,800	4,200	-490
2026 (AN)	51,000	59,000	17,000	35,000	91,000	21,000	810	30,000	150	4,400	9,200	5,200	120
2027 (W)	60,000	59,000	16,000	37,000	100,000	19,000	1,700	29,000	170	5,300	11,000	5,800	-73
2028 (W)	50,000	36,000	18,000	42,000	81,000	22,000	980	27,000	150	3,900	5,600	5,100	-180
2029 (C)	38,000	30,000	23,000	35,000	65,000	26,000	680	23,000	130	3,500	3,900	4,400	-130
2030 (C)	33,000	25,000	21,000	24,000	44,000	27,000	520	22,000	150	3,400	2,300	4,600	-92
2031 (AN)	49,000	59,000	17,000	23,000	76,000	21,000	650	31,000	150	4,700	9,400	5,200	470
2032 (BN)	40,000	30,000	19,000	23,000	49,000	23,000	550	27,000	160	2,600	3,000	5,100	-130
2033 (AN)	40,000	49,000	16,000	20,000	57,000	21,000	750	29,000	150	4,600	7,300	4,900	580
2034 (D)	42,000	34,000	20,000	23,000	54,000	24,000	590	26,000	150	4,600	5,400	4,900	-730
2035 (W)	54,000	59,000	15,000	22,000	79,000	20,000	1,100	28,000	170	5,500	11,000	5,600	200
2036 (W)	71,000	86,000	13,000	40,000	140,000	15,000	1,600	30,000	150	5,200	15,000	5,700	410
2037 (W)	63,000	57,000	18,000	46,000	110,000	20,000	1,600	30,000	150	5,000	10,000	5,500	47
2038 (D)	51,000	34,000	20,000	44,000	84,000	24,000	820	26,000	150	4,600	5,500	5,100	-650
2039 (W)	50,000	57,000	18,000	38,000	92,000	22,000	1,200	28,000	150	5,200	9,600	5,200	650
2040 (D)	41,000	36,000	19,000	39,000	72,000	23,000	680	27,000	150	3,500	4,700	4,800	-310
2041 (C)	33,000	30,000	19,000	31,000	51,000	24,000	530	26,000	150	3,100	3,100	4,700	-44
2042 (D)	33,000	29,000	17,000	19,000	37,000	24,000	560	25,000	170	3,500	3,100	5,000	48
2043 (C)	29,000	33,000	19,000	17,000	35,000	23,000	480	28,000	140	3,500	4,100	4,500	-290
2044 (C)	28,000	33,000	19,000	11,000	28,000	23,000	440	28,000	140	3,100	3,800	4,500	-1
2045 (C)	27,000	36,000	21,000	7,000	27,000	25,000	400	27,000	130	3,700	4,300	4,200	-60
2046 (AN)	46,000	59,000	16,000	7,900	59,000	21,000	530	31,000	150	4,400	9,100	5,000	290
2047 (C)	37,000	33,000	19,000	12,000	37,000	23,000	450	29,000	140	3,100	3,900	4,600	-230
2048 (W)	66,000	83,000	16,000	13,000	110,000	19,000	830	27,000	150	6,100	12,000	5,500	220
2049 (W)	59,000	57,000	18,000	24,000	85,000	21,000	860	29,000	150	5,000	9,600	5,400	380
2050 (W)	56,000	49,000	18,000	28,000	83,000	23,000	920	28,000	150	4,600	7,500	5,300	-420
2051 (W)	68,000	86,000	13,000	36,000	130,000	15,000	1,400	30,000	150	5,300	15,000	5,600	380
2052 (W)	53,000	36,000	18,000	42,000	84,000	22,000	960	27,000	150	3,800	5,800	5,200	-580
2053 (AN)	46,000	49,000	16,000	38,000	81,000	21,000	1,000	29,000	150	4,500	7,400	5,000	710
2054 (D)	38,000	36,000	19,000	37,000	66,000	22,000	650	27,000	150	3,400	4,800	4,800	-400
2055 (D)	39,000	34,000	20,000	29,000	57,000	25,000	650	25,000	150	4,700	5,300	4,900	-330
2056 (AN)	46,000	53,000	17,000	28,000	75,000	21,000	750	27,000	150	5,100	8,900	5,100	200
2057 (BN)	51,000	48,000	20,000	30,000	81,000	24,000	960	25,000	150	5,700	8,100	5,200	-150
2058 (AN)	44,000	50,000	15,000	37,000	78,000	19,000	640	30,000	150	4,300	8,300	5,000	280
2059 (W)	58,000	59,000	16,000	36,000	97,000	19,000	1,600	29,000	170	5,400	11,000	5,700	-120
2060 (D)	46,000	29,000	18,000	39,000	69,000	24,000	710	25,000	170	3,500	3,200	5,100	140
2061 (C)	36,000	30,000	23,000	30,000	56,000	26,000	640	23,000	130	4,100	4,100	4,400	-440
2062 (D)	32,000	31,000	19,000	22,000	42,000	25,000	510	25,000	140	3,200	3,200	4,500	100
2063 (BN)	38,000	46,000	16,000	22,000	58,000	20,000	530	27,000	140	4,000	7,500	4,600	120
2064 (W)	53,000	41,000	13,000	26,000	66,000	20,000	700	27,000	230	5,300	7,300	6,700	190
2065 (BN)	39,000	30,000	18,000	28,000	53,000	24,000	570	27,000	160	3,200	3,200	5,000	-160

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Root Zone Water Budget Summary (acre-feet, rounded)

WY (Type)		Inflows				Outflows								Change in Root Zone Storage
		Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2066 (D)		44,000	30,000	22,000	18,000	47,000	27,000	520	23,000	210	5,400	4,200	6,000	280
2067 (C)		32,000	25,000	21,000	9,900	29,000	27,000	440	22,000	150	3,500	2,400	4,600	-630
2068 (C)		34,000	39,000	26,000	3,600	37,000	26,000	370	25,000	110	4,900	5,200	3,700	370
2069 (BN)		42,000	48,000	19,000	0	42,000	23,000	420	28,000	130	4,400	6,700	4,700	-73
2070 (W)		52,000	58,000	19,000	5,700	63,000	21,000	800	29,000	100	5,300	10,000	4,200	220
2071 (BN)		39,000	27,000	21,000	11,000	38,000	24,000	470	25,000	120	2,900	2,700	4,200	-150
2072 (W)		51,000	67,000	17,000	13,000	75,000	20,000	660	31,000	140	5,500	11,000	4,900	-12
Average (2022-2072)		46,000	45,000	18,000	27,000	69,000	22,000	810	27,000	150	4,400	6,900	5,000	7
2022-2072	W	57,000	60,000	17,000	32,000	94,000	20,000	1,200	29,000	160	5,100	10,000	5,400	120
	AN	46,000	54,000	16,000	27,000	74,000	21,000	740	30,000	150	4,600	8,500	5,100	380
	BN	41,000	37,000	19,000	22,000	55,000	23,000	600	27,000	140	3,700	4,800	4,700	-150
	D	41,000	33,000	19,000	30,000	59,000	24,000	630	26,000	160	4,000	4,400	5,000	-210
	C	33,000	31,000	21,000	18,000	41,000	25,000	500	25,000	140	3,600	3,700	4,400	-160

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

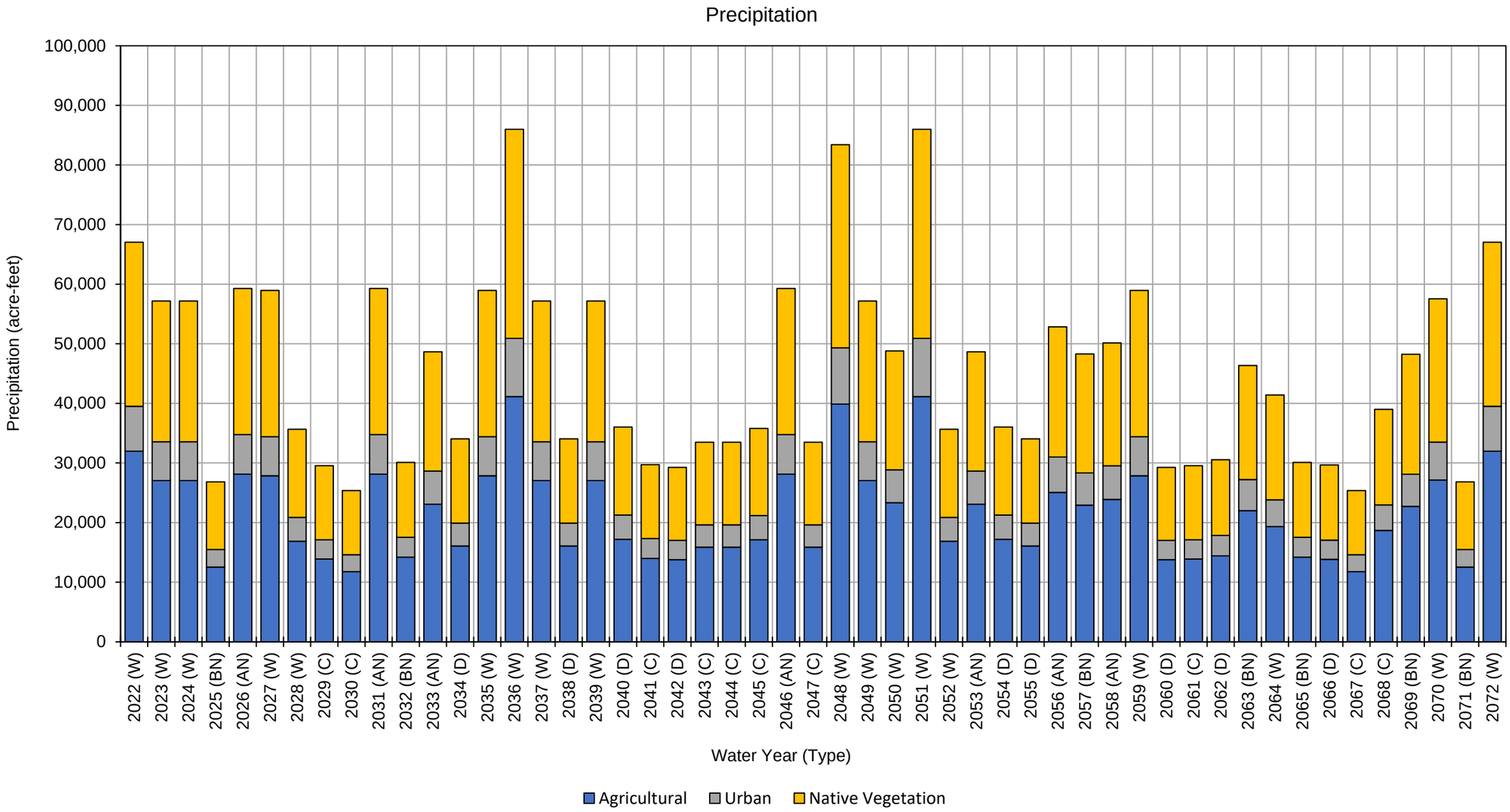
WY (Type)	CVP Supplies	Local Supplies	Total
2022 (W)	650	49,000	50,000
2023 (W)	610	53,000	54,000
2024 (W)	610	54,000	55,000
2025 (BN)	630	39,000	40,000
2026 (AN)	610	50,000	51,000
2027 (W)	610	60,000	61,000
2028 (W)	620	49,000	50,000
2029 (C)	600	37,000	38,000
2030 (C)	640	33,000	34,000
2031 (AN)	610	49,000	50,000
2032 (BN)	560	39,000	40,000
2033 (AN)	580	40,000	41,000
2034 (D)	640	41,000	42,000
2035 (W)	610	54,000	55,000
2036 (W)	610	70,000	71,000
2037 (W)	610	62,000	63,000
2038 (D)	640	50,000	51,000
2039 (W)	610	50,000	51,000
2040 (D)	600	40,000	41,000
2041 (C)	610	32,000	33,000
2042 (D)	650	32,000	33,000
2043 (C)	610	29,000	30,000
2044 (C)	610	28,000	29,000
2045 (C)	610	27,000	28,000
2046 (AN)	610	45,000	46,000
2047 (C)	610	36,000	37,000
2048 (W)	610	66,000	67,000
2049 (W)	610	58,000	59,000
2050 (W)	610	55,000	56,000
2051 (W)	610	67,000	68,000
2052 (W)	620	53,000	54,000
2053 (AN)	580	45,000	46,000
2054 (D)	600	37,000	38,000
2055 (D)	640	39,000	40,000
2056 (AN)	580	45,000	46,000
2057 (BN)	620	50,000	51,000
2058 (AN)	600	44,000	45,000
2059 (W)	610	57,000	58,000
2060 (D)	650	45,000	46,000
2061 (C)	600	35,000	36,000
2062 (D)	620	31,000	32,000
2063 (BN)	610	37,000	38,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Total
2064 (W)		630	52,000	53,000
2065 (BN)		560	38,000	39,000
2066 (D)		650	43,000	44,000
2067 (C)		640	32,000	33,000
2068 (C)		610	33,000	34,000
2069 (BN)		580	42,000	43,000
2070 (W)		580	51,000	52,000
2071 (BN)		630	39,000	40,000
2072 (W)		650	50,000	51,000
Average (2022-2072)		610	45,000	46,000
2022-2072	W	620	56,000	57,000
	AN	600	45,000	46,000
	BN	600	41,000	42,000
	D	630	40,000	41,000
	C	610	32,000	33,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Precipitation, by Water Use Sector (acre-feet, rounded)

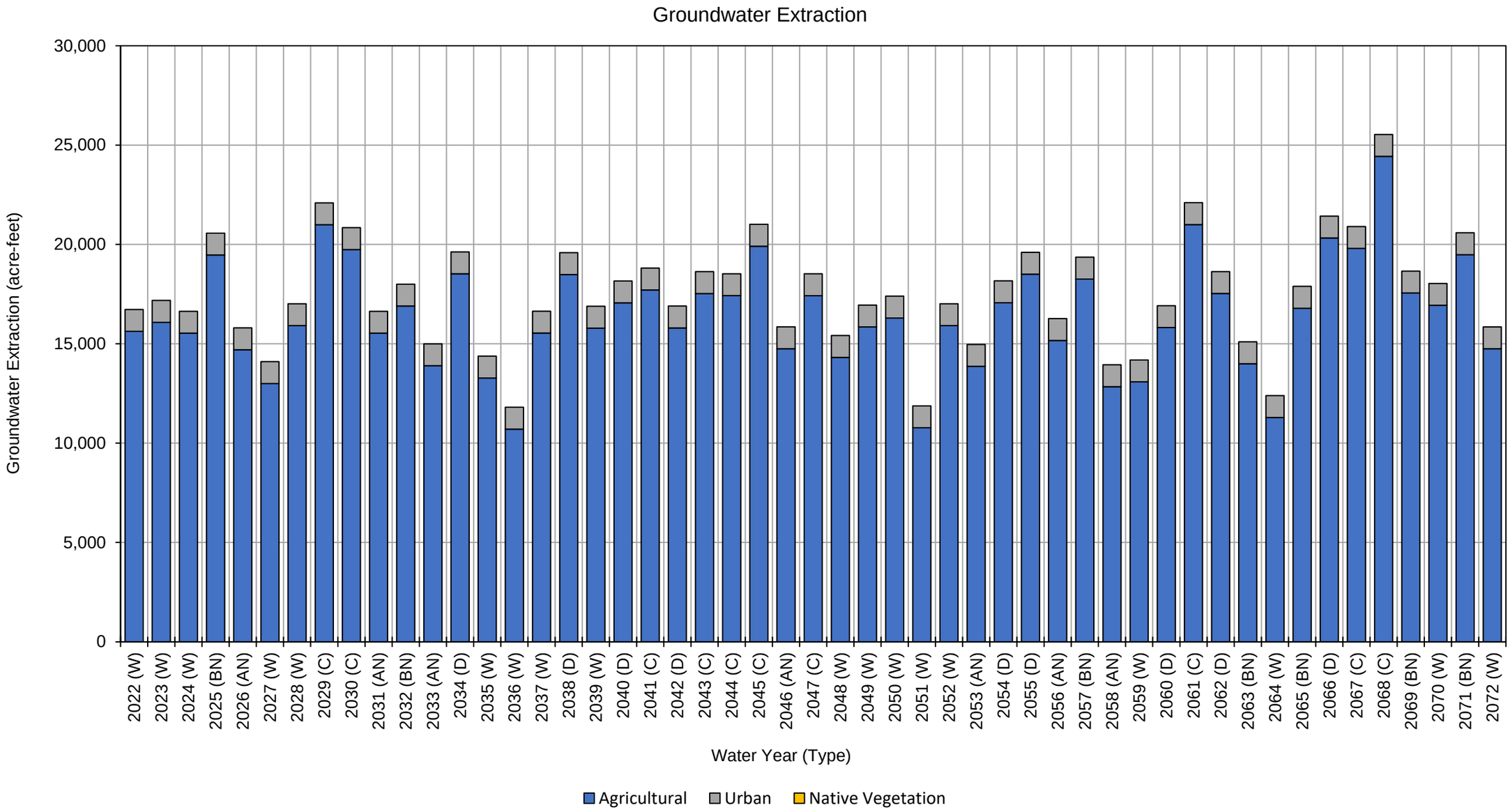
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	32,000	7,500	28,000	68,000
2023 (W)	27,000	6,500	24,000	58,000
2024 (W)	27,000	6,500	24,000	58,000
2025 (BN)	13,000	3,000	11,000	27,000
2026 (AN)	28,000	6,600	25,000	60,000
2027 (W)	28,000	6,600	25,000	60,000
2028 (W)	17,000	4,000	15,000	36,000
2029 (C)	14,000	3,200	12,000	29,000
2030 (C)	12,000	2,800	11,000	26,000
2031 (AN)	28,000	6,600	25,000	60,000
2032 (BN)	14,000	3,300	13,000	30,000
2033 (AN)	23,000	5,600	20,000	49,000
2034 (D)	16,000	3,800	14,000	34,000
2035 (W)	28,000	6,600	25,000	60,000
2036 (W)	41,000	9,800	35,000	86,000
2037 (W)	27,000	6,500	24,000	58,000
2038 (D)	16,000	3,800	14,000	34,000
2039 (W)	27,000	6,500	24,000	58,000
2040 (D)	17,000	4,100	15,000	36,000
2041 (C)	14,000	3,300	12,000	29,000
2042 (D)	14,000	3,300	12,000	29,000
2043 (C)	16,000	3,800	14,000	34,000
2044 (C)	16,000	3,800	14,000	34,000
2045 (C)	17,000	4,100	15,000	36,000
2046 (AN)	28,000	6,600	25,000	60,000
2047 (C)	16,000	3,800	14,000	34,000
2048 (W)	40,000	9,400	34,000	83,000
2049 (W)	27,000	6,500	24,000	58,000
2050 (W)	23,000	5,500	20,000	49,000
2051 (W)	41,000	9,800	35,000	86,000
2052 (W)	17,000	4,000	15,000	36,000
2053 (AN)	23,000	5,600	20,000	49,000
2054 (D)	17,000	4,100	15,000	36,000
2055 (D)	16,000	3,800	14,000	34,000
2056 (AN)	25,000	5,900	22,000	53,000
2057 (BN)	23,000	5,400	20,000	48,000
2058 (AN)	24,000	5,600	21,000	51,000
2059 (W)	28,000	6,600	25,000	60,000
2060 (D)	14,000	3,300	12,000	29,000
2061 (C)	14,000	3,200	12,000	29,000
2062 (D)	14,000	3,400	13,000	30,000
2063 (BN)	22,000	5,200	19,000	46,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		19,000	4,500	18,000	42,000
2065 (BN)		14,000	3,300	13,000	30,000
2066 (D)		14,000	3,200	13,000	30,000
2067 (C)		12,000	2,800	11,000	26,000
2068 (C)		19,000	4,300	16,000	39,000
2069 (BN)		23,000	5,400	20,000	48,000
2070 (W)		27,000	6,400	24,000	57,000
2071 (BN)		13,000	3,000	11,000	27,000
2072 (W)		32,000	7,500	28,000	68,000
Average (2022-2072)		21,000	5,100	19,000	45,000
2022-2072	W	28,000	6,700	25,000	60,000
	AN	26,000	6,100	22,000	54,000
	BN	17,000	4,100	15,000	36,000
	D	15,000	3,600	14,000	33,000
	C	15,000	3,500	13,000	32,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

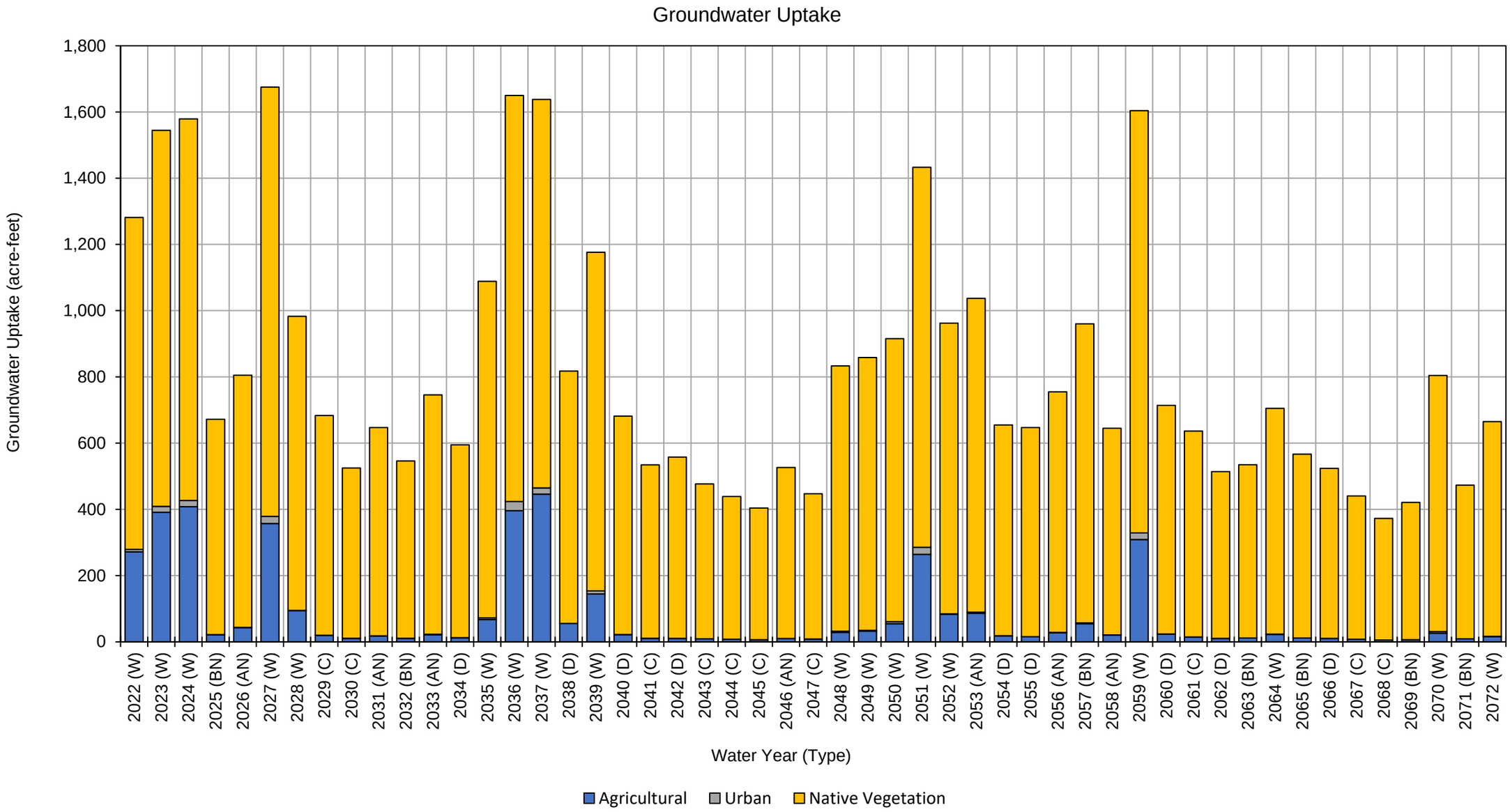
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	16,000	1,100	0	17,000
2023 (W)	16,000	1,100	0	17,000
2024 (W)	16,000	1,100	0	17,000
2025 (BN)	19,000	1,100	0	20,000
2026 (AN)	15,000	1,100	0	16,000
2027 (W)	13,000	1,100	0	14,000
2028 (W)	16,000	1,100	0	17,000
2029 (C)	21,000	1,100	0	22,000
2030 (C)	20,000	1,100	0	21,000
2031 (AN)	16,000	1,100	0	17,000
2032 (BN)	17,000	1,100	0	18,000
2033 (AN)	14,000	1,100	0	15,000
2034 (D)	19,000	1,100	0	20,000
2035 (W)	13,000	1,100	0	14,000
2036 (W)	11,000	1,100	0	12,000
2037 (W)	16,000	1,100	0	17,000
2038 (D)	18,000	1,100	0	19,000
2039 (W)	16,000	1,100	0	17,000
2040 (D)	17,000	1,100	0	18,000
2041 (C)	18,000	1,100	0	19,000
2042 (D)	16,000	1,100	0	17,000
2043 (C)	18,000	1,100	0	19,000
2044 (C)	17,000	1,100	0	18,000
2045 (C)	20,000	1,100	0	21,000
2046 (AN)	15,000	1,100	0	16,000
2047 (C)	17,000	1,100	0	18,000
2048 (W)	14,000	1,100	0	15,000
2049 (W)	16,000	1,100	0	17,000
2050 (W)	16,000	1,100	0	17,000
2051 (W)	11,000	1,100	0	12,000
2052 (W)	16,000	1,100	0	17,000
2053 (AN)	14,000	1,100	0	15,000
2054 (D)	17,000	1,100	0	18,000
2055 (D)	19,000	1,100	0	20,000
2056 (AN)	15,000	1,100	0	16,000
2057 (BN)	18,000	1,100	0	19,000
2058 (AN)	13,000	1,100	0	14,000
2059 (W)	13,000	1,100	0	14,000
2060 (D)	16,000	1,100	0	17,000
2061 (C)	21,000	1,100	0	22,000
2062 (D)	18,000	1,100	0	19,000
2063 (BN)	14,000	1,100	0	15,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		11,000	1,100	0	12,000
2065 (BN)		17,000	1,100	0	18,000
2066 (D)		20,000	1,100	0	21,000
2067 (C)		20,000	1,100	0	21,000
2068 (C)		24,000	1,100	0	25,000
2069 (BN)		18,000	1,100	0	19,000
2070 (W)		17,000	1,100	0	18,000
2071 (BN)		19,000	1,100	0	20,000
2072 (W)		15,000	1,100	0	16,000
Average (2022-2072)		16,000	1,100	0	17,000
2022-2072	W	14,000	1,100	0	15,000
	AN	14,000	1,100	0	15,000
	BN	17,000	1,100	0	18,000
	D	18,000	1,100	0	19,000
	C	20,000	1,100	0	21,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

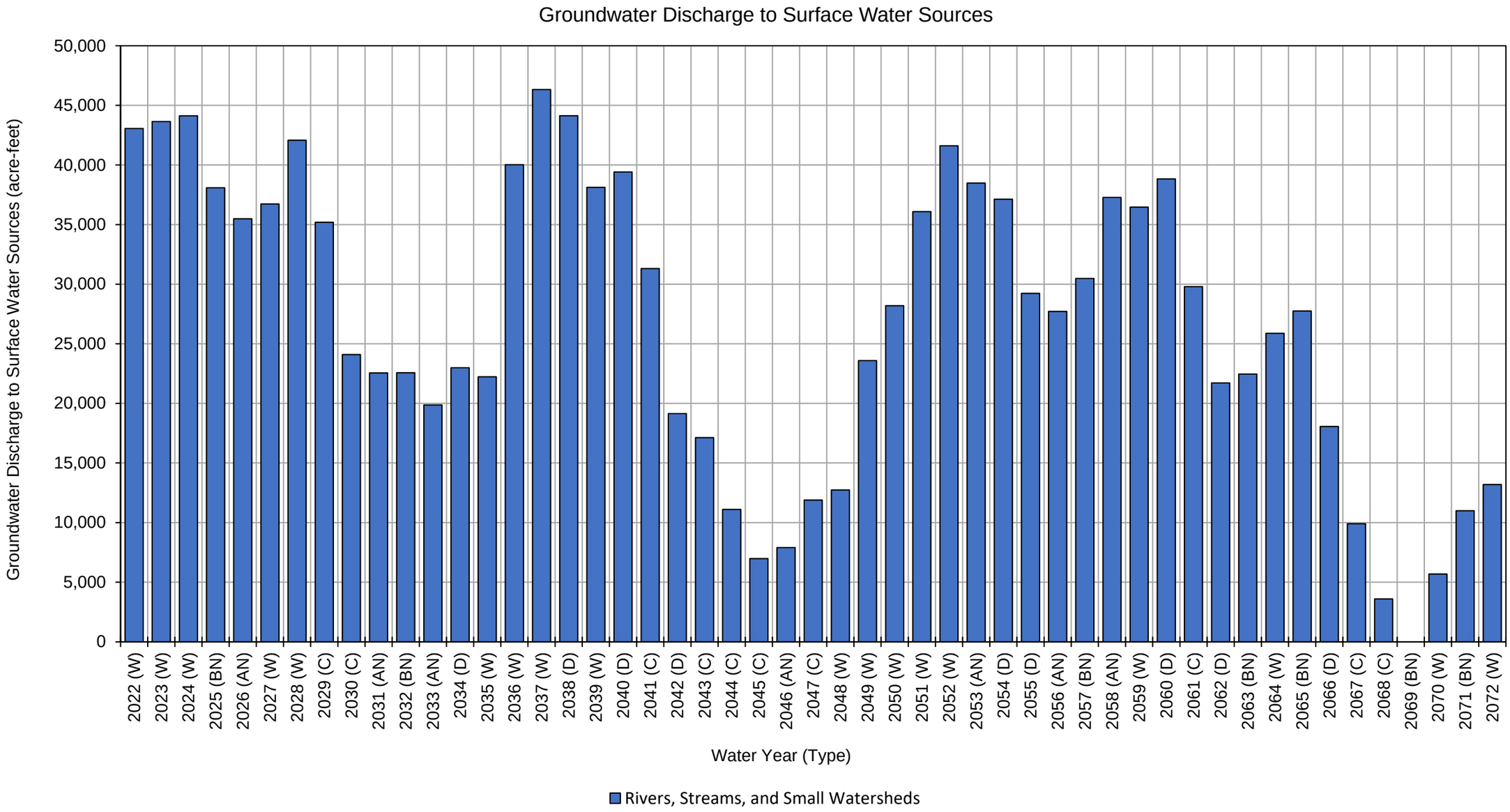
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	270	7	1,000	1,300
2023 (W)	390	18	1,100	1,500
2024 (W)	410	19	1,200	1,600
2025 (BN)	22	0	650	670
2026 (AN)	43	1	760	800
2027 (W)	360	22	1,300	1,700
2028 (W)	94	1	890	990
2029 (C)	20	0	660	680
2030 (C)	10	0	510	520
2031 (AN)	17	0	630	650
2032 (BN)	11	0	540	550
2033 (AN)	21	2	720	740
2034 (D)	12	0	580	590
2035 (W)	67	5	1,000	1,100
2036 (W)	400	28	1,200	1,600
2037 (W)	450	19	1,200	1,700
2038 (D)	55	0	760	820
2039 (W)	140	9	1,000	1,100
2040 (D)	22	0	660	680
2041 (C)	10	0	520	530
2042 (D)	10	0	550	560
2043 (C)	9	0	470	480
2044 (C)	8	0	430	440
2045 (C)	6	0	400	410
2046 (AN)	10	0	520	530
2047 (C)	8	0	440	450
2048 (W)	28	4	800	830
2049 (W)	32	3	820	850
2050 (W)	55	6	850	910
2051 (W)	260	21	1,100	1,400
2052 (W)	83	1	880	960
2053 (AN)	86	4	950	1,000
2054 (D)	18	0	640	660
2055 (D)	16	0	630	650
2056 (AN)	27	1	730	760
2057 (BN)	55	2	900	960
2058 (AN)	20	0	620	640
2059 (W)	310	20	1,300	1,600
2060 (D)	24	0	690	710
2061 (C)	14	0	620	630
2062 (D)	10	0	500	510
2063 (BN)	11	0	520	530

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		22	1	680	700
2065 (BN)		12	0	560	570
2066 (D)		10	0	510	520
2067 (C)		8	0	430	440
2068 (C)		5	0	370	380
2069 (BN)		6	0	410	420
2070 (W)		26	5	770	800
2071 (BN)		9	0	460	470
2072 (W)		16	1	650	670
Average (2022-2072)		79	4	730	810
2022-2072	W	190	11	990	1,200
	AN	32	1	700	730
	BN	18	0	580	600
	D	20	0	610	630
	C	10	0	490	500

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

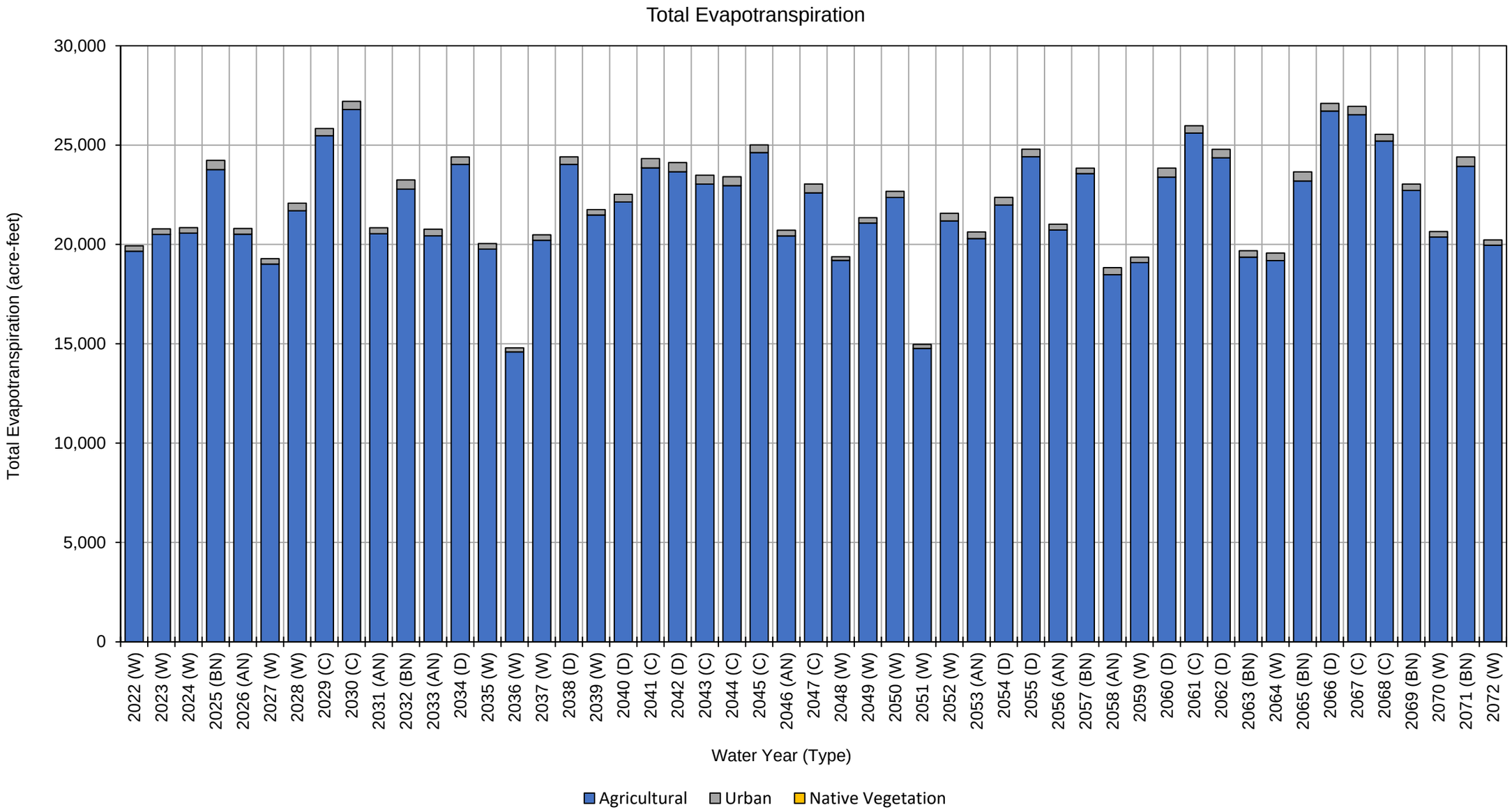
WY (Type)	Rivers, Streams, and Small Watersheds
2022 (W)	43,000
2023 (W)	44,000
2024 (W)	44,000
2025 (BN)	38,000
2026 (AN)	35,000
2027 (W)	37,000
2028 (W)	42,000
2029 (C)	35,000
2030 (C)	24,000
2031 (AN)	23,000
2032 (BN)	23,000
2033 (AN)	20,000
2034 (D)	23,000
2035 (W)	22,000
2036 (W)	40,000
2037 (W)	46,000
2038 (D)	44,000
2039 (W)	38,000
2040 (D)	39,000
2041 (C)	31,000
2042 (D)	19,000
2043 (C)	17,000
2044 (C)	11,000
2045 (C)	7,000
2046 (AN)	7,900
2047 (C)	12,000
2048 (W)	13,000
2049 (W)	24,000
2050 (W)	28,000
2051 (W)	36,000
2052 (W)	42,000
2053 (AN)	38,000
2054 (D)	37,000
2055 (D)	29,000
2056 (AN)	28,000
2057 (BN)	30,000
2058 (AN)	37,000
2059 (W)	36,000
2060 (D)	39,000
2061 (C)	30,000
2062 (D)	22,000
2063 (BN)	22,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

WY (Type)		Rivers, Streams, and Small Watersheds
2064 (W)		26,000
2065 (BN)		28,000
2066 (D)		18,000
2067 (C)		9,900
2068 (C)		3,600
2069 (BN)		0
2070 (W)		5,700
2071 (BN)		11,000
2072 (W)		13,000
Average (2022-2072)		27,000
2022-2072	W	32,000
	AN	27,000
	BN	22,000
	D	30,000
	C	18,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

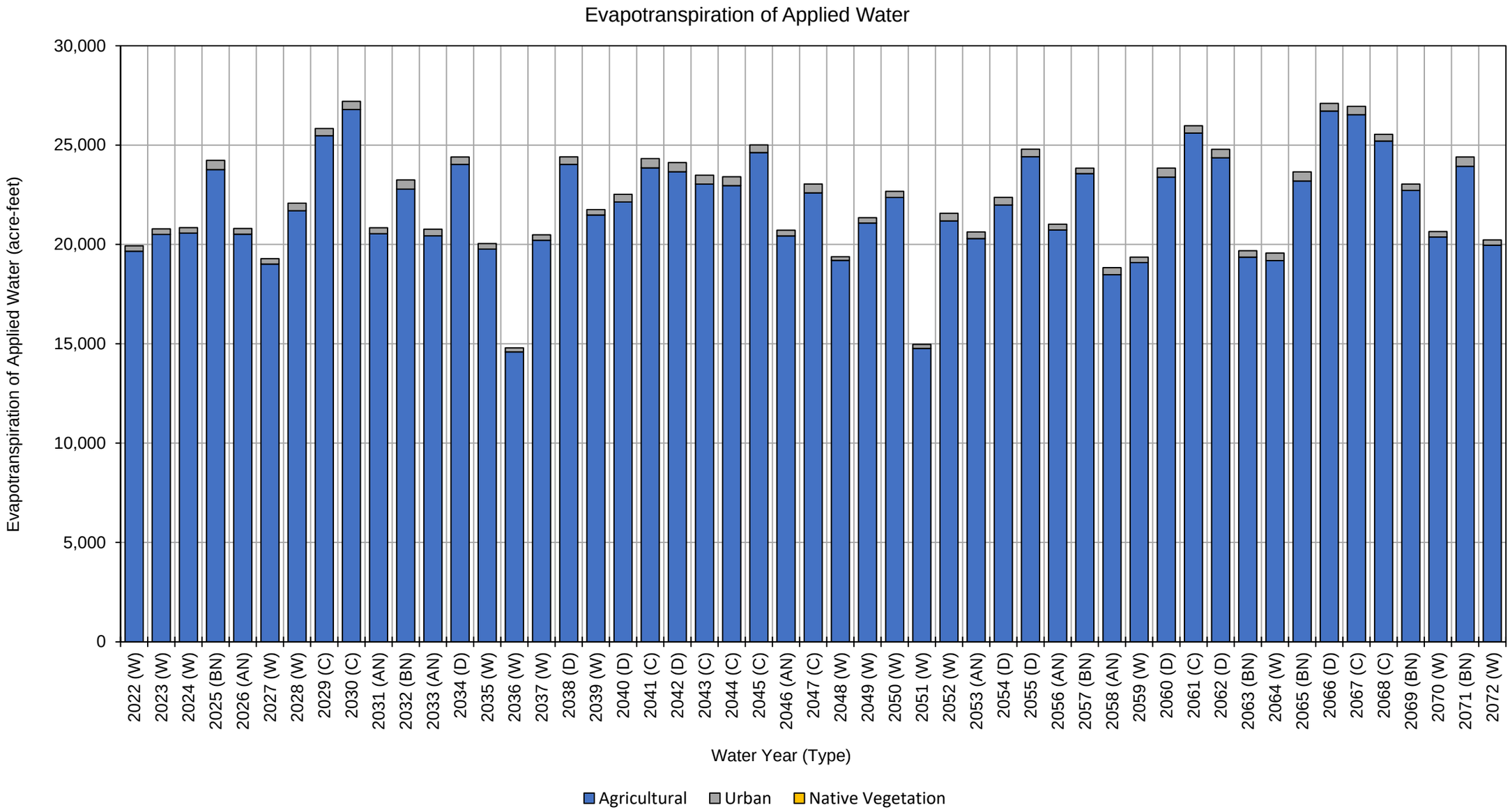
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	34,000	2,100	16,000	52,000
2023 (W)	34,000	1,900	15,000	51,000
2024 (W)	34,000	1,900	15,000	51,000
2025 (BN)	34,000	1,700	14,000	50,000
2026 (AN)	34,000	2,000	16,000	52,000
2027 (W)	33,000	1,900	15,000	50,000
2028 (W)	33,000	1,800	14,000	49,000
2029 (C)	35,000	1,400	13,000	49,000
2030 (C)	35,000	1,500	13,000	50,000
2031 (AN)	34,000	2,100	16,000	52,000
2032 (BN)	35,000	1,900	15,000	52,000
2033 (AN)	33,000	2,000	15,000	50,000
2034 (D)	35,000	1,700	14,000	51,000
2035 (W)	33,000	1,900	15,000	50,000
2036 (W)	30,000	2,000	15,000	47,000
2037 (W)	34,000	1,900	15,000	51,000
2038 (D)	35,000	1,700	14,000	51,000
2039 (W)	34,000	1,900	15,000	51,000
2040 (D)	34,000	1,800	15,000	51,000
2041 (C)	35,000	1,900	15,000	52,000
2042 (D)	34,000	1,800	14,000	50,000
2043 (C)	35,000	2,000	15,000	52,000
2044 (C)	35,000	2,000	15,000	52,000
2045 (C)	36,000	1,800	15,000	53,000
2046 (AN)	34,000	2,000	16,000	52,000
2047 (C)	35,000	2,000	15,000	52,000
2048 (W)	31,000	1,800	14,000	47,000
2049 (W)	34,000	1,900	15,000	51,000
2050 (W)	35,000	1,800	15,000	52,000
2051 (W)	30,000	2,000	15,000	47,000
2052 (W)	33,000	1,800	15,000	50,000
2053 (AN)	33,000	2,000	15,000	50,000
2054 (D)	34,000	1,800	15,000	51,000
2055 (D)	35,000	1,700	14,000	51,000
2056 (AN)	33,000	1,900	14,000	49,000
2057 (BN)	34,000	1,600	14,000	50,000
2058 (AN)	32,000	2,100	16,000	50,000
2059 (W)	33,000	1,900	15,000	50,000
2060 (D)	34,000	1,800	14,000	50,000
2061 (C)	35,000	1,500	13,000	50,000
2062 (D)	34,000	1,700	14,000	50,000
2063 (BN)	32,000	1,900	14,000	48,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		31,000	1,900	15,000	48,000
2065 (BN)		35,000	1,900	15,000	52,000
2066 (D)		35,000	1,500	13,000	50,000
2067 (C)		35,000	1,500	13,000	50,000
2068 (C)		35,000	1,700	14,000	51,000
2069 (BN)		35,000	1,900	15,000	52,000
2070 (W)		33,000	1,900	15,000	50,000
2071 (BN)		34,000	1,700	14,000	50,000
2072 (W)		34,000	2,100	16,000	52,000
Average (2022-2072)		34,000	1,800	15,000	51,000
2022-2072	W	33,000	1,900	15,000	50,000
	AN	33,000	2,000	15,000	50,000
	BN	34,000	1,800	14,000	50,000
	D	34,000	1,700	14,000	50,000
	C	35,000	1,700	14,000	51,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

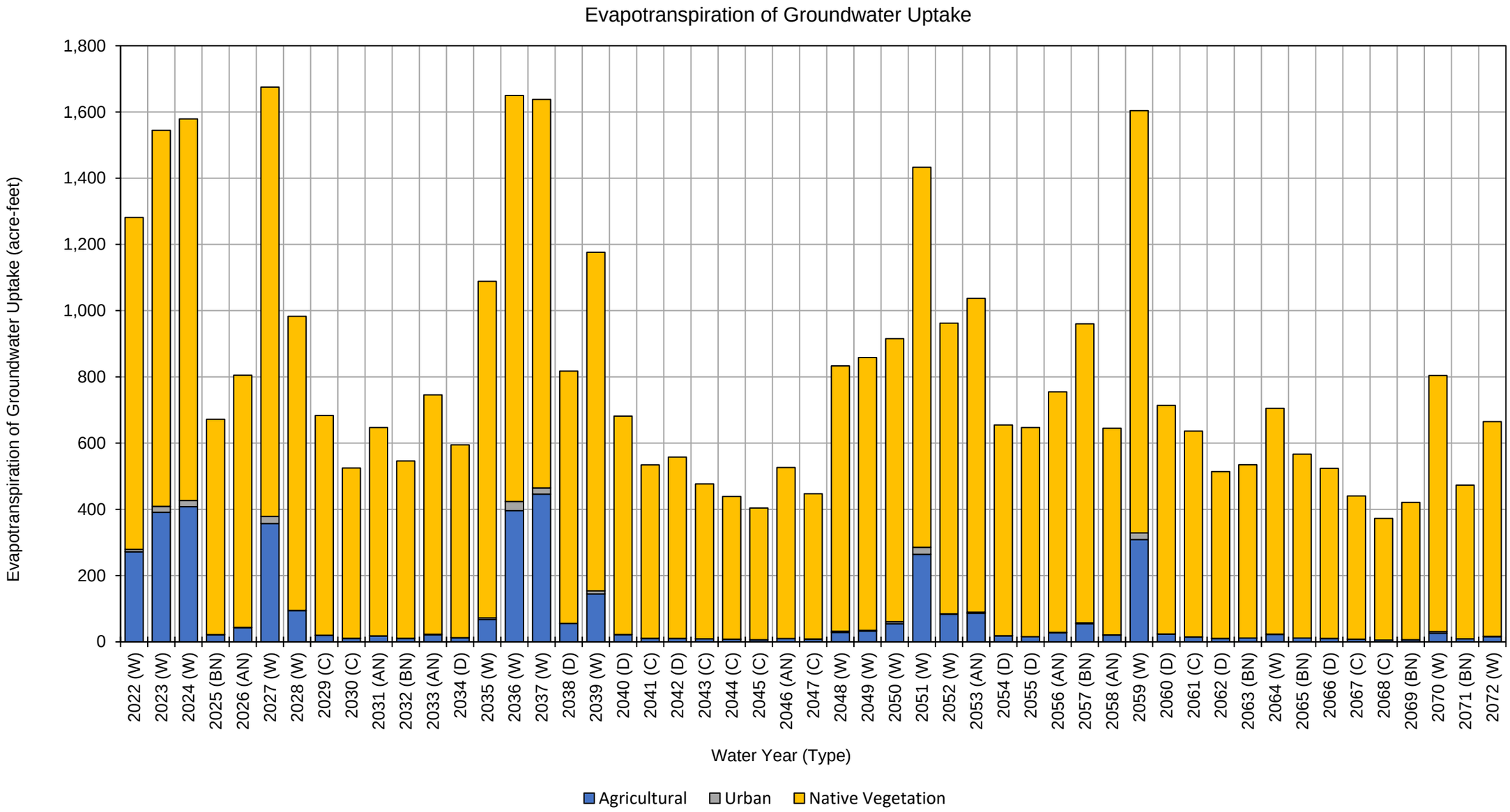
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	20,000	270	0	20,000
2023 (W)	21,000	280	0	21,000
2024 (W)	21,000	280	0	21,000
2025 (BN)	24,000	470	0	24,000
2026 (AN)	21,000	290	0	21,000
2027 (W)	19,000	280	0	19,000
2028 (W)	22,000	380	0	22,000
2029 (C)	25,000	370	0	25,000
2030 (C)	27,000	410	0	27,000
2031 (AN)	21,000	300	0	21,000
2032 (BN)	23,000	460	0	23,000
2033 (AN)	20,000	330	0	20,000
2034 (D)	24,000	380	0	24,000
2035 (W)	20,000	270	0	20,000
2036 (W)	15,000	200	0	15,000
2037 (W)	20,000	270	0	20,000
2038 (D)	24,000	380	0	24,000
2039 (W)	21,000	270	0	21,000
2040 (D)	22,000	390	0	22,000
2041 (C)	24,000	470	0	24,000
2042 (D)	24,000	460	0	24,000
2043 (C)	23,000	450	0	23,000
2044 (C)	23,000	440	0	23,000
2045 (C)	25,000	390	0	25,000
2046 (AN)	20,000	290	0	20,000
2047 (C)	23,000	450	0	23,000
2048 (W)	19,000	190	0	19,000
2049 (W)	21,000	270	0	21,000
2050 (W)	22,000	310	0	22,000
2051 (W)	15,000	210	0	15,000
2052 (W)	21,000	380	0	21,000
2053 (AN)	20,000	330	0	20,000
2054 (D)	22,000	390	0	22,000
2055 (D)	24,000	380	0	24,000
2056 (AN)	21,000	290	0	21,000
2057 (BN)	24,000	270	0	24,000
2058 (AN)	18,000	350	0	18,000
2059 (W)	19,000	280	0	19,000
2060 (D)	23,000	460	0	23,000
2061 (C)	26,000	370	0	26,000
2062 (D)	24,000	420	0	24,000
2063 (BN)	19,000	320	0	19,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		19,000	380	0	19,000
2065 (BN)		23,000	460	0	23,000
2066 (D)		27,000	390	0	27,000
2067 (C)		27,000	420	0	27,000
2068 (C)		25,000	340	0	25,000
2069 (BN)		23,000	320	0	23,000
2070 (W)		20,000	280	0	20,000
2071 (BN)		24,000	470	0	24,000
2072 (W)		20,000	260	0	20,000
Average (2022-2072)		22,000	350	0	22,000
2022-2072	W	20,000	280	0	20,000
	AN	20,000	310	0	20,000
	BN	23,000	400	0	23,000
	D	24,000	400	0	24,000
	C	25,000	410	0	25,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

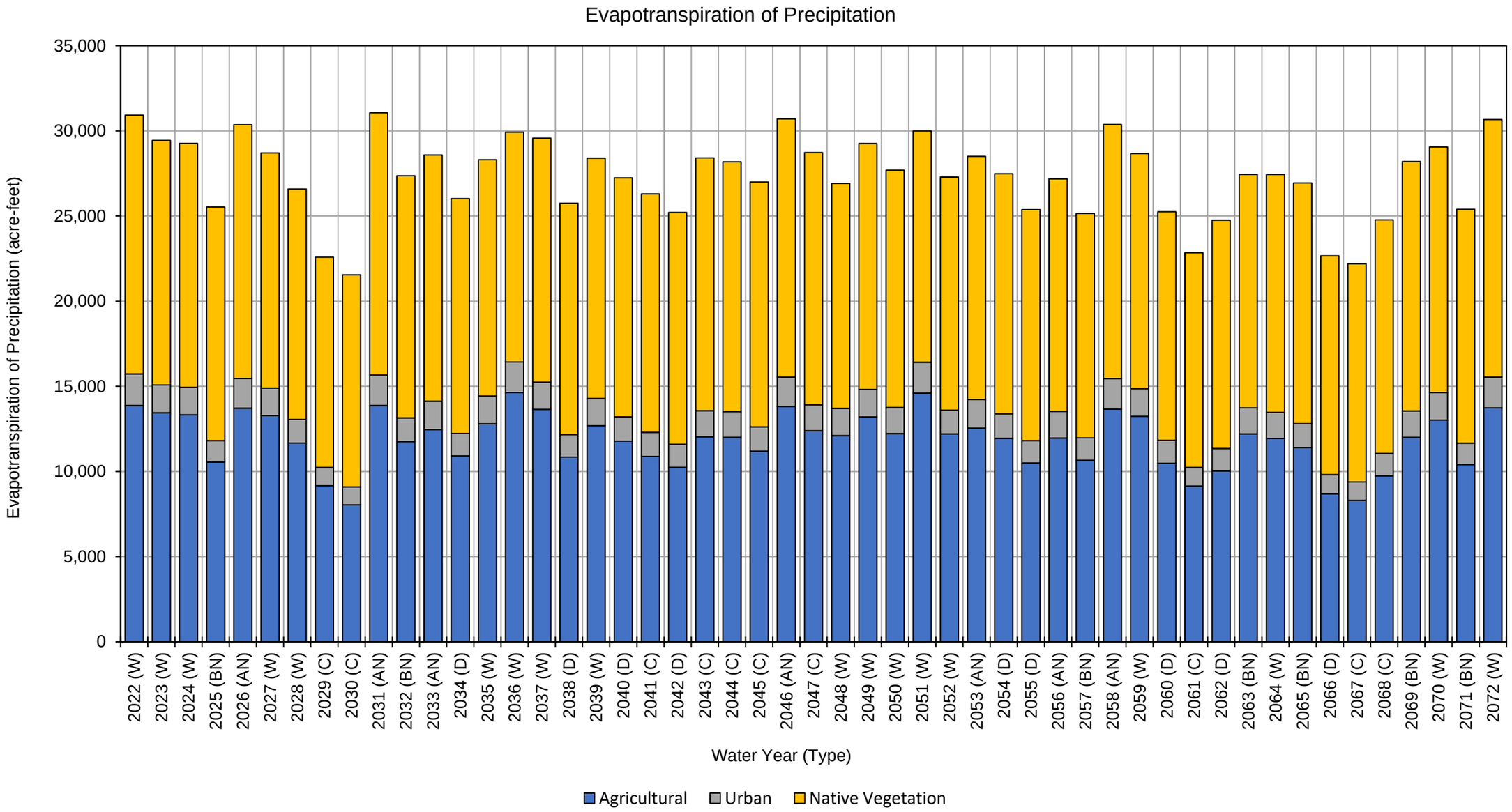
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	270	7	1,000	1,300
2023 (W)	390	18	1,100	1,500
2024 (W)	410	19	1,200	1,600
2025 (BN)	22	0	650	670
2026 (AN)	43	1	760	800
2027 (W)	360	22	1,300	1,700
2028 (W)	94	1	890	990
2029 (C)	20	0	660	680
2030 (C)	10	0	510	520
2031 (AN)	17	0	630	650
2032 (BN)	11	0	540	550
2033 (AN)	21	2	720	740
2034 (D)	12	0	580	590
2035 (W)	67	5	1,000	1,100
2036 (W)	400	28	1,200	1,600
2037 (W)	450	19	1,200	1,700
2038 (D)	55	0	760	820
2039 (W)	140	9	1,000	1,100
2040 (D)	22	0	660	680
2041 (C)	10	0	520	530
2042 (D)	10	0	550	560
2043 (C)	9	0	470	480
2044 (C)	8	0	430	440
2045 (C)	6	0	400	410
2046 (AN)	10	0	520	530
2047 (C)	8	0	440	450
2048 (W)	28	4	800	830
2049 (W)	32	3	820	850
2050 (W)	55	6	850	910
2051 (W)	260	21	1,100	1,400
2052 (W)	83	1	880	960
2053 (AN)	86	4	950	1,000
2054 (D)	18	0	640	660
2055 (D)	16	0	630	650
2056 (AN)	27	1	730	760
2057 (BN)	55	2	900	960
2058 (AN)	20	0	620	640
2059 (W)	310	20	1,300	1,600
2060 (D)	24	0	690	710
2061 (C)	14	0	620	630
2062 (D)	10	0	500	510
2063 (BN)	11	0	520	530

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		22	1	680	700
2065 (BN)		12	0	560	570
2066 (D)		10	0	510	520
2067 (C)		8	0	430	440
2068 (C)		5	0	370	380
2069 (BN)		6	0	410	420
2070 (W)		26	5	770	800
2071 (BN)		9	0	460	470
2072 (W)		16	1	650	670
Average (2022-2072)		79	4	730	810
2022-2072	W	190	11	990	1,200
	AN	32	1	700	730
	BN	18	0	580	600
	D	20	0	610	630
	C	10	0	490	500

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

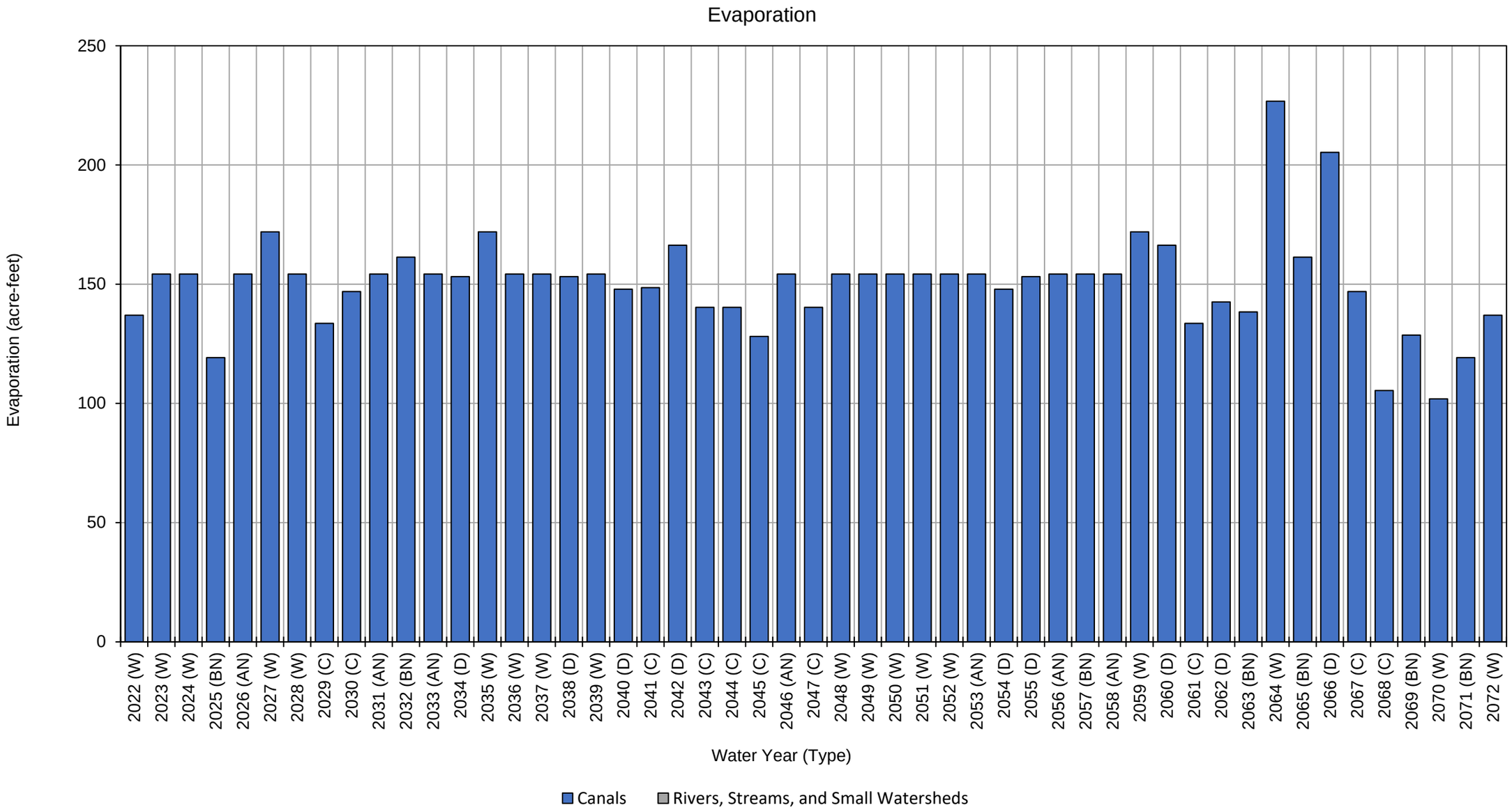
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	14,000	1,900	15,000	31,000
2023 (W)	13,000	1,600	14,000	29,000
2024 (W)	13,000	1,600	14,000	29,000
2025 (BN)	11,000	1,300	14,000	26,000
2026 (AN)	14,000	1,700	15,000	31,000
2027 (W)	13,000	1,600	14,000	29,000
2028 (W)	12,000	1,400	14,000	27,000
2029 (C)	9,200	1,100	12,000	22,000
2030 (C)	8,000	1,100	12,000	21,000
2031 (AN)	14,000	1,800	15,000	31,000
2032 (BN)	12,000	1,400	14,000	27,000
2033 (AN)	12,000	1,700	14,000	28,000
2034 (D)	11,000	1,300	14,000	26,000
2035 (W)	13,000	1,600	14,000	29,000
2036 (W)	15,000	1,800	13,000	30,000
2037 (W)	14,000	1,600	14,000	30,000
2038 (D)	11,000	1,300	14,000	26,000
2039 (W)	13,000	1,600	14,000	29,000
2040 (D)	12,000	1,400	14,000	27,000
2041 (C)	11,000	1,400	14,000	26,000
2042 (D)	10,000	1,400	14,000	25,000
2043 (C)	12,000	1,500	15,000	29,000
2044 (C)	12,000	1,500	15,000	29,000
2045 (C)	11,000	1,400	14,000	26,000
2046 (AN)	14,000	1,700	15,000	31,000
2047 (C)	12,000	1,500	15,000	29,000
2048 (W)	12,000	1,600	13,000	27,000
2049 (W)	13,000	1,600	14,000	29,000
2050 (W)	12,000	1,500	14,000	28,000
2051 (W)	15,000	1,800	14,000	31,000
2052 (W)	12,000	1,400	14,000	27,000
2053 (AN)	13,000	1,700	14,000	29,000
2054 (D)	12,000	1,400	14,000	27,000
2055 (D)	11,000	1,300	14,000	26,000
2056 (AN)	12,000	1,600	14,000	28,000
2057 (BN)	11,000	1,300	13,000	25,000
2058 (AN)	14,000	1,800	15,000	31,000
2059 (W)	13,000	1,600	14,000	29,000
2060 (D)	10,000	1,400	13,000	24,000
2061 (C)	9,100	1,100	13,000	23,000
2062 (D)	10,000	1,300	13,000	24,000
2063 (BN)	12,000	1,500	14,000	28,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		12,000	1,500	14,000	28,000
2065 (BN)		11,000	1,400	14,000	26,000
2066 (D)		8,700	1,100	13,000	23,000
2067 (C)		8,300	1,100	13,000	22,000
2068 (C)		9,700	1,300	14,000	25,000
2069 (BN)		12,000	1,500	15,000	29,000
2070 (W)		13,000	1,600	14,000	29,000
2071 (BN)		10,000	1,300	14,000	25,000
2072 (W)		14,000	1,800	15,000	31,000
Average (2022-2072)		12,000	1,500	14,000	28,000
2022-2072	W	13,000	1,600	14,000	29,000
	AN	13,000	1,700	15,000	30,000
	BN	11,000	1,400	14,000	26,000
	D	11,000	1,300	14,000	26,000
	C	10,000	1,300	14,000	25,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Evaporation (acre-feet, rounded)

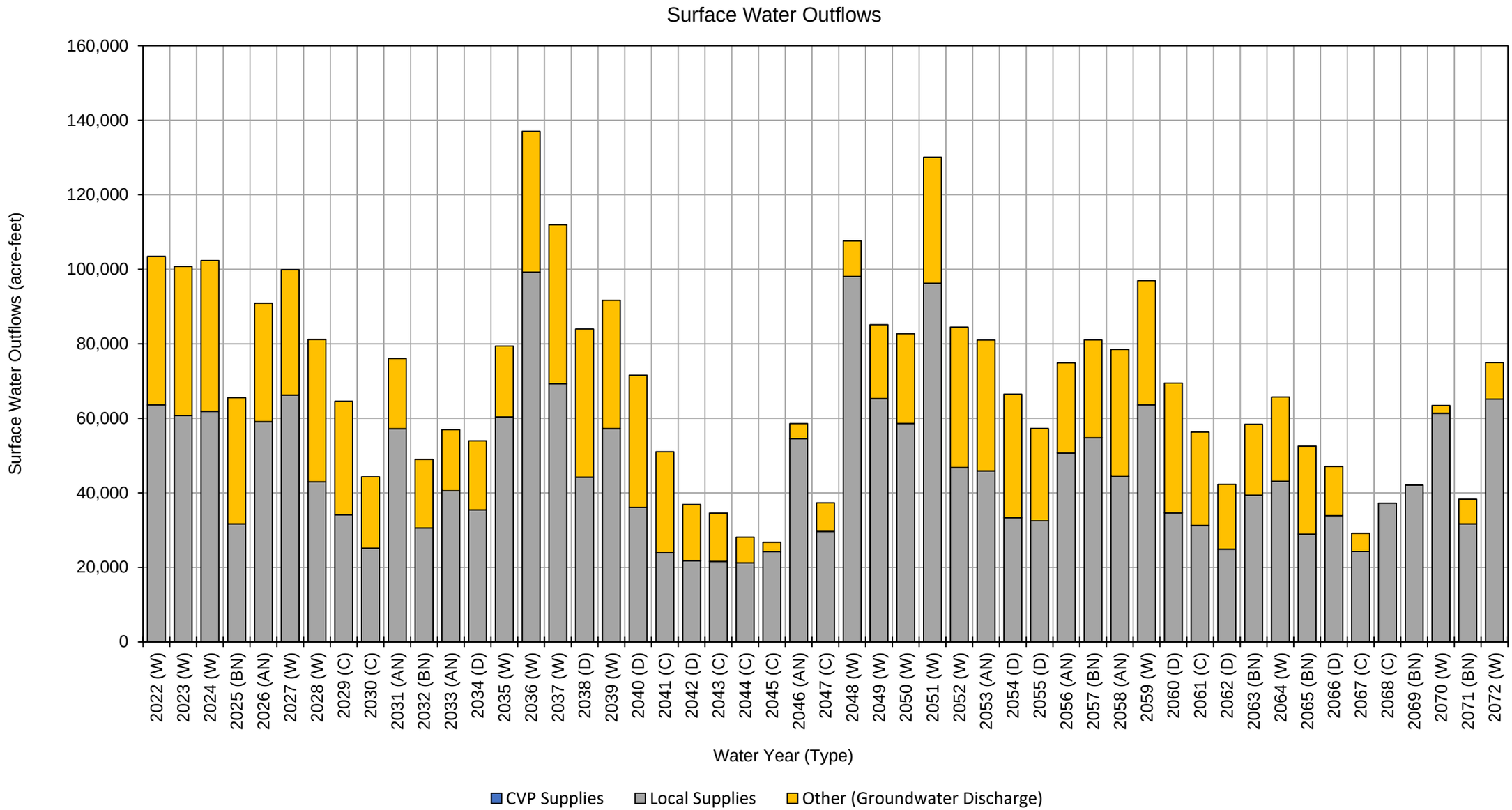
WY (Type)	Canals	Rivers, Streams, and Small Watersheds	Total
2022 (W)	140	0	140
2023 (W)	150	0	150
2024 (W)	150	0	150
2025 (BN)	120	0	120
2026 (AN)	150	0	150
2027 (W)	170	0	170
2028 (W)	150	0	150
2029 (C)	130	0	130
2030 (C)	150	0	150
2031 (AN)	150	0	150
2032 (BN)	160	0	160
2033 (AN)	150	0	150
2034 (D)	150	0	150
2035 (W)	170	0	170
2036 (W)	150	0	150
2037 (W)	150	0	150
2038 (D)	150	0	150
2039 (W)	150	0	150
2040 (D)	150	0	150
2041 (C)	150	0	150
2042 (D)	170	0	170
2043 (C)	140	0	140
2044 (C)	140	0	140
2045 (C)	130	0	130
2046 (AN)	150	0	150
2047 (C)	140	0	140
2048 (W)	150	0	150
2049 (W)	150	0	150
2050 (W)	150	0	150
2051 (W)	150	0	150
2052 (W)	150	0	150
2053 (AN)	150	0	150
2054 (D)	150	0	150
2055 (D)	150	0	150
2056 (AN)	150	0	150
2057 (BN)	150	0	150
2058 (AN)	150	0	150
2059 (W)	170	0	170
2060 (D)	170	0	170
2061 (C)	130	0	130
2062 (D)	140	0	140
2063 (BN)	140	0	140

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Evaporation (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Watersheds	Total
2064 (W)		230	0	230
2065 (BN)		160	0	160
2066 (D)		210	0	210
2067 (C)		150	0	150
2068 (C)		110	0	110
2069 (BN)		130	0	130
2070 (W)		100	0	100
2071 (BN)		120	0	120
2072 (W)		140	0	140
Average (2022-2072)		150	0	150
2022-2072	W	160	0	160
	AN	150	0	150
	BN	140	0	140
	D	160	0	160
	C	140	0	140

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

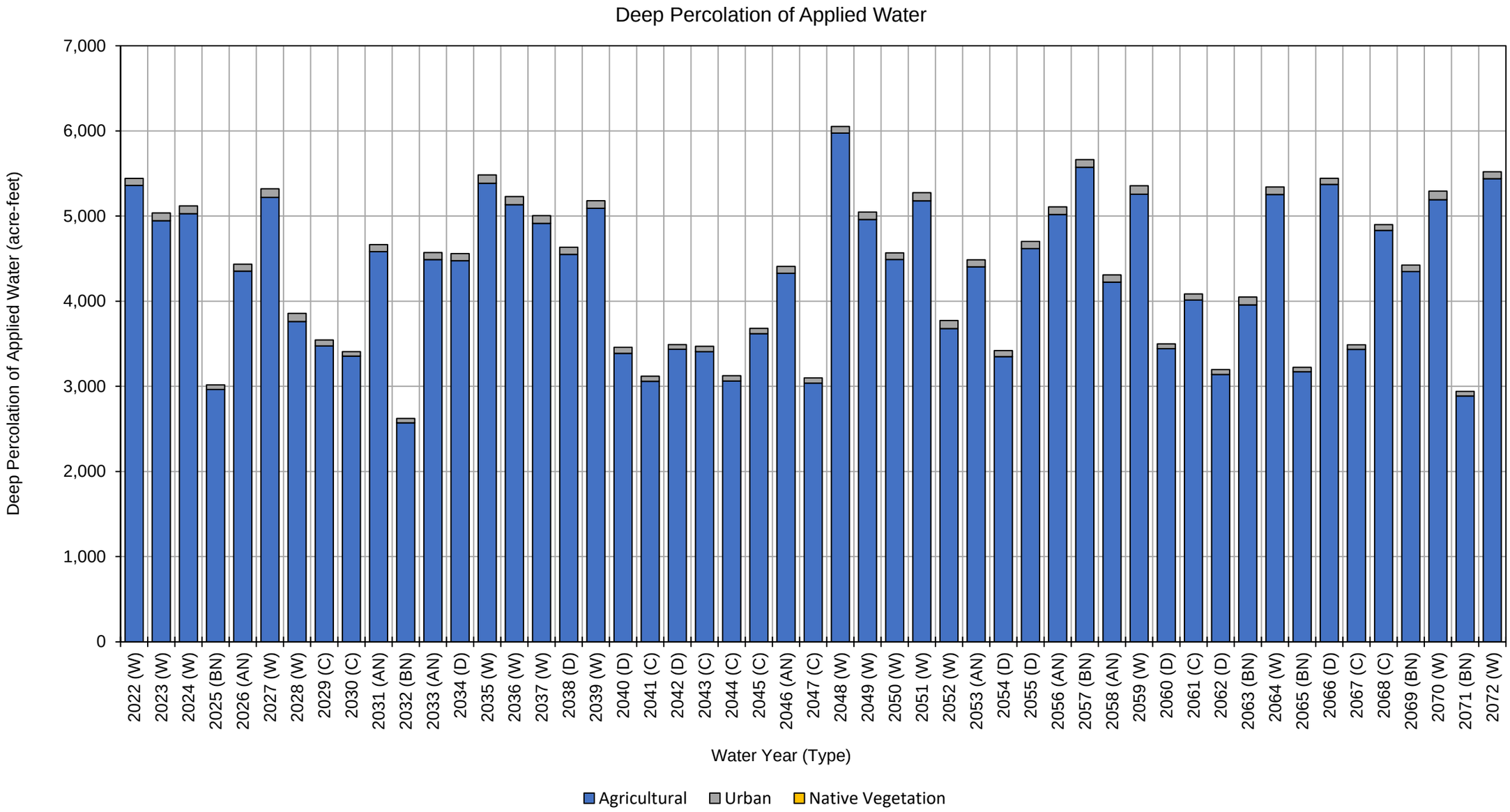
WY (Type)	CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2022 (W)	0	64,000	40,000	100,000
2023 (W)	0	61,000	40,000	100,000
2024 (W)	0	62,000	40,000	100,000
2025 (BN)	0	32,000	34,000	66,000
2026 (AN)	0	59,000	32,000	91,000
2027 (W)	0	66,000	34,000	100,000
2028 (W)	0	43,000	38,000	81,000
2029 (C)	0	34,000	30,000	64,000
2030 (C)	0	25,000	19,000	44,000
2031 (AN)	0	57,000	19,000	76,000
2032 (BN)	0	31,000	18,000	49,000
2033 (AN)	0	41,000	16,000	57,000
2034 (D)	0	35,000	19,000	54,000
2035 (W)	0	60,000	19,000	79,000
2036 (W)	0	99,000	38,000	140,000
2037 (W)	0	69,000	43,000	110,000
2038 (D)	0	44,000	40,000	84,000
2039 (W)	0	57,000	34,000	91,000
2040 (D)	0	36,000	35,000	71,000
2041 (C)	0	24,000	27,000	51,000
2042 (D)	0	22,000	15,000	37,000
2043 (C)	0	22,000	13,000	35,000
2044 (C)	0	21,000	6,900	28,000
2045 (C)	0	24,000	2,500	27,000
2046 (AN)	0	55,000	4,100	59,000
2047 (C)	0	30,000	7,700	38,000
2048 (W)	0	98,000	9,500	110,000
2049 (W)	0	65,000	20,000	85,000
2050 (W)	0	59,000	24,000	83,000
2051 (W)	0	96,000	34,000	130,000
2052 (W)	0	47,000	38,000	85,000
2053 (AN)	0	46,000	35,000	81,000
2054 (D)	0	33,000	33,000	66,000
2055 (D)	0	32,000	25,000	57,000
2056 (AN)	0	51,000	24,000	75,000
2057 (BN)	0	55,000	26,000	81,000
2058 (AN)	0	44,000	34,000	78,000
2059 (W)	0	64,000	33,000	97,000
2060 (D)	0	35,000	35,000	70,000
2061 (C)	0	31,000	25,000	56,000
2062 (D)	0	25,000	17,000	42,000
2063 (BN)	0	39,000	19,000	58,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2064 (W)		0	43,000	23,000	66,000
2065 (BN)		0	29,000	24,000	53,000
2066 (D)		0	34,000	13,000	47,000
2067 (C)		0	24,000	4,900	29,000
2068 (C)		0	37,000	0	37,000
2069 (BN)		0	42,000	0	42,000
2070 (W)		0	61,000	2,100	63,000
2071 (BN)		0	32,000	6,600	39,000
2072 (W)		0	65,000	9,800	75,000
Average (2022-2072)		0	46,000	23,000	69,000
2022-2072	W	0	66,000	29,000	95,000
	AN	0	50,000	23,000	73,000
	BN	0	37,000	18,000	55,000
	D	0	33,000	26,000	59,000
	C	0	27,000	14,000	41,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

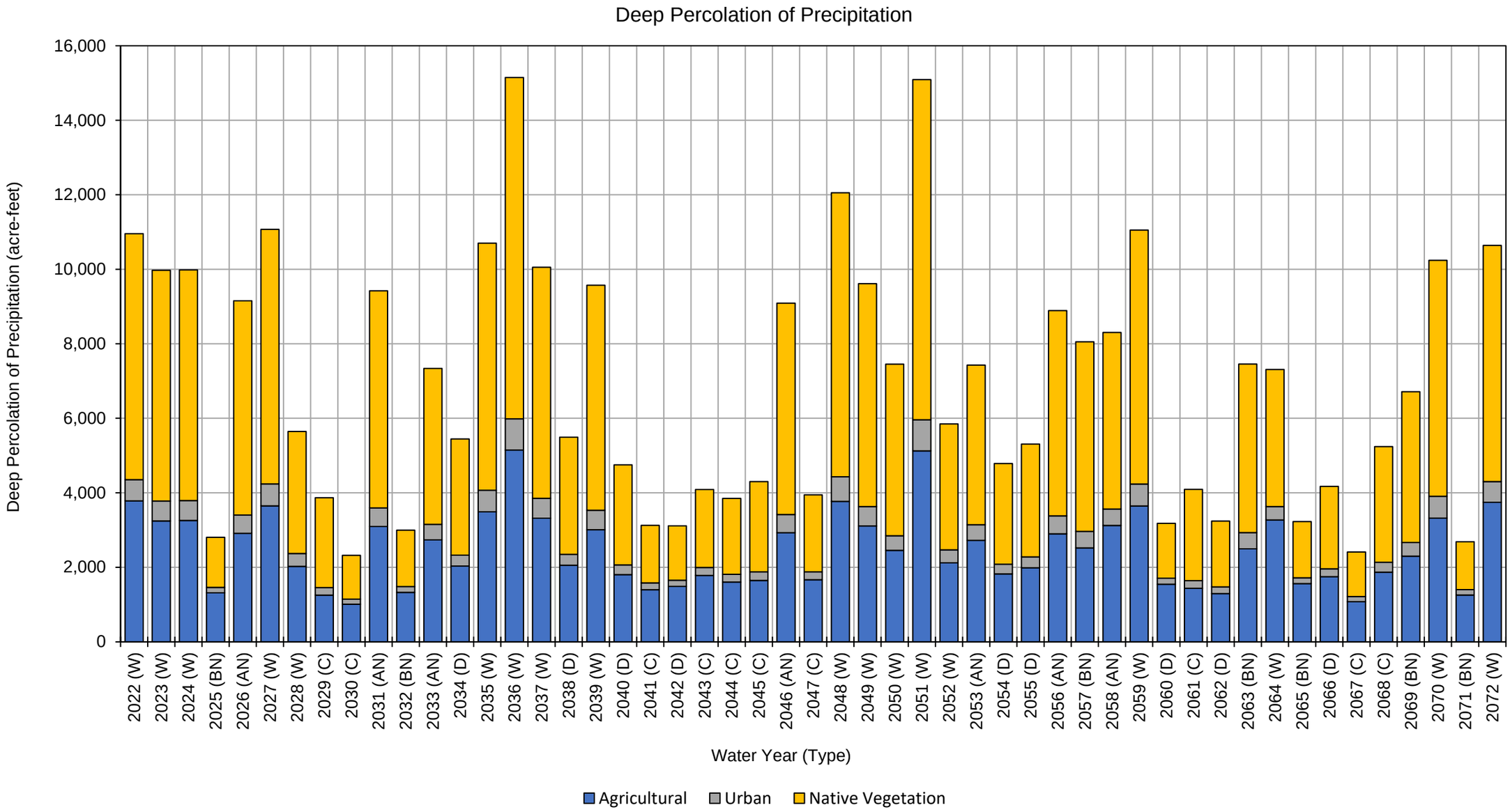
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	5,400	84	0	5,500
2023 (W)	4,900	91	0	5,000
2024 (W)	5,000	91	0	5,100
2025 (BN)	3,000	54	0	3,100
2026 (AN)	4,400	81	0	4,500
2027 (W)	5,200	100	0	5,300
2028 (W)	3,800	95	0	3,900
2029 (C)	3,500	70	0	3,600
2030 (C)	3,400	53	0	3,500
2031 (AN)	4,600	83	0	4,700
2032 (BN)	2,600	52	0	2,700
2033 (AN)	4,500	83	0	4,600
2034 (D)	4,500	84	0	4,600
2035 (W)	5,400	97	0	5,500
2036 (W)	5,100	95	0	5,200
2037 (W)	4,900	91	0	5,000
2038 (D)	4,500	84	0	4,600
2039 (W)	5,100	89	0	5,200
2040 (D)	3,400	70	0	3,500
2041 (C)	3,100	60	0	3,200
2042 (D)	3,400	56	0	3,500
2043 (C)	3,400	63	0	3,500
2044 (C)	3,100	62	0	3,200
2045 (C)	3,600	63	0	3,700
2046 (AN)	4,300	81	0	4,400
2047 (C)	3,000	62	0	3,100
2048 (W)	6,000	77	0	6,100
2049 (W)	5,000	88	0	5,100
2050 (W)	4,500	78	0	4,600
2051 (W)	5,200	95	0	5,300
2052 (W)	3,700	96	0	3,800
2053 (AN)	4,400	83	0	4,500
2054 (D)	3,300	70	0	3,400
2055 (D)	4,600	84	0	4,700
2056 (AN)	5,000	90	0	5,100
2057 (BN)	5,600	91	0	5,700
2058 (AN)	4,200	86	0	4,300
2059 (W)	5,300	100	0	5,400
2060 (D)	3,400	55	0	3,500
2061 (C)	4,000	71	0	4,100
2062 (D)	3,100	58	0	3,200
2063 (BN)	4,000	93	0	4,100

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		5,300	88	0	5,400
2065 (BN)		3,200	52	0	3,300
2066 (D)		5,400	72	0	5,500
2067 (C)		3,400	54	0	3,500
2068 (C)		4,800	69	0	4,900
2069 (BN)		4,300	75	0	4,400
2070 (W)		5,200	100	0	5,300
2071 (BN)		2,900	54	0	3,000
2072 (W)		5,400	81	0	5,500
Average (2022-2072)		4,300	78	0	4,400
2022-2072	W	5,000	91	0	5,100
	AN	4,500	84	0	4,600
	BN	3,600	67	0	3,700
	D	4,000	70	0	4,100
	C	3,500	63	0	3,600

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

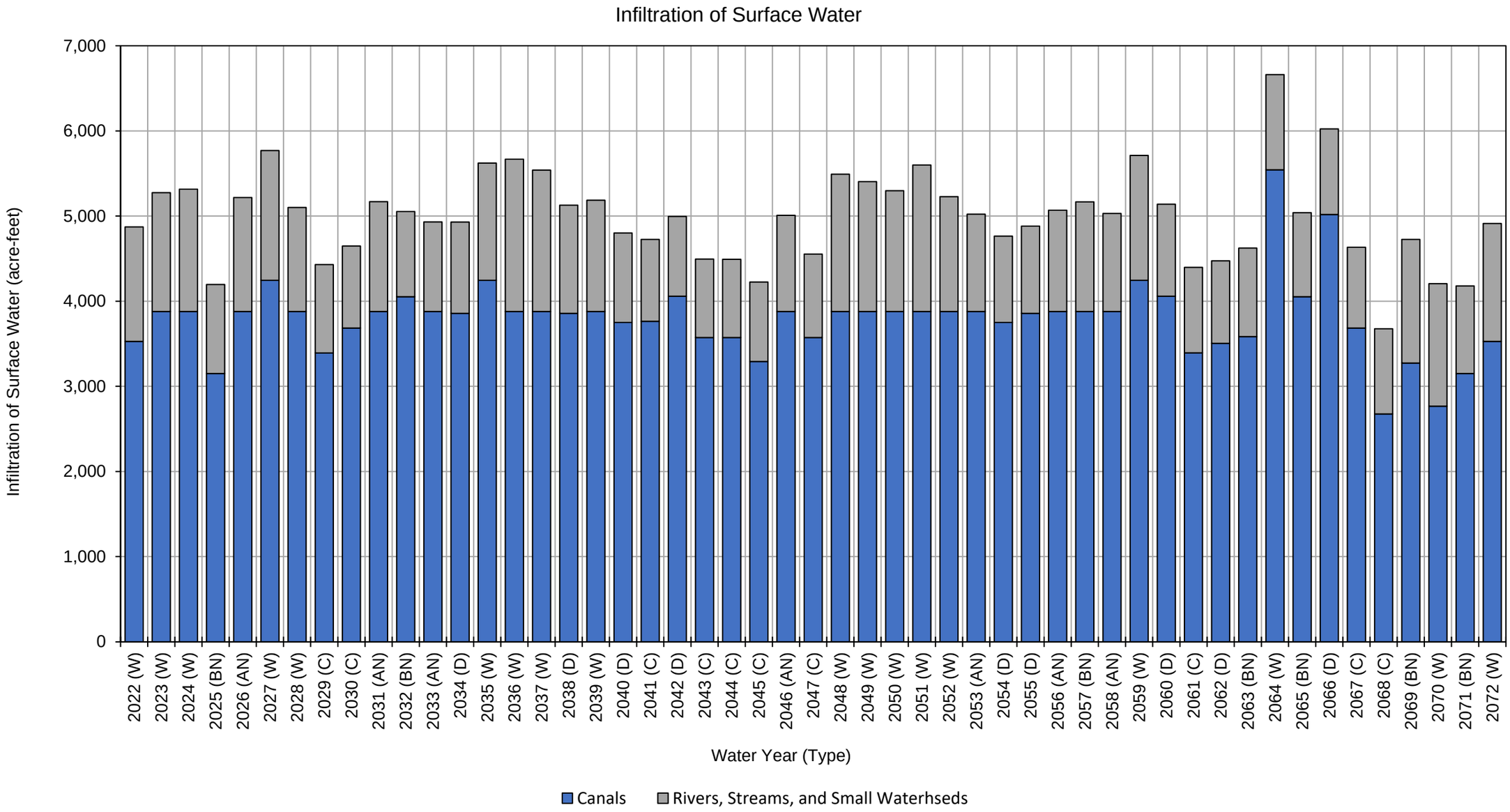
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	3,800	570	6,600	11,000
2023 (W)	3,200	530	6,200	9,900
2024 (W)	3,300	530	6,200	10,000
2025 (BN)	1,300	150	1,300	2,800
2026 (AN)	2,900	490	5,800	9,200
2027 (W)	3,600	590	6,800	11,000
2028 (W)	2,000	350	3,300	5,700
2029 (C)	1,300	200	2,400	3,900
2030 (C)	1,000	140	1,200	2,300
2031 (AN)	3,100	500	5,800	9,400
2032 (BN)	1,300	160	1,500	3,000
2033 (AN)	2,700	420	4,200	7,300
2034 (D)	2,000	290	3,100	5,400
2035 (W)	3,500	580	6,600	11,000
2036 (W)	5,100	840	9,200	15,000
2037 (W)	3,300	530	6,200	10,000
2038 (D)	2,100	290	3,100	5,500
2039 (W)	3,000	520	6,000	9,500
2040 (D)	1,800	260	2,700	4,800
2041 (C)	1,400	180	1,500	3,100
2042 (D)	1,500	160	1,500	3,200
2043 (C)	1,800	210	2,100	4,100
2044 (C)	1,600	210	2,000	3,800
2045 (C)	1,600	230	2,400	4,200
2046 (AN)	2,900	490	5,700	9,100
2047 (C)	1,700	210	2,100	4,000
2048 (W)	3,800	660	7,600	12,000
2049 (W)	3,100	520	6,000	9,600
2050 (W)	2,500	390	4,600	7,500
2051 (W)	5,100	830	9,100	15,000
2052 (W)	2,100	350	3,400	5,900
2053 (AN)	2,700	420	4,300	7,400
2054 (D)	1,800	260	2,700	4,800
2055 (D)	2,000	290	3,000	5,300
2056 (AN)	2,900	480	5,500	8,900
2057 (BN)	2,500	440	5,100	8,000
2058 (AN)	3,100	440	4,700	8,200
2059 (W)	3,600	590	6,800	11,000
2060 (D)	1,500	160	1,500	3,200
2061 (C)	1,400	210	2,400	4,000
2062 (D)	1,300	180	1,800	3,300
2063 (BN)	2,500	440	4,500	7,400

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		3,300	360	3,700	7,400
2065 (BN)		1,600	160	1,500	3,300
2066 (D)		1,700	210	2,200	4,100
2067 (C)		1,100	140	1,200	2,400
2068 (C)		1,900	270	3,100	5,300
2069 (BN)		2,300	370	4,000	6,700
2070 (W)		3,300	590	6,300	10,000
2071 (BN)		1,300	140	1,300	2,700
2072 (W)		3,700	560	6,300	11,000
Average (2022-2072)		2,500	370	4,100	7,000
2022-2072	W	3,400	550	6,200	10,000
	AN	2,900	460	5,100	8,500
	BN	1,800	260	2,800	4,900
	D	1,800	230	2,400	4,400
	C	1,500	200	2,000	3,700

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Infiltration of Surface Water (acre-feet, rounded)

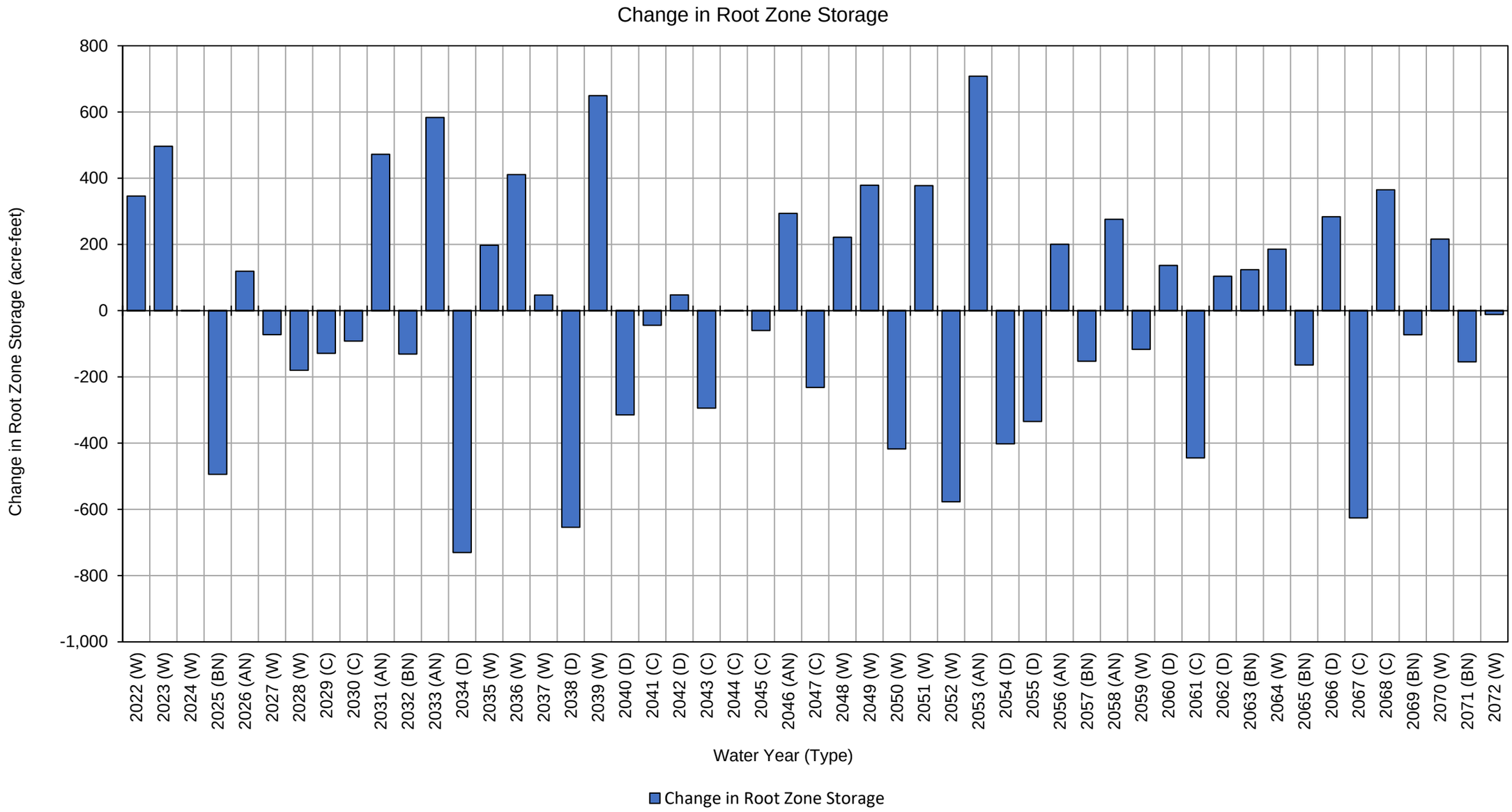
WY (Type)	Canals	Rivers, Streams, and Small Waterhseds	Total
2022 (W)	3,500	1,300	4,800
2023 (W)	3,900	1,400	5,300
2024 (W)	3,900	1,400	5,300
2025 (BN)	3,200	1,000	4,200
2026 (AN)	3,900	1,300	5,200
2027 (W)	4,200	1,500	5,700
2028 (W)	3,900	1,200	5,100
2029 (C)	3,400	1,000	4,400
2030 (C)	3,700	960	4,700
2031 (AN)	3,900	1,300	5,200
2032 (BN)	4,100	1,000	5,100
2033 (AN)	3,900	1,100	5,000
2034 (D)	3,900	1,100	5,000
2035 (W)	4,200	1,400	5,600
2036 (W)	3,900	1,800	5,700
2037 (W)	3,900	1,700	5,600
2038 (D)	3,900	1,300	5,200
2039 (W)	3,900	1,300	5,200
2040 (D)	3,800	1,100	4,900
2041 (C)	3,800	960	4,800
2042 (D)	4,100	940	5,000
2043 (C)	3,600	920	4,500
2044 (C)	3,600	920	4,500
2045 (C)	3,300	930	4,200
2046 (AN)	3,900	1,100	5,000
2047 (C)	3,600	980	4,600
2048 (W)	3,900	1,600	5,500
2049 (W)	3,900	1,500	5,400
2050 (W)	3,900	1,400	5,300
2051 (W)	3,900	1,700	5,600
2052 (W)	3,900	1,300	5,200
2053 (AN)	3,900	1,100	5,000
2054 (D)	3,800	1,000	4,800
2055 (D)	3,900	1,000	4,900
2056 (AN)	3,900	1,200	5,100
2057 (BN)	3,900	1,300	5,200
2058 (AN)	3,900	1,200	5,100
2059 (W)	4,200	1,500	5,700
2060 (D)	4,100	1,100	5,200
2061 (C)	3,400	1,000	4,400
2062 (D)	3,500	970	4,500
2063 (BN)	3,600	1,000	4,600

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Infiltration of Surface Water (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Waterhseds	Total
2064 (W)		5,500	1,100	6,600
2065 (BN)		4,100	990	5,100
2066 (D)		5,000	1,000	6,000
2067 (C)		3,700	950	4,700
2068 (C)		2,700	1,000	3,700
2069 (BN)		3,300	1,500	4,800
2070 (W)		2,800	1,400	4,200
2071 (BN)		3,200	1,000	4,200
2072 (W)		3,500	1,400	4,900
Average (2022-2072)		3,800	1,200	5,000
2022-2072	W	3,900	1,400	5,300
	AN	3,900	1,200	5,100
	BN	3,600	1,100	4,700
	D	4,000	1,000	5,000
	C	3,500	970	4,500

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)	Change in Root Zone Storage
2022 (W)	350
2023 (W)	500
2024 (W)	1
2025 (BN)	-490
2026 (AN)	120
2027 (W)	-73
2028 (W)	-180
2029 (C)	-130
2030 (C)	-92
2031 (AN)	470
2032 (BN)	-130
2033 (AN)	580
2034 (D)	-730
2035 (W)	200
2036 (W)	410
2037 (W)	47
2038 (D)	-650
2039 (W)	650
2040 (D)	-310
2041 (C)	-44
2042 (D)	48
2043 (C)	-290
2044 (C)	-1
2045 (C)	-60
2046 (AN)	290
2047 (C)	-230
2048 (W)	220
2049 (W)	380
2050 (W)	-420
2051 (W)	380
2052 (W)	-580
2053 (AN)	710
2054 (D)	-400
2055 (D)	-330
2056 (AN)	200
2057 (BN)	-150
2058 (AN)	280
2059 (W)	-120
2060 (D)	140
2061 (C)	-440
2062 (D)	100
2063 (BN)	120

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)		Change in Root Zone Storage
2064 (W)		190
2065 (BN)		-160
2066 (D)		280
2067 (C)		-630
2068 (C)		370
2069 (BN)		-73
2070 (W)		220
2071 (BN)		-150
2072 (W)		-12
Average (2022-2072)		7
2022-2072	W	120
	AN	380
	BN	-150
	D	-210
	C	-160

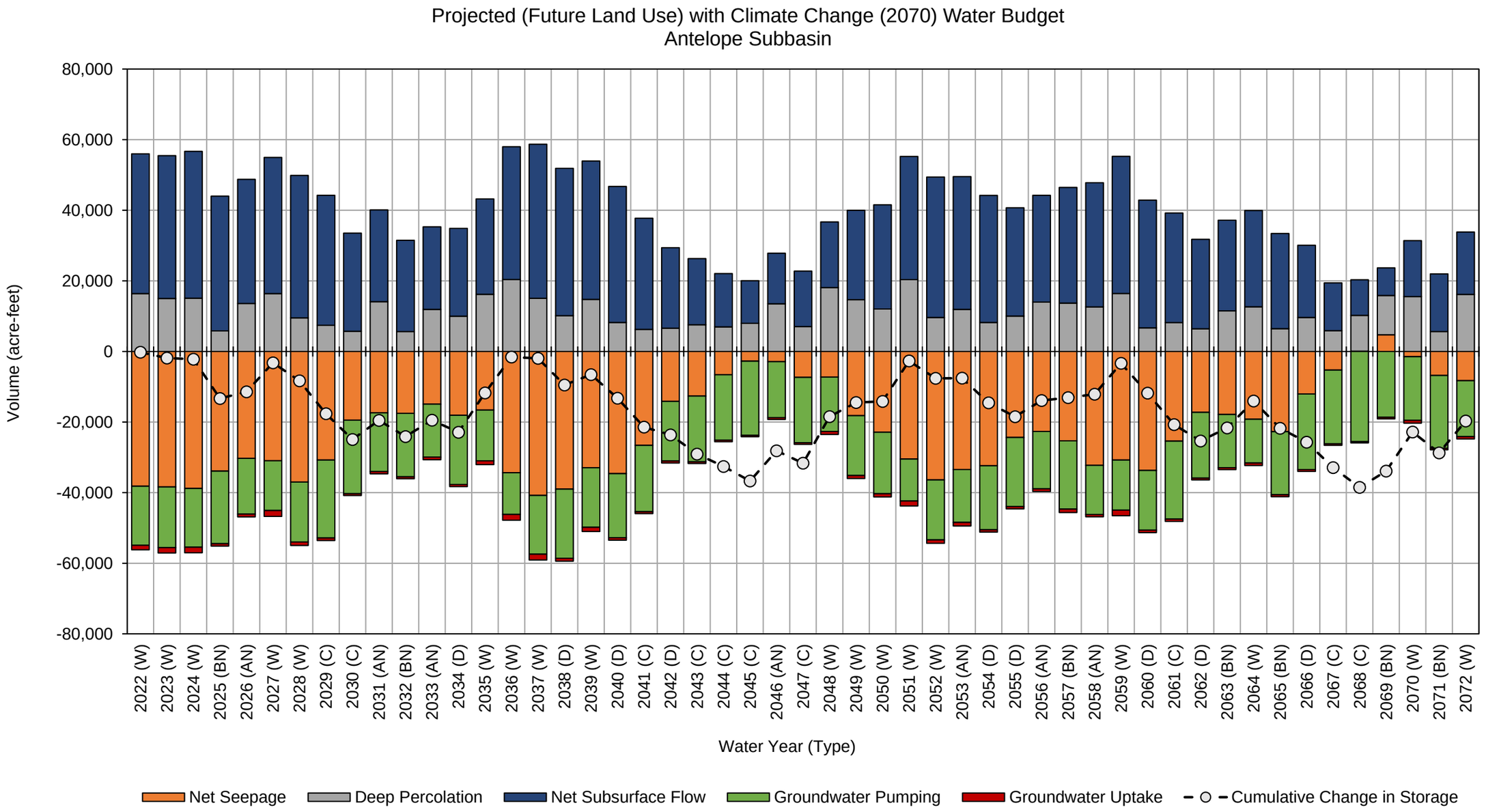
Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX A-7b

Detailed Antelope Subbasin Water Budget Results:

Projected (Future Land Use) with Climate Change (2070) Model Results – Groundwater System


Projected (Future Land Use) with Climate Change (2070) Water Budget
Antelope Subbasin
Volume (acre-feet)
80,000
60,000
40,000
20,000
0
-20,000
-40,000
-60,000
-80,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Water Budget Summary (acre-feet, rounded)

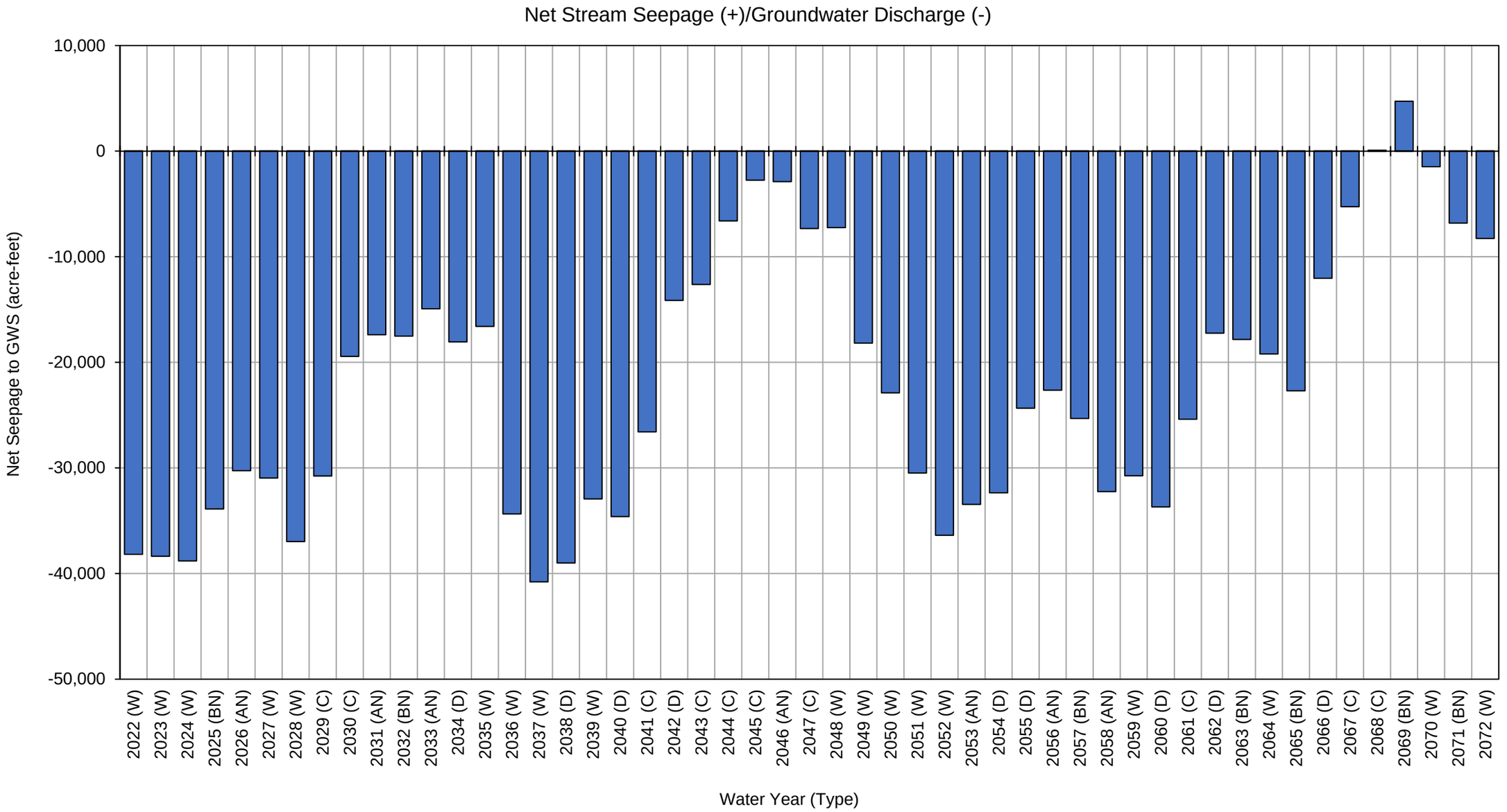
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	-38,000	16,000	-17,000	-1,300	40,000	-230	-230
2023 (W)	-38,000	15,000	-17,000	-1,500	40,000	-1,600	-1,900
2024 (W)	-39,000	15,000	-17,000	-1,600	42,000	-320	-2,200
2025 (BN)	-34,000	5,800	-21,000	-670	38,000	-11,000	-13,000
2026 (AN)	-30,000	14,000	-16,000	-810	35,000	1,900	-11,000
2027 (W)	-31,000	16,000	-14,000	-1,700	39,000	8,200	-3,200
2028 (W)	-37,000	9,500	-17,000	-980	40,000	-5,100	-8,300
2029 (C)	-31,000	7,400	-22,000	-680	37,000	-9,300	-18,000
2030 (C)	-19,000	5,700	-21,000	-520	28,000	-7,300	-25,000
2031 (AN)	-17,000	14,000	-17,000	-650	26,000	5,400	-20,000
2032 (BN)	-18,000	5,600	-18,000	-550	26,000	-4,600	-24,000
2033 (AN)	-15,000	12,000	-15,000	-750	23,000	4,600	-19,000
2034 (D)	-18,000	10,000	-20,000	-590	25,000	-3,400	-23,000
2035 (W)	-17,000	16,000	-14,000	-1,100	27,000	11,000	-12,000
2036 (W)	-34,000	20,000	-12,000	-1,700	38,000	10,000	-1,600
2037 (W)	-41,000	15,000	-17,000	-1,600	44,000	-380	-2,000
2038 (D)	-39,000	10,000	-20,000	-820	42,000	-7,500	-9,500
2039 (W)	-33,000	15,000	-17,000	-1,200	39,000	2,900	-6,500
2040 (D)	-35,000	8,200	-18,000	-680	39,000	-6,700	-13,000
2041 (C)	-27,000	6,200	-19,000	-530	31,000	-8,200	-21,000
2042 (D)	-14,000	6,600	-17,000	-560	23,000	-2,200	-24,000
2043 (C)	-13,000	7,600	-19,000	-480	19,000	-5,400	-29,000
2044 (C)	-6,600	7,000	-19,000	-440	15,000	-3,500	-33,000
2045 (C)	-2,800	8,000	-21,000	-400	12,000	-4,100	-37,000
2046 (AN)	-2,900	13,000	-16,000	-530	14,000	8,600	-28,000
2047 (C)	-7,300	7,000	-19,000	-450	16,000	-3,500	-32,000
2048 (W)	-7,200	18,000	-15,000	-830	19,000	13,000	-18,000
2049 (W)	-18,000	15,000	-17,000	-860	25,000	4,000	-14,000
2050 (W)	-23,000	12,000	-17,000	-920	30,000	330	-14,000
2051 (W)	-30,000	20,000	-12,000	-1,400	35,000	11,000	-2,700
2052 (W)	-36,000	9,600	-17,000	-960	40,000	-4,900	-7,600
2053 (AN)	-33,000	12,000	-15,000	-1,000	38,000	60	-7,600
2054 (D)	-32,000	8,200	-18,000	-650	36,000	-7,000	-15,000
2055 (D)	-24,000	10,000	-20,000	-650	31,000	-3,900	-18,000
2056 (AN)	-23,000	14,000	-16,000	-750	30,000	4,600	-14,000
2057 (BN)	-25,000	14,000	-19,000	-960	33,000	830	-13,000
2058 (AN)	-32,000	13,000	-14,000	-640	35,000	970	-12,000
2059 (W)	-31,000	16,000	-14,000	-1,600	39,000	8,700	-3,400
2060 (D)	-34,000	6,700	-17,000	-710	36,000	-8,400	-12,000
2061 (C)	-25,000	8,200	-22,000	-640	31,000	-8,900	-21,000
2062 (D)	-17,000	6,400	-19,000	-510	25,000	-4,600	-25,000
2063 (BN)	-18,000	12,000	-15,000	-530	26,000	3,700	-22,000
2064 (W)	-19,000	13,000	-12,000	-700	27,000	7,600	-14,000
2065 (BN)	-23,000	6,500	-18,000	-570	27,000	-7,800	-22,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-12,000	9,600	-21,000	-520	20,000	-3,900	-26,000
2067 (C)		-5,300	5,900	-21,000	-440	14,000	-7,200	-33,000
2068 (C)		81	10,000	-26,000	-370	10,000	-5,600	-38,000
2069 (BN)		4,700	11,000	-19,000	-420	7,800	4,600	-34,000
2070 (W)		-1,500	16,000	-18,000	-800	16,000	11,000	-23,000
2071 (BN)		-6,800	5,600	-21,000	-470	16,000	-5,900	-29,000
2072 (W)		-8,300	16,000	-16,000	-660	18,000	9,000	-20,000
Average (2022-2072)		-22,000	11,000	-18,000	-810	29,000	-390	
2022-2072	W	-27,000	15,000	-16,000	-1,200	33,000		
	AN	-22,000	13,000	-15,000	-740	29,000		
	BN	-17,000	8,600	-19,000	-600	25,000		
	D	-25,000	8,400	-19,000	-630	31,000		
	C	-14,000	7,300	-21,000	-500	21,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

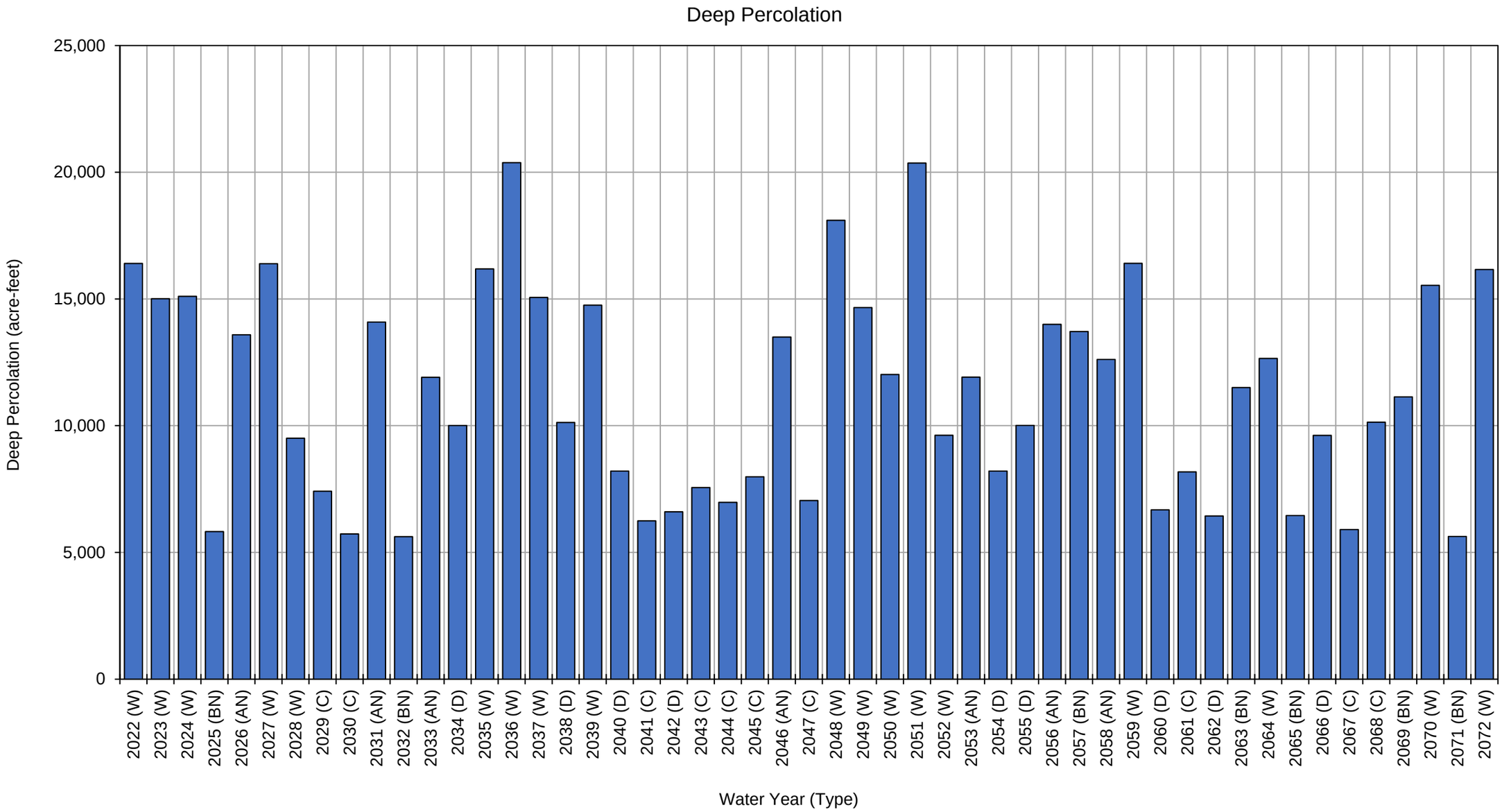
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	-38,000
2023 (W)	-38,000
2024 (W)	-39,000
2025 (BN)	-34,000
2026 (AN)	-30,000
2027 (W)	-31,000
2028 (W)	-37,000
2029 (C)	-31,000
2030 (C)	-19,000
2031 (AN)	-17,000
2032 (BN)	-18,000
2033 (AN)	-15,000
2034 (D)	-18,000
2035 (W)	-17,000
2036 (W)	-34,000
2037 (W)	-41,000
2038 (D)	-39,000
2039 (W)	-33,000
2040 (D)	-35,000
2041 (C)	-27,000
2042 (D)	-14,000
2043 (C)	-13,000
2044 (C)	-6,600
2045 (C)	-2,800
2046 (AN)	-2,900
2047 (C)	-7,300
2048 (W)	-7,200
2049 (W)	-18,000
2050 (W)	-23,000
2051 (W)	-30,000
2052 (W)	-36,000
2053 (AN)	-33,000
2054 (D)	-32,000
2055 (D)	-24,000
2056 (AN)	-23,000
2057 (BN)	-25,000
2058 (AN)	-32,000
2059 (W)	-31,000
2060 (D)	-34,000
2061 (C)	-25,000
2062 (D)	-17,000
2063 (BN)	-18,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		-19,000
2065 (BN)		-23,000
2066 (D)		-12,000
2067 (C)		-5,300
2068 (C)		81
2069 (BN)		4,700
2070 (W)		-1,500
2071 (BN)		-6,800
2072 (W)		-8,300
Average (2022-2072)		-22,000
2022-2072	W	-27,000
	AN	-22,000
	BN	-17,000
	D	-25,000
	C	-14,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

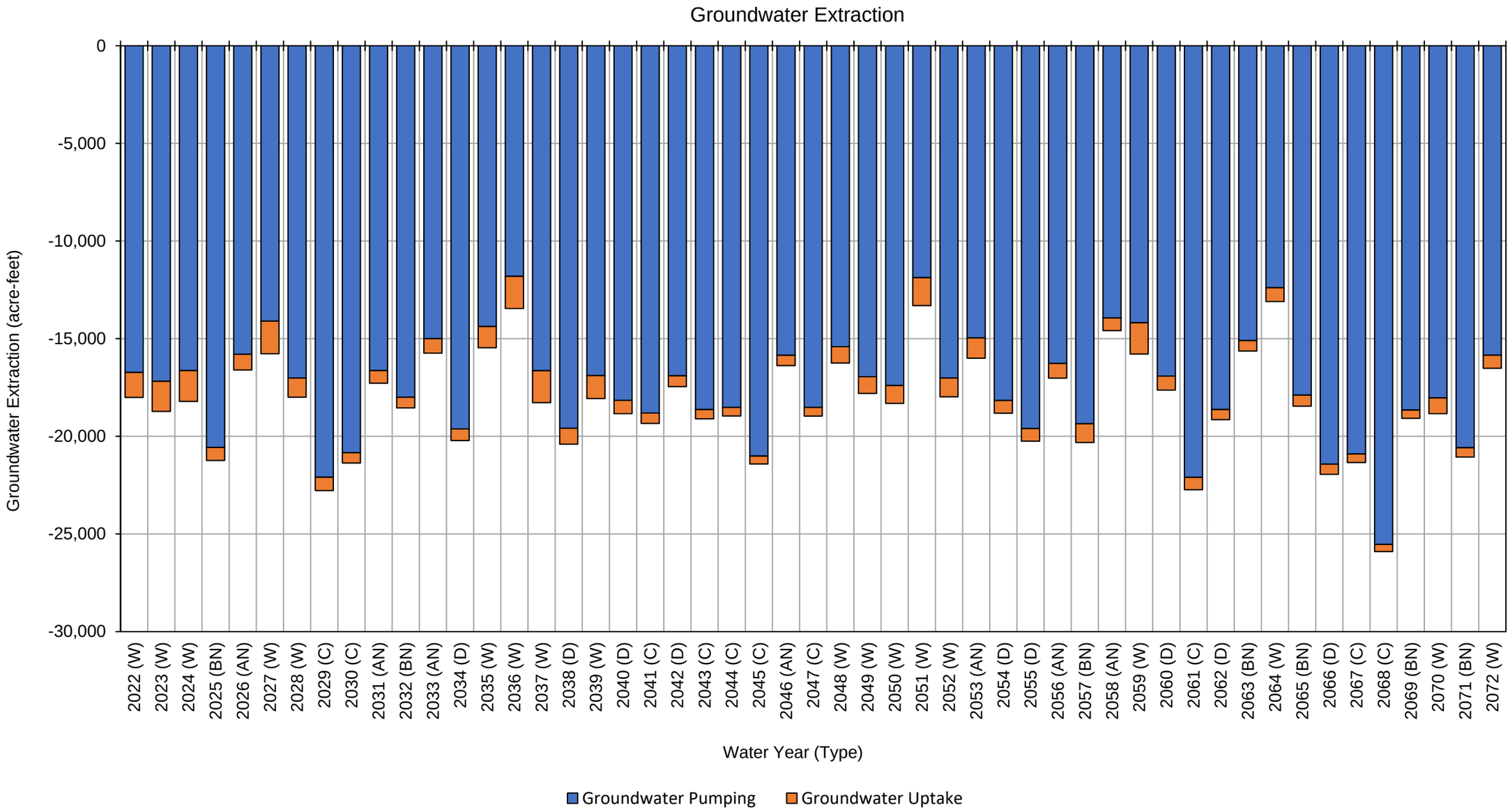
WY (Type)	Deep Percolation from the SWS
2022 (W)	16,000
2023 (W)	15,000
2024 (W)	15,000
2025 (BN)	5,800
2026 (AN)	14,000
2027 (W)	16,000
2028 (W)	9,500
2029 (C)	7,400
2030 (C)	5,700
2031 (AN)	14,000
2032 (BN)	5,600
2033 (AN)	12,000
2034 (D)	10,000
2035 (W)	16,000
2036 (W)	20,000
2037 (W)	15,000
2038 (D)	10,000
2039 (W)	15,000
2040 (D)	8,200
2041 (C)	6,200
2042 (D)	6,600
2043 (C)	7,600
2044 (C)	7,000
2045 (C)	8,000
2046 (AN)	13,000
2047 (C)	7,000
2048 (W)	18,000
2049 (W)	15,000
2050 (W)	12,000
2051 (W)	20,000
2052 (W)	9,600
2053 (AN)	12,000
2054 (D)	8,200
2055 (D)	10,000
2056 (AN)	14,000
2057 (BN)	14,000
2058 (AN)	13,000
2059 (W)	16,000
2060 (D)	6,700
2061 (C)	8,200
2062 (D)	6,400
2063 (BN)	12,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		13,000
2065 (BN)		6,500
2066 (D)		9,600
2067 (C)		5,900
2068 (C)		10,000
2069 (BN)		11,000
2070 (W)		16,000
2071 (BN)		5,600
2072 (W)		16,000
Average (2022-2072)		11,000
2022-2072	W	15,000
	AN	13,000
	BN	8,600
	D	8,400
	C	7,300

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

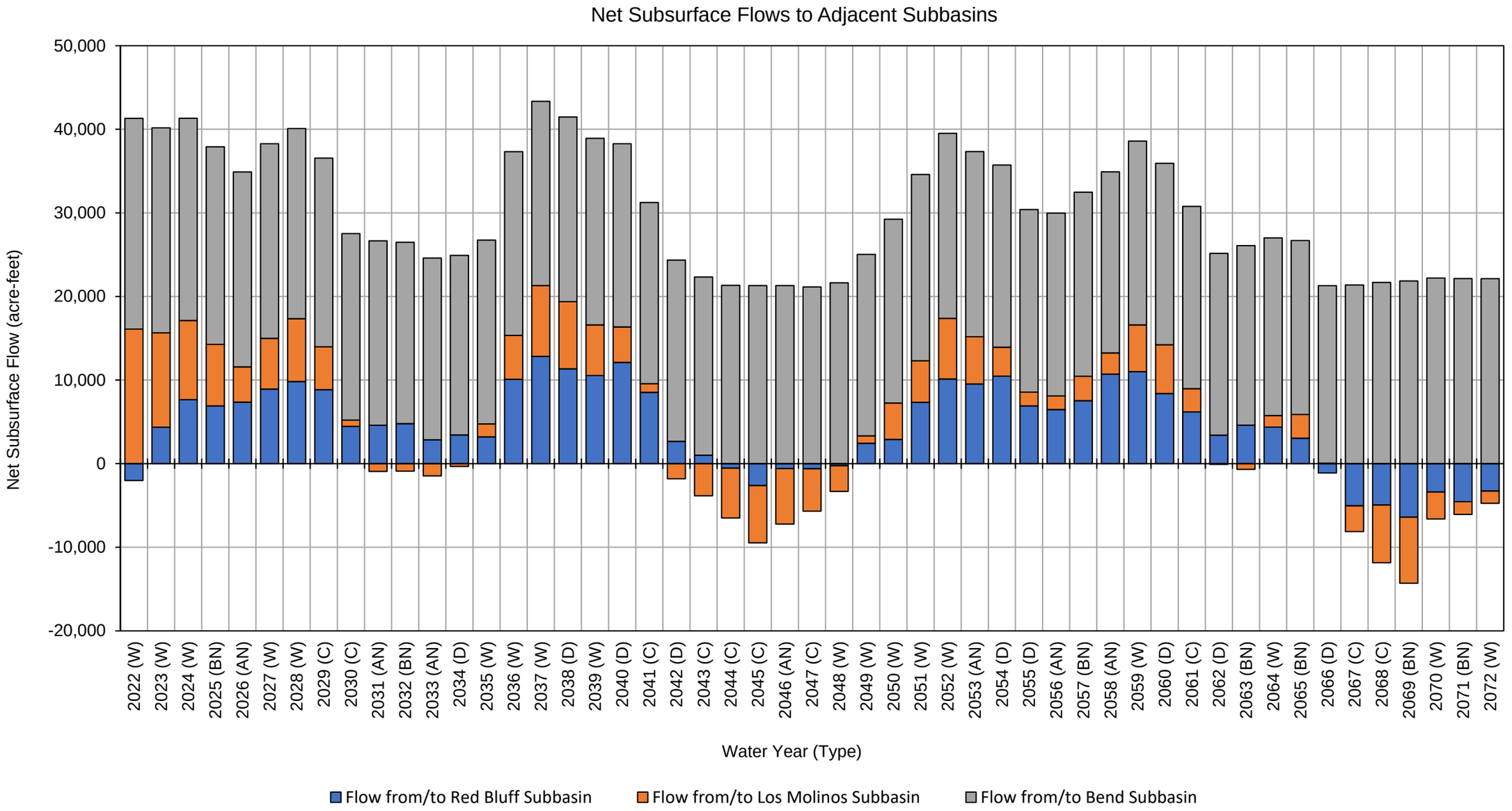
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-17,000	-1,300	-18,000
2023 (W)	-17,000	-1,500	-19,000
2024 (W)	-17,000	-1,600	-18,000
2025 (BN)	-21,000	-670	-21,000
2026 (AN)	-16,000	-810	-17,000
2027 (W)	-14,000	-1,700	-16,000
2028 (W)	-17,000	-980	-18,000
2029 (C)	-22,000	-680	-23,000
2030 (C)	-21,000	-520	-21,000
2031 (AN)	-17,000	-650	-17,000
2032 (BN)	-18,000	-550	-19,000
2033 (AN)	-15,000	-750	-16,000
2034 (D)	-20,000	-590	-20,000
2035 (W)	-14,000	-1,100	-15,000
2036 (W)	-12,000	-1,700	-13,000
2037 (W)	-17,000	-1,600	-18,000
2038 (D)	-20,000	-820	-20,000
2039 (W)	-17,000	-1,200	-18,000
2040 (D)	-18,000	-680	-19,000
2041 (C)	-19,000	-530	-19,000
2042 (D)	-17,000	-560	-17,000
2043 (C)	-19,000	-480	-19,000
2044 (C)	-19,000	-440	-19,000
2045 (C)	-21,000	-400	-21,000
2046 (AN)	-16,000	-530	-16,000
2047 (C)	-19,000	-450	-19,000
2048 (W)	-15,000	-830	-16,000
2049 (W)	-17,000	-860	-18,000
2050 (W)	-17,000	-920	-18,000
2051 (W)	-12,000	-1,400	-13,000
2052 (W)	-17,000	-960	-18,000
2053 (AN)	-15,000	-1,000	-16,000
2054 (D)	-18,000	-650	-19,000
2055 (D)	-20,000	-650	-20,000
2056 (AN)	-16,000	-750	-17,000
2057 (BN)	-19,000	-960	-20,000
2058 (AN)	-14,000	-640	-15,000
2059 (W)	-14,000	-1,600	-16,000
2060 (D)	-17,000	-710	-18,000
2061 (C)	-22,000	-640	-23,000
2062 (D)	-19,000	-510	-19,000
2063 (BN)	-15,000	-530	-16,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-12,000	-700	-13,000
2065 (BN)		-18,000	-570	-18,000
2066 (D)		-21,000	-520	-22,000
2067 (C)		-21,000	-440	-21,000
2068 (C)		-26,000	-370	-26,000
2069 (BN)		-19,000	-420	-19,000
2070 (W)		-18,000	-800	-19,000
2071 (BN)		-21,000	-470	-21,000
2072 (W)		-16,000	-660	-17,000
Average (2022-2072)		-18,000	-810	-18,000
2022-2072	W	-16,000	-1,200	-17,000
	AN	-15,000	-740	-16,000
	BN	-19,000	-600	-19,000
	D	-19,000	-630	-19,000
	C	-21,000	-500	-21,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

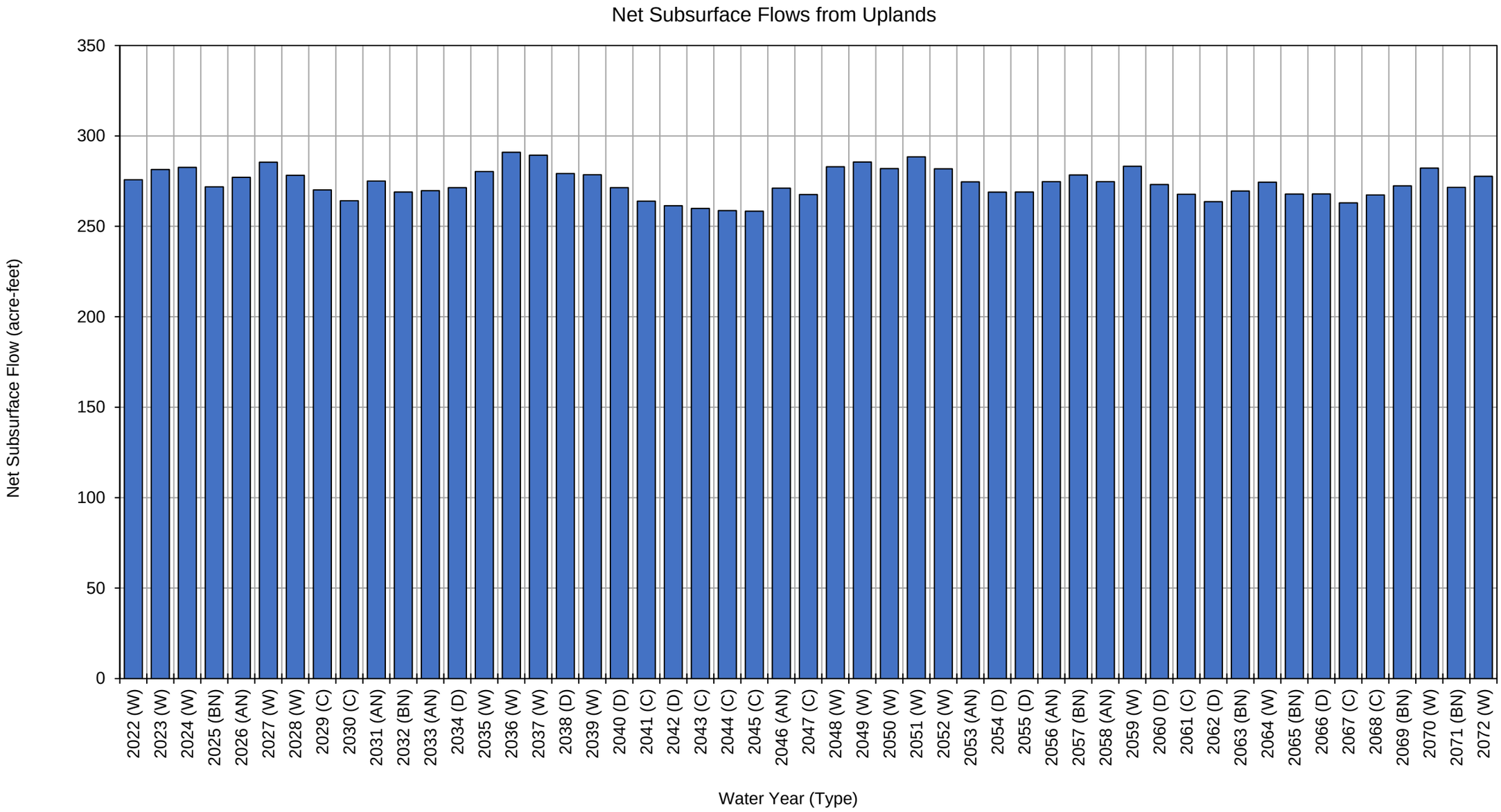
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-2,000	16,000	25,000	39,000
2023 (W)	4,400	11,000	25,000	40,000
2024 (W)	7,600	9,500	24,000	41,000
2025 (BN)	6,900	7,400	24,000	38,000
2026 (AN)	7,400	4,200	23,000	35,000
2027 (W)	8,900	6,100	23,000	38,000
2028 (W)	9,800	7,500	23,000	40,000
2029 (C)	8,800	5,100	23,000	37,000
2030 (C)	4,500	760	22,000	28,000
2031 (AN)	4,600	-930	22,000	26,000
2032 (BN)	4,800	-900	22,000	26,000
2033 (AN)	2,900	-1,500	22,000	23,000
2034 (D)	3,400	-330	21,000	25,000
2035 (W)	3,200	1,600	22,000	27,000
2036 (W)	10,000	5,300	22,000	37,000
2037 (W)	13,000	8,500	22,000	43,000
2038 (D)	11,000	8,000	22,000	41,000
2039 (W)	11,000	6,100	22,000	39,000
2040 (D)	12,000	4,200	22,000	38,000
2041 (C)	8,500	1,000	22,000	31,000
2042 (D)	2,700	-1,800	22,000	23,000
2043 (C)	1,000	-3,800	21,000	18,000
2044 (C)	-550	-6,000	21,000	15,000
2045 (C)	-2,600	-6,900	21,000	12,000
2046 (AN)	-590	-6,600	21,000	14,000
2047 (C)	-620	-5,100	21,000	15,000
2048 (W)	-250	-3,100	22,000	18,000
2049 (W)	2,400	890	22,000	25,000
2050 (W)	2,900	4,400	22,000	29,000
2051 (W)	7,300	5,000	22,000	35,000
2052 (W)	10,000	7,200	22,000	40,000
2053 (AN)	9,500	5,700	22,000	37,000
2054 (D)	10,000	3,500	22,000	36,000
2055 (D)	6,900	1,600	22,000	30,000
2056 (AN)	6,500	1,600	22,000	30,000
2057 (BN)	7,500	2,900	22,000	32,000
2058 (AN)	11,000	2,500	22,000	35,000
2059 (W)	11,000	5,600	22,000	39,000
2060 (D)	8,400	5,800	22,000	36,000
2061 (C)	6,200	2,800	22,000	31,000
2062 (D)	3,400	-88	22,000	25,000
2063 (BN)	4,600	-690	21,000	25,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2064 (W)		4,400	1,400	21,000	27,000
2065 (BN)		3,000	2,800	21,000	27,000
2066 (D)		-1,100	58	21,000	20,000
2067 (C)		-5,100	-3,100	21,000	13,000
2068 (C)		-5,000	-6,900	22,000	9,800
2069 (BN)		-6,400	-7,900	22,000	7,500
2070 (W)		-3,400	-3,200	22,000	16,000
2071 (BN)		-4,500	-1,500	22,000	16,000
2072 (W)		-3,300	-1,500	22,000	17,000
Average (2022-2072)		4,400	1,900	22,000	28,000
2022-2072	W	5,400	4,900	23,000	33,000
	AN	5,800	720	22,000	29,000
	BN	2,300	300	22,000	25,000
	D	6,400	2,300	22,000	30,000
	C	1,500	-2,200	22,000	21,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

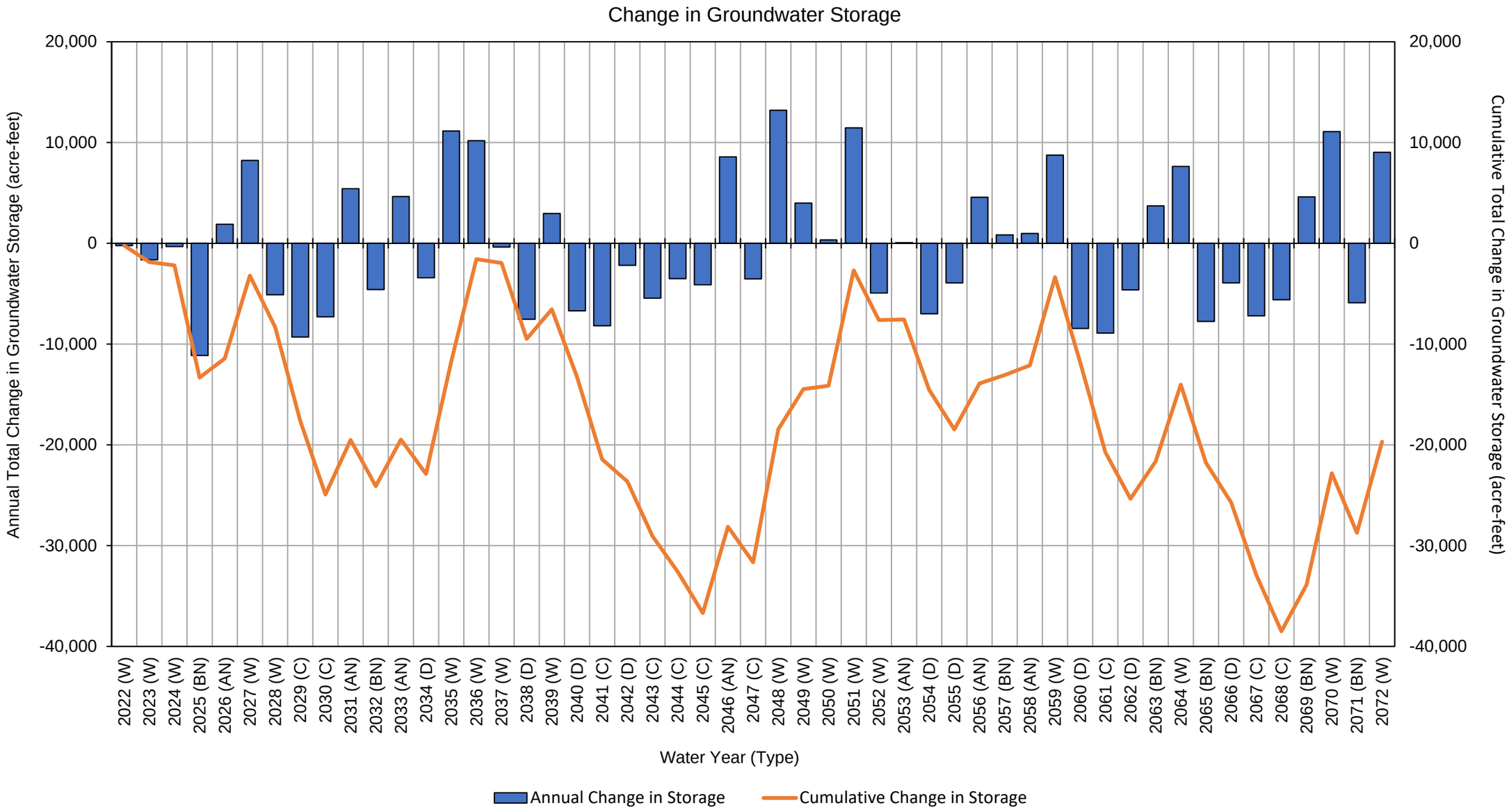
WY (Type)	Subsurface Flows from Uplands
2022 (W)	280
2023 (W)	280
2024 (W)	280
2025 (BN)	270
2026 (AN)	280
2027 (W)	290
2028 (W)	280
2029 (C)	270
2030 (C)	260
2031 (AN)	280
2032 (BN)	270
2033 (AN)	270
2034 (D)	270
2035 (W)	280
2036 (W)	290
2037 (W)	290
2038 (D)	280
2039 (W)	280
2040 (D)	270
2041 (C)	260
2042 (D)	260
2043 (C)	260
2044 (C)	260
2045 (C)	260
2046 (AN)	270
2047 (C)	270
2048 (W)	280
2049 (W)	290
2050 (W)	280
2051 (W)	290
2052 (W)	280
2053 (AN)	270
2054 (D)	270
2055 (D)	270
2056 (AN)	270
2057 (BN)	280
2058 (AN)	270
2059 (W)	280
2060 (D)	270
2061 (C)	270
2062 (D)	260
2063 (BN)	270

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		270
2065 (BN)		270
2066 (D)		270
2067 (C)		260
2068 (C)		270
2069 (BN)		270
2070 (W)		280
2071 (BN)		270
2072 (W)		280
Average (2022-2072)		270
2022-2072	W	280
	AN	270
	BN	270
	D	270
	C	260

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	-230	-230
2023 (W)	-1,600	-1,900
2024 (W)	-320	-2,200
2025 (BN)	-11,000	-13,000
2026 (AN)	1,900	-11,000
2027 (W)	8,200	-3,200
2028 (W)	-5,100	-8,300
2029 (C)	-9,300	-18,000
2030 (C)	-7,300	-25,000
2031 (AN)	5,400	-20,000
2032 (BN)	-4,600	-24,000
2033 (AN)	4,600	-19,000
2034 (D)	-3,400	-23,000
2035 (W)	11,000	-12,000
2036 (W)	10,000	-1,600
2037 (W)	-380	-2,000
2038 (D)	-7,500	-9,500
2039 (W)	2,900	-6,500
2040 (D)	-6,700	-13,000
2041 (C)	-8,200	-21,000
2042 (D)	-2,200	-24,000
2043 (C)	-5,400	-29,000
2044 (C)	-3,500	-33,000
2045 (C)	-4,100	-37,000
2046 (AN)	8,600	-28,000
2047 (C)	-3,500	-32,000
2048 (W)	13,000	-18,000
2049 (W)	4,000	-14,000
2050 (W)	330	-14,000
2051 (W)	11,000	-2,700
2052 (W)	-4,900	-7,600
2053 (AN)	60	-7,600
2054 (D)	-7,000	-15,000
2055 (D)	-3,900	-18,000
2056 (AN)	4,600	-14,000
2057 (BN)	830	-13,000
2058 (AN)	970	-12,000
2059 (W)	8,700	-3,400
2060 (D)	-8,400	-12,000
2061 (C)	-8,900	-21,000
2062 (D)	-4,600	-25,000
2063 (BN)	3,700	-22,000

Antelope Subbasin Projected (Future Land Use) with Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		7,600	-14,000
2065 (BN)		-7,800	-22,000
2066 (D)		-3,900	-26,000
2067 (C)		-7,200	-33,000
2068 (C)		-5,600	-38,000
2069 (BN)		4,600	-34,000
2070 (W)		11,000	-23,000
2071 (BN)		-5,900	-29,000
2072 (W)		9,000	-20,000
Average (2022-2072)		-390	
2022-2072	W		
	AN		
	BN		
	D		
	C		

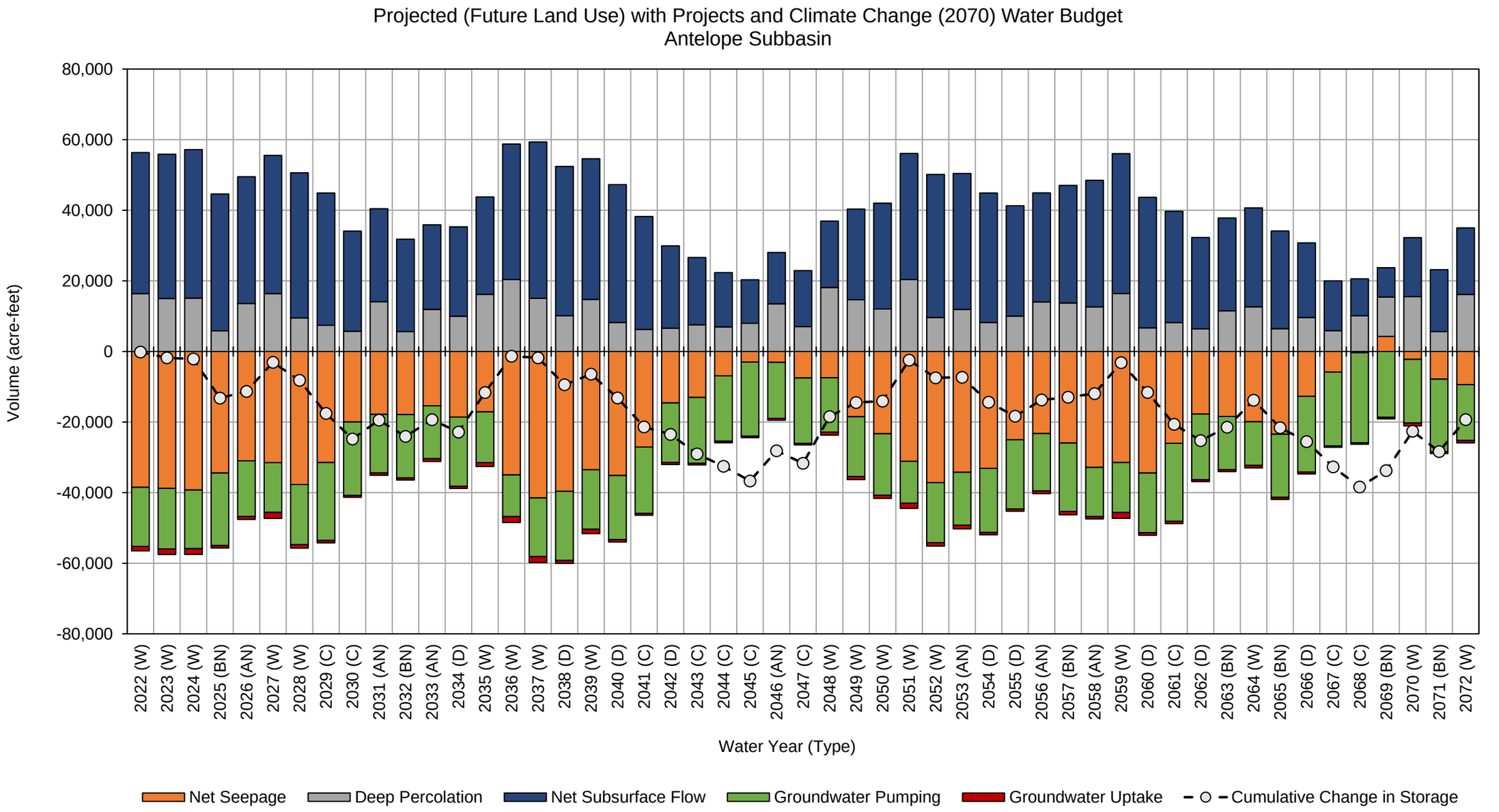
Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX A-8

Detailed Antelope Subbasin Water Budget Results:

Projected (Future Land Use) with Projects and Climate Change (2070) Model Results


Projected (Future Land Use) with Projects and Climate Change (2070) Water Budget
Antelope Subbasin
Volume (acre-feet)
80,000
60,000
40,000
20,000
0
-20,000
-40,000
-60,000
-80,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Antelope Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Water Budget Summary (acre-feet, rounded)

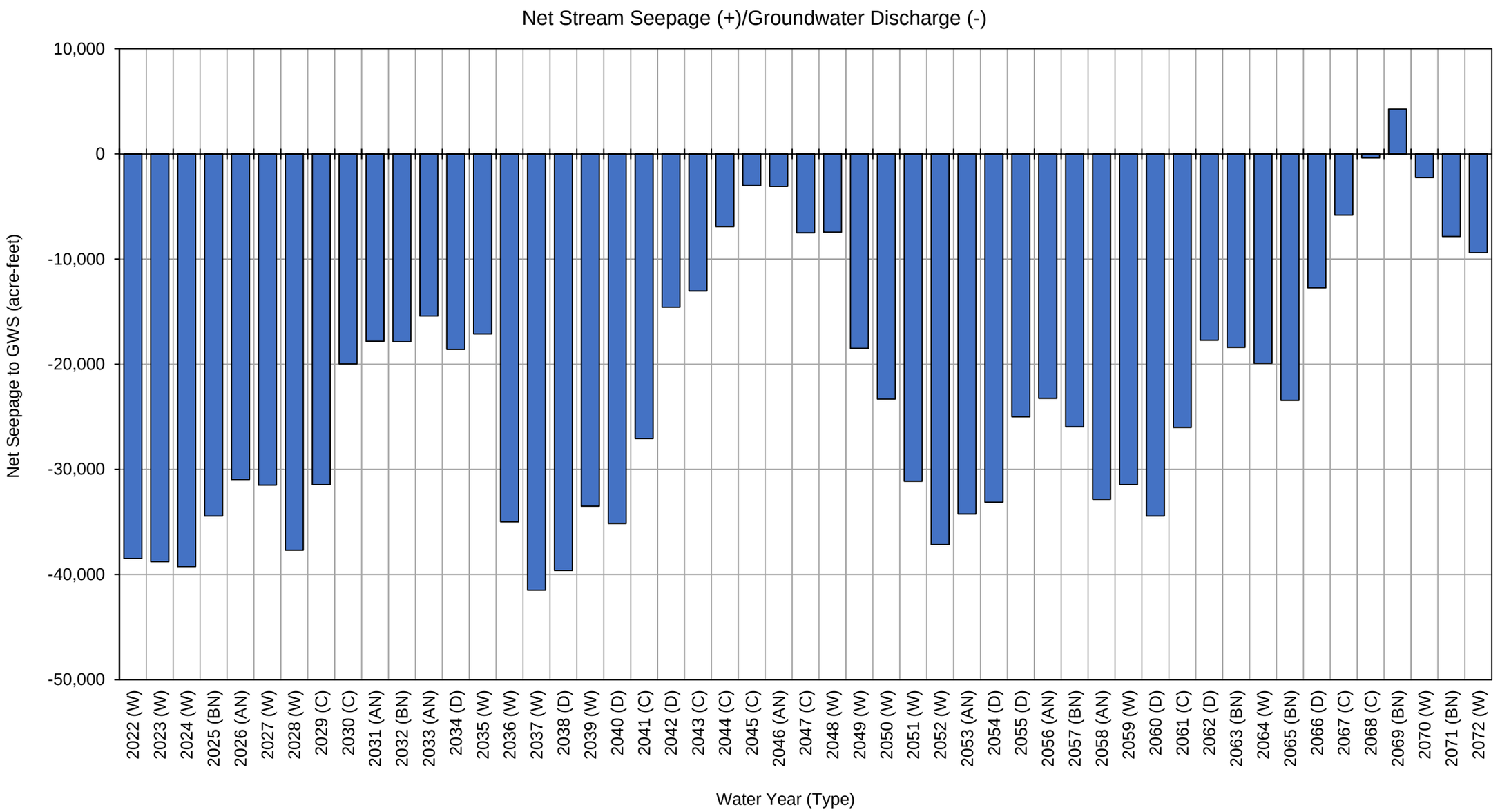
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	-38,000	16,000	-17,000	-1,300	40,000	-160	-160
2023 (W)	-39,000	15,000	-17,000	-1,600	41,000	-1,700	-1,800
2024 (W)	-39,000	15,000	-17,000	-1,600	42,000	-320	-2,100
2025 (BN)	-34,000	5,800	-21,000	-680	39,000	-11,000	-13,000
2026 (AN)	-31,000	14,000	-16,000	-810	36,000	1,900	-11,000
2027 (W)	-32,000	16,000	-14,000	-1,700	39,000	8,200	-3,100
2028 (W)	-38,000	9,500	-17,000	-1,000	41,000	-5,100	-8,200
2029 (C)	-31,000	7,400	-22,000	-690	37,000	-9,400	-18,000
2030 (C)	-20,000	5,700	-21,000	-530	28,000	-7,200	-25,000
2031 (AN)	-18,000	14,000	-17,000	-650	26,000	5,300	-19,000
2032 (BN)	-18,000	5,600	-18,000	-550	26,000	-4,600	-24,000
2033 (AN)	-15,000	12,000	-15,000	-750	24,000	4,700	-19,000
2034 (D)	-19,000	10,000	-20,000	-600	25,000	-3,500	-23,000
2035 (W)	-17,000	16,000	-14,000	-1,100	28,000	11,000	-12,000
2036 (W)	-35,000	20,000	-12,000	-1,700	38,000	10,000	-1,300
2037 (W)	-41,000	15,000	-17,000	-1,700	44,000	-450	-1,800
2038 (D)	-40,000	10,000	-20,000	-830	42,000	-7,600	-9,400
2039 (W)	-34,000	15,000	-17,000	-1,200	40,000	3,000	-6,400
2040 (D)	-35,000	8,200	-18,000	-690	39,000	-6,700	-13,000
2041 (C)	-27,000	6,200	-19,000	-540	32,000	-8,200	-21,000
2042 (D)	-15,000	6,600	-17,000	-560	23,000	-2,100	-24,000
2043 (C)	-13,000	7,600	-19,000	-480	19,000	-5,500	-29,000
2044 (C)	-6,900	7,000	-19,000	-440	15,000	-3,500	-33,000
2045 (C)	-3,000	8,000	-21,000	-400	12,000	-4,100	-37,000
2046 (AN)	-3,100	13,000	-16,000	-530	15,000	8,600	-28,000
2047 (C)	-7,500	7,000	-19,000	-450	16,000	-3,600	-32,000
2048 (W)	-7,400	18,000	-15,000	-840	19,000	13,000	-18,000
2049 (W)	-18,000	15,000	-17,000	-860	26,000	4,000	-14,000
2050 (W)	-23,000	12,000	-17,000	-920	30,000	380	-14,000
2051 (W)	-31,000	20,000	-12,000	-1,500	36,000	12,000	-2,400
2052 (W)	-37,000	9,600	-17,000	-980	41,000	-5,000	-7,500
2053 (AN)	-34,000	12,000	-15,000	-1,100	38,000	140	-7,300
2054 (D)	-33,000	8,200	-18,000	-660	37,000	-7,100	-14,000
2055 (D)	-25,000	10,000	-20,000	-650	31,000	-4,000	-18,000
2056 (AN)	-23,000	14,000	-16,000	-760	31,000	4,600	-14,000
2057 (BN)	-26,000	14,000	-19,000	-970	33,000	760	-13,000
2058 (AN)	-33,000	13,000	-14,000	-650	36,000	1,000	-12,000
2059 (W)	-31,000	16,000	-14,000	-1,600	40,000	8,800	-3,200
2060 (D)	-34,000	6,700	-17,000	-720	37,000	-8,400	-12,000
2061 (C)	-26,000	8,200	-22,000	-640	32,000	-9,100	-21,000
2062 (D)	-18,000	6,400	-19,000	-520	26,000	-4,600	-25,000
2063 (BN)	-18,000	12,000	-15,000	-540	26,000	3,800	-21,000
2064 (W)	-20,000	13,000	-12,000	-710	28,000	7,700	-14,000
2065 (BN)	-23,000	6,500	-18,000	-570	28,000	-7,800	-22,000

Antelope Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-13,000	9,600	-21,000	-530	21,000	-3,900	-26,000
2067 (C)		-5,800	5,900	-21,000	-440	14,000	-7,200	-33,000
2068 (C)		-370	10,000	-26,000	-370	10,000	-5,700	-38,000
2069 (BN)		4,300	11,000	-19,000	-420	8,300	4,600	-34,000
2070 (W)		-2,300	16,000	-18,000	-810	17,000	11,000	-23,000
2071 (BN)		-7,900	5,600	-21,000	-480	18,000	-5,800	-28,000
2072 (W)		-9,400	16,000	-16,000	-670	19,000	9,100	-19,000
Average (2022-2072)		-22,000	11,000	-18,000	-820	29,000	-380	
2022-2072	W	-27,000	15,000	-16,000	-1,200	34,000		
	AN	-23,000	13,000	-15,000	-740	29,000		
	BN	-18,000	8,600	-19,000	-600	25,000		
	D	-26,000	8,400	-19,000	-640	31,000		
	C	-14,000	7,300	-21,000	-500	22,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

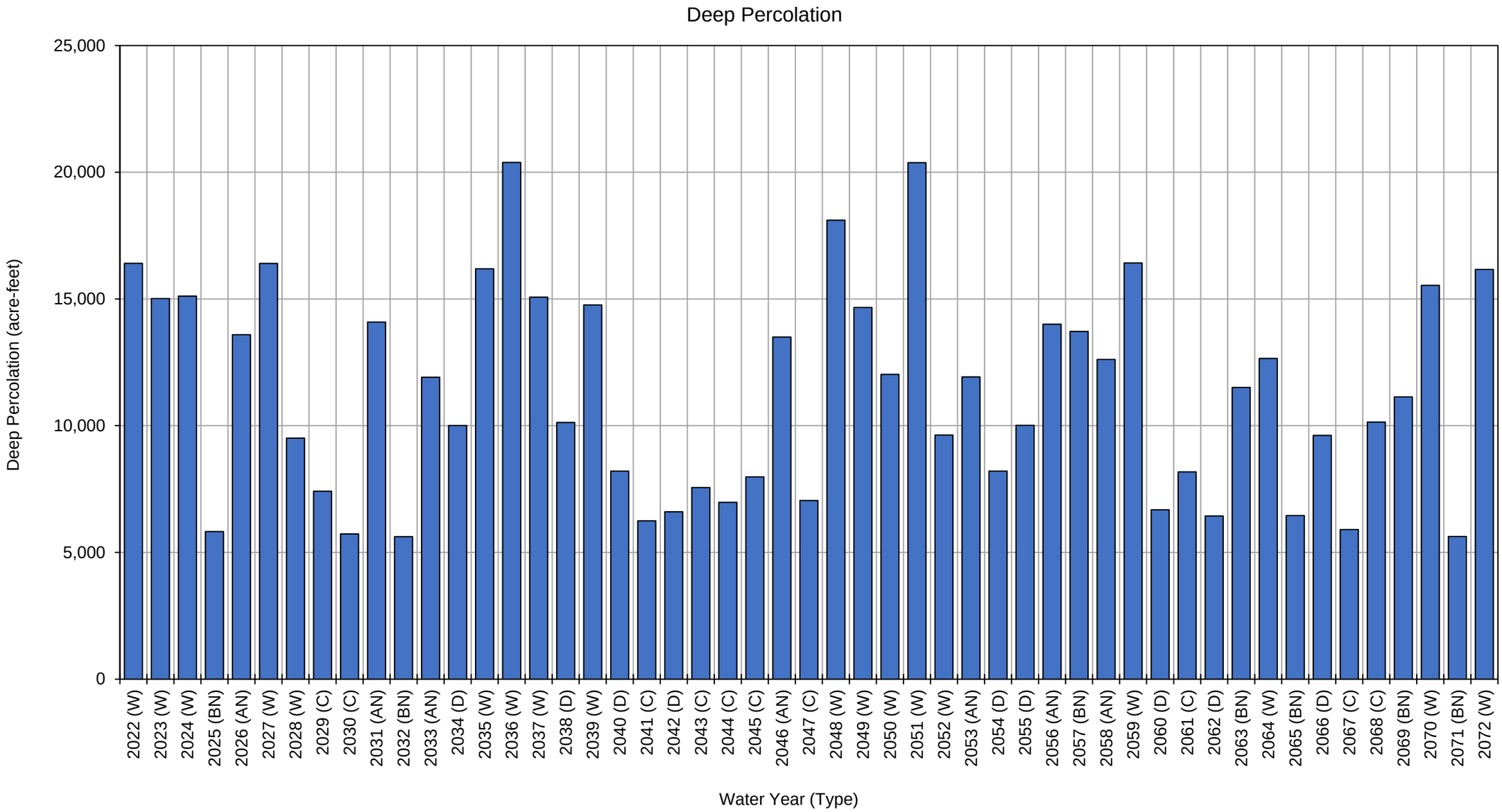
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	-38,000
2023 (W)	-39,000
2024 (W)	-39,000
2025 (BN)	-34,000
2026 (AN)	-31,000
2027 (W)	-32,000
2028 (W)	-38,000
2029 (C)	-31,000
2030 (C)	-20,000
2031 (AN)	-18,000
2032 (BN)	-18,000
2033 (AN)	-15,000
2034 (D)	-19,000
2035 (W)	-17,000
2036 (W)	-35,000
2037 (W)	-41,000
2038 (D)	-40,000
2039 (W)	-34,000
2040 (D)	-35,000
2041 (C)	-27,000
2042 (D)	-15,000
2043 (C)	-13,000
2044 (C)	-6,900
2045 (C)	-3,000
2046 (AN)	-3,100
2047 (C)	-7,500
2048 (W)	-7,400
2049 (W)	-18,000
2050 (W)	-23,000
2051 (W)	-31,000
2052 (W)	-37,000
2053 (AN)	-34,000
2054 (D)	-33,000
2055 (D)	-25,000
2056 (AN)	-23,000
2057 (BN)	-26,000
2058 (AN)	-33,000
2059 (W)	-31,000
2060 (D)	-34,000
2061 (C)	-26,000
2062 (D)	-18,000
2063 (BN)	-18,000

Antelope Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		-20,000
2065 (BN)		-23,000
2066 (D)		-13,000
2067 (C)		-5,800
2068 (C)		-370
2069 (BN)		4,300
2070 (W)		-2,300
2071 (BN)		-7,900
2072 (W)		-9,400
Average (2022-2072)		-22,000
2022-2072	W	-27,000
	AN	-23,000
	BN	-18,000
	D	-26,000
	C	-14,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

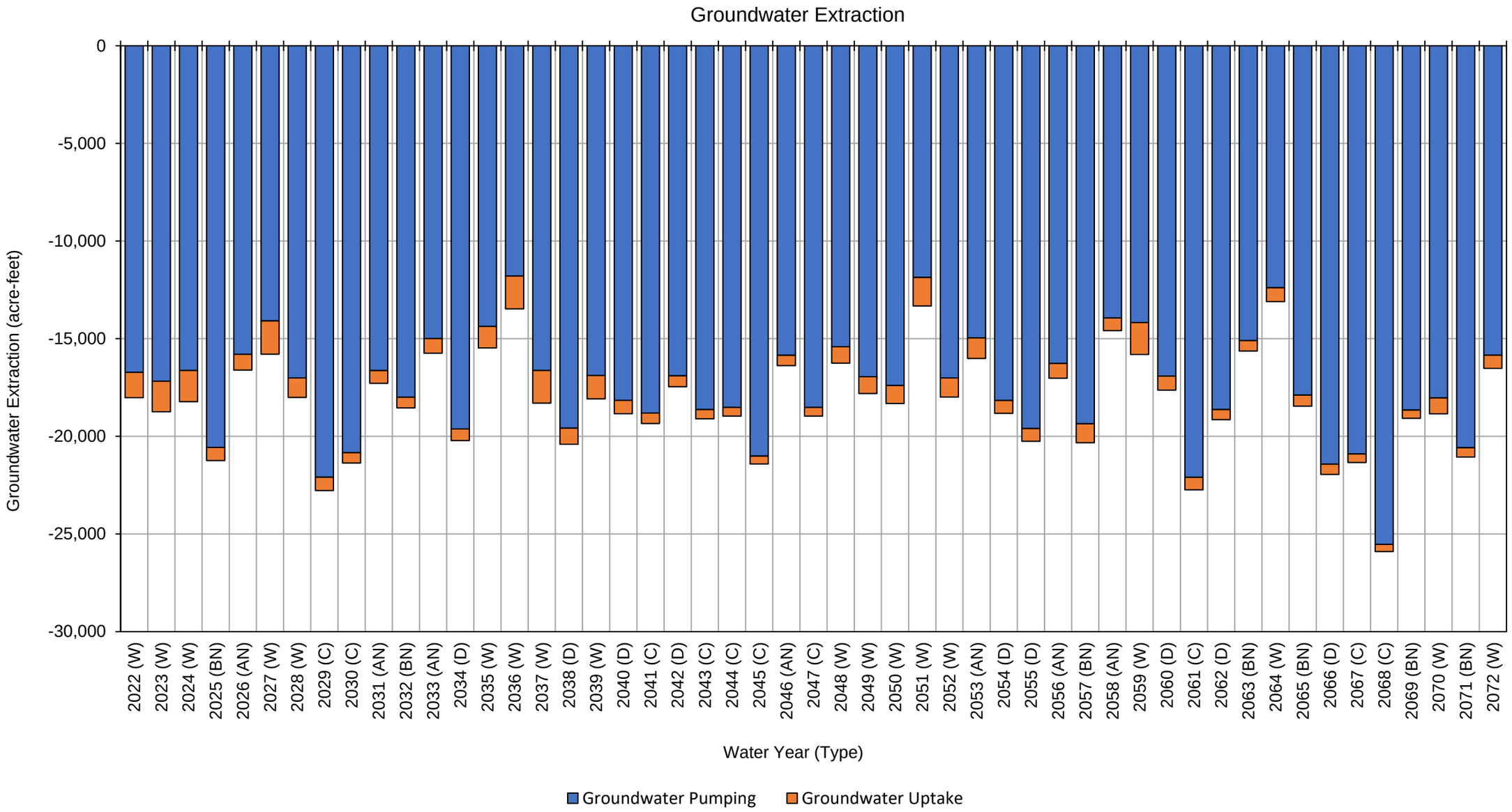
WY (Type)	Deep Percolation from the SWS
2022 (W)	16,000
2023 (W)	15,000
2024 (W)	15,000
2025 (BN)	5,800
2026 (AN)	14,000
2027 (W)	16,000
2028 (W)	9,500
2029 (C)	7,400
2030 (C)	5,700
2031 (AN)	14,000
2032 (BN)	5,600
2033 (AN)	12,000
2034 (D)	10,000
2035 (W)	16,000
2036 (W)	20,000
2037 (W)	15,000
2038 (D)	10,000
2039 (W)	15,000
2040 (D)	8,200
2041 (C)	6,200
2042 (D)	6,600
2043 (C)	7,600
2044 (C)	7,000
2045 (C)	8,000
2046 (AN)	13,000
2047 (C)	7,000
2048 (W)	18,000
2049 (W)	15,000
2050 (W)	12,000
2051 (W)	20,000
2052 (W)	9,600
2053 (AN)	12,000
2054 (D)	8,200
2055 (D)	10,000
2056 (AN)	14,000
2057 (BN)	14,000
2058 (AN)	13,000
2059 (W)	16,000
2060 (D)	6,700
2061 (C)	8,200
2062 (D)	6,400
2063 (BN)	12,000

Antelope Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		13,000
2065 (BN)		6,500
2066 (D)		9,600
2067 (C)		5,900
2068 (C)		10,000
2069 (BN)		11,000
2070 (W)		16,000
2071 (BN)		5,600
2072 (W)		16,000
Average (2022-2072)		11,000
2022-2072	W	15,000
	AN	13,000
	BN	8,600
	D	8,400
	C	7,300

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

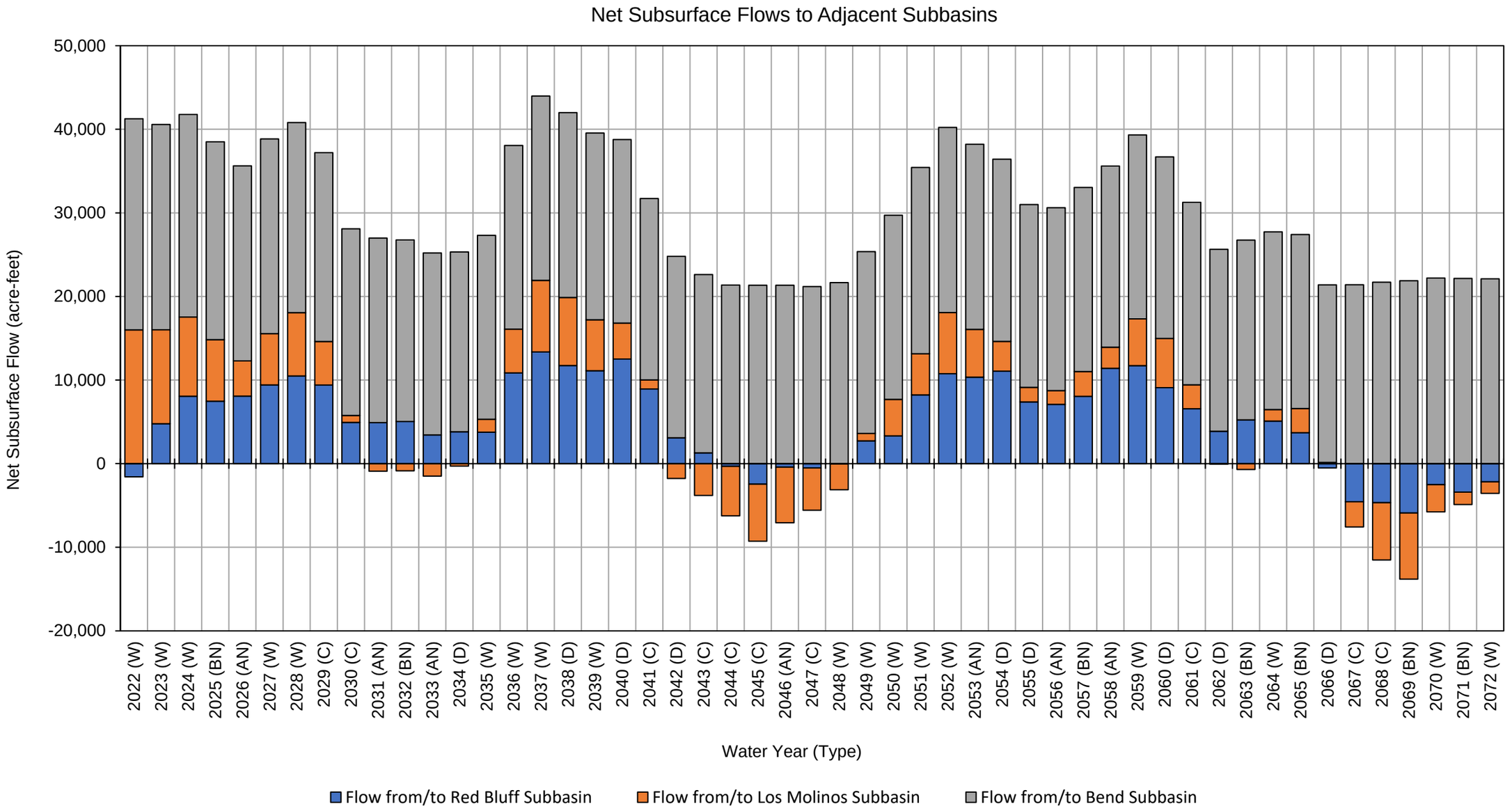
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-17,000	-1,300	-18,000
2023 (W)	-17,000	-1,600	-19,000
2024 (W)	-17,000	-1,600	-18,000
2025 (BN)	-21,000	-680	-21,000
2026 (AN)	-16,000	-810	-17,000
2027 (W)	-14,000	-1,700	-16,000
2028 (W)	-17,000	-1,000	-18,000
2029 (C)	-22,000	-690	-23,000
2030 (C)	-21,000	-530	-21,000
2031 (AN)	-17,000	-650	-17,000
2032 (BN)	-18,000	-550	-19,000
2033 (AN)	-15,000	-750	-16,000
2034 (D)	-20,000	-600	-20,000
2035 (W)	-14,000	-1,100	-15,000
2036 (W)	-12,000	-1,700	-13,000
2037 (W)	-17,000	-1,700	-18,000
2038 (D)	-20,000	-830	-20,000
2039 (W)	-17,000	-1,200	-18,000
2040 (D)	-18,000	-690	-19,000
2041 (C)	-19,000	-540	-19,000
2042 (D)	-17,000	-560	-17,000
2043 (C)	-19,000	-480	-19,000
2044 (C)	-19,000	-440	-19,000
2045 (C)	-21,000	-400	-21,000
2046 (AN)	-16,000	-530	-16,000
2047 (C)	-19,000	-450	-19,000
2048 (W)	-15,000	-840	-16,000
2049 (W)	-17,000	-860	-18,000
2050 (W)	-17,000	-920	-18,000
2051 (W)	-12,000	-1,500	-13,000
2052 (W)	-17,000	-980	-18,000
2053 (AN)	-15,000	-1,100	-16,000
2054 (D)	-18,000	-660	-19,000
2055 (D)	-20,000	-650	-20,000
2056 (AN)	-16,000	-760	-17,000
2057 (BN)	-19,000	-970	-20,000
2058 (AN)	-14,000	-650	-15,000
2059 (W)	-14,000	-1,600	-16,000
2060 (D)	-17,000	-720	-18,000
2061 (C)	-22,000	-640	-23,000
2062 (D)	-19,000	-520	-19,000
2063 (BN)	-15,000	-540	-16,000

Antelope Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-12,000	-710	-13,000
2065 (BN)		-18,000	-570	-18,000
2066 (D)		-21,000	-530	-22,000
2067 (C)		-21,000	-440	-21,000
2068 (C)		-26,000	-370	-26,000
2069 (BN)		-19,000	-420	-19,000
2070 (W)		-18,000	-810	-19,000
2071 (BN)		-21,000	-480	-21,000
2072 (W)		-16,000	-670	-17,000
Average (2022-2072)		-18,000	-820	-18,000
2022-2072	W	-16,000	-1,200	-17,000
	AN	-15,000	-740	-16,000
	BN	-19,000	-600	-19,000
	D	-19,000	-640	-19,000
	C	-21,000	-500	-21,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

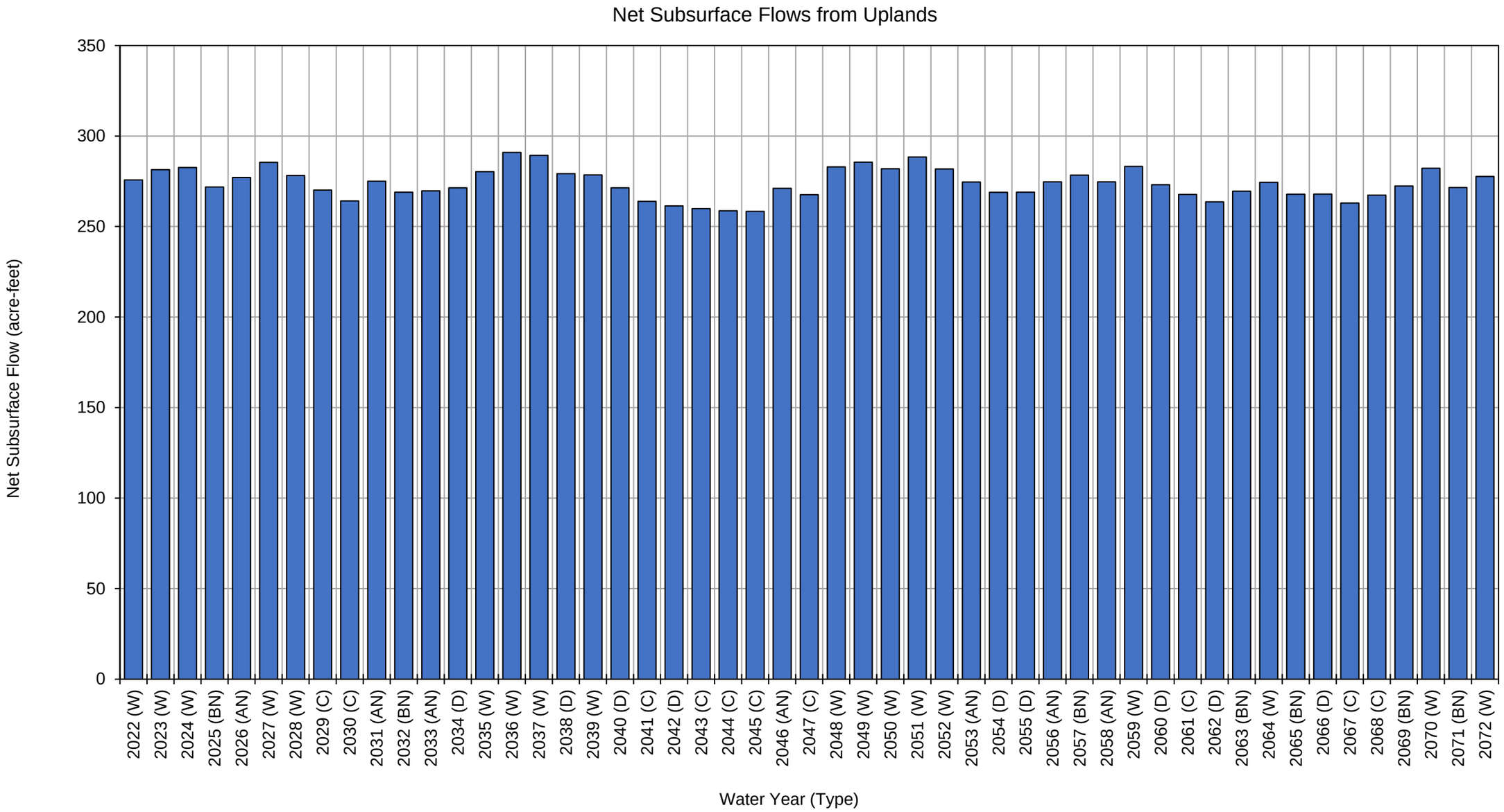
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-1,600	16,000	25,000	40,000
2023 (W)	4,800	11,000	25,000	41,000
2024 (W)	8,100	9,500	24,000	42,000
2025 (BN)	7,500	7,400	24,000	38,000
2026 (AN)	8,100	4,200	23,000	36,000
2027 (W)	9,400	6,100	23,000	39,000
2028 (W)	10,000	7,600	23,000	41,000
2029 (C)	9,400	5,200	23,000	37,000
2030 (C)	4,900	820	22,000	28,000
2031 (AN)	4,900	-910	22,000	26,000
2032 (BN)	5,000	-860	22,000	26,000
2033 (AN)	3,400	-1,500	22,000	24,000
2034 (D)	3,800	-300	22,000	25,000
2035 (W)	3,800	1,500	22,000	27,000
2036 (W)	11,000	5,200	22,000	38,000
2037 (W)	13,000	8,500	22,000	44,000
2038 (D)	12,000	8,200	22,000	42,000
2039 (W)	11,000	6,100	22,000	40,000
2040 (D)	13,000	4,300	22,000	39,000
2041 (C)	8,900	1,100	22,000	32,000
2042 (D)	3,100	-1,800	22,000	23,000
2043 (C)	1,300	-3,800	21,000	19,000
2044 (C)	-330	-5,900	21,000	15,000
2045 (C)	-2,500	-6,800	21,000	12,000
2046 (AN)	-420	-6,700	21,000	14,000
2047 (C)	-520	-5,100	21,000	16,000
2048 (W)	-26	-3,100	22,000	19,000
2049 (W)	2,700	890	22,000	25,000
2050 (W)	3,300	4,400	22,000	30,000
2051 (W)	8,200	4,900	22,000	35,000
2052 (W)	11,000	7,300	22,000	40,000
2053 (AN)	10,000	5,700	22,000	38,000
2054 (D)	11,000	3,600	22,000	36,000
2055 (D)	7,400	1,700	22,000	31,000
2056 (AN)	7,100	1,600	22,000	31,000
2057 (BN)	8,100	3,000	22,000	33,000
2058 (AN)	11,000	2,500	22,000	36,000
2059 (W)	12,000	5,600	22,000	39,000
2060 (D)	9,100	5,900	22,000	37,000
2061 (C)	6,600	2,900	22,000	31,000
2062 (D)	3,900	-63	22,000	26,000
2063 (BN)	5,200	-710	22,000	26,000

Antelope Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2064 (W)		5,100	1,400	21,000	28,000
2065 (BN)		3,700	2,900	21,000	27,000
2066 (D)		-520	140	21,000	21,000
2067 (C)		-4,600	-3,000	21,000	14,000
2068 (C)		-4,700	-6,800	22,000	10,000
2069 (BN)		-5,900	-7,900	22,000	8,100
2070 (W)		-2,500	-3,300	22,000	16,000
2071 (BN)		-3,400	-1,500	22,000	17,000
2072 (W)		-2,200	-1,400	22,000	19,000
Average (2022-2072)		5,000	1,900	22,000	29,000
2022-2072	W	6,000	4,900	23,000	33,000
	AN	6,400	720	22,000	29,000
	BN	2,900	320	22,000	25,000
	D	6,900	2,400	22,000	31,000
	C	1,900	-2,100	22,000	21,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Projects and Climate Change (2070)
Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

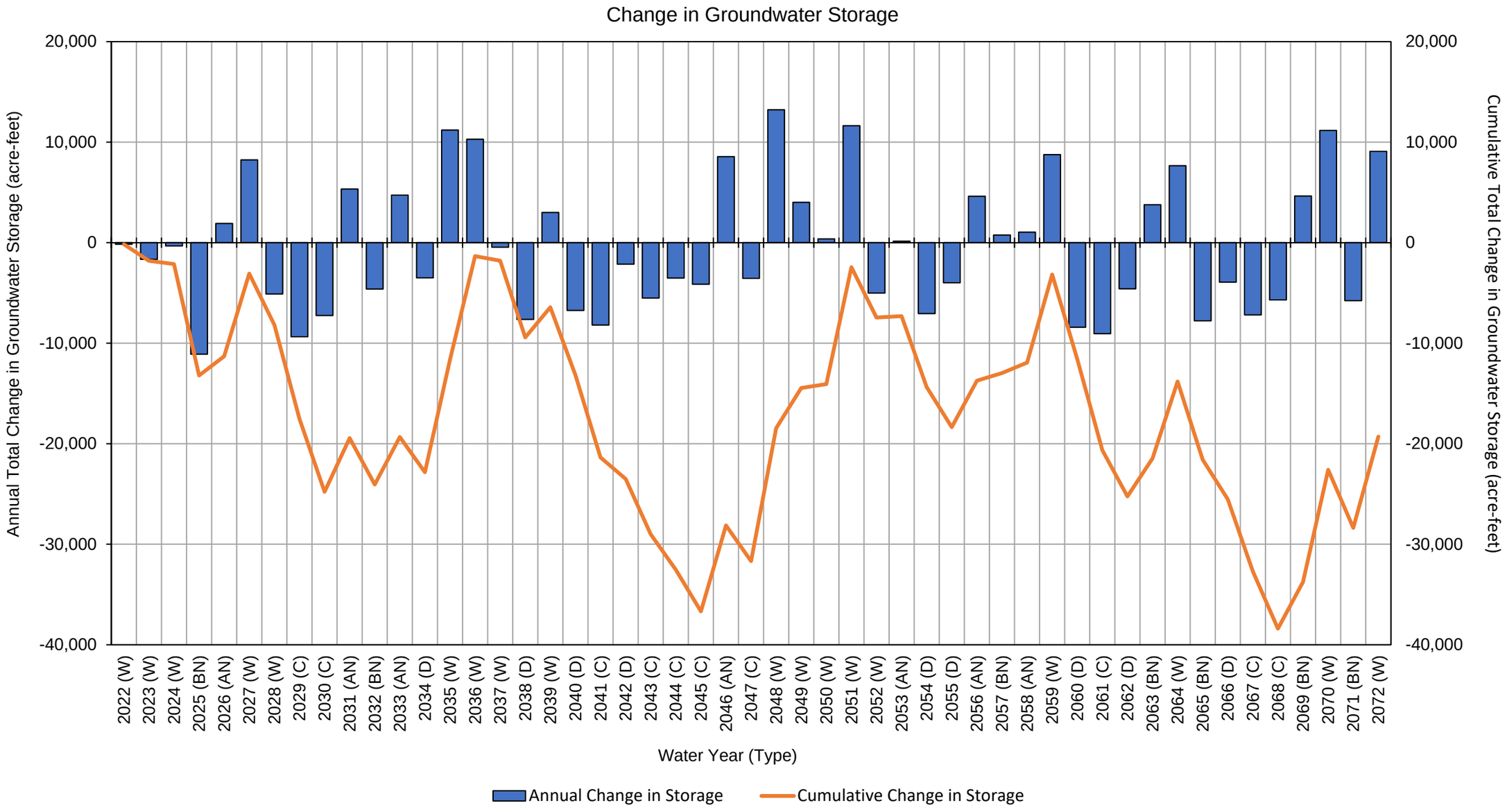
WY (Type)	Subsurface Flows from Uplands
2022 (W)	280
2023 (W)	280
2024 (W)	280
2025 (BN)	270
2026 (AN)	280
2027 (W)	290
2028 (W)	280
2029 (C)	270
2030 (C)	260
2031 (AN)	280
2032 (BN)	270
2033 (AN)	270
2034 (D)	270
2035 (W)	280
2036 (W)	290
2037 (W)	290
2038 (D)	280
2039 (W)	280
2040 (D)	270
2041 (C)	260
2042 (D)	260
2043 (C)	260
2044 (C)	260
2045 (C)	260
2046 (AN)	270
2047 (C)	270
2048 (W)	280
2049 (W)	290
2050 (W)	280
2051 (W)	290
2052 (W)	280
2053 (AN)	270
2054 (D)	270
2055 (D)	270
2056 (AN)	270
2057 (BN)	280
2058 (AN)	270
2059 (W)	280
2060 (D)	270
2061 (C)	270
2062 (D)	260
2063 (BN)	270

Antelope Subbasin Projected (Future Land Use) with Projects and Climate Change (2070)
Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		270
2065 (BN)		270
2066 (D)		270
2067 (C)		260
2068 (C)		270
2069 (BN)		270
2070 (W)		280
2071 (BN)		270
2072 (W)		280
Average (2022-2072)		270
2022-2072	W	280
	AN	270
	BN	270
	D	270
	C	260

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Antelope Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	-160	-160
2023 (W)	-1,700	-1,800
2024 (W)	-320	-2,100
2025 (BN)	-11,000	-13,000
2026 (AN)	1,900	-11,000
2027 (W)	8,200	-3,100
2028 (W)	-5,100	-8,200
2029 (C)	-9,400	-18,000
2030 (C)	-7,200	-25,000
2031 (AN)	5,300	-19,000
2032 (BN)	-4,600	-24,000
2033 (AN)	4,700	-19,000
2034 (D)	-3,500	-23,000
2035 (W)	11,000	-12,000
2036 (W)	10,000	-1,300
2037 (W)	-450	-1,800
2038 (D)	-7,600	-9,400
2039 (W)	3,000	-6,400
2040 (D)	-6,700	-13,000
2041 (C)	-8,200	-21,000
2042 (D)	-2,100	-24,000
2043 (C)	-5,500	-29,000
2044 (C)	-3,500	-33,000
2045 (C)	-4,100	-37,000
2046 (AN)	8,600	-28,000
2047 (C)	-3,600	-32,000
2048 (W)	13,000	-18,000
2049 (W)	4,000	-14,000
2050 (W)	380	-14,000
2051 (W)	12,000	-2,400
2052 (W)	-5,000	-7,500
2053 (AN)	140	-7,300
2054 (D)	-7,100	-14,000
2055 (D)	-4,000	-18,000
2056 (AN)	4,600	-14,000
2057 (BN)	760	-13,000
2058 (AN)	1,000	-12,000
2059 (W)	8,800	-3,200
2060 (D)	-8,400	-12,000
2061 (C)	-9,100	-21,000
2062 (D)	-4,600	-25,000
2063 (BN)	3,800	-21,000

Antelope Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		7,700	-14,000
2065 (BN)		-7,800	-22,000
2066 (D)		-3,900	-26,000
2067 (C)		-7,200	-33,000
2068 (C)		-5,700	-38,000
2069 (BN)		4,600	-34,000
2070 (W)		11,000	-23,000
2071 (BN)		-5,800	-28,000
2072 (W)		9,100	-19,000
Average (2022-2072)		-380	
2022-2072	W		
	AN		
	BN		
	D		
	C		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

Appendix B. Detailed Bowman Subbasin Water Budget Results

APPENDIX B

Detailed Bowman Subbasin Water Budget Results

B-1 Historical Model Results

B-2 Projected (Current Land Use) Model Results

B-3 Projected (Future Land Use) Model Results

B-4 Projected (Current Land Use) with Climate Change (2030) Model Results

B-5 Projected (Current Land Use) with Climate Change (2070) Model Results

B-6 Projected (Future Land Use) with Climate Change (2030) Model Results

B-7 Projected (Future Land Use) with Climate Change (2070) Model Results

B-8 Projected (Future Land Use) with Projects and Climate Change (2070) Model Results

APPENDIX B-1

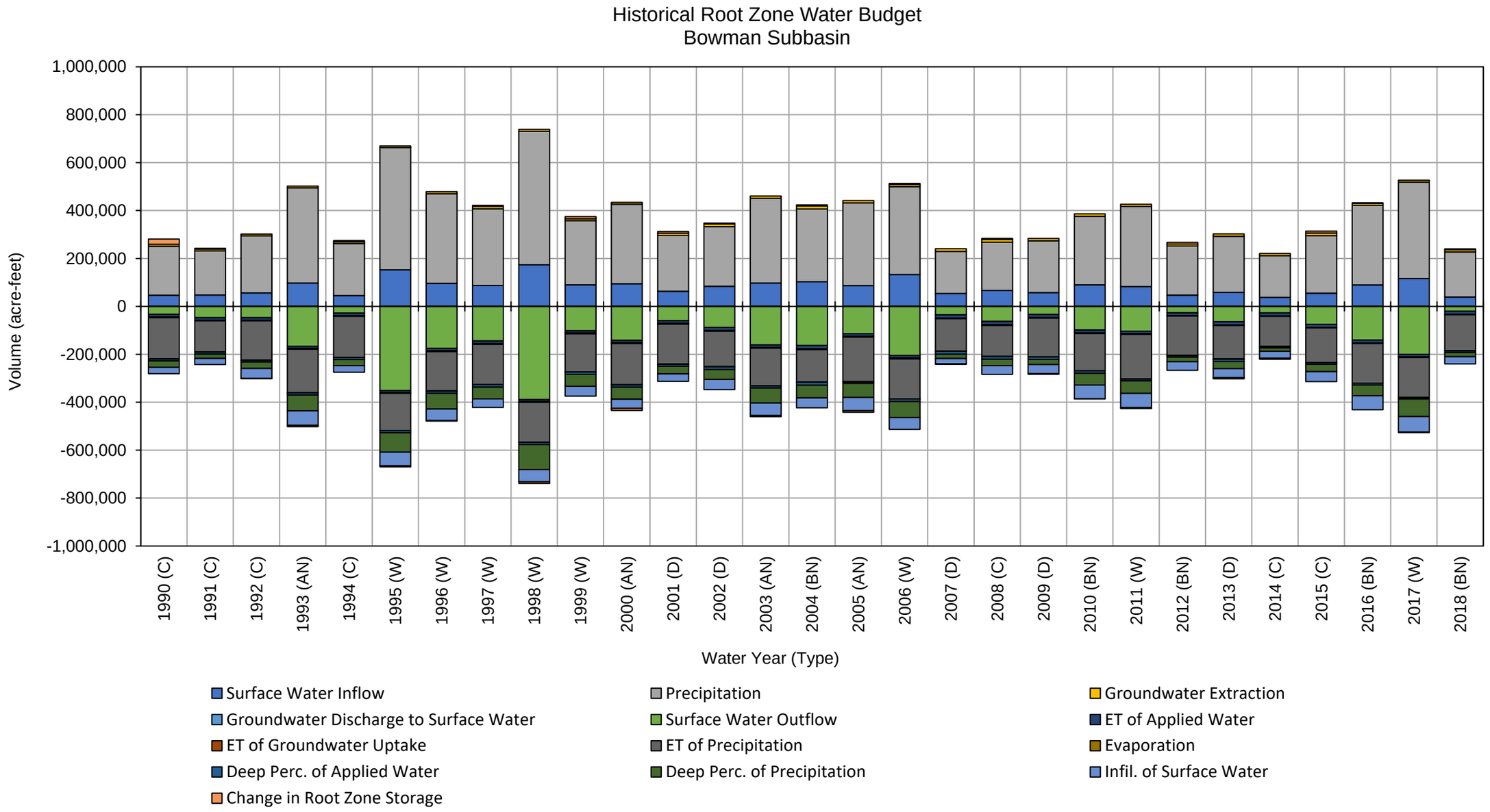
Detailed Bowman Subbasin Water Budget Results:

Historical Model Results

APPENDIX B-1a

Detailed Bowman Subbasin Water Budget Results:

Historical Model Results – Surface Water System

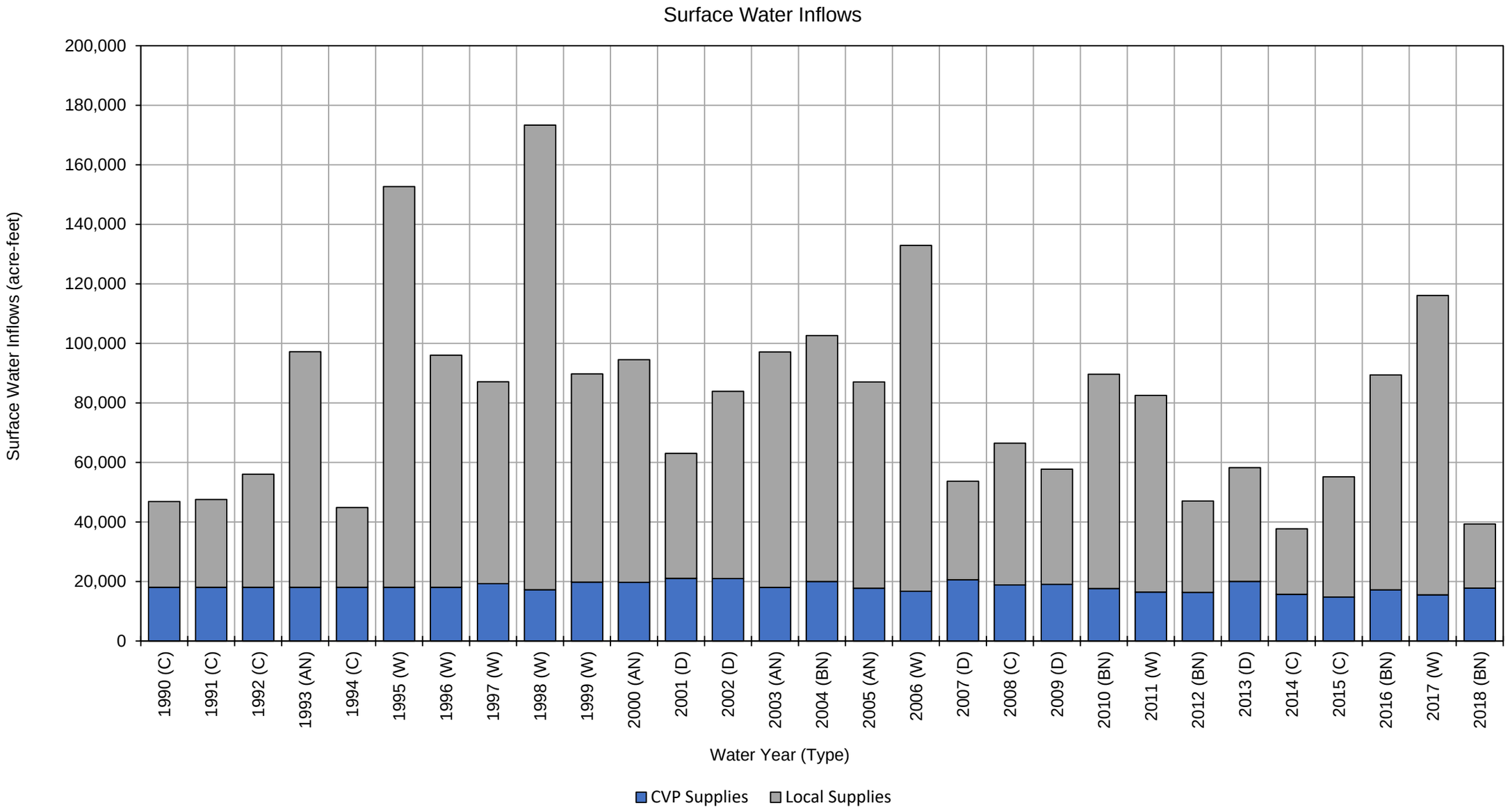

Historical Root Zone Water Budget
Bowman Subbasin
Volume (acre-feet)
1,000,000
800,000
600,000
400,000
200,000
0
-200,000
-400,000
-600,000
-800,000
-1,000,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Surface Water Inflow
Precipitation
Groundwater Extraction
Groundwater Discharge to Surface Water
Surface Water Outflow
ET of Applied Water
ET of Groundwater Uptake
ET of Precipitation
Evaporation
Deep Perc. of Applied Water
Deep Perc. of Precipitation
Infil. of Surface Water
Change in Root Zone Storage

Bowman Subbasin Historical Root Zone Water Budget Summary (acre-feet, rounded)

WY (Type)	Inflows				Outflows								Change in Root Zone Storage
	Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
1990 (C)	47,000	200,000	8,600	0	33,000	11,000	3,000	170,000	330	7,900	27,000	26,000	-22,000
1991 (C)	48,000	180,000	7,300	0	47,000	11,000	2,300	130,000	330	8,400	18,000	26,000	-3,100
1992 (C)	56,000	240,000	7,100	0	47,000	11,000	2,200	160,000	330	6,800	27,000	42,000	620
1993 (AN)	97,000	400,000	7,200	0	170,000	9,200	3,100	180,000	330	8,700	66,000	61,000	5,100
1994 (C)	45,000	220,000	7,600	0	28,000	11,000	2,300	170,000	320	8,400	26,000	27,000	-5,100
1995 (W)	150,000	510,000	6,700	0	350,000	8,000	3,300	160,000	390	8,400	80,000	57,000	4,600
1996 (W)	96,000	370,000	8,200	0	180,000	9,200	3,600	160,000	490	9,000	66,000	48,000	2,100
1997 (W)	87,000	320,000	10,000	0	140,000	11,000	3,500	170,000	600	11,000	49,000	35,000	-3,900
1998 (W)	170,000	560,000	8,000	0	390,000	6,900	4,400	170,000	500	8,900	100,000	52,000	6,500
1999 (W)	90,000	270,000	7,700	0	100,000	8,800	4,300	160,000	740	9,500	50,000	41,000	-8,800
2000 (AN)	95,000	330,000	7,800	0	140,000	8,800	4,000	170,000	710	9,200	50,000	38,000	8,600
2001 (D)	63,000	230,000	9,300	0	60,000	11,000	3,300	170,000	770	7,900	32,000	31,000	-7,100
2002 (D)	84,000	250,000	11,000	0	88,000	13,000	3,400	150,000	850	11,000	41,000	43,000	-3,700
2003 (AN)	97,000	350,000	9,000	0	160,000	10,000	3,500	160,000	780	8,500	63,000	52,000	4,600
2004 (BN)	100,000	300,000	12,000	0	160,000	13,000	3,700	140,000	970	12,000	53,000	41,000	-4,600
2005 (AN)	87,000	340,000	9,800	0	110,000	9,900	3,600	190,000	770	6,300	58,000	55,000	6,700
2006 (W)	130,000	370,000	9,800	0	200,000	10,000	4,000	170,000	830	10,000	67,000	49,000	-3,700
2007 (D)	54,000	180,000	11,000	0	35,000	13,000	3,100	130,000	970	12,000	18,000	23,000	170
2008 (C)	66,000	200,000	12,000	0	63,000	14,000	2,900	130,000	960	11,000	27,000	36,000	-4,000
2009 (D)	58,000	220,000	9,300	0	34,000	13,000	2,400	160,000	940	9,900	21,000	38,000	2,600
2010 (BN)	90,000	290,000	10,000	0	99,000	12,000	2,700	150,000	890	9,800	49,000	57,000	1,300
2011 (W)	83,000	330,000	9,400	0	100,000	10,000	3,200	190,000	760	7,000	52,000	59,000	4,000
2012 (BN)	47,000	200,000	8,200	0	27,000	11,000	2,300	160,000	830	6,100	19,000	36,000	-7,000
2013 (D)	58,000	230,000	10,000	0	64,000	14,000	2,300	140,000	970	9,100	30,000	37,000	5,600
2014 (C)	38,000	170,000	8,700	0	27,000	13,000	1,700	130,000	820	5,400	14,000	28,000	4,800
2015 (C)	55,000	240,000	11,000	0	75,000	13,000	1,700	150,000	770	5,900	31,000	42,000	-7,900
2016 (BN)	89,000	330,000	8,900	0	140,000	12,000	2,300	170,000	830	6,900	44,000	59,000	-710
2017 (W)	120,000	400,000	8,200	0	200,000	10,000	2,800	170,000	760	6,000	73,000	65,000	1,700
2018 (BN)	39,000	190,000	9,700	0	20,000	13,000	1,900	150,000	820	6,300	17,000	30,000	-3,000
Average (1990-2018)	81,000	290,000	9,100	0	110,000	11,000	3,000	160,000	700	8,600	44,000	43,000	-870
1990-2018 W	120,000	390,000	8,500	0	210,000	9,300	3,600	170,000	640	8,800	68,000	51,000	300
1990-2018 AN	94,000	360,000	8,400	0	150,000	9,600	3,500	170,000	650	8,200	59,000	52,000	6,200
1990-2018 BN	74,000	260,000	9,900	0	90,000	12,000	2,600	150,000	870	8,300	37,000	45,000	-2,800
1990-2018 D	63,000	220,000	10,000	0	56,000	13,000	2,900	150,000	900	10,000	28,000	34,000	-480
1990-2018 C	51,000	210,000	8,800	0	46,000	12,000	2,300	150,000	550	7,700	24,000	32,000	-5,200

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

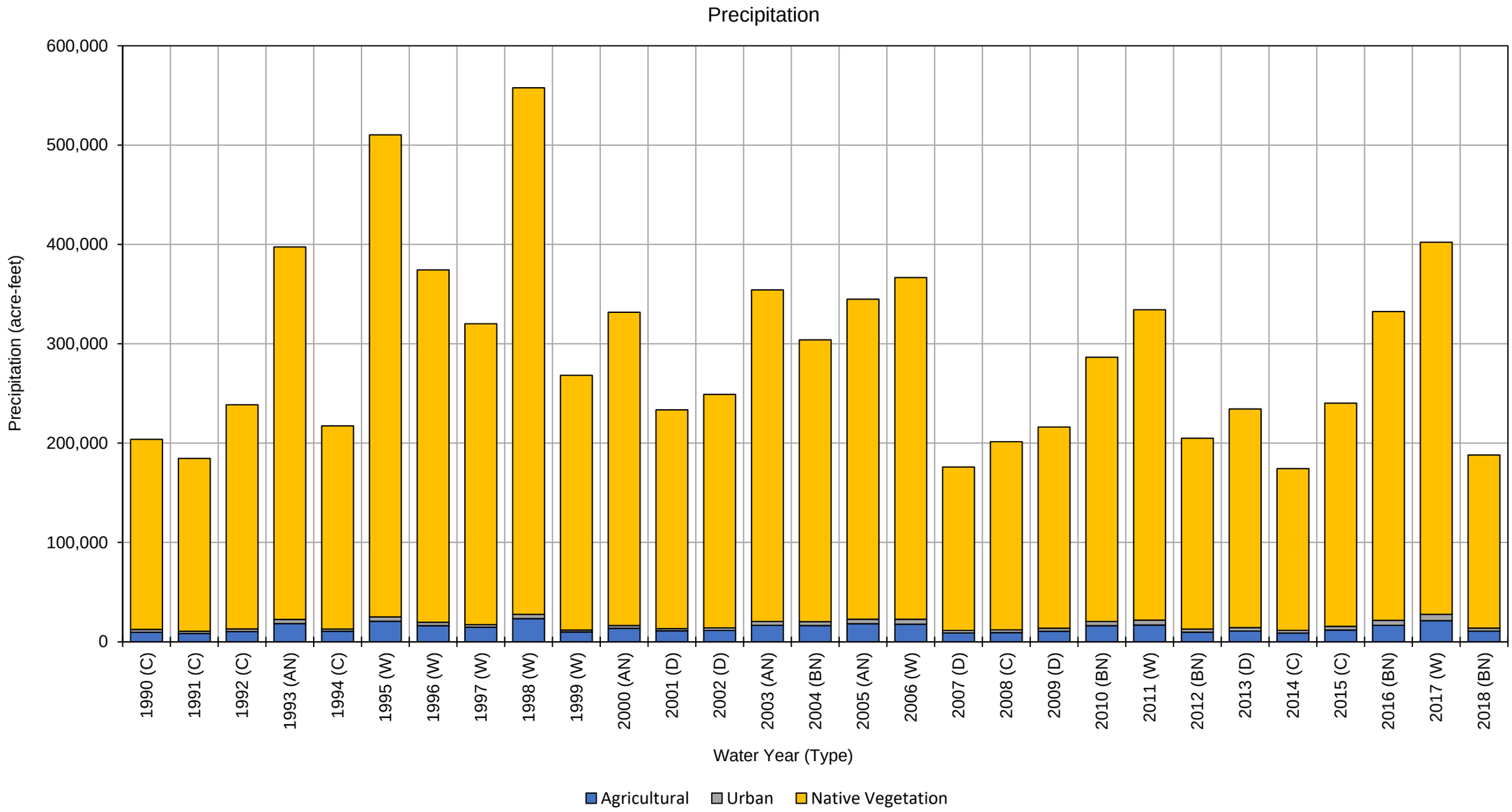

Surface Water Inflows
Surface Water Inflows (acre-feet)
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
CVP Supplies
Local Supplies

Bowman Subbasin Historical Surface Water Inflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Total
1990 (C)		18,000	29,000	47,000
1991 (C)		18,000	29,000	47,000
1992 (C)		18,000	38,000	56,000
1993 (AN)		18,000	79,000	97,000
1994 (C)		18,000	27,000	45,000
1995 (W)		18,000	130,000	150,000
1996 (W)		18,000	78,000	96,000
1997 (W)		19,000	68,000	87,000
1998 (W)		17,000	160,000	180,000
1999 (W)		20,000	70,000	90,000
2000 (AN)		20,000	75,000	95,000
2001 (D)		21,000	42,000	63,000
2002 (D)		21,000	63,000	84,000
2003 (AN)		18,000	79,000	97,000
2004 (BN)		20,000	83,000	100,000
2005 (AN)		18,000	69,000	87,000
2006 (W)		17,000	120,000	140,000
2007 (D)		21,000	33,000	54,000
2008 (C)		19,000	48,000	67,000
2009 (D)		19,000	39,000	58,000
2010 (BN)		18,000	72,000	90,000
2011 (W)		16,000	66,000	82,000
2012 (BN)		16,000	31,000	47,000
2013 (D)		20,000	38,000	58,000
2014 (C)		16,000	22,000	38,000
2015 (C)		15,000	40,000	55,000
2016 (BN)		17,000	72,000	89,000
2017 (W)		16,000	100,000	120,000
2018 (BN)		18,000	22,000	40,000
Average (1990-2018)		18,000	63,000	81,000
1990-2018	W	18,000	99,000	120,000
	AN	18,000	76,000	94,000
	BN	18,000	56,000	74,000
	D	20,000	43,000	63,000
	C	17,000	33,000	50,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

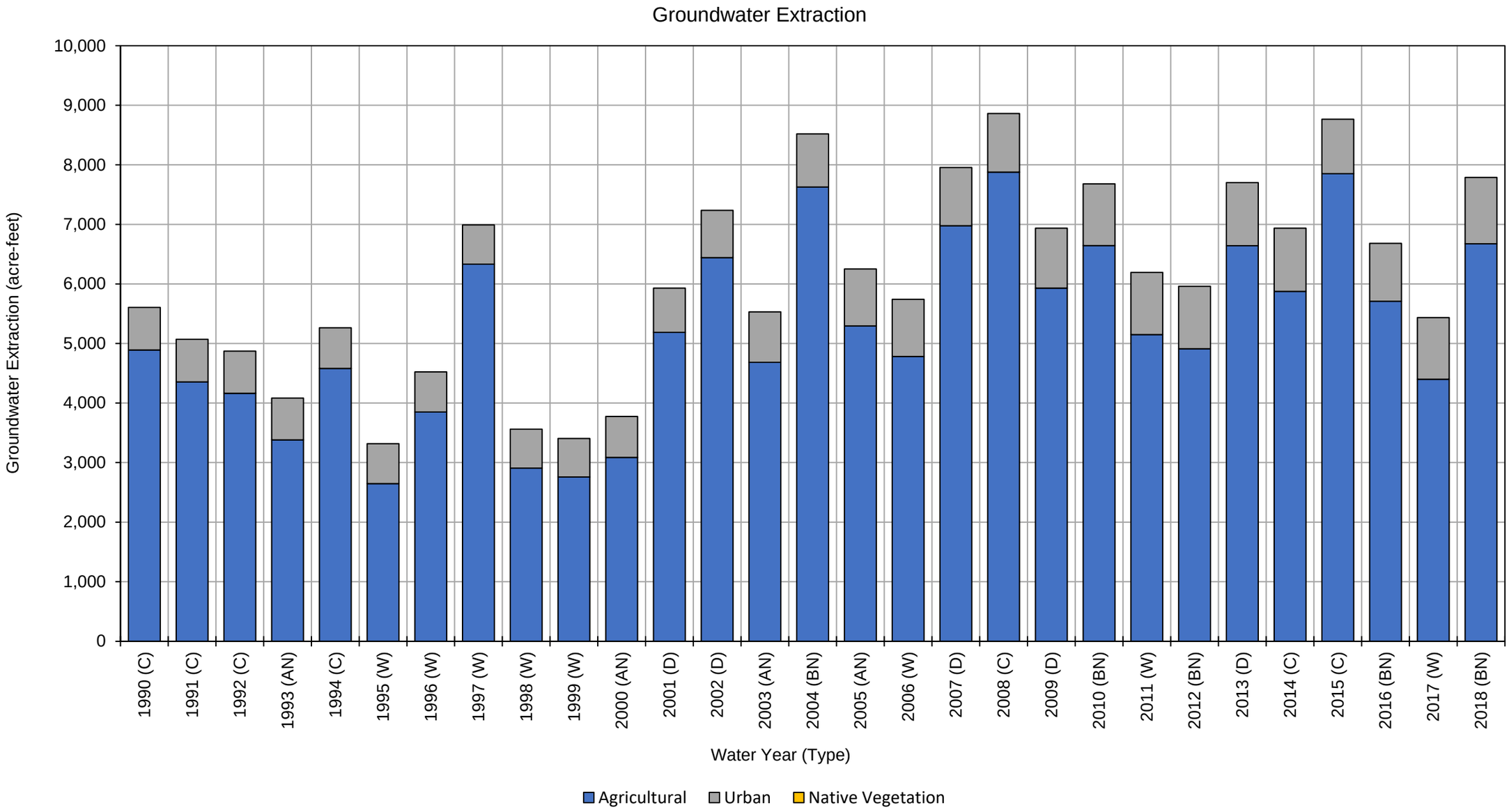

Precipitation
Precipitation (acre-feet)
600,000
500,000
400,000
300,000
200,000
100,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Bowman Subbasin Historical Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		9,600	2,800	190,000	200,000
1991 (C)		8,200	2,300	170,000	180,000
1992 (C)		10,000	2,600	230,000	240,000
1993 (AN)		18,000	4,300	370,000	390,000
1994 (C)		11,000	2,200	200,000	210,000
1995 (W)		21,000	4,400	490,000	520,000
1996 (W)		16,000	3,400	350,000	370,000
1997 (W)		15,000	2,500	300,000	320,000
1998 (W)		23,000	4,300	530,000	560,000
1999 (W)		9,900	2,000	260,000	270,000
2000 (AN)		14,000	2,800	320,000	340,000
2001 (D)		11,000	2,200	220,000	230,000
2002 (D)		11,000	2,500	240,000	250,000
2003 (AN)		16,000	4,000	330,000	350,000
2004 (BN)		16,000	3,900	280,000	300,000
2005 (AN)		18,000	4,600	320,000	340,000
2006 (W)		18,000	5,000	340,000	360,000
2007 (D)		8,900	2,500	160,000	170,000
2008 (C)		9,300	2,800	190,000	200,000
2009 (D)		11,000	3,100	200,000	210,000
2010 (BN)		16,000	4,300	270,000	290,000
2011 (W)		17,000	4,900	310,000	330,000
2012 (BN)		9,700	3,100	190,000	200,000
2013 (D)		11,000	3,500	220,000	230,000
2014 (C)		8,800	2,700	160,000	170,000
2015 (C)		12,000	3,700	220,000	240,000
2016 (BN)		17,000	5,000	310,000	330,000
2017 (W)		21,000	6,400	370,000	400,000
2018 (BN)		11,000	3,100	170,000	180,000
Average (1990-2018)		14,000	3,500	270,000	290,000
1990-2018	W	18,000	4,100	370,000	390,000
	AN	17,000	3,900	340,000	360,000
	BN	14,000	3,900	250,000	270,000
	D	11,000	2,800	210,000	220,000
	C	9,800	2,700	200,000	210,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

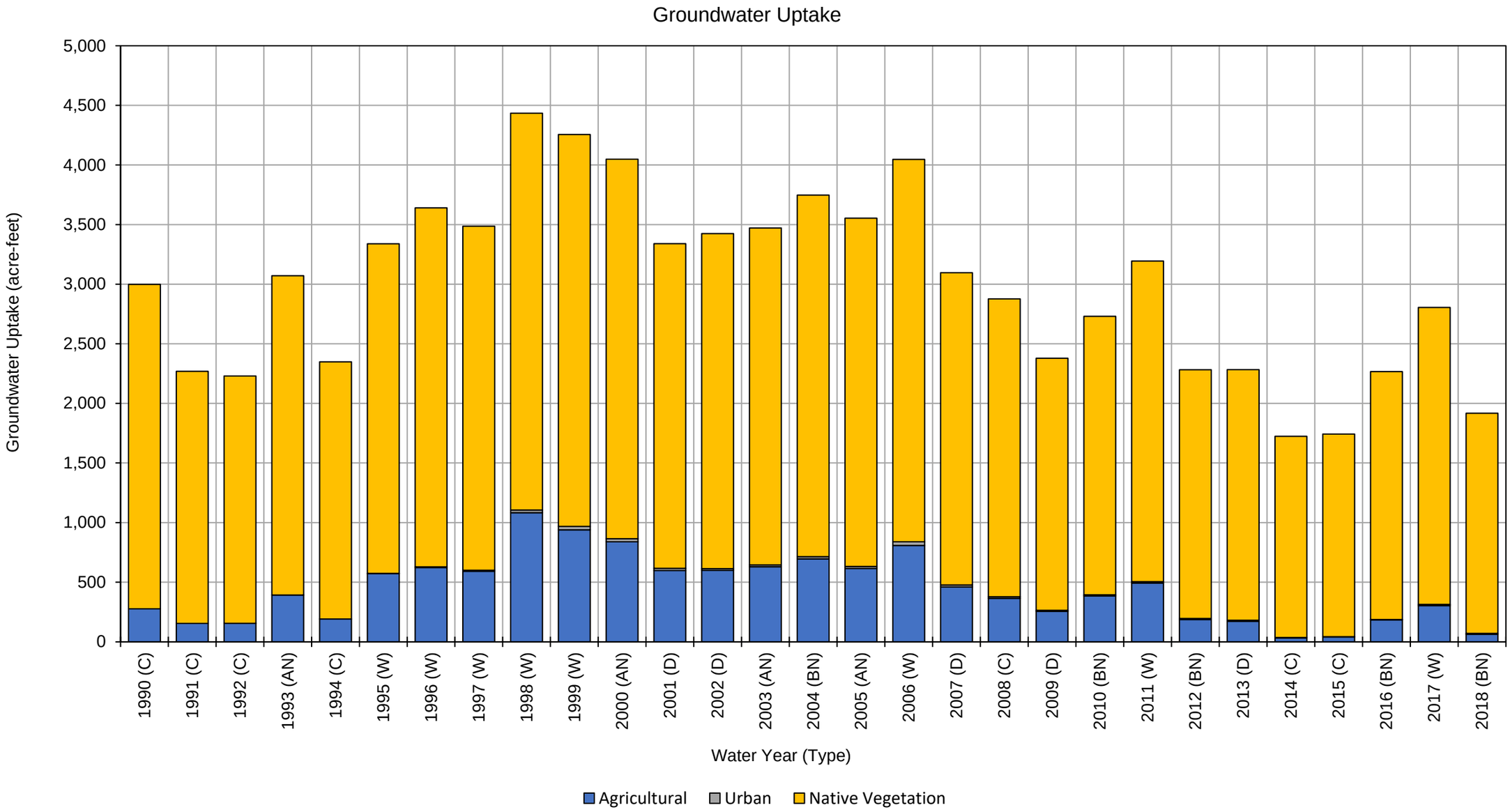

Groundwater Extraction
Groundwater Extraction (acre-feet)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Bowman Subbasin Historical Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		4,900	720	0	5,600
1991 (C)		4,400	710	0	5,100
1992 (C)		4,200	710	0	4,900
1993 (AN)		3,400	700	0	4,100
1994 (C)		4,600	680	0	5,300
1995 (W)		2,600	670	0	3,300
1996 (W)		3,800	670	0	4,500
1997 (W)		6,300	660	0	7,000
1998 (W)		2,900	650	0	3,600
1999 (W)		2,800	650	0	3,500
2000 (AN)		3,100	690	0	3,800
2001 (D)		5,200	740	0	5,900
2002 (D)		6,400	790	0	7,200
2003 (AN)		4,700	850	0	5,600
2004 (BN)		7,600	890	0	8,500
2005 (AN)		5,300	960	0	6,300
2006 (W)		4,800	960	0	5,800
2007 (D)		7,000	980	0	8,000
2008 (C)		7,900	980	0	8,900
2009 (D)		5,900	1,000	0	6,900
2010 (BN)		6,600	1,000	0	7,600
2011 (W)		5,100	1,000	0	6,100
2012 (BN)		4,900	1,000	0	5,900
2013 (D)		6,600	1,100	0	7,700
2014 (C)		5,900	1,100	0	7,000
2015 (C)		7,900	910	0	8,800
2016 (BN)		5,700	970	0	6,700
2017 (W)		4,400	1,000	0	5,400
2018 (BN)		6,700	1,100	0	7,800
Average (1990-2018)		5,200	860	0	6,100
1990-2018	W	4,100	790	0	4,900
	AN	4,100	800	0	4,900
	BN	6,300	1,000	0	7,300
	D	6,200	920	0	7,100
	C	5,700	830	0	6,500

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



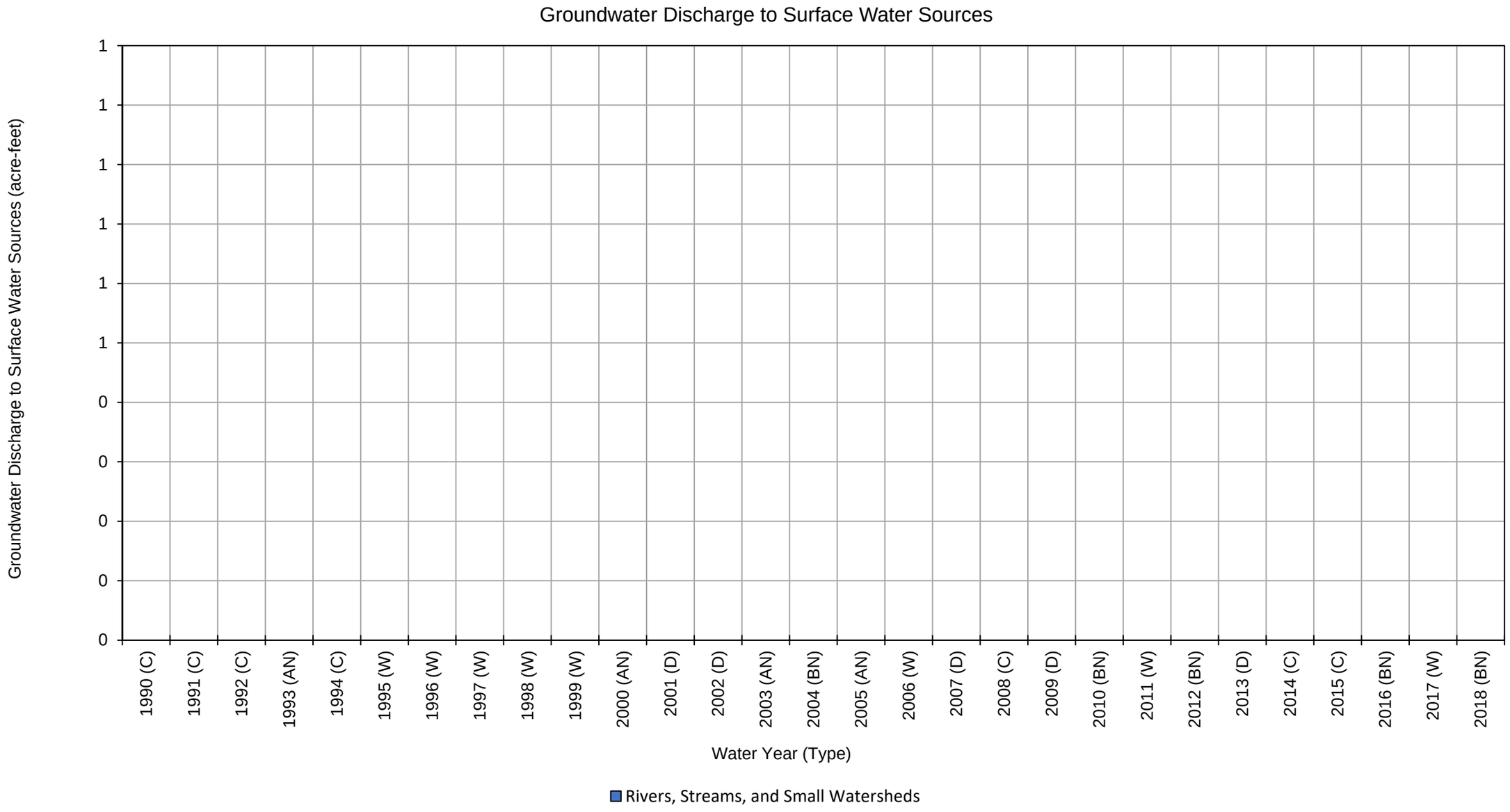
Tehama IHM - Historical

Bowman Subbasin Historical Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		280	0	2,700	3,000
1991 (C)		150	0	2,100	2,300
1992 (C)		160	0	2,100	2,300
1993 (AN)		390	0	2,700	3,100
1994 (C)		190	0	2,200	2,400
1995 (W)		570	2	2,800	3,400
1996 (W)		620	5	3,000	3,600
1997 (W)		590	9	2,900	3,500
1998 (W)		1,100	23	3,300	4,400
1999 (W)		940	29	3,300	4,300
2000 (AN)		840	26	3,200	4,100
2001 (D)		600	19	2,700	3,300
2002 (D)		600	14	2,800	3,400
2003 (AN)		630	15	2,800	3,400
2004 (BN)		690	19	3,000	3,700
2005 (AN)		610	17	2,900	3,500
2006 (W)		810	31	3,200	4,000
2007 (D)		460	17	2,600	3,100
2008 (C)		360	13	2,500	2,900
2009 (D)		250	9	2,100	2,400
2010 (BN)		380	9	2,300	2,700
2011 (W)		490	12	2,700	3,200
2012 (BN)		190	10	2,100	2,300
2013 (D)		170	8	2,100	2,300
2014 (C)		32	4	1,700	1,700
2015 (C)		40	3	1,700	1,700
2016 (BN)		180	3	2,100	2,300
2017 (W)		300	10	2,500	2,800
2018 (BN)		63	7	1,800	1,900
Average (1990-2018)		440	11	2,600	3,100
1990-2018	W	680	15	3,000	3,700
	AN	620	14	2,900	3,500
	BN	300	10	2,300	2,600
	D	420	13	2,500	2,900
	C	170	3	2,100	2,300

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

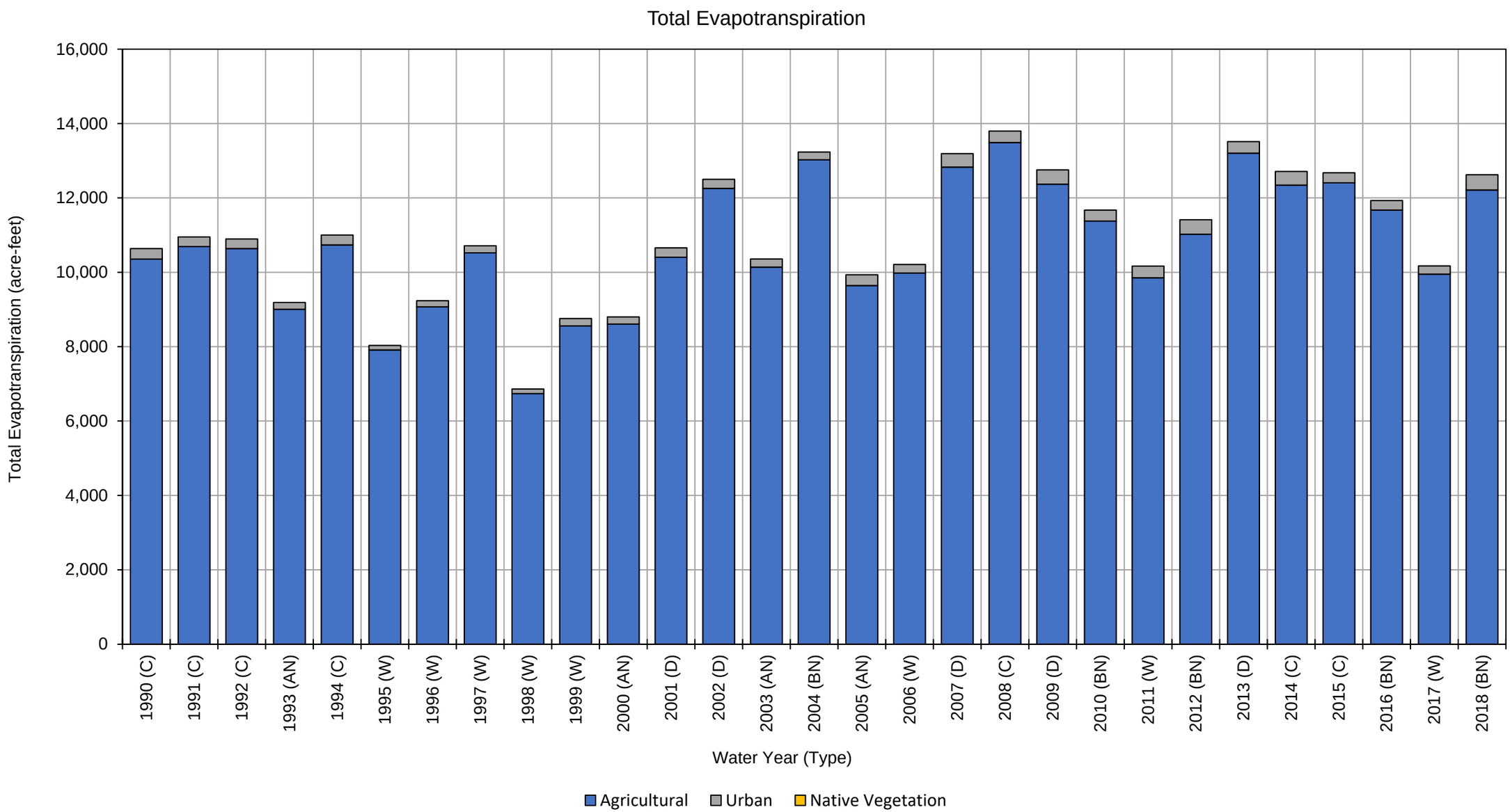

Groundwater Discharge to Surface Water Sources
Groundwater Discharge to Surface Water Sources (acre-feet)
1
1
1
1
1
1
1
0
0
0
0
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Rivers, Streams, and Small Watersheds

Bowman Subbasin Historical Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

WY (Type)		Rivers, Streams, and Small Watersheds
1990 (C)		0
1991 (C)		0
1992 (C)		0
1993 (AN)		0
1994 (C)		0
1995 (W)		0
1996 (W)		0
1997 (W)		0
1998 (W)		0
1999 (W)		0
2000 (AN)		0
2001 (D)		0
2002 (D)		0
2003 (AN)		0
2004 (BN)		0
2005 (AN)		0
2006 (W)		0
2007 (D)		0
2008 (C)		0
2009 (D)		0
2010 (BN)		0
2011 (W)		0
2012 (BN)		0
2013 (D)		0
2014 (C)		0
2015 (C)		0
2016 (BN)		0
2017 (W)		0
2018 (BN)		0
Average (1990-2018)		0
1990-2018	W	0
	AN	0
	BN	0
	D	0
	C	0

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

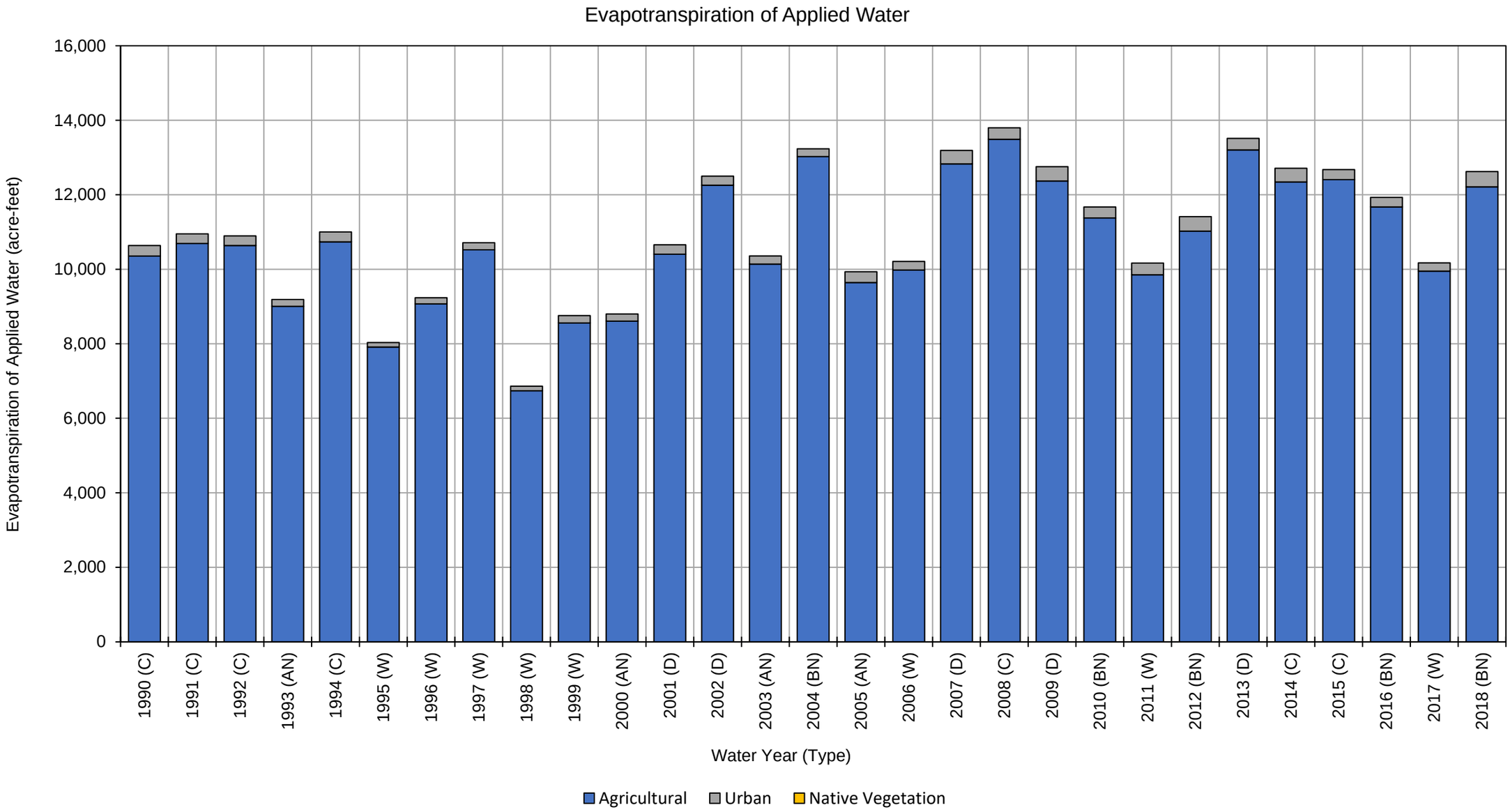

Total Evapotranspiration
Total Evapotranspiration (acre-feet)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Bowman Subbasin Historical Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		17,000	1,400	170,000	190,000
1991 (C)		15,000	1,100	130,000	150,000
1992 (C)		16,000	1,200	160,000	180,000
1993 (AN)		16,000	1,300	180,000	200,000
1994 (C)		17,000	1,100	170,000	190,000
1995 (W)		13,000	930	150,000	160,000
1996 (W)		15,000	1,000	160,000	180,000
1997 (W)		17,000	920	160,000	180,000
1998 (W)		14,000	920	160,000	170,000
1999 (W)		13,000	800	160,000	170,000
2000 (AN)		14,000	980	170,000	180,000
2001 (D)		17,000	1,000	160,000	180,000
2002 (D)		18,000	1,000	140,000	160,000
2003 (AN)		17,000	1,300	150,000	170,000
2004 (BN)		19,000	1,100	130,000	150,000
2005 (AN)		19,000	1,700	180,000	200,000
2006 (W)		17,000	1,400	160,000	180,000
2007 (D)		18,000	1,300	130,000	150,000
2008 (C)		18,000	1,200	130,000	150,000
2009 (D)		18,000	1,600	160,000	180,000
2010 (BN)		19,000	1,500	150,000	170,000
2011 (W)		18,000	1,800	180,000	200,000
2012 (BN)		17,000	1,600	160,000	180,000
2013 (D)		18,000	1,300	140,000	160,000
2014 (C)		17,000	1,300	120,000	140,000
2015 (C)		18,000	1,400	140,000	160,000
2016 (BN)		18,000	1,600	160,000	180,000
2017 (W)		18,000	1,600	160,000	180,000
2018 (BN)		19,000	1,600	140,000	160,000
Average (1990-2018)		17,000	1,300	150,000	170,000
1990-2018	W	16,000	1,200	160,000	180,000
	AN	17,000	1,300	170,000	190,000
	BN	18,000	1,500	150,000	170,000
	D	18,000	1,200	150,000	170,000
	C	17,000	1,200	140,000	160,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
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BN Below Normal
D Dry
C Critical

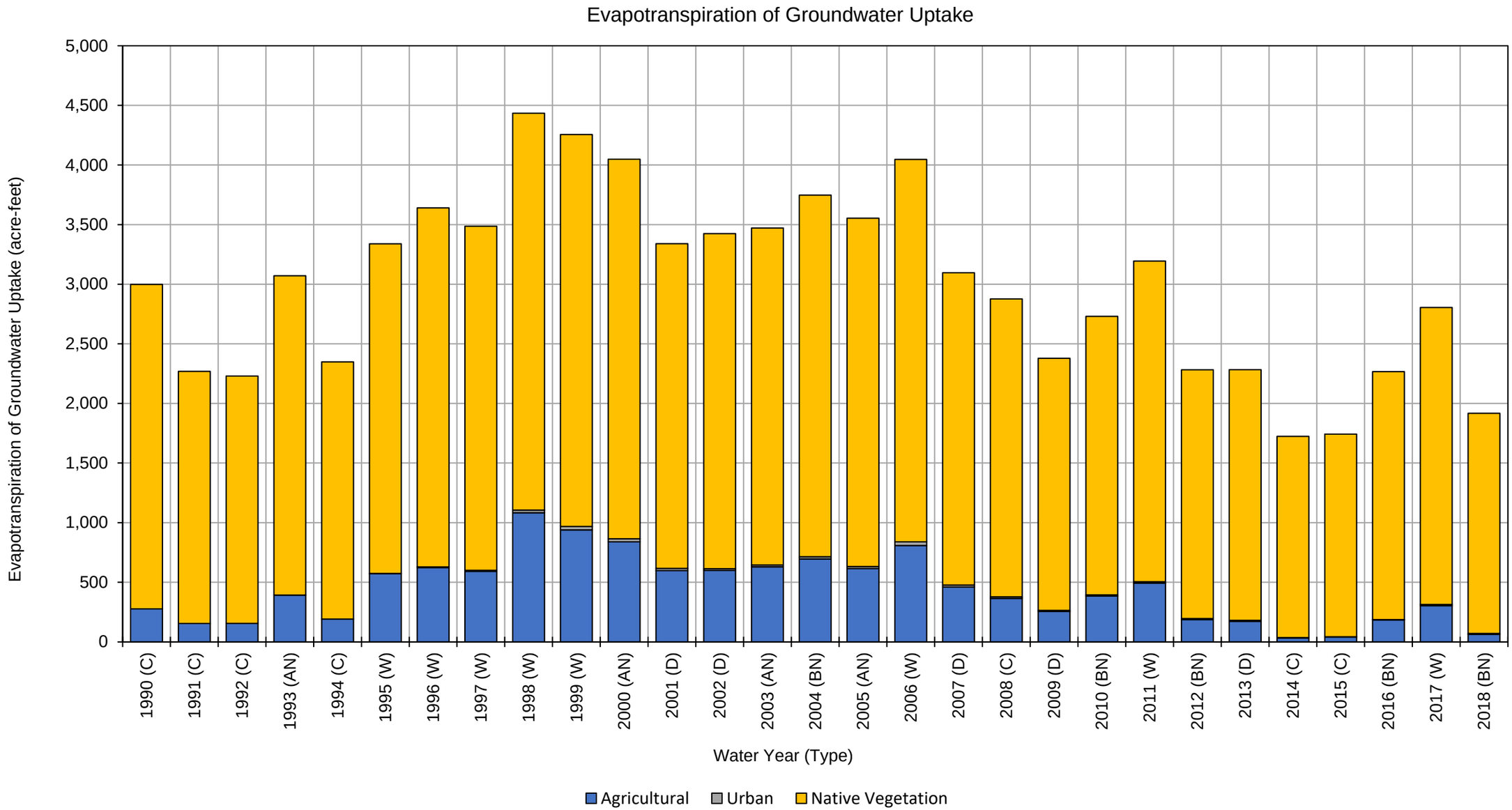

Evapotranspiration of Applied Water
Evapotranspiration of Applied Water (acre-feet)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Bowman Subbasin Historical Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		10,000	280	0	10,000
1991 (C)		11,000	260	0	11,000
1992 (C)		11,000	260	0	11,000
1993 (AN)		9,000	180	0	9,200
1994 (C)		11,000	270	0	11,000
1995 (W)		7,900	120	0	8,000
1996 (W)		9,100	170	0	9,300
1997 (W)		11,000	190	0	11,000
1998 (W)		6,700	120	0	6,800
1999 (W)		8,600	200	0	8,800
2000 (AN)		8,600	190	0	8,800
2001 (D)		10,000	250	0	10,000
2002 (D)		12,000	240	0	12,000
2003 (AN)		10,000	220	0	10,000
2004 (BN)		13,000	210	0	13,000
2005 (AN)		9,600	290	0	9,900
2006 (W)		10,000	230	0	10,000
2007 (D)		13,000	360	0	13,000
2008 (C)		13,000	310	0	13,000
2009 (D)		12,000	380	0	12,000
2010 (BN)		11,000	300	0	11,000
2011 (W)		9,900	310	0	10,000
2012 (BN)		11,000	390	0	11,000
2013 (D)		13,000	310	0	13,000
2014 (C)		12,000	370	0	12,000
2015 (C)		12,000	270	0	12,000
2016 (BN)		12,000	260	0	12,000
2017 (W)		9,900	220	0	10,000
2018 (BN)		12,000	410	0	12,000
Average (1990-2018)		11,000	260	0	11,000
1990-2018	W	9,100	200	0	9,300
	AN	9,300	220	0	9,500
	BN	12,000	310	0	12,000
	D	12,000	310	0	12,000
	C	12,000	290	0	12,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



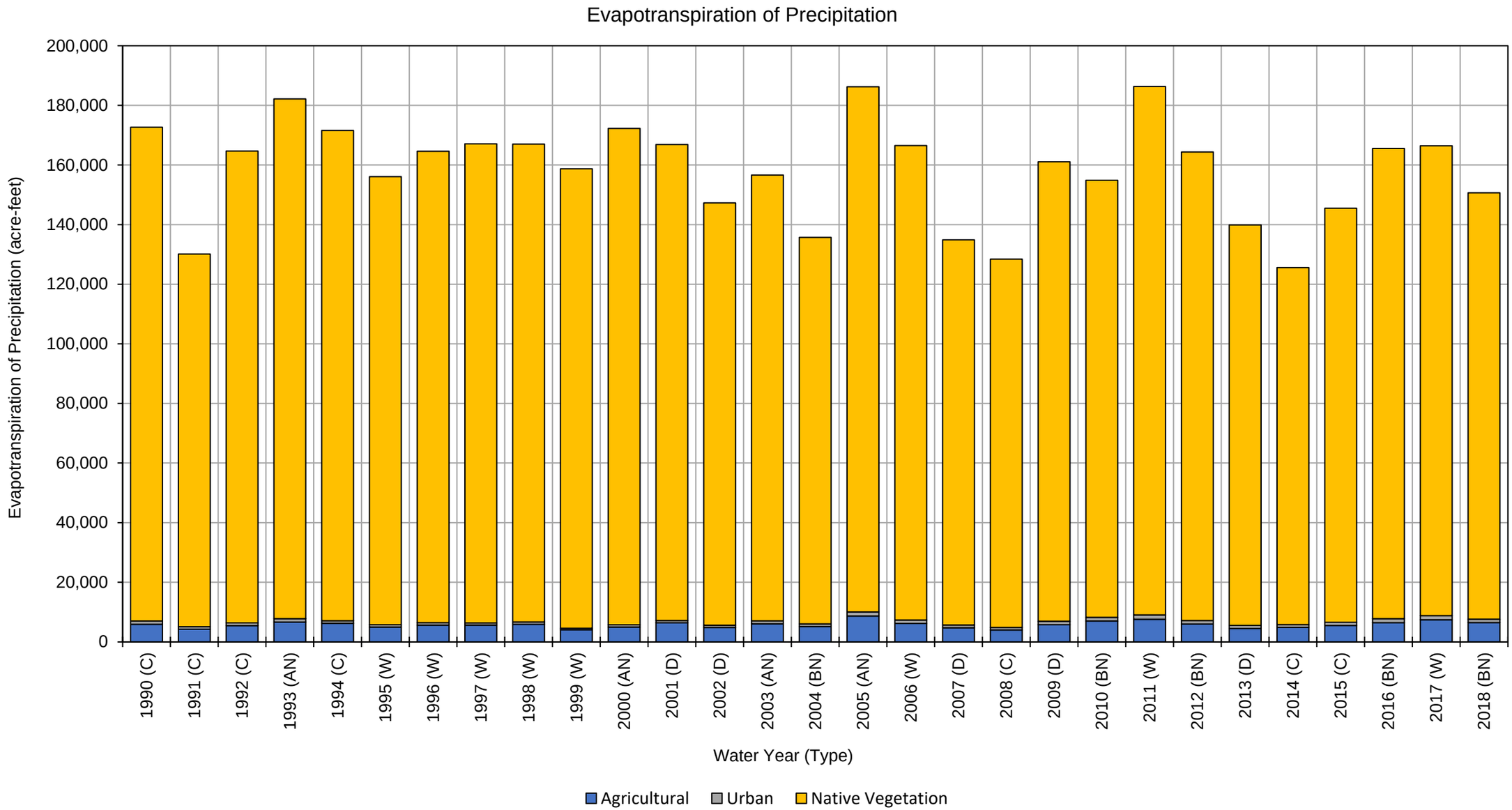
Tehama IHM - Historical

Bowman Subbasin Historical Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		280	0	2,700	3,000
1991 (C)		150	0	2,100	2,300
1992 (C)		160	0	2,100	2,300
1993 (AN)		390	0	2,700	3,100
1994 (C)		190	0	2,200	2,400
1995 (W)		570	2	2,800	3,400
1996 (W)		620	5	3,000	3,600
1997 (W)		590	9	2,900	3,500
1998 (W)		1,100	23	3,300	4,400
1999 (W)		940	29	3,300	4,300
2000 (AN)		840	26	3,200	4,100
2001 (D)		600	19	2,700	3,300
2002 (D)		600	14	2,800	3,400
2003 (AN)		630	15	2,800	3,400
2004 (BN)		690	19	3,000	3,700
2005 (AN)		610	17	2,900	3,500
2006 (W)		810	31	3,200	4,000
2007 (D)		460	17	2,600	3,100
2008 (C)		360	13	2,500	2,900
2009 (D)		250	9	2,100	2,400
2010 (BN)		380	9	2,300	2,700
2011 (W)		490	12	2,700	3,200
2012 (BN)		190	10	2,100	2,300
2013 (D)		170	8	2,100	2,300
2014 (C)		32	4	1,700	1,700
2015 (C)		40	3	1,700	1,700
2016 (BN)		180	3	2,100	2,300
2017 (W)		300	10	2,500	2,800
2018 (BN)		63	7	1,800	1,900
Average (1990-2018)		440	11	2,600	3,100
1990-2018	W	680	15	3,000	3,700
	AN	620	14	2,900	3,500
	BN	300	10	2,300	2,600
	D	420	13	2,500	2,900
	C	170	3	2,100	2,300

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



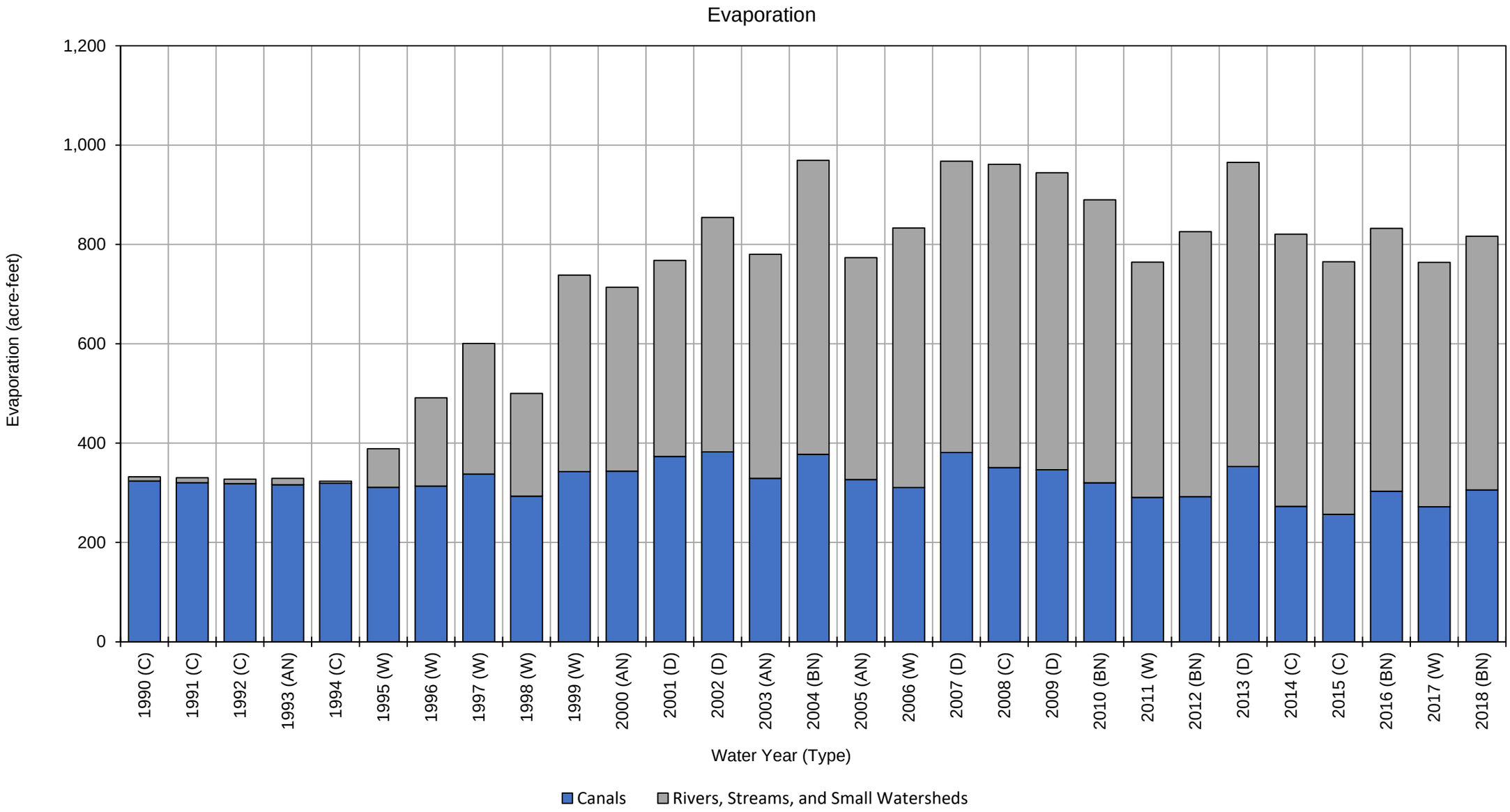
Tehama IHM - Historical

Bowman Subbasin Historical Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		5,900	1,100	170,000	180,000
1991 (C)		4,300	830	130,000	140,000
1992 (C)		5,400	950	160,000	170,000
1993 (AN)		6,700	1,100	170,000	180,000
1994 (C)		6,200	850	160,000	170,000
1995 (W)		5,000	810	150,000	160,000
1996 (W)		5,600	830	160,000	170,000
1997 (W)		5,600	720	160,000	170,000
1998 (W)		5,900	780	160,000	170,000
1999 (W)		4,000	570	150,000	150,000
2000 (AN)		5,000	770	170,000	180,000
2001 (D)		6,400	750	160,000	170,000
2002 (D)		4,800	770	140,000	150,000
2003 (AN)		6,100	1,000	150,000	160,000
2004 (BN)		5,100	880	130,000	140,000
2005 (AN)		8,600	1,400	180,000	190,000
2006 (W)		6,200	1,200	160,000	170,000
2007 (D)		4,700	920	130,000	140,000
2008 (C)		4,000	860	120,000	120,000
2009 (D)		5,800	1,200	150,000	160,000
2010 (BN)		7,000	1,200	150,000	160,000
2011 (W)		7,600	1,500	180,000	190,000
2012 (BN)		6,000	1,200	160,000	170,000
2013 (D)		4,500	1,000	130,000	140,000
2014 (C)		4,800	940	120,000	130,000
2015 (C)		5,500	1,100	140,000	150,000
2016 (BN)		6,500	1,300	160,000	170,000
2017 (W)		7,400	1,400	160,000	170,000
2018 (BN)		6,500	1,100	140,000	150,000
Average (1990-2018)		5,800	1,000	150,000	160,000
1990-2018	W	5,900	960	160,000	170,000
	AN	6,600	1,100	170,000	180,000
	BN	6,200	1,100	150,000	160,000
	D	5,200	930	140,000	150,000
	C	5,200	950	140,000	150,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

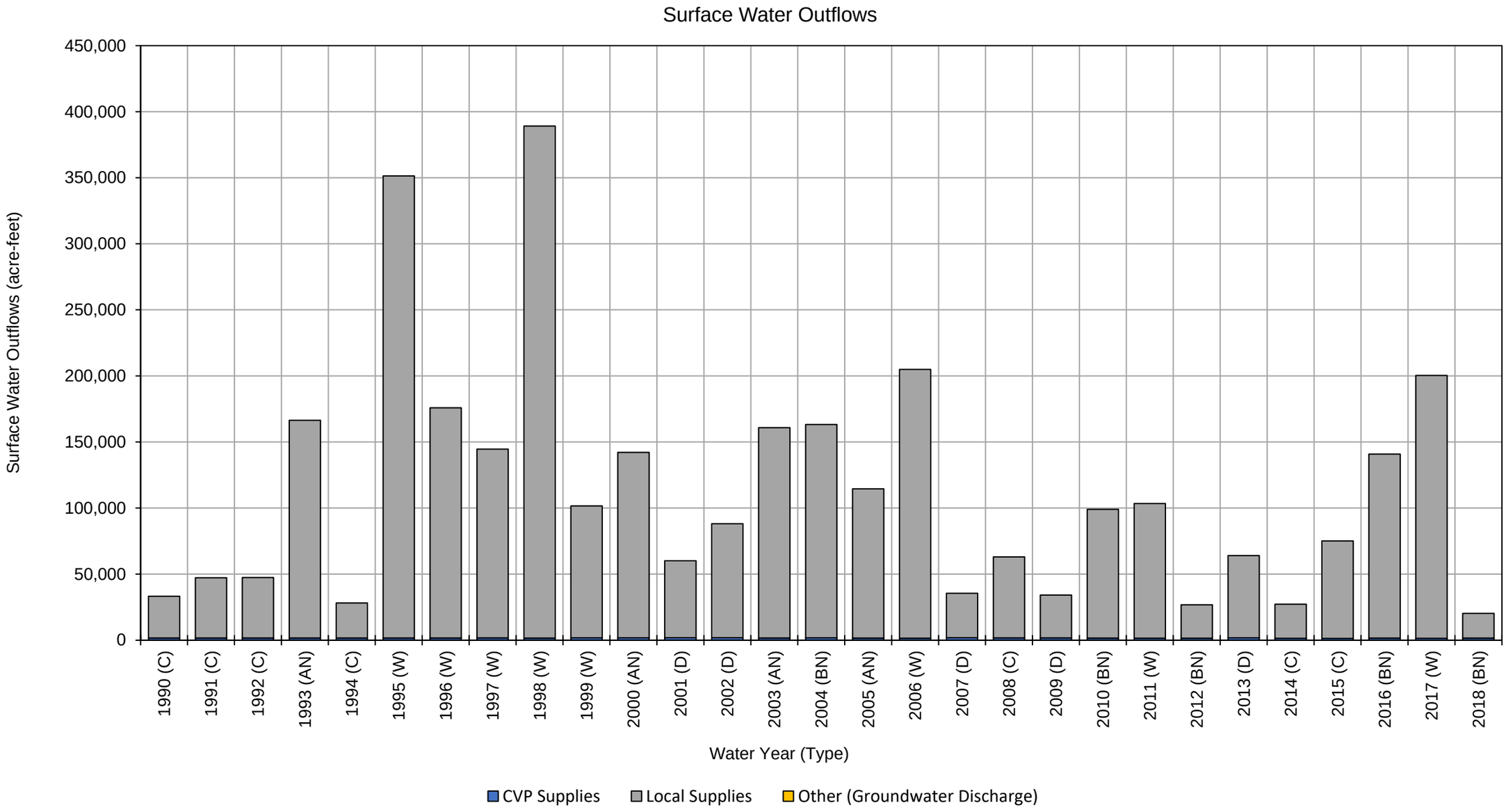

Evaporation
Evaporation (acre-feet)
1,200
1,000
800
600
400
200
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Canals
Rivers, Streams, and Small Watersheds

Bowman Subbasin Historical Evaporation (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Watersheds	Total
1990 (C)		320	8	330
1991 (C)		320	10	330
1992 (C)		320	9	330
1993 (AN)		320	13	330
1994 (C)		320	4	320
1995 (W)		310	78	390
1996 (W)		310	180	490
1997 (W)		340	260	600
1998 (W)		290	210	500
1999 (W)		340	400	740
2000 (AN)		340	370	710
2001 (D)		370	390	760
2002 (D)		380	470	850
2003 (AN)		330	450	780
2004 (BN)		380	590	970
2005 (AN)		330	450	780
2006 (W)		310	520	830
2007 (D)		380	590	970
2008 (C)		350	610	960
2009 (D)		350	600	950
2010 (BN)		320	570	890
2011 (W)		290	470	760
2012 (BN)		290	530	820
2013 (D)		350	610	960
2014 (C)		270	550	820
2015 (C)		260	510	770
2016 (BN)		300	530	830
2017 (W)		270	490	760
2018 (BN)		310	510	820
Average (1990-2018)		320	380	700
1990-2018	W	310	330	640
	AN	330	320	650
	BN	320	550	870
	D	370	530	900
	C	310	240	550

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

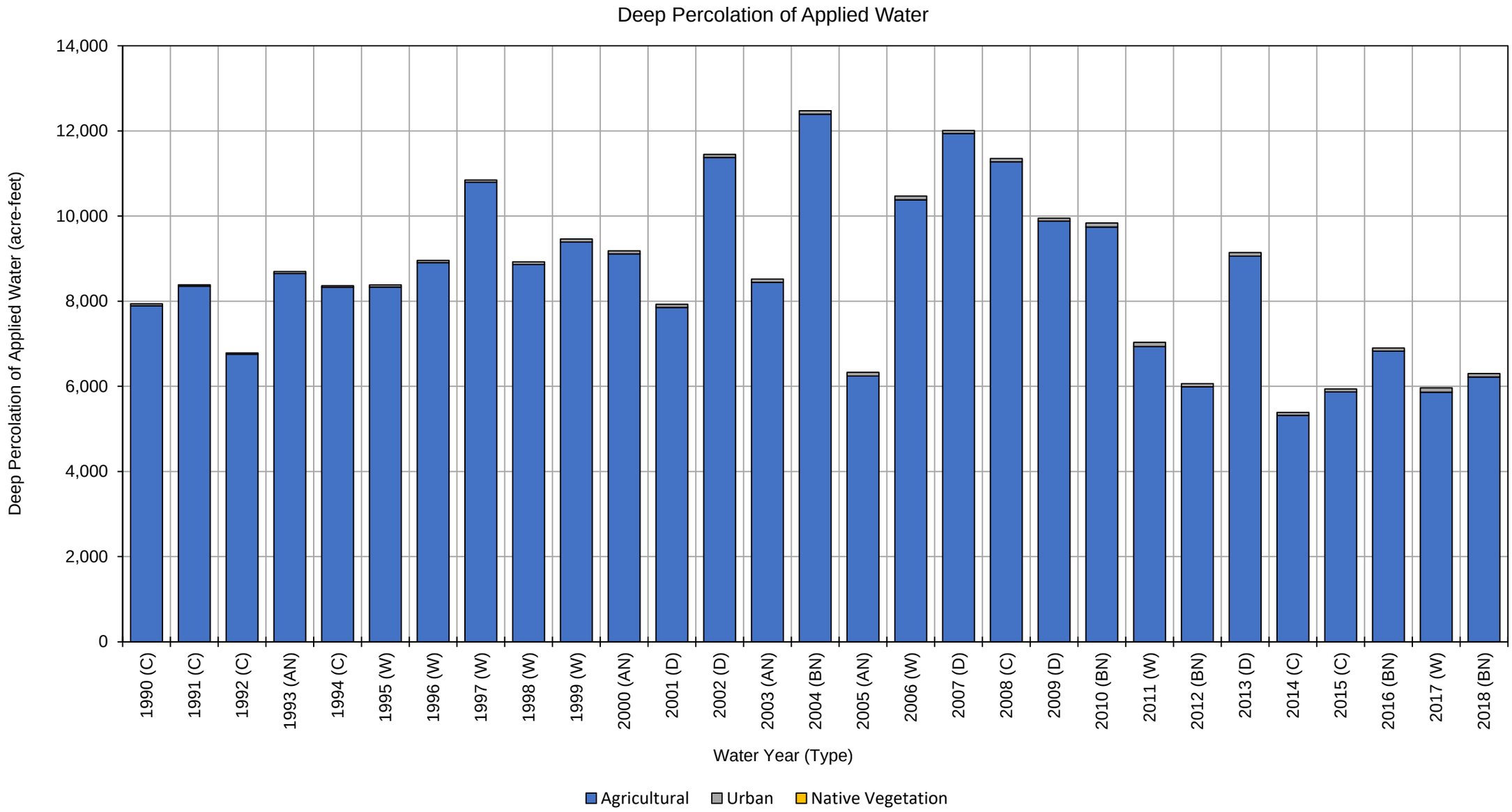

Surface Water Outflows
Surface Water Outflows (acre-feet)
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
CVP Supplies
Local Supplies
Other (Groundwater Discharge)

Bowman Subbasin Historical Surface Water Outflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
1990 (C)		1,600	32,000	0	34,000
1991 (C)		1,600	46,000	0	48,000
1992 (C)		1,600	46,000	0	48,000
1993 (AN)		1,600	160,000	0	160,000
1994 (C)		1,600	26,000	0	28,000
1995 (W)		1,600	350,000	0	350,000
1996 (W)		1,600	170,000	0	170,000
1997 (W)		1,700	140,000	0	140,000
1998 (W)		1,500	390,000	0	390,000
1999 (W)		1,800	100,000	0	100,000
2000 (AN)		1,800	140,000	0	140,000
2001 (D)		1,900	58,000	0	60,000
2002 (D)		1,900	86,000	0	88,000
2003 (AN)		1,600	160,000	0	160,000
2004 (BN)		1,800	160,000	0	160,000
2005 (AN)		1,600	110,000	0	110,000
2006 (W)		1,500	200,000	0	200,000
2007 (D)		1,800	34,000	0	36,000
2008 (C)		1,700	61,000	0	63,000
2009 (D)		1,700	32,000	0	34,000
2010 (BN)		1,600	97,000	0	99,000
2011 (W)		1,500	100,000	0	100,000
2012 (BN)		1,500	25,000	0	27,000
2013 (D)		1,800	62,000	0	64,000
2014 (C)		1,400	26,000	0	27,000
2015 (C)		1,300	74,000	0	75,000
2016 (BN)		1,500	140,000	0	140,000
2017 (W)		1,400	200,000	0	200,000
2018 (BN)		1,600	19,000	0	21,000
Average (1990-2018)		1,600	110,000	0	110,000
1990-2018	W	1,600	210,000	0	210,000
	AN	1,600	140,000	0	140,000
	BN	1,600	88,000	0	90,000
	D	1,800	55,000	0	57,000
	C	1,500	44,000	0	46,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

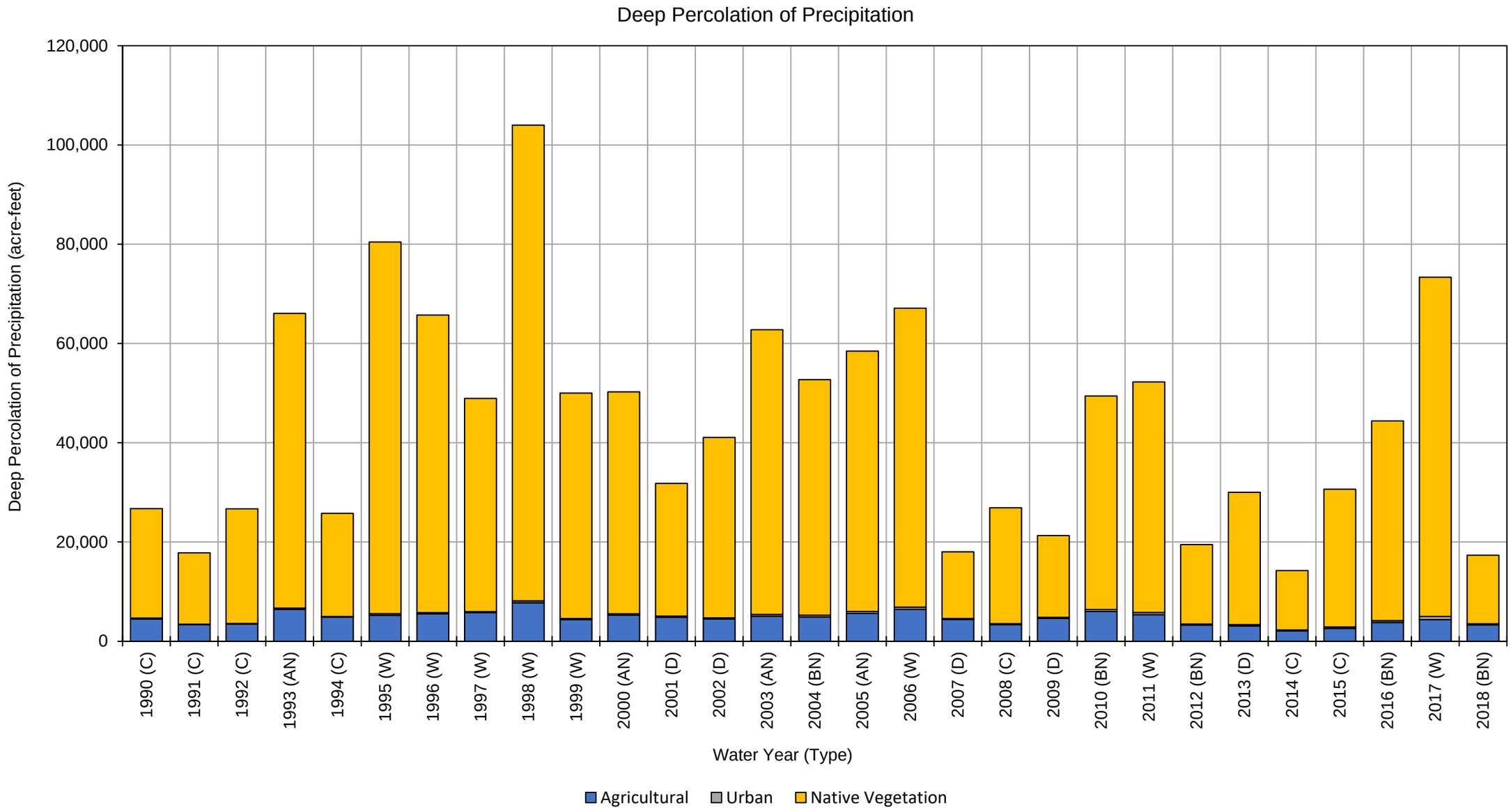

Deep Percolation of Applied Water
Deep Percolation of Applied Water (acre-feet)
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Bowman Subbasin Historical Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		7,900	47	0	7,900
1991 (C)		8,400	34	0	8,400
1992 (C)		6,700	35	0	6,700
1993 (AN)		8,700	45	0	8,700
1994 (C)		8,300	36	0	8,300
1995 (W)		8,300	50	0	8,400
1996 (W)		8,900	52	0	9,000
1997 (W)		11,000	52	0	11,000
1998 (W)		8,900	63	0	9,000
1999 (W)		9,400	71	0	9,500
2000 (AN)		9,100	71	0	9,200
2001 (D)		7,900	73	0	8,000
2002 (D)		11,000	73	0	11,000
2003 (AN)		8,400	76	0	8,500
2004 (BN)		12,000	84	0	12,000
2005 (AN)		6,200	85	0	6,300
2006 (W)		10,000	91	0	10,000
2007 (D)		12,000	71	0	12,000
2008 (C)		11,000	78	0	11,000
2009 (D)		9,900	69	0	10,000
2010 (BN)		9,700	95	0	9,800
2011 (W)		6,900	97	0	7,000
2012 (BN)		6,000	74	0	6,100
2013 (D)		9,100	85	0	9,200
2014 (C)		5,300	69	0	5,400
2015 (C)		5,900	71	0	6,000
2016 (BN)		6,800	73	0	6,900
2017 (W)		5,900	100	0	6,000
2018 (BN)		6,200	81	0	6,300
Average (1990-2018)		8,500	69	0	8,600
1990-2018	W	8,700	72	0	8,800
	AN	8,100	69	0	8,200
	BN	8,200	81	0	8,300
	D	10,000	74	0	10,000
	C	7,700	53	0	7,800

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



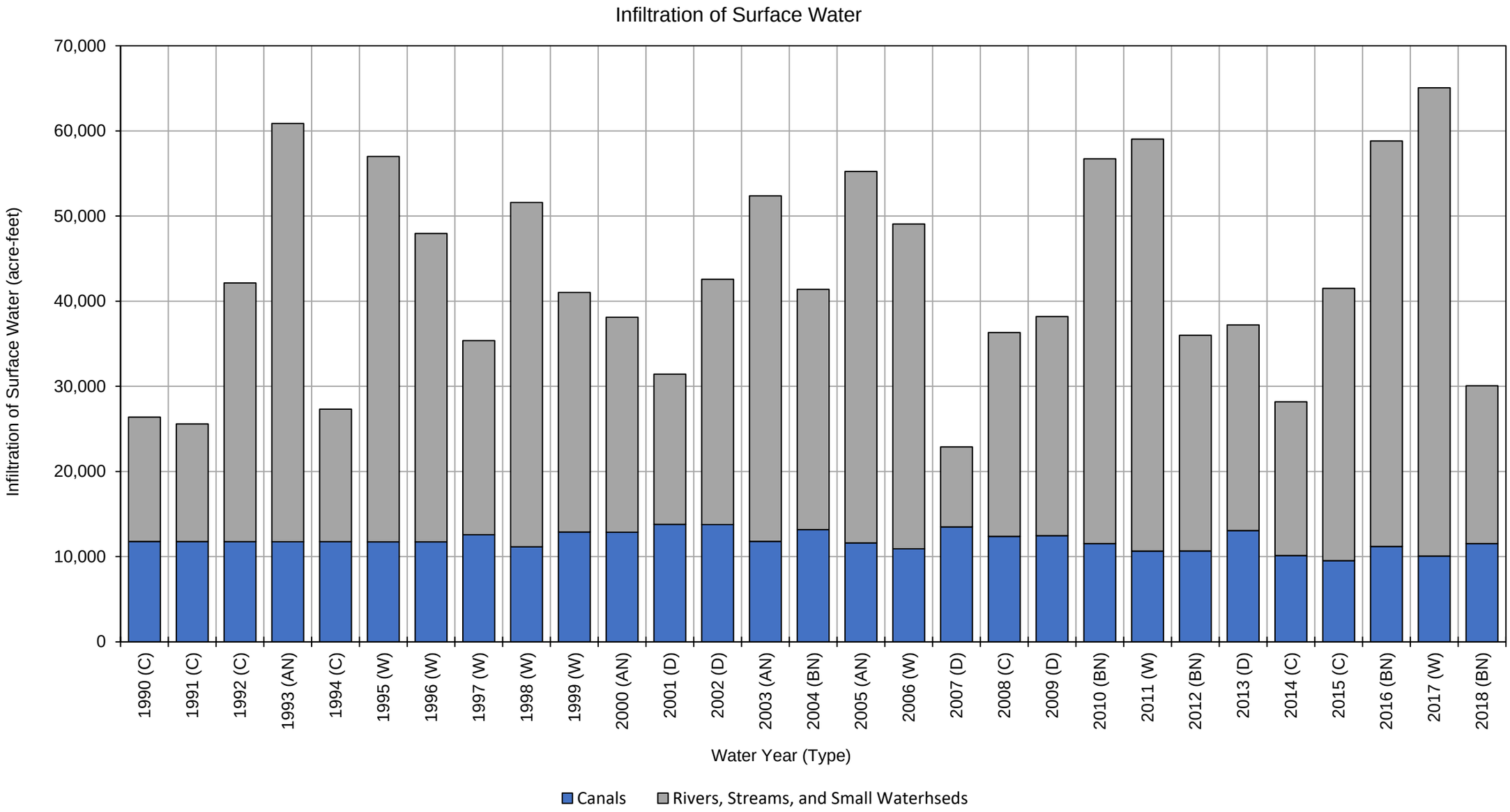
Tehama IHM - Historical

Bowman Subbasin Historical Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		4,500	190	22,000	27,000
1991 (C)		3,300	110	14,000	17,000
1992 (C)		3,400	130	23,000	27,000
1993 (AN)		6,400	280	59,000	66,000
1994 (C)		4,800	120	21,000	26,000
1995 (W)		5,200	330	75,000	81,000
1996 (W)		5,500	260	60,000	66,000
1997 (W)		5,800	200	43,000	49,000
1998 (W)		7,700	400	96,000	100,000
1999 (W)		4,400	210	45,000	50,000
2000 (AN)		5,200	280	45,000	50,000
2001 (D)		4,800	210	27,000	32,000
2002 (D)		4,500	230	36,000	41,000
2003 (AN)		5,000	350	57,000	62,000
2004 (BN)		4,900	360	47,000	52,000
2005 (AN)		5,600	410	52,000	58,000
2006 (W)		6,400	460	60,000	67,000
2007 (D)		4,400	180	13,000	18,000
2008 (C)		3,300	220	23,000	27,000
2009 (D)		4,600	210	16,000	21,000
2010 (BN)		6,000	390	43,000	49,000
2011 (W)		5,300	450	46,000	52,000
2012 (BN)		3,300	220	16,000	20,000
2013 (D)		3,100	280	27,000	30,000
2014 (C)		2,100	180	12,000	14,000
2015 (C)		2,600	290	28,000	31,000
2016 (BN)		3,800	370	40,000	44,000
2017 (W)		4,400	630	68,000	73,000
2018 (BN)		3,300	220	14,000	18,000
Average (1990-2018)		4,600	280	39,000	44,000
1990-2018	W	5,600	370	62,000	68,000
	AN	5,600	330	53,000	59,000
	BN	4,200	310	32,000	37,000
	D	4,300	220	24,000	29,000
	C	3,400	170	20,000	24,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

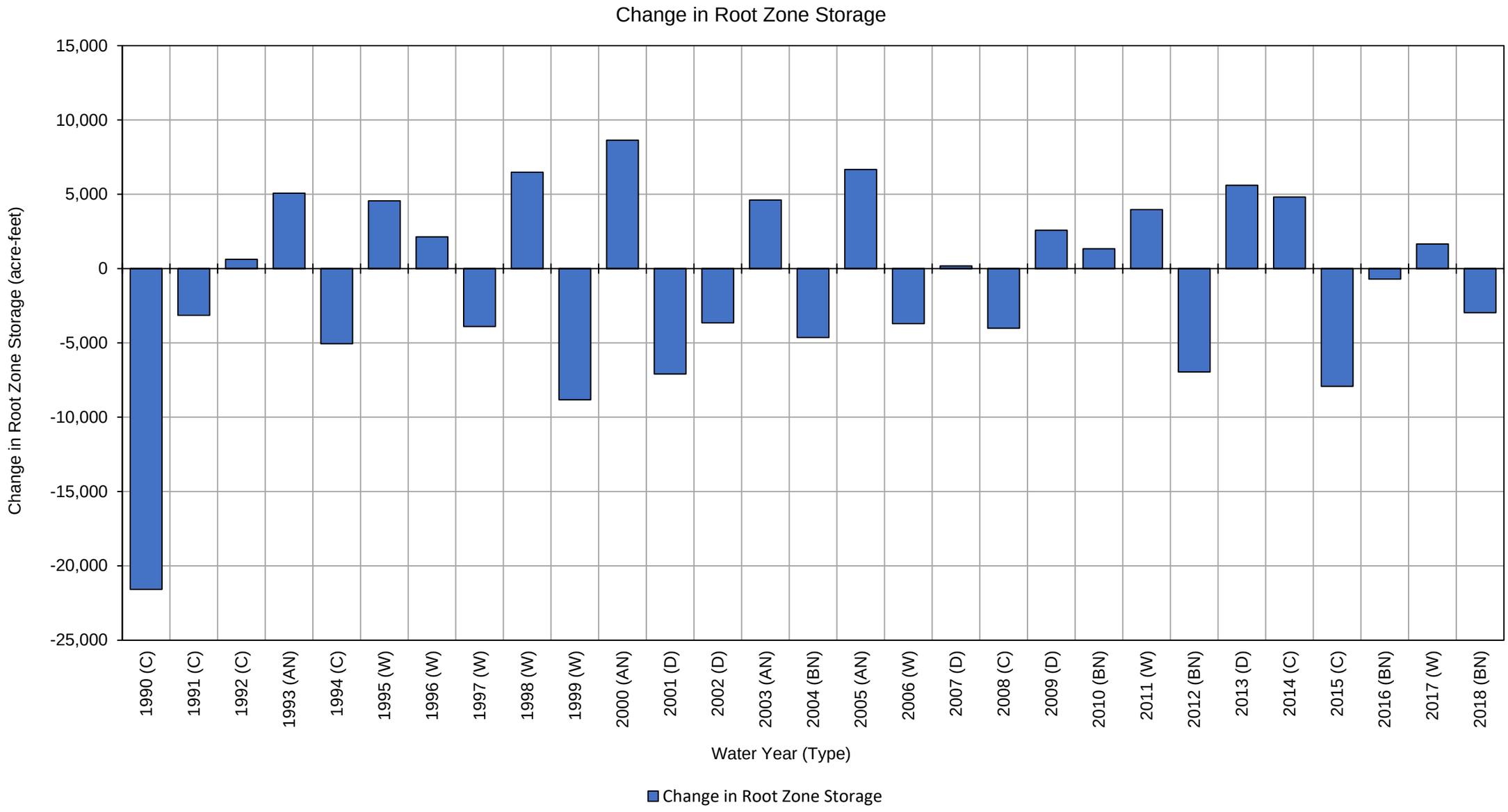

Infiltration of Surface Water
Infiltration of Surface Water (acre-feet)
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Canals
Rivers, Streams, and Small Waterhseds

Bowman Subbasin Historical Infiltration of Surface Water (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Waterhseds	Total
1990 (C)		12,000	15,000	27,000
1991 (C)		12,000	14,000	26,000
1992 (C)		12,000	30,000	42,000
1993 (AN)		12,000	49,000	61,000
1994 (C)		12,000	16,000	28,000
1995 (W)		12,000	45,000	57,000
1996 (W)		12,000	36,000	48,000
1997 (W)		13,000	23,000	36,000
1998 (W)		11,000	40,000	51,000
1999 (W)		13,000	28,000	41,000
2000 (AN)		13,000	25,000	38,000
2001 (D)		14,000	18,000	32,000
2002 (D)		14,000	29,000	43,000
2003 (AN)		12,000	41,000	53,000
2004 (BN)		13,000	28,000	41,000
2005 (AN)		12,000	44,000	56,000
2006 (W)		11,000	38,000	49,000
2007 (D)		13,000	9,400	22,000
2008 (C)		12,000	24,000	36,000
2009 (D)		12,000	26,000	38,000
2010 (BN)		12,000	45,000	57,000
2011 (W)		11,000	48,000	59,000
2012 (BN)		11,000	25,000	36,000
2013 (D)		13,000	24,000	37,000
2014 (C)		10,000	18,000	28,000
2015 (C)		9,500	32,000	42,000
2016 (BN)		11,000	48,000	59,000
2017 (W)		10,000	55,000	65,000
2018 (BN)		12,000	19,000	31,000
Average (1990-2018)		12,000	31,000	43,000
1990-2018	W	11,000	39,000	50,000
	AN	12,000	40,000	52,000
	BN	12,000	33,000	45,000
	D	13,000	21,000	34,000
	C	11,000	21,000	32,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical


Change in Root Zone Storage
Change in Root Zone Storage (acre-feet)
15,000
10,000
5,000
0
-5,000
-10,000
-15,000
-20,000
-25,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Change in Root Zone Storage

Bowman Subbasin Historical Change in Root Zone Storage (acre-feet, rounded)

WY (Type)	Change in Root Zone Storage
1990 (C)	-22,000
1991 (C)	-3,100
1992 (C)	620
1993 (AN)	5,100
1994 (C)	-5,100
1995 (W)	4,600
1996 (W)	2,100
1997 (W)	-3,900
1998 (W)	6,500
1999 (W)	-8,800
2000 (AN)	8,600
2001 (D)	-7,100
2002 (D)	-3,700
2003 (AN)	4,600
2004 (BN)	-4,600
2005 (AN)	6,700
2006 (W)	-3,700
2007 (D)	170
2008 (C)	-4,000
2009 (D)	2,600
2010 (BN)	1,300
2011 (W)	4,000
2012 (BN)	-7,000
2013 (D)	5,600
2014 (C)	4,800
2015 (C)	-7,900
2016 (BN)	-710
2017 (W)	1,700
2018 (BN)	-3,000
Average (1990-2018)	-870
1990-2018 W	300
1990-2018 AN	6,200
1990-2018 BN	-2,800
1990-2018 D	-480
1990-2018 C	-5,200

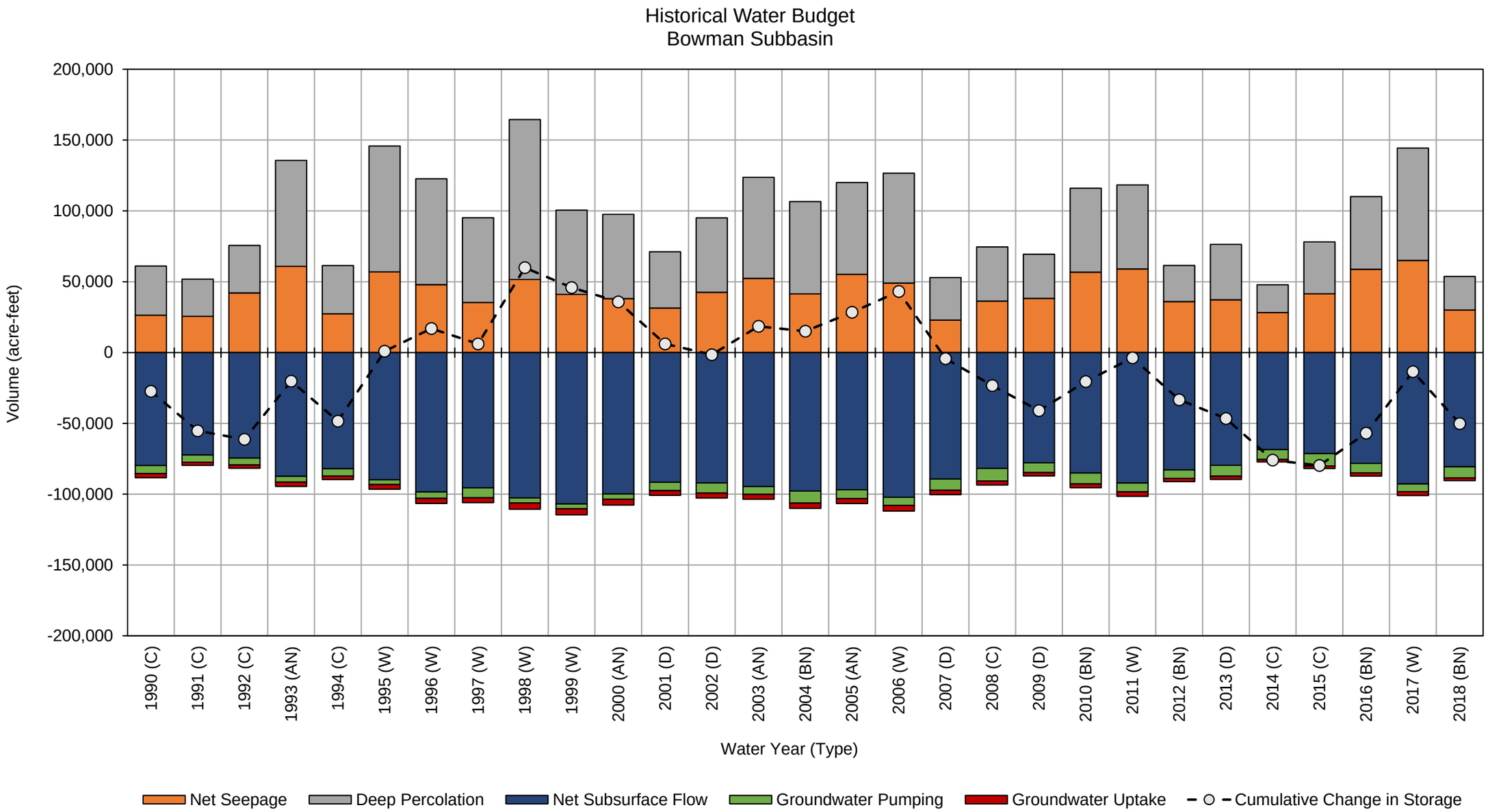
Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX B-1b

Detailed Bowman Subbasin Water Budget Results:

Historical Model Results – Groundwater System

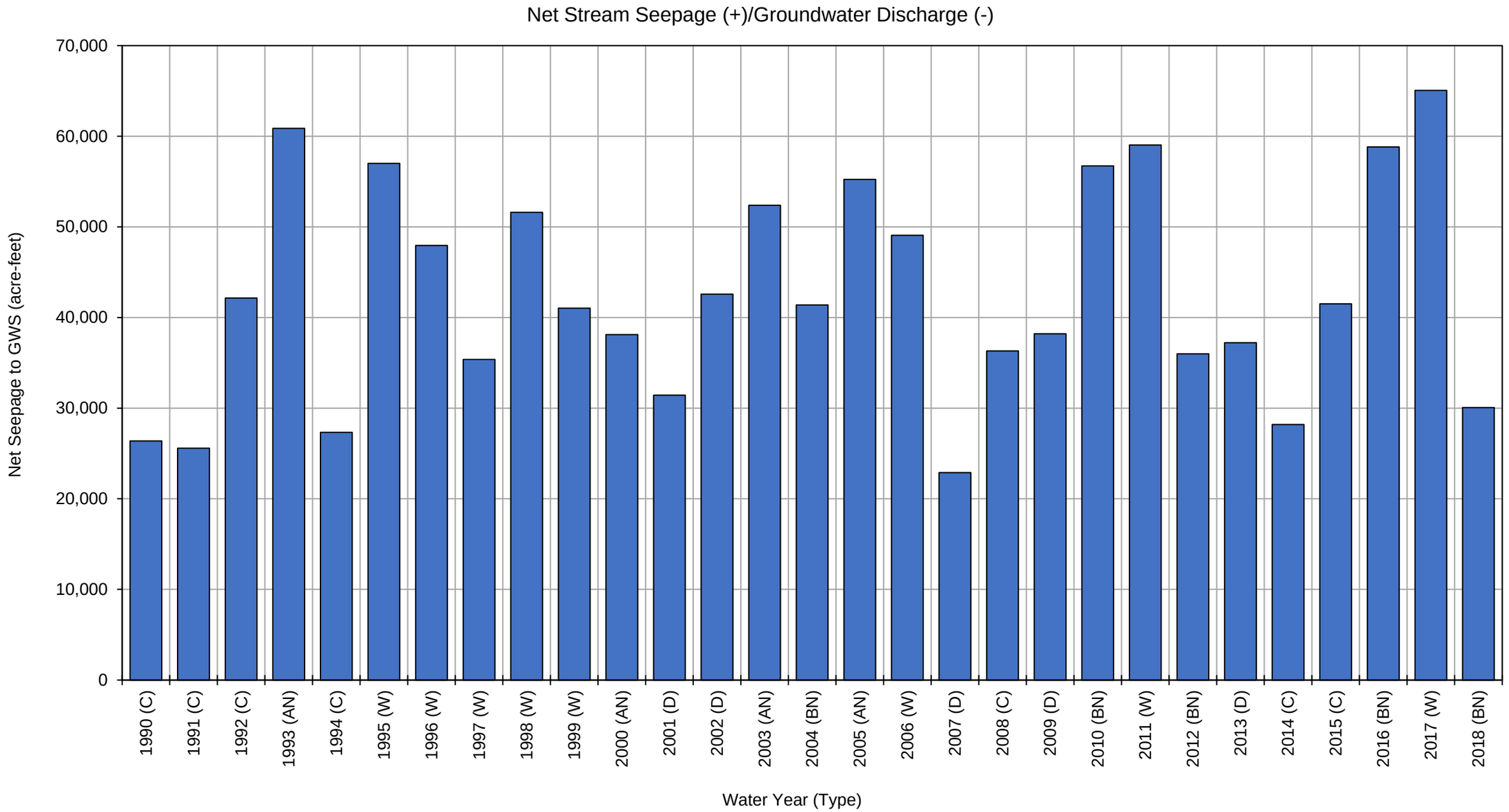

Historical Water Budget
Bowman Subbasin
Volume (acre-feet)
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Bowman Subbasin Historical Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
1990 (C)		26,000	35,000	-5,600	-3,000	-80,000	-27,000	-27,000
1991 (C)		26,000	26,000	-5,100	-2,300	-72,000	-28,000	-55,000
1992 (C)		42,000	33,000	-4,900	-2,200	-75,000	-6,000	-61,000
1993 (AN)		61,000	75,000	-4,100	-3,100	-87,000	41,000	-20,000
1994 (C)		27,000	34,000	-5,300	-2,300	-82,000	-28,000	-48,000
1995 (W)		57,000	89,000	-3,300	-3,300	-90,000	49,000	910
1996 (W)		48,000	75,000	-4,500	-3,600	-98,000	16,000	17,000
1997 (W)		35,000	60,000	-7,000	-3,500	-96,000	-11,000	6,100
1998 (W)		52,000	110,000	-3,600	-4,400	-100,000	54,000	60,000
1999 (W)		41,000	59,000	-3,400	-4,300	-110,000	-14,000	46,000
2000 (AN)		38,000	59,000	-3,800	-4,000	-100,000	-10,000	36,000
2001 (D)		31,000	40,000	-5,900	-3,300	-92,000	-30,000	6,100
2002 (D)		43,000	53,000	-7,200	-3,400	-92,000	-7,600	-1,500
2003 (AN)		52,000	71,000	-5,500	-3,500	-95,000	20,000	19,000
2004 (BN)		41,000	65,000	-8,500	-3,700	-98,000	-3,500	15,000
2005 (AN)		55,000	65,000	-6,300	-3,600	-97,000	13,000	28,000
2006 (W)		49,000	78,000	-5,700	-4,000	-100,000	15,000	43,000
2007 (D)		23,000	30,000	-8,000	-3,100	-89,000	-47,000	-4,300
2008 (C)		36,000	38,000	-8,900	-2,900	-82,000	-19,000	-23,000
2009 (D)		38,000	31,000	-6,900	-2,400	-78,000	-18,000	-41,000
2010 (BN)		57,000	59,000	-7,700	-2,700	-85,000	21,000	-20,000
2011 (W)		59,000	59,000	-6,200	-3,200	-92,000	17,000	-3,700
2012 (BN)		36,000	26,000	-6,000	-2,300	-83,000	-30,000	-33,000
2013 (D)		37,000	39,000	-7,700	-2,300	-80,000	-13,000	-47,000
2014 (C)		28,000	20,000	-6,900	-1,700	-69,000	-29,000	-76,000
2015 (C)		42,000	37,000	-8,800	-1,700	-71,000	-3,800	-80,000
2016 (BN)		59,000	51,000	-6,700	-2,300	-78,000	23,000	-57,000
2017 (W)		65,000	79,000	-5,400	-2,800	-93,000	43,000	-13,000
2018 (BN)		30,000	24,000	-7,800	-1,900	-81,000	-37,000	-50,000
Average (1990-2018)		43,000	53,000	-6,100	-3,000	-88,000	-1,700	
1990-2018	W	51,000	76,000	-4,900	-3,700	-98,000		
	AN	52,000	68,000	-4,900	-3,500	-95,000		
	BN	45,000	45,000	-7,300	-2,600	-85,000		
	D	34,000	39,000	-7,200	-2,900	-86,000		
	C	32,000	32,000	-6,500	-2,300	-76,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

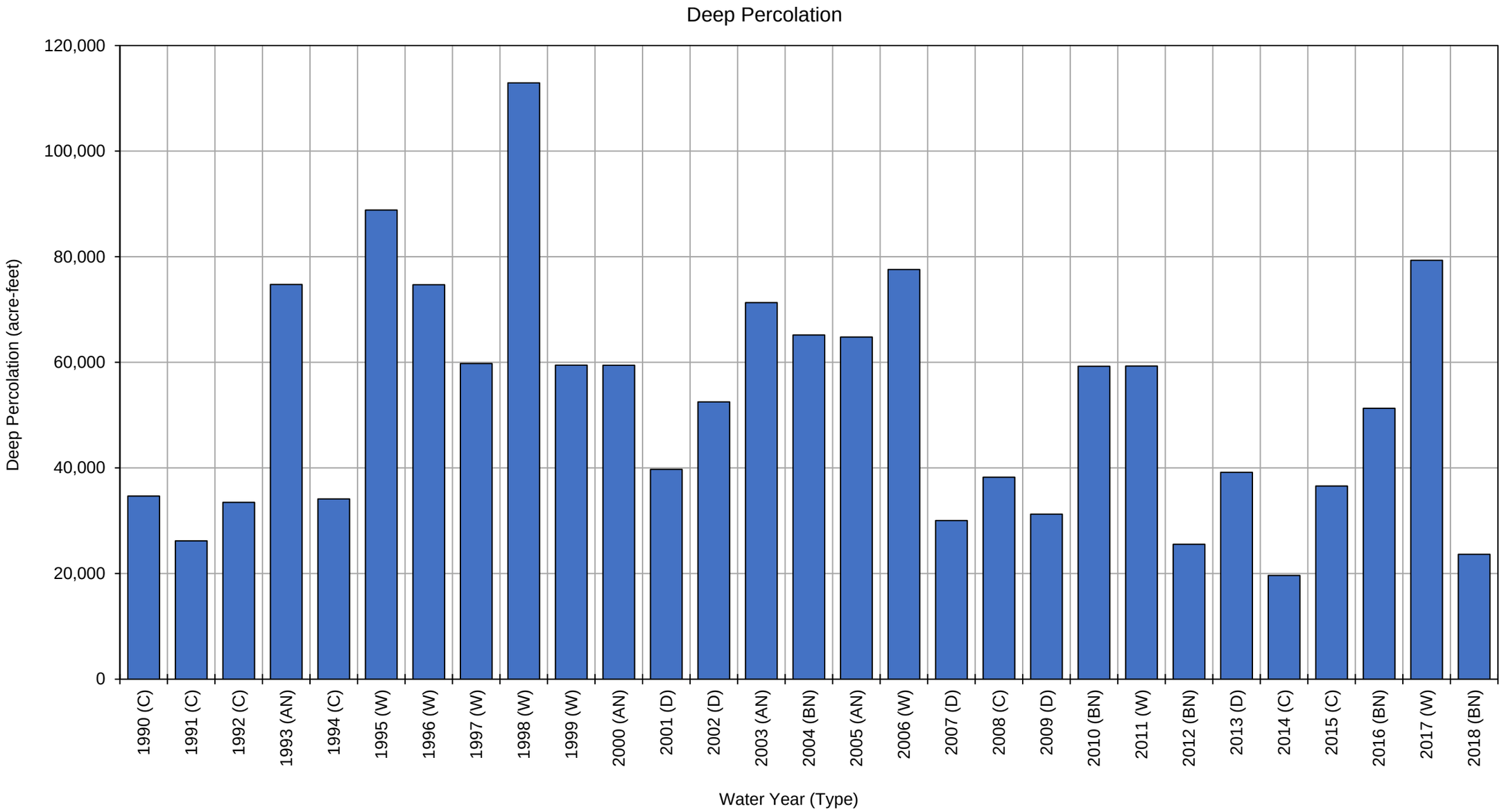

Net Stream Seepage (+)/Groundwater Discharge (-)
Net Seepage to GWS (acre-feet)
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)

Bowman Subbasin Historical Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
1990 (C)		26,000
1991 (C)		26,000
1992 (C)		42,000
1993 (AN)		61,000
1994 (C)		27,000
1995 (W)		57,000
1996 (W)		48,000
1997 (W)		35,000
1998 (W)		52,000
1999 (W)		41,000
2000 (AN)		38,000
2001 (D)		31,000
2002 (D)		43,000
2003 (AN)		52,000
2004 (BN)		41,000
2005 (AN)		55,000
2006 (W)		49,000
2007 (D)		23,000
2008 (C)		36,000
2009 (D)		38,000
2010 (BN)		57,000
2011 (W)		59,000
2012 (BN)		36,000
2013 (D)		37,000
2014 (C)		28,000
2015 (C)		42,000
2016 (BN)		59,000
2017 (W)		65,000
2018 (BN)		30,000
Average (1990-2018)		43,000
1990-2018	W	51,000
	AN	52,000
	BN	45,000
	D	34,000
	C	32,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

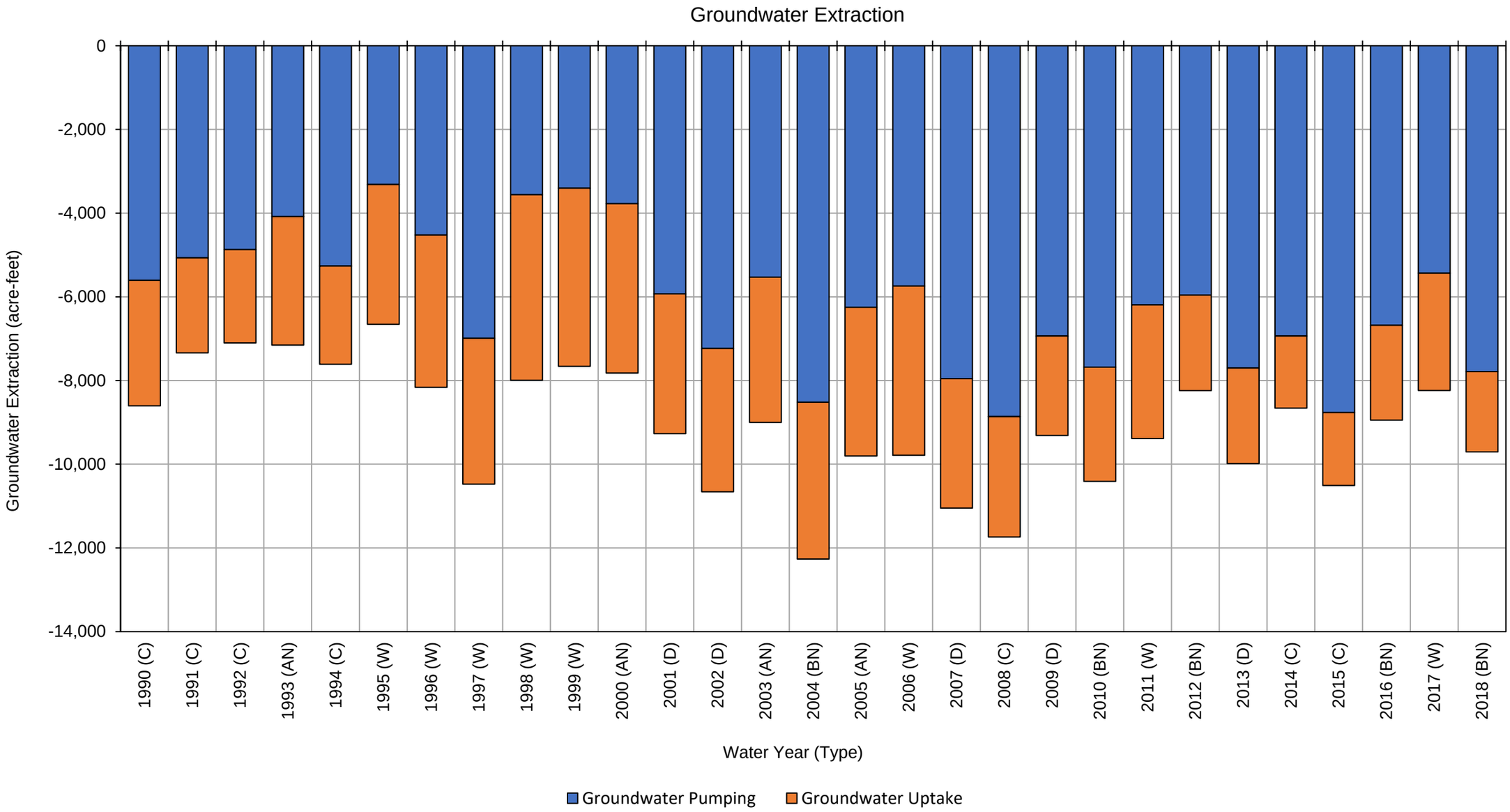

Deep Percolation
Deep Percolation (acre-feet)
120,000
100,000
80,000
60,000
40,000
20,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)

Bowman Subbasin Historical Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
1990 (C)		35,000
1991 (C)		26,000
1992 (C)		33,000
1993 (AN)		75,000
1994 (C)		34,000
1995 (W)		89,000
1996 (W)		75,000
1997 (W)		60,000
1998 (W)		110,000
1999 (W)		59,000
2000 (AN)		59,000
2001 (D)		40,000
2002 (D)		53,000
2003 (AN)		71,000
2004 (BN)		65,000
2005 (AN)		65,000
2006 (W)		78,000
2007 (D)		30,000
2008 (C)		38,000
2009 (D)		31,000
2010 (BN)		59,000
2011 (W)		59,000
2012 (BN)		26,000
2013 (D)		39,000
2014 (C)		20,000
2015 (C)		37,000
2016 (BN)		51,000
2017 (W)		79,000
2018 (BN)		24,000
Average (1990-2018)		53,000
1990-2018	W	76,000
	AN	68,000
	BN	45,000
	D	39,000
	C	32,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

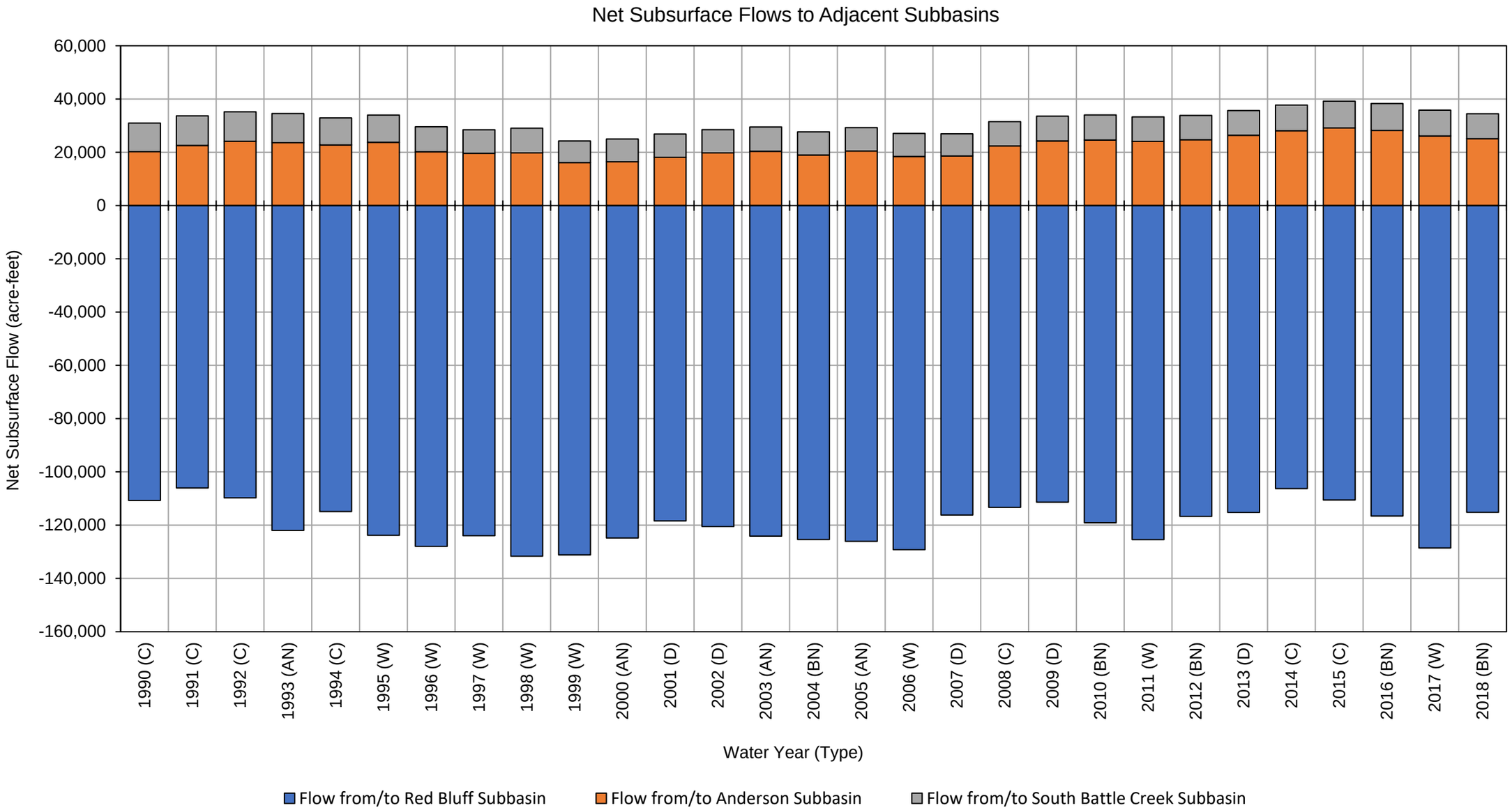

Groundwater Extraction
Groundwater Extraction (acre-feet)
0
-2,000
-4,000
-6,000
-8,000
-10,000
-12,000
-14,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Groundwater Pumping
Groundwater Uptake

Bowman Subbasin Historical Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
1990 (C)		-5,600	-3,000	-8,600
1991 (C)		-5,100	-2,300	-7,300
1992 (C)		-4,900	-2,200	-7,100
1993 (AN)		-4,100	-3,100	-7,200
1994 (C)		-5,300	-2,300	-7,600
1995 (W)		-3,300	-3,300	-6,700
1996 (W)		-4,500	-3,600	-8,200
1997 (W)		-7,000	-3,500	-10,000
1998 (W)		-3,600	-4,400	-8,000
1999 (W)		-3,400	-4,300	-7,700
2000 (AN)		-3,800	-4,000	-7,800
2001 (D)		-5,900	-3,300	-9,300
2002 (D)		-7,200	-3,400	-11,000
2003 (AN)		-5,500	-3,500	-9,000
2004 (BN)		-8,500	-3,700	-12,000
2005 (AN)		-6,300	-3,600	-9,800
2006 (W)		-5,700	-4,000	-9,800
2007 (D)		-8,000	-3,100	-11,000
2008 (C)		-8,900	-2,900	-12,000
2009 (D)		-6,900	-2,400	-9,300
2010 (BN)		-7,700	-2,700	-10,000
2011 (W)		-6,200	-3,200	-9,400
2012 (BN)		-6,000	-2,300	-8,200
2013 (D)		-7,700	-2,300	-10,000
2014 (C)		-6,900	-1,700	-8,700
2015 (C)		-8,800	-1,700	-11,000
2016 (BN)		-6,700	-2,300	-8,900
2017 (W)		-5,400	-2,800	-8,200
2018 (BN)		-7,800	-1,900	-9,700
Average (1990-2018)		-6,100	-3,000	-9,100
1990-2018	W	-4,900	-3,700	-8,500
	AN	-4,900	-3,500	-8,400
	BN	-7,300	-2,600	-9,900
	D	-7,200	-2,900	-10,000
	C	-6,500	-2,300	-8,800

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

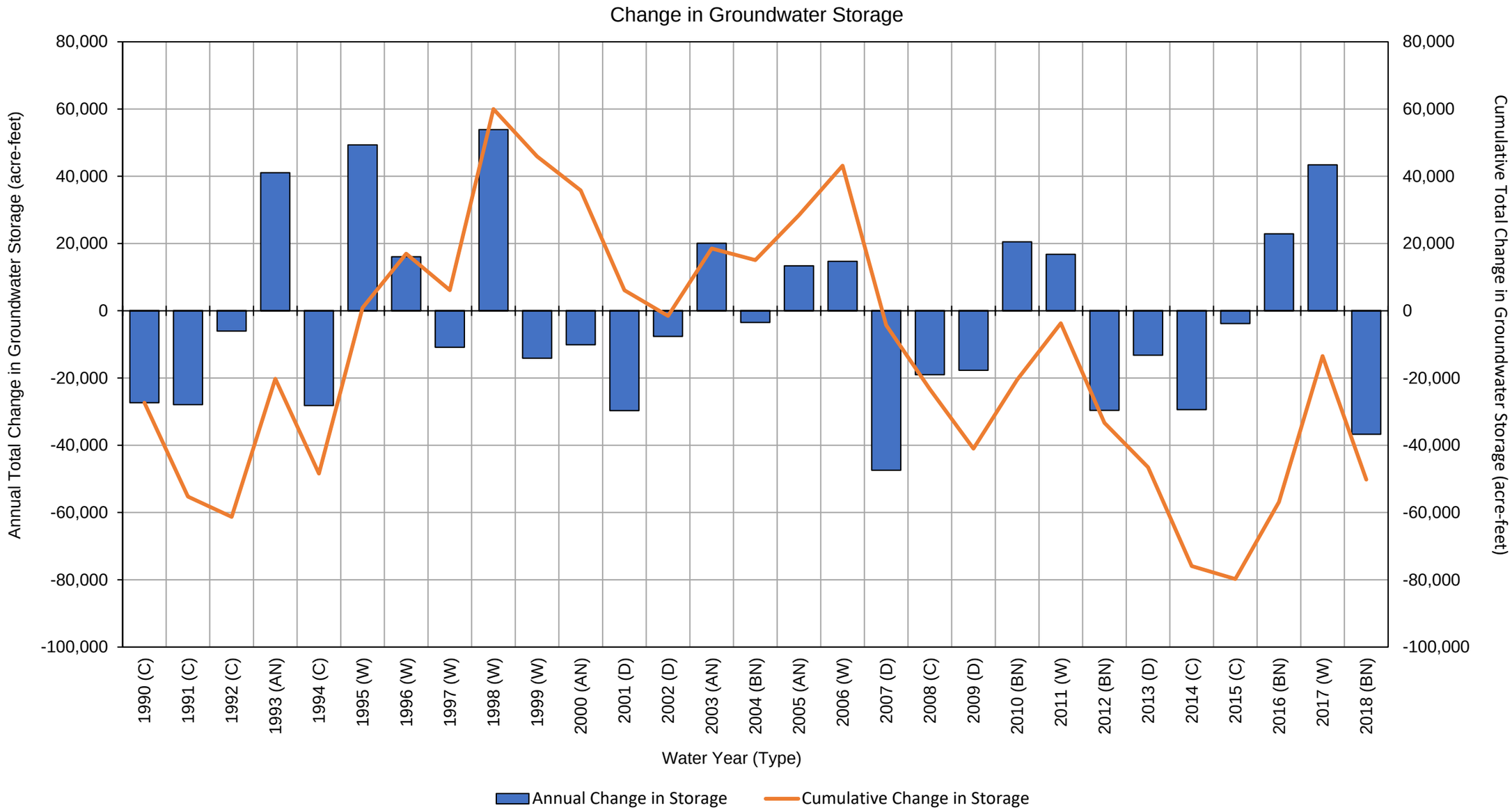

Net Subsurface Flows to Adjacent Subbasins
Net Subsurface Flow (acre-feet)
60,000
40,000
20,000
0
-20,000
-40,000
-60,000
-80,000
-100,000
-120,000
-140,000
-160,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Flow from/to Red Bluff Subbasin
Flow from/to Anderson Subbasin
Flow from/to South Battle Creek Subbasin

Bowman Subbasin Historical Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Anderson Subbasin	Flow from/to South Battle Creek Subbasin	Net Subsurface Flow from Adjacent Subbasins
1990 (C)		-110,000	20,000	11,000	-80,000
1991 (C)		-110,000	23,000	11,000	-72,000
1992 (C)		-110,000	24,000	11,000	-75,000
1993 (AN)		-120,000	24,000	11,000	-87,000
1994 (C)		-110,000	23,000	10,000	-82,000
1995 (W)		-120,000	24,000	10,000	-90,000
1996 (W)		-130,000	20,000	9,400	-98,000
1997 (W)		-120,000	20,000	8,900	-96,000
1998 (W)		-130,000	20,000	9,300	-100,000
1999 (W)		-130,000	16,000	8,100	-110,000
2000 (AN)		-120,000	16,000	8,600	-100,000
2001 (D)		-120,000	18,000	8,700	-92,000
2002 (D)		-120,000	20,000	8,800	-92,000
2003 (AN)		-120,000	20,000	9,100	-95,000
2004 (BN)		-130,000	19,000	8,700	-98,000
2005 (AN)		-130,000	20,000	8,800	-97,000
2006 (W)		-130,000	18,000	8,600	-100,000
2007 (D)		-120,000	19,000	8,300	-89,000
2008 (C)		-110,000	22,000	9,100	-82,000
2009 (D)		-110,000	24,000	9,300	-78,000
2010 (BN)		-120,000	25,000	9,500	-85,000
2011 (W)		-130,000	24,000	9,200	-92,000
2012 (BN)		-120,000	25,000	9,100	-83,000
2013 (D)		-120,000	26,000	9,300	-80,000
2014 (C)		-110,000	28,000	9,600	-69,000
2015 (C)		-110,000	29,000	10,000	-71,000
2016 (BN)		-120,000	28,000	10,000	-78,000
2017 (W)		-130,000	26,000	9,700	-93,000
2018 (BN)		-120,000	25,000	9,400	-81,000
Average (1990-2018)		-120,000	22,000	9,400	-88,000
1990-2018	W	-130,000	21,000	9,200	-98,000
	AN	-120,000	20,000	9,400	-95,000
	BN	-120,000	24,000	9,300	-85,000
	D	-120,000	21,000	8,900	-86,000
	C	-110,000	24,000	10,000	-76,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical


Change in Groundwater Storage
Annual Total Change in Groundwater Storage (acre-feet)
Cumulative Total Change in Groundwater Storage (acre-feet)
80,000
60,000
40,000
20,000
0
-20,000
-40,000
-60,000
-80,000
-100,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Annual Change in Storage
Cumulative Change in Storage

Bowman Subbasin Historical Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
1990 (C)	-27,000	-27,000
1991 (C)	-28,000	-55,000
1992 (C)	-6,000	-61,000
1993 (AN)	41,000	-20,000
1994 (C)	-28,000	-48,000
1995 (W)	49,000	910
1996 (W)	16,000	17,000
1997 (W)	-11,000	6,100
1998 (W)	54,000	60,000
1999 (W)	-14,000	46,000
2000 (AN)	-10,000	36,000
2001 (D)	-30,000	6,100
2002 (D)	-7,600	-1,500
2003 (AN)	20,000	19,000
2004 (BN)	-3,500	15,000
2005 (AN)	13,000	28,000
2006 (W)	15,000	43,000
2007 (D)	-47,000	-4,300
2008 (C)	-19,000	-23,000
2009 (D)	-18,000	-41,000
2010 (BN)	21,000	-20,000
2011 (W)	17,000	-3,700
2012 (BN)	-30,000	-33,000
2013 (D)	-13,000	-47,000
2014 (C)	-29,000	-76,000
2015 (C)	-3,800	-80,000
2016 (BN)	23,000	-57,000
2017 (W)	43,000	-13,000
2018 (BN)	-37,000	-50,000
Average (1990-2018)	-1,700	
1990-2018 W		
1990-2018 AN		
1990-2018 BN		
1990-2018 D		
1990-2018 C		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX B-2

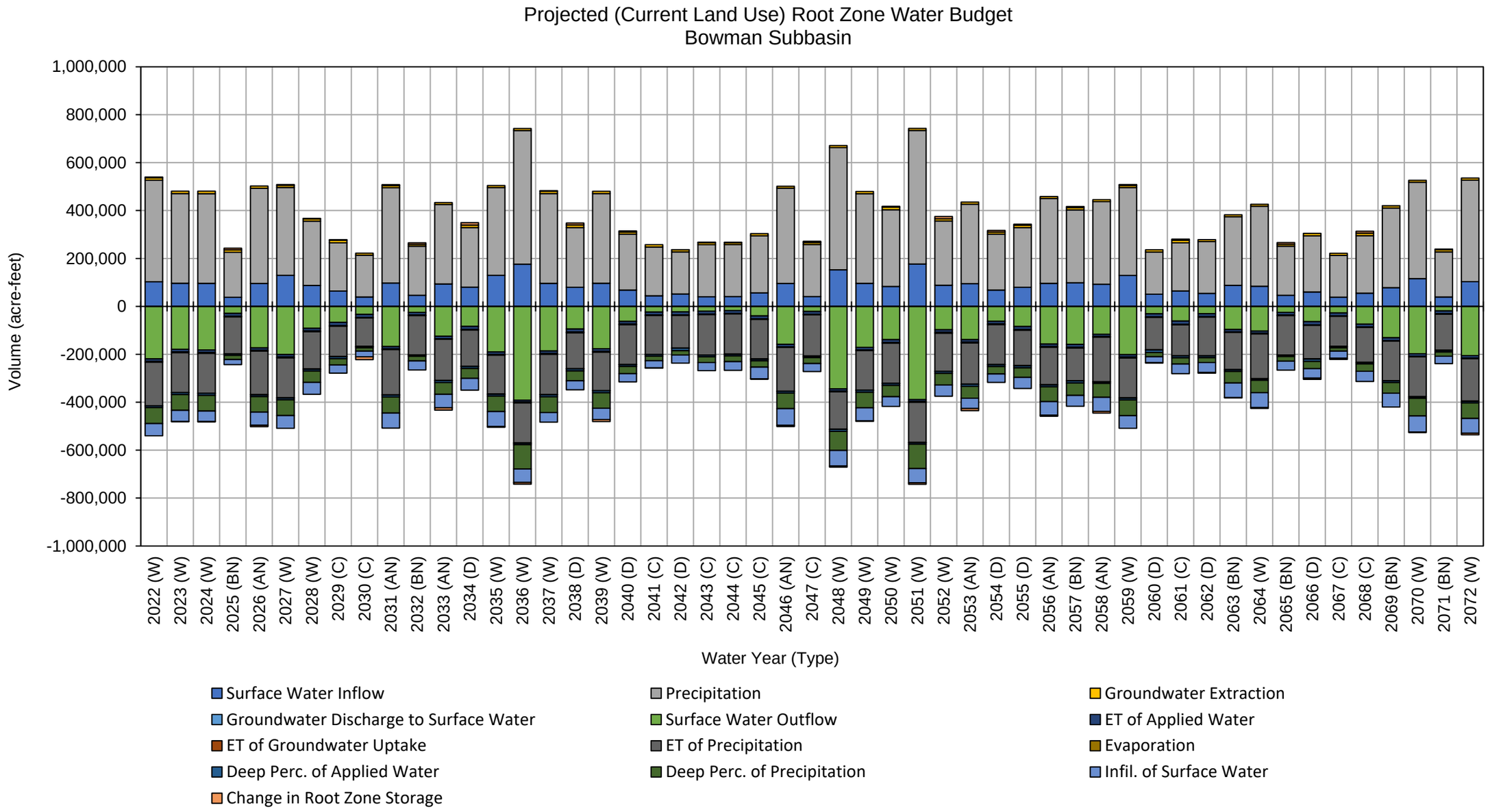
Detailed Bowman Subbasin Water Budget Results:

Projected (Current Land Use) Model Results

APPENDIX B-2a

Detailed Bowman Subbasin Water Budget Results:

Projected (Current Land Use) Model Results – Surface Water System


Projected (Current Land Use) Root Zone Water Budget
Bowman Subbasin
Volume (acre-feet)
1,000,000
800,000
600,000
400,000
200,000
0
-200,000
-400,000
-600,000
-800,000
-1,000,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Surface Water Inflow
Precipitation
Groundwater Extraction
Groundwater Discharge to Surface Water
Surface Water Outflow
ET of Applied Water
ET of Groundwater Uptake
ET of Precipitation
Evaporation
Deep Perc. of Applied Water
Deep Perc. of Precipitation
Infil. of Surface Water
Change in Root Zone Storage

Bowman Subbasin Projected (Current Land Use) Root Zone Water Budget Summary (acre-feet, rounded)

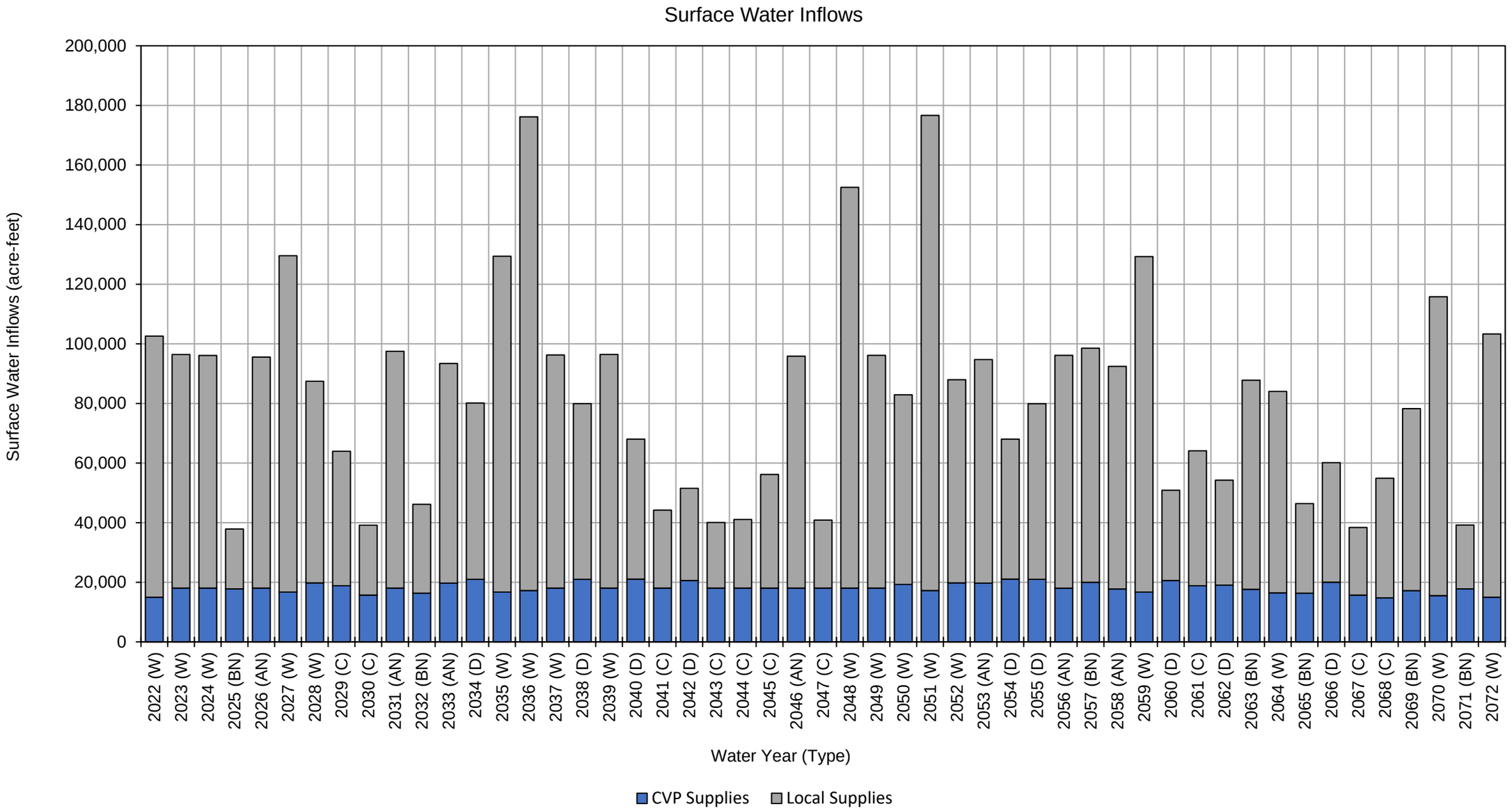
WY (Type)	Inflows				Outflows								Change in Root Zone Storage
	Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2022 (W)	100,000	420,000	10,000	0	220,000	9,900	3,900	180,000	730	6,600	67,000	51,000	-3,400
2023 (W)	96,000	370,000	10,000	0	180,000	10,000	3,800	170,000	810	8,300	65,000	47,000	640
2024 (W)	96,000	370,000	10,000	0	180,000	10,000	4,000	170,000	810	8,300	65,000	44,000	1
2025 (BN)	38,000	190,000	9,700	0	29,000	12,000	2,900	150,000	800	5,800	18,000	21,000	-7,300
2026 (AN)	96,000	400,000	9,100	0	170,000	10,000	3,500	180,000	860	7,000	65,000	55,000	5,800
2027 (W)	130,000	370,000	8,800	0	200,000	9,800	3,800	170,000	790	7,600	66,000	53,000	-3,500
2028 (W)	87,000	270,000	9,600	0	92,000	11,000	3,700	160,000	950	7,700	47,000	50,000	-1,700
2029 (C)	64,000	200,000	11,000	0	66,000	13,000	3,000	130,000	990	7,800	26,000	34,000	-2,200
2030 (C)	39,000	170,000	8,700	0	33,000	13,000	2,000	120,000	840	5,200	14,000	24,000	12,000
2031 (AN)	98,000	400,000	8,800	0	170,000	9,900	3,000	190,000	850	7,800	67,000	63,000	-4,200
2032 (BN)	46,000	200,000	7,800	0	25,000	11,000	2,200	160,000	820	5,100	19,000	38,000	-6,400
2033 (AN)	93,000	330,000	8,000	0	120,000	10,000	2,900	170,000	860	8,000	49,000	56,000	10,000
2034 (D)	80,000	250,000	10,000	0	84,000	12,000	2,800	150,000	950	8,200	42,000	49,000	-10,000
2035 (W)	130,000	370,000	8,300	0	190,000	10,000	3,200	160,000	780	7,500	64,000	62,000	3,200
2036 (W)	180,000	560,000	8,400	0	390,000	7,100	3,900	170,000	650	6,300	100,000	57,000	7,300
2037 (W)	96,000	370,000	10,000	0	190,000	10,000	3,900	170,000	820	8,300	66,000	40,000	-2,300
2038 (D)	80,000	250,000	11,000	0	95,000	12,000	3,500	150,000	960	8,500	41,000	38,000	-8,200
2039 (W)	96,000	370,000	9,700	0	180,000	11,000	3,500	160,000	810	8,500	64,000	47,000	8,200
2040 (D)	68,000	230,000	8,800	0	63,000	11,000	3,000	170,000	900	7,400	30,000	34,000	-4,600
2041 (C)	44,000	200,000	9,500	0	24,000	12,000	2,500	160,000	920	6,400	19,000	30,000	540
2042 (D)	52,000	180,000	8,800	0	23,000	13,000	2,100	140,000	940	10,000	18,000	34,000	-510
2043 (C)	40,000	220,000	8,600	0	20,000	12,000	1,900	170,000	830	6,300	24,000	34,000	-2,200
2044 (C)	41,000	220,000	8,500	0	18,000	12,000	1,800	170,000	830	6,700	24,000	36,000	-14
2045 (C)	56,000	240,000	8,600	0	40,000	12,000	1,800	170,000	870	6,700	26,000	50,000	270
2046 (AN)	96,000	400,000	8,100	0	160,000	10,000	2,500	180,000	860	7,200	65,000	70,000	4,900
2047 (C)	41,000	220,000	8,600	0	22,000	12,000	1,900	170,000	830	6,200	24,000	34,000	-5,100
2048 (W)	150,000	510,000	8,200	0	340,000	9,400	2,900	160,000	760	8,100	79,000	65,000	4,500
2049 (W)	96,000	370,000	9,200	0	170,000	10,000	3,000	170,000	800	8,200	65,000	54,000	2,100
2050 (W)	83,000	320,000	11,000	0	140,000	12,000	2,900	170,000	920	8,000	47,000	41,000	-4,000
2051 (W)	180,000	560,000	8,300	0	390,000	7,300	3,800	170,000	650	6,600	100,000	60,000	6,400
2052 (W)	88,000	270,000	9,800	0	97,000	11,000	3,800	160,000	950	7,700	49,000	47,000	-8,900
2053 (AN)	95,000	330,000	8,700	0	140,000	10,000	3,600	170,000	870	8,200	49,000	43,000	8,800
2054 (D)	68,000	230,000	8,900	0	63,000	11,000	2,900	170,000	890	7,200	31,000	35,000	-6,700
2055 (D)	80,000	250,000	10,000	0	84,000	13,000	3,000	150,000	960	8,400	40,000	47,000	-3,700
2056 (AN)	96,000	350,000	8,200	0	160,000	10,000	3,100	160,000	820	7,300	62,000	56,000	4,700
2057 (BN)	99,000	300,000	9,800	0	160,000	12,000	3,300	140,000	970	8,800	52,000	45,000	-4,600
2058 (AN)	92,000	340,000	7,900	0	120,000	8,900	3,200	190,000	760	5,700	58,000	59,000	7,000
2059 (W)	130,000	370,000	8,700	0	200,000	9,900	3,600	170,000	800	7,400	66,000	53,000	-3,900
2060 (D)	51,000	180,000	9,300	0	31,000	12,000	2,700	130,000	960	10,000	18,000	25,000	430
2061 (C)	64,000	200,000	11,000	0	61,000	14,000	2,500	130,000	990	8,000	26,000	40,000	-4,400
2062 (D)	54,000	220,000	8,100	0	31,000	12,000	2,100	160,000	940	7,100	20,000	42,000	2,700
2063 (BN)	88,000	290,000	7,700	0	97,000	9,800	2,500	160,000	850	6,700	48,000	61,000	1,700
2064 (W)	84,000	330,000	7,800	0	100,000	9,000	2,900	190,000	750	5,900	52,000	62,000	3,900
2065 (BN)	46,000	200,000	7,800	0	25,000	11,000	2,100	160,000	820	5,200	19,000	38,000	-7,300

Bowman Subbasin Projected (Current Land Use) Root Zone Water Budget Summary (acre-feet, rounded)

WY (Type)		Inflows				Outflows								Change in Root Zone Storage
		Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2066 (D)		60,000	230,000	10,000	0	64,000	13,000	2,200	140,000	960	9,500	30,000	39,000	5,700
2067 (C)		38,000	170,000	8,800	0	27,000	12,000	1,700	130,000	830	4,800	14,000	30,000	4,900
2068 (C)		55,000	240,000	10,000	0	74,000	12,000	1,700	150,000	770	5,600	31,000	43,000	-8,000
2069 (BN)		78,000	330,000	8,800	0	130,000	12,000	2,100	170,000	840	6,800	44,000	58,000	-720
2070 (W)		120,000	400,000	8,100	0	200,000	9,700	2,700	170,000	750	5,800	73,000	67,000	1,700
2071 (BN)		39,000	190,000	8,700	0	19,000	12,000	1,900	150,000	790	6,400	17,000	31,000	-3,100
2072 (W)		100,000	420,000	8,900	0	210,000	10,000	2,800	180,000	740	7,000	65,000	62,000	6,700
Average (2022-2072)		83,000	300,000	9,100	0	120,000	11,000	2,900	160,000	850	7,300	46,000	46,000	-69
2022-2072	W	110,000	390,000	9,200	0	200,000	9,900	3,500	170,000	790	7,400	67,000	53,000	940
	AN	95,000	370,000	8,400	0	150,000	9,900	3,100	180,000	840	7,300	59,000	57,000	5,300
	BN	62,000	240,000	8,600	0	69,000	11,000	2,400	160,000	840	6,400	31,000	42,000	-3,900
	D	66,000	220,000	9,500	0	60,000	12,000	2,700	150,000	940	8,600	30,000	38,000	-2,800
	C	48,000	210,000	9,300	0	39,000	12,000	2,100	150,000	870	6,400	23,000	35,000	-460

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

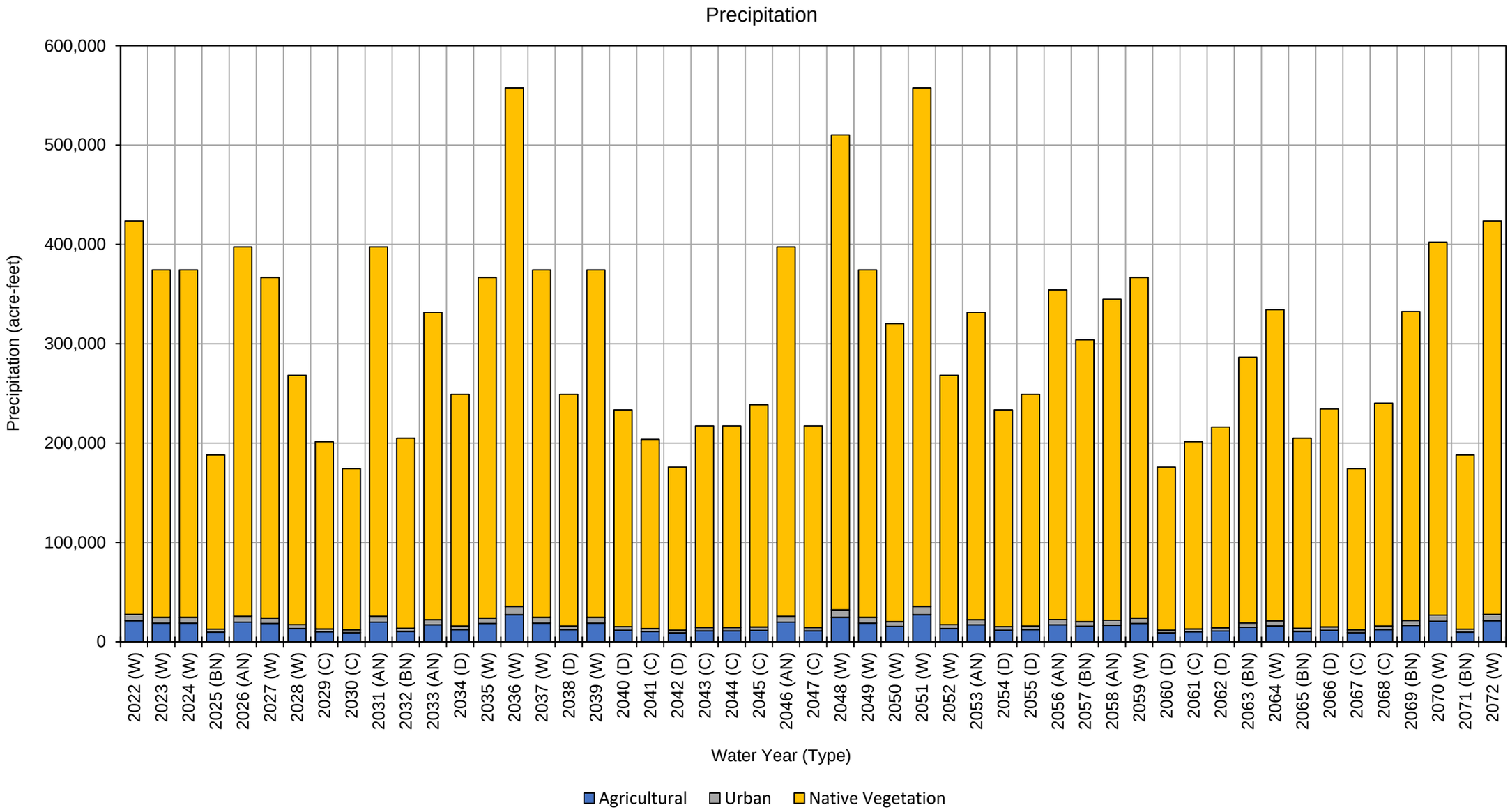
WY (Type)	CVP Supplies	Local Supplies	Total
2022 (W)	15,000	88,000	100,000
2023 (W)	18,000	78,000	96,000
2024 (W)	18,000	78,000	96,000
2025 (BN)	18,000	20,000	38,000
2026 (AN)	18,000	77,000	95,000
2027 (W)	17,000	110,000	130,000
2028 (W)	20,000	68,000	88,000
2029 (C)	19,000	45,000	64,000
2030 (C)	16,000	23,000	39,000
2031 (AN)	18,000	79,000	97,000
2032 (BN)	16,000	30,000	46,000
2033 (AN)	20,000	74,000	94,000
2034 (D)	21,000	59,000	80,000
2035 (W)	17,000	110,000	130,000
2036 (W)	17,000	160,000	180,000
2037 (W)	18,000	78,000	96,000
2038 (D)	21,000	59,000	80,000
2039 (W)	18,000	78,000	96,000
2040 (D)	21,000	47,000	68,000
2041 (C)	18,000	26,000	44,000
2042 (D)	21,000	31,000	52,000
2043 (C)	18,000	22,000	40,000
2044 (C)	18,000	23,000	41,000
2045 (C)	18,000	38,000	56,000
2046 (AN)	18,000	78,000	96,000
2047 (C)	18,000	23,000	41,000
2048 (W)	18,000	130,000	150,000
2049 (W)	18,000	78,000	96,000
2050 (W)	19,000	64,000	83,000
2051 (W)	17,000	160,000	180,000
2052 (W)	20,000	68,000	88,000
2053 (AN)	20,000	75,000	95,000
2054 (D)	21,000	47,000	68,000
2055 (D)	21,000	59,000	80,000
2056 (AN)	18,000	78,000	96,000
2057 (BN)	20,000	79,000	99,000
2058 (AN)	18,000	75,000	93,000
2059 (W)	17,000	110,000	130,000
2060 (D)	21,000	30,000	51,000
2061 (C)	19,000	45,000	64,000
2062 (D)	19,000	35,000	54,000
2063 (BN)	18,000	70,000	88,000

Bowman Subbasin Projected (Current Land Use) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Total
2064 (W)		16,000	68,000	84,000
2065 (BN)		16,000	30,000	46,000
2066 (D)		20,000	40,000	60,000
2067 (C)		16,000	23,000	39,000
2068 (C)		15,000	40,000	55,000
2069 (BN)		17,000	61,000	78,000
2070 (W)		16,000	100,000	120,000
2071 (BN)		18,000	21,000	39,000
2072 (W)		15,000	88,000	100,000
Average (2022-2072)		18,000	64,000	82,000
2022-2072	W	17,000	96,000	110,000
	AN	18,000	77,000	95,000
	BN	18,000	44,000	62,000
	D	21,000	45,000	66,000
	C	17,000	31,000	48,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Precipitation, by Water Use Sector (acre-feet, rounded)

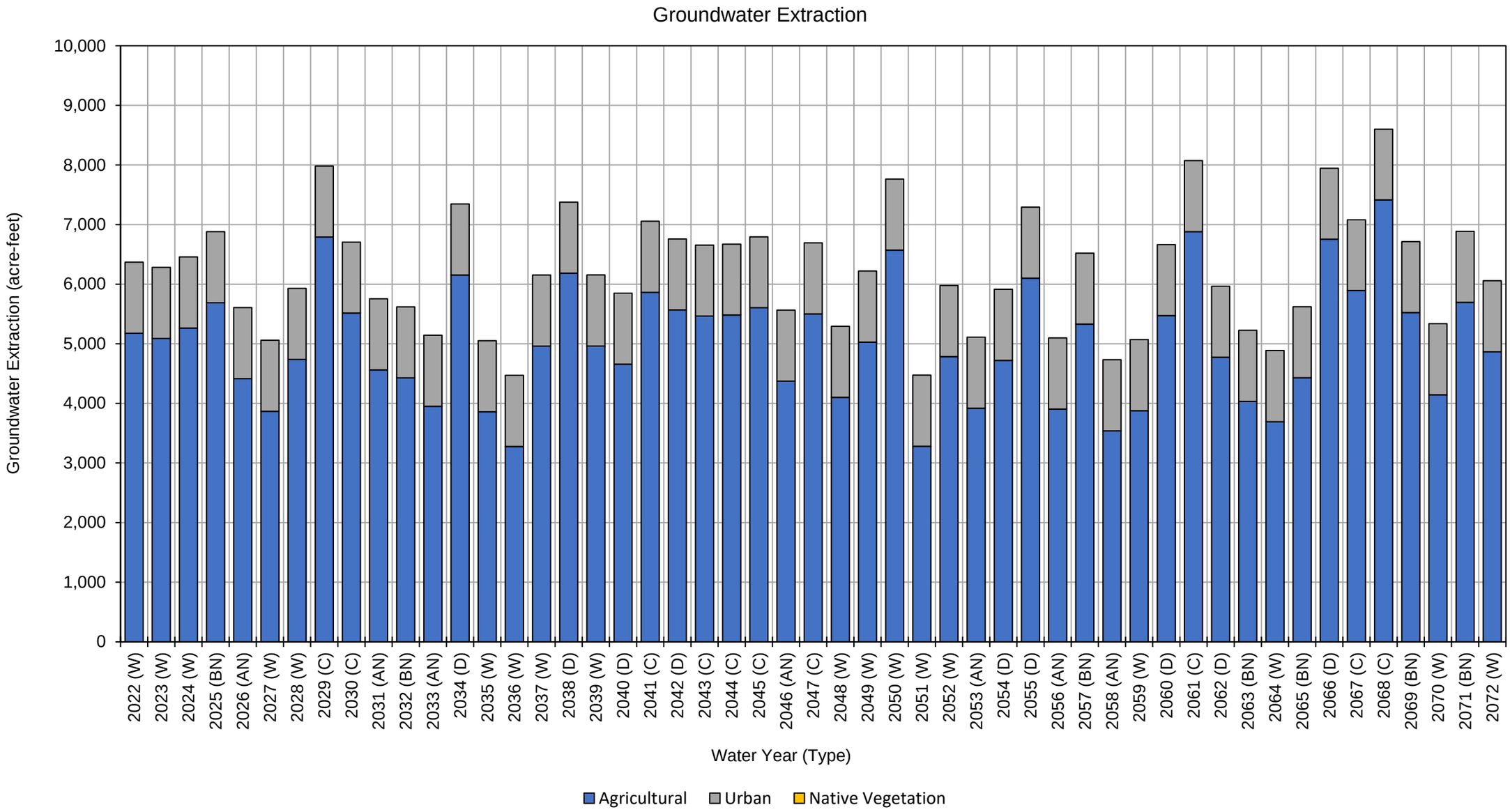
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	21,000	6,400	400,000	430,000
2023 (W)	19,000	5,700	350,000	370,000
2024 (W)	19,000	5,700	350,000	370,000
2025 (BN)	9,800	2,900	180,000	190,000
2026 (AN)	20,000	6,000	370,000	400,000
2027 (W)	18,000	5,500	340,000	360,000
2028 (W)	13,000	4,000	250,000	270,000
2029 (C)	10,000	3,000	190,000	200,000
2030 (C)	9,200	2,700	160,000	170,000
2031 (AN)	20,000	6,000	370,000	400,000
2032 (BN)	10,000	3,100	190,000	200,000
2033 (AN)	17,000	5,100	310,000	330,000
2034 (D)	12,000	3,700	230,000	250,000
2035 (W)	18,000	5,500	340,000	360,000
2036 (W)	27,000	8,300	520,000	560,000
2037 (W)	19,000	5,700	350,000	370,000
2038 (D)	12,000	3,700	230,000	250,000
2039 (W)	19,000	5,700	350,000	370,000
2040 (D)	12,000	3,500	220,000	240,000
2041 (C)	10,000	3,100	190,000	200,000
2042 (D)	9,100	2,700	160,000	170,000
2043 (C)	11,000	3,300	200,000	210,000
2044 (C)	11,000	3,300	200,000	210,000
2045 (C)	11,000	3,500	220,000	230,000
2046 (AN)	20,000	6,000	370,000	400,000
2047 (C)	11,000	3,300	200,000	210,000
2048 (W)	25,000	7,500	480,000	510,000
2049 (W)	19,000	5,700	350,000	370,000
2050 (W)	15,000	4,800	300,000	320,000
2051 (W)	27,000	8,300	520,000	560,000
2052 (W)	13,000	4,000	250,000	270,000
2053 (AN)	17,000	5,100	310,000	330,000
2054 (D)	12,000	3,500	220,000	240,000
2055 (D)	12,000	3,700	230,000	250,000
2056 (AN)	17,000	5,200	330,000	350,000
2057 (BN)	16,000	4,600	280,000	300,000
2058 (AN)	17,000	5,000	320,000	340,000
2059 (W)	18,000	5,500	340,000	360,000
2060 (D)	9,100	2,700	160,000	170,000
2061 (C)	10,000	3,000	190,000	200,000
2062 (D)	11,000	3,200	200,000	210,000
2063 (BN)	15,000	4,300	270,000	290,000

Bowman Subbasin Projected (Current Land Use) Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		16,000	4,900	310,000	330,000
2065 (BN)		10,000	3,100	190,000	200,000
2066 (D)		11,000	3,500	220,000	230,000
2067 (C)		9,200	2,700	160,000	170,000
2068 (C)		12,000	3,700	220,000	240,000
2069 (BN)		16,000	5,000	310,000	330,000
2070 (W)		21,000	6,200	380,000	410,000
2071 (BN)		9,800	2,900	180,000	190,000
2072 (W)		21,000	6,400	400,000	430,000
Average (2022-2072)		15,000	4,500	280,000	300,000
2022-2072	W	19,000	5,900	370,000	390,000
	AN	18,000	5,500	340,000	360,000
	BN	12,000	3,700	230,000	250,000
	D	11,000	3,300	210,000	220,000
	C	11,000	3,200	190,000	200,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

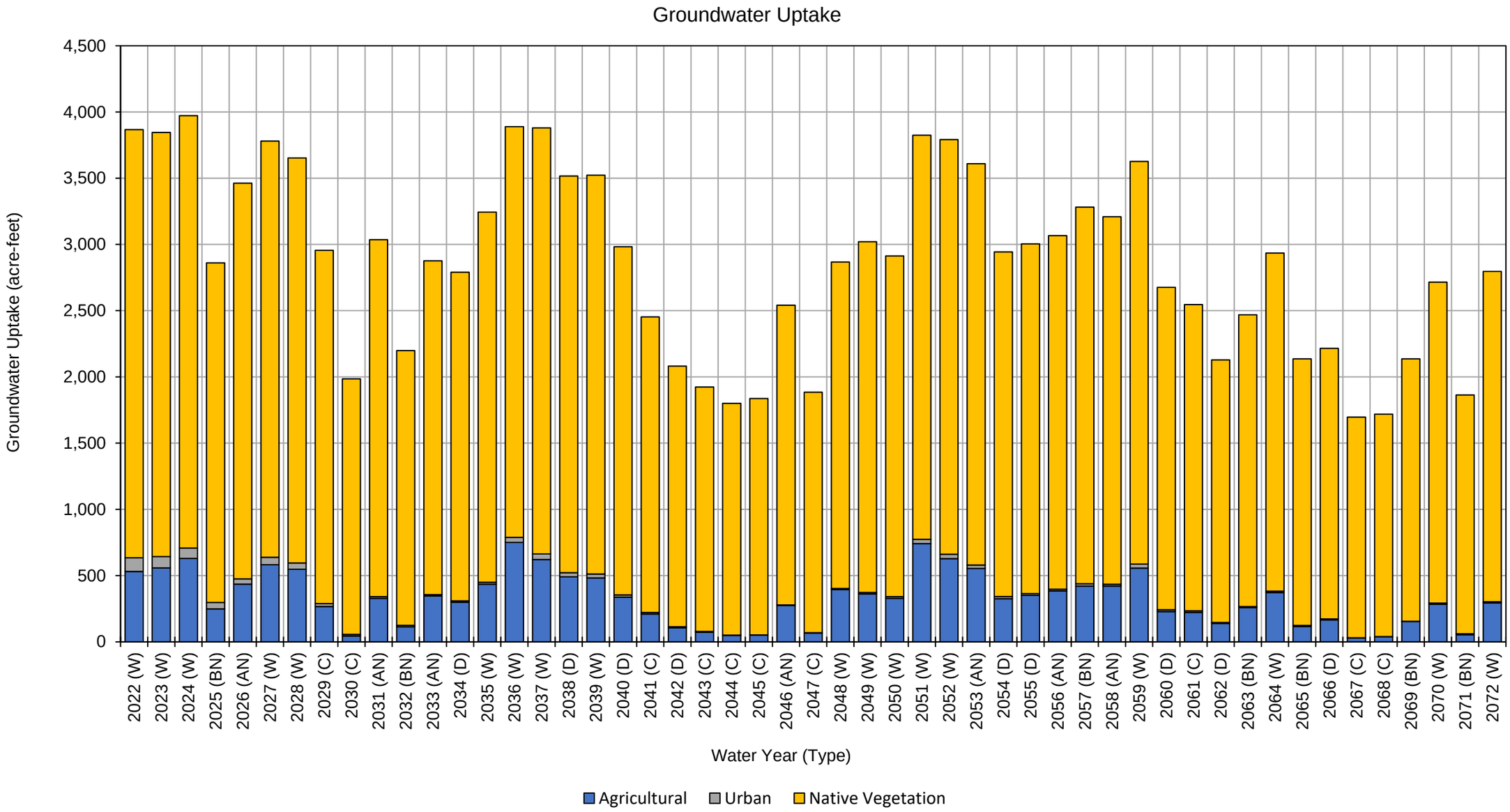
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	5,200	1,200	0	6,400
2023 (W)	5,100	1,200	0	6,300
2024 (W)	5,300	1,200	0	6,500
2025 (BN)	5,700	1,200	0	6,900
2026 (AN)	4,400	1,200	0	5,600
2027 (W)	3,900	1,200	0	5,100
2028 (W)	4,700	1,200	0	5,900
2029 (C)	6,800	1,200	0	8,000
2030 (C)	5,500	1,200	0	6,700
2031 (AN)	4,600	1,200	0	5,800
2032 (BN)	4,400	1,200	0	5,600
2033 (AN)	4,000	1,200	0	5,200
2034 (D)	6,200	1,200	0	7,400
2035 (W)	3,900	1,200	0	5,100
2036 (W)	3,300	1,200	0	4,500
2037 (W)	5,000	1,200	0	6,200
2038 (D)	6,200	1,200	0	7,400
2039 (W)	5,000	1,200	0	6,200
2040 (D)	4,700	1,200	0	5,900
2041 (C)	5,900	1,200	0	7,100
2042 (D)	5,600	1,200	0	6,800
2043 (C)	5,500	1,200	0	6,700
2044 (C)	5,500	1,200	0	6,700
2045 (C)	5,600	1,200	0	6,800
2046 (AN)	4,400	1,200	0	5,600
2047 (C)	5,500	1,200	0	6,700
2048 (W)	4,100	1,200	0	5,300
2049 (W)	5,000	1,200	0	6,200
2050 (W)	6,600	1,200	0	7,800
2051 (W)	3,300	1,200	0	4,500
2052 (W)	4,800	1,200	0	6,000
2053 (AN)	3,900	1,200	0	5,100
2054 (D)	4,700	1,200	0	5,900
2055 (D)	6,100	1,200	0	7,300
2056 (AN)	3,900	1,200	0	5,100
2057 (BN)	5,300	1,200	0	6,500
2058 (AN)	3,500	1,200	0	4,700
2059 (W)	3,900	1,200	0	5,100
2060 (D)	5,500	1,200	0	6,700
2061 (C)	6,900	1,200	0	8,100
2062 (D)	4,800	1,200	0	6,000
2063 (BN)	4,000	1,200	0	5,200

Bowman Subbasin Projected (Current Land Use) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		3,700	1,200	0	4,900
2065 (BN)		4,400	1,200	0	5,600
2066 (D)		6,800	1,200	0	8,000
2067 (C)		5,900	1,200	0	7,100
2068 (C)		7,400	1,200	0	8,600
2069 (BN)		5,500	1,200	0	6,700
2070 (W)		4,100	1,200	0	5,300
2071 (BN)		5,700	1,200	0	6,900
2072 (W)		4,900	1,200	0	6,100
Average (2022-2072)		5,000	1,200	0	6,200
2022-2072	W	4,500	1,200	0	5,700
	AN	4,100	1,200	0	5,300
	BN	5,000	1,200	0	6,200
	D	5,600	1,200	0	6,800
	C	6,000	1,200	0	7,200

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

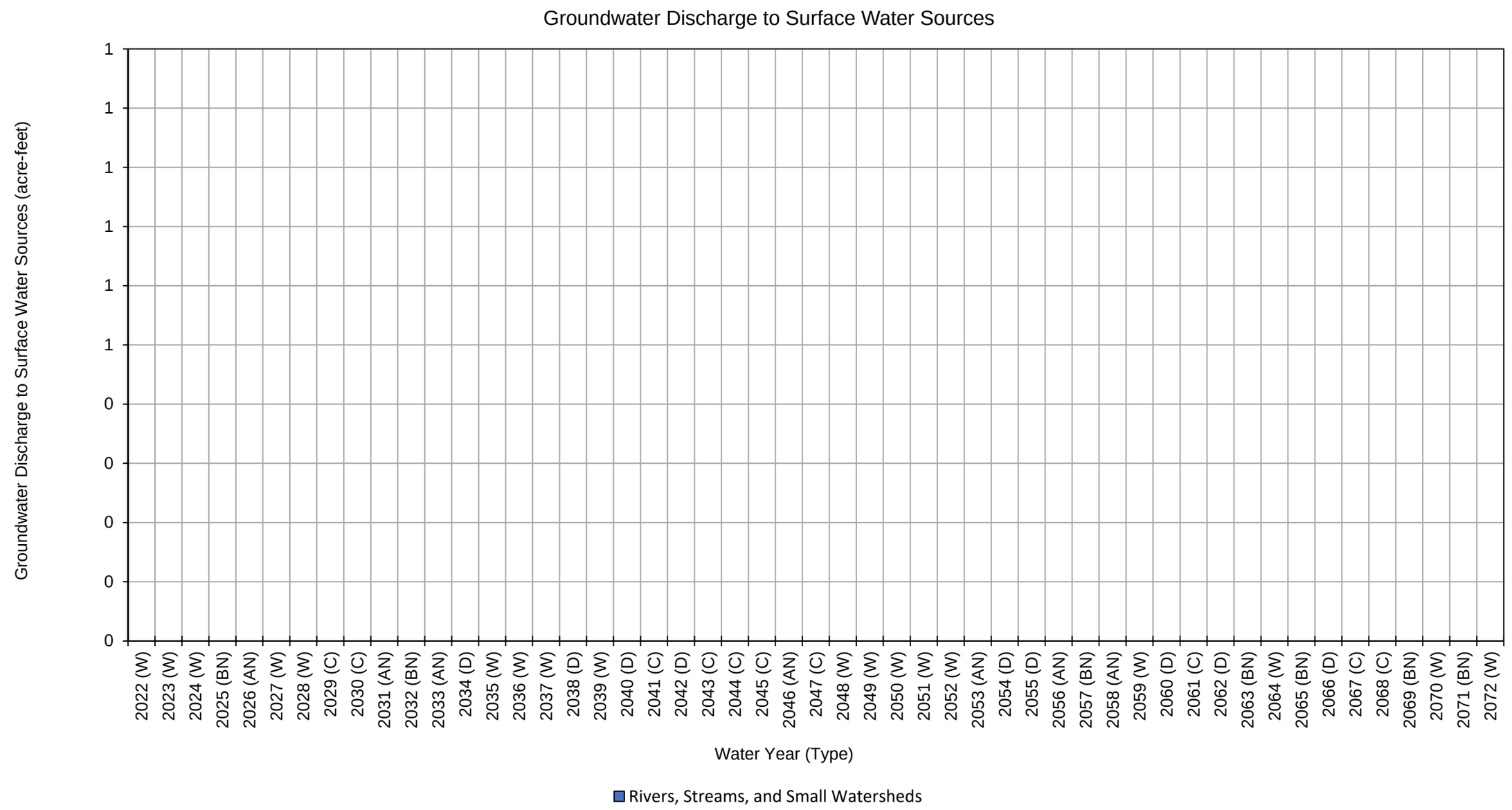
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	530	100	3,200	3,800
2023 (W)	560	86	3,200	3,800
2024 (W)	630	78	3,300	4,000
2025 (BN)	250	49	2,600	2,900
2026 (AN)	440	39	3,000	3,500
2027 (W)	580	56	3,100	3,700
2028 (W)	550	47	3,100	3,700
2029 (C)	270	22	2,700	3,000
2030 (C)	44	11	1,900	2,000
2031 (AN)	330	12	2,700	3,000
2032 (BN)	110	11	2,100	2,200
2033 (AN)	350	11	2,500	2,900
2034 (D)	300	10	2,500	2,800
2035 (W)	430	15	2,800	3,200
2036 (W)	750	37	3,100	3,900
2037 (W)	620	42	3,200	3,900
2038 (D)	490	31	3,000	3,500
2039 (W)	480	29	3,000	3,500
2040 (D)	340	17	2,600	3,000
2041 (C)	210	12	2,200	2,400
2042 (D)	100	9	2,000	2,100
2043 (C)	72	6	1,800	1,900
2044 (C)	47	3	1,800	1,900
2045 (C)	51	1	1,800	1,900
2046 (AN)	270	4	2,300	2,600
2047 (C)	66	3	1,800	1,900
2048 (W)	390	8	2,500	2,900
2049 (W)	360	11	2,600	3,000
2050 (W)	330	13	2,600	2,900
2051 (W)	740	32	3,100	3,900
2052 (W)	630	34	3,100	3,800
2053 (AN)	550	26	3,000	3,600
2054 (D)	330	16	2,600	2,900
2055 (D)	350	13	2,600	3,000
2056 (AN)	380	13	2,700	3,100
2057 (BN)	420	18	2,800	3,200
2058 (AN)	420	14	2,800	3,200
2059 (W)	560	31	3,000	3,600
2060 (D)	230	14	2,400	2,600
2061 (C)	220	11	2,300	2,500
2062 (D)	140	8	2,000	2,100
2063 (BN)	260	8	2,200	2,500

Bowman Subbasin Projected (Current Land Use) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		370	11	2,600	3,000
2065 (BN)		110	9	2,000	2,100
2066 (D)		170	7	2,000	2,200
2067 (C)		28	3	1,700	1,700
2068 (C)		37	2	1,700	1,700
2069 (BN)		150	2	2,000	2,200
2070 (W)		280	8	2,400	2,700
2071 (BN)		54	6	1,800	1,900
2072 (W)		290	9	2,500	2,800
Average (2022-2072)		330	21	2,500	2,900
2022-2072	W	510	36	2,900	3,400
	AN	390	17	2,700	3,100
	BN	190	15	2,200	2,400
	D	270	14	2,400	2,700
	C	100	7	2,000	2,100

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

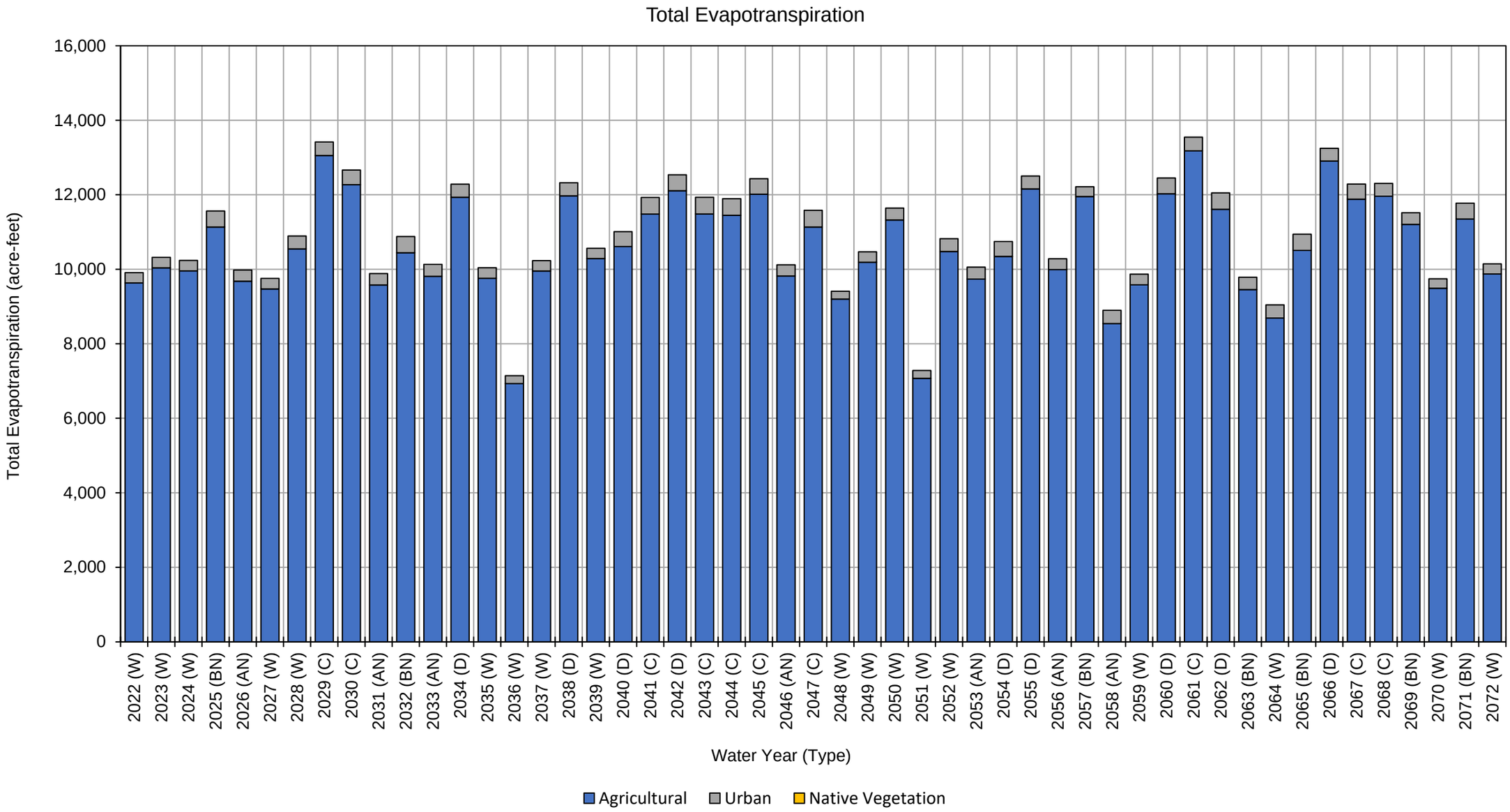
WY (Type)	Rivers, Streams, and Small Watersheds
2022 (W)	0
2023 (W)	0
2024 (W)	0
2025 (BN)	0
2026 (AN)	0
2027 (W)	0
2028 (W)	0
2029 (C)	0
2030 (C)	0
2031 (AN)	0
2032 (BN)	0
2033 (AN)	0
2034 (D)	0
2035 (W)	0
2036 (W)	0
2037 (W)	0
2038 (D)	0
2039 (W)	0
2040 (D)	0
2041 (C)	0
2042 (D)	0
2043 (C)	0
2044 (C)	0
2045 (C)	0
2046 (AN)	0
2047 (C)	0
2048 (W)	0
2049 (W)	0
2050 (W)	0
2051 (W)	0
2052 (W)	0
2053 (AN)	0
2054 (D)	0
2055 (D)	0
2056 (AN)	0
2057 (BN)	0
2058 (AN)	0
2059 (W)	0
2060 (D)	0
2061 (C)	0
2062 (D)	0
2063 (BN)	0

Bowman Subbasin Projected (Current Land Use) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

WY (Type)		Rivers, Streams, and Small Watersheds
2064 (W)		0
2065 (BN)		0
2066 (D)		0
2067 (C)		0
2068 (C)		0
2069 (BN)		0
2070 (W)		0
2071 (BN)		0
2072 (W)		0
Average (2022-2072)		0
2022-2072	W	0
	AN	0
	BN	0
	D	0
	C	0

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

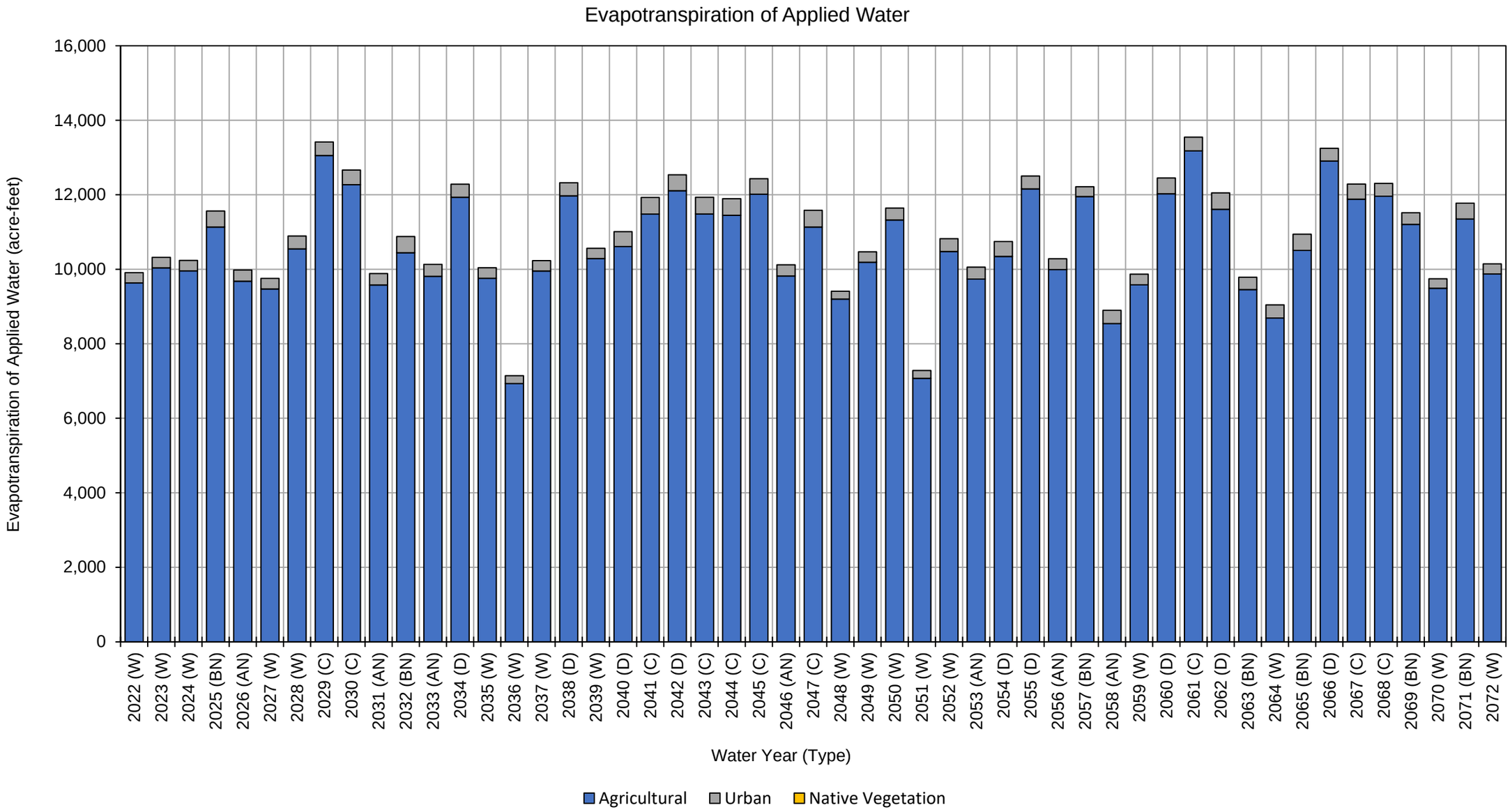
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	17,000	1,800	180,000	200,000
2023 (W)	18,000	1,700	160,000	180,000
2024 (W)	18,000	1,700	160,000	180,000
2025 (BN)	17,000	1,500	150,000	170,000
2026 (AN)	18,000	1,800	180,000	200,000
2027 (W)	17,000	1,600	160,000	180,000
2028 (W)	17,000	1,500	150,000	170,000
2029 (C)	18,000	1,300	120,000	140,000
2030 (C)	17,000	1,300	110,000	130,000
2031 (AN)	18,000	1,900	180,000	200,000
2032 (BN)	17,000	1,600	160,000	180,000
2033 (AN)	17,000	1,700	170,000	190,000
2034 (D)	18,000	1,400	150,000	170,000
2035 (W)	17,000	1,600	160,000	180,000
2036 (W)	15,000	1,700	160,000	180,000
2037 (W)	18,000	1,600	160,000	180,000
2038 (D)	18,000	1,400	150,000	170,000
2039 (W)	17,000	1,600	160,000	180,000
2040 (D)	17,000	1,600	160,000	180,000
2041 (C)	18,000	1,600	160,000	180,000
2042 (D)	17,000	1,400	130,000	150,000
2043 (C)	18,000	1,700	160,000	180,000
2044 (C)	18,000	1,700	160,000	180,000
2045 (C)	18,000	1,600	160,000	180,000
2046 (AN)	18,000	1,800	180,000	200,000
2047 (C)	18,000	1,700	170,000	190,000
2048 (W)	16,000	1,500	150,000	170,000
2049 (W)	17,000	1,600	160,000	180,000
2050 (W)	18,000	1,600	160,000	180,000
2051 (W)	15,000	1,700	160,000	180,000
2052 (W)	17,000	1,500	150,000	170,000
2053 (AN)	17,000	1,700	170,000	190,000
2054 (D)	17,000	1,600	160,000	180,000
2055 (D)	18,000	1,400	140,000	160,000
2056 (AN)	17,000	1,600	150,000	170,000
2057 (BN)	17,000	1,300	130,000	150,000
2058 (AN)	17,000	1,900	180,000	200,000
2059 (W)	17,000	1,600	160,000	180,000
2060 (D)	17,000	1,400	130,000	150,000
2061 (C)	18,000	1,300	130,000	150,000
2062 (D)	18,000	1,600	160,000	180,000
2063 (BN)	16,000	1,500	150,000	170,000

Bowman Subbasin Projected (Current Land Use) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		16,000	1,800	180,000	200,000
2065 (BN)		17,000	1,600	160,000	180,000
2066 (D)		18,000	1,400	140,000	160,000
2067 (C)		17,000	1,300	120,000	140,000
2068 (C)		18,000	1,400	140,000	160,000
2069 (BN)		18,000	1,600	160,000	180,000
2070 (W)		17,000	1,600	160,000	180,000
2071 (BN)		17,000	1,500	150,000	170,000
2072 (W)		17,000	1,700	170,000	190,000
Average (2022-2072)		17,000	1,600	160,000	180,000
2022-2072	W	17,000	1,600	160,000	180,000
	AN	17,000	1,800	170,000	190,000
	BN	17,000	1,500	150,000	170,000
	D	18,000	1,500	150,000	170,000
	C	18,000	1,500	140,000	160,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

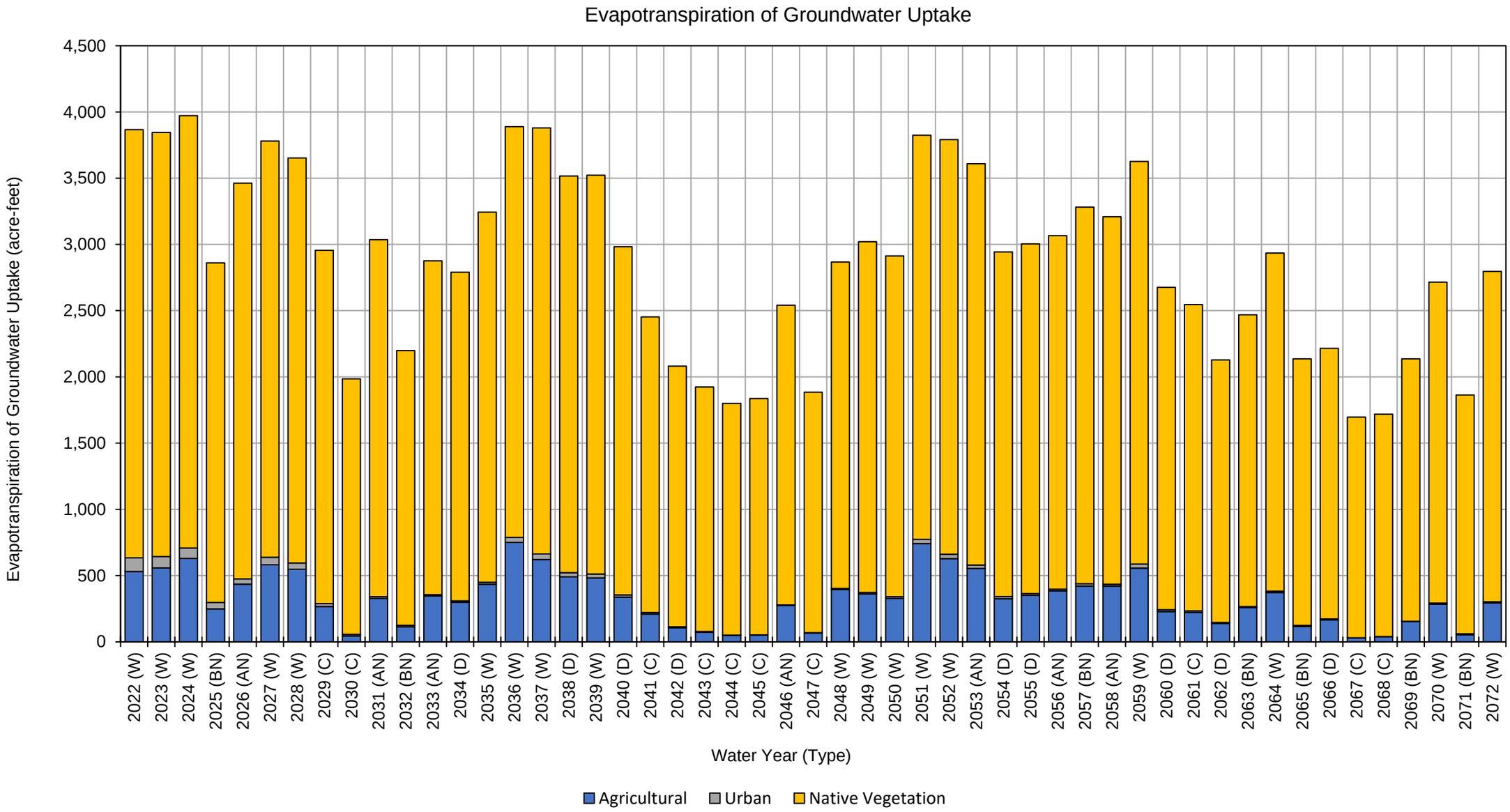
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	9,600	280	0	9,900
2023 (W)	10,000	280	0	10,000
2024 (W)	10,000	280	0	10,000
2025 (BN)	11,000	430	0	11,000
2026 (AN)	9,700	300	0	10,000
2027 (W)	9,500	280	0	9,800
2028 (W)	11,000	340	0	11,000
2029 (C)	13,000	360	0	13,000
2030 (C)	12,000	390	0	12,000
2031 (AN)	9,600	310	0	9,900
2032 (BN)	10,000	430	0	10,000
2033 (AN)	9,800	320	0	10,000
2034 (D)	12,000	350	0	12,000
2035 (W)	9,800	280	0	10,000
2036 (W)	6,900	210	0	7,100
2037 (W)	10,000	280	0	10,000
2038 (D)	12,000	350	0	12,000
2039 (W)	10,000	280	0	10,000
2040 (D)	11,000	400	0	11,000
2041 (C)	11,000	450	0	11,000
2042 (D)	12,000	430	0	12,000
2043 (C)	11,000	450	0	11,000
2044 (C)	11,000	450	0	11,000
2045 (C)	12,000	420	0	12,000
2046 (AN)	9,800	300	0	10,000
2047 (C)	11,000	450	0	11,000
2048 (W)	9,200	210	0	9,400
2049 (W)	10,000	280	0	10,000
2050 (W)	11,000	320	0	11,000
2051 (W)	7,100	210	0	7,300
2052 (W)	10,000	340	0	10,000
2053 (AN)	9,700	320	0	10,000
2054 (D)	10,000	400	0	10,000
2055 (D)	12,000	350	0	12,000
2056 (AN)	10,000	290	0	10,000
2057 (BN)	12,000	260	0	12,000
2058 (AN)	8,500	350	0	8,900
2059 (W)	9,600	280	0	9,900
2060 (D)	12,000	430	0	12,000
2061 (C)	13,000	370	0	13,000
2062 (D)	12,000	440	0	12,000
2063 (BN)	9,500	330	0	9,800

Bowman Subbasin Projected (Current Land Use) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		8,700	350	0	9,100
2065 (BN)		11,000	430	0	11,000
2066 (D)		13,000	340	0	13,000
2067 (C)		12,000	410	0	12,000
2068 (C)		12,000	350	0	12,000
2069 (BN)		11,000	310	0	11,000
2070 (W)		9,500	250	0	9,800
2071 (BN)		11,000	430	0	11,000
2072 (W)		9,900	270	0	10,000
Average (2022-2072)		11,000	340	0	11,000
2022-2072	W	9,600	280	0	9,900
	AN	9,600	310	0	9,900
	BN	11,000	380	0	11,000
	D	12,000	390	0	12,000
	C	12,000	410	0	12,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

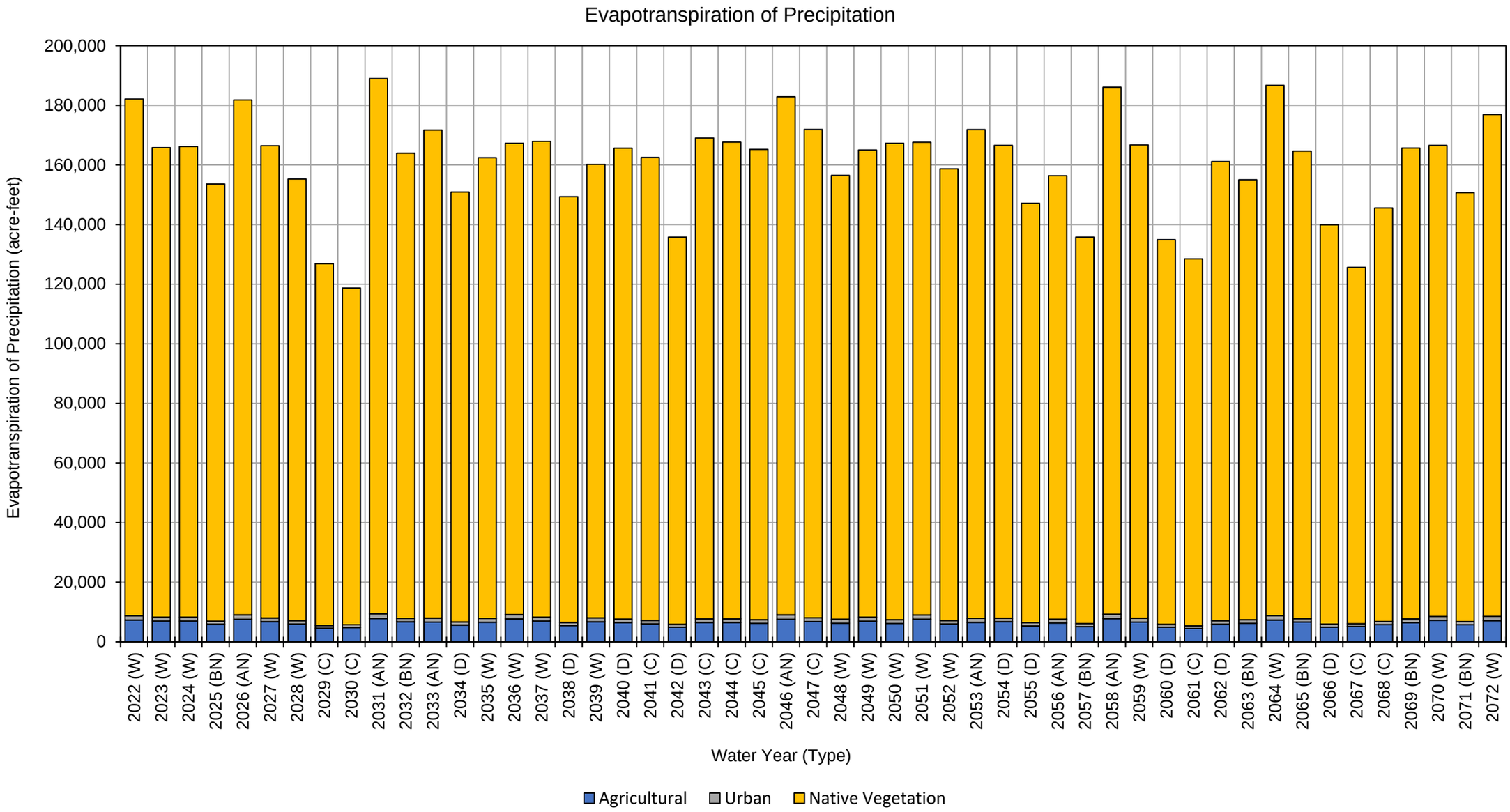
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	530	100	3,200	3,800
2023 (W)	560	86	3,200	3,800
2024 (W)	630	78	3,300	4,000
2025 (BN)	250	49	2,600	2,900
2026 (AN)	440	39	3,000	3,500
2027 (W)	580	56	3,100	3,700
2028 (W)	550	47	3,100	3,700
2029 (C)	270	22	2,700	3,000
2030 (C)	44	11	1,900	2,000
2031 (AN)	330	12	2,700	3,000
2032 (BN)	110	11	2,100	2,200
2033 (AN)	350	11	2,500	2,900
2034 (D)	300	10	2,500	2,800
2035 (W)	430	15	2,800	3,200
2036 (W)	750	37	3,100	3,900
2037 (W)	620	42	3,200	3,900
2038 (D)	490	31	3,000	3,500
2039 (W)	480	29	3,000	3,500
2040 (D)	340	17	2,600	3,000
2041 (C)	210	12	2,200	2,400
2042 (D)	100	9	2,000	2,100
2043 (C)	72	6	1,800	1,900
2044 (C)	47	3	1,800	1,900
2045 (C)	51	1	1,800	1,900
2046 (AN)	270	4	2,300	2,600
2047 (C)	66	3	1,800	1,900
2048 (W)	390	8	2,500	2,900
2049 (W)	360	11	2,600	3,000
2050 (W)	330	13	2,600	2,900
2051 (W)	740	32	3,100	3,900
2052 (W)	630	34	3,100	3,800
2053 (AN)	550	26	3,000	3,600
2054 (D)	330	16	2,600	2,900
2055 (D)	350	13	2,600	3,000
2056 (AN)	380	13	2,700	3,100
2057 (BN)	420	18	2,800	3,200
2058 (AN)	420	14	2,800	3,200
2059 (W)	560	31	3,000	3,600
2060 (D)	230	14	2,400	2,600
2061 (C)	220	11	2,300	2,500
2062 (D)	140	8	2,000	2,100
2063 (BN)	260	8	2,200	2,500

Bowman Subbasin Projected (Current Land Use) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		370	11	2,600	3,000
2065 (BN)		110	9	2,000	2,100
2066 (D)		170	7	2,000	2,200
2067 (C)		28	3	1,700	1,700
2068 (C)		37	2	1,700	1,700
2069 (BN)		150	2	2,000	2,200
2070 (W)		280	8	2,400	2,700
2071 (BN)		54	6	1,800	1,900
2072 (W)		290	9	2,500	2,800
Average (2022-2072)		330	21	2,500	2,900
2022-2072	W	510	36	2,900	3,400
	AN	390	17	2,700	3,100
	BN	190	15	2,200	2,400
	D	270	14	2,400	2,700
	C	100	7	2,000	2,100

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

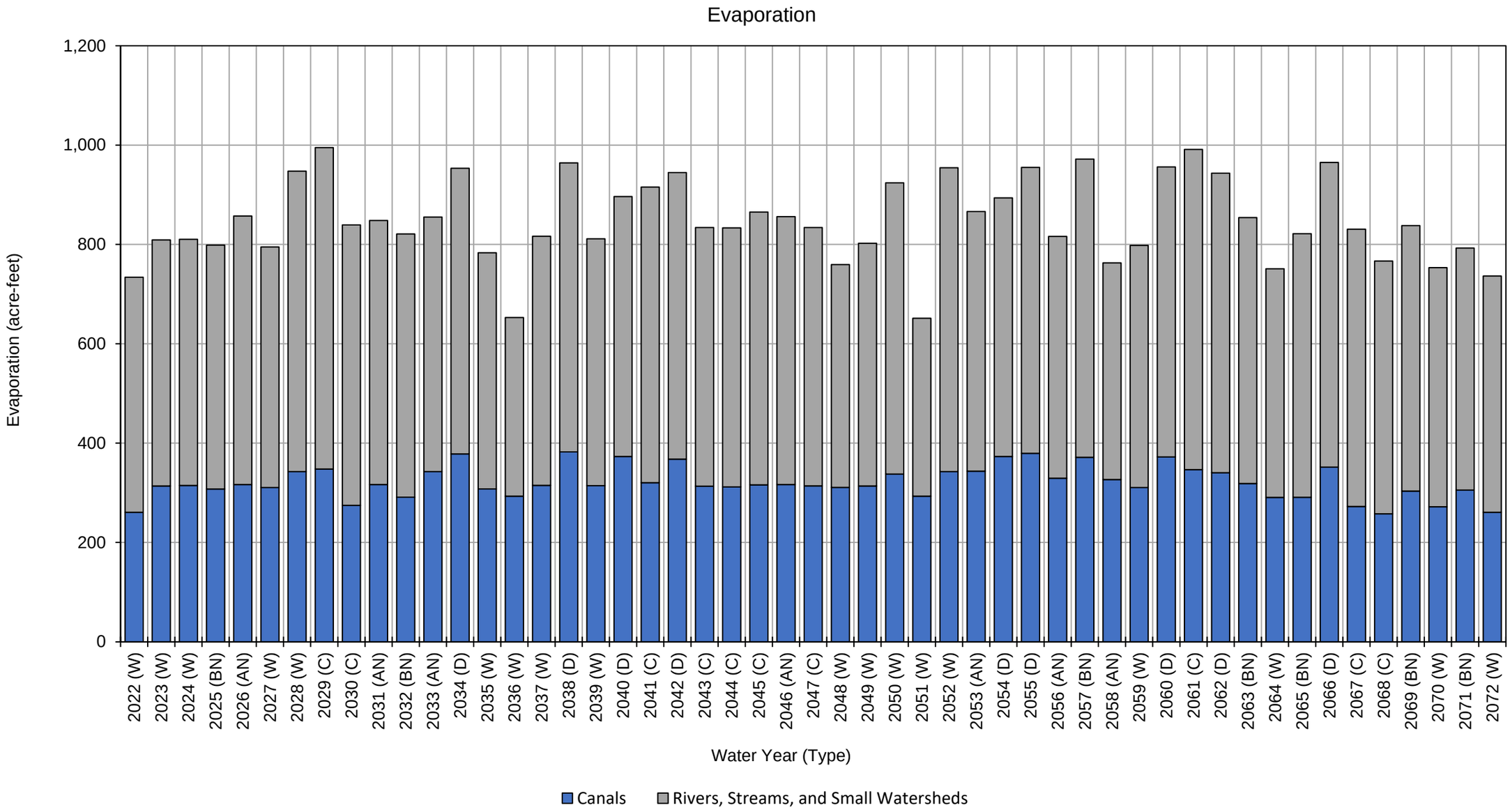
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	7,300	1,400	170,000	180,000
2023 (W)	7,000	1,300	160,000	170,000
2024 (W)	7,000	1,300	160,000	170,000
2025 (BN)	5,900	1,000	150,000	160,000
2026 (AN)	7,500	1,500	170,000	180,000
2027 (W)	6,700	1,300	160,000	170,000
2028 (W)	6,000	1,100	150,000	160,000
2029 (C)	4,500	890	120,000	130,000
2030 (C)	4,800	900	110,000	120,000
2031 (AN)	7,800	1,500	180,000	190,000
2032 (BN)	6,700	1,100	160,000	170,000
2033 (AN)	6,600	1,400	160,000	170,000
2034 (D)	5,600	1,100	140,000	150,000
2035 (W)	6,500	1,300	150,000	160,000
2036 (W)	7,700	1,400	160,000	170,000
2037 (W)	7,000	1,300	160,000	170,000
2038 (D)	5,400	1,000	140,000	150,000
2039 (W)	6,700	1,300	150,000	160,000
2040 (D)	6,400	1,200	160,000	170,000
2041 (C)	6,000	1,100	160,000	170,000
2042 (D)	4,900	960	130,000	140,000
2043 (C)	6,500	1,300	160,000	170,000
2044 (C)	6,500	1,300	160,000	170,000
2045 (C)	6,200	1,200	160,000	170,000
2046 (AN)	7,500	1,500	170,000	180,000
2047 (C)	6,800	1,300	160,000	170,000
2048 (W)	6,200	1,300	150,000	160,000
2049 (W)	6,900	1,300	160,000	170,000
2050 (W)	6,100	1,300	160,000	170,000
2051 (W)	7,600	1,400	160,000	170,000
2052 (W)	6,000	1,100	150,000	160,000
2053 (AN)	6,500	1,400	160,000	170,000
2054 (D)	6,800	1,200	160,000	170,000
2055 (D)	5,300	1,100	140,000	150,000
2056 (AN)	6,300	1,300	150,000	160,000
2057 (BN)	5,100	1,000	130,000	140,000
2058 (AN)	7,800	1,500	180,000	190,000
2059 (W)	6,600	1,300	160,000	170,000
2060 (D)	4,900	950	130,000	140,000
2061 (C)	4,500	910	120,000	130,000
2062 (D)	5,900	1,200	150,000	160,000
2063 (BN)	6,200	1,200	150,000	160,000

Bowman Subbasin Projected (Current Land Use) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		7,300	1,400	180,000	190,000
2065 (BN)		6,600	1,100	160,000	170,000
2066 (D)		4,900	1,000	130,000	140,000
2067 (C)		5,100	930	120,000	130,000
2068 (C)		5,800	1,100	140,000	150,000
2069 (BN)		6,400	1,300	160,000	170,000
2070 (W)		7,200	1,300	160,000	170,000
2071 (BN)		5,700	1,000	140,000	150,000
2072 (W)		7,100	1,400	170,000	180,000
Average (2022-2072)		6,300	1,200	150,000	160,000
2022-2072	W	6,800	1,300	160,000	170,000
	AN	7,200	1,400	170,000	180,000
	BN	6,100	1,100	150,000	160,000
	D	5,600	1,100	140,000	150,000
	C	5,700	1,100	140,000	150,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Evaporation (acre-feet, rounded)

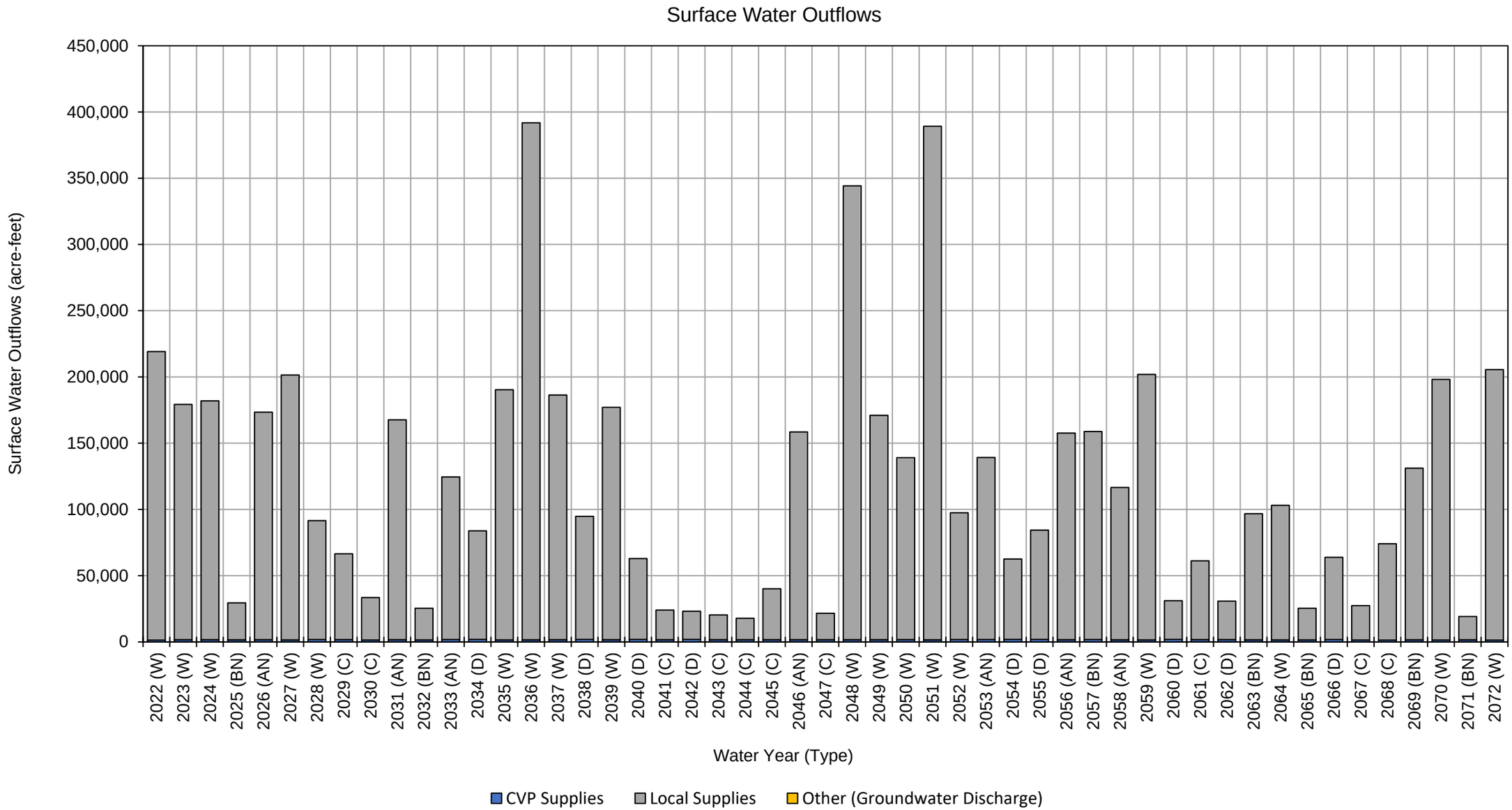
WY (Type)	Canals	Rivers, Streams, and Small Watersheds	Total
2022 (W)	260	470	730
2023 (W)	310	500	810
2024 (W)	310	500	810
2025 (BN)	310	490	800
2026 (AN)	320	540	860
2027 (W)	310	480	790
2028 (W)	340	600	940
2029 (C)	350	650	1,000
2030 (C)	270	560	830
2031 (AN)	320	530	850
2032 (BN)	290	530	820
2033 (AN)	340	510	850
2034 (D)	380	580	960
2035 (W)	310	480	790
2036 (W)	290	360	650
2037 (W)	310	500	810
2038 (D)	380	580	960
2039 (W)	310	500	810
2040 (D)	370	520	890
2041 (C)	320	600	920
2042 (D)	370	580	950
2043 (C)	310	520	830
2044 (C)	310	520	830
2045 (C)	320	550	870
2046 (AN)	320	540	860
2047 (C)	310	520	830
2048 (W)	310	450	760
2049 (W)	310	490	800
2050 (W)	340	590	930
2051 (W)	290	360	650
2052 (W)	340	610	950
2053 (AN)	340	520	860
2054 (D)	370	520	890
2055 (D)	380	580	960
2056 (AN)	330	490	820
2057 (BN)	370	600	970
2058 (AN)	330	440	770
2059 (W)	310	490	800
2060 (D)	370	580	950
2061 (C)	350	640	990
2062 (D)	340	600	940
2063 (BN)	320	540	860

Bowman Subbasin Projected (Current Land Use) Evaporation (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Watersheds	Total
2064 (W)		290	460	750
2065 (BN)		290	530	820
2066 (D)		350	610	960
2067 (C)		270	560	830
2068 (C)		260	510	770
2069 (BN)		300	530	830
2070 (W)		270	480	750
2071 (BN)		310	490	800
2072 (W)		260	480	740
Average (2022-2072)		320	530	850
2022-2072	W	310	490	800
	AN	330	510	840
	BN	310	530	840
	D	370	570	940
	C	310	560	870

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

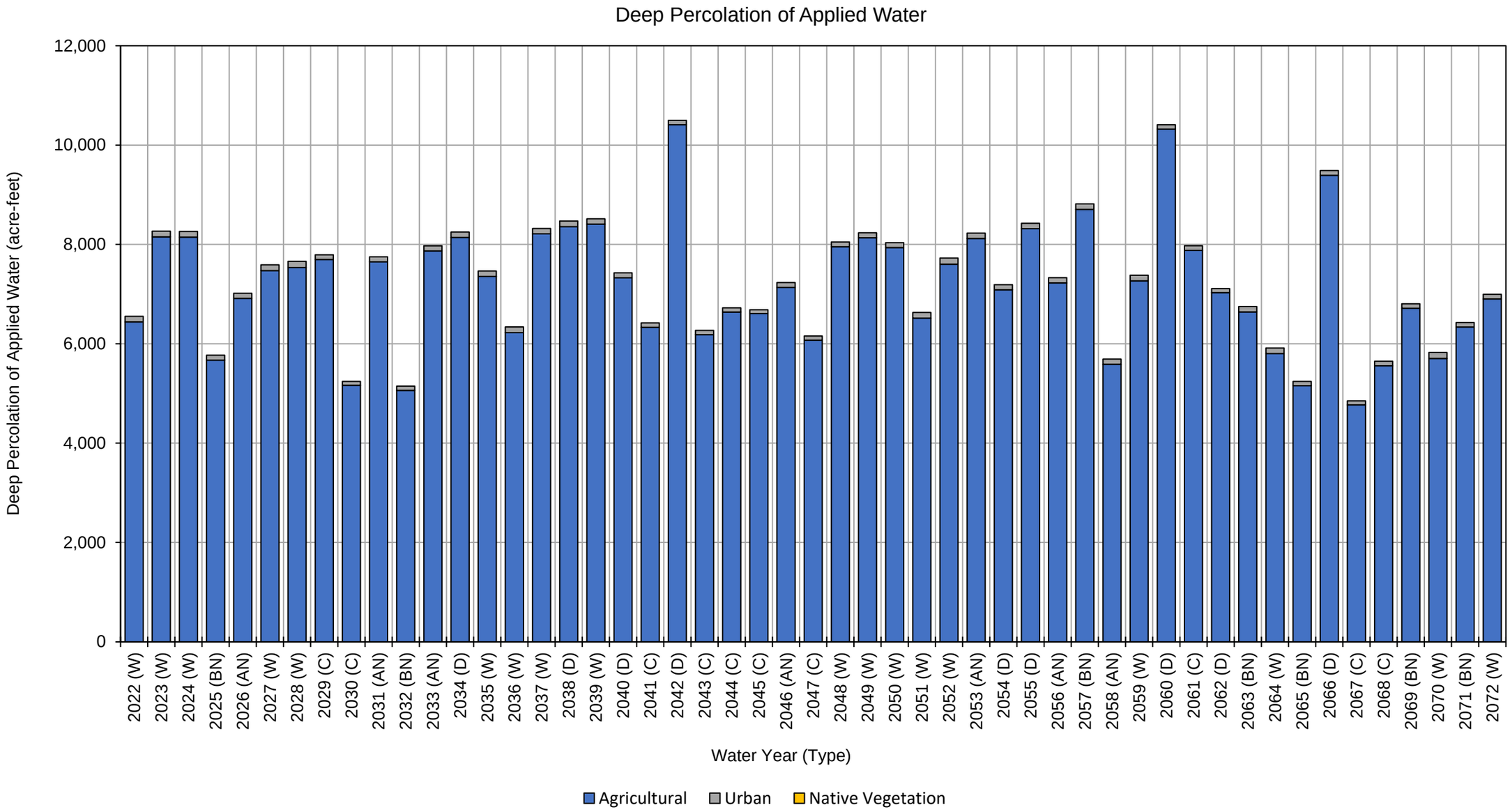
WY (Type)	CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2022 (W)	1,300	220,000	0	220,000
2023 (W)	1,600	180,000	0	180,000
2024 (W)	1,600	180,000	0	180,000
2025 (BN)	1,600	28,000	0	30,000
2026 (AN)	1,600	170,000	0	170,000
2027 (W)	1,500	200,000	0	200,000
2028 (W)	1,800	90,000	0	92,000
2029 (C)	1,700	65,000	0	67,000
2030 (C)	1,400	32,000	0	33,000
2031 (AN)	1,600	170,000	0	170,000
2032 (BN)	1,500	24,000	0	26,000
2033 (AN)	1,800	120,000	0	120,000
2034 (D)	1,900	82,000	0	84,000
2035 (W)	1,500	190,000	0	190,000
2036 (W)	1,500	390,000	0	390,000
2037 (W)	1,600	180,000	0	180,000
2038 (D)	1,900	93,000	0	95,000
2039 (W)	1,600	180,000	0	180,000
2040 (D)	1,900	61,000	0	63,000
2041 (C)	1,600	22,000	0	24,000
2042 (D)	1,800	21,000	0	23,000
2043 (C)	1,600	19,000	0	21,000
2044 (C)	1,600	16,000	0	18,000
2045 (C)	1,600	38,000	0	40,000
2046 (AN)	1,600	160,000	0	160,000
2047 (C)	1,600	20,000	0	22,000
2048 (W)	1,600	340,000	0	340,000
2049 (W)	1,600	170,000	0	170,000
2050 (W)	1,700	140,000	0	140,000
2051 (W)	1,500	390,000	0	390,000
2052 (W)	1,800	96,000	0	98,000
2053 (AN)	1,800	140,000	0	140,000
2054 (D)	1,900	61,000	0	63,000
2055 (D)	1,900	82,000	0	84,000
2056 (AN)	1,600	160,000	0	160,000
2057 (BN)	1,800	160,000	0	160,000
2058 (AN)	1,600	110,000	0	110,000
2059 (W)	1,500	200,000	0	200,000
2060 (D)	1,800	29,000	0	31,000
2061 (C)	1,700	59,000	0	61,000
2062 (D)	1,700	29,000	0	31,000
2063 (BN)	1,600	95,000	0	97,000

Bowman Subbasin Projected (Current Land Use) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2064 (W)		1,500	100,000	0	100,000
2065 (BN)		1,500	24,000	0	26,000
2066 (D)		1,800	62,000	0	64,000
2067 (C)		1,400	26,000	0	27,000
2068 (C)		1,300	73,000	0	74,000
2069 (BN)		1,500	130,000	0	130,000
2070 (W)		1,400	200,000	0	200,000
2071 (BN)		1,600	18,000	0	20,000
2072 (W)		1,300	200,000	0	200,000
Average (2022-2072)		1,600	120,000	0	120,000
2022-2072	W	1,600	200,000	0	200,000
	AN	1,600	150,000	0	150,000
	BN	1,600	68,000	0	70,000
	D	1,800	58,000	0	60,000
	C	1,500	37,000	0	39,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

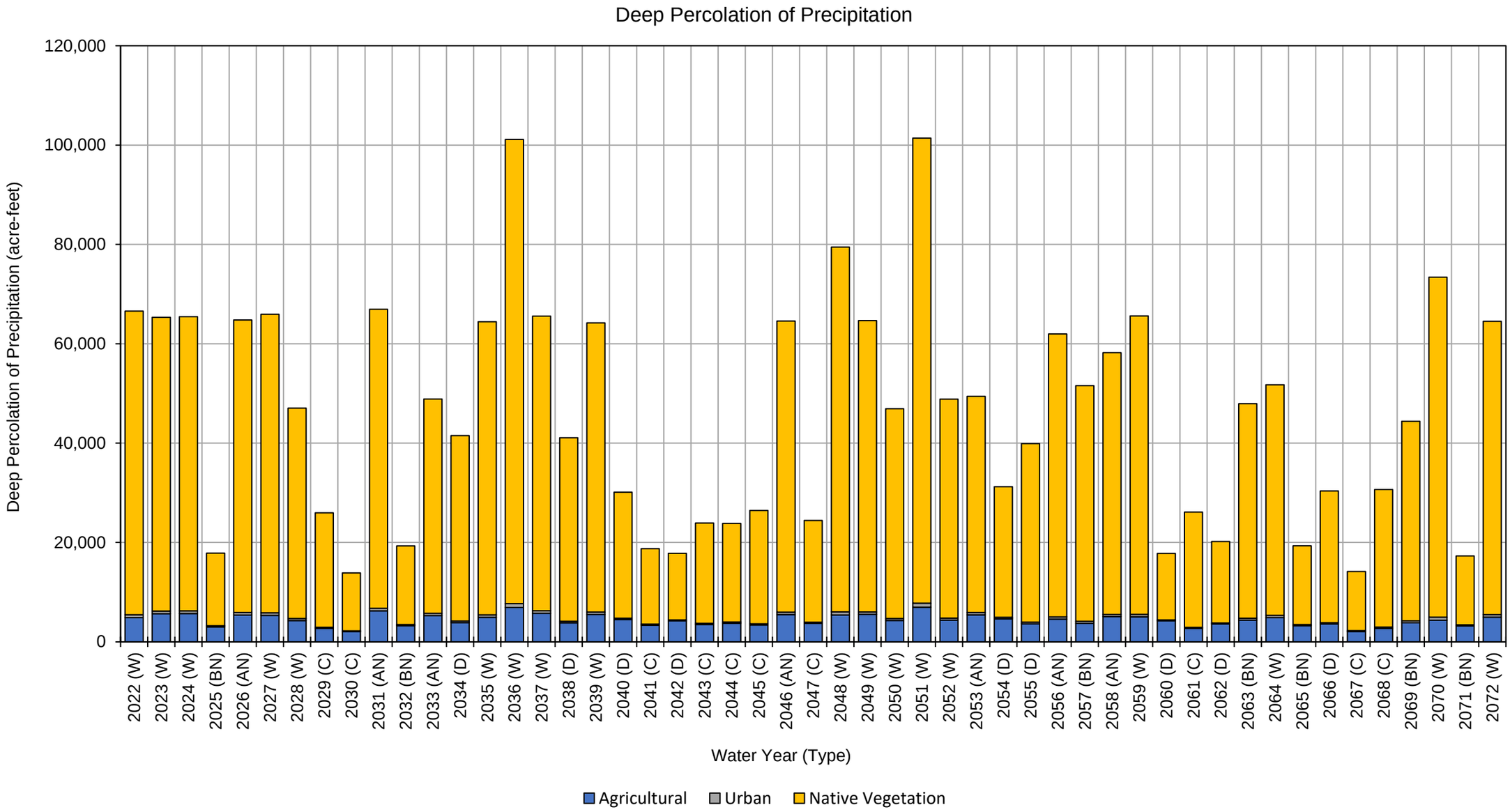
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	6,400	110	0	6,500
2023 (W)	8,200	120	0	8,300
2024 (W)	8,100	110	0	8,200
2025 (BN)	5,700	99	0	5,800
2026 (AN)	6,900	100	0	7,000
2027 (W)	7,500	120	0	7,600
2028 (W)	7,500	130	0	7,600
2029 (C)	7,700	95	0	7,800
2030 (C)	5,200	79	0	5,300
2031 (AN)	7,600	100	0	7,700
2032 (BN)	5,100	86	0	5,200
2033 (AN)	7,900	100	0	8,000
2034 (D)	8,100	110	0	8,200
2035 (W)	7,400	110	0	7,500
2036 (W)	6,200	120	0	6,300
2037 (W)	8,200	110	0	8,300
2038 (D)	8,400	110	0	8,500
2039 (W)	8,400	110	0	8,500
2040 (D)	7,300	99	0	7,400
2041 (C)	6,300	91	0	6,400
2042 (D)	10,000	88	0	10,000
2043 (C)	6,200	86	0	6,300
2044 (C)	6,600	84	0	6,700
2045 (C)	6,600	76	0	6,700
2046 (AN)	7,100	97	0	7,200
2047 (C)	6,100	84	0	6,200
2048 (W)	8,000	98	0	8,100
2049 (W)	8,100	100	0	8,200
2050 (W)	7,900	97	0	8,000
2051 (W)	6,500	120	0	6,600
2052 (W)	7,600	120	0	7,700
2053 (AN)	8,100	110	0	8,200
2054 (D)	7,100	100	0	7,200
2055 (D)	8,300	110	0	8,400
2056 (AN)	7,200	110	0	7,300
2057 (BN)	8,700	110	0	8,800
2058 (AN)	5,600	110	0	5,700
2059 (W)	7,300	110	0	7,400
2060 (D)	10,000	89	0	10,000
2061 (C)	7,900	94	0	8,000
2062 (D)	7,000	82	0	7,100
2063 (BN)	6,600	110	0	6,700

Bowman Subbasin Projected (Current Land Use) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		5,800	110	0	5,900
2065 (BN)		5,200	85	0	5,300
2066 (D)		9,400	97	0	9,500
2067 (C)		4,800	78	0	4,900
2068 (C)		5,600	94	0	5,700
2069 (BN)		6,700	90	0	6,800
2070 (W)		5,700	120	0	5,800
2071 (BN)		6,300	89	0	6,400
2072 (W)		6,900	96	0	7,000
Average (2022-2072)		7,200	100	0	7,300
2022-2072	W	7,300	110	0	7,400
	AN	7,200	100	0	7,300
	BN	6,300	96	0	6,400
	D	8,500	98	0	8,600
	C	6,300	86	0	6,400

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

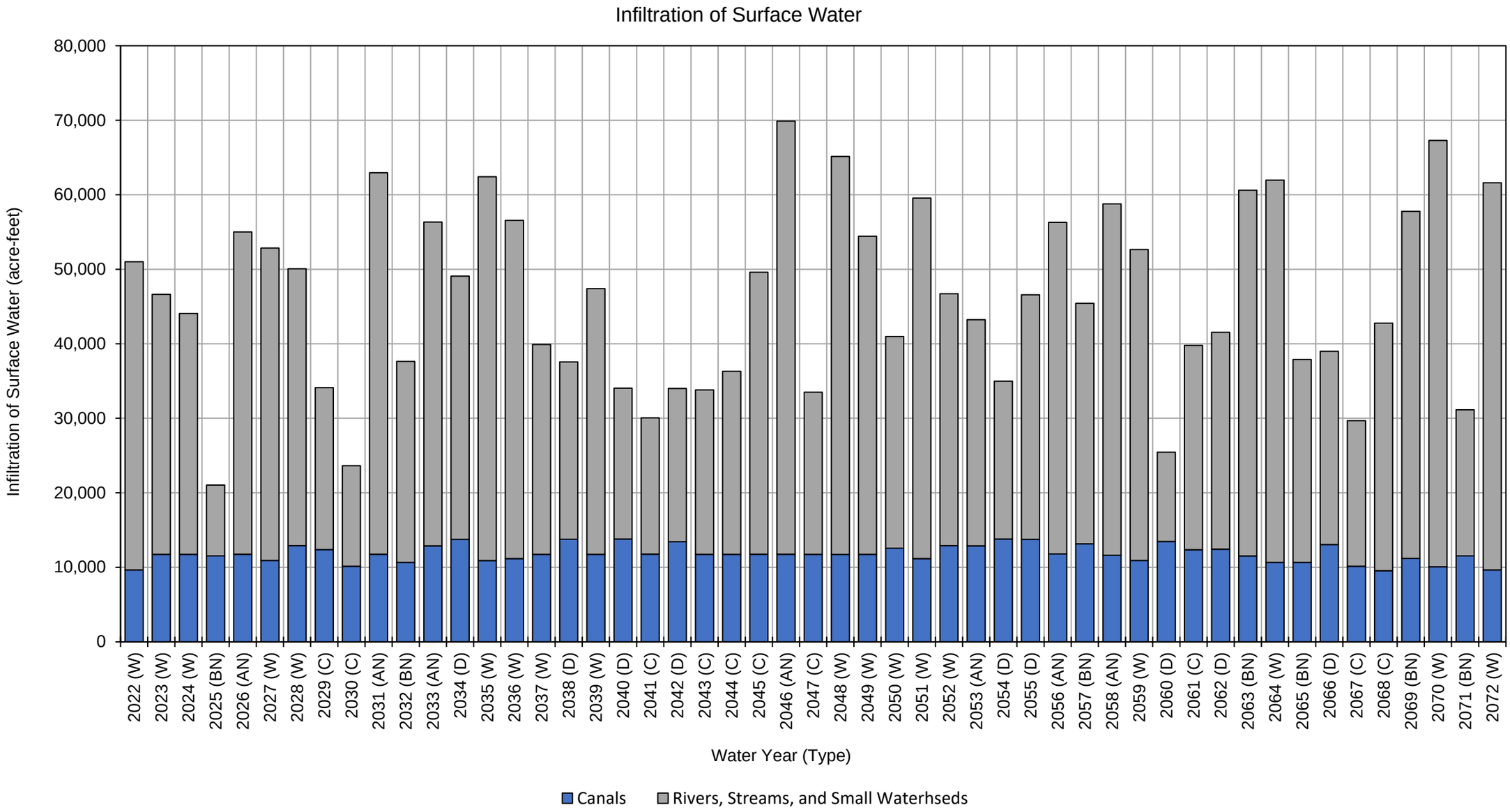
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	4,900	580	61,000	66,000
2023 (W)	5,600	530	59,000	65,000
2024 (W)	5,700	520	59,000	65,000
2025 (BN)	3,000	240	15,000	18,000
2026 (AN)	5,400	510	59,000	65,000
2027 (W)	5,300	520	60,000	66,000
2028 (W)	4,300	410	42,000	47,000
2029 (C)	2,700	230	23,000	26,000
2030 (C)	2,000	180	12,000	14,000
2031 (AN)	6,200	510	60,000	67,000
2032 (BN)	3,200	220	16,000	19,000
2033 (AN)	5,300	450	43,000	49,000
2034 (D)	3,800	330	37,000	41,000
2035 (W)	4,900	500	59,000	64,000
2036 (W)	6,900	790	93,000	100,000
2037 (W)	5,700	500	59,000	65,000
2038 (D)	3,800	340	37,000	41,000
2039 (W)	5,500	490	58,000	64,000
2040 (D)	4,500	290	25,000	30,000
2041 (C)	3,300	230	15,000	19,000
2042 (D)	4,200	200	13,000	17,000
2043 (C)	3,500	240	20,000	24,000
2044 (C)	3,700	230	20,000	24,000
2045 (C)	3,400	220	23,000	27,000
2046 (AN)	5,500	490	59,000	65,000
2047 (C)	3,700	240	20,000	24,000
2048 (W)	5,400	620	73,000	79,000
2049 (W)	5,500	490	59,000	65,000
2050 (W)	4,300	380	42,000	47,000
2051 (W)	7,000	790	94,000	100,000
2052 (W)	4,400	410	44,000	49,000
2053 (AN)	5,400	450	44,000	50,000
2054 (D)	4,600	300	26,000	31,000
2055 (D)	3,600	330	36,000	40,000
2056 (AN)	4,600	460	57,000	62,000
2057 (BN)	3,700	430	47,000	51,000
2058 (AN)	5,100	440	53,000	59,000
2059 (W)	5,000	500	60,000	66,000
2060 (D)	4,200	200	13,000	17,000
2061 (C)	2,700	230	23,000	26,000
2062 (D)	3,600	220	16,000	20,000
2063 (BN)	4,400	390	43,000	48,000

Bowman Subbasin Projected (Current Land Use) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		4,900	450	46,000	51,000
2065 (BN)		3,300	220	16,000	20,000
2066 (D)		3,600	280	27,000	31,000
2067 (C)		2,100	180	12,000	14,000
2068 (C)		2,700	290	28,000	31,000
2069 (BN)		3,800	380	40,000	44,000
2070 (W)		4,300	620	68,000	73,000
2071 (BN)		3,200	220	14,000	17,000
2072 (W)		4,900	510	59,000	64,000
Average (2022-2072)		4,400	390	41,000	46,000
2022-2072	W	5,300	530	61,000	67,000
	AN	5,300	470	53,000	59,000
	BN	3,500	300	27,000	31,000
	D	4,000	280	26,000	30,000
	C	3,000	230	20,000	23,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Infiltration of Surface Water (acre-feet, rounded)

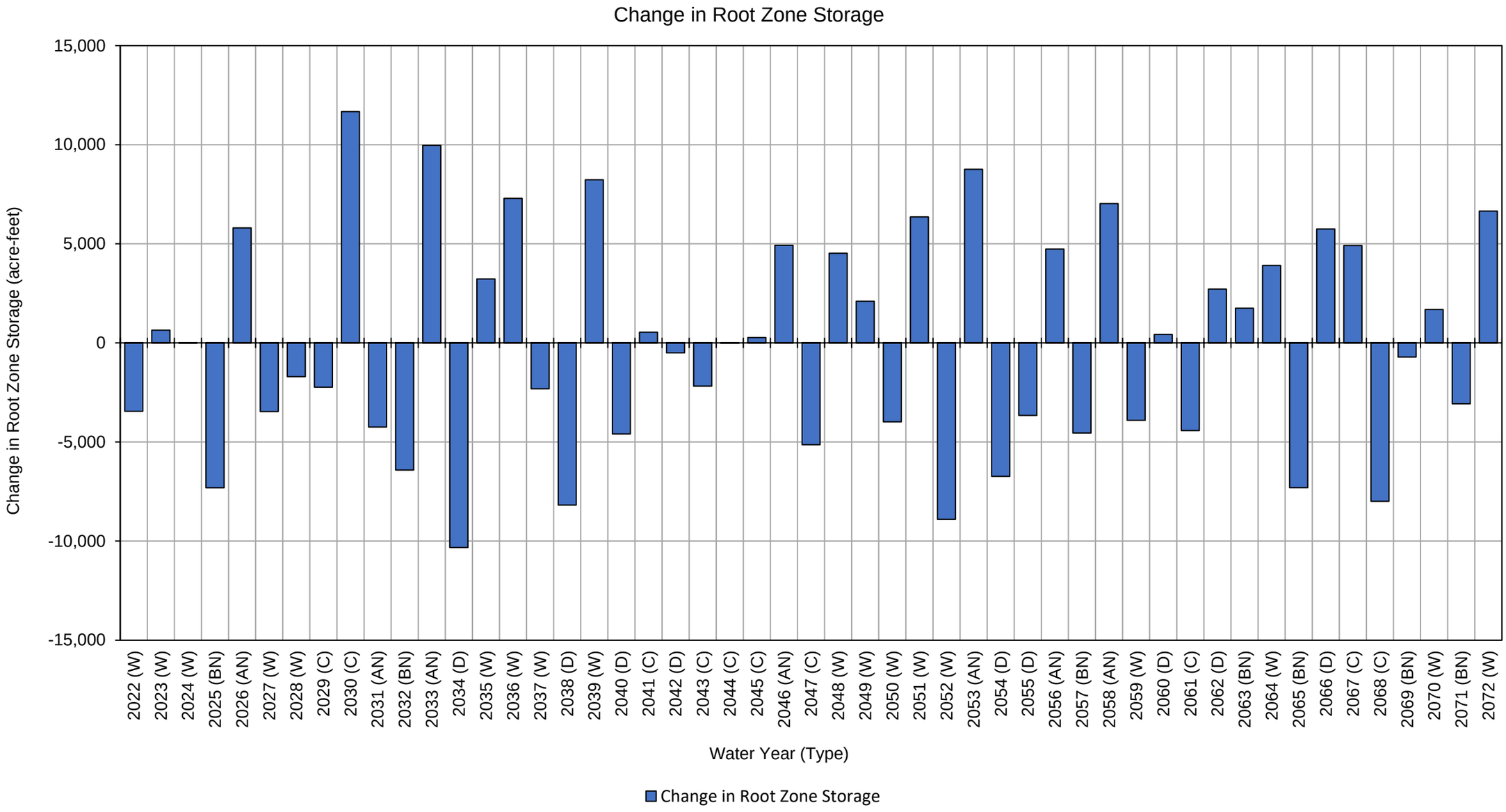
WY (Type)	Canals	Rivers, Streams, and Small Waterhseds	Total
2022 (W)	9,600	41,000	51,000
2023 (W)	12,000	35,000	47,000
2024 (W)	12,000	32,000	44,000
2025 (BN)	12,000	9,500	22,000
2026 (AN)	12,000	43,000	55,000
2027 (W)	11,000	42,000	53,000
2028 (W)	13,000	37,000	50,000
2029 (C)	12,000	22,000	34,000
2030 (C)	10,000	13,000	23,000
2031 (AN)	12,000	51,000	63,000
2032 (BN)	11,000	27,000	38,000
2033 (AN)	13,000	43,000	56,000
2034 (D)	14,000	35,000	49,000
2035 (W)	11,000	52,000	63,000
2036 (W)	11,000	45,000	56,000
2037 (W)	12,000	28,000	40,000
2038 (D)	14,000	24,000	38,000
2039 (W)	12,000	36,000	48,000
2040 (D)	14,000	20,000	34,000
2041 (C)	12,000	18,000	30,000
2042 (D)	13,000	21,000	34,000
2043 (C)	12,000	22,000	34,000
2044 (C)	12,000	25,000	37,000
2045 (C)	12,000	38,000	50,000
2046 (AN)	12,000	58,000	70,000
2047 (C)	12,000	22,000	34,000
2048 (W)	12,000	53,000	65,000
2049 (W)	12,000	43,000	55,000
2050 (W)	13,000	28,000	41,000
2051 (W)	11,000	48,000	59,000
2052 (W)	13,000	34,000	47,000
2053 (AN)	13,000	30,000	43,000
2054 (D)	14,000	21,000	35,000
2055 (D)	14,000	33,000	47,000
2056 (AN)	12,000	44,000	56,000
2057 (BN)	13,000	32,000	45,000
2058 (AN)	12,000	47,000	59,000
2059 (W)	11,000	42,000	53,000
2060 (D)	13,000	12,000	25,000
2061 (C)	12,000	27,000	39,000
2062 (D)	12,000	29,000	41,000
2063 (BN)	12,000	49,000	61,000

Bowman Subbasin Projected (Current Land Use) Infiltration of Surface Water (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Waterhseds	Total
2064 (W)		11,000	51,000	62,000
2065 (BN)		11,000	27,000	38,000
2066 (D)		13,000	26,000	39,000
2067 (C)		10,000	20,000	30,000
2068 (C)		9,500	33,000	43,000
2069 (BN)		11,000	47,000	58,000
2070 (W)		10,000	57,000	67,000
2071 (BN)		12,000	20,000	32,000
2072 (W)		9,600	52,000	62,000
Average (2022-2072)		12,000	34,000	46,000
2022-2072	W	11,000	42,000	53,000
	AN	12,000	45,000	57,000
	BN	11,000	30,000	41,000
	D	13,000	25,000	38,000
	C	11,000	24,000	35,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)	Change in Root Zone Storage
2022 (W)	-3,400
2023 (W)	640
2024 (W)	1
2025 (BN)	-7,300
2026 (AN)	5,800
2027 (W)	-3,500
2028 (W)	-1,700
2029 (C)	-2,200
2030 (C)	12,000
2031 (AN)	-4,200
2032 (BN)	-6,400
2033 (AN)	10,000
2034 (D)	-10,000
2035 (W)	3,200
2036 (W)	7,300
2037 (W)	-2,300
2038 (D)	-8,200
2039 (W)	8,200
2040 (D)	-4,600
2041 (C)	540
2042 (D)	-510
2043 (C)	-2,200
2044 (C)	-14
2045 (C)	270
2046 (AN)	4,900
2047 (C)	-5,100
2048 (W)	4,500
2049 (W)	2,100
2050 (W)	-4,000
2051 (W)	6,400
2052 (W)	-8,900
2053 (AN)	8,800
2054 (D)	-6,700
2055 (D)	-3,700
2056 (AN)	4,700
2057 (BN)	-4,600
2058 (AN)	7,000
2059 (W)	-3,900
2060 (D)	430
2061 (C)	-4,400
2062 (D)	2,700
2063 (BN)	1,700

Bowman Subbasin Projected (Current Land Use) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)		Change in Root Zone Storage
2064 (W)		3,900
2065 (BN)		-7,300
2066 (D)		5,700
2067 (C)		4,900
2068 (C)		-8,000
2069 (BN)		-720
2070 (W)		1,700
2071 (BN)		-3,100
2072 (W)		6,700
Average (2022-2072)		-69
2022-2072	W	940
	AN	5,300
	BN	-3,900
	D	-2,800
	C	-460

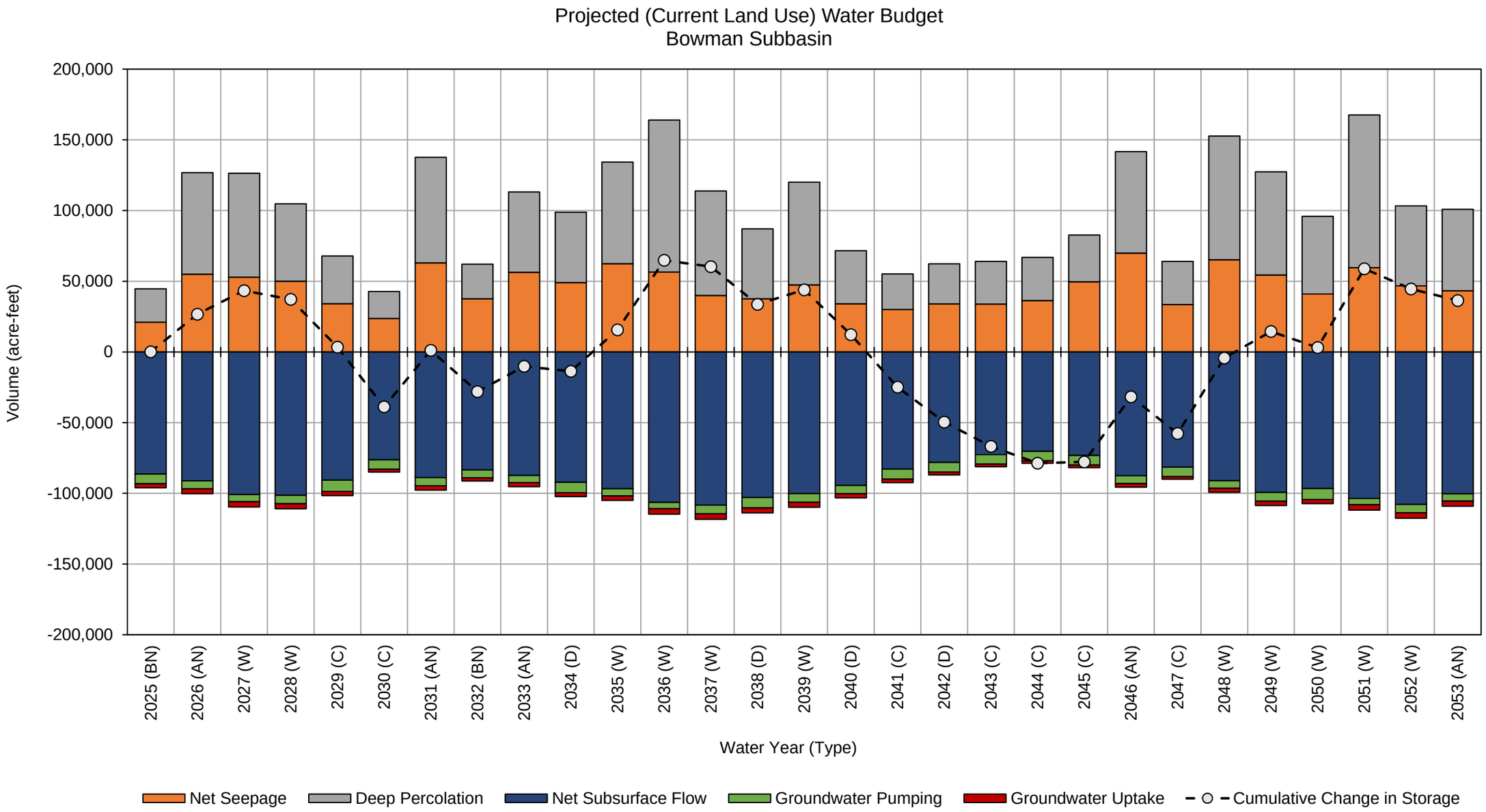
Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX B-2b

Detailed Bowman Subbasin Water Budget Results:

Projected (Current Land Use) Model Results – Groundwater System


Projected (Current Land Use) Water Budget
Bowman Subbasin
Volume (acre-feet)
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Bowman Subbasin Projected (Current Land Use) Water Budget Summary (acre-feet, rounded)

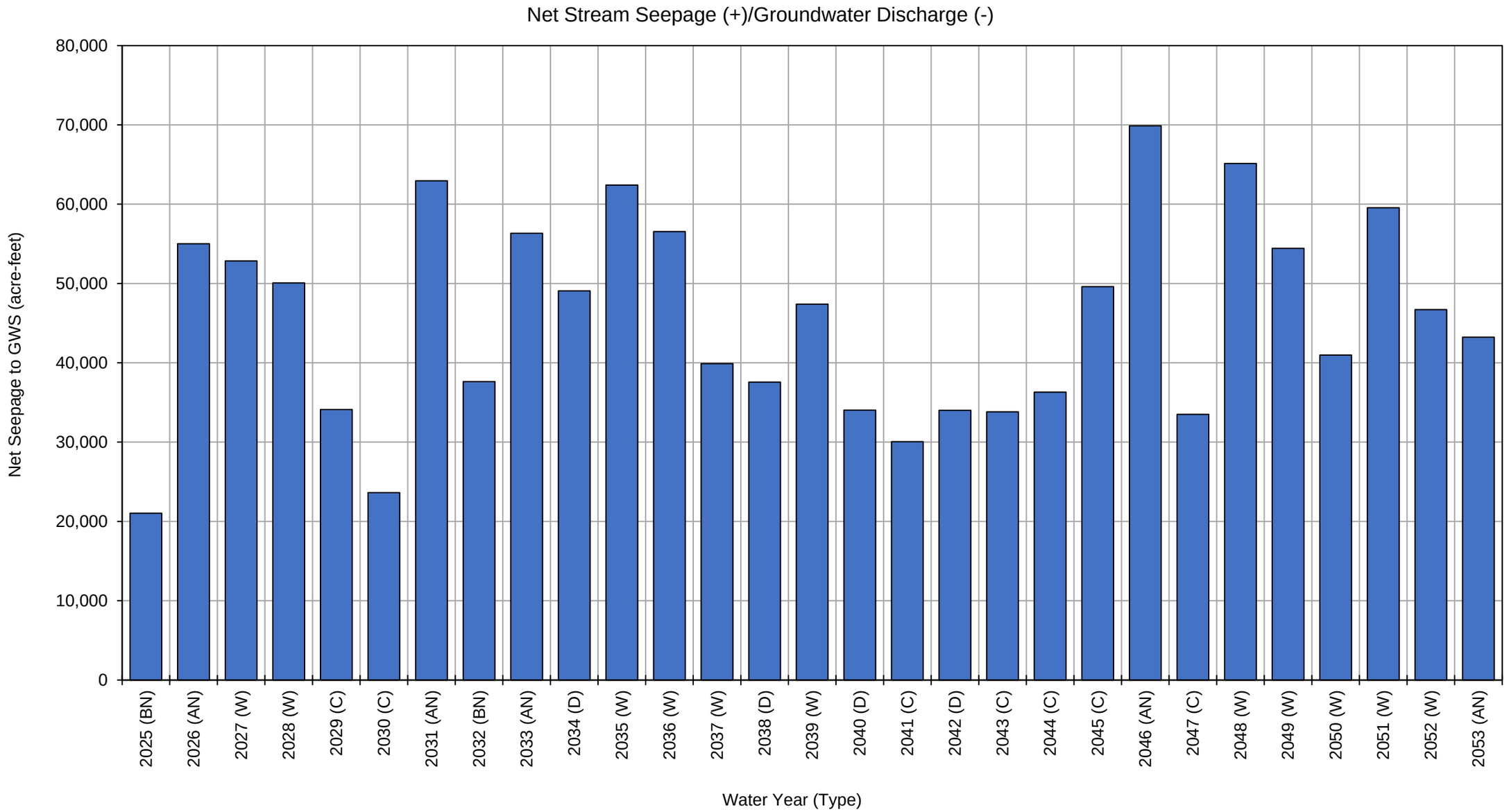
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	51,000	73,000	-6,400	-3,900	-85,000	29,000	29,000
2023 (W)	47,000	74,000	-6,300	-3,800	-95,000	15,000	44,000
2024 (W)	44,000	74,000	-6,500	-4,000	-100,000	7,400	52,000
2025 (BN)	21,000	24,000	-6,900	-2,900	-86,000	-51,000	100
2026 (AN)	55,000	72,000	-5,600	-3,500	-91,000	27,000	27,000
2027 (W)	53,000	74,000	-5,100	-3,800	-100,000	17,000	43,000
2028 (W)	50,000	55,000	-5,900	-3,700	-100,000	-6,200	37,000
2029 (C)	34,000	34,000	-8,000	-3,000	-91,000	-34,000	3,400
2030 (C)	24,000	19,000	-6,700	-2,000	-76,000	-42,000	-39,000
2031 (AN)	63,000	75,000	-5,800	-3,000	-89,000	40,000	1,100
2032 (BN)	38,000	24,000	-5,600	-2,200	-83,000	-29,000	-28,000
2033 (AN)	56,000	57,000	-5,100	-2,900	-87,000	18,000	-10,000
2034 (D)	49,000	50,000	-7,300	-2,800	-92,000	-3,500	-14,000
2035 (W)	62,000	72,000	-5,100	-3,200	-97,000	29,000	16,000
2036 (W)	57,000	110,000	-4,500	-3,900	-110,000	49,000	65,000
2037 (W)	40,000	74,000	-6,200	-3,900	-110,000	-4,500	60,000
2038 (D)	38,000	50,000	-7,400	-3,500	-100,000	-27,000	34,000
2039 (W)	47,000	73,000	-6,200	-3,500	-100,000	10,000	44,000
2040 (D)	34,000	38,000	-5,800	-3,000	-94,000	-32,000	12,000
2041 (C)	30,000	25,000	-7,100	-2,500	-83,000	-37,000	-25,000
2042 (D)	34,000	28,000	-6,800	-2,100	-78,000	-25,000	-50,000
2043 (C)	34,000	30,000	-6,700	-1,900	-73,000	-17,000	-67,000
2044 (C)	36,000	31,000	-6,700	-1,800	-70,000	-12,000	-79,000
2045 (C)	50,000	33,000	-6,800	-1,800	-73,000	910	-78,000
2046 (AN)	70,000	72,000	-5,600	-2,500	-88,000	46,000	-32,000
2047 (C)	34,000	31,000	-6,700	-1,900	-81,000	-26,000	-58,000
2048 (W)	65,000	88,000	-5,300	-2,900	-91,000	53,000	-4,300
2049 (W)	54,000	73,000	-6,200	-3,000	-99,000	19,000	15,000
2050 (W)	41,000	55,000	-7,800	-2,900	-97,000	-11,000	3,100
2051 (W)	60,000	110,000	-4,500	-3,800	-100,000	56,000	59,000
2052 (W)	47,000	57,000	-6,000	-3,800	-110,000	-14,000	45,000
2053 (AN)	43,000	58,000	-5,100	-3,600	-100,000	-8,200	36,000
2054 (D)	35,000	38,000	-5,900	-2,900	-93,000	-28,000	8,000
2055 (D)	47,000	48,000	-7,300	-3,000	-93,000	-8,600	-630
2056 (AN)	56,000	69,000	-5,100	-3,100	-96,000	21,000	20,000
2057 (BN)	45,000	60,000	-6,500	-3,300	-99,000	-3,100	17,000
2058 (AN)	59,000	64,000	-4,700	-3,200	-100,000	15,000	32,000
2059 (W)	53,000	73,000	-5,100	-3,600	-100,000	13,000	45,000
2060 (D)	25,000	28,000	-6,700	-2,700	-91,000	-47,000	-2,000
2061 (C)	40,000	34,000	-8,100	-2,500	-84,000	-20,000	-22,000
2062 (D)	42,000	27,000	-6,000	-2,100	-79,000	-18,000	-40,000
2063 (BN)	61,000	55,000	-5,200	-2,500	-86,000	22,000	-18,000
2064 (W)	62,000	58,000	-4,900	-2,900	-94,000	18,000	-18
2065 (BN)	38,000	25,000	-5,600	-2,100	-85,000	-30,000	-30,000

Bowman Subbasin Projected (Current Land Use) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		39,000	40,000	-7,900	-2,200	-82,000	-13,000	-43,000
2067 (C)		30,000	19,000	-7,100	-1,700	-70,000	-30,000	-73,000
2068 (C)		43,000	36,000	-8,600	-1,700	-73,000	-4,100	-77,000
2069 (BN)		58,000	51,000	-6,700	-2,100	-79,000	22,000	-56,000
2070 (W)		67,000	79,000	-5,300	-2,700	-94,000	45,000	-11,000
2071 (BN)		31,000	24,000	-6,900	-1,900	-82,000	-36,000	-46,000
2072 (W)		62,000	72,000	-6,100	-2,800	-88,000	36,000	-11,000
Average (2022-2072)		46,000	53,000	-6,200	-2,900	-90,000	-210	
2022-2072	W	53,000	74,000	-5,700	-3,500	-98,000		
	AN	57,000	67,000	-5,300	-3,100	-93,000		
	BN	42,000	38,000	-6,200	-2,400	-86,000		
	D	38,000	39,000	-6,800	-2,700	-89,000		
	C	35,000	29,000	-7,200	-2,100	-77,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Net Stream Seepage (net flows as acre-feet, rounded)

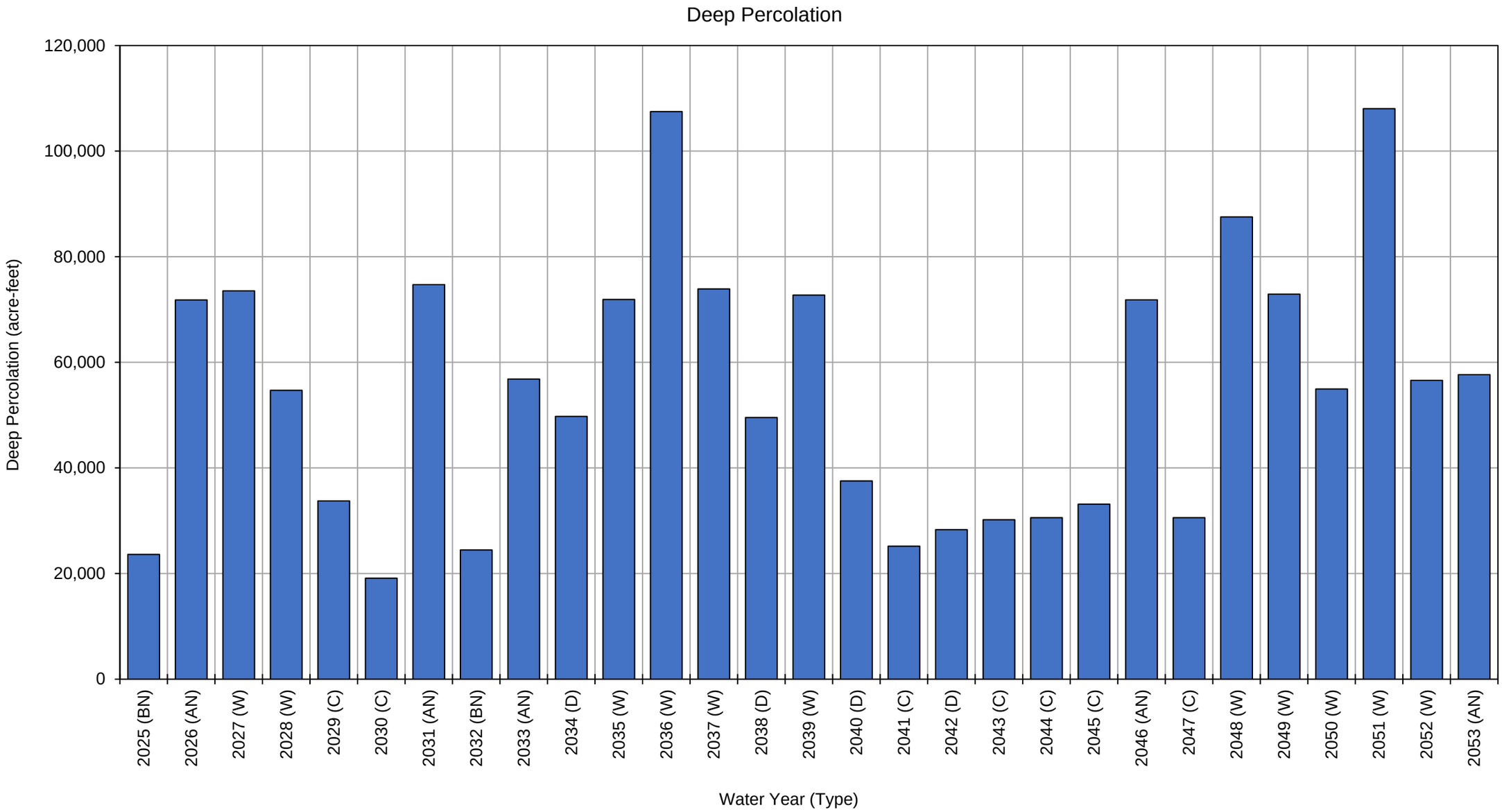
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	51,000
2023 (W)	47,000
2024 (W)	44,000
2025 (BN)	21,000
2026 (AN)	55,000
2027 (W)	53,000
2028 (W)	50,000
2029 (C)	34,000
2030 (C)	24,000
2031 (AN)	63,000
2032 (BN)	38,000
2033 (AN)	56,000
2034 (D)	49,000
2035 (W)	62,000
2036 (W)	57,000
2037 (W)	40,000
2038 (D)	38,000
2039 (W)	47,000
2040 (D)	34,000
2041 (C)	30,000
2042 (D)	34,000
2043 (C)	34,000
2044 (C)	36,000
2045 (C)	50,000
2046 (AN)	70,000
2047 (C)	34,000
2048 (W)	65,000
2049 (W)	54,000
2050 (W)	41,000
2051 (W)	60,000
2052 (W)	47,000
2053 (AN)	43,000
2054 (D)	35,000
2055 (D)	47,000
2056 (AN)	56,000
2057 (BN)	45,000
2058 (AN)	59,000
2059 (W)	53,000
2060 (D)	25,000
2061 (C)	40,000
2062 (D)	42,000
2063 (BN)	61,000
2064 (W)	62,000
2065 (BN)	38,000

Bowman Subbasin Projected (Current Land Use) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2066 (D)		39,000
2067 (C)		30,000
2068 (C)		43,000
2069 (BN)		58,000
2070 (W)		67,000
2071 (BN)		31,000
2072 (W)		62,000
Average (2022-2072)		46,000
2022-2072	W	53,000
	AN	57,000
	BN	42,000
	D	38,000
	C	35,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Deep Percolation from the SWS (acre-feet, rounded)

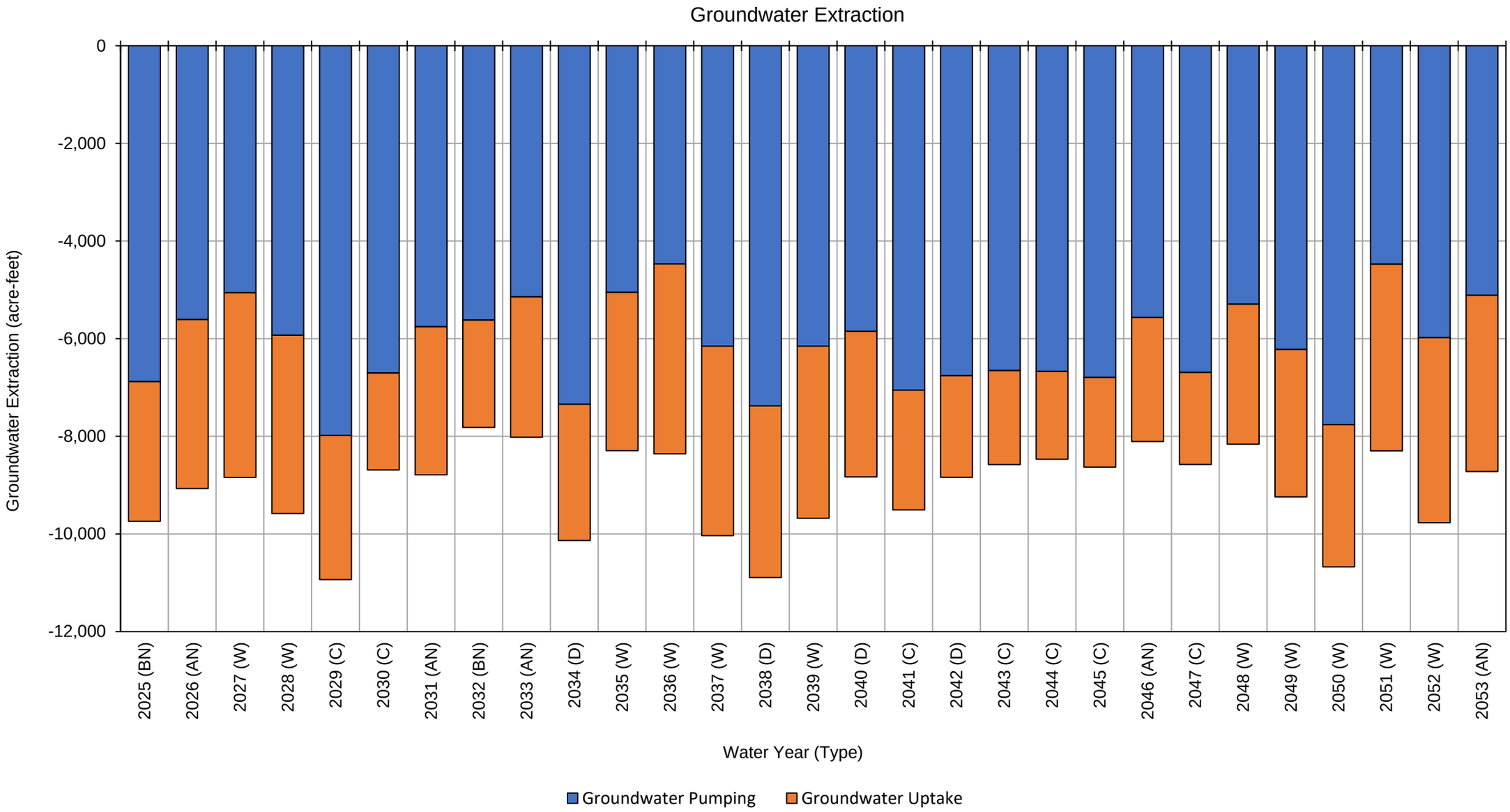
WY (Type)	Deep Percolation from the SWS
2022 (W)	73,000
2023 (W)	74,000
2024 (W)	74,000
2025 (BN)	24,000
2026 (AN)	72,000
2027 (W)	74,000
2028 (W)	55,000
2029 (C)	34,000
2030 (C)	19,000
2031 (AN)	75,000
2032 (BN)	24,000
2033 (AN)	57,000
2034 (D)	50,000
2035 (W)	72,000
2036 (W)	110,000
2037 (W)	74,000
2038 (D)	50,000
2039 (W)	73,000
2040 (D)	38,000
2041 (C)	25,000
2042 (D)	28,000
2043 (C)	30,000
2044 (C)	31,000
2045 (C)	33,000
2046 (AN)	72,000
2047 (C)	31,000
2048 (W)	88,000
2049 (W)	73,000
2050 (W)	55,000
2051 (W)	110,000
2052 (W)	57,000
2053 (AN)	58,000
2054 (D)	38,000
2055 (D)	48,000
2056 (AN)	69,000
2057 (BN)	60,000
2058 (AN)	64,000
2059 (W)	73,000
2060 (D)	28,000
2061 (C)	34,000
2062 (D)	27,000
2063 (BN)	55,000
2064 (W)	58,000
2065 (BN)	25,000

Bowman Subbasin Projected (Current Land Use) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2066 (D)		40,000
2067 (C)		19,000
2068 (C)		36,000
2069 (BN)		51,000
2070 (W)		79,000
2071 (BN)		24,000
2072 (W)		72,000
Average (2022-2072)		53,000
2022-2072	W	74,000
	AN	67,000
	BN	38,000
	D	39,000
	C	29,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Groundwater Extractions (acre-feet, rounded)

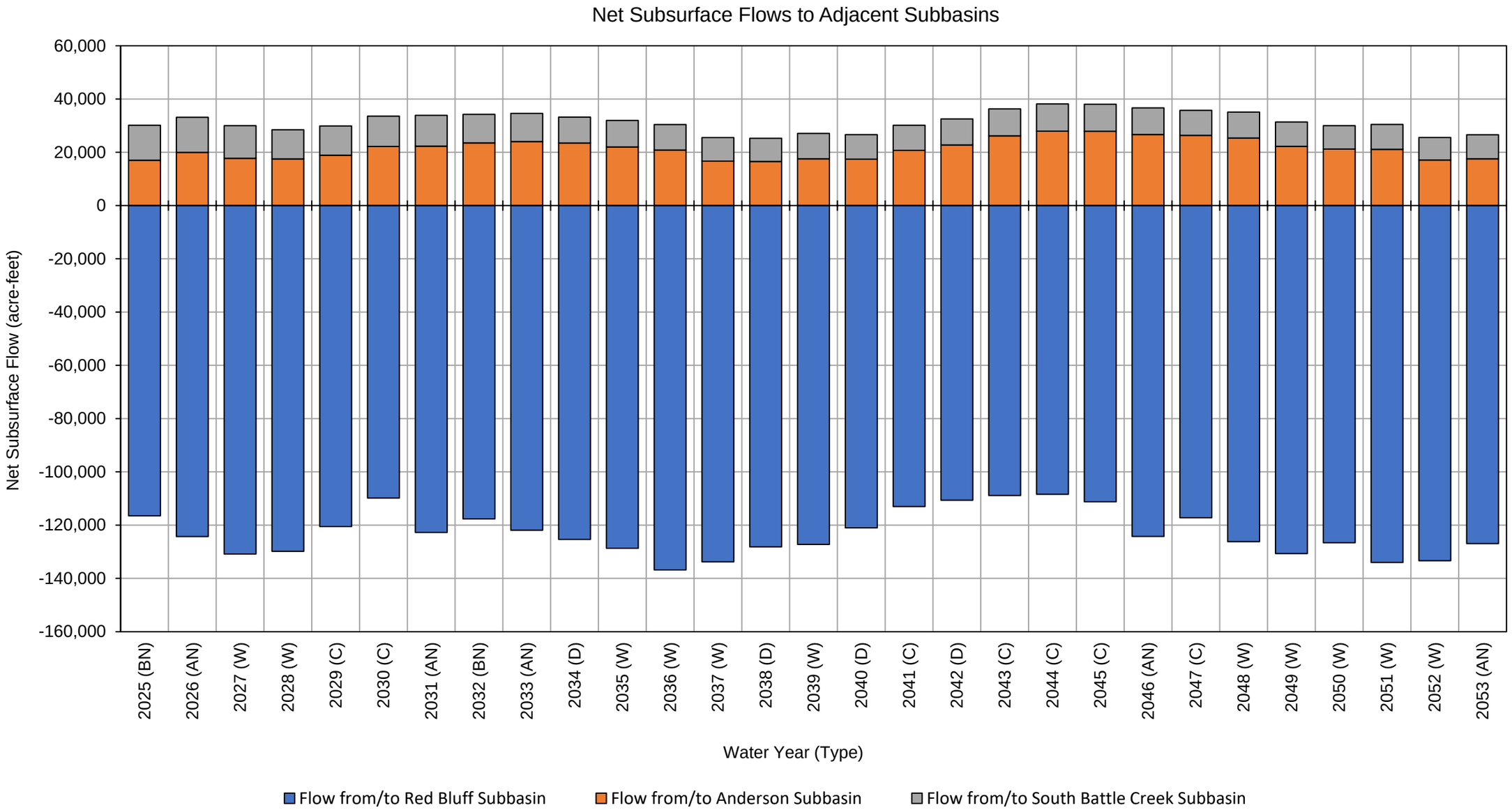
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-6,400	-3,900	-10,000
2023 (W)	-6,300	-3,800	-10,000
2024 (W)	-6,500	-4,000	-10,000
2025 (BN)	-6,900	-2,900	-9,700
2026 (AN)	-5,600	-3,500	-9,100
2027 (W)	-5,100	-3,800	-8,800
2028 (W)	-5,900	-3,700	-9,600
2029 (C)	-8,000	-3,000	-11,000
2030 (C)	-6,700	-2,000	-8,700
2031 (AN)	-5,800	-3,000	-8,800
2032 (BN)	-5,600	-2,200	-7,800
2033 (AN)	-5,100	-2,900	-8,000
2034 (D)	-7,300	-2,800	-10,000
2035 (W)	-5,100	-3,200	-8,300
2036 (W)	-4,500	-3,900	-8,400
2037 (W)	-6,200	-3,900	-10,000
2038 (D)	-7,400	-3,500	-11,000
2039 (W)	-6,200	-3,500	-9,700
2040 (D)	-5,800	-3,000	-8,800
2041 (C)	-7,100	-2,500	-9,500
2042 (D)	-6,800	-2,100	-8,800
2043 (C)	-6,700	-1,900	-8,600
2044 (C)	-6,700	-1,800	-8,500
2045 (C)	-6,800	-1,800	-8,600
2046 (AN)	-5,600	-2,500	-8,100
2047 (C)	-6,700	-1,900	-8,600
2048 (W)	-5,300	-2,900	-8,200
2049 (W)	-6,200	-3,000	-9,200
2050 (W)	-7,800	-2,900	-11,000
2051 (W)	-4,500	-3,800	-8,300
2052 (W)	-6,000	-3,800	-9,800
2053 (AN)	-5,100	-3,600	-8,700
2054 (D)	-5,900	-2,900	-8,900
2055 (D)	-7,300	-3,000	-10,000
2056 (AN)	-5,100	-3,100	-8,200
2057 (BN)	-6,500	-3,300	-9,800
2058 (AN)	-4,700	-3,200	-7,900
2059 (W)	-5,100	-3,600	-8,700
2060 (D)	-6,700	-2,700	-9,300
2061 (C)	-8,100	-2,500	-11,000
2062 (D)	-6,000	-2,100	-8,100
2063 (BN)	-5,200	-2,500	-7,700
2064 (W)	-4,900	-2,900	-7,800
2065 (BN)	-5,600	-2,100	-7,800

Bowman Subbasin Projected (Current Land Use) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2066 (D)		-7,900	-2,200	-10,000
2067 (C)		-7,100	-1,700	-8,800
2068 (C)		-8,600	-1,700	-10,000
2069 (BN)		-6,700	-2,100	-8,800
2070 (W)		-5,300	-2,700	-8,100
2071 (BN)		-6,900	-1,900	-8,700
2072 (W)		-6,100	-2,800	-8,900
Average (2022-2072)		-6,200	-2,900	-9,100
2022-2072	W	-5,700	-3,500	-9,200
	AN	-5,300	-3,100	-8,400
	BN	-6,200	-2,400	-8,600
	D	-6,800	-2,700	-9,500
	C	-7,200	-2,100	-9,300

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

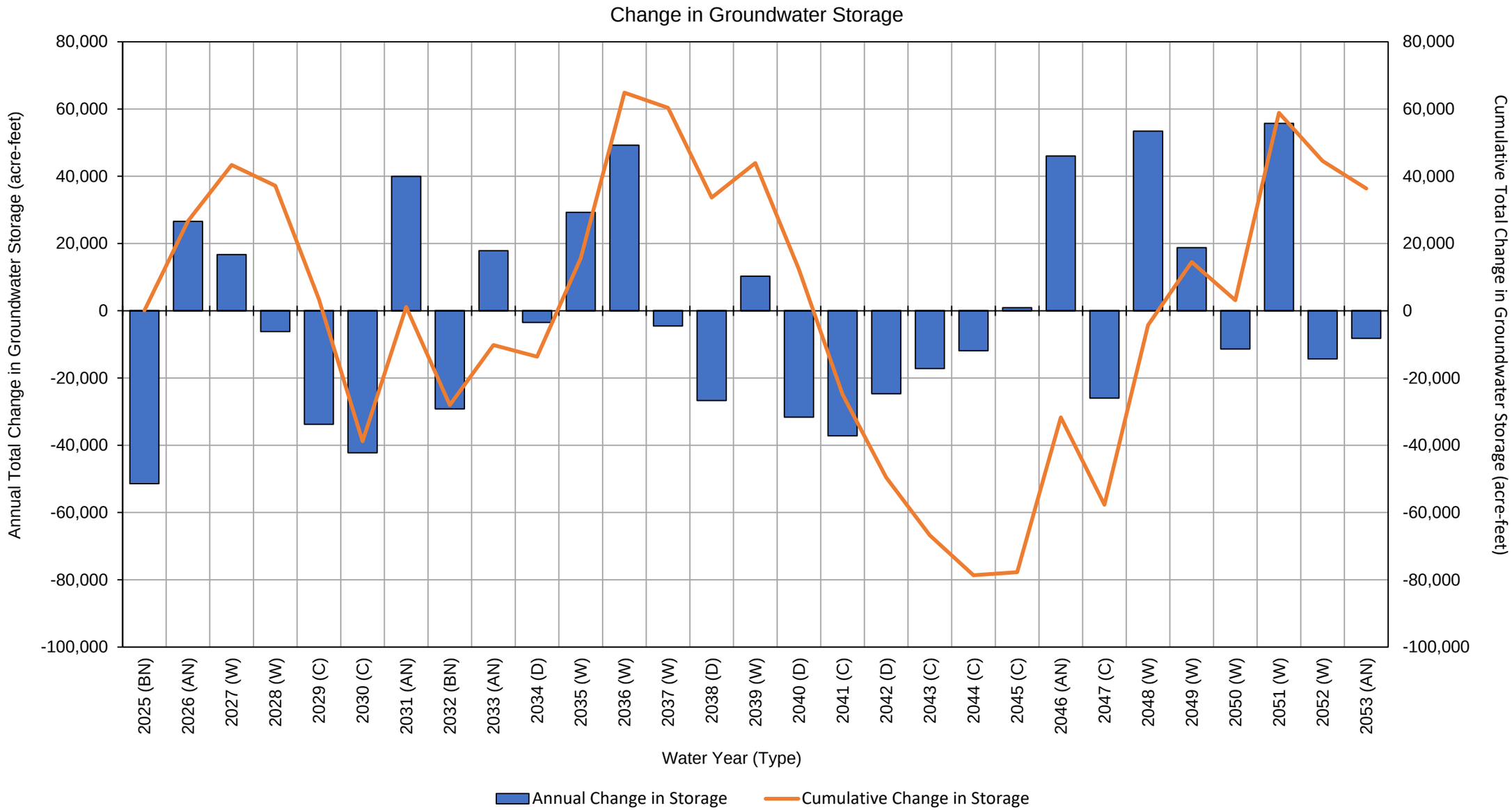
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Anderson Subbasin	Flow from/to South Battle Creek Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-120,000	20,000	17,000	-85,000
2023 (W)	-130,000	18,000	15,000	-95,000
2024 (W)	-130,000	16,000	14,000	-100,000
2025 (BN)	-120,000	17,000	13,000	-86,000
2026 (AN)	-120,000	20,000	13,000	-91,000
2027 (W)	-130,000	18,000	12,000	-100,000
2028 (W)	-130,000	17,000	11,000	-100,000
2029 (C)	-120,000	19,000	11,000	-91,000
2030 (C)	-110,000	22,000	11,000	-76,000
2031 (AN)	-120,000	22,000	12,000	-89,000
2032 (BN)	-120,000	24,000	11,000	-83,000
2033 (AN)	-120,000	24,000	11,000	-87,000
2034 (D)	-130,000	23,000	9,700	-92,000
2035 (W)	-130,000	22,000	9,900	-97,000
2036 (W)	-140,000	21,000	9,600	-110,000
2037 (W)	-130,000	17,000	8,800	-110,000
2038 (D)	-130,000	17,000	8,700	-100,000
2039 (W)	-130,000	18,000	9,500	-100,000
2040 (D)	-120,000	17,000	9,200	-94,000
2041 (C)	-110,000	21,000	9,400	-83,000
2042 (D)	-110,000	23,000	9,800	-78,000
2043 (C)	-110,000	26,000	10,000	-73,000
2044 (C)	-110,000	28,000	10,000	-70,000
2045 (C)	-110,000	28,000	10,000	-73,000
2046 (AN)	-120,000	27,000	10,000	-88,000
2047 (C)	-120,000	26,000	9,400	-81,000
2048 (W)	-130,000	25,000	9,700	-91,000
2049 (W)	-130,000	22,000	9,100	-99,000
2050 (W)	-130,000	21,000	8,800	-97,000
2051 (W)	-130,000	21,000	9,400	-100,000
2052 (W)	-130,000	17,000	8,500	-110,000
2053 (AN)	-130,000	18,000	9,000	-100,000
2054 (D)	-120,000	18,000	9,300	-93,000
2055 (D)	-120,000	20,000	9,300	-93,000
2056 (AN)	-130,000	20,000	9,600	-96,000
2057 (BN)	-130,000	19,000	9,200	-99,000
2058 (AN)	-130,000	19,000	9,100	-100,000
2059 (W)	-130,000	18,000	9,100	-100,000
2060 (D)	-120,000	18,000	8,800	-91,000
2061 (C)	-110,000	22,000	9,600	-84,000
2062 (D)	-110,000	24,000	9,800	-79,000
2063 (BN)	-120,000	25,000	9,800	-86,000
2064 (W)	-130,000	24,000	9,500	-94,000
2065 (BN)	-120,000	24,000	9,300	-85,000

Bowman Subbasin Projected (Current Land Use) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Anderson Subbasin	Flow from/to South Battle Creek Subbasin	Net Subsurface Flow from Adjacent Subbasins
2066 (D)		-120,000	26,000	9,500	-82,000
2067 (C)		-110,000	27,000	10,000	-70,000
2068 (C)		-110,000	29,000	10,000	-73,000
2069 (BN)		-120,000	28,000	11,000	-79,000
2070 (W)		-130,000	26,000	10,000	-94,000
2071 (BN)		-120,000	25,000	9,700	-82,000
2072 (W)		-120,000	25,000	10,000	-88,000
Average (2022-2072)		-120,000	22,000	10,000	-90,000
2022-2072	W	-130,000	20,000	11,000	-98,000
	AN	-120,000	21,000	10,000	-93,000
	BN	-120,000	23,000	10,000	-86,000
	D	-120,000	21,000	9,300	-89,000
	C	-110,000	25,000	10,000	-77,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Bowman Subbasin Projected (Current Land Use) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	29,000	29,000
2023 (W)	15,000	44,000
2024 (W)	7,400	52,000
2025 (BN)	-51,000	100
2026 (AN)	27,000	27,000
2027 (W)	17,000	43,000
2028 (W)	-6,200	37,000
2029 (C)	-34,000	3,400
2030 (C)	-42,000	-39,000
2031 (AN)	40,000	1,100
2032 (BN)	-29,000	-28,000
2033 (AN)	18,000	-10,000
2034 (D)	-3,500	-14,000
2035 (W)	29,000	16,000
2036 (W)	49,000	65,000
2037 (W)	-4,500	60,000
2038 (D)	-27,000	34,000
2039 (W)	10,000	44,000
2040 (D)	-32,000	12,000
2041 (C)	-37,000	-25,000
2042 (D)	-25,000	-50,000
2043 (C)	-17,000	-67,000
2044 (C)	-12,000	-79,000
2045 (C)	910	-78,000
2046 (AN)	46,000	-32,000
2047 (C)	-26,000	-58,000
2048 (W)	53,000	-4,300
2049 (W)	19,000	15,000
2050 (W)	-11,000	3,100
2051 (W)	56,000	59,000
2052 (W)	-14,000	45,000
2053 (AN)	-8,200	36,000
2054 (D)	-28,000	8,000
2055 (D)	-8,600	-630
2056 (AN)	21,000	20,000
2057 (BN)	-3,100	17,000
2058 (AN)	15,000	32,000
2059 (W)	13,000	45,000
2060 (D)	-47,000	-2,000
2061 (C)	-20,000	-22,000
2062 (D)	-18,000	-40,000
2063 (BN)	22,000	-18,000
2064 (W)	18,000	-18
2065 (BN)	-30,000	-30,000

Bowman Subbasin Projected (Current Land Use) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-13,000	-43,000
2067 (C)		-30,000	-73,000
2068 (C)		-4,100	-77,000
2069 (BN)		22,000	-56,000
2070 (W)		45,000	-11,000
2071 (BN)		-36,000	-46,000
2072 (W)		36,000	-11,000
Average (2022-2072)		-210	
2022-2072	W		
	AN		
	BN		
	D		
	C		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX B-3

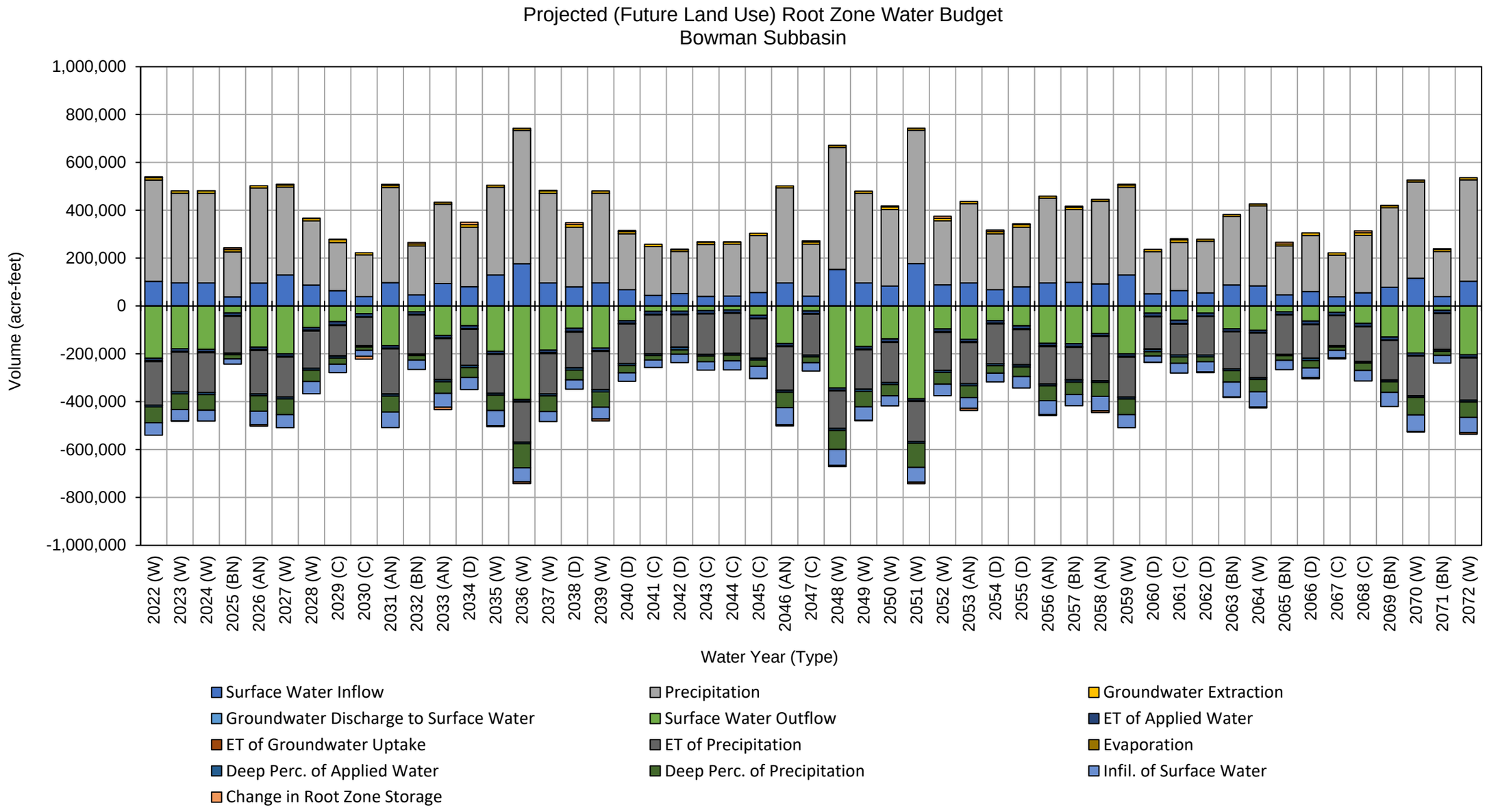
Detailed Bowman Subbasin Water Budget Results:

Projected (Future Land Use) Model Results

APPENDIX B-3a

Detailed Bowman Subbasin Water Budget Results:

Projected (Future Land Use) Model Results– Surface Water System


Projected (Future Land Use) Root Zone Water Budget
Bowman Subbasin
Volume (acre-feet)
1,000,000
800,000
600,000
400,000
200,000
0
-200,000
-400,000
-600,000
-800,000
-1,000,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Surface Water Inflow
Precipitation
Groundwater Extraction
Groundwater Discharge to Surface Water
Surface Water Outflow
ET of Applied Water
ET of Groundwater Uptake
ET of Precipitation
Evaporation
Deep Perc. of Applied Water
Deep Perc. of Precipitation
Infil. of Surface Water
Change in Root Zone Storage

Bowman Subbasin Projected (Future Land Use) Root Zone Water Budget Summary (acre-feet, rounded)

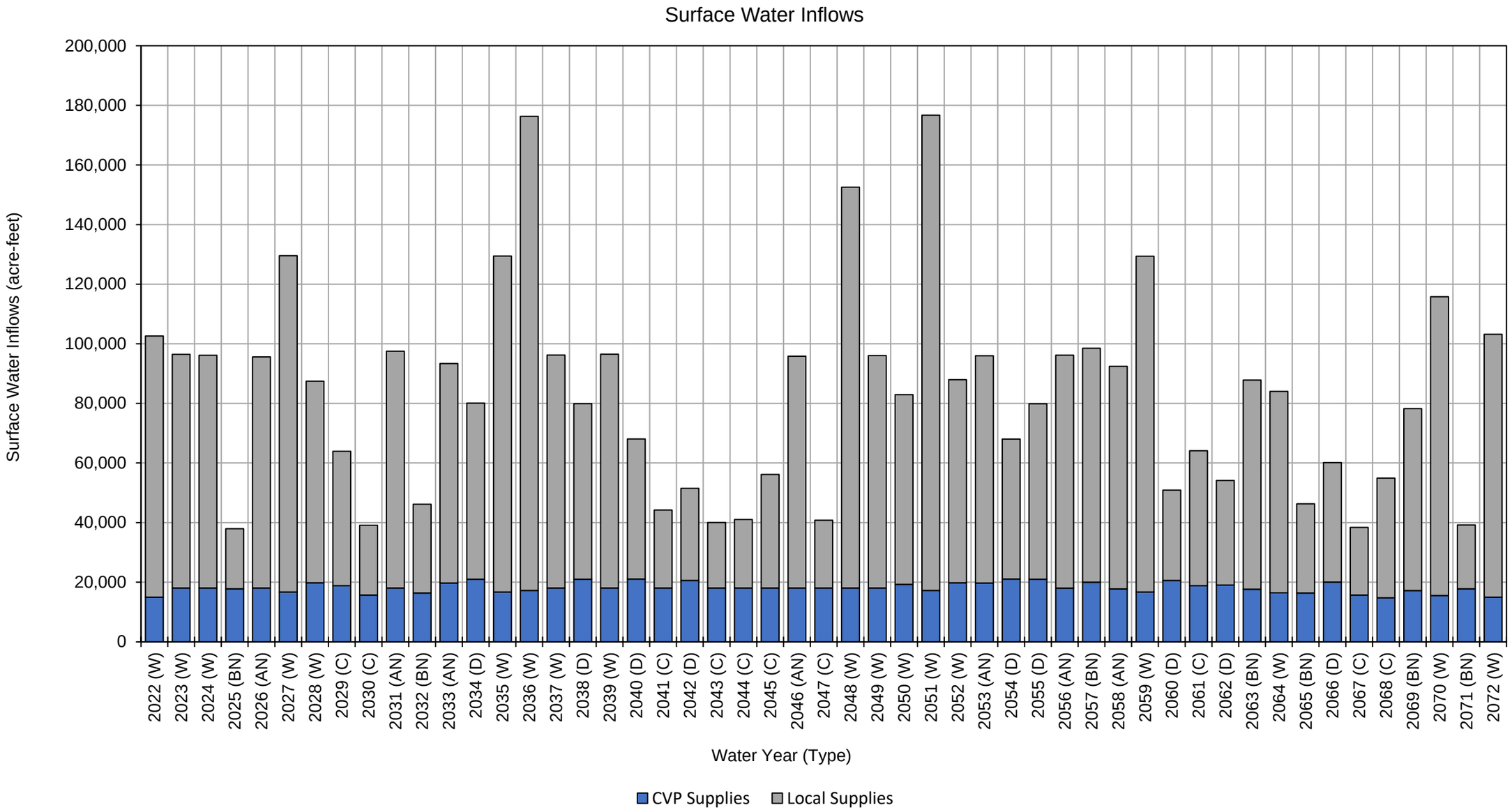
WY (Type)	Inflows				Outflows								Change in Root Zone Storage
	Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2022 (W)	100,000	420,000	10,000	0	220,000	10,000	3,800	180,000	740	6,600	66,000	52,000	-3,400
2023 (W)	96,000	370,000	10,000	0	180,000	10,000	3,800	170,000	820	8,300	65,000	48,000	640
2024 (W)	96,000	370,000	11,000	0	180,000	10,000	3,900	170,000	820	8,300	65,000	45,000	0
2025 (BN)	38,000	190,000	9,900	0	29,000	12,000	2,800	150,000	810	5,800	18,000	22,000	-7,300
2026 (AN)	96,000	400,000	9,200	0	170,000	10,000	3,400	180,000	860	7,000	65,000	56,000	5,800
2027 (W)	130,000	370,000	9,000	0	200,000	9,800	3,700	170,000	790	7,600	66,000	54,000	-3,500
2028 (W)	87,000	270,000	9,700	0	91,000	11,000	3,600	160,000	950	7,700	47,000	51,000	-1,700
2029 (C)	64,000	200,000	11,000	0	66,000	13,000	2,900	130,000	1,000	7,800	26,000	35,000	-2,200
2030 (C)	39,000	170,000	8,800	0	33,000	13,000	1,900	120,000	850	5,200	14,000	25,000	12,000
2031 (AN)	98,000	400,000	8,900	0	170,000	9,900	2,900	190,000	850	7,800	67,000	65,000	-4,200
2032 (BN)	46,000	200,000	8,000	0	24,000	11,000	2,100	160,000	830	5,200	19,000	39,000	-6,400
2033 (AN)	93,000	330,000	8,100	0	120,000	10,000	2,800	170,000	860	8,000	49,000	58,000	9,900
2034 (D)	80,000	250,000	10,000	0	83,000	12,000	2,700	150,000	960	8,200	41,000	51,000	-10,000
2035 (W)	130,000	370,000	8,400	0	190,000	10,000	3,200	160,000	790	7,500	64,000	64,000	3,200
2036 (W)	180,000	560,000	8,500	0	390,000	7,200	3,800	170,000	660	6,400	100,000	59,000	7,300
2037 (W)	96,000	370,000	10,000	0	190,000	10,000	3,800	170,000	820	8,300	65,000	42,000	-2,300
2038 (D)	80,000	250,000	11,000	0	94,000	12,000	3,400	150,000	970	8,500	41,000	39,000	-8,200
2039 (W)	97,000	370,000	9,700	0	180,000	11,000	3,400	160,000	820	8,500	64,000	49,000	8,200
2040 (D)	68,000	230,000	8,900	0	62,000	11,000	2,900	170,000	900	7,400	30,000	35,000	-4,600
2041 (C)	44,000	200,000	9,600	0	23,000	12,000	2,400	160,000	920	6,400	19,000	31,000	540
2042 (D)	52,000	180,000	9,000	0	22,000	13,000	2,000	140,000	950	11,000	18,000	35,000	-500
2043 (C)	40,000	220,000	8,800	0	20,000	12,000	1,900	170,000	840	6,300	24,000	35,000	-2,200
2044 (C)	41,000	220,000	8,700	0	17,000	12,000	1,800	170,000	840	6,700	24,000	37,000	-15
2045 (C)	56,000	240,000	8,800	0	39,000	13,000	1,800	170,000	870	6,700	26,000	51,000	260
2046 (AN)	96,000	400,000	8,300	0	160,000	10,000	2,500	180,000	860	7,200	64,000	72,000	4,900
2047 (C)	41,000	220,000	8,800	0	21,000	12,000	1,800	170,000	840	6,100	24,000	35,000	-5,100
2048 (W)	150,000	510,000	8,300	0	340,000	9,500	2,800	160,000	760	8,100	79,000	67,000	4,500
2049 (W)	96,000	370,000	9,400	0	170,000	11,000	2,900	160,000	800	8,200	64,000	56,000	2,100
2050 (W)	83,000	320,000	11,000	0	140,000	12,000	2,800	170,000	930	8,100	47,000	42,000	-4,000
2051 (W)	180,000	560,000	8,400	0	390,000	7,300	3,700	170,000	660	6,600	100,000	62,000	6,400
2052 (W)	88,000	270,000	9,900	0	96,000	11,000	3,700	160,000	950	7,800	49,000	48,000	-8,900
2053 (AN)	96,000	330,000	8,800	0	140,000	10,000	3,500	170,000	870	8,300	49,000	45,000	8,800
2054 (D)	68,000	230,000	9,000	0	62,000	11,000	2,800	170,000	900	7,200	31,000	36,000	-6,800
2055 (D)	80,000	250,000	10,000	0	83,000	13,000	2,900	150,000	960	8,400	40,000	48,000	-3,600
2056 (AN)	96,000	350,000	8,300	0	160,000	10,000	3,000	160,000	820	7,400	62,000	58,000	4,700
2057 (BN)	98,000	300,000	9,900	0	160,000	12,000	3,200	140,000	970	8,800	51,000	47,000	-4,600
2058 (AN)	92,000	340,000	8,000	0	120,000	9,000	3,100	190,000	770	5,700	58,000	61,000	7,000
2059 (W)	130,000	370,000	8,800	0	200,000	9,900	3,500	170,000	800	7,400	65,000	54,000	-3,900
2060 (D)	51,000	180,000	9,500	0	30,000	13,000	2,600	130,000	960	10,000	18,000	27,000	420
2061 (C)	64,000	200,000	11,000	0	60,000	14,000	2,500	130,000	1,000	8,000	26,000	41,000	-4,400
2062 (D)	54,000	220,000	8,300	0	30,000	12,000	2,100	160,000	950	7,100	20,000	43,000	2,700
2063 (BN)	88,000	290,000	7,800	0	96,000	9,800	2,400	150,000	860	6,700	48,000	62,000	1,800
2064 (W)	84,000	330,000	7,900	0	100,000	9,100	2,800	190,000	750	5,900	52,000	64,000	3,900
2065 (BN)	46,000	200,000	7,900	0	24,000	11,000	2,100	160,000	830	5,300	19,000	39,000	-7,300

Bowman Subbasin Projected (Future Land Use) Root Zone Water Budget Summary (acre-feet, rounded)

WY (Type)		Inflows				Outflows								Change in Root Zone Storage
		Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2066 (D)		60,000	230,000	10,000	0	63,000	13,000	2,200	140,000	970	9,600	30,000	40,000	5,700
2067 (C)		38,000	170,000	9,000	0	27,000	12,000	1,700	130,000	840	4,900	14,000	31,000	4,900
2068 (C)		55,000	240,000	10,000	0	73,000	12,000	1,700	150,000	780	5,700	31,000	44,000	-8,000
2069 (BN)		78,000	330,000	9,000	0	130,000	12,000	2,100	170,000	850	6,800	44,000	59,000	-730
2070 (W)		120,000	400,000	8,200	0	200,000	9,800	2,600	170,000	760	5,800	73,000	69,000	1,700
2071 (BN)		39,000	190,000	8,900	0	18,000	12,000	1,800	150,000	800	6,400	17,000	32,000	-3,100
2072 (W)		100,000	420,000	9,000	0	200,000	10,000	2,700	180,000	740	7,000	64,000	63,000	6,600
Average (2022-2072)		83,000	300,000	9,200	0	120,000	11,000	2,800	160,000	850	7,300	46,000	47,000	-70
2022-2072	W	110,000	390,000	9,300	0	200,000	9,900	3,400	170,000	800	7,500	67,000	55,000	930
	AN	95,000	370,000	8,500	0	150,000	10,000	3,000	180,000	840	7,300	59,000	59,000	5,300
	BN	62,000	240,000	8,800	0	69,000	11,000	2,300	160,000	850	6,400	31,000	43,000	-3,900
	D	66,000	220,000	9,600	0	59,000	12,000	2,600	150,000	950	8,600	30,000	39,000	-2,800
	C	48,000	210,000	9,500	0	38,000	12,000	2,000	150,000	880	6,400	23,000	36,000	-460

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

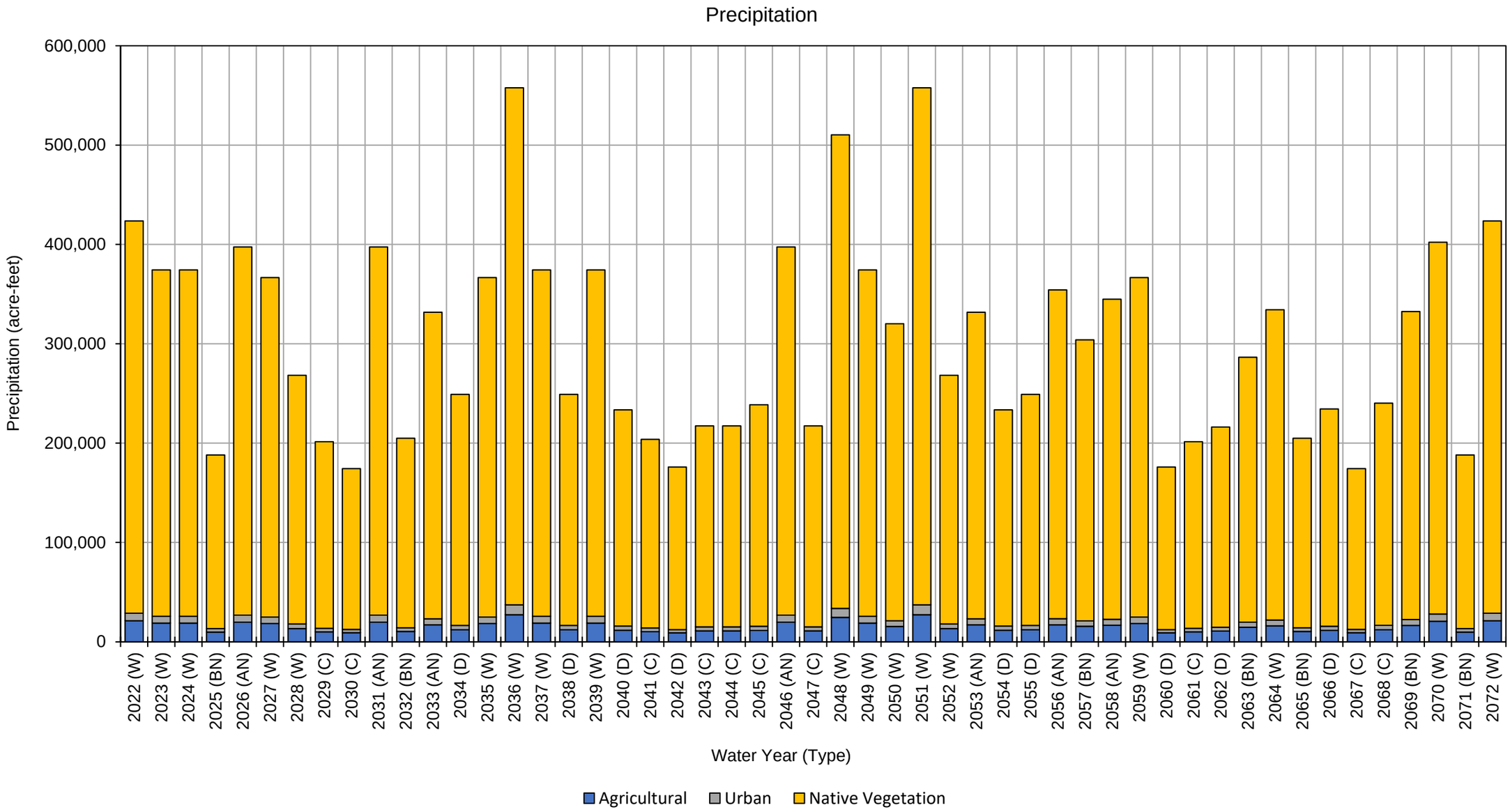
WY (Type)	CVP Supplies	Local Supplies	Total
2022 (W)	15,000	88,000	100,000
2023 (W)	18,000	78,000	96,000
2024 (W)	18,000	78,000	96,000
2025 (BN)	18,000	20,000	38,000
2026 (AN)	18,000	78,000	96,000
2027 (W)	17,000	110,000	130,000
2028 (W)	20,000	68,000	88,000
2029 (C)	19,000	45,000	64,000
2030 (C)	16,000	23,000	39,000
2031 (AN)	18,000	79,000	97,000
2032 (BN)	16,000	30,000	46,000
2033 (AN)	20,000	74,000	94,000
2034 (D)	21,000	59,000	80,000
2035 (W)	17,000	110,000	130,000
2036 (W)	17,000	160,000	180,000
2037 (W)	18,000	78,000	96,000
2038 (D)	21,000	59,000	80,000
2039 (W)	18,000	78,000	96,000
2040 (D)	21,000	47,000	68,000
2041 (C)	18,000	26,000	44,000
2042 (D)	21,000	31,000	52,000
2043 (C)	18,000	22,000	40,000
2044 (C)	18,000	23,000	41,000
2045 (C)	18,000	38,000	56,000
2046 (AN)	18,000	78,000	96,000
2047 (C)	18,000	23,000	41,000
2048 (W)	18,000	130,000	150,000
2049 (W)	18,000	78,000	96,000
2050 (W)	19,000	64,000	83,000
2051 (W)	17,000	160,000	180,000
2052 (W)	20,000	68,000	88,000
2053 (AN)	20,000	76,000	96,000
2054 (D)	21,000	47,000	68,000
2055 (D)	21,000	59,000	80,000
2056 (AN)	18,000	78,000	96,000
2057 (BN)	20,000	78,000	98,000
2058 (AN)	18,000	75,000	93,000
2059 (W)	17,000	110,000	130,000
2060 (D)	21,000	30,000	51,000
2061 (C)	19,000	45,000	64,000
2062 (D)	19,000	35,000	54,000
2063 (BN)	18,000	70,000	88,000

Bowman Subbasin Projected (Future Land Use) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Total
2064 (W)		16,000	68,000	84,000
2065 (BN)		16,000	30,000	46,000
2066 (D)		20,000	40,000	60,000
2067 (C)		16,000	23,000	39,000
2068 (C)		15,000	40,000	55,000
2069 (BN)		17,000	61,000	78,000
2070 (W)		16,000	100,000	120,000
2071 (BN)		18,000	21,000	39,000
2072 (W)		15,000	88,000	100,000
Average (2022-2072)		18,000	65,000	83,000
2022-2072	W	17,000	96,000	110,000
	AN	18,000	77,000	95,000
	BN	18,000	44,000	62,000
	D	21,000	45,000	66,000
	C	17,000	31,000	48,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Precipitation, by Water Use Sector (acre-feet, rounded)

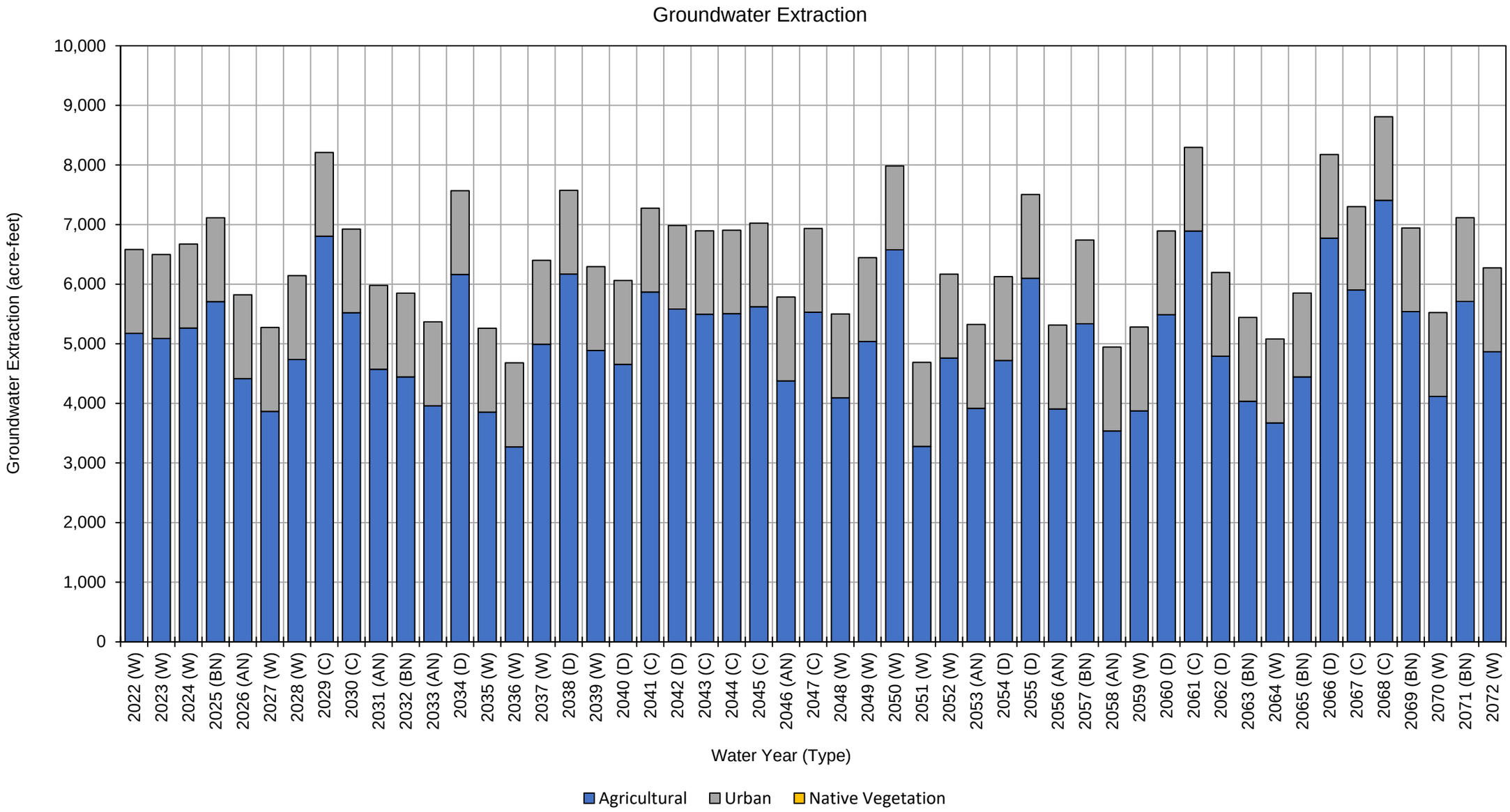
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	21,000	7,600	390,000	420,000
2023 (W)	19,000	6,800	350,000	380,000
2024 (W)	19,000	6,800	350,000	380,000
2025 (BN)	9,800	3,500	170,000	180,000
2026 (AN)	20,000	7,100	370,000	400,000
2027 (W)	18,000	6,500	340,000	360,000
2028 (W)	13,000	4,800	250,000	270,000
2029 (C)	10,000	3,600	190,000	200,000
2030 (C)	9,200	3,300	160,000	170,000
2031 (AN)	20,000	7,100	370,000	400,000
2032 (BN)	10,000	3,700	190,000	200,000
2033 (AN)	17,000	6,100	310,000	330,000
2034 (D)	12,000	4,400	230,000	250,000
2035 (W)	18,000	6,500	340,000	360,000
2036 (W)	27,000	9,900	520,000	560,000
2037 (W)	19,000	6,800	350,000	380,000
2038 (D)	12,000	4,400	230,000	250,000
2039 (W)	19,000	6,800	350,000	380,000
2040 (D)	12,000	4,200	220,000	240,000
2041 (C)	10,000	3,700	190,000	200,000
2042 (D)	9,100	3,200	160,000	170,000
2043 (C)	11,000	4,000	200,000	220,000
2044 (C)	11,000	4,000	200,000	220,000
2045 (C)	11,000	4,200	220,000	240,000
2046 (AN)	20,000	7,100	370,000	400,000
2047 (C)	11,000	4,000	200,000	220,000
2048 (W)	25,000	9,000	480,000	510,000
2049 (W)	19,000	6,800	350,000	380,000
2050 (W)	15,000	5,700	300,000	320,000
2051 (W)	27,000	9,900	520,000	560,000
2052 (W)	13,000	4,800	250,000	270,000
2053 (AN)	17,000	6,100	310,000	330,000
2054 (D)	12,000	4,200	220,000	240,000
2055 (D)	12,000	4,400	230,000	250,000
2056 (AN)	17,000	6,200	330,000	350,000
2057 (BN)	16,000	5,500	280,000	300,000
2058 (AN)	17,000	6,000	320,000	340,000
2059 (W)	18,000	6,500	340,000	360,000
2060 (D)	9,100	3,200	160,000	170,000
2061 (C)	10,000	3,600	190,000	200,000
2062 (D)	11,000	3,800	200,000	210,000
2063 (BN)	15,000	5,100	270,000	290,000

Bowman Subbasin Projected (Future Land Use) Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		16,000	5,800	310,000	330,000
2065 (BN)		10,000	3,700	190,000	200,000
2066 (D)		11,000	4,200	220,000	240,000
2067 (C)		9,200	3,300	160,000	170,000
2068 (C)		12,000	4,400	220,000	240,000
2069 (BN)		16,000	5,900	310,000	330,000
2070 (W)		21,000	7,400	370,000	400,000
2071 (BN)		9,800	3,500	170,000	180,000
2072 (W)		21,000	7,600	390,000	420,000
Average (2022-2072)		15,000	5,400	280,000	300,000
2022-2072	W	19,000	7,000	360,000	390,000
	AN	18,000	6,500	340,000	360,000
	BN	12,000	4,400	230,000	250,000
	D	11,000	4,000	210,000	230,000
	C	11,000	3,800	190,000	200,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

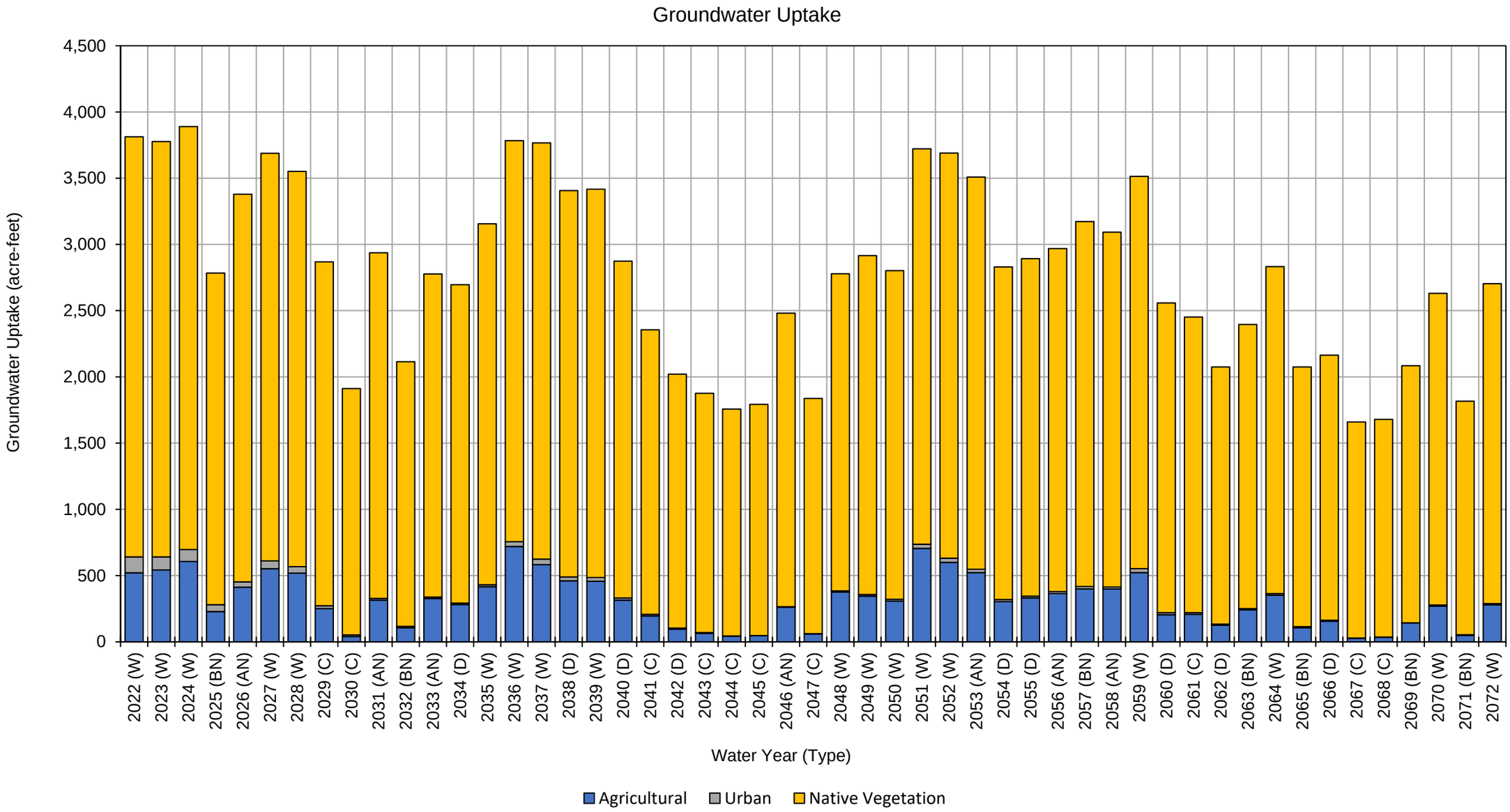
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	5,200	1,400	0	6,600
2023 (W)	5,100	1,400	0	6,500
2024 (W)	5,300	1,400	0	6,700
2025 (BN)	5,700	1,400	0	7,100
2026 (AN)	4,400	1,400	0	5,800
2027 (W)	3,900	1,400	0	5,300
2028 (W)	4,700	1,400	0	6,100
2029 (C)	6,800	1,400	0	8,200
2030 (C)	5,500	1,400	0	6,900
2031 (AN)	4,600	1,400	0	6,000
2032 (BN)	4,400	1,400	0	5,800
2033 (AN)	4,000	1,400	0	5,400
2034 (D)	6,200	1,400	0	7,600
2035 (W)	3,900	1,400	0	5,300
2036 (W)	3,300	1,400	0	4,700
2037 (W)	5,000	1,400	0	6,400
2038 (D)	6,200	1,400	0	7,600
2039 (W)	4,900	1,400	0	6,300
2040 (D)	4,700	1,400	0	6,100
2041 (C)	5,900	1,400	0	7,300
2042 (D)	5,600	1,400	0	7,000
2043 (C)	5,500	1,400	0	6,900
2044 (C)	5,500	1,400	0	6,900
2045 (C)	5,600	1,400	0	7,000
2046 (AN)	4,400	1,400	0	5,800
2047 (C)	5,500	1,400	0	6,900
2048 (W)	4,100	1,400	0	5,500
2049 (W)	5,000	1,400	0	6,400
2050 (W)	6,600	1,400	0	8,000
2051 (W)	3,300	1,400	0	4,700
2052 (W)	4,800	1,400	0	6,200
2053 (AN)	3,900	1,400	0	5,300
2054 (D)	4,700	1,400	0	6,100
2055 (D)	6,100	1,400	0	7,500
2056 (AN)	3,900	1,400	0	5,300
2057 (BN)	5,300	1,400	0	6,700
2058 (AN)	3,500	1,400	0	4,900
2059 (W)	3,900	1,400	0	5,300
2060 (D)	5,500	1,400	0	6,900
2061 (C)	6,900	1,400	0	8,300
2062 (D)	4,800	1,400	0	6,200
2063 (BN)	4,000	1,400	0	5,400

Bowman Subbasin Projected (Future Land Use) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		3,700	1,400	0	5,100
2065 (BN)		4,400	1,400	0	5,800
2066 (D)		6,800	1,400	0	8,200
2067 (C)		5,900	1,400	0	7,300
2068 (C)		7,400	1,400	0	8,800
2069 (BN)		5,500	1,400	0	6,900
2070 (W)		4,100	1,400	0	5,500
2071 (BN)		5,700	1,400	0	7,100
2072 (W)		4,900	1,400	0	6,300
Average (2022-2072)		5,000	1,400	0	6,400
2022-2072	W	4,500	1,400	0	5,900
	AN	4,100	1,400	0	5,500
	BN	5,000	1,400	0	6,400
	D	5,600	1,400	0	7,000
	C	6,100	1,400	0	7,500

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

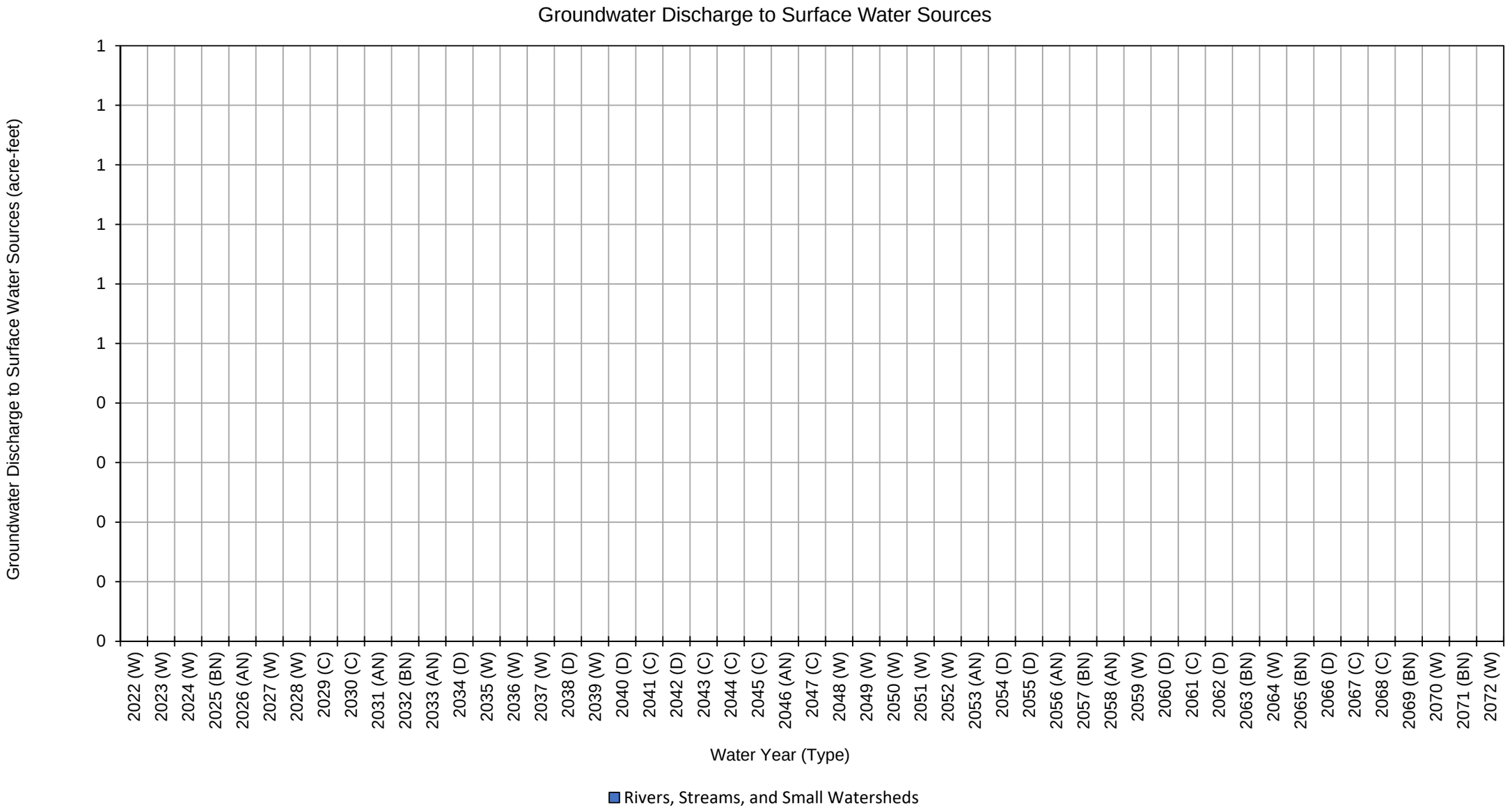
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	520	120	3,200	3,800
2023 (W)	540	99	3,100	3,700
2024 (W)	610	90	3,200	3,900
2025 (BN)	230	52	2,500	2,800
2026 (AN)	410	40	2,900	3,400
2027 (W)	550	59	3,100	3,700
2028 (W)	520	48	3,000	3,600
2029 (C)	250	22	2,600	2,900
2030 (C)	40	12	1,900	2,000
2031 (AN)	310	13	2,600	2,900
2032 (BN)	100	11	2,000	2,100
2033 (AN)	330	11	2,400	2,700
2034 (D)	280	11	2,400	2,700
2035 (W)	420	15	2,700	3,100
2036 (W)	720	37	3,000	3,800
2037 (W)	580	41	3,100	3,700
2038 (D)	460	29	2,900	3,400
2039 (W)	460	28	2,900	3,400
2040 (D)	310	17	2,500	2,800
2041 (C)	190	13	2,100	2,300
2042 (D)	94	9	1,900	2,000
2043 (C)	64	5	1,800	1,900
2044 (C)	41	2	1,700	1,700
2045 (C)	47	0	1,700	1,700
2046 (AN)	260	3	2,200	2,500
2047 (C)	59	2	1,800	1,900
2048 (W)	380	8	2,400	2,800
2049 (W)	340	12	2,600	3,000
2050 (W)	310	13	2,500	2,800
2051 (W)	710	32	3,000	3,700
2052 (W)	600	32	3,100	3,700
2053 (AN)	520	26	3,000	3,500
2054 (D)	300	16	2,500	2,800
2055 (D)	330	14	2,500	2,800
2056 (AN)	360	15	2,600	3,000
2057 (BN)	400	18	2,800	3,200
2058 (AN)	400	16	2,700	3,100
2059 (W)	520	30	3,000	3,600
2060 (D)	200	16	2,300	2,500
2061 (C)	210	13	2,200	2,400
2062 (D)	130	8	1,900	2,000
2063 (BN)	240	8	2,100	2,300

Bowman Subbasin Projected (Future Land Use) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		350	11	2,500	2,900
2065 (BN)		110	9	2,000	2,100
2066 (D)		160	7	2,000	2,200
2067 (C)		26	2	1,600	1,600
2068 (C)		34	1	1,600	1,600
2069 (BN)		140	1	1,900	2,000
2070 (W)		270	9	2,400	2,700
2071 (BN)		48	6	1,800	1,900
2072 (W)		280	9	2,400	2,700
Average (2022-2072)		310	22	2,400	2,700
2022-2072	W	480	39	2,800	3,300
	AN	370	18	2,600	3,000
	BN	180	15	2,200	2,400
	D	250	14	2,300	2,600
	C	96	7	1,900	2,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

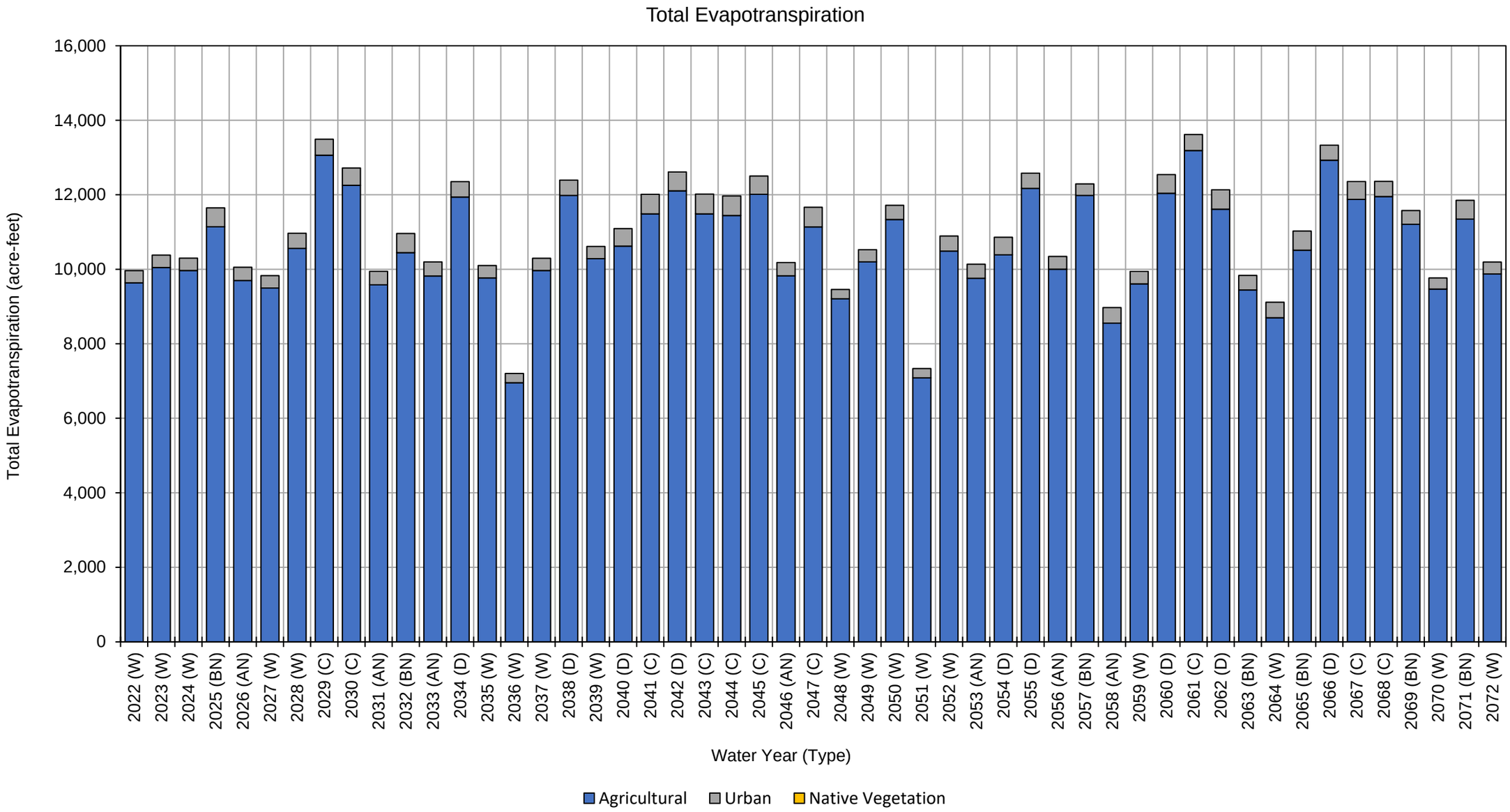
WY (Type)	Rivers, Streams, and Small Watersheds
2022 (W)	0
2023 (W)	0
2024 (W)	0
2025 (BN)	0
2026 (AN)	0
2027 (W)	0
2028 (W)	0
2029 (C)	0
2030 (C)	0
2031 (AN)	0
2032 (BN)	0
2033 (AN)	0
2034 (D)	0
2035 (W)	0
2036 (W)	0
2037 (W)	0
2038 (D)	0
2039 (W)	0
2040 (D)	0
2041 (C)	0
2042 (D)	0
2043 (C)	0
2044 (C)	0
2045 (C)	0
2046 (AN)	0
2047 (C)	0
2048 (W)	0
2049 (W)	0
2050 (W)	0
2051 (W)	0
2052 (W)	0
2053 (AN)	0
2054 (D)	0
2055 (D)	0
2056 (AN)	0
2057 (BN)	0
2058 (AN)	0
2059 (W)	0
2060 (D)	0
2061 (C)	0
2062 (D)	0
2063 (BN)	0

Bowman Subbasin Projected (Future Land Use) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

WY (Type)		Rivers, Streams, and Small Watersheds
2064 (W)		0
2065 (BN)		0
2066 (D)		0
2067 (C)		0
2068 (C)		0
2069 (BN)		0
2070 (W)		0
2071 (BN)		0
2072 (W)		0
Average (2022-2072)		0
2022-2072	W	0
	AN	0
	BN	0
	D	0
	C	0

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

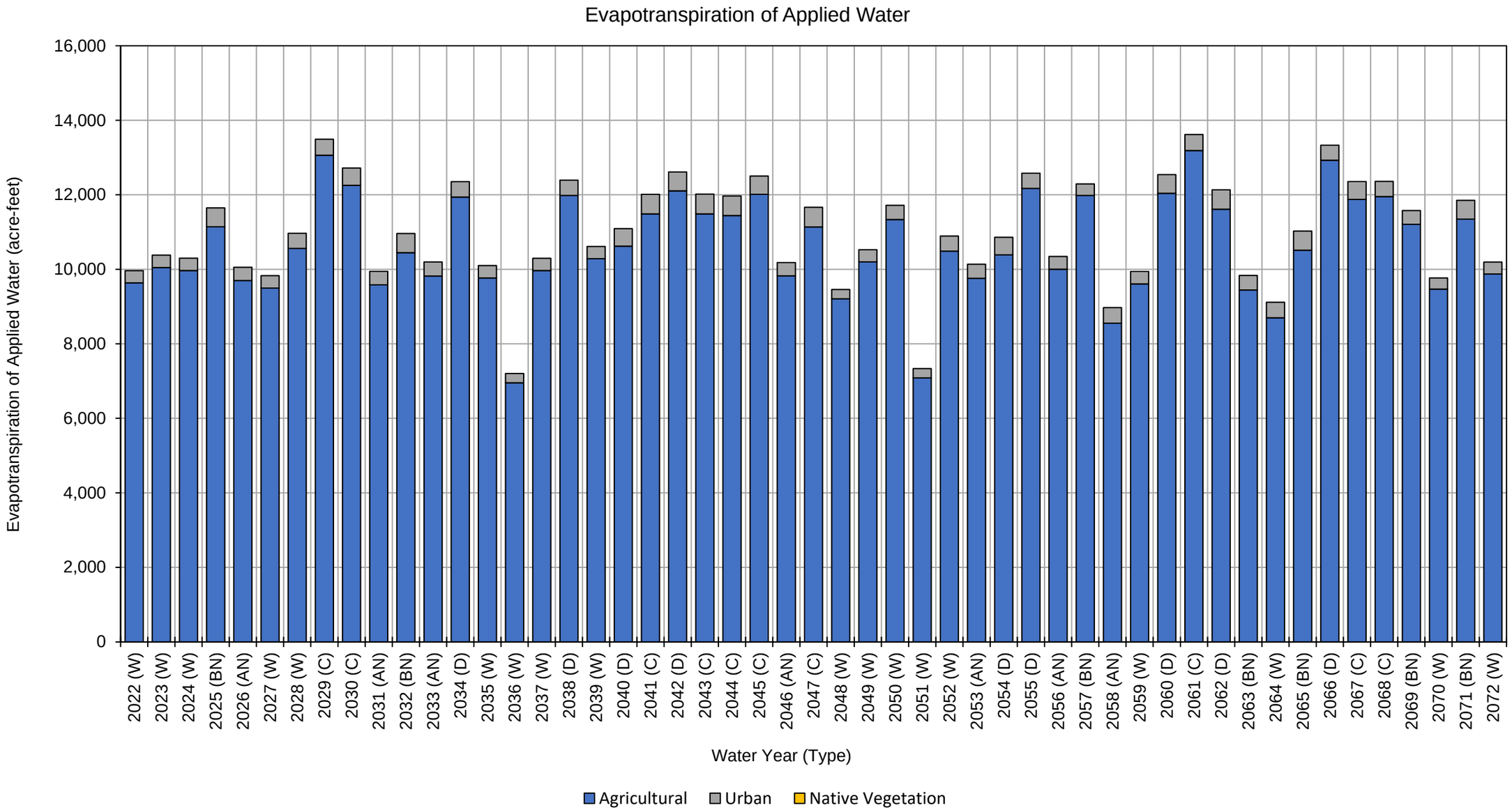
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	17,000	2,100	180,000	200,000
2023 (W)	18,000	2,000	160,000	180,000
2024 (W)	18,000	2,000	160,000	180,000
2025 (BN)	17,000	1,800	150,000	170,000
2026 (AN)	18,000	2,200	180,000	200,000
2027 (W)	17,000	1,900	160,000	180,000
2028 (W)	17,000	1,800	150,000	170,000
2029 (C)	18,000	1,500	120,000	140,000
2030 (C)	17,000	1,600	110,000	130,000
2031 (AN)	18,000	2,200	180,000	200,000
2032 (BN)	17,000	1,900	160,000	180,000
2033 (AN)	17,000	2,000	170,000	190,000
2034 (D)	18,000	1,700	150,000	170,000
2035 (W)	17,000	1,900	160,000	180,000
2036 (W)	15,000	2,000	160,000	180,000
2037 (W)	18,000	1,900	160,000	180,000
2038 (D)	18,000	1,700	150,000	170,000
2039 (W)	17,000	1,900	150,000	170,000
2040 (D)	17,000	1,900	160,000	180,000
2041 (C)	18,000	1,900	160,000	180,000
2042 (D)	17,000	1,700	130,000	150,000
2043 (C)	18,000	2,000	160,000	180,000
2044 (C)	18,000	2,000	160,000	180,000
2045 (C)	18,000	1,900	160,000	180,000
2046 (AN)	18,000	2,200	180,000	200,000
2047 (C)	18,000	2,000	170,000	190,000
2048 (W)	16,000	1,800	150,000	170,000
2049 (W)	17,000	1,900	160,000	180,000
2050 (W)	18,000	1,900	160,000	180,000
2051 (W)	15,000	2,000	160,000	180,000
2052 (W)	17,000	1,800	150,000	170,000
2053 (AN)	17,000	2,000	170,000	190,000
2054 (D)	17,000	1,900	160,000	180,000
2055 (D)	18,000	1,700	140,000	160,000
2056 (AN)	17,000	1,900	150,000	170,000
2057 (BN)	17,000	1,500	130,000	150,000
2058 (AN)	17,000	2,200	180,000	200,000
2059 (W)	17,000	1,900	160,000	180,000
2060 (D)	17,000	1,600	130,000	150,000
2061 (C)	18,000	1,500	130,000	150,000
2062 (D)	18,000	1,900	160,000	180,000
2063 (BN)	16,000	1,800	150,000	170,000

Bowman Subbasin Projected (Future Land Use) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		16,000	2,100	180,000	200,000
2065 (BN)		17,000	1,900	160,000	180,000
2066 (D)		18,000	1,600	140,000	160,000
2067 (C)		17,000	1,600	120,000	140,000
2068 (C)		18,000	1,700	140,000	160,000
2069 (BN)		18,000	1,900	160,000	180,000
2070 (W)		17,000	1,900	160,000	180,000
2071 (BN)		17,000	1,800	150,000	170,000
2072 (W)		17,000	2,100	170,000	190,000
Average (2022-2072)		17,000	1,900	150,000	170,000
2022-2072	W	17,000	1,900	160,000	180,000
	AN	17,000	2,100	170,000	190,000
	BN	17,000	1,800	150,000	170,000
	D	18,000	1,700	150,000	170,000
	C	18,000	1,800	140,000	160,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

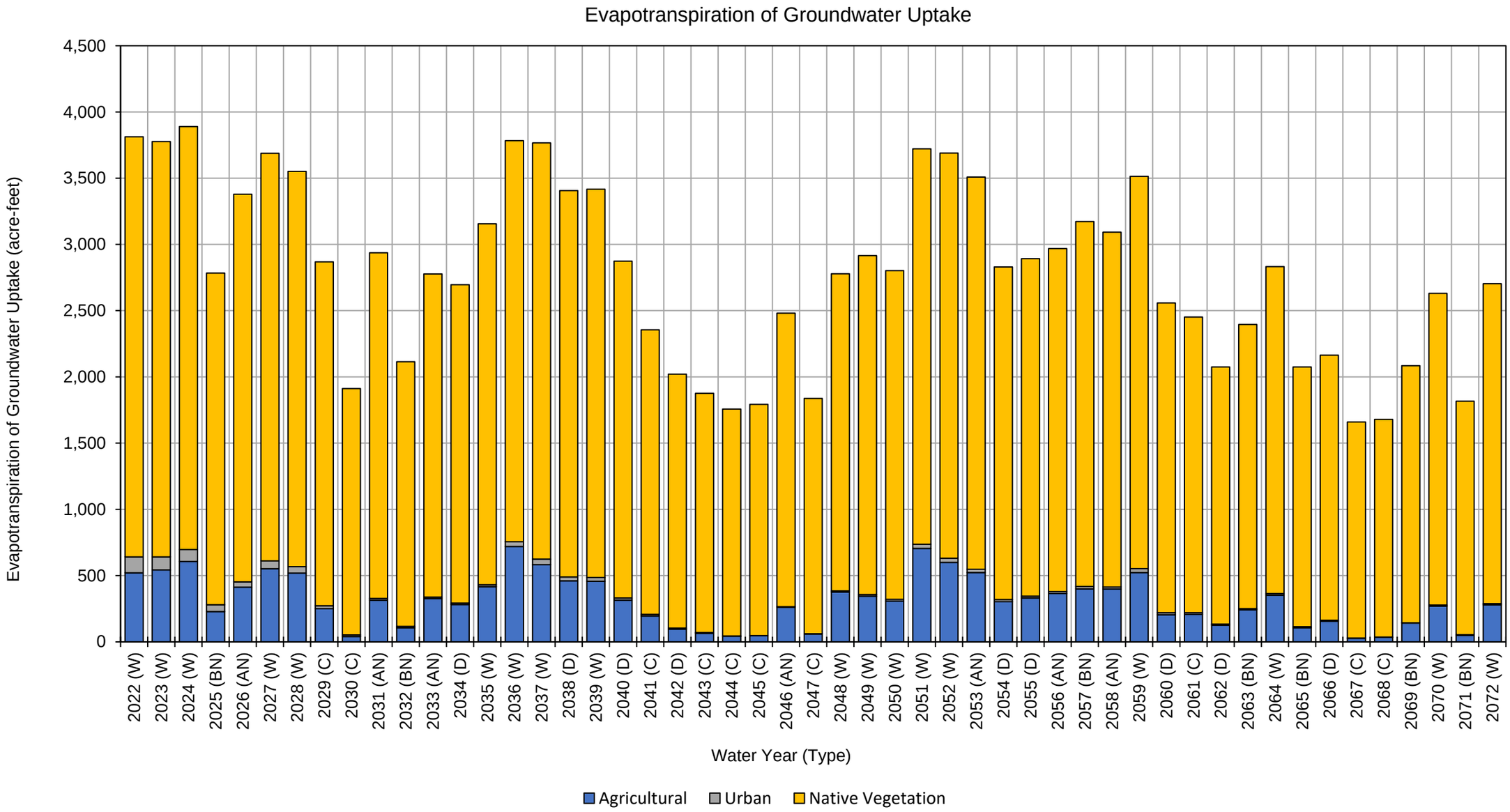
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	9,600	330	0	9,900
2023 (W)	10,000	330	0	10,000
2024 (W)	10,000	330	0	10,000
2025 (BN)	11,000	510	0	12,000
2026 (AN)	9,700	360	0	10,000
2027 (W)	9,500	330	0	9,800
2028 (W)	11,000	410	0	11,000
2029 (C)	13,000	430	0	13,000
2030 (C)	12,000	470	0	12,000
2031 (AN)	9,600	360	0	10,000
2032 (BN)	10,000	510	0	11,000
2033 (AN)	9,800	380	0	10,000
2034 (D)	12,000	410	0	12,000
2035 (W)	9,800	330	0	10,000
2036 (W)	7,000	250	0	7,300
2037 (W)	10,000	330	0	10,000
2038 (D)	12,000	410	0	12,000
2039 (W)	10,000	330	0	10,000
2040 (D)	11,000	470	0	11,000
2041 (C)	11,000	530	0	12,000
2042 (D)	12,000	510	0	13,000
2043 (C)	11,000	530	0	12,000
2044 (C)	11,000	530	0	12,000
2045 (C)	12,000	490	0	12,000
2046 (AN)	9,800	360	0	10,000
2047 (C)	11,000	530	0	12,000
2048 (W)	9,200	250	0	9,500
2049 (W)	10,000	330	0	10,000
2050 (W)	11,000	380	0	11,000
2051 (W)	7,100	250	0	7,400
2052 (W)	10,000	410	0	10,000
2053 (AN)	9,800	380	0	10,000
2054 (D)	10,000	470	0	10,000
2055 (D)	12,000	410	0	12,000
2056 (AN)	10,000	340	0	10,000
2057 (BN)	12,000	310	0	12,000
2058 (AN)	8,600	420	0	9,000
2059 (W)	9,600	330	0	9,900
2060 (D)	12,000	500	0	13,000
2061 (C)	13,000	430	0	13,000
2062 (D)	12,000	520	0	13,000
2063 (BN)	9,400	390	0	9,800

Bowman Subbasin Projected (Future Land Use) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		8,700	420	0	9,100
2065 (BN)		11,000	510	0	12,000
2066 (D)		13,000	400	0	13,000
2067 (C)		12,000	480	0	12,000
2068 (C)		12,000	410	0	12,000
2069 (BN)		11,000	370	0	11,000
2070 (W)		9,500	300	0	9,800
2071 (BN)		11,000	500	0	12,000
2072 (W)		9,900	320	0	10,000
Average (2022-2072)		11,000	400	0	11,000
2022-2072	W	9,600	330	0	9,900
	AN	9,600	370	0	10,000
	BN	11,000	440	0	11,000
	D	12,000	460	0	12,000
	C	12,000	480	0	12,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

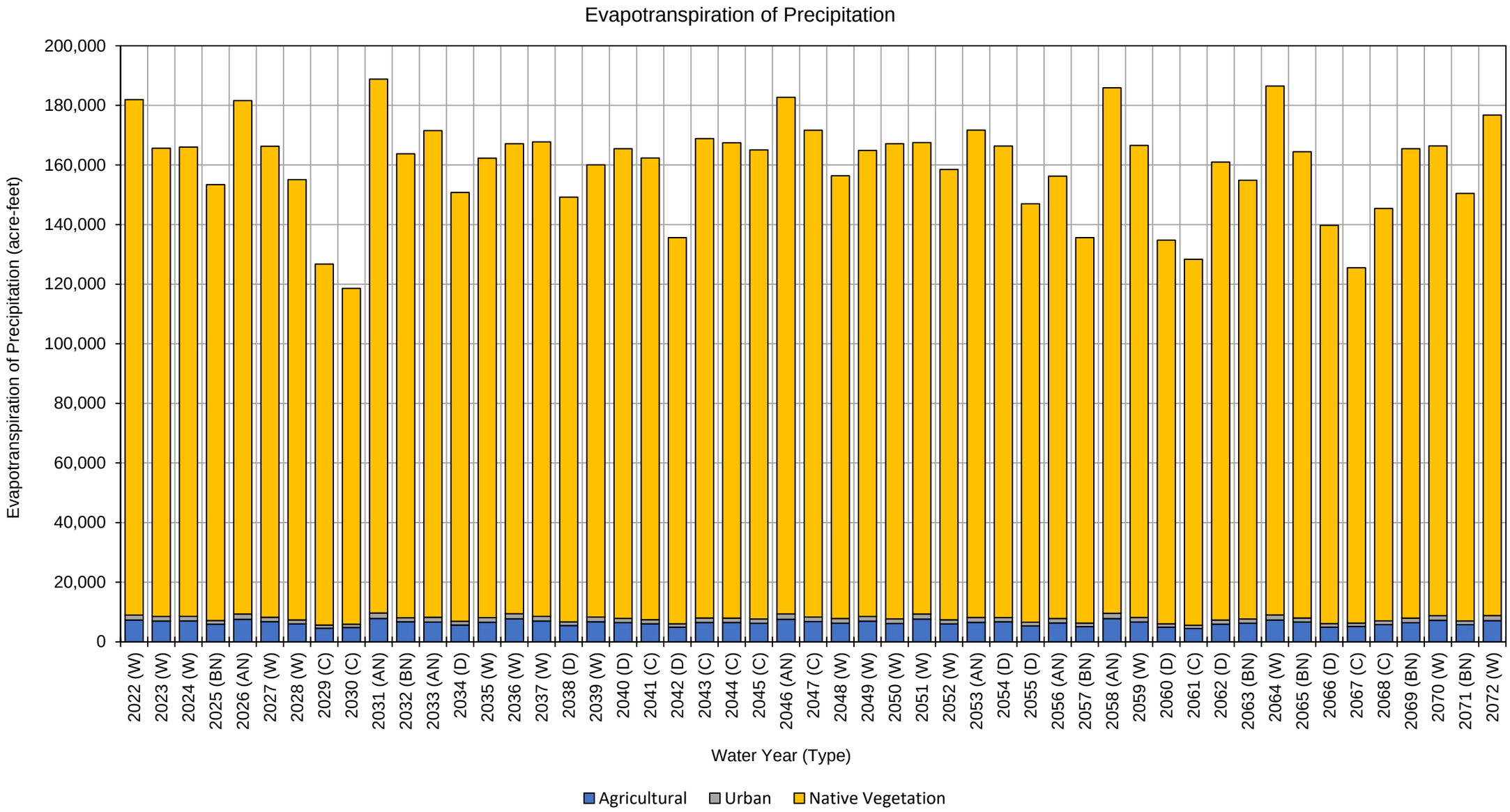
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	520	120	3,200	3,800
2023 (W)	540	99	3,100	3,700
2024 (W)	610	90	3,200	3,900
2025 (BN)	230	52	2,500	2,800
2026 (AN)	410	40	2,900	3,400
2027 (W)	550	59	3,100	3,700
2028 (W)	520	48	3,000	3,600
2029 (C)	250	22	2,600	2,900
2030 (C)	40	12	1,900	2,000
2031 (AN)	310	13	2,600	2,900
2032 (BN)	100	11	2,000	2,100
2033 (AN)	330	11	2,400	2,700
2034 (D)	280	11	2,400	2,700
2035 (W)	420	15	2,700	3,100
2036 (W)	720	37	3,000	3,800
2037 (W)	580	41	3,100	3,700
2038 (D)	460	29	2,900	3,400
2039 (W)	460	28	2,900	3,400
2040 (D)	310	17	2,500	2,800
2041 (C)	190	13	2,100	2,300
2042 (D)	94	9	1,900	2,000
2043 (C)	64	5	1,800	1,900
2044 (C)	41	2	1,700	1,700
2045 (C)	47	0	1,700	1,700
2046 (AN)	260	3	2,200	2,500
2047 (C)	59	2	1,800	1,900
2048 (W)	380	8	2,400	2,800
2049 (W)	340	12	2,600	3,000
2050 (W)	310	13	2,500	2,800
2051 (W)	710	32	3,000	3,700
2052 (W)	600	32	3,100	3,700
2053 (AN)	520	26	3,000	3,500
2054 (D)	300	16	2,500	2,800
2055 (D)	330	14	2,500	2,800
2056 (AN)	360	15	2,600	3,000
2057 (BN)	400	18	2,800	3,200
2058 (AN)	400	16	2,700	3,100
2059 (W)	520	30	3,000	3,600
2060 (D)	200	16	2,300	2,500
2061 (C)	210	13	2,200	2,400
2062 (D)	130	8	1,900	2,000
2063 (BN)	240	8	2,100	2,300

Bowman Subbasin Projected (Future Land Use) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		350	11	2,500	2,900
2065 (BN)		110	9	2,000	2,100
2066 (D)		160	7	2,000	2,200
2067 (C)		26	2	1,600	1,600
2068 (C)		34	1	1,600	1,600
2069 (BN)		140	1	1,900	2,000
2070 (W)		270	9	2,400	2,700
2071 (BN)		48	6	1,800	1,900
2072 (W)		280	9	2,400	2,700
Average (2022-2072)		310	22	2,400	2,700
2022-2072	W	480	39	2,800	3,300
	AN	370	18	2,600	3,000
	BN	180	15	2,200	2,400
	D	250	14	2,300	2,600
	C	96	7	1,900	2,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

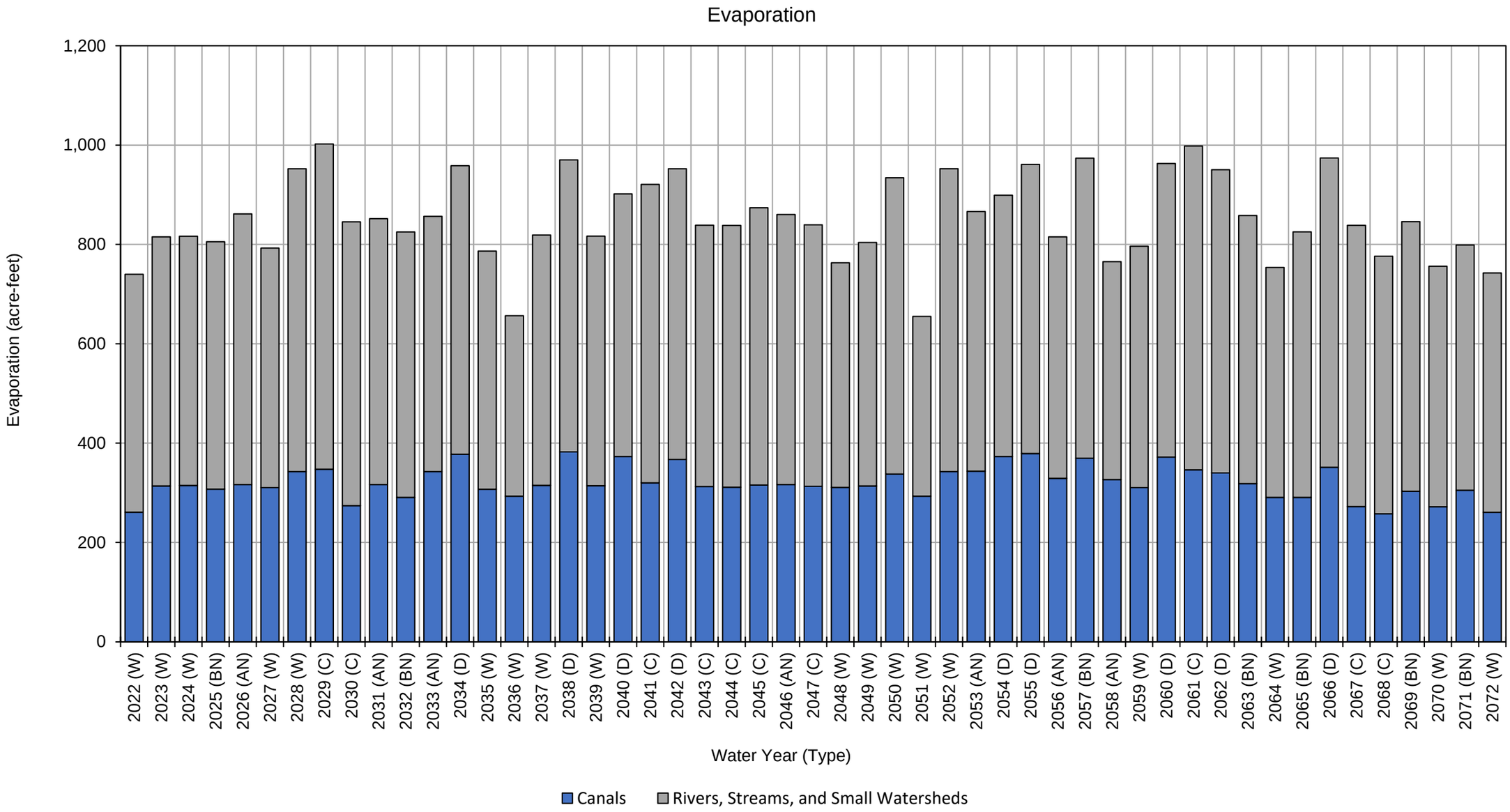
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	7,300	1,700	170,000	180,000
2023 (W)	7,000	1,500	160,000	170,000
2024 (W)	7,000	1,500	160,000	170,000
2025 (BN)	5,900	1,200	150,000	160,000
2026 (AN)	7,500	1,800	170,000	180,000
2027 (W)	6,700	1,500	160,000	170,000
2028 (W)	6,000	1,300	150,000	160,000
2029 (C)	4,500	1,100	120,000	130,000
2030 (C)	4,800	1,100	110,000	120,000
2031 (AN)	7,800	1,800	180,000	190,000
2032 (BN)	6,700	1,300	160,000	170,000
2033 (AN)	6,600	1,600	160,000	170,000
2034 (D)	5,600	1,300	140,000	150,000
2035 (W)	6,500	1,500	150,000	160,000
2036 (W)	7,700	1,700	160,000	170,000
2037 (W)	7,000	1,600	160,000	170,000
2038 (D)	5,400	1,300	140,000	150,000
2039 (W)	6,700	1,600	150,000	160,000
2040 (D)	6,500	1,400	160,000	170,000
2041 (C)	6,000	1,400	150,000	160,000
2042 (D)	4,900	1,100	130,000	140,000
2043 (C)	6,500	1,500	160,000	170,000
2044 (C)	6,500	1,500	160,000	170,000
2045 (C)	6,200	1,500	160,000	170,000
2046 (AN)	7,500	1,800	170,000	180,000
2047 (C)	6,800	1,500	160,000	170,000
2048 (W)	6,200	1,600	150,000	160,000
2049 (W)	6,900	1,600	160,000	170,000
2050 (W)	6,100	1,500	160,000	170,000
2051 (W)	7,600	1,700	160,000	170,000
2052 (W)	6,000	1,400	150,000	160,000
2053 (AN)	6,500	1,600	160,000	170,000
2054 (D)	6,700	1,400	160,000	170,000
2055 (D)	5,300	1,300	140,000	150,000
2056 (AN)	6,300	1,500	150,000	160,000
2057 (BN)	5,100	1,200	130,000	140,000
2058 (AN)	7,800	1,800	180,000	190,000
2059 (W)	6,600	1,500	160,000	170,000
2060 (D)	4,900	1,100	130,000	140,000
2061 (C)	4,500	1,100	120,000	130,000
2062 (D)	5,900	1,400	150,000	160,000
2063 (BN)	6,200	1,400	150,000	160,000

Bowman Subbasin Projected (Future Land Use) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		7,300	1,700	180,000	190,000
2065 (BN)		6,600	1,300	160,000	170,000
2066 (D)		4,900	1,200	130,000	140,000
2067 (C)		5,100	1,100	120,000	130,000
2068 (C)		5,800	1,300	140,000	150,000
2069 (BN)		6,400	1,600	160,000	170,000
2070 (W)		7,200	1,600	160,000	170,000
2071 (BN)		5,700	1,200	140,000	150,000
2072 (W)		7,100	1,700	170,000	180,000
Average (2022-2072)		6,300	1,400	150,000	160,000
2022-2072	W	6,800	1,600	160,000	170,000
	AN	7,200	1,700	170,000	180,000
	BN	6,100	1,300	150,000	160,000
	D	5,600	1,300	140,000	150,000
	C	5,700	1,300	140,000	150,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Evaporation (acre-feet, rounded)

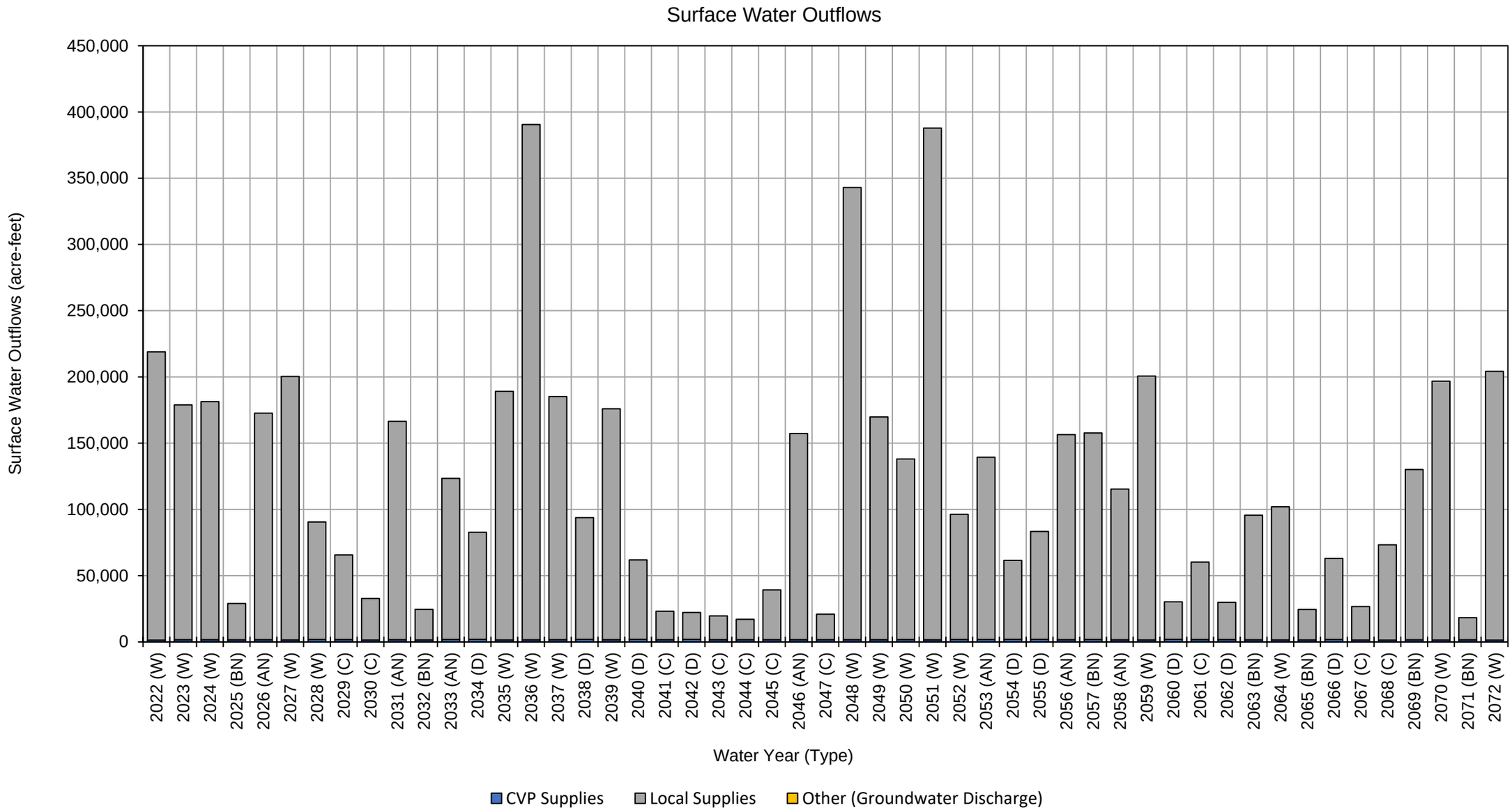
WY (Type)	Canals	Rivers, Streams, and Small Watersheds	Total
2022 (W)	260	480	740
2023 (W)	310	500	810
2024 (W)	310	500	810
2025 (BN)	310	500	810
2026 (AN)	320	540	860
2027 (W)	310	480	790
2028 (W)	340	610	950
2029 (C)	350	650	1,000
2030 (C)	270	570	840
2031 (AN)	320	540	860
2032 (BN)	290	530	820
2033 (AN)	340	510	850
2034 (D)	380	580	960
2035 (W)	310	480	790
2036 (W)	290	360	650
2037 (W)	310	500	810
2038 (D)	380	590	970
2039 (W)	310	500	810
2040 (D)	370	530	900
2041 (C)	320	600	920
2042 (D)	370	590	960
2043 (C)	310	530	840
2044 (C)	310	530	840
2045 (C)	320	560	880
2046 (AN)	320	540	860
2047 (C)	310	530	840
2048 (W)	310	450	760
2049 (W)	310	490	800
2050 (W)	340	600	940
2051 (W)	290	360	650
2052 (W)	340	610	950
2053 (AN)	340	520	860
2054 (D)	370	530	900
2055 (D)	380	580	960
2056 (AN)	330	490	820
2057 (BN)	370	600	970
2058 (AN)	330	440	770
2059 (W)	310	490	800
2060 (D)	370	590	960
2061 (C)	350	650	1,000
2062 (D)	340	610	950
2063 (BN)	320	540	860

Bowman Subbasin Projected (Future Land Use) Evaporation (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Watersheds	Total
2064 (W)		290	460	750
2065 (BN)		290	530	820
2066 (D)		350	620	970
2067 (C)		270	570	840
2068 (C)		260	520	780
2069 (BN)		300	540	840
2070 (W)		270	480	750
2071 (BN)		300	490	790
2072 (W)		260	480	740
Average (2022-2072)		320	530	850
2022-2072	W	310	490	800
	AN	330	510	840
	BN	310	540	850
	D	370	580	950
	C	310	570	880

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

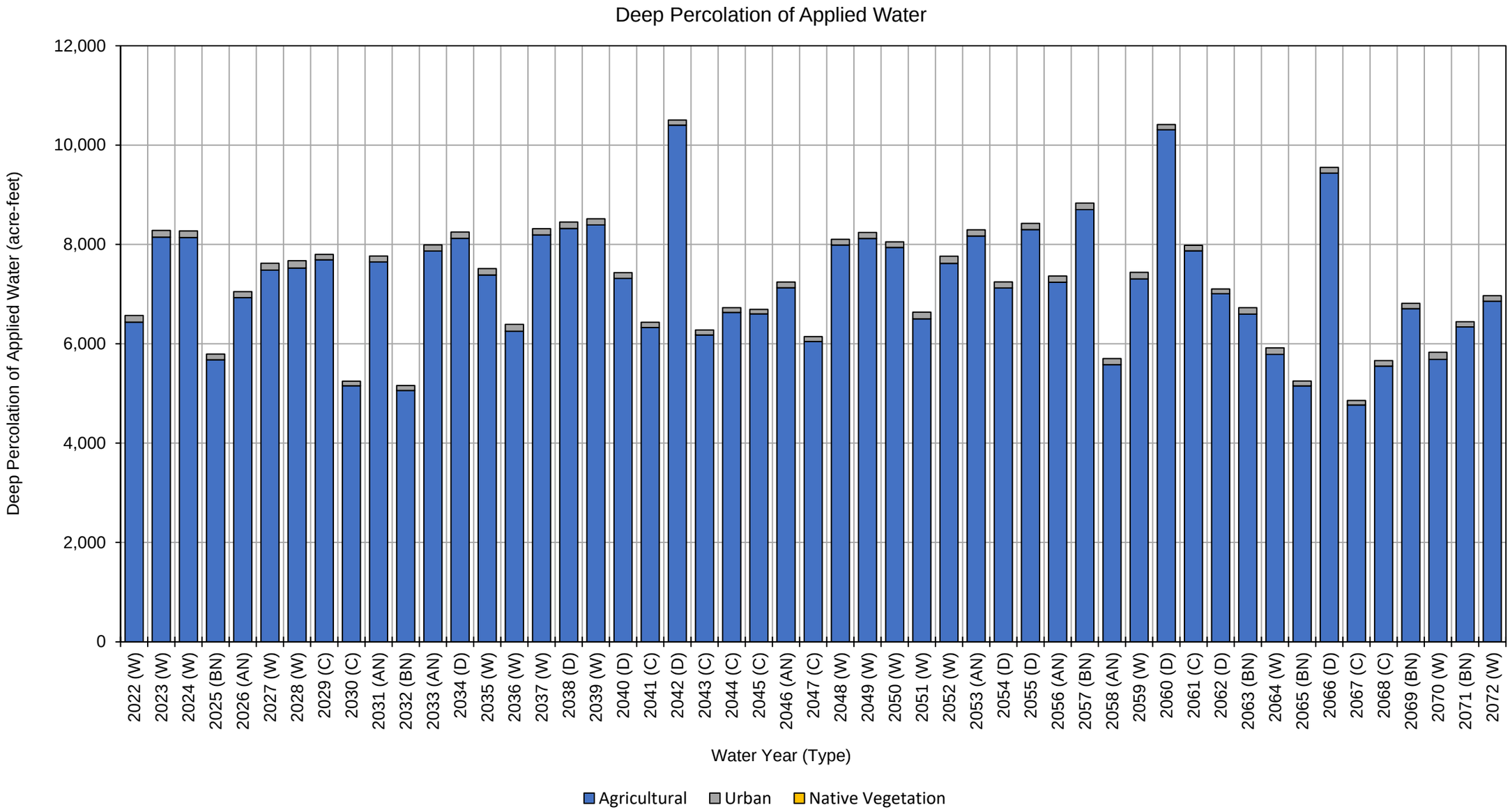
WY (Type)	CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2022 (W)	1,300	220,000	0	220,000
2023 (W)	1,600	180,000	0	180,000
2024 (W)	1,600	180,000	0	180,000
2025 (BN)	1,600	27,000	0	29,000
2026 (AN)	1,600	170,000	0	170,000
2027 (W)	1,500	200,000	0	200,000
2028 (W)	1,800	89,000	0	91,000
2029 (C)	1,700	64,000	0	66,000
2030 (C)	1,400	31,000	0	32,000
2031 (AN)	1,600	160,000	0	160,000
2032 (BN)	1,500	23,000	0	25,000
2033 (AN)	1,800	120,000	0	120,000
2034 (D)	1,900	81,000	0	83,000
2035 (W)	1,500	190,000	0	190,000
2036 (W)	1,500	390,000	0	390,000
2037 (W)	1,600	180,000	0	180,000
2038 (D)	1,900	92,000	0	94,000
2039 (W)	1,600	170,000	0	170,000
2040 (D)	1,900	60,000	0	62,000
2041 (C)	1,600	21,000	0	23,000
2042 (D)	1,800	20,000	0	22,000
2043 (C)	1,600	18,000	0	20,000
2044 (C)	1,600	15,000	0	17,000
2045 (C)	1,600	38,000	0	40,000
2046 (AN)	1,600	160,000	0	160,000
2047 (C)	1,600	19,000	0	21,000
2048 (W)	1,600	340,000	0	340,000
2049 (W)	1,600	170,000	0	170,000
2050 (W)	1,700	140,000	0	140,000
2051 (W)	1,500	390,000	0	390,000
2052 (W)	1,800	95,000	0	97,000
2053 (AN)	1,800	140,000	0	140,000
2054 (D)	1,900	60,000	0	62,000
2055 (D)	1,900	81,000	0	83,000
2056 (AN)	1,600	150,000	0	150,000
2057 (BN)	1,800	160,000	0	160,000
2058 (AN)	1,600	110,000	0	110,000
2059 (W)	1,500	200,000	0	200,000
2060 (D)	1,800	28,000	0	30,000
2061 (C)	1,700	59,000	0	61,000
2062 (D)	1,700	28,000	0	30,000
2063 (BN)	1,600	94,000	0	96,000

Bowman Subbasin Projected (Future Land Use) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2064 (W)		1,500	100,000	0	100,000
2065 (BN)		1,500	23,000	0	25,000
2066 (D)		1,800	61,000	0	63,000
2067 (C)		1,400	25,000	0	26,000
2068 (C)		1,300	72,000	0	73,000
2069 (BN)		1,500	130,000	0	130,000
2070 (W)		1,400	200,000	0	200,000
2071 (BN)		1,600	17,000	0	19,000
2072 (W)		1,300	200,000	0	200,000
Average (2022-2072)		1,600	120,000	0	120,000
2022-2072	W	1,600	200,000	0	200,000
	AN	1,600	150,000	0	150,000
	BN	1,600	67,000	0	69,000
	D	1,800	57,000	0	59,000
	C	1,500	36,000	0	38,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

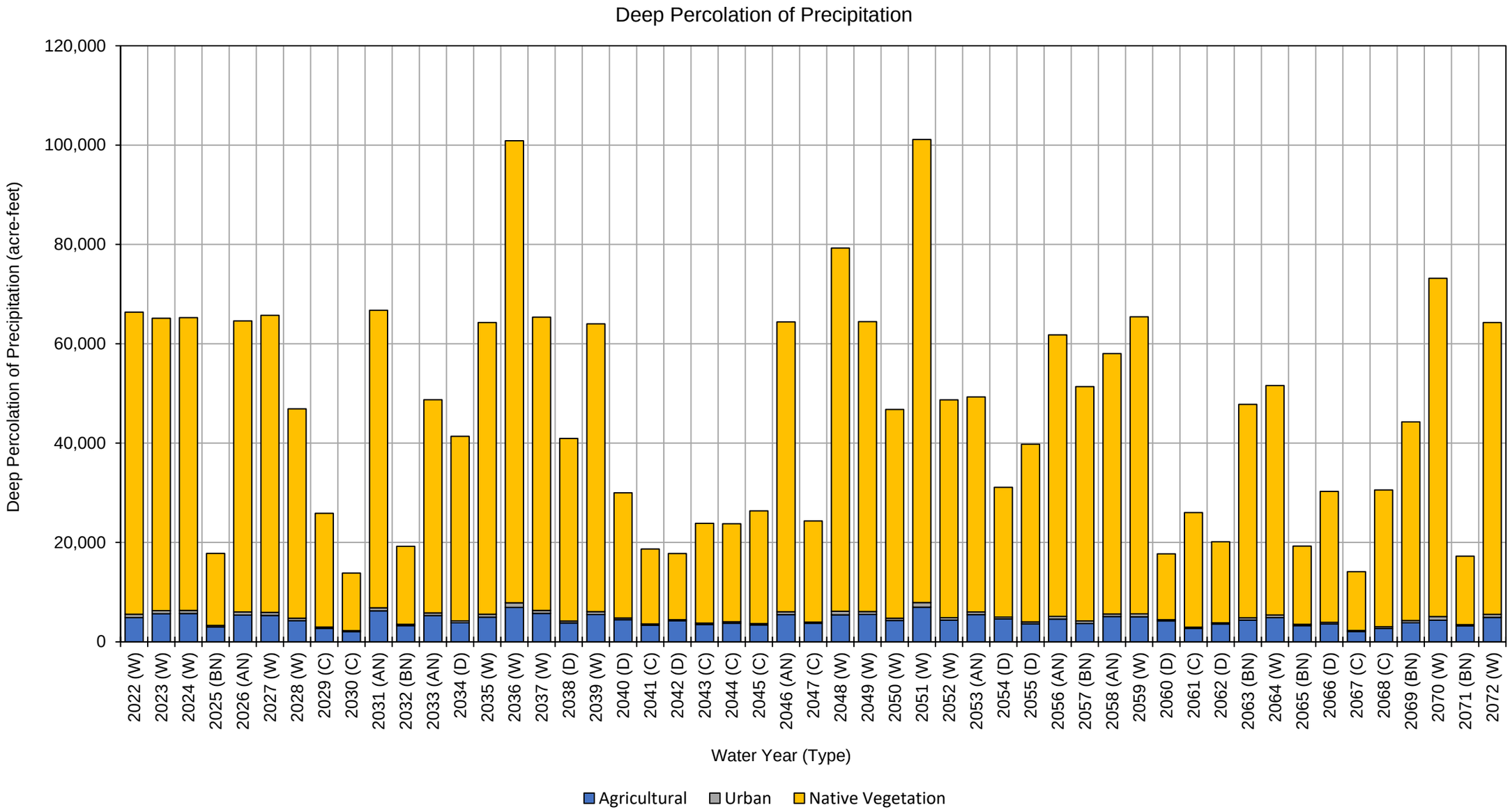
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	6,400	130	0	6,500
2023 (W)	8,100	140	0	8,200
2024 (W)	8,100	130	0	8,200
2025 (BN)	5,700	120	0	5,800
2026 (AN)	6,900	120	0	7,000
2027 (W)	7,500	140	0	7,600
2028 (W)	7,500	150	0	7,700
2029 (C)	7,700	110	0	7,800
2030 (C)	5,200	93	0	5,300
2031 (AN)	7,600	120	0	7,700
2032 (BN)	5,100	100	0	5,200
2033 (AN)	7,900	120	0	8,000
2034 (D)	8,100	130	0	8,200
2035 (W)	7,400	130	0	7,500
2036 (W)	6,300	140	0	6,400
2037 (W)	8,200	130	0	8,300
2038 (D)	8,300	130	0	8,400
2039 (W)	8,400	120	0	8,500
2040 (D)	7,300	120	0	7,400
2041 (C)	6,300	110	0	6,400
2042 (D)	10,000	100	0	10,000
2043 (C)	6,200	100	0	6,300
2044 (C)	6,600	98	0	6,700
2045 (C)	6,600	89	0	6,700
2046 (AN)	7,100	110	0	7,200
2047 (C)	6,000	99	0	6,100
2048 (W)	8,000	120	0	8,100
2049 (W)	8,100	120	0	8,200
2050 (W)	7,900	110	0	8,000
2051 (W)	6,500	140	0	6,600
2052 (W)	7,600	150	0	7,800
2053 (AN)	8,200	130	0	8,300
2054 (D)	7,100	120	0	7,200
2055 (D)	8,300	130	0	8,400
2056 (AN)	7,200	130	0	7,300
2057 (BN)	8,700	130	0	8,800
2058 (AN)	5,600	120	0	5,700
2059 (W)	7,300	130	0	7,400
2060 (D)	10,000	100	0	10,000
2061 (C)	7,900	110	0	8,000
2062 (D)	7,000	96	0	7,100
2063 (BN)	6,600	130	0	6,700

Bowman Subbasin Projected (Future Land Use) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		5,800	130	0	5,900
2065 (BN)		5,200	100	0	5,300
2066 (D)		9,400	110	0	9,500
2067 (C)		4,800	92	0	4,900
2068 (C)		5,600	110	0	5,700
2069 (BN)		6,700	110	0	6,800
2070 (W)		5,700	140	0	5,800
2071 (BN)		6,300	100	0	6,400
2072 (W)		6,900	110	0	7,000
Average (2022-2072)		7,200	120	0	7,300
2022-2072	W	7,300	130	0	7,400
	AN	7,200	120	0	7,300
	BN	6,300	110	0	6,400
	D	8,500	120	0	8,600
	C	6,300	100	0	6,400

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

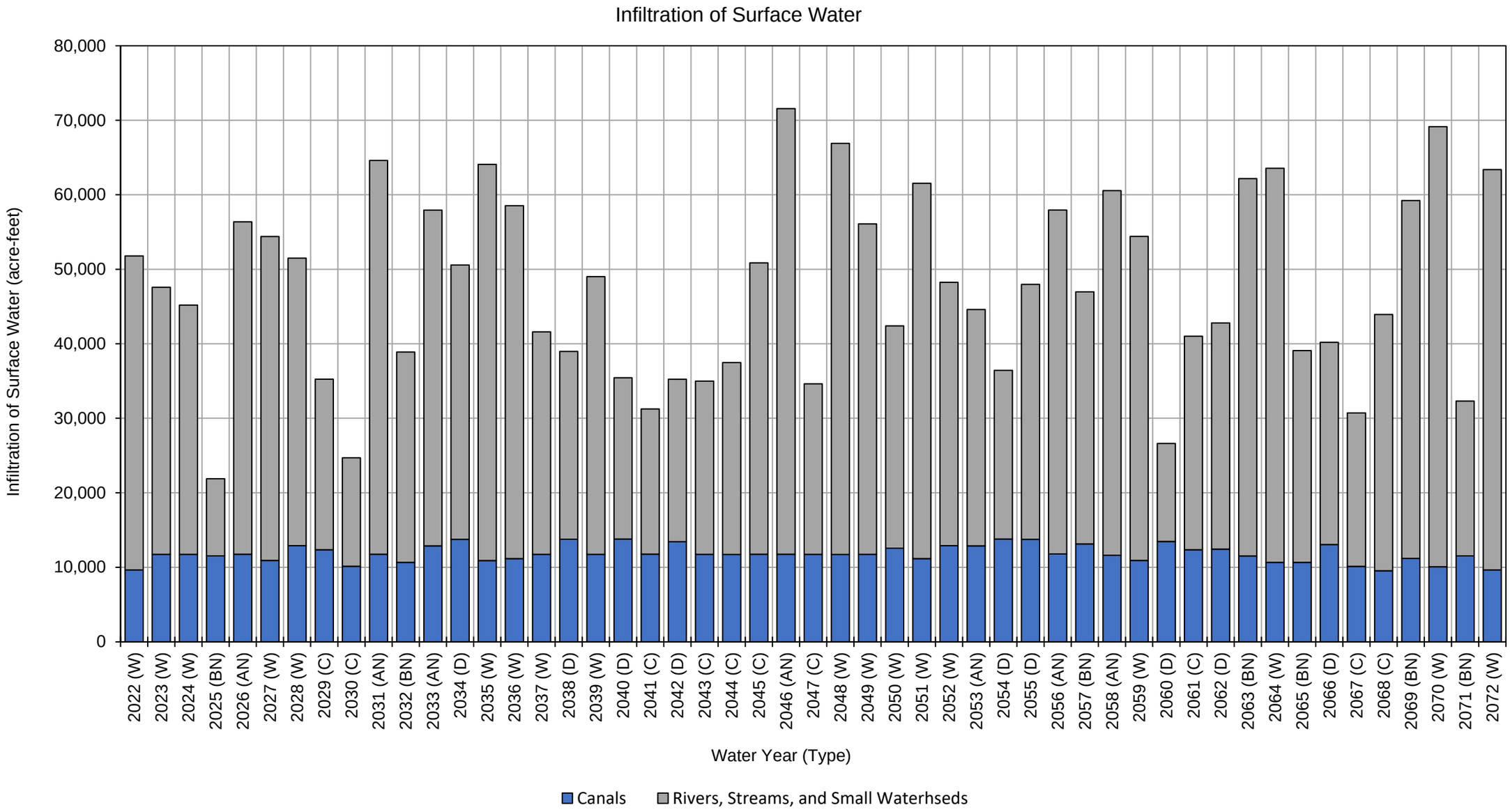
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	4,900	690	61,000	67,000
2023 (W)	5,600	630	59,000	65,000
2024 (W)	5,700	620	59,000	65,000
2025 (BN)	3,000	280	15,000	18,000
2026 (AN)	5,400	600	59,000	65,000
2027 (W)	5,300	610	60,000	66,000
2028 (W)	4,300	490	42,000	47,000
2029 (C)	2,700	280	23,000	26,000
2030 (C)	2,000	210	12,000	14,000
2031 (AN)	6,200	600	60,000	67,000
2032 (BN)	3,200	260	16,000	19,000
2033 (AN)	5,300	530	43,000	49,000
2034 (D)	3,800	400	37,000	41,000
2035 (W)	5,000	590	59,000	65,000
2036 (W)	6,900	940	93,000	100,000
2037 (W)	5,700	590	59,000	65,000
2038 (D)	3,800	400	37,000	41,000
2039 (W)	5,500	590	58,000	64,000
2040 (D)	4,400	340	25,000	30,000
2041 (C)	3,300	280	15,000	19,000
2042 (D)	4,200	230	13,000	17,000
2043 (C)	3,500	280	20,000	24,000
2044 (C)	3,700	280	20,000	24,000
2045 (C)	3,400	260	23,000	27,000
2046 (AN)	5,500	580	58,000	64,000
2047 (C)	3,700	280	20,000	24,000
2048 (W)	5,400	730	73,000	79,000
2049 (W)	5,500	580	58,000	64,000
2050 (W)	4,300	460	42,000	47,000
2051 (W)	7,000	930	93,000	100,000
2052 (W)	4,400	480	44,000	49,000
2053 (AN)	5,500	540	43,000	49,000
2054 (D)	4,600	350	26,000	31,000
2055 (D)	3,600	390	36,000	40,000
2056 (AN)	4,600	550	57,000	62,000
2057 (BN)	3,700	510	47,000	51,000
2058 (AN)	5,100	520	52,000	58,000
2059 (W)	5,000	600	60,000	66,000
2060 (D)	4,200	230	13,000	17,000
2061 (C)	2,700	280	23,000	26,000
2062 (D)	3,600	260	16,000	20,000
2063 (BN)	4,400	470	43,000	48,000

Bowman Subbasin Projected (Future Land Use) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		4,900	530	46,000	51,000
2065 (BN)		3,300	260	16,000	20,000
2066 (D)		3,600	340	26,000	30,000
2067 (C)		2,100	210	12,000	14,000
2068 (C)		2,700	350	28,000	31,000
2069 (BN)		3,800	450	40,000	44,000
2070 (W)		4,300	740	68,000	73,000
2071 (BN)		3,200	260	14,000	17,000
2072 (W)		4,900	610	59,000	65,000
Average (2022-2072)		4,400	460	41,000	46,000
2022-2072	W	5,300	630	61,000	67,000
	AN	5,400	560	53,000	59,000
	BN	3,500	360	27,000	31,000
	D	4,000	330	26,000	30,000
	C	3,000	270	19,000	22,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Infiltration of Surface Water (acre-feet, rounded)

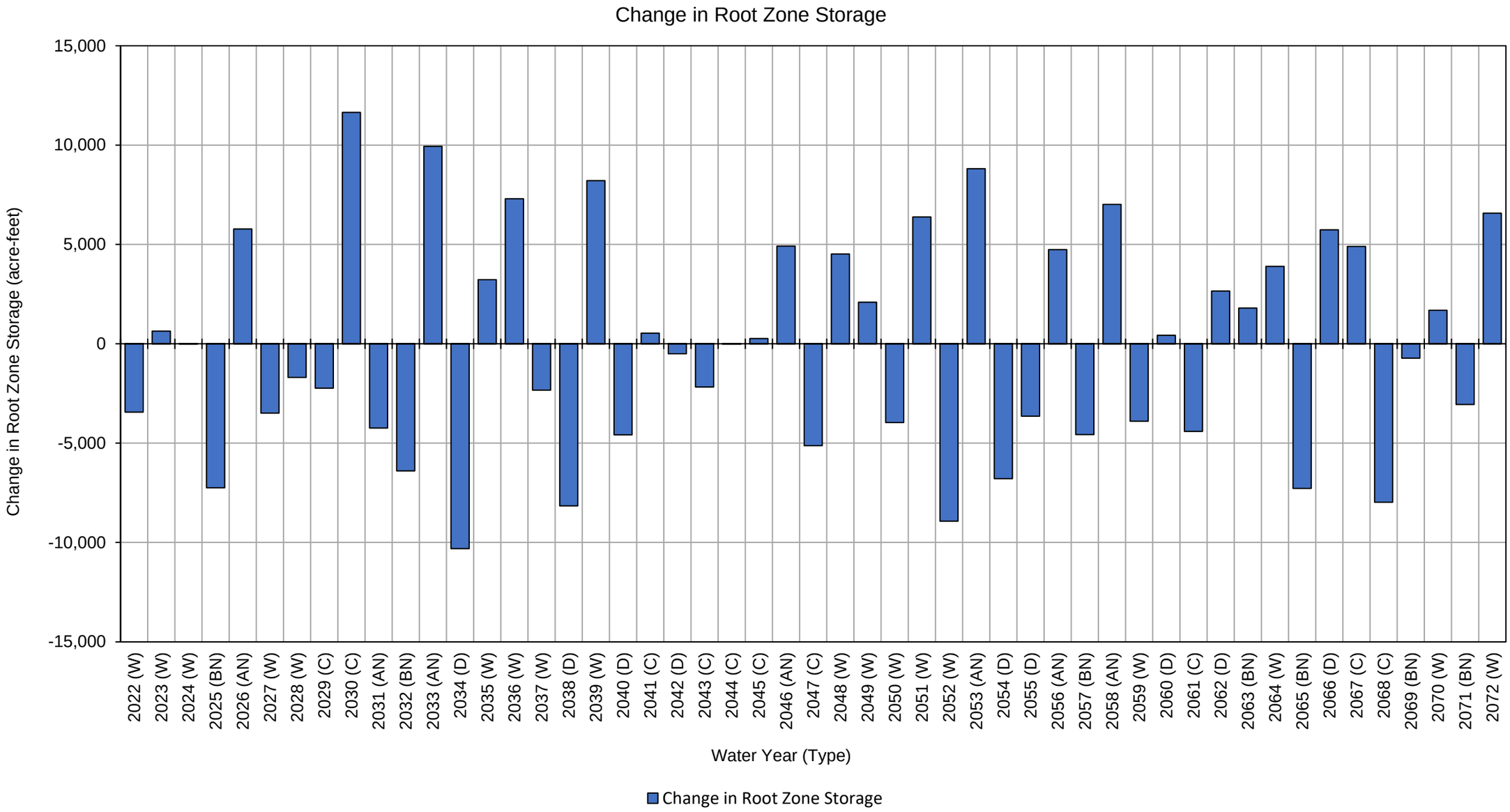
WY (Type)	Canals	Rivers, Streams, and Small Waterhseds	Total
2022 (W)	9,600	42,000	52,000
2023 (W)	12,000	36,000	48,000
2024 (W)	12,000	33,000	45,000
2025 (BN)	12,000	10,000	22,000
2026 (AN)	12,000	45,000	57,000
2027 (W)	11,000	43,000	54,000
2028 (W)	13,000	39,000	52,000
2029 (C)	12,000	23,000	35,000
2030 (C)	10,000	15,000	25,000
2031 (AN)	12,000	53,000	65,000
2032 (BN)	11,000	28,000	39,000
2033 (AN)	13,000	45,000	58,000
2034 (D)	14,000	37,000	51,000
2035 (W)	11,000	53,000	64,000
2036 (W)	11,000	47,000	58,000
2037 (W)	12,000	30,000	42,000
2038 (D)	14,000	25,000	39,000
2039 (W)	12,000	37,000	49,000
2040 (D)	14,000	22,000	36,000
2041 (C)	12,000	19,000	31,000
2042 (D)	13,000	22,000	35,000
2043 (C)	12,000	23,000	35,000
2044 (C)	12,000	26,000	38,000
2045 (C)	12,000	39,000	51,000
2046 (AN)	12,000	60,000	72,000
2047 (C)	12,000	23,000	35,000
2048 (W)	12,000	55,000	67,000
2049 (W)	12,000	44,000	56,000
2050 (W)	13,000	30,000	43,000
2051 (W)	11,000	50,000	61,000
2052 (W)	13,000	35,000	48,000
2053 (AN)	13,000	32,000	45,000
2054 (D)	14,000	23,000	37,000
2055 (D)	14,000	34,000	48,000
2056 (AN)	12,000	46,000	58,000
2057 (BN)	13,000	34,000	47,000
2058 (AN)	12,000	49,000	61,000
2059 (W)	11,000	43,000	54,000
2060 (D)	13,000	13,000	26,000
2061 (C)	12,000	29,000	41,000
2062 (D)	12,000	30,000	42,000
2063 (BN)	12,000	51,000	63,000

Bowman Subbasin Projected (Future Land Use) Infiltration of Surface Water (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Waterhseds	Total
2064 (W)		11,000	53,000	64,000
2065 (BN)		11,000	28,000	39,000
2066 (D)		13,000	27,000	40,000
2067 (C)		10,000	21,000	31,000
2068 (C)		9,500	34,000	44,000
2069 (BN)		11,000	48,000	59,000
2070 (W)		10,000	59,000	69,000
2071 (BN)		12,000	21,000	33,000
2072 (W)		9,600	54,000	64,000
Average (2022-2072)		12,000	36,000	48,000
2022-2072	W	11,000	44,000	55,000
	AN	12,000	47,000	59,000
	BN	11,000	31,000	42,000
	D	13,000	26,000	39,000
	C	11,000	25,000	36,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)	Change in Root Zone Storage
2022 (W)	-3,400
2023 (W)	640
2024 (W)	0
2025 (BN)	-7,300
2026 (AN)	5,800
2027 (W)	-3,500
2028 (W)	-1,700
2029 (C)	-2,200
2030 (C)	12,000
2031 (AN)	-4,200
2032 (BN)	-6,400
2033 (AN)	9,900
2034 (D)	-10,000
2035 (W)	3,200
2036 (W)	7,300
2037 (W)	-2,300
2038 (D)	-8,200
2039 (W)	8,200
2040 (D)	-4,600
2041 (C)	540
2042 (D)	-500
2043 (C)	-2,200
2044 (C)	-15
2045 (C)	260
2046 (AN)	4,900
2047 (C)	-5,100
2048 (W)	4,500
2049 (W)	2,100
2050 (W)	-4,000
2051 (W)	6,400
2052 (W)	-8,900
2053 (AN)	8,800
2054 (D)	-6,800
2055 (D)	-3,600
2056 (AN)	4,700
2057 (BN)	-4,600
2058 (AN)	7,000
2059 (W)	-3,900
2060 (D)	420
2061 (C)	-4,400
2062 (D)	2,700
2063 (BN)	1,800

Bowman Subbasin Projected (Future Land Use) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)		Change in Root Zone Storage
2064 (W)		3,900
2065 (BN)		-7,300
2066 (D)		5,700
2067 (C)		4,900
2068 (C)		-8,000
2069 (BN)		-730
2070 (W)		1,700
2071 (BN)		-3,100
2072 (W)		6,600
Average (2022-2072)		-70
2022-2072	W	930
	AN	5,300
	BN	-3,900
	D	-2,800
	C	-460

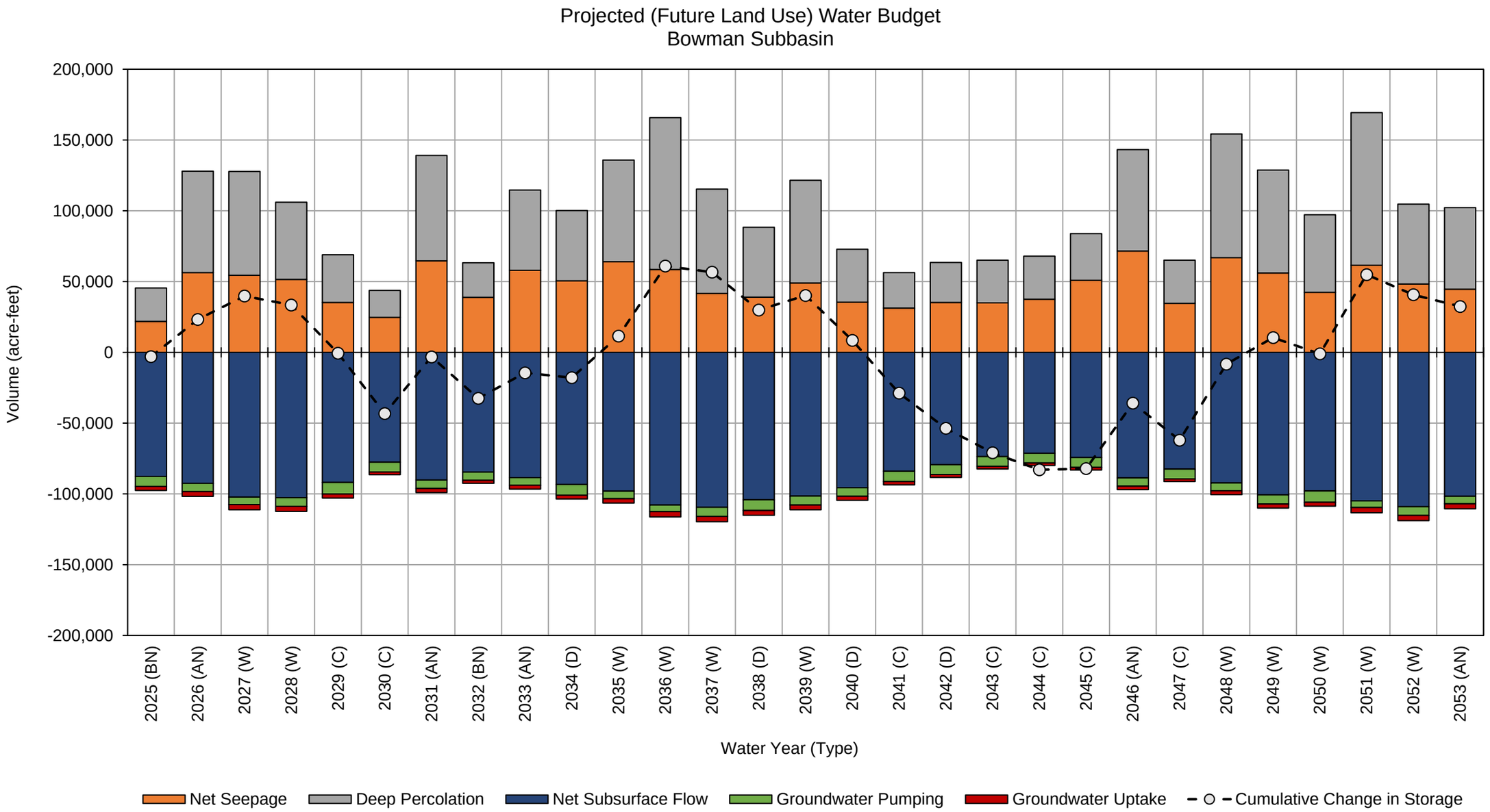
Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX B-3b

Detailed Bowman Subbasin Water Budget Results:

Projected (Future Land Use) Model Results – Groundwater System


Projected (Future Land Use) Water Budget
Bowman Subbasin
Volume (acre-feet)
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Bowman Subbasin Projected (Future Land Use) Water Budget Summary (acre-feet, rounded)

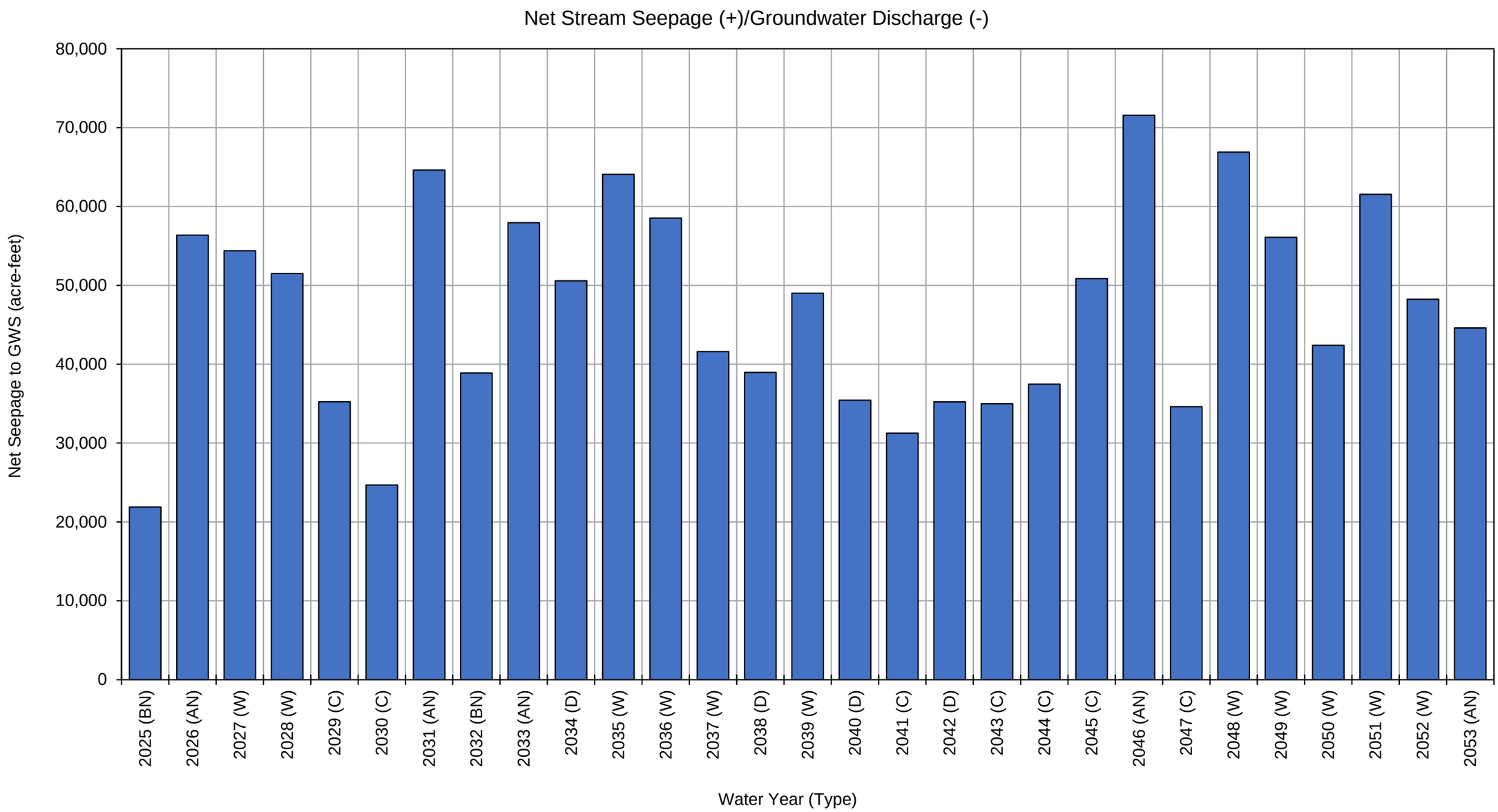
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	52,000	73,000	-6,600	-3,800	-86,000	28,000	28,000
2023 (W)	48,000	73,000	-6,500	-3,800	-96,000	14,000	42,000
2024 (W)	45,000	74,000	-6,700	-3,900	-100,000	6,800	49,000
2025 (BN)	22,000	24,000	-7,100	-2,800	-88,000	-52,000	-3,000
2026 (AN)	56,000	72,000	-5,800	-3,400	-93,000	26,000	23,000
2027 (W)	54,000	73,000	-5,300	-3,700	-100,000	17,000	40,000
2028 (W)	51,000	55,000	-6,100	-3,600	-100,000	-6,300	33,000
2029 (C)	35,000	34,000	-8,200	-2,900	-92,000	-34,000	-580
2030 (C)	25,000	19,000	-6,900	-1,900	-78,000	-43,000	-43,000
2031 (AN)	65,000	75,000	-6,000	-2,900	-90,000	40,000	-3,200
2032 (BN)	39,000	24,000	-5,800	-2,100	-85,000	-29,000	-32,000
2033 (AN)	58,000	57,000	-5,400	-2,800	-88,000	18,000	-14,000
2034 (D)	51,000	50,000	-7,600	-2,700	-93,000	-3,400	-18,000
2035 (W)	64,000	72,000	-5,300	-3,200	-98,000	29,000	11,000
2036 (W)	59,000	110,000	-4,700	-3,800	-110,000	50,000	61,000
2037 (W)	42,000	74,000	-6,400	-3,800	-110,000	-4,400	57,000
2038 (D)	39,000	49,000	-7,600	-3,400	-100,000	-27,000	30,000
2039 (W)	49,000	73,000	-6,300	-3,400	-100,000	10,000	40,000
2040 (D)	35,000	37,000	-6,100	-2,900	-96,000	-32,000	8,500
2041 (C)	31,000	25,000	-7,300	-2,400	-84,000	-37,000	-29,000
2042 (D)	35,000	28,000	-7,000	-2,000	-79,000	-25,000	-54,000
2043 (C)	35,000	30,000	-6,900	-1,900	-74,000	-17,000	-71,000
2044 (C)	37,000	30,000	-6,900	-1,800	-71,000	-12,000	-83,000
2045 (C)	51,000	33,000	-7,000	-1,800	-74,000	810	-82,000
2046 (AN)	72,000	72,000	-5,800	-2,500	-89,000	46,000	-36,000
2047 (C)	35,000	30,000	-6,900	-1,800	-82,000	-26,000	-62,000
2048 (W)	67,000	87,000	-5,500	-2,800	-92,000	54,000	-8,300
2049 (W)	56,000	73,000	-6,400	-2,900	-100,000	19,000	10,000
2050 (W)	42,000	55,000	-8,000	-2,800	-98,000	-11,000	-1,100
2051 (W)	62,000	110,000	-4,700	-3,700	-100,000	56,000	55,000
2052 (W)	48,000	56,000	-6,200	-3,700	-110,000	-14,000	41,000
2053 (AN)	45,000	58,000	-5,300	-3,500	-100,000	-8,300	32,000
2054 (D)	36,000	38,000	-6,100	-2,800	-94,000	-28,000	4,200
2055 (D)	48,000	48,000	-7,500	-2,900	-95,000	-8,800	-4,700
2056 (AN)	58,000	69,000	-5,300	-3,000	-98,000	21,000	16,000
2057 (BN)	47,000	60,000	-6,700	-3,200	-100,000	-3,300	13,000
2058 (AN)	61,000	64,000	-4,900	-3,100	-100,000	15,000	28,000
2059 (W)	54,000	73,000	-5,300	-3,500	-110,000	13,000	41,000
2060 (D)	27,000	28,000	-6,900	-2,600	-92,000	-47,000	-6,200
2061 (C)	41,000	34,000	-8,300	-2,500	-85,000	-20,000	-27,000
2062 (D)	43,000	27,000	-6,200	-2,100	-80,000	-18,000	-45,000
2063 (BN)	62,000	55,000	-5,400	-2,400	-87,000	22,000	-23,000
2064 (W)	64,000	57,000	-5,100	-2,800	-95,000	18,000	-4,100
2065 (BN)	39,000	25,000	-5,900	-2,100	-86,000	-30,000	-34,000

Bowman Subbasin Projected (Future Land Use) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		40,000	40,000	-8,200	-2,200	-83,000	-13,000	-47,000
2067 (C)		31,000	19,000	-7,300	-1,700	-71,000	-31,000	-78,000
2068 (C)		44,000	36,000	-8,800	-1,700	-74,000	-4,400	-82,000
2069 (BN)		59,000	51,000	-6,900	-2,100	-80,000	22,000	-61,000
2070 (W)		69,000	79,000	-5,500	-2,600	-95,000	45,000	-15,000
2071 (BN)		32,000	24,000	-7,100	-1,800	-83,000	-36,000	-51,000
2072 (W)		63,000	71,000	-6,300	-2,700	-90,000	36,000	-15,000
Average (2022-2072)		47,000	53,000	-6,400	-2,800	-91,000	-300	
2022-2072	W	55,000	74,000	-5,900	-3,400	-100,000		
	AN	59,000	66,000	-5,500	-3,000	-94,000		
	BN	43,000	37,000	-6,400	-2,300	-87,000		
	D	39,000	38,000	-7,000	-2,600	-91,000		
	C	36,000	29,000	-7,500	-2,000	-79,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Net Stream Seepage (net flows as acre-feet, rounded)

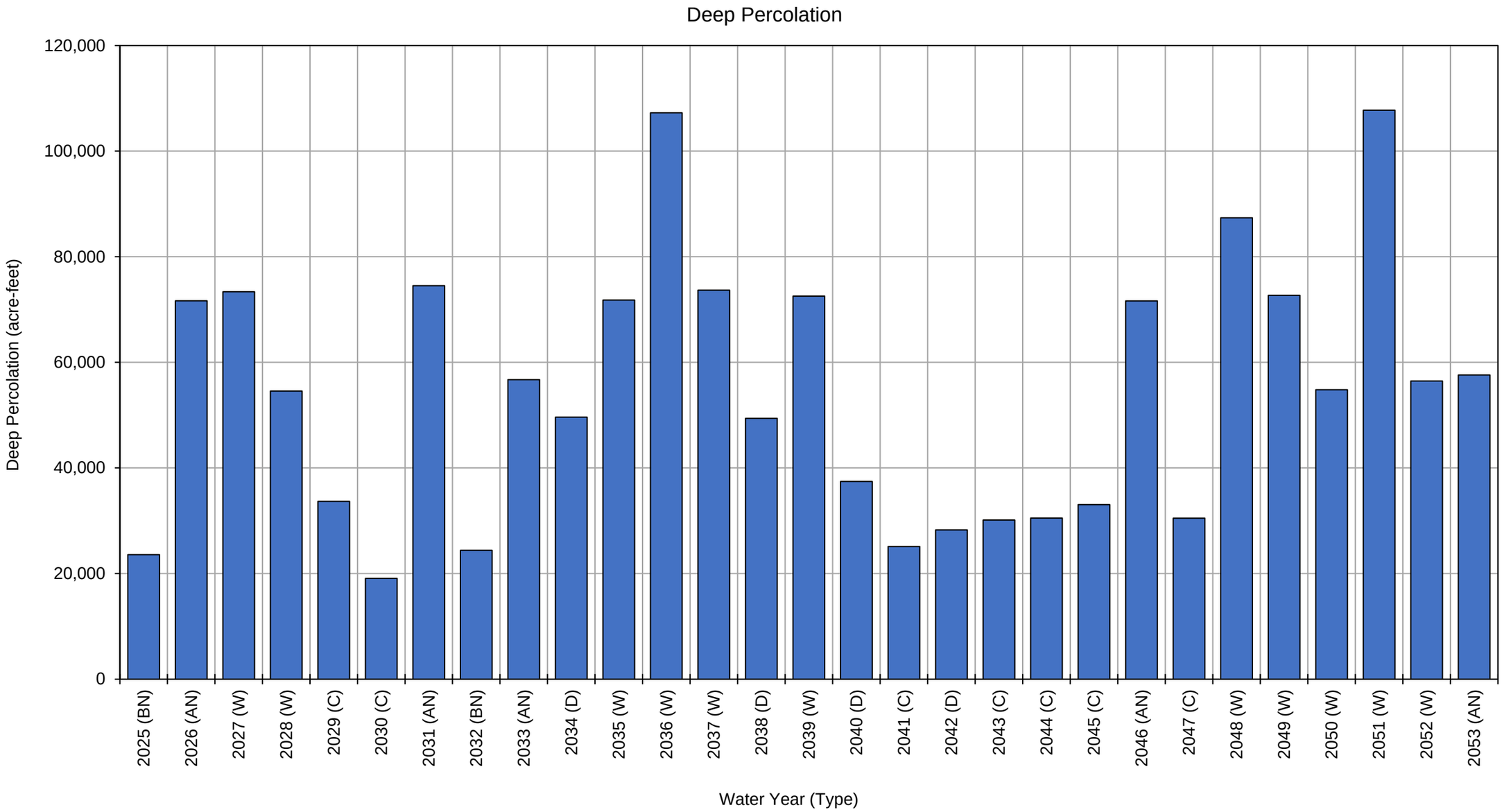
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	52,000
2023 (W)	48,000
2024 (W)	45,000
2025 (BN)	22,000
2026 (AN)	56,000
2027 (W)	54,000
2028 (W)	51,000
2029 (C)	35,000
2030 (C)	25,000
2031 (AN)	65,000
2032 (BN)	39,000
2033 (AN)	58,000
2034 (D)	51,000
2035 (W)	64,000
2036 (W)	59,000
2037 (W)	42,000
2038 (D)	39,000
2039 (W)	49,000
2040 (D)	35,000
2041 (C)	31,000
2042 (D)	35,000
2043 (C)	35,000
2044 (C)	37,000
2045 (C)	51,000
2046 (AN)	72,000
2047 (C)	35,000
2048 (W)	67,000
2049 (W)	56,000
2050 (W)	42,000
2051 (W)	62,000
2052 (W)	48,000
2053 (AN)	45,000
2054 (D)	36,000
2055 (D)	48,000
2056 (AN)	58,000
2057 (BN)	47,000
2058 (AN)	61,000
2059 (W)	54,000
2060 (D)	27,000
2061 (C)	41,000
2062 (D)	43,000
2063 (BN)	62,000
2064 (W)	64,000
2065 (BN)	39,000

Bowman Subbasin Projected (Future Land Use) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2066 (D)		40,000
2067 (C)		31,000
2068 (C)		44,000
2069 (BN)		59,000
2070 (W)		69,000
2071 (BN)		32,000
2072 (W)		63,000
Average (2022-2072)		47,000
2022-2072	W	55,000
	AN	59,000
	BN	43,000
	D	39,000
	C	36,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Deep Percolation from the SWS (acre-feet, rounded)

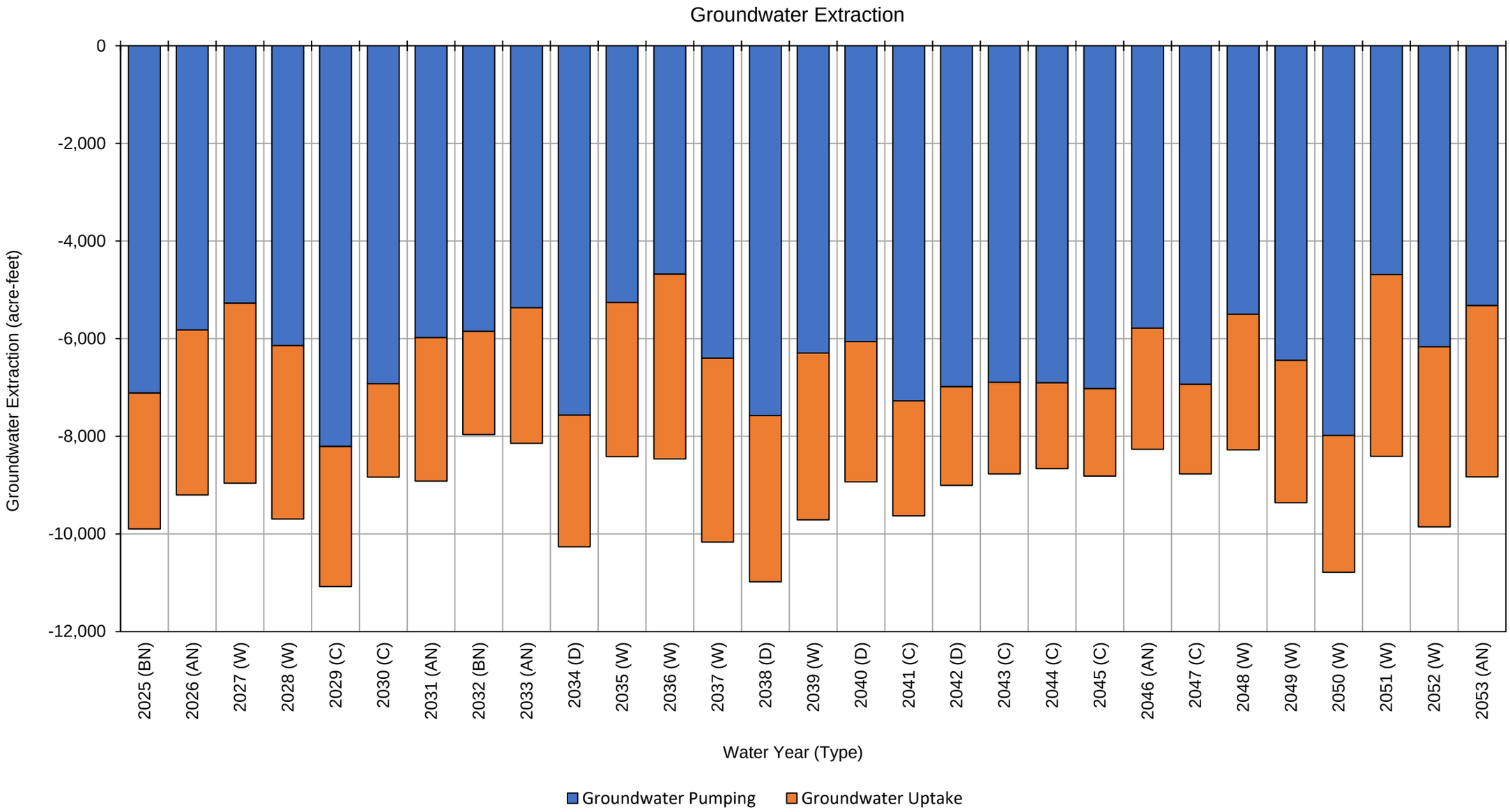
WY (Type)	Deep Percolation from the SWS
2022 (W)	73,000
2023 (W)	73,000
2024 (W)	74,000
2025 (BN)	24,000
2026 (AN)	72,000
2027 (W)	73,000
2028 (W)	55,000
2029 (C)	34,000
2030 (C)	19,000
2031 (AN)	75,000
2032 (BN)	24,000
2033 (AN)	57,000
2034 (D)	50,000
2035 (W)	72,000
2036 (W)	110,000
2037 (W)	74,000
2038 (D)	49,000
2039 (W)	73,000
2040 (D)	37,000
2041 (C)	25,000
2042 (D)	28,000
2043 (C)	30,000
2044 (C)	30,000
2045 (C)	33,000
2046 (AN)	72,000
2047 (C)	30,000
2048 (W)	87,000
2049 (W)	73,000
2050 (W)	55,000
2051 (W)	110,000
2052 (W)	56,000
2053 (AN)	58,000
2054 (D)	38,000
2055 (D)	48,000
2056 (AN)	69,000
2057 (BN)	60,000
2058 (AN)	64,000
2059 (W)	73,000
2060 (D)	28,000
2061 (C)	34,000
2062 (D)	27,000
2063 (BN)	55,000
2064 (W)	57,000
2065 (BN)	25,000

Bowman Subbasin Projected (Future Land Use) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2066 (D)		40,000
2067 (C)		19,000
2068 (C)		36,000
2069 (BN)		51,000
2070 (W)		79,000
2071 (BN)		24,000
2072 (W)		71,000
Average (2022-2072)		53,000
2022-2072	W	74,000
	AN	66,000
	BN	37,000
	D	38,000
	C	29,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Groundwater Extractions (acre-feet, rounded)

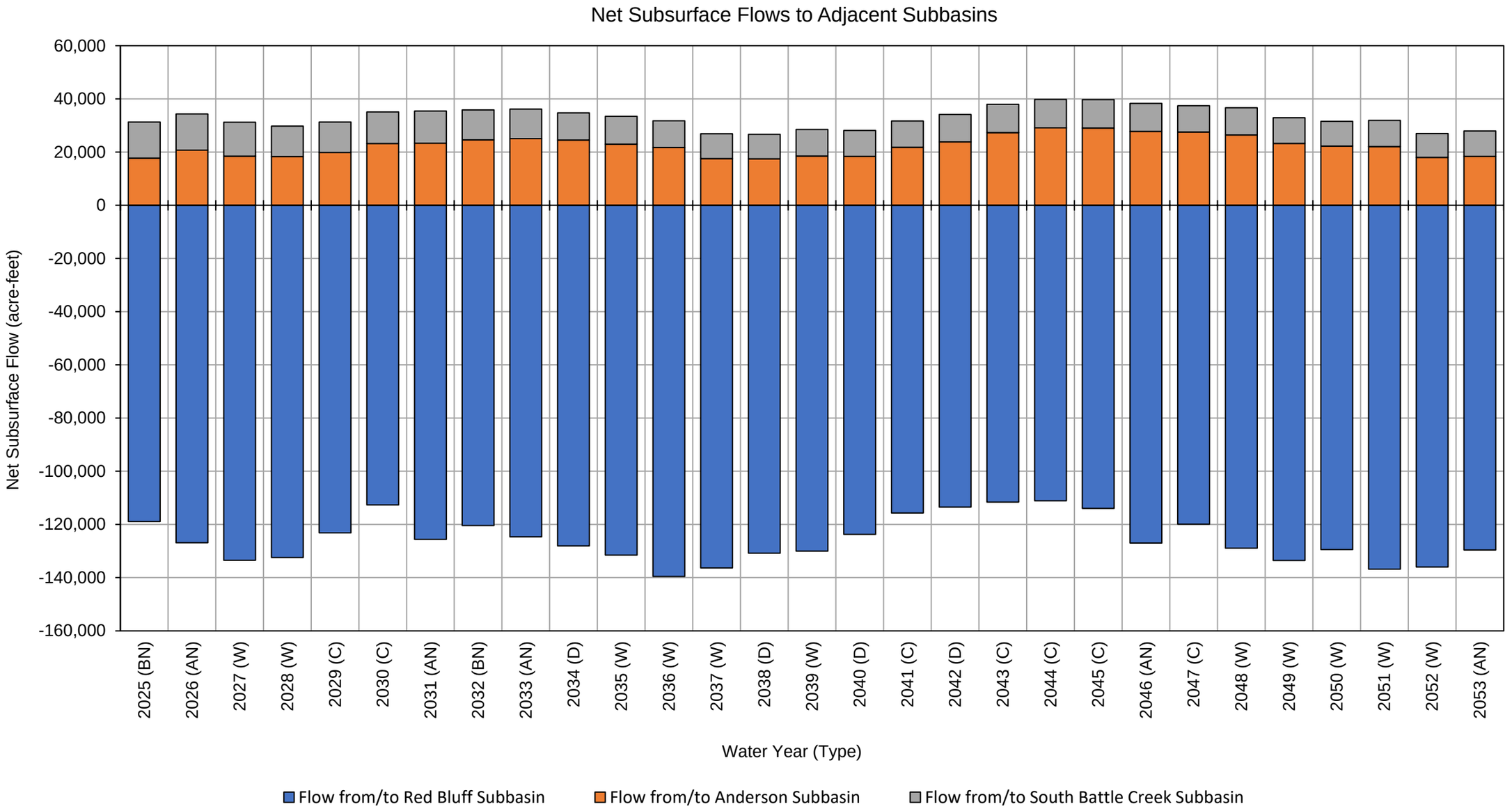
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-6,600	-3,800	-10,000
2023 (W)	-6,500	-3,800	-10,000
2024 (W)	-6,700	-3,900	-11,000
2025 (BN)	-7,100	-2,800	-9,900
2026 (AN)	-5,800	-3,400	-9,200
2027 (W)	-5,300	-3,700	-9,000
2028 (W)	-6,100	-3,600	-9,700
2029 (C)	-8,200	-2,900	-11,000
2030 (C)	-6,900	-1,900	-8,800
2031 (AN)	-6,000	-2,900	-8,900
2032 (BN)	-5,800	-2,100	-8,000
2033 (AN)	-5,400	-2,800	-8,100
2034 (D)	-7,600	-2,700	-10,000
2035 (W)	-5,300	-3,200	-8,400
2036 (W)	-4,700	-3,800	-8,500
2037 (W)	-6,400	-3,800	-10,000
2038 (D)	-7,600	-3,400	-11,000
2039 (W)	-6,300	-3,400	-9,700
2040 (D)	-6,100	-2,900	-8,900
2041 (C)	-7,300	-2,400	-9,600
2042 (D)	-7,000	-2,000	-9,000
2043 (C)	-6,900	-1,900	-8,800
2044 (C)	-6,900	-1,800	-8,700
2045 (C)	-7,000	-1,800	-8,800
2046 (AN)	-5,800	-2,500	-8,300
2047 (C)	-6,900	-1,800	-8,800
2048 (W)	-5,500	-2,800	-8,300
2049 (W)	-6,400	-2,900	-9,400
2050 (W)	-8,000	-2,800	-11,000
2051 (W)	-4,700	-3,700	-8,400
2052 (W)	-6,200	-3,700	-9,900
2053 (AN)	-5,300	-3,500	-8,800
2054 (D)	-6,100	-2,800	-9,000
2055 (D)	-7,500	-2,900	-10,000
2056 (AN)	-5,300	-3,000	-8,300
2057 (BN)	-6,700	-3,200	-9,900
2058 (AN)	-4,900	-3,100	-8,000
2059 (W)	-5,300	-3,500	-8,800
2060 (D)	-6,900	-2,600	-9,500
2061 (C)	-8,300	-2,500	-11,000
2062 (D)	-6,200	-2,100	-8,300
2063 (BN)	-5,400	-2,400	-7,800
2064 (W)	-5,100	-2,800	-7,900
2065 (BN)	-5,900	-2,100	-7,900

Bowman Subbasin Projected (Future Land Use) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2066 (D)		-8,200	-2,200	-10,000
2067 (C)		-7,300	-1,700	-9,000
2068 (C)		-8,800	-1,700	-10,000
2069 (BN)		-6,900	-2,100	-9,000
2070 (W)		-5,500	-2,600	-8,200
2071 (BN)		-7,100	-1,800	-8,900
2072 (W)		-6,300	-2,700	-9,000
Average (2022-2072)		-6,400	-2,800	-9,200
2022-2072	W	-5,900	-3,400	-9,300
	AN	-5,500	-3,000	-8,500
	BN	-6,400	-2,300	-8,800
	D	-7,000	-2,600	-9,600
	C	-7,500	-2,000	-9,500

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

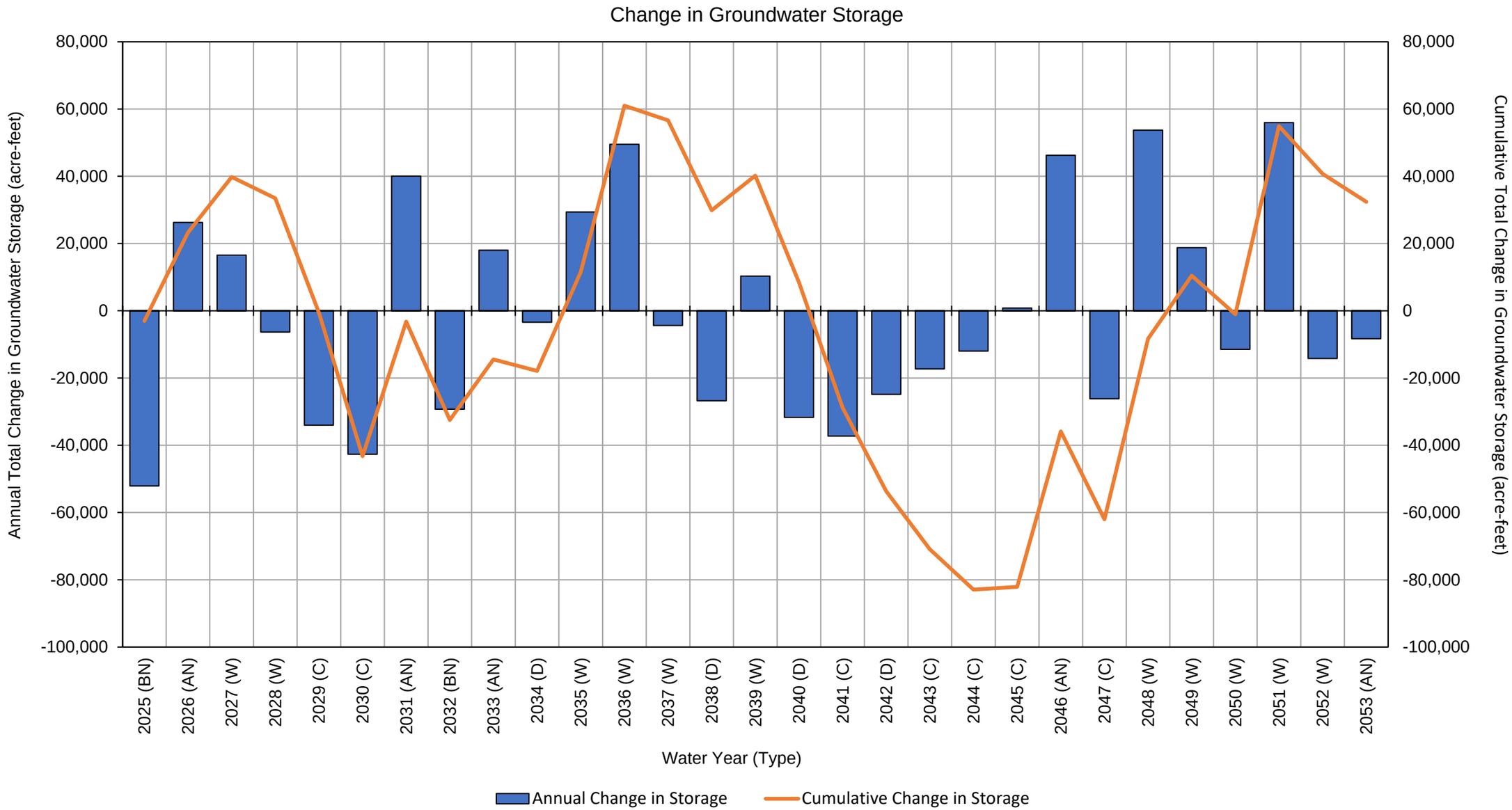
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Anderson Subbasin	Flow from/to South Battle Creek Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-120,000	20,000	17,000	-86,000
2023 (W)	-130,000	18,000	16,000	-96,000
2024 (W)	-130,000	16,000	15,000	-100,000
2025 (BN)	-120,000	18,000	14,000	-88,000
2026 (AN)	-130,000	21,000	14,000	-93,000
2027 (W)	-130,000	18,000	13,000	-100,000
2028 (W)	-130,000	18,000	11,000	-100,000
2029 (C)	-120,000	20,000	11,000	-92,000
2030 (C)	-110,000	23,000	12,000	-78,000
2031 (AN)	-130,000	23,000	12,000	-90,000
2032 (BN)	-120,000	25,000	11,000	-85,000
2033 (AN)	-120,000	25,000	11,000	-88,000
2034 (D)	-130,000	25,000	10,000	-93,000
2035 (W)	-130,000	23,000	10,000	-98,000
2036 (W)	-140,000	22,000	10,000	-110,000
2037 (W)	-140,000	18,000	9,300	-110,000
2038 (D)	-130,000	17,000	9,200	-100,000
2039 (W)	-130,000	18,000	10,000	-100,000
2040 (D)	-120,000	18,000	9,700	-96,000
2041 (C)	-120,000	22,000	9,900	-84,000
2042 (D)	-110,000	24,000	10,000	-79,000
2043 (C)	-110,000	27,000	11,000	-74,000
2044 (C)	-110,000	29,000	11,000	-71,000
2045 (C)	-110,000	29,000	11,000	-74,000
2046 (AN)	-130,000	28,000	11,000	-89,000
2047 (C)	-120,000	28,000	9,900	-82,000
2048 (W)	-130,000	26,000	10,000	-92,000
2049 (W)	-130,000	23,000	9,600	-100,000
2050 (W)	-130,000	22,000	9,300	-98,000
2051 (W)	-140,000	22,000	9,900	-100,000
2052 (W)	-140,000	18,000	9,000	-110,000
2053 (AN)	-130,000	18,000	9,500	-100,000
2054 (D)	-120,000	19,000	9,700	-94,000
2055 (D)	-130,000	21,000	9,800	-95,000
2056 (AN)	-130,000	21,000	10,000	-98,000
2057 (BN)	-130,000	20,000	9,700	-100,000
2058 (AN)	-130,000	20,000	9,600	-100,000
2059 (W)	-130,000	19,000	9,600	-110,000
2060 (D)	-120,000	19,000	9,300	-92,000
2061 (C)	-120,000	23,000	10,000	-85,000
2062 (D)	-120,000	26,000	10,000	-80,000
2063 (BN)	-120,000	26,000	10,000	-87,000
2064 (W)	-130,000	25,000	10,000	-95,000
2065 (BN)	-120,000	25,000	9,800	-86,000

Bowman Subbasin Projected (Future Land Use) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Anderson Subbasin	Flow from/to South Battle Creek Subbasin	Net Subsurface Flow from Adjacent Subbasins
2066 (D)		-120,000	27,000	10,000	-83,000
2067 (C)		-110,000	29,000	11,000	-71,000
2068 (C)		-110,000	30,000	11,000	-74,000
2069 (BN)		-120,000	30,000	11,000	-80,000
2070 (W)		-130,000	27,000	11,000	-95,000
2071 (BN)		-120,000	26,000	10,000	-83,000
2072 (W)		-130,000	27,000	11,000	-90,000
Average (2022-2072)		-130,000	23,000	11,000	-91,000
2022-2072	W	-130,000	21,000	11,000	-100,000
	AN	-130,000	22,000	11,000	-94,000
	BN	-120,000	24,000	11,000	-87,000
	D	-120,000	22,000	9,800	-91,000
	C	-120,000	26,000	11,000	-79,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Bowman Subbasin Projected (Future Land Use) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	28,000	28,000
2023 (W)	14,000	42,000
2024 (W)	6,800	49,000
2025 (BN)	-52,000	-3,000
2026 (AN)	26,000	23,000
2027 (W)	17,000	40,000
2028 (W)	-6,300	33,000
2029 (C)	-34,000	-580
2030 (C)	-43,000	-43,000
2031 (AN)	40,000	-3,200
2032 (BN)	-29,000	-32,000
2033 (AN)	18,000	-14,000
2034 (D)	-3,400	-18,000
2035 (W)	29,000	11,000
2036 (W)	50,000	61,000
2037 (W)	-4,400	57,000
2038 (D)	-27,000	30,000
2039 (W)	10,000	40,000
2040 (D)	-32,000	8,500
2041 (C)	-37,000	-29,000
2042 (D)	-25,000	-54,000
2043 (C)	-17,000	-71,000
2044 (C)	-12,000	-83,000
2045 (C)	810	-82,000
2046 (AN)	46,000	-36,000
2047 (C)	-26,000	-62,000
2048 (W)	54,000	-8,300
2049 (W)	19,000	10,000
2050 (W)	-11,000	-1,100
2051 (W)	56,000	55,000
2052 (W)	-14,000	41,000
2053 (AN)	-8,300	32,000
2054 (D)	-28,000	4,200
2055 (D)	-8,800	-4,700
2056 (AN)	21,000	16,000
2057 (BN)	-3,300	13,000
2058 (AN)	15,000	28,000
2059 (W)	13,000	41,000
2060 (D)	-47,000	-6,200
2061 (C)	-20,000	-27,000
2062 (D)	-18,000	-45,000
2063 (BN)	22,000	-23,000
2064 (W)	18,000	-4,100
2065 (BN)	-30,000	-34,000

Bowman Subbasin Projected (Future Land Use) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-13,000	-47,000
2067 (C)		-31,000	-78,000
2068 (C)		-4,400	-82,000
2069 (BN)		22,000	-61,000
2070 (W)		45,000	-15,000
2071 (BN)		-36,000	-51,000
2072 (W)		36,000	-15,000
Average (2022-2072)		-300	
2022-2072	W		
	AN		
	BN		
	D		
	C		

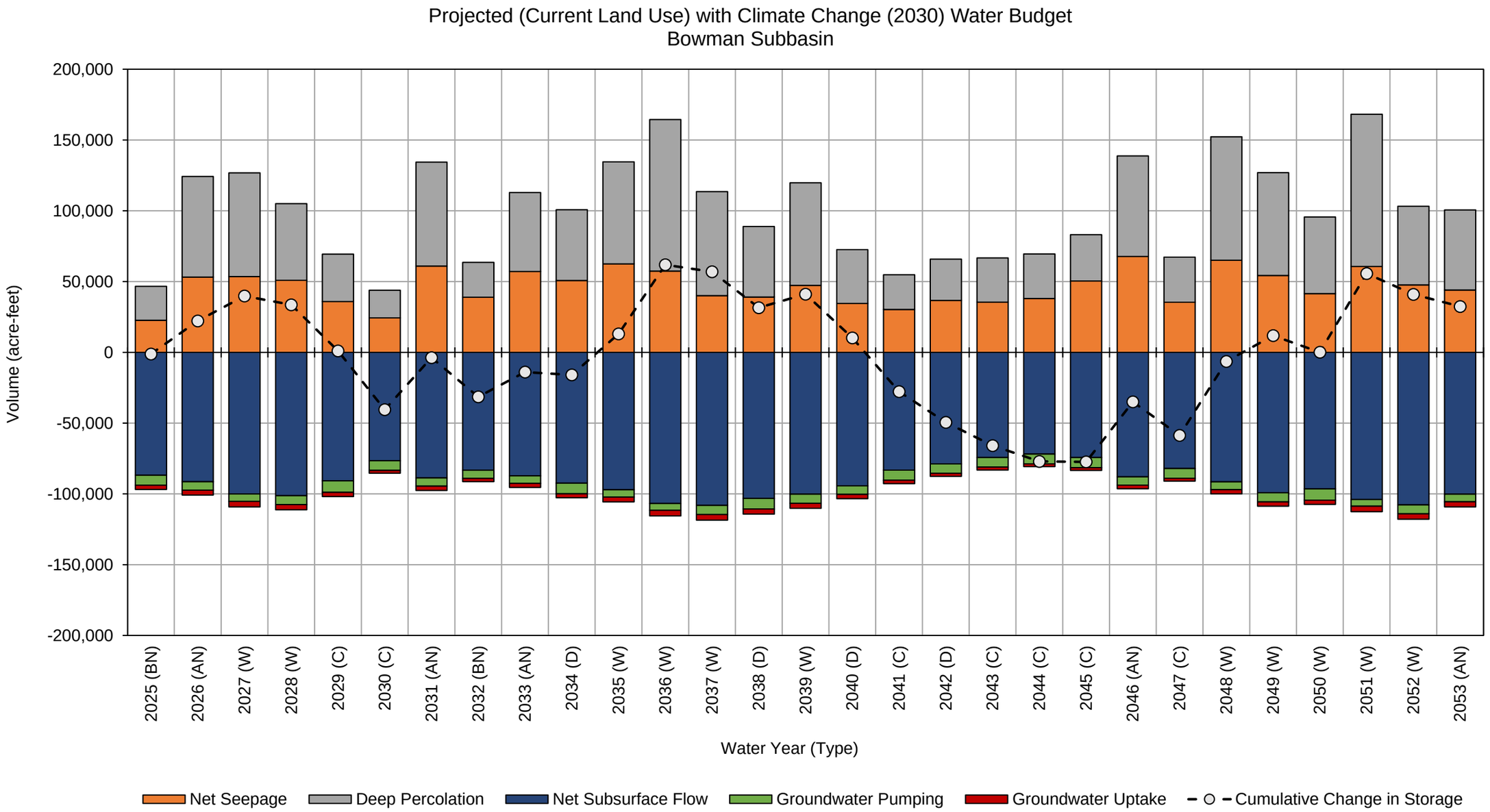
Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX B-4

Detailed Bowman Subbasin Water Budget Results:

Projected (Current Land Use) with Climate Change (2030) Model Results


Projected (Current Land Use) with Climate Change (2030) Water Budget
Bowman Subbasin
Volume (acre-feet)
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Bowman Subbasin Projected (Current Land Use) with Climate Change (2030) Water Budget Summary (acre-feet, rounded)

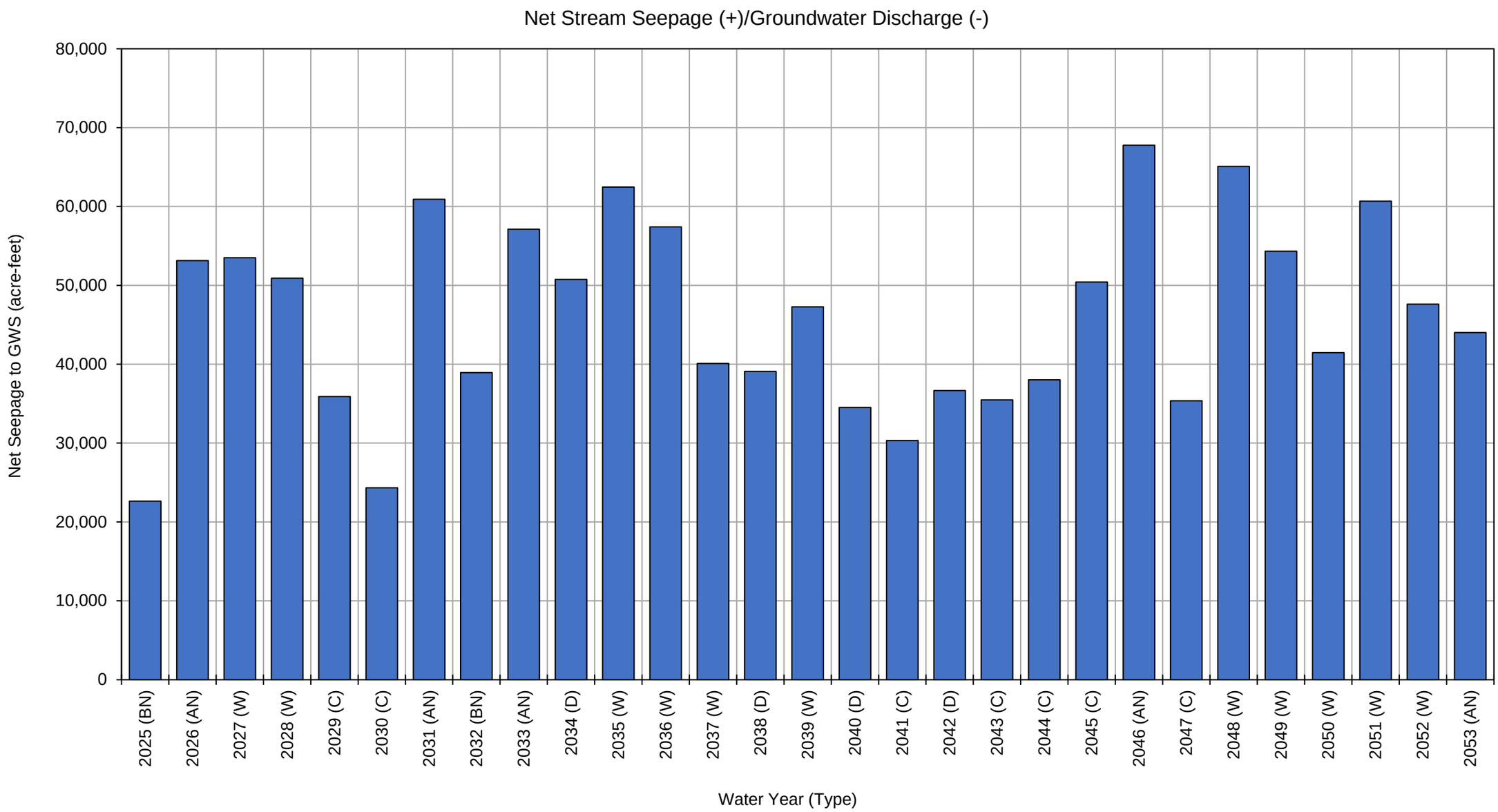
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	51,000	73,000	-6,700	-4,000	-85,000	28,000	28,000
2023 (W)	46,000	73,000	-6,500	-3,900	-95,000	14,000	42,000
2024 (W)	44,000	74,000	-6,700	-4,000	-100,000	6,800	49,000
2025 (BN)	23,000	24,000	-7,100	-3,000	-87,000	-50,000	-1,200
2026 (AN)	53,000	71,000	-5,900	-3,500	-91,000	23,000	22,000
2027 (W)	54,000	73,000	-5,200	-3,900	-100,000	18,000	40,000
2028 (W)	51,000	54,000	-6,300	-3,700	-100,000	-6,200	34,000
2029 (C)	36,000	33,000	-8,200	-3,000	-91,000	-33,000	1,000
2030 (C)	24,000	20,000	-6,900	-2,000	-77,000	-42,000	-40,000
2031 (AN)	61,000	73,000	-5,800	-3,100	-89,000	37,000	-3,700
2032 (BN)	39,000	25,000	-5,800	-2,200	-83,000	-28,000	-31,000
2033 (AN)	57,000	56,000	-5,400	-2,900	-87,000	17,000	-14,000
2034 (D)	51,000	50,000	-7,500	-2,900	-92,000	-2,000	-16,000
2035 (W)	62,000	72,000	-5,200	-3,400	-97,000	29,000	13,000
2036 (W)	57,000	110,000	-4,800	-4,000	-110,000	49,000	62,000
2037 (W)	40,000	73,000	-6,500	-3,900	-110,000	-5,000	57,000
2038 (D)	39,000	50,000	-7,500	-3,600	-100,000	-25,000	32,000
2039 (W)	47,000	72,000	-6,400	-3,600	-100,000	9,600	41,000
2040 (D)	35,000	38,000	-6,000	-3,000	-94,000	-31,000	10,000
2041 (C)	30,000	24,000	-7,200	-2,400	-83,000	-38,000	-28,000
2042 (D)	37,000	29,000	-6,700	-2,100	-79,000	-22,000	-49,000
2043 (C)	35,000	31,000	-6,800	-2,000	-74,000	-16,000	-66,000
2044 (C)	38,000	31,000	-6,900	-1,900	-72,000	-11,000	-77,000
2045 (C)	50,000	33,000	-7,200	-1,900	-74,000	-270	-77,000
2046 (AN)	68,000	71,000	-5,900	-2,600	-88,000	42,000	-35,000
2047 (C)	35,000	32,000	-6,900	-2,000	-82,000	-24,000	-59,000
2048 (W)	65,000	87,000	-5,500	-3,000	-91,000	52,000	-6,400
2049 (W)	54,000	73,000	-6,400	-3,100	-99,000	18,000	12,000
2050 (W)	41,000	54,000	-8,000	-2,900	-96,000	-12,000	75
2051 (W)	61,000	110,000	-4,800	-3,900	-100,000	56,000	56,000
2052 (W)	48,000	56,000	-6,300	-3,800	-110,000	-15,000	41,000
2053 (AN)	44,000	57,000	-5,400	-3,600	-100,000	-8,500	32,000
2054 (D)	36,000	39,000	-6,100	-3,000	-93,000	-27,000	5,200
2055 (D)	48,000	48,000	-7,400	-3,100	-94,000	-7,800	-2,600
2056 (AN)	57,000	68,000	-5,300	-3,100	-96,000	20,000	17,000
2057 (BN)	46,000	61,000	-6,600	-3,400	-99,000	-1,800	15,000
2058 (AN)	58,000	63,000	-4,900	-3,300	-100,000	13,000	29,000
2059 (W)	53,000	73,000	-5,200	-3,700	-100,000	13,000	42,000
2060 (D)	28,000	29,000	-6,600	-2,700	-92,000	-44,000	-2,200
2061 (C)	41,000	34,000	-8,100	-2,700	-85,000	-20,000	-23,000
2062 (D)	42,000	27,000	-6,200	-2,200	-79,000	-19,000	-41,000
2063 (BN)	60,000	55,000	-5,300	-2,500	-86,000	21,000	-20,000
2064 (W)	63,000	57,000	-5,000	-3,000	-94,000	18,000	-2,100
2065 (BN)	39,000	25,000	-5,800	-2,200	-85,000	-29,000	-32,000

Bowman Subbasin Projected (Current Land Use) with Climate Change (2030) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		40,000	41,000	-8,200	-2,300	-82,000	-12,000	-44,000
2067 (C)		30,000	20,000	-7,300	-1,800	-71,000	-30,000	-74,000
2068 (C)		44,000	37,000	-9,000	-1,800	-74,000	-4,300	-78,000
2069 (BN)		58,000	52,000	-7,000	-2,200	-79,000	22,000	-56,000
2070 (W)		67,000	78,000	-5,500	-2,800	-93,000	43,000	-13,000
2071 (BN)		33,000	24,000	-7,100	-1,900	-82,000	-34,000	-47,000
2072 (W)		62,000	72,000	-6,300	-2,900	-89,000	35,000	-12,000
Average (2022-2072)		47,000	53,000	-6,400	-2,900	-91,000	-240	
2022-2072	W	54,000	74,000	-6,000	-3,500	-98,000		
	AN	57,000	66,000	-5,500	-3,100	-93,000		
	BN	43,000	38,000	-6,400	-2,500	-86,000		
	D	39,000	39,000	-6,900	-2,800	-90,000		
	C	36,000	29,000	-7,400	-2,200	-78,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Bowman Subbasin Projected (Current Land Use) with Climate Change (2030) Net Stream Seepage (net flows as acre-feet, rounded)

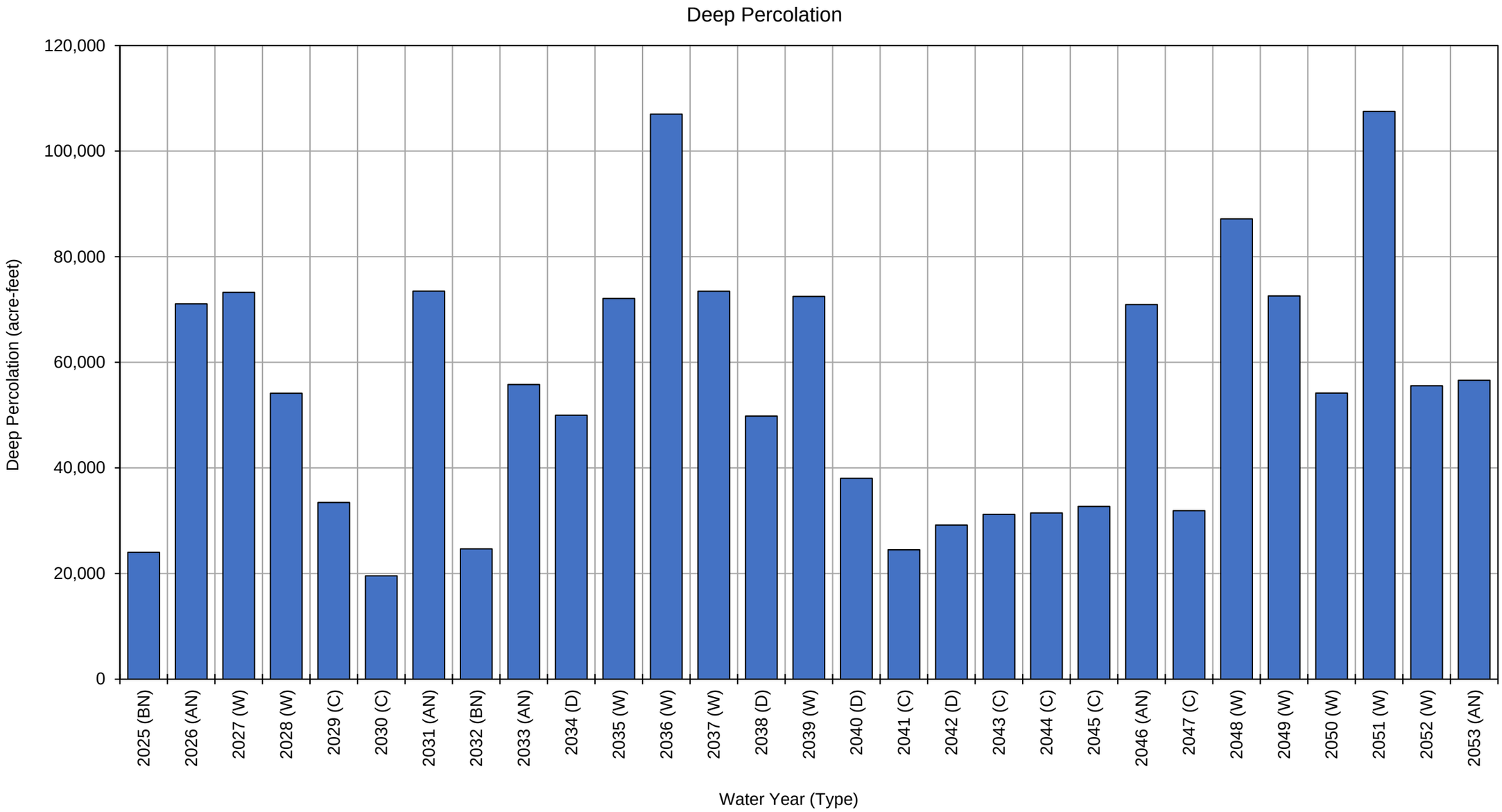
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	51,000
2023 (W)	46,000
2024 (W)	44,000
2025 (BN)	23,000
2026 (AN)	53,000
2027 (W)	54,000
2028 (W)	51,000
2029 (C)	36,000
2030 (C)	24,000
2031 (AN)	61,000
2032 (BN)	39,000
2033 (AN)	57,000
2034 (D)	51,000
2035 (W)	62,000
2036 (W)	57,000
2037 (W)	40,000
2038 (D)	39,000
2039 (W)	47,000
2040 (D)	35,000
2041 (C)	30,000
2042 (D)	37,000
2043 (C)	35,000
2044 (C)	38,000
2045 (C)	50,000
2046 (AN)	68,000
2047 (C)	35,000
2048 (W)	65,000
2049 (W)	54,000
2050 (W)	41,000
2051 (W)	61,000
2052 (W)	48,000
2053 (AN)	44,000
2054 (D)	36,000
2055 (D)	48,000
2056 (AN)	57,000
2057 (BN)	46,000
2058 (AN)	58,000
2059 (W)	53,000
2060 (D)	28,000
2061 (C)	41,000
2062 (D)	42,000
2063 (BN)	60,000
2064 (W)	63,000
2065 (BN)	39,000

Bowman Subbasin Projected (Current Land Use) with Climate Change (2030) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2066 (D)		40,000
2067 (C)		30,000
2068 (C)		44,000
2069 (BN)		58,000
2070 (W)		67,000
2071 (BN)		33,000
2072 (W)		62,000
Average (2022-2072)		47,000
2022-2072	W	54,000
	AN	57,000
	BN	43,000
	D	39,000
	C	36,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Bowman Subbasin Projected (Current Land Use) with Climate Change (2030) Deep Percolation from the SWS (acre-feet, rounded)

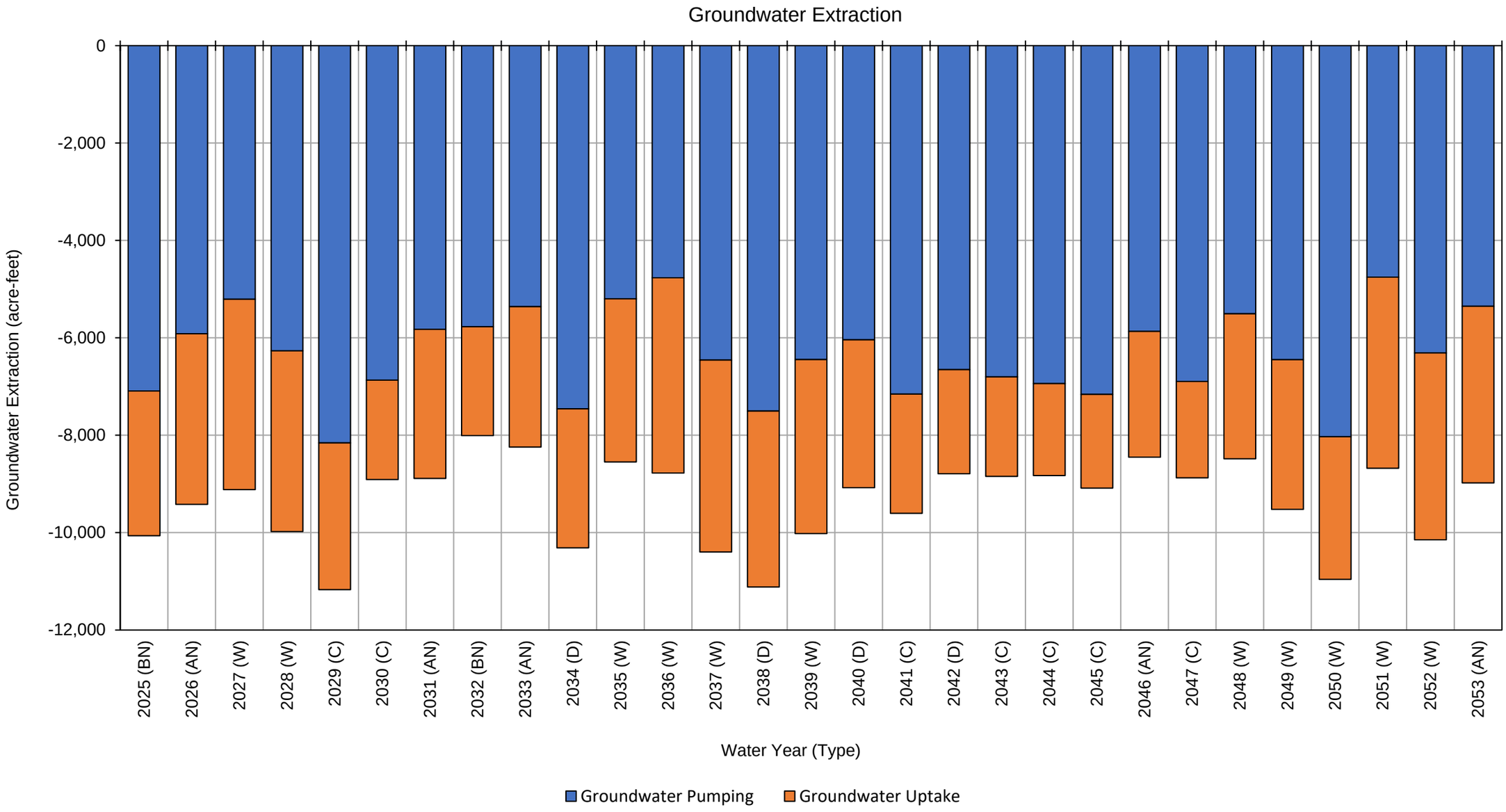
WY (Type)	Deep Percolation from the SWS
2022 (W)	73,000
2023 (W)	73,000
2024 (W)	74,000
2025 (BN)	24,000
2026 (AN)	71,000
2027 (W)	73,000
2028 (W)	54,000
2029 (C)	33,000
2030 (C)	20,000
2031 (AN)	73,000
2032 (BN)	25,000
2033 (AN)	56,000
2034 (D)	50,000
2035 (W)	72,000
2036 (W)	110,000
2037 (W)	73,000
2038 (D)	50,000
2039 (W)	72,000
2040 (D)	38,000
2041 (C)	24,000
2042 (D)	29,000
2043 (C)	31,000
2044 (C)	31,000
2045 (C)	33,000
2046 (AN)	71,000
2047 (C)	32,000
2048 (W)	87,000
2049 (W)	73,000
2050 (W)	54,000
2051 (W)	110,000
2052 (W)	56,000
2053 (AN)	57,000
2054 (D)	39,000
2055 (D)	48,000
2056 (AN)	68,000
2057 (BN)	61,000
2058 (AN)	63,000
2059 (W)	73,000
2060 (D)	29,000
2061 (C)	34,000
2062 (D)	27,000
2063 (BN)	55,000
2064 (W)	57,000
2065 (BN)	25,000

Bowman Subbasin Projected (Current Land Use) with Climate Change (2030) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2066 (D)		41,000
2067 (C)		20,000
2068 (C)		37,000
2069 (BN)		52,000
2070 (W)		78,000
2071 (BN)		24,000
2072 (W)		72,000
Average (2022-2072)		53,000
2022-2072	W	74,000
	AN	66,000
	BN	38,000
	D	39,000
	C	29,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Bowman Subbasin Projected (Current Land Use) with Climate Change (2030) Groundwater Extractions (acre-feet, rounded)

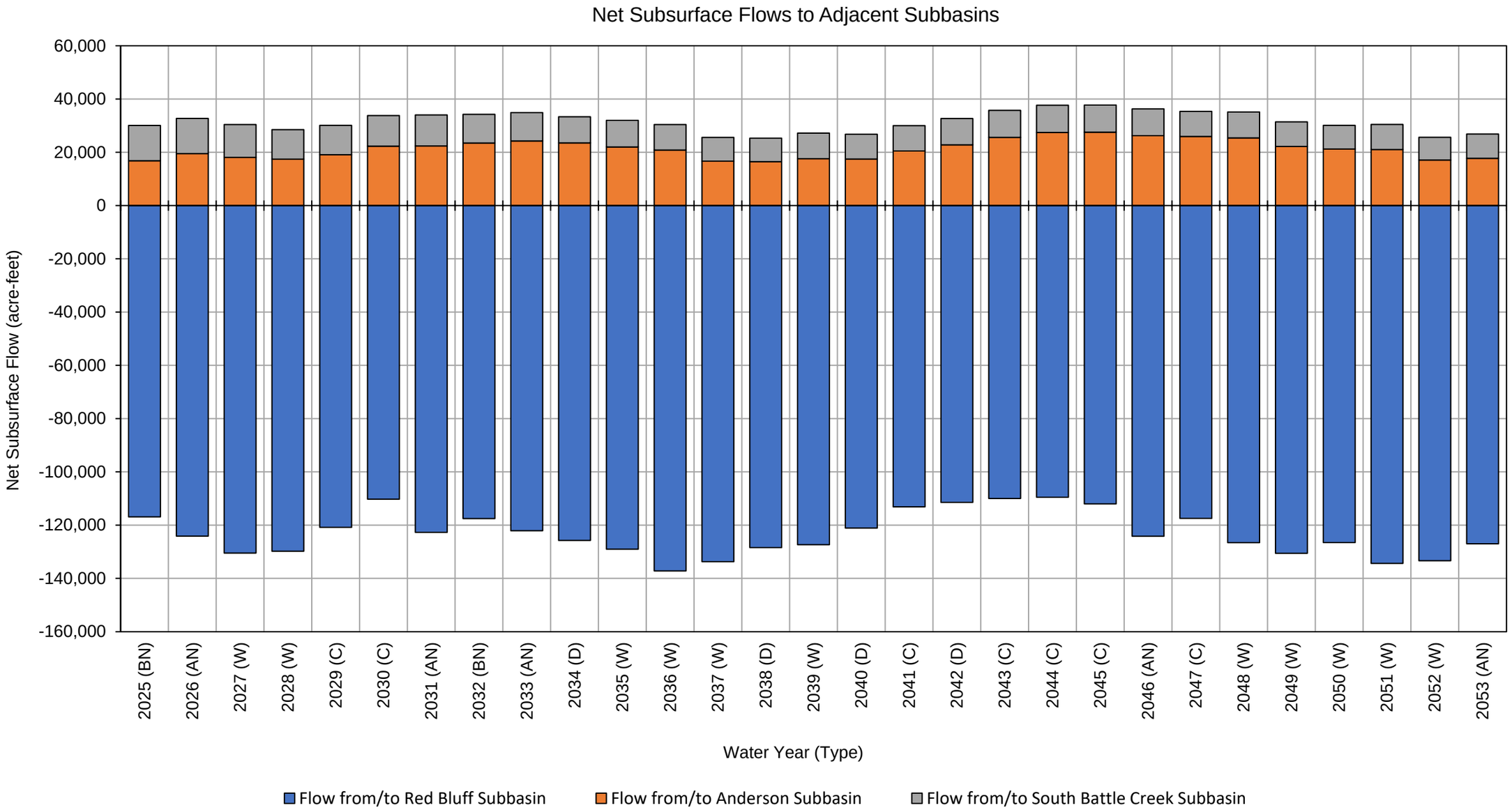
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-6,700	-4,000	-11,000
2023 (W)	-6,500	-3,900	-10,000
2024 (W)	-6,700	-4,000	-11,000
2025 (BN)	-7,100	-3,000	-10,000
2026 (AN)	-5,900	-3,500	-9,400
2027 (W)	-5,200	-3,900	-9,100
2028 (W)	-6,300	-3,700	-10,000
2029 (C)	-8,200	-3,000	-11,000
2030 (C)	-6,900	-2,000	-8,900
2031 (AN)	-5,800	-3,100	-8,900
2032 (BN)	-5,800	-2,200	-8,000
2033 (AN)	-5,400	-2,900	-8,200
2034 (D)	-7,500	-2,900	-10,000
2035 (W)	-5,200	-3,400	-8,600
2036 (W)	-4,800	-4,000	-8,800
2037 (W)	-6,500	-3,900	-10,000
2038 (D)	-7,500	-3,600	-11,000
2039 (W)	-6,400	-3,600	-10,000
2040 (D)	-6,000	-3,000	-9,100
2041 (C)	-7,200	-2,400	-9,600
2042 (D)	-6,700	-2,100	-8,800
2043 (C)	-6,800	-2,000	-8,800
2044 (C)	-6,900	-1,900	-8,800
2045 (C)	-7,200	-1,900	-9,100
2046 (AN)	-5,900	-2,600	-8,500
2047 (C)	-6,900	-2,000	-8,900
2048 (W)	-5,500	-3,000	-8,500
2049 (W)	-6,400	-3,100	-9,500
2050 (W)	-8,000	-2,900	-11,000
2051 (W)	-4,800	-3,900	-8,700
2052 (W)	-6,300	-3,800	-10,000
2053 (AN)	-5,400	-3,600	-9,000
2054 (D)	-6,100	-3,000	-9,100
2055 (D)	-7,400	-3,100	-10,000
2056 (AN)	-5,300	-3,100	-8,400
2057 (BN)	-6,600	-3,400	-10,000
2058 (AN)	-4,900	-3,300	-8,200
2059 (W)	-5,200	-3,700	-8,900
2060 (D)	-6,600	-2,700	-9,300
2061 (C)	-8,100	-2,700	-11,000
2062 (D)	-6,200	-2,200	-8,400
2063 (BN)	-5,300	-2,500	-7,900
2064 (W)	-5,000	-3,000	-8,000
2065 (BN)	-5,800	-2,200	-8,000

Bowman Subbasin Projected (Current Land Use) with Climate Change (2030) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2066 (D)		-8,200	-2,300	-10,000
2067 (C)		-7,300	-1,800	-9,100
2068 (C)		-9,000	-1,800	-11,000
2069 (BN)		-7,000	-2,200	-9,200
2070 (W)		-5,500	-2,800	-8,300
2071 (BN)		-7,100	-1,900	-9,000
2072 (W)		-6,300	-2,900	-9,200
Average (2022-2072)		-6,400	-2,900	-9,300
2022-2072	W	-6,000	-3,500	-9,500
	AN	-5,500	-3,100	-8,600
	BN	-6,400	-2,500	-8,900
	D	-6,900	-2,800	-9,700
	C	-7,400	-2,200	-9,600

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Bowman Subbasin Projected (Current Land Use) with Climate Change (2030) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

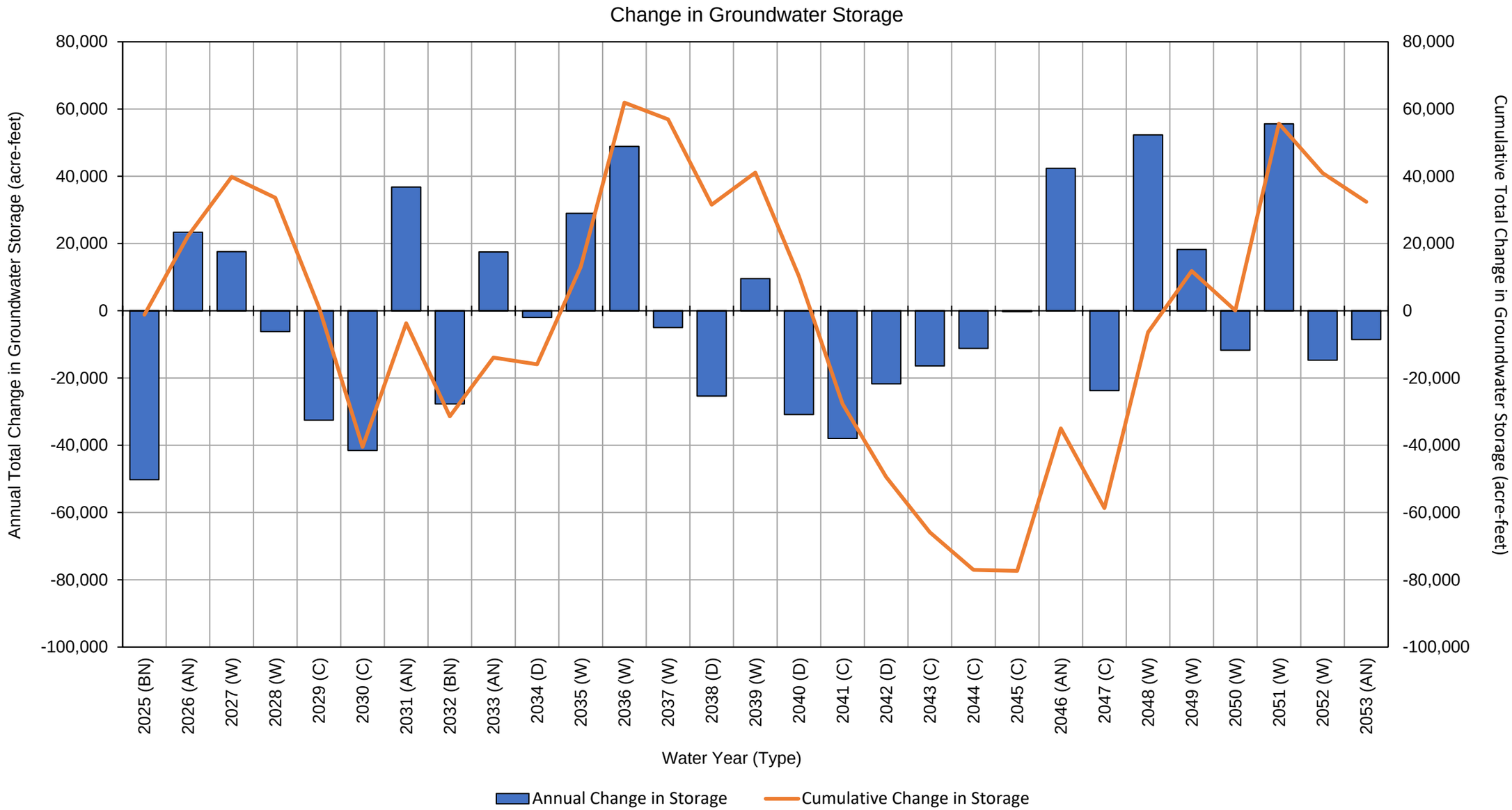
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Anderson Subbasin	Flow from/to South Battle Creek Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-120,000	19,000	17,000	-85,000
2023 (W)	-130,000	17,000	15,000	-95,000
2024 (W)	-130,000	15,000	14,000	-100,000
2025 (BN)	-120,000	17,000	13,000	-87,000
2026 (AN)	-120,000	19,000	13,000	-91,000
2027 (W)	-130,000	18,000	12,000	-100,000
2028 (W)	-130,000	17,000	11,000	-100,000
2029 (C)	-120,000	19,000	11,000	-91,000
2030 (C)	-110,000	22,000	11,000	-77,000
2031 (AN)	-120,000	22,000	12,000	-89,000
2032 (BN)	-120,000	23,000	11,000	-83,000
2033 (AN)	-120,000	24,000	11,000	-87,000
2034 (D)	-130,000	24,000	9,800	-92,000
2035 (W)	-130,000	22,000	10,000	-97,000
2036 (W)	-140,000	21,000	9,600	-110,000
2037 (W)	-130,000	17,000	8,900	-110,000
2038 (D)	-130,000	16,000	8,800	-100,000
2039 (W)	-130,000	18,000	9,600	-100,000
2040 (D)	-120,000	17,000	9,300	-94,000
2041 (C)	-110,000	21,000	9,500	-83,000
2042 (D)	-110,000	23,000	9,900	-79,000
2043 (C)	-110,000	26,000	10,000	-74,000
2044 (C)	-110,000	27,000	10,000	-72,000
2045 (C)	-110,000	28,000	10,000	-74,000
2046 (AN)	-120,000	26,000	10,000	-88,000
2047 (C)	-120,000	26,000	9,400	-82,000
2048 (W)	-130,000	25,000	9,800	-91,000
2049 (W)	-130,000	22,000	9,200	-99,000
2050 (W)	-130,000	21,000	8,900	-96,000
2051 (W)	-130,000	21,000	9,400	-100,000
2052 (W)	-130,000	17,000	8,500	-110,000
2053 (AN)	-130,000	18,000	9,100	-100,000
2054 (D)	-120,000	19,000	9,400	-93,000
2055 (D)	-120,000	20,000	9,400	-94,000
2056 (AN)	-130,000	21,000	9,700	-96,000
2057 (BN)	-130,000	19,000	9,300	-99,000
2058 (AN)	-130,000	19,000	9,200	-100,000
2059 (W)	-130,000	18,000	9,200	-100,000
2060 (D)	-120,000	18,000	8,900	-92,000
2061 (C)	-120,000	21,000	9,700	-85,000
2062 (D)	-110,000	24,000	9,800	-79,000
2063 (BN)	-120,000	25,000	9,900	-86,000
2064 (W)	-130,000	24,000	9,700	-94,000
2065 (BN)	-120,000	24,000	9,400	-85,000

Bowman Subbasin Projected (Current Land Use) with Climate Change (2030) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Anderson Subbasin	Flow from/to South Battle Creek Subbasin	Net Subsurface Flow from Adjacent Subbasins
2066 (D)		-120,000	25,000	9,600	-82,000
2067 (C)		-110,000	27,000	10,000	-71,000
2068 (C)		-110,000	29,000	10,000	-74,000
2069 (BN)		-120,000	28,000	11,000	-79,000
2070 (W)		-130,000	26,000	10,000	-93,000
2071 (BN)		-120,000	25,000	9,900	-82,000
2072 (W)		-120,000	25,000	11,000	-89,000
Average (2022-2072)		-120,000	22,000	10,000	-91,000
2022-2072	W	-130,000	20,000	11,000	-98,000
	AN	-130,000	21,000	11,000	-93,000
	BN	-120,000	23,000	10,000	-86,000
	D	-120,000	21,000	9,400	-90,000
	C	-110,000	25,000	10,000	-78,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Bowman Subbasin Projected (Current Land Use) with Climate Change (2030) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	28,000	28,000
2023 (W)	14,000	42,000
2024 (W)	6,800	49,000
2025 (BN)	-50,000	-1,200
2026 (AN)	23,000	22,000
2027 (W)	18,000	40,000
2028 (W)	-6,200	34,000
2029 (C)	-33,000	1,000
2030 (C)	-42,000	-40,000
2031 (AN)	37,000	-3,700
2032 (BN)	-28,000	-31,000
2033 (AN)	17,000	-14,000
2034 (D)	-2,000	-16,000
2035 (W)	29,000	13,000
2036 (W)	49,000	62,000
2037 (W)	-5,000	57,000
2038 (D)	-25,000	32,000
2039 (W)	9,600	41,000
2040 (D)	-31,000	10,000
2041 (C)	-38,000	-28,000
2042 (D)	-22,000	-49,000
2043 (C)	-16,000	-66,000
2044 (C)	-11,000	-77,000
2045 (C)	-270	-77,000
2046 (AN)	42,000	-35,000
2047 (C)	-24,000	-59,000
2048 (W)	52,000	-6,400
2049 (W)	18,000	12,000
2050 (W)	-12,000	75
2051 (W)	56,000	56,000
2052 (W)	-15,000	41,000
2053 (AN)	-8,500	32,000
2054 (D)	-27,000	5,200
2055 (D)	-7,800	-2,600
2056 (AN)	20,000	17,000
2057 (BN)	-1,800	15,000
2058 (AN)	13,000	29,000
2059 (W)	13,000	42,000
2060 (D)	-44,000	-2,200
2061 (C)	-20,000	-23,000
2062 (D)	-19,000	-41,000
2063 (BN)	21,000	-20,000
2064 (W)	18,000	-2,100
2065 (BN)	-29,000	-32,000

Bowman Subbasin Projected (Current Land Use) with Climate Change (2030) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-12,000	-44,000
2067 (C)		-30,000	-74,000
2068 (C)		-4,300	-78,000
2069 (BN)		22,000	-56,000
2070 (W)		43,000	-13,000
2071 (BN)		-34,000	-47,000
2072 (W)		35,000	-12,000
Average (2022-2072)		-240	
2022-2072	W		
	AN		
	BN		
	D		
	C		

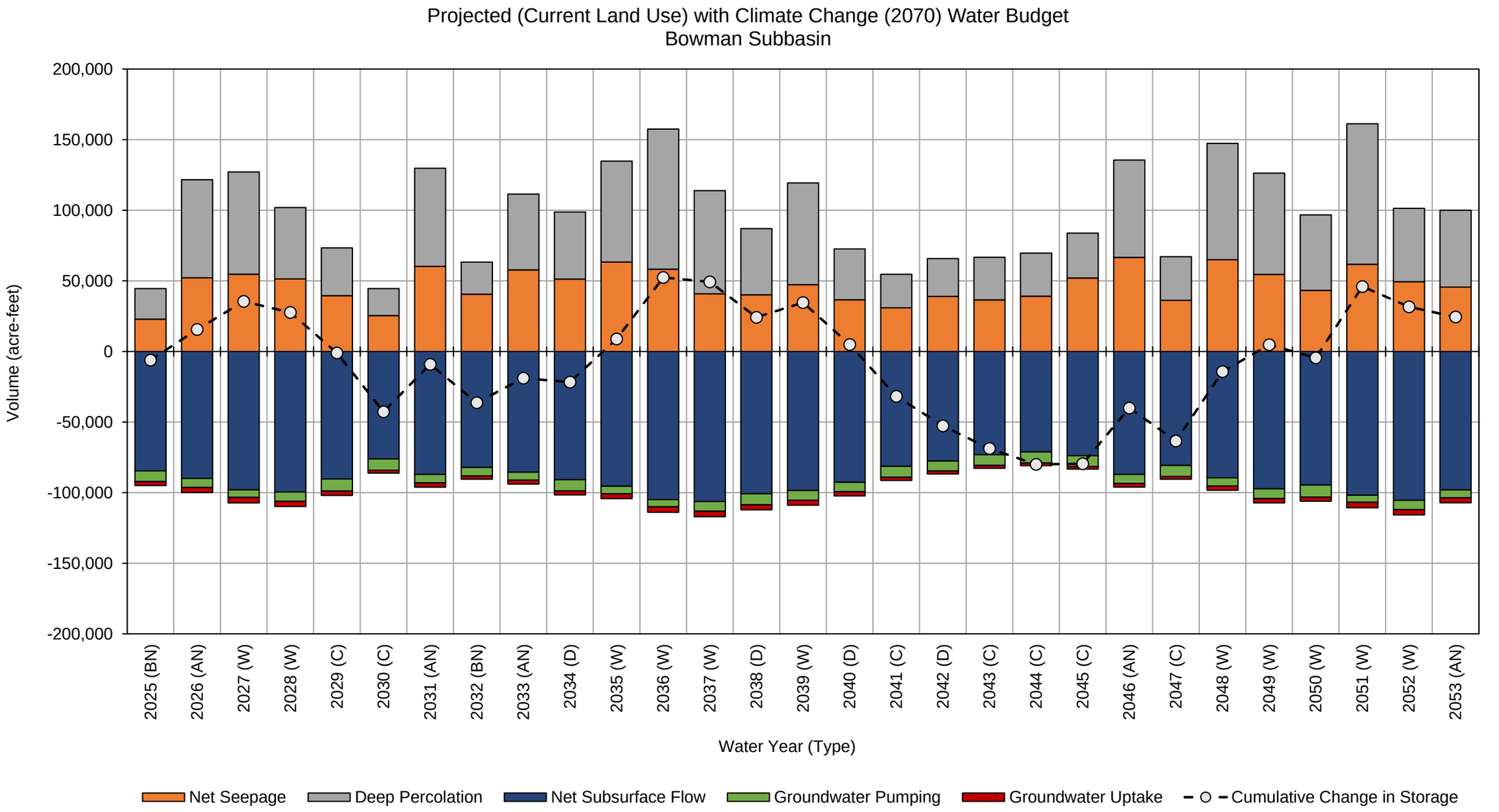
Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX B-5

Detailed Bowman Subbasin Water Budget Results:

Projected (Current Land Use) with Climate Change (2070) Model Results


Projected (Current Land Use) with Climate Change (2070) Water Budget
Bowman Subbasin
Volume (acre-feet)
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Bowman Subbasin Projected (Current Land Use) with Climate Change (2070) Water Budget Summary (acre-feet, rounded)

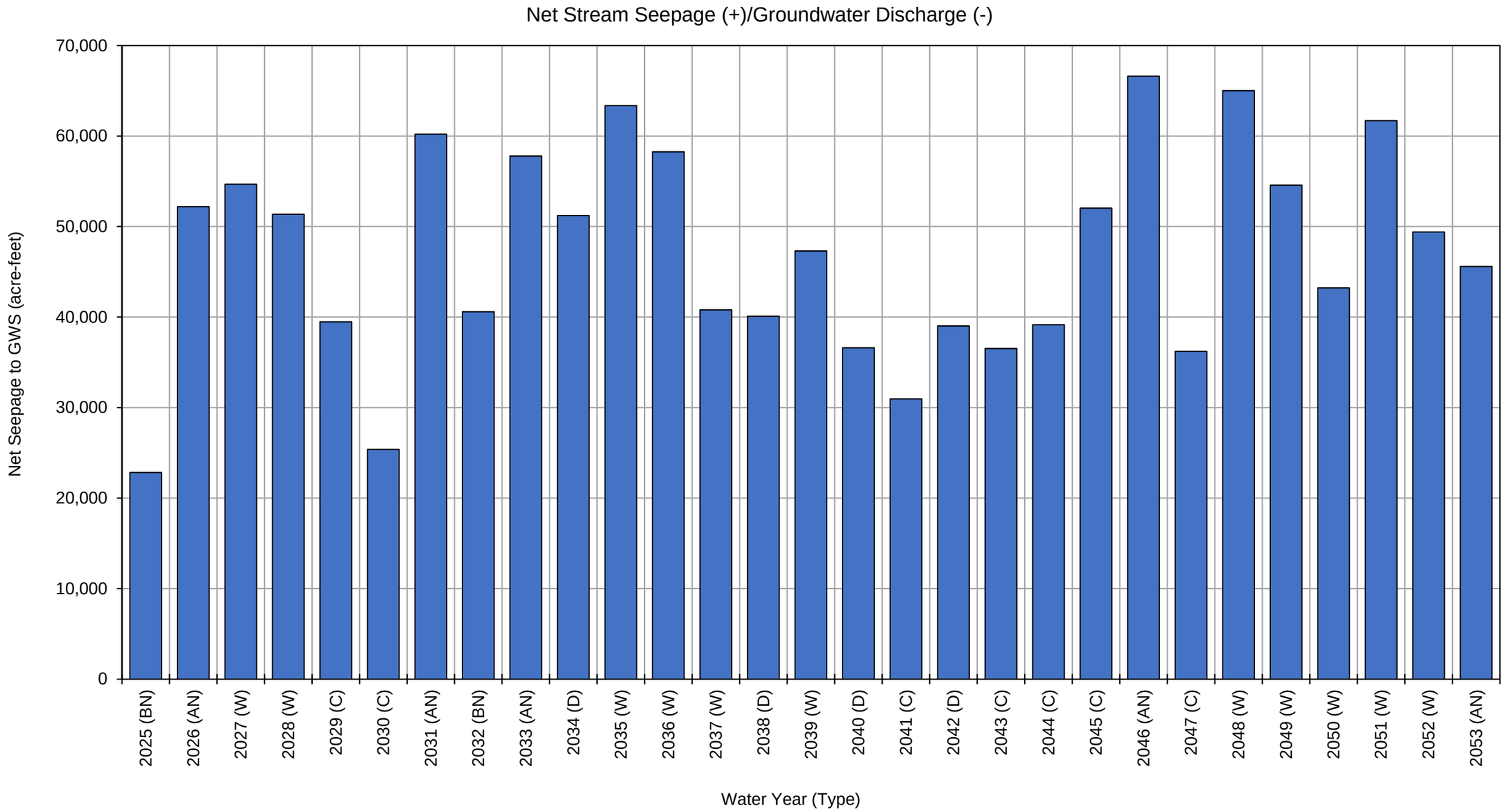
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	50,000	69,000	-7,300	-4,000	-84,000	24,000	24,000
2023 (W)	46,000	72,000	-6,900	-3,900	-94,000	14,000	38,000
2024 (W)	43,000	72,000	-7,100	-4,000	-98,000	6,700	44,000
2025 (BN)	23,000	22,000	-7,500	-2,900	-85,000	-50,000	-6,100
2026 (AN)	52,000	69,000	-6,400	-3,600	-90,000	22,000	16,000
2027 (W)	55,000	72,000	-5,400	-3,900	-98,000	20,000	35,000
2028 (W)	51,000	51,000	-6,600	-3,600	-100,000	-7,900	28,000
2029 (C)	39,000	34,000	-8,600	-3,100	-90,000	-29,000	-1,100
2030 (C)	25,000	19,000	-8,000	-2,100	-76,000	-42,000	-43,000
2031 (AN)	60,000	70,000	-6,000	-3,100	-87,000	34,000	-9,100
2032 (BN)	41,000	23,000	-6,100	-2,200	-82,000	-27,000	-36,000
2033 (AN)	58,000	54,000	-5,600	-2,800	-86,000	17,000	-19,000
2034 (D)	51,000	48,000	-7,900	-2,800	-91,000	-2,800	-22,000
2035 (W)	63,000	71,000	-5,400	-3,400	-95,000	31,000	8,900
2036 (W)	58,000	99,000	-5,100	-3,900	-100,000	44,000	52,000
2037 (W)	41,000	73,000	-6,900	-3,900	-110,000	-3,100	49,000
2038 (D)	40,000	47,000	-7,900	-3,500	-100,000	-25,000	24,000
2039 (W)	47,000	72,000	-6,900	-3,600	-98,000	10,000	35,000
2040 (D)	37,000	36,000	-6,700	-3,000	-93,000	-30,000	4,900
2041 (C)	31,000	24,000	-7,700	-2,300	-81,000	-37,000	-32,000
2042 (D)	39,000	27,000	-7,000	-2,100	-78,000	-21,000	-53,000
2043 (C)	37,000	30,000	-7,600	-2,000	-73,000	-16,000	-69,000
2044 (C)	39,000	30,000	-7,800	-1,800	-71,000	-11,000	-80,000
2045 (C)	52,000	32,000	-7,500	-2,000	-74,000	450	-79,000
2046 (AN)	67,000	69,000	-6,400	-2,600	-87,000	39,000	-40,000
2047 (C)	36,000	31,000	-7,800	-1,900	-81,000	-23,000	-63,000
2048 (W)	65,000	82,000	-5,800	-2,900	-90,000	49,000	-14,000
2049 (W)	55,000	72,000	-6,900	-3,100	-97,000	19,000	4,800
2050 (W)	43,000	54,000	-8,600	-2,800	-95,000	-9,300	-4,500
2051 (W)	62,000	100,000	-5,100	-3,900	-100,000	51,000	46,000
2052 (W)	49,000	52,000	-6,600	-3,700	-110,000	-14,000	32,000
2053 (AN)	46,000	54,000	-5,600	-3,500	-98,000	-7,200	24,000
2054 (D)	38,000	37,000	-6,900	-2,900	-91,000	-26,000	-1,700
2055 (D)	49,000	46,000	-7,900	-2,900	-92,000	-7,400	-9,100
2056 (AN)	58,000	66,000	-5,500	-3,100	-95,000	21,000	12,000
2057 (BN)	48,000	60,000	-7,200	-3,400	-98,000	-1,200	11,000
2058 (AN)	58,000	61,000	-5,300	-3,300	-99,000	11,000	22,000
2059 (W)	54,000	72,000	-5,400	-3,700	-100,000	15,000	37,000
2060 (D)	30,000	27,000	-6,900	-2,700	-91,000	-43,000	-6,300
2061 (C)	45,000	34,000	-8,400	-2,700	-84,000	-17,000	-23,000
2062 (D)	42,000	26,000	-6,500	-2,200	-79,000	-20,000	-43,000
2063 (BN)	60,000	54,000	-5,900	-2,600	-86,000	20,000	-23,000
2064 (W)	63,000	53,000	-5,300	-2,900	-93,000	16,000	-7,400
2065 (BN)	40,000	23,000	-6,100	-2,200	-84,000	-29,000	-37,000

Bowman Subbasin Projected (Current Land Use) with Climate Change (2070) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		42,000	38,000	-8,700	-2,300	-81,000	-12,000	-49,000
2067 (C)		32,000	19,000	-8,400	-1,800	-70,000	-29,000	-78,000
2068 (C)		45,000	34,000	-9,700	-1,800	-73,000	-5,400	-83,000
2069 (BN)		61,000	51,000	-7,600	-2,200	-79,000	23,000	-61,000
2070 (W)		68,000	73,000	-6,100	-2,700	-91,000	40,000	-21,000
2071 (BN)		34,000	21,000	-7,500	-1,900	-80,000	-34,000	-55,000
2072 (W)		62,000	68,000	-6,800	-2,800	-87,000	34,000	-21,000
Average (2022-2072)		48,000	51,000	-6,900	-2,900	-89,000	-420	
2022-2072	W	54,000	71,000	-6,300	-3,500	-97,000		
	AN	57,000	63,000	-5,800	-3,100	-92,000		
	BN	44,000	36,000	-6,800	-2,500	-85,000		
	D	41,000	37,000	-7,400	-2,700	-88,000		
	C	38,000	29,000	-8,100	-2,100	-77,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Current Land Use) with Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

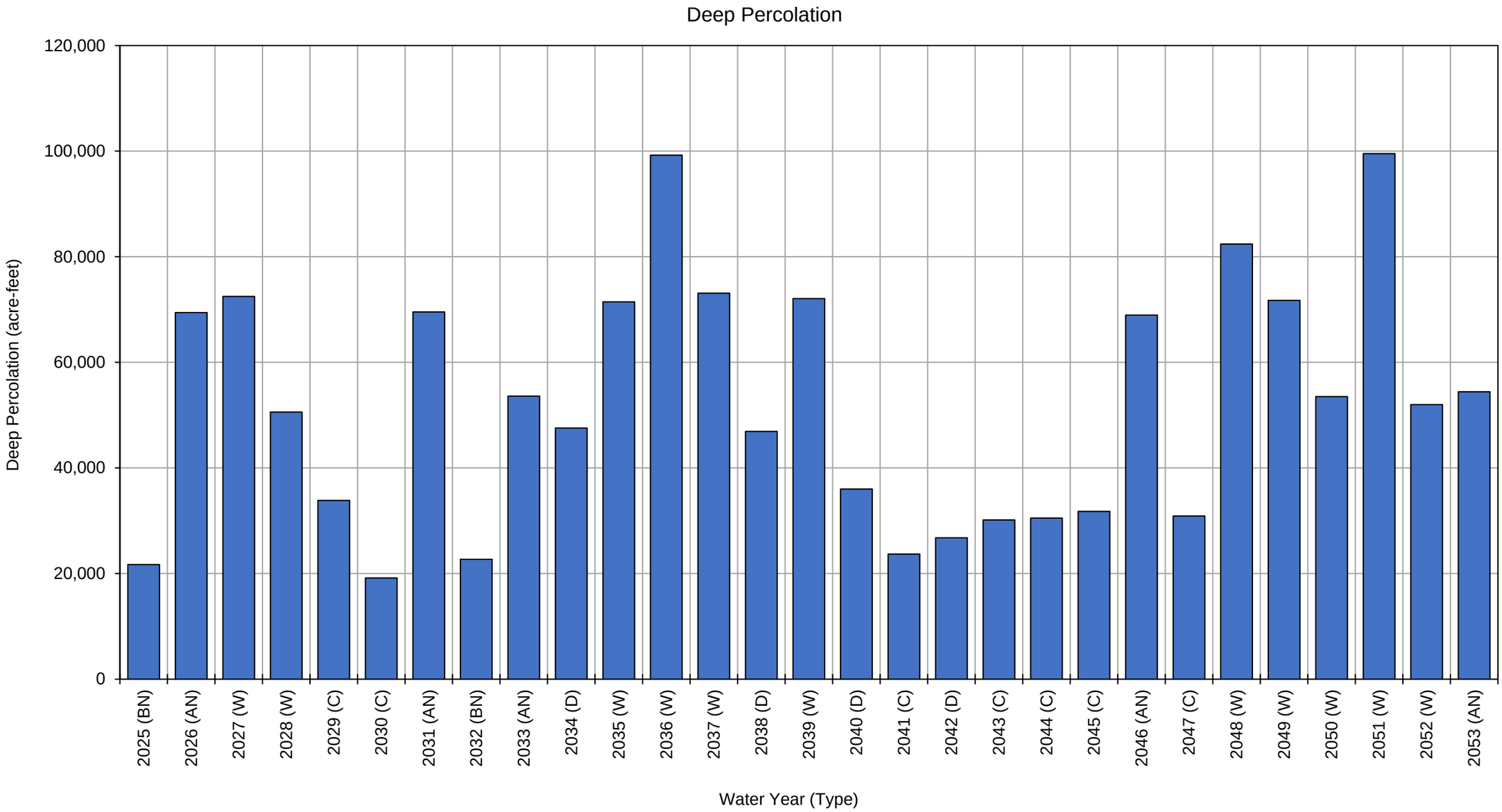
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	50,000
2023 (W)	46,000
2024 (W)	43,000
2025 (BN)	23,000
2026 (AN)	52,000
2027 (W)	55,000
2028 (W)	51,000
2029 (C)	39,000
2030 (C)	25,000
2031 (AN)	60,000
2032 (BN)	41,000
2033 (AN)	58,000
2034 (D)	51,000
2035 (W)	63,000
2036 (W)	58,000
2037 (W)	41,000
2038 (D)	40,000
2039 (W)	47,000
2040 (D)	37,000
2041 (C)	31,000
2042 (D)	39,000
2043 (C)	37,000
2044 (C)	39,000
2045 (C)	52,000
2046 (AN)	67,000
2047 (C)	36,000
2048 (W)	65,000
2049 (W)	55,000
2050 (W)	43,000
2051 (W)	62,000
2052 (W)	49,000
2053 (AN)	46,000
2054 (D)	38,000
2055 (D)	49,000
2056 (AN)	58,000
2057 (BN)	48,000
2058 (AN)	58,000
2059 (W)	54,000
2060 (D)	30,000
2061 (C)	45,000
2062 (D)	42,000
2063 (BN)	60,000
2064 (W)	63,000
2065 (BN)	40,000

Bowman Subbasin Projected (Current Land Use) with Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2066 (D)		42,000
2067 (C)		32,000
2068 (C)		45,000
2069 (BN)		61,000
2070 (W)		68,000
2071 (BN)		34,000
2072 (W)		62,000
Average (2022-2072)		48,000
2022-2072	W	54,000
	AN	57,000
	BN	44,000
	D	41,000
	C	38,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Current Land Use) with Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

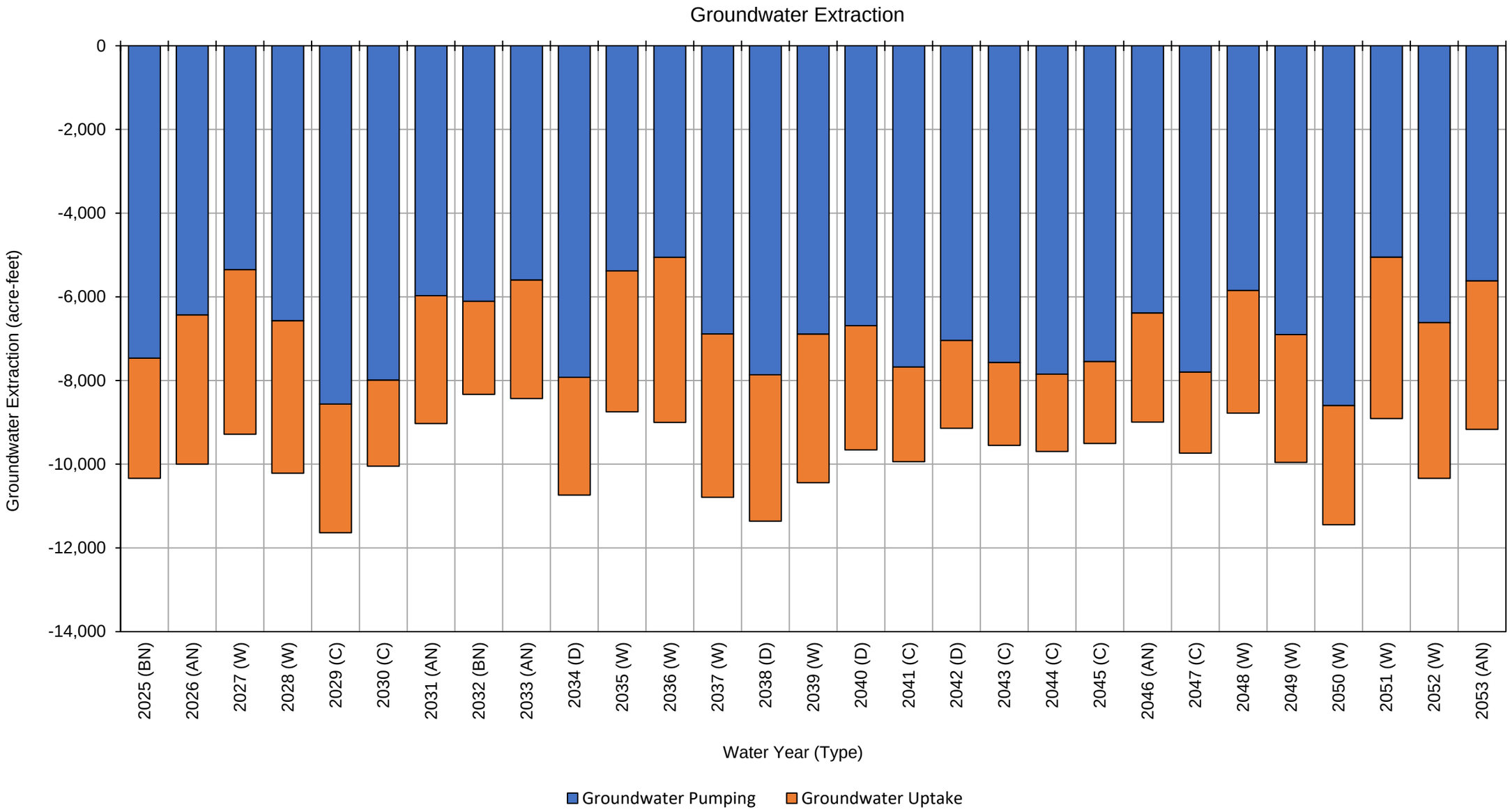
WY (Type)	Deep Percolation from the SWS
2022 (W)	69,000
2023 (W)	72,000
2024 (W)	72,000
2025 (BN)	22,000
2026 (AN)	69,000
2027 (W)	72,000
2028 (W)	51,000
2029 (C)	34,000
2030 (C)	19,000
2031 (AN)	70,000
2032 (BN)	23,000
2033 (AN)	54,000
2034 (D)	48,000
2035 (W)	71,000
2036 (W)	99,000
2037 (W)	73,000
2038 (D)	47,000
2039 (W)	72,000
2040 (D)	36,000
2041 (C)	24,000
2042 (D)	27,000
2043 (C)	30,000
2044 (C)	30,000
2045 (C)	32,000
2046 (AN)	69,000
2047 (C)	31,000
2048 (W)	82,000
2049 (W)	72,000
2050 (W)	54,000
2051 (W)	100,000
2052 (W)	52,000
2053 (AN)	54,000
2054 (D)	37,000
2055 (D)	46,000
2056 (AN)	66,000
2057 (BN)	60,000
2058 (AN)	61,000
2059 (W)	72,000
2060 (D)	27,000
2061 (C)	34,000
2062 (D)	26,000
2063 (BN)	54,000
2064 (W)	53,000
2065 (BN)	23,000

Bowman Subbasin Projected (Current Land Use) with Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2066 (D)		38,000
2067 (C)		19,000
2068 (C)		34,000
2069 (BN)		51,000
2070 (W)		73,000
2071 (BN)		21,000
2072 (W)		68,000
Average (2022-2072)		51,000
2022-2072	W	71,000
	AN	63,000
	BN	36,000
	D	37,000
	C	29,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Current Land Use) with Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

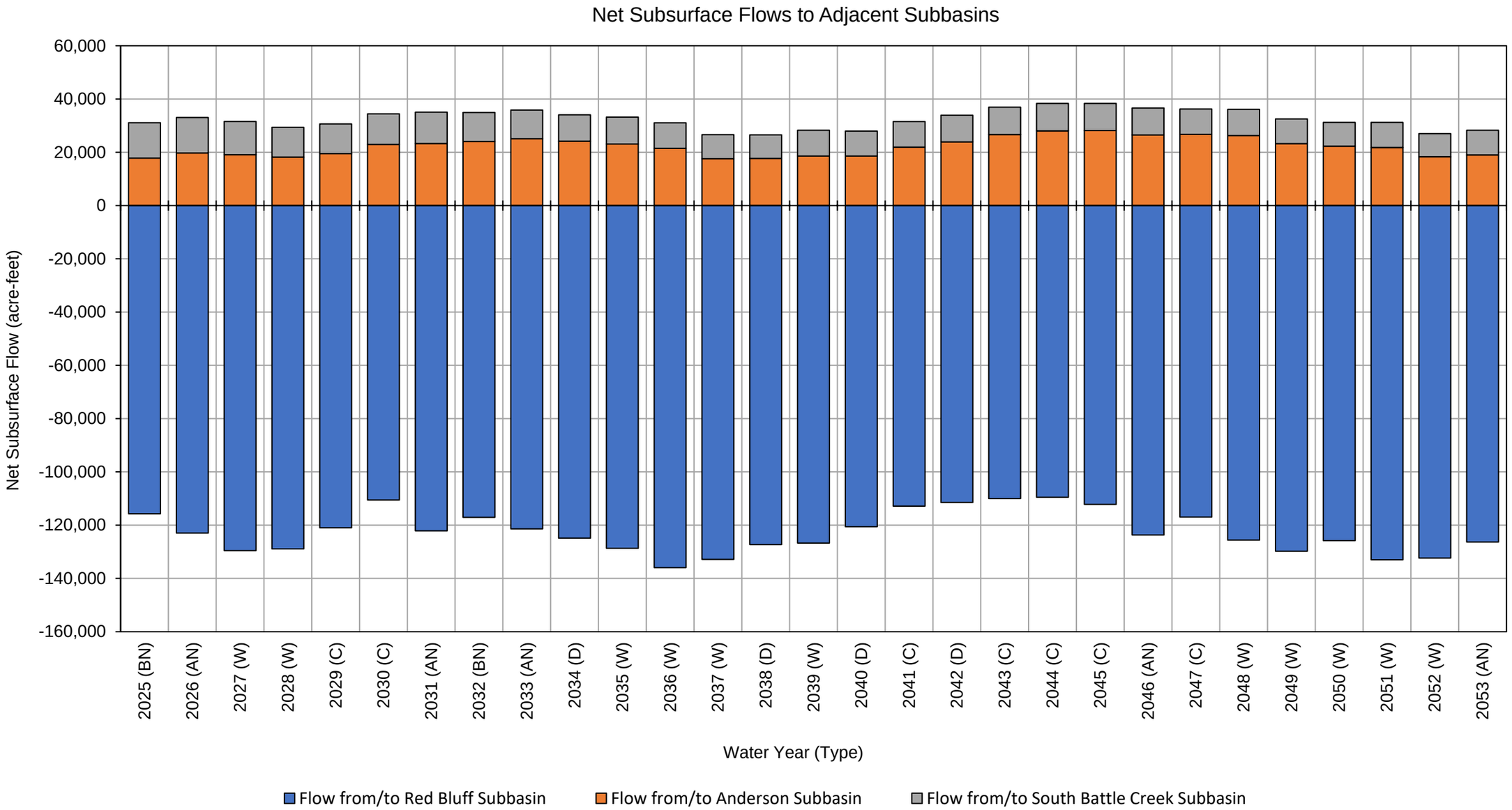
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-7,300	-4,000	-11,000
2023 (W)	-6,900	-3,900	-11,000
2024 (W)	-7,100	-4,000	-11,000
2025 (BN)	-7,500	-2,900	-10,000
2026 (AN)	-6,400	-3,600	-10,000
2027 (W)	-5,400	-3,900	-9,300
2028 (W)	-6,600	-3,600	-10,000
2029 (C)	-8,600	-3,100	-12,000
2030 (C)	-8,000	-2,100	-10,000
2031 (AN)	-6,000	-3,100	-9,000
2032 (BN)	-6,100	-2,200	-8,300
2033 (AN)	-5,600	-2,800	-8,400
2034 (D)	-7,900	-2,800	-11,000
2035 (W)	-5,400	-3,400	-8,700
2036 (W)	-5,100	-3,900	-9,000
2037 (W)	-6,900	-3,900	-11,000
2038 (D)	-7,900	-3,500	-11,000
2039 (W)	-6,900	-3,600	-10,000
2040 (D)	-6,700	-3,000	-9,700
2041 (C)	-7,700	-2,300	-9,900
2042 (D)	-7,000	-2,100	-9,100
2043 (C)	-7,600	-2,000	-9,500
2044 (C)	-7,800	-1,800	-9,700
2045 (C)	-7,500	-2,000	-9,500
2046 (AN)	-6,400	-2,600	-9,000
2047 (C)	-7,800	-1,900	-9,700
2048 (W)	-5,800	-2,900	-8,800
2049 (W)	-6,900	-3,100	-10,000
2050 (W)	-8,600	-2,800	-11,000
2051 (W)	-5,100	-3,900	-8,900
2052 (W)	-6,600	-3,700	-10,000
2053 (AN)	-5,600	-3,500	-9,200
2054 (D)	-6,900	-2,900	-9,800
2055 (D)	-7,900	-2,900	-11,000
2056 (AN)	-5,500	-3,100	-8,600
2057 (BN)	-7,200	-3,400	-11,000
2058 (AN)	-5,300	-3,300	-8,500
2059 (W)	-5,400	-3,700	-9,100
2060 (D)	-6,900	-2,700	-9,600
2061 (C)	-8,400	-2,700	-11,000
2062 (D)	-6,500	-2,200	-8,700
2063 (BN)	-5,900	-2,600	-8,500
2064 (W)	-5,300	-2,900	-8,200
2065 (BN)	-6,100	-2,200	-8,300

Bowman Subbasin Projected (Current Land Use) with Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2066 (D)		-8,700	-2,300	-11,000
2067 (C)		-8,400	-1,800	-10,000
2068 (C)		-9,700	-1,800	-12,000
2069 (BN)		-7,600	-2,200	-9,800
2070 (W)		-6,100	-2,700	-8,800
2071 (BN)		-7,500	-1,900	-9,400
2072 (W)		-6,800	-2,800	-9,600
Average (2022-2072)		-6,900	-2,900	-9,800
2022-2072	W	-6,300	-3,500	-9,800
	AN	-5,800	-3,100	-9,000
	BN	-6,800	-2,500	-9,300
	D	-7,400	-2,700	-10,000
	C	-8,100	-2,100	-10,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Current Land Use) with Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

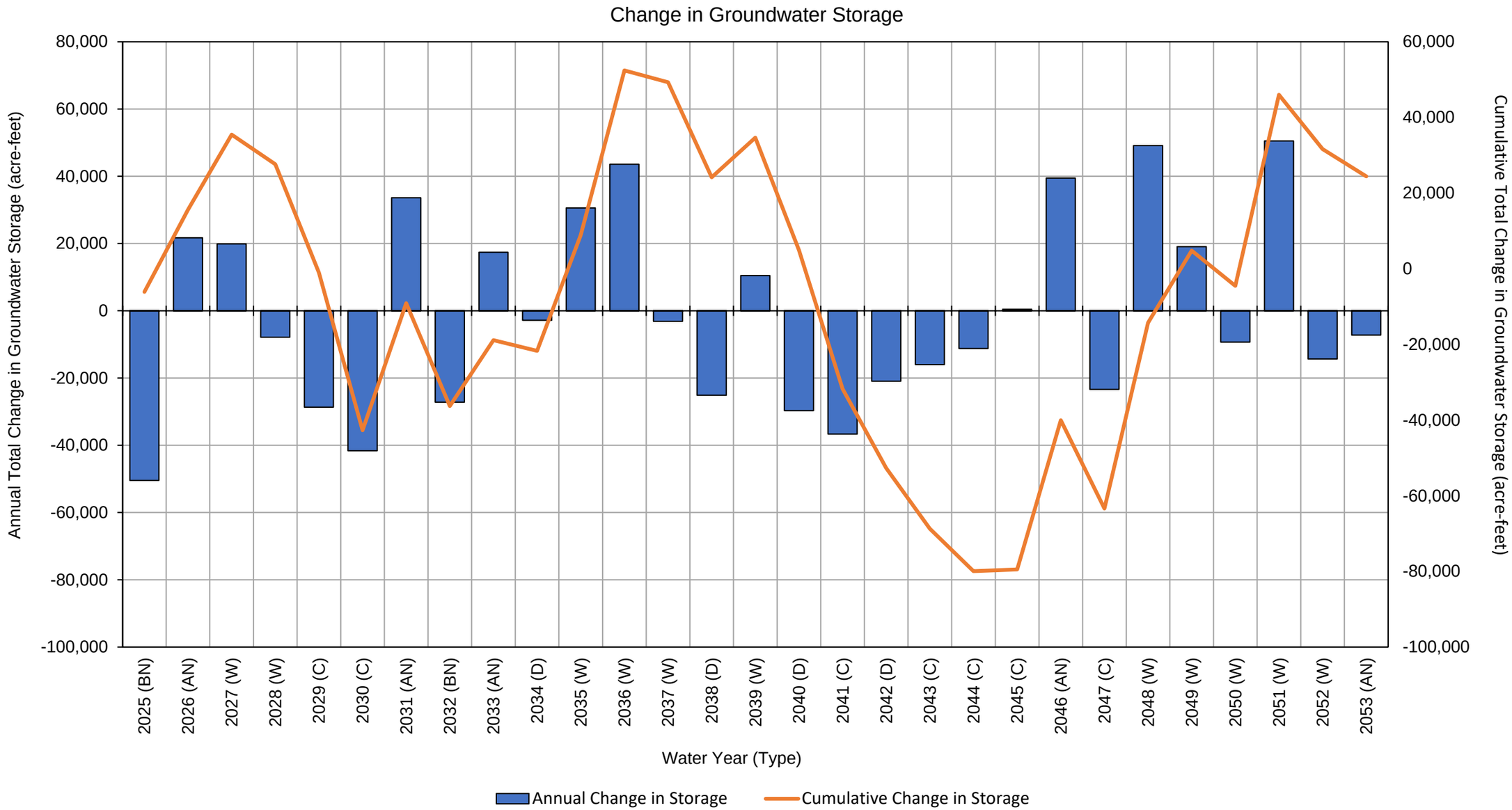
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Anderson Subbasin	Flow from/to South Battle Creek Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-120,000	20,000	17,000	-84,000
2023 (W)	-130,000	18,000	15,000	-94,000
2024 (W)	-130,000	16,000	14,000	-98,000
2025 (BN)	-120,000	18,000	13,000	-85,000
2026 (AN)	-120,000	20,000	13,000	-90,000
2027 (W)	-130,000	19,000	13,000	-98,000
2028 (W)	-130,000	18,000	11,000	-100,000
2029 (C)	-120,000	19,000	11,000	-90,000
2030 (C)	-110,000	23,000	12,000	-76,000
2031 (AN)	-120,000	23,000	12,000	-87,000
2032 (BN)	-120,000	24,000	11,000	-82,000
2033 (AN)	-120,000	25,000	11,000	-86,000
2034 (D)	-120,000	24,000	9,900	-91,000
2035 (W)	-130,000	23,000	10,000	-95,000
2036 (W)	-140,000	21,000	9,600	-100,000
2037 (W)	-130,000	18,000	9,100	-110,000
2038 (D)	-130,000	18,000	8,800	-100,000
2039 (W)	-130,000	19,000	9,700	-98,000
2040 (D)	-120,000	19,000	9,400	-93,000
2041 (C)	-110,000	22,000	9,600	-81,000
2042 (D)	-110,000	24,000	10,000	-78,000
2043 (C)	-110,000	27,000	10,000	-73,000
2044 (C)	-110,000	28,000	10,000	-71,000
2045 (C)	-110,000	28,000	10,000	-74,000
2046 (AN)	-120,000	27,000	10,000	-87,000
2047 (C)	-120,000	27,000	9,500	-81,000
2048 (W)	-130,000	26,000	9,800	-90,000
2049 (W)	-130,000	23,000	9,300	-97,000
2050 (W)	-130,000	22,000	9,000	-95,000
2051 (W)	-130,000	22,000	9,400	-100,000
2052 (W)	-130,000	18,000	8,700	-110,000
2053 (AN)	-130,000	19,000	9,300	-98,000
2054 (D)	-120,000	20,000	9,400	-91,000
2055 (D)	-120,000	21,000	9,400	-92,000
2056 (AN)	-130,000	22,000	9,800	-95,000
2057 (BN)	-130,000	20,000	9,400	-98,000
2058 (AN)	-130,000	19,000	9,200	-99,000
2059 (W)	-130,000	19,000	9,300	-100,000
2060 (D)	-120,000	19,000	9,000	-91,000
2061 (C)	-120,000	22,000	9,700	-84,000
2062 (D)	-110,000	24,000	9,900	-79,000
2063 (BN)	-120,000	25,000	10,000	-86,000
2064 (W)	-130,000	24,000	9,700	-93,000
2065 (BN)	-120,000	25,000	9,500	-84,000

Bowman Subbasin Projected (Current Land Use) with Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Anderson Subbasin	Flow from/to South Battle Creek Subbasin	Net Subsurface Flow from Adjacent Subbasins
2066 (D)		-120,000	26,000	9,600	-81,000
2067 (C)		-110,000	28,000	10,000	-70,000
2068 (C)		-110,000	29,000	11,000	-73,000
2069 (BN)		-120,000	29,000	11,000	-79,000
2070 (W)		-130,000	27,000	10,000	-91,000
2071 (BN)		-120,000	26,000	9,900	-80,000
2072 (W)		-120,000	27,000	11,000	-87,000
Average (2022-2072)		-120,000	23,000	10,000	-89,000
2022-2072	W	-130,000	21,000	11,000	-97,000
	AN	-120,000	22,000	11,000	-92,000
	BN	-120,000	24,000	11,000	-85,000
	D	-120,000	22,000	9,500	-88,000
	C	-110,000	25,000	10,000	-77,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Current Land Use) with Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	24,000	24,000
2023 (W)	14,000	38,000
2024 (W)	6,700	44,000
2025 (BN)	-50,000	-6,100
2026 (AN)	22,000	16,000
2027 (W)	20,000	35,000
2028 (W)	-7,900	28,000
2029 (C)	-29,000	-1,100
2030 (C)	-42,000	-43,000
2031 (AN)	34,000	-9,100
2032 (BN)	-27,000	-36,000
2033 (AN)	17,000	-19,000
2034 (D)	-2,800	-22,000
2035 (W)	31,000	8,900
2036 (W)	44,000	52,000
2037 (W)	-3,100	49,000
2038 (D)	-25,000	24,000
2039 (W)	10,000	35,000
2040 (D)	-30,000	4,900
2041 (C)	-37,000	-32,000
2042 (D)	-21,000	-53,000
2043 (C)	-16,000	-69,000
2044 (C)	-11,000	-80,000
2045 (C)	450	-79,000
2046 (AN)	39,000	-40,000
2047 (C)	-23,000	-63,000
2048 (W)	49,000	-14,000
2049 (W)	19,000	4,800
2050 (W)	-9,300	-4,500
2051 (W)	51,000	46,000
2052 (W)	-14,000	32,000
2053 (AN)	-7,200	24,000
2054 (D)	-26,000	-1,700
2055 (D)	-7,400	-9,100
2056 (AN)	21,000	12,000
2057 (BN)	-1,200	11,000
2058 (AN)	11,000	22,000
2059 (W)	15,000	37,000
2060 (D)	-43,000	-6,300
2061 (C)	-17,000	-23,000
2062 (D)	-20,000	-43,000
2063 (BN)	20,000	-23,000
2064 (W)	16,000	-7,400
2065 (BN)	-29,000	-37,000

Bowman Subbasin Projected (Current Land Use) with Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-12,000	-49,000
2067 (C)		-29,000	-78,000
2068 (C)		-5,400	-83,000
2069 (BN)		23,000	-61,000
2070 (W)		40,000	-21,000
2071 (BN)		-34,000	-55,000
2072 (W)		34,000	-21,000
Average (2022-2072)		-420	
2022-2072	W		
	AN		
	BN		
	D		
	C		

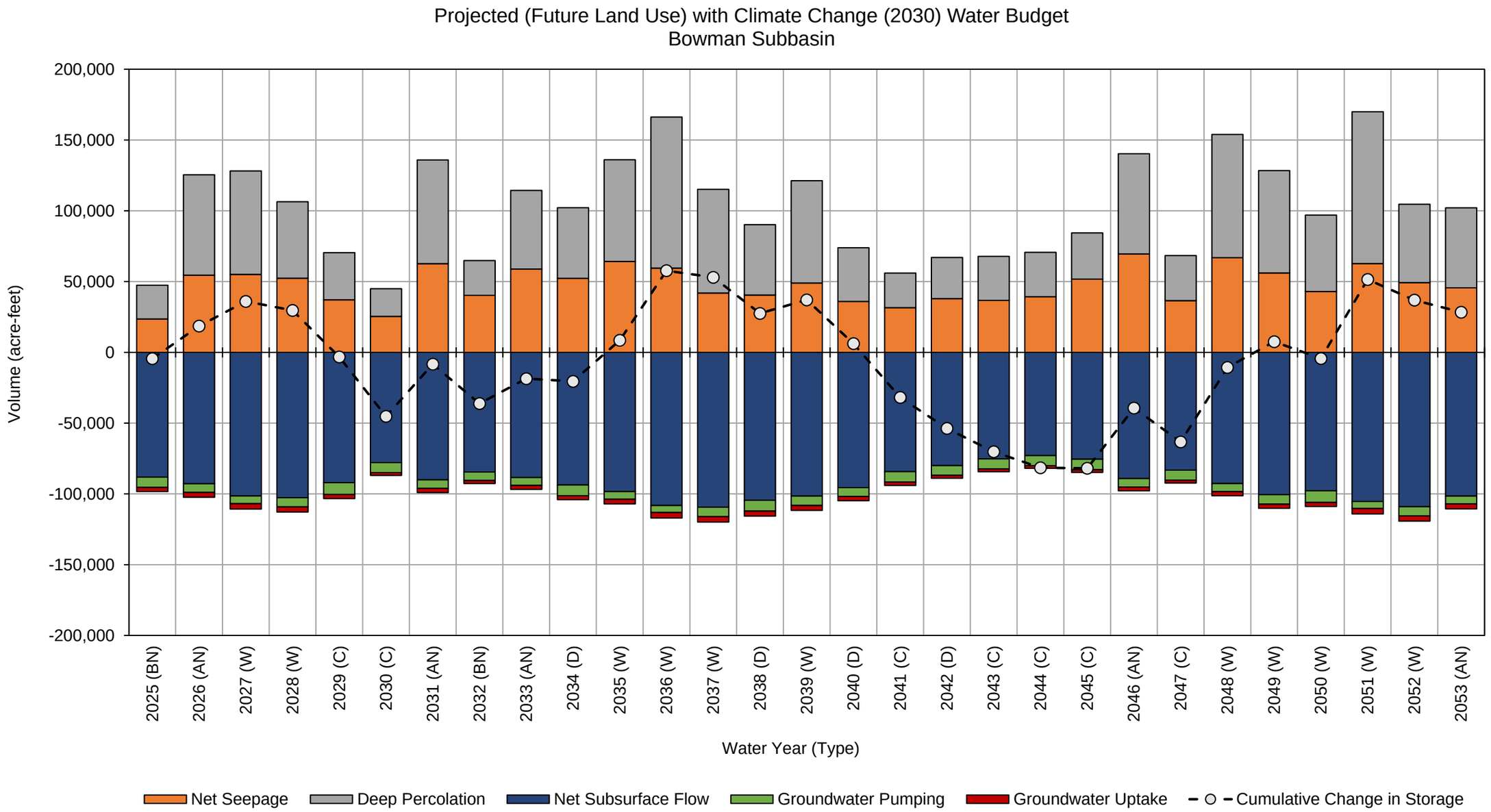
Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX B-6

Detailed Bowman Subbasin Water Budget Results:

Projected (Future Land Use) with Climate Change (2030) Model Results


Projected (Future Land Use) with Climate Change (2030) Water Budget
Bowman Subbasin
Volume (acre-feet)
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Bowman Subbasin Projected (Future Land Use) with Climate Change (2030) Water Budget Summary (acre-feet, rounded)

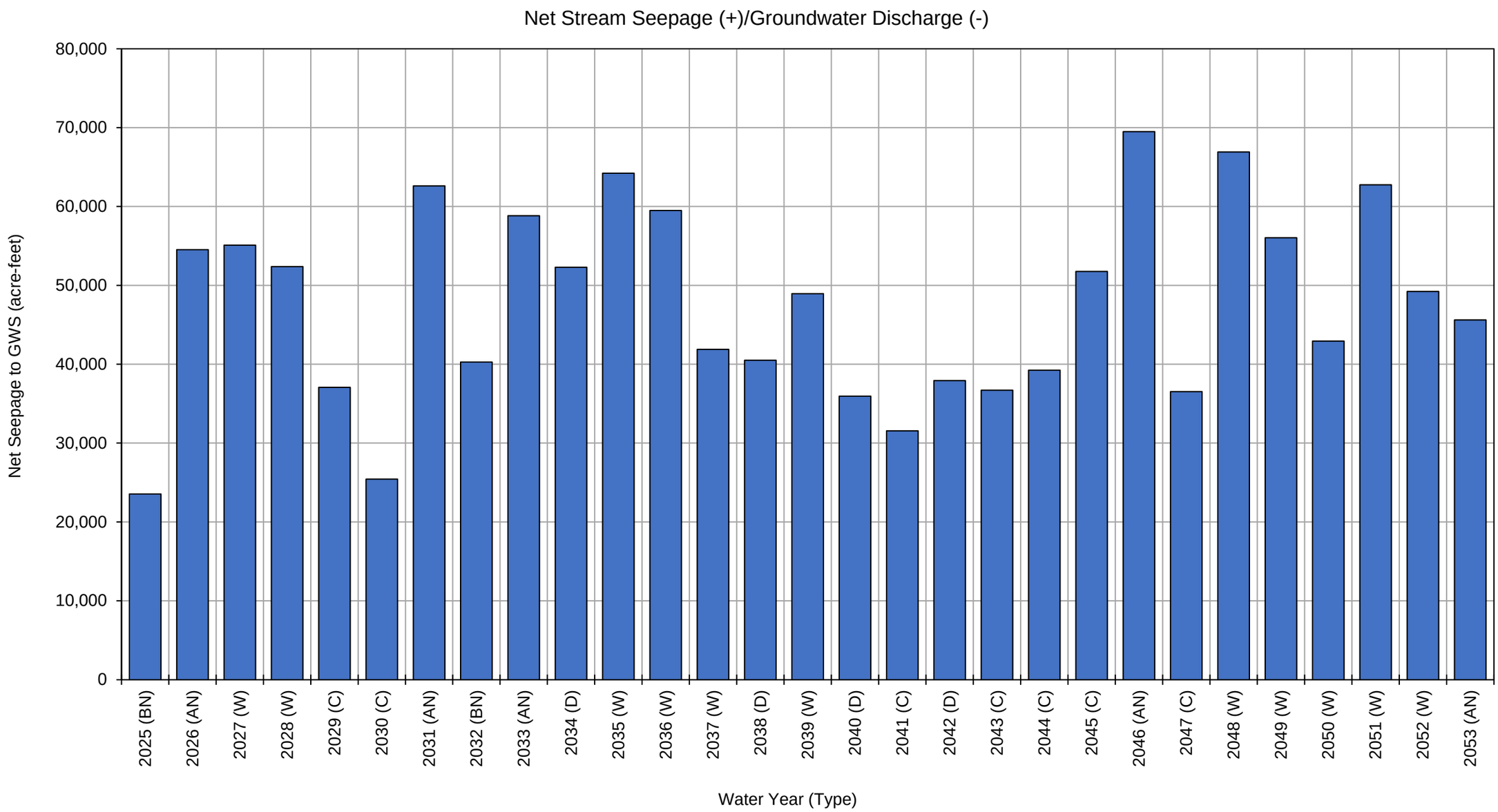
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	52,000	73,000	-6,900	-3,900	-87,000	27,000	27,000
2023 (W)	47,000	73,000	-6,700	-3,800	-96,000	13,000	40,000
2024 (W)	45,000	73,000	-6,900	-4,000	-100,000	6,100	46,000
2025 (BN)	24,000	24,000	-7,300	-2,900	-88,000	-51,000	-4,500
2026 (AN)	55,000	71,000	-6,100	-3,400	-93,000	23,000	19,000
2027 (W)	55,000	73,000	-5,400	-3,800	-100,000	17,000	36,000
2028 (W)	52,000	54,000	-6,500	-3,600	-100,000	-6,300	30,000
2029 (C)	37,000	33,000	-8,400	-2,900	-92,000	-33,000	-3,200
2030 (C)	25,000	20,000	-7,100	-2,000	-78,000	-42,000	-45,000
2031 (AN)	63,000	73,000	-6,000	-3,000	-90,000	37,000	-8,300
2032 (BN)	40,000	25,000	-6,000	-2,200	-85,000	-28,000	-36,000
2033 (AN)	59,000	56,000	-5,500	-2,800	-88,000	18,000	-19,000
2034 (D)	52,000	50,000	-7,700	-2,800	-94,000	-1,900	-20,000
2035 (W)	64,000	72,000	-5,400	-3,300	-98,000	29,000	8,500
2036 (W)	59,000	110,000	-5,000	-3,900	-110,000	49,000	58,000
2037 (W)	42,000	73,000	-6,700	-3,800	-110,000	-4,700	53,000
2038 (D)	41,000	50,000	-7,700	-3,500	-100,000	-25,000	28,000
2039 (W)	49,000	72,000	-6,700	-3,500	-100,000	9,600	37,000
2040 (D)	36,000	38,000	-6,300	-2,900	-96,000	-31,000	6,200
2041 (C)	32,000	24,000	-7,400	-2,300	-84,000	-38,000	-32,000
2042 (D)	38,000	29,000	-6,900	-2,100	-80,000	-22,000	-54,000
2043 (C)	37,000	31,000	-7,000	-2,000	-75,000	-16,000	-70,000
2044 (C)	39,000	31,000	-7,200	-1,800	-73,000	-11,000	-81,000
2045 (C)	52,000	33,000	-7,400	-1,900	-76,000	-420	-82,000
2046 (AN)	69,000	71,000	-6,100	-2,500	-89,000	43,000	-39,000
2047 (C)	37,000	32,000	-7,100	-1,900	-83,000	-24,000	-63,000
2048 (W)	67,000	87,000	-5,700	-2,900	-93,000	53,000	-11,000
2049 (W)	56,000	72,000	-6,700	-3,000	-100,000	18,000	7,500
2050 (W)	43,000	54,000	-8,200	-2,800	-98,000	-12,000	-4,400
2051 (W)	63,000	110,000	-5,000	-3,800	-110,000	56,000	51,000
2052 (W)	49,000	55,000	-6,500	-3,700	-110,000	-15,000	37,000
2053 (AN)	46,000	56,000	-5,600	-3,500	-100,000	-8,500	28,000
2054 (D)	37,000	39,000	-6,300	-2,900	-94,000	-27,000	1,100
2055 (D)	50,000	48,000	-7,700	-3,000	-95,000	-8,000	-6,900
2056 (AN)	58,000	68,000	-5,500	-3,000	-98,000	20,000	13,000
2057 (BN)	48,000	61,000	-6,900	-3,300	-100,000	-2,000	11,000
2058 (AN)	60,000	63,000	-5,100	-3,100	-100,000	13,000	24,000
2059 (W)	55,000	73,000	-5,400	-3,600	-110,000	13,000	37,000
2060 (D)	30,000	29,000	-6,800	-2,600	-93,000	-44,000	-6,600
2061 (C)	42,000	34,000	-8,300	-2,600	-86,000	-21,000	-27,000
2062 (D)	44,000	27,000	-6,400	-2,100	-81,000	-19,000	-46,000
2063 (BN)	62,000	55,000	-5,600	-2,500	-87,000	21,000	-25,000
2064 (W)	64,000	57,000	-5,200	-2,900	-95,000	18,000	-6,400
2065 (BN)	40,000	25,000	-6,000	-2,100	-86,000	-29,000	-36,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2030) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		41,000	41,000	-8,400	-2,200	-83,000	-12,000	-48,000
2067 (C)		31,000	20,000	-7,500	-1,700	-72,000	-30,000	-78,000
2068 (C)		45,000	37,000	-9,200	-1,800	-75,000	-4,600	-83,000
2069 (BN)		60,000	52,000	-7,200	-2,100	-81,000	22,000	-61,000
2070 (W)		69,000	78,000	-5,700	-2,700	-95,000	43,000	-18,000
2071 (BN)		34,000	24,000	-7,300	-1,900	-84,000	-35,000	-52,000
2072 (W)		64,000	71,000	-6,500	-2,800	-91,000	35,000	-17,000
Average (2022-2072)		48,000	53,000	-6,600	-2,800	-92,000	-340	
2022-2072	W	55,000	74,000	-6,200	-3,400	-100,000		
	AN	59,000	65,000	-5,700	-3,100	-94,000		
	BN	44,000	38,000	-6,600	-2,400	-87,000		
	D	41,000	39,000	-7,100	-2,700	-91,000		
	C	38,000	29,000	-7,700	-2,100	-79,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2030) Net Stream Seepage (net flows as acre-feet, rounded)

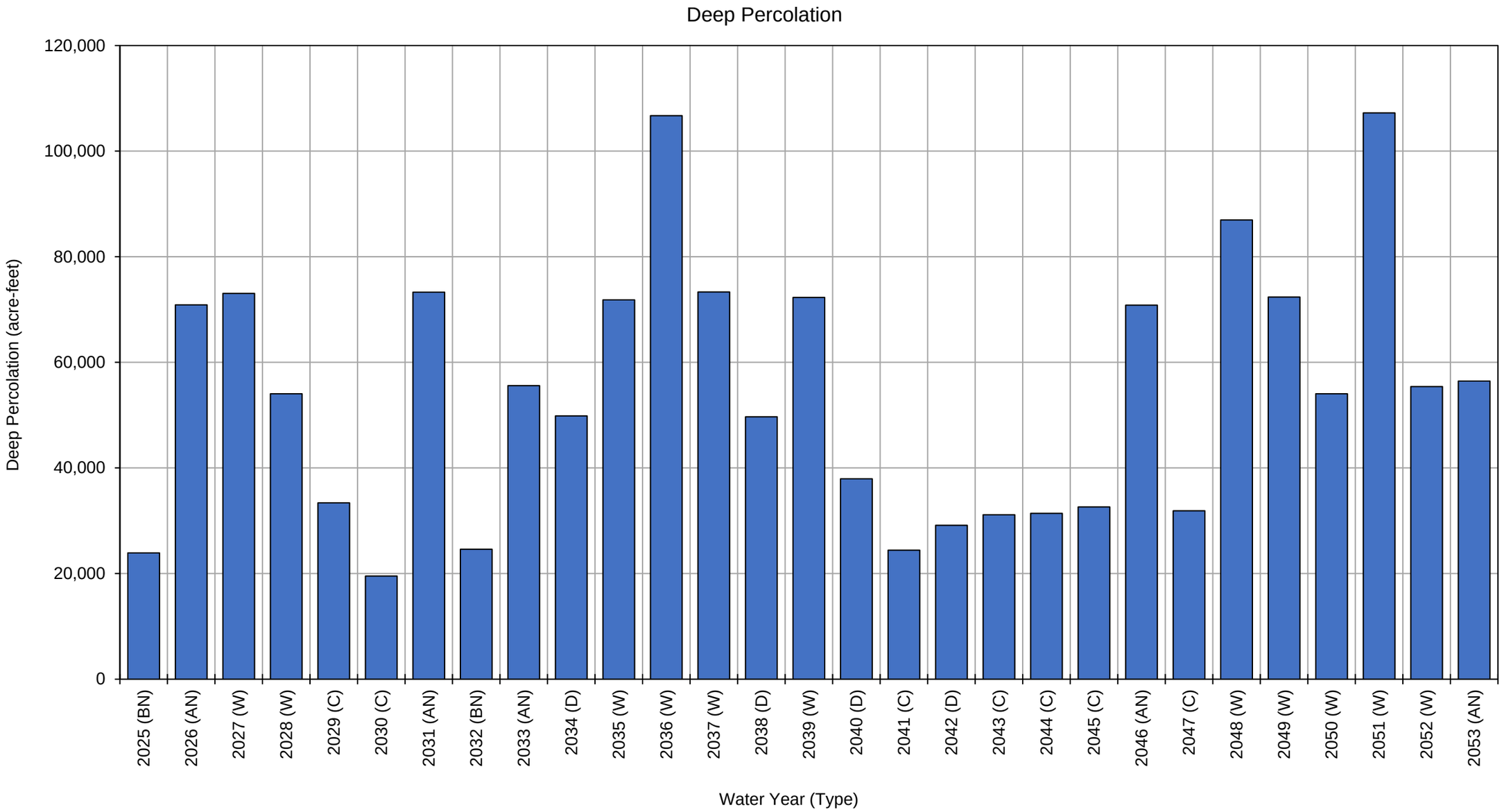
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	52,000
2023 (W)	47,000
2024 (W)	45,000
2025 (BN)	24,000
2026 (AN)	55,000
2027 (W)	55,000
2028 (W)	52,000
2029 (C)	37,000
2030 (C)	25,000
2031 (AN)	63,000
2032 (BN)	40,000
2033 (AN)	59,000
2034 (D)	52,000
2035 (W)	64,000
2036 (W)	59,000
2037 (W)	42,000
2038 (D)	41,000
2039 (W)	49,000
2040 (D)	36,000
2041 (C)	32,000
2042 (D)	38,000
2043 (C)	37,000
2044 (C)	39,000
2045 (C)	52,000
2046 (AN)	69,000
2047 (C)	37,000
2048 (W)	67,000
2049 (W)	56,000
2050 (W)	43,000
2051 (W)	63,000
2052 (W)	49,000
2053 (AN)	46,000
2054 (D)	37,000
2055 (D)	50,000
2056 (AN)	58,000
2057 (BN)	48,000
2058 (AN)	60,000
2059 (W)	55,000
2060 (D)	30,000
2061 (C)	42,000
2062 (D)	44,000
2063 (BN)	62,000
2064 (W)	64,000
2065 (BN)	40,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2030) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2066 (D)		41,000
2067 (C)		31,000
2068 (C)		45,000
2069 (BN)		60,000
2070 (W)		69,000
2071 (BN)		34,000
2072 (W)		64,000
Average (2022-2072)		48,000
2022-2072	W	55,000
	AN	59,000
	BN	44,000
	D	41,000
	C	38,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2030) Deep Percolation from the SWS (acre-feet, rounded)

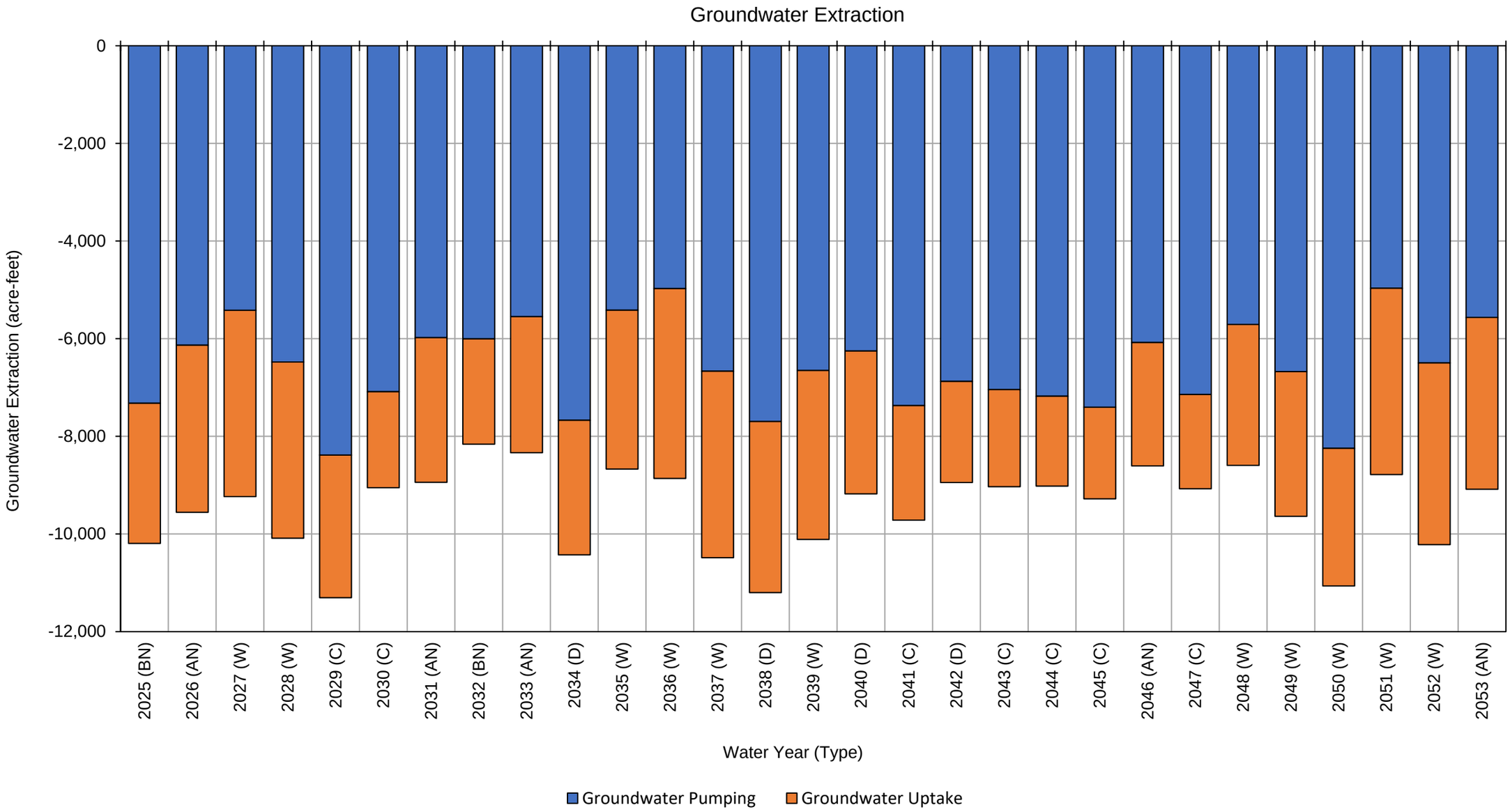
WY (Type)	Deep Percolation from the SWS
2022 (W)	73,000
2023 (W)	73,000
2024 (W)	73,000
2025 (BN)	24,000
2026 (AN)	71,000
2027 (W)	73,000
2028 (W)	54,000
2029 (C)	33,000
2030 (C)	20,000
2031 (AN)	73,000
2032 (BN)	25,000
2033 (AN)	56,000
2034 (D)	50,000
2035 (W)	72,000
2036 (W)	110,000
2037 (W)	73,000
2038 (D)	50,000
2039 (W)	72,000
2040 (D)	38,000
2041 (C)	24,000
2042 (D)	29,000
2043 (C)	31,000
2044 (C)	31,000
2045 (C)	33,000
2046 (AN)	71,000
2047 (C)	32,000
2048 (W)	87,000
2049 (W)	72,000
2050 (W)	54,000
2051 (W)	110,000
2052 (W)	55,000
2053 (AN)	56,000
2054 (D)	39,000
2055 (D)	48,000
2056 (AN)	68,000
2057 (BN)	61,000
2058 (AN)	63,000
2059 (W)	73,000
2060 (D)	29,000
2061 (C)	34,000
2062 (D)	27,000
2063 (BN)	55,000
2064 (W)	57,000
2065 (BN)	25,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2030) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2066 (D)		41,000
2067 (C)		20,000
2068 (C)		37,000
2069 (BN)		52,000
2070 (W)		78,000
2071 (BN)		24,000
2072 (W)		71,000
Average (2022-2072)		53,000
2022-2072	W	74,000
	AN	65,000
	BN	38,000
	D	39,000
	C	29,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2030) Groundwater Extractions (acre-feet, rounded)

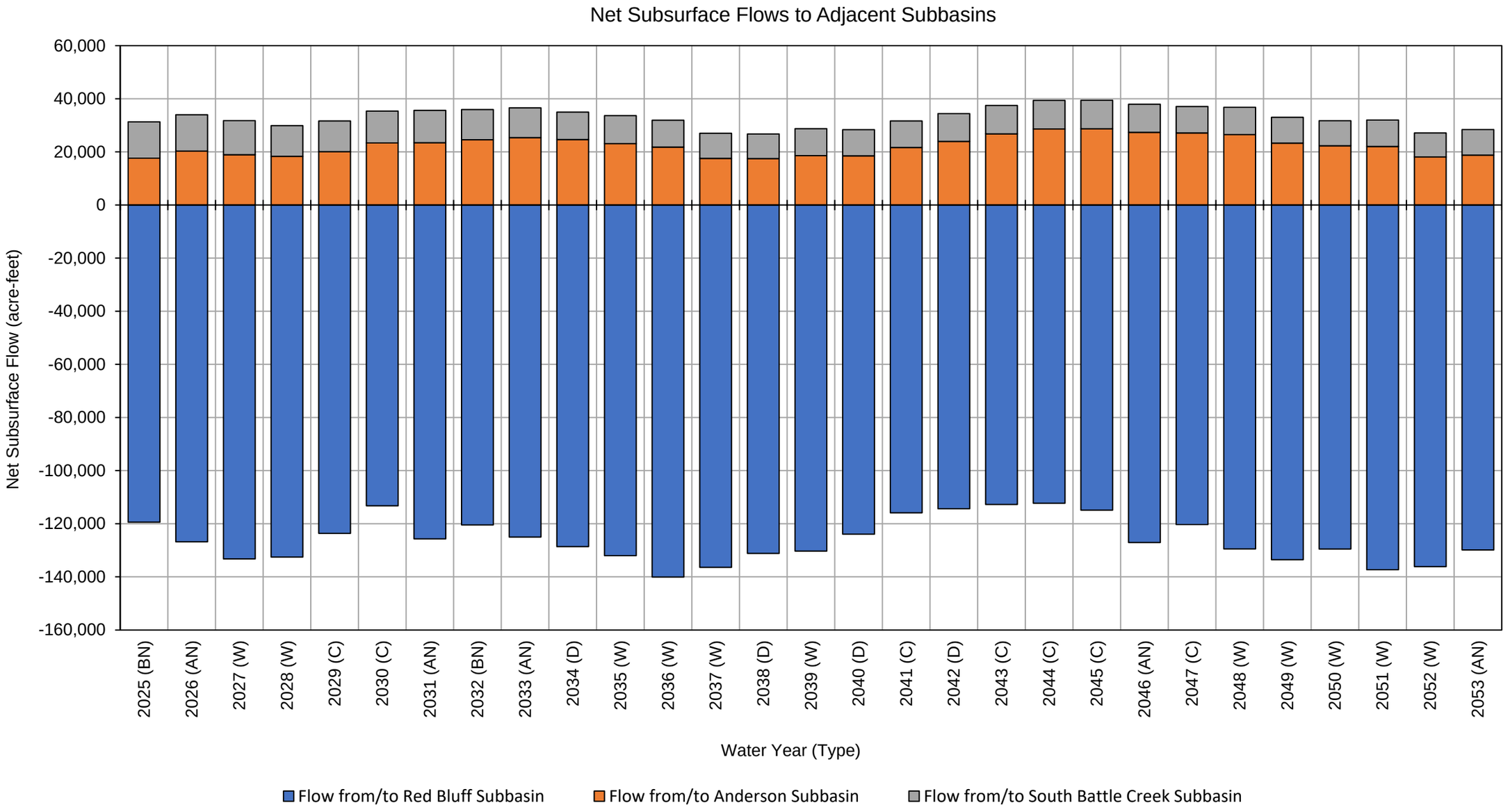
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-6,900	-3,900	-11,000
2023 (W)	-6,700	-3,800	-11,000
2024 (W)	-6,900	-4,000	-11,000
2025 (BN)	-7,300	-2,900	-10,000
2026 (AN)	-6,100	-3,400	-9,600
2027 (W)	-5,400	-3,800	-9,200
2028 (W)	-6,500	-3,600	-10,000
2029 (C)	-8,400	-2,900	-11,000
2030 (C)	-7,100	-2,000	-9,100
2031 (AN)	-6,000	-3,000	-8,900
2032 (BN)	-6,000	-2,200	-8,200
2033 (AN)	-5,500	-2,800	-8,300
2034 (D)	-7,700	-2,800	-10,000
2035 (W)	-5,400	-3,300	-8,700
2036 (W)	-5,000	-3,900	-8,900
2037 (W)	-6,700	-3,800	-10,000
2038 (D)	-7,700	-3,500	-11,000
2039 (W)	-6,700	-3,500	-10,000
2040 (D)	-6,300	-2,900	-9,200
2041 (C)	-7,400	-2,300	-9,700
2042 (D)	-6,900	-2,100	-8,900
2043 (C)	-7,000	-2,000	-9,000
2044 (C)	-7,200	-1,800	-9,000
2045 (C)	-7,400	-1,900	-9,300
2046 (AN)	-6,100	-2,500	-8,600
2047 (C)	-7,100	-1,900	-9,100
2048 (W)	-5,700	-2,900	-8,600
2049 (W)	-6,700	-3,000	-9,600
2050 (W)	-8,200	-2,800	-11,000
2051 (W)	-5,000	-3,800	-8,800
2052 (W)	-6,500	-3,700	-10,000
2053 (AN)	-5,600	-3,500	-9,100
2054 (D)	-6,300	-2,900	-9,200
2055 (D)	-7,700	-3,000	-11,000
2056 (AN)	-5,500	-3,000	-8,500
2057 (BN)	-6,900	-3,300	-10,000
2058 (AN)	-5,100	-3,100	-8,200
2059 (W)	-5,400	-3,600	-9,000
2060 (D)	-6,800	-2,600	-9,400
2061 (C)	-8,300	-2,600	-11,000
2062 (D)	-6,400	-2,100	-8,500
2063 (BN)	-5,600	-2,500	-8,000
2064 (W)	-5,200	-2,900	-8,100
2065 (BN)	-6,000	-2,100	-8,100

Bowman Subbasin Projected (Future Land Use) with Climate Change (2030) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2066 (D)		-8,400	-2,200	-11,000
2067 (C)		-7,500	-1,700	-9,200
2068 (C)		-9,200	-1,800	-11,000
2069 (BN)		-7,200	-2,100	-9,300
2070 (W)		-5,700	-2,700	-8,400
2071 (BN)		-7,300	-1,900	-9,200
2072 (W)		-6,500	-2,800	-9,300
Average (2022-2072)		-6,600	-2,800	-9,500
2022-2072	W	-6,200	-3,400	-9,600
	AN	-5,700	-3,100	-8,800
	BN	-6,600	-2,400	-9,000
	D	-7,100	-2,700	-9,800
	C	-7,700	-2,100	-9,800

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2030) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

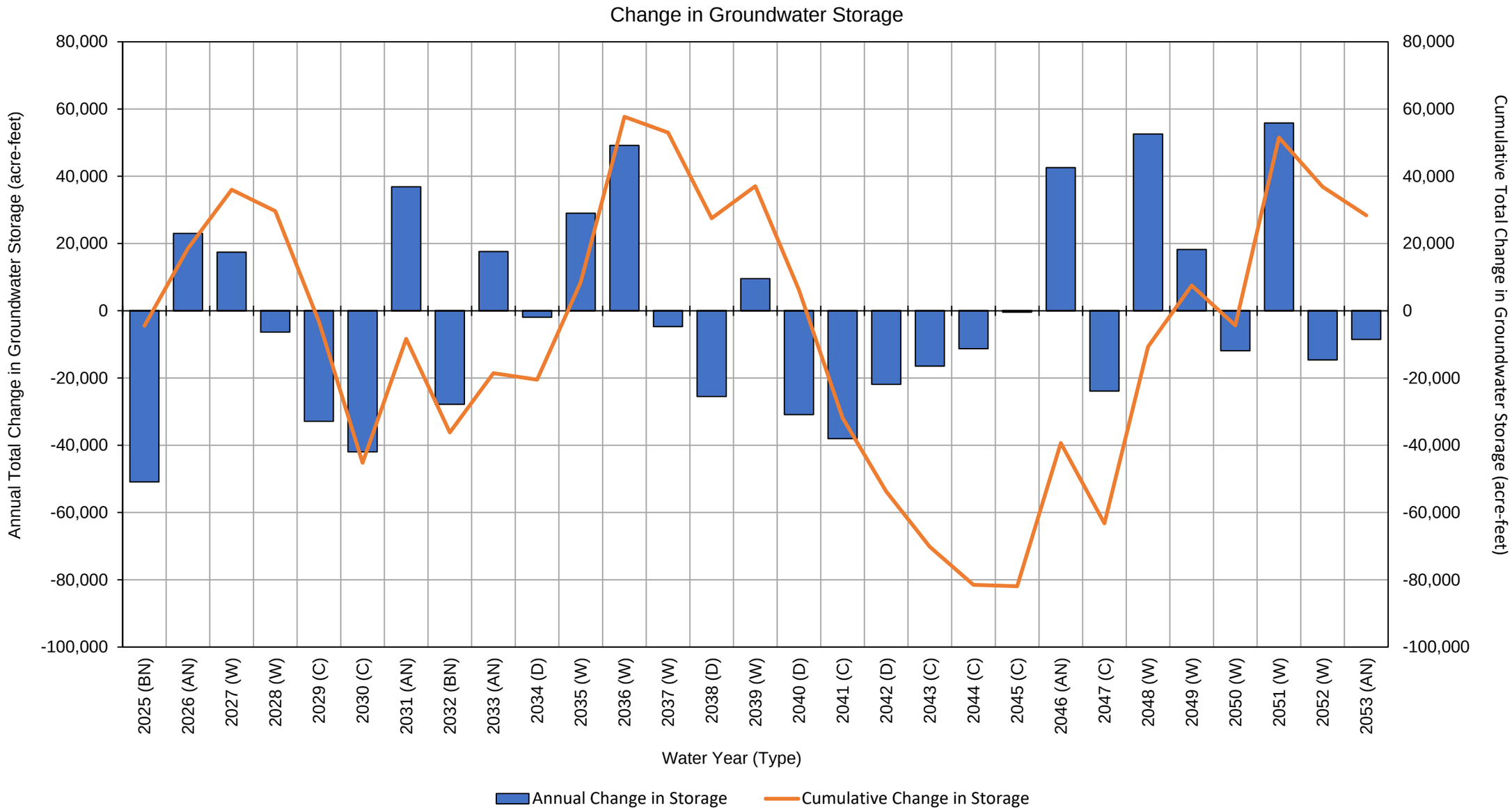
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Anderson Subbasin	Flow from/to South Battle Creek Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-120,000	20,000	17,000	-87,000
2023 (W)	-130,000	18,000	16,000	-96,000
2024 (W)	-130,000	16,000	15,000	-100,000
2025 (BN)	-120,000	18,000	14,000	-88,000
2026 (AN)	-130,000	20,000	14,000	-93,000
2027 (W)	-130,000	19,000	13,000	-100,000
2028 (W)	-130,000	18,000	12,000	-100,000
2029 (C)	-120,000	20,000	12,000	-92,000
2030 (C)	-110,000	23,000	12,000	-78,000
2031 (AN)	-130,000	23,000	12,000	-90,000
2032 (BN)	-120,000	25,000	11,000	-85,000
2033 (AN)	-130,000	25,000	11,000	-88,000
2034 (D)	-130,000	25,000	10,000	-94,000
2035 (W)	-130,000	23,000	11,000	-98,000
2036 (W)	-140,000	22,000	10,000	-110,000
2037 (W)	-140,000	18,000	9,500	-110,000
2038 (D)	-130,000	17,000	9,300	-100,000
2039 (W)	-130,000	19,000	10,000	-100,000
2040 (D)	-120,000	19,000	9,800	-96,000
2041 (C)	-120,000	22,000	10,000	-84,000
2042 (D)	-110,000	24,000	10,000	-80,000
2043 (C)	-110,000	27,000	11,000	-75,000
2044 (C)	-110,000	29,000	11,000	-73,000
2045 (C)	-110,000	29,000	11,000	-76,000
2046 (AN)	-130,000	27,000	11,000	-89,000
2047 (C)	-120,000	27,000	10,000	-83,000
2048 (W)	-130,000	27,000	10,000	-93,000
2049 (W)	-130,000	23,000	9,700	-100,000
2050 (W)	-130,000	22,000	9,400	-98,000
2051 (W)	-140,000	22,000	9,900	-110,000
2052 (W)	-140,000	18,000	9,000	-110,000
2053 (AN)	-130,000	19,000	9,600	-100,000
2054 (D)	-120,000	20,000	9,800	-94,000
2055 (D)	-130,000	21,000	9,900	-95,000
2056 (AN)	-130,000	22,000	10,000	-98,000
2057 (BN)	-130,000	20,000	9,800	-100,000
2058 (AN)	-130,000	20,000	9,700	-100,000
2059 (W)	-130,000	19,000	9,700	-110,000
2060 (D)	-120,000	19,000	9,400	-93,000
2061 (C)	-120,000	23,000	10,000	-86,000
2062 (D)	-120,000	25,000	10,000	-81,000
2063 (BN)	-120,000	26,000	10,000	-87,000
2064 (W)	-130,000	25,000	10,000	-95,000
2065 (BN)	-120,000	25,000	9,900	-86,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2030) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Anderson Subbasin	Flow from/to South Battle Creek Subbasin	Net Subsurface Flow from Adjacent Subbasins
2066 (D)		-120,000	27,000	10,000	-83,000
2067 (C)		-110,000	28,000	11,000	-72,000
2068 (C)		-120,000	30,000	11,000	-75,000
2069 (BN)		-120,000	30,000	11,000	-81,000
2070 (W)		-130,000	27,000	11,000	-95,000
2071 (BN)		-120,000	26,000	10,000	-84,000
2072 (W)		-130,000	26,000	11,000	-91,000
Average (2022-2072)		-130,000	23,000	11,000	-92,000
2022-2072	W	-130,000	21,000	11,000	-100,000
	AN	-130,000	22,000	11,000	-94,000
	BN	-120,000	24,000	11,000	-87,000
	D	-120,000	22,000	9,900	-91,000
	C	-120,000	26,000	11,000	-79,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2030) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	27,000	27,000
2023 (W)	13,000	40,000
2024 (W)	6,100	46,000
2025 (BN)	-51,000	-4,500
2026 (AN)	23,000	19,000
2027 (W)	17,000	36,000
2028 (W)	-6,300	30,000
2029 (C)	-33,000	-3,200
2030 (C)	-42,000	-45,000
2031 (AN)	37,000	-8,300
2032 (BN)	-28,000	-36,000
2033 (AN)	18,000	-19,000
2034 (D)	-1,900	-20,000
2035 (W)	29,000	8,500
2036 (W)	49,000	58,000
2037 (W)	-4,700	53,000
2038 (D)	-25,000	28,000
2039 (W)	9,600	37,000
2040 (D)	-31,000	6,200
2041 (C)	-38,000	-32,000
2042 (D)	-22,000	-54,000
2043 (C)	-16,000	-70,000
2044 (C)	-11,000	-81,000
2045 (C)	-420	-82,000
2046 (AN)	43,000	-39,000
2047 (C)	-24,000	-63,000
2048 (W)	53,000	-11,000
2049 (W)	18,000	7,500
2050 (W)	-12,000	-4,400
2051 (W)	56,000	51,000
2052 (W)	-15,000	37,000
2053 (AN)	-8,500	28,000
2054 (D)	-27,000	1,100
2055 (D)	-8,000	-6,900
2056 (AN)	20,000	13,000
2057 (BN)	-2,000	11,000
2058 (AN)	13,000	24,000
2059 (W)	13,000	37,000
2060 (D)	-44,000	-6,600
2061 (C)	-21,000	-27,000
2062 (D)	-19,000	-46,000
2063 (BN)	21,000	-25,000
2064 (W)	18,000	-6,400
2065 (BN)	-29,000	-36,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2030) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-12,000	-48,000
2067 (C)		-30,000	-78,000
2068 (C)		-4,600	-83,000
2069 (BN)		22,000	-61,000
2070 (W)		43,000	-18,000
2071 (BN)		-35,000	-52,000
2072 (W)		35,000	-17,000
Average (2022-2072)		-340	
2022-2072	W		
	AN		
	BN		
	D		
	C		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX B-7

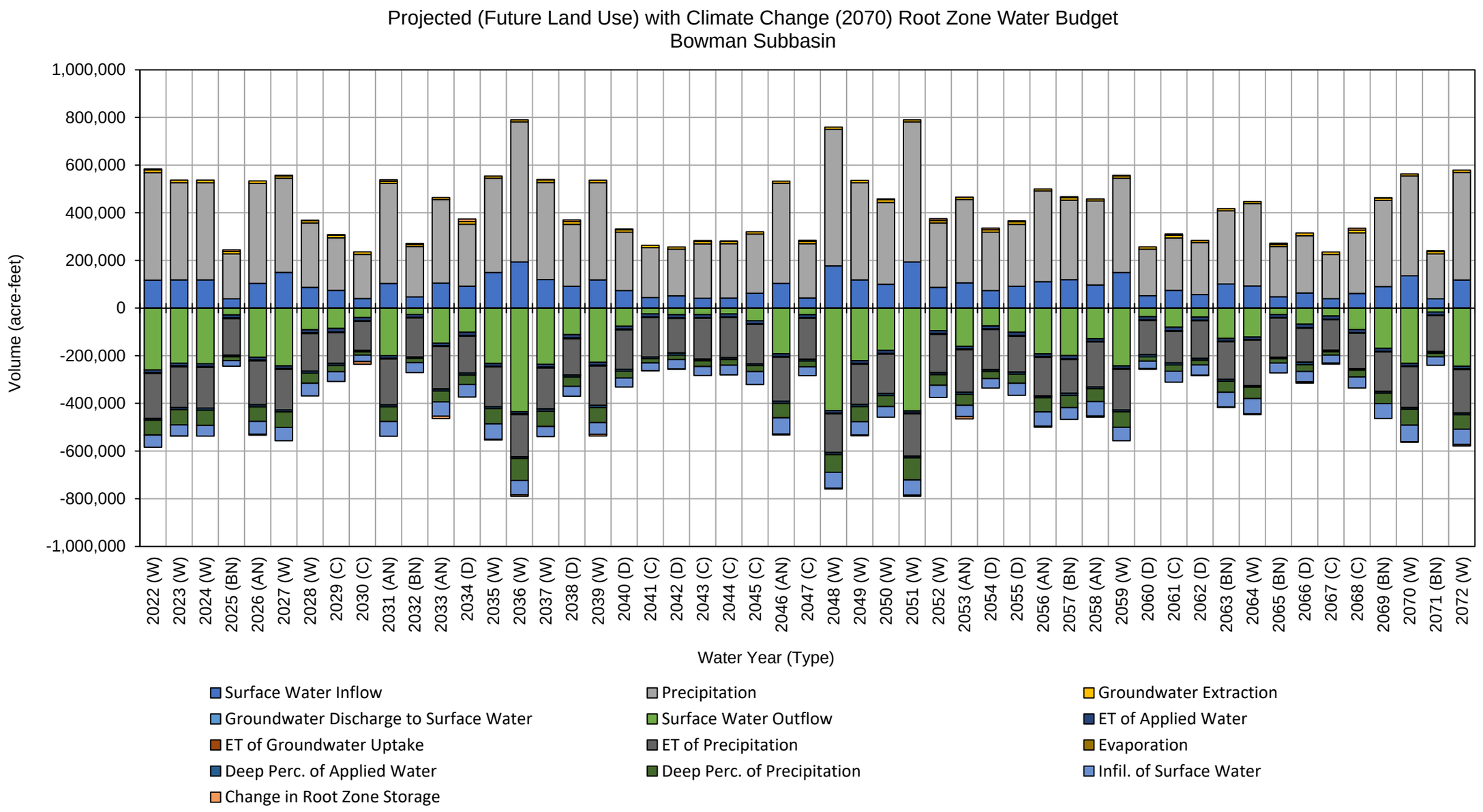
Detailed Bowman Subbasin Water Budget Results:

Projected (Future Land Use) with Climate Change (2070) Model Results

APPENDIX B-7a

Detailed Bowman Subbasin Water Budget Results:

Projected (Future Land Use) with Climate Change (2070) Model Results – Surface Water System


Projected (Future Land Use) with Climate Change (2070) Root Zone Water Budget
Bowman Subbasin
Volume (acre-feet)
1,000,000
800,000
600,000
400,000
200,000
0
-200,000
-400,000
-600,000
-800,000
-1,000,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Surface Water Inflow
Precipitation
Groundwater Extraction
Groundwater Discharge to Surface Water
Surface Water Outflow
ET of Applied Water
ET of Groundwater Uptake
ET of Precipitation
Evaporation
Deep Perc. of Applied Water
Deep Perc. of Precipitation
Infil. of Surface Water
Change in Root Zone Storage

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Root Zone Water Budget Summary (acre-feet, rounded)

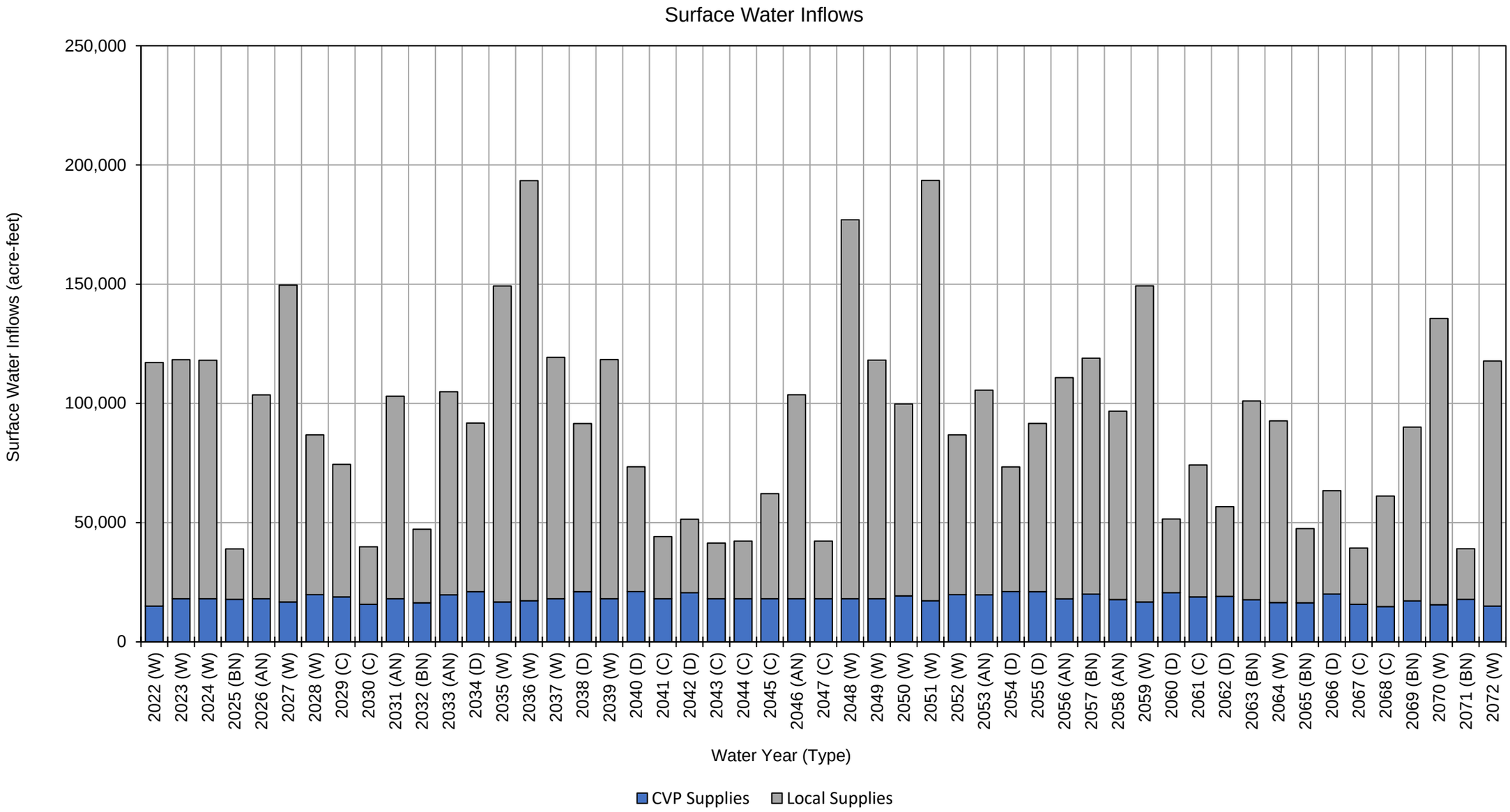
WY (Type)	Inflows				Outflows								Change in Root Zone Storage
	Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2022 (W)	120,000	450,000	11,000	0	260,000	11,000	3,900	190,000	800	6,200	62,000	51,000	-4,200
2023 (W)	120,000	410,000	11,000	0	230,000	12,000	3,900	170,000	870	8,400	64,000	47,000	190
2024 (W)	120,000	410,000	11,000	0	230,000	12,000	3,900	170,000	870	8,300	64,000	44,000	0
2025 (BN)	39,000	190,000	10,000	0	29,000	13,000	2,800	150,000	840	5,500	16,000	24,000	-6,400
2026 (AN)	100,000	420,000	10,000	0	210,000	12,000	3,500	180,000	930	8,400	61,000	54,000	4,200
2027 (W)	150,000	400,000	9,400	0	240,000	11,000	3,800	170,000	830	7,200	65,000	56,000	-2,400
2028 (W)	87,000	270,000	10,000	0	91,000	12,000	3,500	160,000	990	7,600	43,000	53,000	-1,300
2029 (C)	74,000	220,000	12,000	0	86,000	15,000	3,000	130,000	1,000	7,500	26,000	41,000	-1,700
2030 (C)	40,000	190,000	10,000	0	39,000	14,000	2,000	120,000	870	5,100	14,000	27,000	12,000
2031 (AN)	100,000	420,000	9,100	0	200,000	11,000	2,900	190,000	930	7,500	62,000	62,000	-6,300
2032 (BN)	47,000	210,000	8,500	0	27,000	12,000	2,200	160,000	870	4,900	18,000	42,000	-4,500
2033 (AN)	100,000	350,000	8,600	0	150,000	11,000	2,700	180,000	910	7,500	46,000	60,000	10,000
2034 (D)	92,000	260,000	11,000	0	100,000	14,000	2,700	150,000	990	7,900	40,000	53,000	-11,000
2035 (W)	150,000	400,000	8,900	0	230,000	11,000	3,300	170,000	830	7,100	64,000	65,000	2,500
2036 (W)	190,000	590,000	9,100	0	430,000	8,300	3,800	180,000	700	6,400	93,000	60,000	6,300
2037 (W)	120,000	410,000	11,000	0	240,000	12,000	3,800	170,000	880	8,800	64,000	43,000	-1,600
2038 (D)	92,000	260,000	11,000	0	110,000	14,000	3,400	150,000	1,000	8,000	39,000	42,000	-7,100
2039 (W)	120,000	410,000	11,000	0	230,000	12,000	3,400	170,000	870	8,600	63,000	49,000	7,100
2040 (D)	73,000	250,000	9,700	0	76,000	12,000	2,800	170,000	950	7,000	29,000	38,000	-3,400
2041 (C)	44,000	210,000	10,000	0	24,000	13,000	2,200	170,000	990	6,000	18,000	32,000	1,200
2042 (D)	51,000	200,000	9,300	0	28,000	13,000	2,000	140,000	990	8,800	18,000	40,000	110
2043 (C)	41,000	230,000	9,700	0	27,000	13,000	1,900	170,000	890	6,100	24,000	38,000	-3,800
2044 (C)	42,000	230,000	9,900	0	24,000	13,000	1,800	170,000	890	6,700	24,000	40,000	-9
2045 (C)	62,000	250,000	9,700	0	53,000	14,000	1,900	170,000	900	6,200	25,000	53,000	85
2046 (AN)	100,000	420,000	9,100	0	190,000	12,000	2,500	180,000	930	8,300	60,000	68,000	3,600
2047 (C)	42,000	230,000	9,900	0	28,000	13,000	1,900	170,000	890	6,600	24,000	37,000	-3,600
2048 (W)	180,000	570,000	8,900	0	430,000	11,000	2,800	160,000	820	8,000	74,000	67,000	3,000
2049 (W)	120,000	410,000	10,000	0	220,000	12,000	2,900	170,000	860	8,500	63,000	56,000	2,800
2050 (W)	100,000	340,000	12,000	0	180,000	13,000	2,700	170,000	970	7,900	45,000	45,000	-3,300
2051 (W)	190,000	590,000	9,000	0	430,000	8,400	3,700	180,000	700	6,500	93,000	64,000	5,100
2052 (W)	87,000	270,000	10,000	0	95,000	12,000	3,600	160,000	990	7,500	44,000	51,000	-7,500
2053 (AN)	110,000	350,000	9,300	0	160,000	11,000	3,400	180,000	930	7,800	46,000	47,000	9,600
2054 (D)	73,000	250,000	9,900	0	75,000	12,000	2,800	170,000	940	6,900	30,000	40,000	-7,200
2055 (D)	92,000	260,000	11,000	0	100,000	14,000	2,800	150,000	1,000	8,100	38,000	51,000	-3,700
2056 (AN)	110,000	380,000	8,700	0	190,000	11,000	3,000	160,000	870	6,600	60,000	60,000	4,000
2057 (BN)	120,000	330,000	11,000	0	200,000	14,000	3,300	140,000	1,000	8,500	51,000	49,000	-3,800
2058 (AN)	97,000	350,000	8,600	0	130,000	10,000	3,100	190,000	850	6,800	54,000	60,000	4,900
2059 (W)	150,000	400,000	9,200	0	240,000	11,000	3,600	170,000	830	7,100	65,000	56,000	-2,700
2060 (D)	51,000	200,000	9,700	0	36,000	13,000	2,500	140,000	1,000	8,700	18,000	32,000	2,600
2061 (C)	74,000	220,000	11,000	0	80,000	15,000	2,600	130,000	1,000	7,400	26,000	46,000	-5,600
2062 (D)	57,000	220,000	8,900	0	38,000	13,000	2,100	160,000	1,000	6,700	19,000	44,000	1,700
2063 (BN)	100,000	310,000	8,600	0	130,000	11,000	2,500	160,000	910	7,000	47,000	62,000	1,900
2064 (W)	93,000	350,000	8,300	0	120,000	10,000	2,800	190,000	840	5,600	47,000	65,000	2,600
2065 (BN)	47,000	210,000	8,500	0	28,000	12,000	2,100	170,000	870	5,100	18,000	42,000	-5,400

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Root Zone Water Budget Summary (acre-feet, rounded)

WY (Type)		Inflows				Outflows								Change in Root Zone Storage
		Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2066 (D)		63,000	240,000	11,000	0	68,000	15,000	2,200	140,000	1,000	9,800	28,000	43,000	5,800
2067 (C)		39,000	190,000	10,000	0	33,000	14,000	1,700	130,000	860	4,900	14,000	33,000	4,900
2068 (C)		61,000	250,000	12,000	0	90,000	14,000	1,800	150,000	790	5,400	29,000	46,000	-7,900
2069 (BN)		90,000	360,000	9,900	0	170,000	13,000	2,100	170,000	860	6,600	44,000	62,000	-1,600
2070 (W)		140,000	420,000	9,000	0	230,000	11,000	2,600	170,000	800	5,700	67,000	70,000	2,200
2071 (BN)		39,000	190,000	9,600	0	17,000	13,000	1,800	150,000	830	5,700	15,000	35,000	-3,100
2072 (W)		120,000	450,000	9,700	0	240,000	11,000	2,700	180,000	800	6,500	61,000	64,000	6,200
Average (2022-2072)		92,000	320,000	9,900	0	140,000	12,000	2,800	160,000	900	7,100	44,000	49,000	-84
2022-2072	W	130,000	420,000	9,900	0	240,000	11,000	3,400	170,000	850	7,300	63,000	56,000	830
	AN	100,000	380,000	9,100	0	180,000	11,000	3,000	180,000	910	7,500	56,000	59,000	4,400
	BN	69,000	260,000	9,500	0	85,000	13,000	2,400	160,000	890	6,200	30,000	45,000	-3,300
	D	72,000	240,000	10,000	0	71,000	13,000	2,600	150,000	990	8,000	29,000	42,000	-2,400
	C	52,000	220,000	10,000	0	49,000	14,000	2,100	150,000	920	6,200	22,000	39,000	-480

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

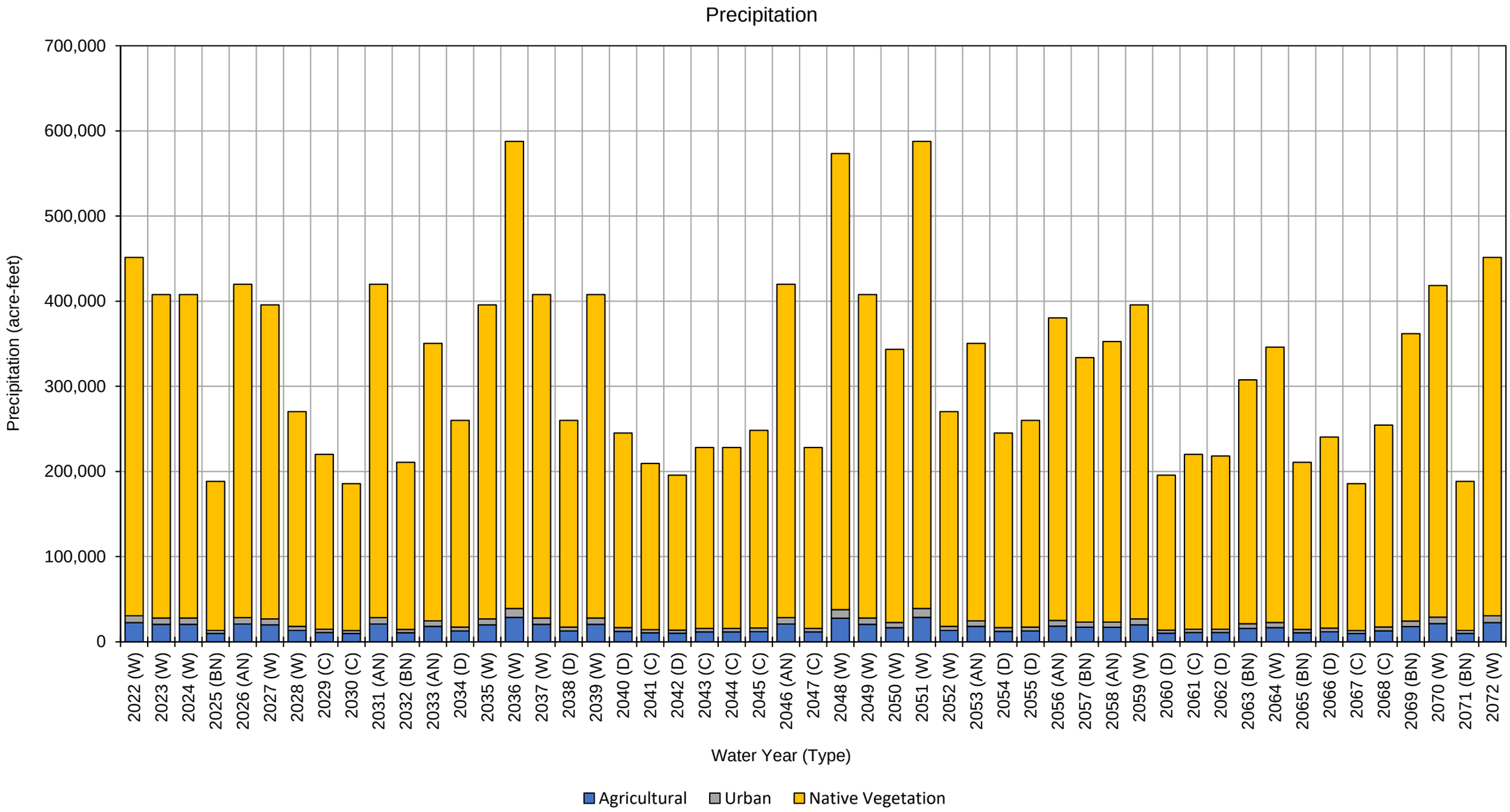
WY (Type)	CVP Supplies	Local Supplies	Total
2022 (W)	15,000	100,000	120,000
2023 (W)	18,000	100,000	120,000
2024 (W)	18,000	100,000	120,000
2025 (BN)	18,000	21,000	39,000
2026 (AN)	18,000	86,000	100,000
2027 (W)	17,000	130,000	150,000
2028 (W)	20,000	67,000	87,000
2029 (C)	19,000	56,000	75,000
2030 (C)	16,000	24,000	40,000
2031 (AN)	18,000	85,000	100,000
2032 (BN)	16,000	31,000	47,000
2033 (AN)	20,000	85,000	110,000
2034 (D)	21,000	71,000	92,000
2035 (W)	17,000	130,000	150,000
2036 (W)	17,000	180,000	200,000
2037 (W)	18,000	100,000	120,000
2038 (D)	21,000	71,000	92,000
2039 (W)	18,000	100,000	120,000
2040 (D)	21,000	52,000	73,000
2041 (C)	18,000	26,000	44,000
2042 (D)	21,000	31,000	52,000
2043 (C)	18,000	23,000	41,000
2044 (C)	18,000	24,000	42,000
2045 (C)	18,000	44,000	62,000
2046 (AN)	18,000	86,000	100,000
2047 (C)	18,000	24,000	42,000
2048 (W)	18,000	160,000	180,000
2049 (W)	18,000	100,000	120,000
2050 (W)	19,000	80,000	99,000
2051 (W)	17,000	180,000	200,000
2052 (W)	20,000	67,000	87,000
2053 (AN)	20,000	86,000	110,000
2054 (D)	21,000	52,000	73,000
2055 (D)	21,000	71,000	92,000
2056 (AN)	18,000	93,000	110,000
2057 (BN)	20,000	99,000	120,000
2058 (AN)	18,000	79,000	97,000
2059 (W)	17,000	130,000	150,000
2060 (D)	21,000	31,000	52,000
2061 (C)	19,000	55,000	74,000
2062 (D)	19,000	38,000	57,000
2063 (BN)	18,000	83,000	100,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Total
2064 (W)		16,000	76,000	92,000
2065 (BN)		16,000	31,000	47,000
2066 (D)		20,000	43,000	63,000
2067 (C)		16,000	24,000	40,000
2068 (C)		15,000	46,000	61,000
2069 (BN)		17,000	73,000	90,000
2070 (W)		16,000	120,000	140,000
2071 (BN)		18,000	21,000	39,000
2072 (W)		15,000	100,000	120,000
Average (2022-2072)		18,000	74,000	92,000
2022-2072	W	17,000	110,000	130,000
	AN	18,000	86,000	100,000
	BN	18,000	51,000	69,000
	D	21,000	51,000	72,000
	C	17,000	35,000	52,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Precipitation, by Water Use Sector (acre-feet, rounded)

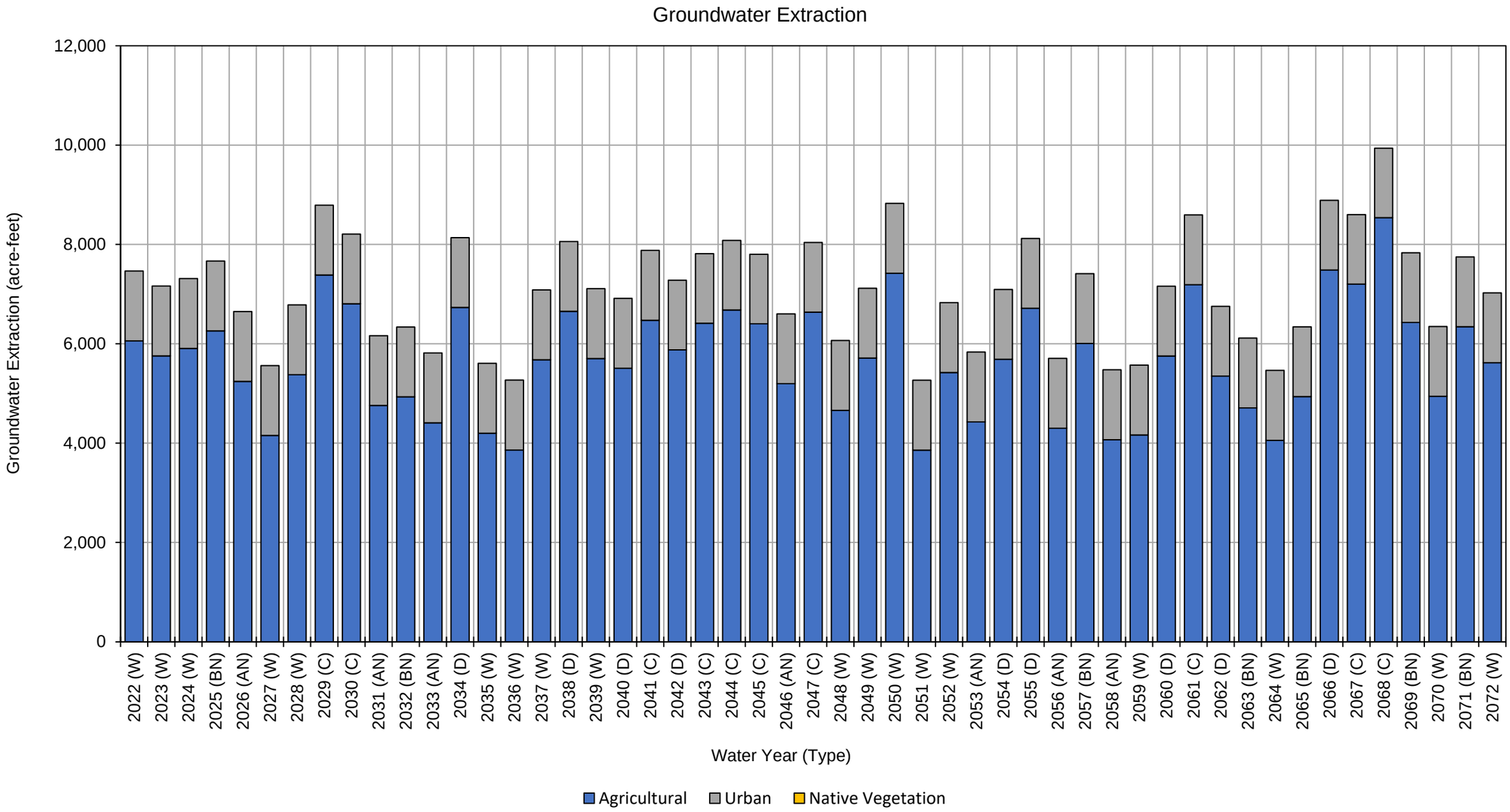
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	22,000	8,100	420,000	450,000
2023 (W)	20,000	7,400	380,000	410,000
2024 (W)	20,000	7,400	380,000	410,000
2025 (BN)	9,800	3,500	180,000	190,000
2026 (AN)	21,000	7,500	390,000	420,000
2027 (W)	20,000	7,000	370,000	400,000
2028 (W)	13,000	4,800	250,000	270,000
2029 (C)	11,000	3,900	210,000	220,000
2030 (C)	9,800	3,500	170,000	180,000
2031 (AN)	21,000	7,500	390,000	420,000
2032 (BN)	11,000	3,800	200,000	210,000
2033 (AN)	18,000	6,500	330,000	350,000
2034 (D)	13,000	4,600	240,000	260,000
2035 (W)	20,000	7,000	370,000	400,000
2036 (W)	29,000	10,000	550,000	590,000
2037 (W)	20,000	7,400	380,000	410,000
2038 (D)	13,000	4,600	240,000	260,000
2039 (W)	20,000	7,400	380,000	410,000
2040 (D)	12,000	4,400	230,000	250,000
2041 (C)	11,000	3,800	200,000	210,000
2042 (D)	10,000	3,600	180,000	190,000
2043 (C)	12,000	4,200	210,000	230,000
2044 (C)	12,000	4,200	210,000	230,000
2045 (C)	12,000	4,300	230,000	250,000
2046 (AN)	21,000	7,500	390,000	420,000
2047 (C)	12,000	4,200	210,000	230,000
2048 (W)	28,000	10,000	540,000	580,000
2049 (W)	20,000	7,400	380,000	410,000
2050 (W)	17,000	6,100	320,000	340,000
2051 (W)	29,000	10,000	550,000	590,000
2052 (W)	13,000	4,800	250,000	270,000
2053 (AN)	18,000	6,500	330,000	350,000
2054 (D)	12,000	4,400	230,000	250,000
2055 (D)	13,000	4,600	240,000	260,000
2056 (AN)	18,000	6,700	360,000	380,000
2057 (BN)	17,000	6,000	310,000	330,000
2058 (AN)	17,000	6,100	330,000	350,000
2059 (W)	20,000	7,000	370,000	400,000
2060 (D)	10,000	3,600	180,000	190,000
2061 (C)	11,000	3,900	210,000	220,000
2062 (D)	11,000	3,900	200,000	210,000
2063 (BN)	16,000	5,500	290,000	310,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		17,000	6,000	320,000	340,000
2065 (BN)		11,000	3,800	200,000	210,000
2066 (D)		12,000	4,300	220,000	240,000
2067 (C)		9,800	3,500	170,000	180,000
2068 (C)		13,000	4,600	240,000	260,000
2069 (BN)		18,000	6,500	340,000	360,000
2070 (W)		21,000	7,600	390,000	420,000
2071 (BN)		9,800	3,500	180,000	190,000
2072 (W)		22,000	8,100	420,000	450,000
Average (2022-2072)		16,000	5,700	300,000	320,000
2022-2072	W	21,000	7,500	390,000	420,000
	AN	19,000	6,900	360,000	390,000
	BN	13,000	4,700	240,000	260,000
	D	12,000	4,200	220,000	240,000
	C	11,000	4,000	210,000	230,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

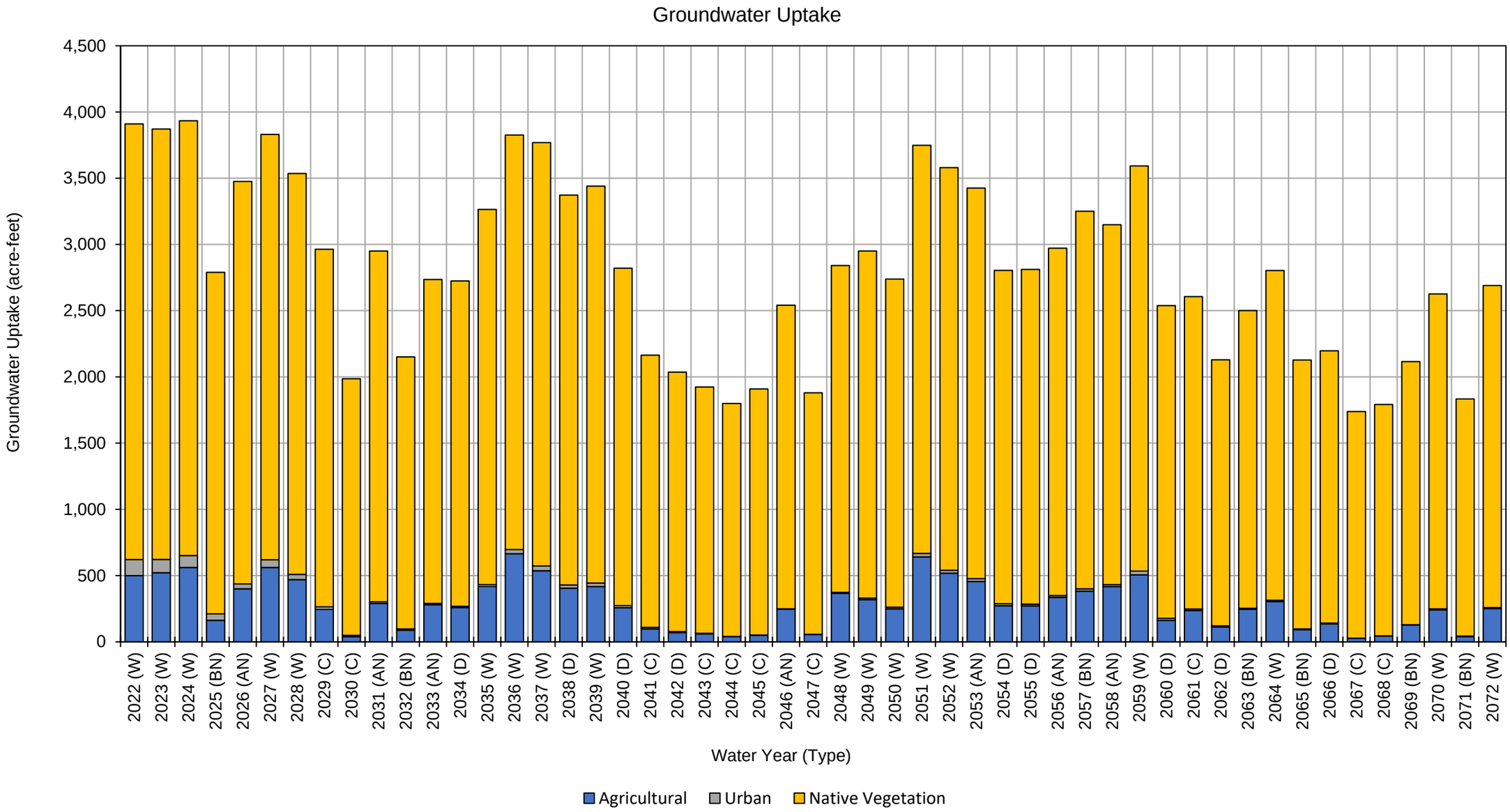
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	6,100	1,400	0	7,500
2023 (W)	5,800	1,400	0	7,200
2024 (W)	5,900	1,400	0	7,300
2025 (BN)	6,300	1,400	0	7,700
2026 (AN)	5,200	1,400	0	6,600
2027 (W)	4,200	1,400	0	5,600
2028 (W)	5,400	1,400	0	6,800
2029 (C)	7,400	1,400	0	8,800
2030 (C)	6,800	1,400	0	8,200
2031 (AN)	4,800	1,400	0	6,200
2032 (BN)	4,900	1,400	0	6,300
2033 (AN)	4,400	1,400	0	5,800
2034 (D)	6,700	1,400	0	8,100
2035 (W)	4,200	1,400	0	5,600
2036 (W)	3,900	1,400	0	5,300
2037 (W)	5,700	1,400	0	7,100
2038 (D)	6,700	1,400	0	8,100
2039 (W)	5,700	1,400	0	7,100
2040 (D)	5,500	1,400	0	6,900
2041 (C)	6,500	1,400	0	7,900
2042 (D)	5,900	1,400	0	7,300
2043 (C)	6,400	1,400	0	7,800
2044 (C)	6,700	1,400	0	8,100
2045 (C)	6,400	1,400	0	7,800
2046 (AN)	5,200	1,400	0	6,600
2047 (C)	6,600	1,400	0	8,000
2048 (W)	4,700	1,400	0	6,100
2049 (W)	5,700	1,400	0	7,100
2050 (W)	7,400	1,400	0	8,800
2051 (W)	3,900	1,400	0	5,300
2052 (W)	5,400	1,400	0	6,800
2053 (AN)	4,400	1,400	0	5,800
2054 (D)	5,700	1,400	0	7,100
2055 (D)	6,700	1,400	0	8,100
2056 (AN)	4,300	1,400	0	5,700
2057 (BN)	6,000	1,400	0	7,400
2058 (AN)	4,100	1,400	0	5,500
2059 (W)	4,200	1,400	0	5,600
2060 (D)	5,800	1,400	0	7,200
2061 (C)	7,200	1,400	0	8,600
2062 (D)	5,300	1,400	0	6,700
2063 (BN)	4,700	1,400	0	6,100

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		4,100	1,400	0	5,500
2065 (BN)		4,900	1,400	0	6,300
2066 (D)		7,500	1,400	0	8,900
2067 (C)		7,200	1,400	0	8,600
2068 (C)		8,500	1,400	0	9,900
2069 (BN)		6,400	1,400	0	7,800
2070 (W)		4,900	1,400	0	6,300
2071 (BN)		6,300	1,400	0	7,700
2072 (W)		5,600	1,400	0	7,000
Average (2022-2072)		5,700	1,400	0	7,100
2022-2072	W	5,100	1,400	0	6,500
	AN	4,600	1,400	0	6,000
	BN	5,700	1,400	0	7,100
	D	6,200	1,400	0	7,600
	C	7,000	1,400	0	8,400

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

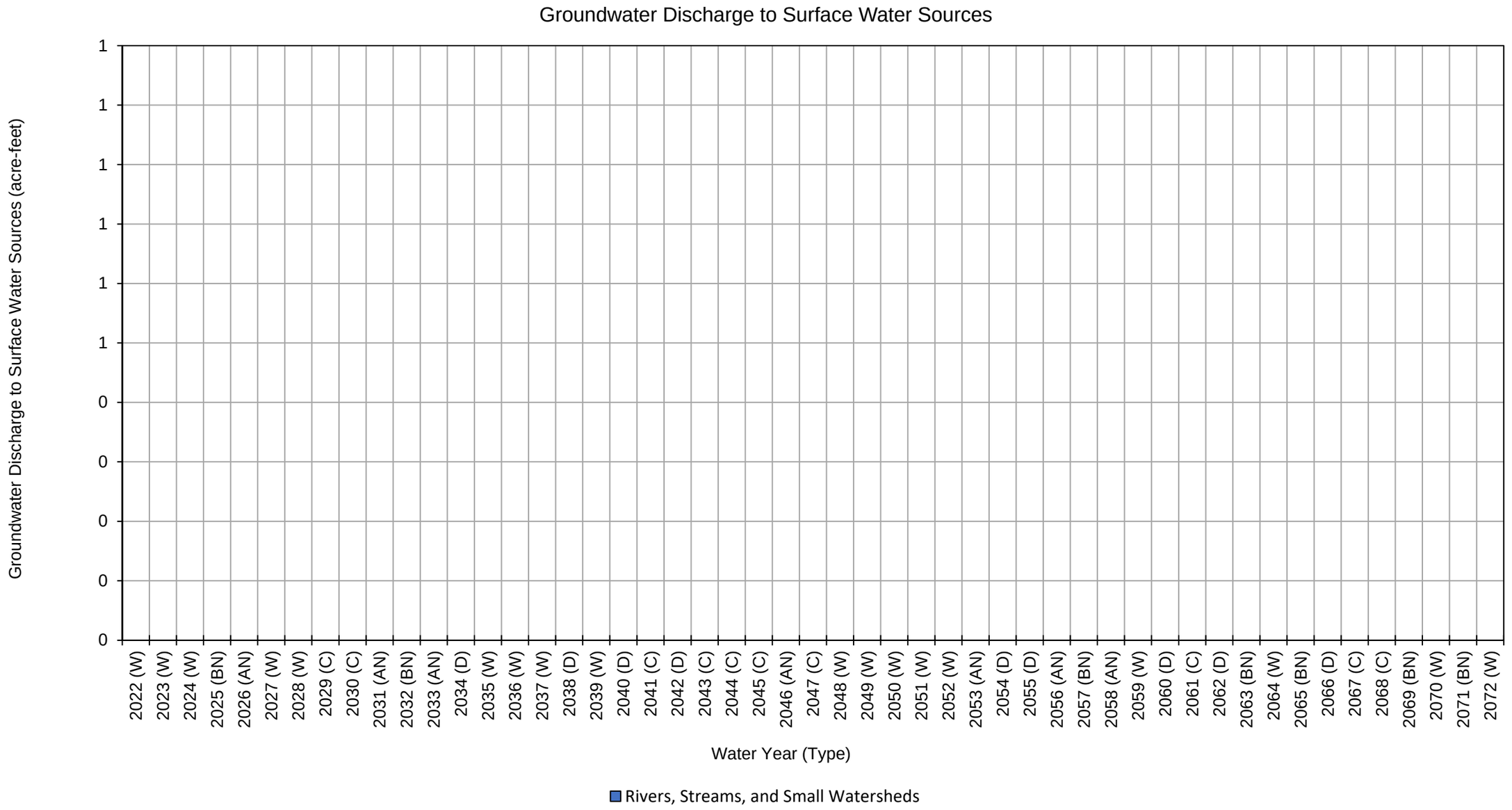
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	500	120	3,300	3,900
2023 (W)	520	100	3,200	3,800
2024 (W)	560	91	3,300	4,000
2025 (BN)	160	49	2,600	2,800
2026 (AN)	400	37	3,000	3,400
2027 (W)	560	58	3,200	3,800
2028 (W)	470	40	3,000	3,500
2029 (C)	240	20	2,700	3,000
2030 (C)	37	11	1,900	1,900
2031 (AN)	290	12	2,600	2,900
2032 (BN)	88	9	2,100	2,200
2033 (AN)	280	10	2,400	2,700
2034 (D)	260	10	2,500	2,800
2035 (W)	420	15	2,800	3,200
2036 (W)	660	31	3,100	3,800
2037 (W)	540	37	3,200	3,800
2038 (D)	400	25	2,900	3,300
2039 (W)	420	27	3,000	3,400
2040 (D)	260	16	2,500	2,800
2041 (C)	97	12	2,100	2,200
2042 (D)	70	8	2,000	2,100
2043 (C)	60	4	1,900	2,000
2044 (C)	39	1	1,800	1,800
2045 (C)	50	0	1,900	2,000
2046 (AN)	250	3	2,300	2,600
2047 (C)	55	1	1,800	1,900
2048 (W)	370	8	2,500	2,900
2049 (W)	320	11	2,600	2,900
2050 (W)	250	13	2,500	2,800
2051 (W)	640	26	3,100	3,800
2052 (W)	520	22	3,000	3,500
2053 (AN)	450	22	2,900	3,400
2054 (D)	270	16	2,500	2,800
2055 (D)	270	13	2,500	2,800
2056 (AN)	340	14	2,600	3,000
2057 (BN)	380	17	2,900	3,300
2058 (AN)	420	15	2,700	3,100
2059 (W)	510	29	3,100	3,600
2060 (D)	160	15	2,400	2,600
2061 (C)	240	12	2,400	2,700
2062 (D)	110	7	2,000	2,100
2063 (BN)	250	7	2,200	2,500

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		300	10	2,500	2,800
2065 (BN)		90	7	2,000	2,100
2066 (D)		140	6	2,100	2,200
2067 (C)		27	1	1,700	1,700
2068 (C)		43	1	1,700	1,700
2069 (BN)		130	1	2,000	2,100
2070 (W)		240	7	2,400	2,600
2071 (BN)		39	4	1,800	1,800
2072 (W)		250	8	2,400	2,700
Average (2022-2072)		280	20	2,500	2,800
2022-2072	W	450	36	2,900	3,400
	AN	350	16	2,700	3,100
	BN	160	14	2,200	2,400
	D	220	13	2,400	2,600
	C	89	6	2,000	2,100

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

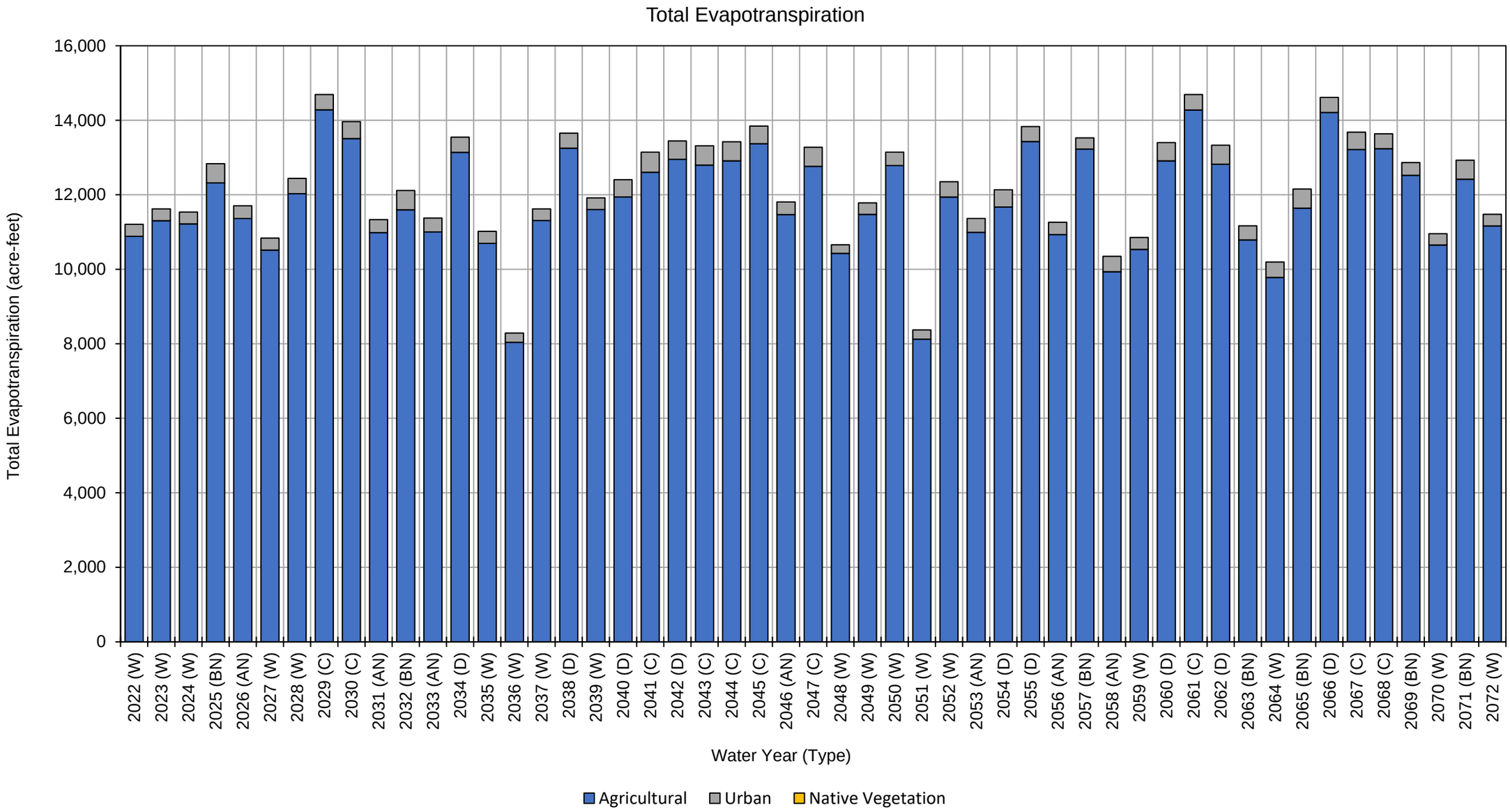
WY (Type)	Rivers, Streams, and Small Watersheds
2022 (W)	0
2023 (W)	0
2024 (W)	0
2025 (BN)	0
2026 (AN)	0
2027 (W)	0
2028 (W)	0
2029 (C)	0
2030 (C)	0
2031 (AN)	0
2032 (BN)	0
2033 (AN)	0
2034 (D)	0
2035 (W)	0
2036 (W)	0
2037 (W)	0
2038 (D)	0
2039 (W)	0
2040 (D)	0
2041 (C)	0
2042 (D)	0
2043 (C)	0
2044 (C)	0
2045 (C)	0
2046 (AN)	0
2047 (C)	0
2048 (W)	0
2049 (W)	0
2050 (W)	0
2051 (W)	0
2052 (W)	0
2053 (AN)	0
2054 (D)	0
2055 (D)	0
2056 (AN)	0
2057 (BN)	0
2058 (AN)	0
2059 (W)	0
2060 (D)	0
2061 (C)	0
2062 (D)	0
2063 (BN)	0

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

WY (Type)		Rivers, Streams, and Small Watersheds
2064 (W)		0
2065 (BN)		0
2066 (D)		0
2067 (C)		0
2068 (C)		0
2069 (BN)		0
2070 (W)		0
2071 (BN)		0
2072 (W)		0
Average (2022-2072)		0
2022-2072	W	0
	AN	0
	BN	0
	D	0
	C	0

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

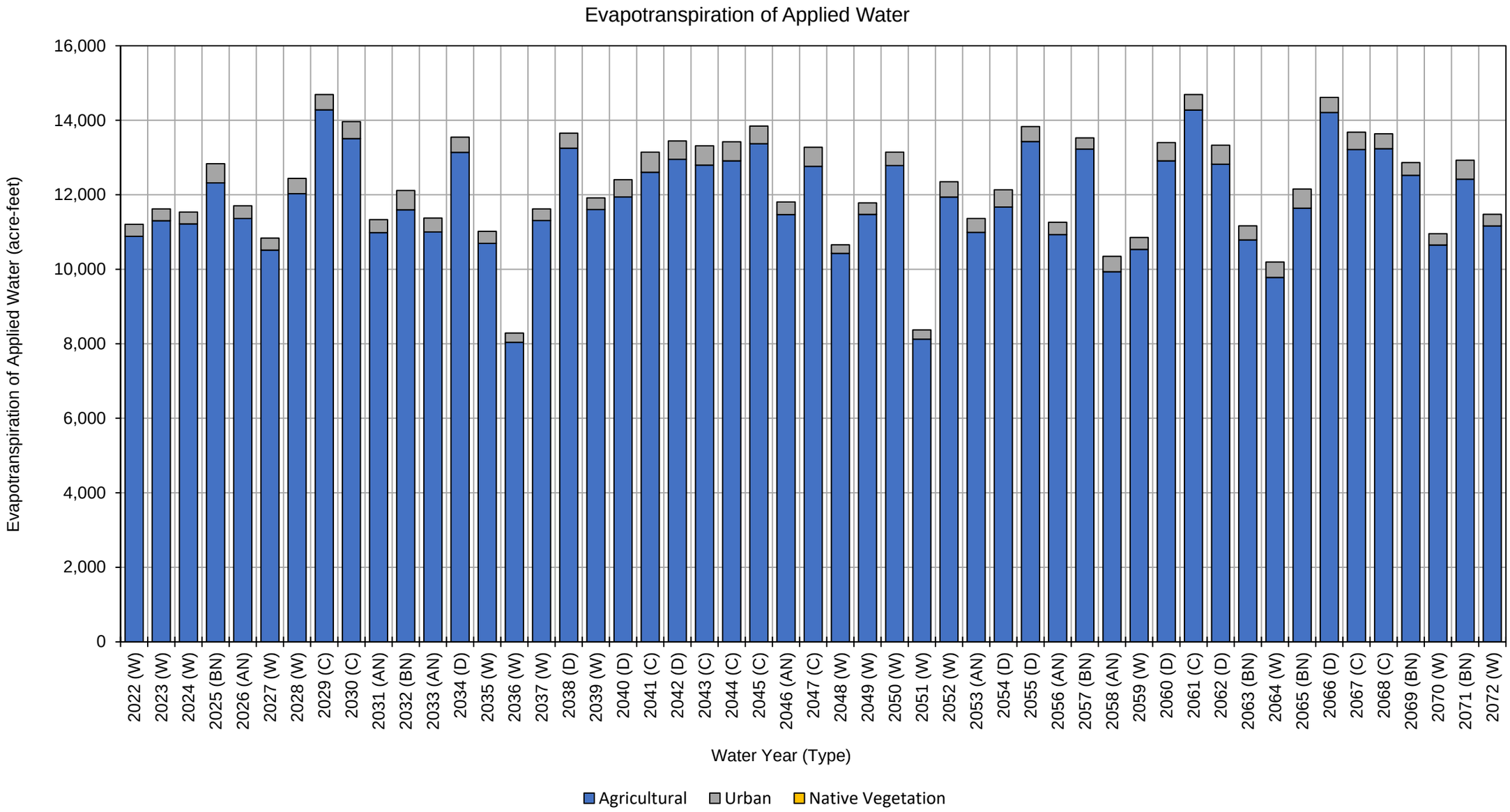
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	19,000	2,200	180,000	200,000
2023 (W)	19,000	2,000	160,000	180,000
2024 (W)	19,000	2,000	160,000	180,000
2025 (BN)	19,000	1,800	150,000	170,000
2026 (AN)	19,000	2,200	180,000	200,000
2027 (W)	18,000	1,900	160,000	180,000
2028 (W)	19,000	1,800	150,000	170,000
2029 (C)	19,000	1,600	130,000	150,000
2030 (C)	19,000	1,600	120,000	140,000
2031 (AN)	19,000	2,200	180,000	200,000
2032 (BN)	19,000	1,900	160,000	180,000
2033 (AN)	18,000	2,100	170,000	190,000
2034 (D)	19,000	1,700	150,000	170,000
2035 (W)	18,000	1,900	160,000	180,000
2036 (W)	17,000	2,100	170,000	190,000
2037 (W)	19,000	2,000	170,000	190,000
2038 (D)	19,000	1,700	150,000	170,000
2039 (W)	19,000	2,000	160,000	180,000
2040 (D)	19,000	1,900	160,000	180,000
2041 (C)	19,000	2,000	160,000	180,000
2042 (D)	18,000	1,700	140,000	160,000
2043 (C)	20,000	2,100	170,000	190,000
2044 (C)	19,000	2,000	160,000	180,000
2045 (C)	20,000	1,900	160,000	180,000
2046 (AN)	19,000	2,200	180,000	200,000
2047 (C)	19,000	2,000	170,000	190,000
2048 (W)	17,000	1,900	160,000	180,000
2049 (W)	19,000	2,000	160,000	180,000
2050 (W)	19,000	1,900	160,000	180,000
2051 (W)	17,000	2,100	170,000	190,000
2052 (W)	19,000	1,800	160,000	180,000
2053 (AN)	18,000	2,100	170,000	190,000
2054 (D)	19,000	1,900	160,000	180,000
2055 (D)	19,000	1,700	150,000	170,000
2056 (AN)	18,000	1,900	160,000	180,000
2057 (BN)	19,000	1,600	140,000	160,000
2058 (AN)	18,000	2,200	180,000	200,000
2059 (W)	18,000	1,900	160,000	180,000
2060 (D)	18,000	1,700	140,000	160,000
2061 (C)	19,000	1,600	130,000	150,000
2062 (D)	19,000	1,900	150,000	170,000
2063 (BN)	17,000	1,900	150,000	170,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		18,000	2,200	180,000	200,000
2065 (BN)		19,000	1,900	160,000	180,000
2066 (D)		19,000	1,600	140,000	160,000
2067 (C)		19,000	1,600	120,000	140,000
2068 (C)		19,000	1,700	140,000	160,000
2069 (BN)		19,000	1,900	160,000	180,000
2070 (W)		18,000	2,000	170,000	190,000
2071 (BN)		18,000	1,800	150,000	170,000
2072 (W)		19,000	2,100	180,000	200,000
Average (2022-2072)		19,000	1,900	160,000	180,000
2022-2072	W	18,000	2,000	170,000	190,000
	AN	18,000	2,100	170,000	190,000
	BN	18,000	1,800	150,000	170,000
	D	19,000	1,800	150,000	170,000
	C	19,000	1,800	150,000	170,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

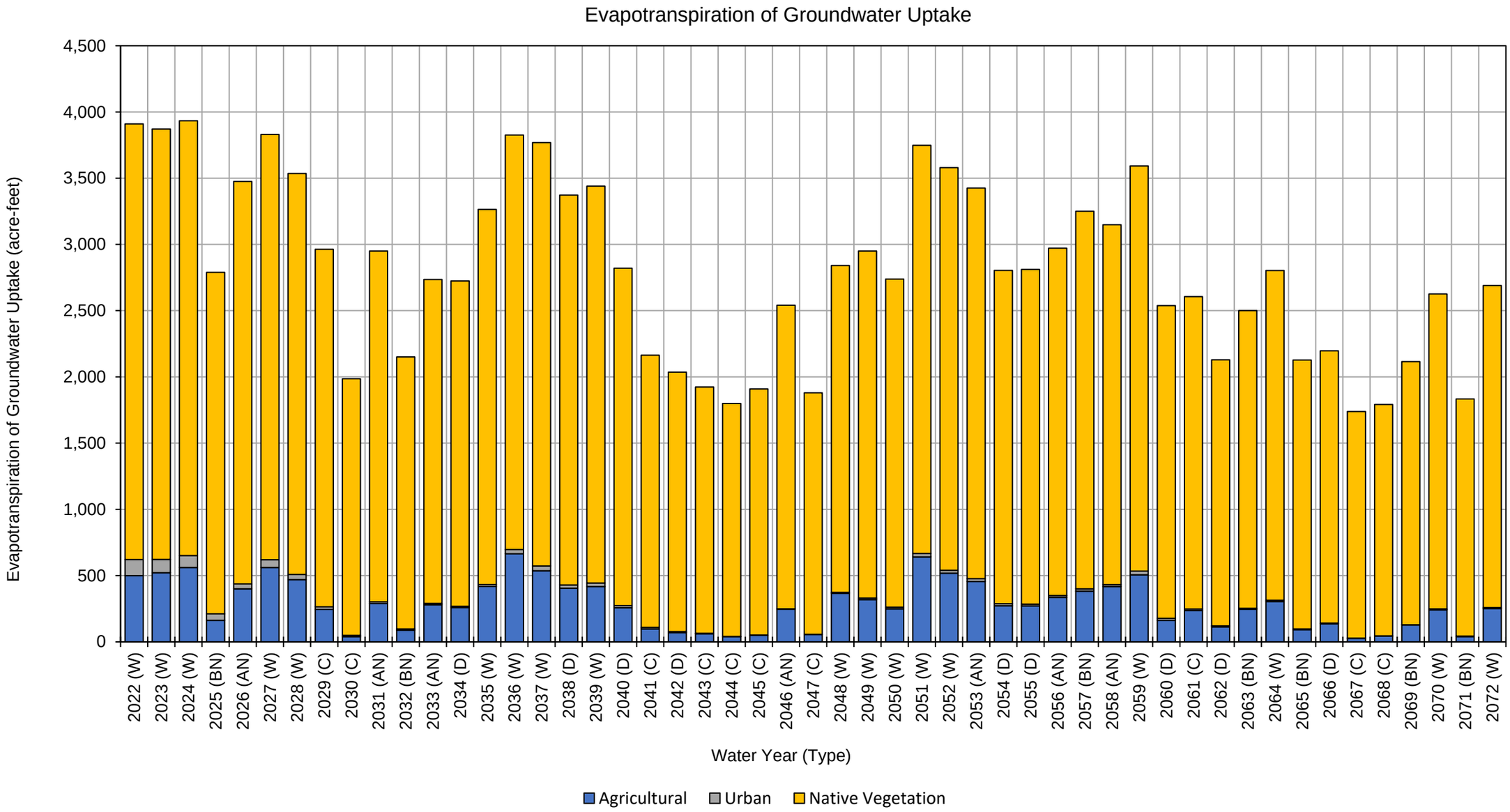
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	11,000	320	0	11,000
2023 (W)	11,000	320	0	11,000
2024 (W)	11,000	320	0	11,000
2025 (BN)	12,000	510	0	13,000
2026 (AN)	11,000	340	0	11,000
2027 (W)	11,000	320	0	11,000
2028 (W)	12,000	410	0	12,000
2029 (C)	14,000	410	0	14,000
2030 (C)	14,000	450	0	14,000
2031 (AN)	11,000	350	0	11,000
2032 (BN)	12,000	520	0	13,000
2033 (AN)	11,000	370	0	11,000
2034 (D)	13,000	410	0	13,000
2035 (W)	11,000	320	0	11,000
2036 (W)	8,000	250	0	8,300
2037 (W)	11,000	310	0	11,000
2038 (D)	13,000	400	0	13,000
2039 (W)	12,000	310	0	12,000
2040 (D)	12,000	460	0	12,000
2041 (C)	13,000	540	0	14,000
2042 (D)	13,000	490	0	13,000
2043 (C)	13,000	520	0	14,000
2044 (C)	13,000	510	0	14,000
2045 (C)	13,000	470	0	13,000
2046 (AN)	11,000	340	0	11,000
2047 (C)	13,000	510	0	14,000
2048 (W)	10,000	230	0	10,000
2049 (W)	11,000	310	0	11,000
2050 (W)	13,000	360	0	13,000
2051 (W)	8,100	250	0	8,400
2052 (W)	12,000	410	0	12,000
2053 (AN)	11,000	370	0	11,000
2054 (D)	12,000	460	0	12,000
2055 (D)	13,000	400	0	13,000
2056 (AN)	11,000	330	0	11,000
2057 (BN)	13,000	300	0	13,000
2058 (AN)	9,900	420	0	10,000
2059 (W)	11,000	320	0	11,000
2060 (D)	13,000	490	0	13,000
2061 (C)	14,000	420	0	14,000
2062 (D)	13,000	510	0	14,000
2063 (BN)	11,000	380	0	11,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		9,800	410	0	10,000
2065 (BN)		12,000	520	0	13,000
2066 (D)		14,000	400	0	14,000
2067 (C)		13,000	470	0	13,000
2068 (C)		13,000	400	0	13,000
2069 (BN)		13,000	340	0	13,000
2070 (W)		11,000	300	0	11,000
2071 (BN)		12,000	510	0	13,000
2072 (W)		11,000	310	0	11,000
Average (2022-2072)		12,000	390	0	12,000
2022-2072	W	11,000	320	0	11,000
	AN	11,000	360	0	11,000
	BN	12,000	440	0	12,000
	D	13,000	450	0	13,000
	C	13,000	470	0	13,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

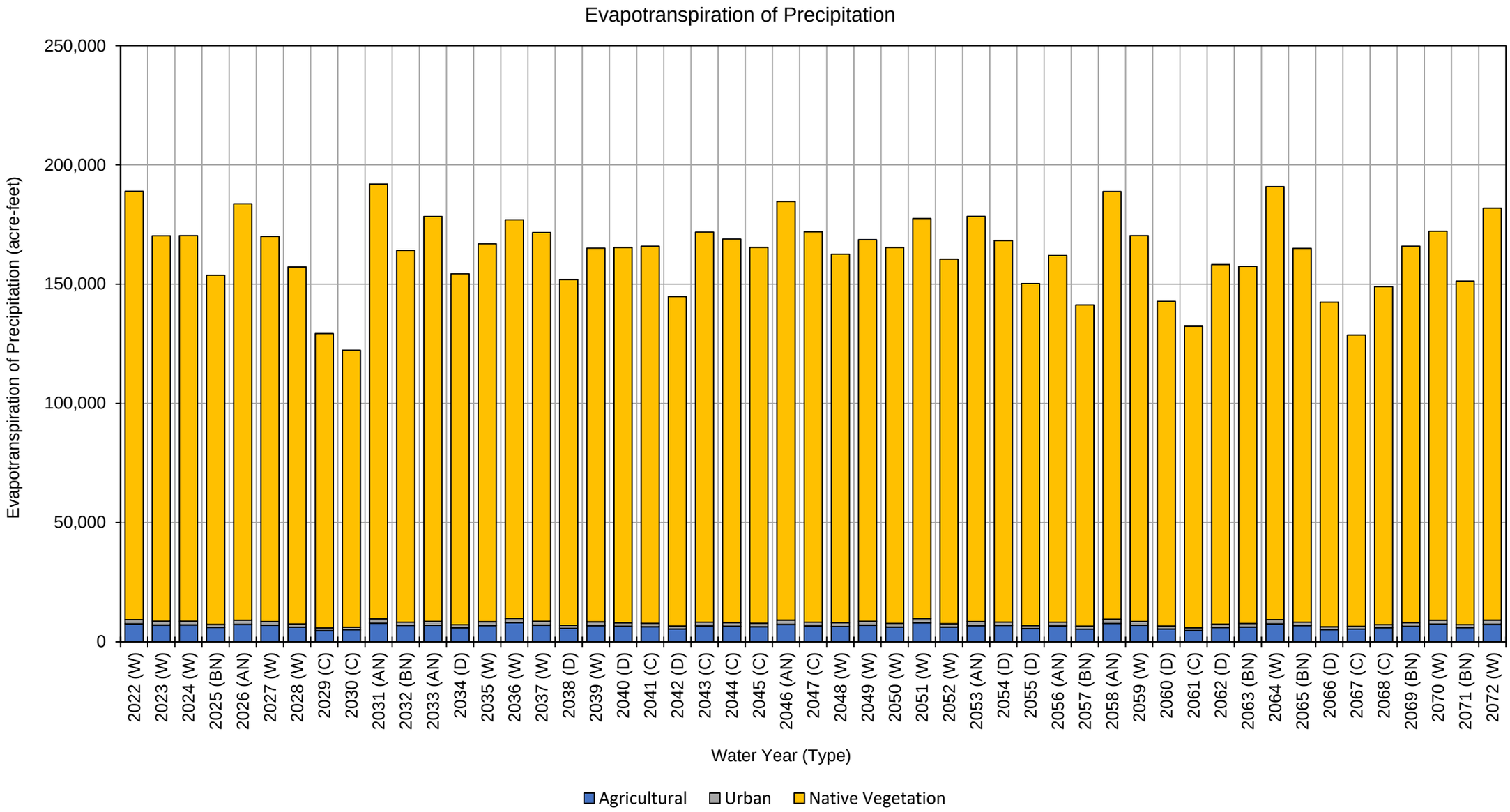
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	500	120	3,300	3,900
2023 (W)	520	100	3,200	3,800
2024 (W)	560	91	3,300	4,000
2025 (BN)	160	49	2,600	2,800
2026 (AN)	400	37	3,000	3,400
2027 (W)	560	58	3,200	3,800
2028 (W)	470	40	3,000	3,500
2029 (C)	240	20	2,700	3,000
2030 (C)	37	11	1,900	1,900
2031 (AN)	290	12	2,600	2,900
2032 (BN)	88	9	2,100	2,200
2033 (AN)	280	10	2,400	2,700
2034 (D)	260	10	2,500	2,800
2035 (W)	420	15	2,800	3,200
2036 (W)	660	31	3,100	3,800
2037 (W)	540	37	3,200	3,800
2038 (D)	400	25	2,900	3,300
2039 (W)	420	27	3,000	3,400
2040 (D)	260	16	2,500	2,800
2041 (C)	97	12	2,100	2,200
2042 (D)	70	8	2,000	2,100
2043 (C)	60	4	1,900	2,000
2044 (C)	39	1	1,800	1,800
2045 (C)	50	0	1,900	2,000
2046 (AN)	250	3	2,300	2,600
2047 (C)	55	1	1,800	1,900
2048 (W)	370	8	2,500	2,900
2049 (W)	320	11	2,600	2,900
2050 (W)	250	13	2,500	2,800
2051 (W)	640	26	3,100	3,800
2052 (W)	520	22	3,000	3,500
2053 (AN)	450	22	2,900	3,400
2054 (D)	270	16	2,500	2,800
2055 (D)	270	13	2,500	2,800
2056 (AN)	340	14	2,600	3,000
2057 (BN)	380	17	2,900	3,300
2058 (AN)	420	15	2,700	3,100
2059 (W)	510	29	3,100	3,600
2060 (D)	160	15	2,400	2,600
2061 (C)	240	12	2,400	2,700
2062 (D)	110	7	2,000	2,100
2063 (BN)	250	7	2,200	2,500

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		300	10	2,500	2,800
2065 (BN)		90	7	2,000	2,100
2066 (D)		140	6	2,100	2,200
2067 (C)		27	1	1,700	1,700
2068 (C)		43	1	1,700	1,700
2069 (BN)		130	1	2,000	2,100
2070 (W)		240	7	2,400	2,600
2071 (BN)		39	4	1,800	1,800
2072 (W)		250	8	2,400	2,700
Average (2022-2072)		280	20	2,500	2,800
2022-2072	W	450	36	2,900	3,400
	AN	350	16	2,700	3,100
	BN	160	14	2,200	2,400
	D	220	13	2,400	2,600
	C	89	6	2,000	2,100

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

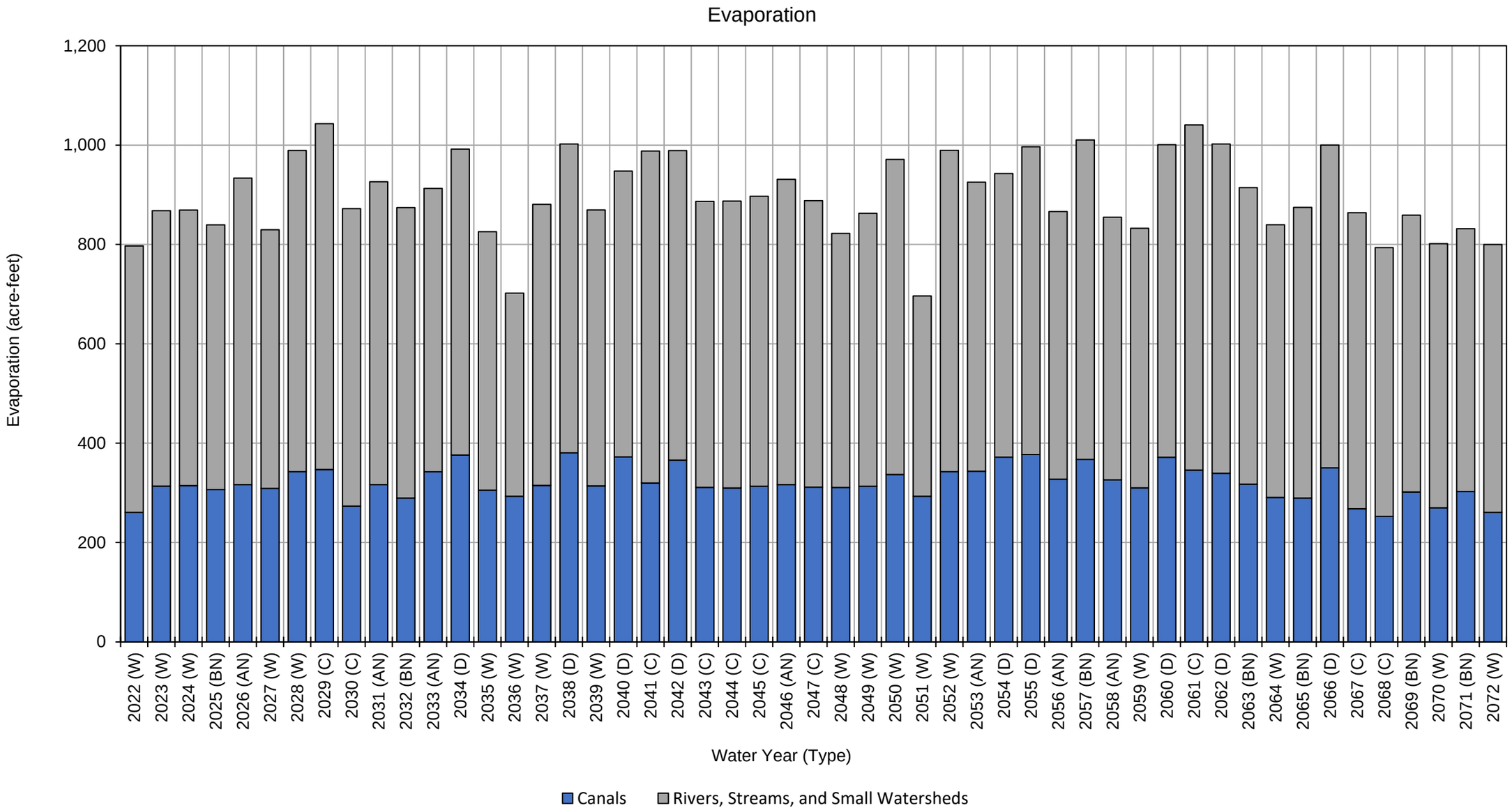
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	7,500	1,800	180,000	190,000
2023 (W)	7,000	1,600	160,000	170,000
2024 (W)	7,000	1,600	160,000	170,000
2025 (BN)	6,000	1,200	150,000	160,000
2026 (AN)	7,300	1,800	170,000	180,000
2027 (W)	6,900	1,600	160,000	170,000
2028 (W)	6,100	1,400	150,000	160,000
2029 (C)	4,700	1,100	120,000	130,000
2030 (C)	5,000	1,100	120,000	130,000
2031 (AN)	7,800	1,900	180,000	190,000
2032 (BN)	6,800	1,400	160,000	170,000
2033 (AN)	6,900	1,700	170,000	180,000
2034 (D)	5,800	1,300	150,000	160,000
2035 (W)	6,800	1,600	160,000	170,000
2036 (W)	8,000	1,800	170,000	180,000
2037 (W)	7,000	1,600	160,000	170,000
2038 (D)	5,600	1,300	140,000	150,000
2039 (W)	6,800	1,600	160,000	170,000
2040 (D)	6,500	1,400	160,000	170,000
2041 (C)	6,300	1,400	160,000	170,000
2042 (D)	5,300	1,200	140,000	150,000
2043 (C)	6,700	1,500	160,000	170,000
2044 (C)	6,500	1,500	160,000	170,000
2045 (C)	6,300	1,500	160,000	170,000
2046 (AN)	7,300	1,800	180,000	190,000
2047 (C)	6,700	1,500	160,000	170,000
2048 (W)	6,400	1,600	150,000	160,000
2049 (W)	7,000	1,600	160,000	170,000
2050 (W)	6,200	1,500	160,000	170,000
2051 (W)	7,900	1,800	170,000	180,000
2052 (W)	6,200	1,400	150,000	160,000
2053 (AN)	6,800	1,700	170,000	180,000
2054 (D)	6,800	1,400	160,000	170,000
2055 (D)	5,500	1,300	140,000	150,000
2056 (AN)	6,700	1,600	150,000	160,000
2057 (BN)	5,300	1,300	130,000	140,000
2058 (AN)	7,600	1,800	180,000	190,000
2059 (W)	6,900	1,600	160,000	170,000
2060 (D)	5,300	1,200	140,000	150,000
2061 (C)	4,700	1,100	130,000	140,000
2062 (D)	6,000	1,400	150,000	160,000
2063 (BN)	6,200	1,500	150,000	160,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		7,500	1,800	180,000	190,000
2065 (BN)		6,800	1,400	160,000	170,000
2066 (D)		5,000	1,200	140,000	150,000
2067 (C)		5,300	1,200	120,000	130,000
2068 (C)		5,900	1,300	140,000	150,000
2069 (BN)		6,500	1,600	160,000	170,000
2070 (W)		7,400	1,600	160,000	170,000
2071 (BN)		5,900	1,300	140,000	150,000
2072 (W)		7,300	1,800	170,000	180,000
Average (2022-2072)		6,500	1,500	160,000	170,000
2022-2072	W	7,000	1,600	160,000	170,000
	AN	7,200	1,800	170,000	180,000
	BN	6,200	1,400	150,000	160,000
	D	5,800	1,300	150,000	160,000
	C	5,800	1,300	140,000	150,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
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BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Evaporation (acre-feet, rounded)

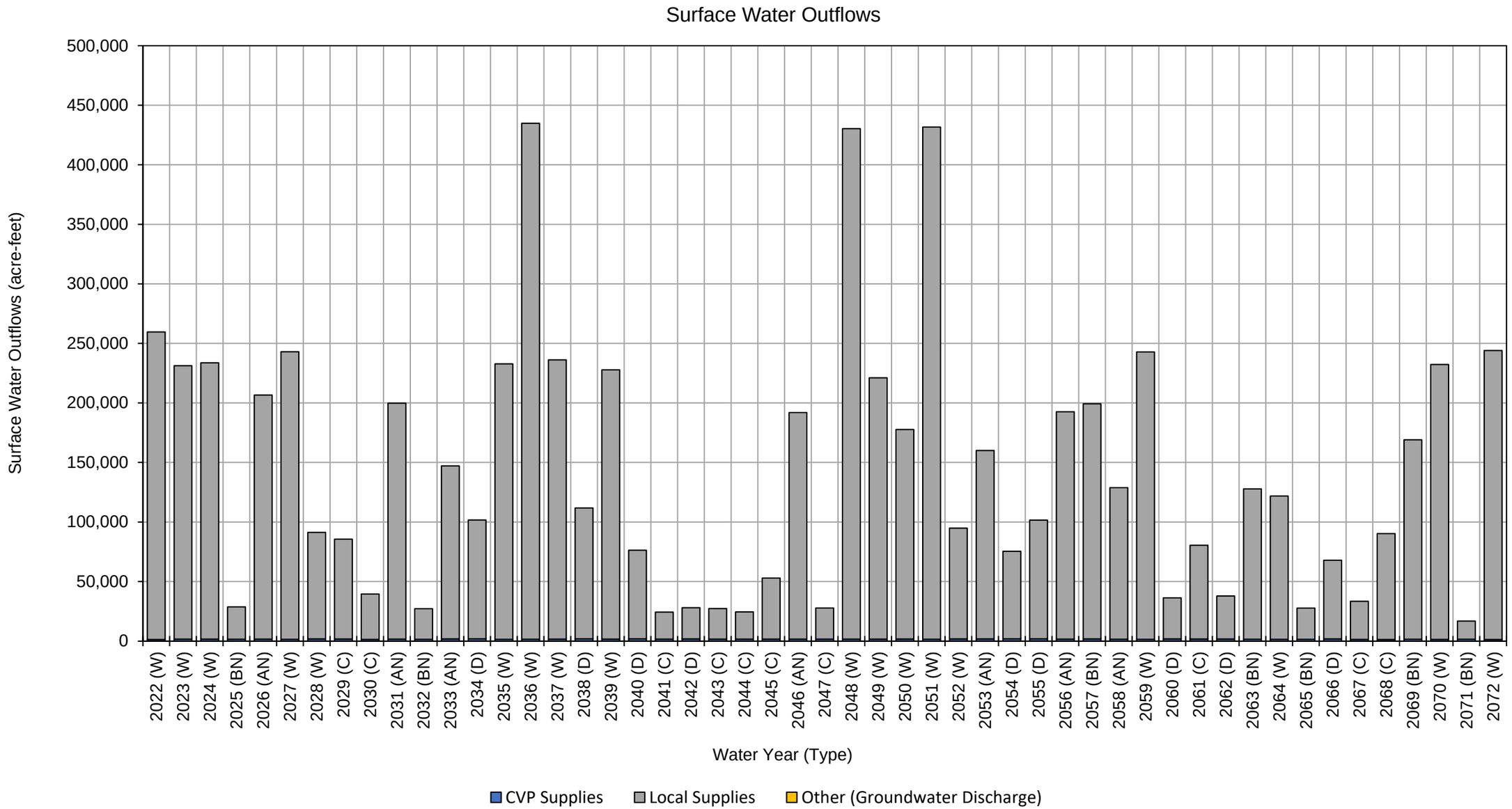
WY (Type)	Canals	Rivers, Streams, and Small Watersheds	Total
2022 (W)	260	540	800
2023 (W)	310	550	860
2024 (W)	310	550	860
2025 (BN)	310	530	840
2026 (AN)	320	620	940
2027 (W)	310	520	830
2028 (W)	340	650	990
2029 (C)	350	700	1,100
2030 (C)	270	600	870
2031 (AN)	320	610	930
2032 (BN)	290	580	870
2033 (AN)	340	570	910
2034 (D)	380	620	1,000
2035 (W)	310	520	830
2036 (W)	290	410	700
2037 (W)	310	570	880
2038 (D)	380	620	1,000
2039 (W)	310	560	870
2040 (D)	370	580	950
2041 (C)	320	670	990
2042 (D)	370	620	990
2043 (C)	310	580	890
2044 (C)	310	580	890
2045 (C)	310	580	890
2046 (AN)	320	610	930
2047 (C)	310	580	890
2048 (W)	310	510	820
2049 (W)	310	550	860
2050 (W)	340	630	970
2051 (W)	290	400	690
2052 (W)	340	650	990
2053 (AN)	340	580	920
2054 (D)	370	570	940
2055 (D)	380	620	1,000
2056 (AN)	330	540	870
2057 (BN)	370	640	1,000
2058 (AN)	330	530	860
2059 (W)	310	520	830
2060 (D)	370	630	1,000
2061 (C)	350	690	1,000
2062 (D)	340	660	1,000
2063 (BN)	320	600	920

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Evaporation (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Watersheds	Total
2064 (W)		290	550	840
2065 (BN)		290	590	880
2066 (D)		350	650	1,000
2067 (C)		270	600	870
2068 (C)		250	540	790
2069 (BN)		300	560	860
2070 (W)		270	530	800
2071 (BN)		300	530	830
2072 (W)		260	540	800
Average (2022-2072)		320	580	900
2022-2072	W	310	540	850
	AN	330	580	910
	BN	310	580	890
	D	370	620	990
	C	310	610	920

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

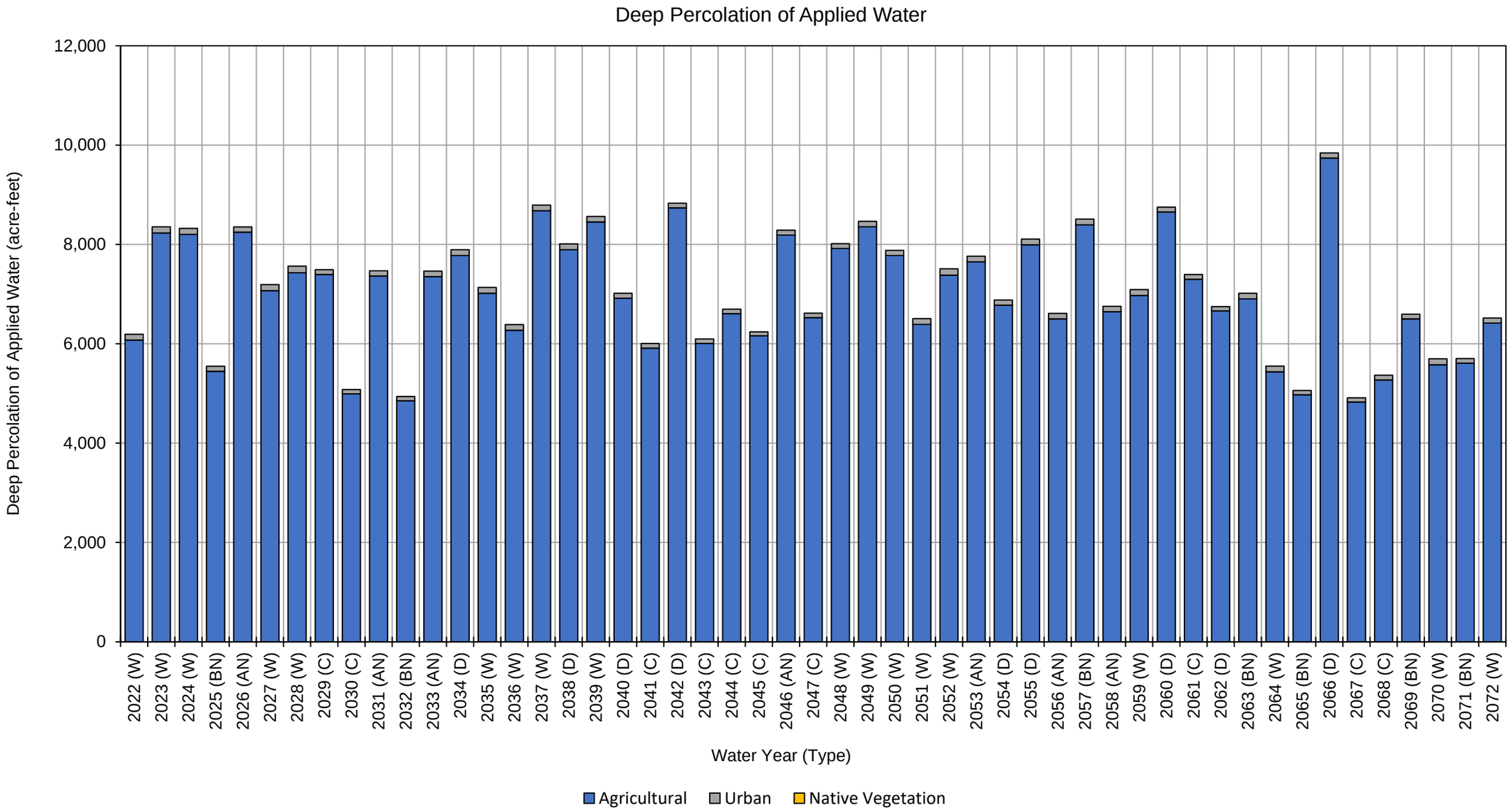
WY (Type)	CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2022 (W)	1,300	260,000	0	260,000
2023 (W)	1,600	230,000	0	230,000
2024 (W)	1,600	230,000	0	230,000
2025 (BN)	1,600	27,000	0	29,000
2026 (AN)	1,600	210,000	0	210,000
2027 (W)	1,500	240,000	0	240,000
2028 (W)	1,800	89,000	0	91,000
2029 (C)	1,700	84,000	0	86,000
2030 (C)	1,400	38,000	0	39,000
2031 (AN)	1,600	200,000	0	200,000
2032 (BN)	1,500	26,000	0	28,000
2033 (AN)	1,800	150,000	0	150,000
2034 (D)	1,900	100,000	0	100,000
2035 (W)	1,500	230,000	0	230,000
2036 (W)	1,500	430,000	0	430,000
2037 (W)	1,600	230,000	0	230,000
2038 (D)	1,900	110,000	0	110,000
2039 (W)	1,600	230,000	0	230,000
2040 (D)	1,900	74,000	0	76,000
2041 (C)	1,600	23,000	0	25,000
2042 (D)	1,800	26,000	0	28,000
2043 (C)	1,600	26,000	0	28,000
2044 (C)	1,600	23,000	0	25,000
2045 (C)	1,600	51,000	0	53,000
2046 (AN)	1,600	190,000	0	190,000
2047 (C)	1,600	26,000	0	28,000
2048 (W)	1,600	430,000	0	430,000
2049 (W)	1,600	220,000	0	220,000
2050 (W)	1,700	180,000	0	180,000
2051 (W)	1,500	430,000	0	430,000
2052 (W)	1,800	93,000	0	95,000
2053 (AN)	1,800	160,000	0	160,000
2054 (D)	1,900	73,000	0	75,000
2055 (D)	1,900	100,000	0	100,000
2056 (AN)	1,600	190,000	0	190,000
2057 (BN)	1,800	200,000	0	200,000
2058 (AN)	1,600	130,000	0	130,000
2059 (W)	1,500	240,000	0	240,000
2060 (D)	1,800	34,000	0	36,000
2061 (C)	1,700	79,000	0	81,000
2062 (D)	1,700	36,000	0	38,000
2063 (BN)	1,600	130,000	0	130,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2064 (W)		1,500	120,000	0	120,000
2065 (BN)		1,500	26,000	0	28,000
2066 (D)		1,800	66,000	0	68,000
2067 (C)		1,400	32,000	0	33,000
2068 (C)		1,300	89,000	0	90,000
2069 (BN)		1,500	170,000	0	170,000
2070 (W)		1,400	230,000	0	230,000
2071 (BN)		1,600	15,000	0	17,000
2072 (W)		1,300	240,000	0	240,000
Average (2022-2072)		1,600	140,000	0	140,000
2022-2072	W	1,600	240,000	0	240,000
	AN	1,600	170,000	0	170,000
	BN	1,600	84,000	0	86,000
	D	1,800	69,000	0	71,000
	C	1,500	47,000	0	49,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

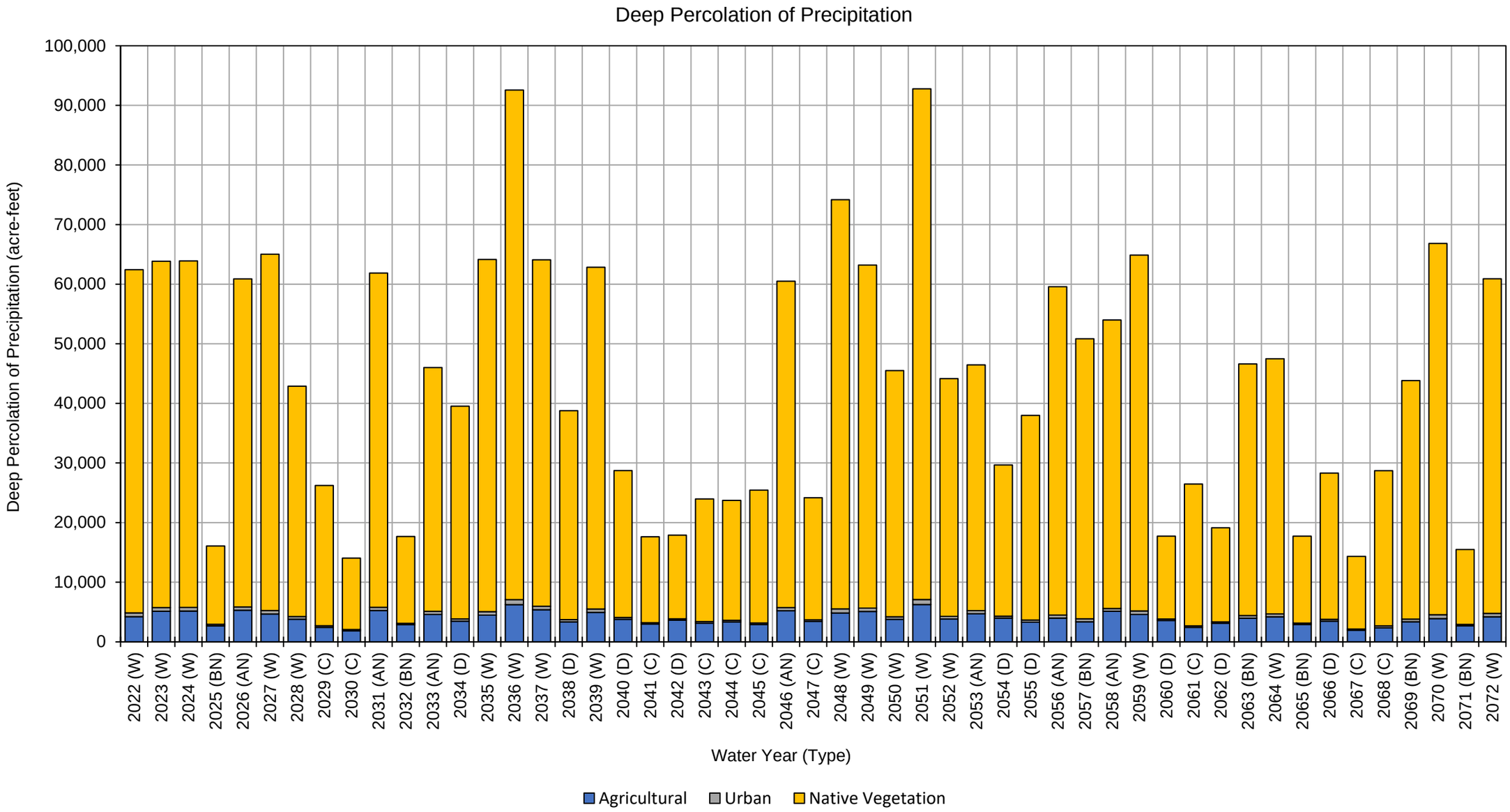
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	6,100	120	0	6,200
2023 (W)	8,200	120	0	8,300
2024 (W)	8,200	120	0	8,300
2025 (BN)	5,400	100	0	5,500
2026 (AN)	8,200	110	0	8,300
2027 (W)	7,100	120	0	7,200
2028 (W)	7,400	130	0	7,500
2029 (C)	7,400	97	0	7,500
2030 (C)	5,000	85	0	5,100
2031 (AN)	7,400	100	0	7,500
2032 (BN)	4,900	86	0	5,000
2033 (AN)	7,400	110	0	7,500
2034 (D)	7,800	120	0	7,900
2035 (W)	7,000	120	0	7,100
2036 (W)	6,300	120	0	6,400
2037 (W)	8,700	110	0	8,800
2038 (D)	7,900	120	0	8,000
2039 (W)	8,500	110	0	8,600
2040 (D)	6,900	100	0	7,000
2041 (C)	5,900	94	0	6,000
2042 (D)	8,700	94	0	8,800
2043 (C)	6,000	91	0	6,100
2044 (C)	6,600	89	0	6,700
2045 (C)	6,200	80	0	6,300
2046 (AN)	8,200	99	0	8,300
2047 (C)	6,500	89	0	6,600
2048 (W)	7,900	96	0	8,000
2049 (W)	8,400	110	0	8,500
2050 (W)	7,800	100	0	7,900
2051 (W)	6,400	120	0	6,500
2052 (W)	7,400	130	0	7,500
2053 (AN)	7,600	110	0	7,700
2054 (D)	6,800	100	0	6,900
2055 (D)	8,000	110	0	8,100
2056 (AN)	6,500	110	0	6,600
2057 (BN)	8,400	120	0	8,500
2058 (AN)	6,600	110	0	6,700
2059 (W)	7,000	120	0	7,100
2060 (D)	8,700	96	0	8,800
2061 (C)	7,300	97	0	7,400
2062 (D)	6,700	87	0	6,800
2063 (BN)	6,900	110	0	7,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		5,400	120	0	5,500
2065 (BN)		5,000	85	0	5,100
2066 (D)		9,700	100	0	9,800
2067 (C)		4,800	85	0	4,900
2068 (C)		5,300	97	0	5,400
2069 (BN)		6,500	95	0	6,600
2070 (W)		5,600	120	0	5,700
2071 (BN)		5,600	94	0	5,700
2072 (W)		6,400	99	0	6,500
Average (2022-2072)		7,000	110	0	7,100
2022-2072	W	7,200	120	0	7,300
	AN	7,400	110	0	7,500
	BN	6,100	99	0	6,200
	D	7,900	100	0	8,000
	C	6,100	90	0	6,200

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

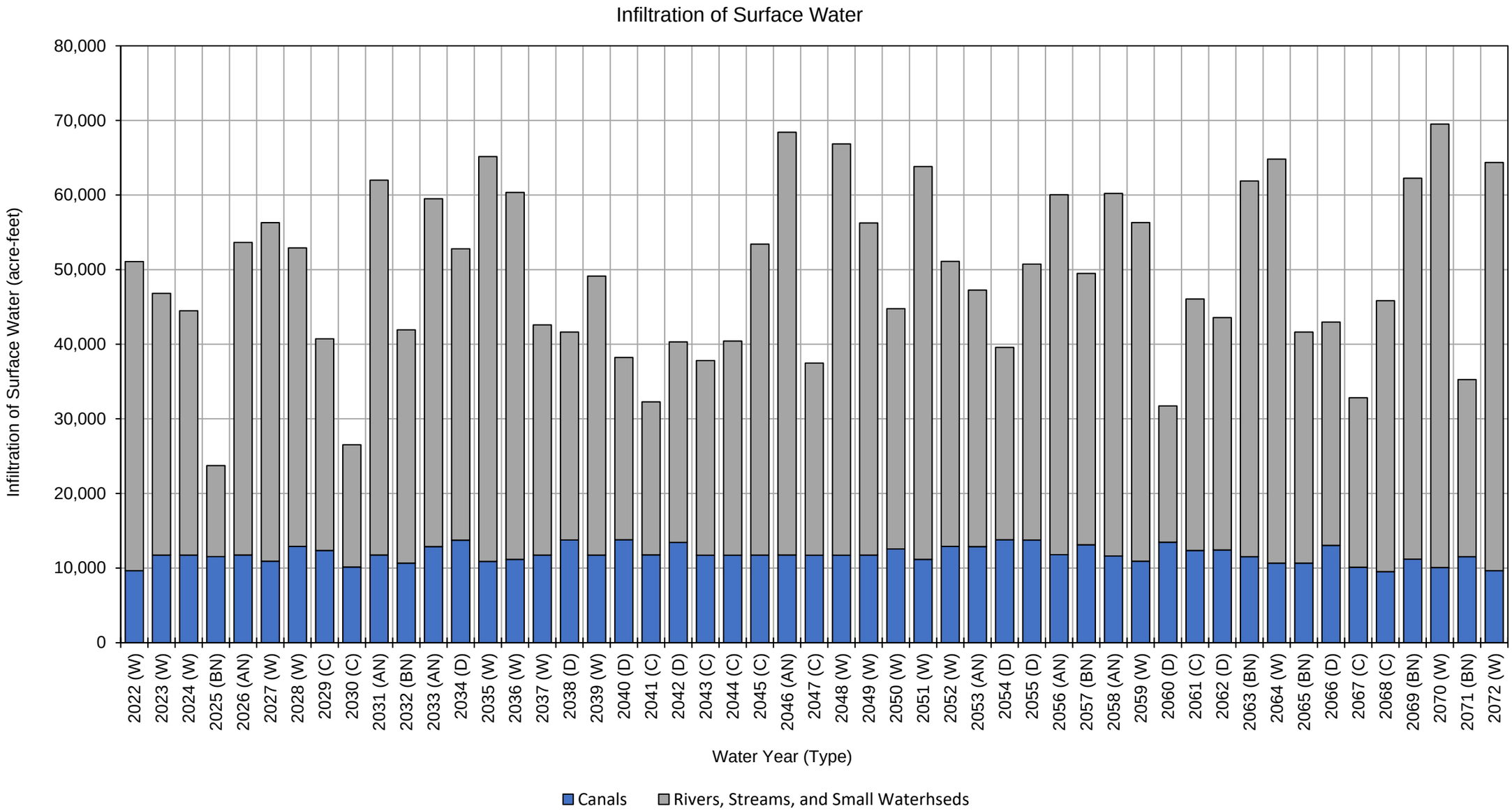
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	4,200	640	58,000	63,000
2023 (W)	5,100	610	58,000	64,000
2024 (W)	5,200	610	58,000	64,000
2025 (BN)	2,700	250	13,000	16,000
2026 (AN)	5,300	550	55,000	61,000
2027 (W)	4,600	600	60,000	65,000
2028 (W)	3,800	440	39,000	43,000
2029 (C)	2,400	260	24,000	27,000
2030 (C)	1,900	210	12,000	14,000
2031 (AN)	5,200	550	56,000	62,000
2032 (BN)	2,900	230	15,000	18,000
2033 (AN)	4,600	510	41,000	46,000
2034 (D)	3,500	380	36,000	40,000
2035 (W)	4,500	580	59,000	64,000
2036 (W)	6,200	840	85,000	92,000
2037 (W)	5,400	580	58,000	64,000
2038 (D)	3,300	380	35,000	39,000
2039 (W)	4,900	580	57,000	62,000
2040 (D)	3,800	310	25,000	29,000
2041 (C)	3,000	250	14,000	17,000
2042 (D)	3,600	240	14,000	18,000
2043 (C)	3,100	270	21,000	24,000
2044 (C)	3,300	270	20,000	24,000
2045 (C)	2,900	250	22,000	25,000
2046 (AN)	5,200	530	55,000	61,000
2047 (C)	3,400	270	20,000	24,000
2048 (W)	4,800	680	69,000	74,000
2049 (W)	5,100	570	58,000	64,000
2050 (W)	3,800	430	41,000	45,000
2051 (W)	6,200	840	86,000	93,000
2052 (W)	3,800	440	40,000	44,000
2053 (AN)	4,700	510	41,000	46,000
2054 (D)	4,000	320	25,000	29,000
2055 (D)	3,300	370	34,000	38,000
2056 (AN)	4,000	530	55,000	60,000
2057 (BN)	3,400	490	47,000	51,000
2058 (AN)	5,100	470	48,000	54,000
2059 (W)	4,600	580	60,000	65,000
2060 (D)	3,600	240	14,000	18,000
2061 (C)	2,400	270	24,000	27,000
2062 (D)	3,100	240	16,000	19,000
2063 (BN)	4,000	440	42,000	46,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		4,200	490	43,000	48,000
2065 (BN)		2,900	230	15,000	18,000
2066 (D)		3,500	310	25,000	29,000
2067 (C)		1,900	210	12,000	14,000
2068 (C)		2,300	320	26,000	29,000
2069 (BN)		3,400	440	40,000	44,000
2070 (W)		3,900	660	62,000	67,000
2071 (BN)		2,700	230	13,000	16,000
2072 (W)		4,200	570	56,000	61,000
Average (2022-2072)		3,900	430	39,000	43,000
2022-2072	W	4,700	600	58,000	63,000
	AN	4,900	520	50,000	55,000
	BN	3,100	330	26,000	29,000
	D	3,500	310	25,000	29,000
	C	2,700	260	20,000	23,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Infiltration of Surface Water (acre-feet, rounded)

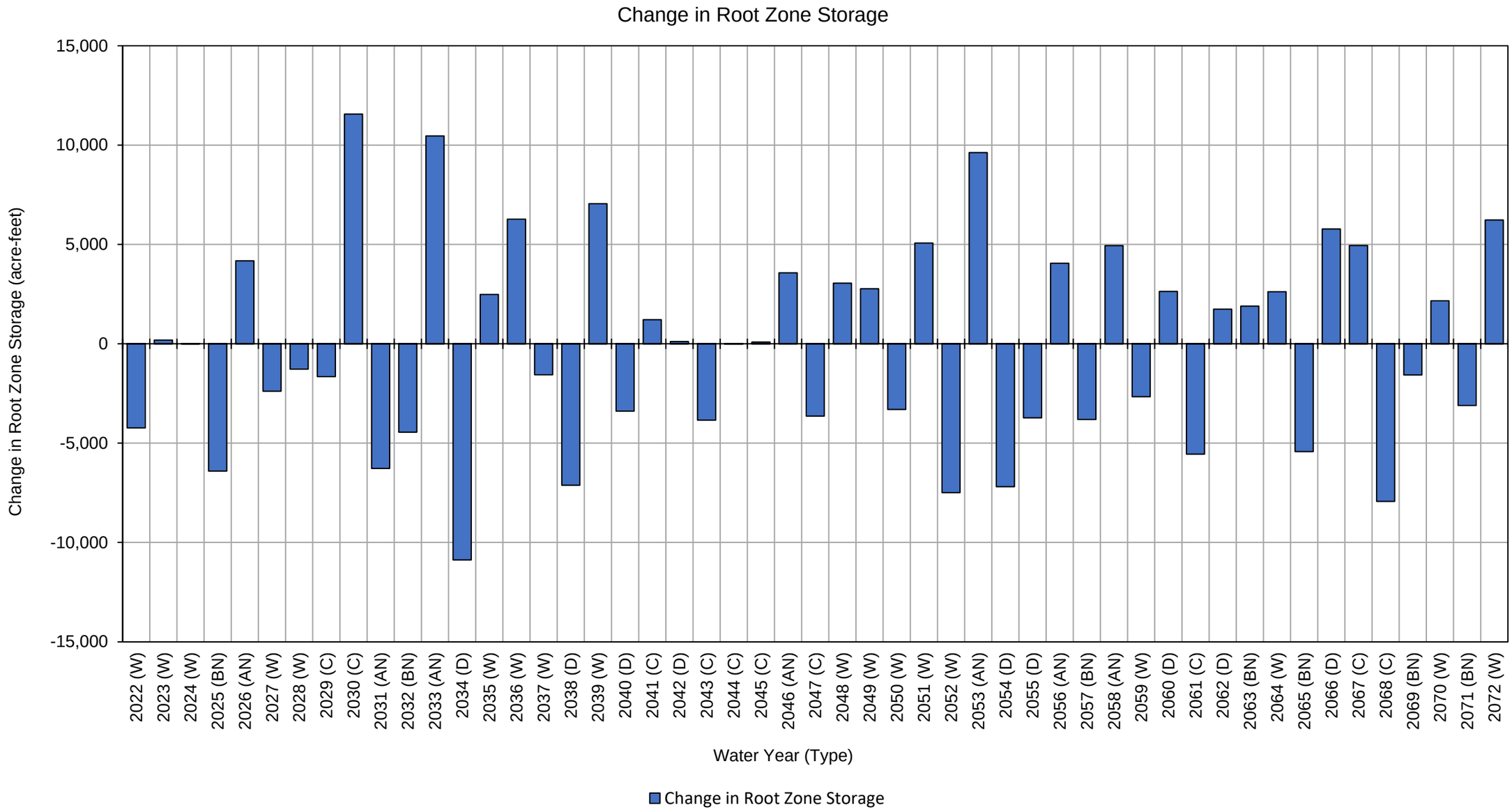
WY (Type)	Canals	Rivers, Streams, and Small Waterhseds	Total
2022 (W)	9,600	41,000	51,000
2023 (W)	12,000	35,000	47,000
2024 (W)	12,000	33,000	45,000
2025 (BN)	12,000	12,000	24,000
2026 (AN)	12,000	42,000	54,000
2027 (W)	11,000	45,000	56,000
2028 (W)	13,000	40,000	53,000
2029 (C)	12,000	28,000	40,000
2030 (C)	10,000	16,000	26,000
2031 (AN)	12,000	50,000	62,000
2032 (BN)	11,000	31,000	42,000
2033 (AN)	13,000	47,000	60,000
2034 (D)	14,000	39,000	53,000
2035 (W)	11,000	54,000	65,000
2036 (W)	11,000	49,000	60,000
2037 (W)	12,000	31,000	43,000
2038 (D)	14,000	28,000	42,000
2039 (W)	12,000	37,000	49,000
2040 (D)	14,000	24,000	38,000
2041 (C)	12,000	21,000	33,000
2042 (D)	13,000	27,000	40,000
2043 (C)	12,000	26,000	38,000
2044 (C)	12,000	29,000	41,000
2045 (C)	12,000	42,000	54,000
2046 (AN)	12,000	57,000	69,000
2047 (C)	12,000	26,000	38,000
2048 (W)	12,000	55,000	67,000
2049 (W)	12,000	45,000	57,000
2050 (W)	13,000	32,000	45,000
2051 (W)	11,000	53,000	64,000
2052 (W)	13,000	38,000	51,000
2053 (AN)	13,000	34,000	47,000
2054 (D)	14,000	26,000	40,000
2055 (D)	14,000	37,000	51,000
2056 (AN)	12,000	48,000	60,000
2057 (BN)	13,000	36,000	49,000
2058 (AN)	12,000	49,000	61,000
2059 (W)	11,000	45,000	56,000
2060 (D)	13,000	18,000	31,000
2061 (C)	12,000	34,000	46,000
2062 (D)	12,000	31,000	43,000
2063 (BN)	12,000	50,000	62,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Infiltration of Surface Water (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Waterhseds	Total
2064 (W)		11,000	54,000	65,000
2065 (BN)		11,000	31,000	42,000
2066 (D)		13,000	30,000	43,000
2067 (C)		10,000	23,000	33,000
2068 (C)		9,500	36,000	46,000
2069 (BN)		11,000	51,000	62,000
2070 (W)		10,000	59,000	69,000
2071 (BN)		12,000	24,000	36,000
2072 (W)		9,600	55,000	65,000
Average (2022-2072)		12,000	37,000	49,000
2022-2072	W	11,000	45,000	56,000
	AN	12,000	47,000	59,000
	BN	11,000	34,000	45,000
	D	13,000	29,000	42,000
	C	11,000	28,000	39,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)	Change in Root Zone Storage
2022 (W)	-4,200
2023 (W)	190
2024 (W)	0
2025 (BN)	-6,400
2026 (AN)	4,200
2027 (W)	-2,400
2028 (W)	-1,300
2029 (C)	-1,700
2030 (C)	12,000
2031 (AN)	-6,300
2032 (BN)	-4,500
2033 (AN)	10,000
2034 (D)	-11,000
2035 (W)	2,500
2036 (W)	6,300
2037 (W)	-1,600
2038 (D)	-7,100
2039 (W)	7,100
2040 (D)	-3,400
2041 (C)	1,200
2042 (D)	110
2043 (C)	-3,800
2044 (C)	-9
2045 (C)	85
2046 (AN)	3,600
2047 (C)	-3,600
2048 (W)	3,000
2049 (W)	2,800
2050 (W)	-3,300
2051 (W)	5,100
2052 (W)	-7,500
2053 (AN)	9,600
2054 (D)	-7,200
2055 (D)	-3,700
2056 (AN)	4,000
2057 (BN)	-3,800
2058 (AN)	4,900
2059 (W)	-2,700
2060 (D)	2,600
2061 (C)	-5,600
2062 (D)	1,700
2063 (BN)	1,900

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)		Change in Root Zone Storage
2064 (W)		2,600
2065 (BN)		-5,400
2066 (D)		5,800
2067 (C)		4,900
2068 (C)		-7,900
2069 (BN)		-1,600
2070 (W)		2,200
2071 (BN)		-3,100
2072 (W)		6,200
Average (2022-2072)		-84
2022-2072	W	830
	AN	4,400
	BN	-3,300
	D	-2,400
	C	-480

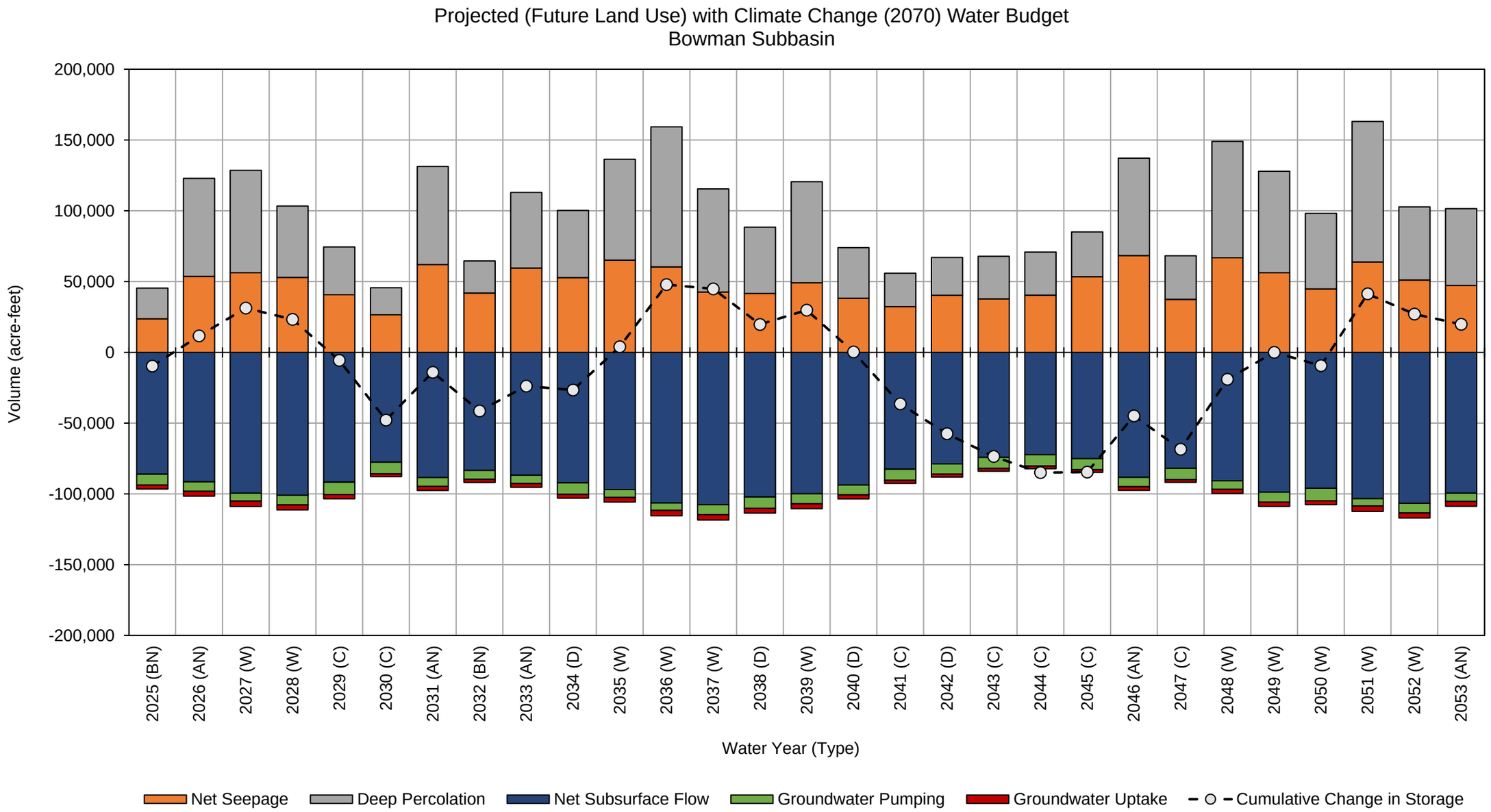
Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX B-7b

Detailed Bowman Subbasin Water Budget Results:

Projected (Future Land Use) with Climate Change (2070) Model Results – Groundwater System


Projected (Future Land Use) with Climate Change (2070) Water Budget
Bowman Subbasin
Volume (acre-feet)
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Water Budget Summary (acre-feet, rounded)

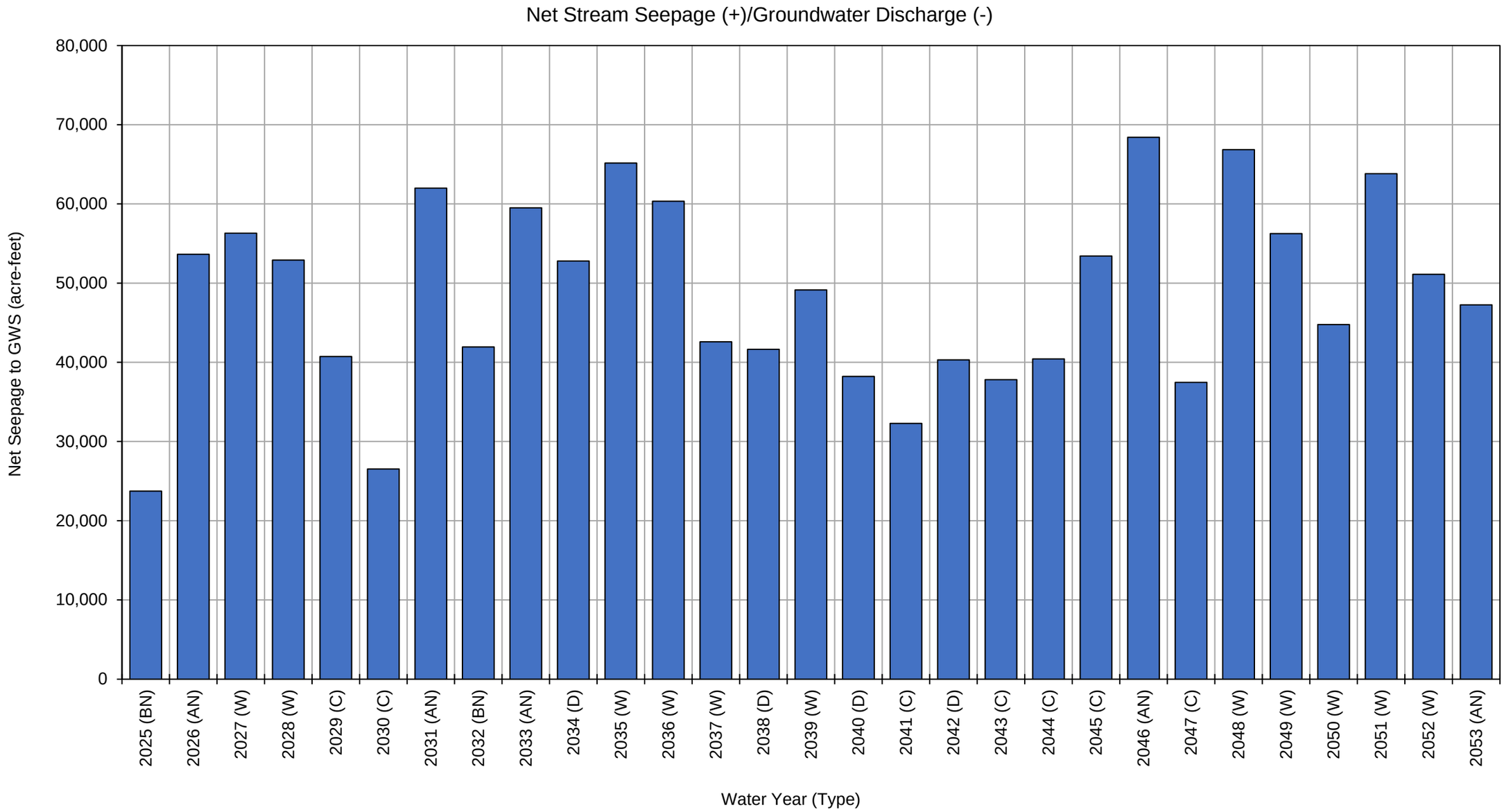
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	51,000	69,000	-7,500	-3,900	-86,000	23,000	23,000
2023 (W)	47,000	72,000	-7,200	-3,900	-95,000	13,000	36,000
2024 (W)	44,000	72,000	-7,300	-3,900	-99,000	6,000	42,000
2025 (BN)	24,000	22,000	-7,700	-2,800	-86,000	-51,000	-9,700
2026 (AN)	54,000	69,000	-6,600	-3,500	-91,000	21,000	12,000
2027 (W)	56,000	72,000	-5,600	-3,800	-99,000	20,000	31,000
2028 (W)	53,000	50,000	-6,800	-3,500	-100,000	-8,000	23,000
2029 (C)	41,000	34,000	-8,800	-3,000	-92,000	-29,000	-5,700
2030 (C)	27,000	19,000	-8,200	-2,000	-78,000	-42,000	-48,000
2031 (AN)	62,000	69,000	-6,200	-2,900	-88,000	34,000	-14,000
2032 (BN)	42,000	23,000	-6,300	-2,200	-83,000	-27,000	-41,000
2033 (AN)	60,000	53,000	-5,800	-2,700	-87,000	18,000	-24,000
2034 (D)	53,000	47,000	-8,100	-2,700	-92,000	-2,800	-27,000
2035 (W)	65,000	71,000	-5,600	-3,300	-97,000	31,000	4,000
2036 (W)	60,000	99,000	-5,300	-3,800	-110,000	44,000	48,000
2037 (W)	43,000	73,000	-7,100	-3,800	-110,000	-3,000	45,000
2038 (D)	42,000	47,000	-8,100	-3,400	-100,000	-25,000	20,000
2039 (W)	49,000	71,000	-7,100	-3,400	-100,000	10,000	30,000
2040 (D)	38,000	36,000	-6,900	-2,800	-94,000	-30,000	280
2041 (C)	32,000	24,000	-7,900	-2,200	-83,000	-37,000	-36,000
2042 (D)	40,000	27,000	-7,300	-2,000	-79,000	-21,000	-57,000
2043 (C)	38,000	30,000	-7,800	-1,900	-74,000	-16,000	-74,000
2044 (C)	40,000	30,000	-8,100	-1,800	-72,000	-11,000	-85,000
2045 (C)	53,000	32,000	-7,800	-1,900	-75,000	290	-85,000
2046 (AN)	68,000	69,000	-6,600	-2,500	-88,000	40,000	-45,000
2047 (C)	37,000	31,000	-8,000	-1,900	-82,000	-24,000	-68,000
2048 (W)	67,000	82,000	-6,100	-2,800	-91,000	49,000	-19,000
2049 (W)	56,000	72,000	-7,100	-2,900	-99,000	19,000	47
2050 (W)	45,000	53,000	-8,800	-2,700	-96,000	-9,400	-9,400
2051 (W)	64,000	99,000	-5,300	-3,700	-100,000	51,000	41,000
2052 (W)	51,000	52,000	-6,800	-3,600	-110,000	-14,000	27,000
2053 (AN)	47,000	54,000	-5,800	-3,400	-99,000	-7,200	20,000
2054 (D)	40,000	37,000	-7,100	-2,800	-92,000	-26,000	-6,400
2055 (D)	51,000	46,000	-8,100	-2,800	-93,000	-7,500	-14,000
2056 (AN)	60,000	66,000	-5,700	-3,000	-97,000	21,000	7,100
2057 (BN)	49,000	59,000	-7,400	-3,300	-99,000	-1,200	6,000
2058 (AN)	60,000	61,000	-5,500	-3,100	-100,000	11,000	17,000
2059 (W)	56,000	72,000	-5,600	-3,600	-100,000	15,000	32,000
2060 (D)	32,000	26,000	-7,200	-2,500	-92,000	-43,000	-11,000
2061 (C)	46,000	34,000	-8,600	-2,600	-86,000	-17,000	-28,000
2062 (D)	44,000	26,000	-6,800	-2,100	-81,000	-20,000	-48,000
2063 (BN)	62,000	54,000	-6,100	-2,500	-87,000	20,000	-28,000
2064 (W)	65,000	53,000	-5,500	-2,800	-94,000	16,000	-12,000
2065 (BN)	42,000	23,000	-6,300	-2,100	-85,000	-29,000	-41,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		43,000	38,000	-8,900	-2,200	-82,000	-12,000	-54,000
2067 (C)		33,000	19,000	-8,600	-1,700	-72,000	-30,000	-83,000
2068 (C)		46,000	34,000	-9,900	-1,800	-74,000	-5,800	-89,000
2069 (BN)		62,000	50,000	-7,800	-2,100	-80,000	23,000	-66,000
2070 (W)		70,000	73,000	-6,300	-2,600	-93,000	40,000	-26,000
2071 (BN)		35,000	21,000	-7,700	-1,800	-82,000	-35,000	-61,000
2072 (W)		64,000	67,000	-7,000	-2,700	-88,000	34,000	-27,000
Average (2022-2072)		49,000	51,000	-7,100	-2,800	-90,000	-530	
2022-2072	W	56,000	71,000	-6,500	-3,400	-98,000		
	AN	59,000	63,000	-6,000	-3,000	-93,000		
	BN	45,000	36,000	-7,100	-2,400	-86,000		
	D	42,000	37,000	-7,600	-2,600	-90,000		
	C	39,000	29,000	-8,400	-2,100	-79,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

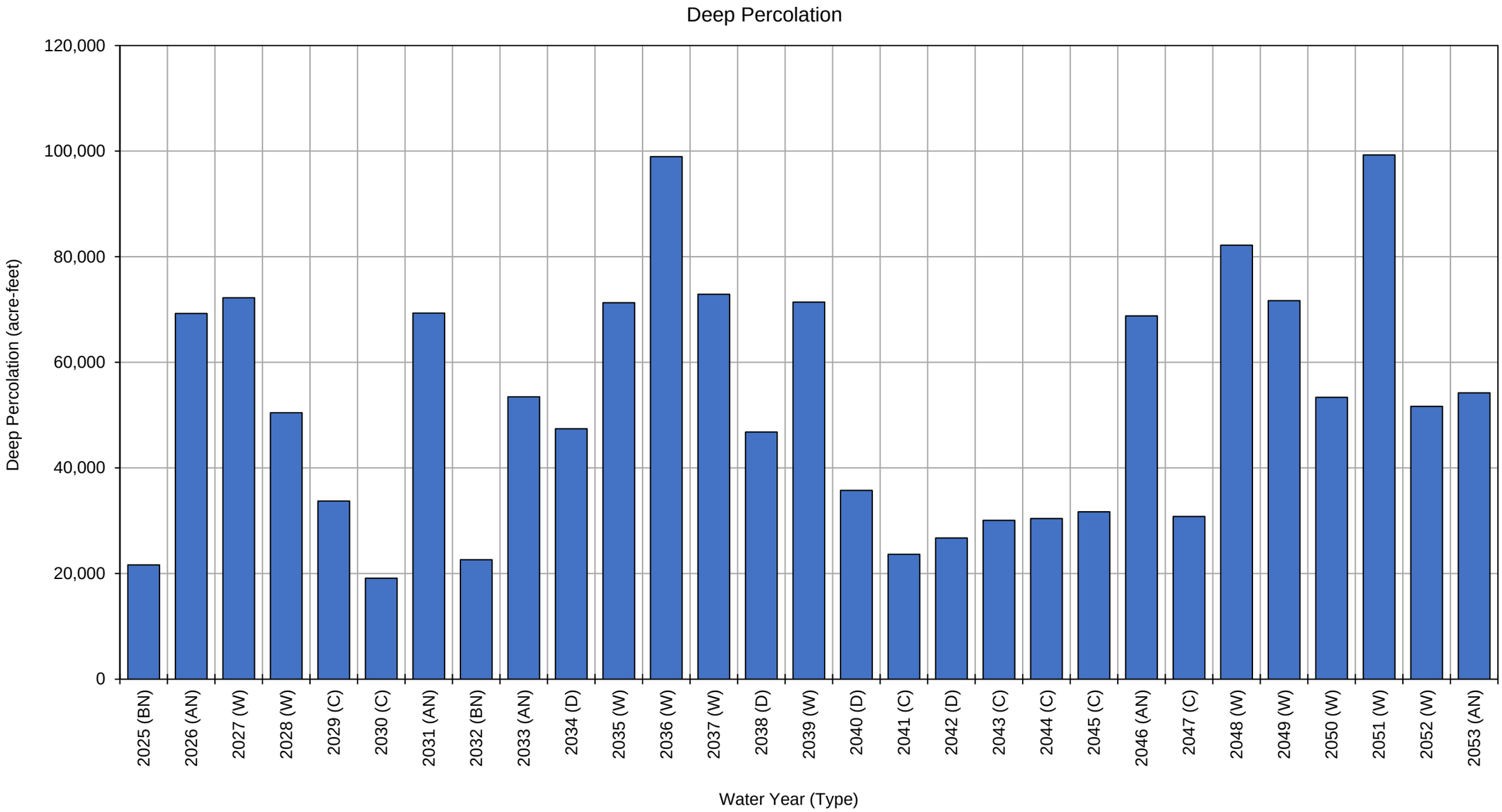
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	51,000
2023 (W)	47,000
2024 (W)	44,000
2025 (BN)	24,000
2026 (AN)	54,000
2027 (W)	56,000
2028 (W)	53,000
2029 (C)	41,000
2030 (C)	27,000
2031 (AN)	62,000
2032 (BN)	42,000
2033 (AN)	60,000
2034 (D)	53,000
2035 (W)	65,000
2036 (W)	60,000
2037 (W)	43,000
2038 (D)	42,000
2039 (W)	49,000
2040 (D)	38,000
2041 (C)	32,000
2042 (D)	40,000
2043 (C)	38,000
2044 (C)	40,000
2045 (C)	53,000
2046 (AN)	68,000
2047 (C)	37,000
2048 (W)	67,000
2049 (W)	56,000
2050 (W)	45,000
2051 (W)	64,000
2052 (W)	51,000
2053 (AN)	47,000
2054 (D)	40,000
2055 (D)	51,000
2056 (AN)	60,000
2057 (BN)	49,000
2058 (AN)	60,000
2059 (W)	56,000
2060 (D)	32,000
2061 (C)	46,000
2062 (D)	44,000
2063 (BN)	62,000
2064 (W)	65,000
2065 (BN)	42,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2066 (D)		43,000
2067 (C)		33,000
2068 (C)		46,000
2069 (BN)		62,000
2070 (W)		70,000
2071 (BN)		35,000
2072 (W)		64,000
Average (2022-2072)		49,000
2022-2072	W	56,000
	AN	59,000
	BN	45,000
	D	42,000
	C	39,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

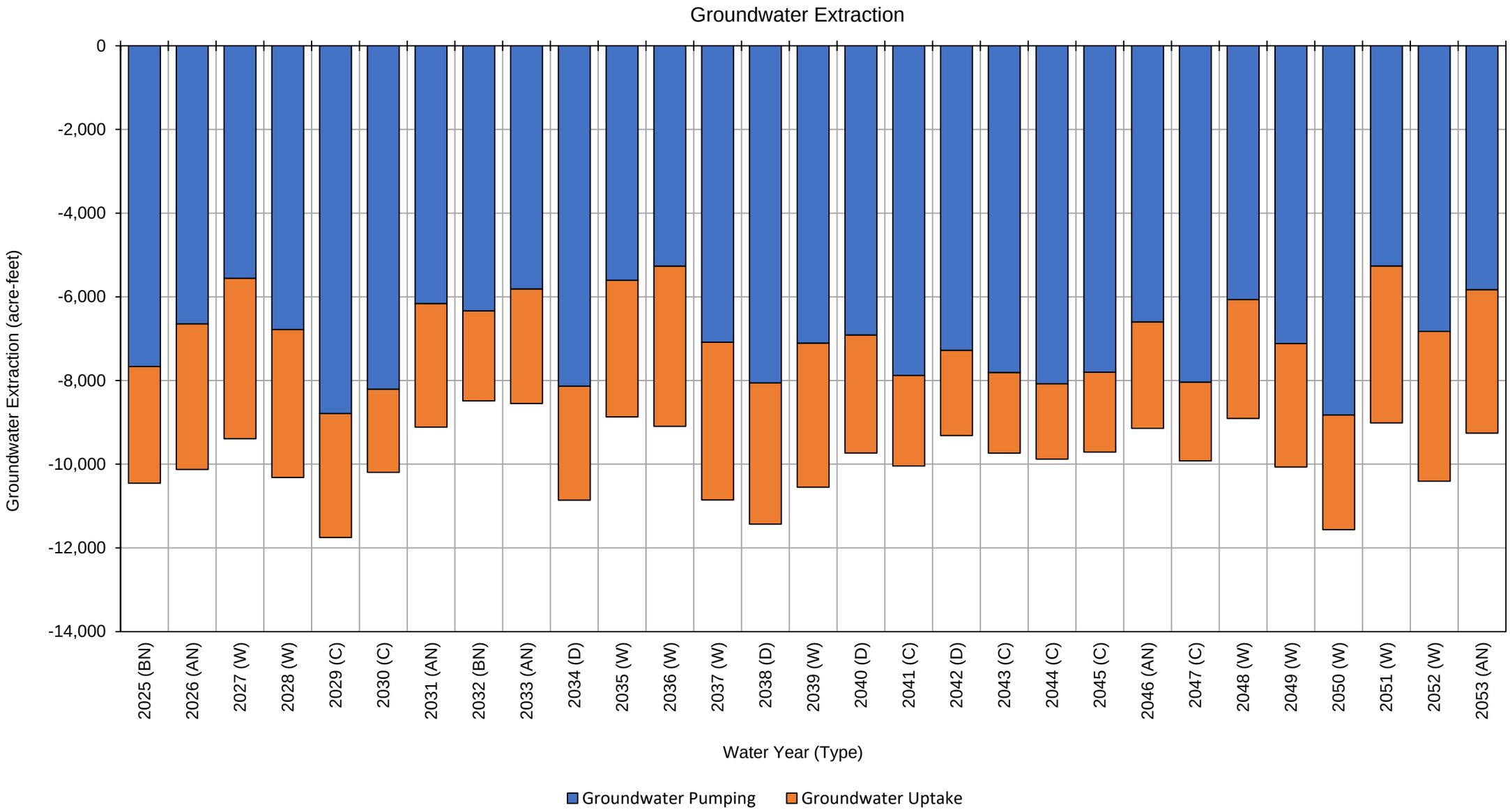
WY (Type)	Deep Percolation from the SWS
2022 (W)	69,000
2023 (W)	72,000
2024 (W)	72,000
2025 (BN)	22,000
2026 (AN)	69,000
2027 (W)	72,000
2028 (W)	50,000
2029 (C)	34,000
2030 (C)	19,000
2031 (AN)	69,000
2032 (BN)	23,000
2033 (AN)	53,000
2034 (D)	47,000
2035 (W)	71,000
2036 (W)	99,000
2037 (W)	73,000
2038 (D)	47,000
2039 (W)	71,000
2040 (D)	36,000
2041 (C)	24,000
2042 (D)	27,000
2043 (C)	30,000
2044 (C)	30,000
2045 (C)	32,000
2046 (AN)	69,000
2047 (C)	31,000
2048 (W)	82,000
2049 (W)	72,000
2050 (W)	53,000
2051 (W)	99,000
2052 (W)	52,000
2053 (AN)	54,000
2054 (D)	37,000
2055 (D)	46,000
2056 (AN)	66,000
2057 (BN)	59,000
2058 (AN)	61,000
2059 (W)	72,000
2060 (D)	26,000
2061 (C)	34,000
2062 (D)	26,000
2063 (BN)	54,000
2064 (W)	53,000
2065 (BN)	23,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2066 (D)		38,000
2067 (C)		19,000
2068 (C)		34,000
2069 (BN)		50,000
2070 (W)		73,000
2071 (BN)		21,000
2072 (W)		67,000
Average (2022-2072)		51,000
2022-2072	W	71,000
	AN	63,000
	BN	36,000
	D	37,000
	C	29,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

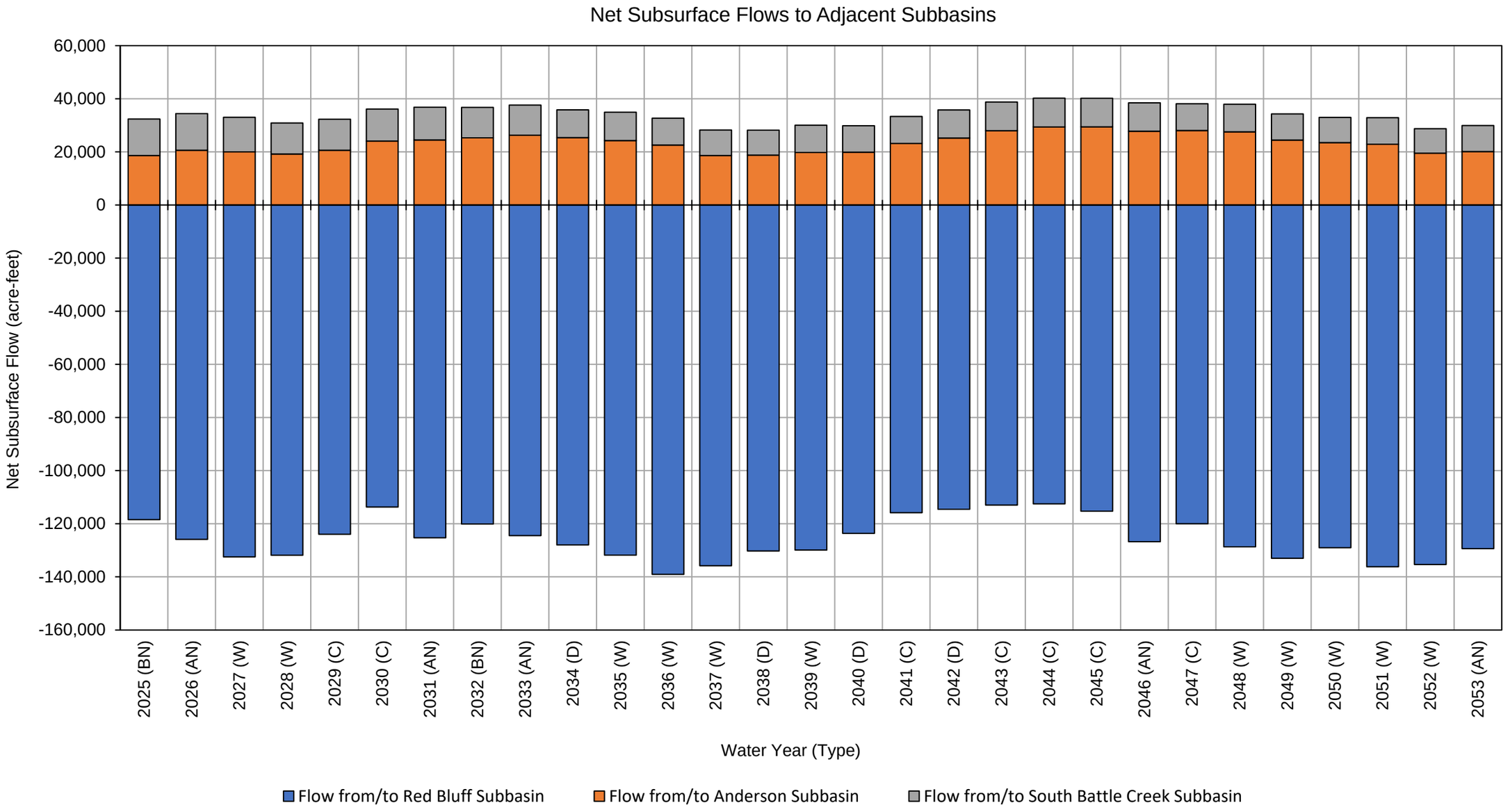
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-7,500	-3,900	-11,000
2023 (W)	-7,200	-3,900	-11,000
2024 (W)	-7,300	-3,900	-11,000
2025 (BN)	-7,700	-2,800	-10,000
2026 (AN)	-6,600	-3,500	-10,000
2027 (W)	-5,600	-3,800	-9,400
2028 (W)	-6,800	-3,500	-10,000
2029 (C)	-8,800	-3,000	-12,000
2030 (C)	-8,200	-2,000	-10,000
2031 (AN)	-6,200	-2,900	-9,100
2032 (BN)	-6,300	-2,200	-8,500
2033 (AN)	-5,800	-2,700	-8,600
2034 (D)	-8,100	-2,700	-11,000
2035 (W)	-5,600	-3,300	-8,900
2036 (W)	-5,300	-3,800	-9,100
2037 (W)	-7,100	-3,800	-11,000
2038 (D)	-8,100	-3,400	-11,000
2039 (W)	-7,100	-3,400	-11,000
2040 (D)	-6,900	-2,800	-9,700
2041 (C)	-7,900	-2,200	-10,000
2042 (D)	-7,300	-2,000	-9,300
2043 (C)	-7,800	-1,900	-9,700
2044 (C)	-8,100	-1,800	-9,900
2045 (C)	-7,800	-1,900	-9,700
2046 (AN)	-6,600	-2,500	-9,100
2047 (C)	-8,000	-1,900	-9,900
2048 (W)	-6,100	-2,800	-8,900
2049 (W)	-7,100	-2,900	-10,000
2050 (W)	-8,800	-2,700	-12,000
2051 (W)	-5,300	-3,700	-9,000
2052 (W)	-6,800	-3,600	-10,000
2053 (AN)	-5,800	-3,400	-9,300
2054 (D)	-7,100	-2,800	-9,900
2055 (D)	-8,100	-2,800	-11,000
2056 (AN)	-5,700	-3,000	-8,700
2057 (BN)	-7,400	-3,300	-11,000
2058 (AN)	-5,500	-3,100	-8,600
2059 (W)	-5,600	-3,600	-9,200
2060 (D)	-7,200	-2,500	-9,700
2061 (C)	-8,600	-2,600	-11,000
2062 (D)	-6,800	-2,100	-8,900
2063 (BN)	-6,100	-2,500	-8,600
2064 (W)	-5,500	-2,800	-8,300
2065 (BN)	-6,300	-2,100	-8,500

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2066 (D)		-8,900	-2,200	-11,000
2067 (C)		-8,600	-1,700	-10,000
2068 (C)		-9,900	-1,800	-12,000
2069 (BN)		-7,800	-2,100	-9,900
2070 (W)		-6,300	-2,600	-9,000
2071 (BN)		-7,700	-1,800	-9,600
2072 (W)		-7,000	-2,700	-9,700
Average (2022-2072)		-7,100	-2,800	-9,900
2022-2072	W	-6,500	-3,400	-9,900
	AN	-6,000	-3,000	-9,100
	BN	-7,100	-2,400	-9,500
	D	-7,600	-2,600	-10,000
	C	-8,400	-2,100	-10,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

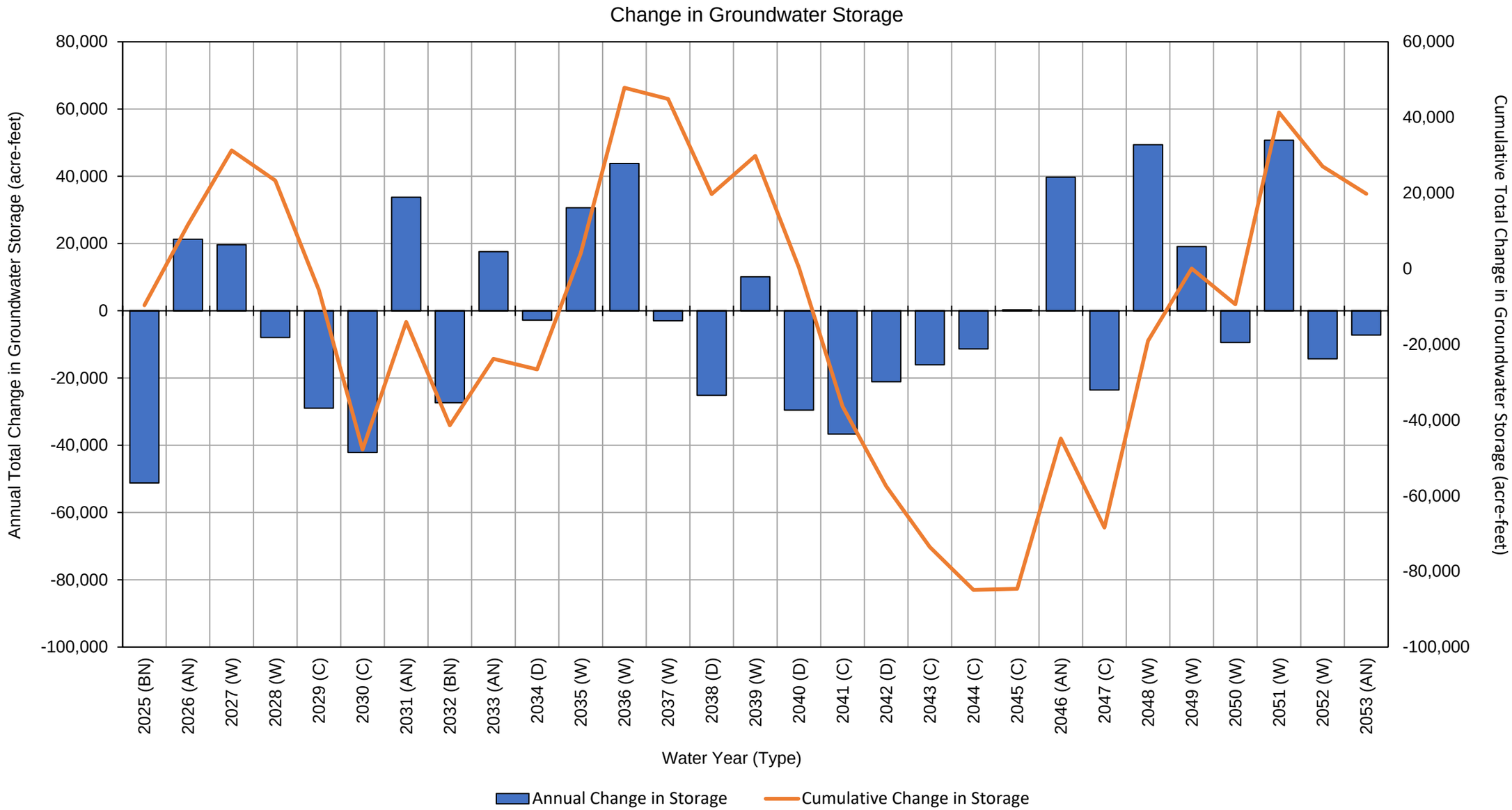
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Anderson Subbasin	Flow from/to South Battle Creek Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-120,000	20,000	17,000	-86,000
2023 (W)	-130,000	18,000	16,000	-95,000
2024 (W)	-130,000	17,000	15,000	-99,000
2025 (BN)	-120,000	19,000	14,000	-86,000
2026 (AN)	-130,000	21,000	14,000	-91,000
2027 (W)	-130,000	20,000	13,000	-99,000
2028 (W)	-130,000	19,000	12,000	-100,000
2029 (C)	-120,000	21,000	12,000	-92,000
2030 (C)	-110,000	24,000	12,000	-78,000
2031 (AN)	-130,000	24,000	12,000	-88,000
2032 (BN)	-120,000	25,000	11,000	-83,000
2033 (AN)	-120,000	26,000	11,000	-87,000
2034 (D)	-130,000	25,000	10,000	-92,000
2035 (W)	-130,000	24,000	11,000	-97,000
2036 (W)	-140,000	23,000	10,000	-110,000
2037 (W)	-140,000	19,000	9,600	-110,000
2038 (D)	-130,000	19,000	9,400	-100,000
2039 (W)	-130,000	20,000	10,000	-100,000
2040 (D)	-120,000	20,000	10,000	-94,000
2041 (C)	-120,000	23,000	10,000	-83,000
2042 (D)	-110,000	25,000	11,000	-79,000
2043 (C)	-110,000	28,000	11,000	-74,000
2044 (C)	-110,000	29,000	11,000	-72,000
2045 (C)	-120,000	29,000	11,000	-75,000
2046 (AN)	-130,000	28,000	11,000	-88,000
2047 (C)	-120,000	28,000	10,000	-82,000
2048 (W)	-130,000	28,000	10,000	-91,000
2049 (W)	-130,000	24,000	9,800	-99,000
2050 (W)	-130,000	23,000	9,500	-96,000
2051 (W)	-140,000	23,000	10,000	-100,000
2052 (W)	-140,000	20,000	9,200	-110,000
2053 (AN)	-130,000	20,000	9,800	-99,000
2054 (D)	-120,000	21,000	10,000	-92,000
2055 (D)	-130,000	22,000	9,900	-93,000
2056 (AN)	-130,000	23,000	10,000	-97,000
2057 (BN)	-130,000	22,000	10,000	-99,000
2058 (AN)	-130,000	20,000	9,800	-100,000
2059 (W)	-130,000	20,000	9,800	-100,000
2060 (D)	-120,000	20,000	9,500	-92,000
2061 (C)	-120,000	23,000	10,000	-86,000
2062 (D)	-120,000	26,000	10,000	-81,000
2063 (BN)	-120,000	26,000	11,000	-87,000
2064 (W)	-130,000	26,000	10,000	-94,000
2065 (BN)	-120,000	26,000	10,000	-85,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Anderson Subbasin	Flow from/to South Battle Creek Subbasin	Net Subsurface Flow from Adjacent Subbasins
2066 (D)		-120,000	27,000	10,000	-82,000
2067 (C)		-110,000	29,000	11,000	-72,000
2068 (C)		-120,000	31,000	11,000	-74,000
2069 (BN)		-120,000	30,000	11,000	-80,000
2070 (W)		-130,000	28,000	11,000	-93,000
2071 (BN)		-120,000	27,000	11,000	-82,000
2072 (W)		-130,000	28,000	11,000	-88,000
Average (2022-2072)		-130,000	24,000	11,000	-90,000
2022-2072	W	-130,000	22,000	11,000	-98,000
	AN	-130,000	23,000	11,000	-93,000
	BN	-120,000	25,000	11,000	-86,000
	D	-120,000	23,000	10,000	-90,000
	C	-120,000	27,000	11,000	-79,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	23,000	23,000
2023 (W)	13,000	36,000
2024 (W)	6,000	42,000
2025 (BN)	-51,000	-9,700
2026 (AN)	21,000	12,000
2027 (W)	20,000	31,000
2028 (W)	-8,000	23,000
2029 (C)	-29,000	-5,700
2030 (C)	-42,000	-48,000
2031 (AN)	34,000	-14,000
2032 (BN)	-27,000	-41,000
2033 (AN)	18,000	-24,000
2034 (D)	-2,800	-27,000
2035 (W)	31,000	4,000
2036 (W)	44,000	48,000
2037 (W)	-3,000	45,000
2038 (D)	-25,000	20,000
2039 (W)	10,000	30,000
2040 (D)	-30,000	280
2041 (C)	-37,000	-36,000
2042 (D)	-21,000	-57,000
2043 (C)	-16,000	-74,000
2044 (C)	-11,000	-85,000
2045 (C)	290	-85,000
2046 (AN)	40,000	-45,000
2047 (C)	-24,000	-68,000
2048 (W)	49,000	-19,000
2049 (W)	19,000	47
2050 (W)	-9,400	-9,400
2051 (W)	51,000	41,000
2052 (W)	-14,000	27,000
2053 (AN)	-7,200	20,000
2054 (D)	-26,000	-6,400
2055 (D)	-7,500	-14,000
2056 (AN)	21,000	7,100
2057 (BN)	-1,200	6,000
2058 (AN)	11,000	17,000
2059 (W)	15,000	32,000
2060 (D)	-43,000	-11,000
2061 (C)	-17,000	-28,000
2062 (D)	-20,000	-48,000
2063 (BN)	20,000	-28,000
2064 (W)	16,000	-12,000
2065 (BN)	-29,000	-41,000

Bowman Subbasin Projected (Future Land Use) with Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-12,000	-54,000
2067 (C)		-30,000	-83,000
2068 (C)		-5,800	-89,000
2069 (BN)		23,000	-66,000
2070 (W)		40,000	-26,000
2071 (BN)		-35,000	-61,000
2072 (W)		34,000	-27,000
Average (2022-2072)		-530	
2022-2072	W		
	AN		
	BN		
	D		
	C		

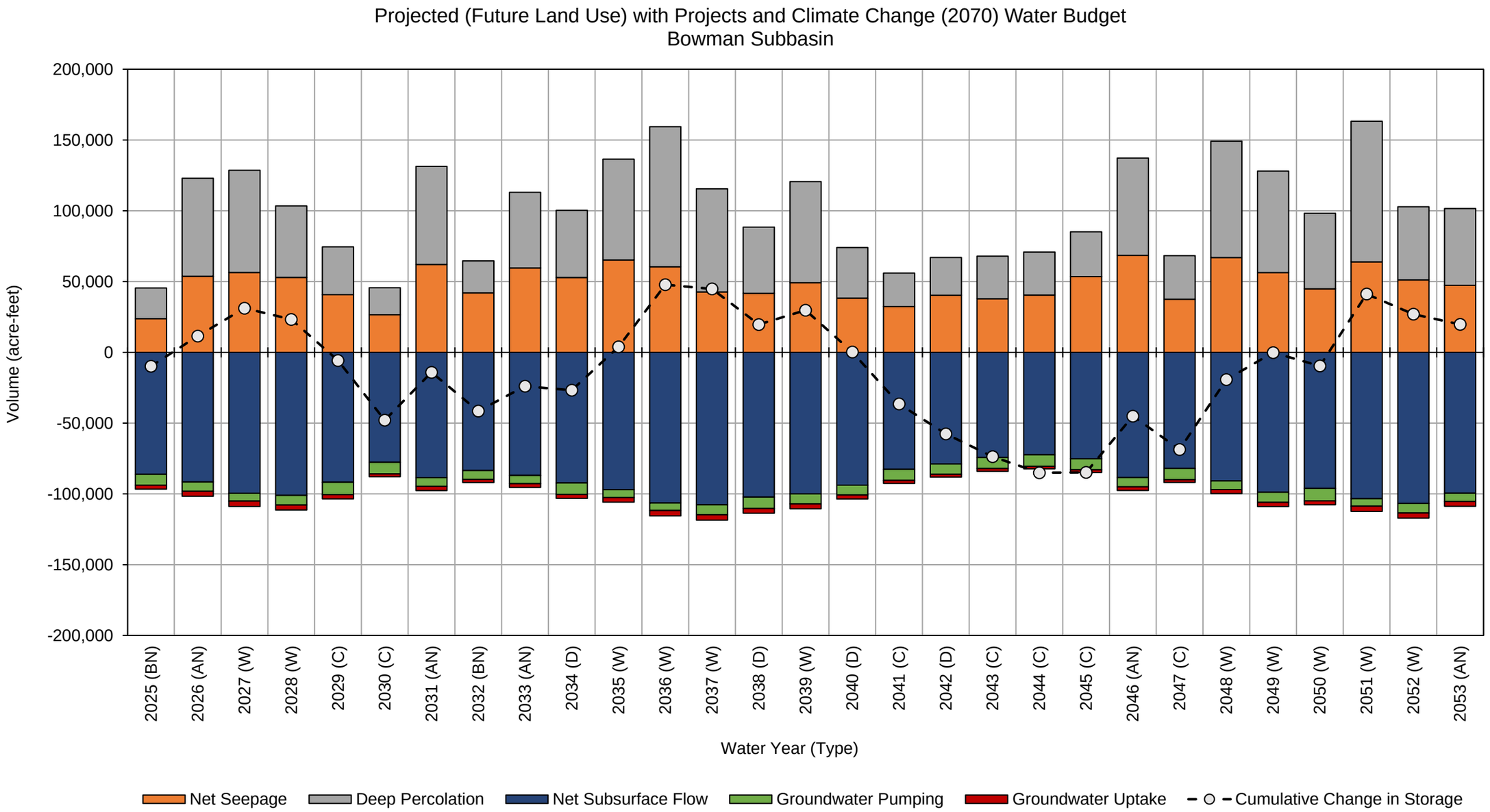
Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX B-8

Detailed Bowman Subbasin Water Budget Results:

Projected (Future Land Use) with Projects and Climate Change (2070) Model Results



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Water Budget Summary (acre-feet, rounded)

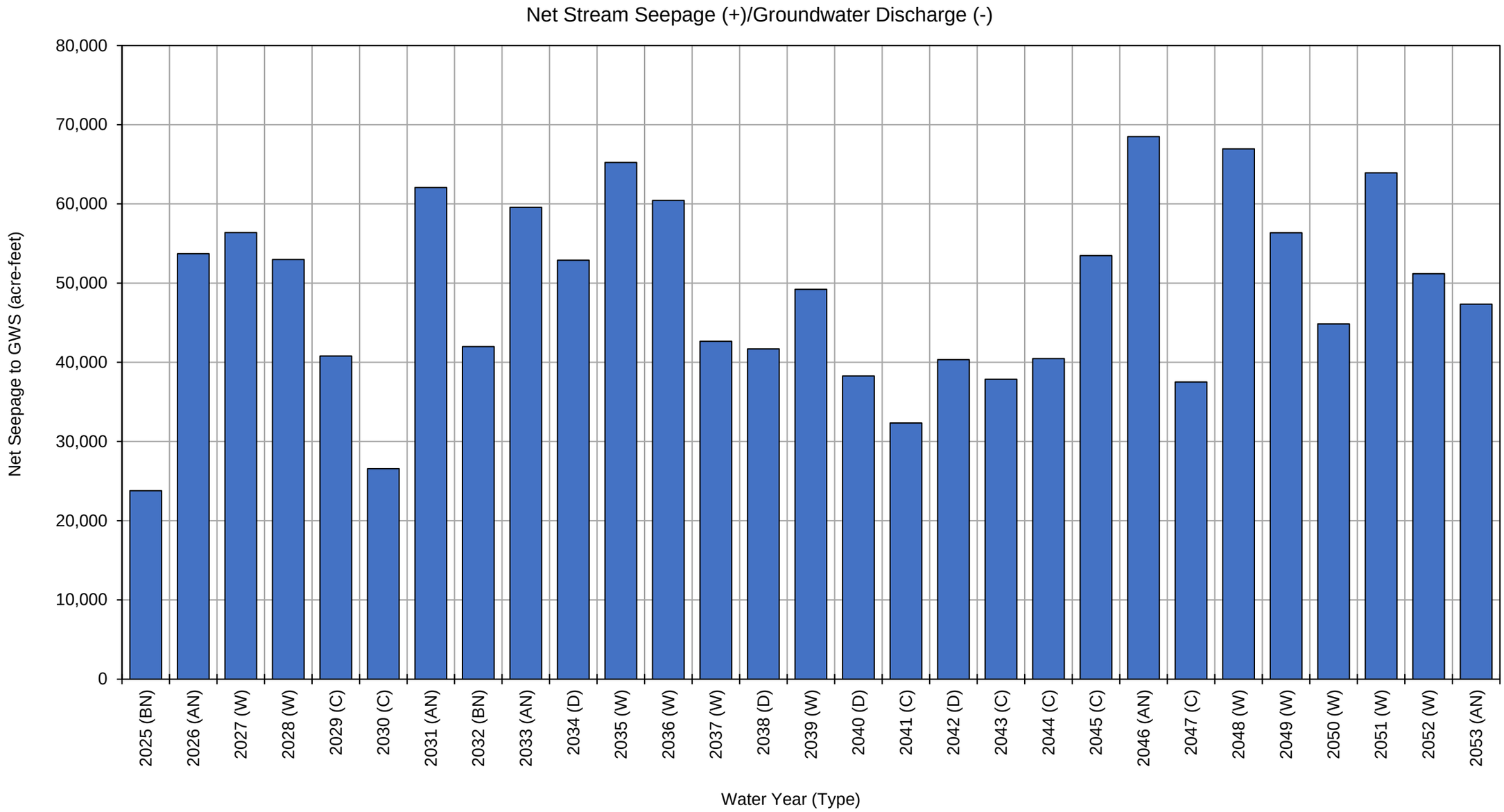
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	51,000	69,000	-7,500	-3,900	-86,000	23,000	23,000
2023 (W)	47,000	72,000	-7,200	-3,900	-95,000	13,000	35,000
2024 (W)	45,000	72,000	-7,300	-3,900	-100,000	6,000	41,000
2025 (BN)	24,000	22,000	-7,700	-2,800	-86,000	-51,000	-9,800
2026 (AN)	54,000	69,000	-6,600	-3,500	-92,000	21,000	12,000
2027 (W)	56,000	72,000	-5,600	-3,800	-100,000	20,000	31,000
2028 (W)	53,000	50,000	-6,800	-3,500	-100,000	-8,000	23,000
2029 (C)	41,000	34,000	-8,800	-3,000	-92,000	-29,000	-5,700
2030 (C)	27,000	19,000	-8,200	-2,000	-78,000	-42,000	-48,000
2031 (AN)	62,000	69,000	-6,200	-2,900	-89,000	34,000	-14,000
2032 (BN)	42,000	23,000	-6,300	-2,100	-83,000	-27,000	-41,000
2033 (AN)	60,000	53,000	-5,800	-2,700	-87,000	18,000	-24,000
2034 (D)	53,000	47,000	-8,100	-2,700	-92,000	-2,800	-27,000
2035 (W)	65,000	71,000	-5,600	-3,300	-97,000	31,000	3,900
2036 (W)	60,000	99,000	-5,300	-3,800	-110,000	44,000	48,000
2037 (W)	43,000	73,000	-7,100	-3,800	-110,000	-3,000	45,000
2038 (D)	42,000	47,000	-8,100	-3,400	-100,000	-25,000	20,000
2039 (W)	49,000	71,000	-7,100	-3,400	-100,000	10,000	30,000
2040 (D)	38,000	36,000	-6,900	-2,800	-94,000	-30,000	230
2041 (C)	32,000	24,000	-7,900	-2,200	-83,000	-37,000	-36,000
2042 (D)	40,000	27,000	-7,300	-2,000	-79,000	-21,000	-58,000
2043 (C)	38,000	30,000	-7,800	-1,900	-74,000	-16,000	-74,000
2044 (C)	40,000	30,000	-8,100	-1,800	-72,000	-11,000	-85,000
2045 (C)	53,000	32,000	-7,800	-1,900	-75,000	250	-85,000
2046 (AN)	68,000	69,000	-6,600	-2,500	-88,000	40,000	-45,000
2047 (C)	38,000	31,000	-8,000	-1,900	-82,000	-24,000	-69,000
2048 (W)	67,000	82,000	-6,100	-2,800	-91,000	49,000	-19,000
2049 (W)	56,000	72,000	-7,100	-2,900	-99,000	19,000	-170
2050 (W)	45,000	53,000	-8,800	-2,700	-96,000	-9,500	-9,600
2051 (W)	64,000	99,000	-5,300	-3,700	-100,000	51,000	41,000
2052 (W)	51,000	52,000	-6,800	-3,600	-110,000	-14,000	27,000
2053 (AN)	47,000	54,000	-5,800	-3,400	-99,000	-7,200	20,000
2054 (D)	40,000	37,000	-7,100	-2,800	-92,000	-26,000	-6,400
2055 (D)	51,000	46,000	-8,100	-2,800	-93,000	-7,500	-14,000
2056 (AN)	60,000	66,000	-5,700	-3,000	-97,000	21,000	7,100
2057 (BN)	50,000	59,000	-7,400	-3,200	-99,000	-1,200	5,900
2058 (AN)	60,000	61,000	-5,500	-3,100	-100,000	11,000	17,000
2059 (W)	56,000	72,000	-5,600	-3,600	-100,000	15,000	32,000
2060 (D)	32,000	26,000	-7,200	-2,500	-92,000	-44,000	-11,000
2061 (C)	46,000	34,000	-8,600	-2,600	-86,000	-17,000	-28,000
2062 (D)	44,000	26,000	-6,800	-2,100	-81,000	-20,000	-48,000
2063 (BN)	62,000	54,000	-6,100	-2,500	-87,000	20,000	-28,000
2064 (W)	65,000	53,000	-5,500	-2,800	-94,000	16,000	-12,000
2065 (BN)	42,000	23,000	-6,300	-2,100	-85,000	-29,000	-41,000

Bowman Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		43,000	38,000	-8,900	-2,200	-82,000	-12,000	-54,000
2067 (C)		33,000	19,000	-8,600	-1,700	-72,000	-30,000	-83,000
2068 (C)		46,000	34,000	-9,900	-1,800	-74,000	-5,800	-89,000
2069 (BN)		62,000	50,000	-7,800	-2,100	-80,000	23,000	-67,000
2070 (W)		70,000	73,000	-6,300	-2,600	-93,000	40,000	-26,000
2071 (BN)		35,000	21,000	-7,700	-1,800	-82,000	-35,000	-61,000
2072 (W)		64,000	67,000	-7,000	-2,700	-88,000	34,000	-27,000
Average (2022-2072)		49,000	51,000	-7,100	-2,800	-91,000	-530	
2022-2072	W	56,000	71,000	-6,500	-3,400	-98,000		
	AN	59,000	63,000	-6,000	-3,000	-93,000		
	BN	45,000	36,000	-7,100	-2,400	-86,000		
	D	42,000	37,000	-7,600	-2,600	-90,000		
	C	39,000	29,000	-8,400	-2,100	-79,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

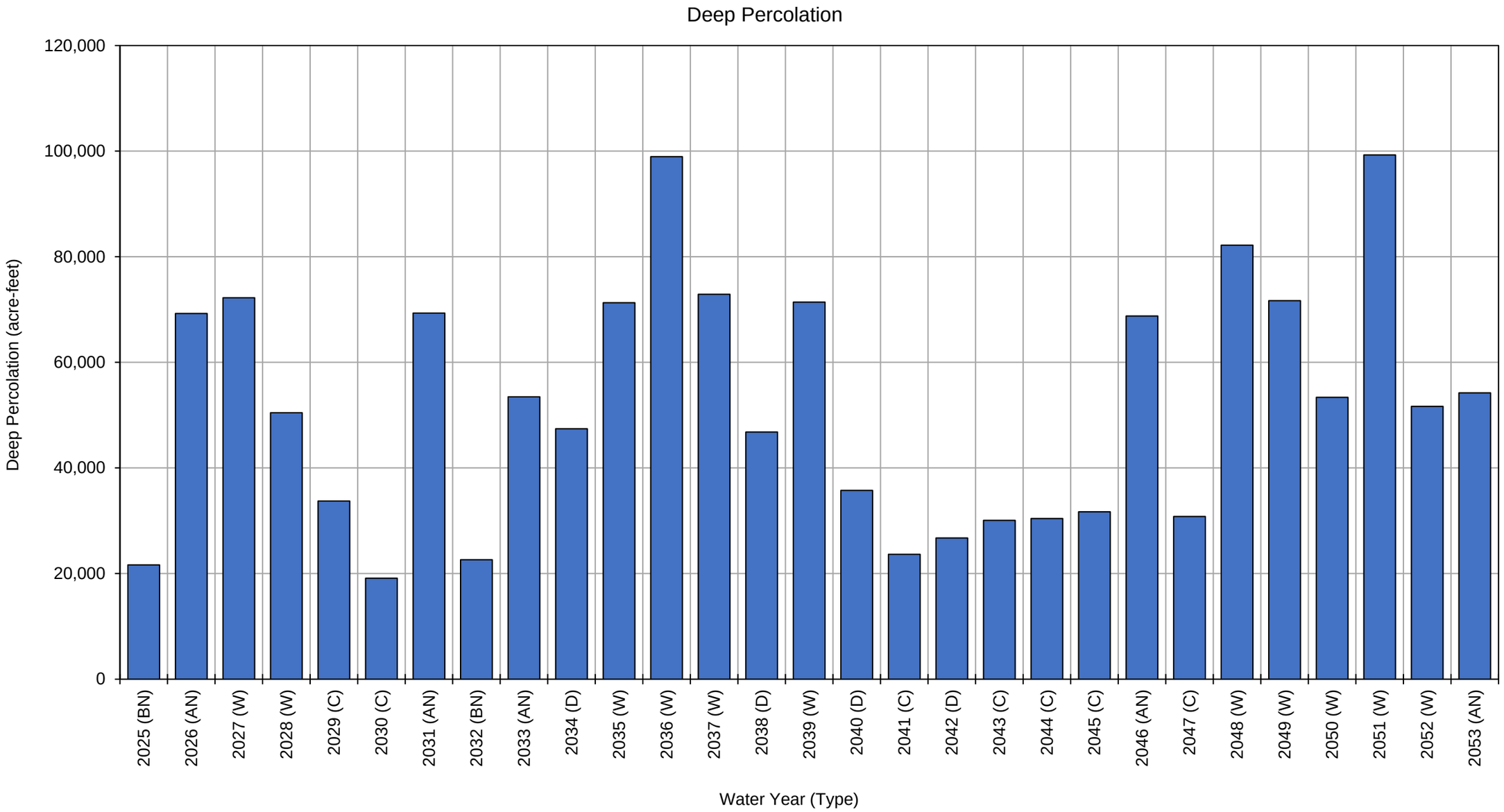
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	51,000
2023 (W)	47,000
2024 (W)	45,000
2025 (BN)	24,000
2026 (AN)	54,000
2027 (W)	56,000
2028 (W)	53,000
2029 (C)	41,000
2030 (C)	27,000
2031 (AN)	62,000
2032 (BN)	42,000
2033 (AN)	60,000
2034 (D)	53,000
2035 (W)	65,000
2036 (W)	60,000
2037 (W)	43,000
2038 (D)	42,000
2039 (W)	49,000
2040 (D)	38,000
2041 (C)	32,000
2042 (D)	40,000
2043 (C)	38,000
2044 (C)	40,000
2045 (C)	53,000
2046 (AN)	68,000
2047 (C)	38,000
2048 (W)	67,000
2049 (W)	56,000
2050 (W)	45,000
2051 (W)	64,000
2052 (W)	51,000
2053 (AN)	47,000
2054 (D)	40,000
2055 (D)	51,000
2056 (AN)	60,000
2057 (BN)	50,000
2058 (AN)	60,000
2059 (W)	56,000
2060 (D)	32,000
2061 (C)	46,000
2062 (D)	44,000
2063 (BN)	62,000
2064 (W)	65,000
2065 (BN)	42,000

Bowman Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2066 (D)		43,000
2067 (C)		33,000
2068 (C)		46,000
2069 (BN)		62,000
2070 (W)		70,000
2071 (BN)		35,000
2072 (W)		64,000
Average (2022-2072)		49,000
2022-2072	W	56,000
	AN	59,000
	BN	45,000
	D	42,000
	C	39,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

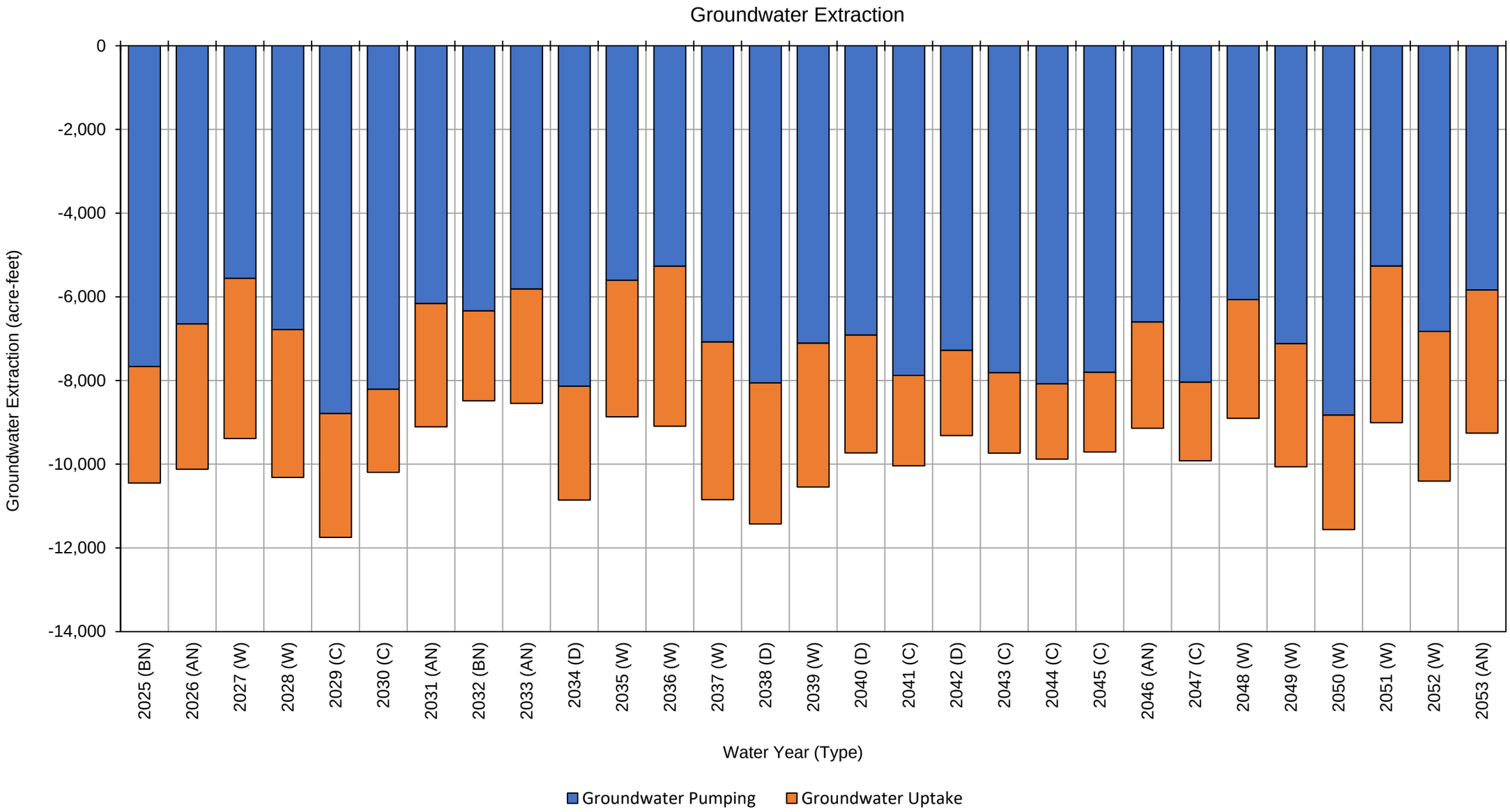
WY (Type)	Deep Percolation from the SWS
2022 (W)	69,000
2023 (W)	72,000
2024 (W)	72,000
2025 (BN)	22,000
2026 (AN)	69,000
2027 (W)	72,000
2028 (W)	50,000
2029 (C)	34,000
2030 (C)	19,000
2031 (AN)	69,000
2032 (BN)	23,000
2033 (AN)	53,000
2034 (D)	47,000
2035 (W)	71,000
2036 (W)	99,000
2037 (W)	73,000
2038 (D)	47,000
2039 (W)	71,000
2040 (D)	36,000
2041 (C)	24,000
2042 (D)	27,000
2043 (C)	30,000
2044 (C)	30,000
2045 (C)	32,000
2046 (AN)	69,000
2047 (C)	31,000
2048 (W)	82,000
2049 (W)	72,000
2050 (W)	53,000
2051 (W)	99,000
2052 (W)	52,000
2053 (AN)	54,000
2054 (D)	37,000
2055 (D)	46,000
2056 (AN)	66,000
2057 (BN)	59,000
2058 (AN)	61,000
2059 (W)	72,000
2060 (D)	26,000
2061 (C)	34,000
2062 (D)	26,000
2063 (BN)	54,000
2064 (W)	53,000
2065 (BN)	23,000

Bowman Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2066 (D)		38,000
2067 (C)		19,000
2068 (C)		34,000
2069 (BN)		50,000
2070 (W)		73,000
2071 (BN)		21,000
2072 (W)		67,000
Average (2022-2072)		51,000
2022-2072	W	71,000
	AN	63,000
	BN	36,000
	D	37,000
	C	29,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

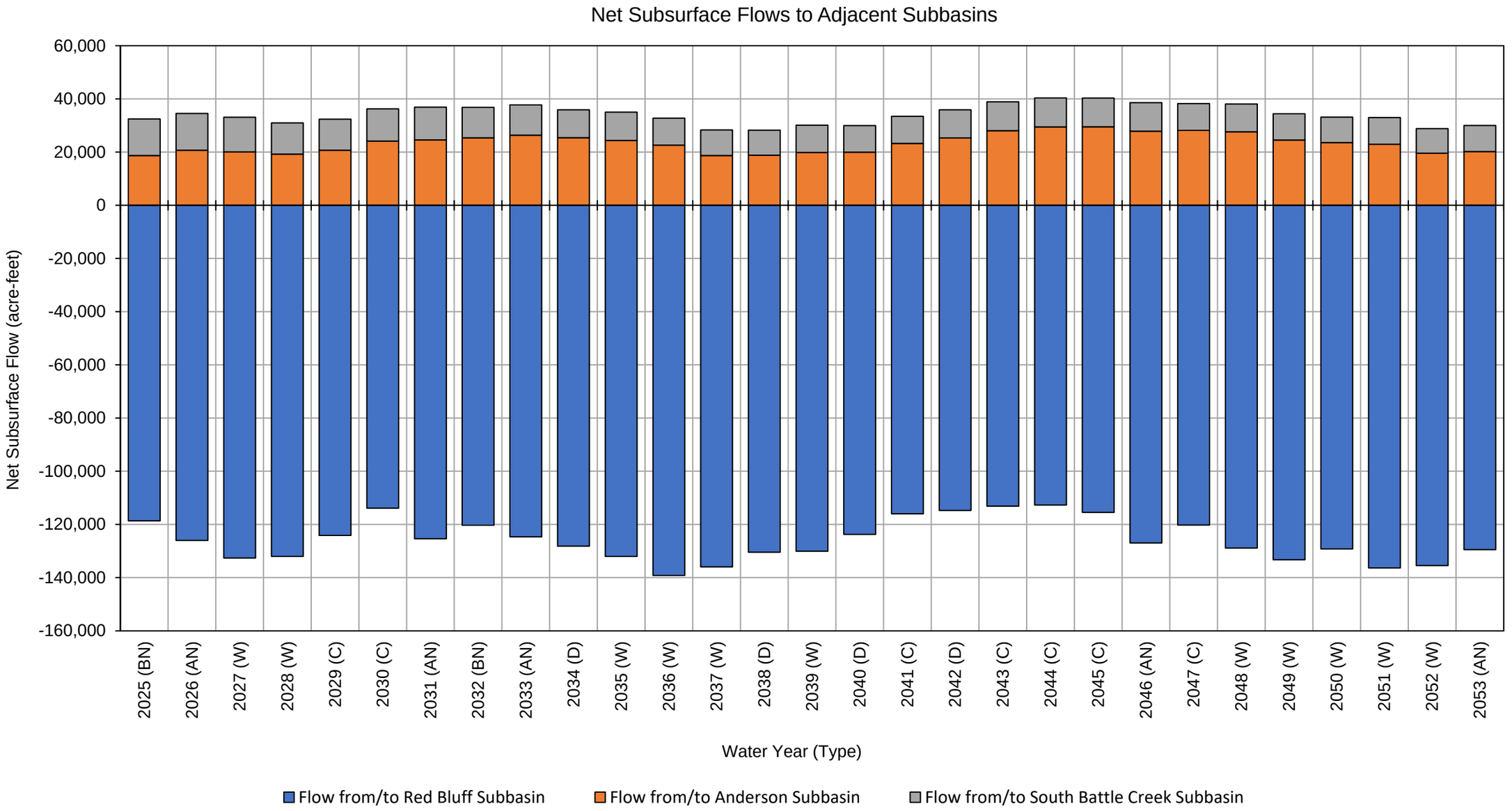
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-7,500	-3,900	-11,000
2023 (W)	-7,200	-3,900	-11,000
2024 (W)	-7,300	-3,900	-11,000
2025 (BN)	-7,700	-2,800	-10,000
2026 (AN)	-6,600	-3,500	-10,000
2027 (W)	-5,600	-3,800	-9,400
2028 (W)	-6,800	-3,500	-10,000
2029 (C)	-8,800	-3,000	-12,000
2030 (C)	-8,200	-2,000	-10,000
2031 (AN)	-6,200	-2,900	-9,100
2032 (BN)	-6,300	-2,100	-8,500
2033 (AN)	-5,800	-2,700	-8,500
2034 (D)	-8,100	-2,700	-11,000
2035 (W)	-5,600	-3,300	-8,900
2036 (W)	-5,300	-3,800	-9,100
2037 (W)	-7,100	-3,800	-11,000
2038 (D)	-8,100	-3,400	-11,000
2039 (W)	-7,100	-3,400	-11,000
2040 (D)	-6,900	-2,800	-9,700
2041 (C)	-7,900	-2,200	-10,000
2042 (D)	-7,300	-2,000	-9,300
2043 (C)	-7,800	-1,900	-9,700
2044 (C)	-8,100	-1,800	-9,900
2045 (C)	-7,800	-1,900	-9,700
2046 (AN)	-6,600	-2,500	-9,100
2047 (C)	-8,000	-1,900	-9,900
2048 (W)	-6,100	-2,800	-8,900
2049 (W)	-7,100	-2,900	-10,000
2050 (W)	-8,800	-2,700	-12,000
2051 (W)	-5,300	-3,700	-9,000
2052 (W)	-6,800	-3,600	-10,000
2053 (AN)	-5,800	-3,400	-9,300
2054 (D)	-7,100	-2,800	-9,900
2055 (D)	-8,100	-2,800	-11,000
2056 (AN)	-5,700	-3,000	-8,700
2057 (BN)	-7,400	-3,200	-11,000
2058 (AN)	-5,500	-3,100	-8,600
2059 (W)	-5,600	-3,600	-9,200
2060 (D)	-7,200	-2,500	-9,700
2061 (C)	-8,600	-2,600	-11,000
2062 (D)	-6,800	-2,100	-8,900
2063 (BN)	-6,100	-2,500	-8,600
2064 (W)	-5,500	-2,800	-8,300
2065 (BN)	-6,300	-2,100	-8,500

Bowman Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2066 (D)		-8,900	-2,200	-11,000
2067 (C)		-8,600	-1,700	-10,000
2068 (C)		-9,900	-1,800	-12,000
2069 (BN)		-7,800	-2,100	-9,900
2070 (W)		-6,300	-2,600	-9,000
2071 (BN)		-7,700	-1,800	-9,600
2072 (W)		-7,000	-2,700	-9,700
Average (2022-2072)		-7,100	-2,800	-9,900
2022-2072	W	-6,500	-3,400	-9,900
	AN	-6,000	-3,000	-9,100
	BN	-7,100	-2,400	-9,500
	D	-7,600	-2,600	-10,000
	C	-8,400	-2,100	-10,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

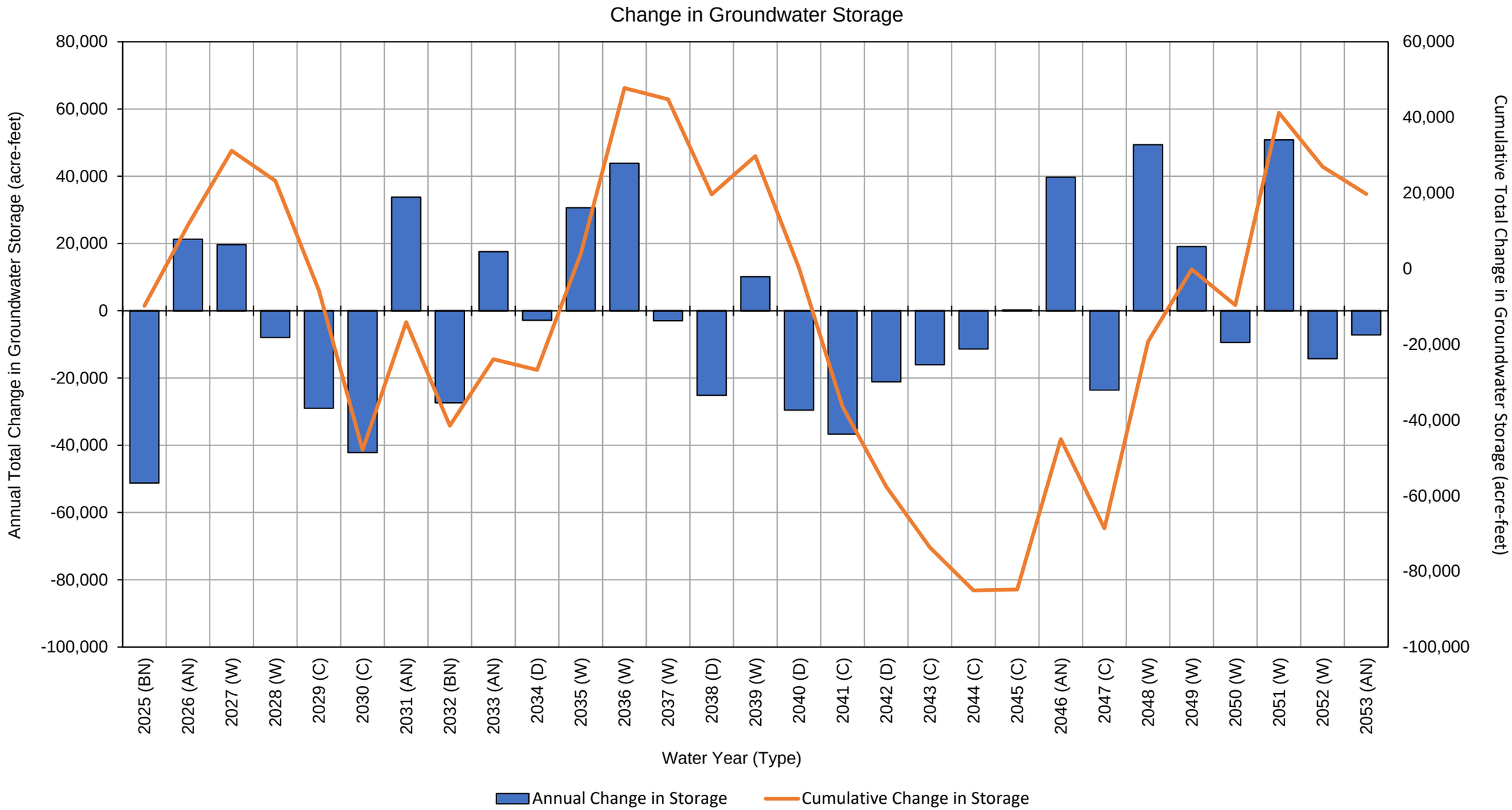
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Anderson Subbasin	Flow from/to South Battle Creek Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-120,000	20,000	17,000	-86,000
2023 (W)	-130,000	19,000	16,000	-95,000
2024 (W)	-130,000	17,000	15,000	-100,000
2025 (BN)	-120,000	19,000	14,000	-86,000
2026 (AN)	-130,000	21,000	14,000	-92,000
2027 (W)	-130,000	20,000	13,000	-100,000
2028 (W)	-130,000	19,000	12,000	-100,000
2029 (C)	-120,000	21,000	12,000	-92,000
2030 (C)	-110,000	24,000	12,000	-78,000
2031 (AN)	-130,000	25,000	12,000	-89,000
2032 (BN)	-120,000	25,000	11,000	-83,000
2033 (AN)	-120,000	26,000	11,000	-87,000
2034 (D)	-130,000	25,000	10,000	-92,000
2035 (W)	-130,000	24,000	11,000	-97,000
2036 (W)	-140,000	23,000	10,000	-110,000
2037 (W)	-140,000	19,000	9,600	-110,000
2038 (D)	-130,000	19,000	9,400	-100,000
2039 (W)	-130,000	20,000	10,000	-100,000
2040 (D)	-120,000	20,000	10,000	-94,000
2041 (C)	-120,000	23,000	10,000	-83,000
2042 (D)	-110,000	25,000	11,000	-79,000
2043 (C)	-110,000	28,000	11,000	-74,000
2044 (C)	-110,000	29,000	11,000	-72,000
2045 (C)	-120,000	30,000	11,000	-75,000
2046 (AN)	-130,000	28,000	11,000	-88,000
2047 (C)	-120,000	28,000	10,000	-82,000
2048 (W)	-130,000	28,000	10,000	-91,000
2049 (W)	-130,000	25,000	9,900	-99,000
2050 (W)	-130,000	24,000	9,600	-96,000
2051 (W)	-140,000	23,000	10,000	-100,000
2052 (W)	-140,000	20,000	9,200	-110,000
2053 (AN)	-130,000	20,000	9,800	-99,000
2054 (D)	-120,000	21,000	10,000	-92,000
2055 (D)	-130,000	23,000	10,000	-93,000
2056 (AN)	-130,000	23,000	10,000	-97,000
2057 (BN)	-130,000	22,000	10,000	-99,000
2058 (AN)	-130,000	20,000	9,800	-100,000
2059 (W)	-130,000	20,000	9,800	-100,000
2060 (D)	-120,000	20,000	9,500	-92,000
2061 (C)	-120,000	23,000	10,000	-86,000
2062 (D)	-120,000	26,000	10,000	-81,000
2063 (BN)	-120,000	26,000	11,000	-87,000
2064 (W)	-130,000	26,000	10,000	-94,000
2065 (BN)	-120,000	26,000	10,000	-85,000

Bowman Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Anderson Subbasin	Flow from/to South Battle Creek Subbasin	Net Subsurface Flow from Adjacent Subbasins
2066 (D)		-120,000	27,000	10,000	-82,000
2067 (C)		-110,000	29,000	11,000	-72,000
2068 (C)		-120,000	31,000	11,000	-74,000
2069 (BN)		-120,000	30,000	11,000	-80,000
2070 (W)		-130,000	28,000	11,000	-93,000
2071 (BN)		-120,000	28,000	11,000	-82,000
2072 (W)		-130,000	28,000	11,000	-88,000
Average (2022-2072)		-130,000	24,000	11,000	-91,000
2022-2072	W	-130,000	22,000	11,000	-98,000
	AN	-130,000	23,000	11,000	-93,000
	BN	-120,000	25,000	11,000	-86,000
	D	-120,000	23,000	10,000	-90,000
	C	-120,000	27,000	11,000	-79,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Bowman Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	23,000	23,000
2023 (W)	13,000	35,000
2024 (W)	6,000	41,000
2025 (BN)	-51,000	-9,800
2026 (AN)	21,000	12,000
2027 (W)	20,000	31,000
2028 (W)	-8,000	23,000
2029 (C)	-29,000	-5,700
2030 (C)	-42,000	-48,000
2031 (AN)	34,000	-14,000
2032 (BN)	-27,000	-41,000
2033 (AN)	18,000	-24,000
2034 (D)	-2,800	-27,000
2035 (W)	31,000	3,900
2036 (W)	44,000	48,000
2037 (W)	-3,000	45,000
2038 (D)	-25,000	20,000
2039 (W)	10,000	30,000
2040 (D)	-30,000	230
2041 (C)	-37,000	-36,000
2042 (D)	-21,000	-58,000
2043 (C)	-16,000	-74,000
2044 (C)	-11,000	-85,000
2045 (C)	250	-85,000
2046 (AN)	40,000	-45,000
2047 (C)	-24,000	-69,000
2048 (W)	49,000	-19,000
2049 (W)	19,000	-170
2050 (W)	-9,500	-9,600
2051 (W)	51,000	41,000
2052 (W)	-14,000	27,000
2053 (AN)	-7,200	20,000
2054 (D)	-26,000	-6,400
2055 (D)	-7,500	-14,000
2056 (AN)	21,000	7,100
2057 (BN)	-1,200	5,900
2058 (AN)	11,000	17,000
2059 (W)	15,000	32,000
2060 (D)	-44,000	-11,000
2061 (C)	-17,000	-28,000
2062 (D)	-20,000	-48,000
2063 (BN)	20,000	-28,000
2064 (W)	16,000	-12,000
2065 (BN)	-29,000	-41,000

Bowman Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-12,000	-54,000
2067 (C)		-30,000	-83,000
2068 (C)		-5,800	-89,000
2069 (BN)		23,000	-67,000
2070 (W)		40,000	-26,000
2071 (BN)		-35,000	-61,000
2072 (W)		34,000	-27,000
Average (2022-2072)		-530	
2022-2072	W		
	AN		
	BN		
	D		
	C		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

Appendix C. Detailed Los Molinos Subbasin Water Budget Results

APPENDIX C

Detailed Los Molinos Subbasin Water Budget Results

C-1 Historical Model Results

C-2 Projected (Current Land Use) Model Results

C-3 Projected (Future Land Use) Model Results

C-4 Projected (Current Land Use) with Climate Change (2030) Model Results

C-5 Projected (Current Land Use) with Climate Change (2070) Model Results

C-6 Projected (Future Land Use) with Climate Change (2030) Model Results

C-7 Projected (Future Land Use) with Climate Change (2070) Model Results

C-8 Projected (Future Land Use) with Projects and Climate Change (2070) Model Results

APPENDIX C-1

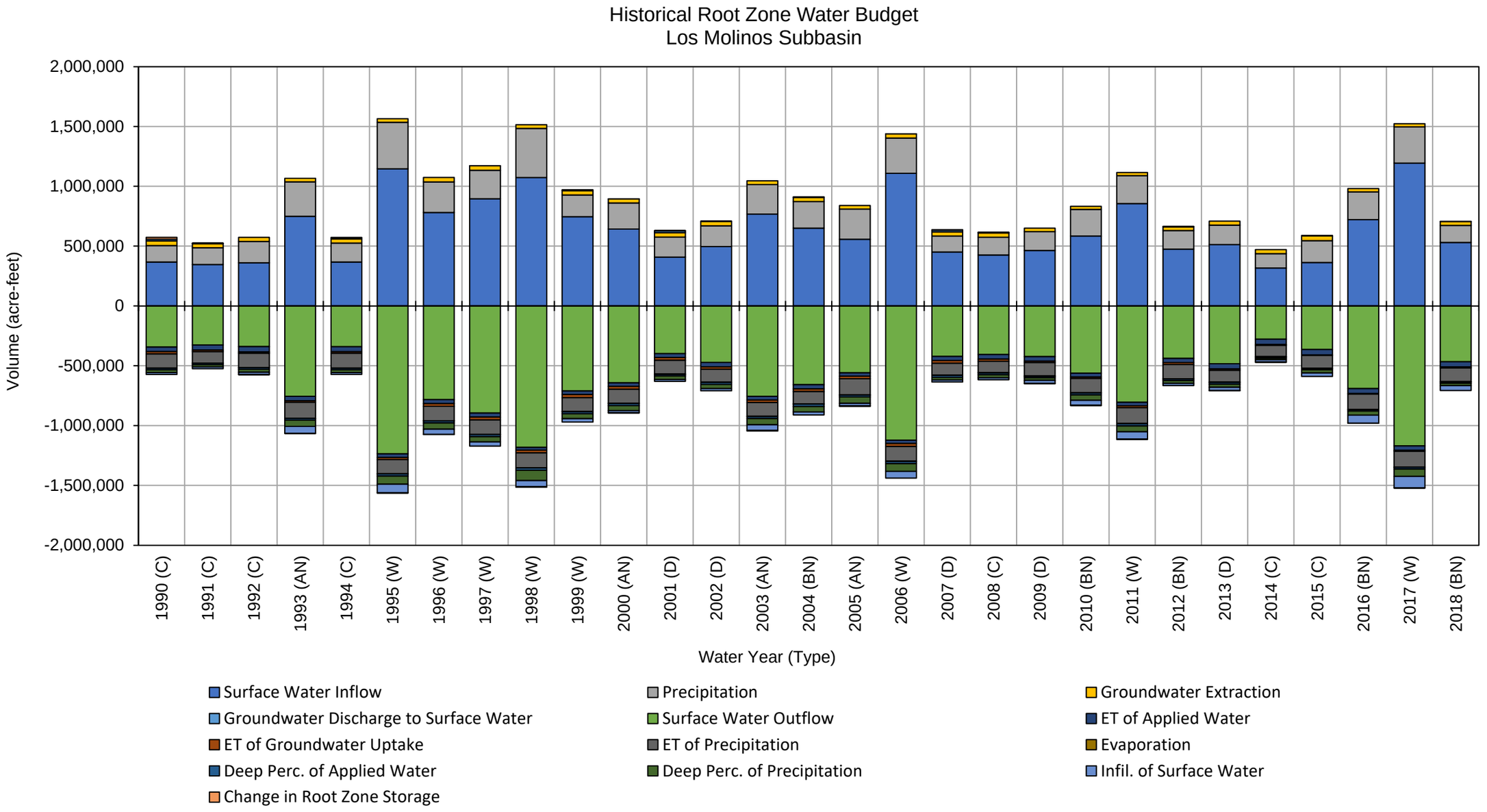
Detailed Los Molinos Subbasin Water Budget Results:

Historical Model Results

APPENDIX C-1a

Detailed Los Molinos Subbasin Water Budget Results:

Historical Model Results – Surface Water System

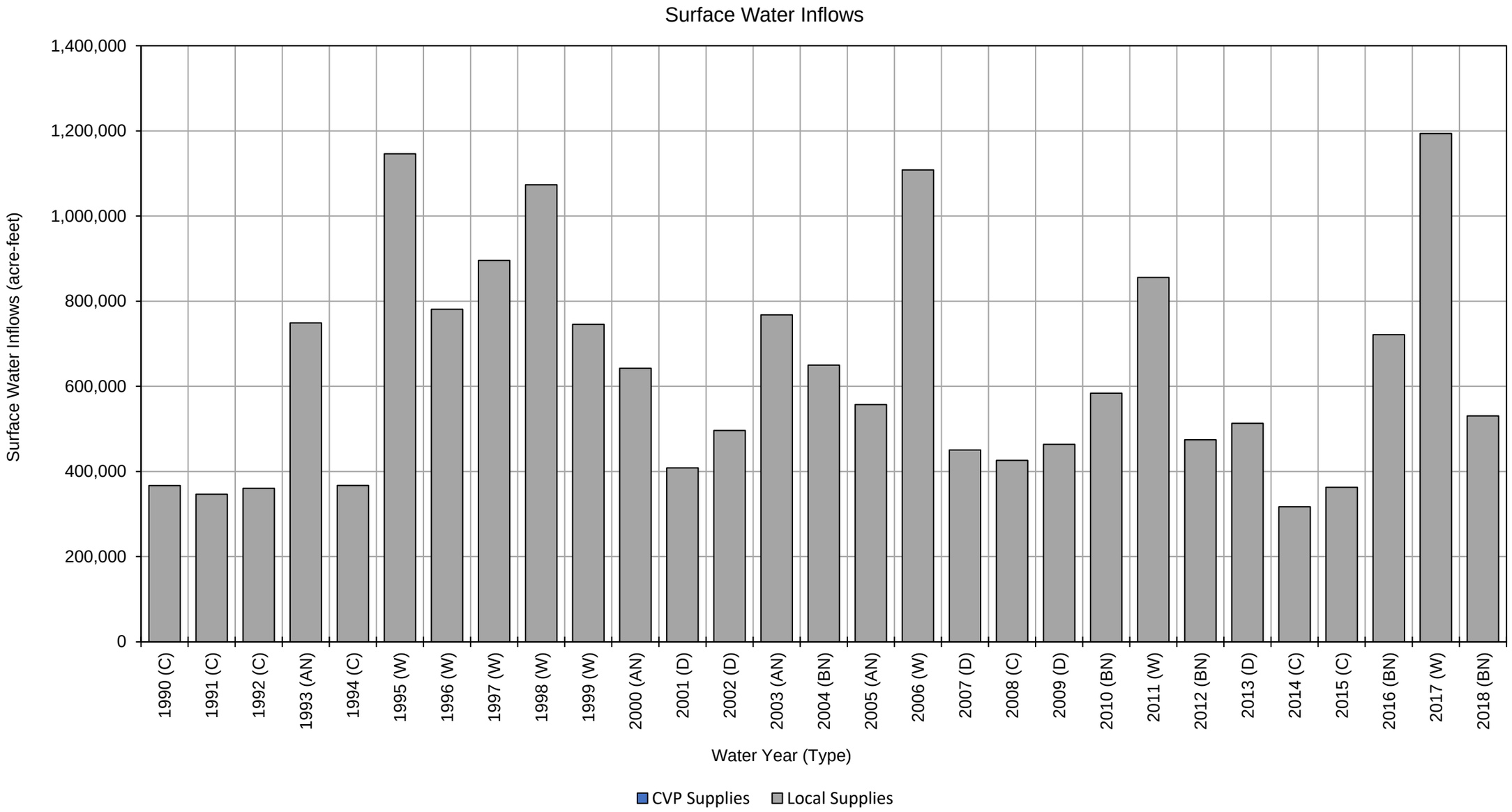

Historical Root Zone Water Budget
Los Molinos Subbasin
Volume (acre-feet)
2,000,000
1,500,000
1,000,000
500,000
0
-500,000
-1,000,000
-1,500,000
-2,000,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Surface Water Inflow
Precipitation
Groundwater Extraction
Groundwater Discharge to Surface Water
Surface Water Outflow
ET of Applied Water
ET of Groundwater Uptake
ET of Precipitation
Evaporation
Deep Perc. of Applied Water
Deep Perc. of Precipitation
Infil. of Surface Water
Change in Root Zone Storage

Los Molinos Subbasin Historical Root Zone Water Budget Summary (acre-feet, rounded)

WY (Type)	Inflows				Outflows								Change in Root Zone Storage
	Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
1990 (C)	370,000	140,000	38,000	14,000	340,000	38,000	20,000	120,000	910	13,000	24,000	16,000	-16,000
1991 (C)	350,000	140,000	35,000	2,800	330,000	43,000	13,000	96,000	940	13,000	18,000	15,000	-1,400
1992 (C)	360,000	180,000	34,000	0	340,000	46,000	10,000	120,000	910	13,000	25,000	19,000	96
1993 (AN)	750,000	290,000	30,000	0	750,000	37,000	13,000	130,000	870	15,000	52,000	58,000	2,700
1994 (C)	370,000	160,000	35,000	8,100	340,000	41,000	14,000	120,000	840	13,000	24,000	15,000	-3,600
1995 (W)	1,100,000	390,000	30,000	0	1,200,000	31,000	17,000	120,000	1,100	18,000	68,000	71,000	4,000
1996 (W)	780,000	260,000	37,000	0	780,000	33,000	23,000	120,000	1,700	17,000	52,000	43,000	400
1997 (W)	900,000	240,000	38,000	0	890,000	34,000	24,000	120,000	2,300	17,000	44,000	35,000	-420
1998 (W)	1,100,000	410,000	32,000	0	1,200,000	23,000	24,000	120,000	1,600	19,000	86,000	52,000	3,900
1999 (W)	750,000	180,000	36,000	0	710,000	29,000	27,000	110,000	3,000	17,000	41,000	28,000	-7,100
2000 (AN)	640,000	220,000	34,000	820	640,000	29,000	25,000	120,000	2,700	17,000	42,000	16,000	3,300
2001 (D)	410,000	170,000	37,000	15,000	400,000	33,000	23,000	120,000	2,900	13,000	29,000	16,000	-2,800
2002 (D)	500,000	170,000	36,000	0	470,000	37,000	21,000	110,000	3,000	16,000	34,000	18,000	-3,100
2003 (AN)	770,000	250,000	31,000	0	760,000	31,000	21,000	120,000	2,400	17,000	52,000	48,000	4,300
2004 (BN)	650,000	220,000	36,000	0	660,000	35,000	23,000	100,000	2,800	19,000	45,000	26,000	-3,600
2005 (AN)	560,000	250,000	30,000	0	560,000	27,000	21,000	140,000	1,800	15,000	53,000	21,000	4,300
2006 (W)	1,100,000	300,000	34,000	0	1,100,000	27,000	25,000	120,000	2,100	18,000	64,000	56,000	-890
2007 (D)	450,000	130,000	36,000	16,000	420,000	34,000	23,000	99,000	2,700	16,000	21,000	17,000	-310
2008 (C)	430,000	150,000	35,000	2,200	410,000	39,000	18,000	94,000	2,900	15,000	26,000	16,000	-4,600
2009 (D)	460,000	160,000	29,000	0	420,000	37,000	13,000	110,000	2,500	12,000	22,000	26,000	2,100
2010 (BN)	580,000	220,000	26,000	0	560,000	32,000	13,000	120,000	2,100	16,000	46,000	42,000	1,800
2011 (W)	860,000	230,000	26,000	0	810,000	29,000	17,000	130,000	2,000	19,000	48,000	62,000	1,900
2012 (BN)	470,000	160,000	31,000	0	440,000	34,000	17,000	120,000	2,400	13,000	23,000	19,000	-4,400
2013 (D)	510,000	160,000	33,000	0	480,000	43,000	12,000	98,000	2,700	15,000	26,000	27,000	2,300
2014 (C)	320,000	120,000	34,000	0	280,000	46,000	6,400	94,000	2,800	10,000	13,000	19,000	2,200
2015 (C)	360,000	180,000	39,000	0	360,000	45,000	4,200	110,000	2,500	11,000	26,000	30,000	-4,900
2016 (BN)	720,000	230,000	27,000	0	690,000	42,000	4,100	130,000	2,300	11,000	35,000	67,000	1,400
2017 (W)	1,200,000	300,000	26,000	0	1,200,000	36,000	8,700	130,000	2,100	14,000	61,000	96,000	2,200
2018 (BN)	530,000	140,000	32,000	0	470,000	44,000	7,800	110,000	2,500	12,000	19,000	42,000	-2,300
Average (1990-2018)	630,000	210,000	33,000	2,000	620,000	36,000	17,000	120,000	2,100	15,000	39,000	35,000	-630
1990-2018 W	970,000	290,000	32,000	0	990,000	30,000	21,000	120,000	2,000	17,000	58,000	55,000	490
1990-2018 AN	680,000	250,000	31,000	200	680,000	31,000	20,000	130,000	2,000	16,000	50,000	36,000	3,600
1990-2018 BN	590,000	200,000	30,000	0	560,000	37,000	13,000	120,000	2,400	14,000	34,000	39,000	-1,400
1990-2018 D	470,000	160,000	34,000	6,200	440,000	37,000	18,000	110,000	2,800	15,000	27,000	21,000	-360
1990-2018 C	360,000	150,000	36,000	3,900	340,000	43,000	12,000	110,000	1,700	13,000	22,000	19,000	-4,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

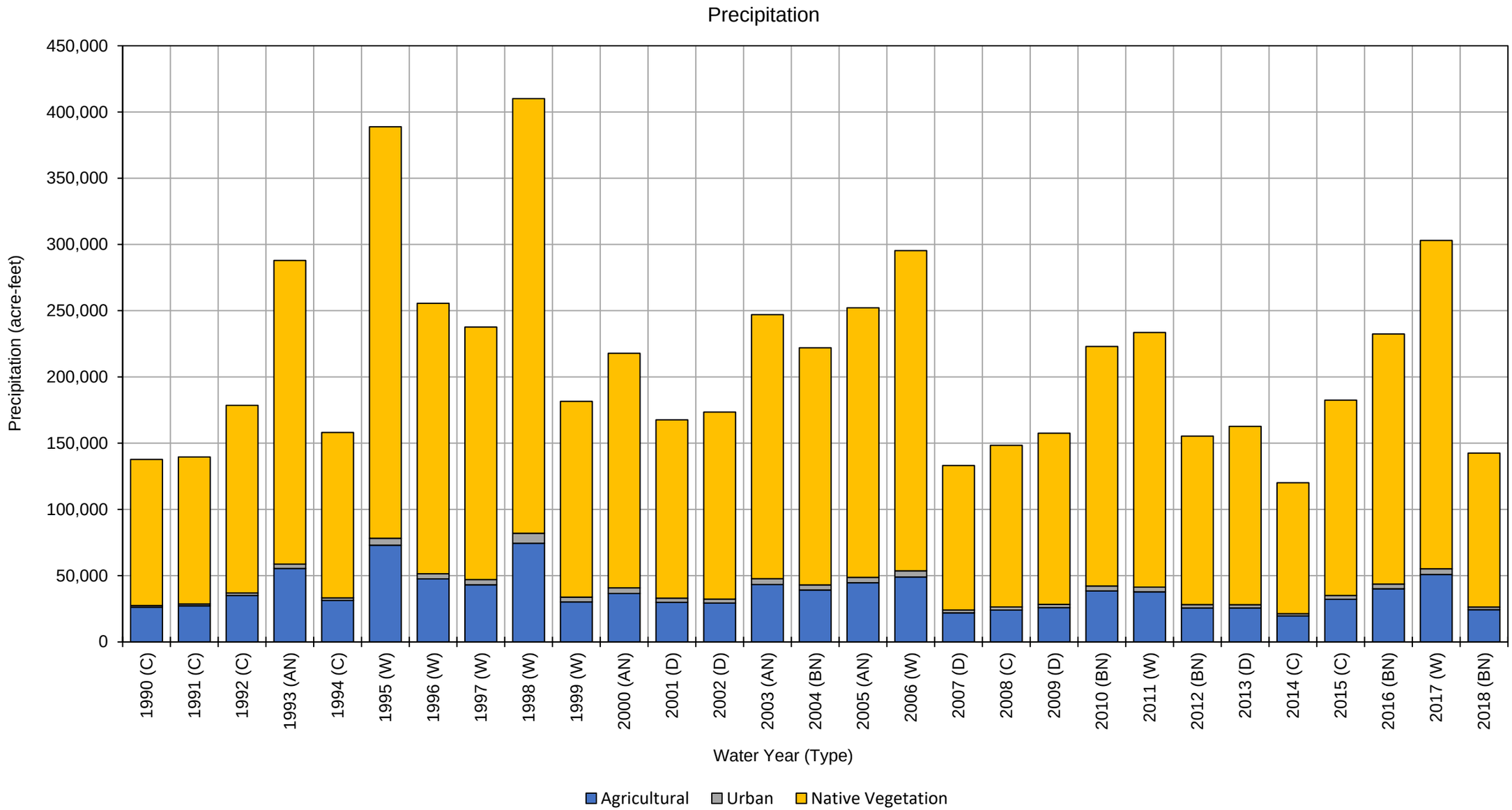

Surface Water Inflows
Surface Water Inflows (acre-feet)
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
CVP Supplies
Local Supplies

Los Molinos Subbasin Historical Surface Water Inflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Total
1990 (C)		0	370,000	370,000
1991 (C)		0	350,000	350,000
1992 (C)		0	360,000	360,000
1993 (AN)		0	750,000	750,000
1994 (C)		0	370,000	370,000
1995 (W)		0	1,100,000	1,100,000
1996 (W)		0	780,000	780,000
1997 (W)		0	900,000	900,000
1998 (W)		0	1,100,000	1,100,000
1999 (W)		0	750,000	750,000
2000 (AN)		0	640,000	640,000
2001 (D)		0	410,000	410,000
2002 (D)		0	500,000	500,000
2003 (AN)		0	770,000	770,000
2004 (BN)		0	650,000	650,000
2005 (AN)		0	560,000	560,000
2006 (W)		0	1,100,000	1,100,000
2007 (D)		0	450,000	450,000
2008 (C)		0	430,000	430,000
2009 (D)		0	460,000	460,000
2010 (BN)		0	580,000	580,000
2011 (W)		0	860,000	860,000
2012 (BN)		0	470,000	470,000
2013 (D)		0	510,000	510,000
2014 (C)		0	320,000	320,000
2015 (C)		0	360,000	360,000
2016 (BN)		0	720,000	720,000
2017 (W)		0	1,200,000	1,200,000
2018 (BN)		0	530,000	530,000
Average (1990-2018)		0	630,000	630,000
1990-2018	W	0	970,000	970,000
	AN	0	680,000	680,000
	BN	0	590,000	590,000
	D	0	470,000	470,000
	C	0	360,000	360,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

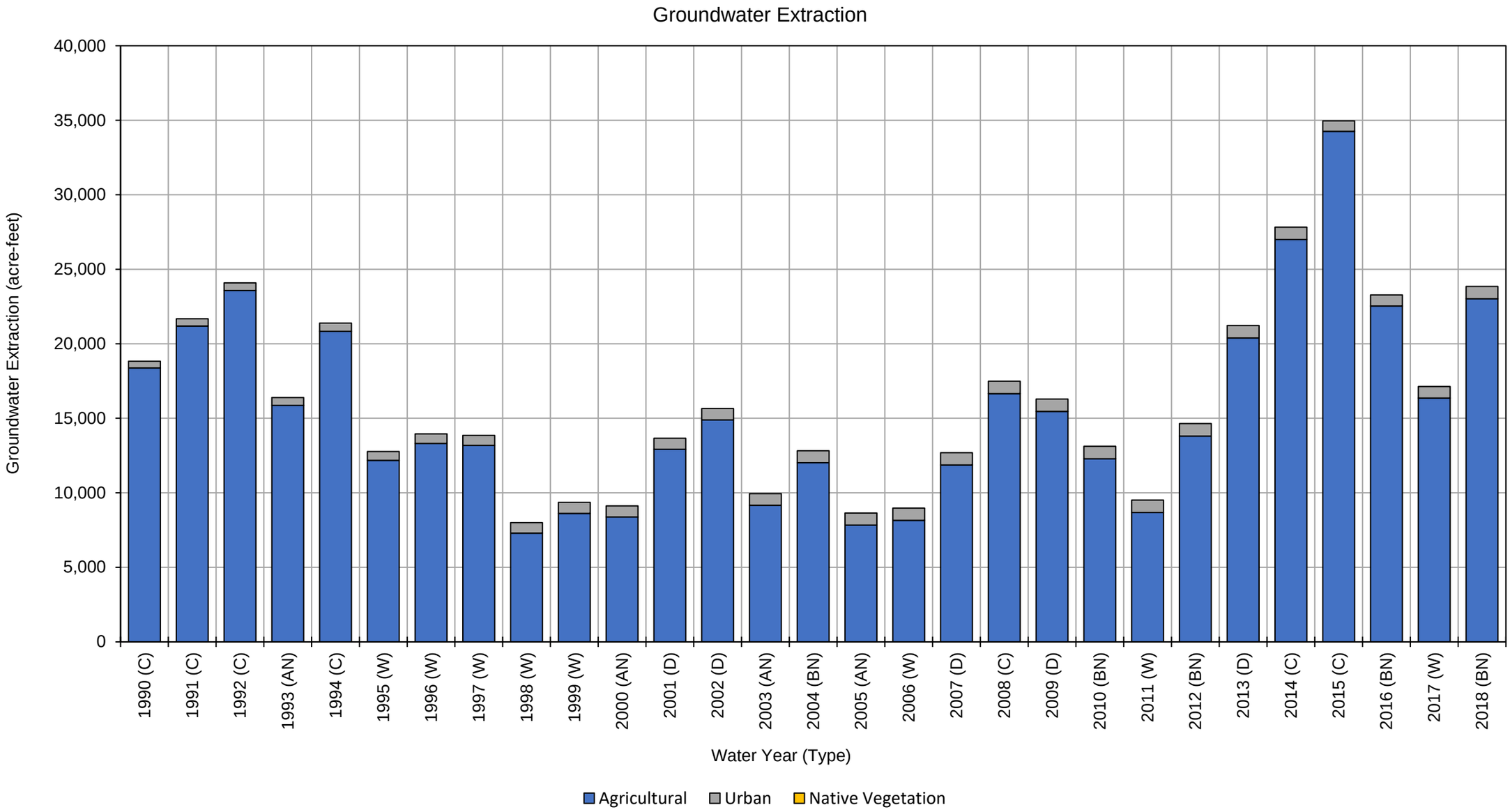

Precipitation
Precipitation (acre-feet)
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Los Molinos Subbasin Historical Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		26,000	1,300	110,000	140,000
1991 (C)		27,000	1,400	110,000	140,000
1992 (C)		35,000	1,900	140,000	180,000
1993 (AN)		55,000	3,300	230,000	290,000
1994 (C)		31,000	1,900	120,000	150,000
1995 (W)		73,000	5,300	310,000	390,000
1996 (W)		48,000	3,900	200,000	250,000
1997 (W)		43,000	3,900	190,000	240,000
1998 (W)		74,000	7,500	330,000	410,000
1999 (W)		30,000	3,600	150,000	180,000
2000 (AN)		36,000	4,300	180,000	220,000
2001 (D)		30,000	3,200	130,000	160,000
2002 (D)		29,000	3,000	140,000	170,000
2003 (AN)		43,000	4,400	200,000	250,000
2004 (BN)		39,000	3,800	180,000	220,000
2005 (AN)		45,000	4,100	200,000	250,000
2006 (W)		49,000	4,700	240,000	290,000
2007 (D)		22,000	2,100	110,000	130,000
2008 (C)		24,000	2,400	120,000	150,000
2009 (D)		26,000	2,500	130,000	160,000
2010 (BN)		38,000	3,700	180,000	220,000
2011 (W)		38,000	3,600	190,000	230,000
2012 (BN)		26,000	2,600	130,000	160,000
2013 (D)		26,000	2,400	130,000	160,000
2014 (C)		20,000	1,700	99,000	120,000
2015 (C)		32,000	2,800	150,000	180,000
2016 (BN)		40,000	3,500	190,000	230,000
2017 (W)		51,000	4,300	250,000	310,000
2018 (BN)		24,000	2,000	120,000	150,000
Average (1990-2018)		37,000	3,300	170,000	210,000
1990-2018	W	51,000	4,600	230,000	290,000
	AN	45,000	4,000	200,000	250,000
	BN	33,000	3,100	160,000	200,000
	D	26,000	2,600	130,000	160,000
	C	28,000	1,900	120,000	150,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

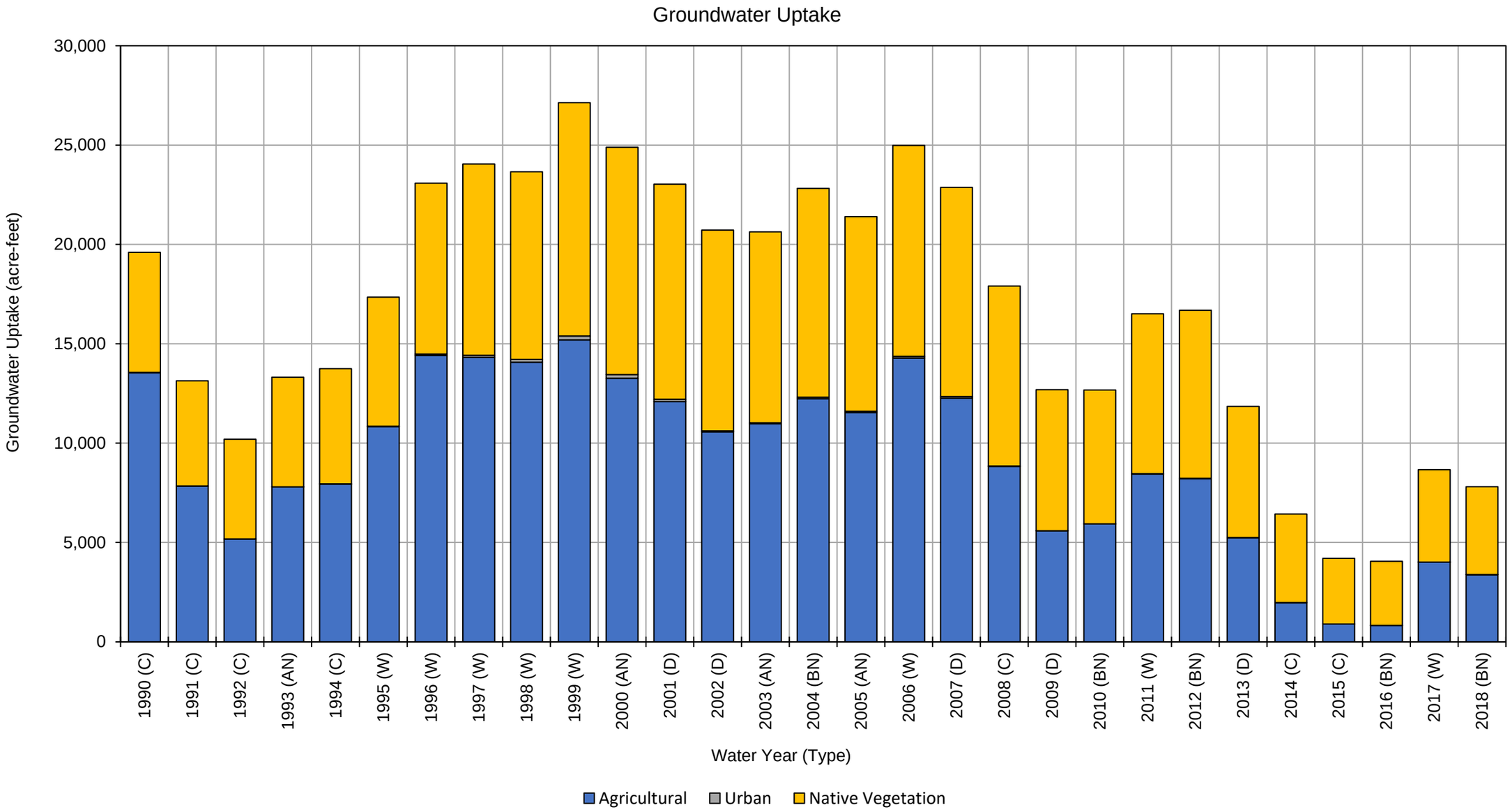

Groundwater Extraction
Groundwater Extraction (acre-feet)
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Los Molinos Subbasin Historical Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		18,000	450	0	18,000
1991 (C)		21,000	480	0	21,000
1992 (C)		24,000	510	0	25,000
1993 (AN)		16,000	530	0	17,000
1994 (C)		21,000	550	0	22,000
1995 (W)		12,000	600	0	13,000
1996 (W)		13,000	640	0	14,000
1997 (W)		13,000	670	0	14,000
1998 (W)		7,300	710	0	8,000
1999 (W)		8,600	740	0	9,300
2000 (AN)		8,400	740	0	9,100
2001 (D)		13,000	740	0	14,000
2002 (D)		15,000	760	0	16,000
2003 (AN)		9,200	780	0	10,000
2004 (BN)		12,000	800	0	13,000
2005 (AN)		7,800	810	0	8,600
2006 (W)		8,100	820	0	8,900
2007 (D)		12,000	820	0	13,000
2008 (C)		17,000	840	0	18,000
2009 (D)		15,000	830	0	16,000
2010 (BN)		12,000	840	0	13,000
2011 (W)		8,700	840	0	9,500
2012 (BN)		14,000	840	0	15,000
2013 (D)		20,000	830	0	21,000
2014 (C)		27,000	820	0	28,000
2015 (C)		34,000	700	0	35,000
2016 (BN)		23,000	740	0	24,000
2017 (W)		16,000	770	0	17,000
2018 (BN)		23,000	830	0	24,000
Average (1990-2018)		16,000	730	0	17,000
1990-2018	W	11,000	720	0	12,000
	AN	10,000	720	0	11,000
	BN	17,000	810	0	18,000
	D	15,000	800	0	16,000
	C	23,000	620	0	24,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

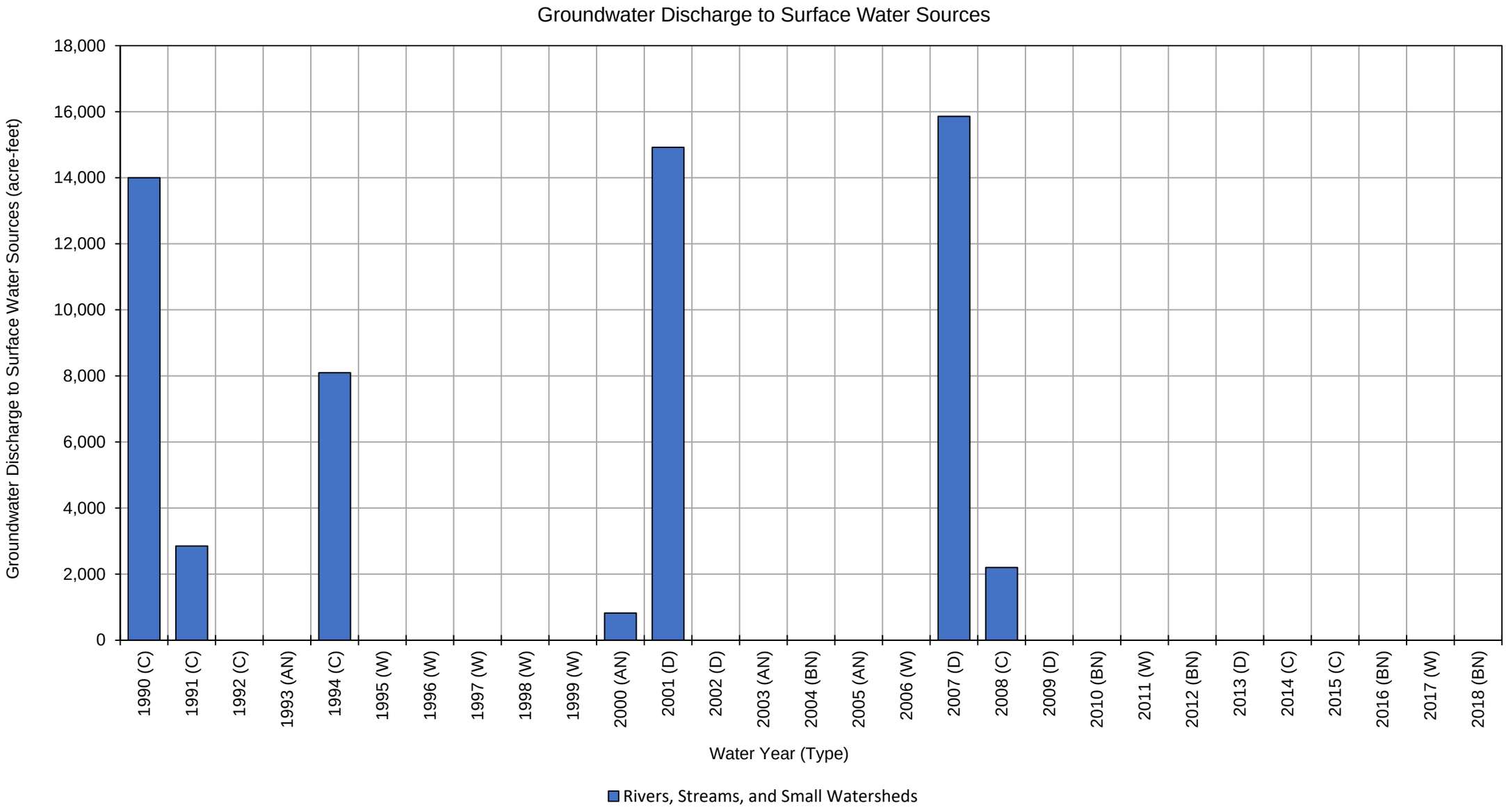

Groundwater Uptake
Groundwater Uptake (acre-feet)
30,000
25,000
20,000
15,000
10,000
5,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Los Molinos Subbasin Historical Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		14,000	14	6,000	20,000
1991 (C)		7,800	9	5,300	13,000
1992 (C)		5,200	9	5,000	10,000
1993 (AN)		7,800	8	5,500	13,000
1994 (C)		7,900	9	5,800	14,000
1995 (W)		11,000	18	6,500	18,000
1996 (W)		14,000	65	8,600	23,000
1997 (W)		14,000	100	9,600	24,000
1998 (W)		14,000	140	9,400	24,000
1999 (W)		15,000	200	12,000	27,000
2000 (AN)		13,000	180	11,000	24,000
2001 (D)		12,000	110	11,000	23,000
2002 (D)		11,000	48	10,000	21,000
2003 (AN)		11,000	51	9,600	21,000
2004 (BN)		12,000	68	11,000	23,000
2005 (AN)		12,000	63	9,800	22,000
2006 (W)		14,000	90	11,000	25,000
2007 (D)		12,000	76	11,000	23,000
2008 (C)		8,800	23	9,100	18,000
2009 (D)		5,600	5	7,100	13,000
2010 (BN)		5,900	7	6,700	13,000
2011 (W)		8,400	19	8,100	17,000
2012 (BN)		8,200	20	8,500	17,000
2013 (D)		5,200	6	6,600	12,000
2014 (C)		2,000	3	4,500	6,500
2015 (C)		890	3	3,300	4,200
2016 (BN)		820	2	3,200	4,000
2017 (W)		4,000	4	4,700	8,700
2018 (BN)		3,400	4	4,400	7,800
Average (1990-2018)		9,000	47	7,700	17,000
1990-2018	W	12,000	80	8,700	21,000
	AN	11,000	76	9,100	20,000
	BN	6,100	20	6,700	13,000
	D	9,200	50	9,000	18,000
	C	6,600	10	5,600	12,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

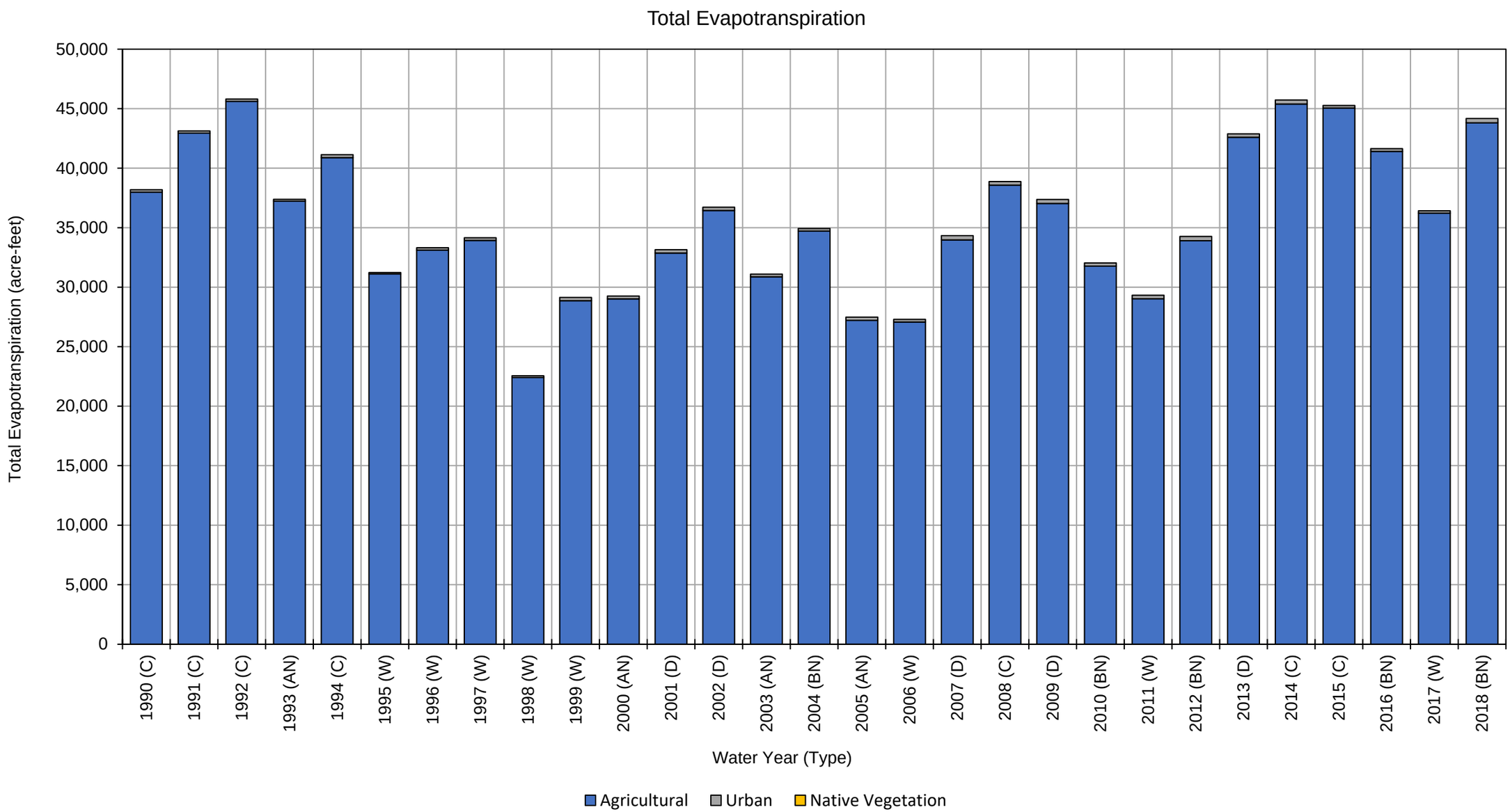

Groundwater Discharge to Surface Water Sources
Groundwater Discharge to Surface Water Sources (acre-feet)
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Rivers, Streams, and Small Watersheds

Los Molinos Subbasin Historical Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

WY (Type)		Rivers, Streams, and Small Watersheds
1990 (C)		14,000
1991 (C)		2,800
1992 (C)		0
1993 (AN)		0
1994 (C)		8,100
1995 (W)		0
1996 (W)		0
1997 (W)		0
1998 (W)		0
1999 (W)		0
2000 (AN)		820
2001 (D)		15,000
2002 (D)		0
2003 (AN)		0
2004 (BN)		0
2005 (AN)		0
2006 (W)		0
2007 (D)		16,000
2008 (C)		2,200
2009 (D)		0
2010 (BN)		0
2011 (W)		0
2012 (BN)		0
2013 (D)		0
2014 (C)		0
2015 (C)		0
2016 (BN)		0
2017 (W)		0
2018 (BN)		0
Average (1990-2018)		2,000
1990-2018	W	0
	AN	200
	BN	0
	D	6,200
	C	3,900

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

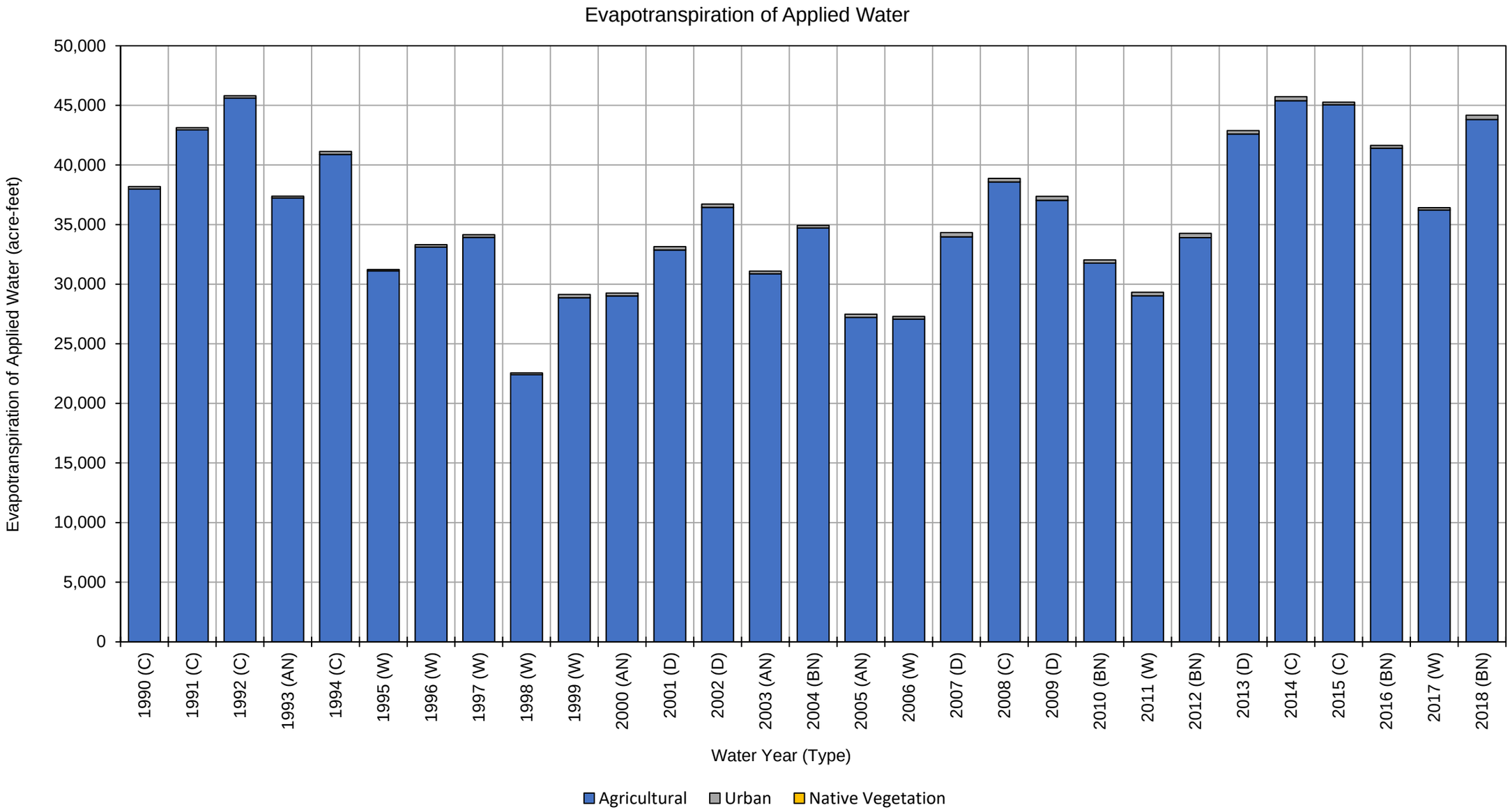

Total Evapotranspiration
Total Evapotranspiration (acre-feet)
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Los Molinos Subbasin Historical Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		70,000	800	100,000	170,000
1991 (C)		68,000	740	84,000	150,000
1992 (C)		71,000	950	100,000	170,000
1993 (AN)		68,000	1,100	120,000	190,000
1994 (C)		70,000	1,100	110,000	180,000
1995 (W)		60,000	1,200	110,000	170,000
1996 (W)		65,000	1,400	110,000	180,000
1997 (W)		65,000	1,500	110,000	180,000
1998 (W)		53,000	1,700	120,000	170,000
1999 (W)		58,000	1,700	110,000	170,000
2000 (AN)		56,000	1,700	110,000	170,000
2001 (D)		60,000	1,500	110,000	170,000
2002 (D)		61,000	1,300	100,000	160,000
2003 (AN)		57,000	1,500	110,000	170,000
2004 (BN)		60,000	1,200	99,000	160,000
2005 (AN)		56,000	1,600	130,000	190,000
2006 (W)		56,000	1,500	120,000	180,000
2007 (D)		58,000	1,300	97,000	160,000
2008 (C)		59,000	1,200	91,000	150,000
2009 (D)		58,000	1,400	100,000	160,000
2010 (BN)		55,000	1,400	110,000	170,000
2011 (W)		53,000	1,600	120,000	170,000
2012 (BN)		58,000	1,500	110,000	170,000
2013 (D)		61,000	1,100	91,000	150,000
2014 (C)		61,000	1,100	84,000	150,000
2015 (C)		61,000	1,100	94,000	160,000
2016 (BN)		62,000	1,300	110,000	170,000
2017 (W)		61,000	1,300	110,000	170,000
2018 (BN)		64,000	1,300	100,000	170,000
Average (1990-2018)		61,000	1,300	110,000	170,000
1990-2018	W	59,000	1,500	110,000	170,000
	AN	59,000	1,500	120,000	180,000
	BN	60,000	1,300	110,000	170,000
	D	60,000	1,300	100,000	160,000
	C	66,000	980	95,000	160,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

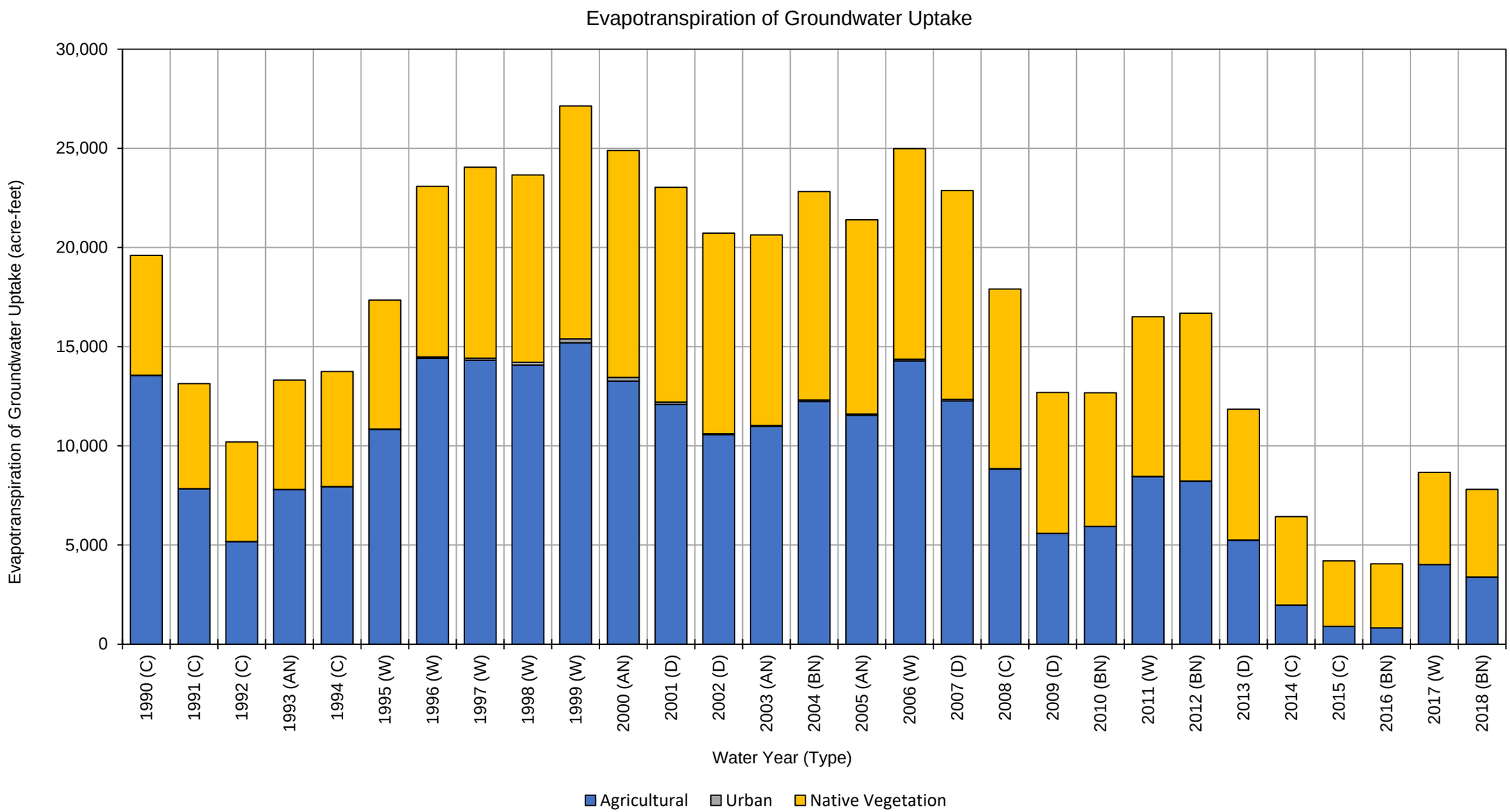

Evapotranspiration of Applied Water
Evapotranspiration of Applied Water (acre-feet)
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Los Molinos Subbasin Historical Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		38,000	210	0	38,000
1991 (C)		43,000	190	0	43,000
1992 (C)		46,000	200	0	46,000
1993 (AN)		37,000	160	0	37,000
1994 (C)		41,000	250	0	41,000
1995 (W)		31,000	120	0	31,000
1996 (W)		33,000	190	0	33,000
1997 (W)		34,000	220	0	34,000
1998 (W)		22,000	140	0	22,000
1999 (W)		29,000	270	0	29,000
2000 (AN)		29,000	240	0	29,000
2001 (D)		33,000	280	0	33,000
2002 (D)		36,000	270	0	36,000
2003 (AN)		31,000	220	0	31,000
2004 (BN)		35,000	210	0	35,000
2005 (AN)		27,000	270	0	27,000
2006 (W)		27,000	220	0	27,000
2007 (D)		34,000	360	0	34,000
2008 (C)		39,000	300	0	39,000
2009 (D)		37,000	340	0	37,000
2010 (BN)		32,000	260	0	32,000
2011 (W)		29,000	300	0	29,000
2012 (BN)		34,000	360	0	34,000
2013 (D)		43,000	280	0	43,000
2014 (C)		45,000	350	0	45,000
2015 (C)		45,000	210	0	45,000
2016 (BN)		41,000	230	0	41,000
2017 (W)		36,000	200	0	36,000
2018 (BN)		44,000	360	0	44,000
Average (1990-2018)		36,000	250	0	36,000
1990-2018	W	30,000	210	0	30,000
	AN	31,000	220	0	31,000
	BN	37,000	290	0	37,000
	D	37,000	300	0	37,000
	C	42,000	240	0	42,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

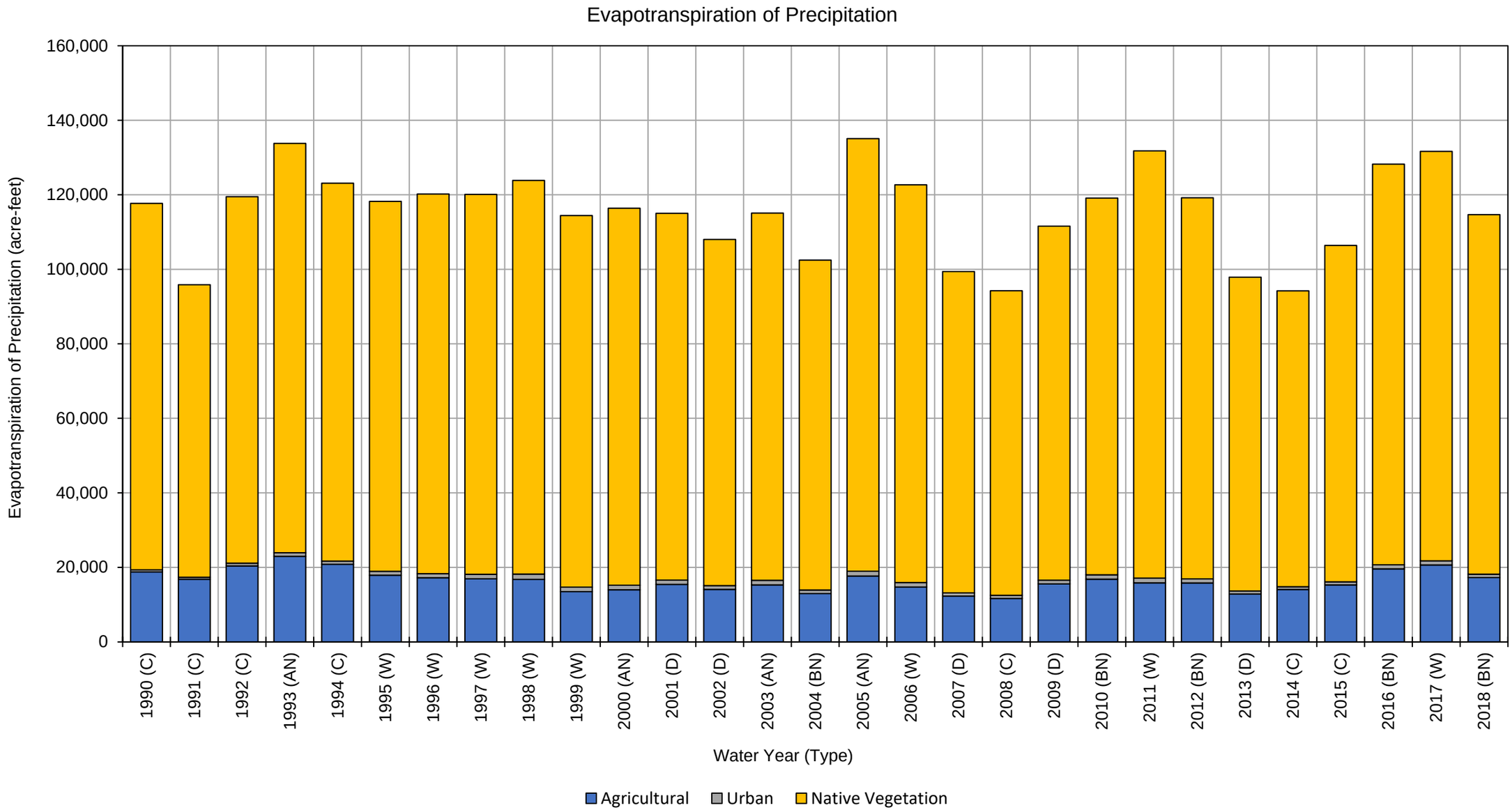

Evapotranspiration of Groundwater Uptake
Evapotranspiration of Groundwater Uptake (acre-feet)
30,000
25,000
20,000
15,000
10,000
5,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Los Molinos Subbasin Historical Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		14,000	14	6,000	20,000
1991 (C)		7,800	9	5,300	13,000
1992 (C)		5,200	9	5,000	10,000
1993 (AN)		7,800	8	5,500	13,000
1994 (C)		7,900	9	5,800	14,000
1995 (W)		11,000	18	6,500	18,000
1996 (W)		14,000	65	8,600	23,000
1997 (W)		14,000	100	9,600	24,000
1998 (W)		14,000	140	9,400	24,000
1999 (W)		15,000	200	12,000	27,000
2000 (AN)		13,000	180	11,000	24,000
2001 (D)		12,000	110	11,000	23,000
2002 (D)		11,000	48	10,000	21,000
2003 (AN)		11,000	51	9,600	21,000
2004 (BN)		12,000	68	11,000	23,000
2005 (AN)		12,000	63	9,800	22,000
2006 (W)		14,000	90	11,000	25,000
2007 (D)		12,000	76	11,000	23,000
2008 (C)		8,800	23	9,100	18,000
2009 (D)		5,600	5	7,100	13,000
2010 (BN)		5,900	7	6,700	13,000
2011 (W)		8,400	19	8,100	17,000
2012 (BN)		8,200	20	8,500	17,000
2013 (D)		5,200	6	6,600	12,000
2014 (C)		2,000	3	4,500	6,500
2015 (C)		890	3	3,300	4,200
2016 (BN)		820	2	3,200	4,000
2017 (W)		4,000	4	4,700	8,700
2018 (BN)		3,400	4	4,400	7,800
Average (1990-2018)		9,000	47	7,700	17,000
1990-2018	W	12,000	80	8,700	21,000
	AN	11,000	76	9,100	20,000
	BN	6,100	20	6,700	13,000
	D	9,200	50	9,000	18,000
	C	6,600	10	5,600	12,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

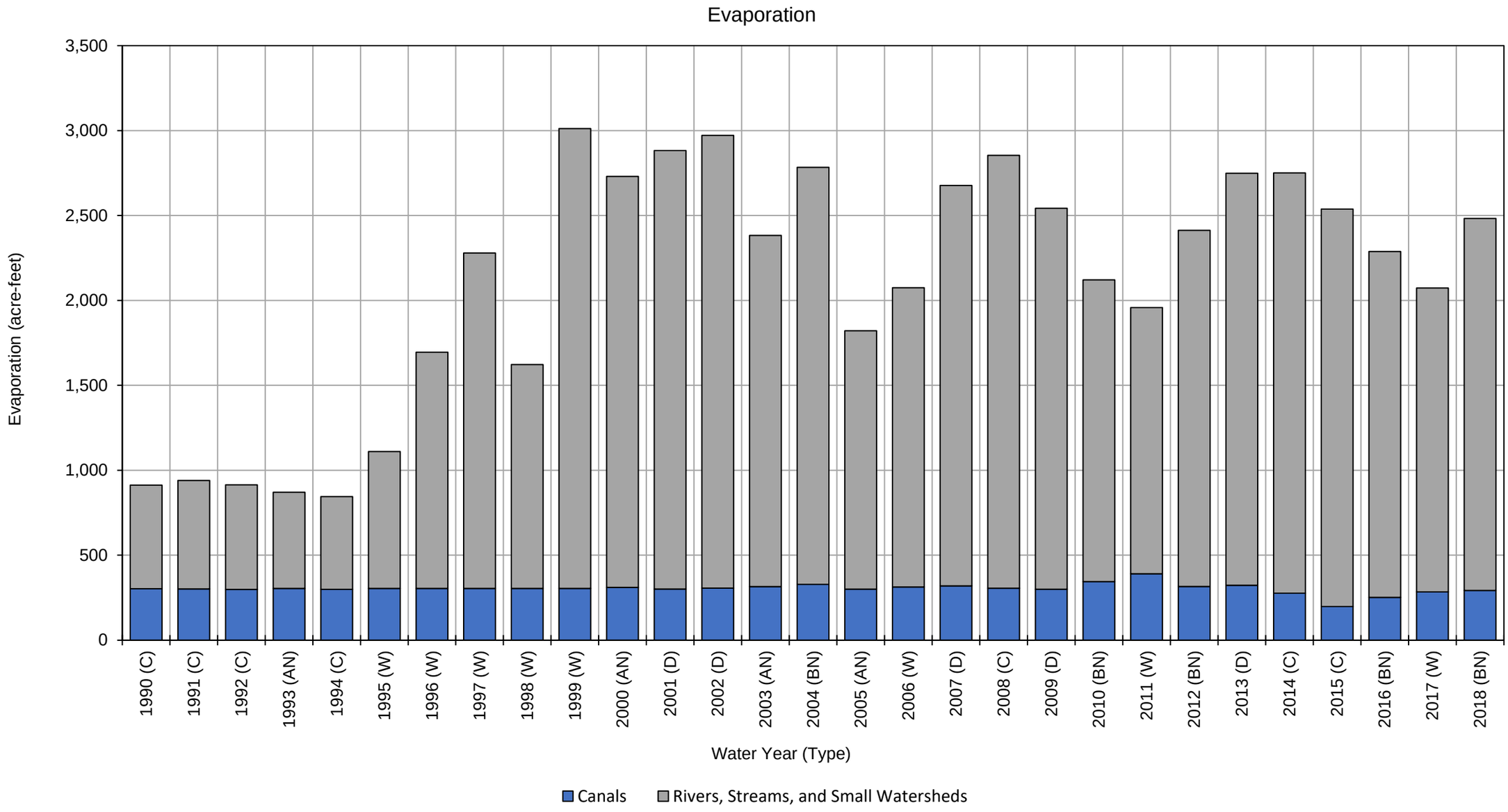

Evapotranspiration of Precipitation
Evapotranspiration of Precipitation (acre-feet)
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Los Molinos Subbasin Historical Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		19,000	570	98,000	120,000
1991 (C)		17,000	540	79,000	97,000
1992 (C)		20,000	740	98,000	120,000
1993 (AN)		23,000	950	110,000	130,000
1994 (C)		21,000	860	100,000	120,000
1995 (W)		18,000	1,000	99,000	120,000
1996 (W)		17,000	1,100	100,000	120,000
1997 (W)		17,000	1,200	100,000	120,000
1998 (W)		17,000	1,400	110,000	130,000
1999 (W)		13,000	1,200	100,000	110,000
2000 (AN)		14,000	1,300	100,000	120,000
2001 (D)		15,000	1,100	98,000	110,000
2002 (D)		14,000	1,000	93,000	110,000
2003 (AN)		15,000	1,200	99,000	120,000
2004 (BN)		13,000	960	89,000	100,000
2005 (AN)		18,000	1,300	120,000	140,000
2006 (W)		15,000	1,200	110,000	130,000
2007 (D)		12,000	890	86,000	99,000
2008 (C)		12,000	840	82,000	95,000
2009 (D)		16,000	1,000	95,000	110,000
2010 (BN)		17,000	1,200	100,000	120,000
2011 (W)		16,000	1,300	110,000	130,000
2012 (BN)		16,000	1,100	100,000	120,000
2013 (D)		13,000	810	84,000	98,000
2014 (C)		14,000	730	79,000	94,000
2015 (C)		15,000	840	90,000	110,000
2016 (BN)		20,000	1,100	110,000	130,000
2017 (W)		21,000	1,100	110,000	130,000
2018 (BN)		17,000	890	97,000	110,000
Average (1990-2018)		16,000	1,000	98,000	120,000
1990-2018	W	17,000	1,200	110,000	130,000
	AN	17,000	1,200	110,000	130,000
	BN	16,000	1,000	99,000	120,000
	D	14,000	970	91,000	110,000
	C	17,000	730	90,000	110,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

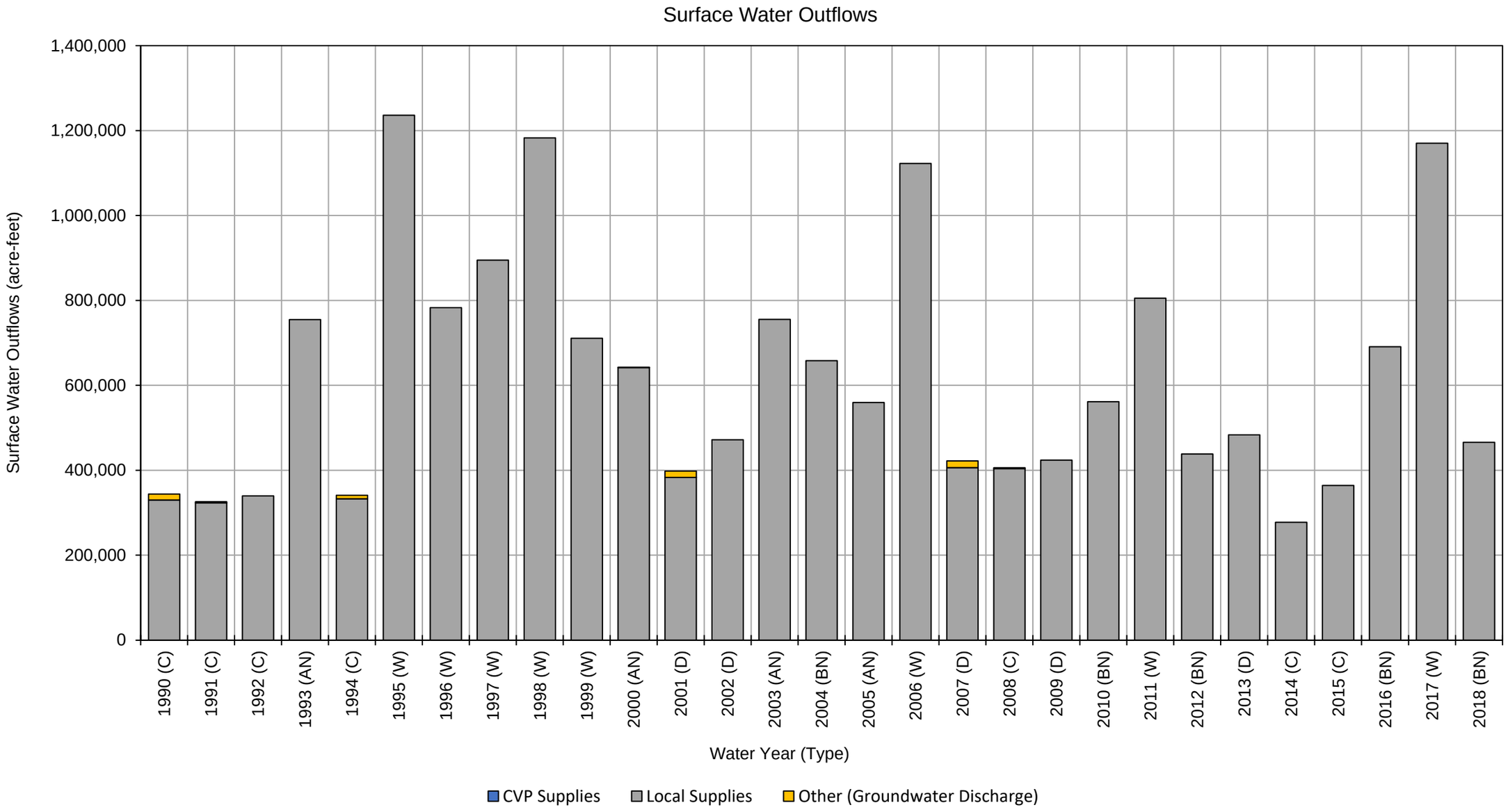

Evaporation
Evaporation (acre-feet)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Canals
Rivers, Streams, and Small Watersheds

Los Molinos Subbasin Historical Evaporation (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Watersheds	Total
1990 (C)		300	610	910
1991 (C)		300	640	940
1992 (C)		300	620	920
1993 (AN)		300	570	870
1994 (C)		300	550	850
1995 (W)		300	810	1,100
1996 (W)		300	1,400	1,700
1997 (W)		300	2,000	2,300
1998 (W)		300	1,300	1,600
1999 (W)		300	2,700	3,000
2000 (AN)		310	2,400	2,700
2001 (D)		300	2,600	2,900
2002 (D)		310	2,700	3,000
2003 (AN)		320	2,100	2,400
2004 (BN)		330	2,500	2,800
2005 (AN)		300	1,500	1,800
2006 (W)		310	1,800	2,100
2007 (D)		320	2,400	2,700
2008 (C)		310	2,500	2,800
2009 (D)		300	2,200	2,500
2010 (BN)		340	1,800	2,100
2011 (W)		390	1,600	2,000
2012 (BN)		320	2,100	2,400
2013 (D)		320	2,400	2,700
2014 (C)		280	2,500	2,800
2015 (C)		200	2,300	2,500
2016 (BN)		250	2,000	2,300
2017 (W)		280	1,800	2,100
2018 (BN)		290	2,200	2,500
Average (1990-2018)		300	1,800	2,100
1990-2018	W	310	1,700	2,000
	AN	310	1,600	1,900
	BN	310	2,100	2,400
	D	310	2,500	2,800
	C	280	1,400	1,700

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

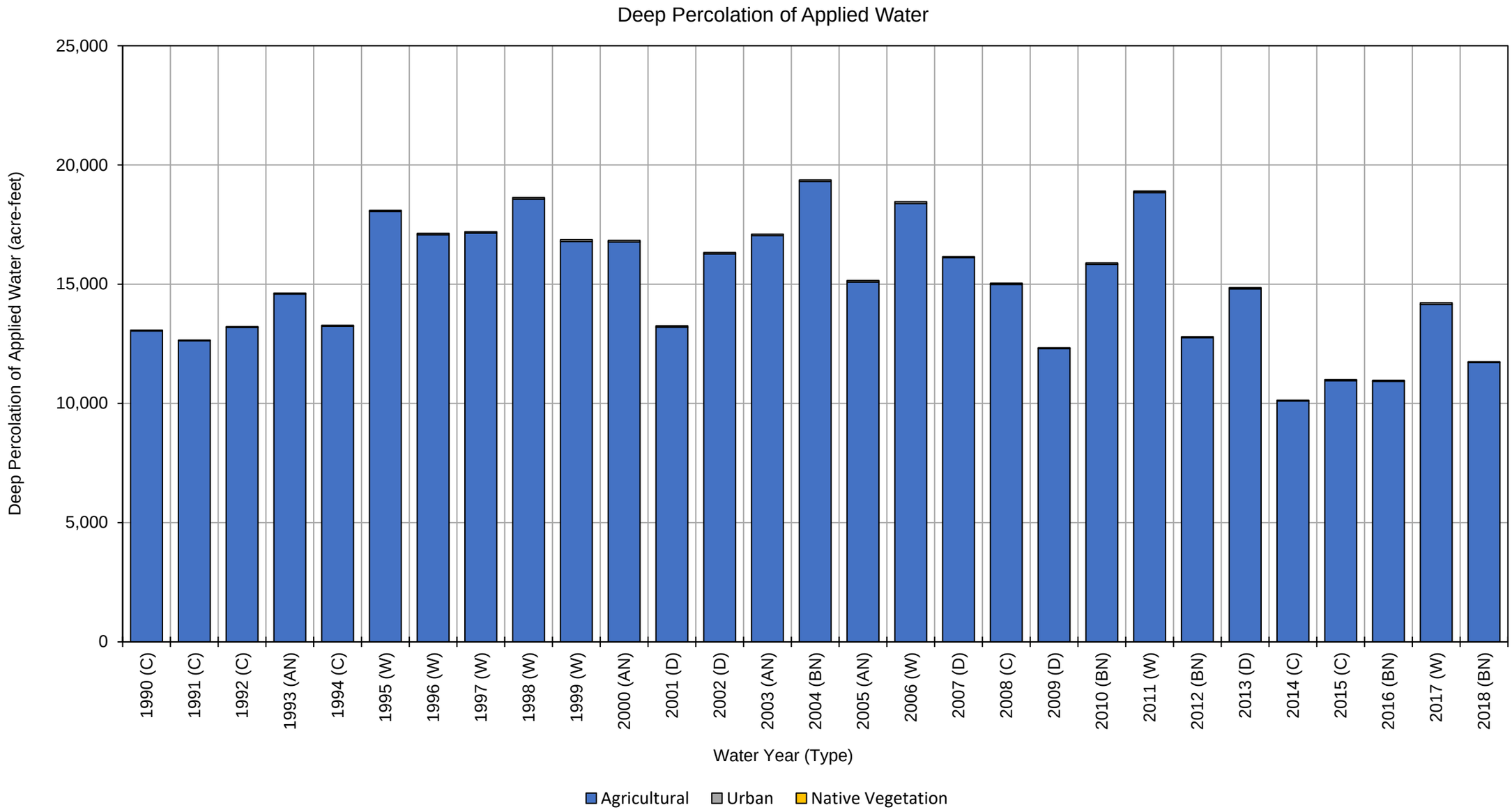

Surface Water Outflows
Surface Water Outflows (acre-feet)
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
CVP Supplies
Local Supplies
Other (Groundwater Discharge)

Los Molinos Subbasin Historical Surface Water Outflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
1990 (C)		0	330,000	14,000	340,000
1991 (C)		0	320,000	2,800	320,000
1992 (C)		0	340,000	0	340,000
1993 (AN)		0	750,000	0	750,000
1994 (C)		0	330,000	8,100	340,000
1995 (W)		0	1,200,000	0	1,200,000
1996 (W)		0	780,000	0	780,000
1997 (W)		0	890,000	0	890,000
1998 (W)		0	1,200,000	0	1,200,000
1999 (W)		0	710,000	0	710,000
2000 (AN)		0	640,000	820	640,000
2001 (D)		0	380,000	15,000	400,000
2002 (D)		0	470,000	0	470,000
2003 (AN)		0	760,000	0	760,000
2004 (BN)		0	660,000	0	660,000
2005 (AN)		0	560,000	0	560,000
2006 (W)		0	1,100,000	0	1,100,000
2007 (D)		0	410,000	16,000	430,000
2008 (C)		0	400,000	2,200	400,000
2009 (D)		0	420,000	0	420,000
2010 (BN)		0	560,000	0	560,000
2011 (W)		0	810,000	0	810,000
2012 (BN)		0	440,000	0	440,000
2013 (D)		0	480,000	0	480,000
2014 (C)		0	280,000	0	280,000
2015 (C)		0	360,000	0	360,000
2016 (BN)		0	690,000	0	690,000
2017 (W)		0	1,200,000	0	1,200,000
2018 (BN)		0	470,000	0	470,000
Average (1990-2018)		0	620,000	2,000	620,000
1990-2018	W	0	990,000	0	990,000
	AN	0	680,000	200	680,000
	BN	0	560,000	0	560,000
	D	0	430,000	6,200	440,000
	C	0	340,000	3,900	340,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

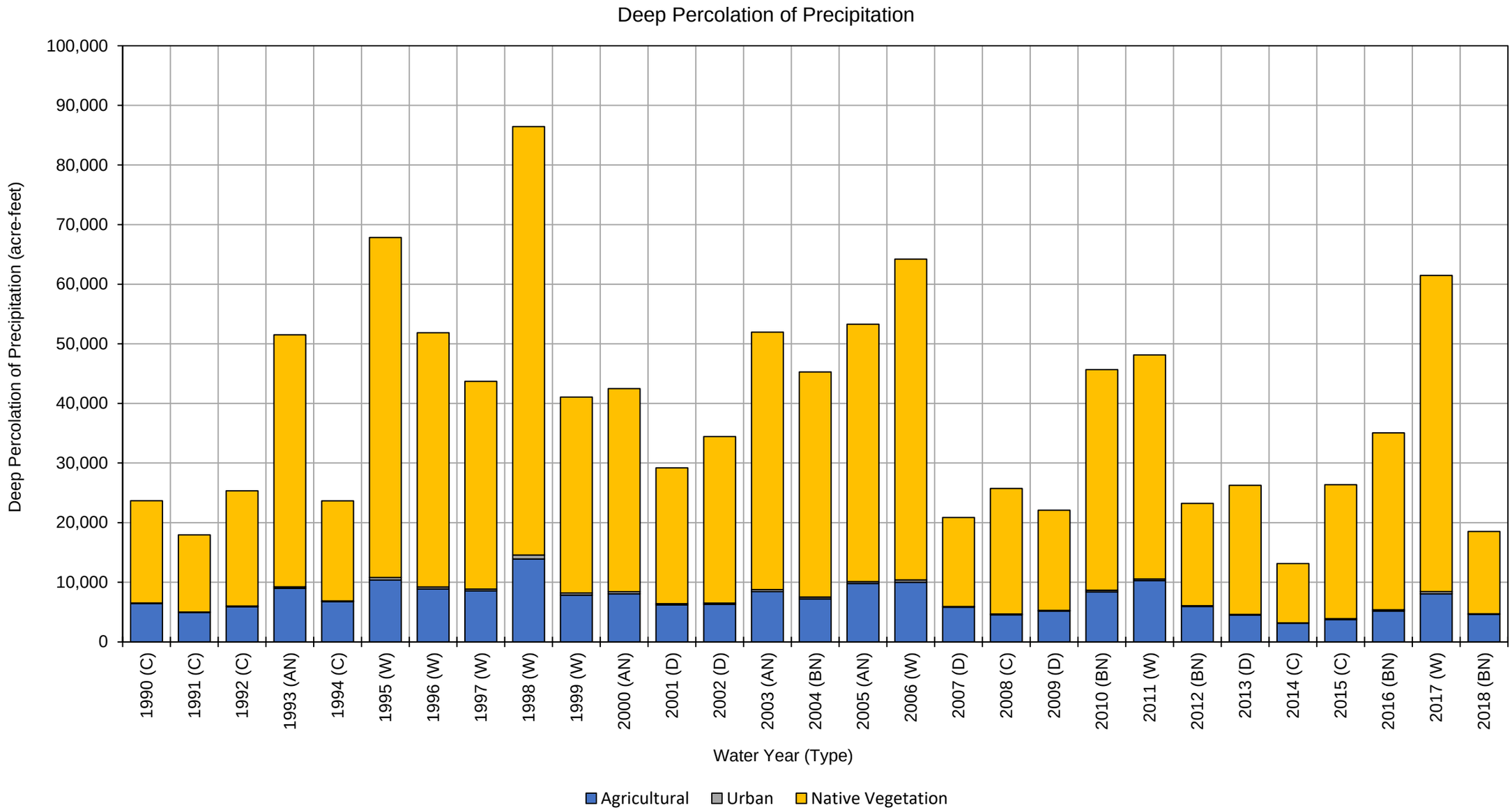

Deep Percolation of Applied Water
Deep Percolation of Applied Water (acre-feet)
25,000
20,000
15,000
10,000
5,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Los Molinos Subbasin Historical Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		13,000	34	0	13,000
1991 (C)		13,000	24	0	13,000
1992 (C)		13,000	30	0	13,000
1993 (AN)		15,000	39	0	15,000
1994 (C)		13,000	33	0	13,000
1995 (W)		18,000	48	0	18,000
1996 (W)		17,000	59	0	17,000
1997 (W)		17,000	54	0	17,000
1998 (W)		19,000	68	0	19,000
1999 (W)		17,000	82	0	17,000
2000 (AN)		17,000	68	0	17,000
2001 (D)		13,000	52	0	13,000
2002 (D)		16,000	60	0	16,000
2003 (AN)		17,000	63	0	17,000
2004 (BN)		19,000	68	0	19,000
2005 (AN)		15,000	64	0	15,000
2006 (W)		18,000	74	0	18,000
2007 (D)		16,000	43	0	16,000
2008 (C)		15,000	51	0	15,000
2009 (D)		12,000	38	0	12,000
2010 (BN)		16,000	63	0	16,000
2011 (W)		19,000	59	0	19,000
2012 (BN)		13,000	38	0	13,000
2013 (D)		15,000	53	0	15,000
2014 (C)		10,000	29	0	10,000
2015 (C)		11,000	41	0	11,000
2016 (BN)		11,000	45	0	11,000
2017 (W)		14,000	67	0	14,000
2018 (BN)		12,000	35	0	12,000
Average (1990-2018)		15,000	51	0	15,000
1990-2018	W	17,000	64	0	17,000
	AN	16,000	59	0	16,000
	BN	14,000	50	0	14,000
	D	15,000	49	0	15,000
	C	13,000	35	0	13,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



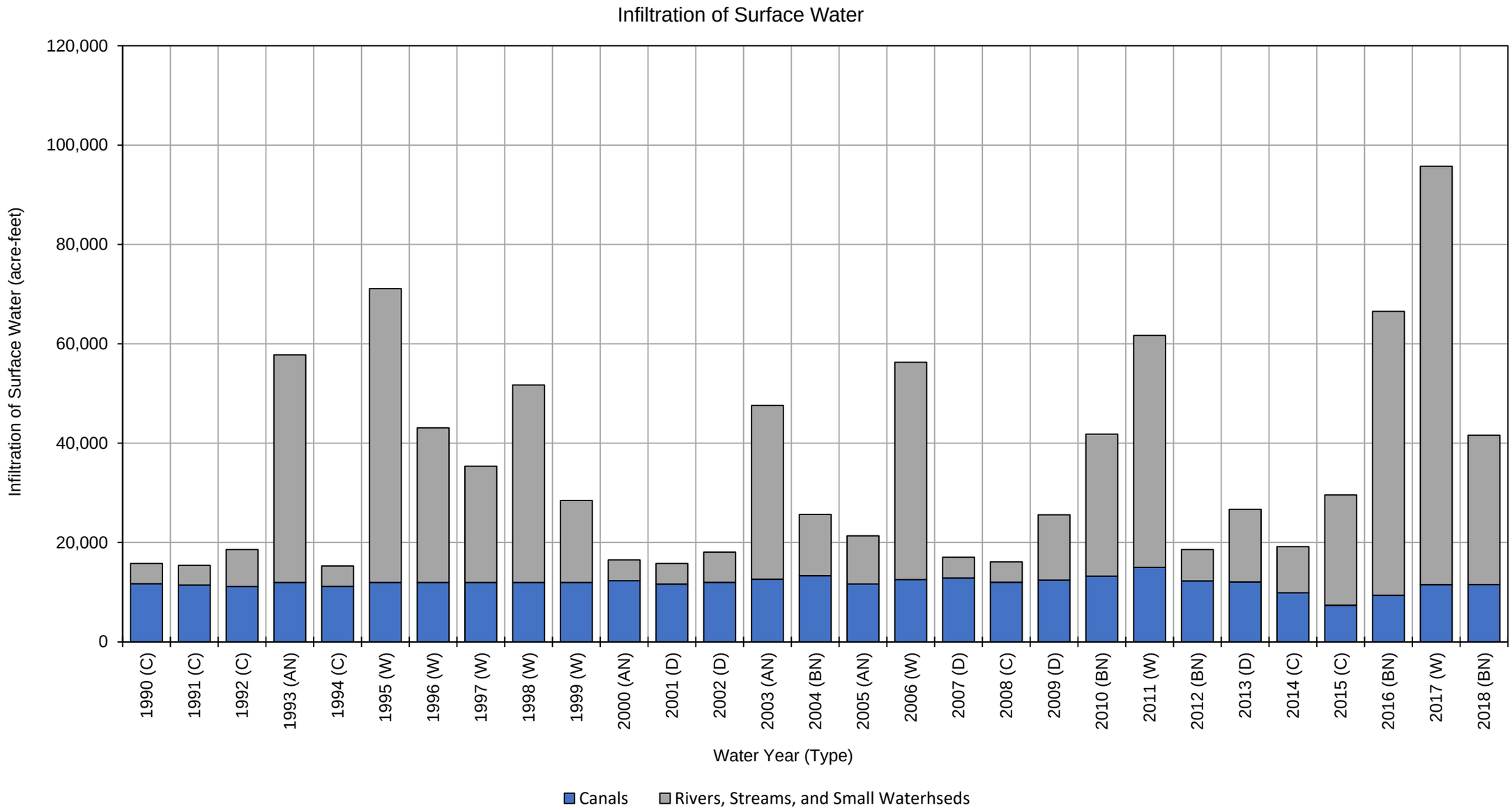
Tehama IHM - Historical

Los Molinos Subbasin Historical Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		6,400	93	17,000	23,000
1991 (C)		4,900	70	13,000	18,000
1992 (C)		5,900	110	19,000	25,000
1993 (AN)		9,000	240	42,000	51,000
1994 (C)		6,700	110	17,000	24,000
1995 (W)		10,000	420	57,000	67,000
1996 (W)		8,900	340	43,000	52,000
1997 (W)		8,600	300	35,000	44,000
1998 (W)		14,000	670	72,000	87,000
1999 (W)		7,800	350	33,000	41,000
2000 (AN)		8,100	360	34,000	42,000
2001 (D)		6,200	210	23,000	29,000
2002 (D)		6,300	230	28,000	35,000
2003 (AN)		8,400	340	43,000	52,000
2004 (BN)		7,200	310	38,000	46,000
2005 (AN)		9,800	310	43,000	53,000
2006 (W)		10,000	400	54,000	64,000
2007 (D)		5,800	110	15,000	21,000
2008 (C)		4,500	140	21,000	26,000
2009 (D)		5,200	110	17,000	22,000
2010 (BN)		8,400	280	37,000	46,000
2011 (W)		10,000	250	38,000	48,000
2012 (BN)		5,900	120	17,000	23,000
2013 (D)		4,500	150	22,000	27,000
2014 (C)		3,100	60	9,900	13,000
2015 (C)		3,700	170	22,000	26,000
2016 (BN)		5,200	210	30,000	35,000
2017 (W)		8,100	370	53,000	61,000
2018 (BN)		4,600	86	14,000	19,000
Average (1990-2018)		7,200	240	31,000	38,000
1990-2018	W	9,700	390	48,000	58,000
	AN	8,800	310	41,000	50,000
	BN	6,300	200	27,000	34,000
	D	5,600	160	21,000	27,000
	C	5,100	110	17,000	22,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

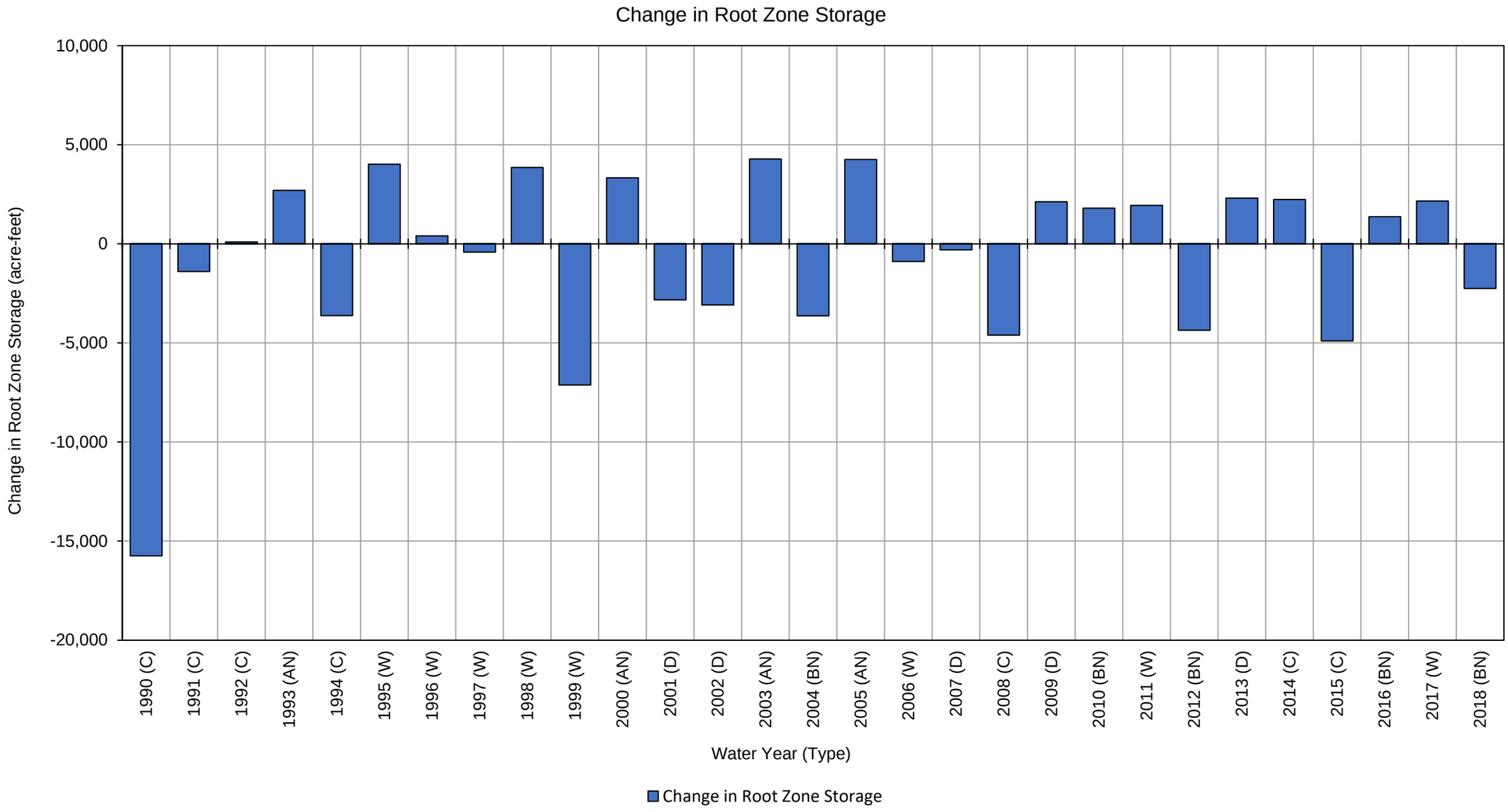

Infiltration of Surface Water
Infiltration of Surface Water (acre-feet)
120,000
100,000
80,000
60,000
40,000
20,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Canals
Rivers, Streams, and Small Waterhseds

Los Molinos Subbasin Historical Infiltration of Surface Water (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Waterhseds	Total
1990 (C)		12,000	4,100	16,000
1991 (C)		11,000	4,000	15,000
1992 (C)		11,000	7,400	18,000
1993 (AN)		12,000	46,000	58,000
1994 (C)		11,000	4,100	15,000
1995 (W)		12,000	59,000	71,000
1996 (W)		12,000	31,000	43,000
1997 (W)		12,000	23,000	35,000
1998 (W)		12,000	40,000	52,000
1999 (W)		12,000	17,000	29,000
2000 (AN)		12,000	4,200	16,000
2001 (D)		12,000	4,100	16,000
2002 (D)		12,000	6,100	18,000
2003 (AN)		13,000	35,000	48,000
2004 (BN)		13,000	12,000	25,000
2005 (AN)		12,000	9,700	22,000
2006 (W)		13,000	44,000	57,000
2007 (D)		13,000	4,200	17,000
2008 (C)		12,000	4,100	16,000
2009 (D)		12,000	13,000	25,000
2010 (BN)		13,000	29,000	42,000
2011 (W)		15,000	47,000	62,000
2012 (BN)		12,000	6,300	18,000
2013 (D)		12,000	15,000	27,000
2014 (C)		9,900	9,300	19,000
2015 (C)		7,400	22,000	29,000
2016 (BN)		9,400	57,000	66,000
2017 (W)		12,000	84,000	96,000
2018 (BN)		12,000	30,000	42,000
Average (1990-2018)		12,000	23,000	35,000
1990-2018	W	12,000	43,000	55,000
	AN	12,000	24,000	36,000
	BN	12,000	27,000	39,000
	D	12,000	8,400	20,000
	C	11,000	7,900	19,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical


Change in Root Zone Storage
Change in Root Zone Storage (acre-feet)
10,000
5,000
0
-5,000
-10,000
-15,000
-20,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Change in Root Zone Storage

Los Molinos Subbasin Historical Change in Root Zone Storage (acre-feet, rounded)

WY (Type)		Change in Root Zone Storage
1990 (C)		-16,000
1991 (C)		-1,400
1992 (C)		96
1993 (AN)		2,700
1994 (C)		-3,600
1995 (W)		4,000
1996 (W)		400
1997 (W)		-420
1998 (W)		3,900
1999 (W)		-7,100
2000 (AN)		3,300
2001 (D)		-2,800
2002 (D)		-3,100
2003 (AN)		4,300
2004 (BN)		-3,600
2005 (AN)		4,300
2006 (W)		-890
2007 (D)		-310
2008 (C)		-4,600
2009 (D)		2,100
2010 (BN)		1,800
2011 (W)		1,900
2012 (BN)		-4,400
2013 (D)		2,300
2014 (C)		2,200
2015 (C)		-4,900
2016 (BN)		1,400
2017 (W)		2,200
2018 (BN)		-2,300
Average (1990-2018)		-630
1990-2018	W	490
	AN	3,600
	BN	-1,400
	D	-360
	C	-4,000

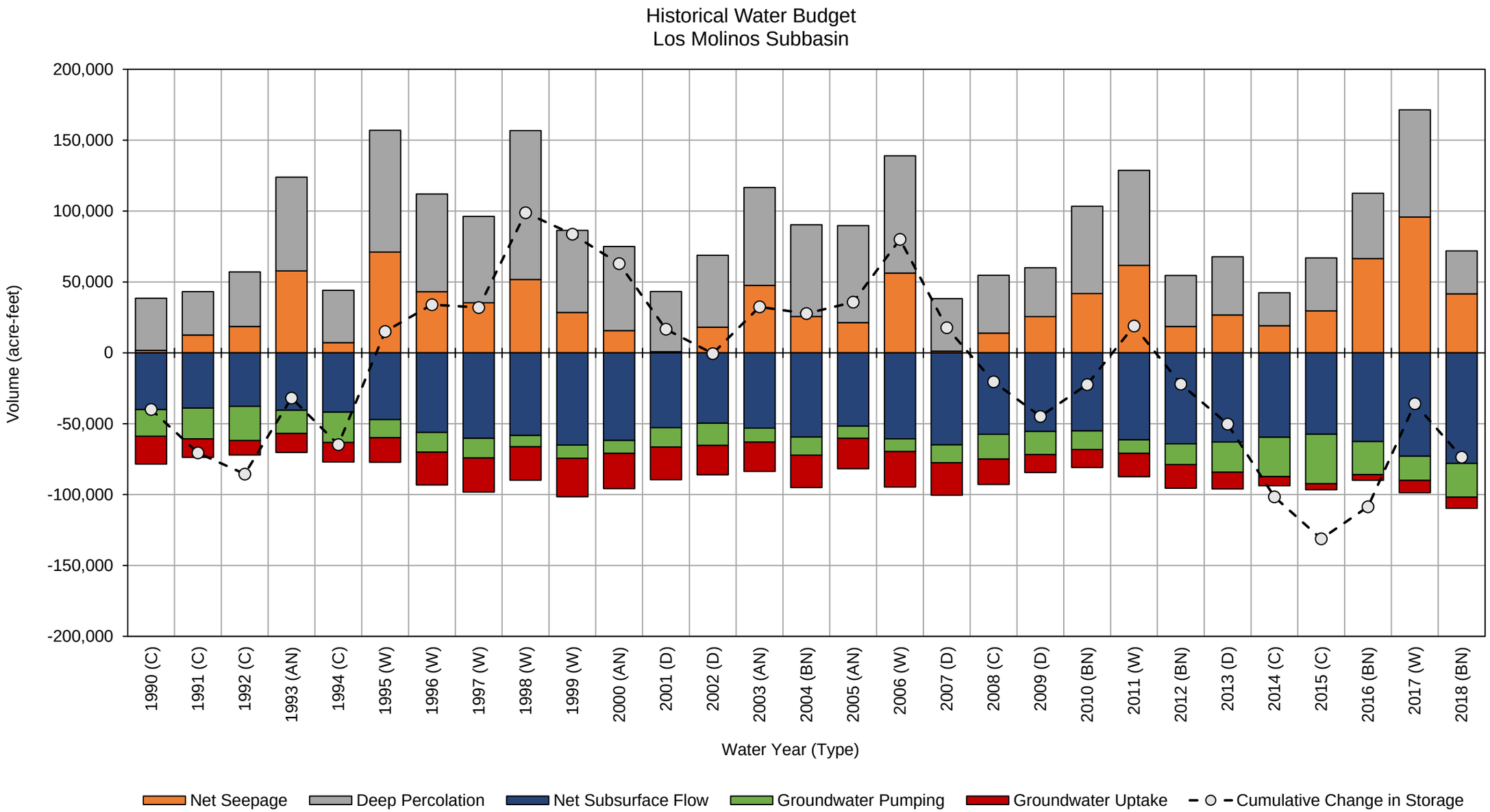
Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX C-1b

Detailed Los Molinos Subbasin Water Budget Results:

Historical Model Results – Groundwater System

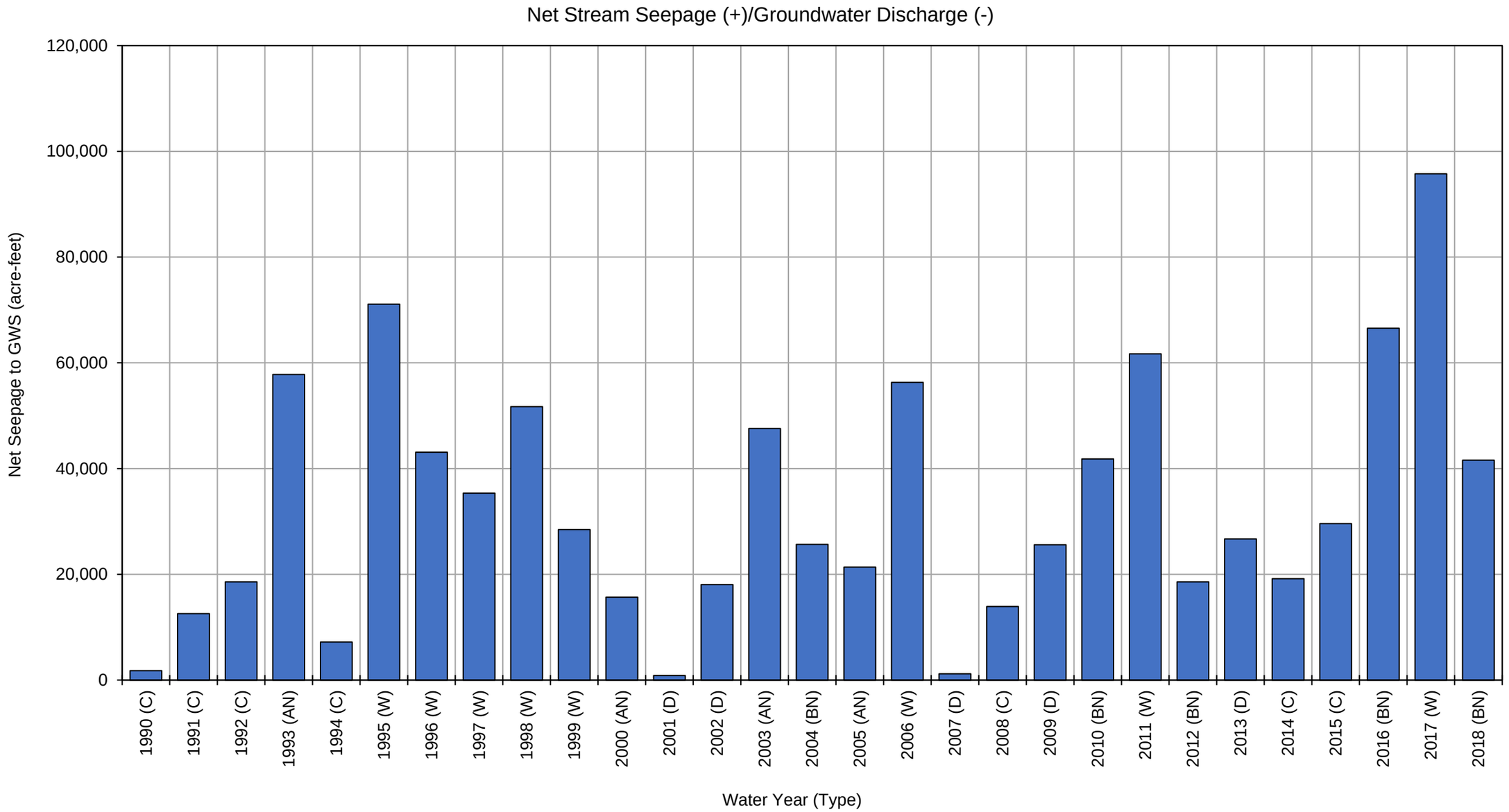

Historical Water Budget
Los Molinos Subbasin
Volume (acre-feet)
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Los Molinos Subbasin Historical Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
1990 (C)		1,800	37,000	-19,000	-20,000	-40,000	-40,000	-40,000
1991 (C)		13,000	31,000	-22,000	-13,000	-39,000	-31,000	-71,000
1992 (C)		19,000	39,000	-24,000	-10,000	-38,000	-15,000	-86,000
1993 (AN)		58,000	66,000	-16,000	-13,000	-41,000	54,000	-32,000
1994 (C)		7,200	37,000	-21,000	-14,000	-42,000	-33,000	-65,000
1995 (W)		71,000	86,000	-13,000	-17,000	-47,000	80,000	15,000
1996 (W)		43,000	69,000	-14,000	-23,000	-56,000	19,000	34,000
1997 (W)		35,000	61,000	-14,000	-24,000	-60,000	-2,000	32,000
1998 (W)		52,000	110,000	-8,000	-24,000	-58,000	67,000	99,000
1999 (W)		28,000	58,000	-9,400	-27,000	-65,000	-15,000	84,000
2000 (AN)		16,000	59,000	-9,100	-25,000	-62,000	-21,000	63,000
2001 (D)		850	42,000	-14,000	-23,000	-53,000	-46,000	17,000
2002 (D)		18,000	51,000	-16,000	-21,000	-50,000	-17,000	-530
2003 (AN)		48,000	69,000	-9,900	-21,000	-53,000	33,000	32,000
2004 (BN)		26,000	65,000	-13,000	-23,000	-59,000	-4,700	28,000
2005 (AN)		21,000	68,000	-8,600	-21,000	-52,000	8,100	36,000
2006 (W)		56,000	83,000	-9,000	-25,000	-61,000	44,000	80,000
2007 (D)		1,200	37,000	-13,000	-23,000	-65,000	-62,000	18,000
2008 (C)		14,000	41,000	-17,000	-18,000	-57,000	-38,000	-20,000
2009 (D)		26,000	34,000	-16,000	-13,000	-55,000	-24,000	-45,000
2010 (BN)		42,000	62,000	-13,000	-13,000	-55,000	22,000	-22,000
2011 (W)		62,000	67,000	-9,500	-17,000	-61,000	41,000	19,000
2012 (BN)		19,000	36,000	-15,000	-17,000	-64,000	-41,000	-22,000
2013 (D)		27,000	41,000	-21,000	-12,000	-63,000	-28,000	-50,000
2014 (C)		19,000	23,000	-28,000	-6,400	-60,000	-51,000	-100,000
2015 (C)		30,000	37,000	-35,000	-4,200	-57,000	-30,000	-130,000
2016 (BN)		67,000	46,000	-23,000	-4,100	-63,000	23,000	-110,000
2017 (W)		96,000	76,000	-17,000	-8,700	-73,000	73,000	-36,000
2018 (BN)		42,000	30,000	-24,000	-7,800	-78,000	-38,000	-74,000
Average (1990-2018)		33,000	54,000	-16,000	-17,000	-56,000	-2,500	
1990-2018	W	55,000	76,000	-12,000	-21,000	-60,000		
	AN	36,000	66,000	-11,000	-20,000	-52,000		
	BN	39,000	48,000	-18,000	-13,000	-64,000		
	D	14,000	41,000	-16,000	-18,000	-57,000		
	C	15,000	35,000	-24,000	-12,000	-48,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

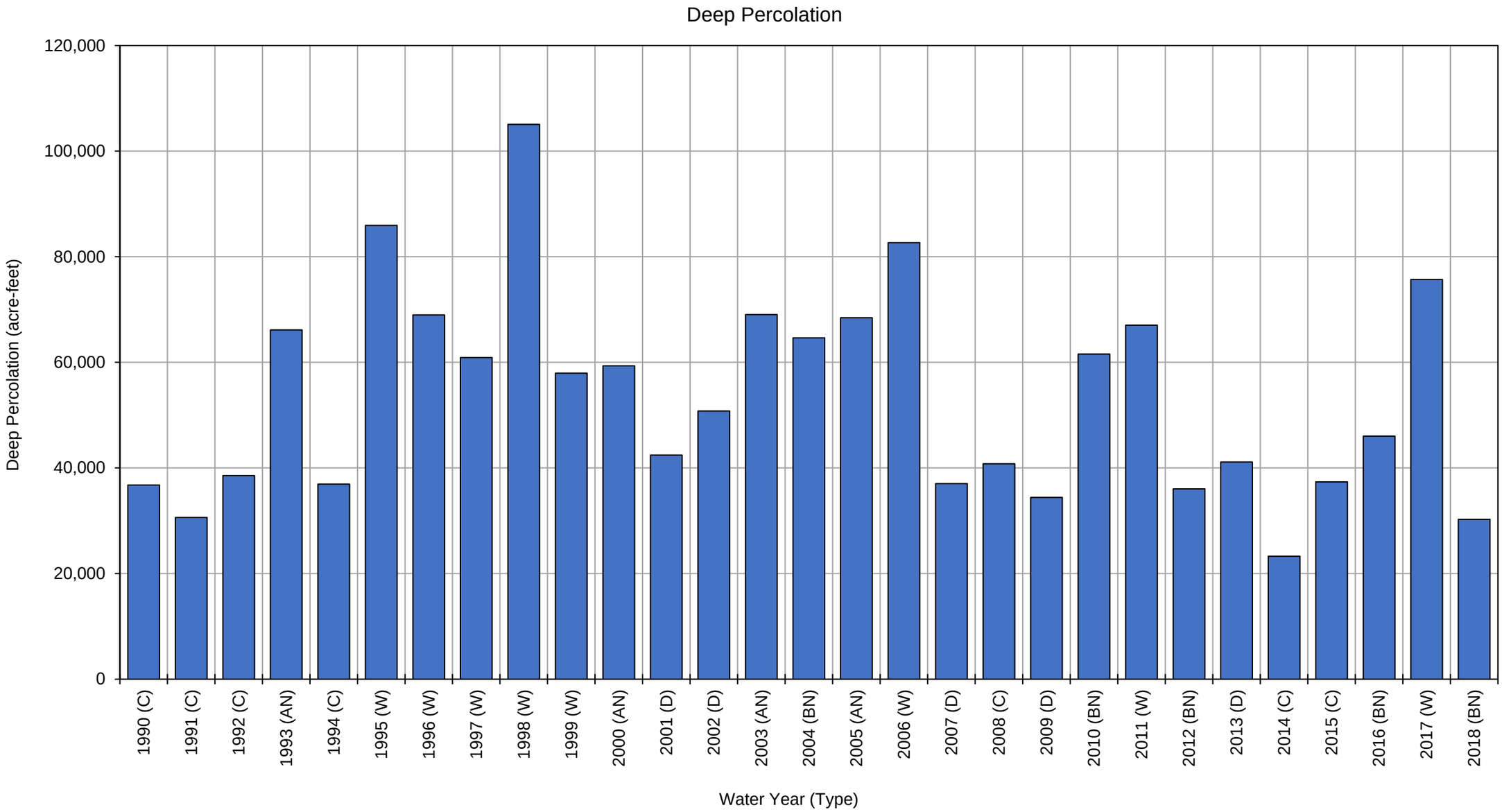

Net Stream Seepage (+)/Groundwater Discharge (-)
Net Seepage to GWS (acre-feet)
120,000
100,000
80,000
60,000
40,000
20,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)

Los Molinos Subbasin Historical Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
1990 (C)		1,800
1991 (C)		13,000
1992 (C)		19,000
1993 (AN)		58,000
1994 (C)		7,200
1995 (W)		71,000
1996 (W)		43,000
1997 (W)		35,000
1998 (W)		52,000
1999 (W)		28,000
2000 (AN)		16,000
2001 (D)		850
2002 (D)		18,000
2003 (AN)		48,000
2004 (BN)		26,000
2005 (AN)		21,000
2006 (W)		56,000
2007 (D)		1,200
2008 (C)		14,000
2009 (D)		26,000
2010 (BN)		42,000
2011 (W)		62,000
2012 (BN)		19,000
2013 (D)		27,000
2014 (C)		19,000
2015 (C)		30,000
2016 (BN)		67,000
2017 (W)		96,000
2018 (BN)		42,000
Average (1990-2018)		33,000
1990-2018	W	55,000
	AN	36,000
	BN	39,000
	D	14,000
	C	15,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

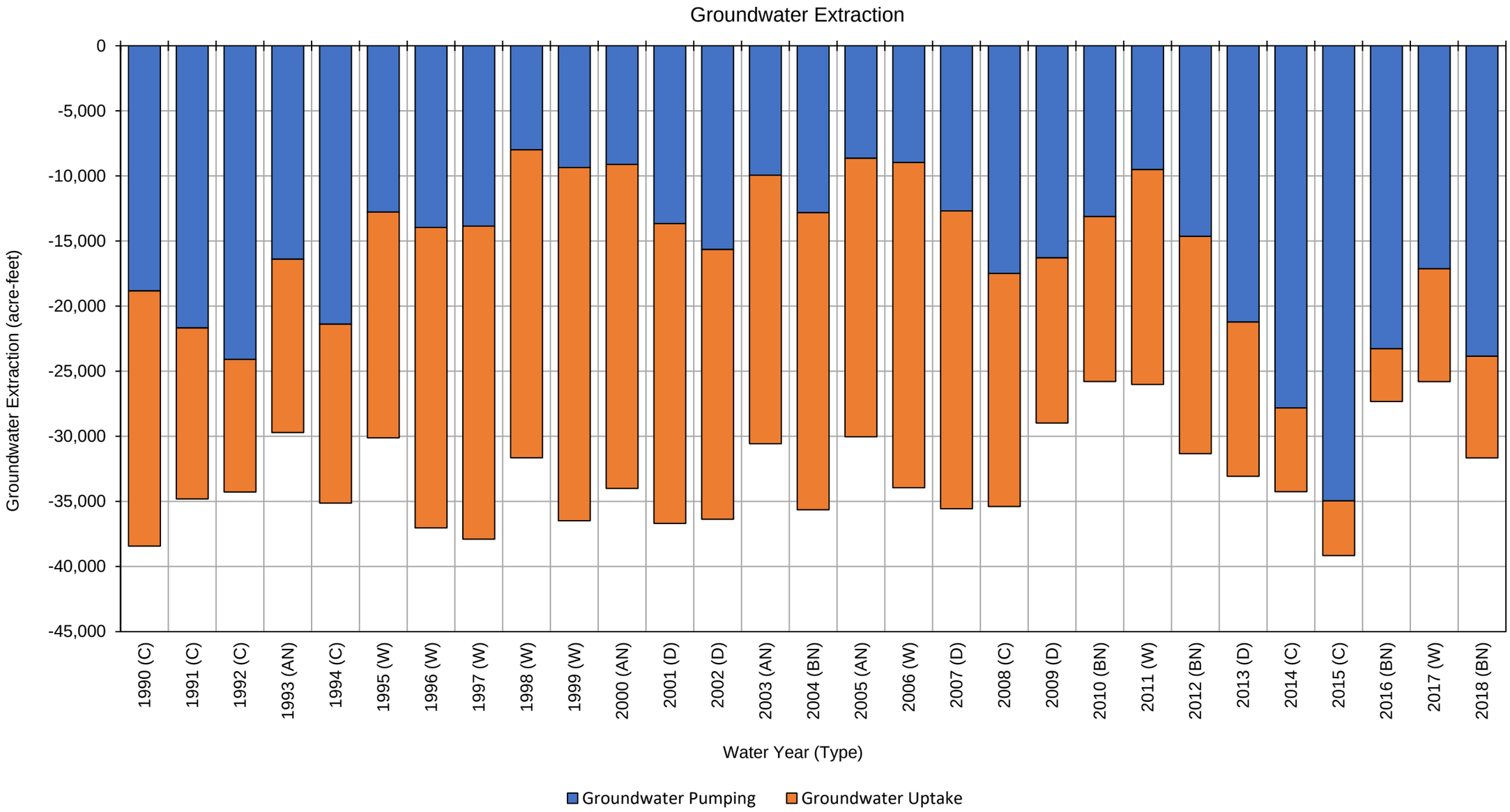

Deep Percolation
Deep Percolation (acre-feet)
120,000
100,000
80,000
60,000
40,000
20,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)

Los Molinos Subbasin Historical Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
1990 (C)		37,000
1991 (C)		31,000
1992 (C)		39,000
1993 (AN)		66,000
1994 (C)		37,000
1995 (W)		86,000
1996 (W)		69,000
1997 (W)		61,000
1998 (W)		110,000
1999 (W)		58,000
2000 (AN)		59,000
2001 (D)		42,000
2002 (D)		51,000
2003 (AN)		69,000
2004 (BN)		65,000
2005 (AN)		68,000
2006 (W)		83,000
2007 (D)		37,000
2008 (C)		41,000
2009 (D)		34,000
2010 (BN)		62,000
2011 (W)		67,000
2012 (BN)		36,000
2013 (D)		41,000
2014 (C)		23,000
2015 (C)		37,000
2016 (BN)		46,000
2017 (W)		76,000
2018 (BN)		30,000
Average (1990-2018)		54,000
1990-2018	W	76,000
	AN	66,000
	BN	48,000
	D	41,000
	C	35,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

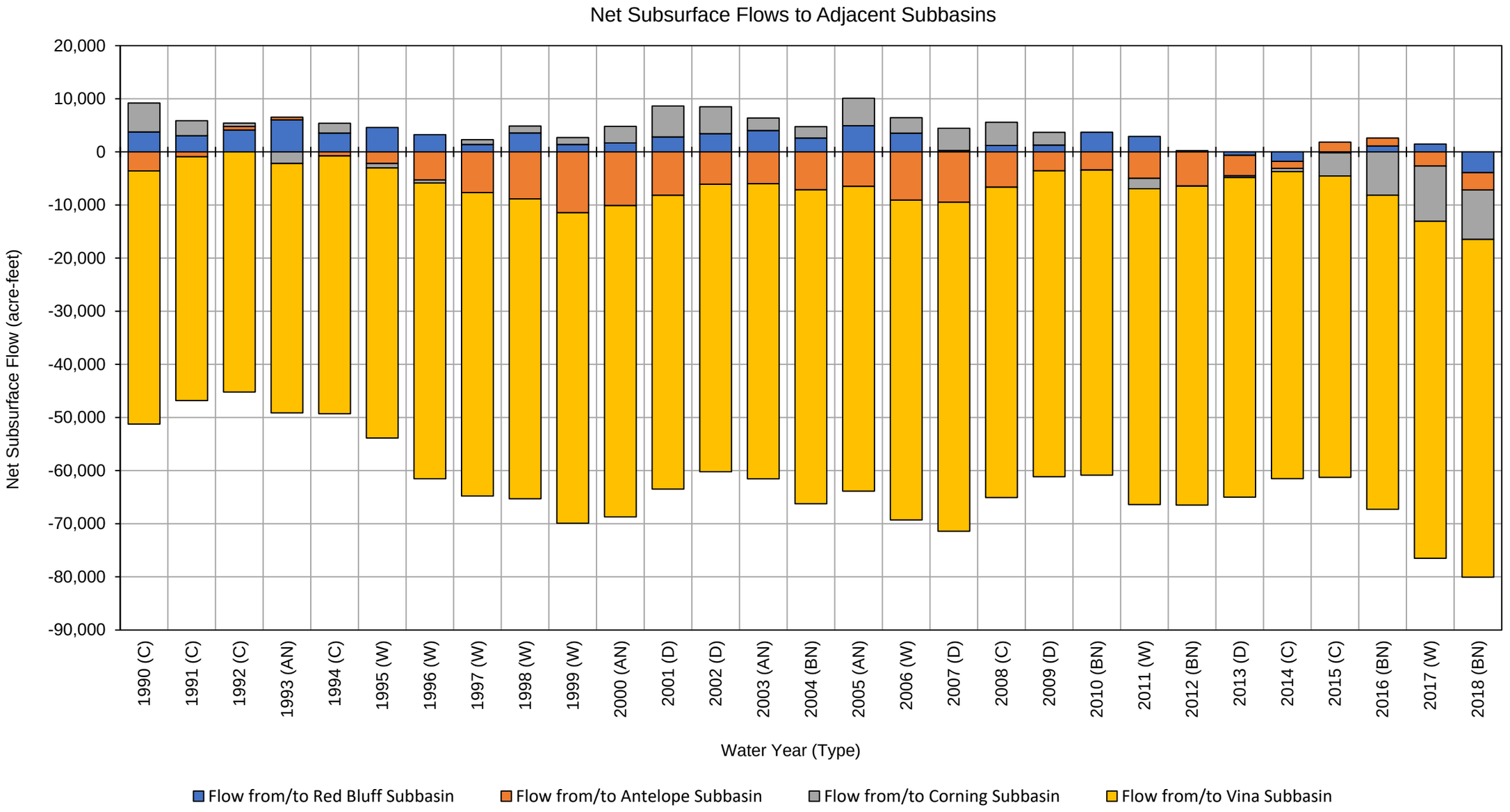

Groundwater Extraction
Groundwater Extraction (acre-feet)
0
-5,000
-10,000
-15,000
-20,000
-25,000
-30,000
-35,000
-40,000
-45,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Groundwater Pumping
Groundwater Uptake

Los Molinos Subbasin Historical Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
1990 (C)		-19,000	-20,000	-38,000
1991 (C)		-22,000	-13,000	-35,000
1992 (C)		-24,000	-10,000	-34,000
1993 (AN)		-16,000	-13,000	-30,000
1994 (C)		-21,000	-14,000	-35,000
1995 (W)		-13,000	-17,000	-30,000
1996 (W)		-14,000	-23,000	-37,000
1997 (W)		-14,000	-24,000	-38,000
1998 (W)		-8,000	-24,000	-32,000
1999 (W)		-9,400	-27,000	-36,000
2000 (AN)		-9,100	-25,000	-34,000
2001 (D)		-14,000	-23,000	-37,000
2002 (D)		-16,000	-21,000	-36,000
2003 (AN)		-9,900	-21,000	-31,000
2004 (BN)		-13,000	-23,000	-36,000
2005 (AN)		-8,600	-21,000	-30,000
2006 (W)		-9,000	-25,000	-34,000
2007 (D)		-13,000	-23,000	-36,000
2008 (C)		-17,000	-18,000	-35,000
2009 (D)		-16,000	-13,000	-29,000
2010 (BN)		-13,000	-13,000	-26,000
2011 (W)		-9,500	-17,000	-26,000
2012 (BN)		-15,000	-17,000	-31,000
2013 (D)		-21,000	-12,000	-33,000
2014 (C)		-28,000	-6,400	-34,000
2015 (C)		-35,000	-4,200	-39,000
2016 (BN)		-23,000	-4,100	-27,000
2017 (W)		-17,000	-8,700	-26,000
2018 (BN)		-24,000	-7,800	-32,000
Average (1990-2018)		-16,000	-17,000	-33,000
1990-2018	W	-12,000	-21,000	-32,000
	AN	-11,000	-20,000	-31,000
	BN	-18,000	-13,000	-30,000
	D	-16,000	-18,000	-34,000
	C	-24,000	-12,000	-36,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

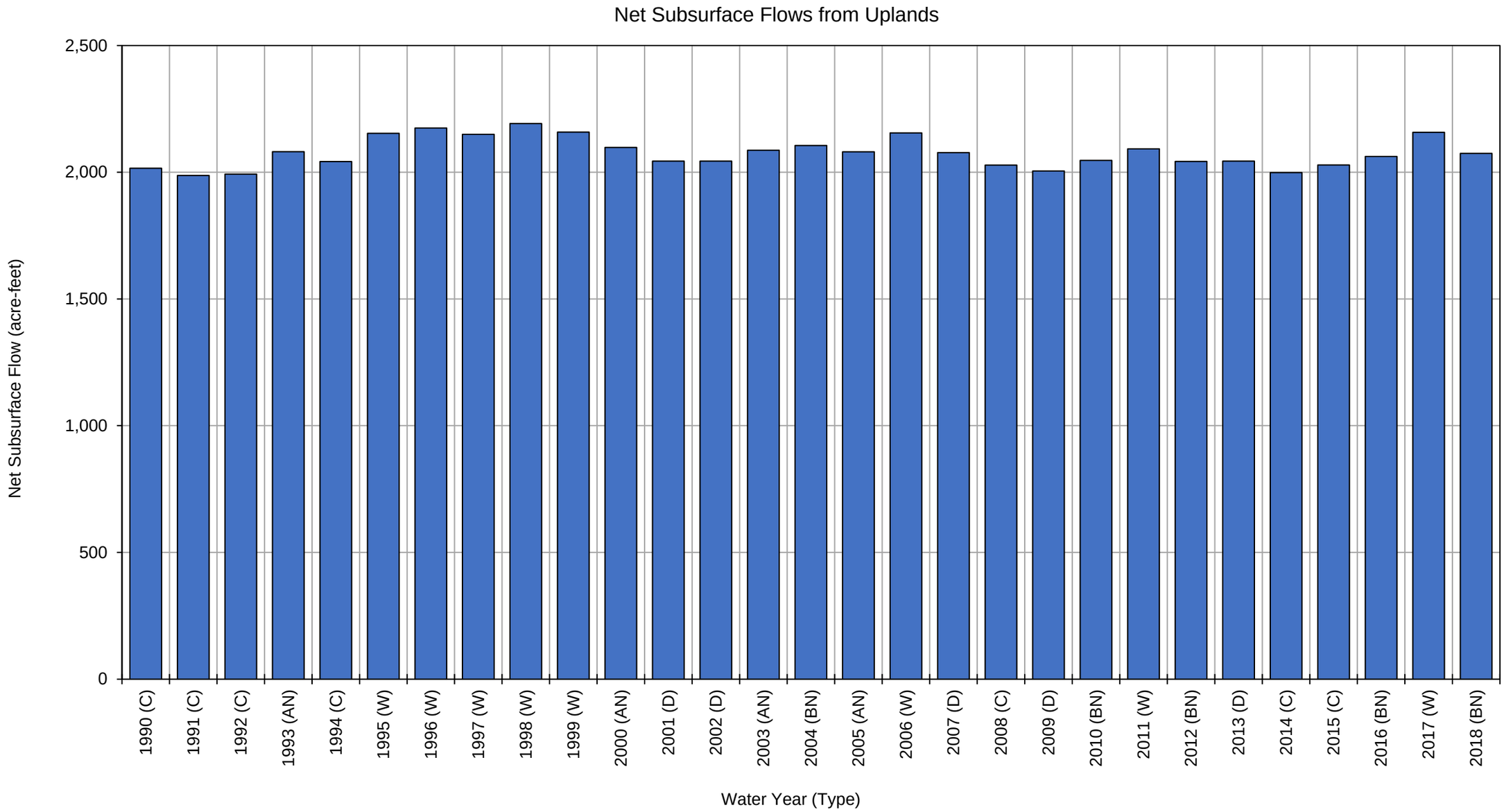

Net Subsurface Flows to Adjacent Subbasins
Net Subsurface Flow (acre-feet)
20,000
10,000
0
-10,000
-20,000
-30,000
-40,000
-50,000
-60,000
-70,000
-80,000
-90,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Flow from/to Red Bluff Subbasin
Flow from/to Antelope Subbasin
Flow from/to Corning Subbasin
Flow from/to Vina Subbasin

Los Molinos Subbasin Historical Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Antelope Subbasin	Flow from/to Corning Subbasin	Flow from/to Vina Subbasin	Net Subsurface Flow from Adjacent Subbasins
1990 (C)		3,800	-3,600	5,400	-48,000	-42,000
1991 (C)		3,000	-930	2,800	-46,000	-41,000
1992 (C)		4,100	690	630	-45,000	-40,000
1993 (AN)		6,000	480	-2,200	-47,000	-43,000
1994 (C)		3,500	-770	1,800	-49,000	-44,000
1995 (W)		4,600	-2,200	-830	-51,000	-49,000
1996 (W)		3,200	-5,300	-580	-56,000	-58,000
1997 (W)		1,400	-7,700	900	-57,000	-62,000
1998 (W)		3,600	-8,800	1,300	-56,000	-60,000
1999 (W)		1,400	-11,000	1,300	-58,000	-67,000
2000 (AN)		1,700	-10,000	3,100	-59,000	-64,000
2001 (D)		2,800	-8,200	5,800	-55,000	-55,000
2002 (D)		3,400	-6,100	5,100	-54,000	-52,000
2003 (AN)		4,000	-6,000	2,400	-56,000	-55,000
2004 (BN)		2,600	-7,100	2,100	-59,000	-62,000
2005 (AN)		4,900	-6,500	5,200	-57,000	-54,000
2006 (W)		3,500	-9,100	2,900	-60,000	-63,000
2007 (D)		260	-9,500	4,200	-62,000	-67,000
2008 (C)		1,200	-6,700	4,400	-58,000	-60,000
2009 (D)		1,300	-3,600	2,400	-58,000	-57,000
2010 (BN)		3,700	-3,400	-6	-57,000	-57,000
2011 (W)		2,900	-5,000	-1,900	-59,000	-63,000
2012 (BN)		240	-6,400	-34	-60,000	-66,000
2013 (D)		-660	-3,800	-320	-60,000	-65,000
2014 (C)		-1,800	-1,300	-600	-58,000	-62,000
2015 (C)		-180	1,800	-4,400	-57,000	-59,000
2016 (BN)		1,100	1,500	-8,200	-59,000	-65,000
2017 (W)		1,500	-2,700	-10,000	-63,000	-75,000
2018 (BN)		-3,900	-3,300	-9,300	-64,000	-80,000
Average (1990-2018)		2,200	-4,700	450	-56,000	-58,000
1990-2018	W	2,800	-6,500	-920	-58,000	-62,000
	AN	4,200	-5,500	2,100	-55,000	-54,000
	BN	750	-3,700	-3,100	-60,000	-66,000
	D	1,400	-6,200	3,400	-58,000	-59,000
	C	2,000	-1,500	1,400	-51,000	-50,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

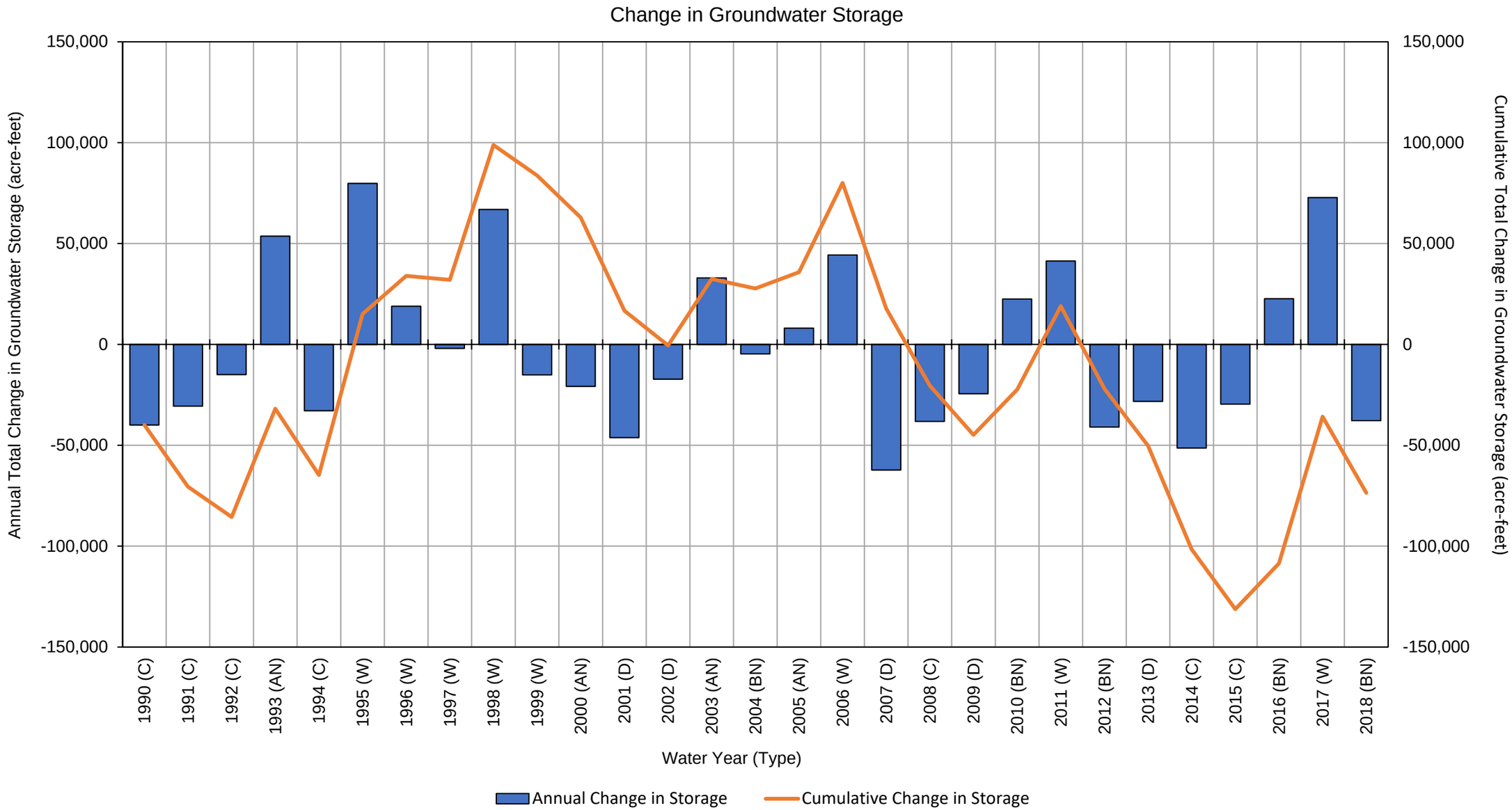

Net Subsurface Flows from Uplands
Net Subsurface Flow (acre-feet)
2,500
2,000
1,500
1,000
500
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)

Los Molinos Subbasin Historical Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
1990 (C)		2,000
1991 (C)		2,000
1992 (C)		2,000
1993 (AN)		2,100
1994 (C)		2,000
1995 (W)		2,200
1996 (W)		2,200
1997 (W)		2,100
1998 (W)		2,200
1999 (W)		2,200
2000 (AN)		2,100
2001 (D)		2,000
2002 (D)		2,000
2003 (AN)		2,100
2004 (BN)		2,100
2005 (AN)		2,100
2006 (W)		2,200
2007 (D)		2,100
2008 (C)		2,000
2009 (D)		2,000
2010 (BN)		2,000
2011 (W)		2,100
2012 (BN)		2,000
2013 (D)		2,000
2014 (C)		2,000
2015 (C)		2,000
2016 (BN)		2,100
2017 (W)		2,200
2018 (BN)		2,100
Average (1990-2018)		2,100
1990-2018	W	2,200
	AN	2,100
	BN	2,100
	D	2,000
	C	2,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Historical

Los Molinos Subbasin Historical Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
1990 (C)	-40,000	-40,000
1991 (C)	-31,000	-71,000
1992 (C)	-15,000	-86,000
1993 (AN)	54,000	-32,000
1994 (C)	-33,000	-65,000
1995 (W)	80,000	15,000
1996 (W)	19,000	34,000
1997 (W)	-2,000	32,000
1998 (W)	67,000	99,000
1999 (W)	-15,000	84,000
2000 (AN)	-21,000	63,000
2001 (D)	-46,000	17,000
2002 (D)	-17,000	-530
2003 (AN)	33,000	32,000
2004 (BN)	-4,700	28,000
2005 (AN)	8,100	36,000
2006 (W)	44,000	80,000
2007 (D)	-62,000	18,000
2008 (C)	-38,000	-20,000
2009 (D)	-24,000	-45,000
2010 (BN)	22,000	-22,000
2011 (W)	41,000	19,000
2012 (BN)	-41,000	-22,000
2013 (D)	-28,000	-50,000
2014 (C)	-51,000	-100,000
2015 (C)	-30,000	-130,000
2016 (BN)	23,000	-110,000
2017 (W)	73,000	-36,000
2018 (BN)	-38,000	-74,000
Average (1990-2018)	-2,500	
1990-2018 W		
1990-2018 AN		
1990-2018 BN		
1990-2018 D		
1990-2018 C		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX C-2

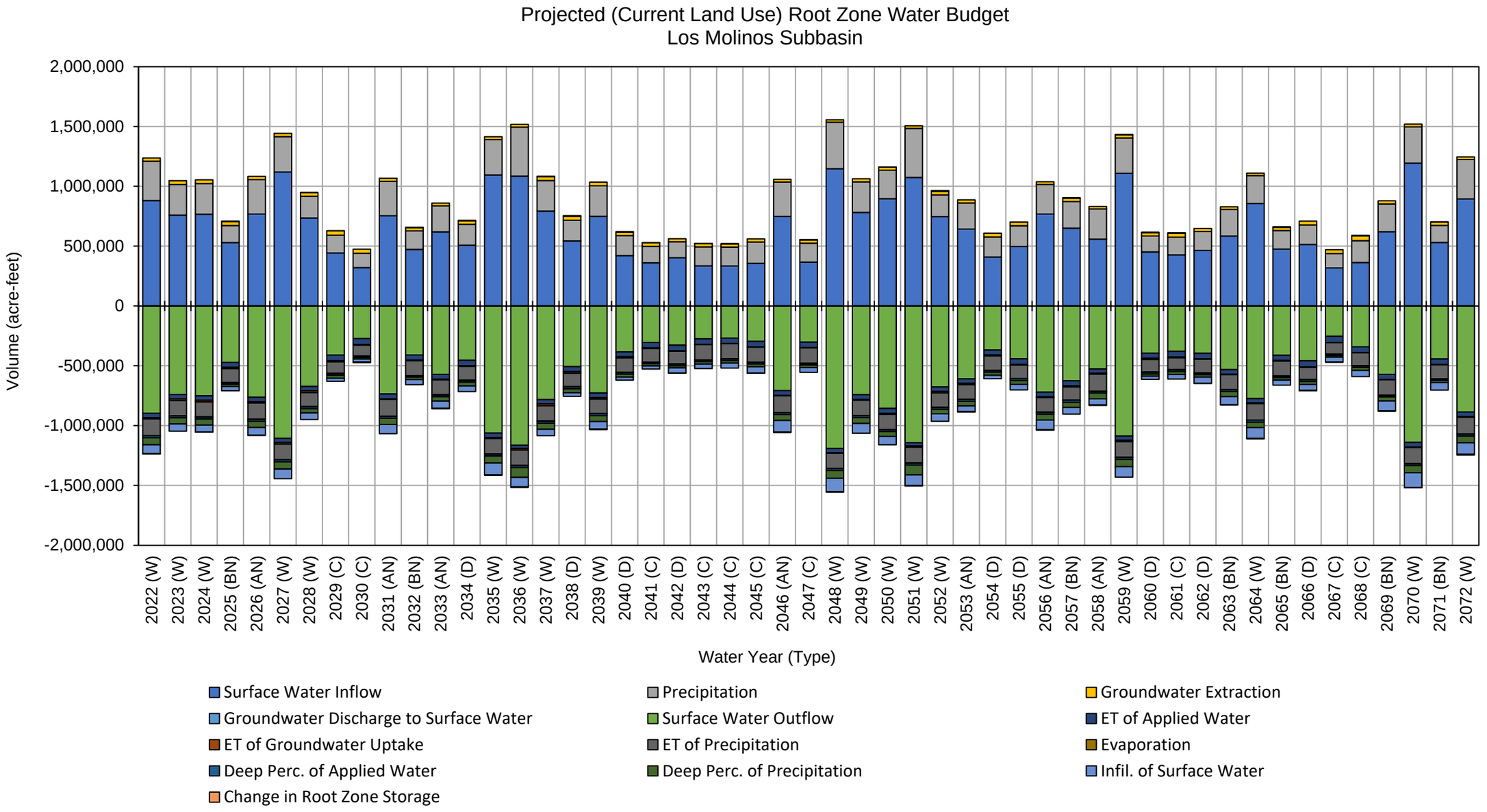
Detailed Los Molinos Subbasin Water Budget Results:

Projected (Current Land Use) Model Results

APPENDIX C-2a

Detailed Los Molinos Subbasin Water Budget Results:

Projected (Current Land Use) Model Results – Surface Water System


Projected (Current Land Use) Root Zone Water Budget
Los Molinos Subbasin
Volume (acre-feet)
2,000,000
1,500,000
1,000,000
500,000
0
-500,000
-1,000,000
-1,500,000
-2,000,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Surface Water Inflow
Precipitation
Groundwater Extraction
Groundwater Discharge to Surface Water
Surface Water Outflow
ET of Applied Water
ET of Groundwater Uptake
ET of Precipitation
Evaporation
Deep Perc. of Applied Water
Deep Perc. of Precipitation
Infil. of Surface Water
Change in Root Zone Storage

Los Molinos Subbasin Projected (Current Land Use) Root Zone Water Budget Summary (acre-feet, rounded)

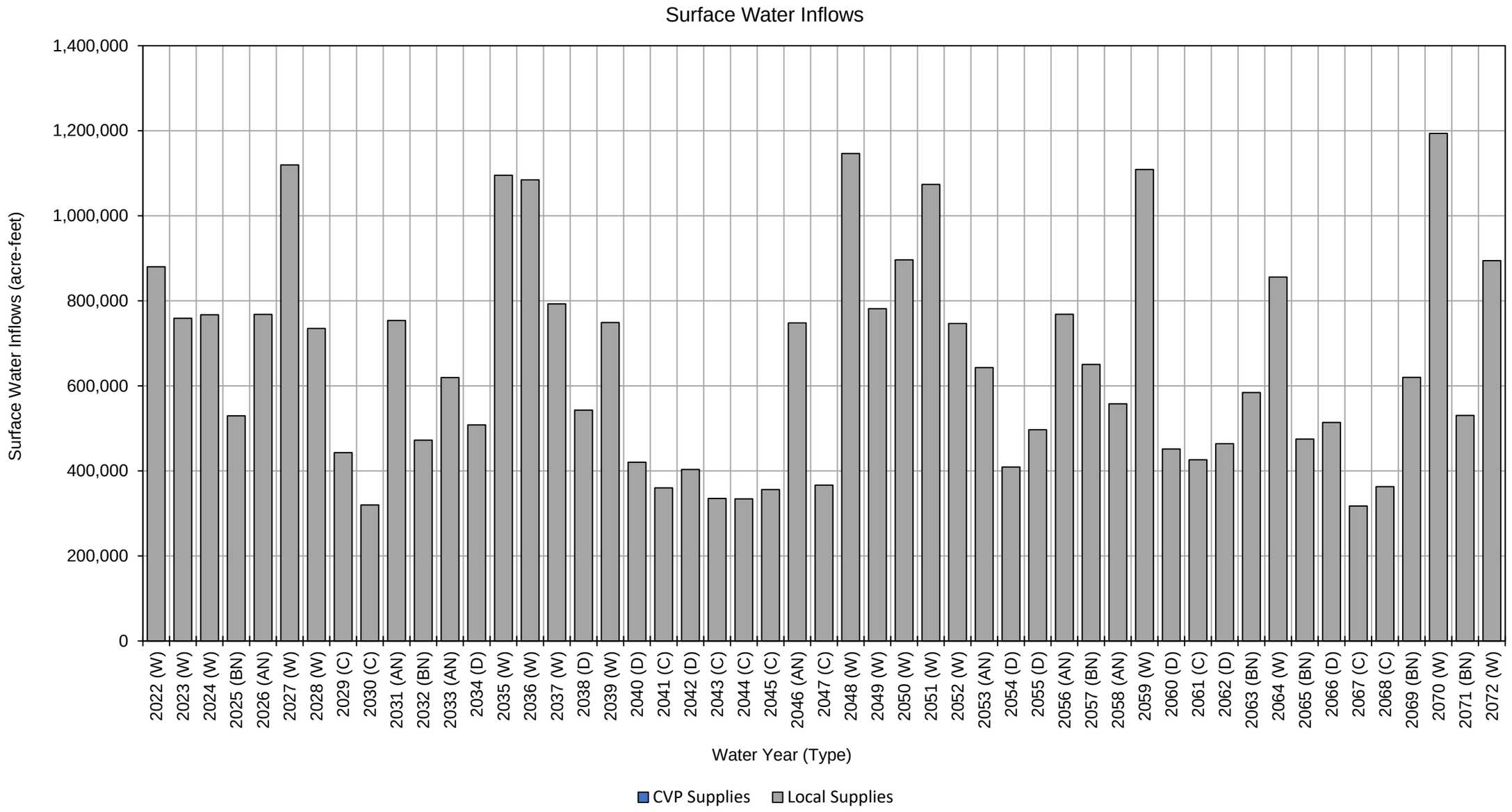
WY (Type)	Inflows				Outflows								Change in Root Zone Storage
	Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2022 (W)	880,000	330,000	27,000	0	900,000	37,000	9,500	140,000	1,900	16,000	58,000	75,000	1,500
2023 (W)	760,000	260,000	31,000	0	740,000	38,000	13,000	130,000	2,200	15,000	50,000	61,000	-1,700
2024 (W)	770,000	260,000	31,000	0	750,000	38,000	14,000	120,000	2,200	16,000	50,000	58,000	190
2025 (BN)	530,000	140,000	32,000	0	470,000	42,000	11,000	120,000	2,400	12,000	19,000	36,000	-4,700
2026 (AN)	770,000	290,000	27,000	0	760,000	38,000	11,000	140,000	2,100	15,000	52,000	64,000	3,800
2027 (W)	1,100,000	300,000	28,000	0	1,100,000	35,000	14,000	130,000	1,900	17,000	60,000	80,000	-760
2028 (W)	740,000	180,000	30,000	0	670,000	37,000	15,000	120,000	2,200	15,000	35,000	55,000	-1,500
2029 (C)	440,000	150,000	35,000	0	410,000	45,000	11,000	96,000	2,700	14,000	24,000	25,000	-2,800
2030 (C)	320,000	120,000	34,000	0	270,000	50,000	5,200	90,000	2,800	10,000	12,000	24,000	5,900
2031 (AN)	750,000	290,000	25,000	0	740,000	40,000	5,300	140,000	2,100	15,000	52,000	77,000	-1,000
2032 (BN)	470,000	160,000	27,000	0	410,000	43,000	5,300	120,000	2,300	10,000	20,000	43,000	-3,800
2033 (AN)	620,000	220,000	23,000	0	570,000	41,000	5,100	120,000	2,200	14,000	37,000	60,000	5,000
2034 (D)	510,000	170,000	29,000	0	450,000	46,000	5,700	120,000	2,500	14,000	32,000	47,000	-5,400
2035 (W)	1,100,000	300,000	23,000	0	1,100,000	37,000	8,100	130,000	2,000	16,000	58,000	98,000	3,100
2036 (W)	1,100,000	410,000	23,000	0	1,200,000	26,000	13,000	130,000	1,400	16,000	82,000	79,000	5,700
2037 (W)	790,000	260,000	33,000	0	780,000	36,000	16,000	130,000	2,200	16,000	51,000	53,000	-3,100
2038 (D)	540,000	170,000	34,000	0	510,000	41,000	14,000	110,000	2,500	15,000	33,000	29,000	-5,400
2039 (W)	750,000	260,000	30,000	0	730,000	39,000	12,000	120,000	2,200	15,000	49,000	63,000	4,900
2040 (D)	420,000	170,000	29,000	0	380,000	40,000	10,000	120,000	2,300	12,000	26,000	25,000	-2,700
2041 (C)	360,000	140,000	30,000	0	310,000	45,000	5,700	110,000	2,500	11,000	17,000	26,000	-35
2042 (D)	400,000	130,000	25,000	0	330,000	47,000	3,200	110,000	2,600	13,000	17,000	43,000	680
2043 (C)	340,000	160,000	28,000	0	280,000	46,000	2,300	130,000	2,200	12,000	21,000	36,000	-2,100
2044 (C)	330,000	160,000	26,000	0	270,000	46,000	1,400	130,000	2,200	12,000	20,000	42,000	-60
2045 (C)	360,000	180,000	26,000	0	300,000	48,000	1,000	130,000	2,300	12,000	23,000	52,000	150
2046 (AN)	750,000	290,000	22,000	0	710,000	41,000	1,900	140,000	2,200	14,000	50,000	98,000	3,200
2047 (C)	370,000	160,000	27,000	0	300,000	45,000	2,100	130,000	2,200	12,000	21,000	40,000	-3,300
2048 (W)	1,100,000	390,000	21,000	0	1,200,000	37,000	3,200	130,000	1,900	16,000	65,000	110,000	3,600
2049 (W)	780,000	260,000	26,000	0	740,000	41,000	6,000	130,000	2,200	14,000	49,000	81,000	230
2050 (W)	900,000	240,000	26,000	0	860,000	41,000	7,600	130,000	2,400	14,000	40,000	70,000	-110
2051 (W)	1,100,000	410,000	21,000	0	1,100,000	27,000	11,000	130,000	1,400	15,000	82,000	90,000	3,700
2052 (W)	750,000	180,000	29,000	0	680,000	37,000	13,000	120,000	2,300	15,000	37,000	63,000	-6,500
2053 (AN)	640,000	220,000	26,000	0	610,000	37,000	12,000	120,000	2,100	15,000	38,000	47,000	3,700
2054 (D)	410,000	170,000	29,000	0	370,000	41,000	8,600	120,000	2,300	12,000	26,000	29,000	-3,200
2055 (D)	500,000	170,000	29,000	0	440,000	46,000	6,200	110,000	2,500	14,000	31,000	47,000	-2,500
2056 (AN)	770,000	250,000	23,000	0	720,000	39,000	6,800	120,000	2,100	15,000	48,000	80,000	4,200
2057 (BN)	650,000	220,000	28,000	0	630,000	44,000	8,600	110,000	2,500	18,000	42,000	56,000	-3,600
2058 (AN)	560,000	250,000	21,000	0	530,000	34,000	8,600	140,000	1,800	13,000	49,000	51,000	3,800
2059 (W)	1,100,000	300,000	27,000	0	1,100,000	35,000	12,000	130,000	1,900	16,000	60,000	88,000	-860
2060 (D)	450,000	130,000	29,000	0	390,000	43,000	9,900	100,000	2,600	14,000	18,000	26,000	-480
2061 (C)	430,000	150,000	33,000	0	380,000	49,000	5,800	99,000	2,700	14,000	23,000	39,000	-3,700
2062 (D)	460,000	160,000	26,000	0	400,000	46,000	3,600	110,000	2,500	12,000	20,000	51,000	2,200
2063 (BN)	580,000	220,000	21,000	0	530,000	38,000	3,800	120,000	2,100	14,000	43,000	69,000	1,800
2064 (W)	860,000	230,000	20,000	0	770,000	36,000	6,100	140,000	1,900	17,000	45,000	91,000	1,800
2065 (BN)	470,000	160,000	27,000	0	410,000	43,000	6,100	120,000	2,300	11,000	20,000	43,000	-4,700

Los Molinos Subbasin Projected (Current Land Use) Root Zone Water Budget Summary (acre-feet, rounded)

WY (Type)		Inflows				Outflows								Change in Root Zone Storage
		Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2066 (D)		510,000	160,000	32,000	0	460,000	51,000	3,800	100,000	2,700	14,000	25,000	50,000	2,600
2067 (C)		320,000	120,000	33,000	0	250,000	51,000	1,800	96,000	2,800	11,000	12,000	40,000	2,100
2068 (C)		360,000	180,000	40,000	0	340,000	49,000	940	110,000	2,500	11,000	25,000	51,000	-5,000
2069 (BN)		620,000	230,000	27,000	0	570,000	44,000	870	130,000	2,300	11,000	34,000	84,000	980
2070 (W)		1,200,000	300,000	23,000	0	1,100,000	40,000	2,700	130,000	2,100	14,000	60,000	120,000	2,000
2071 (BN)		530,000	140,000	28,000	0	440,000	46,000	2,500	120,000	2,500	11,000	17,000	63,000	-2,500
2072 (W)		890,000	330,000	22,000	0	890,000	40,000	3,500	140,000	2,000	16,000	56,000	96,000	6,000
Average (2022-2072)		650,000	220,000	27,000	0	610,000	41,000	7,300	120,000	2,200	14,000	38,000	59,000	24
2022-2072	W	930,000	290,000	26,000	0	910,000	36,000	10,000	130,000	2,000	15,000	55,000	80,000	1,000
	AN	690,000	260,000	24,000	0	660,000	39,000	7,100	130,000	2,100	14,000	46,000	68,000	3,200
	BN	550,000	180,000	27,000	0	500,000	43,000	5,400	120,000	2,300	12,000	28,000	56,000	-2,300
	D	470,000	160,000	29,000	0	410,000	45,000	7,200	110,000	2,500	13,000	25,000	39,000	-1,600
	C	360,000	150,000	31,000	0	310,000	47,000	3,800	110,000	2,500	12,000	20,000	38,000	-880

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

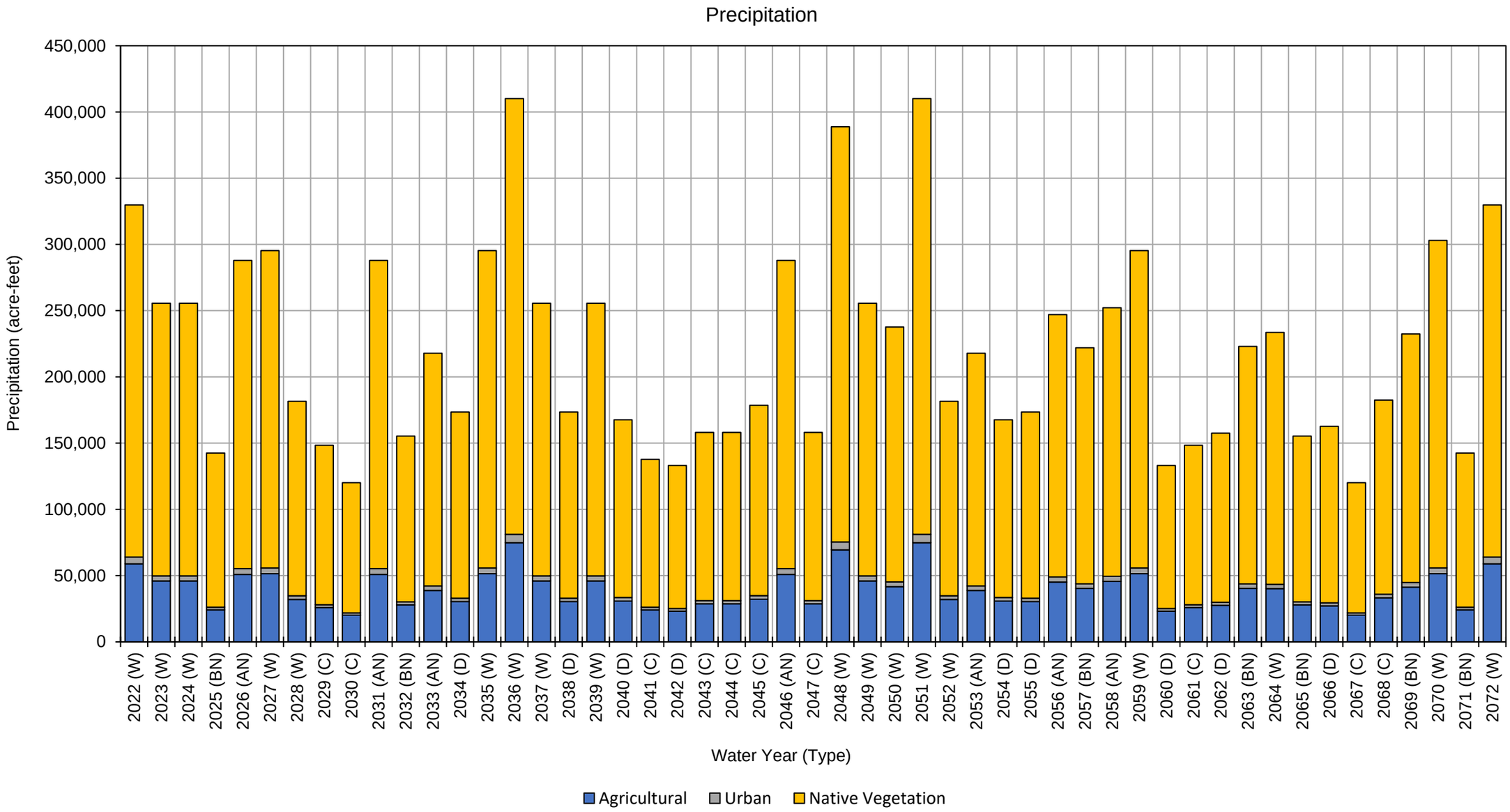
WY (Type)	CVP Supplies	Local Supplies	Total
2022 (W)	0	880,000	880,000
2023 (W)	0	760,000	760,000
2024 (W)	0	770,000	770,000
2025 (BN)	0	530,000	530,000
2026 (AN)	0	770,000	770,000
2027 (W)	0	1,100,000	1,100,000
2028 (W)	0	740,000	740,000
2029 (C)	0	440,000	440,000
2030 (C)	0	320,000	320,000
2031 (AN)	0	750,000	750,000
2032 (BN)	0	470,000	470,000
2033 (AN)	0	620,000	620,000
2034 (D)	0	510,000	510,000
2035 (W)	0	1,100,000	1,100,000
2036 (W)	0	1,100,000	1,100,000
2037 (W)	0	790,000	790,000
2038 (D)	0	540,000	540,000
2039 (W)	0	750,000	750,000
2040 (D)	0	420,000	420,000
2041 (C)	0	360,000	360,000
2042 (D)	0	400,000	400,000
2043 (C)	0	340,000	340,000
2044 (C)	0	330,000	330,000
2045 (C)	0	360,000	360,000
2046 (AN)	0	750,000	750,000
2047 (C)	0	370,000	370,000
2048 (W)	0	1,100,000	1,100,000
2049 (W)	0	780,000	780,000
2050 (W)	0	900,000	900,000
2051 (W)	0	1,100,000	1,100,000
2052 (W)	0	750,000	750,000
2053 (AN)	0	640,000	640,000
2054 (D)	0	410,000	410,000
2055 (D)	0	500,000	500,000
2056 (AN)	0	770,000	770,000
2057 (BN)	0	650,000	650,000
2058 (AN)	0	560,000	560,000
2059 (W)	0	1,100,000	1,100,000
2060 (D)	0	450,000	450,000
2061 (C)	0	430,000	430,000
2062 (D)	0	460,000	460,000
2063 (BN)	0	580,000	580,000

Los Molinos Subbasin Projected (Current Land Use) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Total
2064 (W)		0	860,000	860,000
2065 (BN)		0	470,000	470,000
2066 (D)		0	510,000	510,000
2067 (C)		0	320,000	320,000
2068 (C)		0	360,000	360,000
2069 (BN)		0	620,000	620,000
2070 (W)		0	1,200,000	1,200,000
2071 (BN)		0	530,000	530,000
2072 (W)		0	890,000	890,000
Average (2022-2072)		0	650,000	650,000
2022-2072	W	0	930,000	930,000
	AN	0	690,000	690,000
	BN	0	550,000	550,000
	D	0	470,000	470,000
	C	0	360,000	360,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Precipitation, by Water Use Sector (acre-feet, rounded)

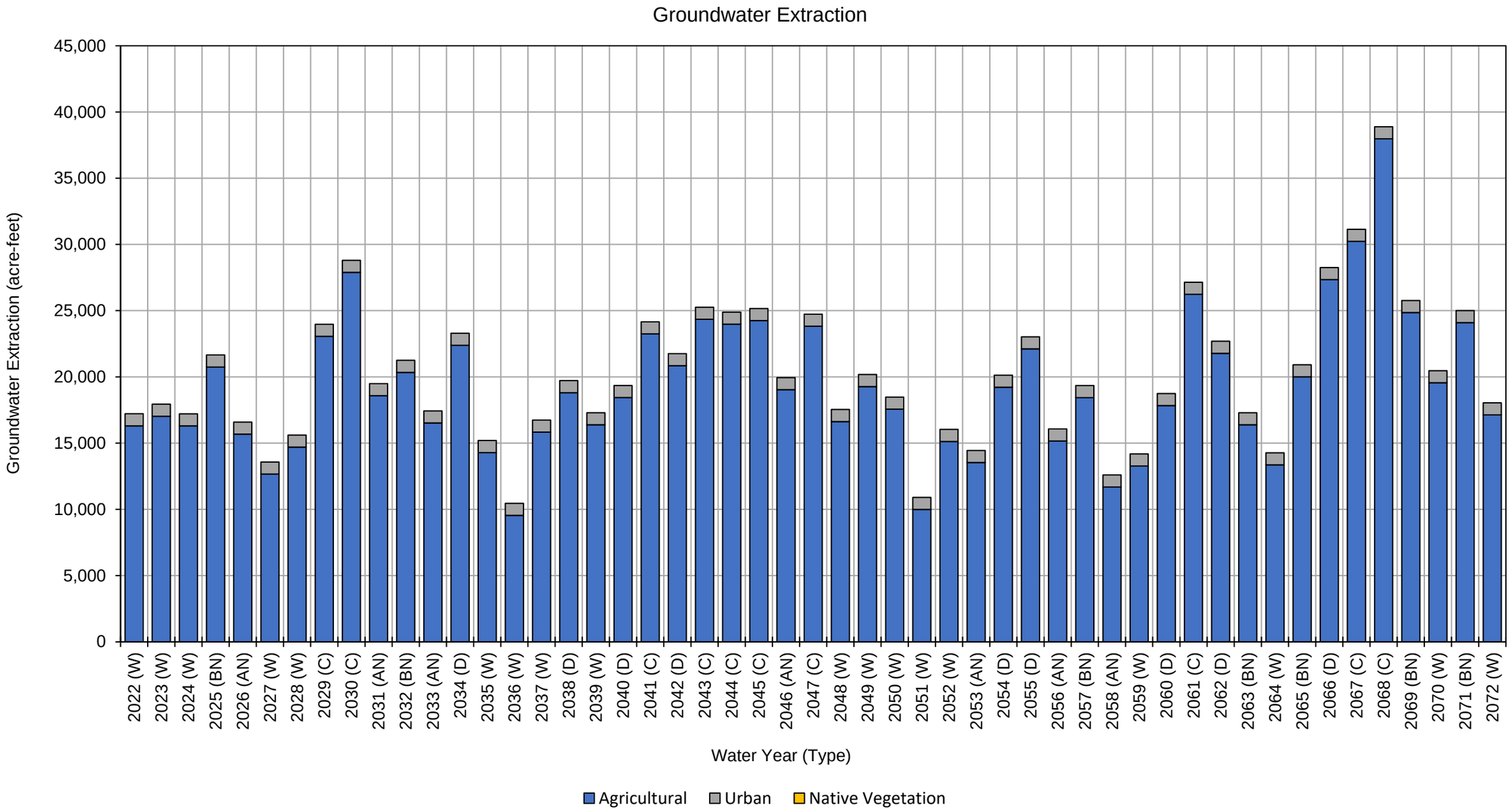
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	59,000	5,000	270,000	330,000
2023 (W)	46,000	3,800	210,000	260,000
2024 (W)	46,000	3,800	210,000	260,000
2025 (BN)	24,000	2,000	120,000	150,000
2026 (AN)	51,000	4,300	230,000	290,000
2027 (W)	51,000	4,300	240,000	300,000
2028 (W)	32,000	2,800	150,000	180,000
2029 (C)	26,000	2,200	120,000	150,000
2030 (C)	20,000	1,700	98,000	120,000
2031 (AN)	51,000	4,300	230,000	290,000
2032 (BN)	28,000	2,300	130,000	160,000
2033 (AN)	39,000	3,400	180,000	220,000
2034 (D)	30,000	2,600	140,000	170,000
2035 (W)	51,000	4,300	240,000	300,000
2036 (W)	75,000	6,400	330,000	410,000
2037 (W)	46,000	3,800	210,000	260,000
2038 (D)	30,000	2,600	140,000	170,000
2039 (W)	46,000	3,800	210,000	260,000
2040 (D)	31,000	2,600	130,000	160,000
2041 (C)	24,000	2,100	110,000	140,000
2042 (D)	23,000	2,000	110,000	140,000
2043 (C)	29,000	2,400	130,000	160,000
2044 (C)	29,000	2,400	130,000	160,000
2045 (C)	32,000	2,700	140,000	170,000
2046 (AN)	51,000	4,300	230,000	290,000
2047 (C)	29,000	2,400	130,000	160,000
2048 (W)	69,000	5,900	310,000	380,000
2049 (W)	46,000	3,800	210,000	260,000
2050 (W)	42,000	3,600	190,000	240,000
2051 (W)	75,000	6,400	330,000	410,000
2052 (W)	32,000	2,800	150,000	180,000
2053 (AN)	39,000	3,400	180,000	220,000
2054 (D)	31,000	2,600	130,000	160,000
2055 (D)	30,000	2,600	140,000	170,000
2056 (AN)	45,000	3,800	200,000	250,000
2057 (BN)	40,000	3,400	180,000	220,000
2058 (AN)	46,000	3,900	200,000	250,000
2059 (W)	51,000	4,300	240,000	300,000
2060 (D)	23,000	2,000	110,000	140,000
2061 (C)	26,000	2,200	120,000	150,000
2062 (D)	27,000	2,300	130,000	160,000
2063 (BN)	40,000	3,400	180,000	220,000

Los Molinos Subbasin Projected (Current Land Use) Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		40,000	3,300	190,000	230,000
2065 (BN)		28,000	2,300	130,000	160,000
2066 (D)		27,000	2,300	130,000	160,000
2067 (C)		20,000	1,700	98,000	120,000
2068 (C)		33,000	2,800	150,000	190,000
2069 (BN)		41,000	3,500	190,000	230,000
2070 (W)		51,000	4,400	250,000	310,000
2071 (BN)		24,000	2,000	120,000	150,000
2072 (W)		59,000	5,000	270,000	330,000
Average (2022-2072)		39,000	3,300	180,000	220,000
2022-2072	W	51,000	4,300	230,000	290,000
	AN	46,000	3,900	210,000	260,000
	BN	32,000	2,700	150,000	180,000
	D	28,000	2,400	130,000	160,000
	C	27,000	2,300	120,000	150,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

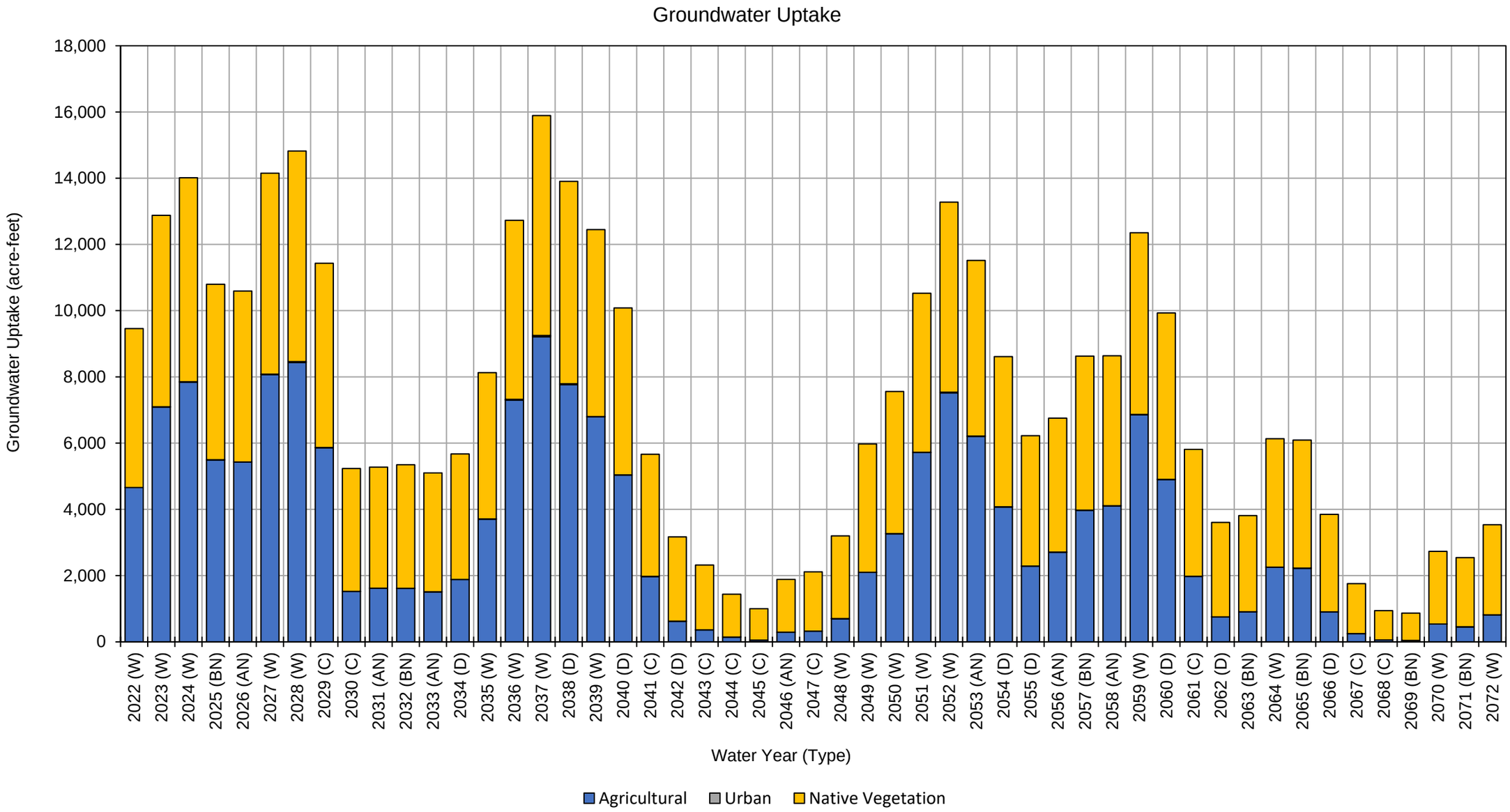
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	16,000	910	0	17,000
2023 (W)	17,000	910	0	18,000
2024 (W)	16,000	910	0	17,000
2025 (BN)	21,000	910	0	22,000
2026 (AN)	16,000	910	0	17,000
2027 (W)	13,000	910	0	14,000
2028 (W)	15,000	910	0	16,000
2029 (C)	23,000	910	0	24,000
2030 (C)	28,000	910	0	29,000
2031 (AN)	19,000	910	0	20,000
2032 (BN)	20,000	910	0	21,000
2033 (AN)	17,000	910	0	18,000
2034 (D)	22,000	910	0	23,000
2035 (W)	14,000	910	0	15,000
2036 (W)	9,500	910	0	10,000
2037 (W)	16,000	910	0	17,000
2038 (D)	19,000	910	0	20,000
2039 (W)	16,000	910	0	17,000
2040 (D)	18,000	910	0	19,000
2041 (C)	23,000	910	0	24,000
2042 (D)	21,000	910	0	22,000
2043 (C)	24,000	910	0	25,000
2044 (C)	24,000	910	0	25,000
2045 (C)	24,000	910	0	25,000
2046 (AN)	19,000	910	0	20,000
2047 (C)	24,000	910	0	25,000
2048 (W)	17,000	910	0	18,000
2049 (W)	19,000	910	0	20,000
2050 (W)	18,000	910	0	19,000
2051 (W)	10,000	910	0	11,000
2052 (W)	15,000	910	0	16,000
2053 (AN)	14,000	910	0	15,000
2054 (D)	19,000	910	0	20,000
2055 (D)	22,000	910	0	23,000
2056 (AN)	15,000	910	0	16,000
2057 (BN)	18,000	910	0	19,000
2058 (AN)	12,000	910	0	13,000
2059 (W)	13,000	910	0	14,000
2060 (D)	18,000	910	0	19,000
2061 (C)	26,000	910	0	27,000
2062 (D)	22,000	910	0	23,000
2063 (BN)	16,000	910	0	17,000

Los Molinos Subbasin Projected (Current Land Use) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		13,000	910	0	14,000
2065 (BN)		20,000	910	0	21,000
2066 (D)		27,000	910	0	28,000
2067 (C)		30,000	910	0	31,000
2068 (C)		38,000	910	0	39,000
2069 (BN)		25,000	910	0	26,000
2070 (W)		20,000	910	0	21,000
2071 (BN)		24,000	910	0	25,000
2072 (W)		17,000	910	0	18,000
Average (2022-2072)		19,000	910	0	20,000
2022-2072	W	15,000	910	0	16,000
	AN	16,000	910	0	17,000
	BN	21,000	910	0	22,000
	D	21,000	910	0	22,000
	C	27,000	910	0	28,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

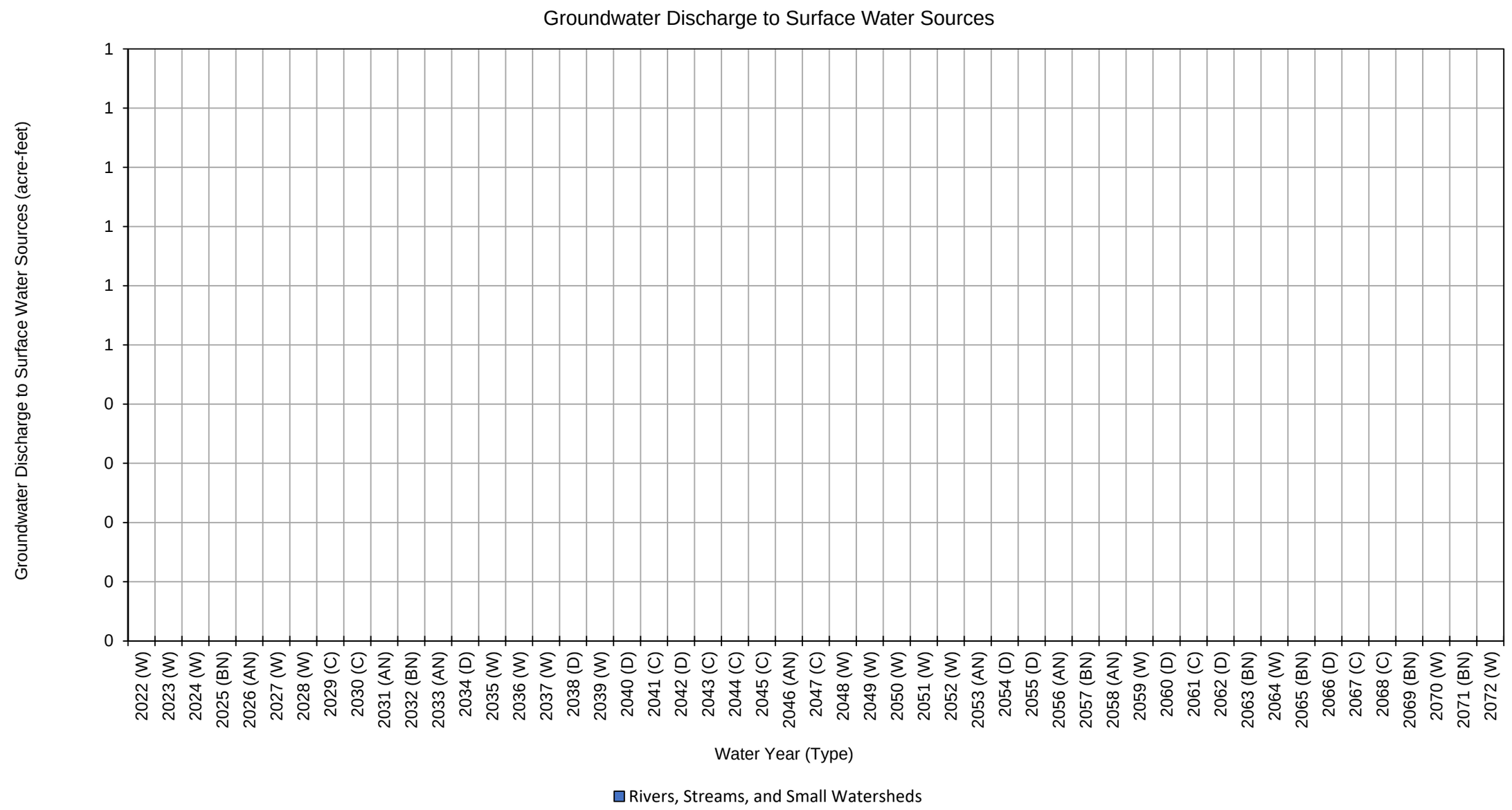
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	4,700	5	4,800	9,500
2023 (W)	7,100	9	5,800	13,000
2024 (W)	7,800	13	6,200	14,000
2025 (BN)	5,500	5	5,300	11,000
2026 (AN)	5,400	5	5,200	11,000
2027 (W)	8,100	16	6,100	14,000
2028 (W)	8,400	24	6,400	15,000
2029 (C)	5,900	7	5,600	12,000
2030 (C)	1,500	3	3,700	5,200
2031 (AN)	1,600	3	3,700	5,300
2032 (BN)	1,600	3	3,700	5,300
2033 (AN)	1,500	3	3,600	5,100
2034 (D)	1,900	4	3,800	5,700
2035 (W)	3,700	4	4,400	8,100
2036 (W)	7,300	21	5,400	13,000
2037 (W)	9,200	37	6,600	16,000
2038 (D)	7,800	24	6,100	14,000
2039 (W)	6,800	8	5,600	12,000
2040 (D)	5,000	6	5,000	10,000
2041 (C)	2,000	4	3,700	5,700
2042 (D)	620	3	2,500	3,100
2043 (C)	360	2	2,000	2,400
2044 (C)	140	1	1,300	1,400
2045 (C)	49	1	950	1,000
2046 (AN)	290	2	1,600	1,900
2047 (C)	320	2	1,800	2,100
2048 (W)	700	2	2,500	3,200
2049 (W)	2,100	4	3,900	6,000
2050 (W)	3,300	4	4,300	7,600
2051 (W)	5,700	7	4,800	11,000
2052 (W)	7,500	17	5,700	13,000
2053 (AN)	6,200	8	5,300	12,000
2054 (D)	4,100	5	4,500	8,600
2055 (D)	2,300	4	3,900	6,200
2056 (AN)	2,700	4	4,000	6,700
2057 (BN)	4,000	5	4,700	8,700
2058 (AN)	4,100	5	4,500	8,600
2059 (W)	6,900	9	5,500	12,000
2060 (D)	4,900	5	5,000	9,900
2061 (C)	2,000	4	3,800	5,800
2062 (D)	750	3	2,900	3,700
2063 (BN)	900	3	2,900	3,800

Los Molinos Subbasin Projected (Current Land Use) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		2,200	4	3,900	6,100
2065 (BN)		2,200	4	3,900	6,100
2066 (D)		900	3	2,900	3,800
2067 (C)		240	1	1,500	1,700
2068 (C)		56	1	880	940
2069 (BN)		41	1	820	860
2070 (W)		530	2	2,200	2,700
2071 (BN)		450	2	2,100	2,600
2072 (W)		810	2	2,700	3,500
Average (2022-2072)		3,300	6	3,900	7,200
2022-2072	W	5,200	10	4,800	10,000
	AN	3,100	4	4,000	7,100
	BN	2,100	3	3,300	5,400
	D	3,100	6	4,100	7,200
	C	1,200	2	2,500	3,700

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

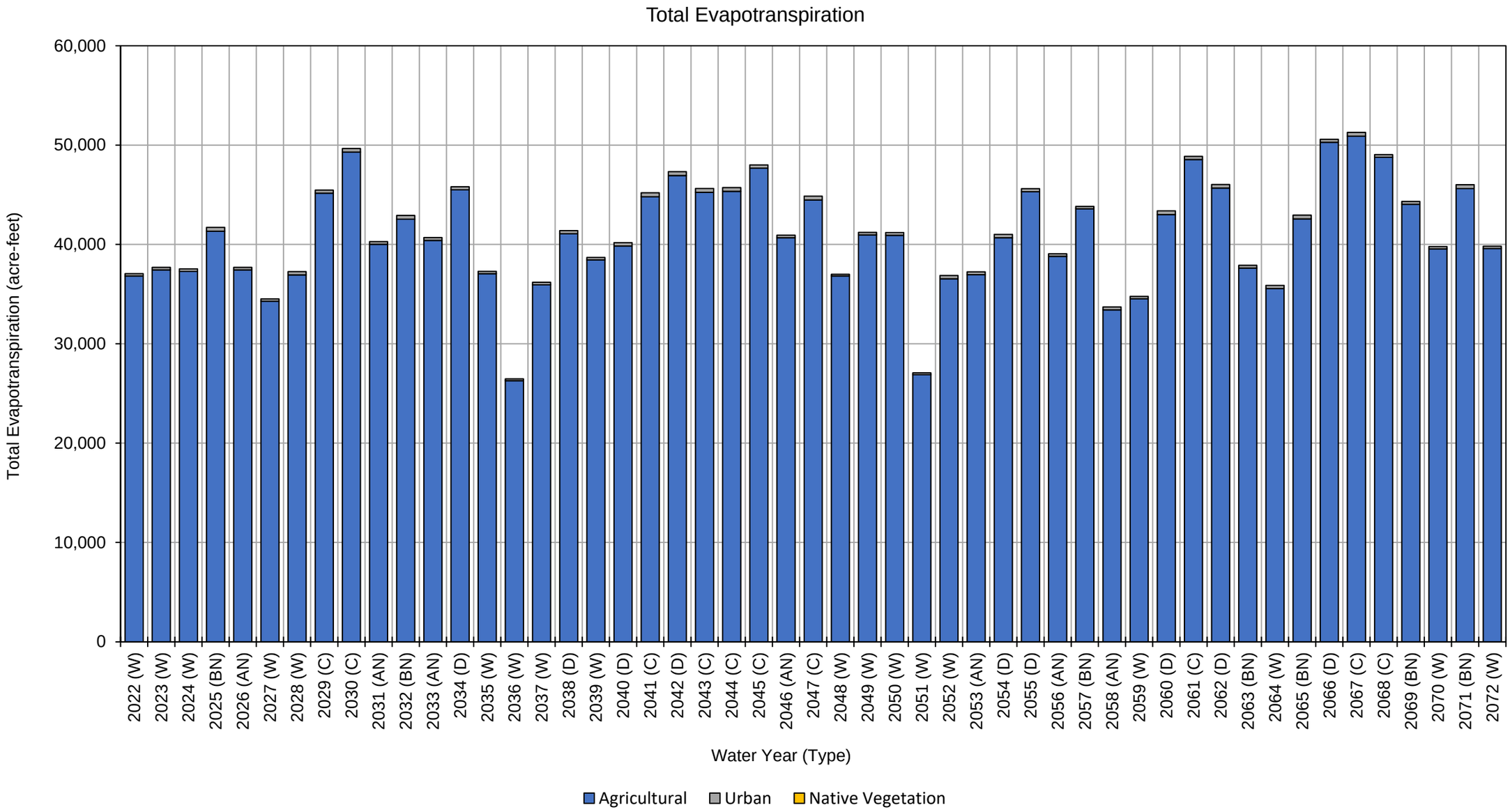
WY (Type)	Rivers, Streams, and Small Watersheds
2022 (W)	0
2023 (W)	0
2024 (W)	0
2025 (BN)	0
2026 (AN)	0
2027 (W)	0
2028 (W)	0
2029 (C)	0
2030 (C)	0
2031 (AN)	0
2032 (BN)	0
2033 (AN)	0
2034 (D)	0
2035 (W)	0
2036 (W)	0
2037 (W)	0
2038 (D)	0
2039 (W)	0
2040 (D)	0
2041 (C)	0
2042 (D)	0
2043 (C)	0
2044 (C)	0
2045 (C)	0
2046 (AN)	0
2047 (C)	0
2048 (W)	0
2049 (W)	0
2050 (W)	0
2051 (W)	0
2052 (W)	0
2053 (AN)	0
2054 (D)	0
2055 (D)	0
2056 (AN)	0
2057 (BN)	0
2058 (AN)	0
2059 (W)	0
2060 (D)	0
2061 (C)	0
2062 (D)	0
2063 (BN)	0

Los Molinos Subbasin Projected (Current Land Use) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

WY (Type)		Rivers, Streams, and Small Watersheds
2064 (W)		0
2065 (BN)		0
2066 (D)		0
2067 (C)		0
2068 (C)		0
2069 (BN)		0
2070 (W)		0
2071 (BN)		0
2072 (W)		0
Average (2022-2072)		0
2022-2072	W	0
	AN	0
	BN	0
	D	0
	C	0

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

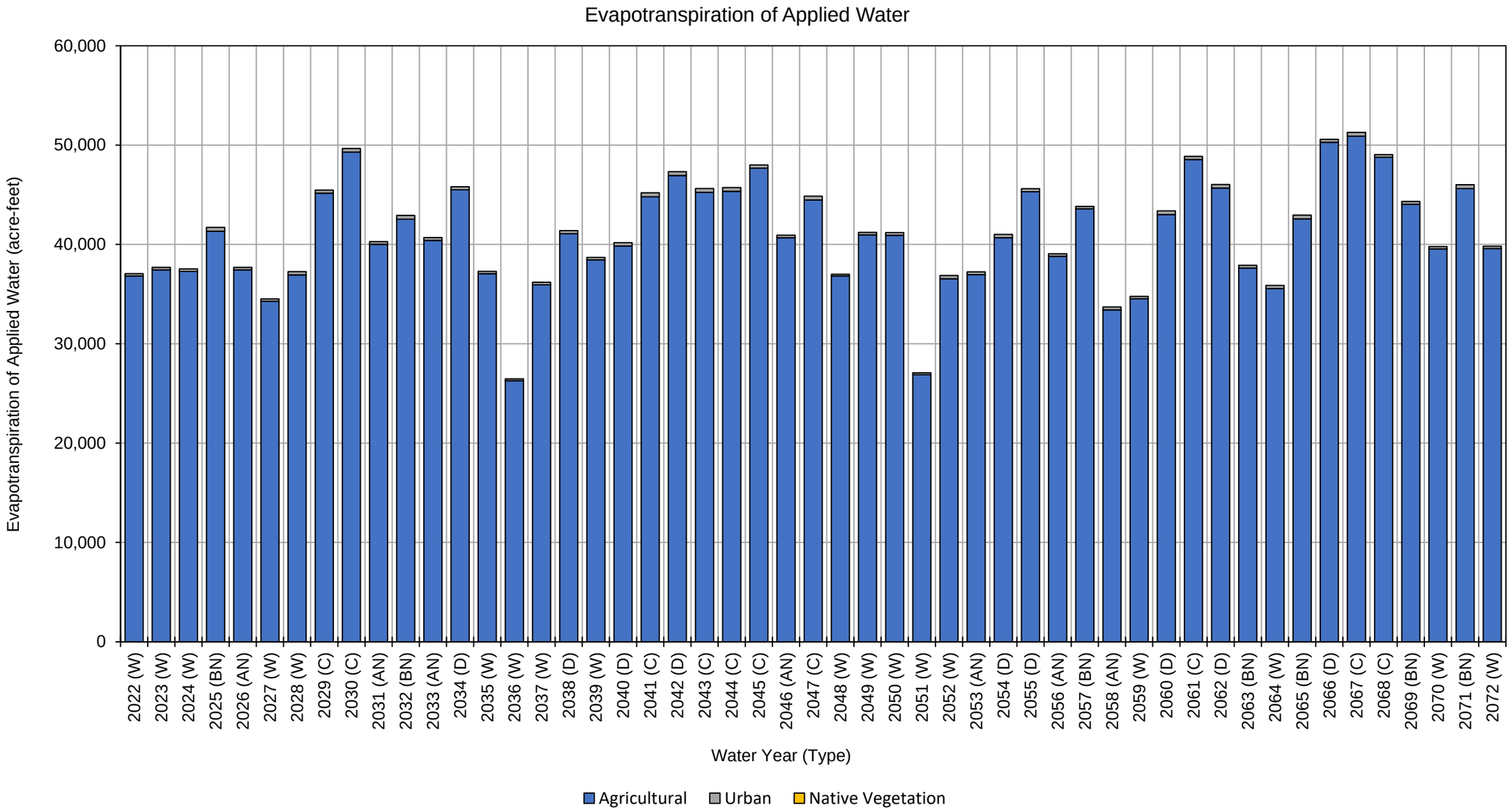
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	62,000	1,500	120,000	180,000
2023 (W)	64,000	1,400	110,000	180,000
2024 (W)	64,000	1,300	110,000	180,000
2025 (BN)	64,000	1,300	100,000	170,000
2026 (AN)	63,000	1,500	120,000	180,000
2027 (W)	61,000	1,400	110,000	170,000
2028 (W)	62,000	1,300	110,000	170,000
2029 (C)	65,000	1,100	86,000	150,000
2030 (C)	65,000	1,100	79,000	150,000
2031 (AN)	63,000	1,500	120,000	180,000
2032 (BN)	64,000	1,300	110,000	180,000
2033 (AN)	61,000	1,400	110,000	170,000
2034 (D)	65,000	1,200	100,000	170,000
2035 (W)	61,000	1,400	110,000	170,000
2036 (W)	54,000	1,400	110,000	170,000
2037 (W)	64,000	1,300	110,000	180,000
2038 (D)	65,000	1,200	100,000	170,000
2039 (W)	64,000	1,300	110,000	180,000
2040 (D)	64,000	1,300	110,000	180,000
2041 (C)	64,000	1,300	99,000	160,000
2042 (D)	63,000	1,200	92,000	160,000
2043 (C)	65,000	1,400	110,000	180,000
2044 (C)	65,000	1,400	110,000	180,000
2045 (C)	67,000	1,300	110,000	180,000
2046 (AN)	63,000	1,500	120,000	180,000
2047 (C)	65,000	1,400	110,000	180,000
2048 (W)	58,000	1,300	110,000	170,000
2049 (W)	64,000	1,300	110,000	180,000
2050 (W)	64,000	1,400	110,000	180,000
2051 (W)	54,000	1,400	110,000	170,000
2052 (W)	62,000	1,300	110,000	170,000
2053 (AN)	61,000	1,400	110,000	170,000
2054 (D)	64,000	1,300	110,000	180,000
2055 (D)	65,000	1,200	100,000	170,000
2056 (AN)	61,000	1,300	110,000	170,000
2057 (BN)	64,000	1,100	96,000	160,000
2058 (AN)	59,000	1,600	120,000	180,000
2059 (W)	61,000	1,400	110,000	170,000
2060 (D)	63,000	1,200	93,000	160,000
2061 (C)	65,000	1,100	87,000	150,000
2062 (D)	64,000	1,300	99,000	160,000
2063 (BN)	58,000	1,300	110,000	170,000

Los Molinos Subbasin Projected (Current Land Use) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		58,000	1,500	120,000	180,000
2065 (BN)		64,000	1,300	110,000	180,000
2066 (D)		66,000	1,100	89,000	160,000
2067 (C)		65,000	1,100	83,000	150,000
2068 (C)		65,000	1,100	93,000	160,000
2069 (BN)		65,000	1,400	110,000	180,000
2070 (W)		62,000	1,300	110,000	170,000
2071 (BN)		64,000	1,300	100,000	170,000
2072 (W)		62,000	1,500	120,000	180,000
Average (2022-2072)		63,000	1,300	110,000	170,000
2022-2072	W	61,000	1,400	110,000	170,000
	AN	62,000	1,400	120,000	180,000
	BN	63,000	1,300	100,000	160,000
	D	64,000	1,200	99,000	160,000
	C	65,000	1,200	96,000	160,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

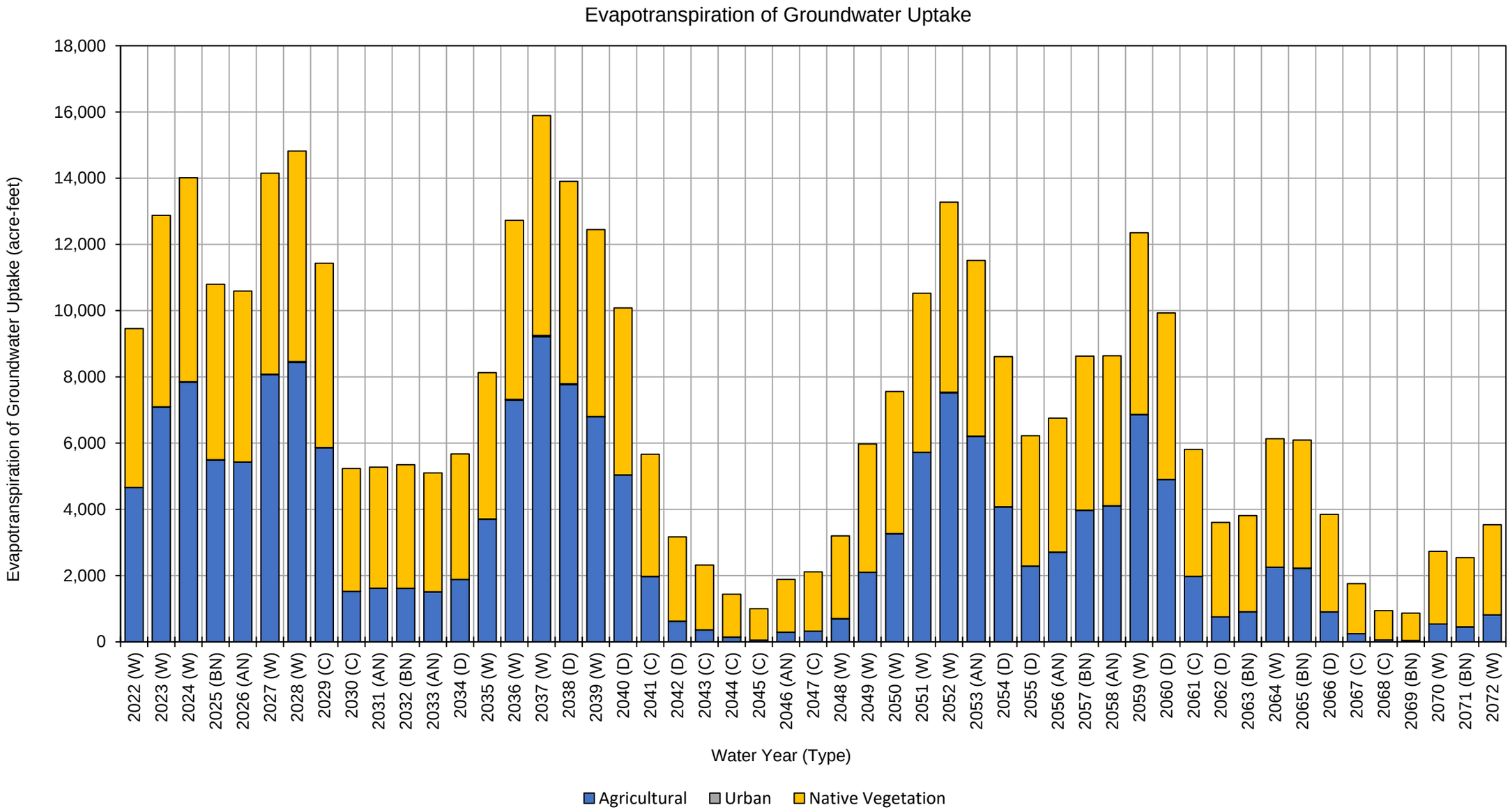
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	37,000	230	0	37,000
2023 (W)	37,000	260	0	37,000
2024 (W)	37,000	260	0	37,000
2025 (BN)	41,000	390	0	41,000
2026 (AN)	37,000	260	0	37,000
2027 (W)	34,000	240	0	34,000
2028 (W)	37,000	320	0	37,000
2029 (C)	45,000	310	0	45,000
2030 (C)	49,000	370	0	49,000
2031 (AN)	40,000	260	0	40,000
2032 (BN)	43,000	380	0	43,000
2033 (AN)	40,000	290	0	40,000
2034 (D)	45,000	310	0	45,000
2035 (W)	37,000	240	0	37,000
2036 (W)	26,000	180	0	26,000
2037 (W)	36,000	260	0	36,000
2038 (D)	41,000	310	0	41,000
2039 (W)	38,000	250	0	38,000
2040 (D)	40,000	340	0	40,000
2041 (C)	45,000	390	0	45,000
2042 (D)	47,000	390	0	47,000
2043 (C)	45,000	390	0	45,000
2044 (C)	45,000	390	0	45,000
2045 (C)	48,000	330	0	48,000
2046 (AN)	41,000	260	0	41,000
2047 (C)	44,000	390	0	44,000
2048 (W)	37,000	180	0	37,000
2049 (W)	41,000	250	0	41,000
2050 (W)	41,000	280	0	41,000
2051 (W)	27,000	180	0	27,000
2052 (W)	37,000	320	0	37,000
2053 (AN)	37,000	290	0	37,000
2054 (D)	41,000	340	0	41,000
2055 (D)	45,000	310	0	45,000
2056 (AN)	39,000	260	0	39,000
2057 (BN)	44,000	240	0	44,000
2058 (AN)	33,000	300	0	33,000
2059 (W)	35,000	240	0	35,000
2060 (D)	43,000	390	0	43,000
2061 (C)	49,000	320	0	49,000
2062 (D)	46,000	360	0	46,000
2063 (BN)	38,000	280	0	38,000

Los Molinos Subbasin Projected (Current Land Use) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		36,000	320	0	36,000
2065 (BN)		43,000	380	0	43,000
2066 (D)		50,000	300	0	50,000
2067 (C)		51,000	380	0	51,000
2068 (C)		49,000	270	0	49,000
2069 (BN)		44,000	290	0	44,000
2070 (W)		40,000	230	0	40,000
2071 (BN)		46,000	390	0	46,000
2072 (W)		40,000	230	0	40,000
Average (2022-2072)		41,000	300	0	41,000
2022-2072	W	36,000	250	0	36,000
	AN	38,000	270	0	38,000
	BN	42,000	330	0	42,000
	D	44,000	340	0	44,000
	C	47,000	350	0	47,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

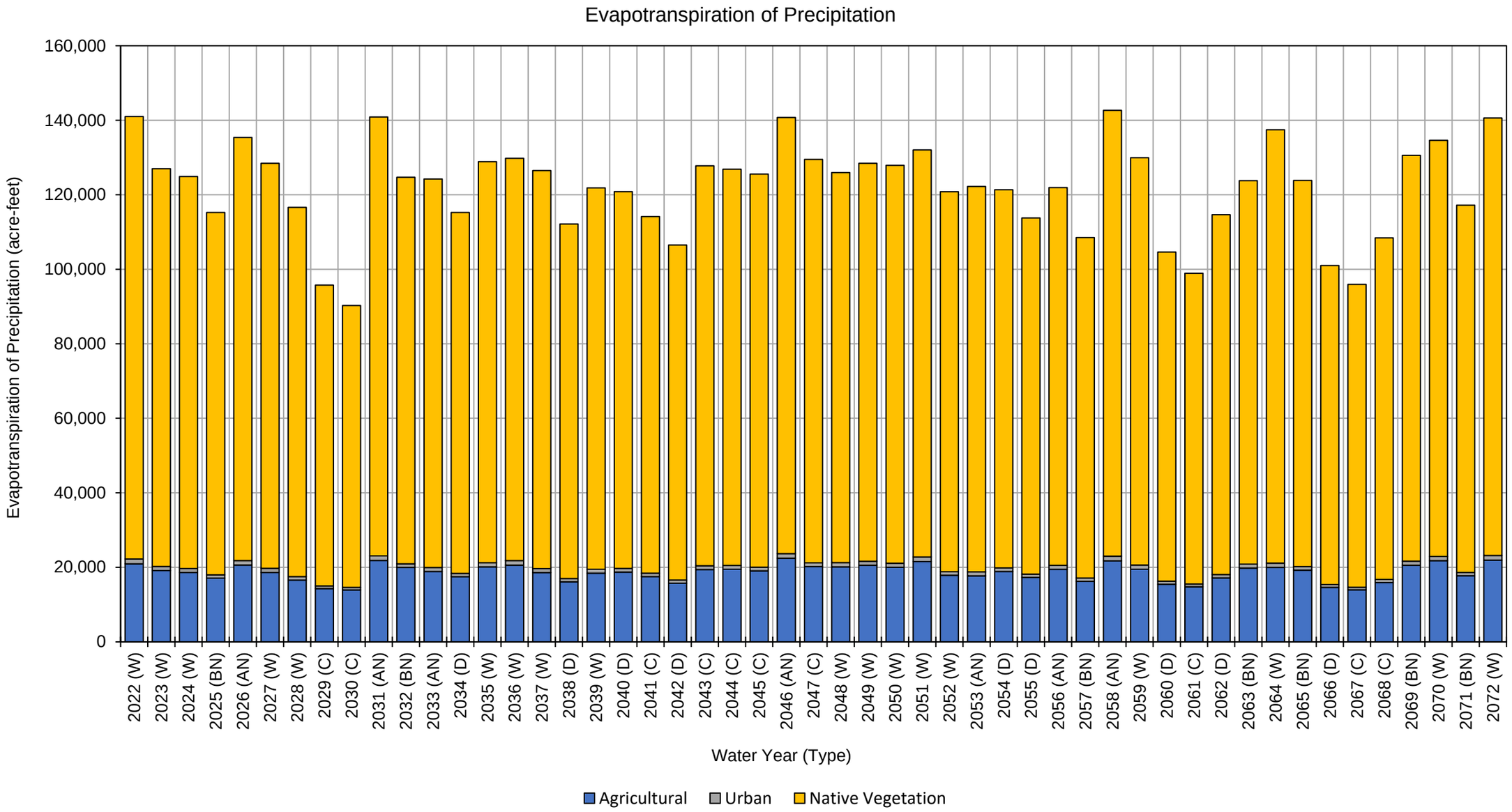
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	4,700	5	4,800	9,500
2023 (W)	7,100	9	5,800	13,000
2024 (W)	7,800	13	6,200	14,000
2025 (BN)	5,500	5	5,300	11,000
2026 (AN)	5,400	5	5,200	11,000
2027 (W)	8,100	16	6,100	14,000
2028 (W)	8,400	24	6,400	15,000
2029 (C)	5,900	7	5,600	12,000
2030 (C)	1,500	3	3,700	5,200
2031 (AN)	1,600	3	3,700	5,300
2032 (BN)	1,600	3	3,700	5,300
2033 (AN)	1,500	3	3,600	5,100
2034 (D)	1,900	4	3,800	5,700
2035 (W)	3,700	4	4,400	8,100
2036 (W)	7,300	21	5,400	13,000
2037 (W)	9,200	37	6,600	16,000
2038 (D)	7,800	24	6,100	14,000
2039 (W)	6,800	8	5,600	12,000
2040 (D)	5,000	6	5,000	10,000
2041 (C)	2,000	4	3,700	5,700
2042 (D)	620	3	2,500	3,100
2043 (C)	360	2	2,000	2,400
2044 (C)	140	1	1,300	1,400
2045 (C)	49	1	950	1,000
2046 (AN)	290	2	1,600	1,900
2047 (C)	320	2	1,800	2,100
2048 (W)	700	2	2,500	3,200
2049 (W)	2,100	4	3,900	6,000
2050 (W)	3,300	4	4,300	7,600
2051 (W)	5,700	7	4,800	11,000
2052 (W)	7,500	17	5,700	13,000
2053 (AN)	6,200	8	5,300	12,000
2054 (D)	4,100	5	4,500	8,600
2055 (D)	2,300	4	3,900	6,200
2056 (AN)	2,700	4	4,000	6,700
2057 (BN)	4,000	5	4,700	8,700
2058 (AN)	4,100	5	4,500	8,600
2059 (W)	6,900	9	5,500	12,000
2060 (D)	4,900	5	5,000	9,900
2061 (C)	2,000	4	3,800	5,800
2062 (D)	750	3	2,900	3,700
2063 (BN)	900	3	2,900	3,800

Los Molinos Subbasin Projected (Current Land Use) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		2,200	4	3,900	6,100
2065 (BN)		2,200	4	3,900	6,100
2066 (D)		900	3	2,900	3,800
2067 (C)		240	1	1,500	1,700
2068 (C)		56	1	880	940
2069 (BN)		41	1	820	860
2070 (W)		530	2	2,200	2,700
2071 (BN)		450	2	2,100	2,600
2072 (W)		810	2	2,700	3,500
Average (2022-2072)		3,300	6	3,900	7,200
2022-2072	W	5,200	10	4,800	10,000
	AN	3,100	4	4,000	7,100
	BN	2,100	3	3,300	5,400
	D	3,100	6	4,100	7,200
	C	1,200	2	2,500	3,700

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

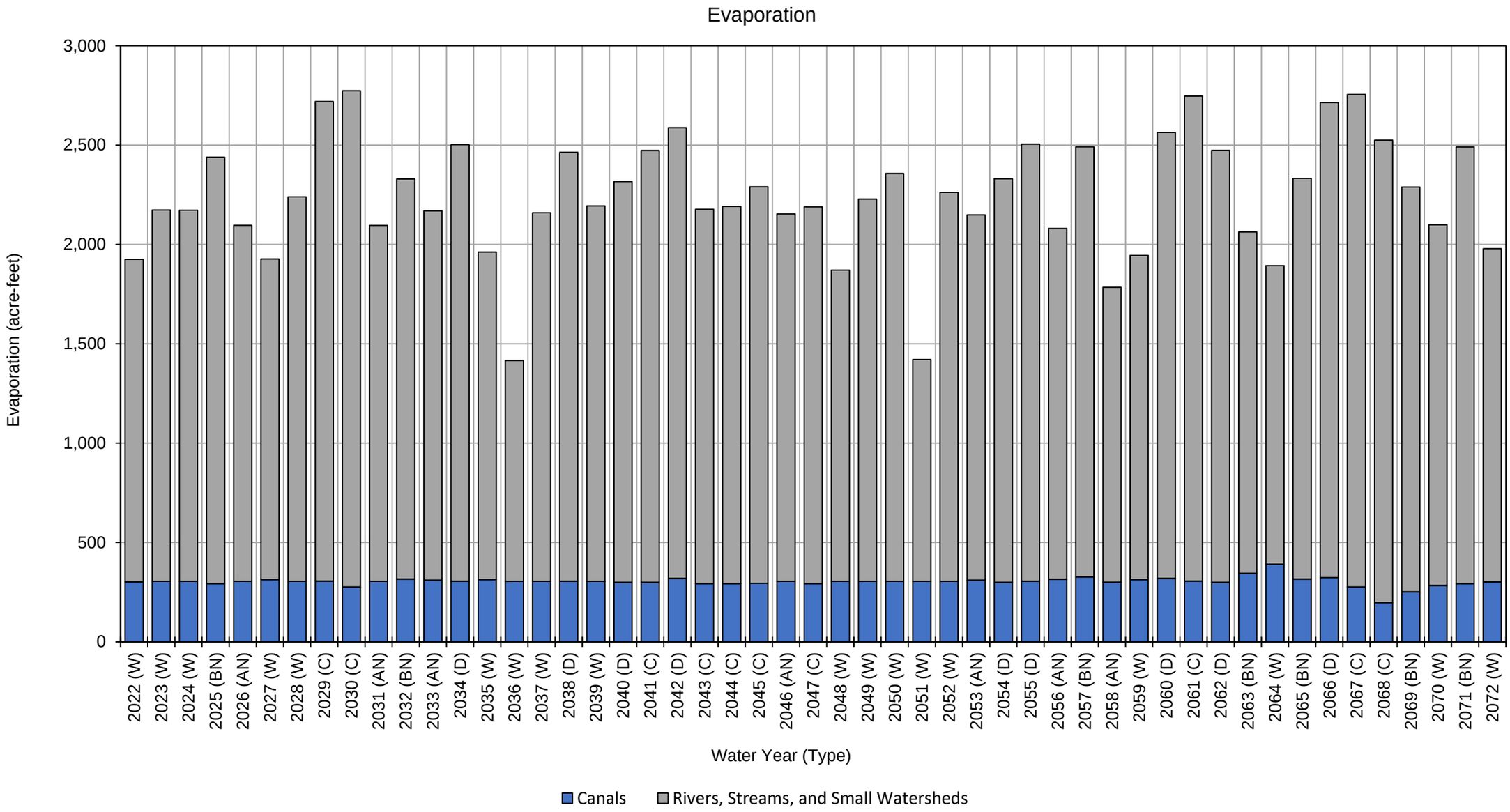
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	21,000	1,300	120,000	140,000
2023 (W)	19,000	1,100	110,000	130,000
2024 (W)	19,000	1,100	110,000	130,000
2025 (BN)	17,000	870	97,000	110,000
2026 (AN)	21,000	1,200	110,000	130,000
2027 (W)	19,000	1,100	110,000	130,000
2028 (W)	17,000	960	99,000	120,000
2029 (C)	14,000	730	81,000	96,000
2030 (C)	14,000	680	76,000	91,000
2031 (AN)	22,000	1,300	120,000	140,000
2032 (BN)	20,000	960	100,000	120,000
2033 (AN)	19,000	1,100	100,000	120,000
2034 (D)	17,000	880	97,000	110,000
2035 (W)	20,000	1,100	110,000	130,000
2036 (W)	21,000	1,200	110,000	130,000
2037 (W)	19,000	1,100	110,000	130,000
2038 (D)	16,000	870	95,000	110,000
2039 (W)	18,000	1,100	100,000	120,000
2040 (D)	19,000	970	100,000	120,000
2041 (C)	17,000	900	96,000	110,000
2042 (D)	16,000	840	90,000	110,000
2043 (C)	19,000	1,000	110,000	130,000
2044 (C)	19,000	1,000	110,000	130,000
2045 (C)	19,000	990	110,000	130,000
2046 (AN)	22,000	1,200	120,000	140,000
2047 (C)	20,000	1,000	110,000	130,000
2048 (W)	20,000	1,100	100,000	120,000
2049 (W)	21,000	1,100	110,000	130,000
2050 (W)	20,000	1,100	110,000	130,000
2051 (W)	22,000	1,300	110,000	130,000
2052 (W)	18,000	970	100,000	120,000
2053 (AN)	18,000	1,100	100,000	120,000
2054 (D)	19,000	970	100,000	120,000
2055 (D)	17,000	880	96,000	110,000
2056 (AN)	19,000	1,100	100,000	120,000
2057 (BN)	16,000	890	91,000	110,000
2058 (AN)	22,000	1,300	120,000	140,000
2059 (W)	19,000	1,100	110,000	130,000
2060 (D)	15,000	840	88,000	100,000
2061 (C)	15,000	750	83,000	99,000
2062 (D)	17,000	910	97,000	110,000
2063 (BN)	20,000	1,100	100,000	120,000

Los Molinos Subbasin Projected (Current Land Use) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		20,000	1,200	120,000	140,000
2065 (BN)		19,000	960	100,000	120,000
2066 (D)		15,000	750	86,000	100,000
2067 (C)		14,000	710	81,000	96,000
2068 (C)		16,000	830	92,000	110,000
2069 (BN)		21,000	1,100	110,000	130,000
2070 (W)		22,000	1,100	110,000	130,000
2071 (BN)		18,000	870	99,000	120,000
2072 (W)		22,000	1,300	120,000	140,000
Average (2022-2072)		19,000	1,000	100,000	120,000
2022-2072	W	20,000	1,100	110,000	130,000
	AN	20,000	1,200	110,000	130,000
	BN	19,000	960	100,000	120,000
	D	17,000	880	95,000	110,000
	C	17,000	870	94,000	110,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Evaporation (acre-feet, rounded)

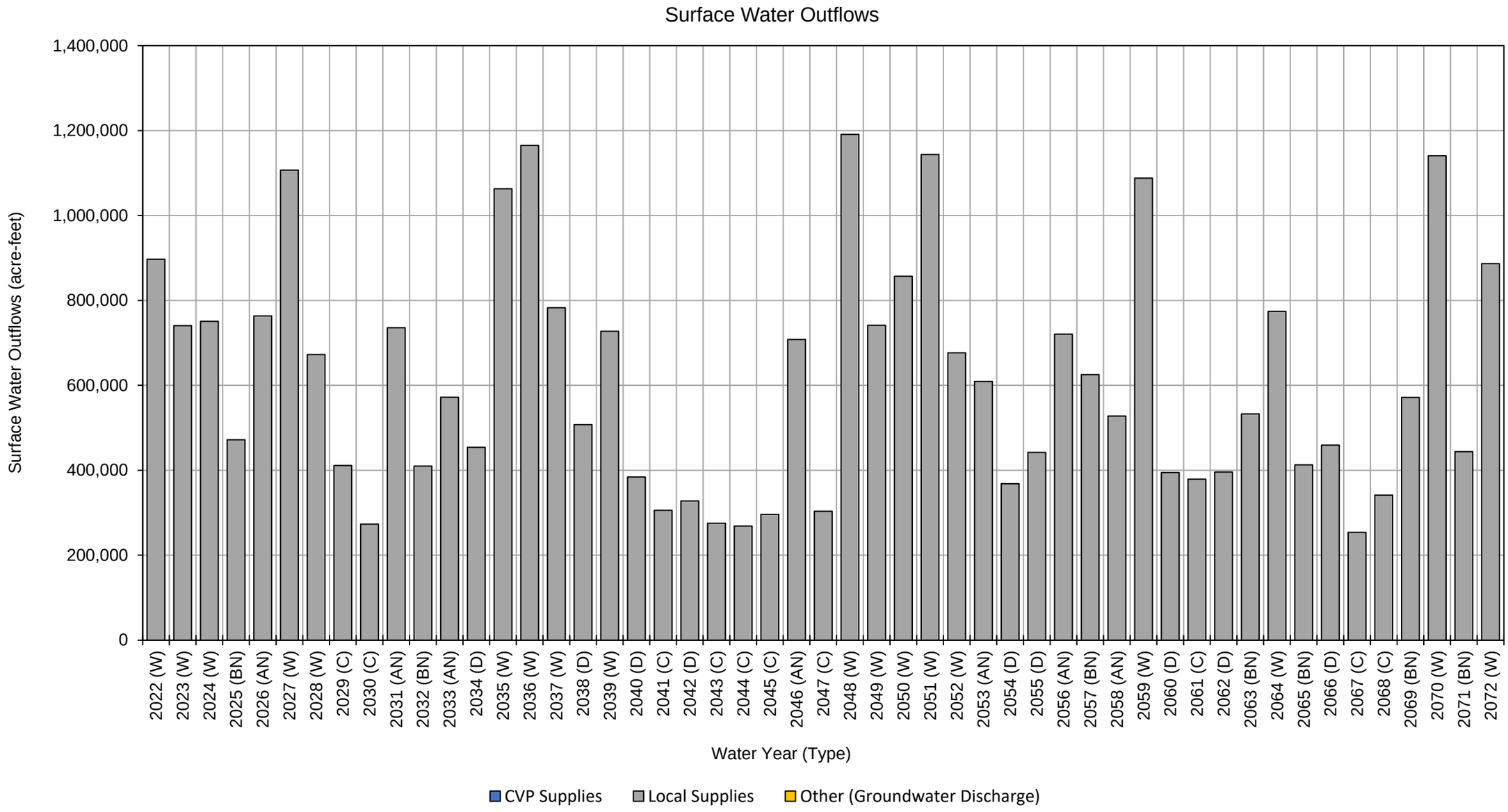
WY (Type)	Canals	Rivers, Streams, and Small Watersheds	Total
2022 (W)	300	1,600	1,900
2023 (W)	300	1,900	2,200
2024 (W)	300	1,900	2,200
2025 (BN)	290	2,100	2,400
2026 (AN)	300	1,800	2,100
2027 (W)	310	1,600	1,900
2028 (W)	300	1,900	2,200
2029 (C)	310	2,400	2,700
2030 (C)	280	2,500	2,800
2031 (AN)	300	1,800	2,100
2032 (BN)	320	2,000	2,300
2033 (AN)	310	1,900	2,200
2034 (D)	310	2,200	2,500
2035 (W)	310	1,600	1,900
2036 (W)	300	1,100	1,400
2037 (W)	300	1,900	2,200
2038 (D)	310	2,200	2,500
2039 (W)	300	1,900	2,200
2040 (D)	300	2,000	2,300
2041 (C)	300	2,200	2,500
2042 (D)	320	2,300	2,600
2043 (C)	290	1,900	2,200
2044 (C)	290	1,900	2,200
2045 (C)	290	2,000	2,300
2046 (AN)	300	1,800	2,100
2047 (C)	290	1,900	2,200
2048 (W)	300	1,600	1,900
2049 (W)	300	1,900	2,200
2050 (W)	300	2,100	2,400
2051 (W)	300	1,100	1,400
2052 (W)	300	2,000	2,300
2053 (AN)	310	1,800	2,100
2054 (D)	300	2,000	2,300
2055 (D)	310	2,200	2,500
2056 (AN)	320	1,800	2,100
2057 (BN)	330	2,200	2,500
2058 (AN)	300	1,500	1,800
2059 (W)	310	1,600	1,900
2060 (D)	320	2,200	2,500
2061 (C)	310	2,400	2,700
2062 (D)	300	2,200	2,500
2063 (BN)	340	1,700	2,000

Los Molinos Subbasin Projected (Current Land Use) Evaporation (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Watersheds	Total
2064 (W)		390	1,500	1,900
2065 (BN)		320	2,000	2,300
2066 (D)		320	2,400	2,700
2067 (C)		280	2,500	2,800
2068 (C)		200	2,300	2,500
2069 (BN)		250	2,000	2,300
2070 (W)		280	1,800	2,100
2071 (BN)		290	2,200	2,500
2072 (W)		300	1,700	2,000
Average (2022-2072)		300	1,900	2,200
2022-2072	W	310	1,700	2,000
	AN	310	1,800	2,100
	BN	310	2,000	2,300
	D	310	2,200	2,500
	C	280	2,200	2,500

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

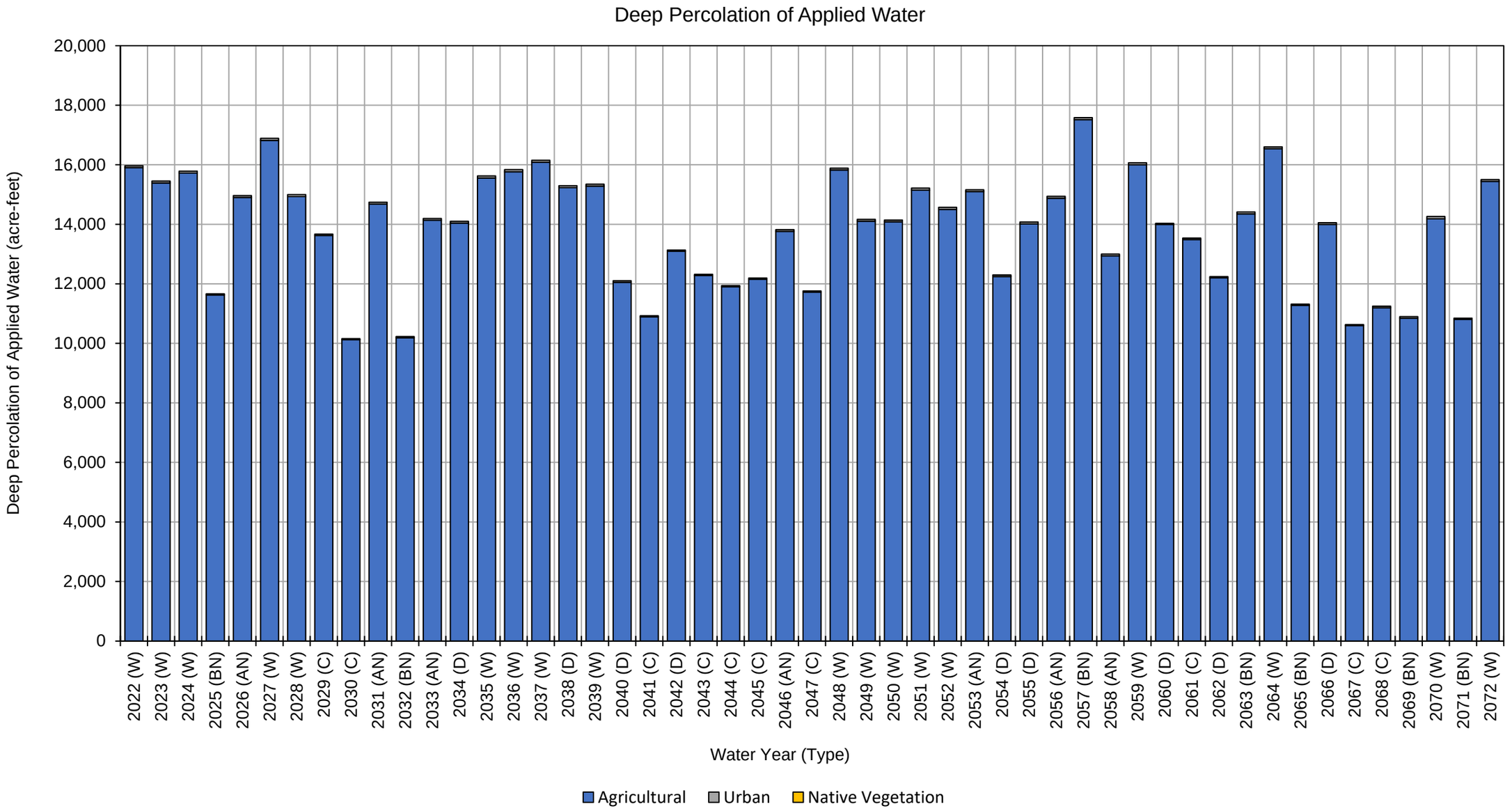
WY (Type)	CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2022 (W)	0	900,000	0	900,000
2023 (W)	0	740,000	0	740,000
2024 (W)	0	750,000	0	750,000
2025 (BN)	0	470,000	0	470,000
2026 (AN)	0	760,000	0	760,000
2027 (W)	0	1,100,000	0	1,100,000
2028 (W)	0	670,000	0	670,000
2029 (C)	0	410,000	0	410,000
2030 (C)	0	270,000	0	270,000
2031 (AN)	0	740,000	0	740,000
2032 (BN)	0	410,000	0	410,000
2033 (AN)	0	570,000	0	570,000
2034 (D)	0	450,000	0	450,000
2035 (W)	0	1,100,000	0	1,100,000
2036 (W)	0	1,200,000	0	1,200,000
2037 (W)	0	780,000	0	780,000
2038 (D)	0	510,000	0	510,000
2039 (W)	0	730,000	0	730,000
2040 (D)	0	380,000	0	380,000
2041 (C)	0	310,000	0	310,000
2042 (D)	0	330,000	0	330,000
2043 (C)	0	280,000	0	280,000
2044 (C)	0	270,000	0	270,000
2045 (C)	0	300,000	0	300,000
2046 (AN)	0	710,000	0	710,000
2047 (C)	0	300,000	0	300,000
2048 (W)	0	1,200,000	0	1,200,000
2049 (W)	0	740,000	0	740,000
2050 (W)	0	860,000	0	860,000
2051 (W)	0	1,100,000	0	1,100,000
2052 (W)	0	680,000	0	680,000
2053 (AN)	0	610,000	0	610,000
2054 (D)	0	370,000	0	370,000
2055 (D)	0	440,000	0	440,000
2056 (AN)	0	720,000	0	720,000
2057 (BN)	0	630,000	0	630,000
2058 (AN)	0	530,000	0	530,000
2059 (W)	0	1,100,000	0	1,100,000
2060 (D)	0	390,000	0	390,000
2061 (C)	0	380,000	0	380,000
2062 (D)	0	400,000	0	400,000
2063 (BN)	0	530,000	0	530,000

Los Molinos Subbasin Projected (Current Land Use) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2064 (W)		0	770,000	0	770,000
2065 (BN)		0	410,000	0	410,000
2066 (D)		0	460,000	0	460,000
2067 (C)		0	250,000	0	250,000
2068 (C)		0	340,000	0	340,000
2069 (BN)		0	570,000	0	570,000
2070 (W)		0	1,100,000	0	1,100,000
2071 (BN)		0	440,000	0	440,000
2072 (W)		0	890,000	0	890,000
Average (2022-2072)		0	610,000	0	610,000
2022-2072	W	0	910,000	0	910,000
	AN	0	660,000	0	660,000
	BN	0	500,000	0	500,000
	D	0	410,000	0	410,000
	C	0	310,000	0	310,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

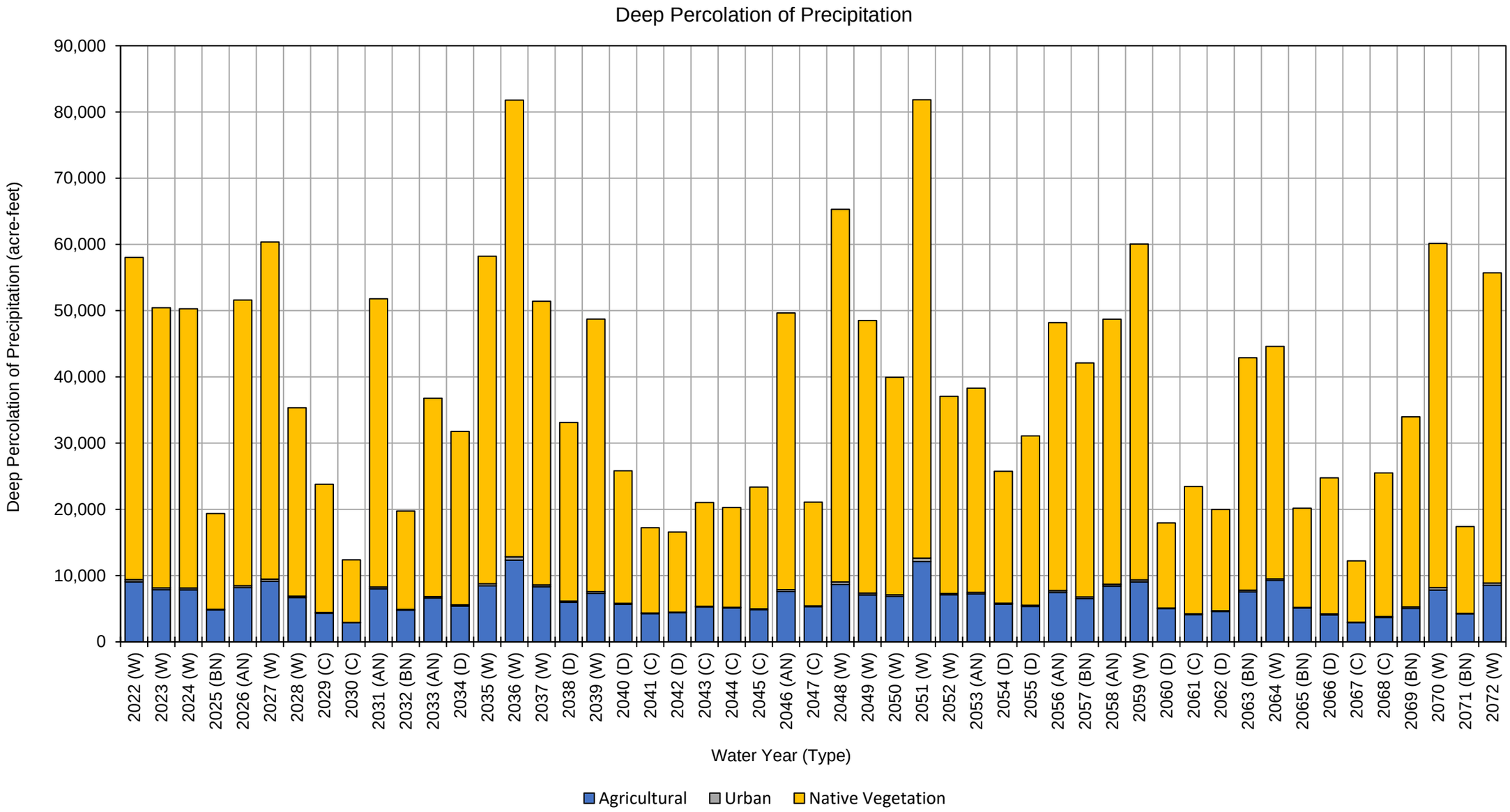
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	16,000	61	0	16,000
2023 (W)	15,000	65	0	15,000
2024 (W)	16,000	65	0	16,000
2025 (BN)	12,000	38	0	12,000
2026 (AN)	15,000	59	0	15,000
2027 (W)	17,000	71	0	17,000
2028 (W)	15,000	70	0	15,000
2029 (C)	14,000	49	0	14,000
2030 (C)	10,000	31	0	10,000
2031 (AN)	15,000	60	0	15,000
2032 (BN)	10,000	40	0	10,000
2033 (AN)	14,000	60	0	14,000
2034 (D)	14,000	64	0	14,000
2035 (W)	16,000	70	0	16,000
2036 (W)	16,000	74	0	16,000
2037 (W)	16,000	68	0	16,000
2038 (D)	15,000	66	0	15,000
2039 (W)	15,000	65	0	15,000
2040 (D)	12,000	51	0	12,000
2041 (C)	11,000	40	0	11,000
2042 (D)	13,000	36	0	13,000
2043 (C)	12,000	39	0	12,000
2044 (C)	12,000	39	0	12,000
2045 (C)	12,000	43	0	12,000
2046 (AN)	14,000	58	0	14,000
2047 (C)	12,000	39	0	12,000
2048 (W)	16,000	61	0	16,000
2049 (W)	14,000	64	0	14,000
2050 (W)	14,000	58	0	14,000
2051 (W)	15,000	73	0	15,000
2052 (W)	15,000	70	0	15,000
2053 (AN)	15,000	61	0	15,000
2054 (D)	12,000	51	0	12,000
2055 (D)	14,000	64	0	14,000
2056 (AN)	15,000	67	0	15,000
2057 (BN)	18,000	69	0	18,000
2058 (AN)	13,000	64	0	13,000
2059 (W)	16,000	70	0	16,000
2060 (D)	14,000	37	0	14,000
2061 (C)	13,000	49	0	13,000
2062 (D)	12,000	39	0	12,000
2063 (BN)	14,000	66	0	14,000

Los Molinos Subbasin Projected (Current Land Use) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		17,000	62	0	17,000
2065 (BN)		11,000	40	0	11,000
2066 (D)		14,000	57	0	14,000
2067 (C)		11,000	31	0	11,000
2068 (C)		11,000	52	0	11,000
2069 (BN)		11,000	55	0	11,000
2070 (W)		14,000	79	0	14,000
2071 (BN)		11,000	38	0	11,000
2072 (W)		15,000	60	0	15,000
Average (2022-2072)		14,000	56	0	14,000
2022-2072	W	15,000	67	0	15,000
	AN	14,000	61	0	14,000
	BN	12,000	49	0	12,000
	D	13,000	52	0	13,000
	C	12,000	41	0	12,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

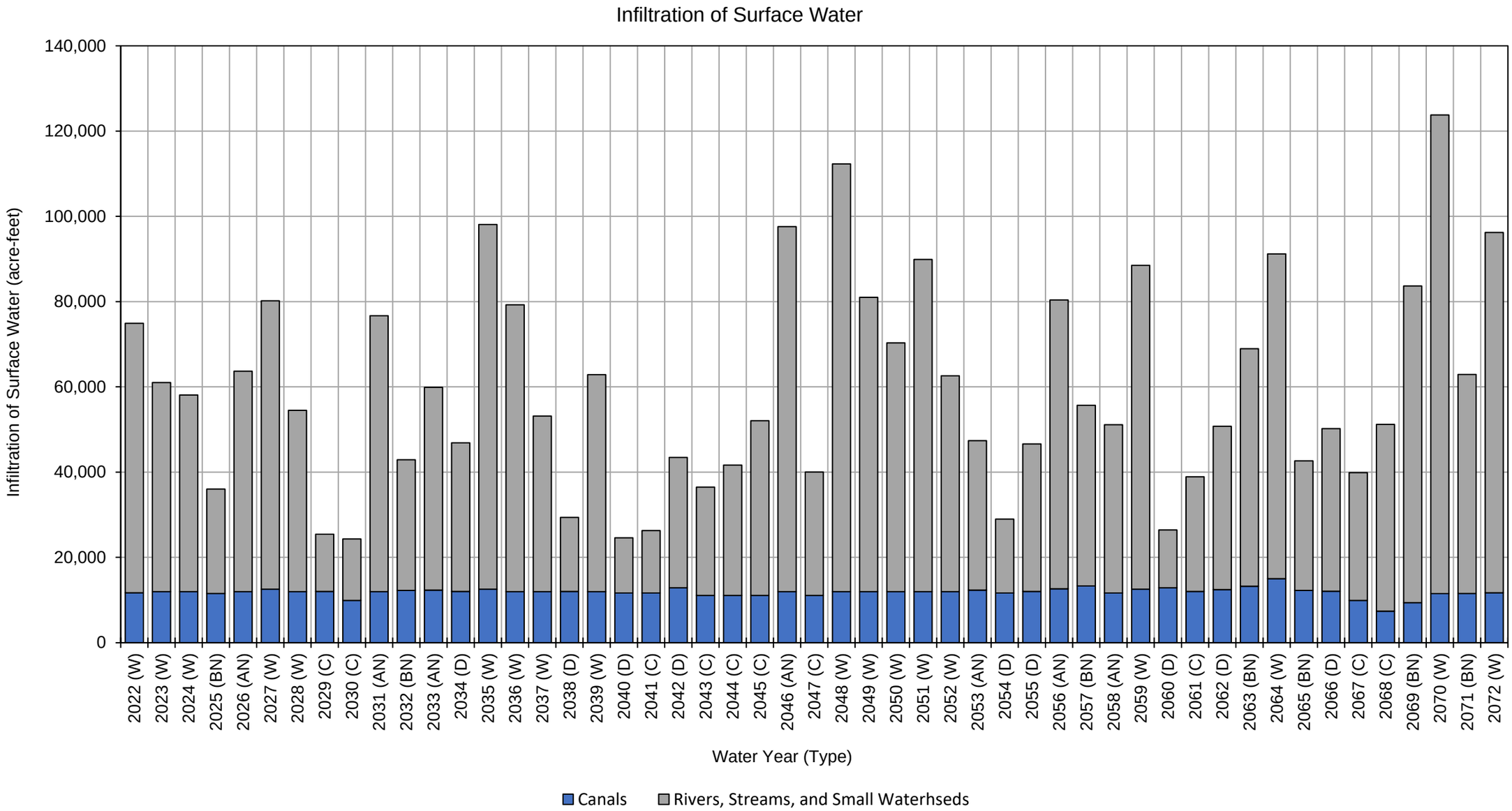
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	9,000	340	49,000	58,000
2023 (W)	7,900	270	42,000	50,000
2024 (W)	7,800	270	42,000	50,000
2025 (BN)	4,800	86	14,000	19,000
2026 (AN)	8,200	280	43,000	51,000
2027 (W)	9,100	330	51,000	60,000
2028 (W)	6,700	210	28,000	35,000
2029 (C)	4,300	120	19,000	23,000
2030 (C)	2,900	58	9,500	12,000
2031 (AN)	8,000	280	44,000	52,000
2032 (BN)	4,800	100	15,000	20,000
2033 (AN)	6,600	220	30,000	37,000
2034 (D)	5,400	180	26,000	32,000
2035 (W)	8,400	330	49,000	58,000
2036 (W)	12,000	510	69,000	82,000
2037 (W)	8,300	280	43,000	52,000
2038 (D)	6,000	180	27,000	33,000
2039 (W)	7,300	270	41,000	49,000
2040 (D)	5,700	150	20,000	26,000
2041 (C)	4,300	92	13,000	17,000
2042 (D)	4,400	79	12,000	16,000
2043 (C)	5,300	100	16,000	21,000
2044 (C)	5,100	100	15,000	20,000
2045 (C)	4,900	130	18,000	23,000
2046 (AN)	7,600	280	42,000	50,000
2047 (C)	5,300	100	16,000	21,000
2048 (W)	8,600	390	56,000	65,000
2049 (W)	7,100	270	41,000	48,000
2050 (W)	6,900	230	33,000	40,000
2051 (W)	12,000	510	69,000	82,000
2052 (W)	7,100	210	30,000	37,000
2053 (AN)	7,200	220	31,000	38,000
2054 (D)	5,700	150	20,000	26,000
2055 (D)	5,300	180	26,000	31,000
2056 (AN)	7,500	280	40,000	48,000
2057 (BN)	6,500	260	35,000	42,000
2058 (AN)	8,400	270	40,000	49,000
2059 (W)	9,000	330	51,000	60,000
2060 (D)	5,000	79	13,000	18,000
2061 (C)	4,100	120	19,000	23,000
2062 (D)	4,600	98	15,000	20,000
2063 (BN)	7,500	250	35,000	43,000

Los Molinos Subbasin Projected (Current Land Use) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		9,300	230	35,000	45,000
2065 (BN)		5,100	100	15,000	20,000
2066 (D)		4,100	140	21,000	25,000
2067 (C)		2,900	58	9,300	12,000
2068 (C)		3,600	160	22,000	26,000
2069 (BN)		5,100	210	29,000	34,000
2070 (W)		7,800	380	52,000	60,000
2071 (BN)		4,200	86	13,000	17,000
2072 (W)		8,500	330	47,000	56,000
Average (2022-2072)		6,500	210	31,000	38,000
2022-2072	W	8,500	320	46,000	55,000
	AN	7,600	260	39,000	47,000
	BN	5,400	160	22,000	28,000
	D	5,100	140	20,000	25,000
	C	4,300	100	16,000	20,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Infiltration of Surface Water (acre-feet, rounded)

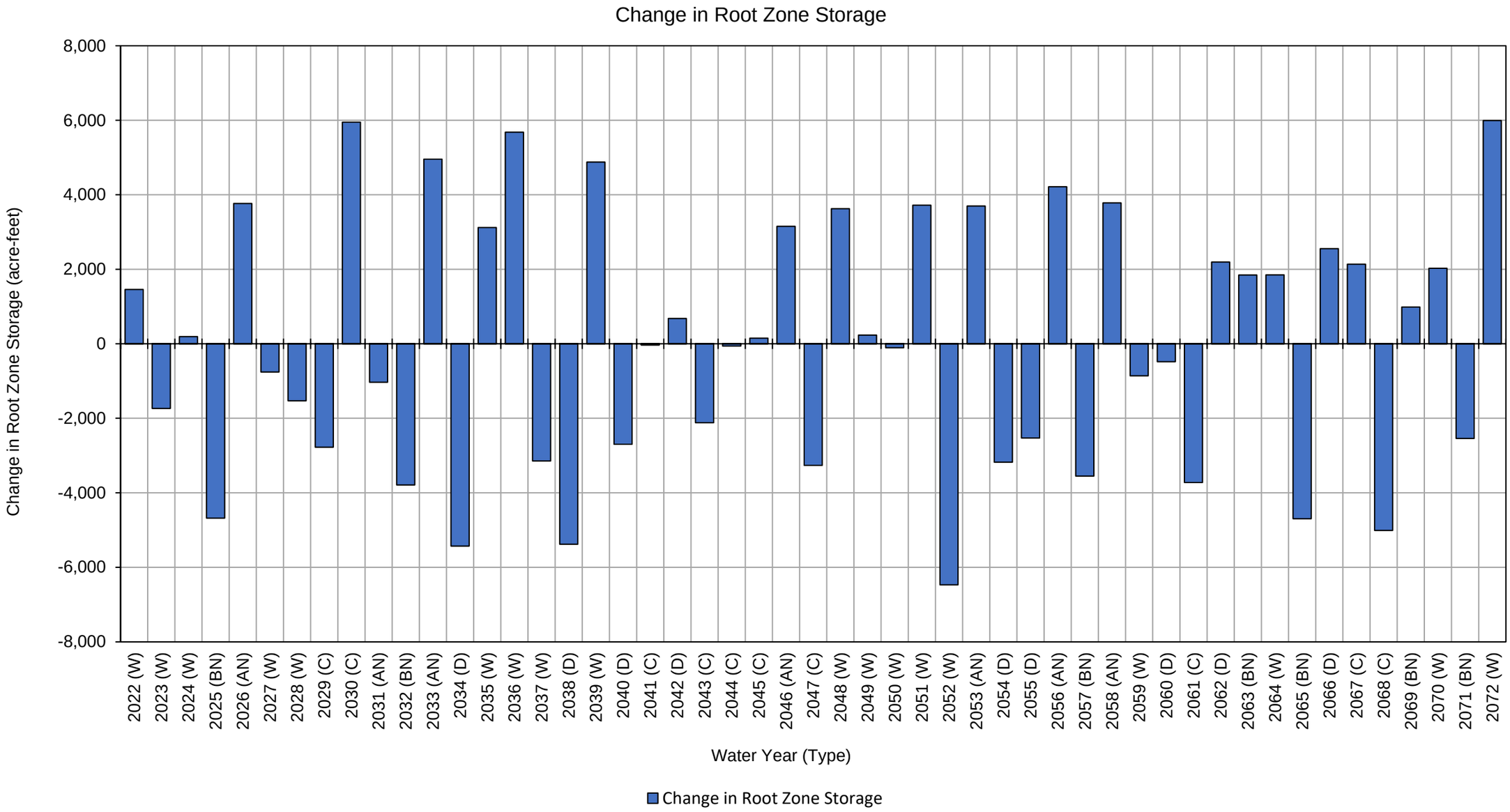
WY (Type)	Canals	Rivers, Streams, and Small Waterhseds	Total
2022 (W)	12,000	63,000	75,000
2023 (W)	12,000	49,000	61,000
2024 (W)	12,000	46,000	58,000
2025 (BN)	12,000	24,000	36,000
2026 (AN)	12,000	52,000	64,000
2027 (W)	13,000	68,000	81,000
2028 (W)	12,000	43,000	55,000
2029 (C)	12,000	13,000	25,000
2030 (C)	9,900	14,000	24,000
2031 (AN)	12,000	65,000	77,000
2032 (BN)	12,000	31,000	43,000
2033 (AN)	12,000	48,000	60,000
2034 (D)	12,000	35,000	47,000
2035 (W)	13,000	86,000	99,000
2036 (W)	12,000	67,000	79,000
2037 (W)	12,000	41,000	53,000
2038 (D)	12,000	17,000	29,000
2039 (W)	12,000	51,000	63,000
2040 (D)	12,000	13,000	25,000
2041 (C)	12,000	15,000	27,000
2042 (D)	13,000	31,000	44,000
2043 (C)	11,000	25,000	36,000
2044 (C)	11,000	31,000	42,000
2045 (C)	11,000	41,000	52,000
2046 (AN)	12,000	86,000	98,000
2047 (C)	11,000	29,000	40,000
2048 (W)	12,000	100,000	110,000
2049 (W)	12,000	69,000	81,000
2050 (W)	12,000	58,000	70,000
2051 (W)	12,000	78,000	90,000
2052 (W)	12,000	51,000	63,000
2053 (AN)	12,000	35,000	47,000
2054 (D)	12,000	17,000	29,000
2055 (D)	12,000	35,000	47,000
2056 (AN)	13,000	68,000	81,000
2057 (BN)	13,000	42,000	55,000
2058 (AN)	12,000	39,000	51,000
2059 (W)	13,000	76,000	89,000
2060 (D)	13,000	14,000	27,000
2061 (C)	12,000	27,000	39,000
2062 (D)	12,000	38,000	50,000
2063 (BN)	13,000	56,000	69,000

Los Molinos Subbasin Projected (Current Land Use) Infiltration of Surface Water (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Waterhseds	Total
2064 (W)		15,000	76,000	91,000
2065 (BN)		12,000	30,000	42,000
2066 (D)		12,000	38,000	50,000
2067 (C)		9,900	30,000	40,000
2068 (C)		7,400	44,000	51,000
2069 (BN)		9,400	74,000	83,000
2070 (W)		12,000	110,000	120,000
2071 (BN)		12,000	51,000	63,000
2072 (W)		12,000	85,000	97,000
Average (2022-2072)		12,000	48,000	60,000
2022-2072	W	12,000	68,000	80,000
	AN	12,000	56,000	68,000
	BN	12,000	44,000	56,000
	D	12,000	26,000	38,000
	C	11,000	27,000	38,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)	Change in Root Zone Storage
2022 (W)	1,500
2023 (W)	-1,700
2024 (W)	190
2025 (BN)	-4,700
2026 (AN)	3,800
2027 (W)	-760
2028 (W)	-1,500
2029 (C)	-2,800
2030 (C)	5,900
2031 (AN)	-1,000
2032 (BN)	-3,800
2033 (AN)	5,000
2034 (D)	-5,400
2035 (W)	3,100
2036 (W)	5,700
2037 (W)	-3,100
2038 (D)	-5,400
2039 (W)	4,900
2040 (D)	-2,700
2041 (C)	-35
2042 (D)	680
2043 (C)	-2,100
2044 (C)	-60
2045 (C)	150
2046 (AN)	3,200
2047 (C)	-3,300
2048 (W)	3,600
2049 (W)	230
2050 (W)	-110
2051 (W)	3,700
2052 (W)	-6,500
2053 (AN)	3,700
2054 (D)	-3,200
2055 (D)	-2,500
2056 (AN)	4,200
2057 (BN)	-3,600
2058 (AN)	3,800
2059 (W)	-860
2060 (D)	-480
2061 (C)	-3,700
2062 (D)	2,200
2063 (BN)	1,800

Los Molinos Subbasin Projected (Current Land Use) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)		Change in Root Zone Storage
2064 (W)		1,800
2065 (BN)		-4,700
2066 (D)		2,600
2067 (C)		2,100
2068 (C)		-5,000
2069 (BN)		980
2070 (W)		2,000
2071 (BN)		-2,500
2072 (W)		6,000
Average (2022-2072)		24
2022-2072	W	1,000
	AN	3,200
	BN	-2,300
	D	-1,600
	C	-880

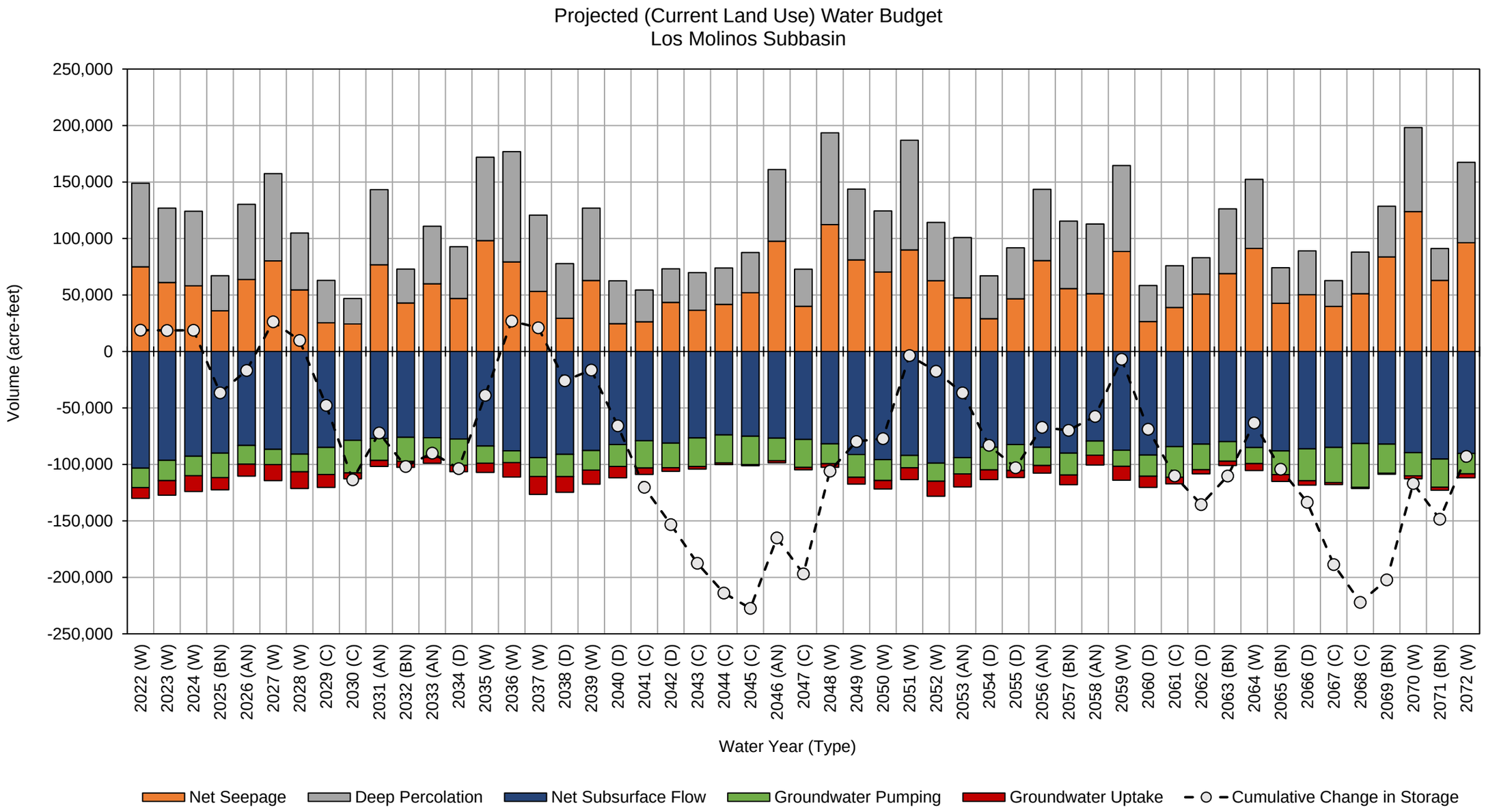
Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX C-2b

Detailed Los Molinos Subbasin Water Budget Results:

Projected (Current Land Use) Model Results – Groundwater System


Projected (Current Land Use) Water Budget
Los Molinos Subbasin
Volume (acre-feet)
250,000
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
-250,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Los Molinos Subbasin Projected (Current Land Use) Water Budget Summary (acre-feet, rounded)

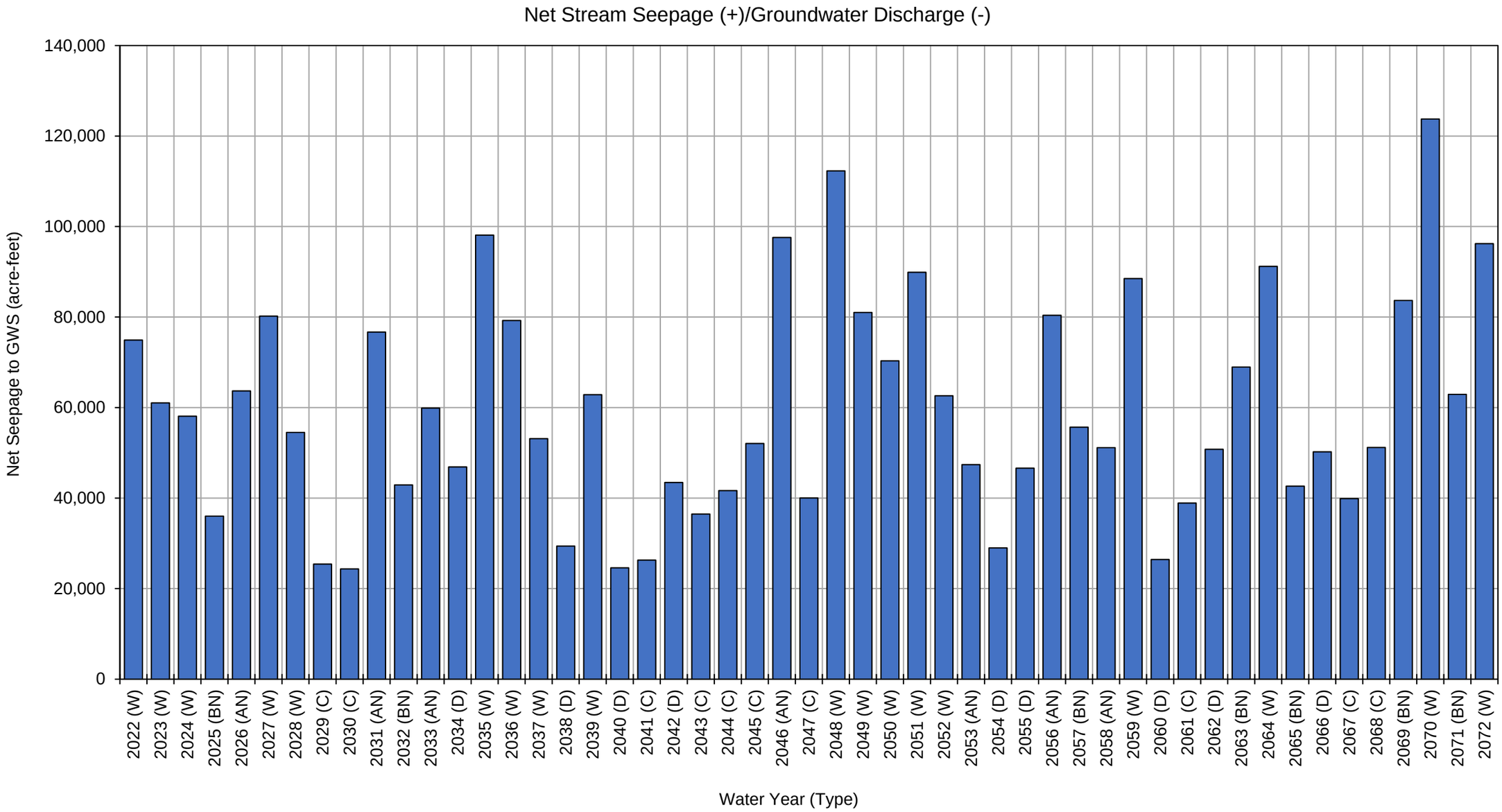
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	75,000	74,000	-17,000	-9,500	-100,000	19,000	19,000
2023 (W)	61,000	66,000	-18,000	-13,000	-96,000	-310	19,000
2024 (W)	58,000	66,000	-17,000	-14,000	-93,000	180	19,000
2025 (BN)	36,000	31,000	-22,000	-11,000	-90,000	-55,000	-37,000
2026 (AN)	64,000	67,000	-17,000	-11,000	-83,000	20,000	-17,000
2027 (W)	80,000	77,000	-14,000	-14,000	-87,000	43,000	26,000
2028 (W)	55,000	50,000	-16,000	-15,000	-91,000	-17,000	9,800
2029 (C)	25,000	37,000	-24,000	-11,000	-85,000	-57,000	-48,000
2030 (C)	24,000	23,000	-29,000	-5,200	-79,000	-66,000	-110,000
2031 (AN)	77,000	67,000	-19,000	-5,300	-77,000	41,000	-72,000
2032 (BN)	43,000	30,000	-21,000	-5,300	-76,000	-30,000	-100,000
2033 (AN)	60,000	51,000	-17,000	-5,100	-76,000	12,000	-90,000
2034 (D)	47,000	46,000	-23,000	-5,700	-78,000	-14,000	-100,000
2035 (W)	98,000	74,000	-15,000	-8,100	-84,000	65,000	-39,000
2036 (W)	79,000	98,000	-10,000	-13,000	-88,000	66,000	27,000
2037 (W)	53,000	68,000	-17,000	-16,000	-94,000	-5,900	21,000
2038 (D)	29,000	48,000	-20,000	-14,000	-91,000	-47,000	-26,000
2039 (W)	63,000	64,000	-17,000	-12,000	-88,000	9,400	-16,000
2040 (D)	25,000	38,000	-19,000	-10,000	-82,000	-49,000	-66,000
2041 (C)	26,000	28,000	-24,000	-5,700	-79,000	-54,000	-120,000
2042 (D)	43,000	30,000	-22,000	-3,200	-81,000	-33,000	-150,000
2043 (C)	36,000	33,000	-25,000	-2,300	-77,000	-34,000	-190,000
2044 (C)	42,000	32,000	-25,000	-1,400	-74,000	-26,000	-210,000
2045 (C)	52,000	36,000	-25,000	-1,000	-75,000	-14,000	-230,000
2046 (AN)	98,000	63,000	-20,000	-1,900	-77,000	62,000	-160,000
2047 (C)	40,000	33,000	-25,000	-2,100	-78,000	-32,000	-200,000
2048 (W)	110,000	81,000	-18,000	-3,200	-82,000	91,000	-110,000
2049 (W)	81,000	63,000	-20,000	-6,000	-91,000	26,000	-80,000
2050 (W)	70,000	54,000	-18,000	-7,600	-96,000	2,600	-77,000
2051 (W)	90,000	97,000	-11,000	-11,000	-92,000	73,000	-3,600
2052 (W)	63,000	52,000	-16,000	-13,000	-99,000	-14,000	-18,000
2053 (AN)	47,000	53,000	-14,000	-12,000	-94,000	-19,000	-37,000
2054 (D)	29,000	38,000	-20,000	-8,600	-85,000	-46,000	-83,000
2055 (D)	47,000	45,000	-23,000	-6,200	-82,000	-20,000	-100,000
2056 (AN)	80,000	63,000	-16,000	-6,800	-85,000	36,000	-67,000
2057 (BN)	56,000	60,000	-19,000	-8,600	-90,000	-2,700	-70,000
2058 (AN)	51,000	62,000	-13,000	-8,600	-79,000	12,000	-57,000
2059 (W)	88,000	76,000	-14,000	-12,000	-87,000	51,000	-6,900
2060 (D)	26,000	32,000	-19,000	-9,900	-92,000	-62,000	-69,000
2061 (C)	39,000	37,000	-27,000	-5,800	-84,000	-41,000	-110,000
2062 (D)	51,000	32,000	-23,000	-3,600	-82,000	-25,000	-140,000
2063 (BN)	69,000	57,000	-17,000	-3,800	-80,000	25,000	-110,000
2064 (W)	91,000	61,000	-14,000	-6,100	-85,000	47,000	-63,000
2065 (BN)	43,000	31,000	-21,000	-6,100	-88,000	-41,000	-100,000

Los Molinos Subbasin Projected (Current Land Use) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		50,000	39,000	-28,000	-3,800	-86,000	-29,000	-130,000
2067 (C)		40,000	23,000	-31,000	-1,800	-85,000	-55,000	-190,000
2068 (C)		51,000	37,000	-39,000	-940	-82,000	-33,000	-220,000
2069 (BN)		84,000	45,000	-26,000	-870	-82,000	20,000	-200,000
2070 (W)		120,000	74,000	-20,000	-2,700	-90,000	85,000	-120,000
2071 (BN)		63,000	28,000	-25,000	-2,500	-95,000	-32,000	-150,000
2072 (W)		96,000	71,000	-18,000	-3,500	-90,000	56,000	-93,000
Average (2022-2072)		59,000	52,000	-20,000	-7,300	-86,000	-1,800	
2022-2072	W	80,000	70,000	-16,000	-10,000	-91,000		
	AN	68,000	61,000	-17,000	-7,100	-82,000		
	BN	56,000	40,000	-22,000	-5,400	-86,000		
	D	39,000	39,000	-22,000	-7,200	-84,000		
	C	38,000	32,000	-27,000	-3,800	-80,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Net Stream Seepage (net flows as acre-feet, rounded)

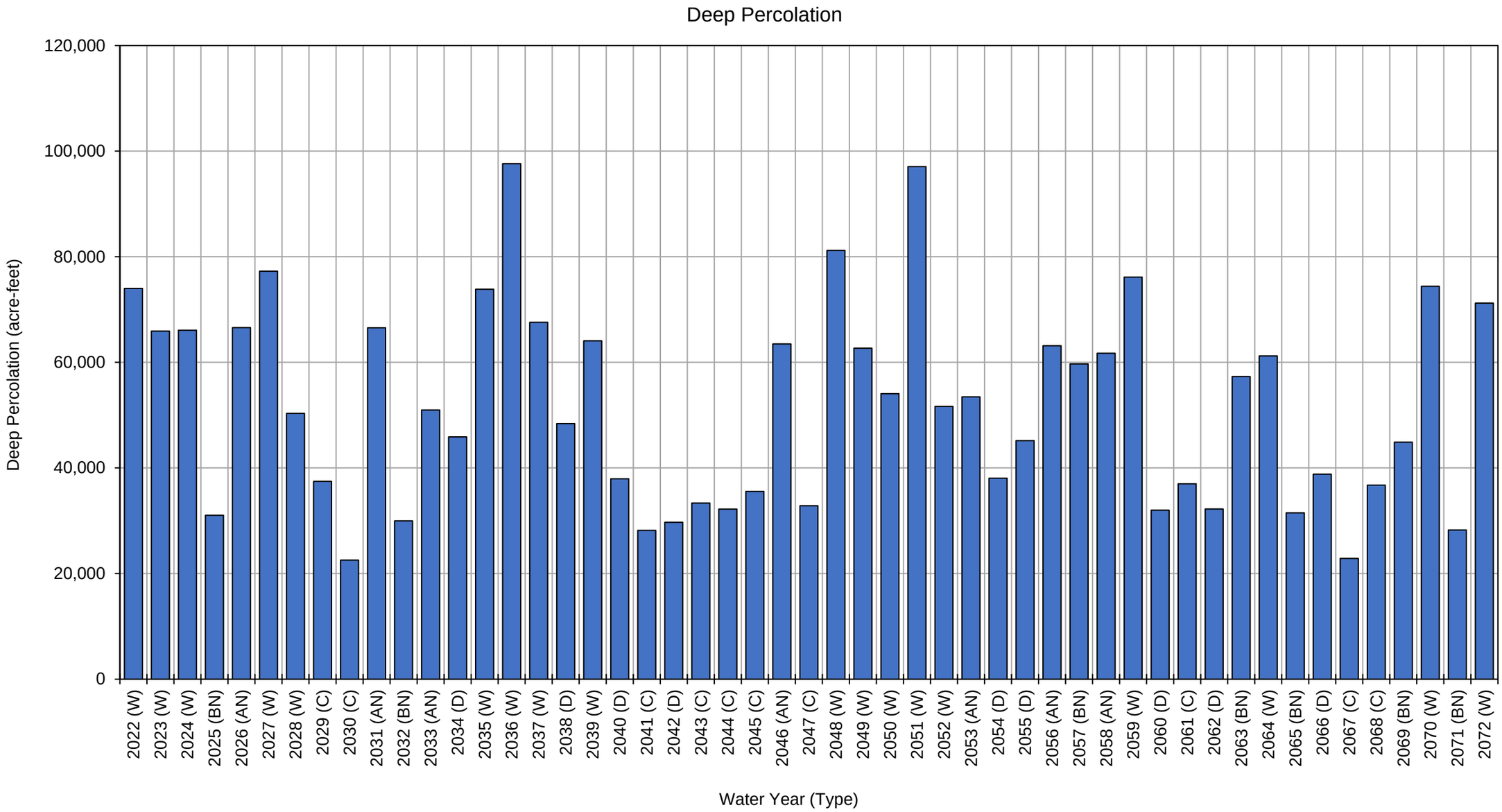
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	75,000
2023 (W)	61,000
2024 (W)	58,000
2025 (BN)	36,000
2026 (AN)	64,000
2027 (W)	80,000
2028 (W)	55,000
2029 (C)	25,000
2030 (C)	24,000
2031 (AN)	77,000
2032 (BN)	43,000
2033 (AN)	60,000
2034 (D)	47,000
2035 (W)	98,000
2036 (W)	79,000
2037 (W)	53,000
2038 (D)	29,000
2039 (W)	63,000
2040 (D)	25,000
2041 (C)	26,000
2042 (D)	43,000
2043 (C)	36,000
2044 (C)	42,000
2045 (C)	52,000
2046 (AN)	98,000
2047 (C)	40,000
2048 (W)	110,000
2049 (W)	81,000
2050 (W)	70,000
2051 (W)	90,000
2052 (W)	63,000
2053 (AN)	47,000
2054 (D)	29,000
2055 (D)	47,000
2056 (AN)	80,000
2057 (BN)	56,000
2058 (AN)	51,000
2059 (W)	88,000
2060 (D)	26,000
2061 (C)	39,000
2062 (D)	51,000
2063 (BN)	69,000

Los Molinos Subbasin Projected (Current Land Use) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		91,000
2065 (BN)		43,000
2066 (D)		50,000
2067 (C)		40,000
2068 (C)		51,000
2069 (BN)		84,000
2070 (W)		120,000
2071 (BN)		63,000
2072 (W)		96,000
Average (2022-2072)		59,000
2022-2072	W	80,000
	AN	68,000
	BN	56,000
	D	39,000
	C	38,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Deep Percolation from the SWS (acre-feet, rounded)

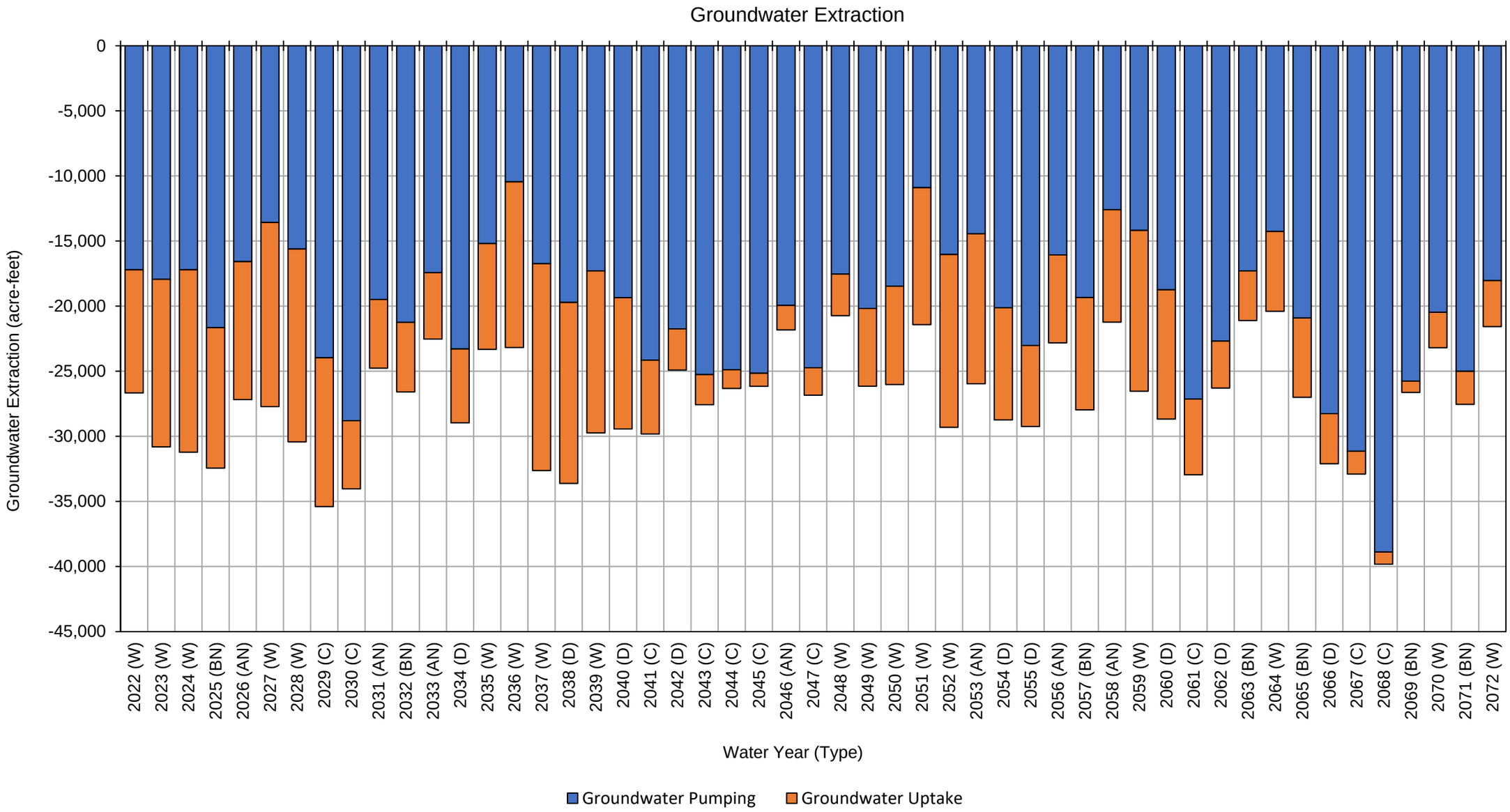
WY (Type)	Deep Percolation from the SWS
2022 (W)	74,000
2023 (W)	66,000
2024 (W)	66,000
2025 (BN)	31,000
2026 (AN)	67,000
2027 (W)	77,000
2028 (W)	50,000
2029 (C)	37,000
2030 (C)	23,000
2031 (AN)	67,000
2032 (BN)	30,000
2033 (AN)	51,000
2034 (D)	46,000
2035 (W)	74,000
2036 (W)	98,000
2037 (W)	68,000
2038 (D)	48,000
2039 (W)	64,000
2040 (D)	38,000
2041 (C)	28,000
2042 (D)	30,000
2043 (C)	33,000
2044 (C)	32,000
2045 (C)	36,000
2046 (AN)	63,000
2047 (C)	33,000
2048 (W)	81,000
2049 (W)	63,000
2050 (W)	54,000
2051 (W)	97,000
2052 (W)	52,000
2053 (AN)	53,000
2054 (D)	38,000
2055 (D)	45,000
2056 (AN)	63,000
2057 (BN)	60,000
2058 (AN)	62,000
2059 (W)	76,000
2060 (D)	32,000
2061 (C)	37,000
2062 (D)	32,000
2063 (BN)	57,000

Los Molinos Subbasin Projected (Current Land Use) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		61,000
2065 (BN)		31,000
2066 (D)		39,000
2067 (C)		23,000
2068 (C)		37,000
2069 (BN)		45,000
2070 (W)		74,000
2071 (BN)		28,000
2072 (W)		71,000
Average (2022-2072)		52,000
2022-2072	W	70,000
	AN	61,000
	BN	40,000
	D	39,000
	C	32,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Groundwater Extractions (acre-feet, rounded)

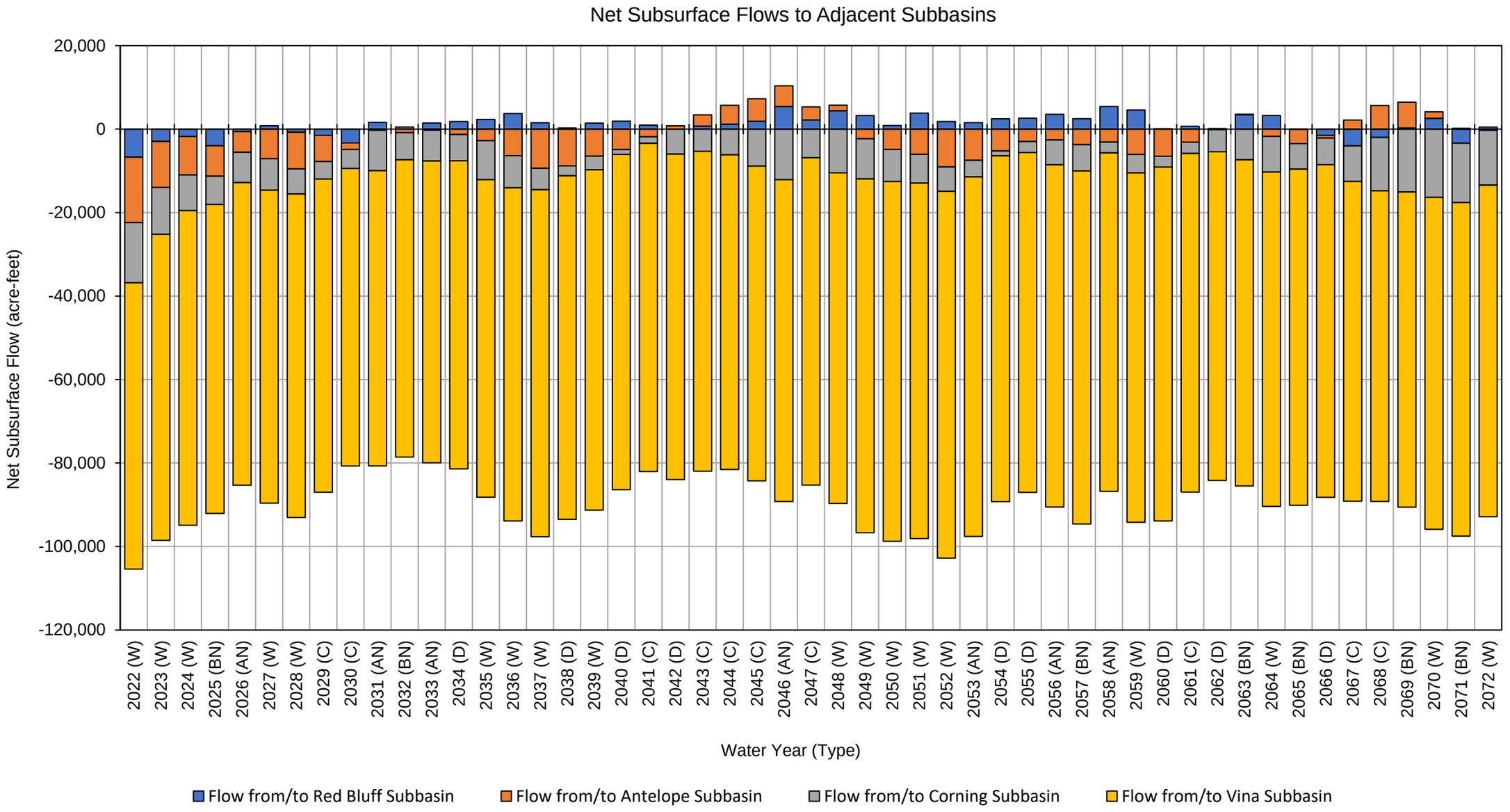
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-17,000	-9,500	-27,000
2023 (W)	-18,000	-13,000	-31,000
2024 (W)	-17,000	-14,000	-31,000
2025 (BN)	-22,000	-11,000	-32,000
2026 (AN)	-17,000	-11,000	-27,000
2027 (W)	-14,000	-14,000	-28,000
2028 (W)	-16,000	-15,000	-30,000
2029 (C)	-24,000	-11,000	-35,000
2030 (C)	-29,000	-5,200	-34,000
2031 (AN)	-19,000	-5,300	-25,000
2032 (BN)	-21,000	-5,300	-27,000
2033 (AN)	-17,000	-5,100	-23,000
2034 (D)	-23,000	-5,700	-29,000
2035 (W)	-15,000	-8,100	-23,000
2036 (W)	-10,000	-13,000	-23,000
2037 (W)	-17,000	-16,000	-33,000
2038 (D)	-20,000	-14,000	-34,000
2039 (W)	-17,000	-12,000	-30,000
2040 (D)	-19,000	-10,000	-29,000
2041 (C)	-24,000	-5,700	-30,000
2042 (D)	-22,000	-3,200	-25,000
2043 (C)	-25,000	-2,300	-28,000
2044 (C)	-25,000	-1,400	-26,000
2045 (C)	-25,000	-1,000	-26,000
2046 (AN)	-20,000	-1,900	-22,000
2047 (C)	-25,000	-2,100	-27,000
2048 (W)	-18,000	-3,200	-21,000
2049 (W)	-20,000	-6,000	-26,000
2050 (W)	-18,000	-7,600	-26,000
2051 (W)	-11,000	-11,000	-21,000
2052 (W)	-16,000	-13,000	-29,000
2053 (AN)	-14,000	-12,000	-26,000
2054 (D)	-20,000	-8,600	-29,000
2055 (D)	-23,000	-6,200	-29,000
2056 (AN)	-16,000	-6,800	-23,000
2057 (BN)	-19,000	-8,600	-28,000
2058 (AN)	-13,000	-8,600	-21,000
2059 (W)	-14,000	-12,000	-27,000
2060 (D)	-19,000	-9,900	-29,000
2061 (C)	-27,000	-5,800	-33,000
2062 (D)	-23,000	-3,600	-26,000
2063 (BN)	-17,000	-3,800	-21,000

Los Molinos Subbasin Projected (Current Land Use) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-14,000	-6,100	-20,000
2065 (BN)		-21,000	-6,100	-27,000
2066 (D)		-28,000	-3,800	-32,000
2067 (C)		-31,000	-1,800	-33,000
2068 (C)		-39,000	-940	-40,000
2069 (BN)		-26,000	-870	-27,000
2070 (W)		-20,000	-2,700	-23,000
2071 (BN)		-25,000	-2,500	-28,000
2072 (W)		-18,000	-3,500	-22,000
Average (2022-2072)		-20,000	-7,300	-27,000
2022-2072	W	-16,000	-10,000	-26,000
	AN	-17,000	-7,100	-24,000
	BN	-22,000	-5,400	-27,000
	D	-22,000	-7,200	-29,000
	C	-27,000	-3,800	-31,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

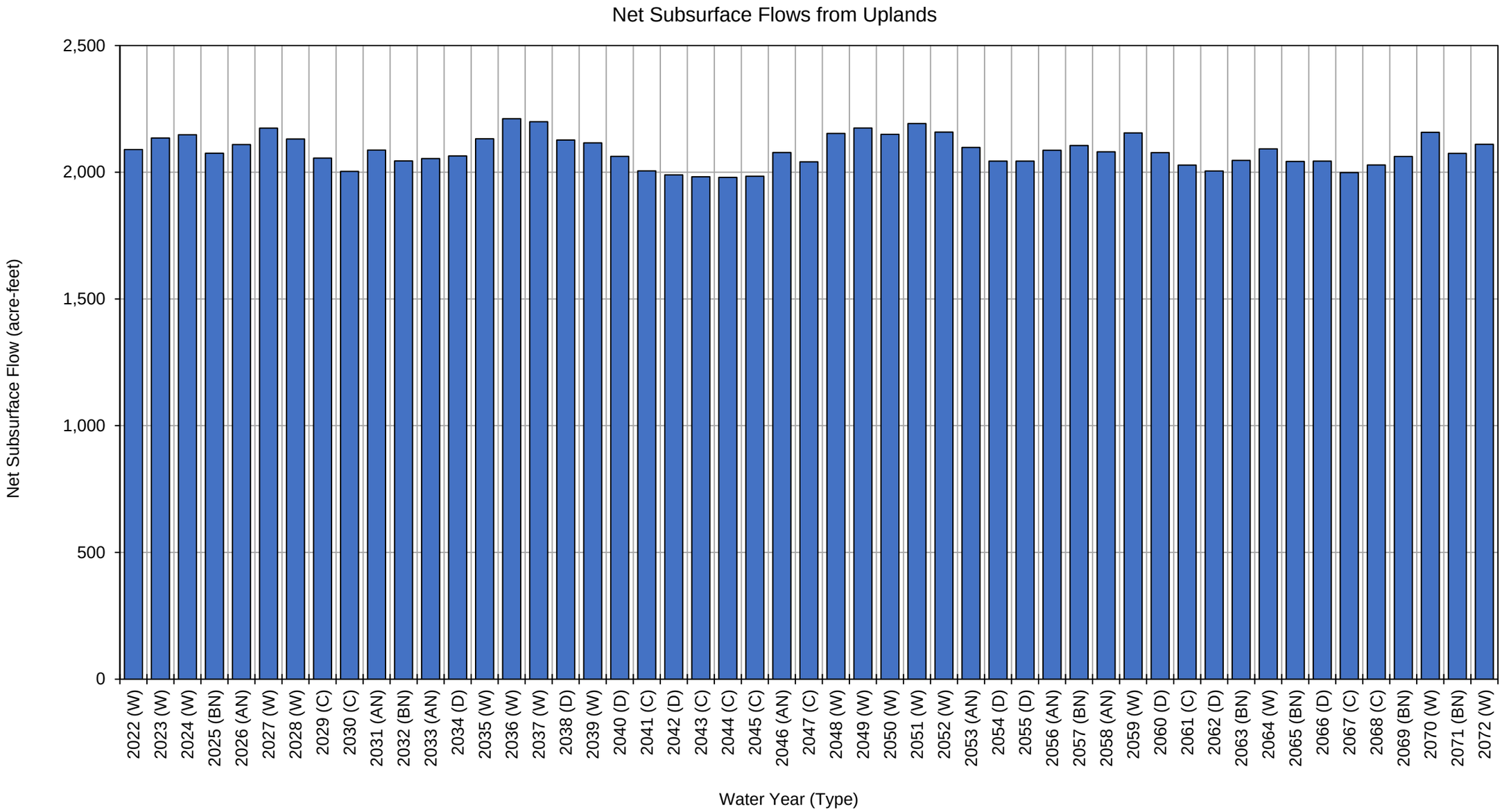
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Antelope Subbasin	Flow from/to Corning Subbasin	Flow from/to Vina Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-6,700	-16,000	-14,000	-69,000	-110,000
2023 (W)	-2,900	-11,000	-11,000	-73,000	-99,000
2024 (W)	-1,800	-9,200	-8,500	-75,000	-95,000
2025 (BN)	-4,000	-7,300	-6,800	-74,000	-92,000
2026 (AN)	-610	-4,900	-7,300	-73,000	-85,000
2027 (W)	820	-7,100	-7,600	-75,000	-89,000
2028 (W)	-760	-8,800	-6,000	-78,000	-93,000
2029 (C)	-1,500	-6,300	-4,200	-75,000	-87,000
2030 (C)	-3,300	-1,600	-4,500	-71,000	-81,000
2031 (AN)	1,600	-290	-9,700	-71,000	-79,000
2032 (BN)	510	-850	-6,500	-71,000	-78,000
2033 (AN)	1,500	-260	-7,400	-72,000	-78,000
2034 (D)	1,800	-1,300	-6,300	-74,000	-80,000
2035 (W)	2,300	-2,800	-9,300	-76,000	-86,000
2036 (W)	3,700	-6,400	-7,700	-80,000	-90,000
2037 (W)	1,500	-9,400	-5,100	-83,000	-96,000
2038 (D)	270	-8,800	-2,400	-82,000	-93,000
2039 (W)	1,400	-6,500	-3,300	-82,000	-90,000
2040 (D)	1,900	-4,900	-1,200	-80,000	-84,000
2041 (C)	960	-1,800	-1,600	-79,000	-81,000
2042 (D)	-5	780	-6,000	-78,000	-83,000
2043 (C)	710	2,700	-5,300	-77,000	-79,000
2044 (C)	1,200	4,500	-6,200	-75,000	-76,000
2045 (C)	1,900	5,400	-8,900	-75,000	-77,000
2046 (AN)	5,400	5,000	-12,000	-77,000	-79,000
2047 (C)	2,200	3,100	-6,900	-78,000	-80,000
2048 (W)	4,400	1,300	-10,000	-79,000	-84,000
2049 (W)	3,300	-2,300	-9,600	-85,000	-93,000
2050 (W)	850	-4,900	-7,700	-86,000	-98,000
2051 (W)	3,800	-6,000	-6,900	-85,000	-94,000
2052 (W)	1,800	-9,100	-5,800	-88,000	-100,000
2053 (AN)	1,500	-7,500	-4,000	-86,000	-96,000
2054 (D)	2,500	-5,200	-1,200	-83,000	-87,000
2055 (D)	2,600	-3,000	-2,700	-81,000	-84,000
2056 (AN)	3,500	-2,600	-5,900	-82,000	-87,000
2057 (BN)	2,500	-3,700	-6,300	-85,000	-92,000
2058 (AN)	5,400	-3,100	-2,600	-81,000	-81,000
2059 (W)	4,600	-6,100	-4,400	-84,000	-90,000
2060 (D)	110	-6,500	-2,600	-85,000	-94,000
2061 (C)	680	-3,100	-2,700	-81,000	-86,000
2062 (D)	120	-150	-5,300	-79,000	-84,000
2063 (BN)	3,500	110	-7,400	-78,000	-82,000

Los Molinos Subbasin Projected (Current Land Use) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Antelope Subbasin	Flow from/to Corning Subbasin	Flow from/to Vina Subbasin	Net Subsurface Flow from Adjacent Subbasins
2064 (W)		3,300	-1,700	-8,500	-80,000	-87,000
2065 (BN)		-57	-3,400	-6,100	-81,000	-90,000
2066 (D)		-1,500	-650	-6,400	-80,000	-88,000
2067 (C)		-4,000	2,200	-8,600	-77,000	-87,000
2068 (C)		-2,000	5,700	-13,000	-74,000	-84,000
2069 (BN)		280	6,100	-15,000	-76,000	-84,000
2070 (W)		2,600	1,600	-16,000	-80,000	-92,000
2071 (BN)		-3,400	200	-14,000	-80,000	-97,000
2072 (W)		480	-290	-13,000	-79,000	-92,000
Average (2022-2072)		880	-2,900	-7,100	-79,000	-88,000
2022-2072	W	1,300	-5,800	-8,700	-80,000	-93,000
	AN	2,600	-2,000	-7,000	-77,000	-84,000
	BN	-100	-1,300	-8,900	-78,000	-88,000
	D	870	-3,300	-3,800	-80,000	-86,000
	C	-320	1,100	-6,200	-76,000	-82,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

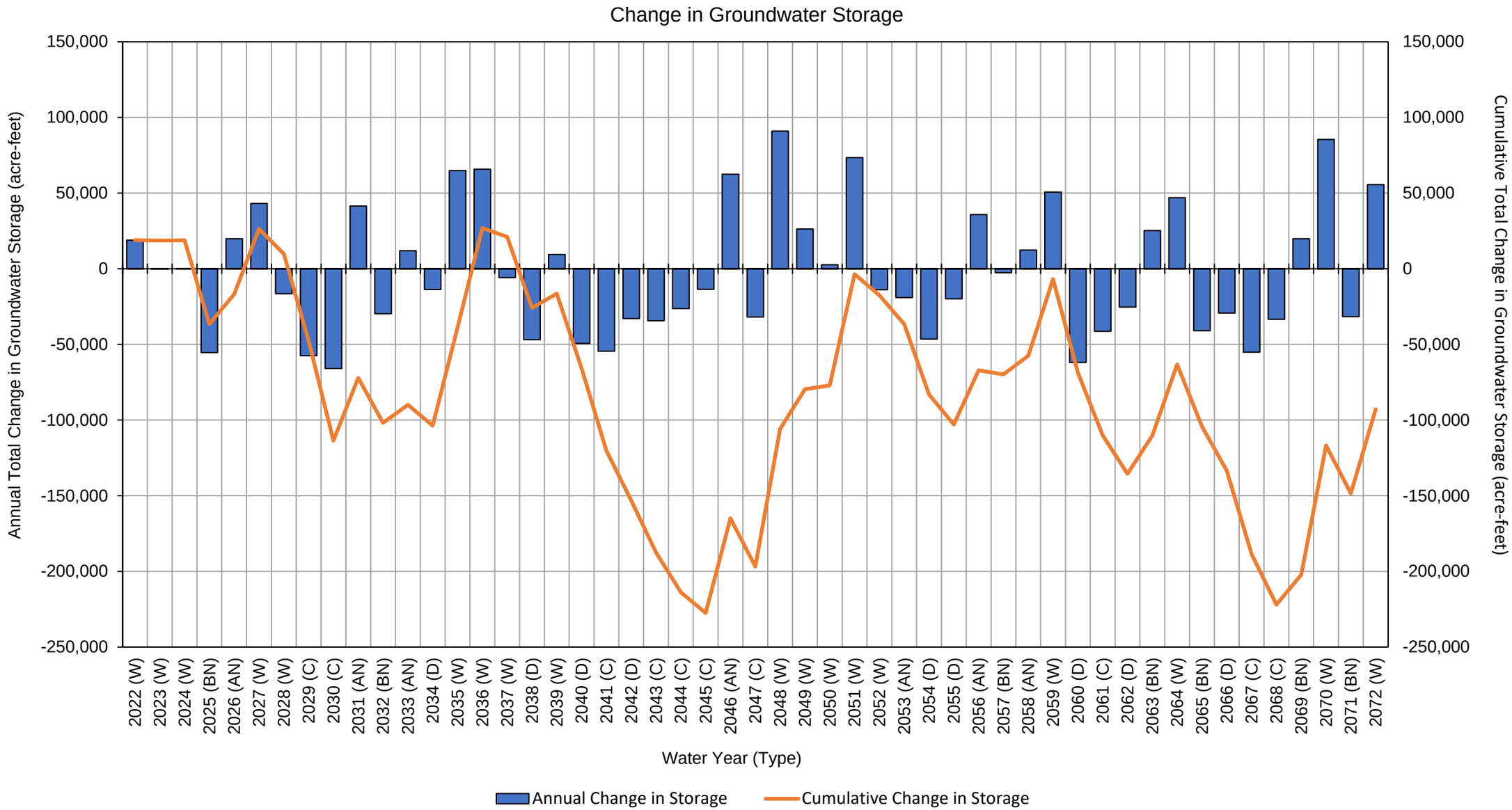
WY (Type)	Subsurface Flows from Uplands
2022 (W)	2,100
2023 (W)	2,100
2024 (W)	2,100
2025 (BN)	2,100
2026 (AN)	2,100
2027 (W)	2,200
2028 (W)	2,100
2029 (C)	2,100
2030 (C)	2,000
2031 (AN)	2,100
2032 (BN)	2,000
2033 (AN)	2,100
2034 (D)	2,100
2035 (W)	2,100
2036 (W)	2,200
2037 (W)	2,200
2038 (D)	2,100
2039 (W)	2,100
2040 (D)	2,100
2041 (C)	2,000
2042 (D)	2,000
2043 (C)	2,000
2044 (C)	2,000
2045 (C)	2,000
2046 (AN)	2,100
2047 (C)	2,000
2048 (W)	2,200
2049 (W)	2,200
2050 (W)	2,100
2051 (W)	2,200
2052 (W)	2,200
2053 (AN)	2,100
2054 (D)	2,000
2055 (D)	2,000
2056 (AN)	2,100
2057 (BN)	2,100
2058 (AN)	2,100
2059 (W)	2,200
2060 (D)	2,100
2061 (C)	2,000
2062 (D)	2,000
2063 (BN)	2,000

Los Molinos Subbasin Projected (Current Land Use) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		2,100
2065 (BN)		2,000
2066 (D)		2,000
2067 (C)		2,000
2068 (C)		2,000
2069 (BN)		2,100
2070 (W)		2,200
2071 (BN)		2,100
2072 (W)		2,100
Average (2022-2072)		2,100
2022-2072	W	2,100
	AN	2,100
	BN	2,100
	D	2,100
	C	2,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Los Molinos Subbasin Projected (Current Land Use) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	19,000	19,000
2023 (W)	-310	19,000
2024 (W)	180	19,000
2025 (BN)	-55,000	-37,000
2026 (AN)	20,000	-17,000
2027 (W)	43,000	26,000
2028 (W)	-17,000	9,800
2029 (C)	-57,000	-48,000
2030 (C)	-66,000	-110,000
2031 (AN)	41,000	-72,000
2032 (BN)	-30,000	-100,000
2033 (AN)	12,000	-90,000
2034 (D)	-14,000	-100,000
2035 (W)	65,000	-39,000
2036 (W)	66,000	27,000
2037 (W)	-5,900	21,000
2038 (D)	-47,000	-26,000
2039 (W)	9,400	-16,000
2040 (D)	-49,000	-66,000
2041 (C)	-54,000	-120,000
2042 (D)	-33,000	-150,000
2043 (C)	-34,000	-190,000
2044 (C)	-26,000	-210,000
2045 (C)	-14,000	-230,000
2046 (AN)	62,000	-160,000
2047 (C)	-32,000	-200,000
2048 (W)	91,000	-110,000
2049 (W)	26,000	-80,000
2050 (W)	2,600	-77,000
2051 (W)	73,000	-3,600
2052 (W)	-14,000	-18,000
2053 (AN)	-19,000	-37,000
2054 (D)	-46,000	-83,000
2055 (D)	-20,000	-100,000
2056 (AN)	36,000	-67,000
2057 (BN)	-2,700	-70,000
2058 (AN)	12,000	-57,000
2059 (W)	51,000	-6,900
2060 (D)	-62,000	-69,000
2061 (C)	-41,000	-110,000
2062 (D)	-25,000	-140,000
2063 (BN)	25,000	-110,000

Los Molinos Subbasin Projected (Current Land Use) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		47,000	-63,000
2065 (BN)		-41,000	-100,000
2066 (D)		-29,000	-130,000
2067 (C)		-55,000	-190,000
2068 (C)		-33,000	-220,000
2069 (BN)		20,000	-200,000
2070 (W)		85,000	-120,000
2071 (BN)		-32,000	-150,000
2072 (W)		56,000	-93,000
Average (2022-2072)		-1,800	
2022-2072	W		
	AN		
	BN		
	D		
	C		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX C-3

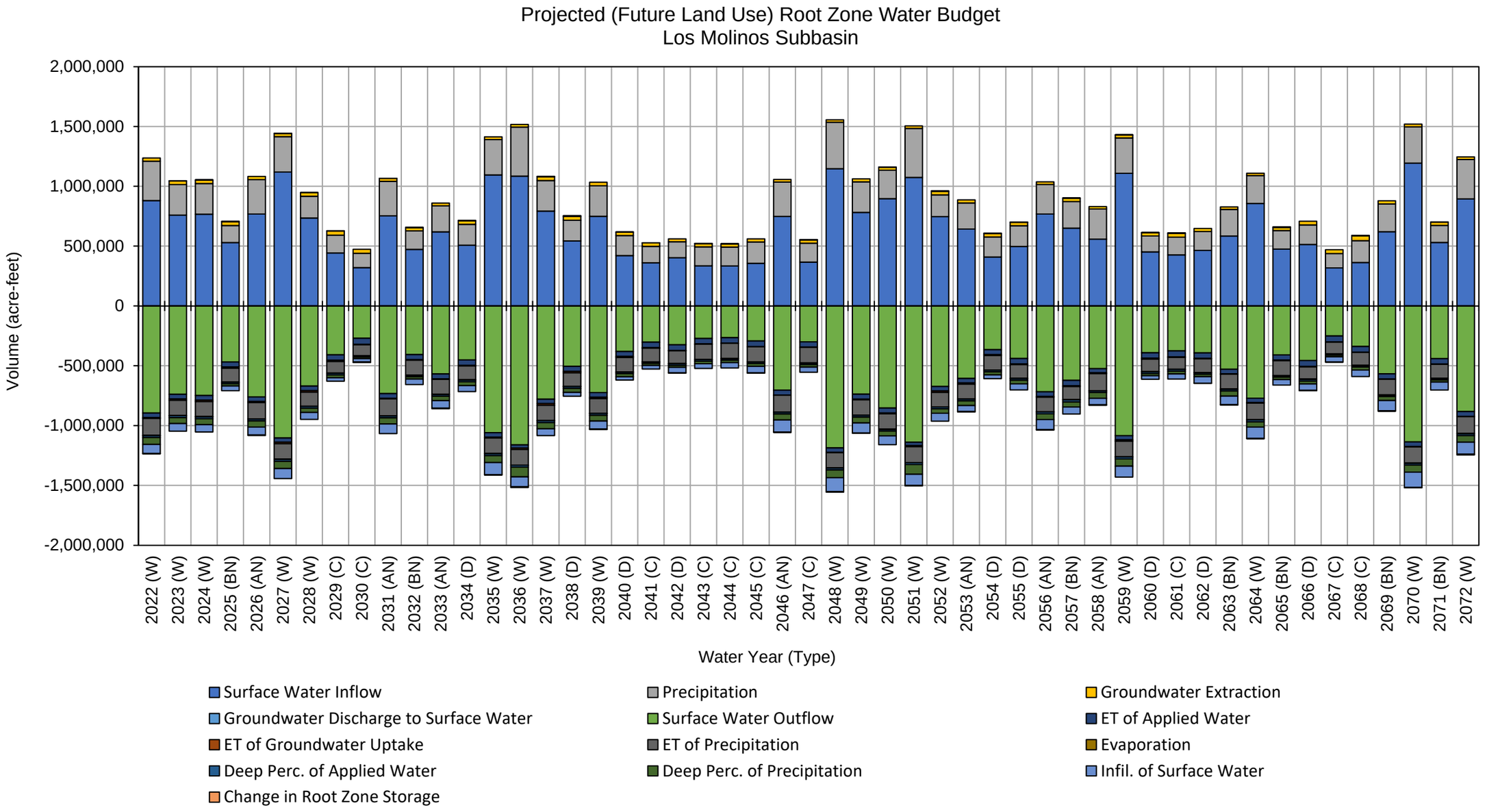
Detailed Los Molinos Subbasin Water Budget Results:

Projected (Future Land Use) Model Results

APPENDIX C-3a

Detailed Los Molinos Subbasin Water Budget Results:

Projected (Future Land Use) Model Results– Surface Water System


Projected (Future Land Use) Root Zone Water Budget
Los Molinos Subbasin
Volume (acre-feet)
2,000,000
1,500,000
1,000,000
500,000
0
-500,000
-1,000,000
-1,500,000
-2,000,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Surface Water Inflow
Precipitation
Groundwater Extraction
Groundwater Discharge to Surface Water
Surface Water Outflow
ET of Applied Water
ET of Groundwater Uptake
ET of Precipitation
Evaporation
Deep Perc. of Applied Water
Deep Perc. of Precipitation
Infil. of Surface Water
Change in Root Zone Storage

Los Molinos Subbasin Projected (Future Land Use) Root Zone Water Budget Summary (acre-feet, rounded)

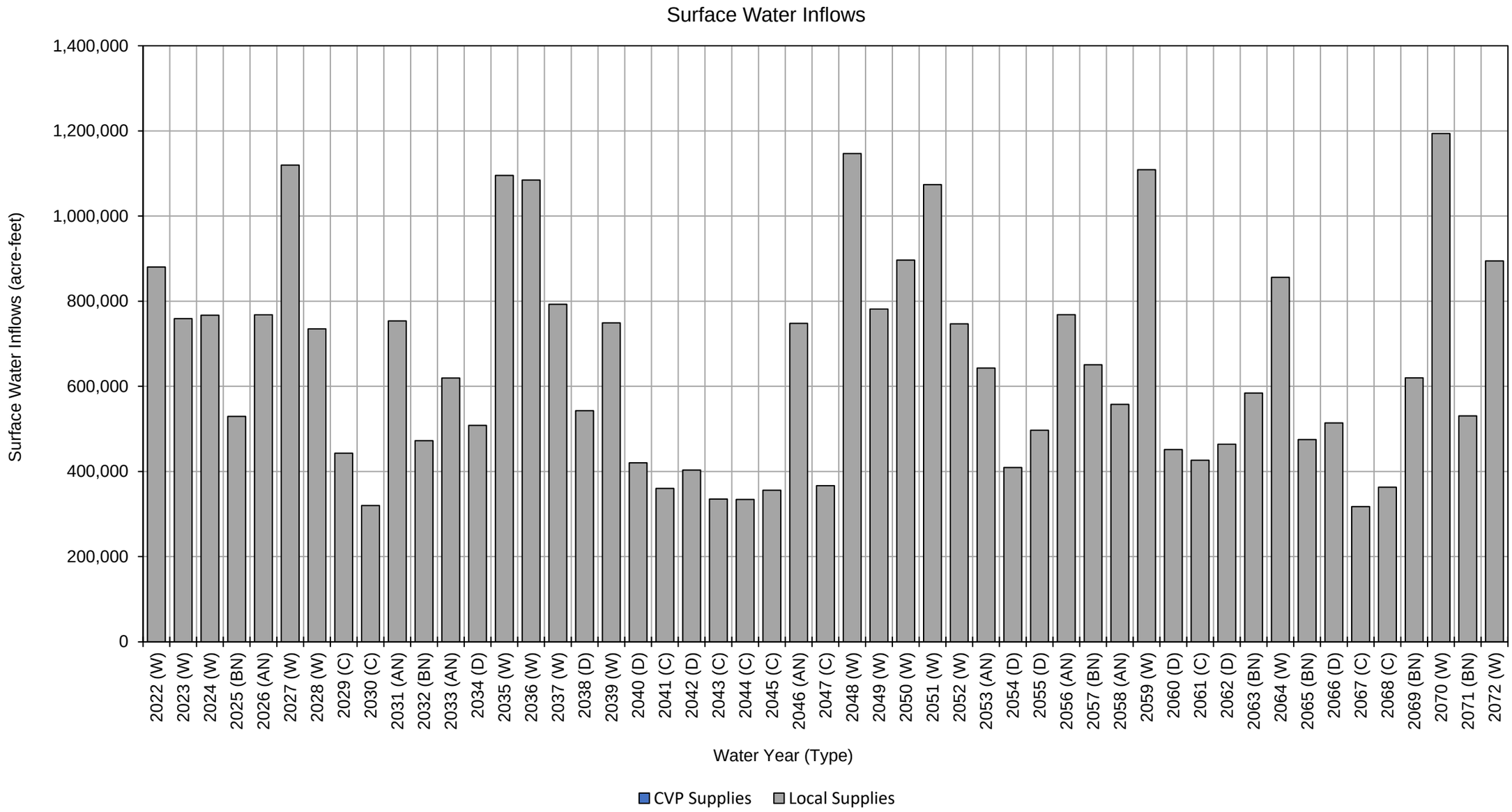
WY (Type)	Inflows				Outflows								Change in Root Zone Storage
	Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2022 (W)	880,000	330,000	26,000	0	890,000	38,000	8,300	140,000	1,900	16,000	58,000	77,000	1,600
2023 (W)	760,000	260,000	30,000	0	740,000	38,000	12,000	130,000	2,200	15,000	50,000	63,000	-2,000
2024 (W)	770,000	260,000	31,000	0	750,000	38,000	13,000	130,000	2,200	16,000	50,000	61,000	-39
2025 (BN)	530,000	140,000	32,000	0	470,000	42,000	9,500	120,000	2,400	12,000	19,000	39,000	-4,000
2026 (AN)	770,000	290,000	26,000	0	760,000	39,000	8,900	140,000	2,100	15,000	51,000	67,000	3,400
2027 (W)	1,100,000	300,000	27,000	0	1,100,000	35,000	13,000	130,000	1,900	17,000	60,000	83,000	-770
2028 (W)	740,000	180,000	30,000	0	670,000	38,000	14,000	120,000	2,200	15,000	35,000	58,000	-1,600
2029 (C)	440,000	150,000	35,000	0	410,000	46,000	10,000	96,000	2,700	14,000	24,000	28,000	-2,600
2030 (C)	320,000	120,000	33,000	0	270,000	50,000	4,100	90,000	2,800	10,000	12,000	27,000	5,900
2031 (AN)	750,000	290,000	24,000	0	730,000	41,000	4,100	140,000	2,100	15,000	51,000	80,000	-990
2032 (BN)	470,000	160,000	26,000	0	410,000	43,000	4,200	130,000	2,300	10,000	19,000	46,000	-3,800
2033 (AN)	620,000	220,000	22,000	0	570,000	41,000	4,000	120,000	2,200	14,000	36,000	63,000	5,000
2034 (D)	510,000	170,000	29,000	0	450,000	46,000	4,400	120,000	2,500	14,000	32,000	50,000	-5,400
2035 (W)	1,100,000	300,000	23,000	0	1,100,000	38,000	6,500	130,000	2,000	15,000	58,000	100,000	3,100
2036 (W)	1,100,000	410,000	22,000	0	1,200,000	27,000	12,000	130,000	1,400	16,000	81,000	83,000	5,400
2037 (W)	790,000	260,000	32,000	0	780,000	37,000	15,000	130,000	2,200	16,000	51,000	57,000	-3,100
2038 (D)	540,000	170,000	33,000	0	500,000	42,000	12,000	110,000	2,500	15,000	33,000	32,000	-5,300
2039 (W)	750,000	260,000	29,000	0	720,000	39,000	11,000	120,000	2,200	15,000	48,000	66,000	4,800
2040 (D)	420,000	170,000	29,000	0	380,000	41,000	8,600	120,000	2,300	12,000	25,000	28,000	-2,400
2041 (C)	360,000	140,000	29,000	0	300,000	46,000	4,400	110,000	2,500	11,000	17,000	29,000	-84
2042 (D)	400,000	130,000	24,000	0	320,000	48,000	2,400	110,000	2,600	13,000	16,000	47,000	680
2043 (C)	340,000	160,000	27,000	0	270,000	46,000	1,600	130,000	2,200	12,000	21,000	40,000	-2,100
2044 (C)	330,000	160,000	26,000	0	270,000	46,000	920	130,000	2,200	12,000	20,000	45,000	-51
2045 (C)	360,000	180,000	26,000	0	290,000	48,000	670	130,000	2,300	12,000	23,000	55,000	160
2046 (AN)	750,000	290,000	22,000	0	700,000	41,000	1,300	140,000	2,200	14,000	49,000	100,000	3,100
2047 (C)	370,000	160,000	26,000	0	300,000	45,000	1,400	130,000	2,200	12,000	21,000	43,000	-3,300
2048 (W)	1,100,000	390,000	20,000	0	1,200,000	37,000	2,500	130,000	1,900	16,000	65,000	120,000	3,600
2049 (W)	780,000	260,000	26,000	0	740,000	42,000	4,600	130,000	2,200	14,000	48,000	85,000	220
2050 (W)	900,000	240,000	25,000	0	850,000	42,000	6,000	130,000	2,400	14,000	40,000	74,000	-120
2051 (W)	1,100,000	410,000	20,000	0	1,100,000	28,000	9,200	130,000	1,400	15,000	81,000	94,000	3,400
2052 (W)	750,000	180,000	29,000	0	670,000	37,000	12,000	120,000	2,300	14,000	37,000	66,000	-6,200
2053 (AN)	640,000	220,000	25,000	0	610,000	38,000	10,000	120,000	2,200	15,000	38,000	50,000	3,600
2054 (D)	410,000	170,000	28,000	0	370,000	42,000	7,200	120,000	2,300	12,000	25,000	32,000	-3,100
2055 (D)	500,000	170,000	29,000	0	440,000	46,000	4,900	110,000	2,500	14,000	31,000	50,000	-2,400
2056 (AN)	770,000	250,000	22,000	0	720,000	40,000	5,300	120,000	2,100	15,000	48,000	84,000	4,100
2057 (BN)	650,000	220,000	27,000	0	620,000	45,000	7,000	110,000	2,500	17,000	42,000	59,000	-3,500
2058 (AN)	560,000	250,000	21,000	0	520,000	35,000	6,900	140,000	1,800	13,000	48,000	54,000	4,100
2059 (W)	1,100,000	300,000	25,000	0	1,100,000	35,000	11,000	130,000	1,900	16,000	60,000	92,000	-1,200
2060 (D)	450,000	130,000	28,000	0	390,000	44,000	8,500	110,000	2,600	14,000	18,000	29,000	-290
2061 (C)	430,000	150,000	32,000	0	380,000	50,000	4,500	99,000	2,700	13,000	23,000	42,000	-3,700
2062 (D)	460,000	160,000	26,000	0	390,000	46,000	2,800	110,000	2,500	12,000	20,000	54,000	2,200
2063 (BN)	580,000	220,000	21,000	0	530,000	38,000	3,000	120,000	2,100	14,000	43,000	72,000	1,800
2064 (W)	860,000	230,000	20,000	0	770,000	36,000	4,800	140,000	1,900	16,000	44,000	95,000	1,800
2065 (BN)	470,000	160,000	26,000	0	410,000	44,000	4,800	120,000	2,300	11,000	20,000	46,000	-4,600

Los Molinos Subbasin Projected (Future Land Use) Root Zone Water Budget Summary (acre-feet, rounded)

WY (Type)		Inflows				Outflows								Change in Root Zone Storage
		Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2066 (D)		510,000	160,000	32,000	0	460,000	51,000	3,000	100,000	2,700	14,000	25,000	53,000	2,600
2067 (C)		320,000	120,000	33,000	0	250,000	51,000	1,200	96,000	2,800	11,000	12,000	43,000	2,100
2068 (C)		360,000	180,000	40,000	0	340,000	49,000	620	110,000	2,500	11,000	25,000	54,000	-5,000
2069 (BN)		620,000	230,000	26,000	0	570,000	44,000	570	130,000	2,300	11,000	34,000	87,000	970
2070 (W)		1,200,000	300,000	23,000	0	1,100,000	40,000	2,000	130,000	2,100	14,000	60,000	130,000	2,000
2071 (BN)		530,000	140,000	27,000	0	440,000	46,000	1,700	120,000	2,500	11,000	17,000	66,000	-2,500
2072 (W)		890,000	330,000	21,000	0	880,000	40,000	2,600	140,000	2,000	15,000	55,000	100,000	6,000
Average (2022-2072)		650,000	220,000	27,000	0	610,000	42,000	6,100	120,000	2,200	14,000	38,000	63,000	25
2022-2072	W	930,000	290,000	26,000	0	910,000	37,000	8,800	130,000	2,000	15,000	55,000	83,000	940
	AN	690,000	260,000	23,000	0	660,000	39,000	5,800	130,000	2,100	14,000	46,000	71,000	3,200
	BN	550,000	180,000	27,000	0	490,000	43,000	4,400	120,000	2,400	12,000	28,000	59,000	-2,200
	D	470,000	160,000	29,000	0	410,000	45,000	6,000	110,000	2,500	13,000	25,000	42,000	-1,500
	C	360,000	150,000	31,000	0	310,000	48,000	2,900	110,000	2,500	12,000	20,000	41,000	-860

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

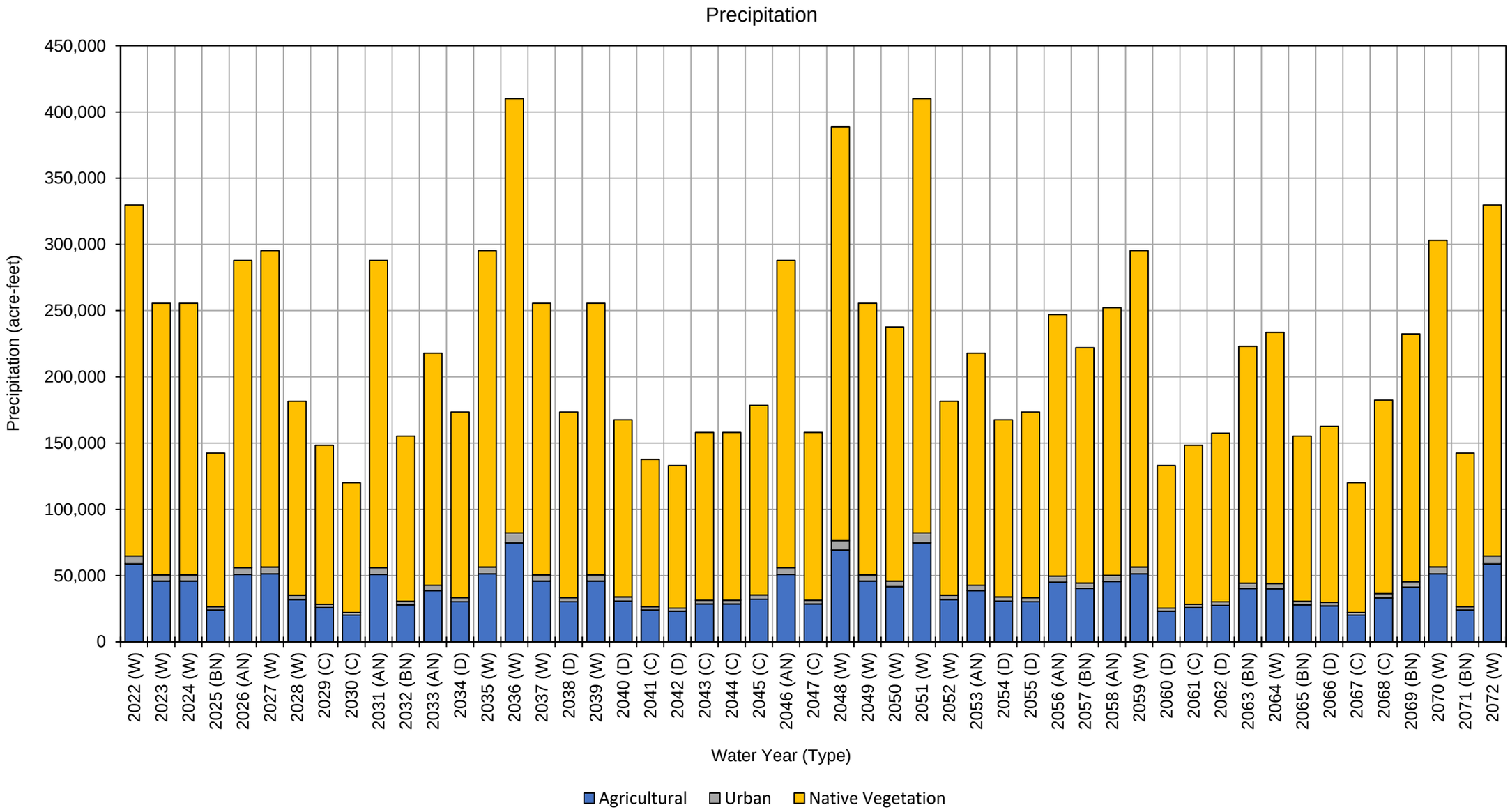
WY (Type)	CVP Supplies	Local Supplies	Total
2022 (W)	0	880,000	880,000
2023 (W)	0	760,000	760,000
2024 (W)	0	770,000	770,000
2025 (BN)	0	530,000	530,000
2026 (AN)	0	770,000	770,000
2027 (W)	0	1,100,000	1,100,000
2028 (W)	0	740,000	740,000
2029 (C)	0	440,000	440,000
2030 (C)	0	320,000	320,000
2031 (AN)	0	750,000	750,000
2032 (BN)	0	470,000	470,000
2033 (AN)	0	620,000	620,000
2034 (D)	0	510,000	510,000
2035 (W)	0	1,100,000	1,100,000
2036 (W)	0	1,100,000	1,100,000
2037 (W)	0	790,000	790,000
2038 (D)	0	540,000	540,000
2039 (W)	0	750,000	750,000
2040 (D)	0	420,000	420,000
2041 (C)	0	360,000	360,000
2042 (D)	0	400,000	400,000
2043 (C)	0	340,000	340,000
2044 (C)	0	330,000	330,000
2045 (C)	0	360,000	360,000
2046 (AN)	0	750,000	750,000
2047 (C)	0	370,000	370,000
2048 (W)	0	1,100,000	1,100,000
2049 (W)	0	780,000	780,000
2050 (W)	0	900,000	900,000
2051 (W)	0	1,100,000	1,100,000
2052 (W)	0	750,000	750,000
2053 (AN)	0	640,000	640,000
2054 (D)	0	410,000	410,000
2055 (D)	0	500,000	500,000
2056 (AN)	0	770,000	770,000
2057 (BN)	0	650,000	650,000
2058 (AN)	0	560,000	560,000
2059 (W)	0	1,100,000	1,100,000
2060 (D)	0	450,000	450,000
2061 (C)	0	430,000	430,000
2062 (D)	0	460,000	460,000
2063 (BN)	0	580,000	580,000

Los Molinos Subbasin Projected (Future Land Use) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Total
2064 (W)		0	860,000	860,000
2065 (BN)		0	470,000	470,000
2066 (D)		0	510,000	510,000
2067 (C)		0	320,000	320,000
2068 (C)		0	360,000	360,000
2069 (BN)		0	620,000	620,000
2070 (W)		0	1,200,000	1,200,000
2071 (BN)		0	530,000	530,000
2072 (W)		0	890,000	890,000
Average (2022-2072)		0	650,000	650,000
2022-2072	W	0	930,000	930,000
	AN	0	690,000	690,000
	BN	0	550,000	550,000
	D	0	470,000	470,000
	C	0	360,000	360,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Precipitation, by Water Use Sector (acre-feet, rounded)

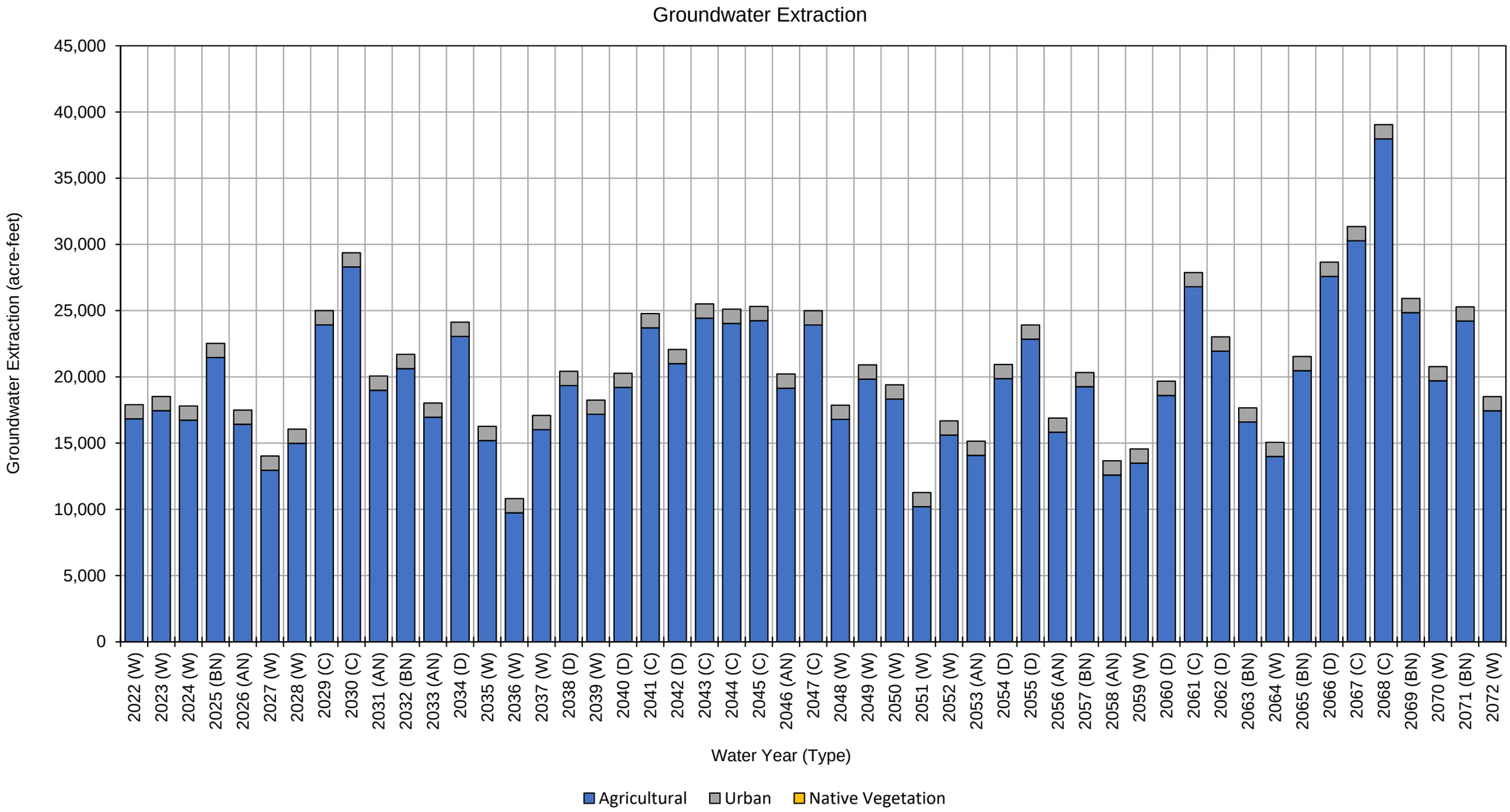
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	59,000	6,000	270,000	340,000
2023 (W)	46,000	4,600	210,000	260,000
2024 (W)	46,000	4,600	210,000	260,000
2025 (BN)	24,000	2,400	120,000	150,000
2026 (AN)	51,000	5,200	230,000	290,000
2027 (W)	51,000	5,100	240,000	300,000
2028 (W)	32,000	3,300	150,000	190,000
2029 (C)	26,000	2,600	120,000	150,000
2030 (C)	20,000	2,000	98,000	120,000
2031 (AN)	51,000	5,200	230,000	290,000
2032 (BN)	28,000	2,800	120,000	150,000
2033 (AN)	39,000	4,000	180,000	220,000
2034 (D)	30,000	3,100	140,000	170,000
2035 (W)	51,000	5,100	240,000	300,000
2036 (W)	75,000	7,600	330,000	410,000
2037 (W)	46,000	4,600	210,000	260,000
2038 (D)	30,000	3,100	140,000	170,000
2039 (W)	46,000	4,600	210,000	260,000
2040 (D)	31,000	3,100	130,000	160,000
2041 (C)	24,000	2,500	110,000	140,000
2042 (D)	23,000	2,400	110,000	140,000
2043 (C)	29,000	2,900	130,000	160,000
2044 (C)	29,000	2,900	130,000	160,000
2045 (C)	32,000	3,200	140,000	180,000
2046 (AN)	51,000	5,200	230,000	290,000
2047 (C)	29,000	2,900	130,000	160,000
2048 (W)	69,000	7,000	310,000	390,000
2049 (W)	46,000	4,600	210,000	260,000
2050 (W)	42,000	4,300	190,000	240,000
2051 (W)	75,000	7,600	330,000	410,000
2052 (W)	32,000	3,300	150,000	190,000
2053 (AN)	39,000	4,000	180,000	220,000
2054 (D)	31,000	3,100	130,000	160,000
2055 (D)	30,000	3,100	140,000	170,000
2056 (AN)	45,000	4,600	200,000	250,000
2057 (BN)	40,000	4,100	180,000	220,000
2058 (AN)	46,000	4,600	200,000	250,000
2059 (W)	51,000	5,100	240,000	300,000
2060 (D)	23,000	2,400	110,000	140,000
2061 (C)	26,000	2,600	120,000	150,000
2062 (D)	27,000	2,700	130,000	160,000
2063 (BN)	40,000	4,100	180,000	220,000

Los Molinos Subbasin Projected (Future Land Use) Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		40,000	3,900	190,000	230,000
2065 (BN)		28,000	2,800	120,000	150,000
2066 (D)		27,000	2,700	130,000	160,000
2067 (C)		20,000	2,000	98,000	120,000
2068 (C)		33,000	3,300	150,000	190,000
2069 (BN)		41,000	4,200	190,000	240,000
2070 (W)		51,000	5,200	250,000	310,000
2071 (BN)		24,000	2,400	120,000	150,000
2072 (W)		59,000	6,000	270,000	340,000
Average (2022-2072)		39,000	3,900	180,000	220,000
2022-2072	W	51,000	5,100	230,000	290,000
	AN	46,000	4,700	210,000	260,000
	BN	32,000	3,200	150,000	190,000
	D	28,000	2,800	130,000	160,000
	C	27,000	2,700	120,000	150,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

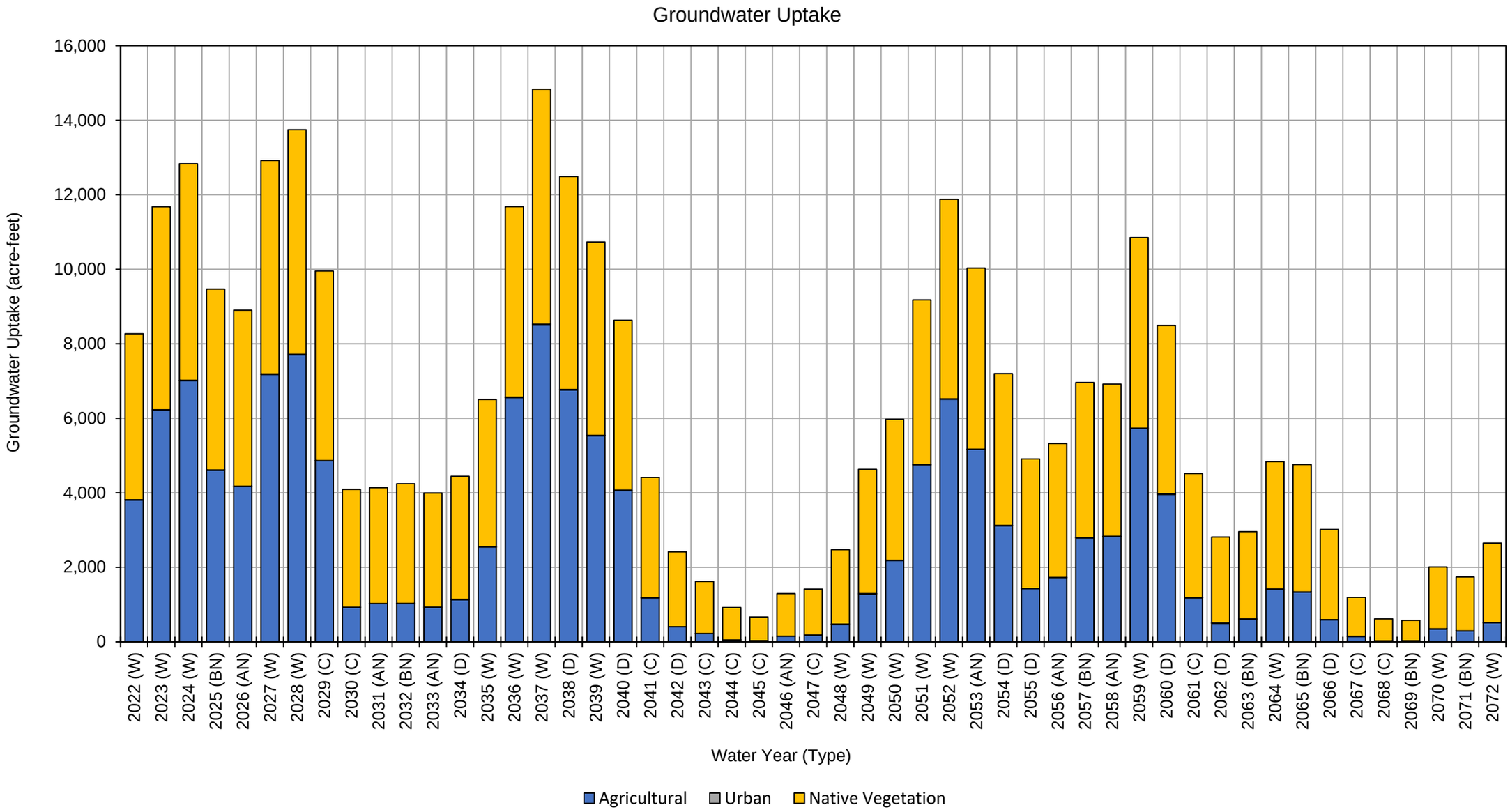
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	17,000	1,100	0	18,000
2023 (W)	17,000	1,100	0	18,000
2024 (W)	17,000	1,100	0	18,000
2025 (BN)	21,000	1,100	0	22,000
2026 (AN)	16,000	1,100	0	17,000
2027 (W)	13,000	1,100	0	14,000
2028 (W)	15,000	1,100	0	16,000
2029 (C)	24,000	1,100	0	25,000
2030 (C)	28,000	1,100	0	29,000
2031 (AN)	19,000	1,100	0	20,000
2032 (BN)	21,000	1,100	0	22,000
2033 (AN)	17,000	1,100	0	18,000
2034 (D)	23,000	1,100	0	24,000
2035 (W)	15,000	1,100	0	16,000
2036 (W)	9,700	1,100	0	11,000
2037 (W)	16,000	1,100	0	17,000
2038 (D)	19,000	1,100	0	20,000
2039 (W)	17,000	1,100	0	18,000
2040 (D)	19,000	1,100	0	20,000
2041 (C)	24,000	1,100	0	25,000
2042 (D)	21,000	1,100	0	22,000
2043 (C)	24,000	1,100	0	25,000
2044 (C)	24,000	1,100	0	25,000
2045 (C)	24,000	1,100	0	25,000
2046 (AN)	19,000	1,100	0	20,000
2047 (C)	24,000	1,100	0	25,000
2048 (W)	17,000	1,100	0	18,000
2049 (W)	20,000	1,100	0	21,000
2050 (W)	18,000	1,100	0	19,000
2051 (W)	10,000	1,100	0	11,000
2052 (W)	16,000	1,100	0	17,000
2053 (AN)	14,000	1,100	0	15,000
2054 (D)	20,000	1,100	0	21,000
2055 (D)	23,000	1,100	0	24,000
2056 (AN)	16,000	1,100	0	17,000
2057 (BN)	19,000	1,100	0	20,000
2058 (AN)	13,000	1,100	0	14,000
2059 (W)	13,000	1,100	0	14,000
2060 (D)	19,000	1,100	0	20,000
2061 (C)	27,000	1,100	0	28,000
2062 (D)	22,000	1,100	0	23,000
2063 (BN)	17,000	1,100	0	18,000

Los Molinos Subbasin Projected (Future Land Use) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		14,000	1,100	0	15,000
2065 (BN)		20,000	1,100	0	21,000
2066 (D)		28,000	1,100	0	29,000
2067 (C)		30,000	1,100	0	31,000
2068 (C)		38,000	1,100	0	39,000
2069 (BN)		25,000	1,100	0	26,000
2070 (W)		20,000	1,100	0	21,000
2071 (BN)		24,000	1,100	0	25,000
2072 (W)		17,000	1,100	0	18,000
Average (2022-2072)		20,000	1,100	0	21,000
2022-2072	W	16,000	1,100	0	17,000
	AN	16,000	1,100	0	17,000
	BN	21,000	1,100	0	22,000
	D	21,000	1,100	0	22,000
	C	27,000	1,100	0	28,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

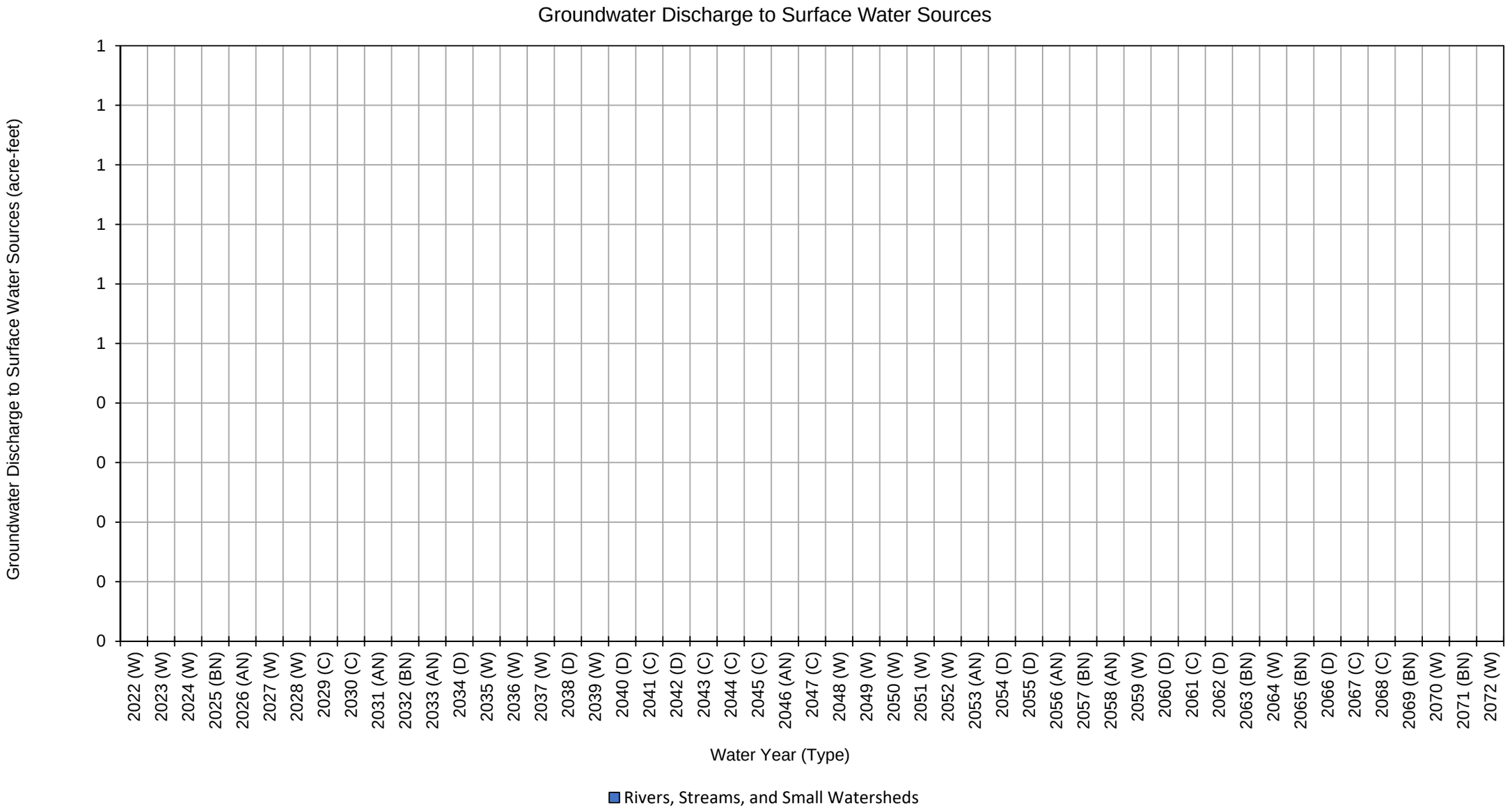
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	3,800	5	4,500	8,300
2023 (W)	6,200	6	5,400	12,000
2024 (W)	7,000	9	5,800	13,000
2025 (BN)	4,600	5	4,900	9,500
2026 (AN)	4,200	5	4,700	8,900
2027 (W)	7,200	10	5,700	13,000
2028 (W)	7,700	16	6,000	14,000
2029 (C)	4,900	6	5,100	10,000
2030 (C)	920	3	3,200	4,100
2031 (AN)	1,000	3	3,100	4,100
2032 (BN)	1,000	3	3,200	4,200
2033 (AN)	930	3	3,100	4,000
2034 (D)	1,100	4	3,300	4,400
2035 (W)	2,500	4	4,000	6,500
2036 (W)	6,600	12	5,100	12,000
2037 (W)	8,500	26	6,300	15,000
2038 (D)	6,800	15	5,700	13,000
2039 (W)	5,500	6	5,200	11,000
2040 (D)	4,100	5	4,600	8,700
2041 (C)	1,200	4	3,200	4,400
2042 (D)	400	2	2,000	2,400
2043 (C)	220	1	1,400	1,600
2044 (C)	50	0	870	920
2045 (C)	30	0	640	670
2046 (AN)	150	2	1,100	1,300
2047 (C)	180	1	1,200	1,400
2048 (W)	470	2	2,000	2,500
2049 (W)	1,300	4	3,300	4,600
2050 (W)	2,200	4	3,800	6,000
2051 (W)	4,800	6	4,400	9,200
2052 (W)	6,500	10	5,400	12,000
2053 (AN)	5,200	6	4,900	10,000
2054 (D)	3,100	5	4,100	7,200
2055 (D)	1,400	4	3,500	4,900
2056 (AN)	1,700	4	3,600	5,300
2057 (BN)	2,800	4	4,200	7,000
2058 (AN)	2,800	5	4,100	6,900
2059 (W)	5,700	7	5,100	11,000
2060 (D)	4,000	5	4,500	8,500
2061 (C)	1,200	4	3,300	4,500
2062 (D)	500	2	2,300	2,800
2063 (BN)	610	3	2,300	2,900

Los Molinos Subbasin Projected (Future Land Use) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		1,400	4	3,400	4,800
2065 (BN)		1,300	4	3,400	4,700
2066 (D)		590	2	2,400	3,000
2067 (C)		140	0	1,100	1,200
2068 (C)		24	0	590	610
2069 (BN)		28	0	550	580
2070 (W)		350	2	1,700	2,100
2071 (BN)		290	1	1,400	1,700
2072 (W)		510	2	2,100	2,600
Average (2022-2072)		2,700	5	3,500	6,200
2022-2072	W	4,300	7	4,400	8,700
	AN	2,300	4	3,500	5,800
	BN	1,500	3	2,900	4,400
	D	2,400	5	3,600	6,000
	C	880	2	2,100	3,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

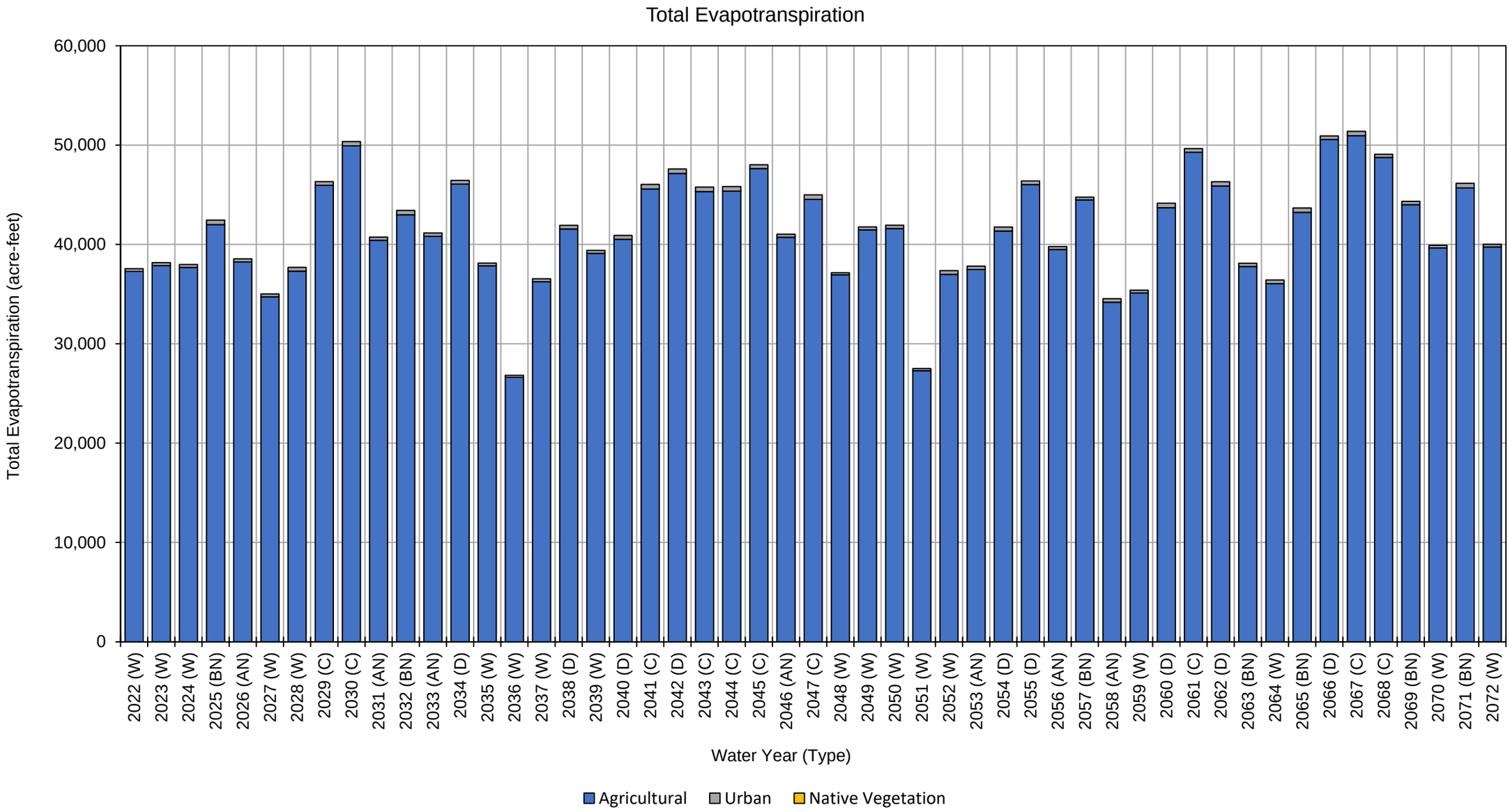
WY (Type)	Rivers, Streams, and Small Watersheds
2022 (W)	0
2023 (W)	0
2024 (W)	0
2025 (BN)	0
2026 (AN)	0
2027 (W)	0
2028 (W)	0
2029 (C)	0
2030 (C)	0
2031 (AN)	0
2032 (BN)	0
2033 (AN)	0
2034 (D)	0
2035 (W)	0
2036 (W)	0
2037 (W)	0
2038 (D)	0
2039 (W)	0
2040 (D)	0
2041 (C)	0
2042 (D)	0
2043 (C)	0
2044 (C)	0
2045 (C)	0
2046 (AN)	0
2047 (C)	0
2048 (W)	0
2049 (W)	0
2050 (W)	0
2051 (W)	0
2052 (W)	0
2053 (AN)	0
2054 (D)	0
2055 (D)	0
2056 (AN)	0
2057 (BN)	0
2058 (AN)	0
2059 (W)	0
2060 (D)	0
2061 (C)	0
2062 (D)	0
2063 (BN)	0

Los Molinos Subbasin Projected (Future Land Use) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

WY (Type)		Rivers, Streams, and Small Watersheds
2064 (W)		0
2065 (BN)		0
2066 (D)		0
2067 (C)		0
2068 (C)		0
2069 (BN)		0
2070 (W)		0
2071 (BN)		0
2072 (W)		0
Average (2022-2072)		0
2022-2072	W	0
	AN	0
	BN	0
	D	0
	C	0

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

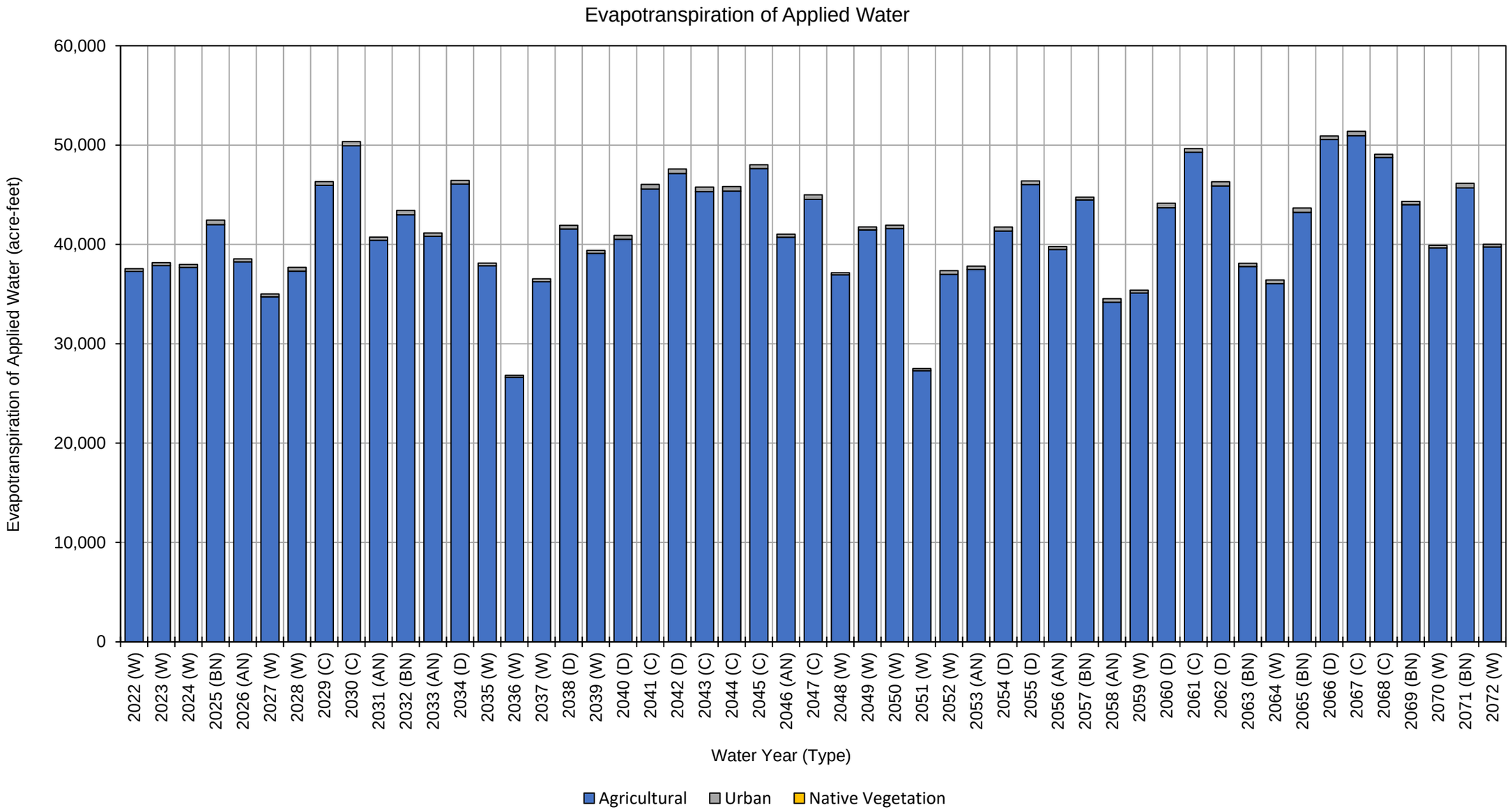
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	62,000	1,800	120,000	180,000
2023 (W)	64,000	1,600	110,000	180,000
2024 (W)	64,000	1,600	110,000	180,000
2025 (BN)	64,000	1,500	100,000	170,000
2026 (AN)	63,000	1,800	120,000	180,000
2027 (W)	61,000	1,600	110,000	170,000
2028 (W)	62,000	1,500	110,000	170,000
2029 (C)	65,000	1,200	86,000	150,000
2030 (C)	65,000	1,300	79,000	150,000
2031 (AN)	63,000	1,800	120,000	180,000
2032 (BN)	64,000	1,600	110,000	180,000
2033 (AN)	61,000	1,600	110,000	170,000
2034 (D)	65,000	1,400	100,000	170,000
2035 (W)	61,000	1,600	110,000	170,000
2036 (W)	54,000	1,700	110,000	170,000
2037 (W)	64,000	1,600	110,000	180,000
2038 (D)	65,000	1,400	100,000	170,000
2039 (W)	64,000	1,600	110,000	180,000
2040 (D)	63,000	1,600	110,000	170,000
2041 (C)	64,000	1,500	99,000	160,000
2042 (D)	63,000	1,500	92,000	160,000
2043 (C)	65,000	1,700	110,000	180,000
2044 (C)	65,000	1,700	110,000	180,000
2045 (C)	67,000	1,600	110,000	180,000
2046 (AN)	63,000	1,800	120,000	180,000
2047 (C)	65,000	1,700	110,000	180,000
2048 (W)	58,000	1,600	110,000	170,000
2049 (W)	64,000	1,600	110,000	180,000
2050 (W)	64,000	1,700	110,000	180,000
2051 (W)	54,000	1,700	110,000	170,000
2052 (W)	62,000	1,500	110,000	170,000
2053 (AN)	61,000	1,600	110,000	170,000
2054 (D)	64,000	1,600	110,000	180,000
2055 (D)	65,000	1,400	99,000	170,000
2056 (AN)	61,000	1,600	110,000	170,000
2057 (BN)	64,000	1,300	96,000	160,000
2058 (AN)	59,000	1,900	120,000	180,000
2059 (W)	61,000	1,600	110,000	170,000
2060 (D)	63,000	1,500	93,000	160,000
2061 (C)	65,000	1,300	87,000	150,000
2062 (D)	63,000	1,500	99,000	160,000
2063 (BN)	58,000	1,600	110,000	170,000

Los Molinos Subbasin Projected (Future Land Use) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		58,000	1,800	120,000	180,000
2065 (BN)		64,000	1,600	110,000	180,000
2066 (D)		66,000	1,200	88,000	160,000
2067 (C)		65,000	1,300	82,000	150,000
2068 (C)		65,000	1,300	92,000	160,000
2069 (BN)		65,000	1,600	110,000	180,000
2070 (W)		62,000	1,600	110,000	170,000
2071 (BN)		64,000	1,500	100,000	170,000
2072 (W)		62,000	1,800	120,000	180,000
Average (2022-2072)		63,000	1,600	110,000	170,000
2022-2072	W	61,000	1,600	110,000	170,000
	AN	62,000	1,700	110,000	170,000
	BN	63,000	1,500	100,000	160,000
	D	64,000	1,500	98,000	160,000
	C	65,000	1,500	96,000	160,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

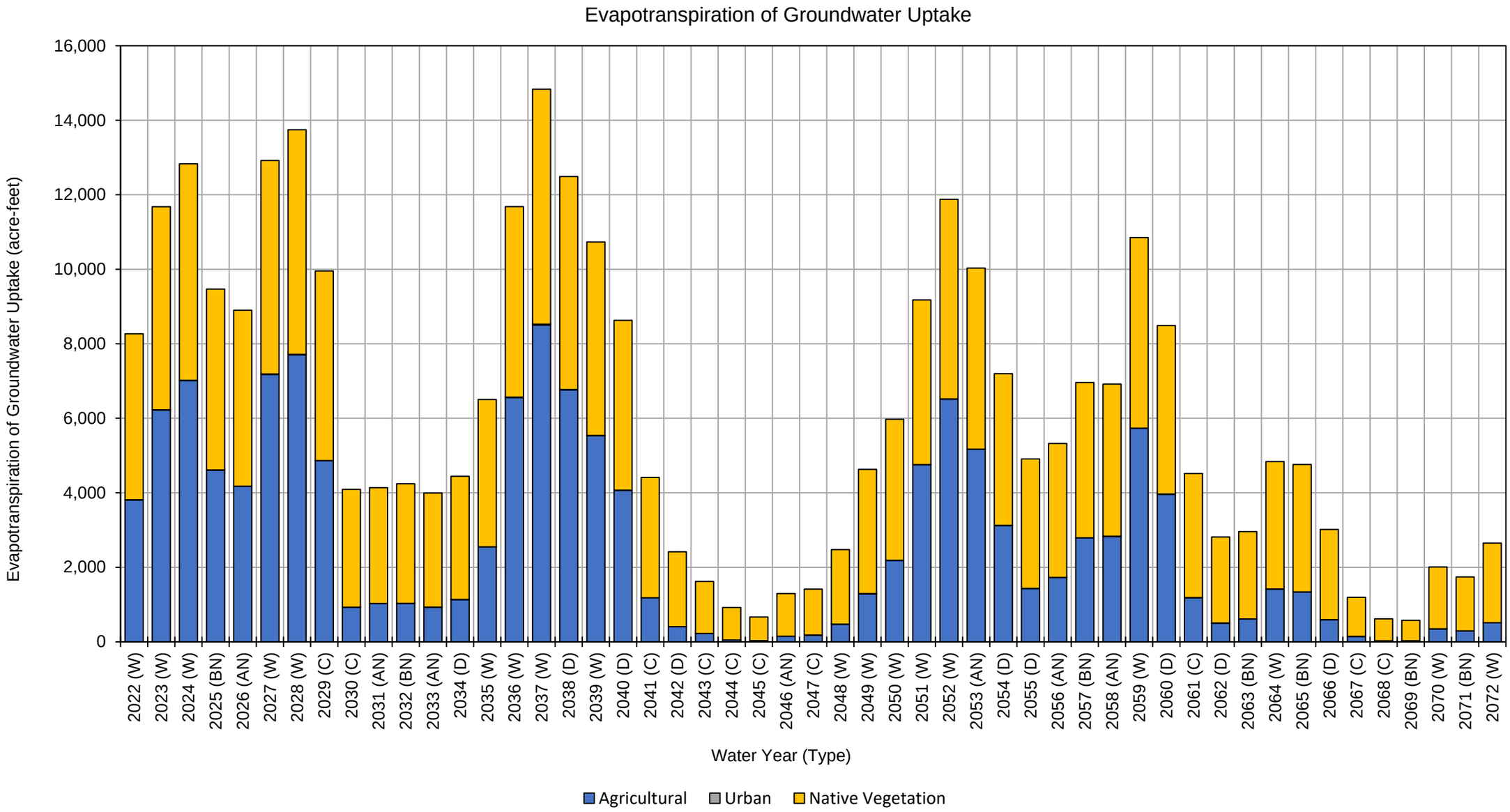
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	37,000	280	0	37,000
2023 (W)	38,000	310	0	38,000
2024 (W)	38,000	300	0	38,000
2025 (BN)	42,000	460	0	42,000
2026 (AN)	38,000	310	0	38,000
2027 (W)	35,000	280	0	35,000
2028 (W)	37,000	380	0	37,000
2029 (C)	46,000	370	0	46,000
2030 (C)	50,000	430	0	50,000
2031 (AN)	40,000	310	0	40,000
2032 (BN)	43,000	440	0	43,000
2033 (AN)	41,000	340	0	41,000
2034 (D)	46,000	370	0	46,000
2035 (W)	38,000	280	0	38,000
2036 (W)	27,000	210	0	27,000
2037 (W)	36,000	300	0	36,000
2038 (D)	42,000	370	0	42,000
2039 (W)	39,000	300	0	39,000
2040 (D)	41,000	400	0	41,000
2041 (C)	46,000	470	0	46,000
2042 (D)	47,000	460	0	47,000
2043 (C)	45,000	460	0	45,000
2044 (C)	45,000	460	0	45,000
2045 (C)	48,000	390	0	48,000
2046 (AN)	41,000	300	0	41,000
2047 (C)	45,000	460	0	45,000
2048 (W)	37,000	210	0	37,000
2049 (W)	41,000	300	0	41,000
2050 (W)	42,000	330	0	42,000
2051 (W)	27,000	210	0	27,000
2052 (W)	37,000	380	0	37,000
2053 (AN)	37,000	340	0	37,000
2054 (D)	41,000	400	0	41,000
2055 (D)	46,000	370	0	46,000
2056 (AN)	39,000	300	0	39,000
2057 (BN)	44,000	280	0	44,000
2058 (AN)	34,000	350	0	34,000
2059 (W)	35,000	280	0	35,000
2060 (D)	44,000	460	0	44,000
2061 (C)	49,000	370	0	49,000
2062 (D)	46,000	430	0	46,000
2063 (BN)	38,000	330	0	38,000

Los Molinos Subbasin Projected (Future Land Use) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		36,000	370	0	36,000
2065 (BN)		43,000	440	0	43,000
2066 (D)		51,000	350	0	51,000
2067 (C)		51,000	440	0	51,000
2068 (C)		49,000	320	0	49,000
2069 (BN)		44,000	340	0	44,000
2070 (W)		40,000	270	0	40,000
2071 (BN)		46,000	460	0	46,000
2072 (W)		40,000	270	0	40,000
Average (2022-2072)		41,000	350	0	41,000
2022-2072	W	37,000	290	0	37,000
	AN	39,000	320	0	39,000
	BN	43,000	390	0	43,000
	D	45,000	400	0	45,000
	C	47,000	420	0	47,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

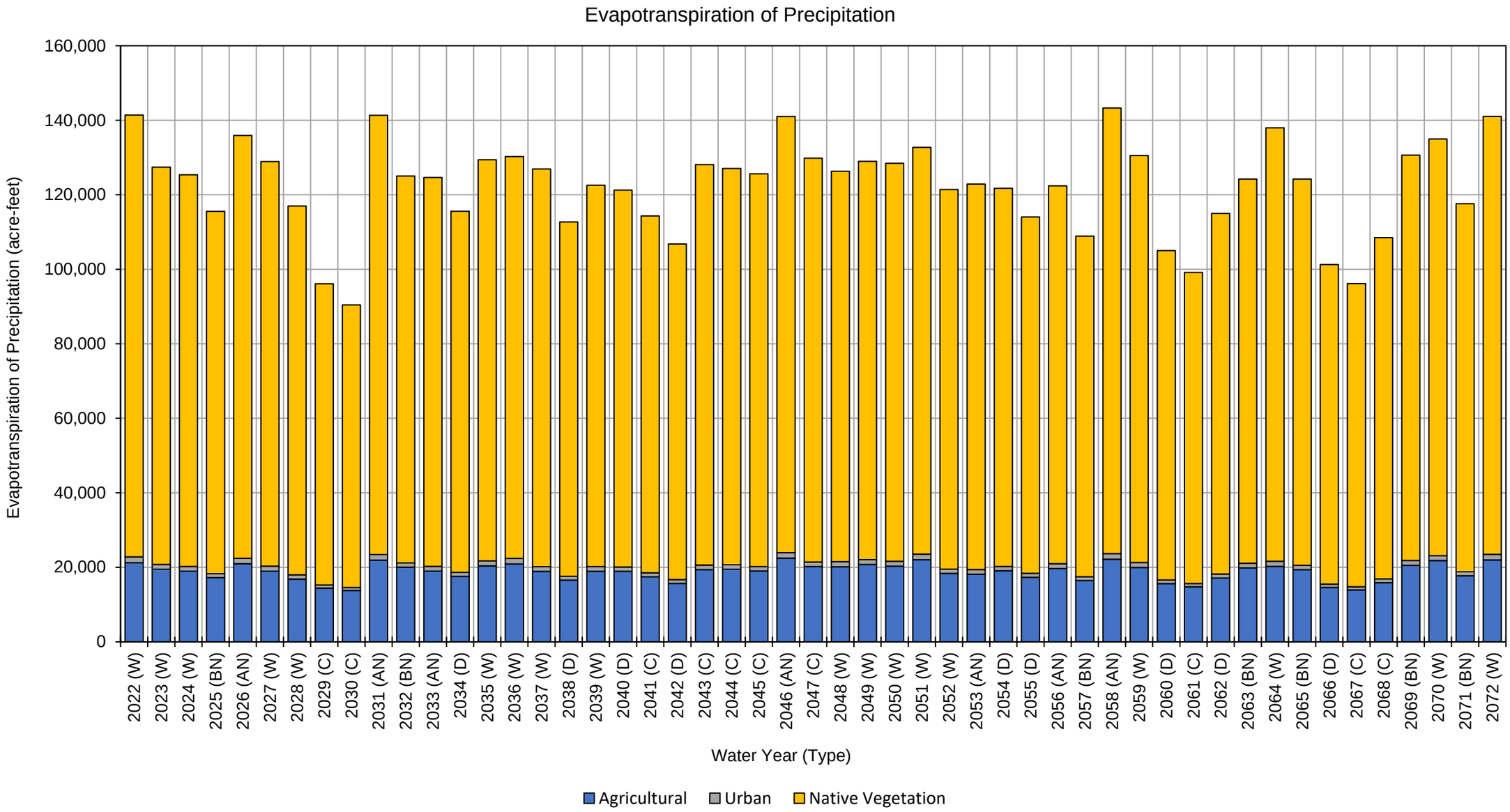
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	3,800	5	4,500	8,300
2023 (W)	6,200	6	5,400	12,000
2024 (W)	7,000	9	5,800	13,000
2025 (BN)	4,600	5	4,900	9,500
2026 (AN)	4,200	5	4,700	8,900
2027 (W)	7,200	10	5,700	13,000
2028 (W)	7,700	16	6,000	14,000
2029 (C)	4,900	6	5,100	10,000
2030 (C)	920	3	3,200	4,100
2031 (AN)	1,000	3	3,100	4,100
2032 (BN)	1,000	3	3,200	4,200
2033 (AN)	930	3	3,100	4,000
2034 (D)	1,100	4	3,300	4,400
2035 (W)	2,500	4	4,000	6,500
2036 (W)	6,600	12	5,100	12,000
2037 (W)	8,500	26	6,300	15,000
2038 (D)	6,800	15	5,700	13,000
2039 (W)	5,500	6	5,200	11,000
2040 (D)	4,100	5	4,600	8,700
2041 (C)	1,200	4	3,200	4,400
2042 (D)	400	2	2,000	2,400
2043 (C)	220	1	1,400	1,600
2044 (C)	50	0	870	920
2045 (C)	30	0	640	670
2046 (AN)	150	2	1,100	1,300
2047 (C)	180	1	1,200	1,400
2048 (W)	470	2	2,000	2,500
2049 (W)	1,300	4	3,300	4,600
2050 (W)	2,200	4	3,800	6,000
2051 (W)	4,800	6	4,400	9,200
2052 (W)	6,500	10	5,400	12,000
2053 (AN)	5,200	6	4,900	10,000
2054 (D)	3,100	5	4,100	7,200
2055 (D)	1,400	4	3,500	4,900
2056 (AN)	1,700	4	3,600	5,300
2057 (BN)	2,800	4	4,200	7,000
2058 (AN)	2,800	5	4,100	6,900
2059 (W)	5,700	7	5,100	11,000
2060 (D)	4,000	5	4,500	8,500
2061 (C)	1,200	4	3,300	4,500
2062 (D)	500	2	2,300	2,800
2063 (BN)	610	3	2,300	2,900

Los Molinos Subbasin Projected (Future Land Use) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		1,400	4	3,400	4,800
2065 (BN)		1,300	4	3,400	4,700
2066 (D)		590	2	2,400	3,000
2067 (C)		140	0	1,100	1,200
2068 (C)		24	0	590	610
2069 (BN)		28	0	550	580
2070 (W)		350	2	1,700	2,100
2071 (BN)		290	1	1,400	1,700
2072 (W)		510	2	2,100	2,600
Average (2022-2072)		2,700	5	3,500	6,200
2022-2072	W	4,300	7	4,400	8,700
	AN	2,300	4	3,500	5,800
	BN	1,500	3	2,900	4,400
	D	2,400	5	3,600	6,000
	C	880	2	2,100	3,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

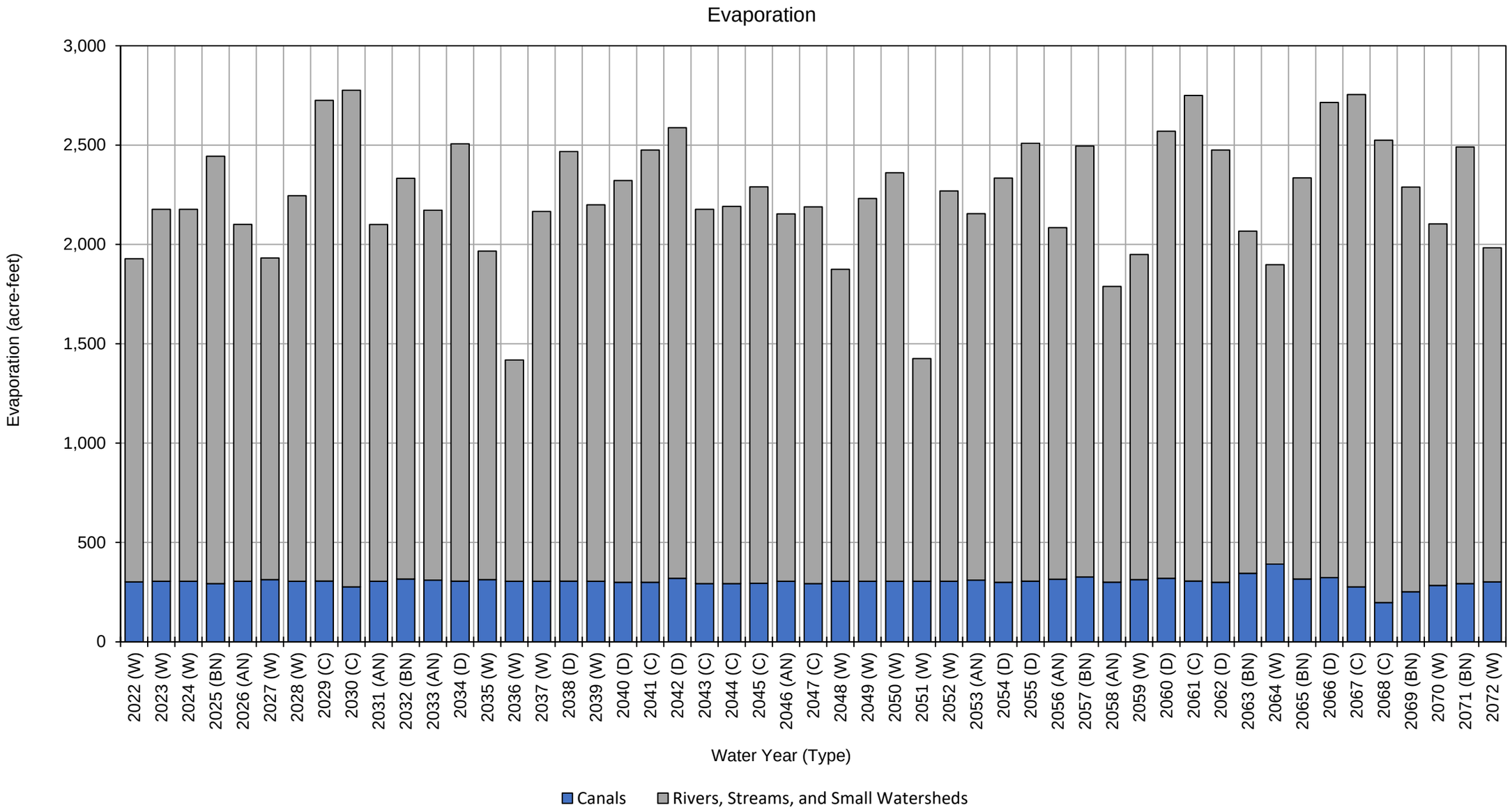
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	21,000	1,500	120,000	140,000
2023 (W)	19,000	1,300	110,000	130,000
2024 (W)	19,000	1,300	110,000	130,000
2025 (BN)	17,000	1,000	97,000	120,000
2026 (AN)	21,000	1,500	110,000	130,000
2027 (W)	19,000	1,300	110,000	130,000
2028 (W)	17,000	1,200	99,000	120,000
2029 (C)	14,000	870	81,000	96,000
2030 (C)	14,000	820	76,000	91,000
2031 (AN)	22,000	1,500	120,000	140,000
2032 (BN)	20,000	1,100	100,000	120,000
2033 (AN)	19,000	1,300	100,000	120,000
2034 (D)	18,000	1,000	97,000	120,000
2035 (W)	20,000	1,300	110,000	130,000
2036 (W)	21,000	1,500	110,000	130,000
2037 (W)	19,000	1,300	110,000	130,000
2038 (D)	17,000	1,000	95,000	110,000
2039 (W)	19,000	1,300	100,000	120,000
2040 (D)	19,000	1,200	100,000	120,000
2041 (C)	17,000	1,100	96,000	110,000
2042 (D)	16,000	1,000	90,000	110,000
2043 (C)	19,000	1,200	110,000	130,000
2044 (C)	19,000	1,200	110,000	130,000
2045 (C)	19,000	1,200	110,000	130,000
2046 (AN)	22,000	1,500	120,000	140,000
2047 (C)	20,000	1,200	110,000	130,000
2048 (W)	20,000	1,400	100,000	120,000
2049 (W)	21,000	1,300	110,000	130,000
2050 (W)	20,000	1,300	110,000	130,000
2051 (W)	22,000	1,500	110,000	130,000
2052 (W)	18,000	1,200	100,000	120,000
2053 (AN)	18,000	1,300	100,000	120,000
2054 (D)	19,000	1,200	100,000	120,000
2055 (D)	17,000	1,000	96,000	110,000
2056 (AN)	20,000	1,300	100,000	120,000
2057 (BN)	16,000	1,100	91,000	110,000
2058 (AN)	22,000	1,500	120,000	140,000
2059 (W)	20,000	1,300	110,000	130,000
2060 (D)	16,000	1,000	88,000	110,000
2061 (C)	15,000	890	84,000	100,000
2062 (D)	17,000	1,100	97,000	120,000
2063 (BN)	20,000	1,300	100,000	120,000

Los Molinos Subbasin Projected (Future Land Use) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		20,000	1,400	120,000	140,000
2065 (BN)		19,000	1,100	100,000	120,000
2066 (D)		15,000	890	86,000	100,000
2067 (C)		14,000	840	81,000	96,000
2068 (C)		16,000	990	92,000	110,000
2069 (BN)		21,000	1,300	110,000	130,000
2070 (W)		22,000	1,300	110,000	130,000
2071 (BN)		18,000	1,000	99,000	120,000
2072 (W)		22,000	1,500	120,000	140,000
Average (2022-2072)		19,000	1,200	100,000	120,000
2022-2072	W	20,000	1,300	110,000	130,000
	AN	21,000	1,400	110,000	130,000
	BN	19,000	1,100	100,000	120,000
	D	17,000	1,000	95,000	110,000
	C	17,000	1,000	94,000	110,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Evaporation (acre-feet, rounded)

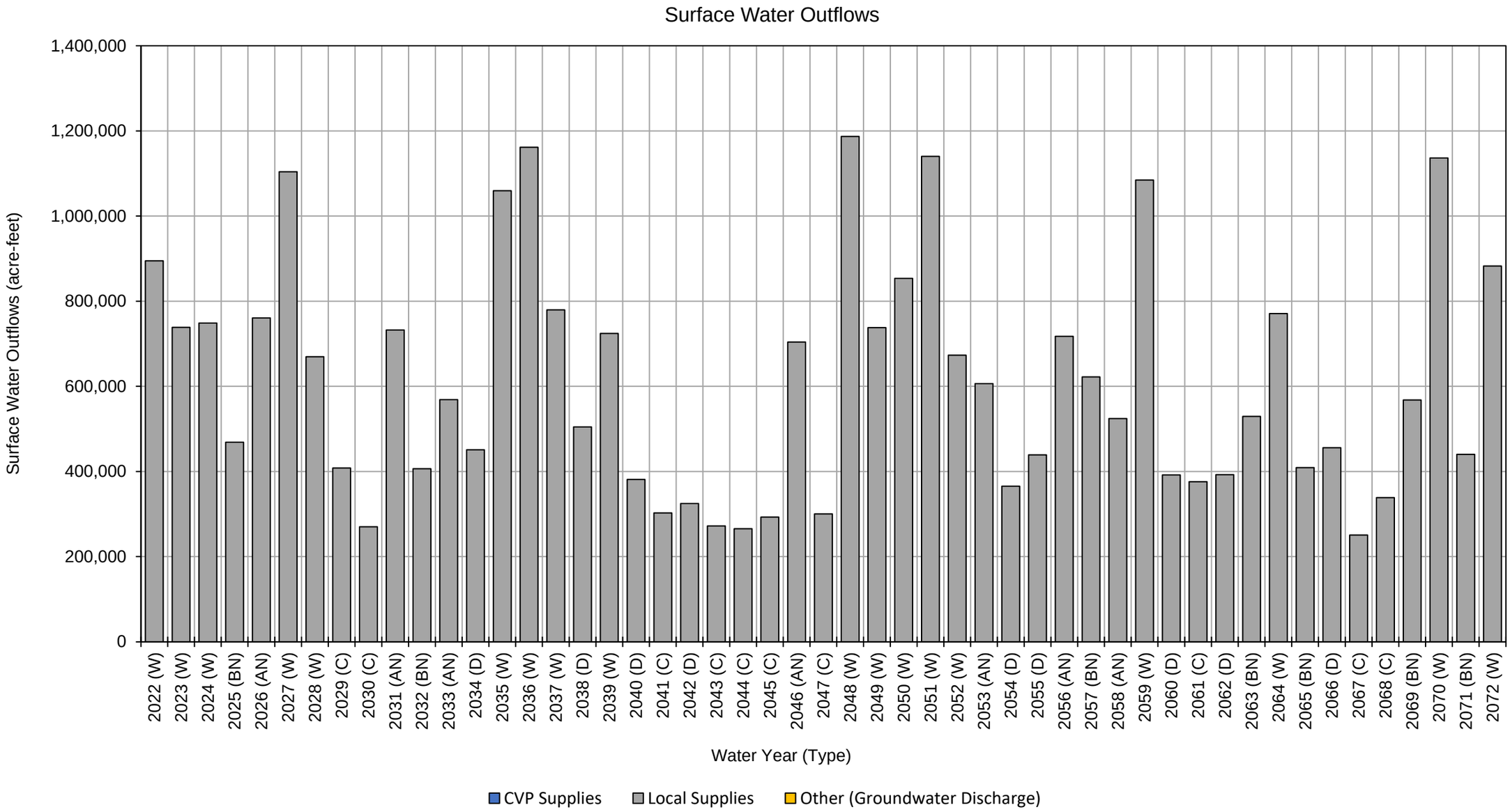
WY (Type)	Canals	Rivers, Streams, and Small Watersheds	Total
2022 (W)	300	1,600	1,900
2023 (W)	300	1,900	2,200
2024 (W)	300	1,900	2,200
2025 (BN)	290	2,200	2,500
2026 (AN)	300	1,800	2,100
2027 (W)	310	1,600	1,900
2028 (W)	300	1,900	2,200
2029 (C)	310	2,400	2,700
2030 (C)	280	2,500	2,800
2031 (AN)	300	1,800	2,100
2032 (BN)	320	2,000	2,300
2033 (AN)	310	1,900	2,200
2034 (D)	310	2,200	2,500
2035 (W)	310	1,700	2,000
2036 (W)	300	1,100	1,400
2037 (W)	300	1,900	2,200
2038 (D)	310	2,200	2,500
2039 (W)	300	1,900	2,200
2040 (D)	300	2,000	2,300
2041 (C)	300	2,200	2,500
2042 (D)	320	2,300	2,600
2043 (C)	290	1,900	2,200
2044 (C)	290	1,900	2,200
2045 (C)	290	2,000	2,300
2046 (AN)	300	1,800	2,100
2047 (C)	290	1,900	2,200
2048 (W)	300	1,600	1,900
2049 (W)	300	1,900	2,200
2050 (W)	300	2,100	2,400
2051 (W)	300	1,100	1,400
2052 (W)	300	2,000	2,300
2053 (AN)	310	1,800	2,100
2054 (D)	300	2,000	2,300
2055 (D)	310	2,200	2,500
2056 (AN)	320	1,800	2,100
2057 (BN)	330	2,200	2,500
2058 (AN)	300	1,500	1,800
2059 (W)	310	1,600	1,900
2060 (D)	320	2,300	2,600
2061 (C)	310	2,400	2,700
2062 (D)	300	2,200	2,500
2063 (BN)	340	1,700	2,000

Los Molinos Subbasin Projected (Future Land Use) Evaporation (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Watersheds	Total
2064 (W)		390	1,500	1,900
2065 (BN)		320	2,000	2,300
2066 (D)		320	2,400	2,700
2067 (C)		280	2,500	2,800
2068 (C)		200	2,300	2,500
2069 (BN)		250	2,000	2,300
2070 (W)		280	1,800	2,100
2071 (BN)		290	2,200	2,500
2072 (W)		300	1,700	2,000
Average (2022-2072)		300	1,900	2,200
2022-2072	W	310	1,700	2,000
	AN	310	1,800	2,100
	BN	310	2,000	2,300
	D	310	2,200	2,500
	C	280	2,200	2,500

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

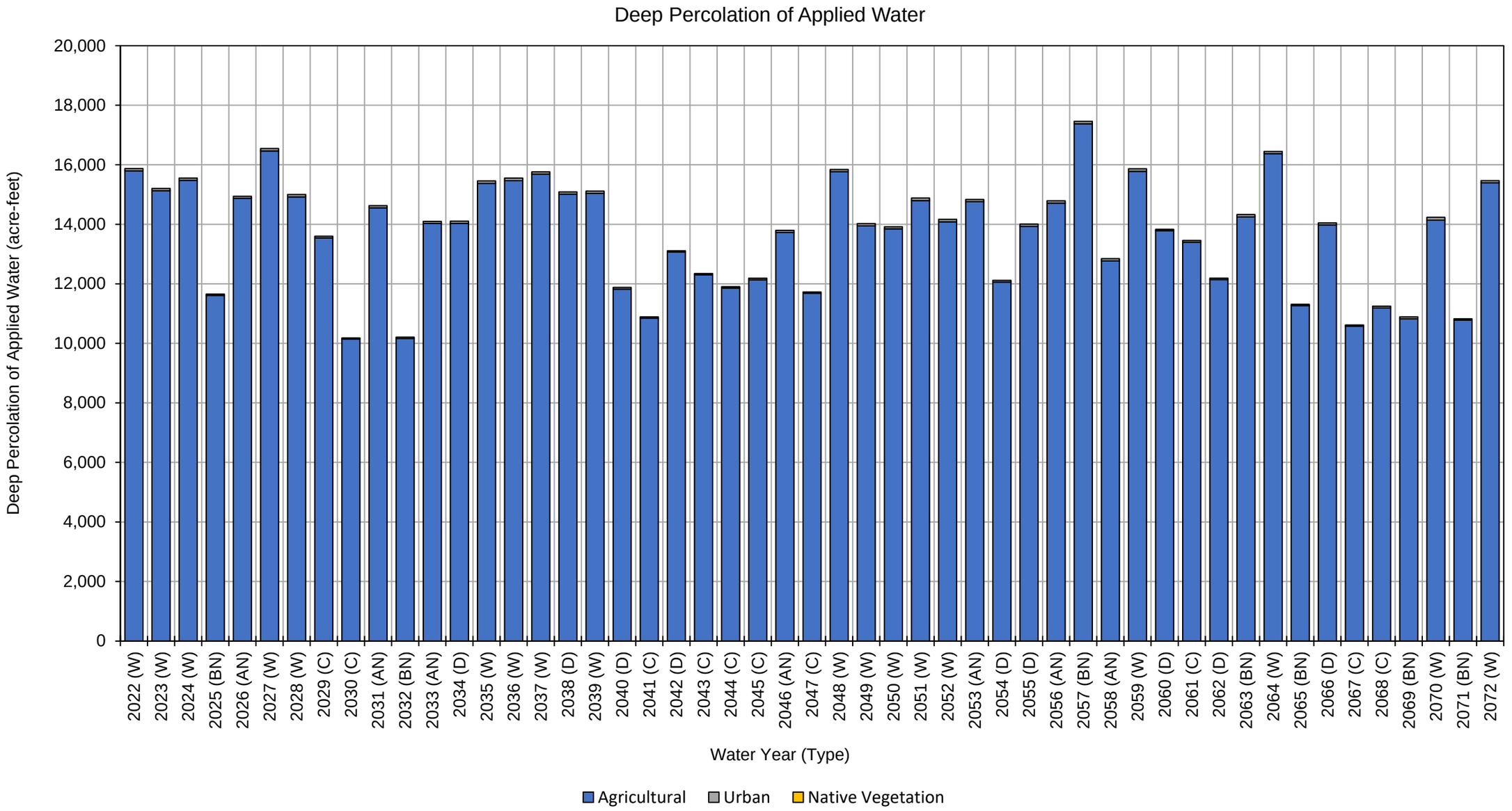
WY (Type)	CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2022 (W)	0	890,000	0	890,000
2023 (W)	0	740,000	0	740,000
2024 (W)	0	750,000	0	750,000
2025 (BN)	0	470,000	0	470,000
2026 (AN)	0	760,000	0	760,000
2027 (W)	0	1,100,000	0	1,100,000
2028 (W)	0	670,000	0	670,000
2029 (C)	0	410,000	0	410,000
2030 (C)	0	270,000	0	270,000
2031 (AN)	0	730,000	0	730,000
2032 (BN)	0	410,000	0	410,000
2033 (AN)	0	570,000	0	570,000
2034 (D)	0	450,000	0	450,000
2035 (W)	0	1,100,000	0	1,100,000
2036 (W)	0	1,200,000	0	1,200,000
2037 (W)	0	780,000	0	780,000
2038 (D)	0	500,000	0	500,000
2039 (W)	0	720,000	0	720,000
2040 (D)	0	380,000	0	380,000
2041 (C)	0	300,000	0	300,000
2042 (D)	0	320,000	0	320,000
2043 (C)	0	270,000	0	270,000
2044 (C)	0	270,000	0	270,000
2045 (C)	0	290,000	0	290,000
2046 (AN)	0	700,000	0	700,000
2047 (C)	0	300,000	0	300,000
2048 (W)	0	1,200,000	0	1,200,000
2049 (W)	0	740,000	0	740,000
2050 (W)	0	850,000	0	850,000
2051 (W)	0	1,100,000	0	1,100,000
2052 (W)	0	670,000	0	670,000
2053 (AN)	0	610,000	0	610,000
2054 (D)	0	370,000	0	370,000
2055 (D)	0	440,000	0	440,000
2056 (AN)	0	720,000	0	720,000
2057 (BN)	0	620,000	0	620,000
2058 (AN)	0	520,000	0	520,000
2059 (W)	0	1,100,000	0	1,100,000
2060 (D)	0	390,000	0	390,000
2061 (C)	0	380,000	0	380,000
2062 (D)	0	390,000	0	390,000
2063 (BN)	0	530,000	0	530,000

Los Molinos Subbasin Projected (Future Land Use) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2064 (W)		0	770,000	0	770,000
2065 (BN)		0	410,000	0	410,000
2066 (D)		0	460,000	0	460,000
2067 (C)		0	250,000	0	250,000
2068 (C)		0	340,000	0	340,000
2069 (BN)		0	570,000	0	570,000
2070 (W)		0	1,100,000	0	1,100,000
2071 (BN)		0	440,000	0	440,000
2072 (W)		0	880,000	0	880,000
Average (2022-2072)		0	610,000	0	610,000
2022-2072	W	0	910,000	0	910,000
	AN	0	660,000	0	660,000
	BN	0	490,000	0	490,000
	D	0	410,000	0	410,000
	C	0	310,000	0	310,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

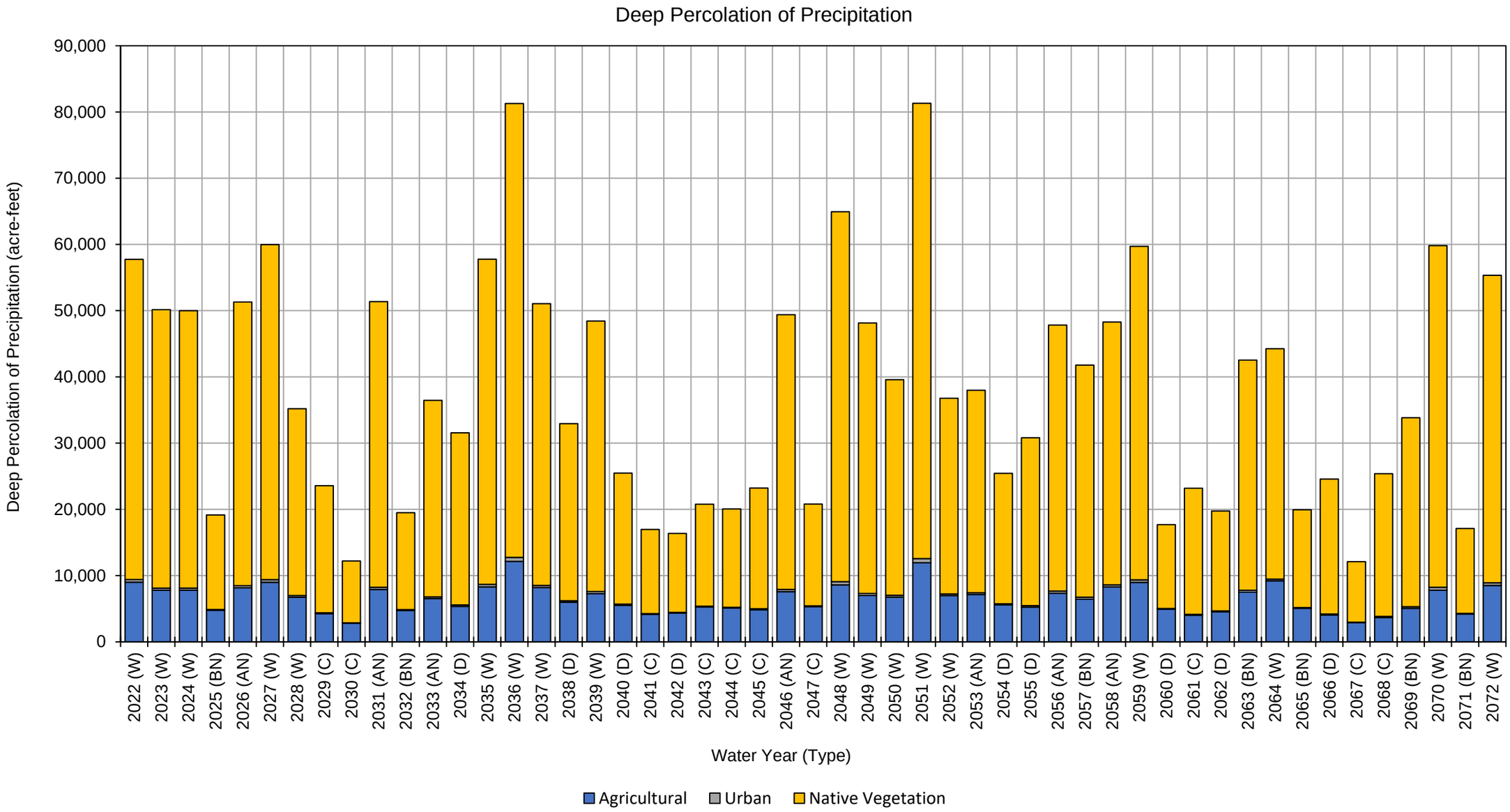
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	16,000	72	0	16,000
2023 (W)	15,000	76	0	15,000
2024 (W)	15,000	76	0	15,000
2025 (BN)	12,000	45	0	12,000
2026 (AN)	15,000	69	0	15,000
2027 (W)	16,000	83	0	16,000
2028 (W)	15,000	82	0	15,000
2029 (C)	14,000	58	0	14,000
2030 (C)	10,000	36	0	10,000
2031 (AN)	15,000	71	0	15,000
2032 (BN)	10,000	46	0	10,000
2033 (AN)	14,000	71	0	14,000
2034 (D)	14,000	75	0	14,000
2035 (W)	15,000	82	0	15,000
2036 (W)	15,000	86	0	15,000
2037 (W)	16,000	78	0	16,000
2038 (D)	15,000	76	0	15,000
2039 (W)	15,000	76	0	15,000
2040 (D)	12,000	59	0	12,000
2041 (C)	11,000	48	0	11,000
2042 (D)	13,000	43	0	13,000
2043 (C)	12,000	46	0	12,000
2044 (C)	12,000	46	0	12,000
2045 (C)	12,000	51	0	12,000
2046 (AN)	14,000	69	0	14,000
2047 (C)	12,000	46	0	12,000
2048 (W)	16,000	72	0	16,000
2049 (W)	14,000	76	0	14,000
2050 (W)	14,000	68	0	14,000
2051 (W)	15,000	86	0	15,000
2052 (W)	14,000	82	0	14,000
2053 (AN)	15,000	71	0	15,000
2054 (D)	12,000	60	0	12,000
2055 (D)	14,000	75	0	14,000
2056 (AN)	15,000	79	0	15,000
2057 (BN)	17,000	81	0	17,000
2058 (AN)	13,000	76	0	13,000
2059 (W)	16,000	83	0	16,000
2060 (D)	14,000	43	0	14,000
2061 (C)	13,000	58	0	13,000
2062 (D)	12,000	46	0	12,000
2063 (BN)	14,000	78	0	14,000

Los Molinos Subbasin Projected (Future Land Use) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		16,000	74	0	16,000
2065 (BN)		11,000	47	0	11,000
2066 (D)		14,000	67	0	14,000
2067 (C)		11,000	37	0	11,000
2068 (C)		11,000	61	0	11,000
2069 (BN)		11,000	64	0	11,000
2070 (W)		14,000	93	0	14,000
2071 (BN)		11,000	45	0	11,000
2072 (W)		15,000	71	0	15,000
Average (2022-2072)		14,000	66	0	14,000
2022-2072	W	15,000	79	0	15,000
	AN	14,000	72	0	14,000
	BN	12,000	58	0	12,000
	D	13,000	60	0	13,000
	C	12,000	49	0	12,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

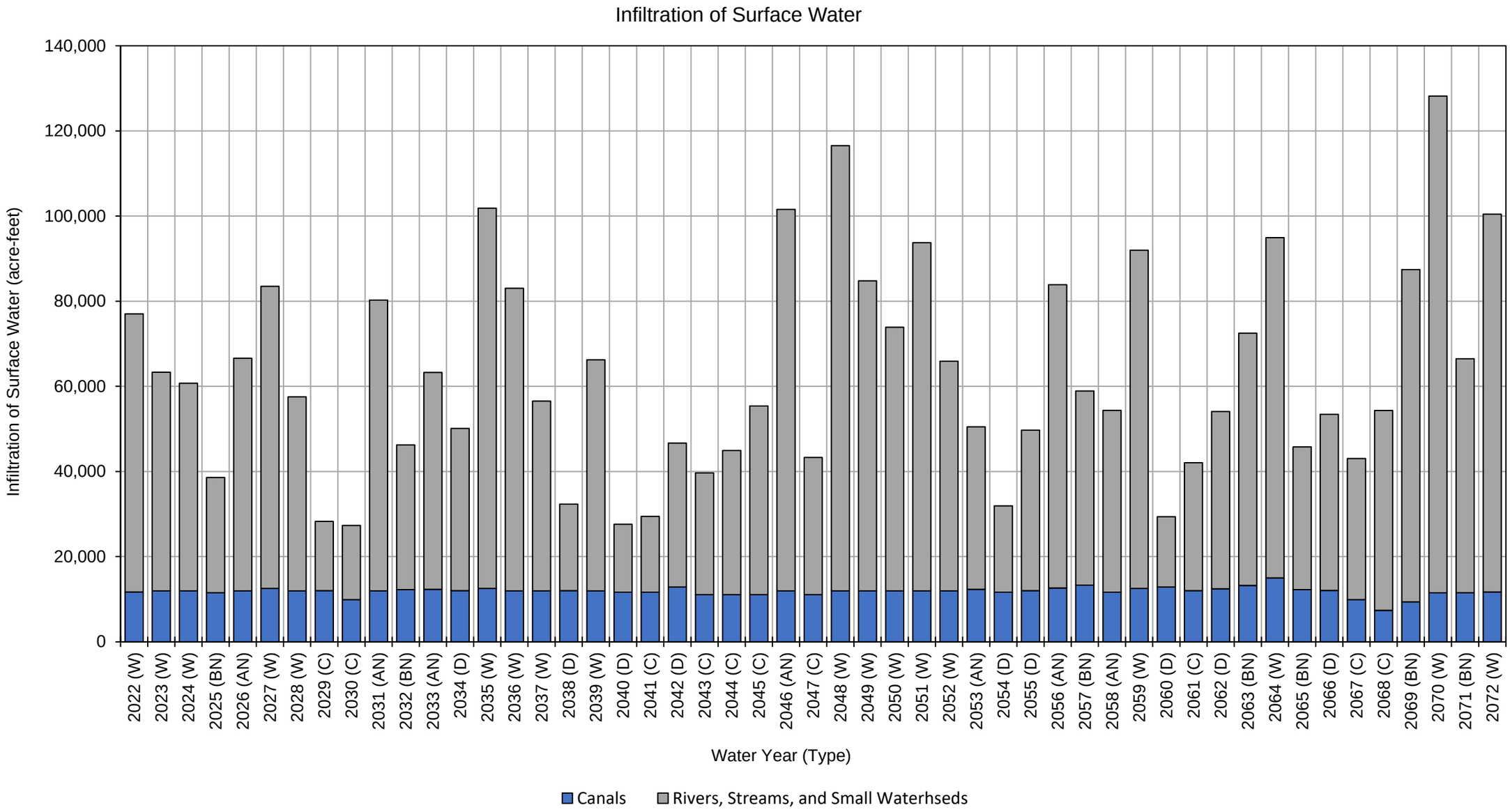
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	9,000	400	48,000	57,000
2023 (W)	7,800	320	42,000	50,000
2024 (W)	7,800	320	42,000	50,000
2025 (BN)	4,800	100	14,000	19,000
2026 (AN)	8,100	330	43,000	51,000
2027 (W)	9,000	400	51,000	60,000
2028 (W)	6,700	250	28,000	35,000
2029 (C)	4,200	140	19,000	23,000
2030 (C)	2,800	69	9,300	12,000
2031 (AN)	7,900	340	43,000	51,000
2032 (BN)	4,700	120	15,000	20,000
2033 (AN)	6,500	260	30,000	37,000
2034 (D)	5,300	210	26,000	32,000
2035 (W)	8,300	390	49,000	58,000
2036 (W)	12,000	600	69,000	82,000
2037 (W)	8,200	330	43,000	52,000
2038 (D)	6,000	220	27,000	33,000
2039 (W)	7,300	320	41,000	49,000
2040 (D)	5,500	170	20,000	26,000
2041 (C)	4,100	110	13,000	17,000
2042 (D)	4,300	94	12,000	16,000
2043 (C)	5,300	120	15,000	20,000
2044 (C)	5,100	120	15,000	20,000
2045 (C)	4,800	150	18,000	23,000
2046 (AN)	7,600	330	41,000	49,000
2047 (C)	5,300	120	15,000	20,000
2048 (W)	8,600	470	56,000	65,000
2049 (W)	7,000	320	41,000	48,000
2050 (W)	6,800	270	33,000	40,000
2051 (W)	12,000	610	69,000	82,000
2052 (W)	7,000	250	30,000	37,000
2053 (AN)	7,100	260	31,000	38,000
2054 (D)	5,600	170	20,000	26,000
2055 (D)	5,200	210	25,000	30,000
2056 (AN)	7,300	330	40,000	48,000
2057 (BN)	6,400	310	35,000	42,000
2058 (AN)	8,300	320	40,000	49,000
2059 (W)	9,000	400	50,000	59,000
2060 (D)	4,900	94	13,000	18,000
2061 (C)	4,000	140	19,000	23,000
2062 (D)	4,500	120	15,000	20,000
2063 (BN)	7,500	290	35,000	43,000

Los Molinos Subbasin Projected (Future Land Use) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		9,200	270	35,000	44,000
2065 (BN)		5,000	120	15,000	20,000
2066 (D)		4,000	170	20,000	24,000
2067 (C)		2,900	69	9,100	12,000
2068 (C)		3,600	190	22,000	26,000
2069 (BN)		5,000	250	29,000	34,000
2070 (W)		7,800	450	52,000	60,000
2071 (BN)		4,200	100	13,000	17,000
2072 (W)		8,500	390	46,000	55,000
Average (2022-2072)		6,500	250	31,000	38,000
2022-2072	W	8,400	380	46,000	55,000
	AN	7,600	310	38,000	46,000
	BN	5,400	180	22,000	28,000
	D	5,100	160	20,000	25,000
	C	4,200	120	15,000	19,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Infiltration of Surface Water (acre-feet, rounded)

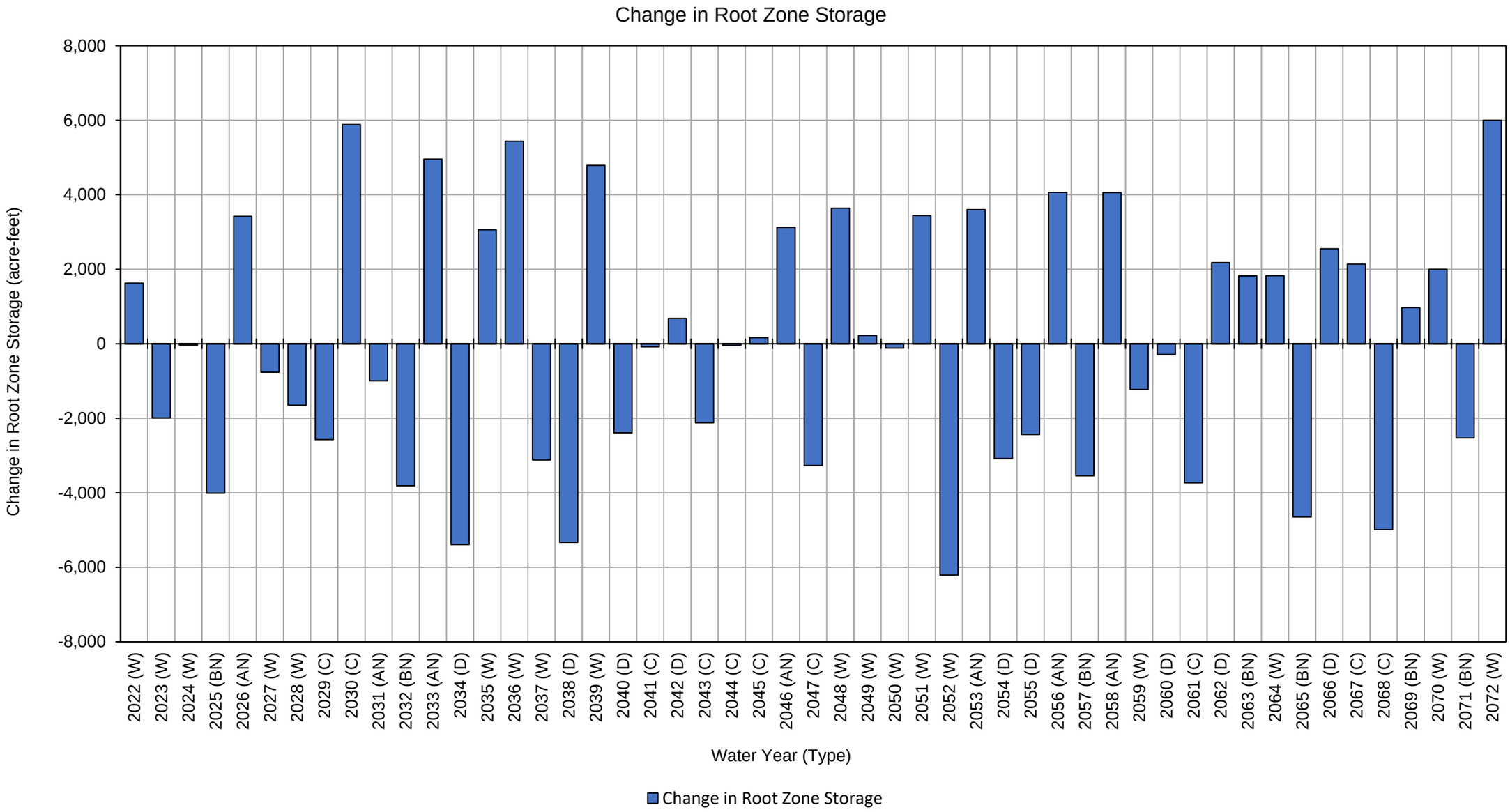
WY (Type)	Canals	Rivers, Streams, and Small Waterhseds	Total
2022 (W)	12,000	65,000	77,000
2023 (W)	12,000	51,000	63,000
2024 (W)	12,000	49,000	61,000
2025 (BN)	12,000	27,000	39,000
2026 (AN)	12,000	55,000	67,000
2027 (W)	13,000	71,000	84,000
2028 (W)	12,000	46,000	58,000
2029 (C)	12,000	16,000	28,000
2030 (C)	9,900	17,000	27,000
2031 (AN)	12,000	68,000	80,000
2032 (BN)	12,000	34,000	46,000
2033 (AN)	12,000	51,000	63,000
2034 (D)	12,000	38,000	50,000
2035 (W)	13,000	89,000	100,000
2036 (W)	12,000	71,000	83,000
2037 (W)	12,000	45,000	57,000
2038 (D)	12,000	20,000	32,000
2039 (W)	12,000	54,000	66,000
2040 (D)	12,000	16,000	28,000
2041 (C)	12,000	18,000	30,000
2042 (D)	13,000	34,000	47,000
2043 (C)	11,000	29,000	40,000
2044 (C)	11,000	34,000	45,000
2045 (C)	11,000	44,000	55,000
2046 (AN)	12,000	90,000	100,000
2047 (C)	11,000	32,000	43,000
2048 (W)	12,000	100,000	110,000
2049 (W)	12,000	73,000	85,000
2050 (W)	12,000	62,000	74,000
2051 (W)	12,000	82,000	94,000
2052 (W)	12,000	54,000	66,000
2053 (AN)	12,000	38,000	50,000
2054 (D)	12,000	20,000	32,000
2055 (D)	12,000	38,000	50,000
2056 (AN)	13,000	71,000	84,000
2057 (BN)	13,000	46,000	59,000
2058 (AN)	12,000	43,000	55,000
2059 (W)	13,000	79,000	92,000
2060 (D)	13,000	17,000	30,000
2061 (C)	12,000	30,000	42,000
2062 (D)	12,000	42,000	54,000
2063 (BN)	13,000	59,000	72,000

Los Molinos Subbasin Projected (Future Land Use) Infiltration of Surface Water (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Waterhseds	Total
2064 (W)		15,000	80,000	95,000
2065 (BN)		12,000	34,000	46,000
2066 (D)		12,000	41,000	53,000
2067 (C)		9,900	33,000	43,000
2068 (C)		7,400	47,000	54,000
2069 (BN)		9,400	78,000	87,000
2070 (W)		12,000	120,000	130,000
2071 (BN)		12,000	55,000	67,000
2072 (W)		12,000	89,000	100,000
Average (2022-2072)		12,000	51,000	63,000
2022-2072	W	12,000	71,000	83,000
	AN	12,000	59,000	71,000
	BN	12,000	47,000	59,000
	D	12,000	30,000	42,000
	C	11,000	30,000	41,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)	Change in Root Zone Storage
2022 (W)	1,600
2023 (W)	-2,000
2024 (W)	-39
2025 (BN)	-4,000
2026 (AN)	3,400
2027 (W)	-770
2028 (W)	-1,600
2029 (C)	-2,600
2030 (C)	5,900
2031 (AN)	-990
2032 (BN)	-3,800
2033 (AN)	5,000
2034 (D)	-5,400
2035 (W)	3,100
2036 (W)	5,400
2037 (W)	-3,100
2038 (D)	-5,300
2039 (W)	4,800
2040 (D)	-2,400
2041 (C)	-84
2042 (D)	680
2043 (C)	-2,100
2044 (C)	-51
2045 (C)	160
2046 (AN)	3,100
2047 (C)	-3,300
2048 (W)	3,600
2049 (W)	220
2050 (W)	-120
2051 (W)	3,400
2052 (W)	-6,200
2053 (AN)	3,600
2054 (D)	-3,100
2055 (D)	-2,400
2056 (AN)	4,100
2057 (BN)	-3,500
2058 (AN)	4,100
2059 (W)	-1,200
2060 (D)	-290
2061 (C)	-3,700
2062 (D)	2,200
2063 (BN)	1,800

Los Molinos Subbasin Projected (Future Land Use) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)		Change in Root Zone Storage
2064 (W)		1,800
2065 (BN)		-4,600
2066 (D)		2,600
2067 (C)		2,100
2068 (C)		-5,000
2069 (BN)		970
2070 (W)		2,000
2071 (BN)		-2,500
2072 (W)		6,000
Average (2022-2072)		25
2022-2072	W	940
	AN	3,200
	BN	-2,200
	D	-1,500
	C	-860

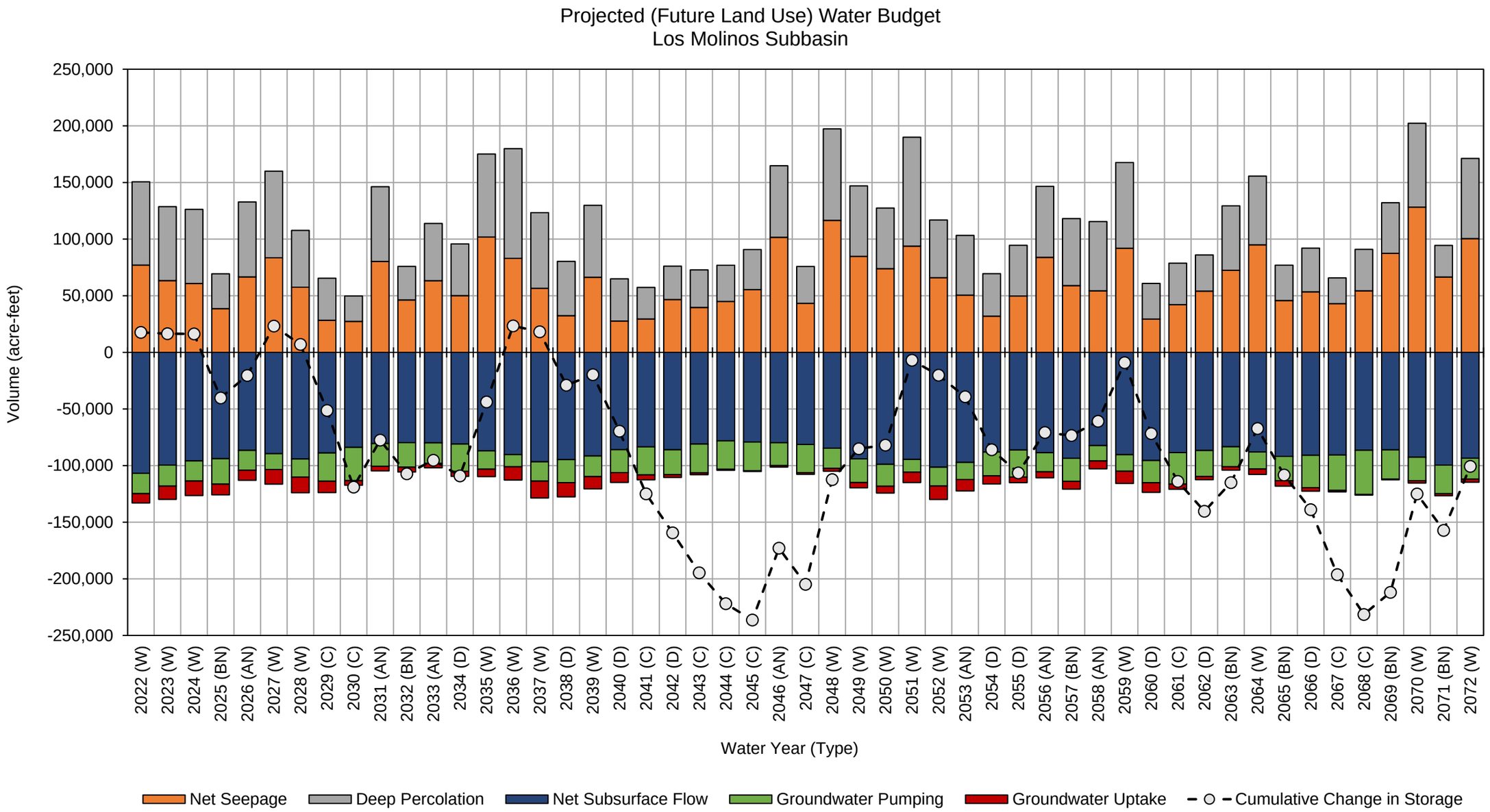
Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX C-3b

Detailed Los Molinos Subbasin Water Budget Results:

Projected (Future Land Use) Model Results – Groundwater System


Projected (Future Land Use) Water Budget
Los Molinos Subbasin
Volume (acre-feet)
250,000
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
-250,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Los Molinos Subbasin Projected (Future Land Use) Water Budget Summary (acre-feet, rounded)

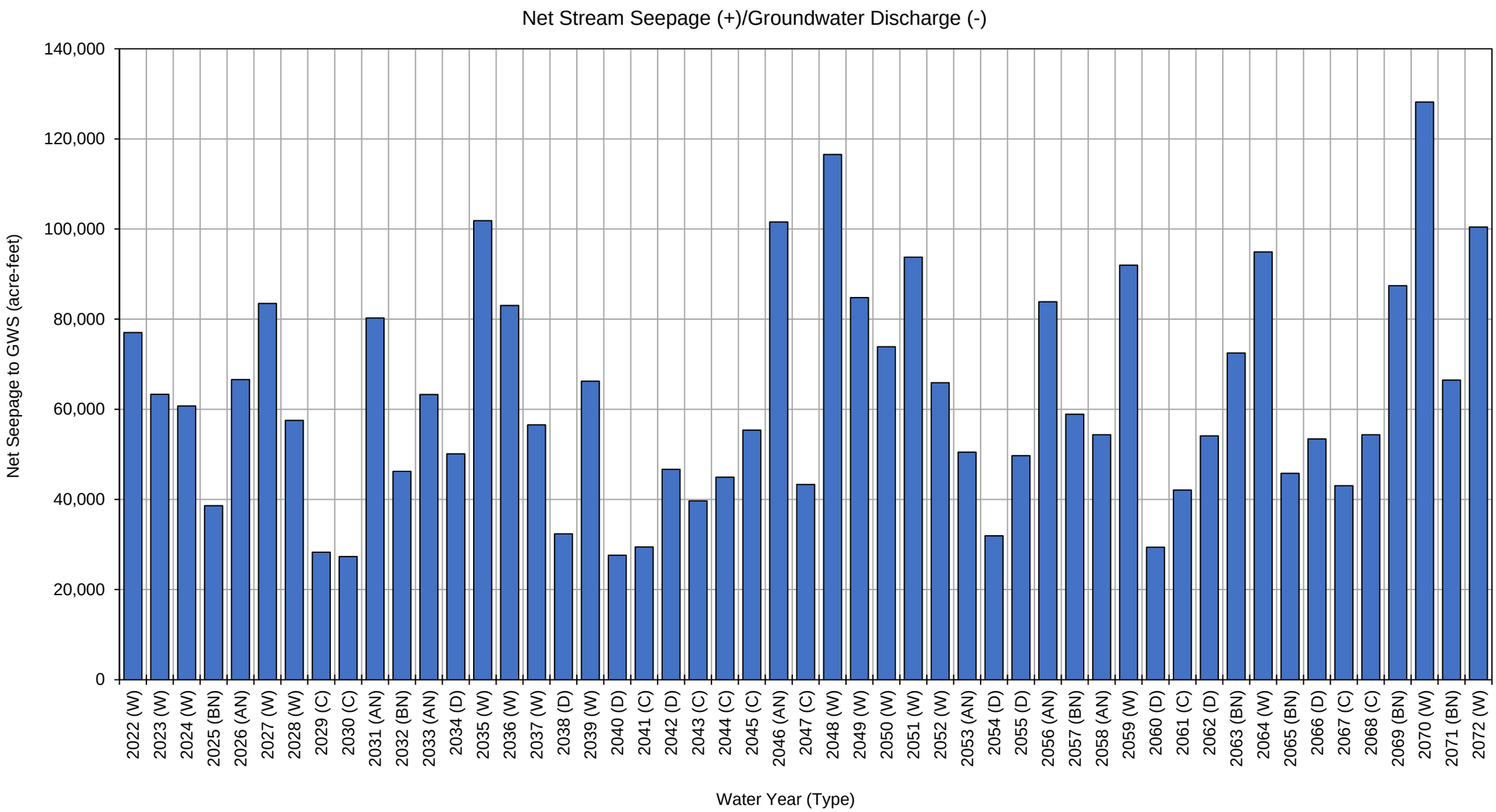
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	77,000	74,000	-18,000	-8,300	-110,000	18,000	18,000
2023 (W)	63,000	65,000	-19,000	-12,000	-100,000	-1,100	16,000
2024 (W)	61,000	66,000	-18,000	-13,000	-96,000	-200	16,000
2025 (BN)	39,000	31,000	-23,000	-9,500	-94,000	-56,000	-40,000
2026 (AN)	67,000	66,000	-17,000	-8,900	-87,000	20,000	-20,000
2027 (W)	83,000	77,000	-14,000	-13,000	-89,000	44,000	23,000
2028 (W)	58,000	50,000	-16,000	-14,000	-94,000	-16,000	7,000
2029 (C)	28,000	37,000	-25,000	-10,000	-89,000	-58,000	-51,000
2030 (C)	27,000	22,000	-29,000	-4,100	-84,000	-68,000	-120,000
2031 (AN)	80,000	66,000	-20,000	-4,100	-81,000	42,000	-77,000
2032 (BN)	46,000	30,000	-22,000	-4,200	-80,000	-30,000	-110,000
2033 (AN)	63,000	51,000	-18,000	-4,000	-80,000	12,000	-95,000
2034 (D)	50,000	46,000	-24,000	-4,400	-81,000	-14,000	-110,000
2035 (W)	100,000	73,000	-16,000	-6,500	-87,000	65,000	-44,000
2036 (W)	83,000	97,000	-11,000	-12,000	-90,000	67,000	23,000
2037 (W)	57,000	67,000	-17,000	-15,000	-97,000	-5,200	18,000
2038 (D)	32,000	48,000	-20,000	-12,000	-95,000	-47,000	-29,000
2039 (W)	66,000	64,000	-18,000	-11,000	-92,000	9,300	-20,000
2040 (D)	28,000	37,000	-20,000	-8,600	-86,000	-50,000	-70,000
2041 (C)	29,000	28,000	-25,000	-4,400	-83,000	-55,000	-120,000
2042 (D)	47,000	29,000	-22,000	-2,400	-86,000	-34,000	-160,000
2043 (C)	40,000	33,000	-26,000	-1,600	-81,000	-35,000	-190,000
2044 (C)	45,000	32,000	-25,000	-920	-78,000	-27,000	-220,000
2045 (C)	55,000	35,000	-25,000	-670	-79,000	-14,000	-240,000
2046 (AN)	100,000	63,000	-20,000	-1,300	-80,000	63,000	-170,000
2047 (C)	43,000	33,000	-25,000	-1,400	-81,000	-32,000	-200,000
2048 (W)	120,000	81,000	-18,000	-2,500	-85,000	92,000	-110,000
2049 (W)	85,000	62,000	-21,000	-4,600	-94,000	27,000	-85,000
2050 (W)	74,000	53,000	-19,000	-6,000	-99,000	3,100	-82,000
2051 (W)	94,000	96,000	-11,000	-9,200	-95,000	75,000	-7,000
2052 (W)	66,000	51,000	-17,000	-12,000	-100,000	-13,000	-20,000
2053 (AN)	50,000	53,000	-15,000	-10,000	-97,000	-19,000	-39,000
2054 (D)	32,000	38,000	-21,000	-7,200	-88,000	-47,000	-86,000
2055 (D)	50,000	45,000	-24,000	-4,900	-86,000	-21,000	-110,000
2056 (AN)	84,000	63,000	-17,000	-5,300	-89,000	36,000	-71,000
2057 (BN)	59,000	59,000	-20,000	-7,000	-94,000	-2,700	-73,000
2058 (AN)	54,000	61,000	-14,000	-6,900	-82,000	13,000	-61,000
2059 (W)	92,000	76,000	-15,000	-11,000	-90,000	52,000	-9,100
2060 (D)	29,000	32,000	-20,000	-8,500	-95,000	-63,000	-72,000
2061 (C)	42,000	37,000	-28,000	-4,500	-88,000	-42,000	-110,000
2062 (D)	54,000	32,000	-23,000	-2,800	-87,000	-26,000	-140,000
2063 (BN)	72,000	57,000	-18,000	-3,000	-83,000	25,000	-110,000
2064 (W)	95,000	61,000	-15,000	-4,800	-88,000	48,000	-67,000
2065 (BN)	46,000	31,000	-22,000	-4,800	-92,000	-41,000	-110,000

Los Molinos Subbasin Projected (Future Land Use) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		53,000	39,000	-29,000	-3,000	-91,000	-31,000	-140,000
2067 (C)		43,000	23,000	-31,000	-1,200	-91,000	-57,000	-200,000
2068 (C)		54,000	37,000	-39,000	-620	-86,000	-35,000	-230,000
2069 (BN)		87,000	45,000	-26,000	-570	-86,000	20,000	-210,000
2070 (W)		130,000	74,000	-21,000	-2,000	-93,000	87,000	-130,000
2071 (BN)		66,000	28,000	-25,000	-1,700	-100,000	-32,000	-160,000
2072 (W)		100,000	71,000	-19,000	-2,600	-93,000	57,000	-100,000
Average (2022-2072)		63,000	51,000	-21,000	-6,100	-89,000	-2,000	
2022-2072	W	83,000	70,000	-17,000	-8,800	-94,000		
	AN	71,000	60,000	-17,000	-5,800	-85,000		
	BN	59,000	40,000	-22,000	-4,400	-90,000		
	D	42,000	38,000	-23,000	-6,000	-88,000		
	C	41,000	32,000	-28,000	-2,900	-84,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Net Stream Seepage (net flows as acre-feet, rounded)

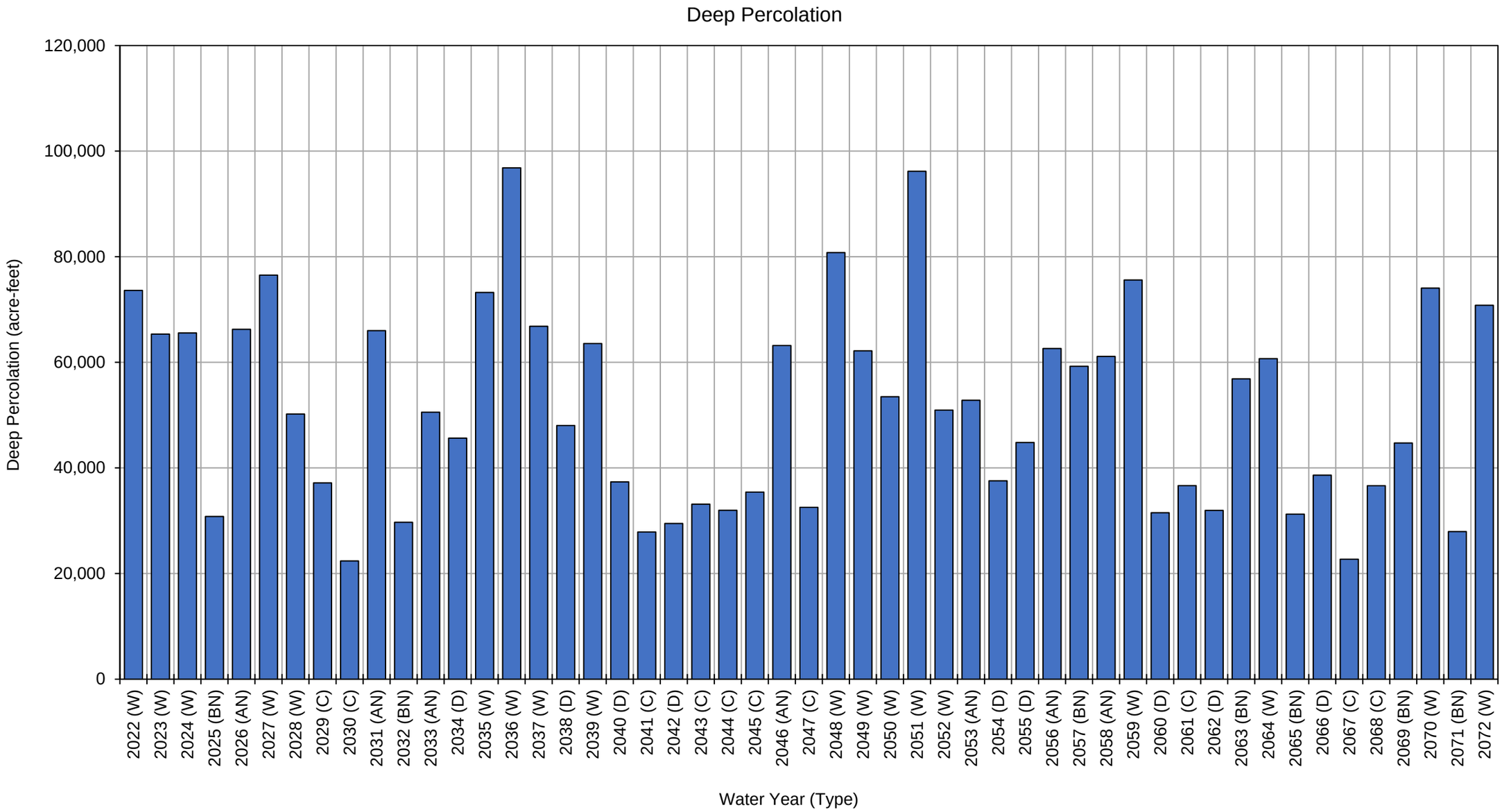
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	77,000
2023 (W)	63,000
2024 (W)	61,000
2025 (BN)	39,000
2026 (AN)	67,000
2027 (W)	83,000
2028 (W)	58,000
2029 (C)	28,000
2030 (C)	27,000
2031 (AN)	80,000
2032 (BN)	46,000
2033 (AN)	63,000
2034 (D)	50,000
2035 (W)	100,000
2036 (W)	83,000
2037 (W)	57,000
2038 (D)	32,000
2039 (W)	66,000
2040 (D)	28,000
2041 (C)	29,000
2042 (D)	47,000
2043 (C)	40,000
2044 (C)	45,000
2045 (C)	55,000
2046 (AN)	100,000
2047 (C)	43,000
2048 (W)	120,000
2049 (W)	85,000
2050 (W)	74,000
2051 (W)	94,000
2052 (W)	66,000
2053 (AN)	50,000
2054 (D)	32,000
2055 (D)	50,000
2056 (AN)	84,000
2057 (BN)	59,000
2058 (AN)	54,000
2059 (W)	92,000
2060 (D)	29,000
2061 (C)	42,000
2062 (D)	54,000
2063 (BN)	72,000

Los Molinos Subbasin Projected (Future Land Use) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		95,000
2065 (BN)		46,000
2066 (D)		53,000
2067 (C)		43,000
2068 (C)		54,000
2069 (BN)		87,000
2070 (W)		130,000
2071 (BN)		66,000
2072 (W)		100,000
Average (2022-2072)		63,000
2022-2072	W	83,000
	AN	71,000
	BN	59,000
	D	42,000
	C	41,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Deep Percolation from the SWS (acre-feet, rounded)

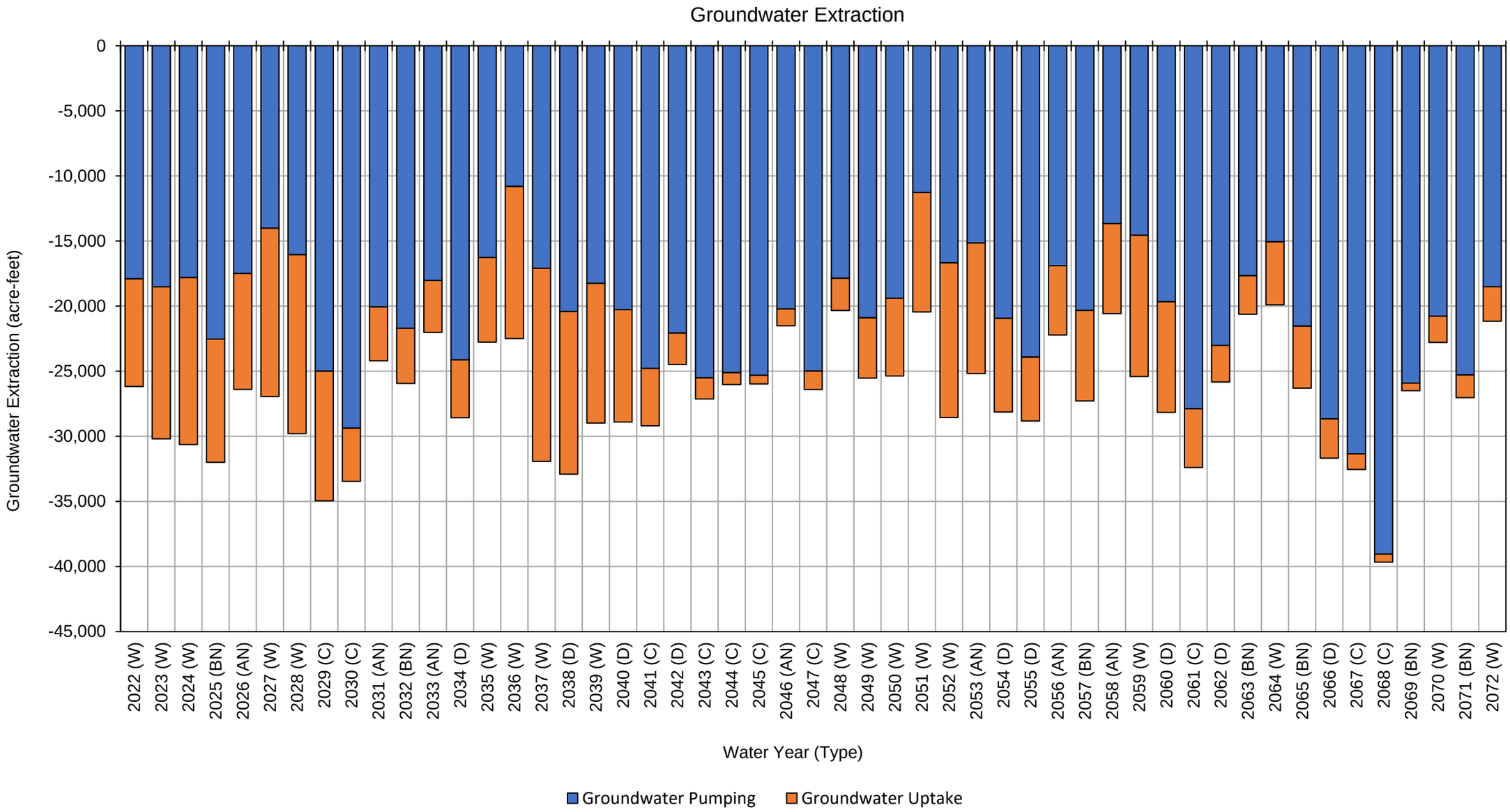
WY (Type)	Deep Percolation from the SWS
2022 (W)	74,000
2023 (W)	65,000
2024 (W)	66,000
2025 (BN)	31,000
2026 (AN)	66,000
2027 (W)	77,000
2028 (W)	50,000
2029 (C)	37,000
2030 (C)	22,000
2031 (AN)	66,000
2032 (BN)	30,000
2033 (AN)	51,000
2034 (D)	46,000
2035 (W)	73,000
2036 (W)	97,000
2037 (W)	67,000
2038 (D)	48,000
2039 (W)	64,000
2040 (D)	37,000
2041 (C)	28,000
2042 (D)	29,000
2043 (C)	33,000
2044 (C)	32,000
2045 (C)	35,000
2046 (AN)	63,000
2047 (C)	33,000
2048 (W)	81,000
2049 (W)	62,000
2050 (W)	53,000
2051 (W)	96,000
2052 (W)	51,000
2053 (AN)	53,000
2054 (D)	38,000
2055 (D)	45,000
2056 (AN)	63,000
2057 (BN)	59,000
2058 (AN)	61,000
2059 (W)	76,000
2060 (D)	32,000
2061 (C)	37,000
2062 (D)	32,000
2063 (BN)	57,000

Los Molinos Subbasin Projected (Future Land Use) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		61,000
2065 (BN)		31,000
2066 (D)		39,000
2067 (C)		23,000
2068 (C)		37,000
2069 (BN)		45,000
2070 (W)		74,000
2071 (BN)		28,000
2072 (W)		71,000
Average (2022-2072)		51,000
2022-2072	W	70,000
	AN	60,000
	BN	40,000
	D	38,000
	C	32,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Groundwater Extractions (acre-feet, rounded)

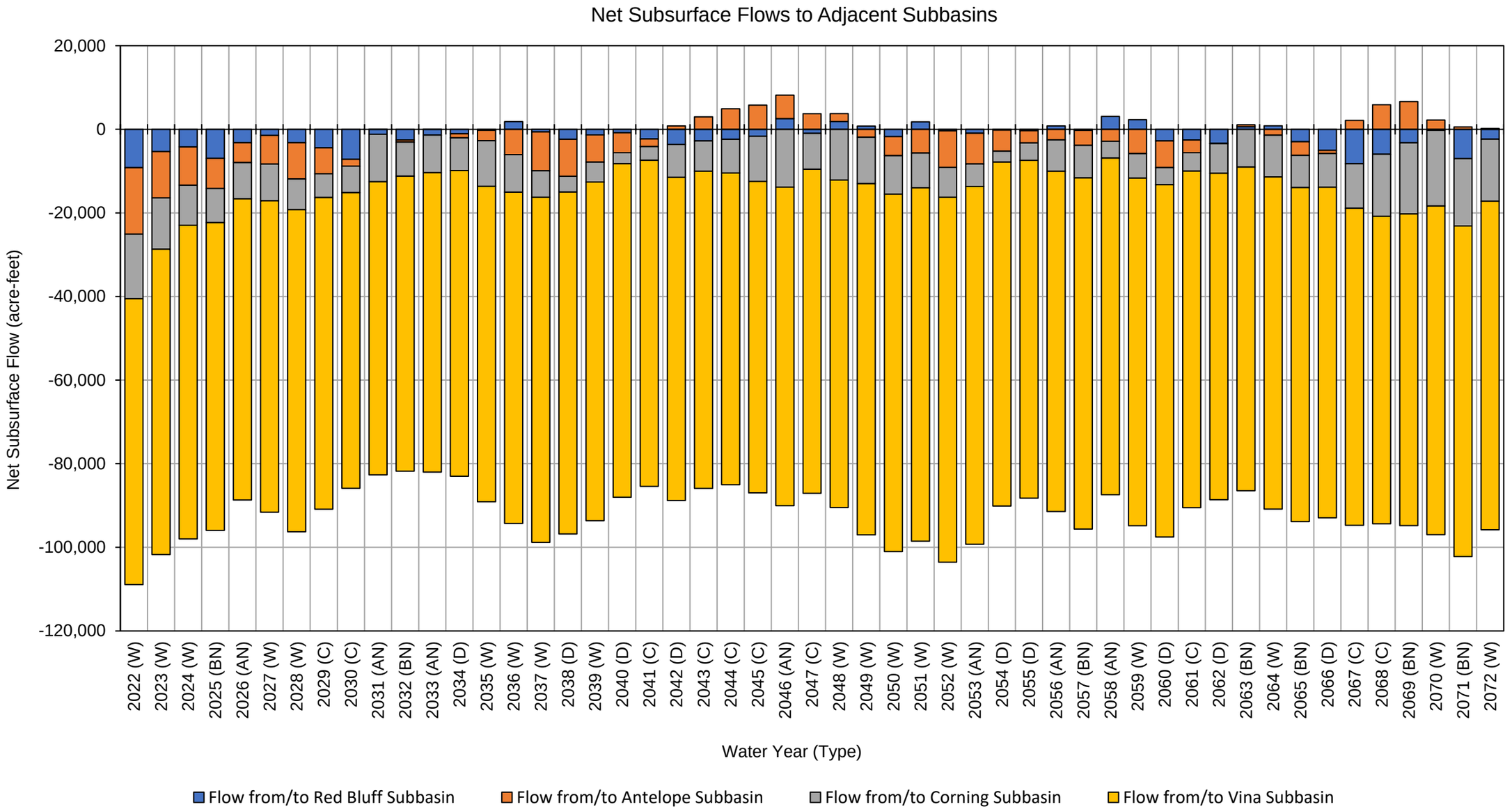
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-18,000	-8,300	-26,000
2023 (W)	-19,000	-12,000	-30,000
2024 (W)	-18,000	-13,000	-31,000
2025 (BN)	-23,000	-9,500	-32,000
2026 (AN)	-17,000	-8,900	-26,000
2027 (W)	-14,000	-13,000	-27,000
2028 (W)	-16,000	-14,000	-30,000
2029 (C)	-25,000	-10,000	-35,000
2030 (C)	-29,000	-4,100	-33,000
2031 (AN)	-20,000	-4,100	-24,000
2032 (BN)	-22,000	-4,200	-26,000
2033 (AN)	-18,000	-4,000	-22,000
2034 (D)	-24,000	-4,400	-29,000
2035 (W)	-16,000	-6,500	-23,000
2036 (W)	-11,000	-12,000	-22,000
2037 (W)	-17,000	-15,000	-32,000
2038 (D)	-20,000	-12,000	-33,000
2039 (W)	-18,000	-11,000	-29,000
2040 (D)	-20,000	-8,600	-29,000
2041 (C)	-25,000	-4,400	-29,000
2042 (D)	-22,000	-2,400	-24,000
2043 (C)	-26,000	-1,600	-27,000
2044 (C)	-25,000	-920	-26,000
2045 (C)	-25,000	-670	-26,000
2046 (AN)	-20,000	-1,300	-22,000
2047 (C)	-25,000	-1,400	-26,000
2048 (W)	-18,000	-2,500	-20,000
2049 (W)	-21,000	-4,600	-26,000
2050 (W)	-19,000	-6,000	-25,000
2051 (W)	-11,000	-9,200	-20,000
2052 (W)	-17,000	-12,000	-29,000
2053 (AN)	-15,000	-10,000	-25,000
2054 (D)	-21,000	-7,200	-28,000
2055 (D)	-24,000	-4,900	-29,000
2056 (AN)	-17,000	-5,300	-22,000
2057 (BN)	-20,000	-7,000	-27,000
2058 (AN)	-14,000	-6,900	-21,000
2059 (W)	-15,000	-11,000	-25,000
2060 (D)	-20,000	-8,500	-28,000
2061 (C)	-28,000	-4,500	-32,000
2062 (D)	-23,000	-2,800	-26,000
2063 (BN)	-18,000	-3,000	-21,000

Los Molinos Subbasin Projected (Future Land Use) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-15,000	-4,800	-20,000
2065 (BN)		-22,000	-4,800	-26,000
2066 (D)		-29,000	-3,000	-32,000
2067 (C)		-31,000	-1,200	-33,000
2068 (C)		-39,000	-620	-40,000
2069 (BN)		-26,000	-570	-26,000
2070 (W)		-21,000	-2,000	-23,000
2071 (BN)		-25,000	-1,700	-27,000
2072 (W)		-19,000	-2,600	-21,000
Average (2022-2072)		-21,000	-6,100	-27,000
2022-2072	W	-17,000	-8,800	-26,000
	AN	-17,000	-5,800	-23,000
	BN	-22,000	-4,400	-27,000
	D	-23,000	-6,000	-29,000
	C	-28,000	-2,900	-31,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

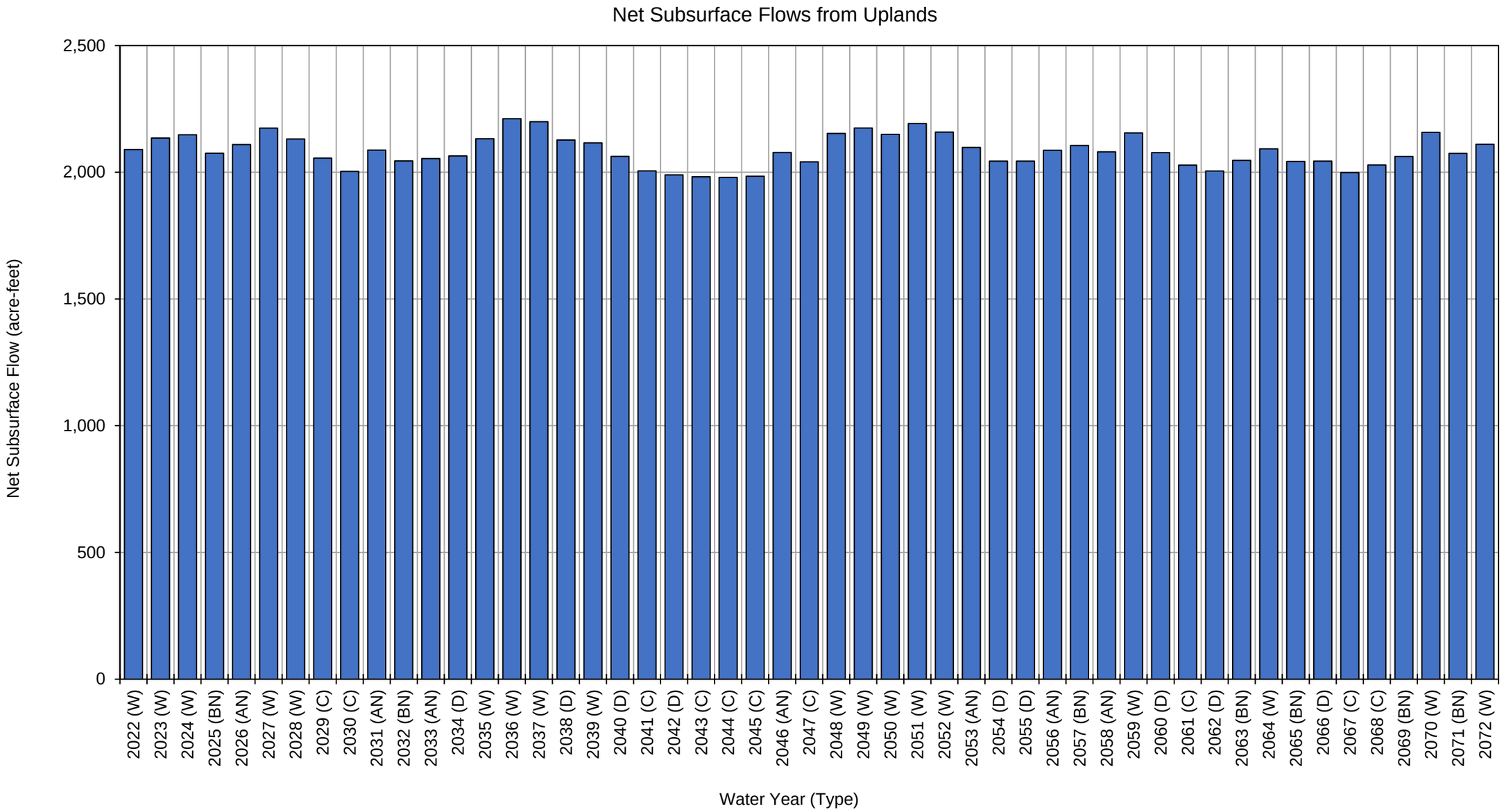
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Antelope Subbasin	Flow from/to Corning Subbasin	Flow from/to Vina Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-9,200	-16,000	-15,000	-68,000	-110,000
2023 (W)	-5,300	-11,000	-12,000	-73,000	-100,000
2024 (W)	-4,200	-9,200	-9,600	-75,000	-98,000
2025 (BN)	-6,900	-7,200	-8,200	-74,000	-96,000
2026 (AN)	-3,200	-4,800	-8,700	-72,000	-89,000
2027 (W)	-1,500	-6,800	-8,800	-74,000	-92,000
2028 (W)	-3,200	-8,700	-7,300	-77,000	-96,000
2029 (C)	-4,400	-6,200	-5,700	-75,000	-91,000
2030 (C)	-7,200	-1,600	-6,300	-71,000	-86,000
2031 (AN)	-1,200	53	-11,000	-70,000	-83,000
2032 (BN)	-2,600	-520	-8,100	-71,000	-82,000
2033 (AN)	-1,400	65	-9,000	-72,000	-82,000
2034 (D)	-1,100	-970	-7,800	-73,000	-83,000
2035 (W)	-240	-2,500	-11,000	-75,000	-89,000
2036 (W)	1,800	-6,100	-9,000	-79,000	-92,000
2037 (W)	-630	-9,300	-6,300	-83,000	-99,000
2038 (D)	-2,400	-8,800	-3,800	-82,000	-97,000
2039 (W)	-1,300	-6,500	-4,800	-81,000	-94,000
2040 (D)	-830	-4,800	-2,600	-80,000	-88,000
2041 (C)	-2,300	-1,800	-3,300	-78,000	-85,000
2042 (D)	-3,600	820	-7,900	-77,000	-88,000
2043 (C)	-2,800	3,000	-7,200	-76,000	-83,000
2044 (C)	-2,400	4,900	-8,100	-75,000	-80,000
2045 (C)	-1,700	5,800	-11,000	-75,000	-81,000
2046 (AN)	2,600	5,600	-14,000	-76,000	-82,000
2047 (C)	-970	3,700	-8,600	-78,000	-83,000
2048 (W)	1,900	1,900	-12,000	-78,000	-87,000
2049 (W)	770	-1,900	-11,000	-84,000	-96,000
2050 (W)	-1,700	-4,600	-9,200	-86,000	-100,000
2051 (W)	1,800	-5,700	-8,300	-85,000	-97,000
2052 (W)	-350	-8,800	-7,100	-87,000	-100,000
2053 (AN)	-940	-7,400	-5,400	-86,000	-99,000
2054 (D)	-180	-5,100	-2,600	-82,000	-90,000
2055 (D)	-330	-2,900	-4,200	-81,000	-88,000
2056 (AN)	800	-2,500	-7,500	-81,000	-91,000
2057 (BN)	-270	-3,600	-7,800	-84,000	-96,000
2058 (AN)	3,100	-2,900	-4,000	-81,000	-84,000
2059 (W)	2,300	-5,800	-5,900	-83,000	-93,000
2060 (D)	-2,800	-6,400	-4,100	-84,000	-98,000
2061 (C)	-2,500	-3,100	-4,400	-81,000	-91,000
2062 (D)	-3,400	-76	-7,100	-78,000	-89,000
2063 (BN)	620	450	-9,000	-77,000	-85,000

Los Molinos Subbasin Projected (Future Land Use) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Antelope Subbasin	Flow from/to Corning Subbasin	Flow from/to Vina Subbasin	Net Subsurface Flow from Adjacent Subbasins
2064 (W)		840	-1,400	-10,000	-79,000	-90,000
2065 (BN)		-3,000	-3,300	-7,700	-80,000	-94,000
2066 (D)		-5,000	-760	-8,100	-79,000	-93,000
2067 (C)		-8,200	2,100	-11,000	-76,000	-93,000
2068 (C)		-6,000	5,900	-15,000	-74,000	-88,000
2069 (BN)		-3,200	6,600	-17,000	-75,000	-88,000
2070 (W)		-230	2,200	-18,000	-79,000	-95,000
2071 (BN)		-7,000	560	-16,000	-79,000	-100,000
2072 (W)		-2,400	200	-15,000	-79,000	-96,000
Average (2022-2072)		-2,000	-2,600	-8,700	-78,000	-91,000
2022-2072	W	-1,200	-5,500	-10,000	-79,000	-96,000
	AN	-44	-1,700	-8,500	-77,000	-87,000
	BN	-3,200	-990	-11,000	-77,000	-92,000
	D	-2,200	-3,200	-5,300	-80,000	-90,000
	C	-3,900	1,300	-8,000	-76,000	-86,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

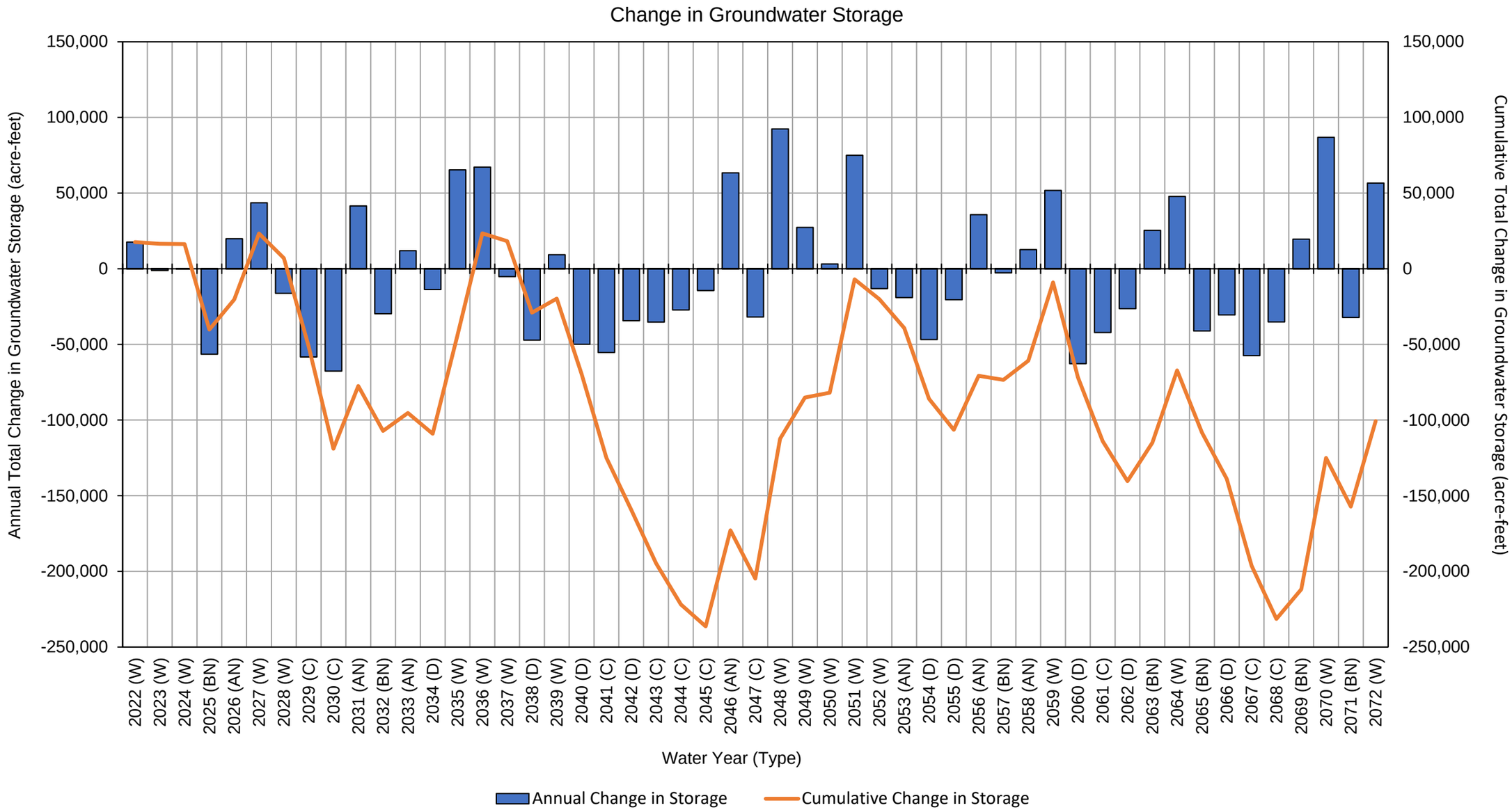
WY (Type)	Subsurface Flows from Uplands
2022 (W)	2,100
2023 (W)	2,100
2024 (W)	2,100
2025 (BN)	2,100
2026 (AN)	2,100
2027 (W)	2,200
2028 (W)	2,100
2029 (C)	2,100
2030 (C)	2,000
2031 (AN)	2,100
2032 (BN)	2,000
2033 (AN)	2,100
2034 (D)	2,100
2035 (W)	2,100
2036 (W)	2,200
2037 (W)	2,200
2038 (D)	2,100
2039 (W)	2,100
2040 (D)	2,100
2041 (C)	2,000
2042 (D)	2,000
2043 (C)	2,000
2044 (C)	2,000
2045 (C)	2,000
2046 (AN)	2,100
2047 (C)	2,000
2048 (W)	2,200
2049 (W)	2,200
2050 (W)	2,100
2051 (W)	2,200
2052 (W)	2,200
2053 (AN)	2,100
2054 (D)	2,000
2055 (D)	2,000
2056 (AN)	2,100
2057 (BN)	2,100
2058 (AN)	2,100
2059 (W)	2,200
2060 (D)	2,100
2061 (C)	2,000
2062 (D)	2,000
2063 (BN)	2,000

Los Molinos Subbasin Projected (Future Land Use) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		2,100
2065 (BN)		2,000
2066 (D)		2,000
2067 (C)		2,000
2068 (C)		2,000
2069 (BN)		2,100
2070 (W)		2,200
2071 (BN)		2,100
2072 (W)		2,100
Average (2022-2072)		2,100
2022-2072	W	2,100
	AN	2,100
	BN	2,100
	D	2,100
	C	2,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Los Molinos Subbasin Projected (Future Land Use) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	18,000	18,000
2023 (W)	-1,100	16,000
2024 (W)	-200	16,000
2025 (BN)	-56,000	-40,000
2026 (AN)	20,000	-20,000
2027 (W)	44,000	23,000
2028 (W)	-16,000	7,000
2029 (C)	-58,000	-51,000
2030 (C)	-68,000	-120,000
2031 (AN)	42,000	-77,000
2032 (BN)	-30,000	-110,000
2033 (AN)	12,000	-95,000
2034 (D)	-14,000	-110,000
2035 (W)	65,000	-44,000
2036 (W)	67,000	23,000
2037 (W)	-5,200	18,000
2038 (D)	-47,000	-29,000
2039 (W)	9,300	-20,000
2040 (D)	-50,000	-70,000
2041 (C)	-55,000	-120,000
2042 (D)	-34,000	-160,000
2043 (C)	-35,000	-190,000
2044 (C)	-27,000	-220,000
2045 (C)	-14,000	-240,000
2046 (AN)	63,000	-170,000
2047 (C)	-32,000	-200,000
2048 (W)	92,000	-110,000
2049 (W)	27,000	-85,000
2050 (W)	3,100	-82,000
2051 (W)	75,000	-7,000
2052 (W)	-13,000	-20,000
2053 (AN)	-19,000	-39,000
2054 (D)	-47,000	-86,000
2055 (D)	-21,000	-110,000
2056 (AN)	36,000	-71,000
2057 (BN)	-2,700	-73,000
2058 (AN)	13,000	-61,000
2059 (W)	52,000	-9,100
2060 (D)	-63,000	-72,000
2061 (C)	-42,000	-110,000
2062 (D)	-26,000	-140,000
2063 (BN)	25,000	-110,000

Los Molinos Subbasin Projected (Future Land Use) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		48,000	-67,000
2065 (BN)		-41,000	-110,000
2066 (D)		-31,000	-140,000
2067 (C)		-57,000	-200,000
2068 (C)		-35,000	-230,000
2069 (BN)		20,000	-210,000
2070 (W)		87,000	-130,000
2071 (BN)		-32,000	-160,000
2072 (W)		57,000	-100,000
Average (2022-2072)		-2,000	
2022-2072	W		
	AN		
	BN		
	D		
	C		

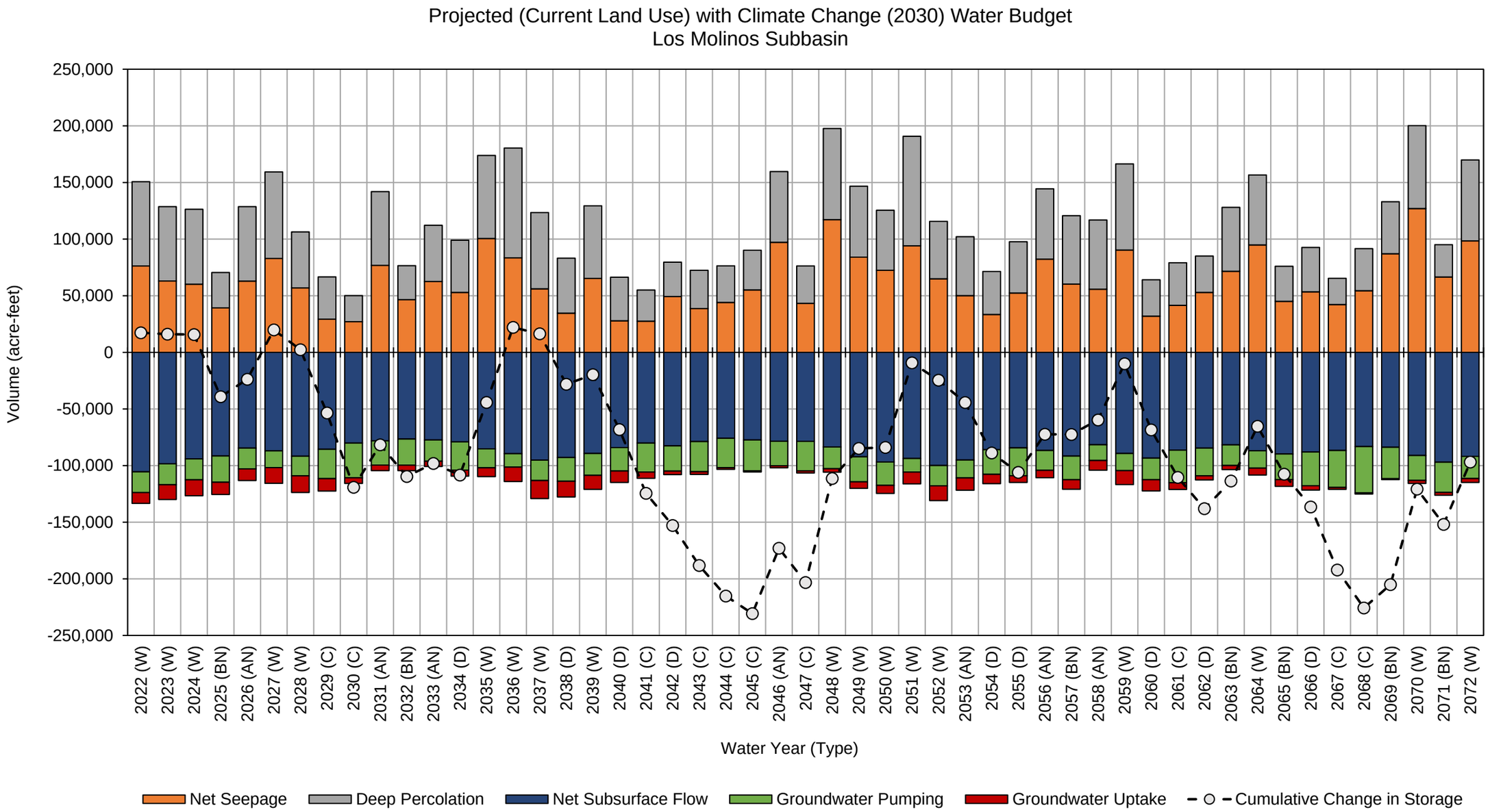
Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX C-4

Detailed Los Molinos Subbasin Water Budget Results:

Projected (Current Land Use) with Climate Change (2030) Model Results


Projected (Current Land Use) with Climate Change (2030) Water Budget
Los Molinos Subbasin
Volume (acre-feet)
250,000
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
-250,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
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2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2030) Water Budget Summary (acre-feet, rounded)

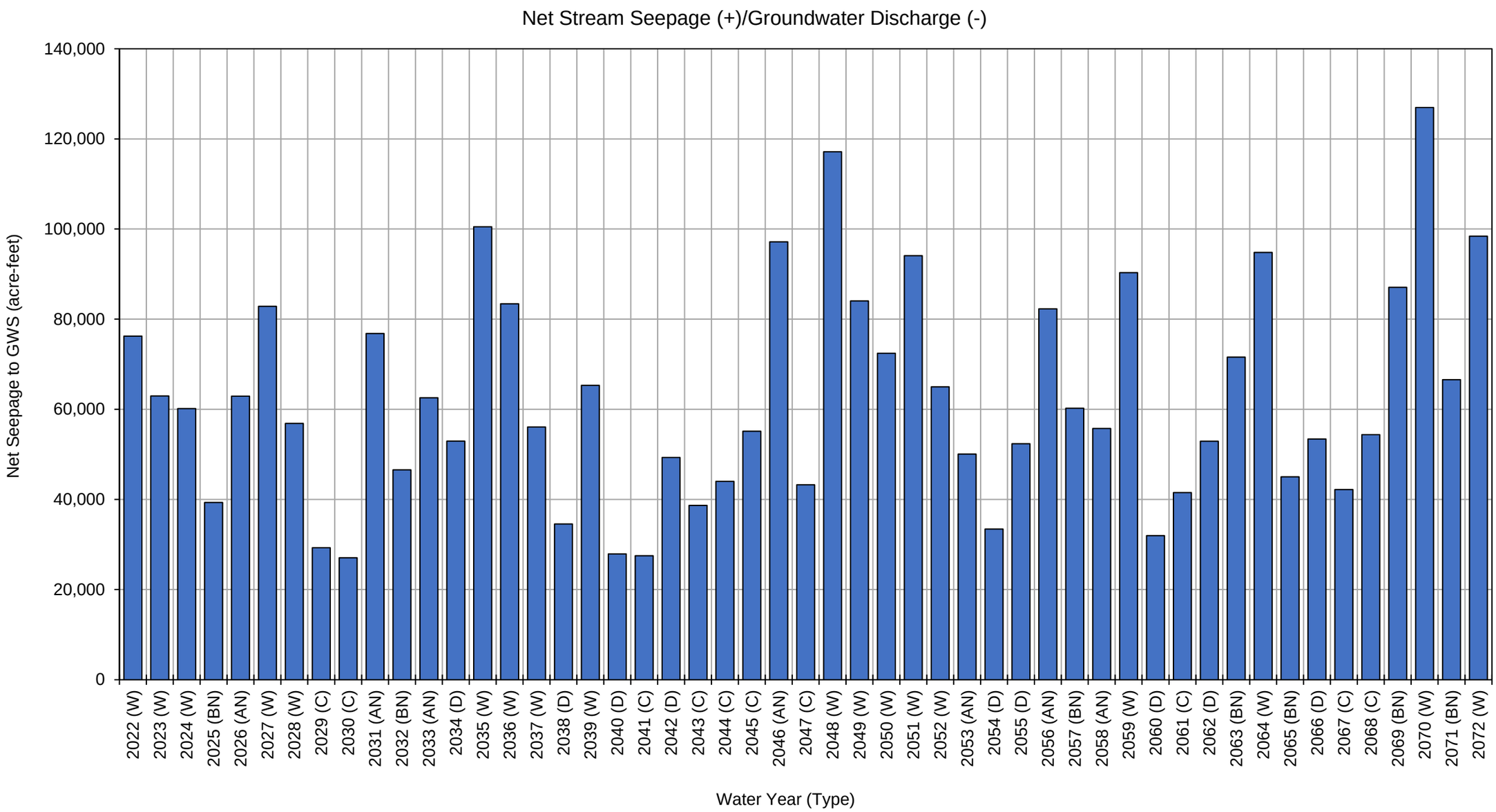
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	76,000	74,000	-18,000	-9,600	-110,000	17,000	17,000
2023 (W)	63,000	66,000	-19,000	-13,000	-98,000	-1,300	16,000
2024 (W)	60,000	66,000	-18,000	-14,000	-94,000	-320	16,000
2025 (BN)	39,000	31,000	-23,000	-11,000	-92,000	-55,000	-39,000
2026 (AN)	63,000	66,000	-18,000	-10,000	-84,000	15,000	-24,000
2027 (W)	83,000	76,000	-15,000	-14,000	-87,000	44,000	20,000
2028 (W)	57,000	49,000	-17,000	-15,000	-92,000	-17,000	2,400
2029 (C)	29,000	37,000	-26,000	-11,000	-86,000	-56,000	-54,000
2030 (C)	27,000	23,000	-31,000	-4,900	-80,000	-66,000	-120,000
2031 (AN)	77,000	65,000	-21,000	-4,900	-78,000	38,000	-82,000
2032 (BN)	47,000	30,000	-23,000	-4,800	-77,000	-28,000	-110,000
2033 (AN)	63,000	50,000	-19,000	-4,600	-77,000	11,000	-98,000
2034 (D)	53,000	46,000	-25,000	-5,300	-79,000	-10,000	-110,000
2035 (W)	100,000	73,000	-17,000	-7,800	-85,000	64,000	-44,000
2036 (W)	83,000	97,000	-12,000	-13,000	-89,000	66,000	22,000
2037 (W)	56,000	67,000	-18,000	-16,000	-95,000	-5,700	16,000
2038 (D)	35,000	49,000	-21,000	-14,000	-93,000	-45,000	-28,000
2039 (W)	65,000	64,000	-19,000	-12,000	-89,000	8,500	-20,000
2040 (D)	28,000	38,000	-21,000	-10,000	-84,000	-48,000	-68,000
2041 (C)	27,000	28,000	-26,000	-5,500	-80,000	-56,000	-120,000
2042 (D)	49,000	30,000	-22,000	-3,100	-83,000	-28,000	-150,000
2043 (C)	39,000	34,000	-27,000	-2,300	-79,000	-35,000	-190,000
2044 (C)	44,000	32,000	-26,000	-1,400	-76,000	-27,000	-220,000
2045 (C)	55,000	35,000	-27,000	-960	-77,000	-15,000	-230,000
2046 (AN)	97,000	62,000	-22,000	-1,700	-79,000	58,000	-170,000
2047 (C)	43,000	33,000	-26,000	-1,900	-79,000	-30,000	-200,000
2048 (W)	120,000	81,000	-19,000	-3,100	-84,000	92,000	-110,000
2049 (W)	84,000	63,000	-22,000	-5,700	-92,000	27,000	-85,000
2050 (W)	72,000	53,000	-21,000	-7,200	-97,000	860	-84,000
2051 (W)	94,000	97,000	-12,000	-10,000	-94,000	75,000	-9,300
2052 (W)	65,000	51,000	-18,000	-13,000	-100,000	-15,000	-25,000
2053 (AN)	50,000	52,000	-16,000	-11,000	-95,000	-20,000	-44,000
2054 (D)	33,000	38,000	-22,000	-8,200	-86,000	-45,000	-89,000
2055 (D)	52,000	45,000	-25,000	-5,900	-84,000	-17,000	-110,000
2056 (AN)	82,000	62,000	-18,000	-6,500	-87,000	34,000	-72,000
2057 (BN)	60,000	60,000	-21,000	-8,400	-92,000	-210	-73,000
2058 (AN)	56,000	61,000	-14,000	-8,600	-82,000	13,000	-60,000
2059 (W)	90,000	76,000	-15,000	-12,000	-89,000	50,000	-10,000
2060 (D)	32,000	32,000	-19,000	-9,900	-93,000	-58,000	-68,000
2061 (C)	42,000	38,000	-29,000	-5,900	-86,000	-42,000	-110,000
2062 (D)	53,000	32,000	-25,000	-3,600	-85,000	-28,000	-140,000
2063 (BN)	72,000	56,000	-18,000	-3,700	-82,000	24,000	-110,000
2064 (W)	95,000	62,000	-15,000	-6,100	-87,000	48,000	-65,000
2065 (BN)	45,000	31,000	-23,000	-5,900	-90,000	-42,000	-110,000

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2030) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		53,000	39,000	-30,000	-3,800	-88,000	-29,000	-140,000
2067 (C)		42,000	23,000	-33,000	-1,700	-87,000	-56,000	-190,000
2068 (C)		54,000	37,000	-41,000	-900	-83,000	-34,000	-230,000
2069 (BN)		87,000	46,000	-28,000	-840	-84,000	21,000	-210,000
2070 (W)		130,000	73,000	-22,000	-2,700	-91,000	84,000	-120,000
2071 (BN)		67,000	28,000	-27,000	-2,400	-97,000	-31,000	-150,000
2072 (W)		98,000	71,000	-20,000	-3,400	-92,000	55,000	-97,000
Average (2022-2072)		62,000	52,000	-22,000	-7,100	-87,000	-1,900	
2022-2072	W	83,000	70,000	-18,000	-9,900	-92,000		
	AN	70,000	60,000	-18,000	-6,800	-83,000		
	BN	59,000	40,000	-23,000	-5,300	-87,000		
	D	43,000	39,000	-23,000	-7,100	-86,000		
	C	40,000	32,000	-29,000	-3,600	-81,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2030) Net Stream Seepage (net flows as acre-feet, rounded)

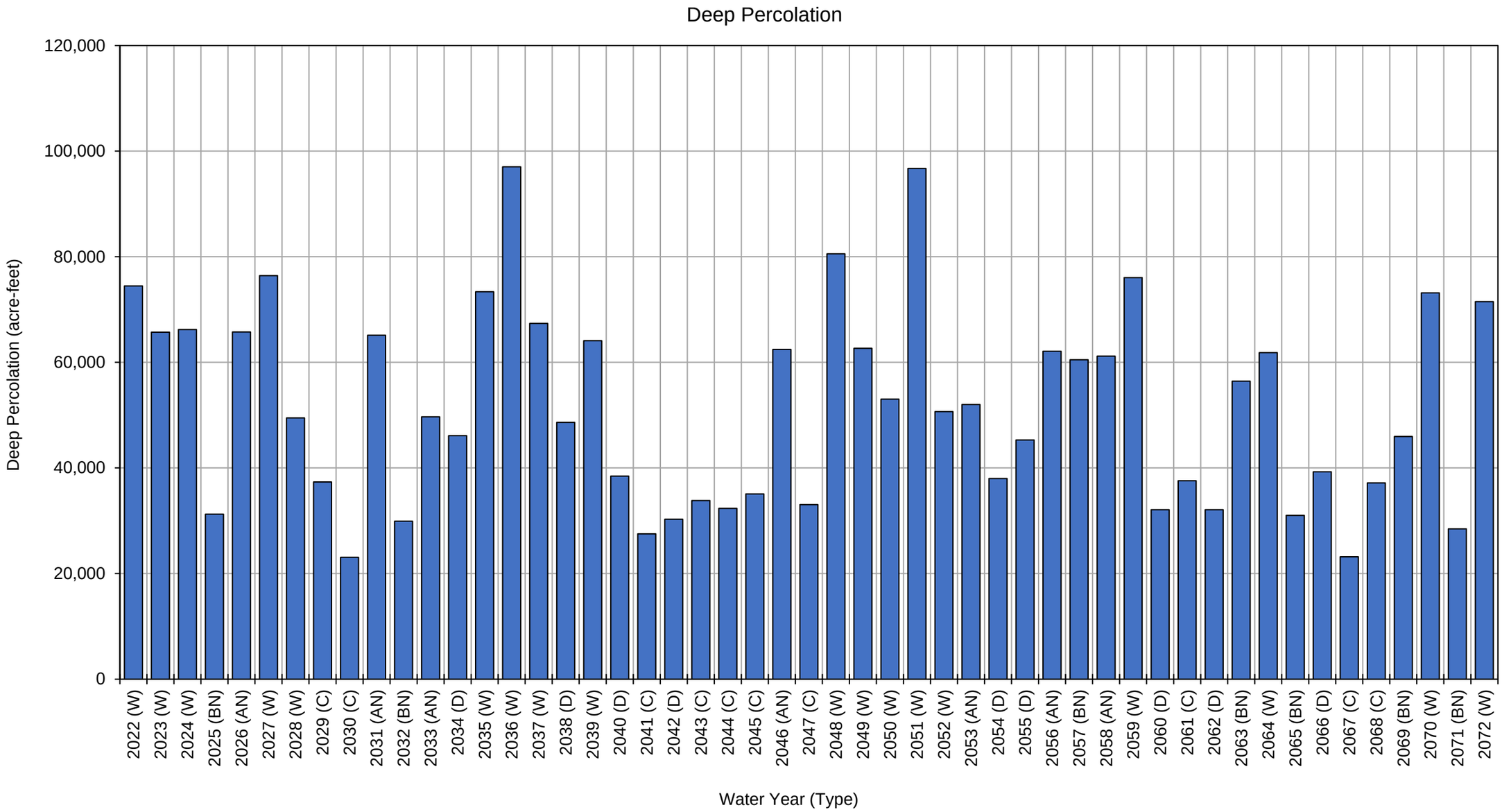
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	76,000
2023 (W)	63,000
2024 (W)	60,000
2025 (BN)	39,000
2026 (AN)	63,000
2027 (W)	83,000
2028 (W)	57,000
2029 (C)	29,000
2030 (C)	27,000
2031 (AN)	77,000
2032 (BN)	47,000
2033 (AN)	63,000
2034 (D)	53,000
2035 (W)	100,000
2036 (W)	83,000
2037 (W)	56,000
2038 (D)	35,000
2039 (W)	65,000
2040 (D)	28,000
2041 (C)	27,000
2042 (D)	49,000
2043 (C)	39,000
2044 (C)	44,000
2045 (C)	55,000
2046 (AN)	97,000
2047 (C)	43,000
2048 (W)	120,000
2049 (W)	84,000
2050 (W)	72,000
2051 (W)	94,000
2052 (W)	65,000
2053 (AN)	50,000
2054 (D)	33,000
2055 (D)	52,000
2056 (AN)	82,000
2057 (BN)	60,000
2058 (AN)	56,000
2059 (W)	90,000
2060 (D)	32,000
2061 (C)	42,000
2062 (D)	53,000
2063 (BN)	72,000

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2030) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		95,000
2065 (BN)		45,000
2066 (D)		53,000
2067 (C)		42,000
2068 (C)		54,000
2069 (BN)		87,000
2070 (W)		130,000
2071 (BN)		67,000
2072 (W)		98,000
Average (2022-2072)		62,000
2022-2072	W	83,000
	AN	70,000
	BN	59,000
	D	43,000
	C	40,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2030) Deep Percolation from the SWS (acre-feet, rounded)

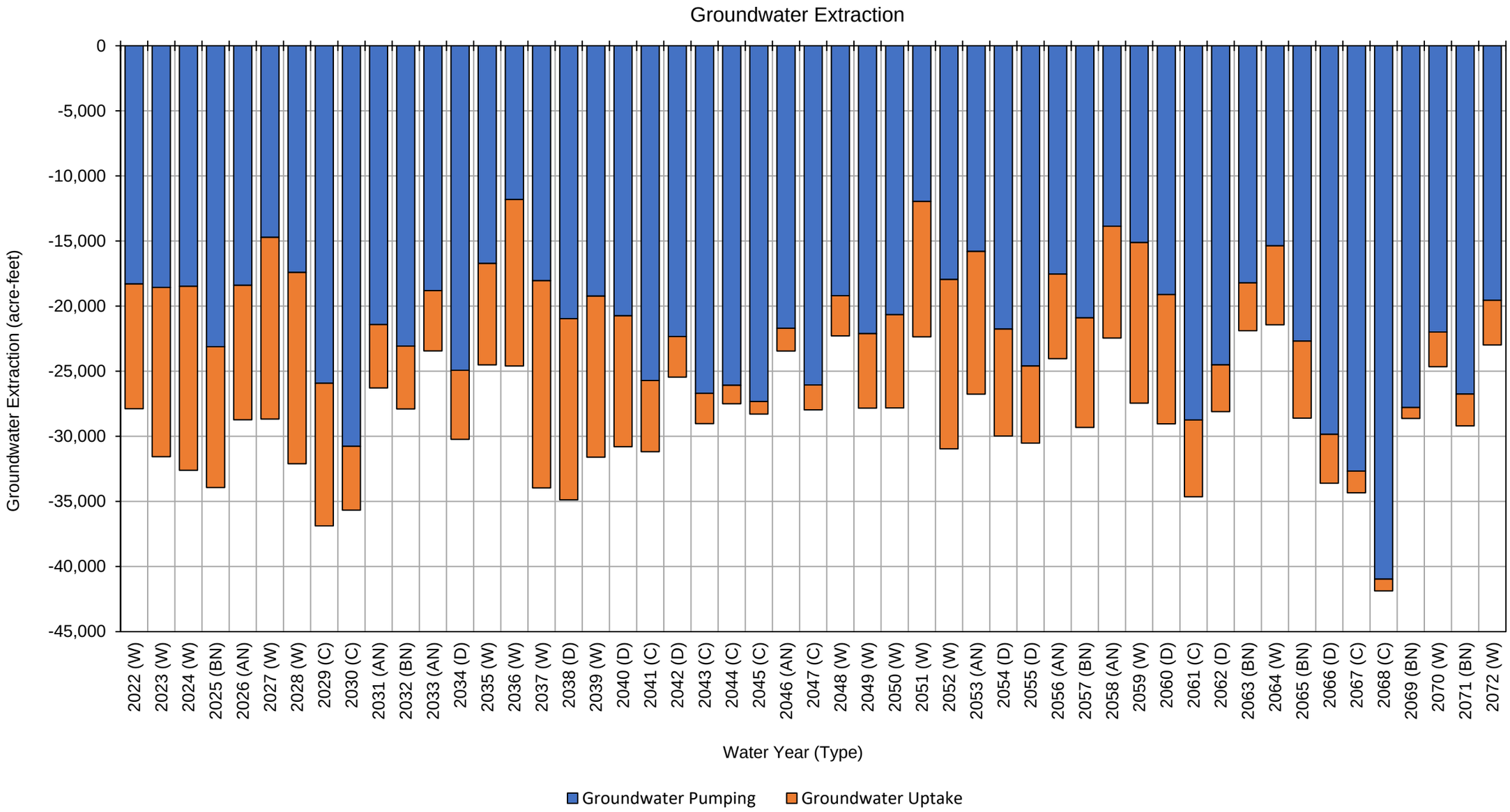
WY (Type)	Deep Percolation from the SWS
2022 (W)	74,000
2023 (W)	66,000
2024 (W)	66,000
2025 (BN)	31,000
2026 (AN)	66,000
2027 (W)	76,000
2028 (W)	49,000
2029 (C)	37,000
2030 (C)	23,000
2031 (AN)	65,000
2032 (BN)	30,000
2033 (AN)	50,000
2034 (D)	46,000
2035 (W)	73,000
2036 (W)	97,000
2037 (W)	67,000
2038 (D)	49,000
2039 (W)	64,000
2040 (D)	38,000
2041 (C)	28,000
2042 (D)	30,000
2043 (C)	34,000
2044 (C)	32,000
2045 (C)	35,000
2046 (AN)	62,000
2047 (C)	33,000
2048 (W)	81,000
2049 (W)	63,000
2050 (W)	53,000
2051 (W)	97,000
2052 (W)	51,000
2053 (AN)	52,000
2054 (D)	38,000
2055 (D)	45,000
2056 (AN)	62,000
2057 (BN)	60,000
2058 (AN)	61,000
2059 (W)	76,000
2060 (D)	32,000
2061 (C)	38,000
2062 (D)	32,000
2063 (BN)	56,000

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2030) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		62,000
2065 (BN)		31,000
2066 (D)		39,000
2067 (C)		23,000
2068 (C)		37,000
2069 (BN)		46,000
2070 (W)		73,000
2071 (BN)		28,000
2072 (W)		71,000
Average (2022-2072)		52,000
2022-2072	W	70,000
	AN	60,000
	BN	40,000
	D	39,000
	C	32,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2030) Groundwater Extractions (acre-feet, rounded)

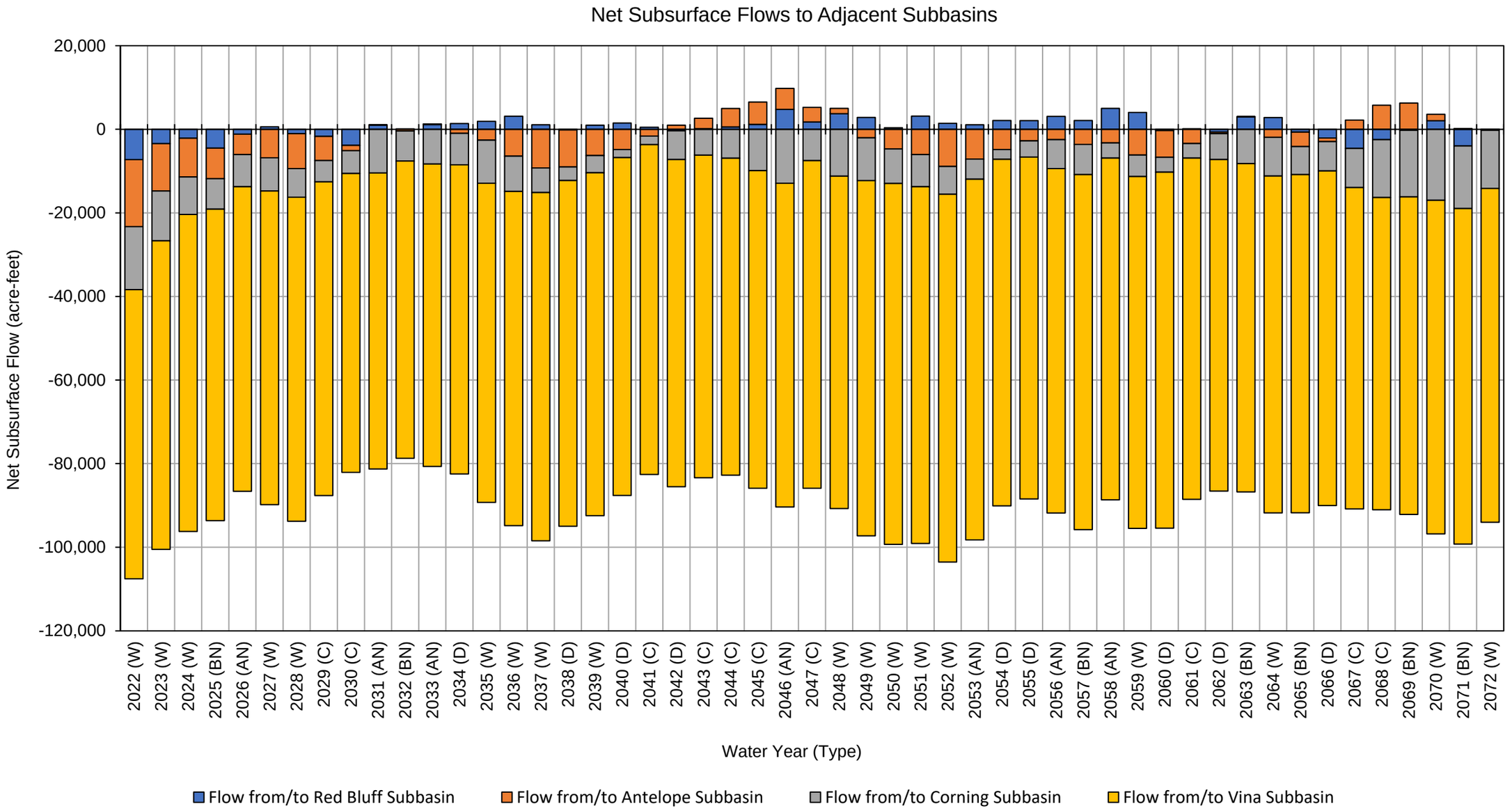
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-18,000	-9,600	-28,000
2023 (W)	-19,000	-13,000	-32,000
2024 (W)	-18,000	-14,000	-33,000
2025 (BN)	-23,000	-11,000	-34,000
2026 (AN)	-18,000	-10,000	-29,000
2027 (W)	-15,000	-14,000	-29,000
2028 (W)	-17,000	-15,000	-32,000
2029 (C)	-26,000	-11,000	-37,000
2030 (C)	-31,000	-4,900	-36,000
2031 (AN)	-21,000	-4,900	-26,000
2032 (BN)	-23,000	-4,800	-28,000
2033 (AN)	-19,000	-4,600	-23,000
2034 (D)	-25,000	-5,300	-30,000
2035 (W)	-17,000	-7,800	-25,000
2036 (W)	-12,000	-13,000	-25,000
2037 (W)	-18,000	-16,000	-34,000
2038 (D)	-21,000	-14,000	-35,000
2039 (W)	-19,000	-12,000	-32,000
2040 (D)	-21,000	-10,000	-31,000
2041 (C)	-26,000	-5,500	-31,000
2042 (D)	-22,000	-3,100	-25,000
2043 (C)	-27,000	-2,300	-29,000
2044 (C)	-26,000	-1,400	-27,000
2045 (C)	-27,000	-960	-28,000
2046 (AN)	-22,000	-1,700	-23,000
2047 (C)	-26,000	-1,900	-28,000
2048 (W)	-19,000	-3,100	-22,000
2049 (W)	-22,000	-5,700	-28,000
2050 (W)	-21,000	-7,200	-28,000
2051 (W)	-12,000	-10,000	-22,000
2052 (W)	-18,000	-13,000	-31,000
2053 (AN)	-16,000	-11,000	-27,000
2054 (D)	-22,000	-8,200	-30,000
2055 (D)	-25,000	-5,900	-31,000
2056 (AN)	-18,000	-6,500	-24,000
2057 (BN)	-21,000	-8,400	-29,000
2058 (AN)	-14,000	-8,600	-22,000
2059 (W)	-15,000	-12,000	-27,000
2060 (D)	-19,000	-9,900	-29,000
2061 (C)	-29,000	-5,900	-35,000
2062 (D)	-25,000	-3,600	-28,000
2063 (BN)	-18,000	-3,700	-22,000

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2030) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-15,000	-6,100	-21,000
2065 (BN)		-23,000	-5,900	-29,000
2066 (D)		-30,000	-3,800	-34,000
2067 (C)		-33,000	-1,700	-34,000
2068 (C)		-41,000	-900	-42,000
2069 (BN)		-28,000	-840	-29,000
2070 (W)		-22,000	-2,700	-25,000
2071 (BN)		-27,000	-2,400	-29,000
2072 (W)		-20,000	-3,400	-23,000
Average (2022-2072)		-22,000	-7,100	-29,000
2022-2072	W	-18,000	-9,900	-28,000
	AN	-18,000	-6,800	-25,000
	BN	-23,000	-5,300	-28,000
	D	-23,000	-7,100	-30,000
	C	-29,000	-3,600	-33,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2030) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

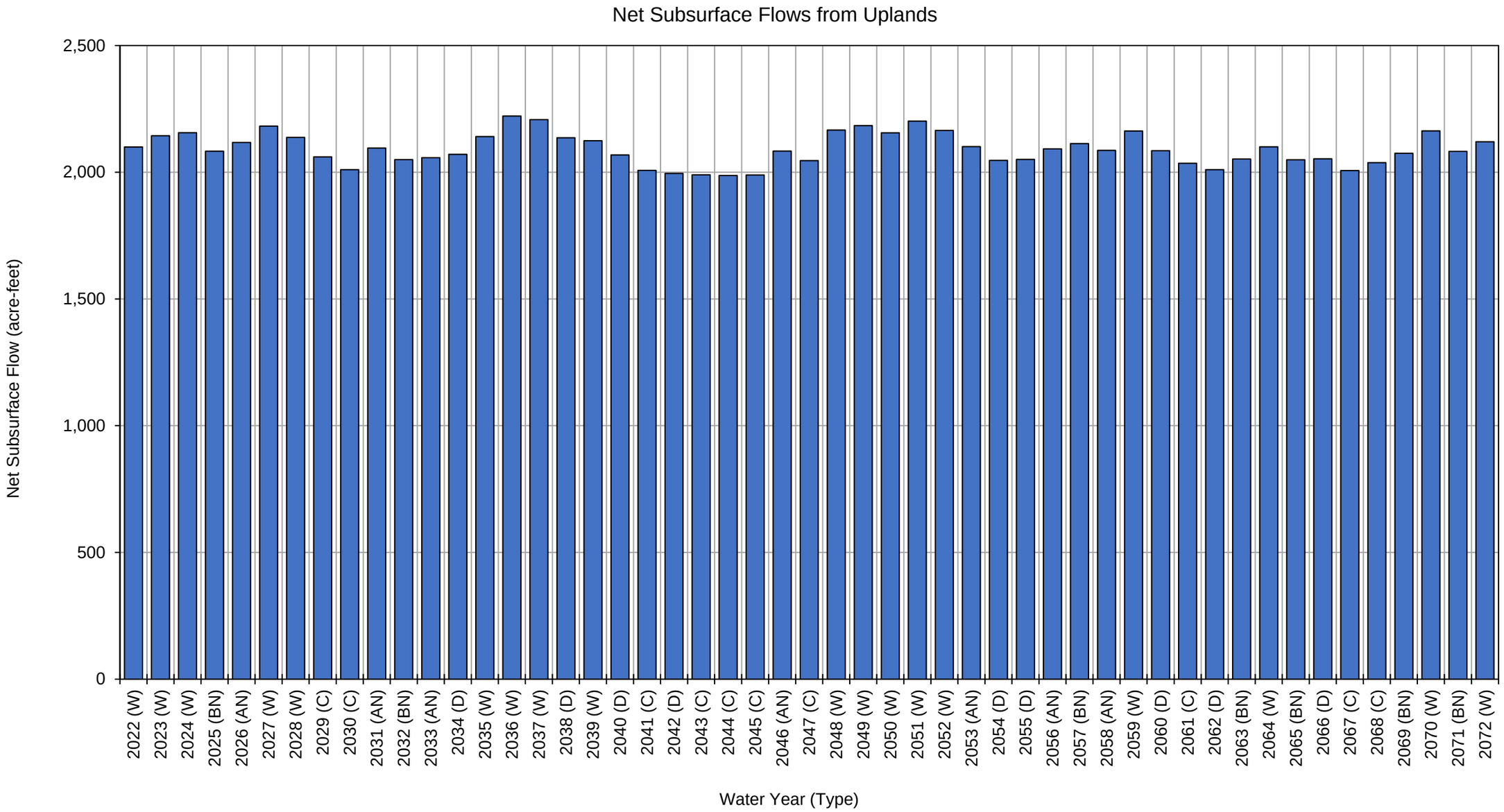
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Antelope Subbasin	Flow from/to Corning Subbasin	Flow from/to Vina Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-7,300	-16,000	-15,000	-69,000	-110,000
2023 (W)	-3,400	-11,000	-12,000	-74,000	-100,000
2024 (W)	-2,200	-9,300	-9,000	-76,000	-96,000
2025 (BN)	-4,500	-7,300	-7,300	-75,000	-94,000
2026 (AN)	-1,200	-4,900	-7,700	-73,000	-87,000
2027 (W)	590	-6,800	-8,000	-75,000	-89,000
2028 (W)	-1,100	-8,400	-6,800	-78,000	-94,000
2029 (C)	-1,700	-5,800	-5,100	-75,000	-88,000
2030 (C)	-3,900	-1,300	-5,500	-72,000	-82,000
2031 (AN)	1,000	8	-10,000	-71,000	-80,000
2032 (BN)	110	-400	-7,200	-71,000	-79,000
2033 (AN)	1,100	190	-8,300	-72,000	-79,000
2034 (D)	1,400	-970	-7,500	-74,000	-81,000
2035 (W)	1,900	-2,600	-10,000	-76,000	-87,000
2036 (W)	3,100	-6,400	-8,400	-80,000	-92,000
2037 (W)	1,100	-9,300	-5,900	-83,000	-97,000
2038 (D)	-170	-8,900	-3,200	-83,000	-95,000
2039 (W)	990	-6,300	-4,100	-82,000	-91,000
2040 (D)	1,500	-4,800	-1,900	-81,000	-86,000
2041 (C)	500	-1,600	-2,000	-79,000	-82,000
2042 (D)	-360	980	-6,900	-78,000	-85,000
2043 (C)	160	2,500	-6,200	-77,000	-81,000
2044 (C)	570	4,400	-6,900	-76,000	-78,000
2045 (C)	1,200	5,300	-9,900	-76,000	-79,000
2046 (AN)	4,700	5,000	-13,000	-77,000	-81,000
2047 (C)	1,800	3,500	-7,500	-78,000	-81,000
2048 (W)	3,700	1,300	-11,000	-80,000	-86,000
2049 (W)	2,800	-2,000	-10,000	-85,000	-94,000
2050 (W)	380	-4,700	-8,300	-86,000	-99,000
2051 (W)	3,100	-6,000	-7,700	-85,000	-96,000
2052 (W)	1,400	-8,900	-6,600	-88,000	-100,000
2053 (AN)	1,100	-7,100	-4,800	-86,000	-97,000
2054 (D)	2,100	-4,900	-2,300	-83,000	-88,000
2055 (D)	2,100	-2,800	-3,900	-82,000	-86,000
2056 (AN)	3,100	-2,500	-6,900	-82,000	-89,000
2057 (BN)	2,100	-3,600	-7,200	-85,000	-94,000
2058 (AN)	5,000	-3,300	-3,600	-82,000	-84,000
2059 (W)	4,000	-6,200	-5,100	-84,000	-91,000
2060 (D)	-300	-6,400	-3,600	-85,000	-95,000
2061 (C)	140	-3,400	-3,500	-82,000	-88,000
2062 (D)	-670	-370	-6,200	-79,000	-87,000
2063 (BN)	3,000	2	-8,200	-79,000	-84,000

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2030) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Antelope Subbasin	Flow from/to Corning Subbasin	Flow from/to Vina Subbasin	Net Subsurface Flow from Adjacent Subbasins
2064 (W)		2,800	-1,900	-9,300	-81,000	-89,000
2065 (BN)		-680	-3,500	-6,700	-81,000	-92,000
2066 (D)		-2,100	-840	-7,000	-80,000	-90,000
2067 (C)		-4,600	2,200	-9,400	-77,000	-89,000
2068 (C)		-2,500	5,800	-14,000	-75,000	-85,000
2069 (BN)		-240	6,300	-16,000	-76,000	-86,000
2070 (W)		2,000	1,500	-17,000	-80,000	-93,000
2071 (BN)		-4,000	180	-15,000	-80,000	-99,000
2072 (W)		23	-250	-14,000	-80,000	-94,000
Average (2022-2072)		390	-2,800	-7,900	-79,000	-89,000
2022-2072	W	790	-5,800	-9,400	-80,000	-94,000
	AN	2,100	-1,800	-7,800	-78,000	-85,000
	BN	-600	-1,200	-9,600	-78,000	-89,000
	D	380	-3,200	-4,700	-81,000	-88,000
	C	-830	1,200	-7,000	-77,000	-83,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2030) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

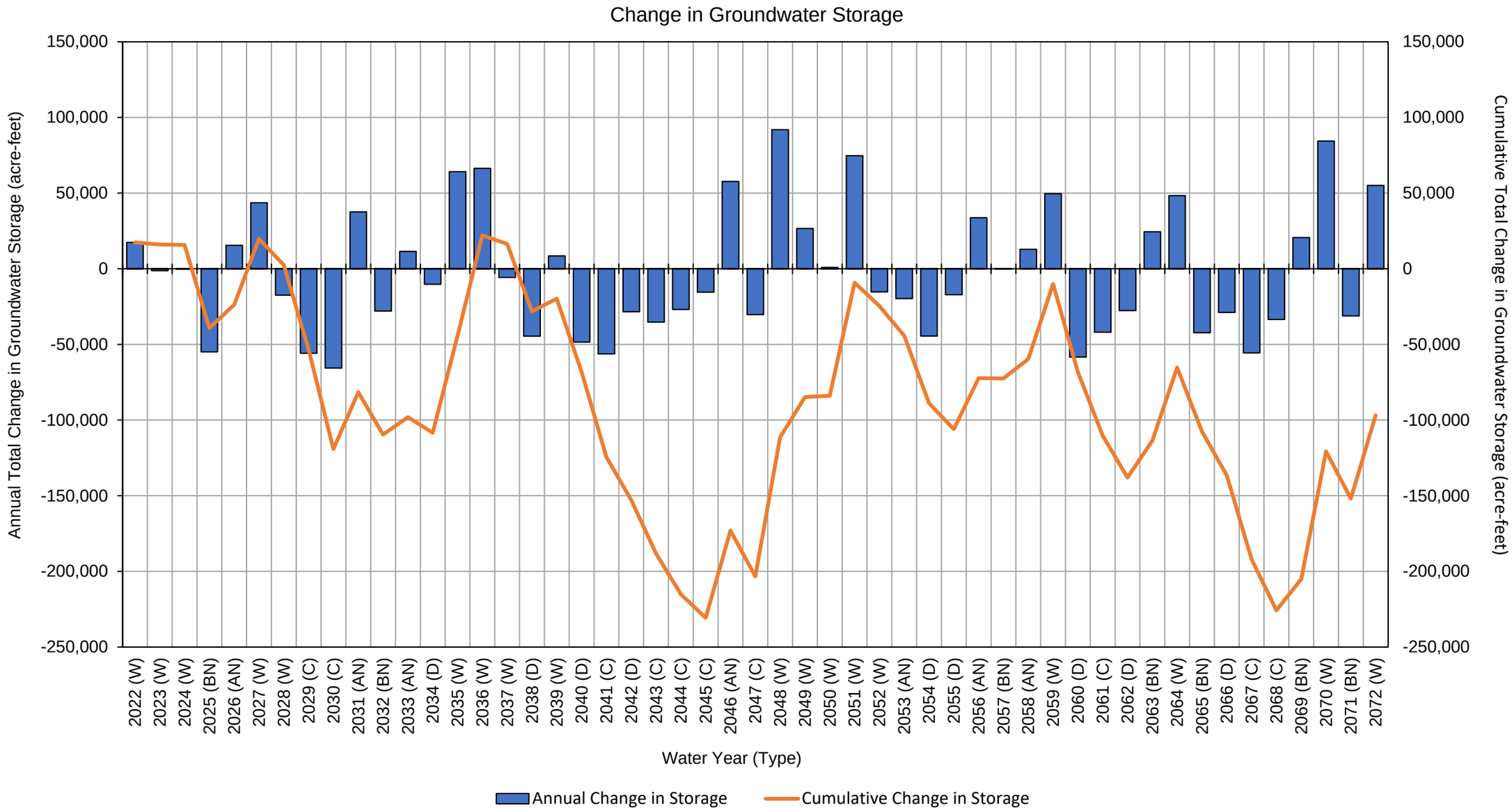
WY (Type)	Subsurface Flows from Uplands
2022 (W)	2,100
2023 (W)	2,100
2024 (W)	2,200
2025 (BN)	2,100
2026 (AN)	2,100
2027 (W)	2,200
2028 (W)	2,100
2029 (C)	2,100
2030 (C)	2,000
2031 (AN)	2,100
2032 (BN)	2,000
2033 (AN)	2,100
2034 (D)	2,100
2035 (W)	2,100
2036 (W)	2,200
2037 (W)	2,200
2038 (D)	2,100
2039 (W)	2,100
2040 (D)	2,100
2041 (C)	2,000
2042 (D)	2,000
2043 (C)	2,000
2044 (C)	2,000
2045 (C)	2,000
2046 (AN)	2,100
2047 (C)	2,000
2048 (W)	2,200
2049 (W)	2,200
2050 (W)	2,200
2051 (W)	2,200
2052 (W)	2,200
2053 (AN)	2,100
2054 (D)	2,000
2055 (D)	2,100
2056 (AN)	2,100
2057 (BN)	2,100
2058 (AN)	2,100
2059 (W)	2,200
2060 (D)	2,100
2061 (C)	2,000
2062 (D)	2,000
2063 (BN)	2,100

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2030) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		2,100
2065 (BN)		2,000
2066 (D)		2,100
2067 (C)		2,000
2068 (C)		2,000
2069 (BN)		2,100
2070 (W)		2,200
2071 (BN)		2,100
2072 (W)		2,100
Average (2022-2072)		2,100
2022-2072	W	2,200
	AN	2,100
	BN	2,100
	D	2,100
	C	2,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2030) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	17,000	17,000
2023 (W)	-1,300	16,000
2024 (W)	-320	16,000
2025 (BN)	-55,000	-39,000
2026 (AN)	15,000	-24,000
2027 (W)	44,000	20,000
2028 (W)	-17,000	2,400
2029 (C)	-56,000	-54,000
2030 (C)	-66,000	-120,000
2031 (AN)	38,000	-82,000
2032 (BN)	-28,000	-110,000
2033 (AN)	11,000	-98,000
2034 (D)	-10,000	-110,000
2035 (W)	64,000	-44,000
2036 (W)	66,000	22,000
2037 (W)	-5,700	16,000
2038 (D)	-45,000	-28,000
2039 (W)	8,500	-20,000
2040 (D)	-48,000	-68,000
2041 (C)	-56,000	-120,000
2042 (D)	-28,000	-150,000
2043 (C)	-35,000	-190,000
2044 (C)	-27,000	-220,000
2045 (C)	-15,000	-230,000
2046 (AN)	58,000	-170,000
2047 (C)	-30,000	-200,000
2048 (W)	92,000	-110,000
2049 (W)	27,000	-85,000
2050 (W)	860	-84,000
2051 (W)	75,000	-9,300
2052 (W)	-15,000	-25,000
2053 (AN)	-20,000	-44,000
2054 (D)	-45,000	-89,000
2055 (D)	-17,000	-110,000
2056 (AN)	34,000	-72,000
2057 (BN)	-210	-73,000
2058 (AN)	13,000	-60,000
2059 (W)	50,000	-10,000
2060 (D)	-58,000	-68,000
2061 (C)	-42,000	-110,000
2062 (D)	-28,000	-140,000
2063 (BN)	24,000	-110,000

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2030) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		48,000	-65,000
2065 (BN)		-42,000	-110,000
2066 (D)		-29,000	-140,000
2067 (C)		-56,000	-190,000
2068 (C)		-34,000	-230,000
2069 (BN)		21,000	-210,000
2070 (W)		84,000	-120,000
2071 (BN)		-31,000	-150,000
2072 (W)		55,000	-97,000
Average (2022-2072)		-1,900	
2022-2072	W		
	AN		
	BN		
	D		
	C		

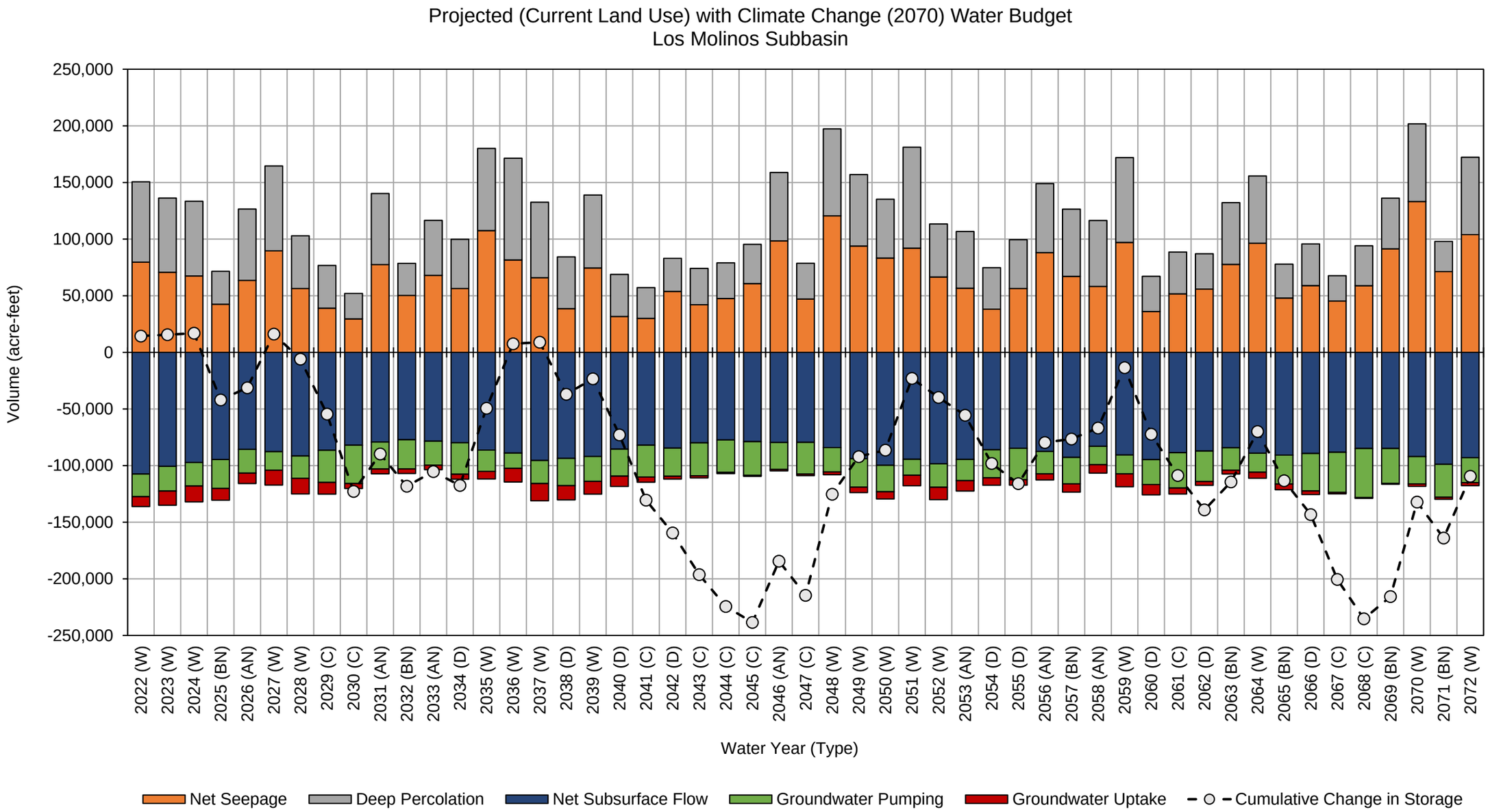
Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX C-5

Detailed Los Molinos Subbasin Water Budget Results:

Projected (Current Land Use) with Climate Change (2070) Model Results


Projected (Current Land Use) with Climate Change (2070) Water Budget
Los Molinos Subbasin
Volume (acre-feet)
250,000
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
-250,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2070) Water Budget Summary (acre-feet, rounded)

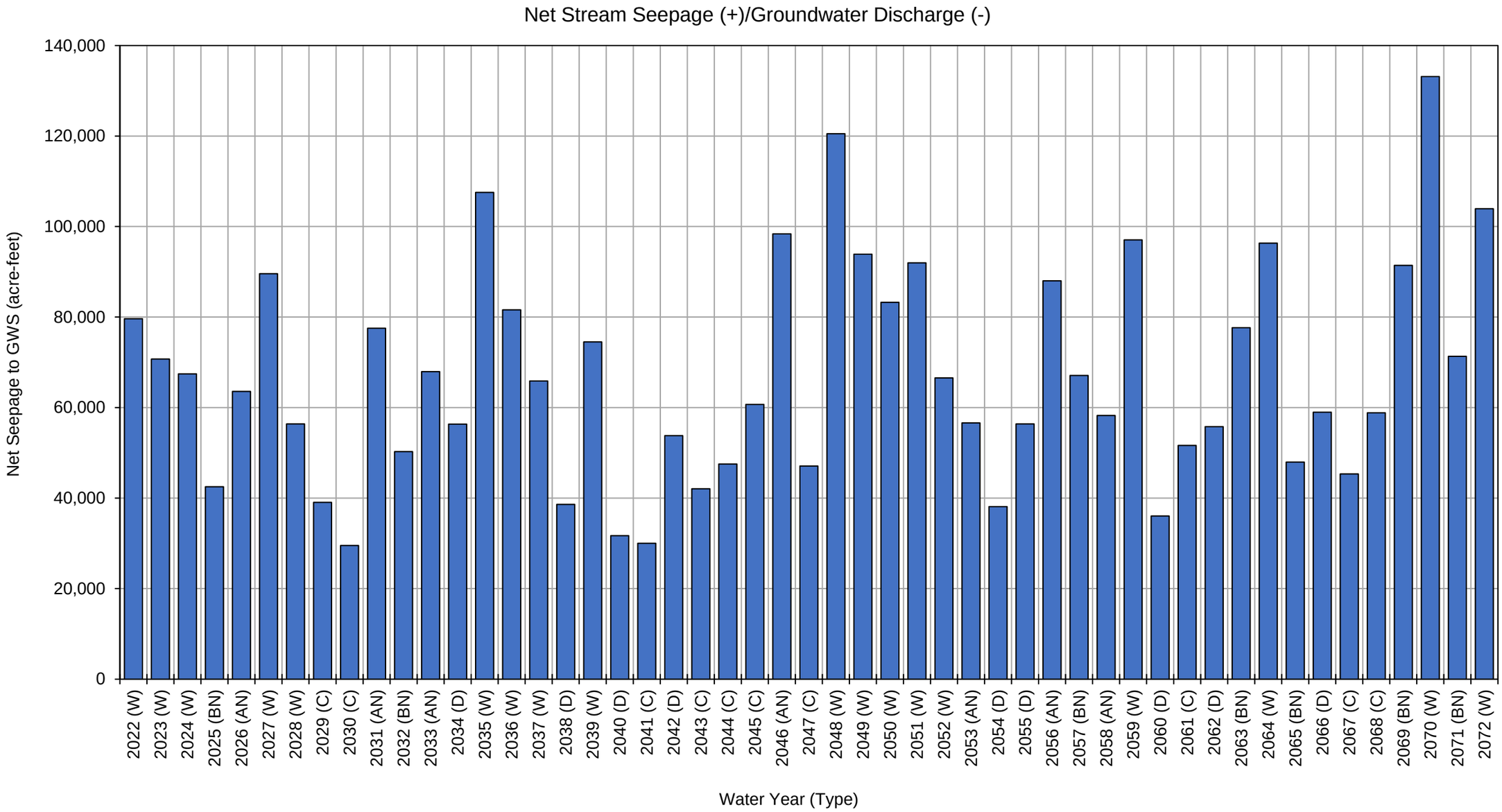
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	80,000	71,000	-20,000	-8,700	-110,000	14,000	14,000
2023 (W)	71,000	66,000	-22,000	-13,000	-100,000	1,200	16,000
2024 (W)	67,000	66,000	-21,000	-14,000	-97,000	1,300	17,000
2025 (BN)	42,000	29,000	-26,000	-10,000	-95,000	-59,000	-42,000
2026 (AN)	64,000	63,000	-21,000	-9,200	-86,000	11,000	-31,000
2027 (W)	90,000	75,000	-16,000	-13,000	-88,000	47,000	16,000
2028 (W)	56,000	47,000	-20,000	-14,000	-92,000	-22,000	-6,000
2029 (C)	39,000	38,000	-28,000	-10,000	-86,000	-48,000	-55,000
2030 (C)	30,000	23,000	-34,000	-4,400	-82,000	-68,000	-120,000
2031 (AN)	78,000	63,000	-24,000	-4,200	-79,000	33,000	-90,000
2032 (BN)	50,000	28,000	-26,000	-4,100	-77,000	-28,000	-120,000
2033 (AN)	68,000	49,000	-21,000	-4,000	-78,000	13,000	-110,000
2034 (D)	56,000	43,000	-28,000	-4,400	-80,000	-12,000	-120,000
2035 (W)	110,000	73,000	-19,000	-6,700	-86,000	68,000	-49,000
2036 (W)	82,000	90,000	-13,000	-12,000	-89,000	57,000	7,600
2037 (W)	66,000	67,000	-20,000	-15,000	-96,000	1,400	9,000
2038 (D)	39,000	46,000	-24,000	-13,000	-94,000	-46,000	-37,000
2039 (W)	75,000	64,000	-22,000	-11,000	-92,000	14,000	-23,000
2040 (D)	32,000	37,000	-24,000	-9,100	-86,000	-50,000	-73,000
2041 (C)	30,000	27,000	-28,000	-4,600	-82,000	-58,000	-130,000
2042 (D)	54,000	29,000	-25,000	-2,600	-85,000	-29,000	-160,000
2043 (C)	42,000	32,000	-29,000	-1,800	-80,000	-37,000	-200,000
2044 (C)	48,000	31,000	-29,000	-1,000	-77,000	-28,000	-220,000
2045 (C)	61,000	35,000	-30,000	-750	-79,000	-14,000	-240,000
2046 (AN)	98,000	60,000	-24,000	-1,300	-80,000	54,000	-180,000
2047 (C)	47,000	32,000	-28,000	-1,300	-79,000	-30,000	-210,000
2048 (W)	120,000	77,000	-21,000	-2,400	-84,000	89,000	-130,000
2049 (W)	94,000	63,000	-25,000	-4,800	-94,000	33,000	-92,000
2050 (W)	83,000	52,000	-23,000	-6,400	-100,000	5,700	-86,000
2051 (W)	92,000	89,000	-14,000	-9,300	-94,000	63,000	-23,000
2052 (W)	67,000	47,000	-21,000	-11,000	-98,000	-17,000	-40,000
2053 (AN)	57,000	50,000	-19,000	-9,200	-95,000	-16,000	-56,000
2054 (D)	38,000	37,000	-25,000	-6,600	-86,000	-43,000	-98,000
2055 (D)	56,000	43,000	-28,000	-4,800	-85,000	-18,000	-120,000
2056 (AN)	88,000	61,000	-20,000	-5,400	-88,000	36,000	-80,000
2057 (BN)	67,000	59,000	-23,000	-7,300	-93,000	3,000	-77,000
2058 (AN)	58,000	58,000	-16,000	-7,400	-83,000	9,700	-67,000
2059 (W)	97,000	75,000	-17,000	-11,000	-91,000	53,000	-14,000
2060 (D)	36,000	31,000	-22,000	-9,100	-95,000	-59,000	-72,000
2061 (C)	52,000	37,000	-31,000	-5,300	-89,000	-37,000	-110,000
2062 (D)	56,000	31,000	-27,000	-3,300	-87,000	-30,000	-140,000
2063 (BN)	78,000	55,000	-20,000	-3,400	-84,000	25,000	-110,000
2064 (W)	96,000	59,000	-17,000	-5,300	-89,000	45,000	-70,000
2065 (BN)	48,000	30,000	-26,000	-5,100	-91,000	-44,000	-110,000

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2070) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		59,000	37,000	-33,000	-3,200	-89,000	-30,000	-140,000
2067 (C)		45,000	22,000	-35,000	-1,300	-88,000	-57,000	-200,000
2068 (C)		59,000	35,000	-43,000	-700	-85,000	-35,000	-240,000
2069 (BN)		91,000	45,000	-31,000	-660	-85,000	20,000	-220,000
2070 (W)		130,000	69,000	-24,000	-2,100	-92,000	83,000	-130,000
2071 (BN)		71,000	27,000	-29,000	-1,800	-99,000	-32,000	-160,000
2072 (W)		100,000	68,000	-22,000	-2,700	-93,000	55,000	-110,000
Average (2022-2072)		67,000	50,000	-24,000	-6,400	-88,000	-2,100	
2022-2072	W	88,000	68,000	-20,000	-9,100	-93,000		
	AN	73,000	58,000	-21,000	-5,800	-84,000		
	BN	64,000	39,000	-26,000	-4,700	-89,000		
	D	47,000	37,000	-26,000	-6,200	-87,000		
	C	45,000	31,000	-32,000	-3,200	-83,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

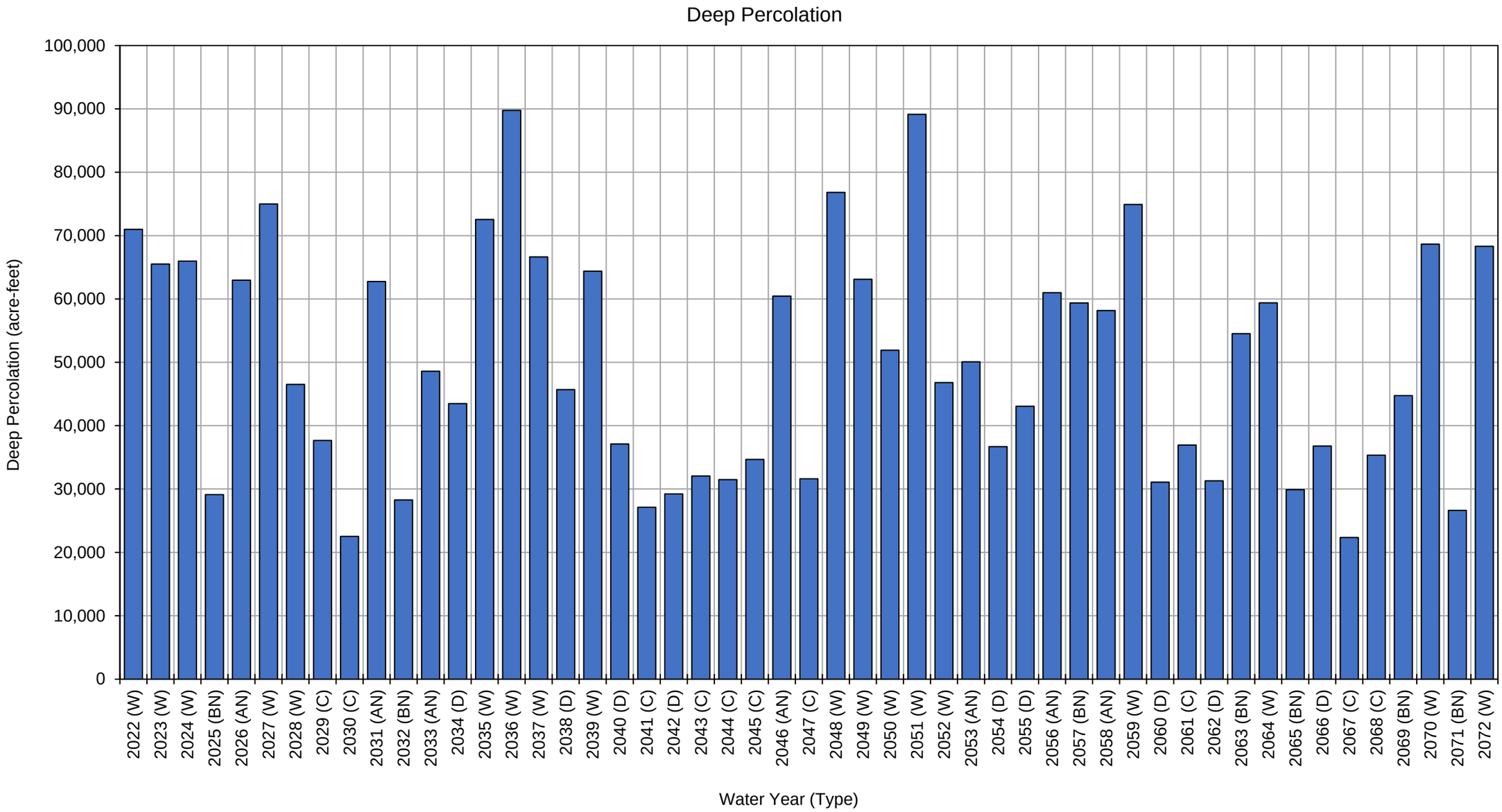
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	80,000
2023 (W)	71,000
2024 (W)	67,000
2025 (BN)	42,000
2026 (AN)	64,000
2027 (W)	90,000
2028 (W)	56,000
2029 (C)	39,000
2030 (C)	30,000
2031 (AN)	78,000
2032 (BN)	50,000
2033 (AN)	68,000
2034 (D)	56,000
2035 (W)	110,000
2036 (W)	82,000
2037 (W)	66,000
2038 (D)	39,000
2039 (W)	75,000
2040 (D)	32,000
2041 (C)	30,000
2042 (D)	54,000
2043 (C)	42,000
2044 (C)	48,000
2045 (C)	61,000
2046 (AN)	98,000
2047 (C)	47,000
2048 (W)	120,000
2049 (W)	94,000
2050 (W)	83,000
2051 (W)	92,000
2052 (W)	67,000
2053 (AN)	57,000
2054 (D)	38,000
2055 (D)	56,000
2056 (AN)	88,000
2057 (BN)	67,000
2058 (AN)	58,000
2059 (W)	97,000
2060 (D)	36,000
2061 (C)	52,000
2062 (D)	56,000
2063 (BN)	78,000

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		96,000
2065 (BN)		48,000
2066 (D)		59,000
2067 (C)		45,000
2068 (C)		59,000
2069 (BN)		91,000
2070 (W)		130,000
2071 (BN)		71,000
2072 (W)		100,000
Average (2022-2072)		67,000
2022-2072	W	88,000
	AN	73,000
	BN	64,000
	D	47,000
	C	45,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

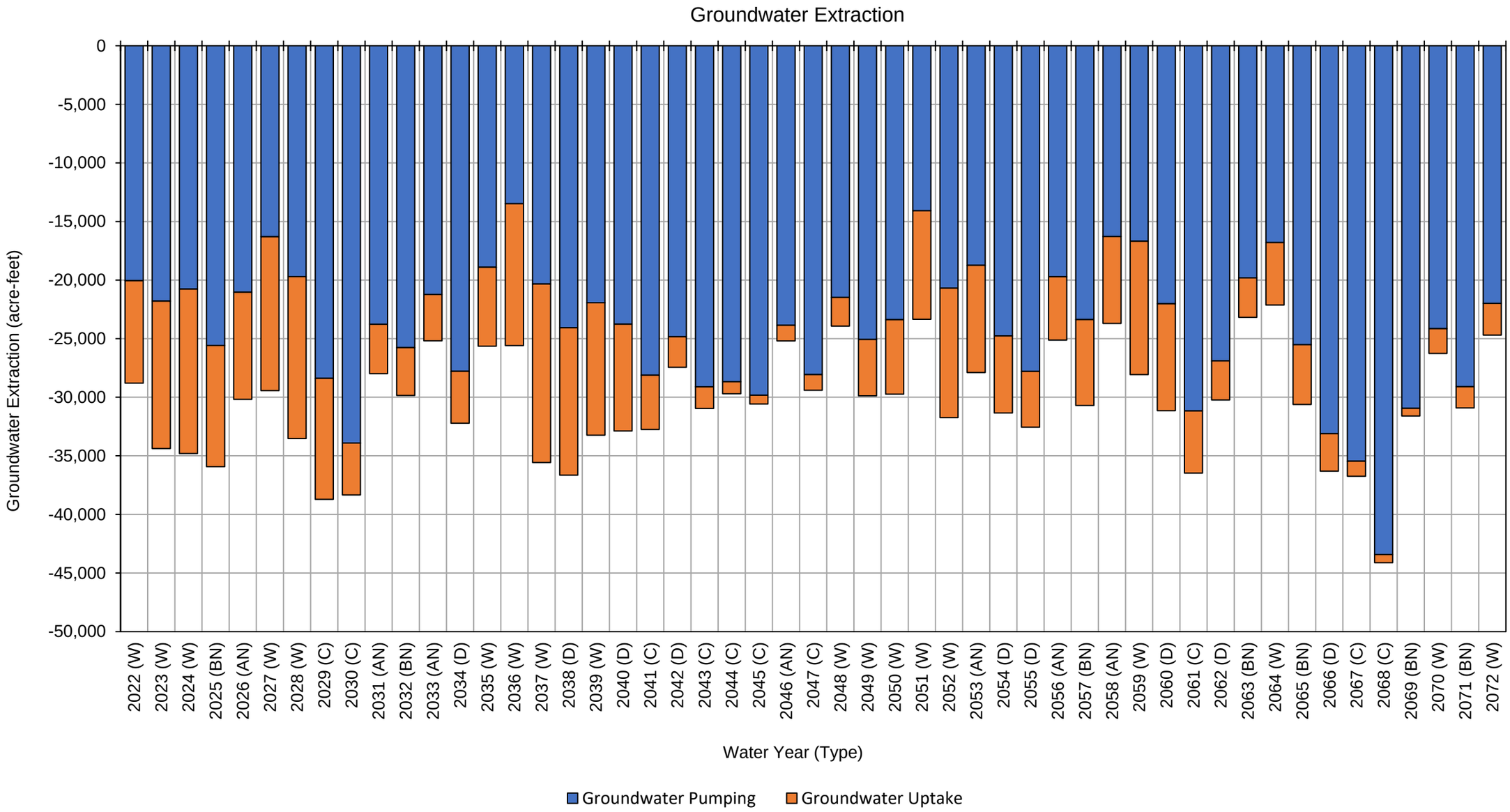
WY (Type)	Deep Percolation from the SWS
2022 (W)	71,000
2023 (W)	66,000
2024 (W)	66,000
2025 (BN)	29,000
2026 (AN)	63,000
2027 (W)	75,000
2028 (W)	47,000
2029 (C)	38,000
2030 (C)	23,000
2031 (AN)	63,000
2032 (BN)	28,000
2033 (AN)	49,000
2034 (D)	43,000
2035 (W)	73,000
2036 (W)	90,000
2037 (W)	67,000
2038 (D)	46,000
2039 (W)	64,000
2040 (D)	37,000
2041 (C)	27,000
2042 (D)	29,000
2043 (C)	32,000
2044 (C)	31,000
2045 (C)	35,000
2046 (AN)	60,000
2047 (C)	32,000
2048 (W)	77,000
2049 (W)	63,000
2050 (W)	52,000
2051 (W)	89,000
2052 (W)	47,000
2053 (AN)	50,000
2054 (D)	37,000
2055 (D)	43,000
2056 (AN)	61,000
2057 (BN)	59,000
2058 (AN)	58,000
2059 (W)	75,000
2060 (D)	31,000
2061 (C)	37,000
2062 (D)	31,000
2063 (BN)	55,000

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		59,000
2065 (BN)		30,000
2066 (D)		37,000
2067 (C)		22,000
2068 (C)		35,000
2069 (BN)		45,000
2070 (W)		69,000
2071 (BN)		27,000
2072 (W)		68,000
Average (2022-2072)		50,000
2022-2072	W	68,000
	AN	58,000
	BN	39,000
	D	37,000
	C	31,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

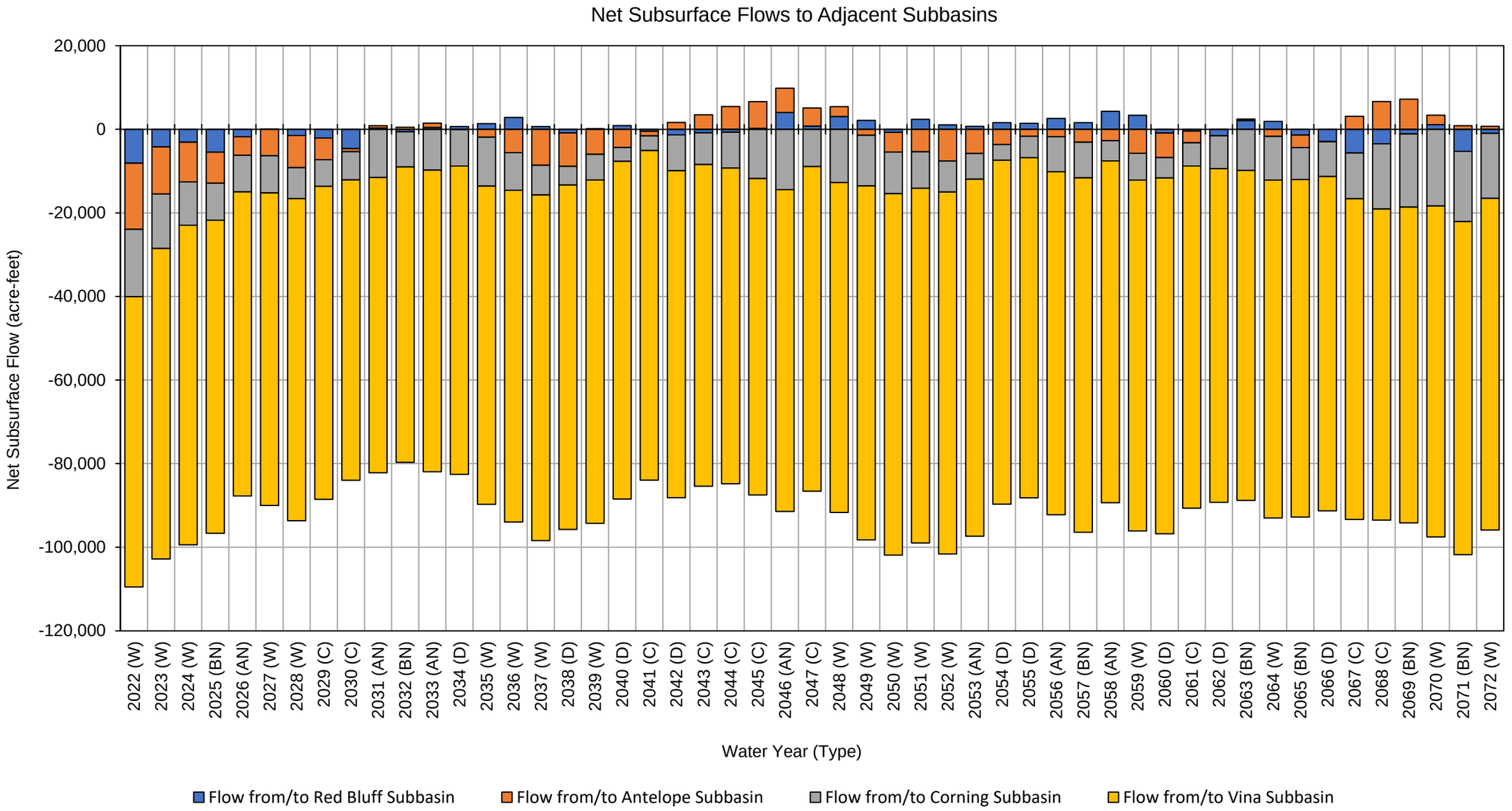
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-20,000	-8,700	-29,000
2023 (W)	-22,000	-13,000	-34,000
2024 (W)	-21,000	-14,000	-35,000
2025 (BN)	-26,000	-10,000	-36,000
2026 (AN)	-21,000	-9,200	-30,000
2027 (W)	-16,000	-13,000	-29,000
2028 (W)	-20,000	-14,000	-34,000
2029 (C)	-28,000	-10,000	-39,000
2030 (C)	-34,000	-4,400	-38,000
2031 (AN)	-24,000	-4,200	-28,000
2032 (BN)	-26,000	-4,100	-30,000
2033 (AN)	-21,000	-4,000	-25,000
2034 (D)	-28,000	-4,400	-32,000
2035 (W)	-19,000	-6,700	-26,000
2036 (W)	-13,000	-12,000	-26,000
2037 (W)	-20,000	-15,000	-36,000
2038 (D)	-24,000	-13,000	-37,000
2039 (W)	-22,000	-11,000	-33,000
2040 (D)	-24,000	-9,100	-33,000
2041 (C)	-28,000	-4,600	-33,000
2042 (D)	-25,000	-2,600	-27,000
2043 (C)	-29,000	-1,800	-31,000
2044 (C)	-29,000	-1,000	-30,000
2045 (C)	-30,000	-750	-31,000
2046 (AN)	-24,000	-1,300	-25,000
2047 (C)	-28,000	-1,300	-29,000
2048 (W)	-21,000	-2,400	-24,000
2049 (W)	-25,000	-4,800	-30,000
2050 (W)	-23,000	-6,400	-30,000
2051 (W)	-14,000	-9,300	-23,000
2052 (W)	-21,000	-11,000	-32,000
2053 (AN)	-19,000	-9,200	-28,000
2054 (D)	-25,000	-6,600	-31,000
2055 (D)	-28,000	-4,800	-33,000
2056 (AN)	-20,000	-5,400	-25,000
2057 (BN)	-23,000	-7,300	-31,000
2058 (AN)	-16,000	-7,400	-24,000
2059 (W)	-17,000	-11,000	-28,000
2060 (D)	-22,000	-9,100	-31,000
2061 (C)	-31,000	-5,300	-36,000
2062 (D)	-27,000	-3,300	-30,000
2063 (BN)	-20,000	-3,400	-23,000

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-17,000	-5,300	-22,000
2065 (BN)		-26,000	-5,100	-31,000
2066 (D)		-33,000	-3,200	-36,000
2067 (C)		-35,000	-1,300	-37,000
2068 (C)		-43,000	-700	-44,000
2069 (BN)		-31,000	-660	-32,000
2070 (W)		-24,000	-2,100	-26,000
2071 (BN)		-29,000	-1,800	-31,000
2072 (W)		-22,000	-2,700	-25,000
Average (2022-2072)		-24,000	-6,400	-31,000
2022-2072	W	-20,000	-9,100	-29,000
	AN	-21,000	-5,800	-26,000
	BN	-26,000	-4,700	-30,000
	D	-26,000	-6,200	-32,000
	C	-32,000	-3,200	-35,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

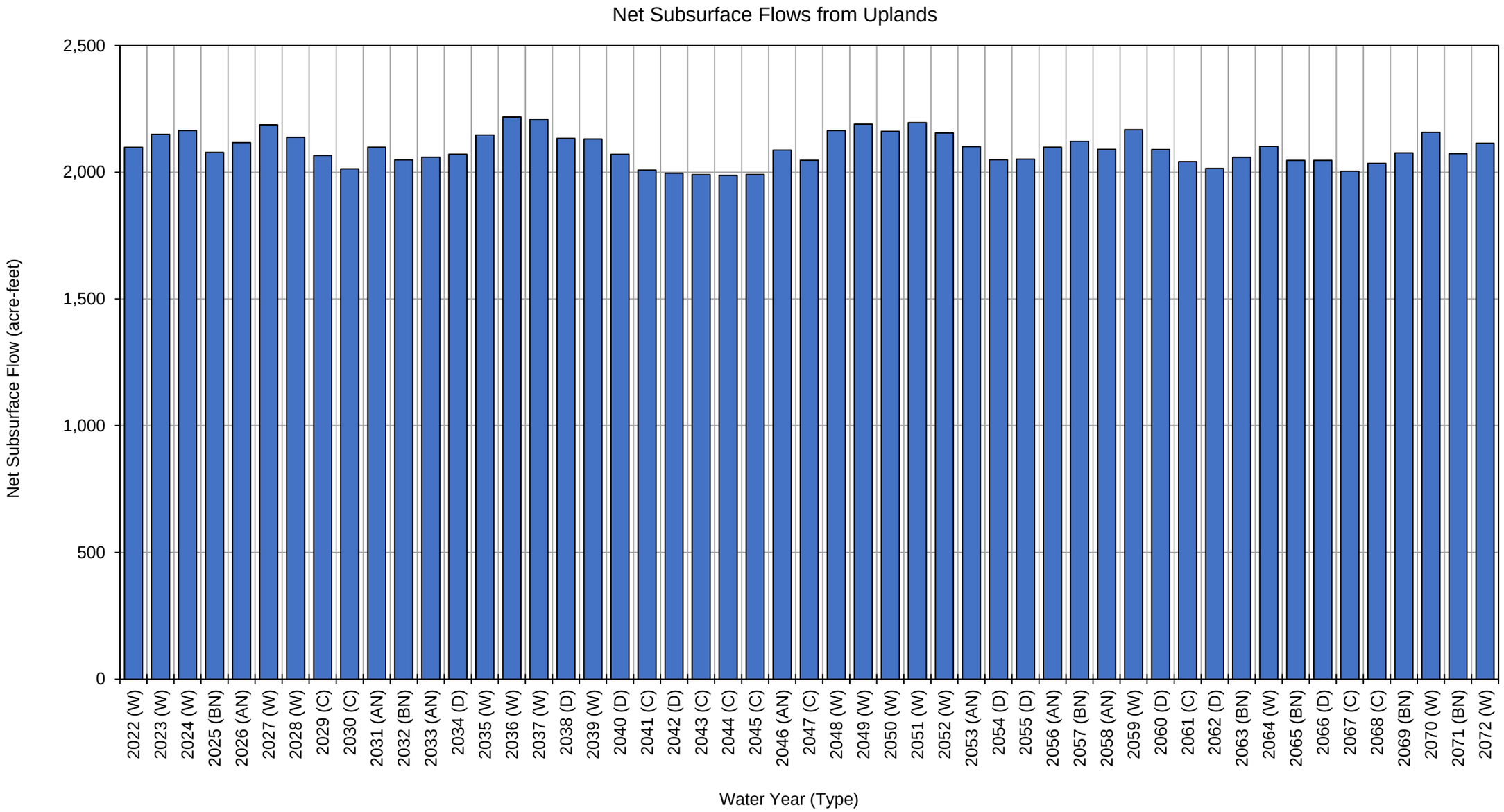
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Antelope Subbasin	Flow from/to Corning Subbasin	Flow from/to Vina Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-8,100	-16,000	-16,000	-69,000	-110,000
2023 (W)	-4,200	-11,000	-13,000	-74,000	-100,000
2024 (W)	-3,100	-9,500	-10,000	-76,000	-99,000
2025 (BN)	-5,500	-7,400	-8,900	-75,000	-97,000
2026 (AN)	-1,800	-4,400	-8,800	-73,000	-88,000
2027 (W)	75	-6,300	-8,900	-75,000	-90,000
2028 (W)	-1,500	-7,700	-7,400	-77,000	-94,000
2029 (C)	-2,100	-5,200	-6,400	-75,000	-89,000
2030 (C)	-4,600	-720	-6,800	-72,000	-84,000
2031 (AN)	290	550	-12,000	-71,000	-81,000
2032 (BN)	-610	500	-8,400	-71,000	-79,000
2033 (AN)	430	1,000	-9,800	-72,000	-80,000
2034 (D)	660	-92	-8,700	-74,000	-82,000
2035 (W)	1,300	-1,900	-12,000	-76,000	-88,000
2036 (W)	2,800	-5,600	-9,000	-79,000	-91,000
2037 (W)	670	-8,600	-7,100	-83,000	-98,000
2038 (D)	-870	-8,000	-4,500	-82,000	-96,000
2039 (W)	160	-6,000	-6,100	-82,000	-94,000
2040 (D)	890	-4,300	-3,300	-81,000	-88,000
2041 (C)	-490	-1,100	-3,500	-79,000	-84,000
2042 (D)	-1,300	1,600	-8,600	-78,000	-87,000
2043 (C)	-840	3,500	-7,600	-77,000	-82,000
2044 (C)	-710	5,400	-8,600	-76,000	-79,000
2045 (C)	220	6,400	-12,000	-76,000	-81,000
2046 (AN)	4,000	5,800	-14,000	-77,000	-82,000
2047 (C)	770	4,300	-8,900	-78,000	-81,000
2048 (W)	3,100	2,400	-13,000	-79,000	-86,000
2049 (W)	2,100	-1,400	-12,000	-85,000	-96,000
2050 (W)	-730	-4,700	-10,000	-86,000	-100,000
2051 (W)	2,400	-5,400	-8,700	-85,000	-97,000
2052 (W)	1,100	-7,600	-7,400	-87,000	-100,000
2053 (AN)	720	-5,800	-6,100	-85,000	-97,000
2054 (D)	1,600	-3,600	-3,800	-82,000	-88,000
2055 (D)	1,400	-1,700	-5,100	-81,000	-87,000
2056 (AN)	2,600	-1,800	-8,400	-82,000	-90,000
2057 (BN)	1,600	-3,100	-8,500	-85,000	-95,000
2058 (AN)	4,300	-2,700	-4,800	-82,000	-85,000
2059 (W)	3,400	-5,800	-6,400	-84,000	-93,000
2060 (D)	-900	-5,900	-4,900	-85,000	-97,000
2061 (C)	-440	-2,800	-5,500	-82,000	-91,000
2062 (D)	-1,600	38	-7,900	-80,000	-89,000
2063 (BN)	2,100	350	-9,800	-79,000	-86,000

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Antelope Subbasin	Flow from/to Corning Subbasin	Flow from/to Vina Subbasin	Net Subsurface Flow from Adjacent Subbasins
2064 (W)		1,900	-1,700	-10,000	-81,000	-91,000
2065 (BN)		-1,400	-3,000	-7,600	-81,000	-93,000
2066 (D)		-2,900	-41	-8,300	-80,000	-91,000
2067 (C)		-5,700	3,100	-11,000	-77,000	-90,000
2068 (C)		-3,500	6,600	-16,000	-74,000	-87,000
2069 (BN)		-1,100	7,200	-18,000	-76,000	-87,000
2070 (W)		1,100	2,300	-18,000	-79,000	-94,000
2071 (BN)		-5,300	860	-17,000	-80,000	-100,000
2072 (W)		-960	710	-16,000	-79,000	-95,000
Average (2022-2072)		-360	-2,100	-9,300	-79,000	-90,000
2022-2072	W	78	-5,200	-11,000	-80,000	-96,000
	AN	1,500	-1,000	-9,100	-77,000	-86,000
	BN	-1,500	-660	-11,000	-78,000	-91,000
	D	-340	-2,400	-6,100	-80,000	-89,000
	C	-1,700	2,000	-8,600	-76,000	-85,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2070) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

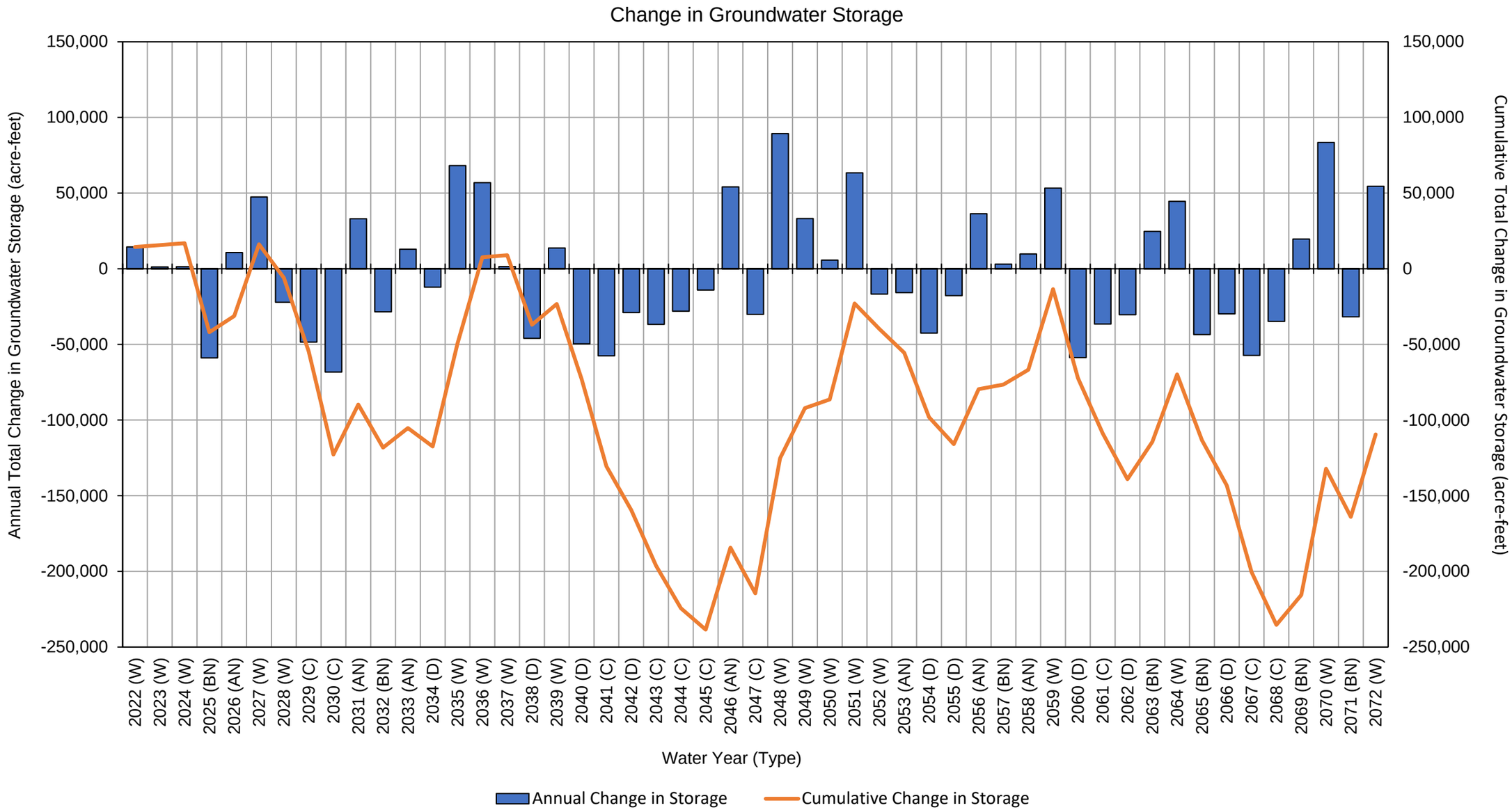
WY (Type)	Subsurface Flows from Uplands
2022 (W)	2,100
2023 (W)	2,100
2024 (W)	2,200
2025 (BN)	2,100
2026 (AN)	2,100
2027 (W)	2,200
2028 (W)	2,100
2029 (C)	2,100
2030 (C)	2,000
2031 (AN)	2,100
2032 (BN)	2,000
2033 (AN)	2,100
2034 (D)	2,100
2035 (W)	2,100
2036 (W)	2,200
2037 (W)	2,200
2038 (D)	2,100
2039 (W)	2,100
2040 (D)	2,100
2041 (C)	2,000
2042 (D)	2,000
2043 (C)	2,000
2044 (C)	2,000
2045 (C)	2,000
2046 (AN)	2,100
2047 (C)	2,000
2048 (W)	2,200
2049 (W)	2,200
2050 (W)	2,200
2051 (W)	2,200
2052 (W)	2,200
2053 (AN)	2,100
2054 (D)	2,000
2055 (D)	2,100
2056 (AN)	2,100
2057 (BN)	2,100
2058 (AN)	2,100
2059 (W)	2,200
2060 (D)	2,100
2061 (C)	2,000
2062 (D)	2,000
2063 (BN)	2,100

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2070) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		2,100
2065 (BN)		2,000
2066 (D)		2,000
2067 (C)		2,000
2068 (C)		2,000
2069 (BN)		2,100
2070 (W)		2,200
2071 (BN)		2,100
2072 (W)		2,100
Average (2022-2072)		2,100
2022-2072	W	2,200
	AN	2,100
	BN	2,100
	D	2,100
	C	2,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	14,000	14,000
2023 (W)	1,200	16,000
2024 (W)	1,300	17,000
2025 (BN)	-59,000	-42,000
2026 (AN)	11,000	-31,000
2027 (W)	47,000	16,000
2028 (W)	-22,000	-6,000
2029 (C)	-48,000	-55,000
2030 (C)	-68,000	-120,000
2031 (AN)	33,000	-90,000
2032 (BN)	-28,000	-120,000
2033 (AN)	13,000	-110,000
2034 (D)	-12,000	-120,000
2035 (W)	68,000	-49,000
2036 (W)	57,000	7,600
2037 (W)	1,400	9,000
2038 (D)	-46,000	-37,000
2039 (W)	14,000	-23,000
2040 (D)	-50,000	-73,000
2041 (C)	-58,000	-130,000
2042 (D)	-29,000	-160,000
2043 (C)	-37,000	-200,000
2044 (C)	-28,000	-220,000
2045 (C)	-14,000	-240,000
2046 (AN)	54,000	-180,000
2047 (C)	-30,000	-210,000
2048 (W)	89,000	-130,000
2049 (W)	33,000	-92,000
2050 (W)	5,700	-86,000
2051 (W)	63,000	-23,000
2052 (W)	-17,000	-40,000
2053 (AN)	-16,000	-56,000
2054 (D)	-43,000	-98,000
2055 (D)	-18,000	-120,000
2056 (AN)	36,000	-80,000
2057 (BN)	3,000	-77,000
2058 (AN)	9,700	-67,000
2059 (W)	53,000	-14,000
2060 (D)	-59,000	-72,000
2061 (C)	-37,000	-110,000
2062 (D)	-30,000	-140,000
2063 (BN)	25,000	-110,000

Los Molinos Subbasin Projected (Current Land Use) with Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		45,000	-70,000
2065 (BN)		-44,000	-110,000
2066 (D)		-30,000	-140,000
2067 (C)		-57,000	-200,000
2068 (C)		-35,000	-240,000
2069 (BN)		20,000	-220,000
2070 (W)		83,000	-130,000
2071 (BN)		-32,000	-160,000
2072 (W)		55,000	-110,000
Average (2022-2072)		-2,100	
2022-2072	W		
	AN		
	BN		
	D		
	C		

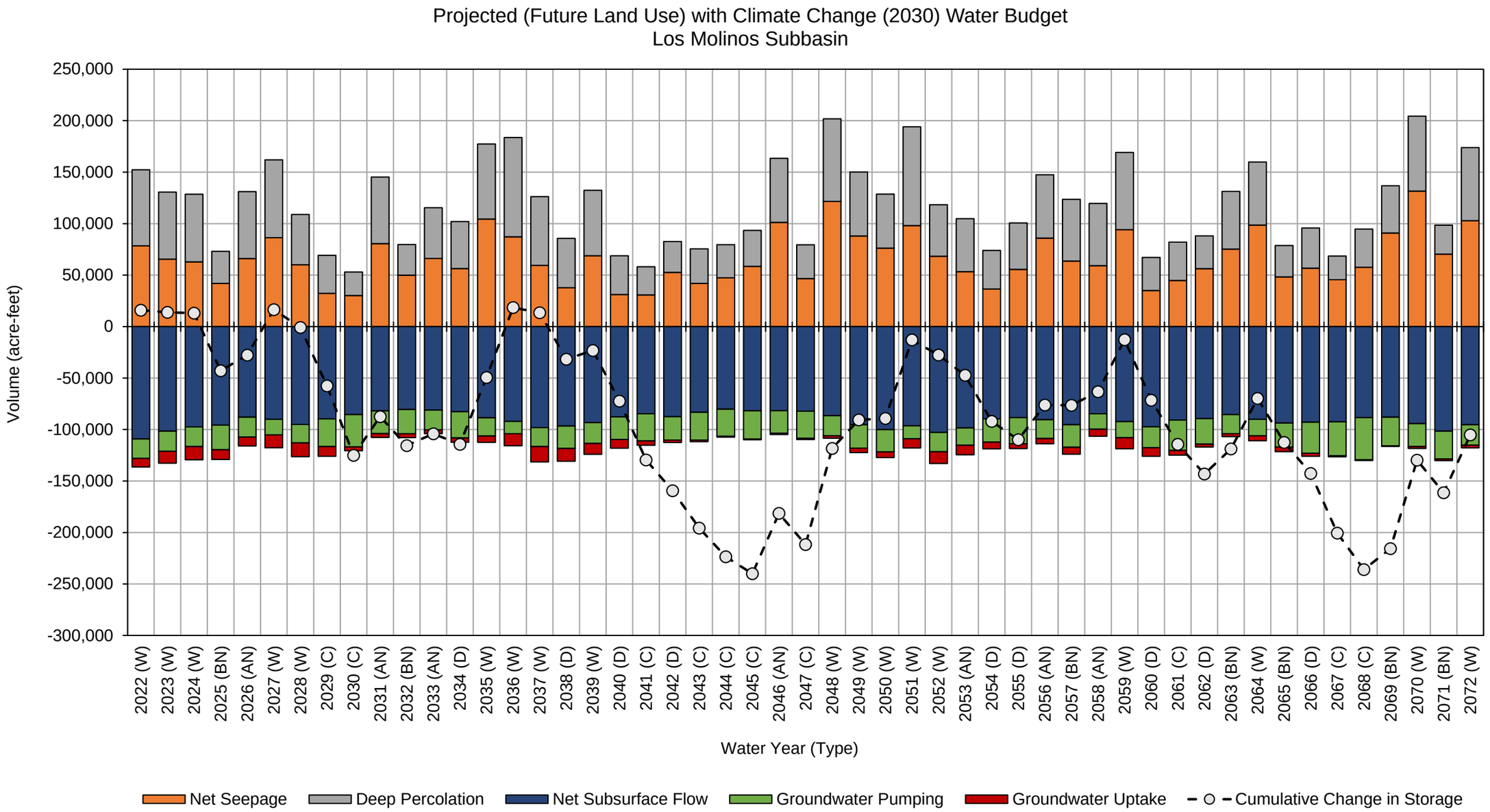
Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX C-6

Detailed Los Molinos Subbasin Water Budget Results:

Projected (Future Land Use) with Climate Change (2030) Model Results


Projected (Future Land Use) with Climate Change (2030) Water Budget
Los Molinos Subbasin
Volume (acre-feet)
250,000
200,000
150,000
100,000
50,000
0
-50,000
-100,000
-150,000
-200,000
-250,000
-300,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2030) Water Budget Summary (acre-feet, rounded)

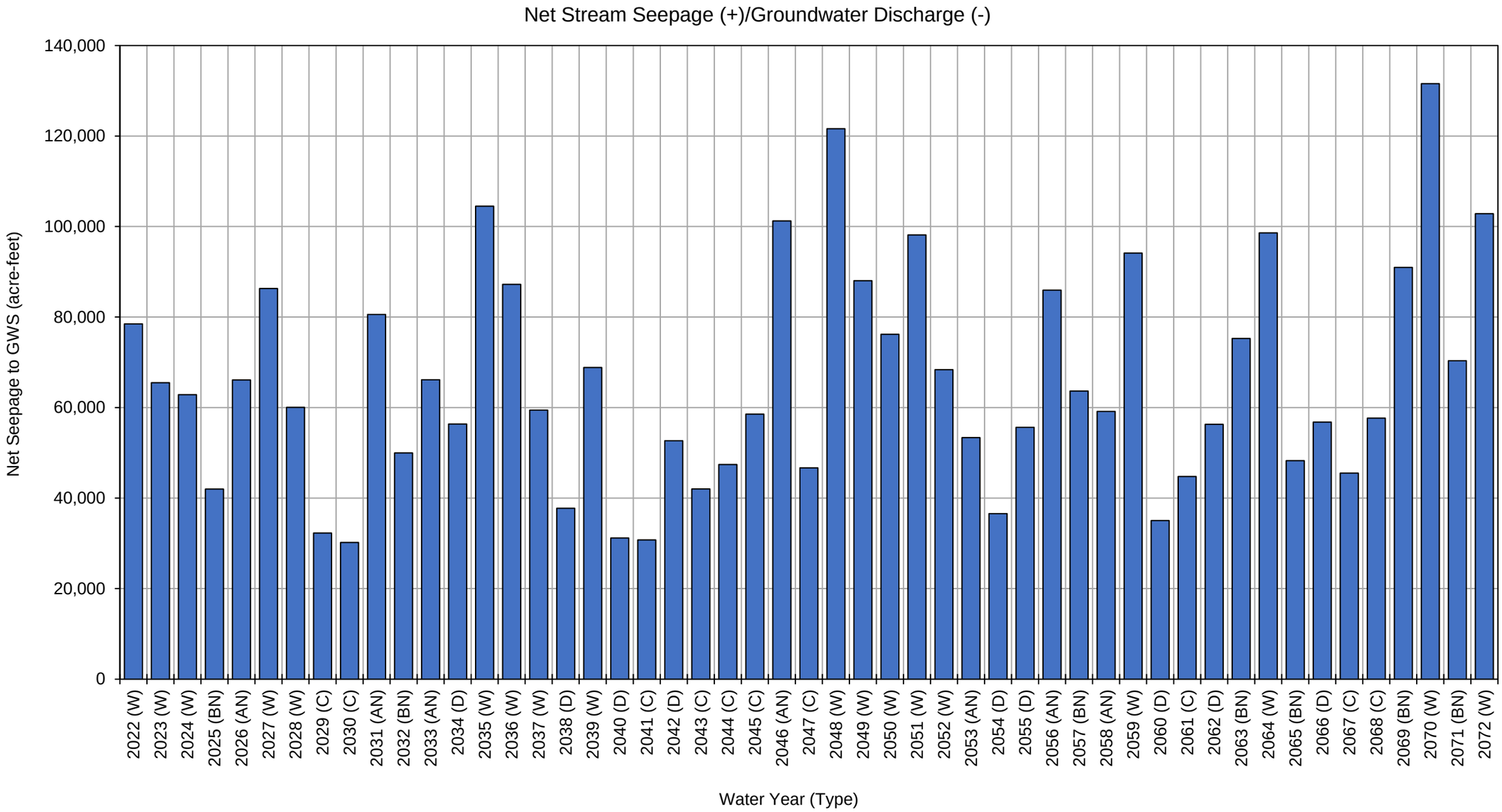
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	78,000	74,000	-19,000	-8,400	-110,000	16,000	16,000
2023 (W)	65,000	65,000	-20,000	-12,000	-100,000	-2,100	14,000
2024 (W)	63,000	66,000	-19,000	-13,000	-97,000	-760	13,000
2025 (BN)	42,000	31,000	-24,000	-9,400	-96,000	-56,000	-43,000
2026 (AN)	66,000	65,000	-19,000	-8,600	-88,000	15,000	-28,000
2027 (W)	86,000	76,000	-15,000	-12,000	-90,000	44,000	17,000
2028 (W)	60,000	49,000	-18,000	-13,000	-95,000	-17,000	-830
2029 (C)	32,000	37,000	-27,000	-9,400	-90,000	-57,000	-58,000
2030 (C)	30,000	23,000	-31,000	-3,800	-85,000	-67,000	-130,000
2031 (AN)	81,000	65,000	-22,000	-3,800	-82,000	38,000	-87,000
2032 (BN)	50,000	30,000	-24,000	-3,800	-81,000	-28,000	-120,000
2033 (AN)	66,000	49,000	-19,000	-3,600	-81,000	11,000	-100,000
2034 (D)	56,000	46,000	-26,000	-4,100	-83,000	-10,000	-110,000
2035 (W)	100,000	73,000	-18,000	-6,100	-89,000	65,000	-49,000
2036 (W)	87,000	97,000	-12,000	-12,000	-92,000	68,000	19,000
2037 (W)	59,000	67,000	-18,000	-15,000	-98,000	-5,100	13,000
2038 (D)	38,000	48,000	-22,000	-12,000	-97,000	-45,000	-32,000
2039 (W)	69,000	64,000	-20,000	-11,000	-93,000	8,500	-23,000
2040 (D)	31,000	38,000	-22,000	-8,500	-88,000	-49,000	-72,000
2041 (C)	31,000	27,000	-26,000	-4,200	-85,000	-57,000	-130,000
2042 (D)	53,000	30,000	-23,000	-2,300	-88,000	-30,000	-160,000
2043 (C)	42,000	34,000	-27,000	-1,600	-83,000	-36,000	-200,000
2044 (C)	47,000	32,000	-26,000	-900	-80,000	-28,000	-220,000
2045 (C)	59,000	35,000	-27,000	-640	-82,000	-16,000	-240,000
2046 (AN)	100,000	62,000	-22,000	-1,200	-82,000	59,000	-180,000
2047 (C)	47,000	33,000	-26,000	-1,200	-82,000	-30,000	-210,000
2048 (W)	120,000	80,000	-20,000	-2,300	-87,000	93,000	-120,000
2049 (W)	88,000	62,000	-23,000	-4,400	-95,000	28,000	-91,000
2050 (W)	76,000	52,000	-22,000	-5,600	-100,000	1,400	-89,000
2051 (W)	98,000	96,000	-13,000	-8,900	-96,000	76,000	-13,000
2052 (W)	68,000	50,000	-19,000	-11,000	-100,000	-15,000	-28,000
2053 (AN)	53,000	51,000	-17,000	-9,300	-98,000	-20,000	-47,000
2054 (D)	37,000	37,000	-23,000	-6,600	-90,000	-45,000	-92,000
2055 (D)	56,000	45,000	-25,000	-4,600	-88,000	-18,000	-110,000
2056 (AN)	86,000	62,000	-18,000	-5,100	-90,000	34,000	-76,000
2057 (BN)	64,000	60,000	-22,000	-6,700	-95,000	-250	-76,000
2058 (AN)	59,000	61,000	-15,000	-6,800	-85,000	13,000	-63,000
2059 (W)	94,000	75,000	-16,000	-11,000	-92,000	51,000	-13,000
2060 (D)	35,000	32,000	-20,000	-8,400	-97,000	-59,000	-71,000
2061 (C)	45,000	37,000	-29,000	-4,600	-91,000	-43,000	-110,000
2062 (D)	56,000	32,000	-25,000	-2,800	-89,000	-29,000	-140,000
2063 (BN)	75,000	56,000	-19,000	-2,800	-85,000	24,000	-120,000
2064 (W)	99,000	61,000	-16,000	-4,700	-90,000	49,000	-70,000
2065 (BN)	48,000	31,000	-23,000	-4,600	-94,000	-43,000	-110,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2030) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		57,000	39,000	-30,000	-2,900	-93,000	-30,000	-140,000
2067 (C)		46,000	23,000	-33,000	-1,100	-92,000	-58,000	-200,000
2068 (C)		58,000	37,000	-41,000	-580	-88,000	-35,000	-240,000
2069 (BN)		91,000	46,000	-28,000	-540	-88,000	20,000	-220,000
2070 (W)		130,000	73,000	-22,000	-1,900	-94,000	86,000	-130,000
2071 (BN)		70,000	28,000	-27,000	-1,600	-100,000	-32,000	-160,000
2072 (W)		100,000	71,000	-20,000	-2,500	-95,000	56,000	-110,000
Average (2022-2072)		66,000	51,000	-22,000	-5,900	-91,000	-2,100	
2022-2072	W	86,000	69,000	-18,000	-8,600	-95,000		
	AN	73,000	59,000	-19,000	-5,500	-87,000		
	BN	63,000	40,000	-24,000	-4,200	-91,000		
	D	46,000	39,000	-24,000	-5,800	-90,000		
	C	44,000	32,000	-30,000	-2,800	-86,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2030) Net Stream Seepage (net flows as acre-feet, rounded)

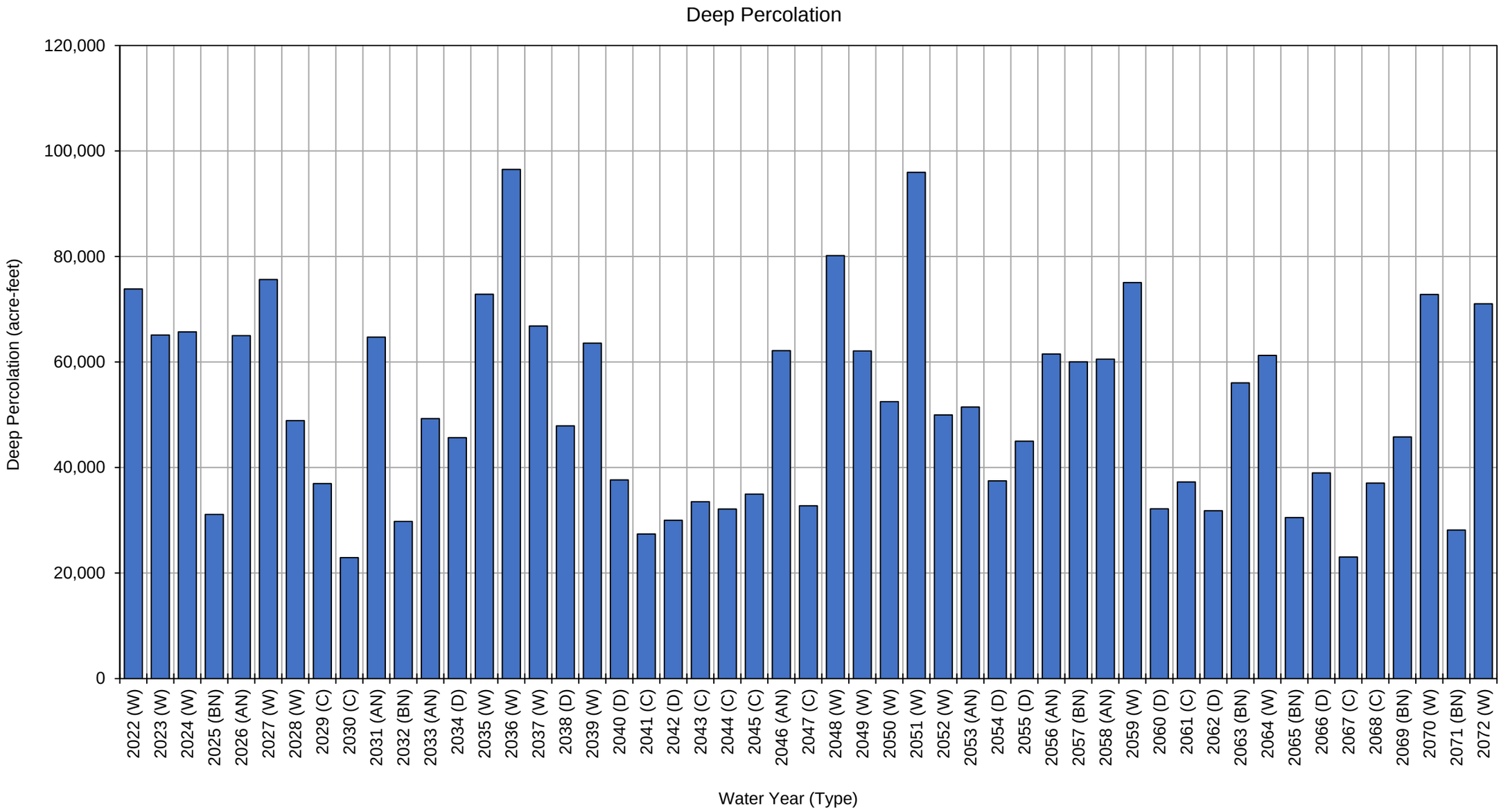
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	78,000
2023 (W)	65,000
2024 (W)	63,000
2025 (BN)	42,000
2026 (AN)	66,000
2027 (W)	86,000
2028 (W)	60,000
2029 (C)	32,000
2030 (C)	30,000
2031 (AN)	81,000
2032 (BN)	50,000
2033 (AN)	66,000
2034 (D)	56,000
2035 (W)	100,000
2036 (W)	87,000
2037 (W)	59,000
2038 (D)	38,000
2039 (W)	69,000
2040 (D)	31,000
2041 (C)	31,000
2042 (D)	53,000
2043 (C)	42,000
2044 (C)	47,000
2045 (C)	59,000
2046 (AN)	100,000
2047 (C)	47,000
2048 (W)	120,000
2049 (W)	88,000
2050 (W)	76,000
2051 (W)	98,000
2052 (W)	68,000
2053 (AN)	53,000
2054 (D)	37,000
2055 (D)	56,000
2056 (AN)	86,000
2057 (BN)	64,000
2058 (AN)	59,000
2059 (W)	94,000
2060 (D)	35,000
2061 (C)	45,000
2062 (D)	56,000
2063 (BN)	75,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2030) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		99,000
2065 (BN)		48,000
2066 (D)		57,000
2067 (C)		46,000
2068 (C)		58,000
2069 (BN)		91,000
2070 (W)		130,000
2071 (BN)		70,000
2072 (W)		100,000
Average (2022-2072)		66,000
2022-2072	W	86,000
	AN	73,000
	BN	63,000
	D	46,000
	C	44,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2030) Deep Percolation from the SWS (acre-feet, rounded)

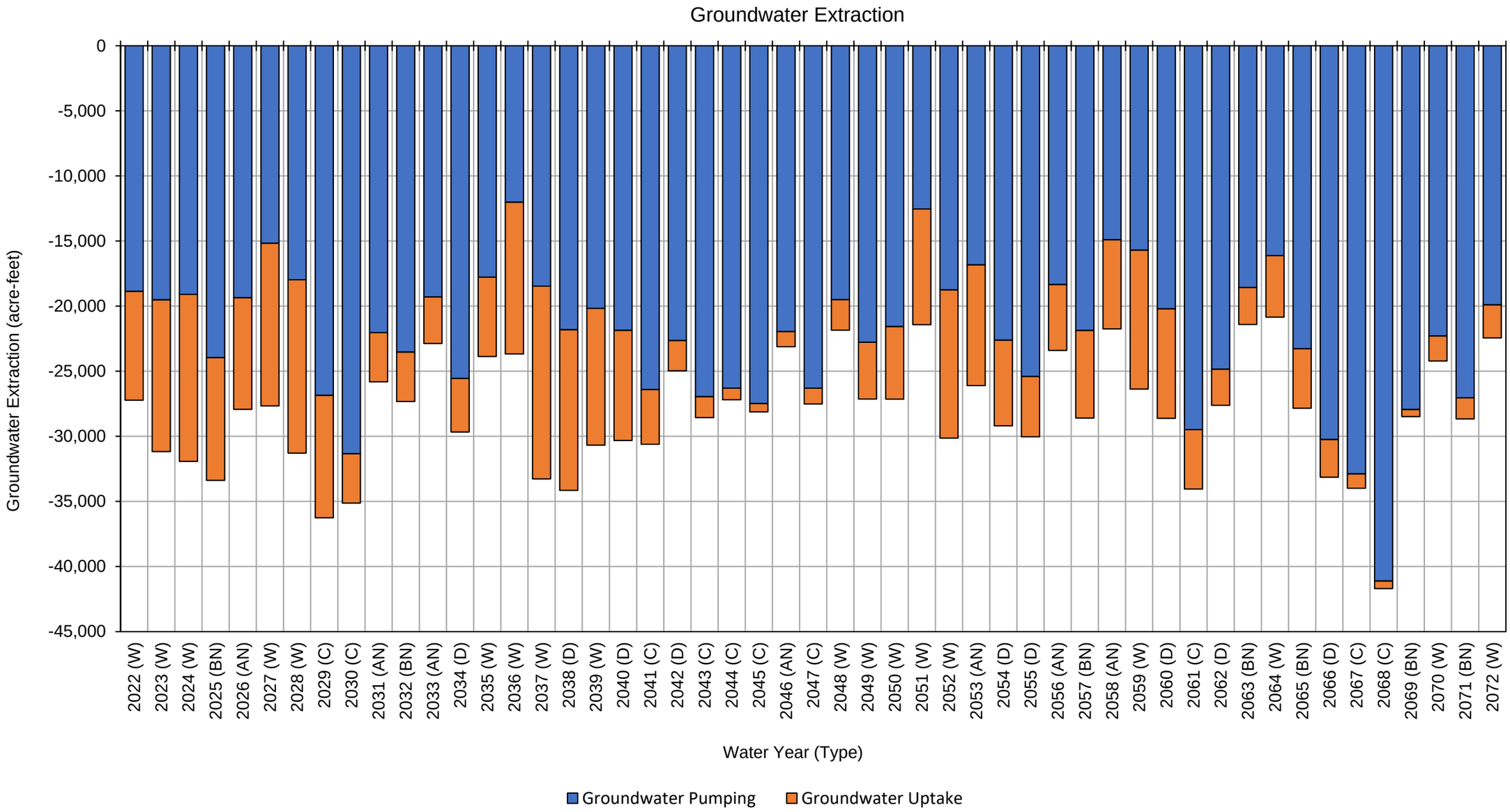
WY (Type)	Deep Percolation from the SWS
2022 (W)	74,000
2023 (W)	65,000
2024 (W)	66,000
2025 (BN)	31,000
2026 (AN)	65,000
2027 (W)	76,000
2028 (W)	49,000
2029 (C)	37,000
2030 (C)	23,000
2031 (AN)	65,000
2032 (BN)	30,000
2033 (AN)	49,000
2034 (D)	46,000
2035 (W)	73,000
2036 (W)	97,000
2037 (W)	67,000
2038 (D)	48,000
2039 (W)	64,000
2040 (D)	38,000
2041 (C)	27,000
2042 (D)	30,000
2043 (C)	34,000
2044 (C)	32,000
2045 (C)	35,000
2046 (AN)	62,000
2047 (C)	33,000
2048 (W)	80,000
2049 (W)	62,000
2050 (W)	52,000
2051 (W)	96,000
2052 (W)	50,000
2053 (AN)	51,000
2054 (D)	37,000
2055 (D)	45,000
2056 (AN)	62,000
2057 (BN)	60,000
2058 (AN)	61,000
2059 (W)	75,000
2060 (D)	32,000
2061 (C)	37,000
2062 (D)	32,000
2063 (BN)	56,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2030) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		61,000
2065 (BN)		31,000
2066 (D)		39,000
2067 (C)		23,000
2068 (C)		37,000
2069 (BN)		46,000
2070 (W)		73,000
2071 (BN)		28,000
2072 (W)		71,000
Average (2022-2072)		51,000
2022-2072	W	69,000
	AN	59,000
	BN	40,000
	D	39,000
	C	32,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2030) Groundwater Extractions (acre-feet, rounded)

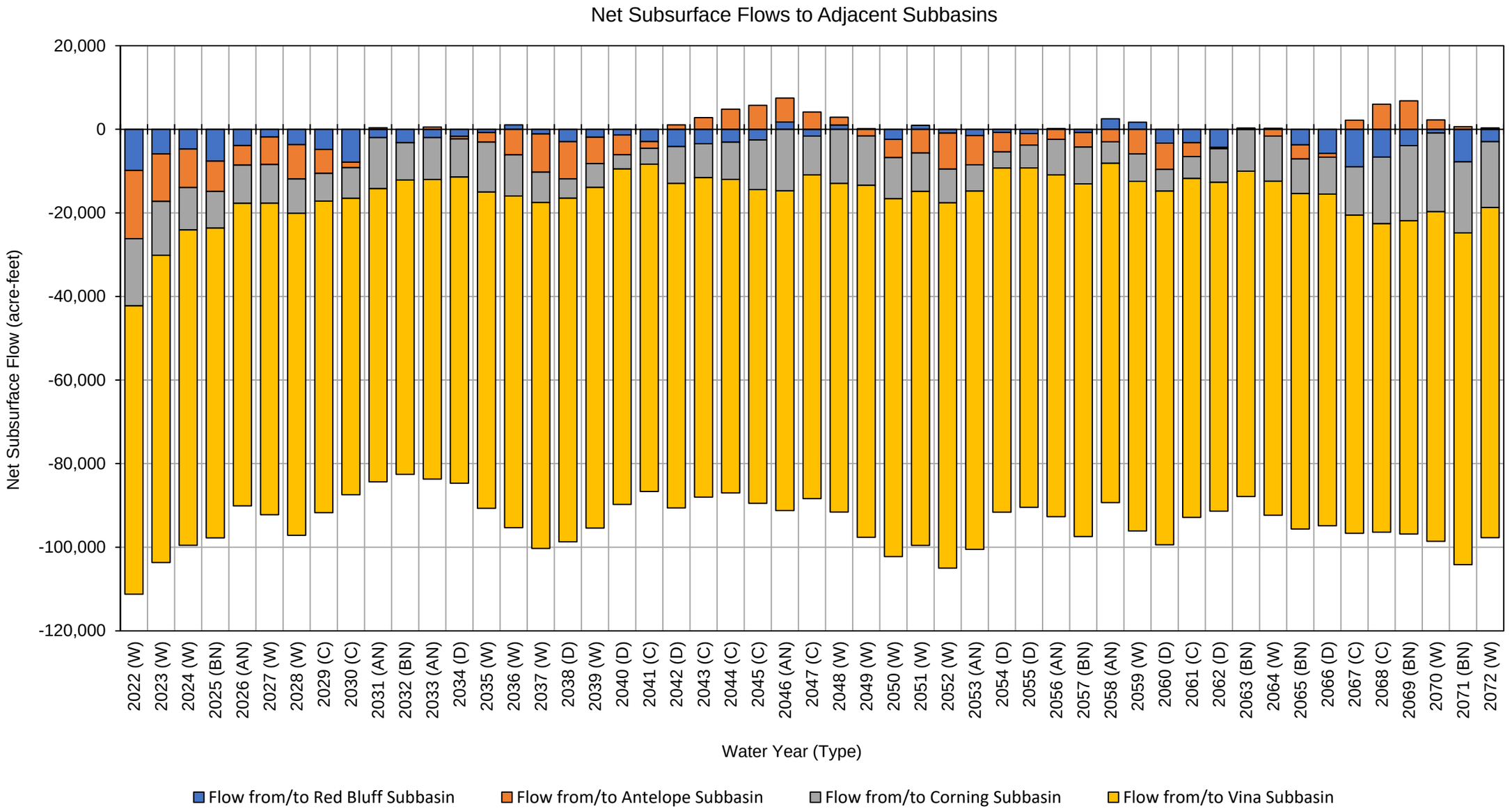
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-19,000	-8,400	-27,000
2023 (W)	-20,000	-12,000	-31,000
2024 (W)	-19,000	-13,000	-32,000
2025 (BN)	-24,000	-9,400	-33,000
2026 (AN)	-19,000	-8,600	-28,000
2027 (W)	-15,000	-12,000	-28,000
2028 (W)	-18,000	-13,000	-31,000
2029 (C)	-27,000	-9,400	-36,000
2030 (C)	-31,000	-3,800	-35,000
2031 (AN)	-22,000	-3,800	-26,000
2032 (BN)	-24,000	-3,800	-27,000
2033 (AN)	-19,000	-3,600	-23,000
2034 (D)	-26,000	-4,100	-30,000
2035 (W)	-18,000	-6,100	-24,000
2036 (W)	-12,000	-12,000	-24,000
2037 (W)	-18,000	-15,000	-33,000
2038 (D)	-22,000	-12,000	-34,000
2039 (W)	-20,000	-11,000	-31,000
2040 (D)	-22,000	-8,500	-30,000
2041 (C)	-26,000	-4,200	-31,000
2042 (D)	-23,000	-2,300	-25,000
2043 (C)	-27,000	-1,600	-29,000
2044 (C)	-26,000	-900	-27,000
2045 (C)	-27,000	-640	-28,000
2046 (AN)	-22,000	-1,200	-23,000
2047 (C)	-26,000	-1,200	-28,000
2048 (W)	-20,000	-2,300	-22,000
2049 (W)	-23,000	-4,400	-27,000
2050 (W)	-22,000	-5,600	-27,000
2051 (W)	-13,000	-8,900	-21,000
2052 (W)	-19,000	-11,000	-30,000
2053 (AN)	-17,000	-9,300	-26,000
2054 (D)	-23,000	-6,600	-29,000
2055 (D)	-25,000	-4,600	-30,000
2056 (AN)	-18,000	-5,100	-23,000
2057 (BN)	-22,000	-6,700	-29,000
2058 (AN)	-15,000	-6,800	-22,000
2059 (W)	-16,000	-11,000	-26,000
2060 (D)	-20,000	-8,400	-29,000
2061 (C)	-29,000	-4,600	-34,000
2062 (D)	-25,000	-2,800	-28,000
2063 (BN)	-19,000	-2,800	-21,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2030) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-16,000	-4,700	-21,000
2065 (BN)		-23,000	-4,600	-28,000
2066 (D)		-30,000	-2,900	-33,000
2067 (C)		-33,000	-1,100	-34,000
2068 (C)		-41,000	-580	-42,000
2069 (BN)		-28,000	-540	-28,000
2070 (W)		-22,000	-1,900	-24,000
2071 (BN)		-27,000	-1,600	-29,000
2072 (W)		-20,000	-2,500	-22,000
Average (2022-2072)		-22,000	-5,900	-28,000
2022-2072	W	-18,000	-8,600	-27,000
	AN	-19,000	-5,500	-24,000
	BN	-24,000	-4,200	-28,000
	D	-24,000	-5,800	-30,000
	C	-30,000	-2,800	-32,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2030) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

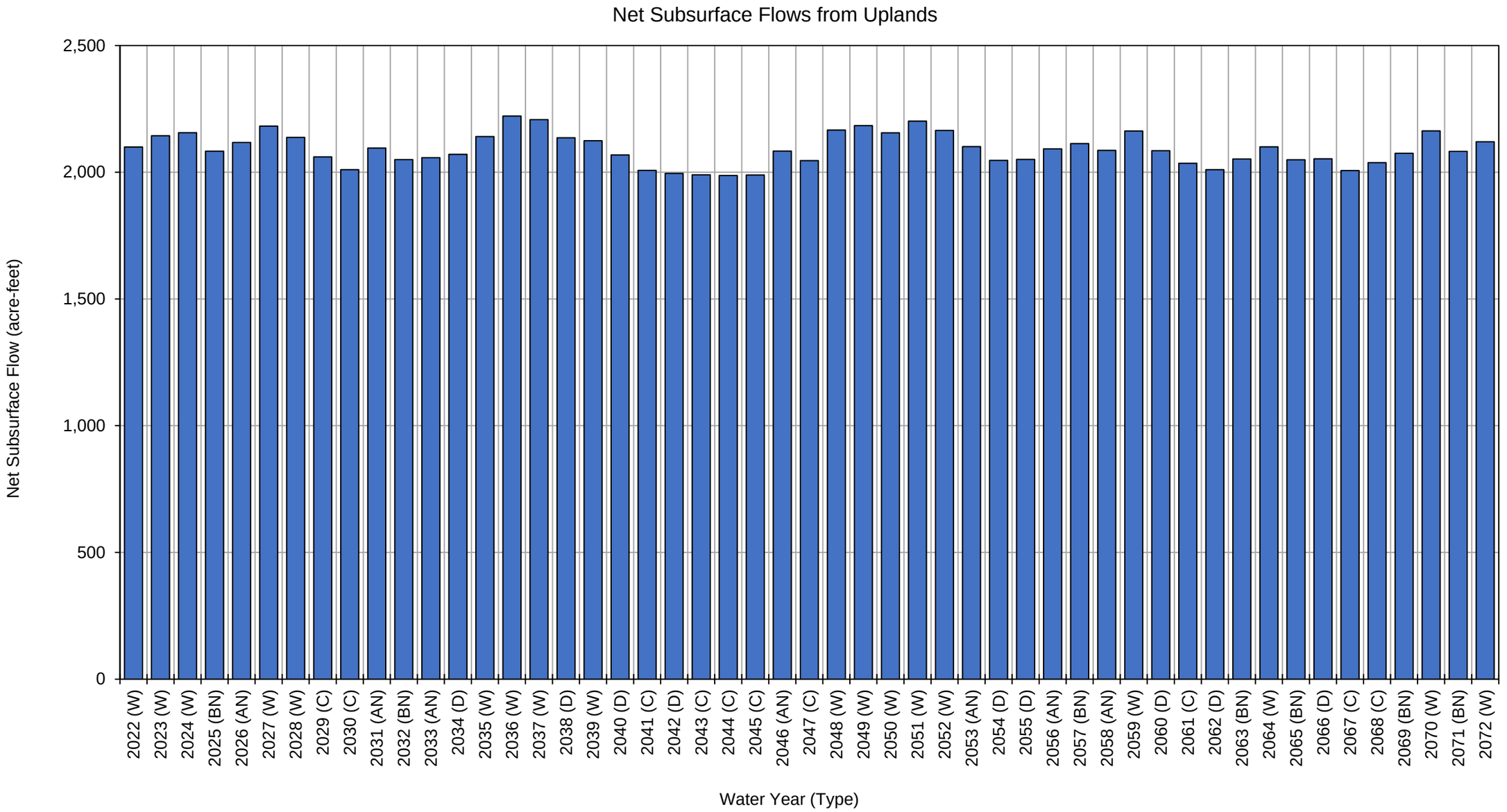
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Antelope Subbasin	Flow from/to Corning Subbasin	Flow from/to Vina Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-9,900	-16,000	-16,000	-69,000	-110,000
2023 (W)	-5,900	-11,000	-13,000	-74,000	-100,000
2024 (W)	-4,700	-9,200	-10,000	-75,000	-100,000
2025 (BN)	-7,600	-7,300	-8,800	-74,000	-98,000
2026 (AN)	-3,900	-4,700	-9,100	-72,000	-90,000
2027 (W)	-1,800	-6,600	-9,300	-75,000	-92,000
2028 (W)	-3,700	-8,200	-8,200	-77,000	-97,000
2029 (C)	-4,800	-5,700	-6,600	-75,000	-92,000
2030 (C)	-7,900	-1,300	-7,300	-71,000	-87,000
2031 (AN)	-2,000	370	-12,000	-70,000	-84,000
2032 (BN)	-3,200	-48	-8,900	-70,000	-83,000
2033 (AN)	-2,000	550	-10,000	-72,000	-83,000
2034 (D)	-1,700	-620	-9,100	-73,000	-85,000
2035 (W)	-780	-2,300	-12,000	-76,000	-91,000
2036 (W)	1,000	-6,100	-9,800	-79,000	-94,000
2037 (W)	-1,100	-9,200	-7,300	-83,000	-100,000
2038 (D)	-3,000	-8,900	-4,700	-82,000	-99,000
2039 (W)	-1,900	-6,300	-5,700	-82,000	-95,000
2040 (D)	-1,400	-4,700	-3,400	-80,000	-90,000
2041 (C)	-3,000	-1,600	-3,800	-78,000	-87,000
2042 (D)	-4,100	1,000	-8,800	-78,000	-90,000
2043 (C)	-3,400	2,800	-8,100	-76,000	-85,000
2044 (C)	-3,100	4,800	-8,900	-75,000	-82,000
2045 (C)	-2,600	5,700	-12,000	-75,000	-84,000
2046 (AN)	1,700	5,700	-15,000	-76,000	-84,000
2047 (C)	-1,600	4,100	-9,300	-77,000	-84,000
2048 (W)	1,000	1,800	-13,000	-79,000	-89,000
2049 (W)	160	-1,600	-12,000	-84,000	-97,000
2050 (W)	-2,400	-4,400	-9,800	-86,000	-100,000
2051 (W)	960	-5,700	-9,200	-85,000	-99,000
2052 (W)	-910	-8,600	-8,100	-87,000	-100,000
2053 (AN)	-1,500	-7,000	-6,300	-86,000	-100,000
2054 (D)	-740	-4,700	-3,900	-82,000	-92,000
2055 (D)	-1,000	-2,800	-5,500	-81,000	-90,000
2056 (AN)	180	-2,400	-8,500	-82,000	-93,000
2057 (BN)	-790	-3,500	-8,800	-84,000	-97,000
2058 (AN)	2,500	-3,000	-5,100	-81,000	-87,000
2059 (W)	1,700	-5,900	-6,600	-84,000	-94,000
2060 (D)	-3,300	-6,300	-5,200	-85,000	-99,000
2061 (C)	-3,200	-3,300	-5,200	-81,000	-93,000
2062 (D)	-4,300	-320	-8,100	-79,000	-91,000
2063 (BN)	-45	310	-10,000	-78,000	-88,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2030) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Antelope Subbasin	Flow from/to Corning Subbasin	Flow from/to Vina Subbasin	Net Subsurface Flow from Adjacent Subbasins
2064 (W)		260	-1,600	-11,000	-80,000	-92,000
2065 (BN)		-3,700	-3,400	-8,300	-80,000	-96,000
2066 (D)		-5,800	-890	-8,800	-79,000	-95,000
2067 (C)		-9,000	2,200	-12,000	-76,000	-95,000
2068 (C)		-6,600	6,000	-16,000	-74,000	-90,000
2069 (BN)		-3,900	6,800	-18,000	-75,000	-90,000
2070 (W)		-890	2,200	-19,000	-79,000	-96,000
2071 (BN)		-7,800	610	-17,000	-79,000	-100,000
2072 (W)		-3,000	320	-16,000	-79,000	-97,000
Average (2022-2072)		-2,600	-2,600	-9,600	-78,000	-93,000
2022-2072	W	-1,800	-5,500	-11,000	-79,000	-98,000
	AN	-710	-1,500	-9,400	-77,000	-89,000
	BN	-3,900	-910	-11,000	-77,000	-94,000
	D	-2,800	-3,100	-6,400	-80,000	-92,000
	C	-4,500	1,400	-8,900	-76,000	-88,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2030) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

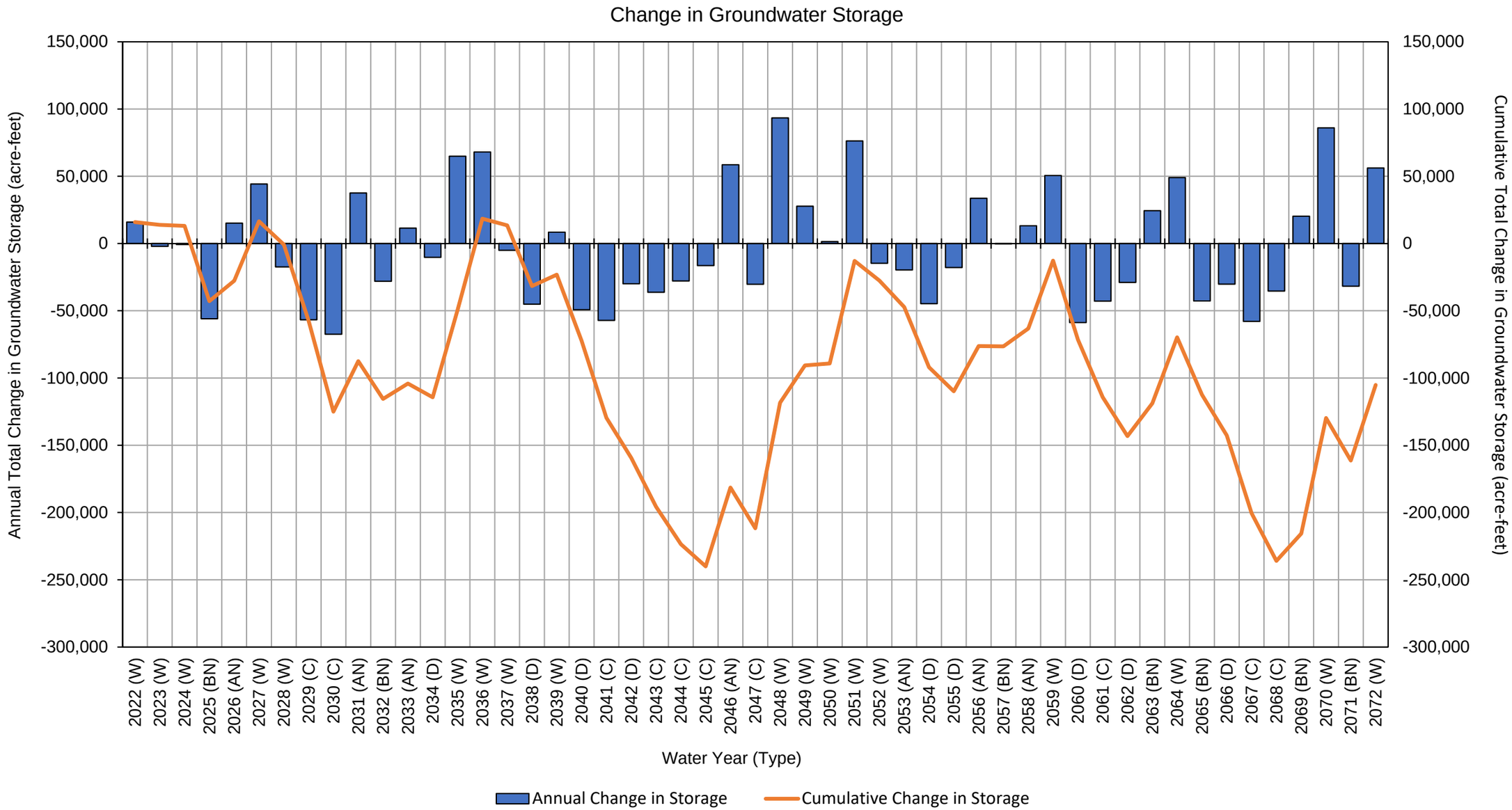
WY (Type)	Subsurface Flows from Uplands
2022 (W)	2,100
2023 (W)	2,100
2024 (W)	2,200
2025 (BN)	2,100
2026 (AN)	2,100
2027 (W)	2,200
2028 (W)	2,100
2029 (C)	2,100
2030 (C)	2,000
2031 (AN)	2,100
2032 (BN)	2,000
2033 (AN)	2,100
2034 (D)	2,100
2035 (W)	2,100
2036 (W)	2,200
2037 (W)	2,200
2038 (D)	2,100
2039 (W)	2,100
2040 (D)	2,100
2041 (C)	2,000
2042 (D)	2,000
2043 (C)	2,000
2044 (C)	2,000
2045 (C)	2,000
2046 (AN)	2,100
2047 (C)	2,000
2048 (W)	2,200
2049 (W)	2,200
2050 (W)	2,200
2051 (W)	2,200
2052 (W)	2,200
2053 (AN)	2,100
2054 (D)	2,000
2055 (D)	2,100
2056 (AN)	2,100
2057 (BN)	2,100
2058 (AN)	2,100
2059 (W)	2,200
2060 (D)	2,100
2061 (C)	2,000
2062 (D)	2,000
2063 (BN)	2,100

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2030) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		2,100
2065 (BN)		2,000
2066 (D)		2,100
2067 (C)		2,000
2068 (C)		2,000
2069 (BN)		2,100
2070 (W)		2,200
2071 (BN)		2,100
2072 (W)		2,100
Average (2022-2072)		2,100
2022-2072	W	2,200
	AN	2,100
	BN	2,100
	D	2,100
	C	2,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2030) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	16,000	16,000
2023 (W)	-2,100	14,000
2024 (W)	-760	13,000
2025 (BN)	-56,000	-43,000
2026 (AN)	15,000	-28,000
2027 (W)	44,000	17,000
2028 (W)	-17,000	-830
2029 (C)	-57,000	-58,000
2030 (C)	-67,000	-130,000
2031 (AN)	38,000	-87,000
2032 (BN)	-28,000	-120,000
2033 (AN)	11,000	-100,000
2034 (D)	-10,000	-110,000
2035 (W)	65,000	-49,000
2036 (W)	68,000	19,000
2037 (W)	-5,100	13,000
2038 (D)	-45,000	-32,000
2039 (W)	8,500	-23,000
2040 (D)	-49,000	-72,000
2041 (C)	-57,000	-130,000
2042 (D)	-30,000	-160,000
2043 (C)	-36,000	-200,000
2044 (C)	-28,000	-220,000
2045 (C)	-16,000	-240,000
2046 (AN)	59,000	-180,000
2047 (C)	-30,000	-210,000
2048 (W)	93,000	-120,000
2049 (W)	28,000	-91,000
2050 (W)	1,400	-89,000
2051 (W)	76,000	-13,000
2052 (W)	-15,000	-28,000
2053 (AN)	-20,000	-47,000
2054 (D)	-45,000	-92,000
2055 (D)	-18,000	-110,000
2056 (AN)	34,000	-76,000
2057 (BN)	-250	-76,000
2058 (AN)	13,000	-63,000
2059 (W)	51,000	-13,000
2060 (D)	-59,000	-71,000
2061 (C)	-43,000	-110,000
2062 (D)	-29,000	-140,000
2063 (BN)	24,000	-120,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2030) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		49,000	-70,000
2065 (BN)		-43,000	-110,000
2066 (D)		-30,000	-140,000
2067 (C)		-58,000	-200,000
2068 (C)		-35,000	-240,000
2069 (BN)		20,000	-220,000
2070 (W)		86,000	-130,000
2071 (BN)		-32,000	-160,000
2072 (W)		56,000	-110,000
Average (2022-2072)		-2,100	
2022-2072	W		
	AN		
	BN		
	D		
	C		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX C-7

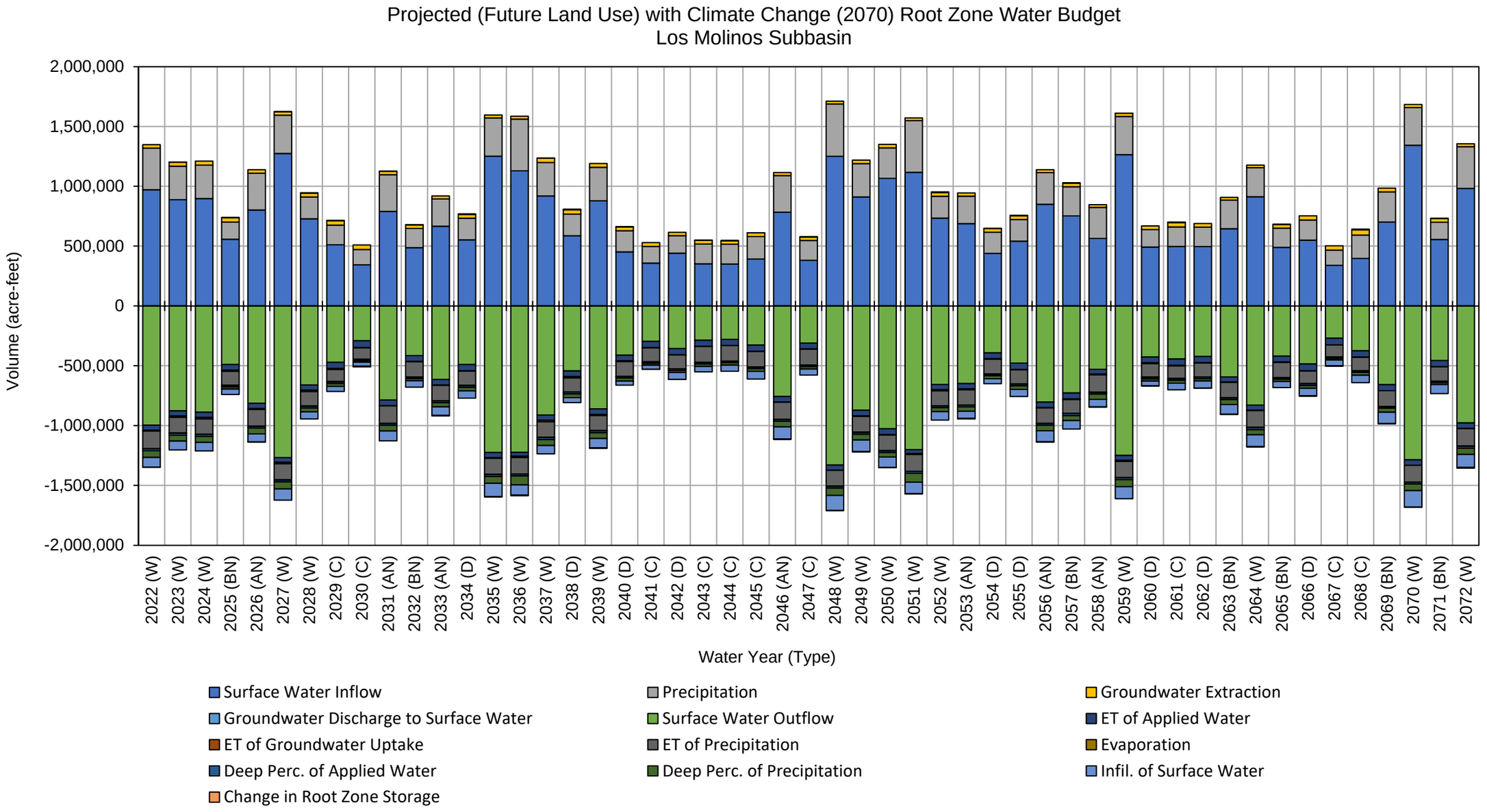
Detailed Los Molinos Subbasin Water Budget Results:

Projected (Future Land Use) with Climate Change (2070) Model Results

APPENDIX C-7a

Detailed Los Molinos Subbasin Water Budget Results:

Projected (Future Land Use) with limate Change (2070) Model Results – Surface Water System


Projected (Future Land Use) with Climate Change (2070) Root Zone Water Budget
Los Molinos Subbasin
Volume (acre-feet)
2,000,000
1,500,000
1,000,000
500,000
0
-500,000
-1,000,000
-1,500,000
-2,000,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Surface Water Inflow
Precipitation
Groundwater Extraction
Groundwater Discharge to Surface Water
Surface Water Outflow
ET of Applied Water
ET of Groundwater Uptake
ET of Precipitation
Evaporation
Deep Perc. of Applied Water
Deep Perc. of Precipitation
Infil. of Surface Water
Change in Root Zone Storage

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Root Zone Water Budget Summary (acre-feet, rounded)

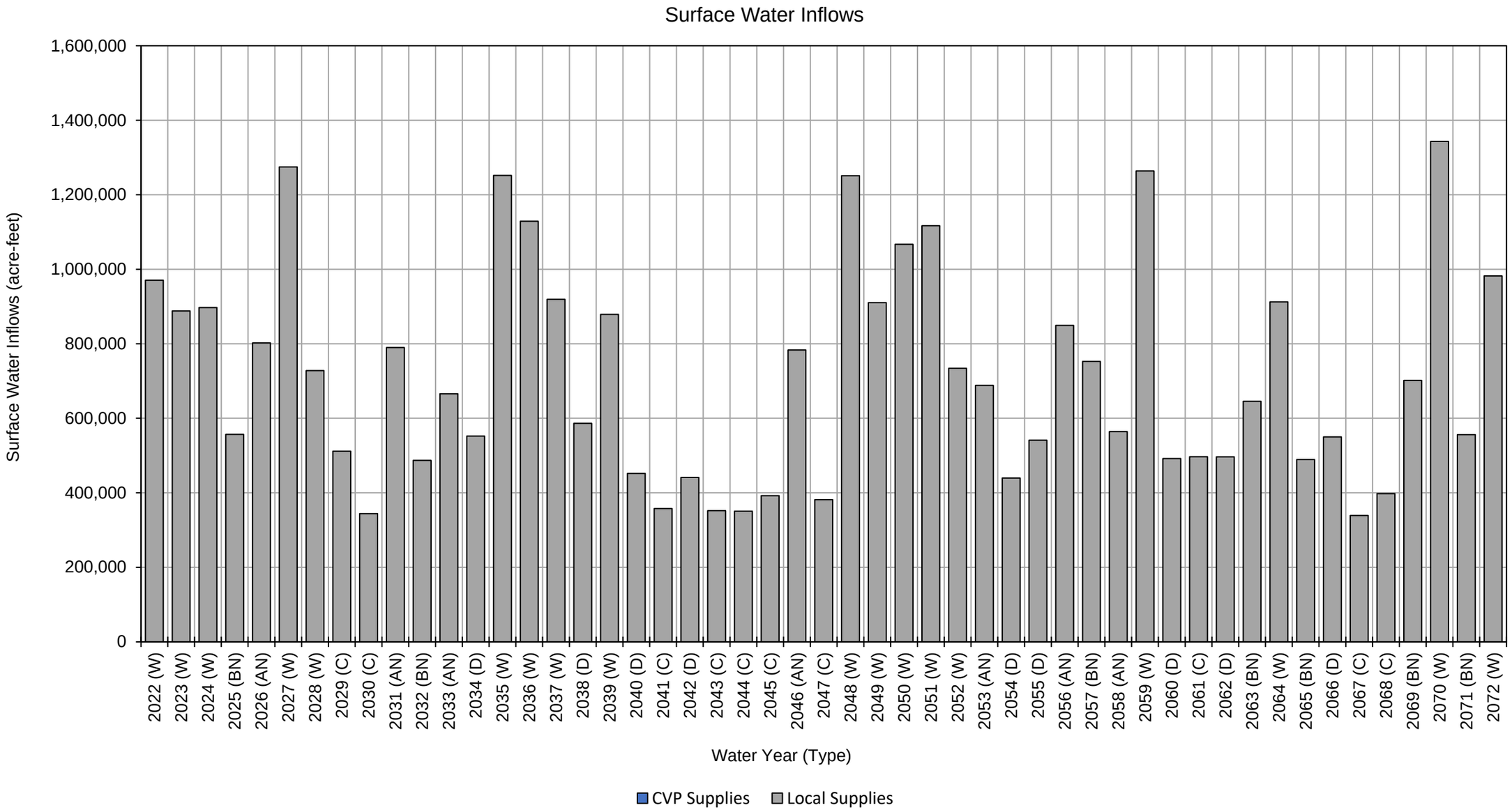
WY (Type)	Inflows				Outflows								Change in Root Zone Storage
	Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2022 (W)	970,000	350,000	28,000	0	1,000,000	43,000	7,500	150,000	2,200	16,000	55,000	82,000	290
2023 (W)	890,000	280,000	34,000	0	880,000	44,000	11,000	130,000	2,500	16,000	49,000	73,000	-1,700
2024 (W)	900,000	280,000	34,000	0	890,000	44,000	13,000	130,000	2,500	16,000	49,000	70,000	150
2025 (BN)	560,000	140,000	35,000	0	490,000	48,000	8,800	120,000	2,700	11,000	17,000	45,000	-3,900
2026 (AN)	800,000	310,000	29,000	0	810,000	45,000	7,400	140,000	2,400	14,000	48,000	67,000	2,400
2027 (W)	1,300,000	320,000	28,000	0	1,300,000	40,000	11,000	130,000	2,100	16,000	59,000	93,000	-410
2028 (W)	730,000	180,000	33,000	0	660,000	43,000	12,000	120,000	2,500	14,000	32,000	60,000	-1,600
2029 (C)	510,000	160,000	38,000	0	470,000	52,000	8,600	100,000	3,000	14,000	24,000	42,000	-1,500
2030 (C)	340,000	130,000	38,000	0	290,000	56,000	3,400	94,000	3,000	10,000	12,000	33,000	6,100
2031 (AN)	790,000	310,000	27,000	0	790,000	46,000	3,200	140,000	2,400	14,000	48,000	81,000	-2,700
2032 (BN)	490,000	160,000	29,000	0	420,000	48,000	3,100	130,000	2,700	10,000	18,000	54,000	-2,400
2033 (AN)	670,000	230,000	25,000	0	610,000	46,000	3,000	130,000	2,400	14,000	35,000	72,000	4,500
2034 (D)	550,000	180,000	32,000	0	490,000	52,000	3,400	120,000	2,800	14,000	30,000	60,000	-5,100
2035 (W)	1,300,000	320,000	25,000	0	1,200,000	43,000	5,100	130,000	2,200	15,000	57,000	110,000	2,300
2036 (W)	1,100,000	430,000	25,000	0	1,200,000	32,000	11,000	140,000	1,700	15,000	74,000	86,000	5,000
2037 (W)	920,000	280,000	35,000	0	910,000	43,000	14,000	130,000	2,500	16,000	50,000	69,000	-2,500
2038 (D)	590,000	180,000	36,000	0	540,000	48,000	11,000	120,000	2,700	14,000	31,000	42,000	-4,600
2039 (W)	880,000	280,000	32,000	0	860,000	46,000	9,300	130,000	2,500	16,000	48,000	78,000	4,200
2040 (D)	450,000	180,000	32,000	0	410,000	46,000	7,400	120,000	2,600	12,000	25,000	35,000	-1,800
2041 (C)	360,000	140,000	32,000	0	300,000	51,000	3,500	120,000	2,700	11,000	16,000	33,000	65
2042 (D)	440,000	150,000	27,000	0	360,000	51,000	1,800	110,000	2,800	13,000	16,000	57,000	1,200
2043 (C)	350,000	170,000	31,000	0	290,000	51,000	1,200	130,000	2,400	12,000	20,000	46,000	-3,000
2044 (C)	350,000	170,000	30,000	0	280,000	51,000	660	130,000	2,400	12,000	20,000	51,000	-11
2045 (C)	390,000	190,000	30,000	0	330,000	53,000	480	130,000	2,400	12,000	23,000	64,000	-140
2046 (AN)	780,000	310,000	25,000	0	760,000	47,000	830	140,000	2,500	14,000	47,000	100,000	2,100
2047 (C)	380,000	170,000	29,000	0	310,000	50,000	820	130,000	2,400	11,000	20,000	51,000	-2,000
2048 (W)	1,300,000	440,000	23,000	0	1,300,000	42,000	1,700	130,000	2,200	16,000	61,000	130,000	2,500
2049 (W)	910,000	280,000	29,000	0	870,000	48,000	3,600	130,000	2,500	15,000	48,000	98,000	870
2050 (W)	1,100,000	250,000	29,000	0	1,000,000	48,000	4,800	130,000	2,700	13,000	38,000	87,000	160
2051 (W)	1,100,000	430,000	22,000	0	1,200,000	33,000	7,400	140,000	1,700	14,000	74,000	96,000	2,500
2052 (W)	730,000	180,000	31,000	0	660,000	44,000	9,200	130,000	2,600	13,000	33,000	70,000	-5,900
2053 (AN)	690,000	230,000	27,000	0	650,000	44,000	7,100	130,000	2,400	14,000	36,000	60,000	4,400
2054 (D)	440,000	180,000	31,000	0	390,000	48,000	5,100	120,000	2,600	12,000	24,000	41,000	-2,900
2055 (D)	540,000	180,000	32,000	0	480,000	53,000	3,700	120,000	2,800	14,000	29,000	60,000	-2,600
2056 (AN)	850,000	260,000	24,000	0	800,000	45,000	4,100	130,000	2,300	14,000	46,000	92,000	3,200
2057 (BN)	750,000	240,000	30,000	0	730,000	50,000	5,700	110,000	2,700	17,000	42,000	71,000	-2,700
2058 (AN)	560,000	260,000	23,000	0	530,000	40,000	5,800	150,000	2,100	13,000	45,000	62,000	3,000
2059 (W)	1,300,000	320,000	27,000	0	1,200,000	41,000	9,500	130,000	2,200	16,000	58,000	100,000	-1,000
2060 (D)	490,000	150,000	30,000	0	430,000	49,000	7,400	110,000	2,800	13,000	17,000	39,000	1,600
2061 (C)	500,000	160,000	36,000	0	440,000	54,000	4,100	100,000	3,000	13,000	23,000	55,000	-4,600
2062 (D)	500,000	160,000	30,000	0	420,000	52,000	2,500	120,000	2,700	12,000	19,000	59,000	1,700
2063 (BN)	650,000	240,000	23,000	0	590,000	43,000	2,500	130,000	2,300	14,000	41,000	82,000	2,100
2064 (W)	910,000	240,000	22,000	0	830,000	42,000	4,100	140,000	2,200	17,000	42,000	100,000	97
2065 (BN)	490,000	160,000	30,000	0	420,000	49,000	4,000	130,000	2,700	11,000	18,000	51,000	-2,900

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Root Zone Water Budget Summary (acre-feet, rounded)

WY (Type)		Inflows				Outflows								Change in Root Zone Storage
		Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2066 (D)		550,000	170,000	36,000	0	490,000	56,000	2,400	100,000	3,000	14,000	23,000	62,000	2,600
2067 (C)		340,000	130,000	36,000	0	270,000	56,000	790	100,000	3,000	10,000	12,000	49,000	2,500
2068 (C)		400,000	190,000	44,000	0	370,000	54,000	430	110,000	2,700	11,000	24,000	62,000	-5,300
2069 (BN)		700,000	250,000	31,000	0	660,000	50,000	400	130,000	2,600	11,000	34,000	95,000	460
2070 (W)		1,300,000	310,000	26,000	0	1,300,000	45,000	1,400	140,000	2,400	14,000	55,000	140,000	2,400
2071 (BN)		560,000	140,000	30,000	0	460,000	52,000	1,100	120,000	2,800	11,000	16,000	75,000	-2,600
2072 (W)		980,000	350,000	24,000	0	980,000	46,000	1,900	150,000	2,300	16,000	52,000	110,000	5,500
Average (2022-2072)		710,000	230,000	30,000	0	670,000	47,000	5,100	130,000	2,500	13,000	36,000	71,000	5
2022-2072	W	1,000,000	310,000	28,000	0	1,000,000	43,000	7,600	130,000	2,300	15,000	52,000	92,000	710
	AN	730,000	270,000	26,000	0	710,000	45,000	4,500	140,000	2,400	14,000	43,000	77,000	2,400
	BN	600,000	190,000	30,000	0	540,000	49,000	3,700	120,000	2,600	12,000	26,000	68,000	-1,700
	D	510,000	170,000	32,000	0	450,000	51,000	4,900	120,000	2,800	13,000	24,000	51,000	-1,100
	C	390,000	160,000	34,000	0	340,000	53,000	2,400	120,000	2,700	12,000	19,000	49,000	-790

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

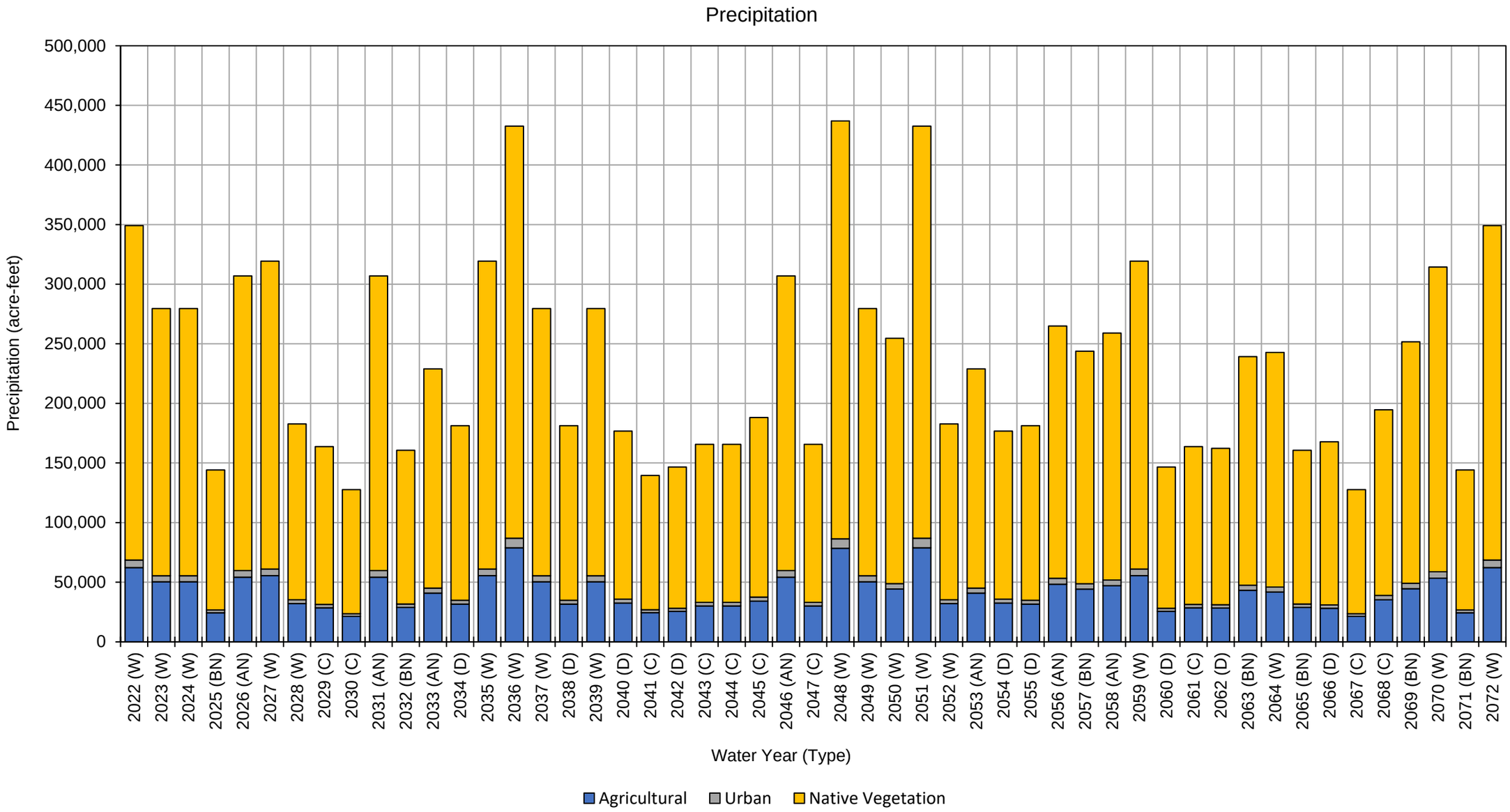
WY (Type)	CVP Supplies	Local Supplies	Total
2022 (W)	0	970,000	970,000
2023 (W)	0	890,000	890,000
2024 (W)	0	900,000	900,000
2025 (BN)	0	560,000	560,000
2026 (AN)	0	800,000	800,000
2027 (W)	0	1,300,000	1,300,000
2028 (W)	0	730,000	730,000
2029 (C)	0	510,000	510,000
2030 (C)	0	340,000	340,000
2031 (AN)	0	790,000	790,000
2032 (BN)	0	490,000	490,000
2033 (AN)	0	670,000	670,000
2034 (D)	0	550,000	550,000
2035 (W)	0	1,300,000	1,300,000
2036 (W)	0	1,100,000	1,100,000
2037 (W)	0	920,000	920,000
2038 (D)	0	590,000	590,000
2039 (W)	0	880,000	880,000
2040 (D)	0	450,000	450,000
2041 (C)	0	360,000	360,000
2042 (D)	0	440,000	440,000
2043 (C)	0	350,000	350,000
2044 (C)	0	350,000	350,000
2045 (C)	0	390,000	390,000
2046 (AN)	0	780,000	780,000
2047 (C)	0	380,000	380,000
2048 (W)	0	1,300,000	1,300,000
2049 (W)	0	910,000	910,000
2050 (W)	0	1,100,000	1,100,000
2051 (W)	0	1,100,000	1,100,000
2052 (W)	0	730,000	730,000
2053 (AN)	0	690,000	690,000
2054 (D)	0	440,000	440,000
2055 (D)	0	540,000	540,000
2056 (AN)	0	850,000	850,000
2057 (BN)	0	750,000	750,000
2058 (AN)	0	560,000	560,000
2059 (W)	0	1,300,000	1,300,000
2060 (D)	0	490,000	490,000
2061 (C)	0	500,000	500,000
2062 (D)	0	500,000	500,000
2063 (BN)	0	650,000	650,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Total
2064 (W)		0	910,000	910,000
2065 (BN)		0	490,000	490,000
2066 (D)		0	550,000	550,000
2067 (C)		0	340,000	340,000
2068 (C)		0	400,000	400,000
2069 (BN)		0	700,000	700,000
2070 (W)		0	1,300,000	1,300,000
2071 (BN)		0	560,000	560,000
2072 (W)		0	980,000	980,000
Average (2022-2072)		0	710,000	710,000
2022-2072	W	0	1,000,000	1,000,000
	AN	0	730,000	730,000
	BN	0	600,000	600,000
	D	0	510,000	510,000
	C	0	390,000	390,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Precipitation, by Water Use Sector (acre-feet, rounded)

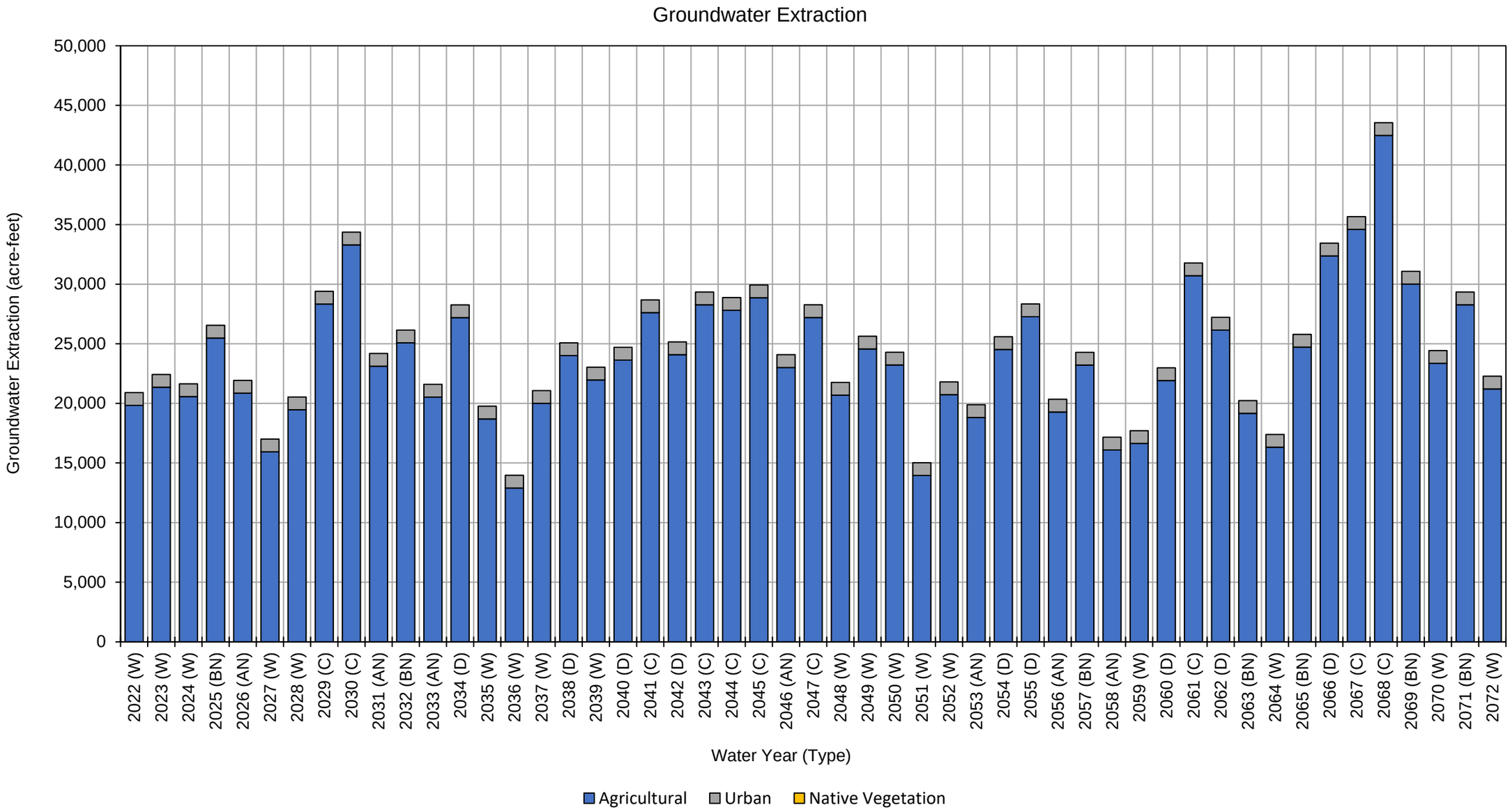
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	62,000	6,300	280,000	350,000
2023 (W)	50,000	5,000	220,000	280,000
2024 (W)	50,000	5,000	220,000	280,000
2025 (BN)	24,000	2,500	120,000	150,000
2026 (AN)	54,000	5,500	250,000	310,000
2027 (W)	56,000	5,600	260,000	320,000
2028 (W)	32,000	3,300	150,000	190,000
2029 (C)	29,000	2,800	130,000	160,000
2030 (C)	21,000	2,200	100,000	120,000
2031 (AN)	54,000	5,500	250,000	310,000
2032 (BN)	29,000	2,900	130,000	160,000
2033 (AN)	41,000	4,200	180,000	230,000
2034 (D)	32,000	3,200	150,000	190,000
2035 (W)	56,000	5,600	260,000	320,000
2036 (W)	79,000	8,000	350,000	440,000
2037 (W)	50,000	5,000	220,000	280,000
2038 (D)	32,000	3,200	150,000	190,000
2039 (W)	50,000	5,000	220,000	280,000
2040 (D)	32,000	3,300	140,000	180,000
2041 (C)	24,000	2,500	110,000	140,000
2042 (D)	25,000	2,600	120,000	150,000
2043 (C)	30,000	3,000	130,000	160,000
2044 (C)	30,000	3,000	130,000	160,000
2045 (C)	34,000	3,400	150,000	190,000
2046 (AN)	54,000	5,500	250,000	310,000
2047 (C)	30,000	3,000	130,000	160,000
2048 (W)	78,000	8,000	350,000	440,000
2049 (W)	50,000	5,000	220,000	280,000
2050 (W)	44,000	4,600	210,000	260,000
2051 (W)	79,000	8,000	350,000	440,000
2052 (W)	32,000	3,300	150,000	190,000
2053 (AN)	41,000	4,200	180,000	230,000
2054 (D)	32,000	3,300	140,000	180,000
2055 (D)	32,000	3,200	150,000	190,000
2056 (AN)	48,000	4,900	210,000	260,000
2057 (BN)	44,000	4,500	200,000	250,000
2058 (AN)	47,000	4,700	210,000	260,000
2059 (W)	56,000	5,600	260,000	320,000
2060 (D)	25,000	2,600	120,000	150,000
2061 (C)	29,000	2,800	130,000	160,000
2062 (D)	28,000	2,800	130,000	160,000
2063 (BN)	43,000	4,300	190,000	240,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		42,000	4,100	200,000	250,000
2065 (BN)		29,000	2,900	130,000	160,000
2066 (D)		28,000	2,800	140,000	170,000
2067 (C)		21,000	2,200	100,000	120,000
2068 (C)		35,000	3,600	160,000	200,000
2069 (BN)		45,000	4,500	200,000	250,000
2070 (W)		53,000	5,400	260,000	320,000
2071 (BN)		24,000	2,500	120,000	150,000
2072 (W)		62,000	6,300	280,000	350,000
Average (2022-2072)		41,000	4,200	190,000	240,000
2022-2072	W	55,000	5,500	250,000	310,000
	AN	49,000	5,000	220,000	270,000
	BN	34,000	3,400	150,000	190,000
	D	30,000	3,000	140,000	170,000
	C	28,000	2,800	130,000	160,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

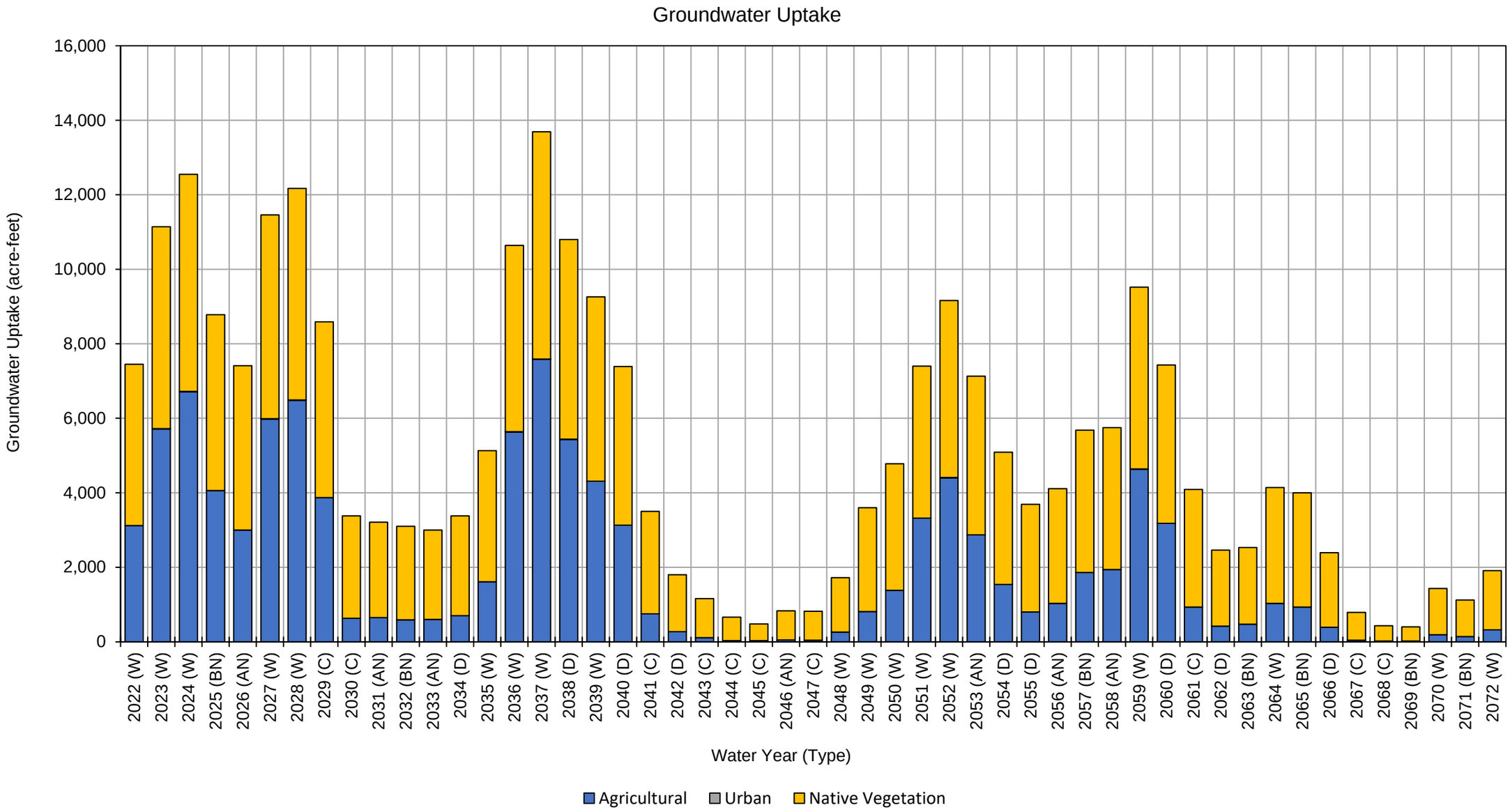
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	20,000	1,100	0	21,000
2023 (W)	21,000	1,100	0	22,000
2024 (W)	21,000	1,100	0	22,000
2025 (BN)	25,000	1,100	0	26,000
2026 (AN)	21,000	1,100	0	22,000
2027 (W)	16,000	1,100	0	17,000
2028 (W)	19,000	1,100	0	20,000
2029 (C)	28,000	1,100	0	29,000
2030 (C)	33,000	1,100	0	34,000
2031 (AN)	23,000	1,100	0	24,000
2032 (BN)	25,000	1,100	0	26,000
2033 (AN)	21,000	1,100	0	22,000
2034 (D)	27,000	1,100	0	28,000
2035 (W)	19,000	1,100	0	20,000
2036 (W)	13,000	1,100	0	14,000
2037 (W)	20,000	1,100	0	21,000
2038 (D)	24,000	1,100	0	25,000
2039 (W)	22,000	1,100	0	23,000
2040 (D)	24,000	1,100	0	25,000
2041 (C)	28,000	1,100	0	29,000
2042 (D)	24,000	1,100	0	25,000
2043 (C)	28,000	1,100	0	29,000
2044 (C)	28,000	1,100	0	29,000
2045 (C)	29,000	1,100	0	30,000
2046 (AN)	23,000	1,100	0	24,000
2047 (C)	27,000	1,100	0	28,000
2048 (W)	21,000	1,100	0	22,000
2049 (W)	25,000	1,100	0	26,000
2050 (W)	23,000	1,100	0	24,000
2051 (W)	14,000	1,100	0	15,000
2052 (W)	21,000	1,100	0	22,000
2053 (AN)	19,000	1,100	0	20,000
2054 (D)	25,000	1,100	0	26,000
2055 (D)	27,000	1,100	0	28,000
2056 (AN)	19,000	1,100	0	20,000
2057 (BN)	23,000	1,100	0	24,000
2058 (AN)	16,000	1,100	0	17,000
2059 (W)	17,000	1,100	0	18,000
2060 (D)	22,000	1,100	0	23,000
2061 (C)	31,000	1,100	0	32,000
2062 (D)	26,000	1,100	0	27,000
2063 (BN)	19,000	1,100	0	20,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		16,000	1,100	0	17,000
2065 (BN)		25,000	1,100	0	26,000
2066 (D)		32,000	1,100	0	33,000
2067 (C)		35,000	1,100	0	36,000
2068 (C)		42,000	1,100	0	43,000
2069 (BN)		30,000	1,100	0	31,000
2070 (W)		23,000	1,100	0	24,000
2071 (BN)		28,000	1,100	0	29,000
2072 (W)		21,000	1,100	0	22,000
Average (2022-2072)		24,000	1,100	0	25,000
2022-2072	W	20,000	1,100	0	21,000
	AN	20,000	1,100	0	21,000
	BN	25,000	1,100	0	26,000
	D	26,000	1,100	0	27,000
	C	31,000	1,100	0	32,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

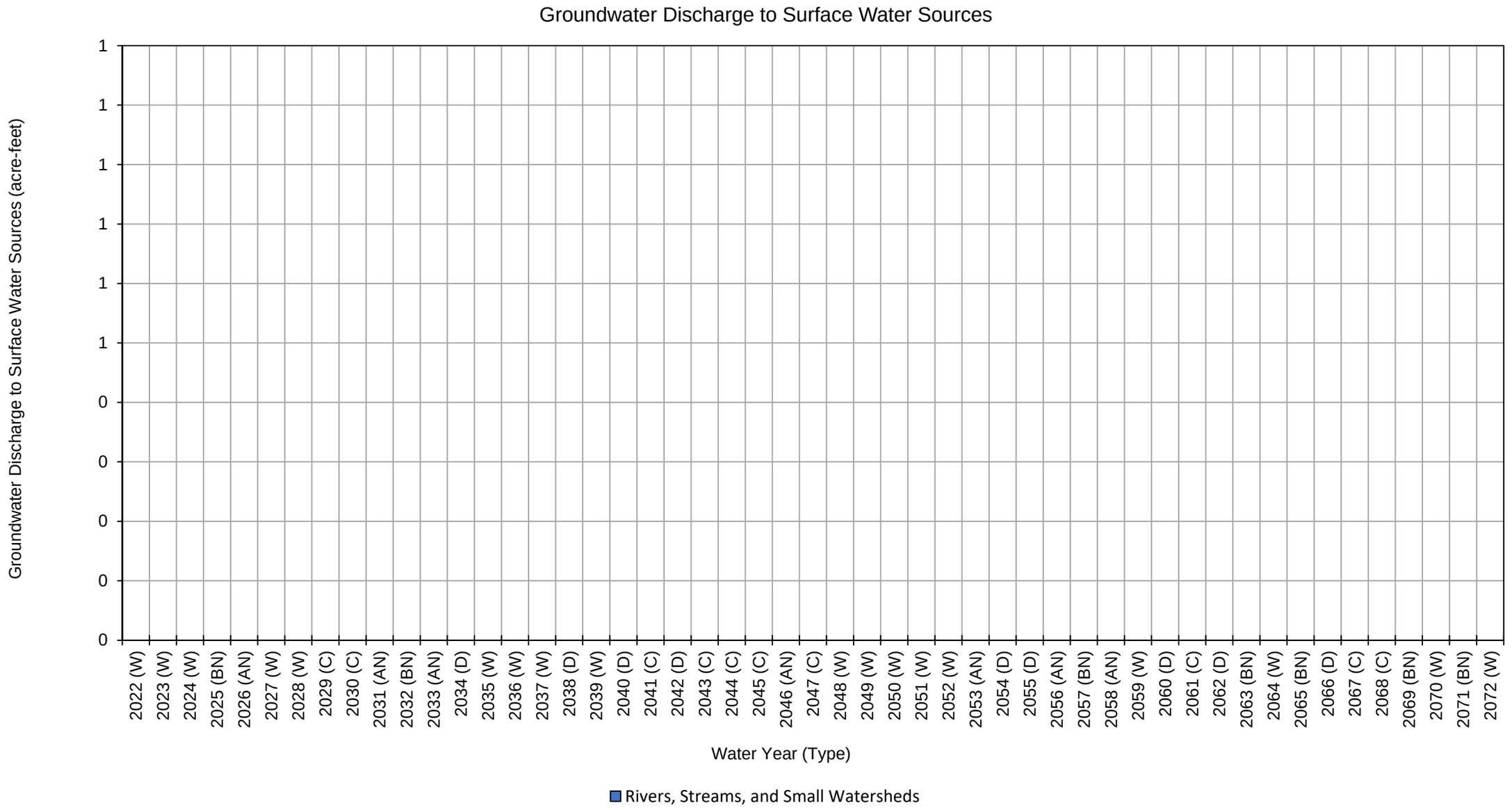
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	3,100	0	4,300	7,400
2023 (W)	5,700	10	5,400	11,000
2024 (W)	6,700	10	5,800	13,000
2025 (BN)	4,100	0	4,700	8,800
2026 (AN)	3,000	0	4,400	7,400
2027 (W)	6,000	10	5,500	12,000
2028 (W)	6,500	10	5,700	12,000
2029 (C)	3,900	0	4,700	8,600
2030 (C)	630	0	2,800	3,400
2031 (AN)	650	0	2,600	3,300
2032 (BN)	590	0	2,500	3,100
2033 (AN)	600	0	2,400	3,000
2034 (D)	700	0	2,700	3,400
2035 (W)	1,600	0	3,500	5,100
2036 (W)	5,600	10	5,000	11,000
2037 (W)	7,600	10	6,100	14,000
2038 (D)	5,400	10	5,400	11,000
2039 (W)	4,300	0	5,000	9,300
2040 (D)	3,100	0	4,300	7,400
2041 (C)	750	0	2,800	3,600
2042 (D)	270	0	1,500	1,800
2043 (C)	110	0	1,100	1,200
2044 (C)	30	0	630	660
2045 (C)	30	0	450	480
2046 (AN)	50	0	780	830
2047 (C)	40	0	780	820
2048 (W)	260	0	1,500	1,800
2049 (W)	810	0	2,800	3,600
2050 (W)	1,400	0	3,400	4,800
2051 (W)	3,300	0	4,100	7,400
2052 (W)	4,400	10	4,800	9,200
2053 (AN)	2,900	0	4,300	7,200
2054 (D)	1,500	0	3,600	5,100
2055 (D)	800	0	2,900	3,700
2056 (AN)	1,000	0	3,100	4,100
2057 (BN)	1,900	0	3,800	5,700
2058 (AN)	1,900	0	3,800	5,700
2059 (W)	4,600	10	4,900	9,500
2060 (D)	3,200	0	4,300	7,500
2061 (C)	930	0	3,200	4,100
2062 (D)	420	0	2,000	2,400
2063 (BN)	470	0	2,100	2,600

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		1,000	0	3,100	4,100
2065 (BN)		930	0	3,100	4,000
2066 (D)		390	0	2,000	2,400
2067 (C)		40	0	750	790
2068 (C)		20	0	410	430
2069 (BN)		20	0	380	400
2070 (W)		190	0	1,200	1,400
2071 (BN)		140	0	980	1,100
2072 (W)		320	0	1,600	1,900
Average (2022-2072)		2,000	2	3,100	5,100
2022-2072	W	3,500	4	4,100	7,600
	AN	1,400	0	3,000	4,400
	BN	1,200	0	2,500	3,700
	D	1,800	1	3,200	5,000
	C	650	0	1,700	2,400

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

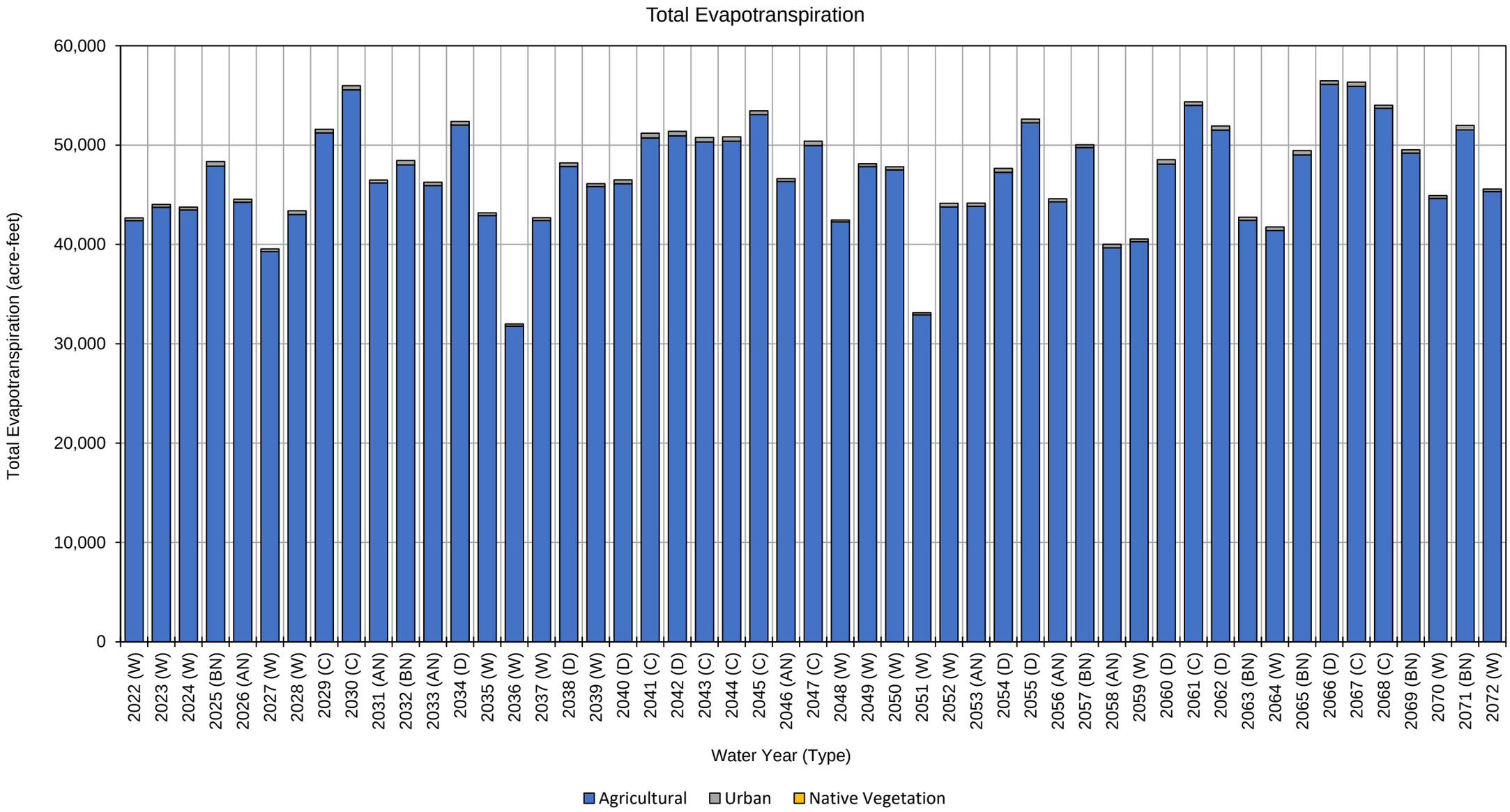
WY (Type)	Rivers, Streams, and Small Watersheds
2022 (W)	0
2023 (W)	0
2024 (W)	0
2025 (BN)	0
2026 (AN)	0
2027 (W)	0
2028 (W)	0
2029 (C)	0
2030 (C)	0
2031 (AN)	0
2032 (BN)	0
2033 (AN)	0
2034 (D)	0
2035 (W)	0
2036 (W)	0
2037 (W)	0
2038 (D)	0
2039 (W)	0
2040 (D)	0
2041 (C)	0
2042 (D)	0
2043 (C)	0
2044 (C)	0
2045 (C)	0
2046 (AN)	0
2047 (C)	0
2048 (W)	0
2049 (W)	0
2050 (W)	0
2051 (W)	0
2052 (W)	0
2053 (AN)	0
2054 (D)	0
2055 (D)	0
2056 (AN)	0
2057 (BN)	0
2058 (AN)	0
2059 (W)	0
2060 (D)	0
2061 (C)	0
2062 (D)	0
2063 (BN)	0

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

WY (Type)		Rivers, Streams, and Small Watersheds
2064 (W)		0
2065 (BN)		0
2066 (D)		0
2067 (C)		0
2068 (C)		0
2069 (BN)		0
2070 (W)		0
2071 (BN)		0
2072 (W)		0
Average (2022-2072)		0
2022-2072	W	0
	AN	0
	BN	0
	D	0
	C	0

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

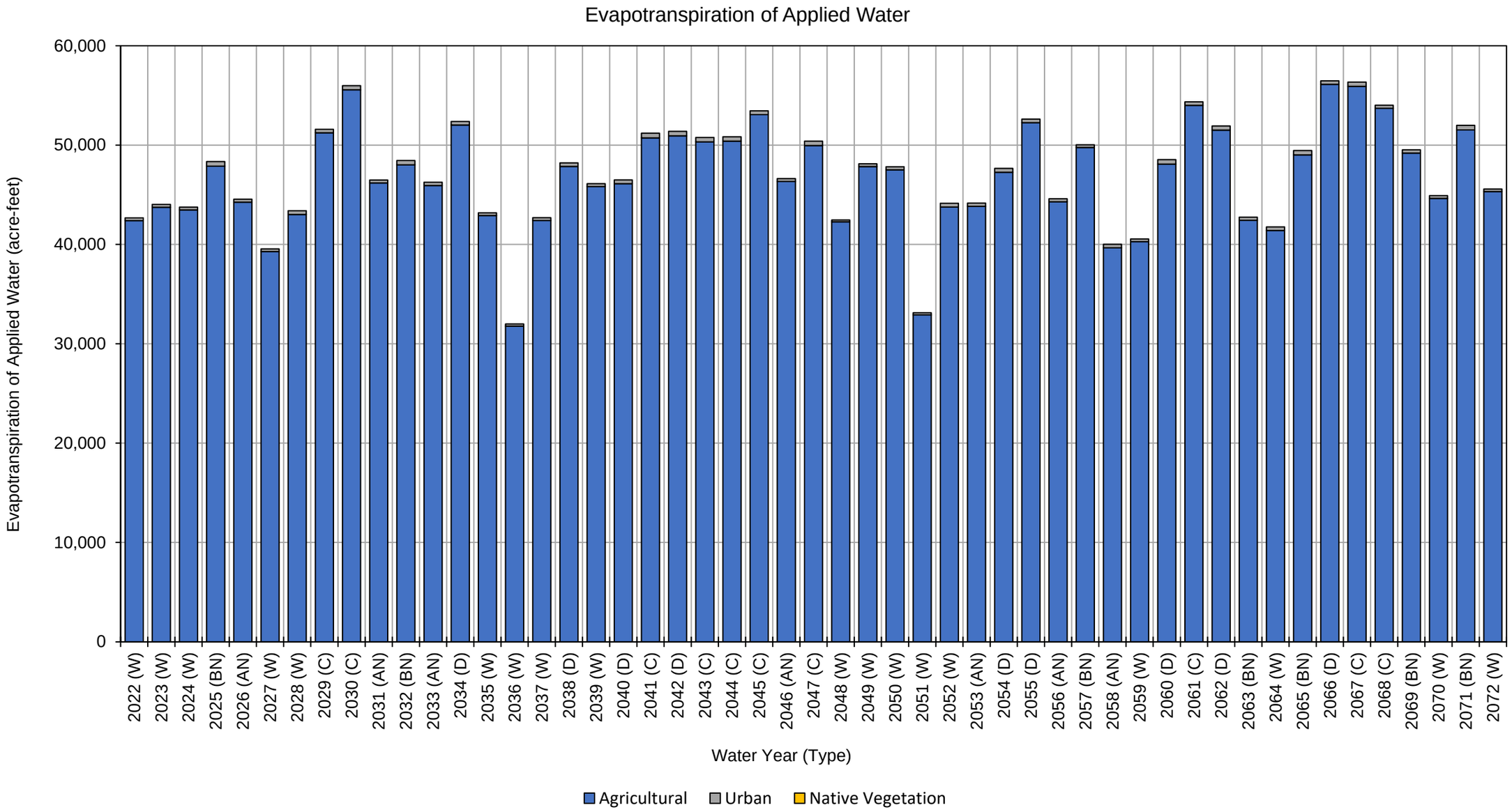
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	68,000	1,900	130,000	200,000
2023 (W)	69,000	1,600	120,000	190,000
2024 (W)	69,000	1,600	110,000	180,000
2025 (BN)	69,000	1,500	100,000	170,000
2026 (AN)	69,000	1,800	120,000	190,000
2027 (W)	66,000	1,700	120,000	190,000
2028 (W)	68,000	1,600	110,000	180,000
2029 (C)	70,000	1,300	89,000	160,000
2030 (C)	70,000	1,300	82,000	150,000
2031 (AN)	69,000	1,800	120,000	190,000
2032 (BN)	69,000	1,600	110,000	180,000
2033 (AN)	66,000	1,700	110,000	180,000
2034 (D)	70,000	1,400	100,000	170,000
2035 (W)	66,000	1,700	120,000	190,000
2036 (W)	59,000	1,800	120,000	180,000
2037 (W)	69,000	1,600	120,000	190,000
2038 (D)	70,000	1,400	100,000	170,000
2039 (W)	69,000	1,600	110,000	180,000
2040 (D)	68,000	1,600	110,000	180,000
2041 (C)	69,000	1,600	100,000	170,000
2042 (D)	68,000	1,500	98,000	170,000
2043 (C)	71,000	1,700	110,000	180,000
2044 (C)	71,000	1,700	110,000	180,000
2045 (C)	73,000	1,600	110,000	180,000
2046 (AN)	69,000	1,800	120,000	190,000
2047 (C)	71,000	1,700	110,000	180,000
2048 (W)	63,000	1,600	110,000	170,000
2049 (W)	69,000	1,600	110,000	180,000
2050 (W)	70,000	1,600	110,000	180,000
2051 (W)	59,000	1,800	120,000	180,000
2052 (W)	68,000	1,600	110,000	180,000
2053 (AN)	66,000	1,700	110,000	180,000
2054 (D)	68,000	1,600	110,000	180,000
2055 (D)	70,000	1,400	100,000	170,000
2056 (AN)	66,000	1,600	110,000	180,000
2057 (BN)	69,000	1,400	99,000	170,000
2058 (AN)	65,000	1,900	130,000	200,000
2059 (W)	66,000	1,700	120,000	190,000
2060 (D)	68,000	1,500	98,000	170,000
2061 (C)	70,000	1,300	91,000	160,000
2062 (D)	69,000	1,500	100,000	170,000
2063 (BN)	63,000	1,600	110,000	170,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		63,000	1,800	120,000	180,000
2065 (BN)		70,000	1,600	110,000	180,000
2066 (D)		71,000	1,300	91,000	160,000
2067 (C)		70,000	1,300	85,000	160,000
2068 (C)		70,000	1,300	95,000	170,000
2069 (BN)		70,000	1,600	110,000	180,000
2070 (W)		67,000	1,700	120,000	190,000
2071 (BN)		69,000	1,500	100,000	170,000
2072 (W)		68,000	1,800	120,000	190,000
Average (2022-2072)		68,000	1,600	110,000	180,000
2022-2072	W	66,000	1,700	120,000	190,000
	AN	67,000	1,700	120,000	190,000
	BN	69,000	1,600	110,000	180,000
	D	69,000	1,500	100,000	170,000
	C	71,000	1,500	98,000	170,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

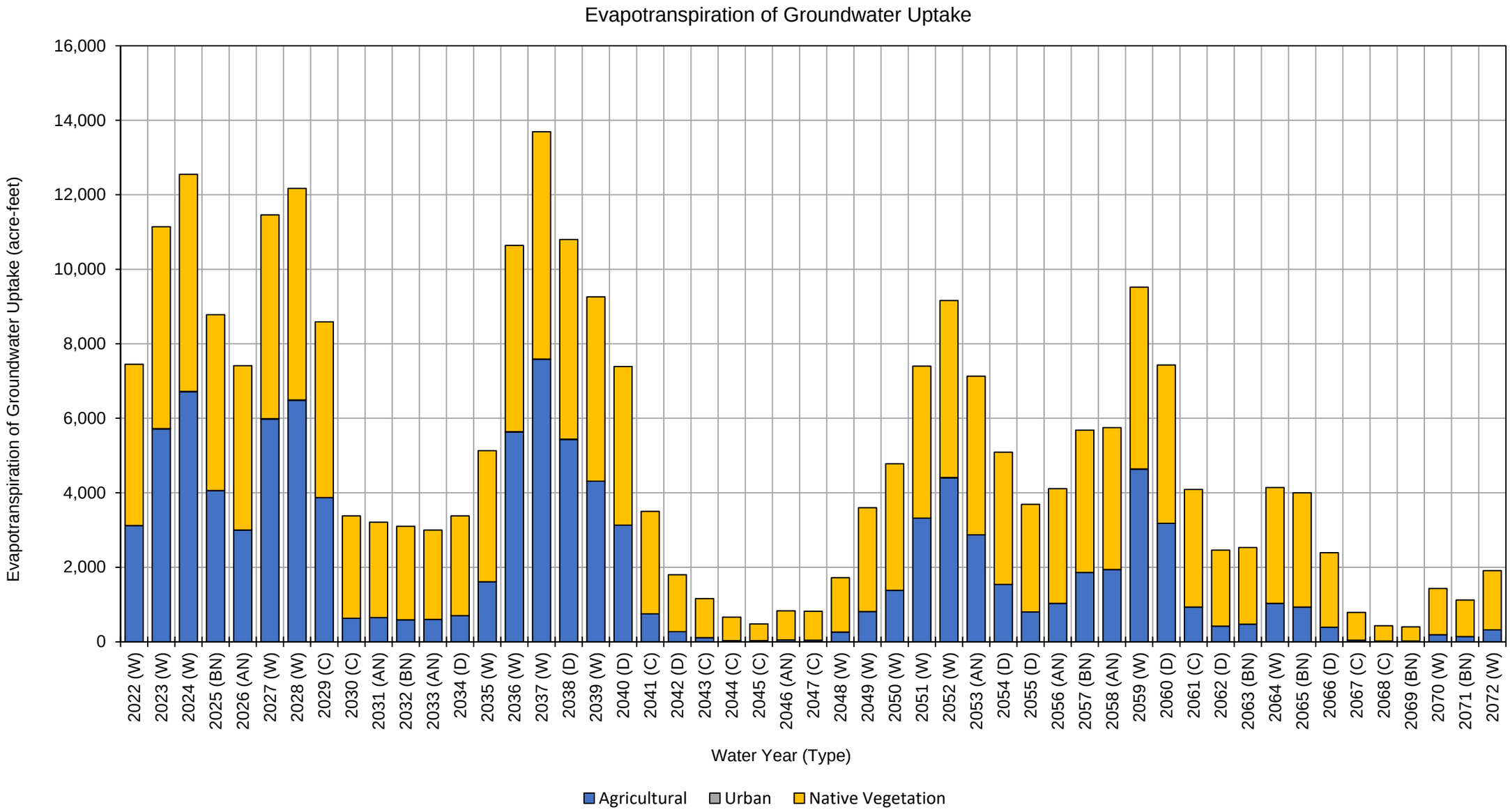
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	42,000	270	0	42,000
2023 (W)	44,000	290	0	44,000
2024 (W)	43,000	280	0	43,000
2025 (BN)	48,000	460	0	48,000
2026 (AN)	44,000	290	0	44,000
2027 (W)	39,000	270	0	39,000
2028 (W)	43,000	380	0	43,000
2029 (C)	51,000	350	0	51,000
2030 (C)	56,000	420	0	56,000
2031 (AN)	46,000	290	0	46,000
2032 (BN)	48,000	440	0	48,000
2033 (AN)	46,000	330	0	46,000
2034 (D)	52,000	360	0	52,000
2035 (W)	43,000	270	0	43,000
2036 (W)	32,000	210	0	32,000
2037 (W)	42,000	280	0	42,000
2038 (D)	48,000	360	0	48,000
2039 (W)	46,000	280	0	46,000
2040 (D)	46,000	380	0	46,000
2041 (C)	51,000	470	0	51,000
2042 (D)	51,000	450	0	51,000
2043 (C)	50,000	450	0	50,000
2044 (C)	50,000	440	0	50,000
2045 (C)	53,000	380	0	53,000
2046 (AN)	46,000	290	0	46,000
2047 (C)	50,000	440	0	50,000
2048 (W)	42,000	190	0	42,000
2049 (W)	48,000	280	0	48,000
2050 (W)	48,000	310	0	48,000
2051 (W)	33,000	210	0	33,000
2052 (W)	44,000	380	0	44,000
2053 (AN)	44,000	330	0	44,000
2054 (D)	47,000	390	0	47,000
2055 (D)	52,000	360	0	52,000
2056 (AN)	44,000	290	0	44,000
2057 (BN)	50,000	270	0	50,000
2058 (AN)	40,000	350	0	40,000
2059 (W)	40,000	270	0	40,000
2060 (D)	48,000	450	0	48,000
2061 (C)	54,000	350	0	54,000
2062 (D)	52,000	420	0	52,000
2063 (BN)	42,000	320	0	42,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		41,000	360	0	41,000
2065 (BN)		49,000	440	0	49,000
2066 (D)		56,000	350	0	56,000
2067 (C)		56,000	430	0	56,000
2068 (C)		54,000	310	0	54,000
2069 (BN)		49,000	320	0	49,000
2070 (W)		45,000	270	0	45,000
2071 (BN)		52,000	460	0	52,000
2072 (W)		45,000	260	0	45,000
Average (2022-2072)		47,000	340	0	47,000
2022-2072	W	42,000	280	0	42,000
	AN	44,000	310	0	44,000
	BN	48,000	390	0	48,000
	D	50,000	390	0	50,000
	C	52,000	400	0	52,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

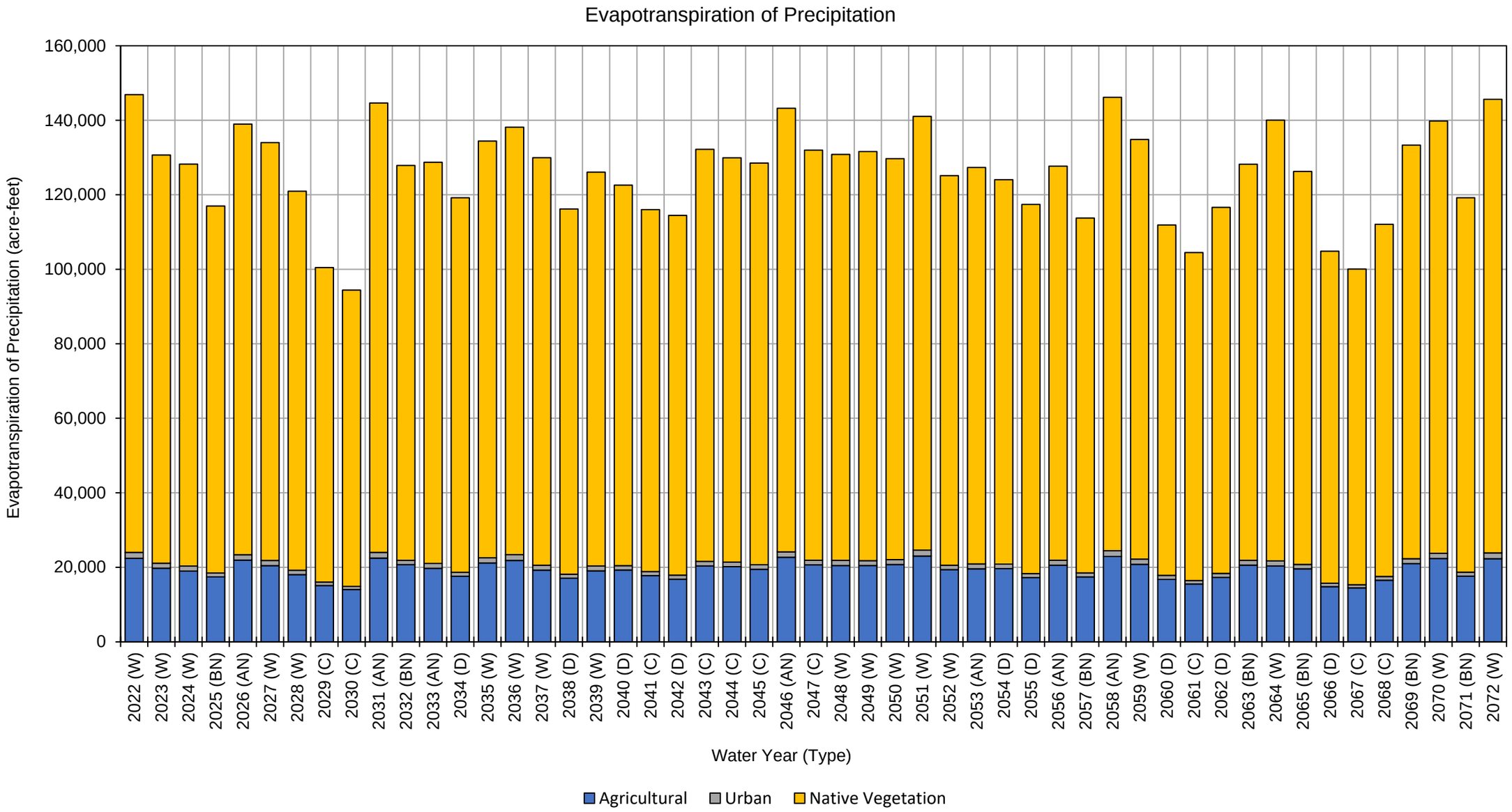
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	3,100	0	4,300	7,400
2023 (W)	5,700	10	5,400	11,000
2024 (W)	6,700	10	5,800	13,000
2025 (BN)	4,100	0	4,700	8,800
2026 (AN)	3,000	0	4,400	7,400
2027 (W)	6,000	10	5,500	12,000
2028 (W)	6,500	10	5,700	12,000
2029 (C)	3,900	0	4,700	8,600
2030 (C)	630	0	2,800	3,400
2031 (AN)	650	0	2,600	3,300
2032 (BN)	590	0	2,500	3,100
2033 (AN)	600	0	2,400	3,000
2034 (D)	700	0	2,700	3,400
2035 (W)	1,600	0	3,500	5,100
2036 (W)	5,600	10	5,000	11,000
2037 (W)	7,600	10	6,100	14,000
2038 (D)	5,400	10	5,400	11,000
2039 (W)	4,300	0	5,000	9,300
2040 (D)	3,100	0	4,300	7,400
2041 (C)	750	0	2,800	3,600
2042 (D)	270	0	1,500	1,800
2043 (C)	110	0	1,100	1,200
2044 (C)	30	0	630	660
2045 (C)	30	0	450	480
2046 (AN)	50	0	780	830
2047 (C)	40	0	780	820
2048 (W)	260	0	1,500	1,800
2049 (W)	810	0	2,800	3,600
2050 (W)	1,400	0	3,400	4,800
2051 (W)	3,300	0	4,100	7,400
2052 (W)	4,400	10	4,800	9,200
2053 (AN)	2,900	0	4,300	7,200
2054 (D)	1,500	0	3,600	5,100
2055 (D)	800	0	2,900	3,700
2056 (AN)	1,000	0	3,100	4,100
2057 (BN)	1,900	0	3,800	5,700
2058 (AN)	1,900	0	3,800	5,700
2059 (W)	4,600	10	4,900	9,500
2060 (D)	3,200	0	4,300	7,500
2061 (C)	930	0	3,200	4,100
2062 (D)	420	0	2,000	2,400
2063 (BN)	470	0	2,100	2,600

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		1,000	0	3,100	4,100
2065 (BN)		930	0	3,100	4,000
2066 (D)		390	0	2,000	2,400
2067 (C)		40	0	750	790
2068 (C)		20	0	410	430
2069 (BN)		20	0	380	400
2070 (W)		190	0	1,200	1,400
2071 (BN)		140	0	980	1,100
2072 (W)		320	0	1,600	1,900
Average (2022-2072)		2,000	2	3,100	5,100
2022-2072	W	3,500	4	4,100	7,600
	AN	1,400	0	3,000	4,400
	BN	1,200	0	2,500	3,700
	D	1,800	1	3,200	5,000
	C	650	0	1,700	2,400

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

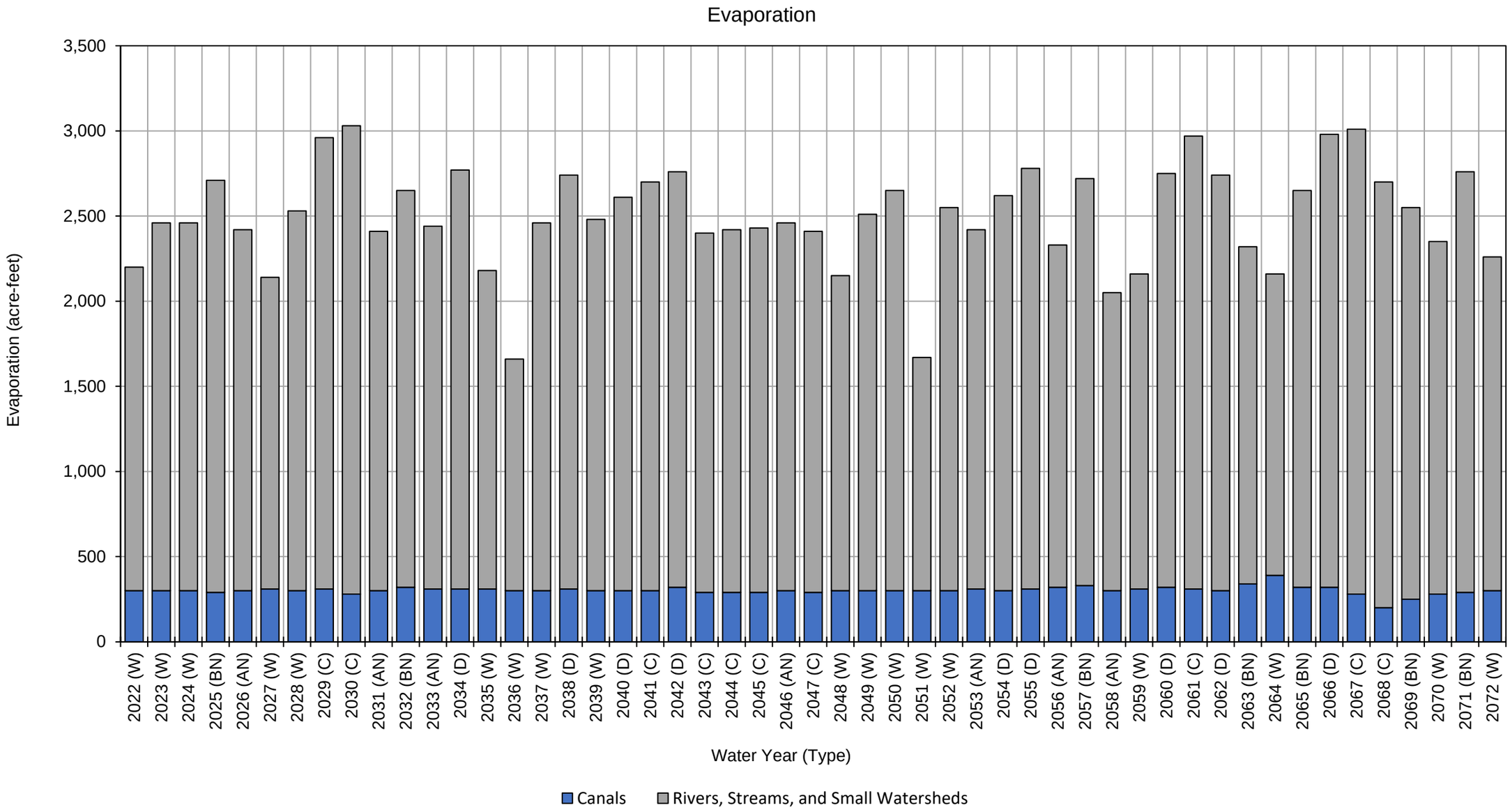
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	22,000	1,600	120,000	140,000
2023 (W)	20,000	1,300	110,000	130,000
2024 (W)	19,000	1,300	110,000	130,000
2025 (BN)	17,000	1,000	99,000	120,000
2026 (AN)	22,000	1,500	120,000	140,000
2027 (W)	20,000	1,400	110,000	130,000
2028 (W)	18,000	1,200	100,000	120,000
2029 (C)	15,000	920	84,000	100,000
2030 (C)	14,000	850	80,000	95,000
2031 (AN)	22,000	1,500	120,000	140,000
2032 (BN)	21,000	1,200	110,000	130,000
2033 (AN)	20,000	1,300	110,000	130,000
2034 (D)	18,000	1,100	100,000	120,000
2035 (W)	21,000	1,400	110,000	130,000
2036 (W)	22,000	1,600	110,000	130,000
2037 (W)	19,000	1,300	110,000	130,000
2038 (D)	17,000	1,100	98,000	120,000
2039 (W)	19,000	1,300	110,000	130,000
2040 (D)	19,000	1,200	100,000	120,000
2041 (C)	18,000	1,100	97,000	120,000
2042 (D)	17,000	1,100	97,000	120,000
2043 (C)	20,000	1,300	110,000	130,000
2044 (C)	20,000	1,200	110,000	130,000
2045 (C)	19,000	1,200	110,000	130,000
2046 (AN)	23,000	1,500	120,000	140,000
2047 (C)	21,000	1,200	110,000	130,000
2048 (W)	20,000	1,400	110,000	130,000
2049 (W)	20,000	1,300	110,000	130,000
2050 (W)	21,000	1,300	110,000	130,000
2051 (W)	23,000	1,600	120,000	140,000
2052 (W)	19,000	1,200	100,000	120,000
2053 (AN)	20,000	1,300	110,000	130,000
2054 (D)	20,000	1,200	100,000	120,000
2055 (D)	17,000	1,100	99,000	120,000
2056 (AN)	21,000	1,300	110,000	130,000
2057 (BN)	17,000	1,100	95,000	110,000
2058 (AN)	23,000	1,500	120,000	140,000
2059 (W)	21,000	1,400	110,000	130,000
2060 (D)	17,000	1,100	94,000	110,000
2061 (C)	16,000	940	88,000	100,000
2062 (D)	17,000	1,100	98,000	120,000
2063 (BN)	21,000	1,300	110,000	130,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		20,000	1,400	120,000	140,000
2065 (BN)		20,000	1,200	110,000	130,000
2066 (D)		15,000	930	89,000	100,000
2067 (C)		14,000	870	85,000	100,000
2068 (C)		17,000	1,000	95,000	110,000
2069 (BN)		21,000	1,300	110,000	130,000
2070 (W)		22,000	1,400	120,000	140,000
2071 (BN)		18,000	1,100	100,000	120,000
2072 (W)		22,000	1,600	120,000	140,000
Average (2022-2072)		19,000	1,200	110,000	130,000
2022-2072	W	21,000	1,400	110,000	130,000
	AN	21,000	1,400	110,000	130,000
	BN	19,000	1,200	100,000	120,000
	D	17,000	1,100	98,000	120,000
	C	17,000	1,100	97,000	120,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Evaporation (acre-feet, rounded)

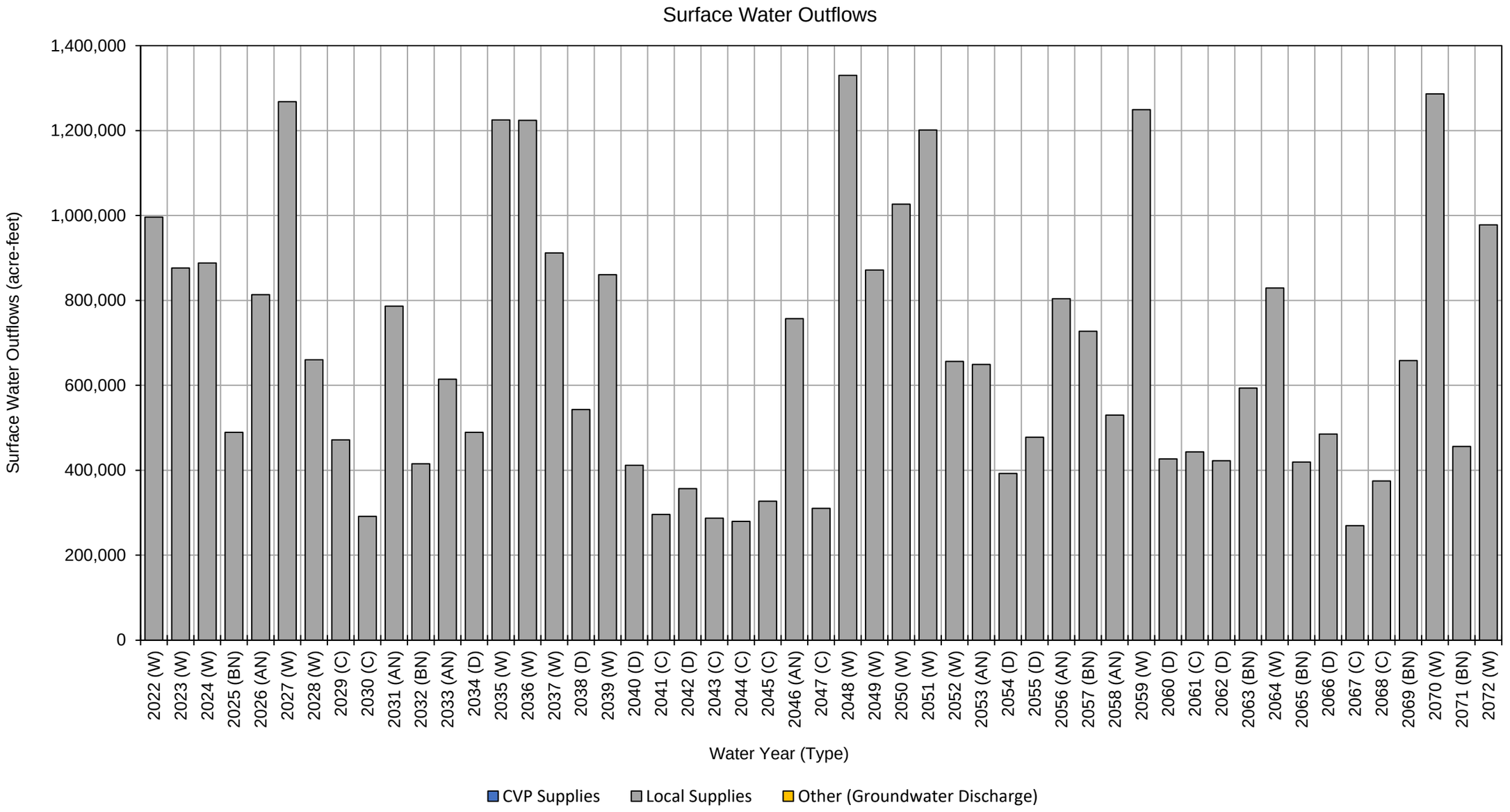
WY (Type)	Canals	Rivers, Streams, and Small Watersheds	Total
2022 (W)	300	1,900	2,200
2023 (W)	300	2,200	2,500
2024 (W)	300	2,200	2,500
2025 (BN)	290	2,400	2,700
2026 (AN)	300	2,100	2,400
2027 (W)	310	1,800	2,100
2028 (W)	300	2,200	2,500
2029 (C)	310	2,700	3,000
2030 (C)	280	2,800	3,100
2031 (AN)	300	2,100	2,400
2032 (BN)	320	2,300	2,600
2033 (AN)	310	2,100	2,400
2034 (D)	310	2,500	2,800
2035 (W)	310	1,900	2,200
2036 (W)	300	1,400	1,700
2037 (W)	300	2,200	2,500
2038 (D)	310	2,400	2,700
2039 (W)	300	2,200	2,500
2040 (D)	300	2,300	2,600
2041 (C)	300	2,400	2,700
2042 (D)	320	2,400	2,700
2043 (C)	290	2,100	2,400
2044 (C)	290	2,100	2,400
2045 (C)	290	2,100	2,400
2046 (AN)	300	2,200	2,500
2047 (C)	290	2,100	2,400
2048 (W)	300	1,900	2,200
2049 (W)	300	2,200	2,500
2050 (W)	300	2,400	2,700
2051 (W)	300	1,400	1,700
2052 (W)	300	2,300	2,600
2053 (AN)	310	2,100	2,400
2054 (D)	300	2,300	2,600
2055 (D)	310	2,500	2,800
2056 (AN)	320	2,000	2,300
2057 (BN)	330	2,400	2,700
2058 (AN)	300	1,800	2,100
2059 (W)	310	1,900	2,200
2060 (D)	320	2,400	2,700
2061 (C)	310	2,700	3,000
2062 (D)	300	2,400	2,700
2063 (BN)	340	2,000	2,300

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Evaporation (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Watersheds	Total
2064 (W)		390	1,800	2,200
2065 (BN)		320	2,300	2,600
2066 (D)		320	2,700	3,000
2067 (C)		280	2,700	3,000
2068 (C)		200	2,500	2,700
2069 (BN)		250	2,300	2,600
2070 (W)		280	2,100	2,400
2071 (BN)		290	2,500	2,800
2072 (W)		300	2,000	2,300
Average (2022-2072)		300	2,200	2,500
2022-2072	W	310	2,000	2,300
	AN	310	2,100	2,400
	BN	310	2,300	2,600
	D	310	2,400	2,700
	C	280	2,400	2,700

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

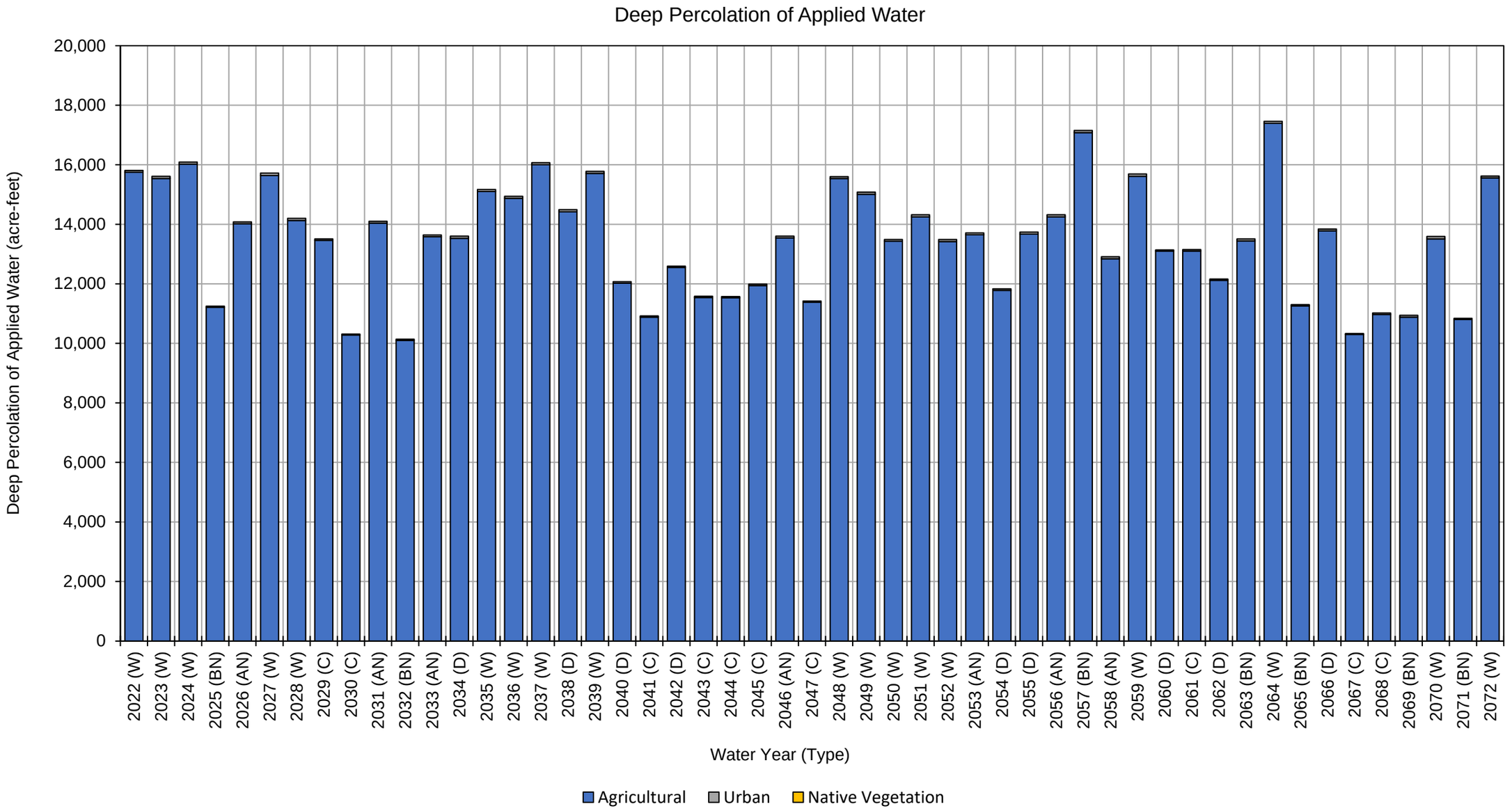
WY (Type)	CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2022 (W)	0	1,000,000	0	1,000,000
2023 (W)	0	880,000	0	880,000
2024 (W)	0	890,000	0	890,000
2025 (BN)	0	490,000	0	490,000
2026 (AN)	0	810,000	0	810,000
2027 (W)	0	1,300,000	0	1,300,000
2028 (W)	0	660,000	0	660,000
2029 (C)	0	470,000	0	470,000
2030 (C)	0	290,000	0	290,000
2031 (AN)	0	790,000	0	790,000
2032 (BN)	0	420,000	0	420,000
2033 (AN)	0	610,000	0	610,000
2034 (D)	0	490,000	0	490,000
2035 (W)	0	1,200,000	0	1,200,000
2036 (W)	0	1,200,000	0	1,200,000
2037 (W)	0	910,000	0	910,000
2038 (D)	0	540,000	0	540,000
2039 (W)	0	860,000	0	860,000
2040 (D)	0	410,000	0	410,000
2041 (C)	0	300,000	0	300,000
2042 (D)	0	360,000	0	360,000
2043 (C)	0	290,000	0	290,000
2044 (C)	0	280,000	0	280,000
2045 (C)	0	330,000	0	330,000
2046 (AN)	0	760,000	0	760,000
2047 (C)	0	310,000	0	310,000
2048 (W)	0	1,300,000	0	1,300,000
2049 (W)	0	870,000	0	870,000
2050 (W)	0	1,000,000	0	1,000,000
2051 (W)	0	1,200,000	0	1,200,000
2052 (W)	0	660,000	0	660,000
2053 (AN)	0	650,000	0	650,000
2054 (D)	0	390,000	0	390,000
2055 (D)	0	480,000	0	480,000
2056 (AN)	0	800,000	0	800,000
2057 (BN)	0	730,000	0	730,000
2058 (AN)	0	530,000	0	530,000
2059 (W)	0	1,200,000	0	1,200,000
2060 (D)	0	430,000	0	430,000
2061 (C)	0	440,000	0	440,000
2062 (D)	0	420,000	0	420,000
2063 (BN)	0	590,000	0	590,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2064 (W)		0	830,000	0	830,000
2065 (BN)		0	420,000	0	420,000
2066 (D)		0	490,000	0	490,000
2067 (C)		0	270,000	0	270,000
2068 (C)		0	370,000	0	370,000
2069 (BN)		0	660,000	0	660,000
2070 (W)		0	1,300,000	0	1,300,000
2071 (BN)		0	460,000	0	460,000
2072 (W)		0	980,000	0	980,000
Average (2022-2072)		0	670,000	0	670,000
2022-2072	W	0	1,000,000	0	1,000,000
	AN	0	710,000	0	710,000
	BN	0	540,000	0	540,000
	D	0	450,000	0	450,000
	C	0	340,000	0	340,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

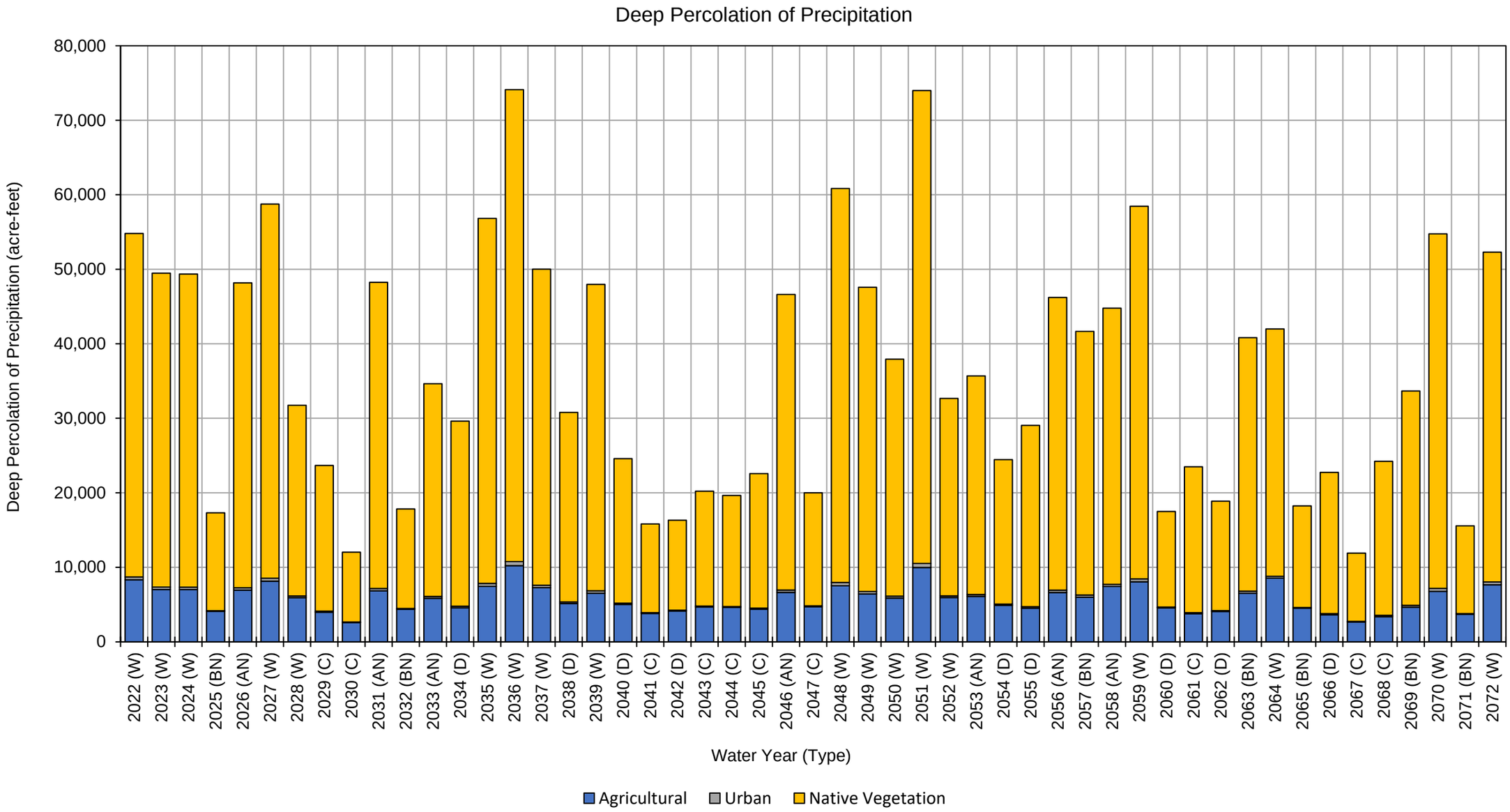
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	16,000	60	0	16,000
2023 (W)	16,000	70	0	16,000
2024 (W)	16,000	70	0	16,000
2025 (BN)	11,000	40	0	11,000
2026 (AN)	14,000	60	0	14,000
2027 (W)	16,000	80	0	16,000
2028 (W)	14,000	70	0	14,000
2029 (C)	13,000	50	0	13,000
2030 (C)	10,000	30	0	10,000
2031 (AN)	14,000	60	0	14,000
2032 (BN)	10,000	40	0	10,000
2033 (AN)	14,000	60	0	14,000
2034 (D)	14,000	70	0	14,000
2035 (W)	15,000	70	0	15,000
2036 (W)	15,000	70	0	15,000
2037 (W)	16,000	70	0	16,000
2038 (D)	14,000	70	0	14,000
2039 (W)	16,000	70	0	16,000
2040 (D)	12,000	50	0	12,000
2041 (C)	11,000	40	0	11,000
2042 (D)	13,000	40	0	13,000
2043 (C)	12,000	40	0	12,000
2044 (C)	12,000	40	0	12,000
2045 (C)	12,000	50	0	12,000
2046 (AN)	14,000	60	0	14,000
2047 (C)	11,000	40	0	11,000
2048 (W)	16,000	60	0	16,000
2049 (W)	15,000	70	0	15,000
2050 (W)	13,000	60	0	13,000
2051 (W)	14,000	70	0	14,000
2052 (W)	13,000	70	0	13,000
2053 (AN)	14,000	60	0	14,000
2054 (D)	12,000	50	0	12,000
2055 (D)	14,000	70	0	14,000
2056 (AN)	14,000	70	0	14,000
2057 (BN)	17,000	70	0	17,000
2058 (AN)	13,000	70	0	13,000
2059 (W)	16,000	80	0	16,000
2060 (D)	13,000	40	0	13,000
2061 (C)	13,000	50	0	13,000
2062 (D)	12,000	40	0	12,000
2063 (BN)	13,000	70	0	13,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		17,000	70	0	17,000
2065 (BN)		11,000	40	0	11,000
2066 (D)		14,000	60	0	14,000
2067 (C)		10,000	30	0	10,000
2068 (C)		11,000	50	0	11,000
2069 (BN)		11,000	60	0	11,000
2070 (W)		14,000	80	0	14,000
2071 (BN)		11,000	40	0	11,000
2072 (W)		16,000	60	0	16,000
Average (2022-2072)		13,000	58	0	13,000
2022-2072	W	15,000	69	0	15,000
	AN	14,000	63	0	14,000
	BN	12,000	51	0	12,000
	D	13,000	54	0	13,000
	C	12,000	42	0	12,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

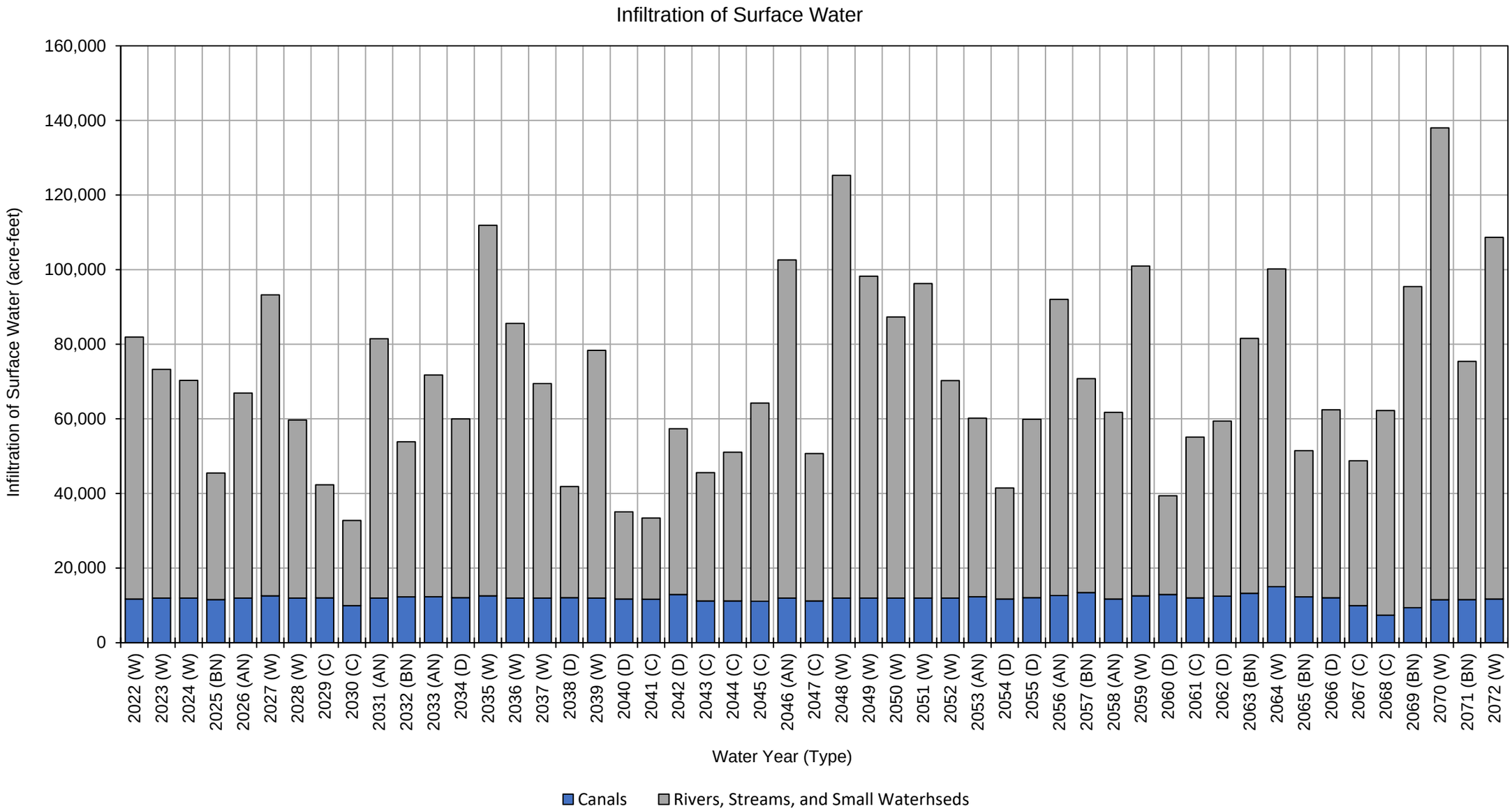
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	8,300	370	46,000	55,000
2023 (W)	7,000	330	42,000	49,000
2024 (W)	7,000	330	42,000	49,000
2025 (BN)	4,100	93	13,000	17,000
2026 (AN)	6,900	310	41,000	48,000
2027 (W)	8,100	390	50,000	58,000
2028 (W)	5,900	220	26,000	32,000
2029 (C)	4,000	140	20,000	24,000
2030 (C)	2,600	69	9,400	12,000
2031 (AN)	6,800	320	41,000	48,000
2032 (BN)	4,400	100	13,000	18,000
2033 (AN)	5,800	250	29,000	35,000
2034 (D)	4,600	200	25,000	30,000
2035 (W)	7,400	390	49,000	57,000
2036 (W)	10,000	540	63,000	74,000
2037 (W)	7,300	330	42,000	50,000
2038 (D)	5,100	200	25,000	30,000
2039 (W)	6,500	330	41,000	48,000
2040 (D)	5,000	160	19,000	24,000
2041 (C)	3,800	96	12,000	16,000
2042 (D)	4,100	95	12,000	16,000
2043 (C)	4,700	120	15,000	20,000
2044 (C)	4,600	120	15,000	20,000
2045 (C)	4,400	150	18,000	23,000
2046 (AN)	6,600	310	40,000	47,000
2047 (C)	4,700	120	15,000	20,000
2048 (W)	7,500	440	53,000	61,000
2049 (W)	6,400	330	41,000	48,000
2050 (W)	5,900	260	32,000	38,000
2051 (W)	10,000	550	63,000	74,000
2052 (W)	5,900	220	26,000	32,000
2053 (AN)	6,100	250	29,000	35,000
2054 (D)	4,900	160	19,000	24,000
2055 (D)	4,500	200	24,000	29,000
2056 (AN)	6,600	320	39,000	46,000
2057 (BN)	6,000	300	35,000	41,000
2058 (AN)	7,400	290	37,000	45,000
2059 (W)	8,100	390	50,000	58,000
2060 (D)	4,600	95	13,000	18,000
2061 (C)	3,800	140	20,000	24,000
2062 (D)	4,100	110	15,000	19,000
2063 (BN)	6,500	280	34,000	41,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		8,500	260	33,000	42,000
2065 (BN)		4,500	100	14,000	19,000
2066 (D)		3,600	160	19,000	23,000
2067 (C)		2,700	70	9,200	12,000
2068 (C)		3,400	180	21,000	25,000
2069 (BN)		4,600	250	29,000	34,000
2070 (W)		6,800	400	48,000	55,000
2071 (BN)		3,700	92	12,000	16,000
2072 (W)		7,700	370	44,000	52,000
Average (2022-2072)		5,800	240	30,000	36,000
2022-2072	W	7,500	360	44,000	52,000
	AN	6,600	290	37,000	44,000
	BN	4,800	180	21,000	26,000
	D	4,500	150	19,000	24,000
	C	3,900	120	15,000	19,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Infiltration of Surface Water (acre-feet, rounded)

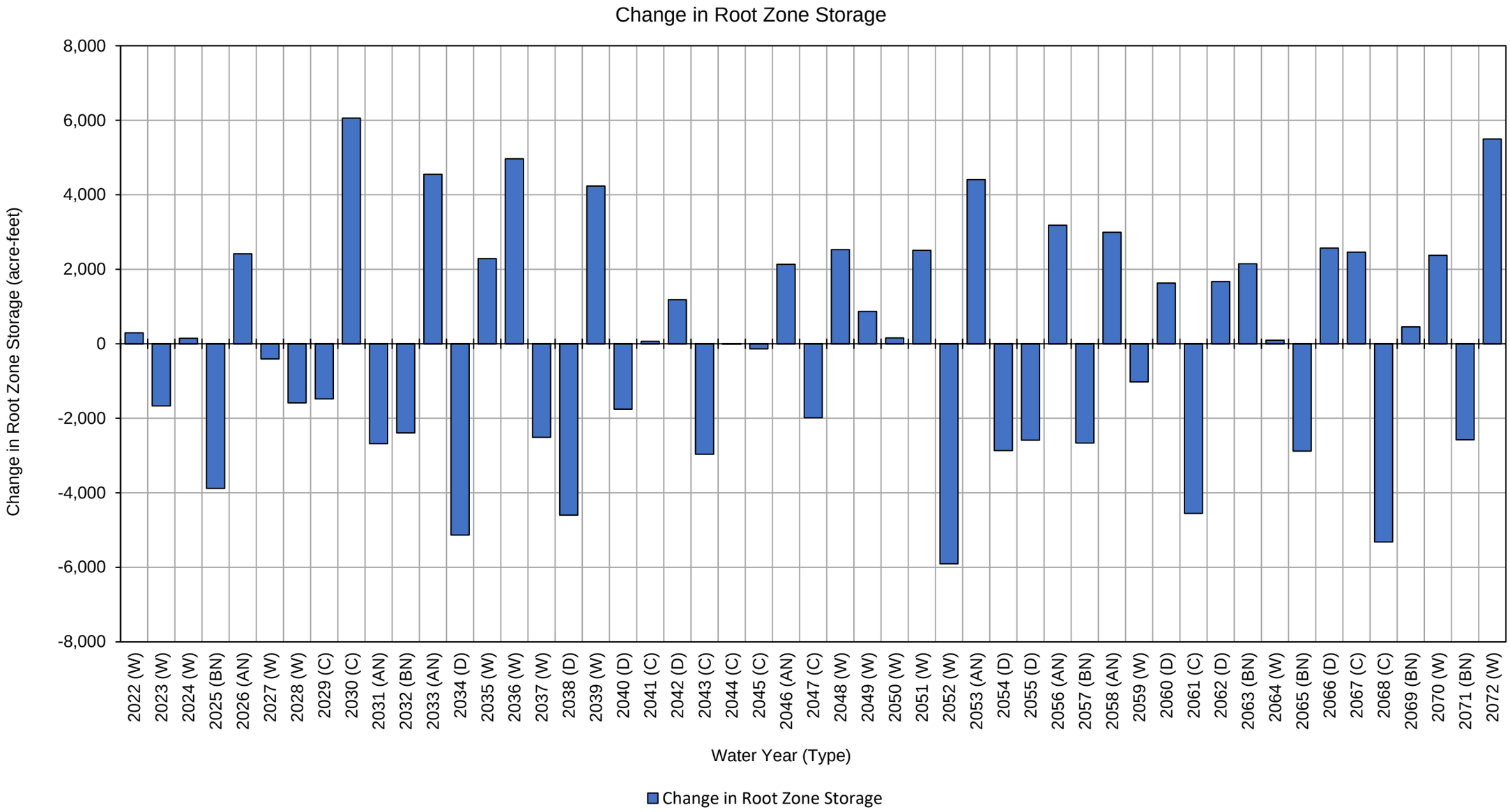
WY (Type)	Canals	Rivers, Streams, and Small Waterhseds	Total
2022 (W)	12,000	70,000	82,000
2023 (W)	12,000	61,000	73,000
2024 (W)	12,000	58,000	70,000
2025 (BN)	12,000	34,000	46,000
2026 (AN)	12,000	55,000	67,000
2027 (W)	13,000	81,000	94,000
2028 (W)	12,000	48,000	60,000
2029 (C)	12,000	30,000	42,000
2030 (C)	9,900	23,000	33,000
2031 (AN)	12,000	70,000	82,000
2032 (BN)	12,000	42,000	54,000
2033 (AN)	12,000	59,000	71,000
2034 (D)	12,000	48,000	60,000
2035 (W)	13,000	99,000	110,000
2036 (W)	12,000	74,000	86,000
2037 (W)	12,000	58,000	70,000
2038 (D)	12,000	30,000	42,000
2039 (W)	12,000	66,000	78,000
2040 (D)	12,000	23,000	35,000
2041 (C)	12,000	22,000	34,000
2042 (D)	13,000	44,000	57,000
2043 (C)	11,000	34,000	45,000
2044 (C)	11,000	40,000	51,000
2045 (C)	11,000	53,000	64,000
2046 (AN)	12,000	91,000	100,000
2047 (C)	11,000	40,000	51,000
2048 (W)	12,000	110,000	120,000
2049 (W)	12,000	86,000	98,000
2050 (W)	12,000	75,000	87,000
2051 (W)	12,000	84,000	96,000
2052 (W)	12,000	58,000	70,000
2053 (AN)	12,000	48,000	60,000
2054 (D)	12,000	30,000	42,000
2055 (D)	12,000	48,000	60,000
2056 (AN)	13,000	79,000	92,000
2057 (BN)	13,000	57,000	70,000
2058 (AN)	12,000	50,000	62,000
2059 (W)	13,000	88,000	100,000
2060 (D)	13,000	26,000	39,000
2061 (C)	12,000	43,000	55,000
2062 (D)	12,000	47,000	59,000
2063 (BN)	13,000	68,000	81,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Infiltration of Surface Water (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Waterhseds	Total
2064 (W)		15,000	85,000	100,000
2065 (BN)		12,000	39,000	51,000
2066 (D)		12,000	50,000	62,000
2067 (C)		9,900	39,000	49,000
2068 (C)		7,400	55,000	62,000
2069 (BN)		9,400	86,000	95,000
2070 (W)		12,000	130,000	140,000
2071 (BN)		12,000	64,000	76,000
2072 (W)		12,000	97,000	110,000
Average (2022-2072)		12,000	59,000	71,000
2022-2072	W	12,000	79,000	91,000
	AN	12,000	65,000	77,000
	BN	12,000	56,000	68,000
	D	12,000	39,000	51,000
	C	11,000	38,000	49,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)	Change in Root Zone Storage
2022 (W)	290
2023 (W)	-1,700
2024 (W)	150
2025 (BN)	-3,900
2026 (AN)	2,400
2027 (W)	-410
2028 (W)	-1,600
2029 (C)	-1,500
2030 (C)	6,100
2031 (AN)	-2,700
2032 (BN)	-2,400
2033 (AN)	4,500
2034 (D)	-5,100
2035 (W)	2,300
2036 (W)	5,000
2037 (W)	-2,500
2038 (D)	-4,600
2039 (W)	4,200
2040 (D)	-1,800
2041 (C)	65
2042 (D)	1,200
2043 (C)	-3,000
2044 (C)	-11
2045 (C)	-140
2046 (AN)	2,100
2047 (C)	-2,000
2048 (W)	2,500
2049 (W)	870
2050 (W)	160
2051 (W)	2,500
2052 (W)	-5,900
2053 (AN)	4,400
2054 (D)	-2,900
2055 (D)	-2,600
2056 (AN)	3,200
2057 (BN)	-2,700
2058 (AN)	3,000
2059 (W)	-1,000
2060 (D)	1,600
2061 (C)	-4,600
2062 (D)	1,700
2063 (BN)	2,100

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)		Change in Root Zone Storage
2064 (W)		97
2065 (BN)		-2,900
2066 (D)		2,600
2067 (C)		2,500
2068 (C)		-5,300
2069 (BN)		460
2070 (W)		2,400
2071 (BN)		-2,600
2072 (W)		5,500
Average (2022-2072)		5
2022-2072	W	710
	AN	2,400
	BN	-1,700
	D	-1,100
	C	-790

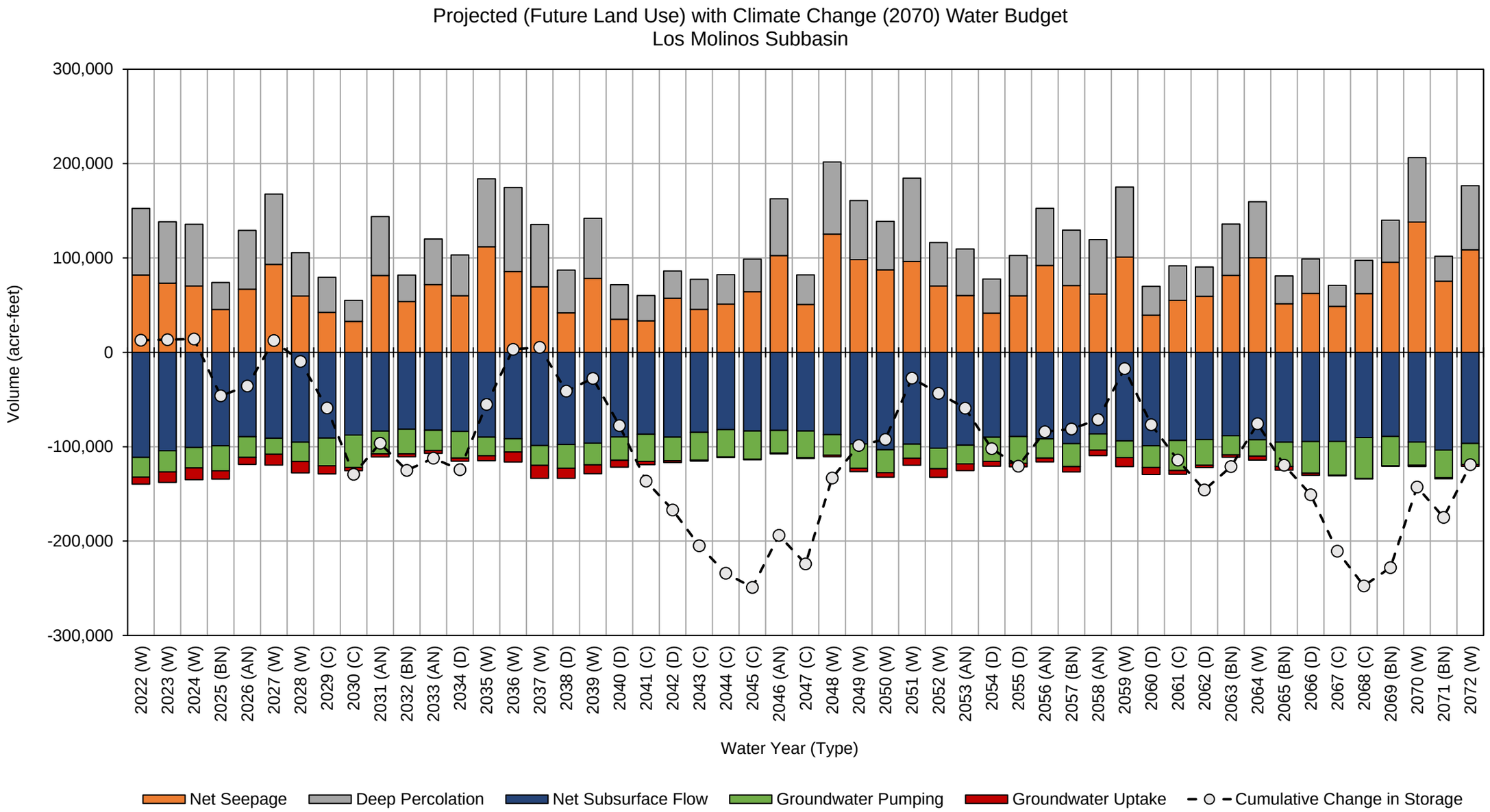
Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX C-7b

Detailed Los Molinos Subbasin Water Budget Results:

Projected (Future Land Use) with Climate Change (2070) Model Results – Groundwater System


Projected (Future Land Use) with Climate Change (2070) Water Budget
Los Molinos Subbasin
Volume (acre-feet)
300,000
200,000
100,000
0
-100,000
-200,000
-300,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Water Budget Summary (acre-feet, rounded)

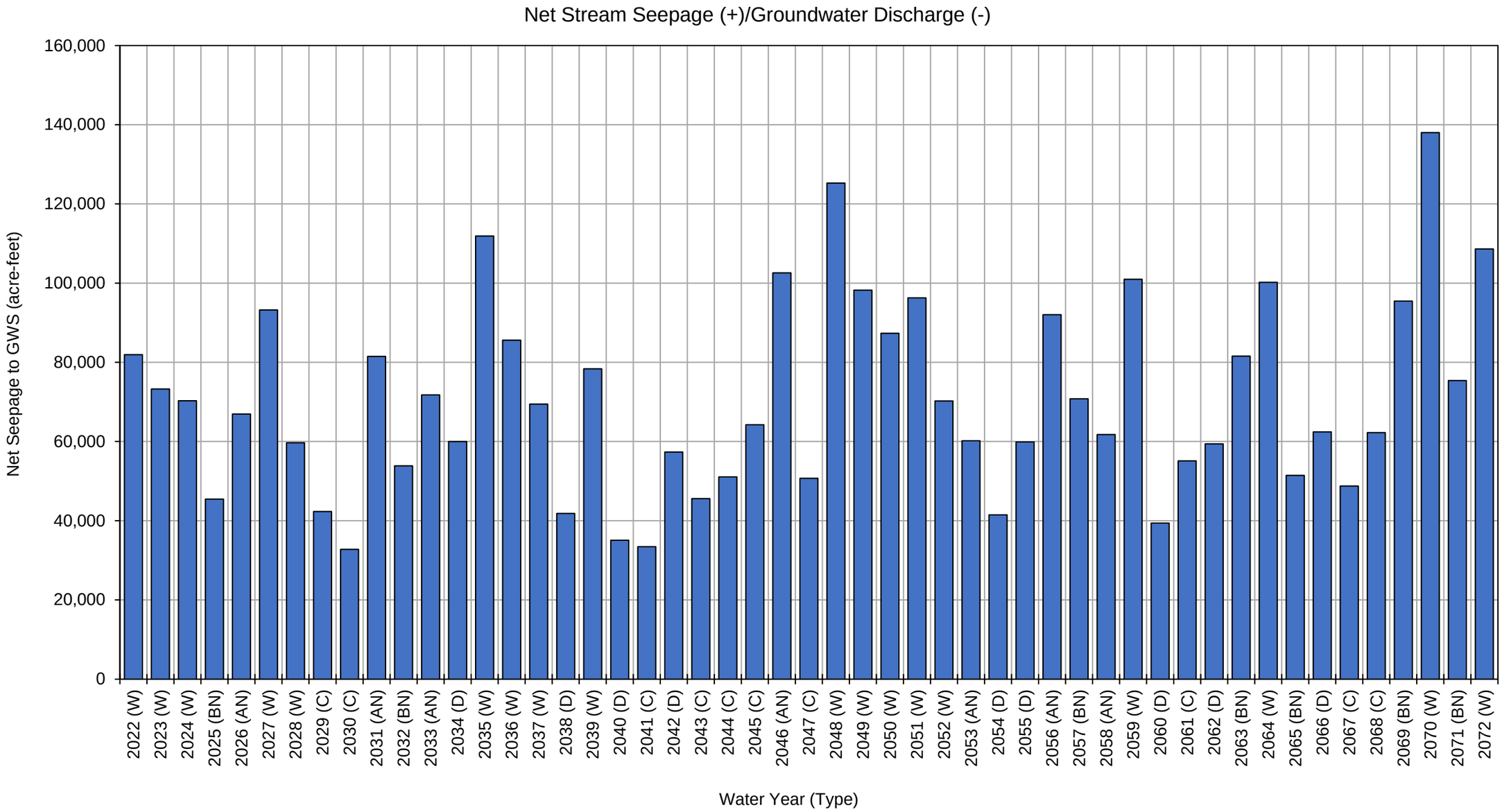
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	82,000	71,000	-21,000	-7,500	-110,000	13,000	13,000
2023 (W)	73,000	65,000	-22,000	-11,000	-100,000	560	13,000
2024 (W)	70,000	65,000	-22,000	-13,000	-100,000	770	14,000
2025 (BN)	45,000	29,000	-27,000	-8,800	-99,000	-60,000	-46,000
2026 (AN)	67,000	62,000	-22,000	-7,400	-89,000	10,000	-36,000
2027 (W)	93,000	74,000	-17,000	-11,000	-91,000	48,000	13,000
2028 (W)	60,000	46,000	-21,000	-12,000	-95,000	-22,000	-9,600
2029 (C)	42,000	37,000	-29,000	-8,600	-91,000	-49,000	-59,000
2030 (C)	33,000	22,000	-34,000	-3,400	-88,000	-70,000	-130,000
2031 (AN)	81,000	62,000	-24,000	-3,200	-83,000	33,000	-96,000
2032 (BN)	54,000	28,000	-26,000	-3,100	-81,000	-29,000	-130,000
2033 (AN)	72,000	48,000	-22,000	-3,000	-82,000	13,000	-110,000
2034 (D)	60,000	43,000	-28,000	-3,400	-84,000	-12,000	-120,000
2035 (W)	110,000	72,000	-20,000	-5,100	-90,000	69,000	-55,000
2036 (W)	86,000	89,000	-14,000	-11,000	-92,000	58,000	3,300
2037 (W)	69,000	66,000	-21,000	-14,000	-99,000	2,000	5,300
2038 (D)	42,000	45,000	-25,000	-11,000	-98,000	-46,000	-41,000
2039 (W)	78,000	64,000	-23,000	-9,300	-96,000	14,000	-28,000
2040 (D)	35,000	37,000	-25,000	-7,400	-90,000	-50,000	-78,000
2041 (C)	33,000	27,000	-29,000	-3,500	-87,000	-59,000	-140,000
2042 (D)	57,000	29,000	-25,000	-1,800	-90,000	-31,000	-170,000
2043 (C)	46,000	32,000	-29,000	-1,200	-85,000	-38,000	-200,000
2044 (C)	51,000	31,000	-29,000	-660	-82,000	-29,000	-230,000
2045 (C)	64,000	35,000	-30,000	-480	-83,000	-15,000	-250,000
2046 (AN)	100,000	60,000	-24,000	-830	-83,000	55,000	-190,000
2047 (C)	51,000	31,000	-28,000	-820	-83,000	-30,000	-220,000
2048 (W)	130,000	76,000	-22,000	-1,700	-87,000	91,000	-130,000
2049 (W)	98,000	63,000	-26,000	-3,600	-97,000	35,000	-99,000
2050 (W)	87,000	51,000	-24,000	-4,800	-100,000	6,400	-92,000
2051 (W)	96,000	88,000	-15,000	-7,400	-97,000	65,000	-27,000
2052 (W)	70,000	46,000	-22,000	-9,200	-100,000	-16,000	-43,000
2053 (AN)	60,000	49,000	-20,000	-7,100	-98,000	-16,000	-59,000
2054 (D)	41,000	36,000	-26,000	-5,100	-90,000	-43,000	-100,000
2055 (D)	60,000	43,000	-28,000	-3,700	-89,000	-19,000	-120,000
2056 (AN)	92,000	61,000	-20,000	-4,100	-92,000	36,000	-84,000
2057 (BN)	71,000	59,000	-24,000	-5,700	-97,000	2,900	-81,000
2058 (AN)	62,000	58,000	-17,000	-5,800	-86,000	10,000	-71,000
2059 (W)	100,000	74,000	-18,000	-9,500	-94,000	54,000	-17,000
2060 (D)	39,000	31,000	-23,000	-7,400	-99,000	-59,000	-77,000
2061 (C)	55,000	37,000	-32,000	-4,100	-93,000	-37,000	-110,000
2062 (D)	59,000	31,000	-27,000	-2,500	-92,000	-32,000	-150,000
2063 (BN)	82,000	54,000	-20,000	-2,500	-88,000	25,000	-120,000
2064 (W)	100,000	59,000	-17,000	-4,100	-93,000	45,000	-76,000
2065 (BN)	51,000	30,000	-26,000	-4,000	-95,000	-44,000	-120,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		62,000	37,000	-33,000	-2,400	-94,000	-31,000	-150,000
2067 (C)		49,000	22,000	-36,000	-800	-94,000	-60,000	-210,000
2068 (C)		62,000	35,000	-44,000	-430	-90,000	-37,000	-250,000
2069 (BN)		95,000	45,000	-31,000	-400	-89,000	19,000	-230,000
2070 (W)		140,000	68,000	-24,000	-1,400	-95,000	85,000	-140,000
2071 (BN)		75,000	26,000	-29,000	-1,100	-100,000	-32,000	-170,000
2072 (W)		110,000	68,000	-22,000	-1,900	-97,000	56,000	-120,000
Average (2022-2072)		71,000	49,000	-25,000	-5,100	-92,000	-2,300	
2022-2072	W	92,000	67,000	-21,000	-7,600	-97,000		
	AN	77,000	57,000	-21,000	-4,500	-88,000		
	BN	68,000	39,000	-26,000	-3,700	-93,000		
	D	51,000	37,000	-27,000	-4,900	-92,000		
	C	49,000	31,000	-32,000	-2,400	-88,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

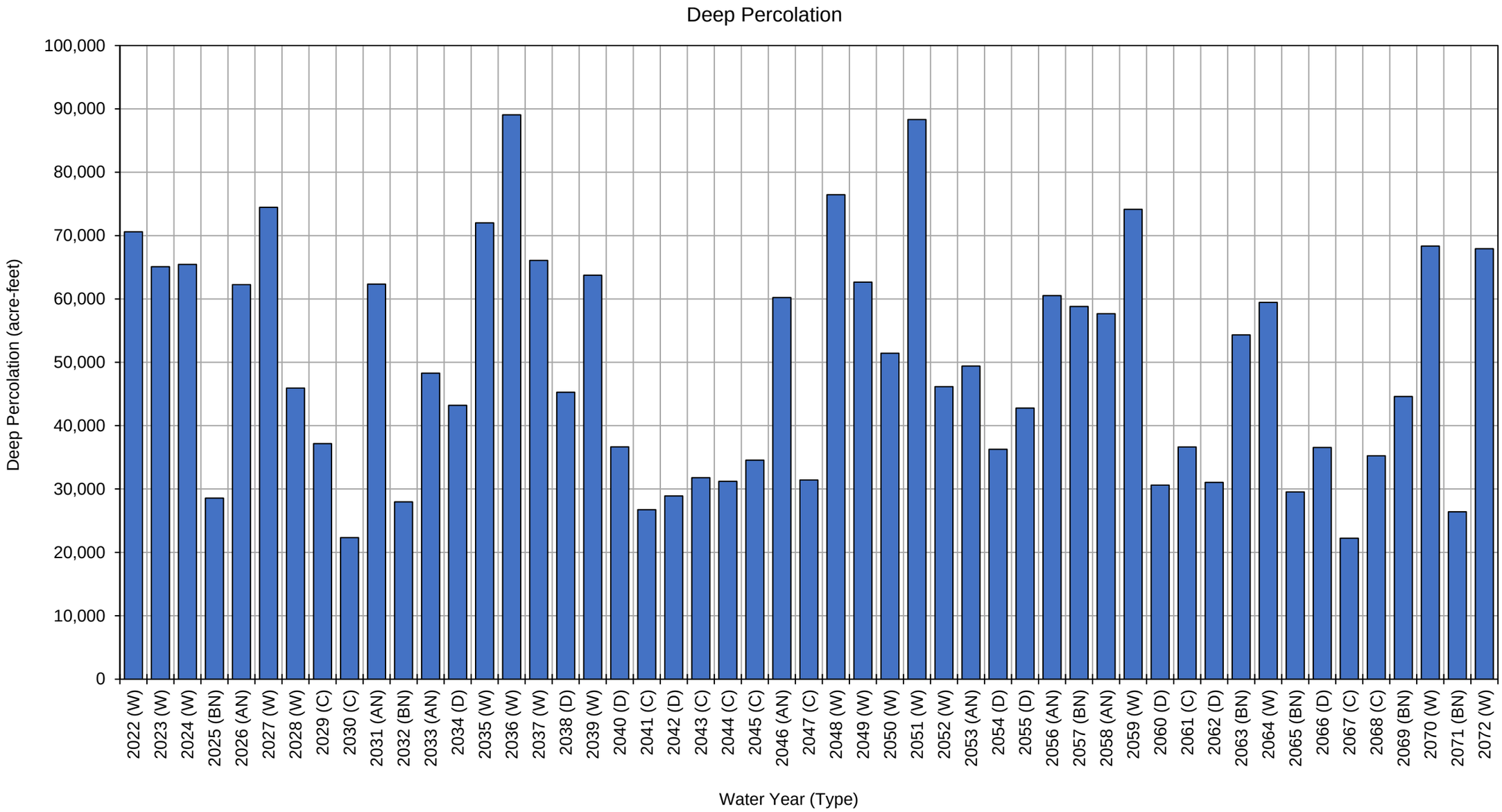
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	82,000
2023 (W)	73,000
2024 (W)	70,000
2025 (BN)	45,000
2026 (AN)	67,000
2027 (W)	93,000
2028 (W)	60,000
2029 (C)	42,000
2030 (C)	33,000
2031 (AN)	81,000
2032 (BN)	54,000
2033 (AN)	72,000
2034 (D)	60,000
2035 (W)	110,000
2036 (W)	86,000
2037 (W)	69,000
2038 (D)	42,000
2039 (W)	78,000
2040 (D)	35,000
2041 (C)	33,000
2042 (D)	57,000
2043 (C)	46,000
2044 (C)	51,000
2045 (C)	64,000
2046 (AN)	100,000
2047 (C)	51,000
2048 (W)	130,000
2049 (W)	98,000
2050 (W)	87,000
2051 (W)	96,000
2052 (W)	70,000
2053 (AN)	60,000
2054 (D)	41,000
2055 (D)	60,000
2056 (AN)	92,000
2057 (BN)	71,000
2058 (AN)	62,000
2059 (W)	100,000
2060 (D)	39,000
2061 (C)	55,000
2062 (D)	59,000
2063 (BN)	82,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		100,000
2065 (BN)		51,000
2066 (D)		62,000
2067 (C)		49,000
2068 (C)		62,000
2069 (BN)		95,000
2070 (W)		140,000
2071 (BN)		75,000
2072 (W)		110,000
Average (2022-2072)		71,000
2022-2072	W	92,000
	AN	77,000
	BN	68,000
	D	51,000
	C	49,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

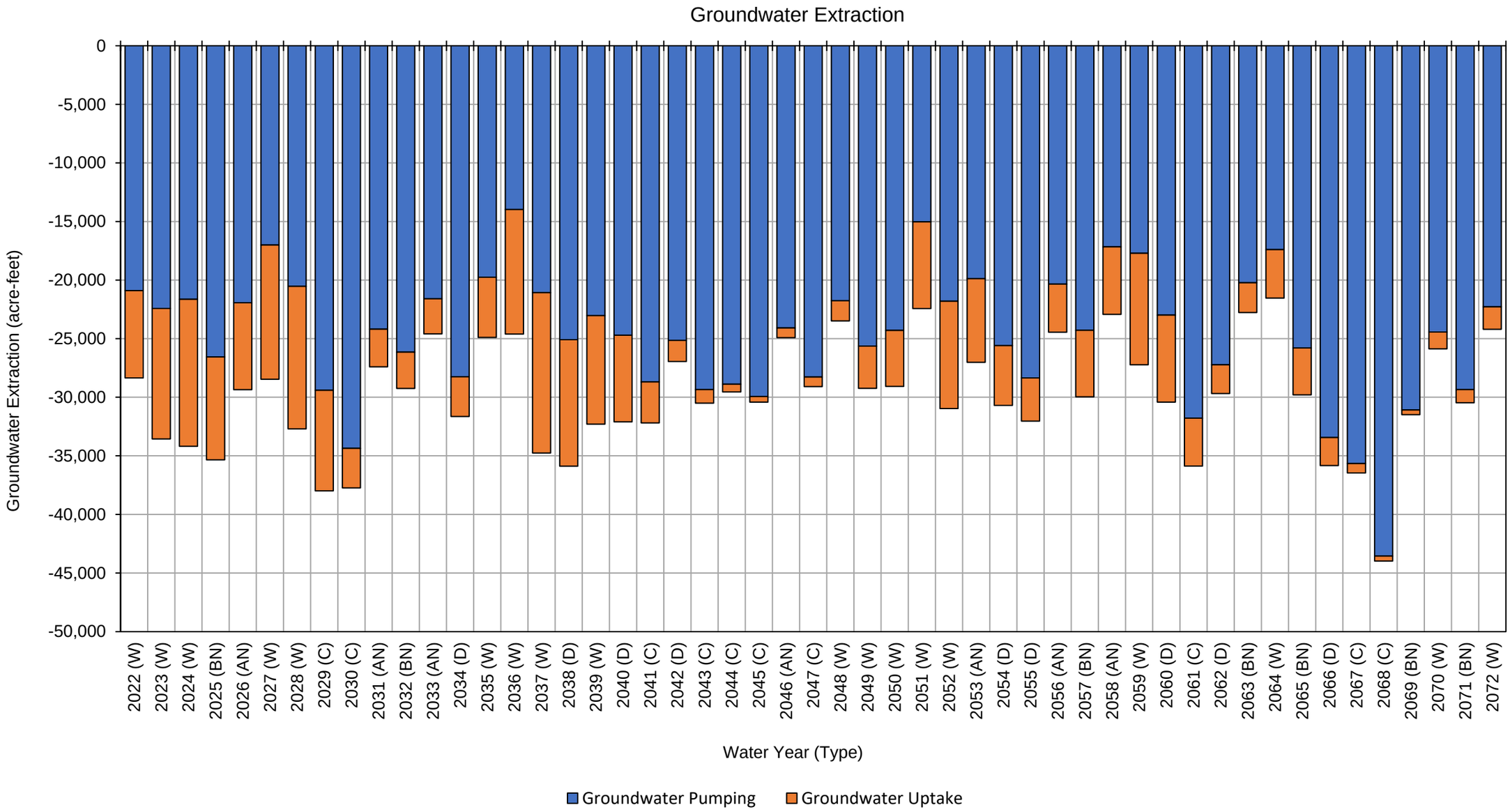
WY (Type)	Deep Percolation from the SWS
2022 (W)	71,000
2023 (W)	65,000
2024 (W)	65,000
2025 (BN)	29,000
2026 (AN)	62,000
2027 (W)	74,000
2028 (W)	46,000
2029 (C)	37,000
2030 (C)	22,000
2031 (AN)	62,000
2032 (BN)	28,000
2033 (AN)	48,000
2034 (D)	43,000
2035 (W)	72,000
2036 (W)	89,000
2037 (W)	66,000
2038 (D)	45,000
2039 (W)	64,000
2040 (D)	37,000
2041 (C)	27,000
2042 (D)	29,000
2043 (C)	32,000
2044 (C)	31,000
2045 (C)	35,000
2046 (AN)	60,000
2047 (C)	31,000
2048 (W)	76,000
2049 (W)	63,000
2050 (W)	51,000
2051 (W)	88,000
2052 (W)	46,000
2053 (AN)	49,000
2054 (D)	36,000
2055 (D)	43,000
2056 (AN)	61,000
2057 (BN)	59,000
2058 (AN)	58,000
2059 (W)	74,000
2060 (D)	31,000
2061 (C)	37,000
2062 (D)	31,000
2063 (BN)	54,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		59,000
2065 (BN)		30,000
2066 (D)		37,000
2067 (C)		22,000
2068 (C)		35,000
2069 (BN)		45,000
2070 (W)		68,000
2071 (BN)		26,000
2072 (W)		68,000
Average (2022-2072)		49,000
2022-2072	W	67,000
	AN	57,000
	BN	39,000
	D	37,000
	C	31,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

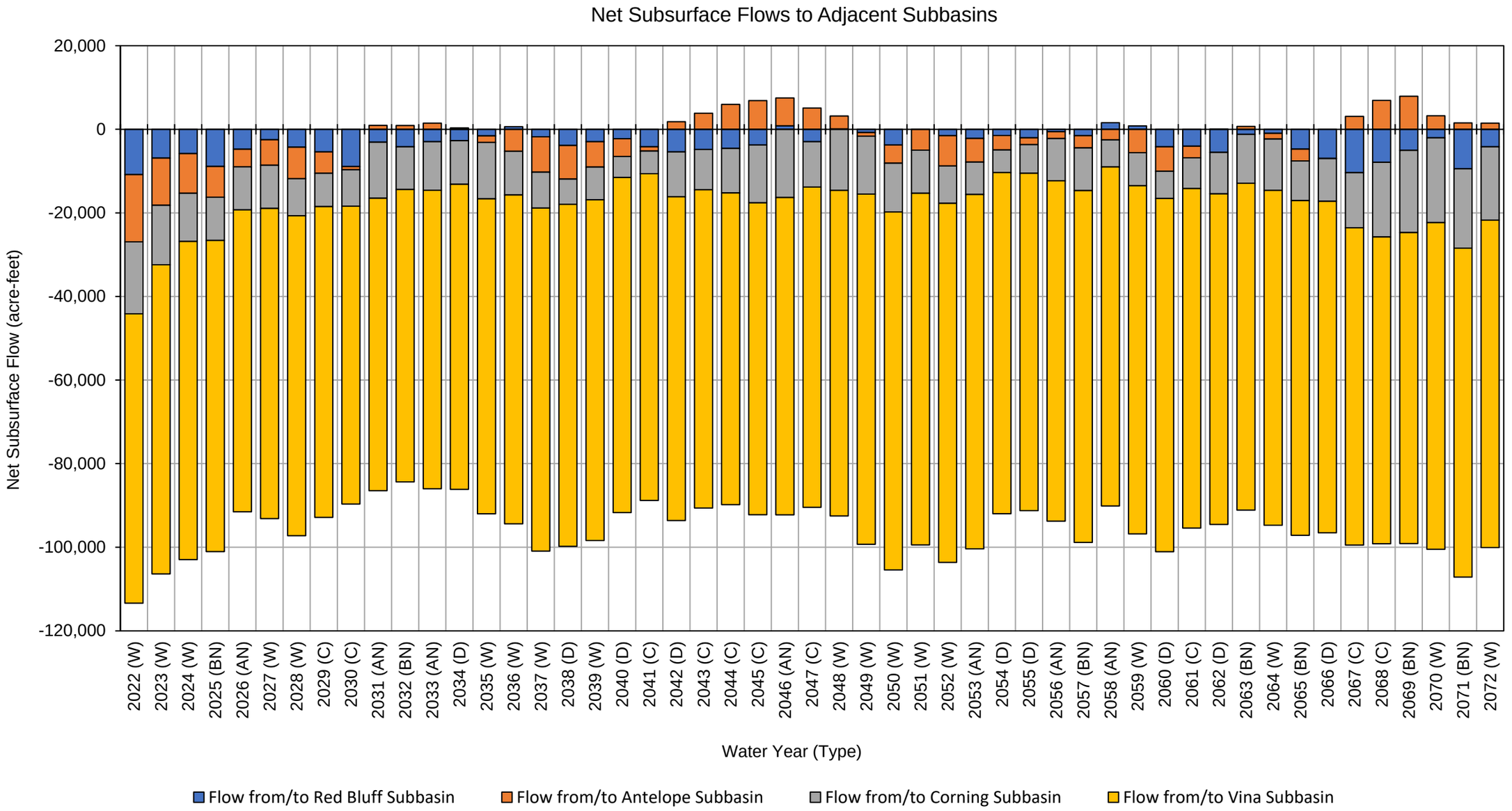
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-21,000	-7,500	-28,000
2023 (W)	-22,000	-11,000	-34,000
2024 (W)	-22,000	-13,000	-34,000
2025 (BN)	-27,000	-8,800	-35,000
2026 (AN)	-22,000	-7,400	-29,000
2027 (W)	-17,000	-11,000	-28,000
2028 (W)	-21,000	-12,000	-33,000
2029 (C)	-29,000	-8,600	-38,000
2030 (C)	-34,000	-3,400	-38,000
2031 (AN)	-24,000	-3,200	-27,000
2032 (BN)	-26,000	-3,100	-29,000
2033 (AN)	-22,000	-3,000	-25,000
2034 (D)	-28,000	-3,400	-32,000
2035 (W)	-20,000	-5,100	-25,000
2036 (W)	-14,000	-11,000	-25,000
2037 (W)	-21,000	-14,000	-35,000
2038 (D)	-25,000	-11,000	-36,000
2039 (W)	-23,000	-9,300	-32,000
2040 (D)	-25,000	-7,400	-32,000
2041 (C)	-29,000	-3,500	-32,000
2042 (D)	-25,000	-1,800	-27,000
2043 (C)	-29,000	-1,200	-31,000
2044 (C)	-29,000	-660	-30,000
2045 (C)	-30,000	-480	-30,000
2046 (AN)	-24,000	-830	-25,000
2047 (C)	-28,000	-820	-29,000
2048 (W)	-22,000	-1,700	-23,000
2049 (W)	-26,000	-3,600	-29,000
2050 (W)	-24,000	-4,800	-29,000
2051 (W)	-15,000	-7,400	-22,000
2052 (W)	-22,000	-9,200	-31,000
2053 (AN)	-20,000	-7,100	-27,000
2054 (D)	-26,000	-5,100	-31,000
2055 (D)	-28,000	-3,700	-32,000
2056 (AN)	-20,000	-4,100	-24,000
2057 (BN)	-24,000	-5,700	-30,000
2058 (AN)	-17,000	-5,800	-23,000
2059 (W)	-18,000	-9,500	-27,000
2060 (D)	-23,000	-7,400	-30,000
2061 (C)	-32,000	-4,100	-36,000
2062 (D)	-27,000	-2,500	-30,000
2063 (BN)	-20,000	-2,500	-23,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-17,000	-4,100	-22,000
2065 (BN)		-26,000	-4,000	-30,000
2066 (D)		-33,000	-2,400	-36,000
2067 (C)		-36,000	-800	-36,000
2068 (C)		-44,000	-430	-44,000
2069 (BN)		-31,000	-400	-31,000
2070 (W)		-24,000	-1,400	-26,000
2071 (BN)		-29,000	-1,100	-30,000
2072 (W)		-22,000	-1,900	-24,000
Average (2022-2072)		-25,000	-5,100	-30,000
2022-2072	W	-21,000	-7,600	-28,000
	AN	-21,000	-4,500	-26,000
	BN	-26,000	-3,700	-30,000
	D	-27,000	-4,900	-32,000
	C	-32,000	-2,400	-34,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

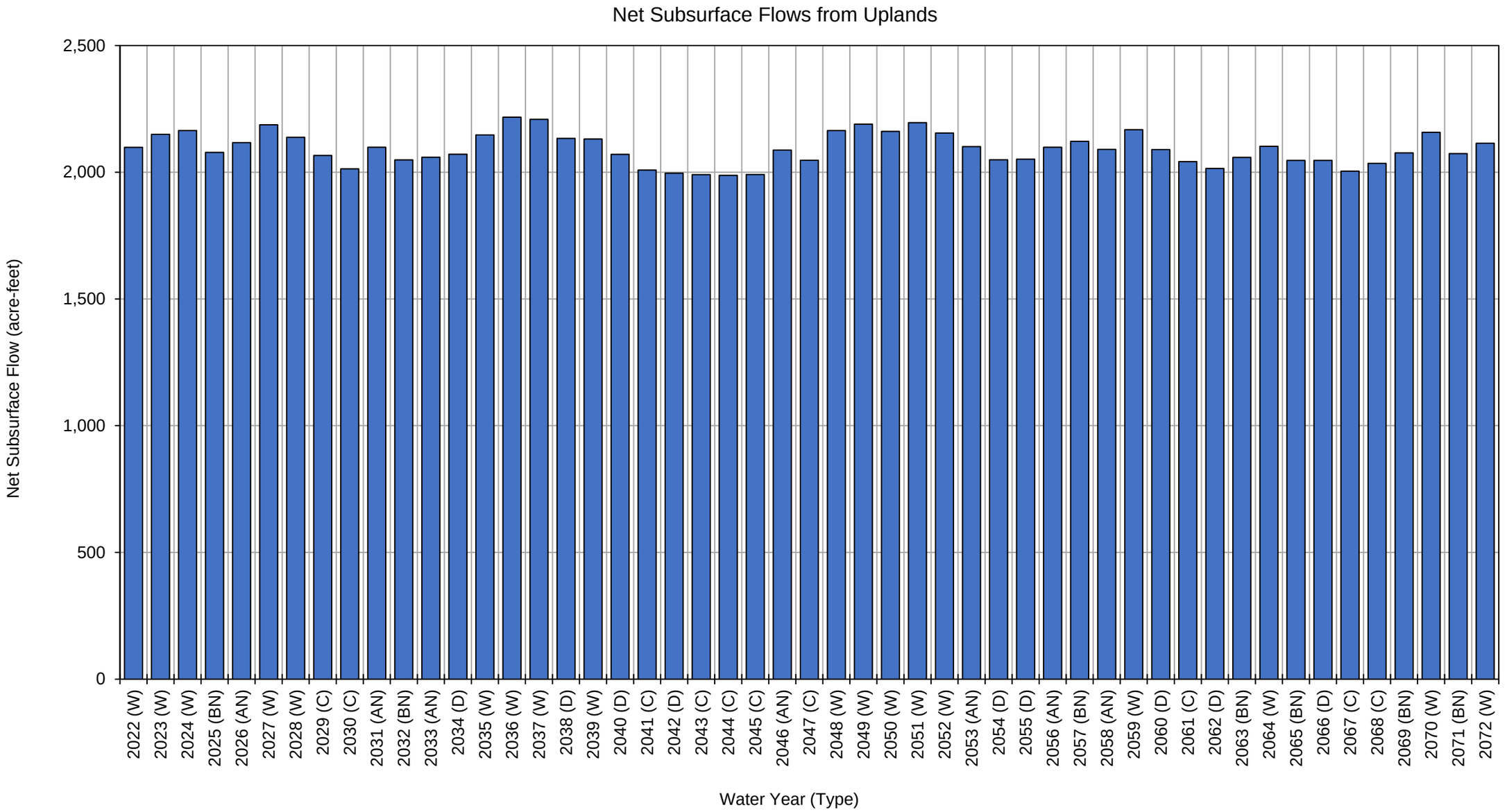
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Antelope Subbasin	Flow from/to Corning Subbasin	Flow from/to Vina Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-11,000	-16,000	-17,000	-69,000	-110,000
2023 (W)	-6,900	-11,000	-14,000	-74,000	-110,000
2024 (W)	-5,800	-9,500	-12,000	-76,000	-100,000
2025 (BN)	-8,900	-7,400	-10,000	-74,000	-100,000
2026 (AN)	-4,800	-4,200	-10,000	-72,000	-92,000
2027 (W)	-2,500	-6,100	-10,000	-74,000	-93,000
2028 (W)	-4,300	-7,500	-8,900	-77,000	-97,000
2029 (C)	-5,400	-5,100	-8,000	-74,000	-93,000
2030 (C)	-8,900	-760	-8,700	-71,000	-90,000
2031 (AN)	-3,100	930	-13,000	-70,000	-86,000
2032 (BN)	-4,200	900	-10,000	-70,000	-83,000
2033 (AN)	-3,000	1,500	-12,000	-71,000	-85,000
2034 (D)	-2,700	330	-10,000	-73,000	-86,000
2035 (W)	-1,600	-1,600	-14,000	-75,000	-92,000
2036 (W)	610	-5,300	-10,000	-79,000	-94,000
2037 (W)	-1,800	-8,500	-8,600	-82,000	-100,000
2038 (D)	-3,900	-8,000	-6,000	-82,000	-100,000
2039 (W)	-3,000	-6,100	-7,800	-82,000	-98,000
2040 (D)	-2,300	-4,200	-5,000	-80,000	-92,000
2041 (C)	-4,200	-1,000	-5,400	-78,000	-89,000
2042 (D)	-5,400	1,800	-11,000	-77,000	-92,000
2043 (C)	-4,800	3,800	-9,700	-76,000	-87,000
2044 (C)	-4,600	6,000	-11,000	-75,000	-84,000
2045 (C)	-3,700	6,900	-14,000	-75,000	-85,000
2046 (AN)	830	6,600	-16,000	-76,000	-85,000
2047 (C)	-3,000	5,100	-11,000	-77,000	-85,000
2048 (W)	110	3,100	-15,000	-78,000	-89,000
2049 (W)	-760	-890	-14,000	-84,000	-99,000
2050 (W)	-3,800	-4,400	-12,000	-86,000	-110,000
2051 (W)	-17	-5,000	-10,000	-84,000	-99,000
2052 (W)	-1,500	-7,200	-8,900	-86,000	-100,000
2053 (AN)	-2,200	-5,700	-7,800	-85,000	-100,000
2054 (D)	-1,500	-3,500	-5,400	-82,000	-92,000
2055 (D)	-2,000	-1,600	-6,800	-81,000	-91,000
2056 (AN)	-570	-1,600	-10,000	-81,000	-94,000
2057 (BN)	-1,500	-2,900	-10,000	-84,000	-99,000
2058 (AN)	1,600	-2,500	-6,500	-81,000	-89,000
2059 (W)	810	-5,600	-7,900	-83,000	-96,000
2060 (D)	-4,200	-5,800	-6,500	-85,000	-100,000
2061 (C)	-4,000	-2,800	-7,400	-81,000	-95,000
2062 (D)	-5,500	88	-9,900	-79,000	-94,000
2063 (BN)	-1,200	690	-12,000	-78,000	-90,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Antelope Subbasin	Flow from/to Corning Subbasin	Flow from/to Vina Subbasin	Net Subsurface Flow from Adjacent Subbasins
2064 (W)		-960	-1,400	-12,000	-80,000	-95,000
2065 (BN)		-4,800	-2,800	-9,500	-80,000	-97,000
2066 (D)		-6,900	-58	-10,000	-79,000	-97,000
2067 (C)		-10,000	3,100	-13,000	-76,000	-96,000
2068 (C)		-7,900	6,900	-18,000	-73,000	-92,000
2069 (BN)		-5,000	7,900	-20,000	-74,000	-91,000
2070 (W)		-2,100	3,200	-20,000	-78,000	-97,000
2071 (BN)		-9,500	1,500	-19,000	-79,000	-110,000
2072 (W)		-4,200	1,500	-18,000	-78,000	-99,000
Average (2022-2072)		-3,700	-1,900	-11,000	-78,000	-95,000
2022-2072	W	-2,700	-4,900	-12,000	-79,000	-99,000
	AN	-1,600	-720	-11,000	-77,000	-90,000
	BN	-5,000	-300	-13,000	-77,000	-95,000
	D	-3,800	-2,300	-7,900	-80,000	-94,000
	C	-5,700	2,200	-11,000	-76,000	-90,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

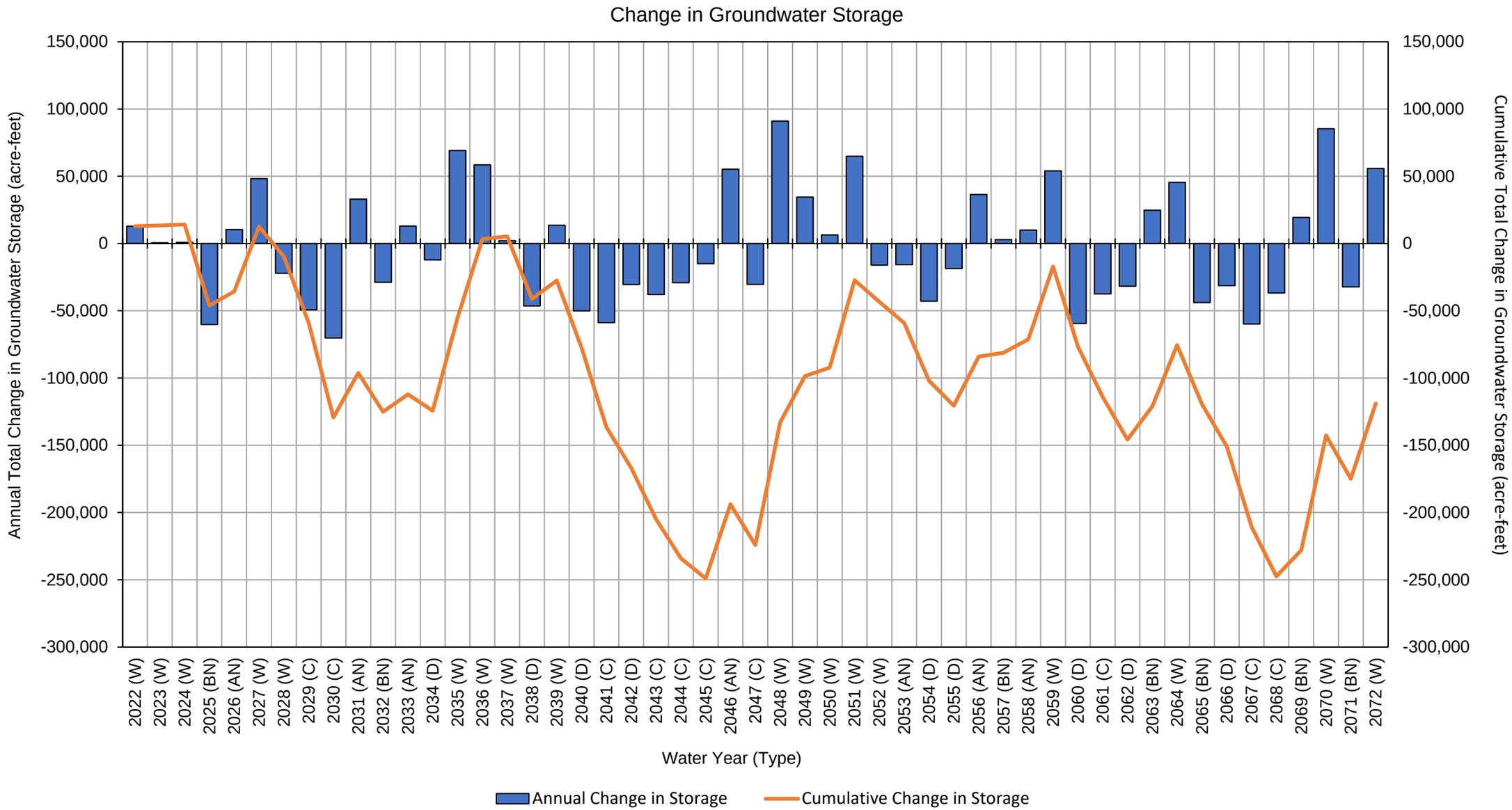
WY (Type)	Subsurface Flows from Uplands
2022 (W)	2,100
2023 (W)	2,100
2024 (W)	2,200
2025 (BN)	2,100
2026 (AN)	2,100
2027 (W)	2,200
2028 (W)	2,100
2029 (C)	2,100
2030 (C)	2,000
2031 (AN)	2,100
2032 (BN)	2,000
2033 (AN)	2,100
2034 (D)	2,100
2035 (W)	2,100
2036 (W)	2,200
2037 (W)	2,200
2038 (D)	2,100
2039 (W)	2,100
2040 (D)	2,100
2041 (C)	2,000
2042 (D)	2,000
2043 (C)	2,000
2044 (C)	2,000
2045 (C)	2,000
2046 (AN)	2,100
2047 (C)	2,000
2048 (W)	2,200
2049 (W)	2,200
2050 (W)	2,200
2051 (W)	2,200
2052 (W)	2,200
2053 (AN)	2,100
2054 (D)	2,000
2055 (D)	2,100
2056 (AN)	2,100
2057 (BN)	2,100
2058 (AN)	2,100
2059 (W)	2,200
2060 (D)	2,100
2061 (C)	2,000
2062 (D)	2,000
2063 (BN)	2,100

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		2,100
2065 (BN)		2,000
2066 (D)		2,000
2067 (C)		2,000
2068 (C)		2,000
2069 (BN)		2,100
2070 (W)		2,200
2071 (BN)		2,100
2072 (W)		2,100
Average (2022-2072)		2,100
2022-2072	W	2,200
	AN	2,100
	BN	2,100
	D	2,100
	C	2,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	13,000	13,000
2023 (W)	560	13,000
2024 (W)	770	14,000
2025 (BN)	-60,000	-46,000
2026 (AN)	10,000	-36,000
2027 (W)	48,000	13,000
2028 (W)	-22,000	-9,600
2029 (C)	-49,000	-59,000
2030 (C)	-70,000	-130,000
2031 (AN)	33,000	-96,000
2032 (BN)	-29,000	-130,000
2033 (AN)	13,000	-110,000
2034 (D)	-12,000	-120,000
2035 (W)	69,000	-55,000
2036 (W)	58,000	3,300
2037 (W)	2,000	5,300
2038 (D)	-46,000	-41,000
2039 (W)	14,000	-28,000
2040 (D)	-50,000	-78,000
2041 (C)	-59,000	-140,000
2042 (D)	-31,000	-170,000
2043 (C)	-38,000	-200,000
2044 (C)	-29,000	-230,000
2045 (C)	-15,000	-250,000
2046 (AN)	55,000	-190,000
2047 (C)	-30,000	-220,000
2048 (W)	91,000	-130,000
2049 (W)	35,000	-99,000
2050 (W)	6,400	-92,000
2051 (W)	65,000	-27,000
2052 (W)	-16,000	-43,000
2053 (AN)	-16,000	-59,000
2054 (D)	-43,000	-100,000
2055 (D)	-19,000	-120,000
2056 (AN)	36,000	-84,000
2057 (BN)	2,900	-81,000
2058 (AN)	10,000	-71,000
2059 (W)	54,000	-17,000
2060 (D)	-59,000	-77,000
2061 (C)	-37,000	-110,000
2062 (D)	-32,000	-150,000
2063 (BN)	25,000	-120,000

Los Molinos Subbasin Projected (Future Land Use) with Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		45,000	-76,000
2065 (BN)		-44,000	-120,000
2066 (D)		-31,000	-150,000
2067 (C)		-60,000	-210,000
2068 (C)		-37,000	-250,000
2069 (BN)		19,000	-230,000
2070 (W)		85,000	-140,000
2071 (BN)		-32,000	-170,000
2072 (W)		56,000	-120,000
Average (2022-2072)		-2,300	
2022-2072	W		
	AN		
	BN		
	D		
	C		

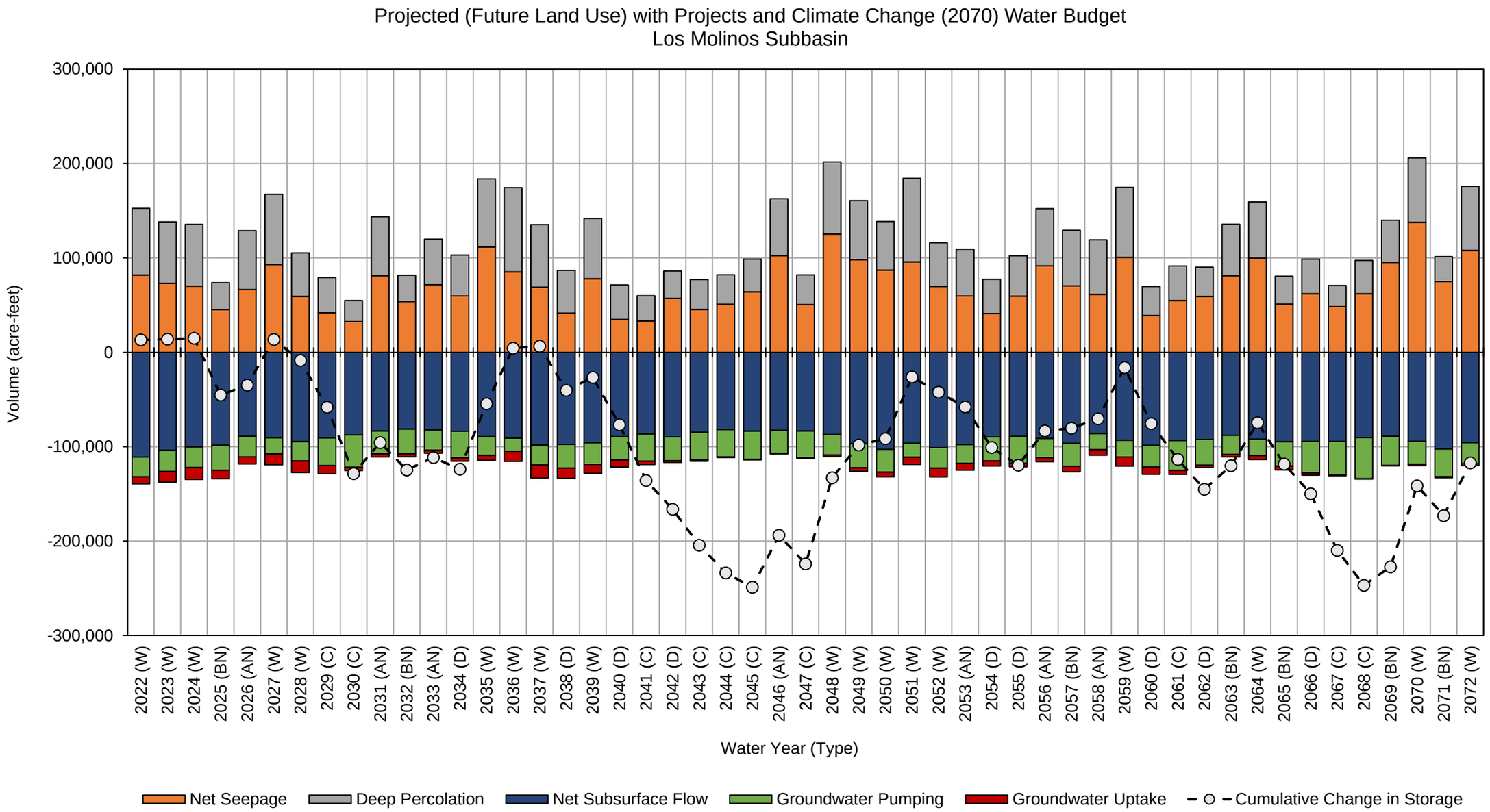
Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX C-8

Detailed Los Molinos Subbasin Water Budget Results:

Projected (Future Land Use) with Projects and Climate Change (2070) Model Results



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Water Budget Summary (acre-feet, rounded)

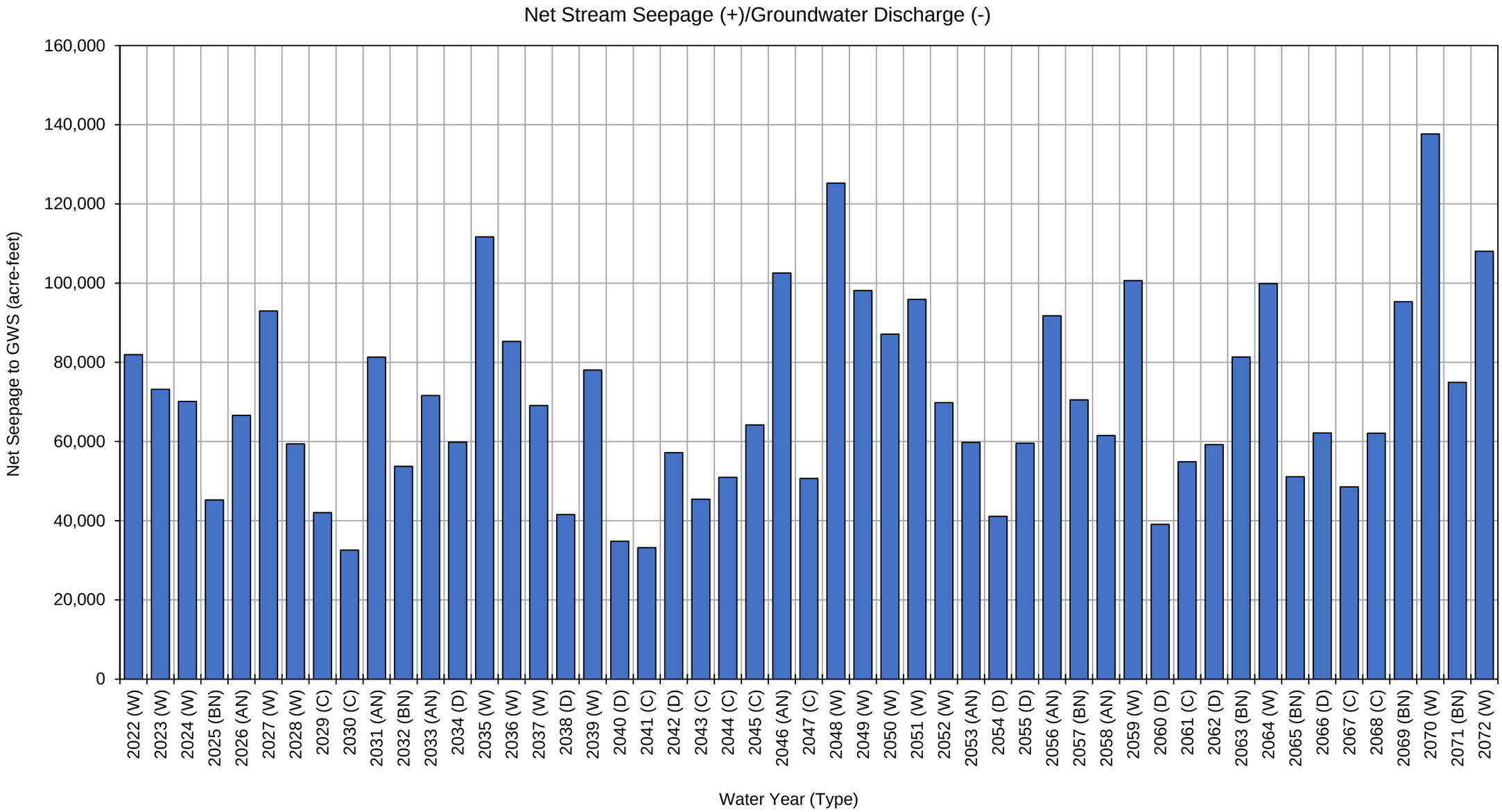
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	82,000	71,000	-21,000	-7,500	-110,000	13,000	13,000
2023 (W)	73,000	65,000	-22,000	-11,000	-100,000	780	14,000
2024 (W)	70,000	65,000	-22,000	-13,000	-100,000	950	15,000
2025 (BN)	45,000	29,000	-26,000	-8,900	-99,000	-60,000	-45,000
2026 (AN)	67,000	62,000	-22,000	-7,600	-89,000	11,000	-35,000
2027 (W)	93,000	74,000	-17,000	-12,000	-91,000	48,000	14,000
2028 (W)	59,000	46,000	-20,000	-12,000	-95,000	-22,000	-8,600
2029 (C)	42,000	37,000	-29,000	-8,700	-91,000	-49,000	-58,000
2030 (C)	33,000	22,000	-34,000	-3,500	-87,000	-70,000	-130,000
2031 (AN)	81,000	62,000	-24,000	-3,300	-83,000	33,000	-96,000
2032 (BN)	54,000	28,000	-26,000	-3,200	-81,000	-29,000	-120,000
2033 (AN)	72,000	48,000	-22,000	-3,000	-82,000	13,000	-110,000
2034 (D)	60,000	43,000	-28,000	-3,400	-84,000	-12,000	-120,000
2035 (W)	110,000	72,000	-20,000	-5,200	-89,000	69,000	-54,000
2036 (W)	85,000	89,000	-14,000	-11,000	-91,000	59,000	4,400
2037 (W)	69,000	66,000	-21,000	-14,000	-98,000	2,100	6,500
2038 (D)	42,000	45,000	-25,000	-11,000	-98,000	-47,000	-40,000
2039 (W)	78,000	64,000	-23,000	-9,400	-96,000	14,000	-27,000
2040 (D)	35,000	37,000	-25,000	-7,500	-89,000	-50,000	-77,000
2041 (C)	33,000	27,000	-29,000	-3,600	-87,000	-59,000	-140,000
2042 (D)	57,000	29,000	-25,000	-1,800	-90,000	-31,000	-170,000
2043 (C)	45,000	32,000	-29,000	-1,200	-85,000	-38,000	-200,000
2044 (C)	51,000	31,000	-29,000	-670	-82,000	-29,000	-230,000
2045 (C)	64,000	35,000	-30,000	-490	-83,000	-15,000	-250,000
2046 (AN)	100,000	60,000	-24,000	-840	-83,000	55,000	-190,000
2047 (C)	51,000	31,000	-28,000	-820	-83,000	-30,000	-220,000
2048 (W)	130,000	76,000	-22,000	-1,800	-87,000	91,000	-130,000
2049 (W)	98,000	63,000	-26,000	-3,700	-97,000	35,000	-98,000
2050 (W)	87,000	51,000	-24,000	-4,900	-100,000	6,700	-92,000
2051 (W)	96,000	88,000	-15,000	-7,600	-96,000	65,000	-26,000
2052 (W)	70,000	46,000	-22,000	-9,400	-100,000	-16,000	-42,000
2053 (AN)	60,000	49,000	-20,000	-7,300	-98,000	-16,000	-58,000
2054 (D)	41,000	36,000	-26,000	-5,300	-90,000	-43,000	-100,000
2055 (D)	60,000	43,000	-28,000	-3,800	-89,000	-19,000	-120,000
2056 (AN)	92,000	61,000	-20,000	-4,200	-91,000	36,000	-83,000
2057 (BN)	71,000	59,000	-24,000	-5,800	-97,000	2,800	-80,000
2058 (AN)	62,000	58,000	-17,000	-5,900	-86,000	10,000	-70,000
2059 (W)	100,000	74,000	-18,000	-9,700	-93,000	54,000	-16,000
2060 (D)	39,000	31,000	-23,000	-7,600	-99,000	-59,000	-76,000
2061 (C)	55,000	37,000	-32,000	-4,200	-93,000	-38,000	-110,000
2062 (D)	59,000	31,000	-27,000	-2,500	-92,000	-32,000	-150,000
2063 (BN)	81,000	54,000	-20,000	-2,600	-88,000	25,000	-120,000
2064 (W)	100,000	60,000	-17,000	-4,300	-92,000	46,000	-75,000
2065 (BN)	51,000	30,000	-26,000	-4,100	-95,000	-44,000	-120,000

Los Molinos Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		62,000	37,000	-33,000	-2,500	-94,000	-31,000	-150,000
2067 (C)		49,000	22,000	-36,000	-820	-94,000	-60,000	-210,000
2068 (C)		62,000	35,000	-44,000	-440	-90,000	-37,000	-250,000
2069 (BN)		95,000	45,000	-31,000	-420	-89,000	20,000	-230,000
2070 (W)		140,000	68,000	-24,000	-1,500	-94,000	86,000	-140,000
2071 (BN)		75,000	26,000	-29,000	-1,200	-100,000	-32,000	-170,000
2072 (W)		110,000	68,000	-22,000	-2,000	-96,000	56,000	-120,000
Average (2022-2072)		70,000	49,000	-25,000	-5,200	-92,000	-2,300	
2022-2072	W	91,000	67,000	-21,000	-7,700	-96,000		
	AN	76,000	57,000	-21,000	-4,600	-88,000		
	BN	67,000	39,000	-26,000	-3,700	-93,000		
	D	50,000	37,000	-27,000	-5,000	-92,000		
	C	48,000	31,000	-32,000	-2,400	-88,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

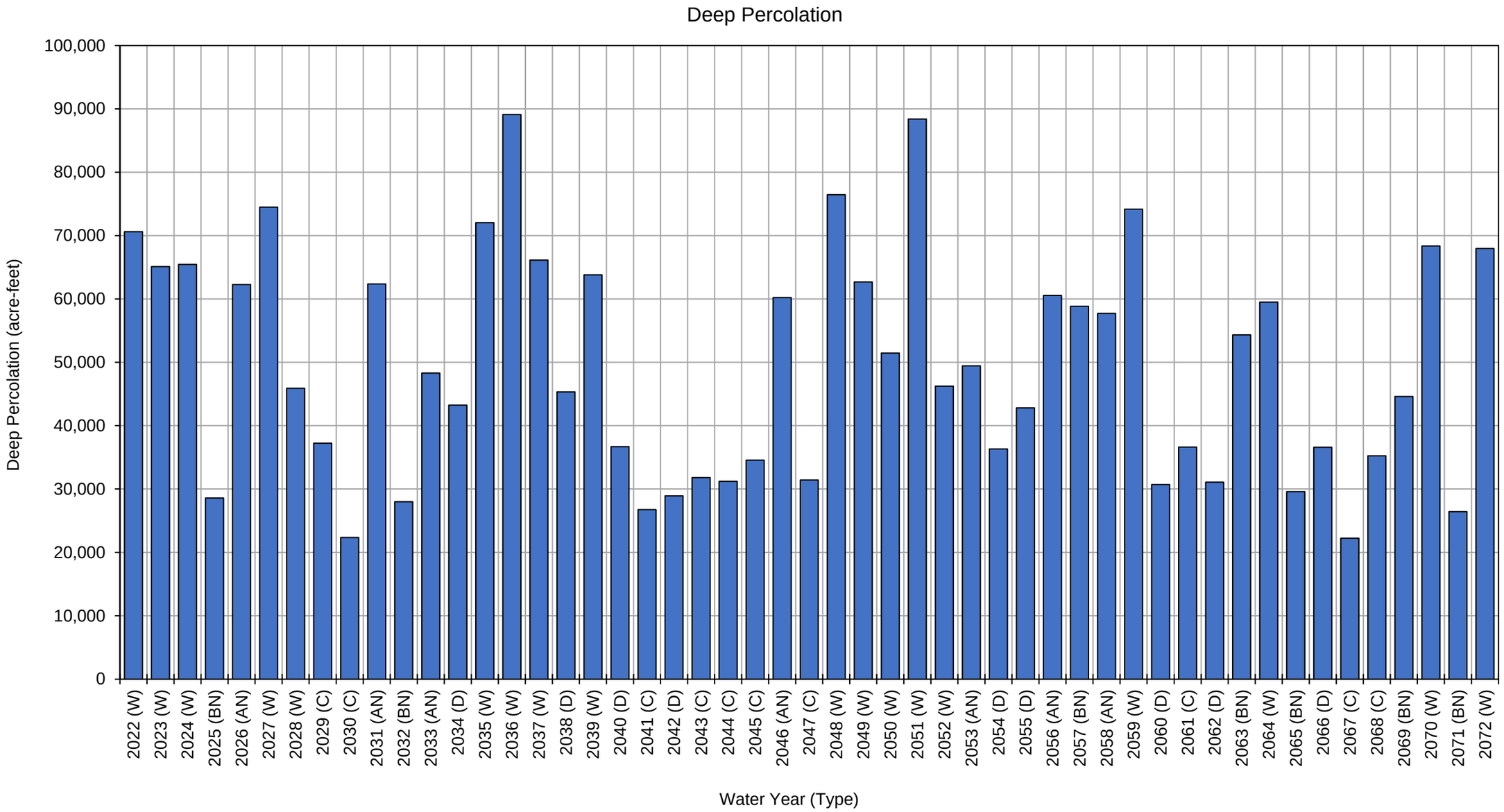
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	82,000
2023 (W)	73,000
2024 (W)	70,000
2025 (BN)	45,000
2026 (AN)	67,000
2027 (W)	93,000
2028 (W)	59,000
2029 (C)	42,000
2030 (C)	33,000
2031 (AN)	81,000
2032 (BN)	54,000
2033 (AN)	72,000
2034 (D)	60,000
2035 (W)	110,000
2036 (W)	85,000
2037 (W)	69,000
2038 (D)	42,000
2039 (W)	78,000
2040 (D)	35,000
2041 (C)	33,000
2042 (D)	57,000
2043 (C)	45,000
2044 (C)	51,000
2045 (C)	64,000
2046 (AN)	100,000
2047 (C)	51,000
2048 (W)	130,000
2049 (W)	98,000
2050 (W)	87,000
2051 (W)	96,000
2052 (W)	70,000
2053 (AN)	60,000
2054 (D)	41,000
2055 (D)	60,000
2056 (AN)	92,000
2057 (BN)	71,000
2058 (AN)	62,000
2059 (W)	100,000
2060 (D)	39,000
2061 (C)	55,000
2062 (D)	59,000
2063 (BN)	81,000

Los Molinos Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		100,000
2065 (BN)		51,000
2066 (D)		62,000
2067 (C)		49,000
2068 (C)		62,000
2069 (BN)		95,000
2070 (W)		140,000
2071 (BN)		75,000
2072 (W)		110,000
Average (2022-2072)		70,000
2022-2072	W	91,000
	AN	76,000
	BN	67,000
	D	50,000
	C	48,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Projects and Climate Change (2070)
Deep Percolation from the SWS (acre-feet, rounded)

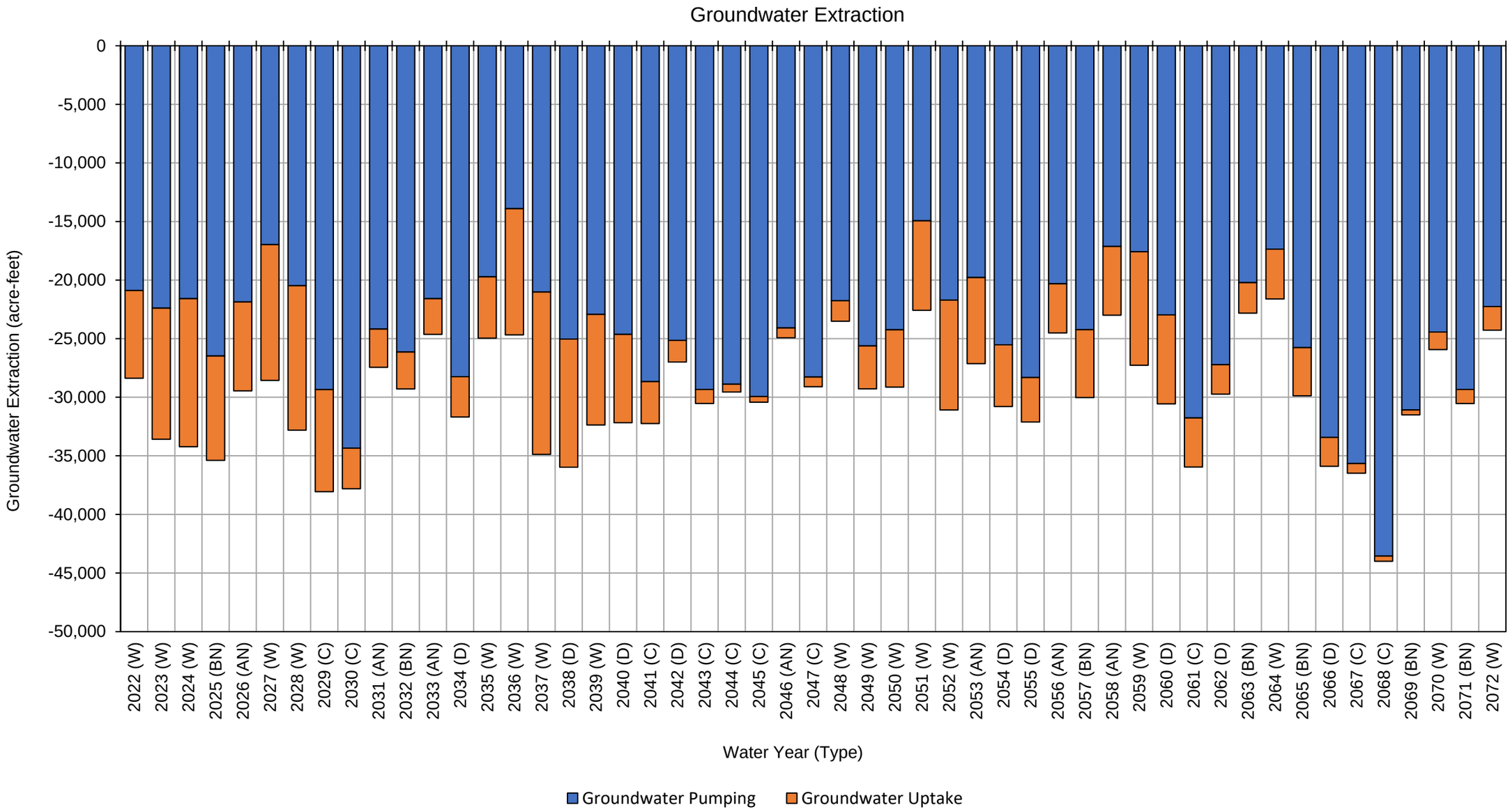
WY (Type)	Deep Percolation from the SWS
2022 (W)	71,000
2023 (W)	65,000
2024 (W)	65,000
2025 (BN)	29,000
2026 (AN)	62,000
2027 (W)	74,000
2028 (W)	46,000
2029 (C)	37,000
2030 (C)	22,000
2031 (AN)	62,000
2032 (BN)	28,000
2033 (AN)	48,000
2034 (D)	43,000
2035 (W)	72,000
2036 (W)	89,000
2037 (W)	66,000
2038 (D)	45,000
2039 (W)	64,000
2040 (D)	37,000
2041 (C)	27,000
2042 (D)	29,000
2043 (C)	32,000
2044 (C)	31,000
2045 (C)	35,000
2046 (AN)	60,000
2047 (C)	31,000
2048 (W)	76,000
2049 (W)	63,000
2050 (W)	51,000
2051 (W)	88,000
2052 (W)	46,000
2053 (AN)	49,000
2054 (D)	36,000
2055 (D)	43,000
2056 (AN)	61,000
2057 (BN)	59,000
2058 (AN)	58,000
2059 (W)	74,000
2060 (D)	31,000
2061 (C)	37,000
2062 (D)	31,000
2063 (BN)	54,000

Los Molinos Subbasin Projected (Future Land Use) with Projects and Climate Change (2070)
Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		60,000
2065 (BN)		30,000
2066 (D)		37,000
2067 (C)		22,000
2068 (C)		35,000
2069 (BN)		45,000
2070 (W)		68,000
2071 (BN)		26,000
2072 (W)		68,000
Average (2022-2072)		49,000
2022-2072	W	67,000
	AN	57,000
	BN	39,000
	D	37,000
	C	31,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

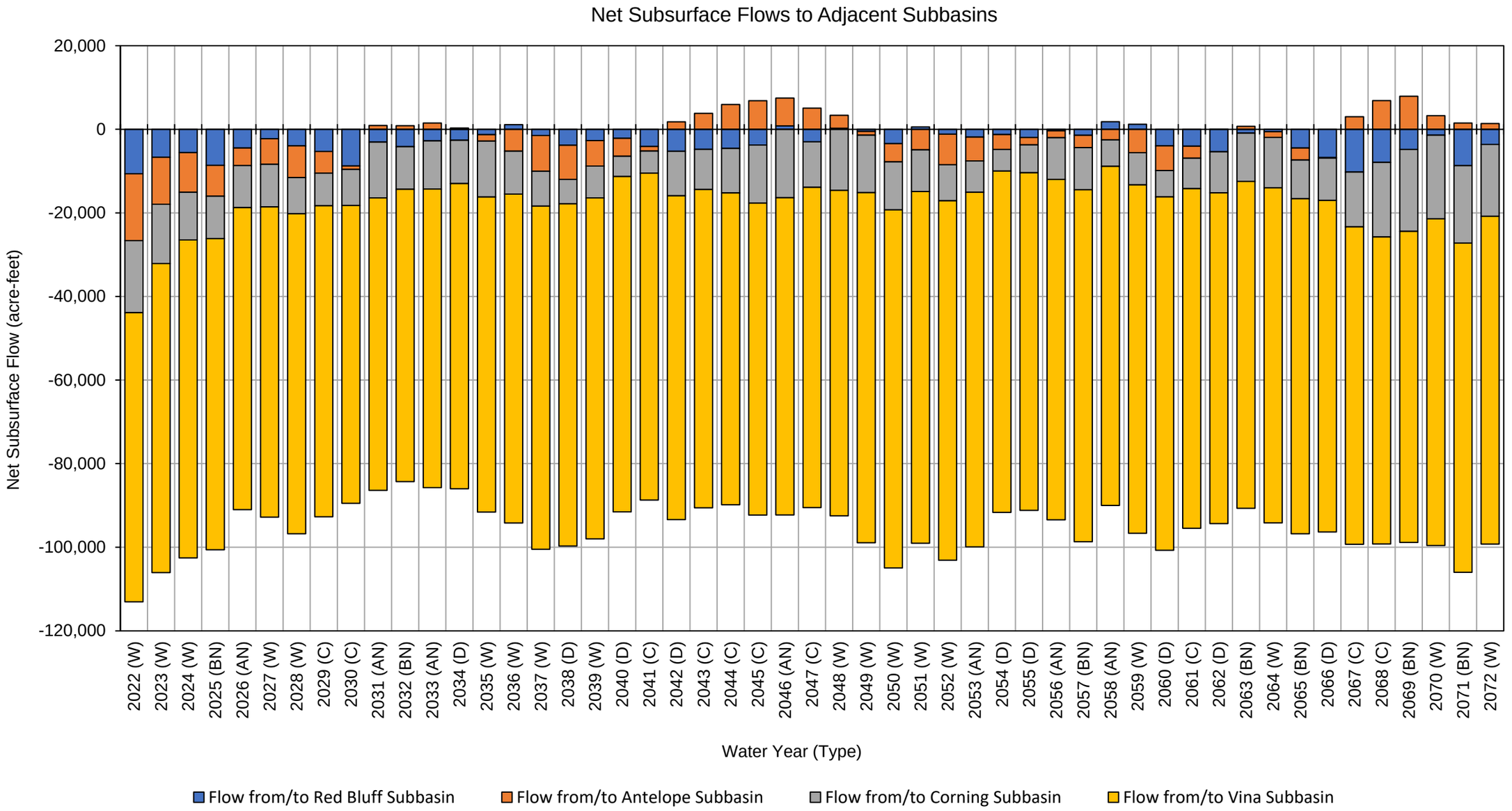
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-21,000	-7,500	-28,000
2023 (W)	-22,000	-11,000	-34,000
2024 (W)	-22,000	-13,000	-34,000
2025 (BN)	-26,000	-8,900	-35,000
2026 (AN)	-22,000	-7,600	-29,000
2027 (W)	-17,000	-12,000	-29,000
2028 (W)	-20,000	-12,000	-33,000
2029 (C)	-29,000	-8,700	-38,000
2030 (C)	-34,000	-3,500	-38,000
2031 (AN)	-24,000	-3,300	-27,000
2032 (BN)	-26,000	-3,200	-29,000
2033 (AN)	-22,000	-3,000	-25,000
2034 (D)	-28,000	-3,400	-32,000
2035 (W)	-20,000	-5,200	-25,000
2036 (W)	-14,000	-11,000	-25,000
2037 (W)	-21,000	-14,000	-35,000
2038 (D)	-25,000	-11,000	-36,000
2039 (W)	-23,000	-9,400	-32,000
2040 (D)	-25,000	-7,500	-32,000
2041 (C)	-29,000	-3,600	-32,000
2042 (D)	-25,000	-1,800	-27,000
2043 (C)	-29,000	-1,200	-31,000
2044 (C)	-29,000	-670	-30,000
2045 (C)	-30,000	-490	-30,000
2046 (AN)	-24,000	-840	-25,000
2047 (C)	-28,000	-820	-29,000
2048 (W)	-22,000	-1,800	-24,000
2049 (W)	-26,000	-3,700	-29,000
2050 (W)	-24,000	-4,900	-29,000
2051 (W)	-15,000	-7,600	-23,000
2052 (W)	-22,000	-9,400	-31,000
2053 (AN)	-20,000	-7,300	-27,000
2054 (D)	-26,000	-5,300	-31,000
2055 (D)	-28,000	-3,800	-32,000
2056 (AN)	-20,000	-4,200	-25,000
2057 (BN)	-24,000	-5,800	-30,000
2058 (AN)	-17,000	-5,900	-23,000
2059 (W)	-18,000	-9,700	-27,000
2060 (D)	-23,000	-7,600	-31,000
2061 (C)	-32,000	-4,200	-36,000
2062 (D)	-27,000	-2,500	-30,000
2063 (BN)	-20,000	-2,600	-23,000

Los Molinos Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-17,000	-4,300	-22,000
2065 (BN)		-26,000	-4,100	-30,000
2066 (D)		-33,000	-2,500	-36,000
2067 (C)		-36,000	-820	-36,000
2068 (C)		-44,000	-440	-44,000
2069 (BN)		-31,000	-420	-32,000
2070 (W)		-24,000	-1,500	-26,000
2071 (BN)		-29,000	-1,200	-31,000
2072 (W)		-22,000	-2,000	-24,000
Average (2022-2072)		-25,000	-5,200	-30,000
2022-2072	W	-21,000	-7,700	-28,000
	AN	-21,000	-4,600	-26,000
	BN	-26,000	-3,700	-30,000
	D	-27,000	-5,000	-32,000
	C	-32,000	-2,400	-34,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

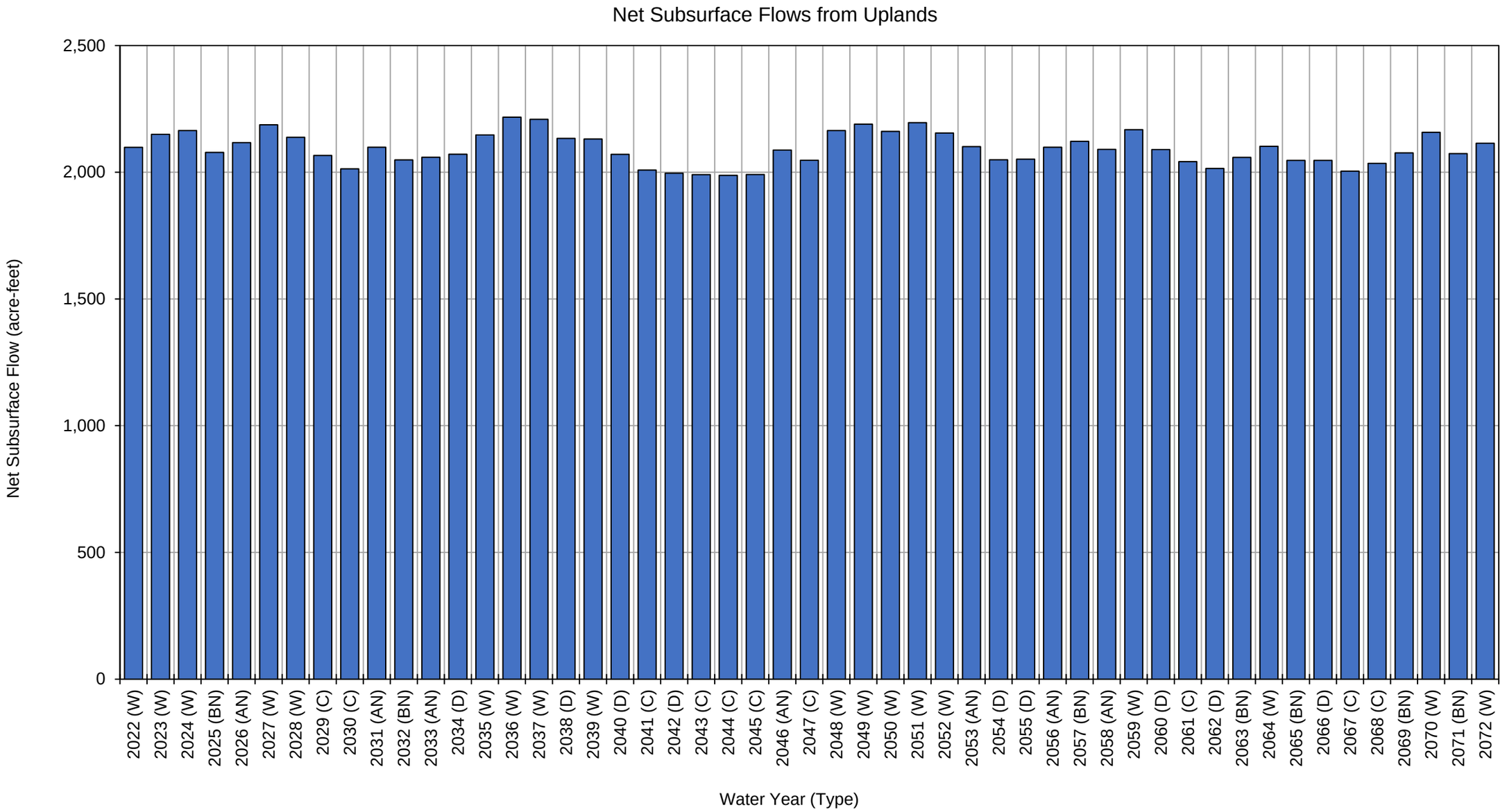
WY (Type)	Flow from/to Red Bluff Subbasin	Flow from/to Antelope Subbasin	Flow from/to Corning Subbasin	Flow from/to Vina Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-11,000	-16,000	-17,000	-69,000	-110,000
2023 (W)	-6,700	-11,000	-14,000	-74,000	-110,000
2024 (W)	-5,600	-9,500	-11,000	-76,000	-100,000
2025 (BN)	-8,600	-7,400	-10,000	-74,000	-100,000
2026 (AN)	-4,500	-4,200	-10,000	-72,000	-91,000
2027 (W)	-2,300	-6,100	-10,000	-74,000	-93,000
2028 (W)	-4,000	-7,600	-8,700	-77,000	-97,000
2029 (C)	-5,300	-5,200	-7,800	-74,000	-93,000
2030 (C)	-8,800	-820	-8,600	-71,000	-90,000
2031 (AN)	-3,100	910	-13,000	-70,000	-85,000
2032 (BN)	-4,200	860	-10,000	-70,000	-83,000
2033 (AN)	-2,800	1,500	-12,000	-71,000	-84,000
2034 (D)	-2,600	300	-10,000	-73,000	-86,000
2035 (W)	-1,300	-1,500	-13,000	-75,000	-92,000
2036 (W)	1,100	-5,200	-10,000	-79,000	-93,000
2037 (W)	-1,500	-8,500	-8,300	-82,000	-100,000
2038 (D)	-3,800	-8,200	-5,900	-82,000	-100,000
2039 (W)	-2,700	-6,100	-7,600	-82,000	-98,000
2040 (D)	-2,200	-4,300	-4,800	-80,000	-92,000
2041 (C)	-4,100	-1,100	-5,300	-78,000	-89,000
2042 (D)	-5,300	1,800	-11,000	-77,000	-92,000
2043 (C)	-4,800	3,800	-9,600	-76,000	-87,000
2044 (C)	-4,600	5,900	-11,000	-75,000	-84,000
2045 (C)	-3,800	6,800	-14,000	-75,000	-85,000
2046 (AN)	800	6,700	-16,000	-76,000	-85,000
2047 (C)	-3,000	5,100	-11,000	-77,000	-85,000
2048 (W)	260	3,100	-15,000	-78,000	-89,000
2049 (W)	-510	-890	-14,000	-84,000	-99,000
2050 (W)	-3,400	-4,400	-11,000	-86,000	-100,000
2051 (W)	560	-4,900	-10,000	-84,000	-98,000
2052 (W)	-1,200	-7,300	-8,600	-86,000	-100,000
2053 (AN)	-1,900	-5,700	-7,500	-85,000	-100,000
2054 (D)	-1,300	-3,600	-5,200	-82,000	-92,000
2055 (D)	-2,000	-1,700	-6,700	-81,000	-91,000
2056 (AN)	-370	-1,600	-10,000	-81,000	-93,000
2057 (BN)	-1,400	-3,000	-10,000	-84,000	-99,000
2058 (AN)	1,800	-2,500	-6,300	-81,000	-88,000
2059 (W)	1,200	-5,600	-7,700	-83,000	-95,000
2060 (D)	-4,000	-5,900	-6,300	-85,000	-100,000
2061 (C)	-4,000	-2,900	-7,300	-81,000	-95,000
2062 (D)	-5,400	63	-9,800	-79,000	-94,000
2063 (BN)	-910	710	-12,000	-78,000	-90,000

Los Molinos Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Red Bluff Subbasin	Flow from/to Antelope Subbasin	Flow from/to Corning Subbasin	Flow from/to Vina Subbasin	Net Subsurface Flow from Adjacent Subbasins
2064 (W)		-570	-1,400	-12,000	-80,000	-94,000
2065 (BN)		-4,500	-2,900	-9,300	-80,000	-97,000
2066 (D)		-6,800	-140	-10,000	-79,000	-96,000
2067 (C)		-10,000	3,000	-13,000	-76,000	-96,000
2068 (C)		-7,900	6,800	-18,000	-73,000	-92,000
2069 (BN)		-4,800	7,900	-20,000	-74,000	-91,000
2070 (W)		-1,400	3,300	-20,000	-78,000	-96,000
2071 (BN)		-8,700	1,500	-19,000	-79,000	-100,000
2072 (W)		-3,600	1,400	-17,000	-78,000	-98,000
Average (2022-2072)		-3,400	-1,900	-11,000	-78,000	-94,000
2022-2072	W	-2,300	-4,900	-12,000	-79,000	-99,000
	AN	-1,400	-720	-11,000	-77,000	-90,000
	BN	-4,700	-320	-13,000	-77,000	-95,000
	D	-3,700	-2,400	-7,800	-80,000	-94,000
	C	-5,700	2,100	-11,000	-76,000	-90,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Projects and Climate Change (2070)
Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

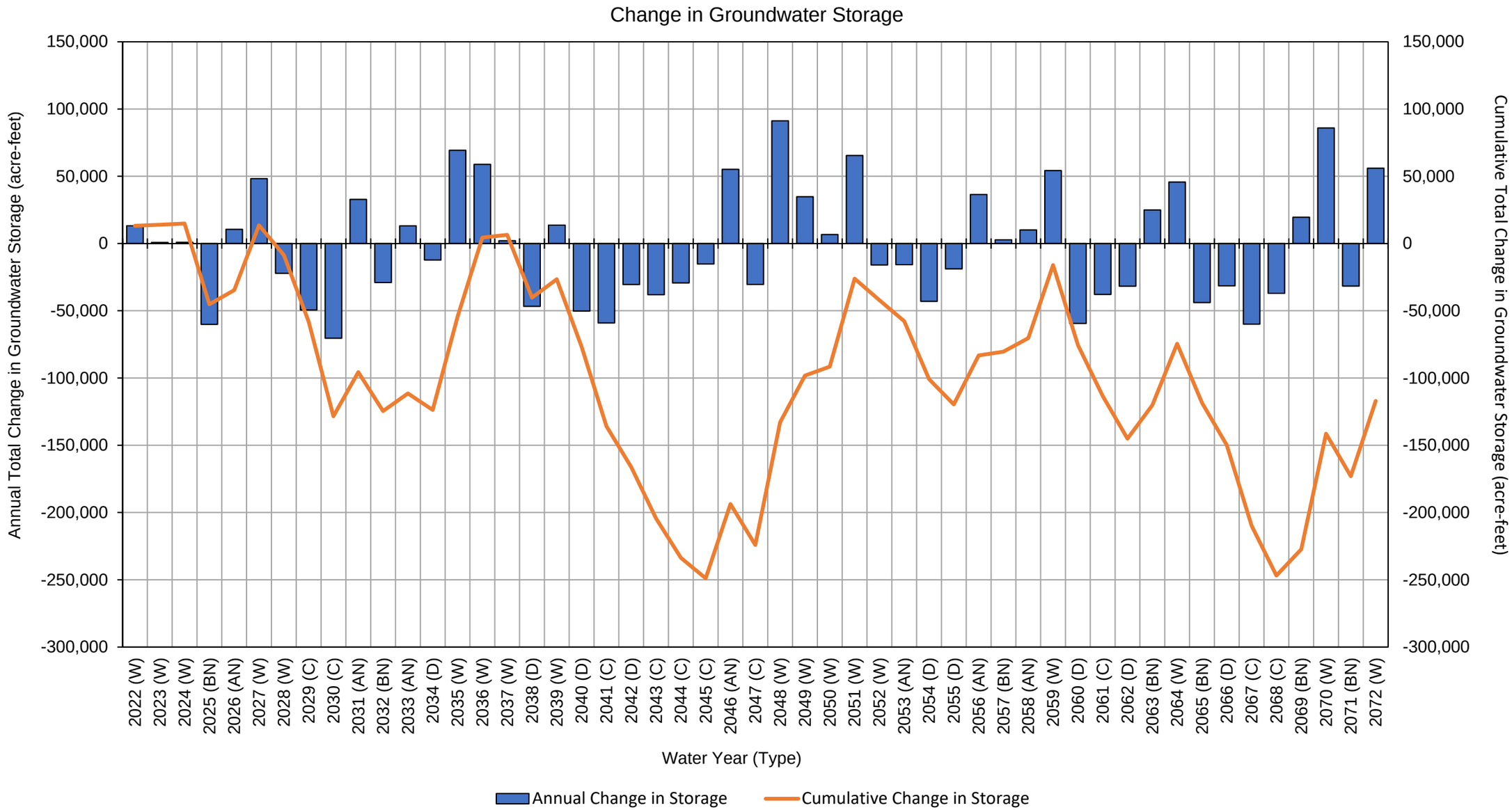
WY (Type)	Subsurface Flows from Uplands
2022 (W)	2,100
2023 (W)	2,100
2024 (W)	2,200
2025 (BN)	2,100
2026 (AN)	2,100
2027 (W)	2,200
2028 (W)	2,100
2029 (C)	2,100
2030 (C)	2,000
2031 (AN)	2,100
2032 (BN)	2,000
2033 (AN)	2,100
2034 (D)	2,100
2035 (W)	2,100
2036 (W)	2,200
2037 (W)	2,200
2038 (D)	2,100
2039 (W)	2,100
2040 (D)	2,100
2041 (C)	2,000
2042 (D)	2,000
2043 (C)	2,000
2044 (C)	2,000
2045 (C)	2,000
2046 (AN)	2,100
2047 (C)	2,000
2048 (W)	2,200
2049 (W)	2,200
2050 (W)	2,200
2051 (W)	2,200
2052 (W)	2,200
2053 (AN)	2,100
2054 (D)	2,000
2055 (D)	2,100
2056 (AN)	2,100
2057 (BN)	2,100
2058 (AN)	2,100
2059 (W)	2,200
2060 (D)	2,100
2061 (C)	2,000
2062 (D)	2,000
2063 (BN)	2,100

Los Molinos Subbasin Projected (Future Land Use) with Projects and Climate Change (2070)
Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		2,100
2065 (BN)		2,000
2066 (D)		2,000
2067 (C)		2,000
2068 (C)		2,000
2069 (BN)		2,100
2070 (W)		2,200
2071 (BN)		2,100
2072 (W)		2,100
Average (2022-2072)		2,100
2022-2072	W	2,200
	AN	2,100
	BN	2,100
	D	2,100
	C	2,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Los Molinos Subbasin Projected (Future Land Use) with Projects and Climate Change (2070)
Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	13,000	13,000
2023 (W)	780	14,000
2024 (W)	950	15,000
2025 (BN)	-60,000	-45,000
2026 (AN)	11,000	-35,000
2027 (W)	48,000	14,000
2028 (W)	-22,000	-8,600
2029 (C)	-49,000	-58,000
2030 (C)	-70,000	-130,000
2031 (AN)	33,000	-96,000
2032 (BN)	-29,000	-120,000
2033 (AN)	13,000	-110,000
2034 (D)	-12,000	-120,000
2035 (W)	69,000	-54,000
2036 (W)	59,000	4,400
2037 (W)	2,100	6,500
2038 (D)	-47,000	-40,000
2039 (W)	14,000	-27,000
2040 (D)	-50,000	-77,000
2041 (C)	-59,000	-140,000
2042 (D)	-31,000	-170,000
2043 (C)	-38,000	-200,000
2044 (C)	-29,000	-230,000
2045 (C)	-15,000	-250,000
2046 (AN)	55,000	-190,000
2047 (C)	-30,000	-220,000
2048 (W)	91,000	-130,000
2049 (W)	35,000	-98,000
2050 (W)	6,700	-92,000
2051 (W)	65,000	-26,000
2052 (W)	-16,000	-42,000
2053 (AN)	-16,000	-58,000
2054 (D)	-43,000	-100,000
2055 (D)	-19,000	-120,000
2056 (AN)	36,000	-83,000
2057 (BN)	2,800	-80,000
2058 (AN)	10,000	-70,000
2059 (W)	54,000	-16,000
2060 (D)	-59,000	-76,000
2061 (C)	-38,000	-110,000
2062 (D)	-32,000	-150,000
2063 (BN)	25,000	-120,000

Los Molinos Subbasin Projected (Future Land Use) with Projects and Climate Change (2070)
Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		46,000	-75,000
2065 (BN)		-44,000	-120,000
2066 (D)		-31,000	-150,000
2067 (C)		-60,000	-210,000
2068 (C)		-37,000	-250,000
2069 (BN)		20,000	-230,000
2070 (W)		86,000	-140,000
2071 (BN)		-32,000	-170,000
2072 (W)		56,000	-120,000
Average (2022-2072)		-2,300	
2022-2072	W		
	AN		
	BN		
	D		
	C		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

Appendix D. Detailed Red Bluff Subbasin Water Budget Results

APPENDIX D

Detailed Red Bluff Subbasin Water Budget Results

D-1 Historical Model Results

D-2 Projected (Current Land Use) Model Results

D-3 Projected (Future Land Use) Model Results

D-4 Projected (Current Land Use) with Climate Change (2030) Model Results

D-5 Projected (Current Land Use) with Climate Change (2070) Model Results

D-6 Projected (Future Land Use) with Climate Change (2030) Model Results

D-7 Projected (Future Land Use) with Climate Change (2070) Model Results

D-8 Projected (Future Land Use) with Projects and Climate Change (2070) Model Results

APPENDIX D-1

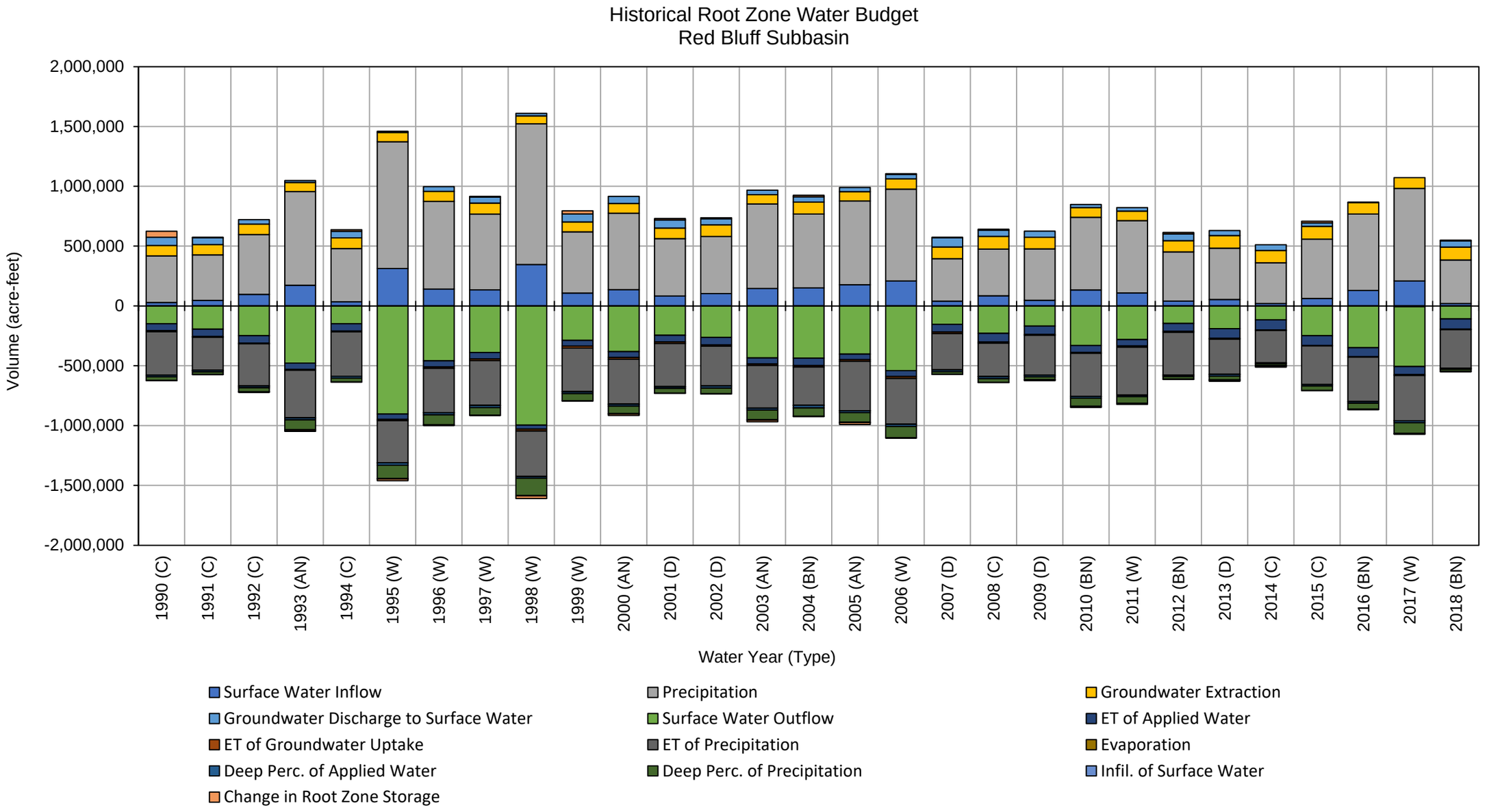
Detailed Red Bluff Subbasin Water Budget Results:

Historical Model Results

APPENDIX D-1a

Detailed Red Bluff Subbasin Water Budget Results:

Historical Model Results – Surface Water System

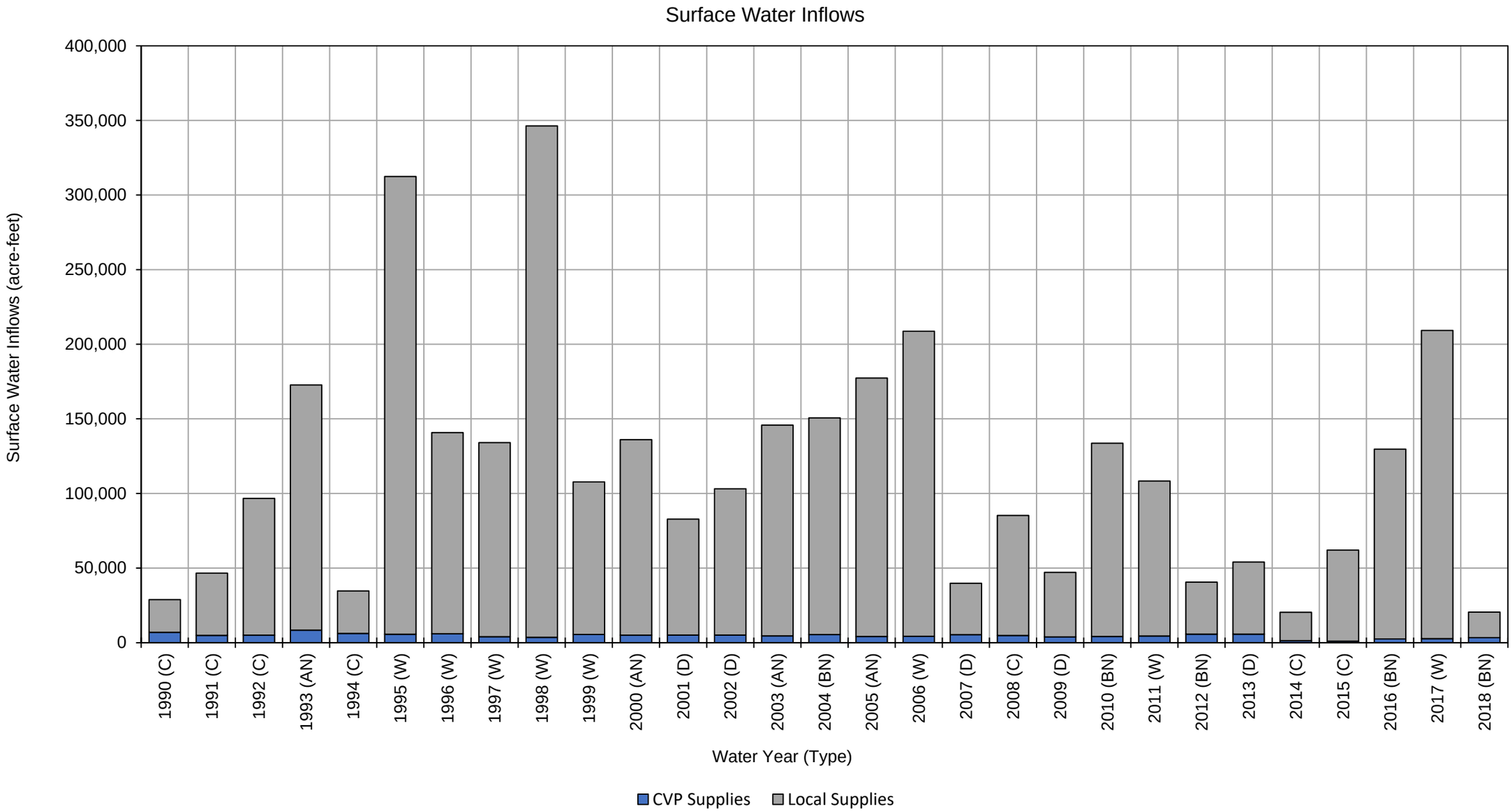

Historical Root Zone Water Budget
Red Bluff Subbasin
Volume (acre-feet)
2,000,000
1,500,000
1,000,000
500,000
0
-500,000
-1,000,000
-1,500,000
-2,000,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Surface Water Inflow
Precipitation
Groundwater Extraction
Groundwater Discharge to Surface Water
Surface Water Outflow
ET of Applied Water
ET of Groundwater Uptake
ET of Precipitation
Evaporation
Deep Perc. of Applied Water
Deep Perc. of Precipitation
Infil. of Surface Water
Change in Root Zone Storage

Red Bluff Subbasin Historical Root Zone Water Budget Summary (acre-feet, rounded)

WY (Type)	Inflows				Outflows								Change in Root Zone Storage
	Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
1990 (C)	29,000	390,000	87,000	69,000	150,000	58,000	9,400	360,000	240	13,000	31,000	2,100	-50,000
1991 (C)	47,000	380,000	87,000	57,000	190,000	62,000	6,300	280,000	330	13,000	21,000	2,000	-4,200
1992 (C)	97,000	500,000	87,000	38,000	250,000	62,000	5,800	350,000	380	14,000	34,000	2,200	1,600
1993 (AN)	170,000	780,000	76,000	15,000	480,000	52,000	7,900	400,000	280	17,000	83,000	2,800	10,000
1994 (C)	35,000	440,000	90,000	55,000	150,000	60,000	7,200	370,000	290	15,000	31,000	2,100	-12,000
1995 (W)	310,000	1,100,000	76,000	11,000	900,000	45,000	10,000	350,000	290	20,000	110,000	2,900	14,000
1996 (W)	140,000	730,000	84,000	40,000	460,000	51,000	13,000	370,000	440	18,000	84,000	2,800	310
1997 (W)	130,000	630,000	92,000	50,000	390,000	55,000	13,000	370,000	570	17,000	63,000	2,400	-6,100
1998 (W)	350,000	1,200,000	66,000	21,000	1,000,000	35,000	16,000	380,000	390	15,000	150,000	2,900	21,000
1999 (W)	110,000	510,000	83,000	67,000	290,000	48,000	17,000	360,000	690	16,000	59,000	2,800	-26,000
2000 (AN)	140,000	640,000	81,000	59,000	380,000	48,000	15,000	380,000	640	16,000	63,000	2,800	13,000
2001 (D)	83,000	480,000	89,000	68,000	250,000	55,000	13,000	360,000	700	14,000	39,000	2,400	-11,000
2002 (D)	100,000	480,000	97,000	51,000	260,000	62,000	11,000	330,000	750	17,000	48,000	2,600	-7,300
2003 (AN)	150,000	710,000	79,000	37,000	430,000	51,000	12,000	360,000	700	15,000	82,000	2,600	13,000
2004 (BN)	150,000	620,000	100,000	44,000	440,000	62,000	13,000	320,000	920	21,000	70,000	3,000	-13,000
2005 (AN)	180,000	700,000	77,000	35,000	400,000	47,000	13,000	410,000	590	15,000	80,000	2,600	16,000
2006 (W)	210,000	770,000	87,000	37,000	540,000	49,000	16,000	380,000	640	18,000	95,000	3,000	-5,100
2007 (D)	40,000	350,000	98,000	78,000	150,000	64,000	12,000	300,000	790	15,000	21,000	2,300	-2,500
2008 (C)	85,000	390,000	110,000	51,000	230,000	73,000	9,400	280,000	1,000	16,000	31,000	2,400	-8,400
2009 (D)	47,000	430,000	97,000	51,000	170,000	70,000	6,900	330,000	910	14,000	24,000	2,100	6,000
2010 (BN)	130,000	610,000	82,000	26,000	330,000	58,000	7,900	360,000	780	15,000	67,000	2,400	7,500
2011 (W)	110,000	600,000	80,000	29,000	280,000	54,000	9,900	400,000	680	13,000	57,000	2,500	4,500
2012 (BN)	41,000	410,000	93,000	57,000	150,000	66,000	8,800	360,000	800	11,000	22,000	2,300	-12,000
2013 (D)	54,000	430,000	110,000	41,000	190,000	81,000	6,500	290,000	1,100	15,000	31,000	2,500	9,200
2014 (C)	20,000	340,000	100,000	48,000	120,000	85,000	3,800	270,000	940	8,800	13,000	1,600	11,000
2015 (C)	62,000	500,000	110,000	28,000	250,000	82,000	3,200	320,000	900	13,000	37,000	1,700	-14,000
2016 (BN)	130,000	640,000	96,000	2,100	350,000	76,000	3,400	370,000	1,100	13,000	50,000	2,200	830
2017 (W)	210,000	770,000	91,000	-6,300	500,000	68,000	6,600	380,000	950	16,000	90,000	2,500	4,200
2018 (BN)	20,000	360,000	110,000	51,000	110,000	85,000	4,200	320,000	840	9,700	17,000	2,000	-6,100
Average (1990-2018)	120,000	580,000	90,000	42,000	340,000	61,000	9,700	350,000	680	15,000	55,000	2,400	-1,600
1990-2018 W	200,000	780,000	82,000	31,000	540,000	51,000	13,000	380,000	580	17,000	88,000	2,700	930
1990-2018 AN	160,000	710,000	78,000	37,000	420,000	49,000	12,000	390,000	550	16,000	77,000	2,700	13,000
1990-2018 BN	95,000	530,000	96,000	36,000	270,000	69,000	7,500	350,000	890	14,000	45,000	2,400	-4,500
1990-2018 D	65,000	430,000	97,000	58,000	200,000	67,000	10,000	320,000	840	15,000	32,000	2,400	-1,200
1990-2018 C	53,000	420,000	95,000	50,000	190,000	69,000	6,400	320,000	580	13,000	28,000	2,000	-11,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

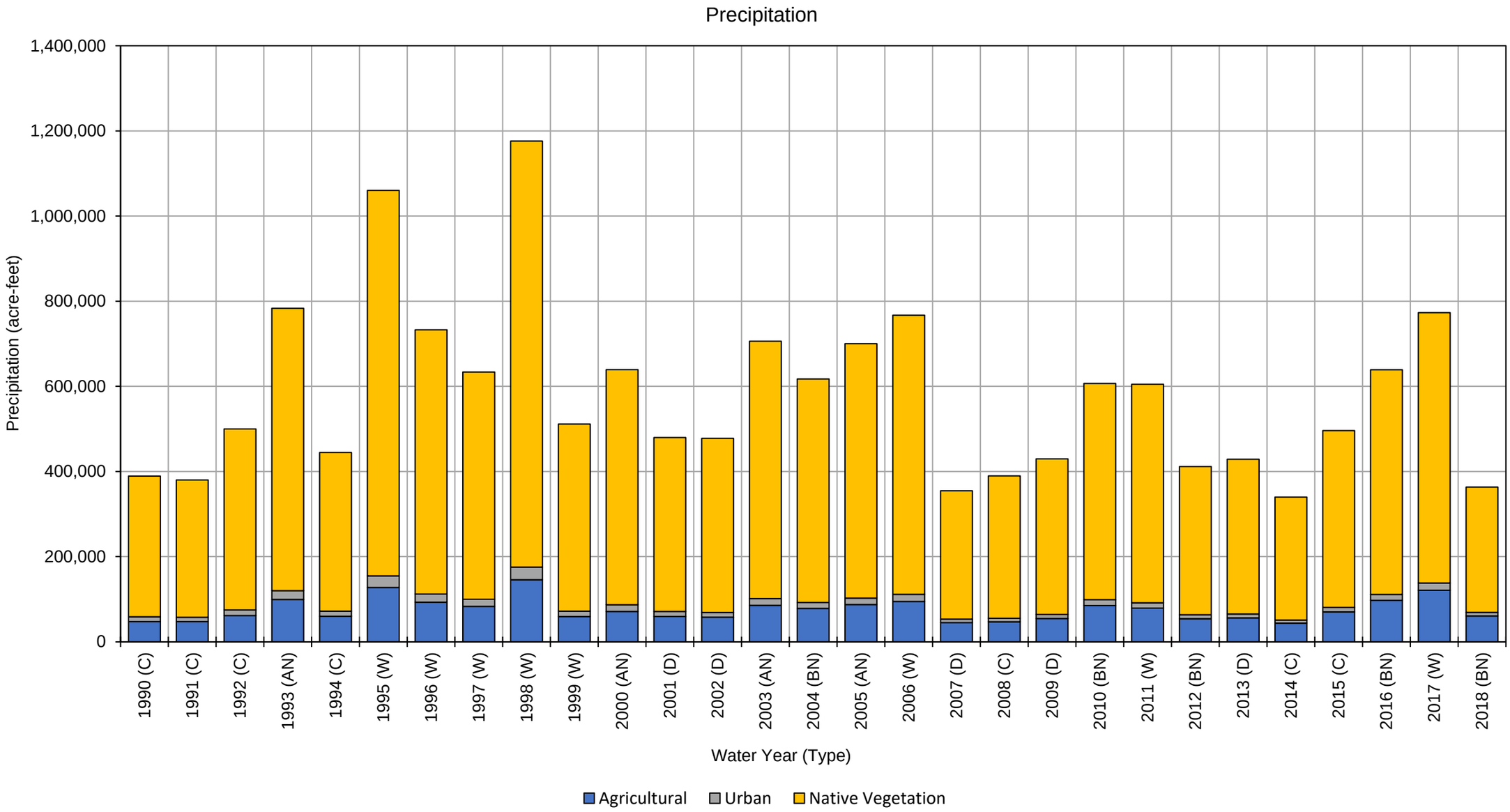

Surface Water Inflows
Surface Water Inflows (acre-feet)
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
CVP Supplies
Local Supplies

Red Bluff Subbasin Historical Surface Water Inflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Total
1990 (C)		6,900	22,000	29,000
1991 (C)		4,900	42,000	47,000
1992 (C)		5,000	92,000	97,000
1993 (AN)		8,400	160,000	170,000
1994 (C)		6,100	29,000	35,000
1995 (W)		5,600	310,000	320,000
1996 (W)		5,900	130,000	140,000
1997 (W)		4,000	130,000	130,000
1998 (W)		3,600	340,000	340,000
1999 (W)		5,500	100,000	110,000
2000 (AN)		5,000	130,000	140,000
2001 (D)		5,000	78,000	83,000
2002 (D)		5,100	98,000	100,000
2003 (AN)		4,500	140,000	140,000
2004 (BN)		5,400	150,000	160,000
2005 (AN)		4,100	170,000	170,000
2006 (W)		4,200	200,000	200,000
2007 (D)		5,400	34,000	39,000
2008 (C)		4,800	80,000	85,000
2009 (D)		3,800	43,000	47,000
2010 (BN)		4,100	130,000	130,000
2011 (W)		4,500	100,000	100,000
2012 (BN)		5,700	35,000	41,000
2013 (D)		5,700	48,000	54,000
2014 (C)		1,300	19,000	20,000
2015 (C)		930	61,000	62,000
2016 (BN)		2,500	130,000	130,000
2017 (W)		2,700	210,000	210,000
2018 (BN)		3,400	17,000	20,000
Average (1990-2018)		4,600	110,000	110,000
1990-2018	W	4,500	190,000	190,000
	AN	5,500	150,000	160,000
	BN	4,200	91,000	95,000
	D	5,000	60,000	65,000
	C	4,300	49,000	53,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

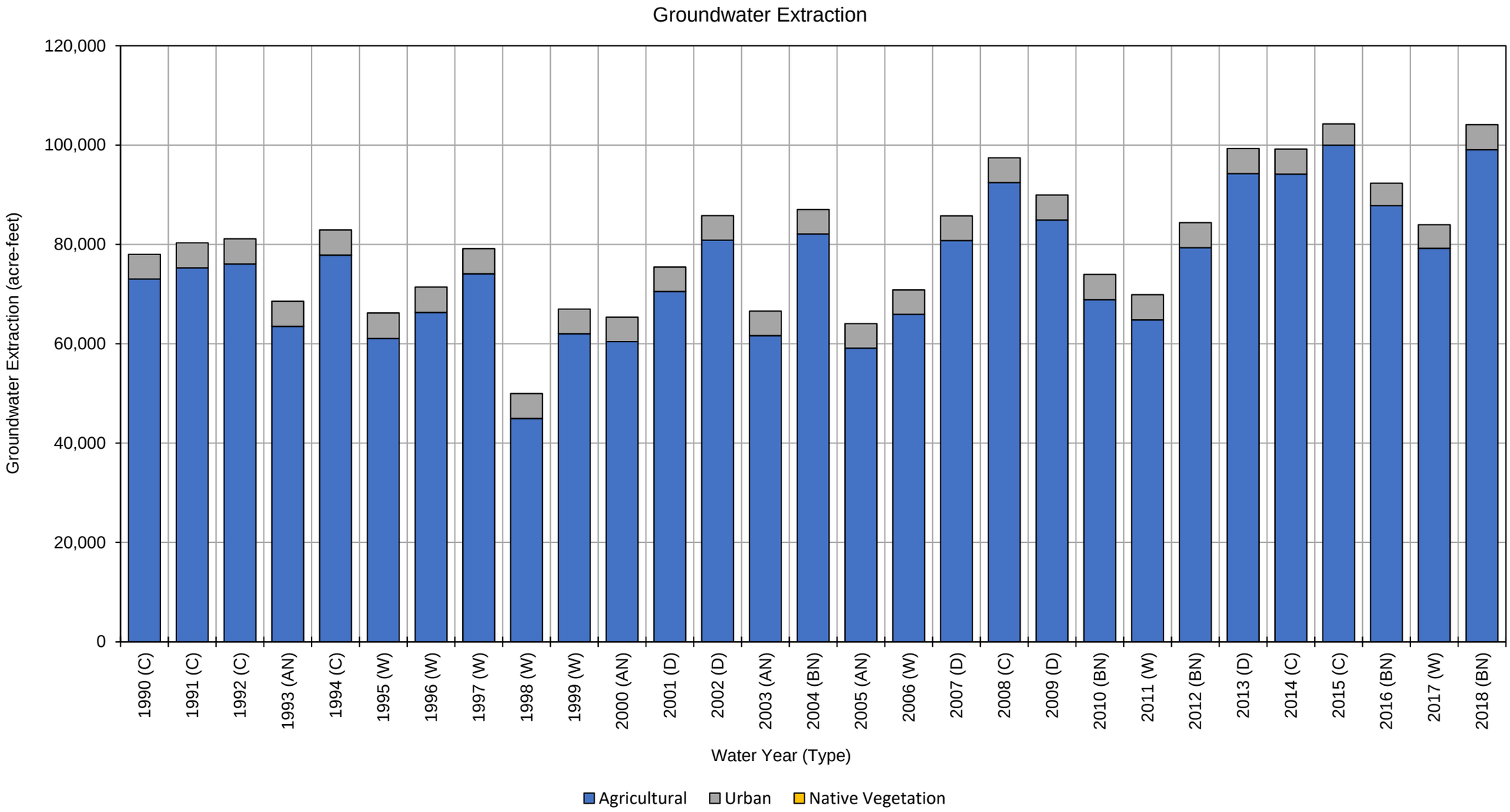

Precipitation
Precipitation (acre-feet)
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Red Bluff Subbasin Historical Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		48,000	11,000	330,000	390,000
1991 (C)		47,000	10,000	320,000	380,000
1992 (C)		62,000	13,000	430,000	510,000
1993 (AN)		99,000	21,000	660,000	780,000
1994 (C)		60,000	12,000	370,000	440,000
1995 (W)		130,000	27,000	910,000	1,100,000
1996 (W)		93,000	19,000	620,000	730,000
1997 (W)		83,000	17,000	530,000	630,000
1998 (W)		150,000	30,000	1,000,000	1,200,000
1999 (W)		59,000	13,000	440,000	510,000
2000 (AN)		71,000	16,000	550,000	640,000
2001 (D)		59,000	12,000	410,000	480,000
2002 (D)		58,000	11,000	410,000	480,000
2003 (AN)		86,000	16,000	600,000	700,000
2004 (BN)		78,000	14,000	520,000	610,000
2005 (AN)		88,000	15,000	600,000	700,000
2006 (W)		95,000	17,000	660,000	770,000
2007 (D)		45,000	8,000	300,000	350,000
2008 (C)		47,000	8,100	330,000	390,000
2009 (D)		55,000	9,500	370,000	430,000
2010 (BN)		85,000	14,000	510,000	610,000
2011 (W)		79,000	12,000	510,000	600,000
2012 (BN)		54,000	9,200	350,000	410,000
2013 (D)		56,000	9,100	360,000	430,000
2014 (C)		44,000	7,300	290,000	340,000
2015 (C)		70,000	11,000	420,000	500,000
2016 (BN)		97,000	14,000	530,000	640,000
2017 (W)		120,000	17,000	640,000	780,000
2018 (BN)		61,000	8,300	290,000	360,000
Average (1990-2018)		75,000	14,000	490,000	580,000
1990-2018	W	100,000	19,000	660,000	780,000
	AN	86,000	17,000	600,000	700,000
	BN	75,000	12,000	440,000	530,000
	D	55,000	9,900	370,000	430,000
	C	54,000	10,000	360,000	420,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

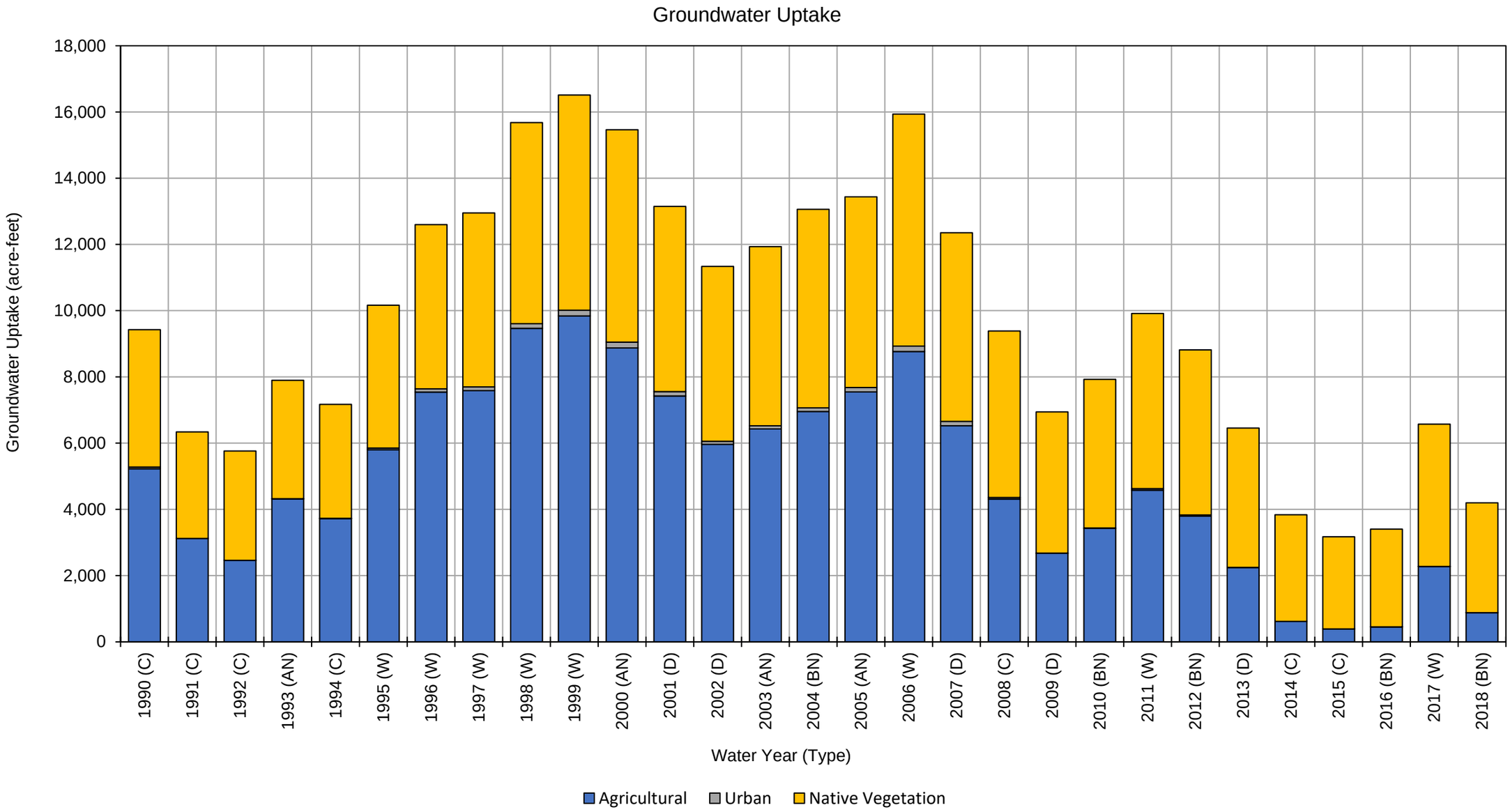

Groundwater Extraction
Groundwater Extraction (acre-feet)
120,000
100,000
80,000
60,000
40,000
20,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Red Bluff Subbasin Historical Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		73,000	5,000	0	78,000
1991 (C)		75,000	5,000	0	80,000
1992 (C)		76,000	5,100	0	81,000
1993 (AN)		63,000	5,100	0	68,000
1994 (C)		78,000	5,100	0	83,000
1995 (W)		61,000	5,100	0	66,000
1996 (W)		66,000	5,100	0	71,000
1997 (W)		74,000	5,000	0	79,000
1998 (W)		45,000	5,000	0	50,000
1999 (W)		62,000	5,000	0	67,000
2000 (AN)		60,000	4,900	0	65,000
2001 (D)		71,000	4,900	0	76,000
2002 (D)		81,000	4,900	0	86,000
2003 (AN)		62,000	4,900	0	67,000
2004 (BN)		82,000	4,900	0	87,000
2005 (AN)		59,000	4,900	0	64,000
2006 (W)		66,000	4,900	0	71,000
2007 (D)		81,000	5,000	0	86,000
2008 (C)		92,000	5,000	0	97,000
2009 (D)		85,000	5,000	0	90,000
2010 (BN)		69,000	5,100	0	74,000
2011 (W)		65,000	5,100	0	70,000
2012 (BN)		79,000	5,000	0	84,000
2013 (D)		94,000	5,100	0	99,000
2014 (C)		94,000	5,000	0	99,000
2015 (C)		100,000	4,300	0	100,000
2016 (BN)		88,000	4,500	0	93,000
2017 (W)		79,000	4,700	0	84,000
2018 (BN)		99,000	5,100	0	100,000
Average (1990-2018)		75,000	5,000	0	80,000
1990-2018	W	65,000	5,000	0	70,000
	AN	61,000	5,000	0	66,000
	BN	83,000	4,900	0	88,000
	D	82,000	5,000	0	87,000
	C	84,000	4,900	0	89,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



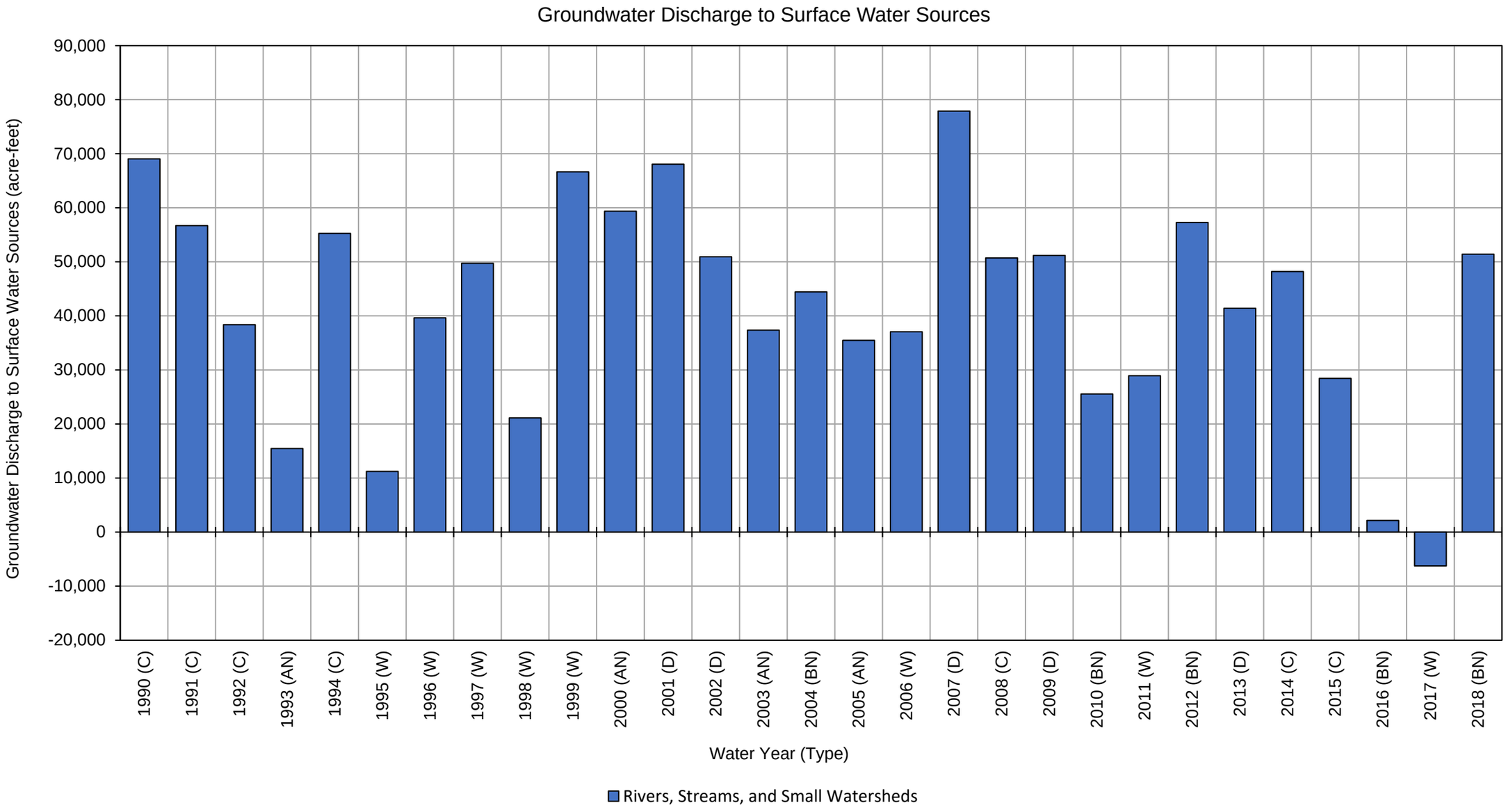
Tehama IHM - Historical

Red Bluff Subbasin Historical Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		5,200	53	4,100	9,400
1991 (C)		3,100	2	3,200	6,300
1992 (C)		2,500	1	3,300	5,800
1993 (AN)		4,300	5	3,600	7,900
1994 (C)		3,700	5	3,400	7,100
1995 (W)		5,800	49	4,300	10,000
1996 (W)		7,500	98	5,000	13,000
1997 (W)		7,600	110	5,300	13,000
1998 (W)		9,500	140	6,100	16,000
1999 (W)		9,800	170	6,500	16,000
2000 (AN)		8,900	170	6,400	15,000
2001 (D)		7,400	140	5,600	13,000
2002 (D)		6,000	95	5,300	11,000
2003 (AN)		6,400	97	5,400	12,000
2004 (BN)		7,000	110	6,000	13,000
2005 (AN)		7,500	130	5,800	13,000
2006 (W)		8,800	160	7,000	16,000
2007 (D)		6,500	130	5,700	12,000
2008 (C)		4,300	50	5,000	9,400
2009 (D)		2,700	4	4,300	7,000
2010 (BN)		3,400	12	4,500	7,900
2011 (W)		4,600	51	5,300	10,000
2012 (BN)		3,800	34	5,000	8,800
2013 (D)		2,200	4	4,200	6,400
2014 (C)		620	0	3,200	3,800
2015 (C)		390	0	2,800	3,200
2016 (BN)		450	0	3,000	3,500
2017 (W)		2,300	2	4,300	6,600
2018 (BN)		880	0	3,300	4,200
Average (1990-2018)		4,900	63	4,700	9,700
1990-2018	W	7,000	98	5,500	13,000
	AN	6,800	100	5,300	12,000
	BN	3,100	32	4,300	7,400
	D	5,000	74	5,000	10,000
	C	2,800	16	3,600	6,400

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

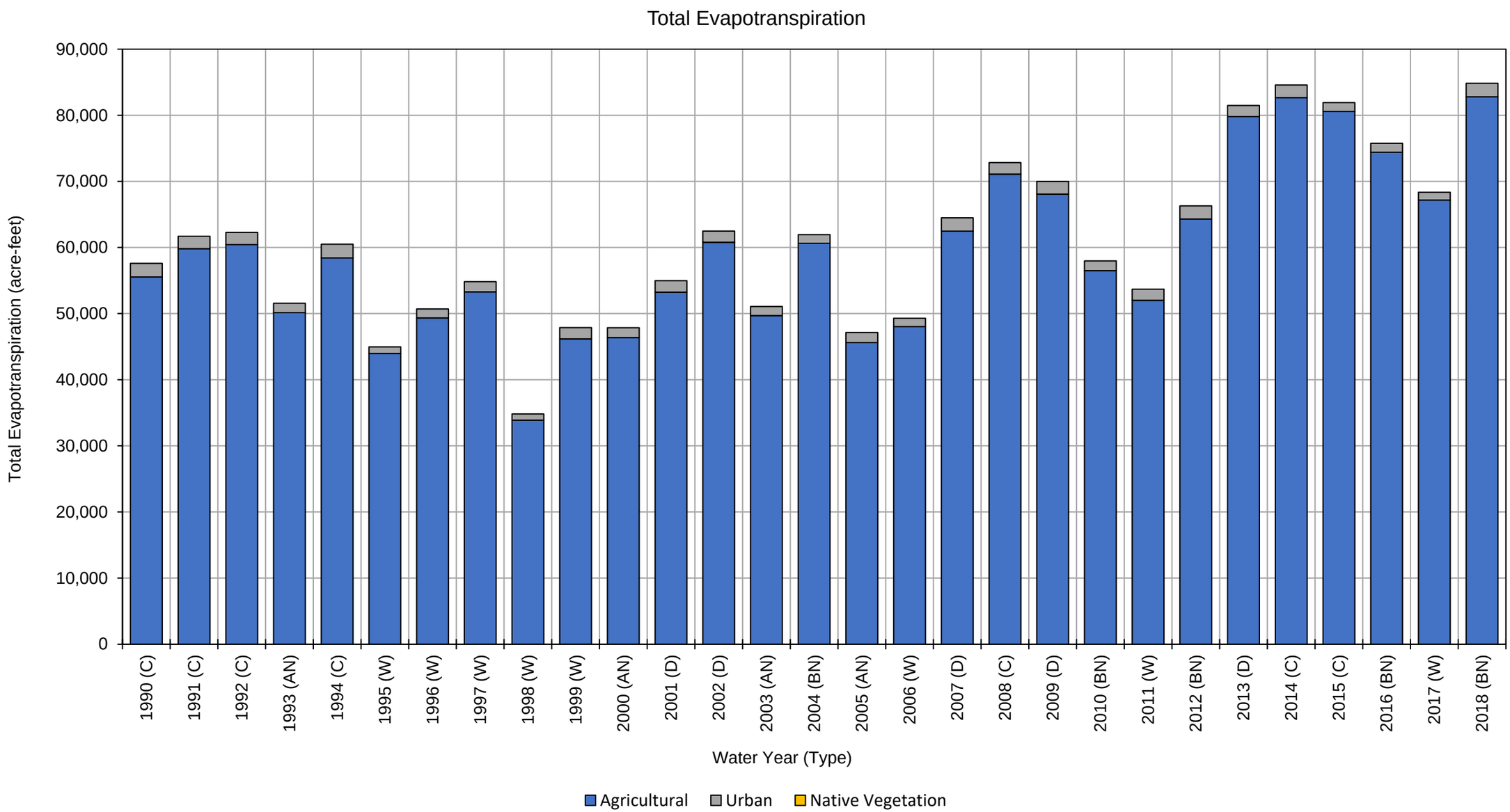

Groundwater Discharge to Surface Water Sources
Groundwater Discharge to Surface Water Sources (acre-feet)
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
-10,000
-20,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Rivers, Streams, and Small Watersheds

Red Bluff Subbasin Historical Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

WY (Type)		Rivers, Streams, and Small Watersheds
1990 (C)		69,000
1991 (C)		57,000
1992 (C)		38,000
1993 (AN)		15,000
1994 (C)		55,000
1995 (W)		11,000
1996 (W)		40,000
1997 (W)		50,000
1998 (W)		21,000
1999 (W)		67,000
2000 (AN)		59,000
2001 (D)		68,000
2002 (D)		51,000
2003 (AN)		37,000
2004 (BN)		44,000
2005 (AN)		35,000
2006 (W)		37,000
2007 (D)		78,000
2008 (C)		51,000
2009 (D)		51,000
2010 (BN)		26,000
2011 (W)		29,000
2012 (BN)		57,000
2013 (D)		41,000
2014 (C)		48,000
2015 (C)		28,000
2016 (BN)		2,100
2017 (W)		-6,300
2018 (BN)		51,000
Average (1990-2018)		42,000
1990-2018	W	31,000
	AN	37,000
	BN	36,000
	D	58,000
	C	50,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

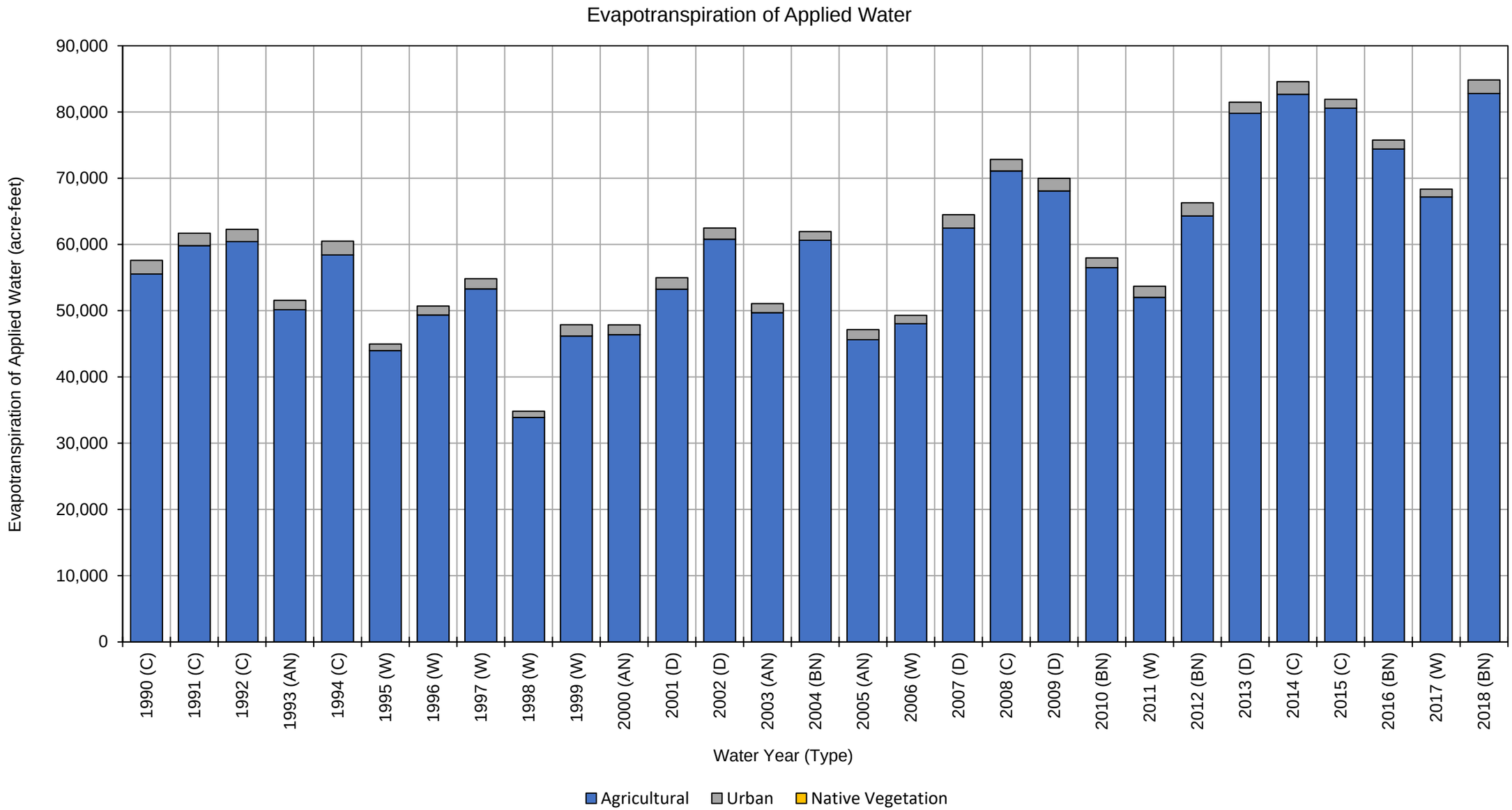

Total Evapotranspiration
Total Evapotranspiration (acre-feet)
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Red Bluff Subbasin Historical Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		99,000	6,700	320,000	430,000
1991 (C)		93,000	5,700	250,000	350,000
1992 (C)		100,000	6,600	310,000	420,000
1993 (AN)		99,000	7,200	350,000	460,000
1994 (C)		100,000	7,000	330,000	440,000
1995 (W)		87,000	6,300	310,000	400,000
1996 (W)		97,000	6,500	330,000	430,000
1997 (W)		100,000	6,700	330,000	440,000
1998 (W)		87,000	6,600	340,000	430,000
1999 (W)		91,000	6,100	330,000	430,000
2000 (AN)		91,000	6,300	340,000	440,000
2001 (D)		99,000	6,000	320,000	430,000
2002 (D)		100,000	5,600	300,000	410,000
2003 (AN)		94,000	5,800	320,000	420,000
2004 (BN)		100,000	5,000	290,000	400,000
2005 (AN)		98,000	6,200	370,000	470,000
2006 (W)		96,000	5,600	350,000	450,000
2007 (D)		100,000	5,300	270,000	380,000
2008 (C)		100,000	4,600	250,000	350,000
2009 (D)		110,000	5,500	300,000	420,000
2010 (BN)		100,000	5,600	310,000	420,000
2011 (W)		100,000	5,900	350,000	460,000
2012 (BN)		110,000	5,700	320,000	440,000
2013 (D)		120,000	4,700	260,000	380,000
2014 (C)		120,000	4,700	240,000	360,000
2015 (C)		120,000	4,700	280,000	400,000
2016 (BN)		120,000	5,500	320,000	450,000
2017 (W)		120,000	5,400	320,000	450,000
2018 (BN)		130,000	5,400	270,000	410,000
Average (1990-2018)		100,000	5,800	310,000	420,000
1990-2018	W	99,000	6,100	330,000	440,000
	AN	95,000	6,400	350,000	450,000
	BN	110,000	5,400	300,000	420,000
	D	100,000	5,400	290,000	400,000
	C	110,000	5,700	280,000	400,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

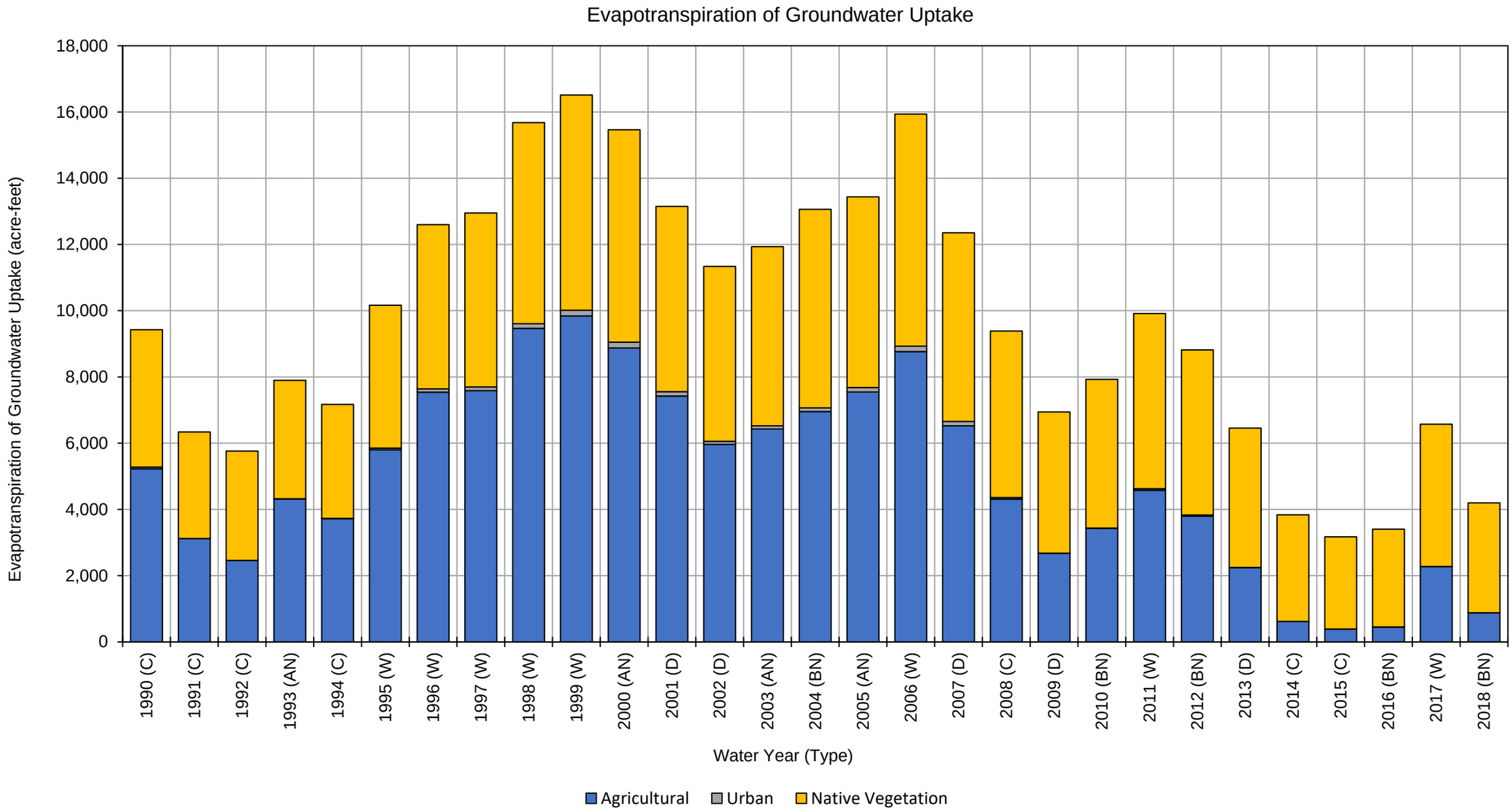

Evapotranspiration of Applied Water
Evapotranspiration of Applied Water (acre-feet)
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Red Bluff Subbasin Historical Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		56,000	2,100	0	58,000
1991 (C)		60,000	1,900	0	62,000
1992 (C)		60,000	1,900	0	62,000
1993 (AN)		50,000	1,400	0	51,000
1994 (C)		58,000	2,100	0	60,000
1995 (W)		44,000	1,000	0	45,000
1996 (W)		49,000	1,400	0	50,000
1997 (W)		53,000	1,500	0	55,000
1998 (W)		34,000	940	0	35,000
1999 (W)		46,000	1,700	0	48,000
2000 (AN)		46,000	1,500	0	48,000
2001 (D)		53,000	1,700	0	55,000
2002 (D)		61,000	1,700	0	63,000
2003 (AN)		50,000	1,400	0	51,000
2004 (BN)		61,000	1,300	0	62,000
2005 (AN)		46,000	1,500	0	48,000
2006 (W)		48,000	1,300	0	49,000
2007 (D)		62,000	2,000	0	64,000
2008 (C)		71,000	1,700	0	73,000
2009 (D)		68,000	1,900	0	70,000
2010 (BN)		56,000	1,500	0	58,000
2011 (W)		52,000	1,700	0	54,000
2012 (BN)		64,000	2,000	0	66,000
2013 (D)		80,000	1,700	0	82,000
2014 (C)		83,000	1,900	0	85,000
2015 (C)		81,000	1,300	0	82,000
2016 (BN)		74,000	1,400	0	75,000
2017 (W)		67,000	1,200	0	68,000
2018 (BN)		83,000	2,000	0	85,000
Average (1990-2018)		59,000	1,600	0	61,000
1990-2018	W	49,000	1,300	0	50,000
	AN	48,000	1,500	0	50,000
	BN	68,000	1,600	0	70,000
	D	65,000	1,800	0	67,000
	C	67,000	1,800	0	69,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



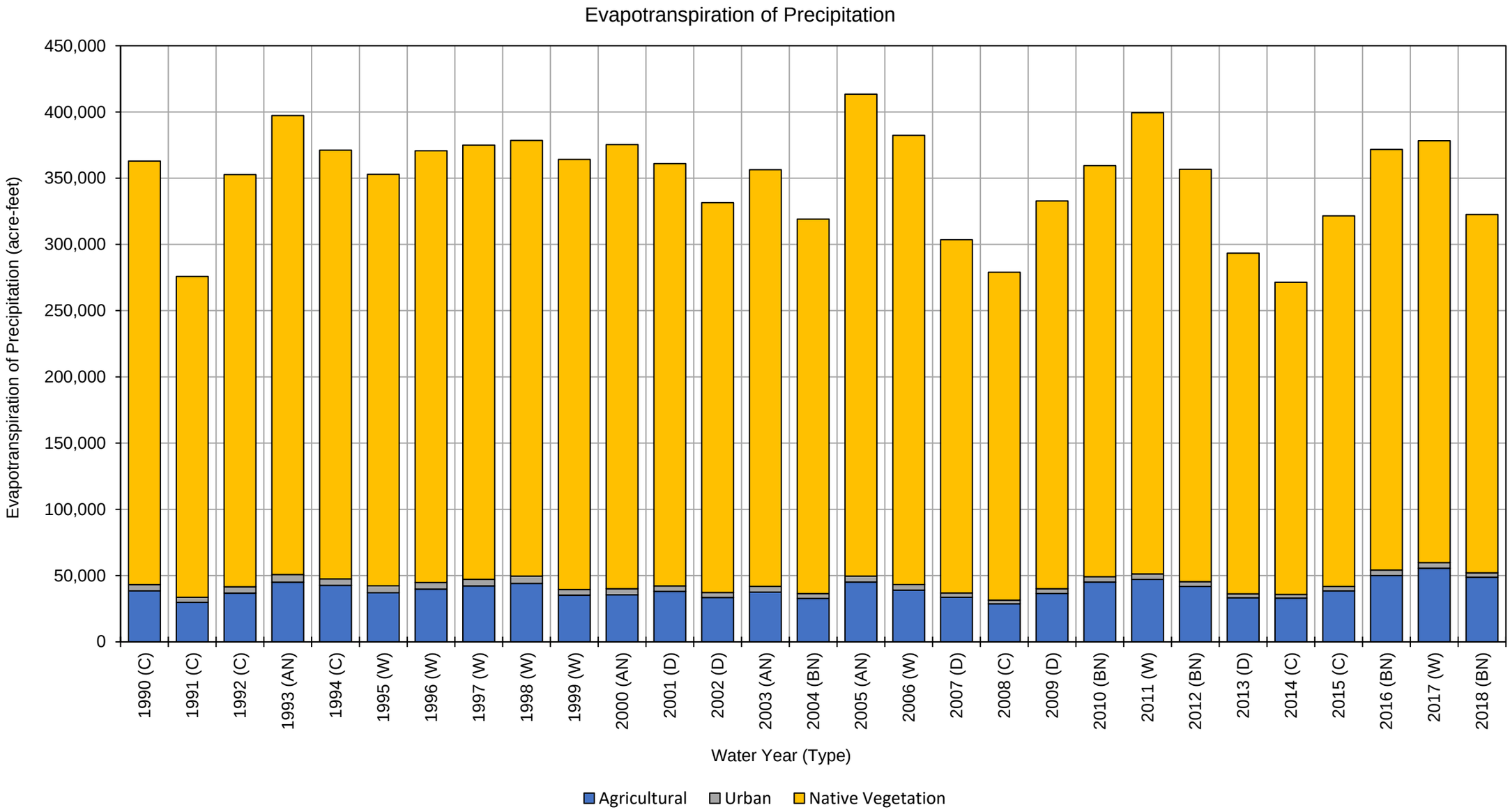
Tehama IHM - Historical

Red Bluff Subbasin Historical Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		5,200	53	4,100	9,400
1991 (C)		3,100	2	3,200	6,300
1992 (C)		2,500	1	3,300	5,800
1993 (AN)		4,300	5	3,600	7,900
1994 (C)		3,700	5	3,400	7,100
1995 (W)		5,800	49	4,300	10,000
1996 (W)		7,500	98	5,000	13,000
1997 (W)		7,600	110	5,300	13,000
1998 (W)		9,500	140	6,100	16,000
1999 (W)		9,800	170	6,500	16,000
2000 (AN)		8,900	170	6,400	15,000
2001 (D)		7,400	140	5,600	13,000
2002 (D)		6,000	95	5,300	11,000
2003 (AN)		6,400	97	5,400	12,000
2004 (BN)		7,000	110	6,000	13,000
2005 (AN)		7,500	130	5,800	13,000
2006 (W)		8,800	160	7,000	16,000
2007 (D)		6,500	130	5,700	12,000
2008 (C)		4,300	50	5,000	9,400
2009 (D)		2,700	4	4,300	7,000
2010 (BN)		3,400	12	4,500	7,900
2011 (W)		4,600	51	5,300	10,000
2012 (BN)		3,800	34	5,000	8,800
2013 (D)		2,200	4	4,200	6,400
2014 (C)		620	0	3,200	3,800
2015 (C)		390	0	2,800	3,200
2016 (BN)		450	0	3,000	3,500
2017 (W)		2,300	2	4,300	6,600
2018 (BN)		880	0	3,300	4,200
Average (1990-2018)		4,900	63	4,700	9,700
1990-2018	W	7,000	98	5,500	13,000
	AN	6,800	100	5,300	12,000
	BN	3,100	32	4,300	7,400
	D	5,000	74	5,000	10,000
	C	2,800	16	3,600	6,400

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

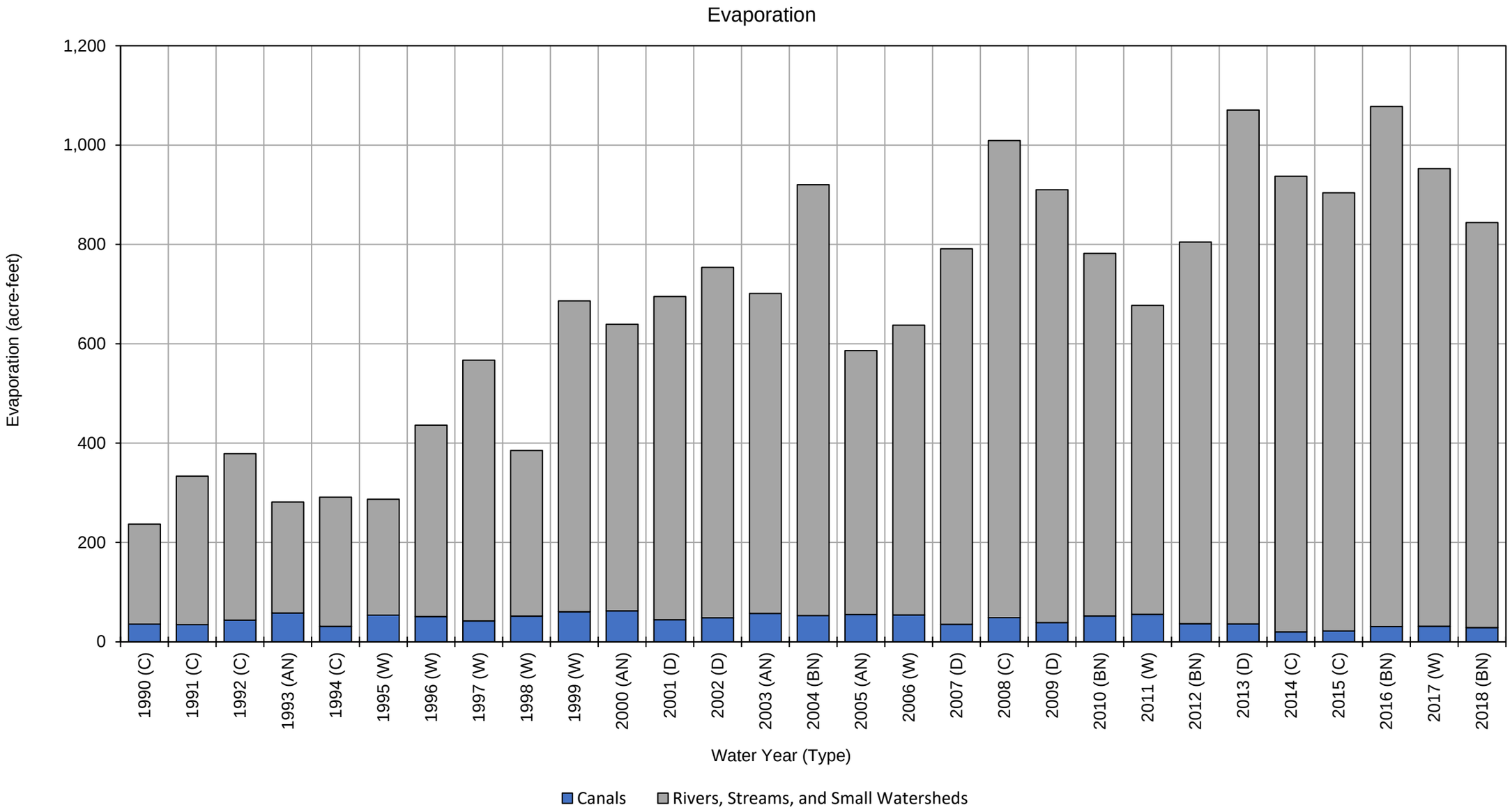

Evapotranspiration of Precipitation
Evapotranspiration of Precipitation (acre-feet)
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Red Bluff Subbasin Historical Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		38,000	4,600	320,000	360,000
1991 (C)		30,000	3,800	240,000	270,000
1992 (C)		37,000	4,700	310,000	350,000
1993 (AN)		45,000	5,800	350,000	400,000
1994 (C)		43,000	4,900	320,000	370,000
1995 (W)		37,000	5,200	310,000	350,000
1996 (W)		40,000	5,000	330,000	380,000
1997 (W)		42,000	5,000	330,000	380,000
1998 (W)		44,000	5,500	330,000	380,000
1999 (W)		35,000	4,200	320,000	360,000
2000 (AN)		35,000	4,700	340,000	380,000
2001 (D)		38,000	4,100	320,000	360,000
2002 (D)		33,000	3,800	290,000	330,000
2003 (AN)		38,000	4,300	310,000	350,000
2004 (BN)		33,000	3,600	280,000	320,000
2005 (AN)		45,000	4,600	360,000	410,000
2006 (W)		39,000	4,200	340,000	380,000
2007 (D)		34,000	3,200	270,000	310,000
2008 (C)		29,000	2,800	250,000	280,000
2009 (D)		36,000	3,600	290,000	330,000
2010 (BN)		45,000	4,100	310,000	360,000
2011 (W)		47,000	4,100	350,000	400,000
2012 (BN)		42,000	3,600	310,000	360,000
2013 (D)		33,000	3,000	260,000	300,000
2014 (C)		33,000	2,800	240,000	280,000
2015 (C)		38,000	3,300	280,000	320,000
2016 (BN)		50,000	4,200	320,000	370,000
2017 (W)		56,000	4,300	320,000	380,000
2018 (BN)		49,000	3,300	270,000	320,000
Average (1990-2018)		39,000	4,200	310,000	350,000
1990-2018	W	42,000	4,700	330,000	380,000
	AN	41,000	4,800	340,000	390,000
	BN	44,000	3,800	300,000	350,000
	D	35,000	3,500	290,000	330,000
	C	35,000	3,800	280,000	320,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

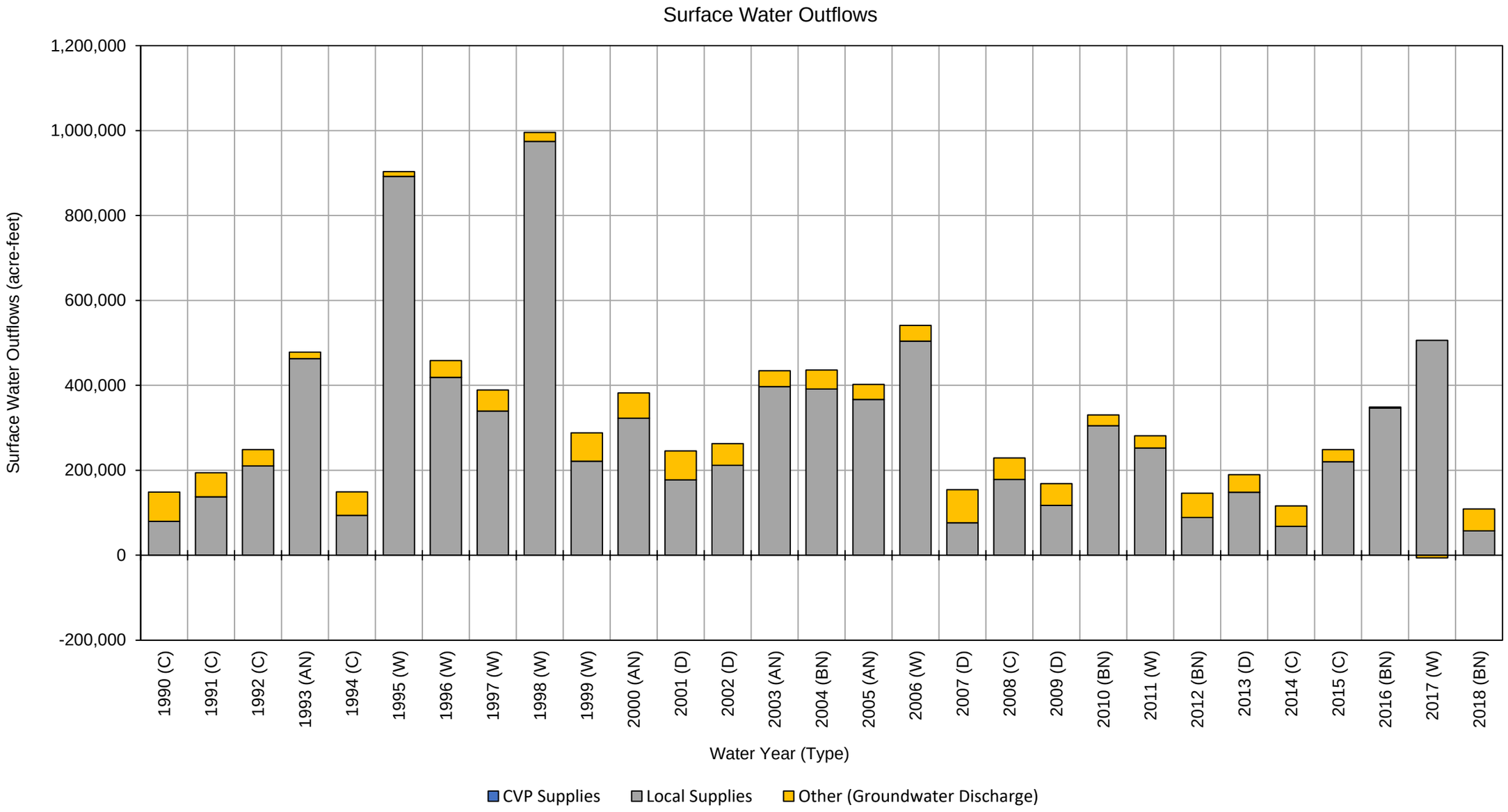

Evaporation
Evaporation (acre-feet)
1,200
1,000
800
600
400
200
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Canals
Rivers, Streams, and Small Watersheds

Red Bluff Subbasin Historical Evaporation (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Watersheds	Total
1990 (C)		36	200	240
1991 (C)		35	300	340
1992 (C)		44	340	380
1993 (AN)		58	220	280
1994 (C)		31	260	290
1995 (W)		54	230	280
1996 (W)		51	390	440
1997 (W)		42	520	560
1998 (W)		52	330	380
1999 (W)		60	630	690
2000 (AN)		62	580	640
2001 (D)		44	650	690
2002 (D)		48	710	760
2003 (AN)		57	640	700
2004 (BN)		53	870	920
2005 (AN)		55	530	590
2006 (W)		54	580	630
2007 (D)		35	760	800
2008 (C)		48	960	1,000
2009 (D)		39	870	910
2010 (BN)		52	730	780
2011 (W)		55	620	680
2012 (BN)		36	770	810
2013 (D)		36	1,000	1,000
2014 (C)		20	920	940
2015 (C)		22	880	900
2016 (BN)		31	1,000	1,000
2017 (W)		31	920	950
2018 (BN)		29	820	850
Average (1990-2018)		44	630	670
1990-2018	W	50	530	580
	AN	58	490	550
	BN	40	850	890
	D	40	800	840
	C	34	550	580

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

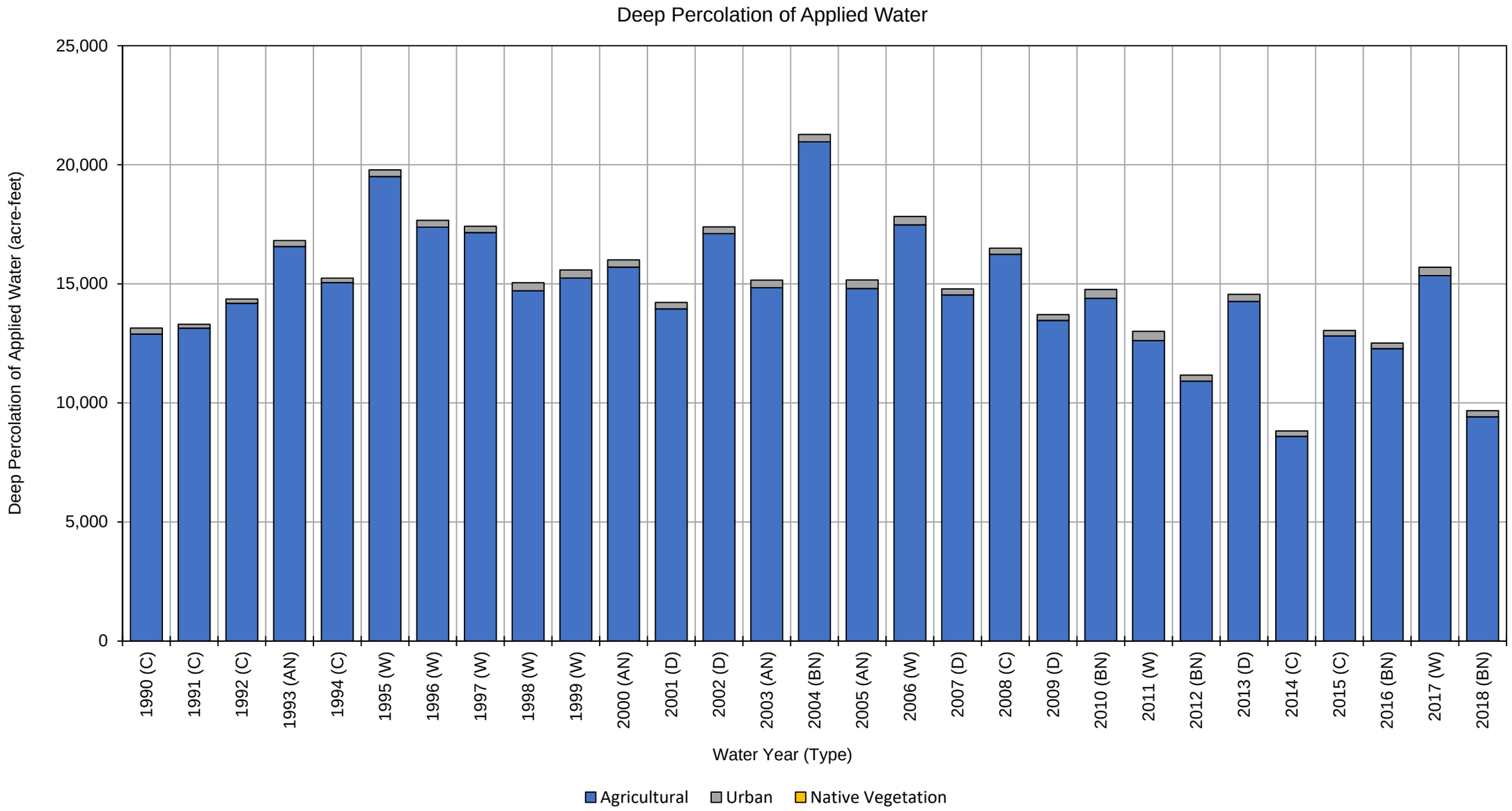

Surface Water Outflows
Surface Water Outflows (acre-feet)
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
-200,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
CVP Supplies
Local Supplies
Other (Groundwater Discharge)

Red Bluff Subbasin Historical Surface Water Outflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
1990 (C)		0	80,000	69,000	150,000
1991 (C)		0	140,000	57,000	200,000
1992 (C)		0	210,000	38,000	250,000
1993 (AN)		0	460,000	15,000	480,000
1994 (C)		0	94,000	55,000	150,000
1995 (W)		0	890,000	11,000	900,000
1996 (W)		0	420,000	40,000	460,000
1997 (W)		0	340,000	50,000	390,000
1998 (W)		0	970,000	21,000	990,000
1999 (W)		0	220,000	67,000	290,000
2000 (AN)		0	320,000	59,000	380,000
2001 (D)		0	180,000	68,000	250,000
2002 (D)		0	210,000	51,000	260,000
2003 (AN)		0	400,000	37,000	440,000
2004 (BN)		0	390,000	44,000	430,000
2005 (AN)		0	370,000	35,000	410,000
2006 (W)		0	500,000	37,000	540,000
2007 (D)		0	76,000	78,000	150,000
2008 (C)		0	180,000	51,000	230,000
2009 (D)		0	120,000	51,000	170,000
2010 (BN)		0	300,000	26,000	330,000
2011 (W)		0	250,000	29,000	280,000
2012 (BN)		0	89,000	57,000	150,000
2013 (D)		0	150,000	41,000	190,000
2014 (C)		0	68,000	48,000	120,000
2015 (C)		0	220,000	28,000	250,000
2016 (BN)		0	350,000	2,100	350,000
2017 (W)		0	510,000	-6,300	500,000
2018 (BN)		0	57,000	51,000	110,000
Average (1990-2018)		0	300,000	42,000	340,000
1990-2018	W	0	510,000	31,000	540,000
	AN	0	390,000	37,000	430,000
	BN	0	240,000	36,000	280,000
	D	0	150,000	58,000	210,000
	C	0	140,000	50,000	190,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
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C Critical



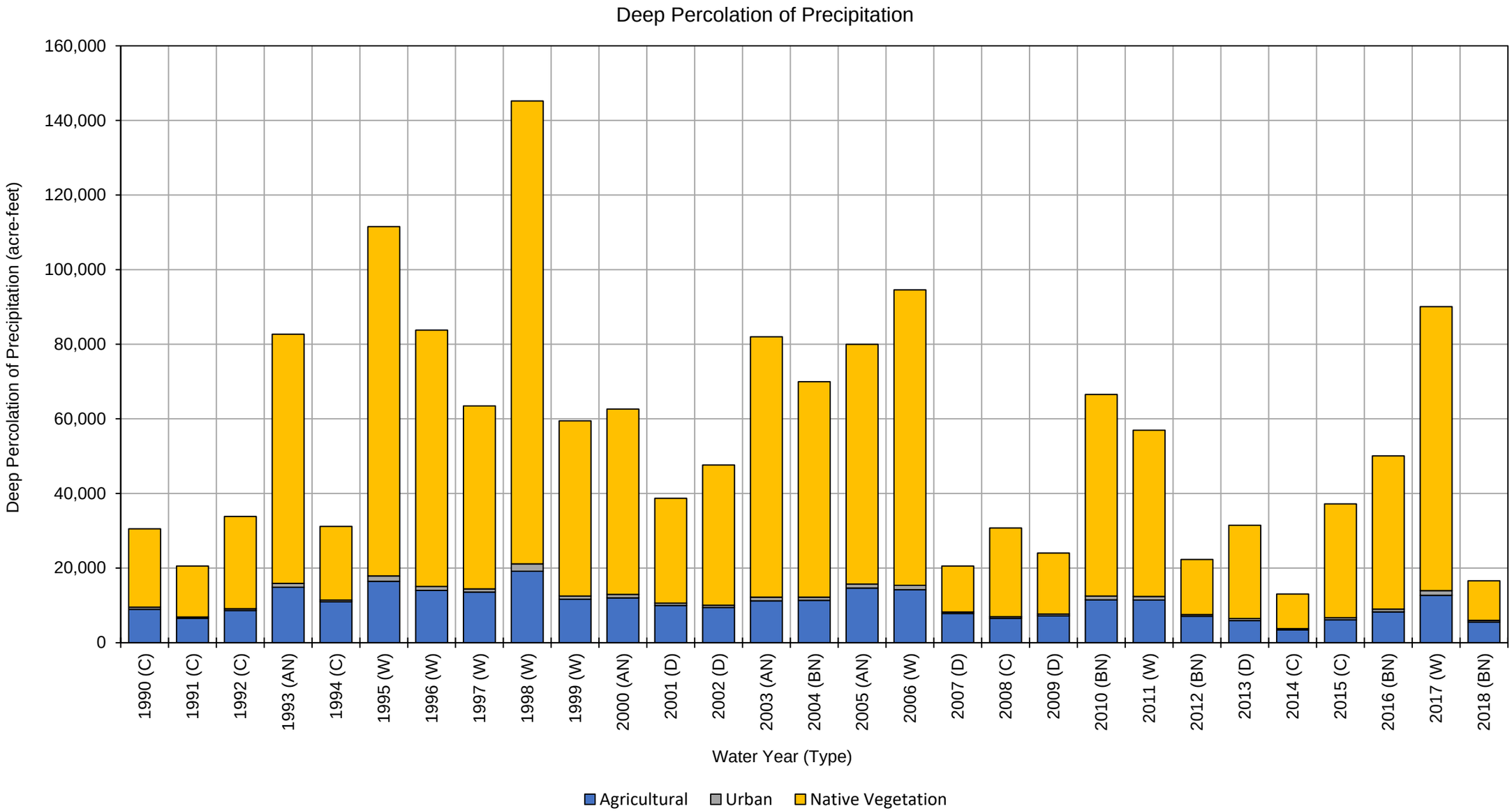
Tehama IHM - Historical

Red Bluff Subbasin Historical Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		13,000	250	0	13,000
1991 (C)		13,000	160	0	13,000
1992 (C)		14,000	180	0	14,000
1993 (AN)		17,000	250	0	17,000
1994 (C)		15,000	190	0	15,000
1995 (W)		20,000	280	0	20,000
1996 (W)		17,000	290	0	17,000
1997 (W)		17,000	260	0	17,000
1998 (W)		15,000	340	0	15,000
1999 (W)		15,000	340	0	15,000
2000 (AN)		16,000	300	0	16,000
2001 (D)		14,000	270	0	14,000
2002 (D)		17,000	280	0	17,000
2003 (AN)		15,000	320	0	15,000
2004 (BN)		21,000	310	0	21,000
2005 (AN)		15,000	360	0	15,000
2006 (W)		17,000	350	0	17,000
2007 (D)		15,000	260	0	15,000
2008 (C)		16,000	260	0	16,000
2009 (D)		13,000	240	0	13,000
2010 (BN)		14,000	370	0	14,000
2011 (W)		13,000	390	0	13,000
2012 (BN)		11,000	250	0	11,000
2013 (D)		14,000	300	0	14,000
2014 (C)		8,600	230	0	8,800
2015 (C)		13,000	230	0	13,000
2016 (BN)		12,000	240	0	12,000
2017 (W)		15,000	350	0	15,000
2018 (BN)		9,400	250	0	9,700
Average (1990-2018)		15,000	280	0	15,000
1990-2018	W	16,000	330	0	16,000
	AN	15,000	310	0	15,000
	BN	14,000	280	0	14,000
	D	15,000	270	0	15,000
	C	13,000	210	0	13,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

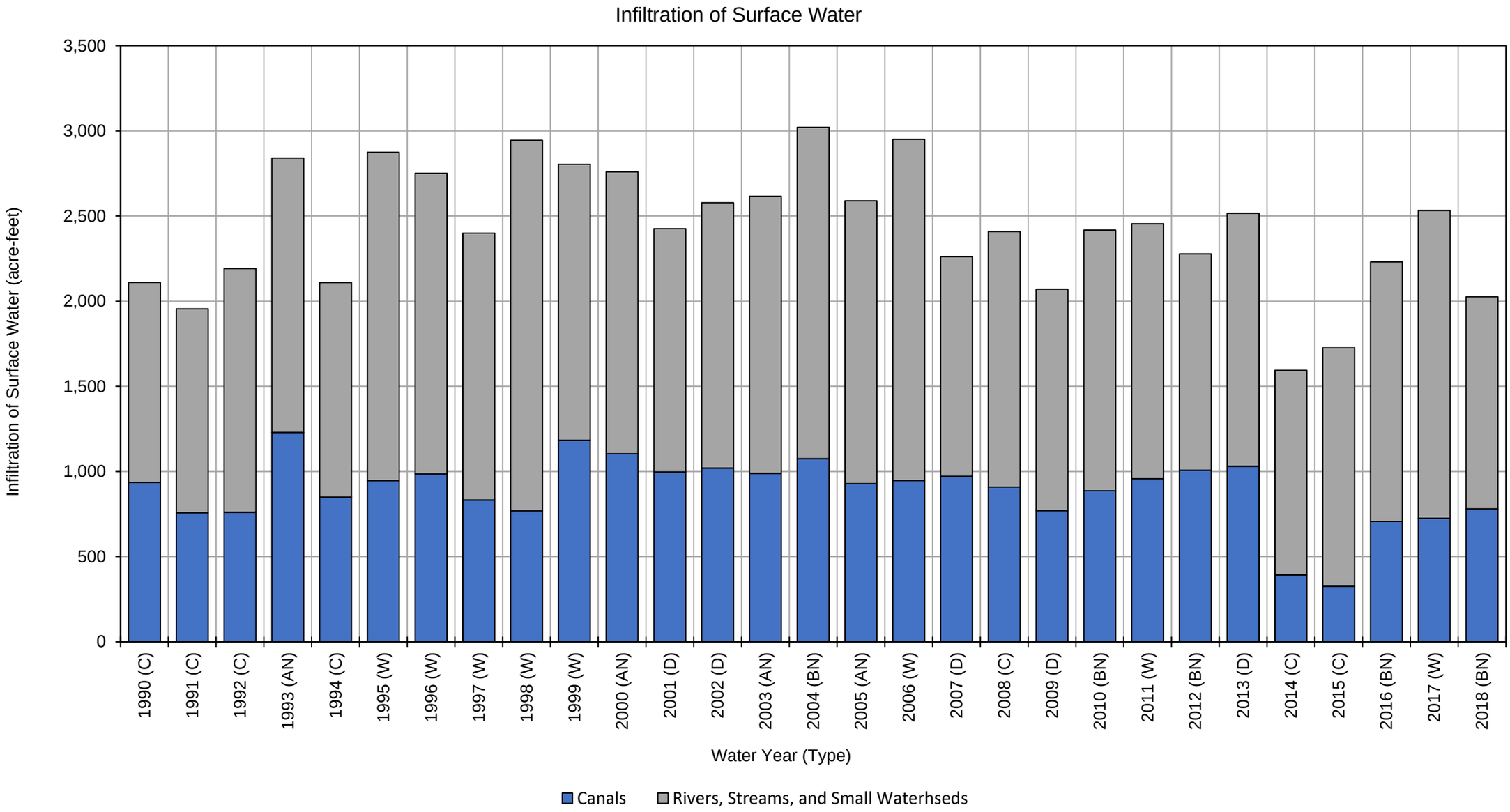

Deep Percolation of Precipitation
Deep Percolation of Precipitation (acre-feet)
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Agricultural
Urban
Native Vegetation

Red Bluff Subbasin Historical Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
1990 (C)		8,900	570	21,000	30,000
1991 (C)		6,500	330	14,000	21,000
1992 (C)		8,600	450	25,000	34,000
1993 (AN)		15,000	1,000	67,000	83,000
1994 (C)		11,000	440	20,000	31,000
1995 (W)		16,000	1,500	94,000	110,000
1996 (W)		14,000	1,100	69,000	84,000
1997 (W)		14,000	860	49,000	64,000
1998 (W)		19,000	2,000	120,000	140,000
1999 (W)		12,000	840	47,000	60,000
2000 (AN)		12,000	950	50,000	63,000
2001 (D)		10,000	630	28,000	39,000
2002 (D)		9,400	620	38,000	48,000
2003 (AN)		11,000	1,000	70,000	82,000
2004 (BN)		11,000	850	58,000	70,000
2005 (AN)		15,000	1,100	64,000	80,000
2006 (W)		14,000	1,200	79,000	94,000
2007 (D)		7,800	400	12,000	20,000
2008 (C)		6,500	420	24,000	31,000
2009 (D)		7,200	460	16,000	24,000
2010 (BN)		11,000	1,000	54,000	66,000
2011 (W)		11,000	950	45,000	57,000
2012 (BN)		7,100	460	15,000	23,000
2013 (D)		5,900	540	25,000	31,000
2014 (C)		3,400	330	9,300	13,000
2015 (C)		6,100	570	31,000	38,000
2016 (BN)		8,300	730	41,000	50,000
2017 (W)		13,000	1,300	76,000	90,000
2018 (BN)		5,500	420	11,000	17,000
Average (1990-2018)		10,000	790	44,000	55,000
1990-2018	W	14,000	1,200	73,000	88,000
	AN	13,000	1,000	63,000	77,000
	BN	8,700	690	36,000	45,000
	D	8,100	530	24,000	33,000
	C	7,300	440	20,000	28,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

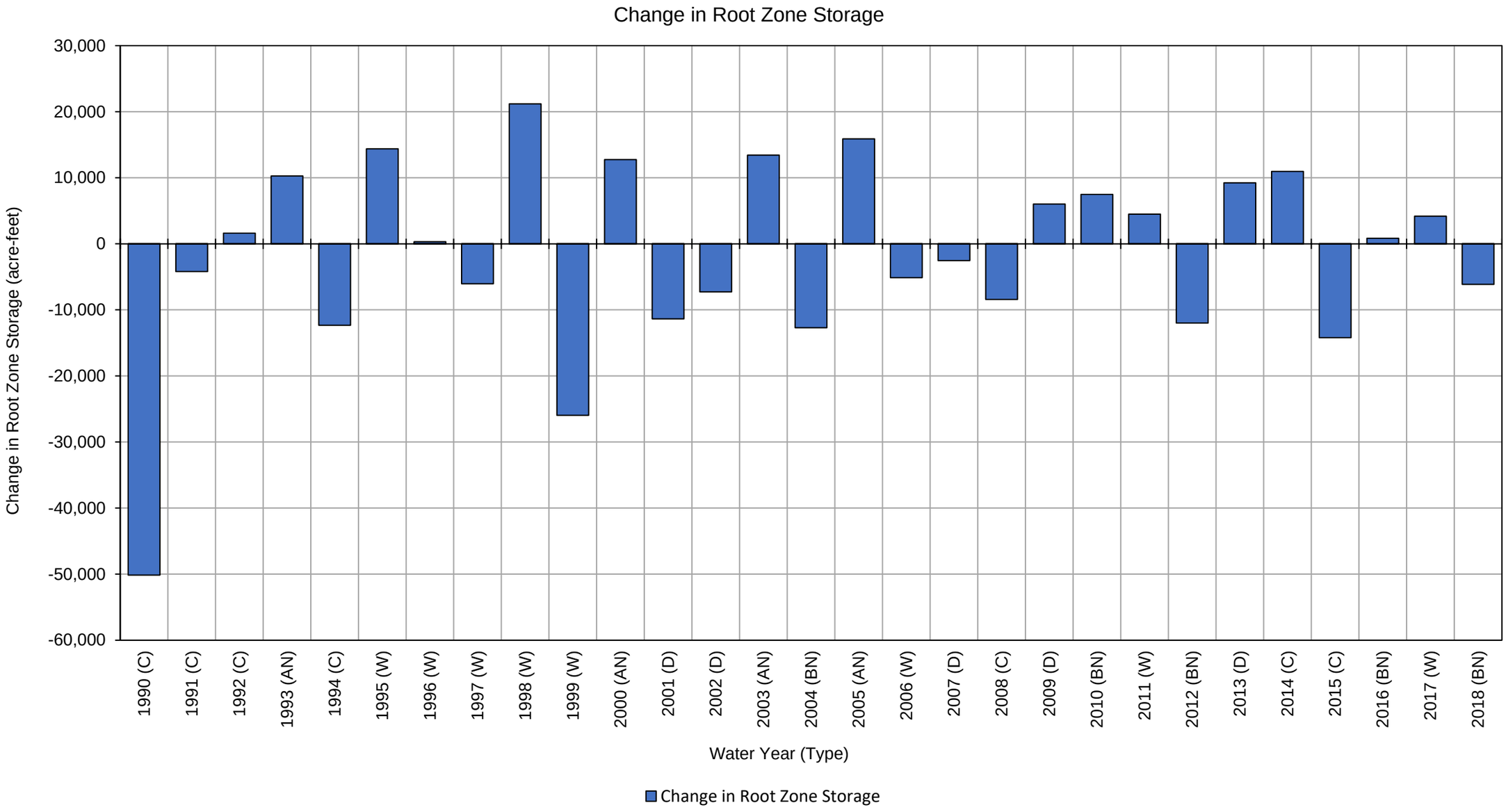

Infiltration of Surface Water
Infiltration of Surface Water (acre-feet)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Canals
Rivers, Streams, and Small Waterhseds

Red Bluff Subbasin Historical Infiltration of Surface Water (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Waterhseds	Total
1990 (C)		940	1,200	2,100
1991 (C)		760	1,200	2,000
1992 (C)		760	1,400	2,200
1993 (AN)		1,200	1,600	2,800
1994 (C)		850	1,300	2,200
1995 (W)		950	1,900	2,900
1996 (W)		990	1,800	2,800
1997 (W)		830	1,600	2,400
1998 (W)		770	2,200	3,000
1999 (W)		1,200	1,600	2,800
2000 (AN)		1,100	1,700	2,800
2001 (D)		1,000	1,400	2,400
2002 (D)		1,000	1,600	2,600
2003 (AN)		990	1,600	2,600
2004 (BN)		1,100	1,900	3,000
2005 (AN)		930	1,700	2,600
2006 (W)		950	2,000	3,000
2007 (D)		970	1,300	2,300
2008 (C)		910	1,500	2,400
2009 (D)		770	1,300	2,100
2010 (BN)		890	1,500	2,400
2011 (W)		960	1,500	2,500
2012 (BN)		1,000	1,300	2,300
2013 (D)		1,000	1,500	2,500
2014 (C)		390	1,200	1,600
2015 (C)		330	1,400	1,700
2016 (BN)		710	1,500	2,200
2017 (W)		730	1,800	2,500
2018 (BN)		780	1,200	2,000
Average (1990-2018)		890	1,500	2,400
1990-2018	W	920	1,800	2,700
	AN	1,100	1,600	2,700
	BN	890	1,500	2,400
	D	960	1,400	2,400
	C	700	1,300	2,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical


Change in Root Zone Storage
Change in Root Zone Storage (acre-feet)
30,000
20,000
10,000
0
-10,000
-20,000
-30,000
-40,000
-50,000
-60,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Change in Root Zone Storage

Red Bluff Subbasin Historical Change in Root Zone Storage (acre-feet, rounded)

WY (Type)		Change in Root Zone Storage
1990 (C)		-50,000
1991 (C)		-4,200
1992 (C)		1,600
1993 (AN)		10,000
1994 (C)		-12,000
1995 (W)		14,000
1996 (W)		310
1997 (W)		-6,100
1998 (W)		21,000
1999 (W)		-26,000
2000 (AN)		13,000
2001 (D)		-11,000
2002 (D)		-7,300
2003 (AN)		13,000
2004 (BN)		-13,000
2005 (AN)		16,000
2006 (W)		-5,100
2007 (D)		-2,500
2008 (C)		-8,400
2009 (D)		6,000
2010 (BN)		7,500
2011 (W)		4,500
2012 (BN)		-12,000
2013 (D)		9,200
2014 (C)		11,000
2015 (C)		-14,000
2016 (BN)		830
2017 (W)		4,200
2018 (BN)		-6,100
Average (1990-2018)		-1,600
1990-2018	W	930
	AN	13,000
	BN	-4,500
	D	-1,200
	C	-11,000

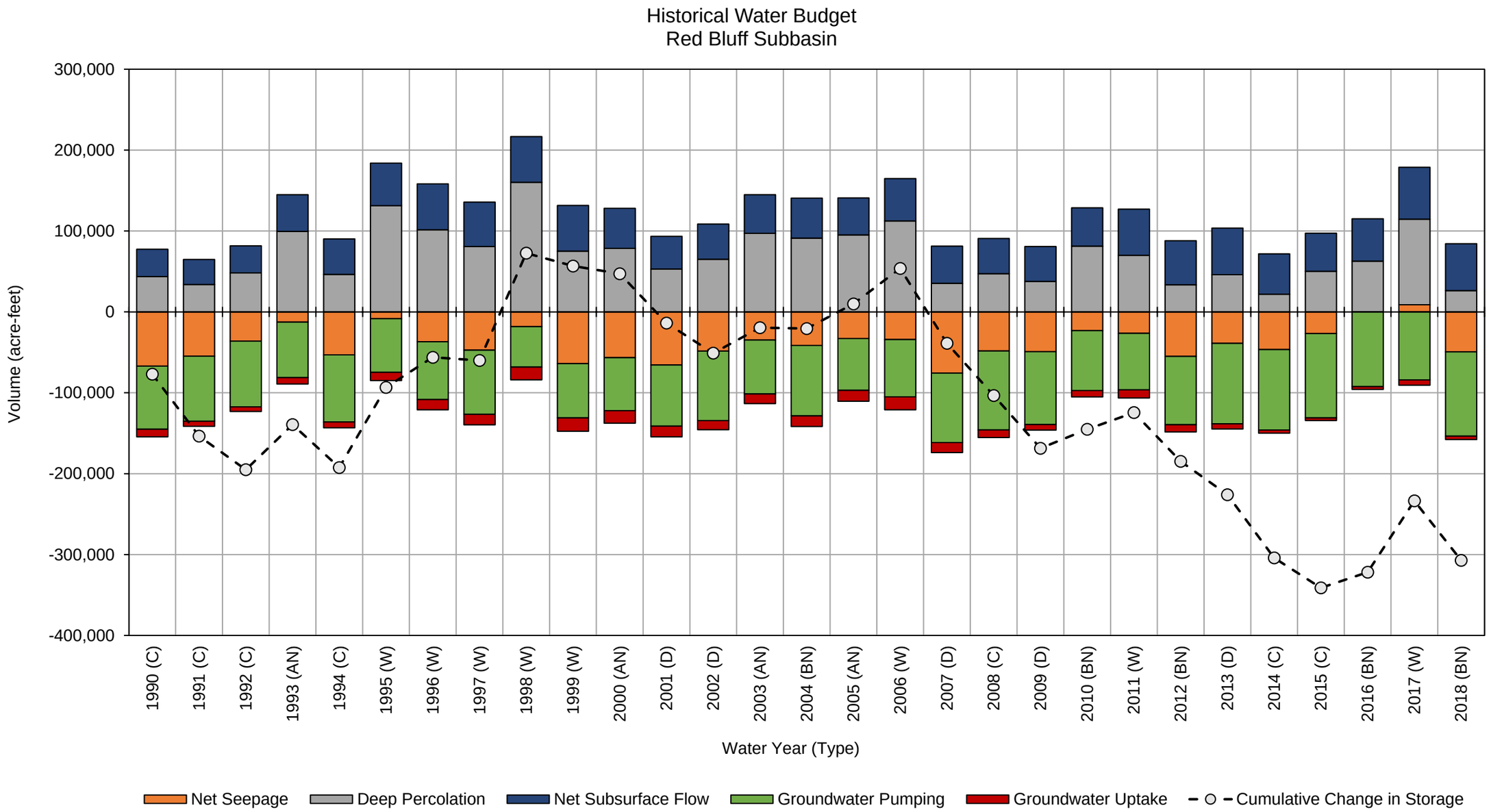
Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX D-1b

Detailed Red Bluff Subbasin Water Budget Results:

Historical Model Results – Groundwater System

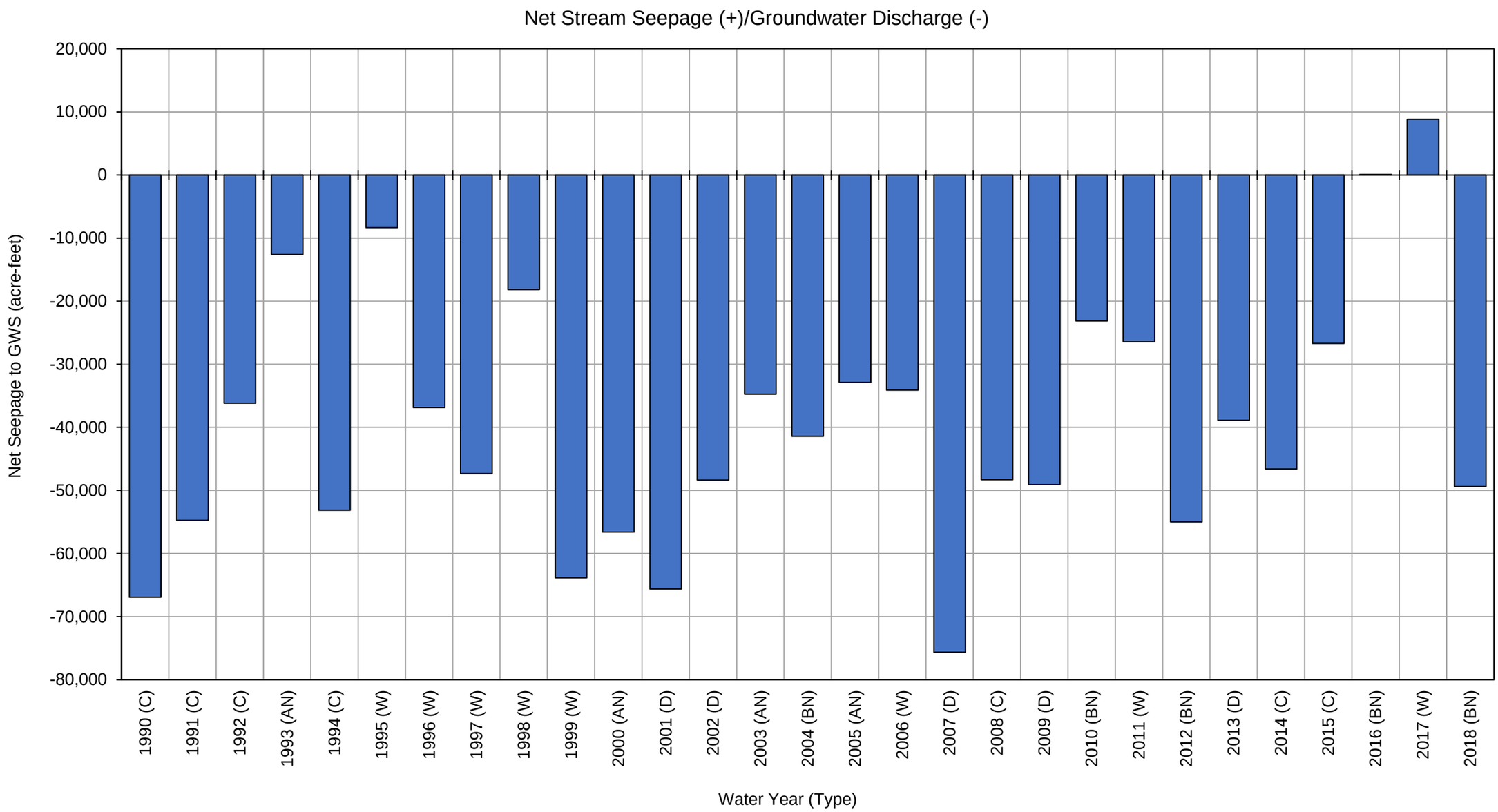

Historical Water Budget
Red Bluff Subbasin
Volume (acre-feet)
300,000
200,000
100,000
0
-100,000
-200,000
-300,000
-400,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Red Bluff Subbasin Historical Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
1990 (C)		-67,000	44,000	-78,000	-9,400	34,000	-77,000	-77,000
1991 (C)		-55,000	34,000	-80,000	-6,300	31,000	-77,000	-150,000
1992 (C)		-36,000	48,000	-81,000	-5,800	33,000	-41,000	-200,000
1993 (AN)		-13,000	100,000	-69,000	-7,900	45,000	56,000	-140,000
1994 (C)		-53,000	46,000	-83,000	-7,200	44,000	-53,000	-190,000
1995 (W)		-8,300	130,000	-66,000	-10,000	53,000	99,000	-93,000
1996 (W)		-37,000	100,000	-72,000	-13,000	57,000	37,000	-56,000
1997 (W)		-47,000	81,000	-79,000	-13,000	55,000	-3,900	-60,000
1998 (W)		-18,000	160,000	-50,000	-16,000	56,000	130,000	73,000
1999 (W)		-64,000	75,000	-67,000	-17,000	57,000	-16,000	57,000
2000 (AN)		-57,000	79,000	-66,000	-15,000	49,000	-9,500	47,000
2001 (D)		-66,000	53,000	-76,000	-13,000	40,000	-61,000	-14,000
2002 (D)		-48,000	65,000	-86,000	-11,000	44,000	-37,000	-51,000
2003 (AN)		-35,000	97,000	-67,000	-12,000	48,000	31,000	-20,000
2004 (BN)		-41,000	91,000	-87,000	-13,000	49,000	-1,000	-21,000
2005 (AN)		-33,000	95,000	-64,000	-13,000	46,000	30,000	9,900
2006 (W)		-34,000	110,000	-71,000	-16,000	52,000	44,000	54,000
2007 (D)		-76,000	35,000	-86,000	-12,000	46,000	-93,000	-39,000
2008 (C)		-48,000	47,000	-98,000	-9,400	44,000	-65,000	-100,000
2009 (D)		-49,000	38,000	-90,000	-6,900	43,000	-65,000	-170,000
2010 (BN)		-23,000	81,000	-74,000	-7,900	47,000	23,000	-150,000
2011 (W)		-26,000	70,000	-70,000	-9,900	57,000	21,000	-120,000
2012 (BN)		-55,000	33,000	-85,000	-8,800	55,000	-60,000	-180,000
2013 (D)		-39,000	46,000	-99,000	-6,500	58,000	-41,000	-230,000
2014 (C)		-47,000	22,000	-99,000	-3,800	50,000	-78,000	-300,000
2015 (C)		-27,000	50,000	-100,000	-3,200	47,000	-37,000	-340,000
2016 (BN)		82	63,000	-92,000	-3,400	52,000	19,000	-320,000
2017 (W)		8,800	110,000	-84,000	-6,600	64,000	88,000	-230,000
2018 (BN)		-49,000	26,000	-100,000	-4,200	58,000	-74,000	-310,000
Average (1990-2018)		-39,000	70,000	-80,000	-9,700	49,000	-11,000	
1990-2018	W	-28,000	100,000	-70,000	-13,000	56,000		
	AN	-34,000	93,000	-66,000	-12,000	47,000		
	BN	-34,000	59,000	-88,000	-7,500	52,000		
	D	-56,000	47,000	-87,000	-10,000	46,000		
	C	-48,000	42,000	-89,000	-6,400	40,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

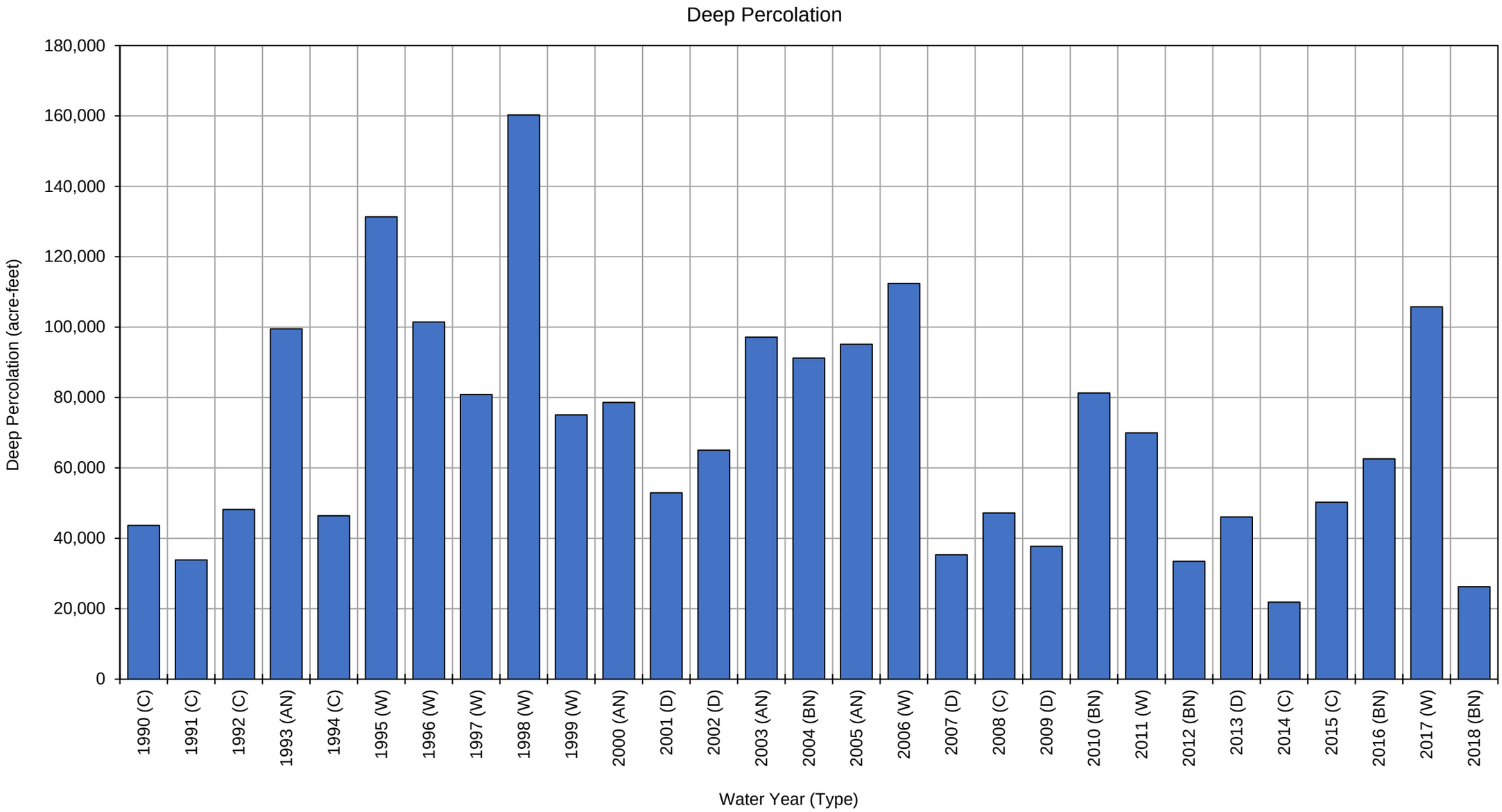

Net Stream Seepage (+)/Groundwater Discharge (-)
Net Seepage to GWS (acre-feet)
20,000
10,000
0
-10,000
-20,000
-30,000
-40,000
-50,000
-60,000
-70,000
-80,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)

Red Bluff Subbasin Historical Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
1990 (C)		-67,000
1991 (C)		-55,000
1992 (C)		-36,000
1993 (AN)		-13,000
1994 (C)		-53,000
1995 (W)		-8,300
1996 (W)		-37,000
1997 (W)		-47,000
1998 (W)		-18,000
1999 (W)		-64,000
2000 (AN)		-57,000
2001 (D)		-66,000
2002 (D)		-48,000
2003 (AN)		-35,000
2004 (BN)		-41,000
2005 (AN)		-33,000
2006 (W)		-34,000
2007 (D)		-76,000
2008 (C)		-48,000
2009 (D)		-49,000
2010 (BN)		-23,000
2011 (W)		-26,000
2012 (BN)		-55,000
2013 (D)		-39,000
2014 (C)		-47,000
2015 (C)		-27,000
2016 (BN)		82
2017 (W)		8,800
2018 (BN)		-49,000
Average (1990-2018)		-39,000
1990-2018	W	-28,000
	AN	-34,000
	BN	-34,000
	D	-56,000
	C	-48,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

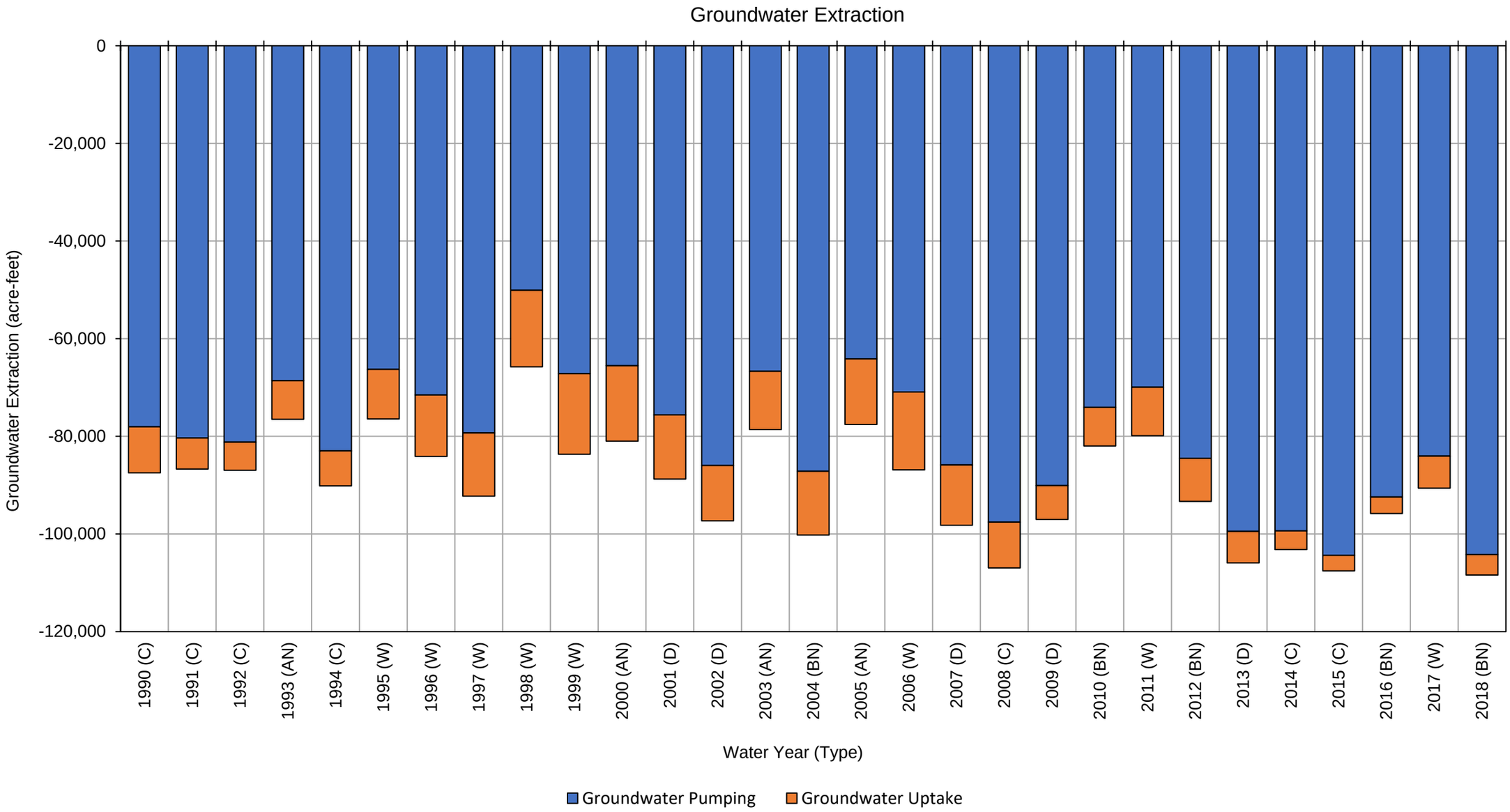

Deep Percolation
Deep Percolation (acre-feet)
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)

Red Bluff Subbasin Historical Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
1990 (C)		44,000
1991 (C)		34,000
1992 (C)		48,000
1993 (AN)		100,000
1994 (C)		46,000
1995 (W)		130,000
1996 (W)		100,000
1997 (W)		81,000
1998 (W)		160,000
1999 (W)		75,000
2000 (AN)		79,000
2001 (D)		53,000
2002 (D)		65,000
2003 (AN)		97,000
2004 (BN)		91,000
2005 (AN)		95,000
2006 (W)		110,000
2007 (D)		35,000
2008 (C)		47,000
2009 (D)		38,000
2010 (BN)		81,000
2011 (W)		70,000
2012 (BN)		33,000
2013 (D)		46,000
2014 (C)		22,000
2015 (C)		50,000
2016 (BN)		63,000
2017 (W)		110,000
2018 (BN)		26,000
Average (1990-2018)		70,000
1990-2018	W	100,000
	AN	93,000
	BN	59,000
	D	47,000
	C	42,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



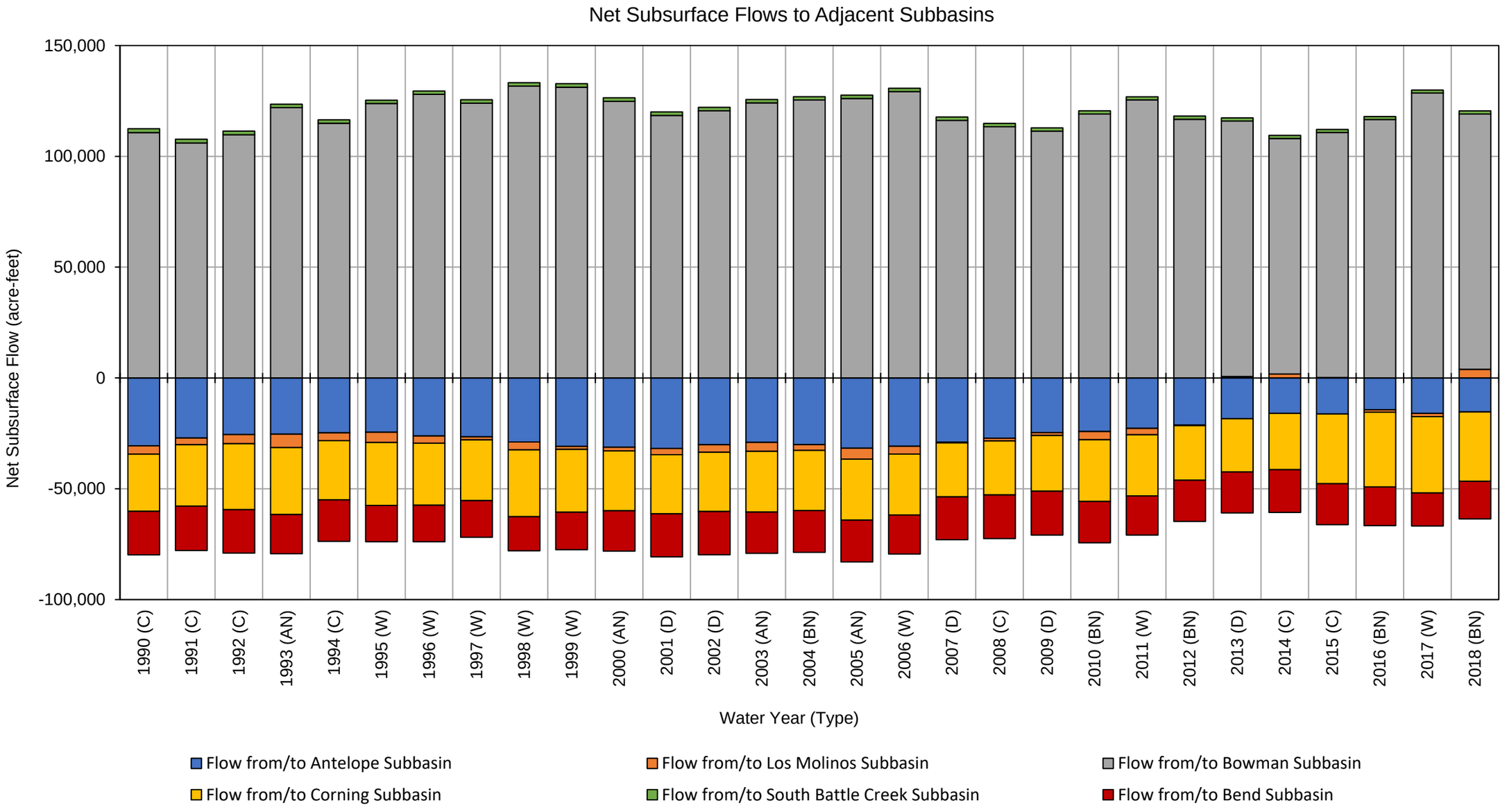
Tehama IHM - Historical

Red Bluff Subbasin Historical Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
1990 (C)		-78,000	-9,400	-87,000
1991 (C)		-80,000	-6,300	-87,000
1992 (C)		-81,000	-5,800	-87,000
1993 (AN)		-69,000	-7,900	-77,000
1994 (C)		-83,000	-7,200	-90,000
1995 (W)		-66,000	-10,000	-76,000
1996 (W)		-72,000	-13,000	-84,000
1997 (W)		-79,000	-13,000	-92,000
1998 (W)		-50,000	-16,000	-66,000
1999 (W)		-67,000	-17,000	-84,000
2000 (AN)		-66,000	-15,000	-81,000
2001 (D)		-76,000	-13,000	-89,000
2002 (D)		-86,000	-11,000	-97,000
2003 (AN)		-67,000	-12,000	-79,000
2004 (BN)		-87,000	-13,000	-100,000
2005 (AN)		-64,000	-13,000	-78,000
2006 (W)		-71,000	-16,000	-87,000
2007 (D)		-86,000	-12,000	-98,000
2008 (C)		-98,000	-9,400	-110,000
2009 (D)		-90,000	-6,900	-97,000
2010 (BN)		-74,000	-7,900	-82,000
2011 (W)		-70,000	-9,900	-80,000
2012 (BN)		-85,000	-8,800	-93,000
2013 (D)		-99,000	-6,500	-110,000
2014 (C)		-99,000	-3,800	-100,000
2015 (C)		-100,000	-3,200	-110,000
2016 (BN)		-92,000	-3,400	-96,000
2017 (W)		-84,000	-6,600	-91,000
2018 (BN)		-100,000	-4,200	-110,000
Average (1990-2018)		-80,000	-9,700	-90,000
1990-2018	W	-70,000	-13,000	-82,000
	AN	-66,000	-12,000	-78,000
	BN	-88,000	-7,500	-96,000
	D	-87,000	-10,000	-97,000
	C	-89,000	-6,400	-96,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



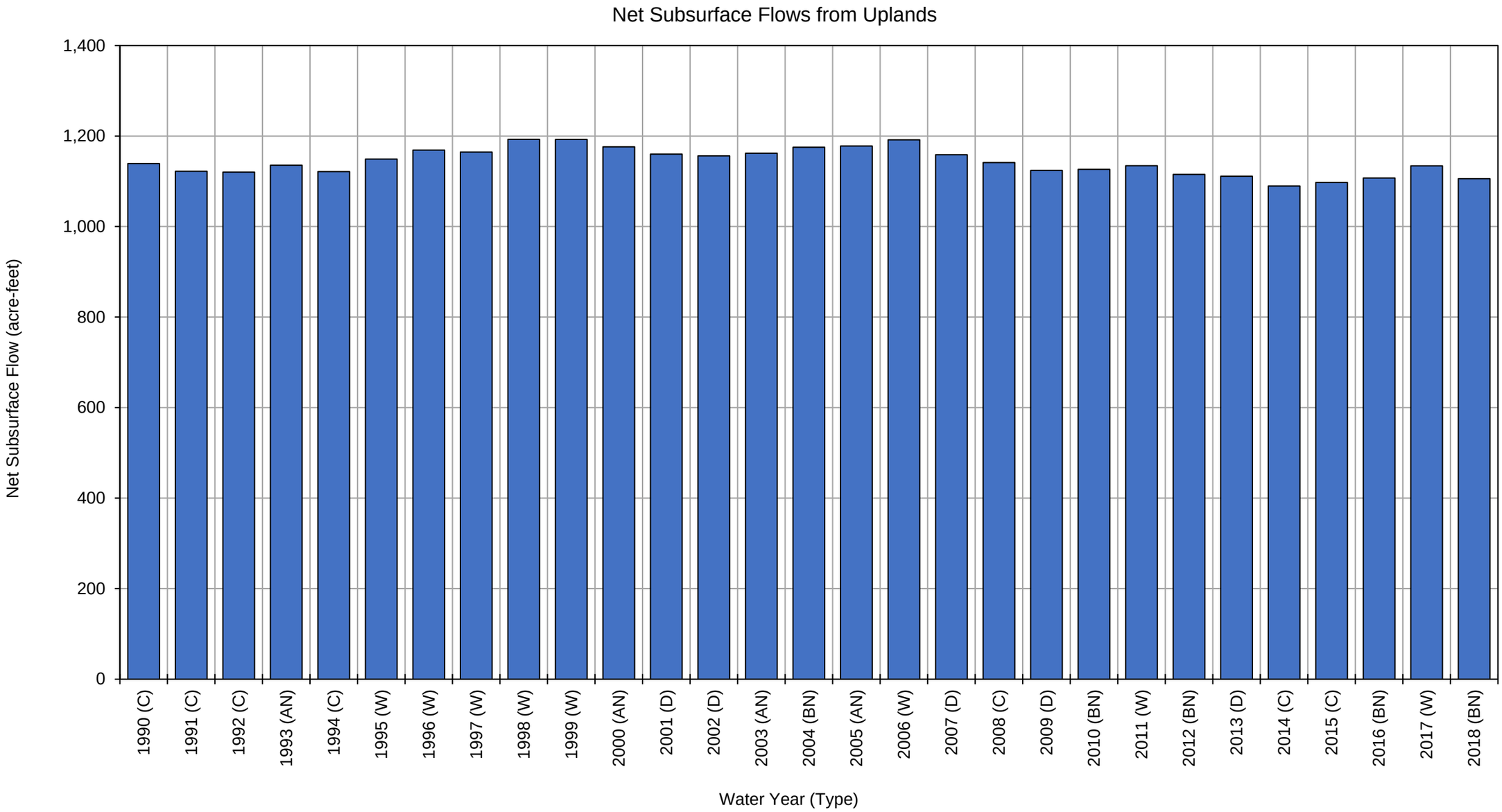
Tehama IHM - Historical

Red Bluff Subbasin Historical Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Antelope Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bowman Subbasin	Flow from/to Corning Subbasin	Flow from/to South Battle Creek Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
1990 (C)		-31,000	-3,800	110,000	-26,000	1,700	-20,000	33,000
1991 (C)		-27,000	-3,000	110,000	-28,000	1,700	-20,000	30,000
1992 (C)		-26,000	-4,100	110,000	-30,000	1,600	-20,000	32,000
1993 (AN)		-25,000	-6,000	120,000	-30,000	1,600	-18,000	44,000
1994 (C)		-25,000	-3,500	110,000	-27,000	1,600	-19,000	43,000
1995 (W)		-25,000	-4,600	120,000	-28,000	1,500	-16,000	51,000
1996 (W)		-26,000	-3,200	130,000	-28,000	1,500	-17,000	56,000
1997 (W)		-27,000	-1,400	120,000	-27,000	1,500	-17,000	54,000
1998 (W)		-29,000	-3,600	130,000	-30,000	1,500	-15,000	55,000
1999 (W)		-31,000	-1,400	130,000	-28,000	1,600	-17,000	55,000
2000 (AN)		-31,000	-1,700	120,000	-27,000	1,600	-18,000	48,000
2001 (D)		-32,000	-2,800	120,000	-27,000	1,600	-19,000	39,000
2002 (D)		-30,000	-3,400	120,000	-27,000	1,600	-20,000	42,000
2003 (AN)		-29,000	-4,000	120,000	-27,000	1,500	-19,000	46,000
2004 (BN)		-30,000	-2,600	130,000	-27,000	1,500	-19,000	48,000
2005 (AN)		-32,000	-4,900	130,000	-28,000	1,500	-19,000	45,000
2006 (W)		-31,000	-3,500	130,000	-28,000	1,500	-18,000	51,000
2007 (D)		-29,000	-260	120,000	-24,000	1,500	-19,000	45,000
2008 (C)		-27,000	-1,200	110,000	-24,000	1,500	-20,000	42,000
2009 (D)		-25,000	-1,300	110,000	-25,000	1,500	-20,000	42,000
2010 (BN)		-24,000	-3,700	120,000	-28,000	1,400	-19,000	46,000
2011 (W)		-23,000	-2,900	130,000	-28,000	1,400	-18,000	56,000
2012 (BN)		-21,000	-240	120,000	-25,000	1,400	-19,000	53,000
2013 (D)		-18,000	660	120,000	-24,000	1,400	-18,000	56,000
2014 (C)		-16,000	1,800	110,000	-25,000	1,400	-19,000	49,000
2015 (C)		-16,000	180	110,000	-31,000	1,400	-19,000	46,000
2016 (BN)		-14,000	-1,100	120,000	-34,000	1,300	-17,000	51,000
2017 (W)		-16,000	-1,500	130,000	-35,000	1,300	-15,000	63,000
2018 (BN)		-15,000	3,900	120,000	-31,000	1,400	-17,000	57,000
Average (1990-2018)		-25,000	-2,200	120,000	-28,000	1,500	-18,000	48,000
1990-2018	W	-26,000	-2,800	130,000	-29,000	1,500	-16,000	55,000
	AN	-29,000	-4,200	120,000	-28,000	1,500	-18,000	46,000
	BN	-21,000	-750	120,000	-29,000	1,400	-18,000	51,000
	D	-27,000	-1,400	120,000	-25,000	1,500	-19,000	45,000
	C	-24,000	-2,000	110,000	-27,000	1,600	-19,000	39,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

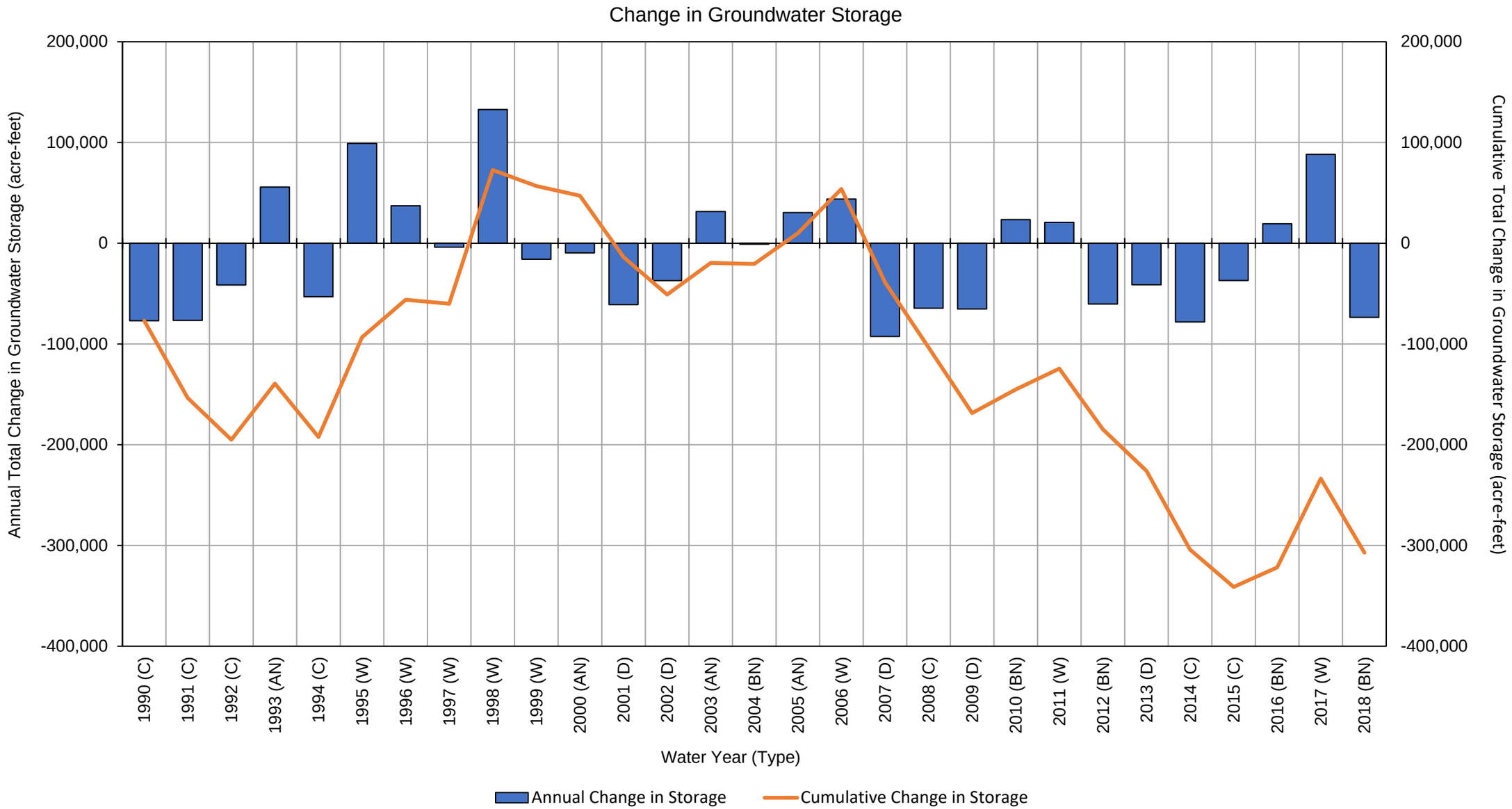

Net Subsurface Flows from Uplands
Net Subsurface Flow (acre-feet)
1,400
1,200
1,000
800
600
400
200
0
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)

Red Bluff Subbasin Historical Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
1990 (C)		1,100
1991 (C)		1,100
1992 (C)		1,100
1993 (AN)		1,100
1994 (C)		1,100
1995 (W)		1,100
1996 (W)		1,200
1997 (W)		1,200
1998 (W)		1,200
1999 (W)		1,200
2000 (AN)		1,200
2001 (D)		1,200
2002 (D)		1,200
2003 (AN)		1,200
2004 (BN)		1,200
2005 (AN)		1,200
2006 (W)		1,200
2007 (D)		1,200
2008 (C)		1,100
2009 (D)		1,100
2010 (BN)		1,100
2011 (W)		1,100
2012 (BN)		1,100
2013 (D)		1,100
2014 (C)		1,100
2015 (C)		1,100
2016 (BN)		1,100
2017 (W)		1,100
2018 (BN)		1,100
Average (1990-2018)		1,100
1990-2018	W	1,200
	AN	1,200
	BN	1,100
	D	1,100
	C	1,100

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical


Change in Groundwater Storage
Annual Total Change in Groundwater Storage (acre-feet)
Cumulative Total Change in Groundwater Storage (acre-feet)
200,000
100,000
0
-100,000
-200,000
-300,000
-400,000
1990 (C)
1991 (C)
1992 (C)
1993 (AN)
1994 (C)
1995 (W)
1996 (W)
1997 (W)
1998 (W)
1999 (W)
2000 (AN)
2001 (D)
2002 (D)
2003 (AN)
2004 (BN)
2005 (AN)
2006 (W)
2007 (D)
2008 (C)
2009 (D)
2010 (BN)
2011 (W)
2012 (BN)
2013 (D)
2014 (C)
2015 (C)
2016 (BN)
2017 (W)
2018 (BN)
Water Year (Type)
Annual Change in Storage
Cumulative Change in Storage

Red Bluff Subbasin Historical Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
1990 (C)	-77,000	-77,000
1991 (C)	-77,000	-150,000
1992 (C)	-41,000	-200,000
1993 (AN)	56,000	-140,000
1994 (C)	-53,000	-190,000
1995 (W)	99,000	-93,000
1996 (W)	37,000	-56,000
1997 (W)	-3,900	-60,000
1998 (W)	130,000	73,000
1999 (W)	-16,000	57,000
2000 (AN)	-9,500	47,000
2001 (D)	-61,000	-14,000
2002 (D)	-37,000	-51,000
2003 (AN)	31,000	-20,000
2004 (BN)	-1,000	-21,000
2005 (AN)	30,000	9,900
2006 (W)	44,000	54,000
2007 (D)	-93,000	-39,000
2008 (C)	-65,000	-100,000
2009 (D)	-65,000	-170,000
2010 (BN)	23,000	-150,000
2011 (W)	21,000	-120,000
2012 (BN)	-60,000	-180,000
2013 (D)	-41,000	-230,000
2014 (C)	-78,000	-300,000
2015 (C)	-37,000	-340,000
2016 (BN)	19,000	-320,000
2017 (W)	88,000	-230,000
2018 (BN)	-74,000	-310,000
Average (1990-2018)	-11,000	
1990-2018 W		
1990-2018 AN		
1990-2018 BN		
1990-2018 D		
1990-2018 C		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX D-2

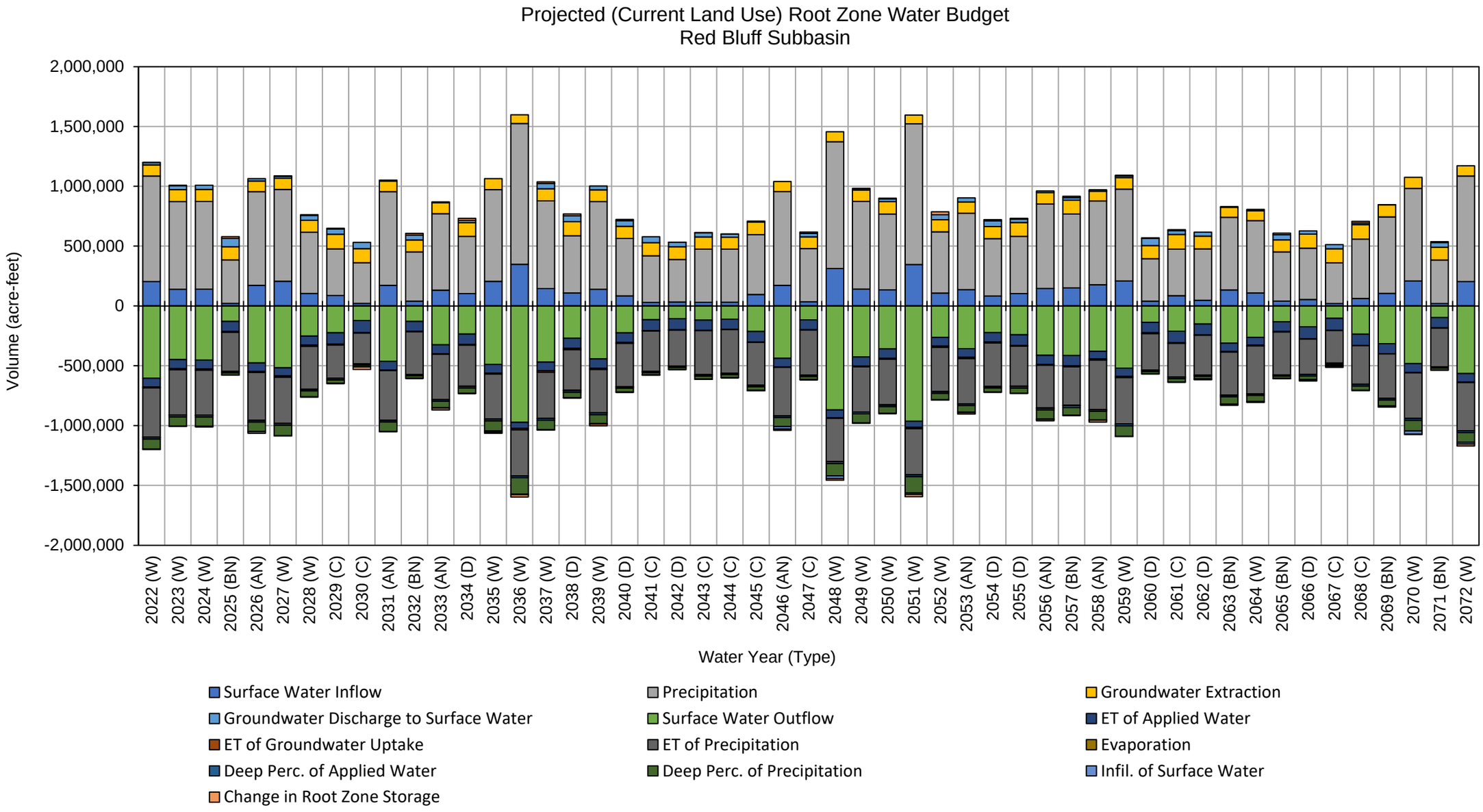
Detailed Red Bluff Subbasin Water Budget Results:

Projected (Current Land Use) Model Results

APPENDIX D-2a

Detailed Red Bluff Subbasin Water Budget Results:

Projected (Current Land Use) Model Results – Surface Water System


Projected (Current Land Use) Root Zone Water Budget
Red Bluff Subbasin
Volume (acre-feet)
2,000,000
1,500,000
1,000,000
500,000
0
-500,000
-1,000,000
-1,500,000
-2,000,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Surface Water Inflow
Precipitation
Groundwater Extraction
Groundwater Discharge to Surface Water
Surface Water Outflow
ET of Applied Water
ET of Groundwater Uptake
ET of Precipitation
Evaporation
Deep Perc. of Applied Water
Deep Perc. of Precipitation
Infil. of Surface Water
Change in Root Zone Storage

Red Bluff Subbasin Projected (Current Land Use) Root Zone Water Budget Summary (acre-feet, rounded)

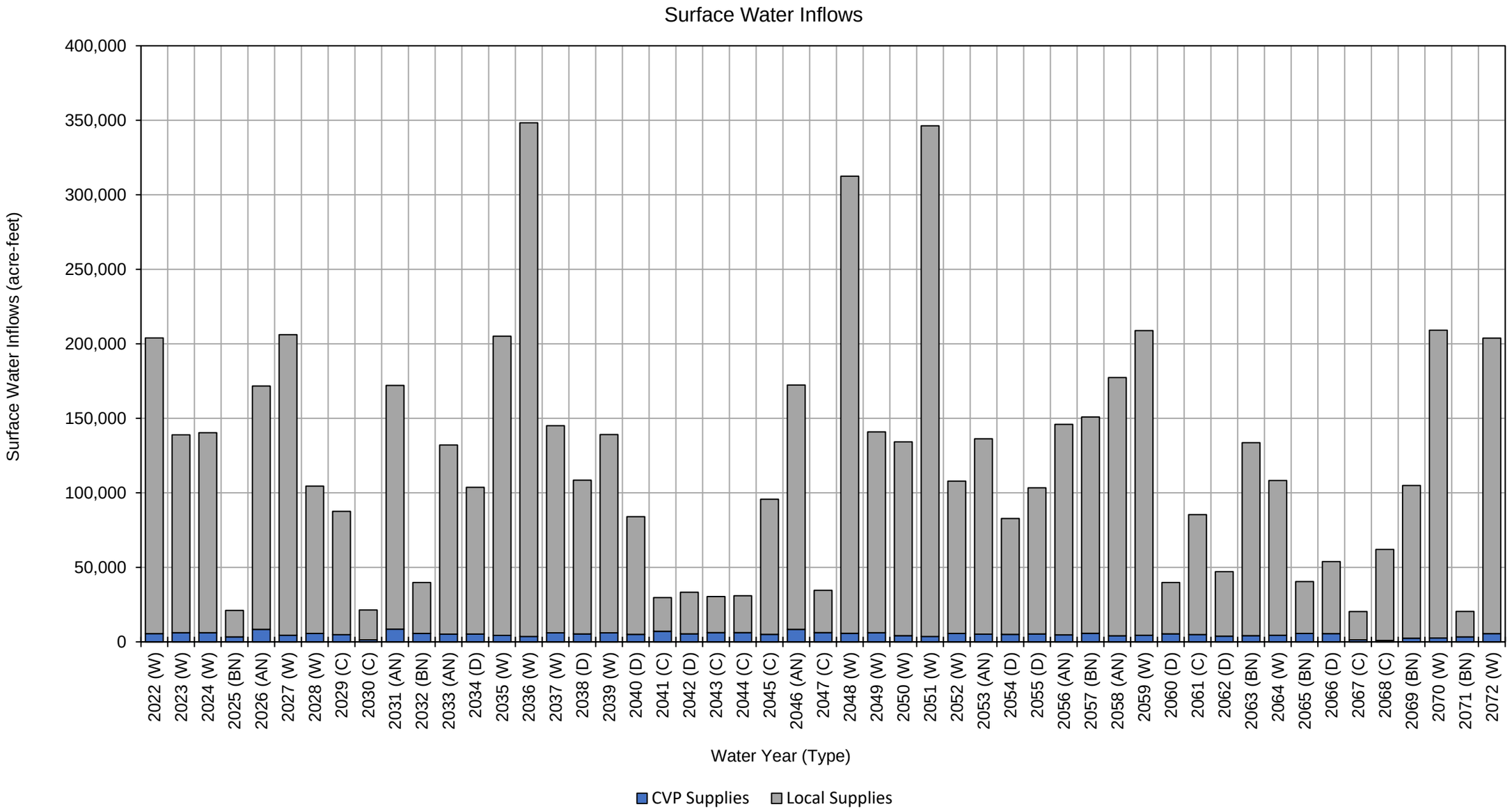
WY (Type)	Inflows				Outflows								Change in Root Zone Storage
	Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2022 (W)	200,000	880,000	93,000	19,000	600,000	73,000	7,300	410,000	760	16,000	84,000	2,700	-2,000
2023 (W)	140,000	730,000	100,000	34,000	450,000	75,000	9,300	380,000	890	15,000	78,000	2,700	-2,100
2024 (W)	140,000	730,000	100,000	36,000	450,000	75,000	10,000	380,000	870	15,000	77,000	2,800	63
2025 (BN)	21,000	360,000	110,000	70,000	130,000	85,000	6,700	330,000	910	10,000	17,000	2,000	-14,000
2026 (AN)	170,000	780,000	89,000	20,000	480,000	72,000	7,600	400,000	890	13,000	77,000	2,900	13,000
2027 (W)	210,000	770,000	94,000	15,000	520,000	68,000	11,000	390,000	720	15,000	87,000	2,900	-4,800
2028 (W)	100,000	510,000	100,000	41,000	250,000	75,000	11,000	360,000	880	13,000	49,000	2,700	-5,500
2029 (C)	88,000	390,000	120,000	44,000	220,000	95,000	7,800	280,000	1,200	13,000	28,000	2,500	-6,200
2030 (C)	21,000	340,000	120,000	52,000	120,000	100,000	3,700	260,000	1,000	10,000	13,000	1,700	21,000
2031 (AN)	170,000	780,000	89,000	2,700	460,000	73,000	4,900	420,000	990	13,000	78,000	2,900	-4,700
2032 (BN)	40,000	410,000	100,000	41,000	130,000	83,000	4,200	360,000	810	8,800	20,000	2,300	-14,000
2033 (AN)	130,000	640,000	91,000	7,300	320,000	75,000	4,800	380,000	910	13,000	54,000	2,600	16,000
2034 (D)	100,000	480,000	110,000	20,000	230,000	88,000	5,000	340,000	1,000	14,000	44,000	2,600	-17,000
2035 (W)	210,000	770,000	92,000	0	490,000	73,000	7,200	380,000	850	15,000	84,000	9,500	10,000
2036 (W)	350,000	1,200,000	73,000	0	970,000	50,000	12,000	380,000	470	15,000	140,000	5,600	20,000
2037 (W)	150,000	730,000	100,000	45,000	470,000	71,000	14,000	390,000	780	15,000	79,000	2,900	-14,000
2038 (D)	110,000	480,000	120,000	49,000	270,000	85,000	11,000	340,000	1,100	15,000	45,000	2,700	-16,000
2039 (W)	140,000	730,000	99,000	32,000	440,000	78,000	9,900	360,000	890	15,000	75,000	2,800	15,000
2040 (D)	84,000	480,000	100,000	48,000	220,000	79,000	8,300	360,000	980	11,000	33,000	2,500	-9,500
2041 (C)	30,000	390,000	110,000	49,000	120,000	90,000	4,700	340,000	910	9,900	18,000	2,100	570
2042 (D)	33,000	350,000	110,000	37,000	110,000	92,000	3,000	300,000	920	11,000	16,000	1,800	-830
2043 (C)	30,000	440,000	100,000	34,000	120,000	86,000	2,500	370,000	800	10,000	25,000	1,800	-2,800
2044 (C)	31,000	440,000	99,000	27,000	110,000	85,000	1,900	370,000	830	9,800	24,000	1,900	-77
2045 (C)	96,000	500,000	110,000	8,000	210,000	90,000	1,700	360,000	1,100	11,000	30,000	2,100	1,200
2046 (AN)	170,000	780,000	84,000	0	440,000	73,000	2,600	410,000	1,100	13,000	76,000	21,000	10,000
2047 (C)	35,000	440,000	98,000	29,000	120,000	82,000	2,400	380,000	890	9,600	26,000	2,100	-12,000
2048 (W)	310,000	1,100,000	84,000	0	870,000	66,000	4,300	360,000	840	16,000	100,000	23,000	13,000
2049 (W)	140,000	730,000	96,000	11,000	430,000	76,000	6,200	380,000	1,000	14,000	76,000	2,700	-510
2050 (W)	130,000	630,000	100,000	23,000	360,000	80,000	6,800	380,000	1,100	14,000	57,000	2,400	-5,200
2051 (W)	350,000	1,200,000	72,000	0	960,000	51,000	11,000	390,000	480	15,000	140,000	13,000	19,000
2052 (W)	110,000	510,000	100,000	42,000	260,000	72,000	12,000	370,000	860	13,000	54,000	2,800	-25,000
2053 (AN)	140,000	640,000	93,000	35,000	360,000	72,000	10,000	380,000	810	13,000	56,000	2,800	12,000
2054 (D)	83,000	480,000	100,000	46,000	220,000	79,000	7,900	360,000	970	11,000	33,000	2,400	-11,000
2055 (D)	100,000	480,000	120,000	29,000	240,000	89,000	6,200	330,000	1,000	15,000	43,000	2,600	-6,100
2056 (AN)	150,000	710,000	95,000	14,000	410,000	76,000	6,600	360,000	910	15,000	76,000	2,600	13,000
2057 (BN)	150,000	620,000	120,000	22,000	410,000	87,000	7,800	320,000	1,200	18,000	64,000	3,000	-12,000
2058 (AN)	180,000	700,000	82,000	12,000	380,000	65,000	8,700	420,000	670	12,000	72,000	2,600	15,000
2059 (W)	210,000	770,000	96,000	14,000	520,000	68,000	12,000	390,000	720	15,000	87,000	3,000	-6,100
2060 (D)	40,000	350,000	110,000	60,000	140,000	88,000	7,800	300,000	1,000	11,000	17,000	2,300	-4,200
2061 (C)	85,000	390,000	120,000	32,000	210,000	97,000	5,100	280,000	1,100	13,000	28,000	2,400	-7,700
2062 (D)	47,000	430,000	110,000	34,000	150,000	91,000	3,300	330,000	980	10,000	21,000	2,100	4,800
2063 (BN)	130,000	610,000	84,000	6,100	310,000	70,000	4,000	360,000	910	12,000	61,000	2,400	6,900
2064 (W)	110,000	600,000	83,000	11,000	260,000	65,000	5,500	400,000	810	11,000	52,000	2,500	4,200
2065 (BN)	40,000	410,000	100,000	42,000	130,000	82,000	4,700	360,000	800	8,800	20,000	2,300	-14,000

Red Bluff Subbasin Projected (Current Land Use) Root Zone Water Budget Summary (acre-feet, rounded)

WY (Type)		Inflows				Outflows								Change in Root Zone Storage
		Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2066 (D)		54,000	430,000	120,000	26,000	170,000	99,000	3,400	290,000	1,000	13,000	30,000	2,500	8,400
2067 (C)		20,000	340,000	120,000	35,000	100,000	100,000	1,900	270,000	940	9,900	13,000	1,600	10,000
2068 (C)		62,000	500,000	120,000	14,000	240,000	95,000	1,500	320,000	940	14,000	36,000	1,700	-14,000
2069 (BN)		100,000	640,000	100,000	0	320,000	84,000	1,600	370,000	1,200	13,000	49,000	9,100	-56
2070 (W)		210,000	770,000	93,000	0	480,000	74,000	3,400	380,000	1,100	16,000	89,000	27,000	3,300
2071 (BN)		20,000	360,000	110,000	40,000	97,000	86,000	2,400	320,000	890	9,800	16,000	2,000	-7,000
2072 (W)		200,000	880,000	85,000	0	560,000	72,000	3,900	400,000	890	14,000	81,000	15,000	16,000
Average (2022-2072)		120,000	600,000	100,000	26,000	330,000	80,000	6,300	360,000	910	13,000	54,000	4,500	-46
2022-2072	W	190,000	790,000	93,000	18,000	520,000	70,000	8,700	380,000	830	15,000	82,000	7,000	2,000
	AN	160,000	720,000	89,000	13,000	410,000	72,000	6,500	390,000	900	13,000	70,000	5,300	11,000
	BN	73,000	490,000	100,000	32,000	220,000	82,000	4,500	350,000	950	11,000	35,000	3,300	-7,700
	D	73,000	440,000	110,000	39,000	200,000	88,000	6,200	330,000	1,000	12,000	31,000	2,400	-5,700
	C	50,000	420,000	110,000	32,000	160,000	92,000	3,300	320,000	970	11,000	24,000	2,000	-910

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

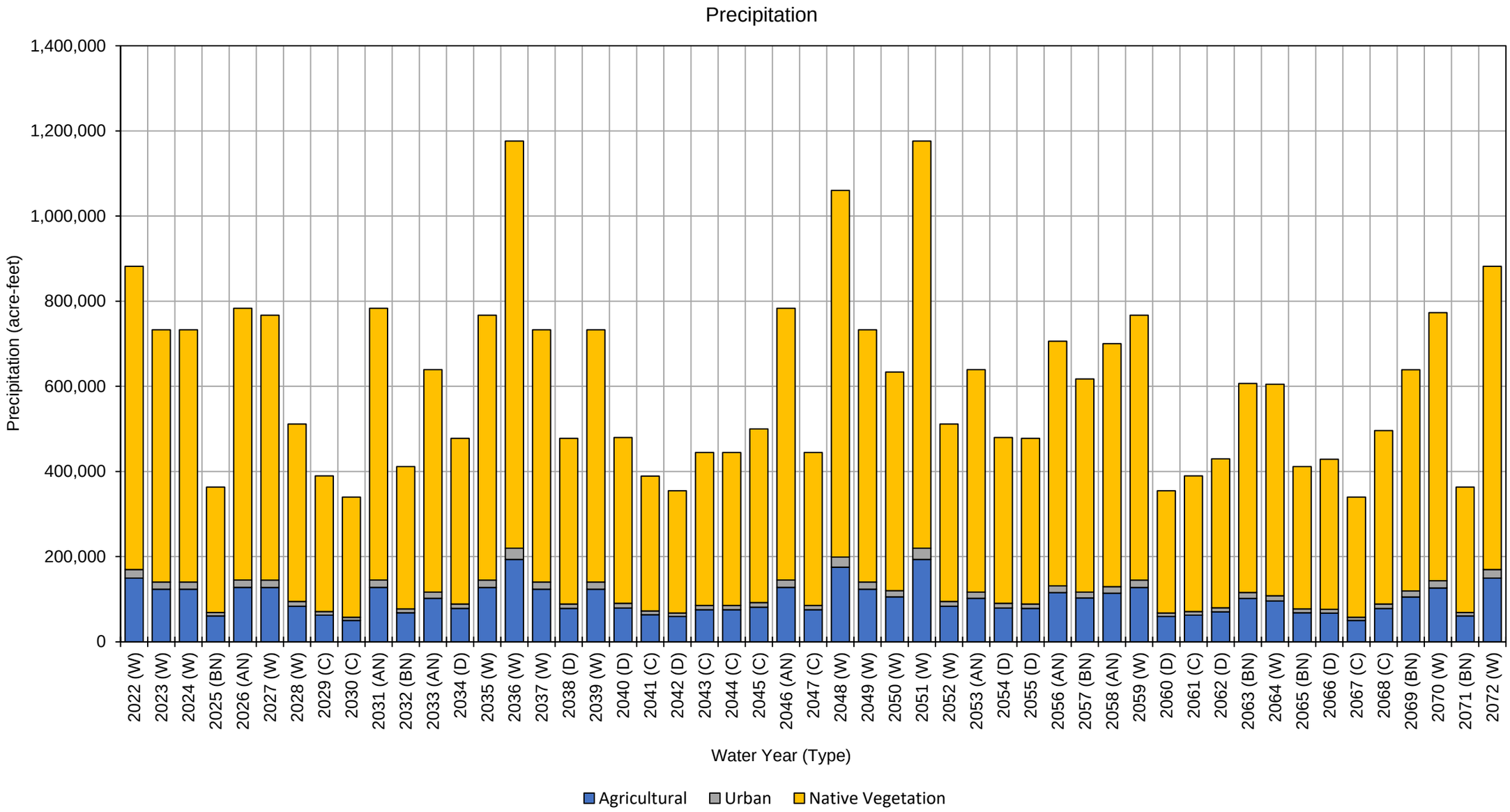
WY (Type)	CVP Supplies	Local Supplies	Total
2022 (W)	5,500	200,000	210,000
2023 (W)	6,100	130,000	140,000
2024 (W)	6,100	130,000	140,000
2025 (BN)	3,400	18,000	21,000
2026 (AN)	8,400	160,000	170,000
2027 (W)	4,400	200,000	200,000
2028 (W)	5,700	99,000	100,000
2029 (C)	4,800	83,000	88,000
2030 (C)	1,300	20,000	21,000
2031 (AN)	8,600	160,000	170,000
2032 (BN)	5,700	34,000	40,000
2033 (AN)	5,200	130,000	140,000
2034 (D)	5,300	98,000	100,000
2035 (W)	4,400	200,000	200,000
2036 (W)	3,600	340,000	340,000
2037 (W)	6,100	140,000	150,000
2038 (D)	5,300	100,000	110,000
2039 (W)	6,100	130,000	140,000
2040 (D)	5,100	79,000	84,000
2041 (C)	7,100	23,000	30,000
2042 (D)	5,400	28,000	33,000
2043 (C)	6,200	24,000	30,000
2044 (C)	6,200	25,000	31,000
2045 (C)	5,000	91,000	96,000
2046 (AN)	8,400	160,000	170,000
2047 (C)	6,200	28,000	34,000
2048 (W)	5,800	310,000	320,000
2049 (W)	6,100	130,000	140,000
2050 (W)	4,100	130,000	130,000
2051 (W)	3,600	340,000	340,000
2052 (W)	5,700	100,000	110,000
2053 (AN)	5,200	130,000	140,000
2054 (D)	5,100	78,000	83,000
2055 (D)	5,300	98,000	100,000
2056 (AN)	4,700	140,000	140,000
2057 (BN)	5,700	150,000	160,000
2058 (AN)	4,100	170,000	170,000
2059 (W)	4,400	200,000	200,000
2060 (D)	5,400	34,000	39,000
2061 (C)	4,900	80,000	85,000
2062 (D)	3,800	43,000	47,000
2063 (BN)	4,100	130,000	130,000

Red Bluff Subbasin Projected (Current Land Use) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Total
2064 (W)		4,400	100,000	100,000
2065 (BN)		5,700	35,000	41,000
2066 (D)		5,500	48,000	54,000
2067 (C)		1,400	19,000	20,000
2068 (C)		930	61,000	62,000
2069 (BN)		2,500	100,000	100,000
2070 (W)		2,600	210,000	210,000
2071 (BN)		3,400	17,000	20,000
2072 (W)		5,500	200,000	210,000
Average (2022-2072)		5,000	120,000	130,000
2022-2072	W	5,000	180,000	190,000
	AN	6,400	150,000	160,000
	BN	4,300	69,000	73,000
	D	5,100	68,000	73,000
	C	4,400	45,000	49,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Precipitation, by Water Use Sector (acre-feet, rounded)

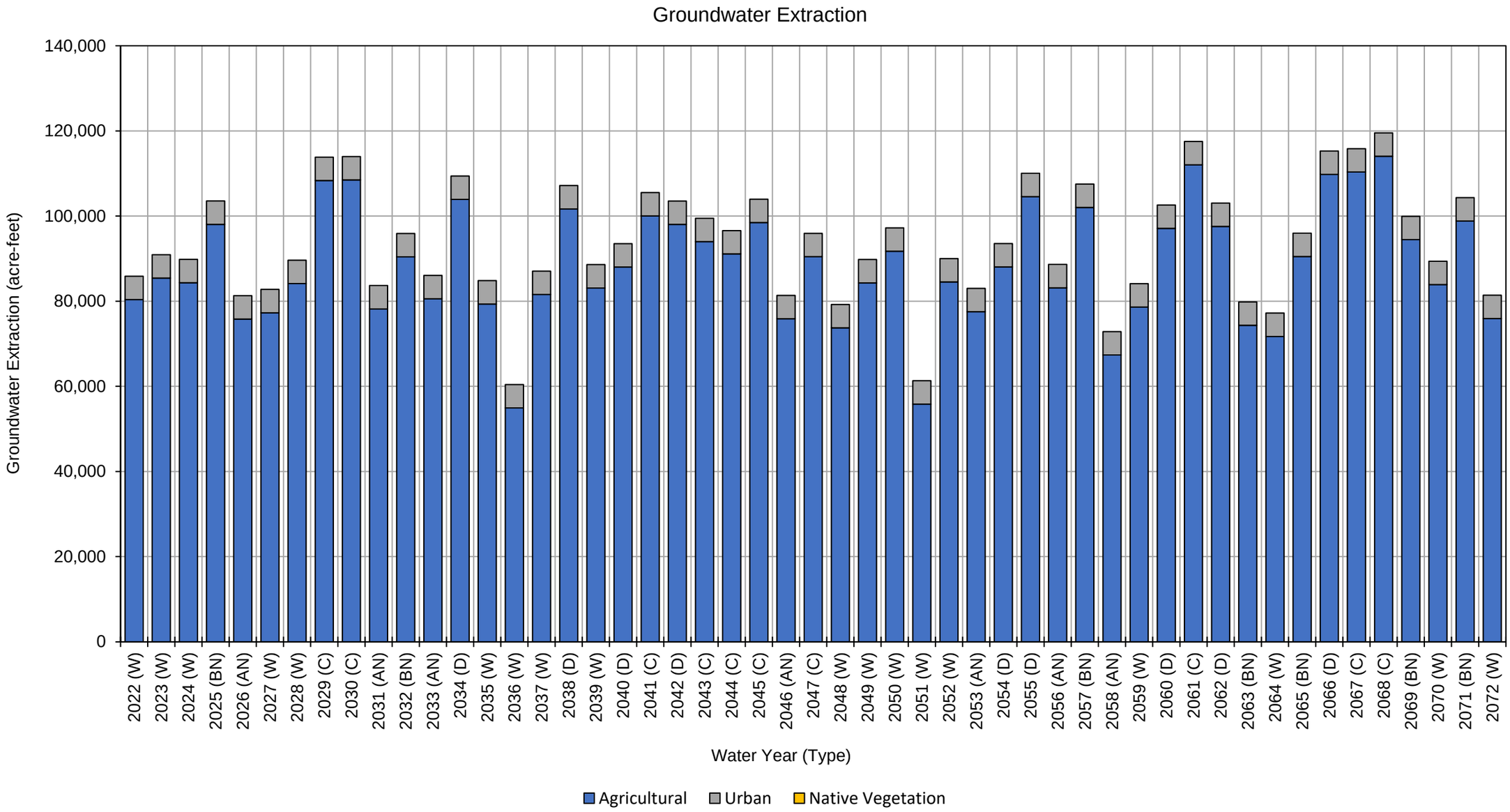
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	150,000	20,000	710,000	880,000
2023 (W)	120,000	17,000	590,000	730,000
2024 (W)	120,000	17,000	590,000	730,000
2025 (BN)	61,000	8,200	290,000	360,000
2026 (AN)	130,000	17,000	640,000	790,000
2027 (W)	130,000	17,000	620,000	770,000
2028 (W)	83,000	11,000	420,000	510,000
2029 (C)	63,000	8,300	320,000	390,000
2030 (C)	50,000	7,300	280,000	340,000
2031 (AN)	130,000	17,000	640,000	790,000
2032 (BN)	68,000	9,100	330,000	410,000
2033 (AN)	100,000	15,000	520,000	640,000
2034 (D)	78,000	11,000	390,000	480,000
2035 (W)	130,000	17,000	620,000	770,000
2036 (W)	190,000	26,000	960,000	1,200,000
2037 (W)	120,000	17,000	590,000	730,000
2038 (D)	78,000	11,000	390,000	480,000
2039 (W)	120,000	17,000	590,000	730,000
2040 (D)	79,000	11,000	390,000	480,000
2041 (C)	63,000	9,000	320,000	390,000
2042 (D)	59,000	8,200	290,000	360,000
2043 (C)	75,000	10,000	360,000	450,000
2044 (C)	75,000	10,000	360,000	450,000
2045 (C)	81,000	11,000	410,000	500,000
2046 (AN)	130,000	17,000	640,000	790,000
2047 (C)	75,000	10,000	360,000	450,000
2048 (W)	180,000	24,000	860,000	1,100,000
2049 (W)	120,000	17,000	590,000	730,000
2050 (W)	110,000	15,000	510,000	640,000
2051 (W)	190,000	26,000	960,000	1,200,000
2052 (W)	83,000	11,000	420,000	510,000
2053 (AN)	100,000	15,000	520,000	640,000
2054 (D)	79,000	11,000	390,000	480,000
2055 (D)	78,000	11,000	390,000	480,000
2056 (AN)	120,000	16,000	570,000	710,000
2057 (BN)	100,000	14,000	500,000	610,000
2058 (AN)	110,000	15,000	570,000	700,000
2059 (W)	130,000	17,000	620,000	770,000
2060 (D)	59,000	8,200	290,000	360,000
2061 (C)	63,000	8,300	320,000	390,000
2062 (D)	70,000	9,500	350,000	430,000
2063 (BN)	100,000	14,000	490,000	600,000

Red Bluff Subbasin Projected (Current Land Use) Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		96,000	12,000	500,000	610,000
2065 (BN)		68,000	9,100	330,000	410,000
2066 (D)		67,000	9,100	350,000	430,000
2067 (C)		50,000	7,300	280,000	340,000
2068 (C)		78,000	11,000	410,000	500,000
2069 (BN)		110,000	14,000	520,000	640,000
2070 (W)		130,000	17,000	630,000	780,000
2071 (BN)		61,000	8,200	290,000	360,000
2072 (W)		150,000	20,000	710,000	880,000
Average (2022-2072)		99,000	13,000	490,000	600,000
2022-2072	W	130,000	18,000	640,000	790,000
	AN	120,000	16,000	590,000	730,000
	BN	81,000	11,000	400,000	490,000
	D	72,000	9,800	360,000	440,000
	C	67,000	9,200	340,000	420,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

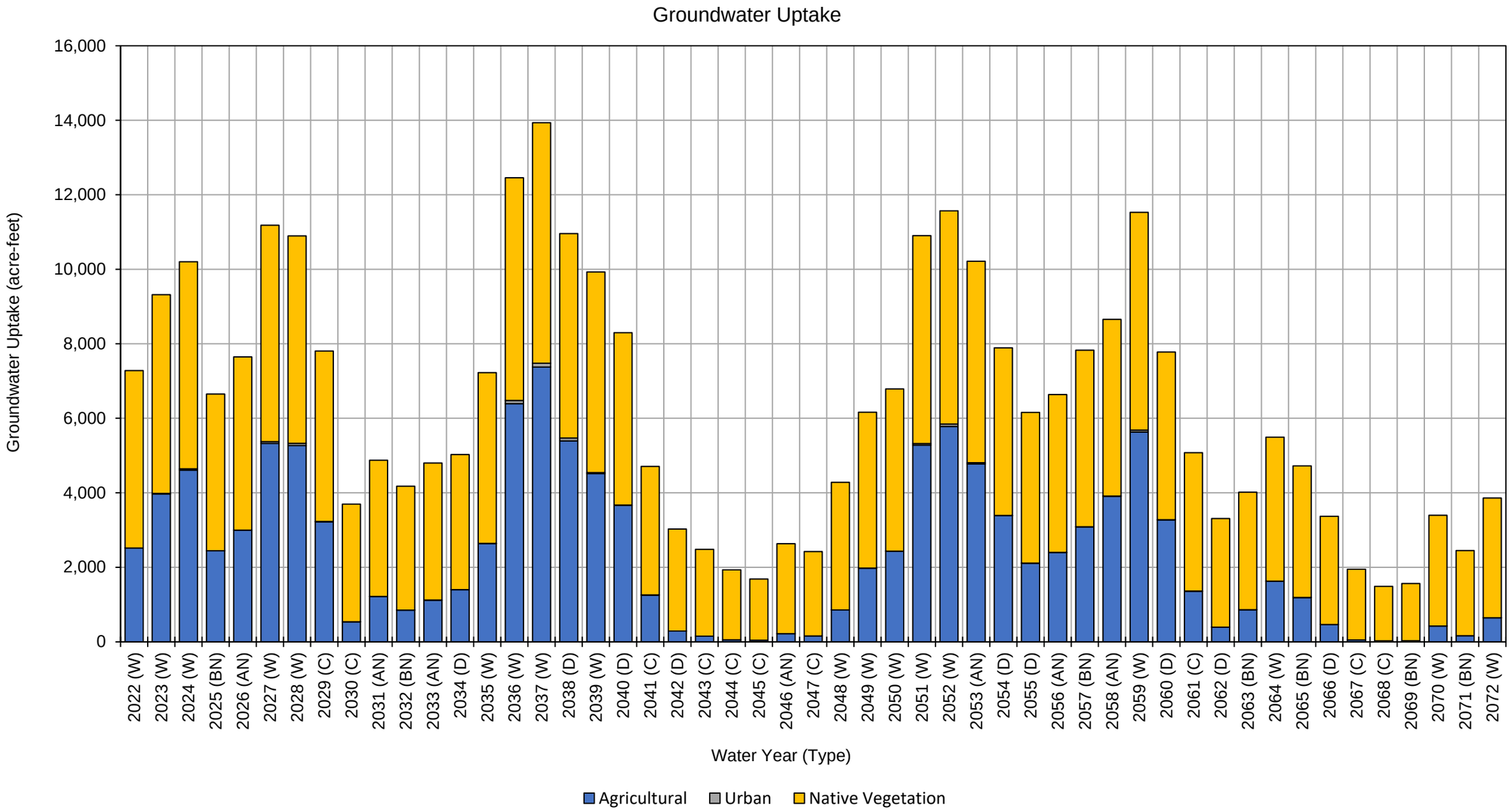
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	80,000	5,500	0	86,000
2023 (W)	85,000	5,500	0	91,000
2024 (W)	84,000	5,500	0	90,000
2025 (BN)	98,000	5,500	0	100,000
2026 (AN)	76,000	5,500	0	82,000
2027 (W)	77,000	5,500	0	83,000
2028 (W)	84,000	5,500	0	90,000
2029 (C)	110,000	5,500	0	120,000
2030 (C)	110,000	5,500	0	120,000
2031 (AN)	78,000	5,500	0	84,000
2032 (BN)	90,000	5,500	0	96,000
2033 (AN)	81,000	5,500	0	87,000
2034 (D)	100,000	5,500	0	110,000
2035 (W)	79,000	5,500	0	85,000
2036 (W)	55,000	5,500	0	61,000
2037 (W)	82,000	5,500	0	88,000
2038 (D)	100,000	5,500	0	110,000
2039 (W)	83,000	5,500	0	89,000
2040 (D)	88,000	5,500	0	94,000
2041 (C)	100,000	5,500	0	110,000
2042 (D)	98,000	5,500	0	100,000
2043 (C)	94,000	5,500	0	100,000
2044 (C)	91,000	5,500	0	97,000
2045 (C)	98,000	5,500	0	100,000
2046 (AN)	76,000	5,500	0	82,000
2047 (C)	90,000	5,500	0	96,000
2048 (W)	74,000	5,500	0	80,000
2049 (W)	84,000	5,500	0	90,000
2050 (W)	92,000	5,500	0	98,000
2051 (W)	56,000	5,500	0	62,000
2052 (W)	85,000	5,500	0	91,000
2053 (AN)	78,000	5,500	0	84,000
2054 (D)	88,000	5,500	0	94,000
2055 (D)	100,000	5,500	0	110,000
2056 (AN)	83,000	5,500	0	89,000
2057 (BN)	100,000	5,500	0	110,000
2058 (AN)	67,000	5,500	0	73,000
2059 (W)	79,000	5,500	0	85,000
2060 (D)	97,000	5,500	0	100,000
2061 (C)	110,000	5,500	0	120,000
2062 (D)	98,000	5,500	0	100,000
2063 (BN)	74,000	5,500	0	80,000

Red Bluff Subbasin Projected (Current Land Use) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		72,000	5,500	0	78,000
2065 (BN)		90,000	5,500	0	96,000
2066 (D)		110,000	5,500	0	120,000
2067 (C)		110,000	5,500	0	120,000
2068 (C)		110,000	5,500	0	120,000
2069 (BN)		94,000	5,500	0	100,000
2070 (W)		84,000	5,500	0	90,000
2071 (BN)		99,000	5,500	0	100,000
2072 (W)		76,000	5,500	0	82,000
Average (2022-2072)		89,000	5,500	0	95,000
2022-2072	W	78,000	5,500	0	84,000
	AN	77,000	5,500	0	83,000
	BN	93,000	5,500	0	99,000
	D	99,000	5,500	0	100,000
	C	100,000	5,500	0	110,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

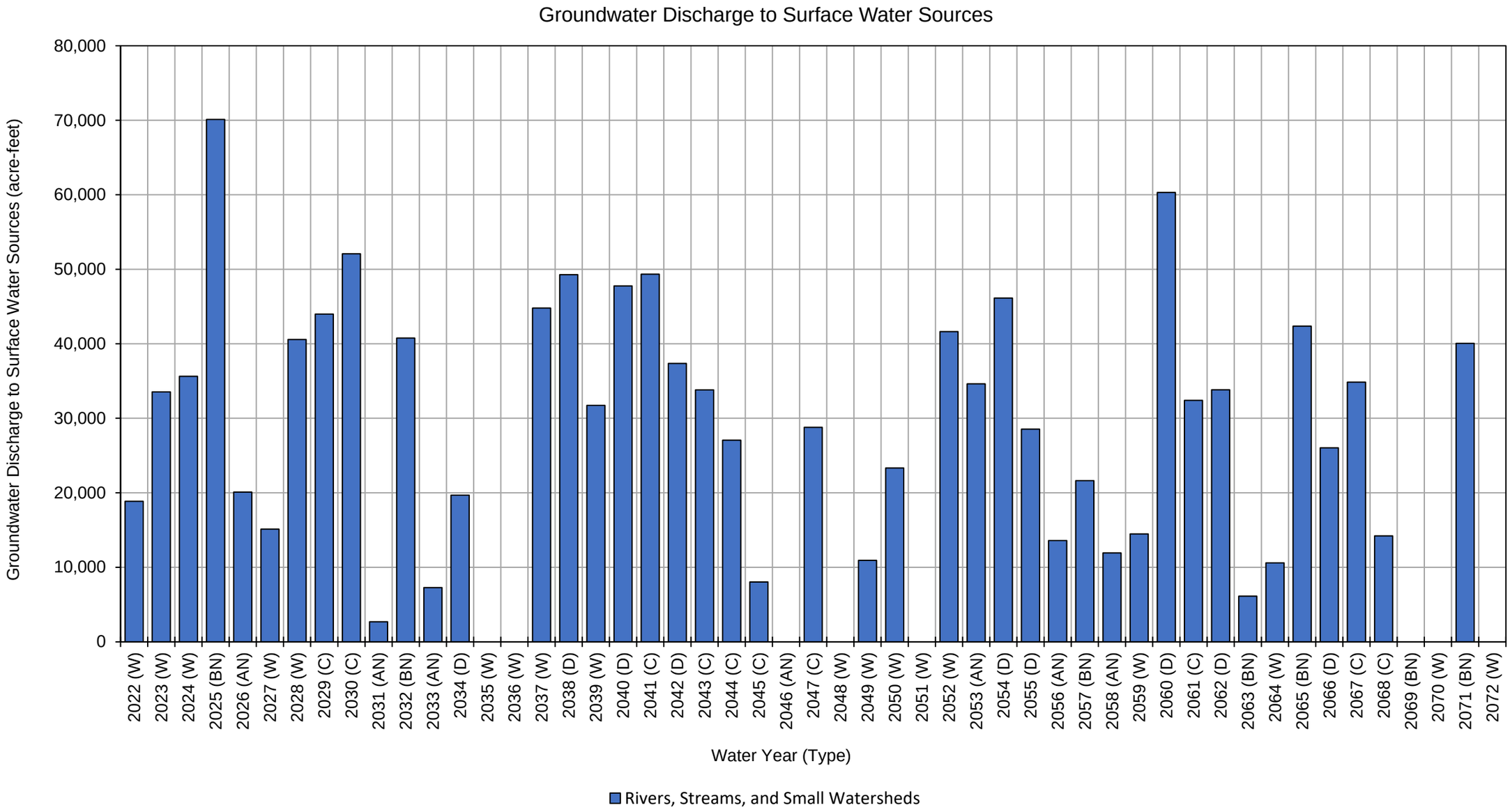
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	2,500	2	4,800	7,300
2023 (W)	4,000	14	5,300	9,300
2024 (W)	4,600	34	5,600	10,000
2025 (BN)	2,400	3	4,200	6,600
2026 (AN)	3,000	2	4,600	7,600
2027 (W)	5,300	48	5,800	11,000
2028 (W)	5,300	59	5,600	11,000
2029 (C)	3,200	8	4,600	7,800
2030 (C)	540	0	3,200	3,700
2031 (AN)	1,200	0	3,700	4,900
2032 (BN)	850	0	3,300	4,200
2033 (AN)	1,100	1	3,700	4,800
2034 (D)	1,400	0	3,600	5,000
2035 (W)	2,600	2	4,600	7,200
2036 (W)	6,400	84	6,000	12,000
2037 (W)	7,400	100	6,500	14,000
2038 (D)	5,400	76	5,500	11,000
2039 (W)	4,500	27	5,400	9,900
2040 (D)	3,700	11	4,600	8,300
2041 (C)	1,300	1	3,500	4,800
2042 (D)	290	0	2,700	3,000
2043 (C)	150	0	2,300	2,500
2044 (C)	52	0	1,900	2,000
2045 (C)	42	0	1,600	1,600
2046 (AN)	220	0	2,400	2,600
2047 (C)	160	0	2,300	2,500
2048 (W)	850	1	3,400	4,300
2049 (W)	2,000	1	4,200	6,200
2050 (W)	2,400	2	4,400	6,800
2051 (W)	5,300	41	5,600	11,000
2052 (W)	5,800	68	5,700	12,000
2053 (AN)	4,800	31	5,400	10,000
2054 (D)	3,400	5	4,500	7,900
2055 (D)	2,100	1	4,000	6,100
2056 (AN)	2,400	1	4,200	6,600
2057 (BN)	3,100	3	4,700	7,800
2058 (AN)	3,900	3	4,700	8,600
2059 (W)	5,600	50	5,800	11,000
2060 (D)	3,300	5	4,500	7,800
2061 (C)	1,400	0	3,700	5,100
2062 (D)	390	0	2,900	3,300
2063 (BN)	860	0	3,200	4,100

Red Bluff Subbasin Projected (Current Land Use) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		1,600	1	3,900	5,500
2065 (BN)		1,200	0	3,500	4,700
2066 (D)		460	0	2,900	3,400
2067 (C)		49	0	1,900	1,900
2068 (C)		25	0	1,500	1,500
2069 (BN)		27	0	1,500	1,500
2070 (W)		420	1	3,000	3,400
2071 (BN)		160	0	2,300	2,500
2072 (W)		640	0	3,200	3,800
Average (2022-2072)		2,300	13	4,000	6,300
2022-2072	W	3,700	30	4,900	8,600
	AN	2,400	6	4,100	6,500
	BN	1,200	1	3,300	4,500
	D	2,300	11	3,900	6,200
	C	680	1	2,600	3,300

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

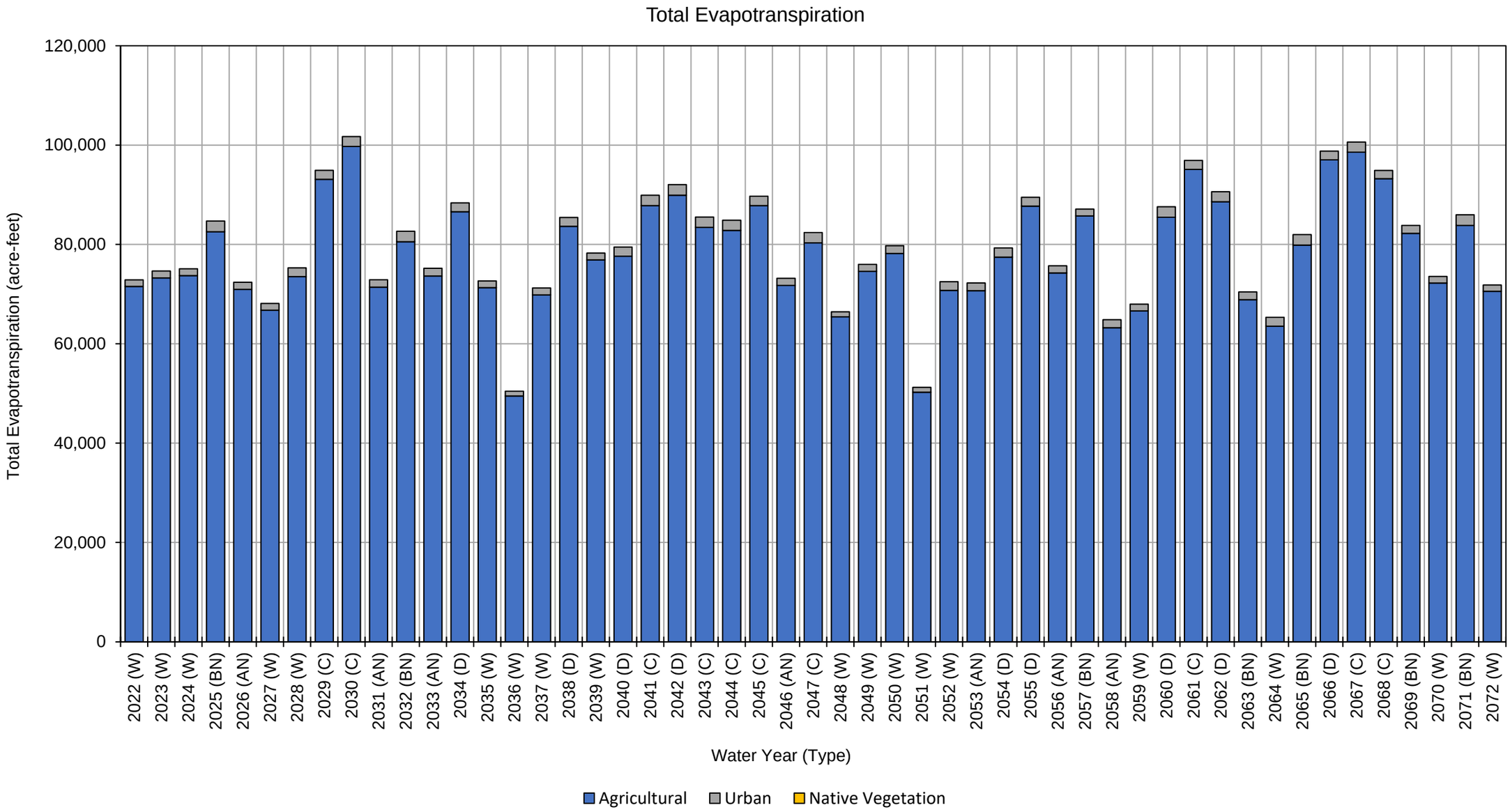
WY (Type)	Rivers, Streams, and Small Watersheds
2022 (W)	19,000
2023 (W)	34,000
2024 (W)	36,000
2025 (BN)	70,000
2026 (AN)	20,000
2027 (W)	15,000
2028 (W)	41,000
2029 (C)	44,000
2030 (C)	52,000
2031 (AN)	2,700
2032 (BN)	41,000
2033 (AN)	7,300
2034 (D)	20,000
2035 (W)	0
2036 (W)	0
2037 (W)	45,000
2038 (D)	49,000
2039 (W)	32,000
2040 (D)	48,000
2041 (C)	49,000
2042 (D)	37,000
2043 (C)	34,000
2044 (C)	27,000
2045 (C)	8,000
2046 (AN)	0
2047 (C)	29,000
2048 (W)	0
2049 (W)	11,000
2050 (W)	23,000
2051 (W)	0
2052 (W)	42,000
2053 (AN)	35,000
2054 (D)	46,000
2055 (D)	29,000
2056 (AN)	14,000
2057 (BN)	22,000
2058 (AN)	12,000
2059 (W)	14,000
2060 (D)	60,000
2061 (C)	32,000
2062 (D)	34,000
2063 (BN)	6,100

Red Bluff Subbasin Projected (Current Land Use) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

WY (Type)		Rivers, Streams, and Small Watersheds
2064 (W)		11,000
2065 (BN)		42,000
2066 (D)		26,000
2067 (C)		35,000
2068 (C)		14,000
2069 (BN)		0
2070 (W)		0
2071 (BN)		40,000
2072 (W)		0
Average (2022-2072)		26,000
2022-2072	W	18,000
	AN	13,000
	BN	32,000
	D	39,000
	C	32,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

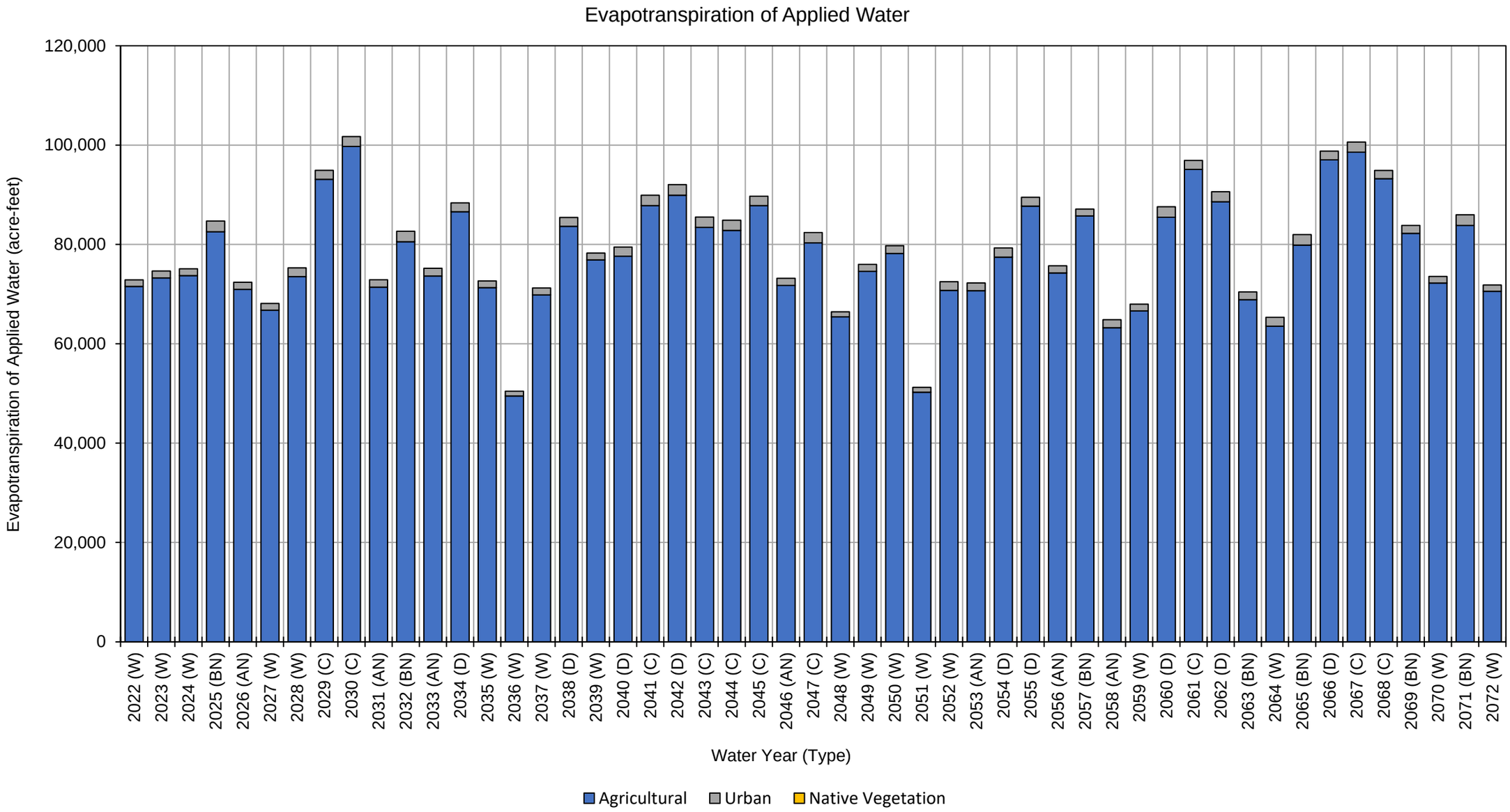
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	130,000	6,100	350,000	490,000
2023 (W)	140,000	5,700	320,000	470,000
2024 (W)	140,000	5,600	320,000	470,000
2025 (BN)	130,000	5,300	280,000	420,000
2026 (AN)	140,000	6,000	340,000	490,000
2027 (W)	130,000	5,600	330,000	470,000
2028 (W)	130,000	5,400	310,000	450,000
2029 (C)	140,000	4,500	240,000	380,000
2030 (C)	140,000	4,700	220,000	360,000
2031 (AN)	140,000	6,200	350,000	500,000
2032 (BN)	140,000	5,600	300,000	450,000
2033 (AN)	130,000	5,700	320,000	460,000
2034 (D)	140,000	5,200	290,000	440,000
2035 (W)	130,000	5,600	320,000	460,000
2036 (W)	120,000	5,700	320,000	450,000
2037 (W)	140,000	5,600	330,000	480,000
2038 (D)	140,000	5,200	290,000	440,000
2039 (W)	140,000	5,600	310,000	460,000
2040 (D)	140,000	5,500	310,000	460,000
2041 (C)	140,000	5,500	290,000	440,000
2042 (D)	130,000	5,300	260,000	400,000
2043 (C)	140,000	5,900	310,000	460,000
2044 (C)	140,000	5,900	310,000	460,000
2045 (C)	140,000	5,600	310,000	460,000
2046 (AN)	140,000	6,000	340,000	490,000
2047 (C)	140,000	5,900	320,000	470,000
2048 (W)	120,000	5,300	300,000	430,000
2049 (W)	140,000	5,600	320,000	470,000
2050 (W)	140,000	5,700	320,000	470,000
2051 (W)	120,000	5,700	320,000	450,000
2052 (W)	130,000	5,400	320,000	460,000
2053 (AN)	130,000	5,700	330,000	470,000
2054 (D)	140,000	5,500	310,000	460,000
2055 (D)	140,000	5,200	290,000	440,000
2056 (AN)	130,000	5,500	310,000	450,000
2057 (BN)	140,000	4,900	280,000	420,000
2058 (AN)	130,000	6,200	350,000	490,000
2059 (W)	130,000	5,600	330,000	470,000
2060 (D)	140,000	5,300	260,000	410,000
2061 (C)	140,000	4,600	240,000	380,000
2062 (D)	140,000	5,500	280,000	430,000
2063 (BN)	120,000	5,500	300,000	430,000

Red Bluff Subbasin Projected (Current Land Use) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		130,000	5,800	340,000	480,000
2065 (BN)		140,000	5,600	300,000	450,000
2066 (D)		140,000	4,700	250,000	390,000
2067 (C)		140,000	4,800	230,000	370,000
2068 (C)		140,000	4,900	280,000	420,000
2069 (BN)		140,000	5,700	320,000	470,000
2070 (W)		130,000	5,500	320,000	460,000
2071 (BN)		130,000	5,300	270,000	410,000
2072 (W)		130,000	6,000	340,000	480,000
Average (2022-2072)		130,000	5,500	300,000	440,000
2022-2072	W	130,000	5,600	320,000	460,000
	AN	130,000	5,900	330,000	470,000
	BN	130,000	5,400	290,000	430,000
	D	140,000	5,300	280,000	430,000
	C	140,000	5,200	270,000	420,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

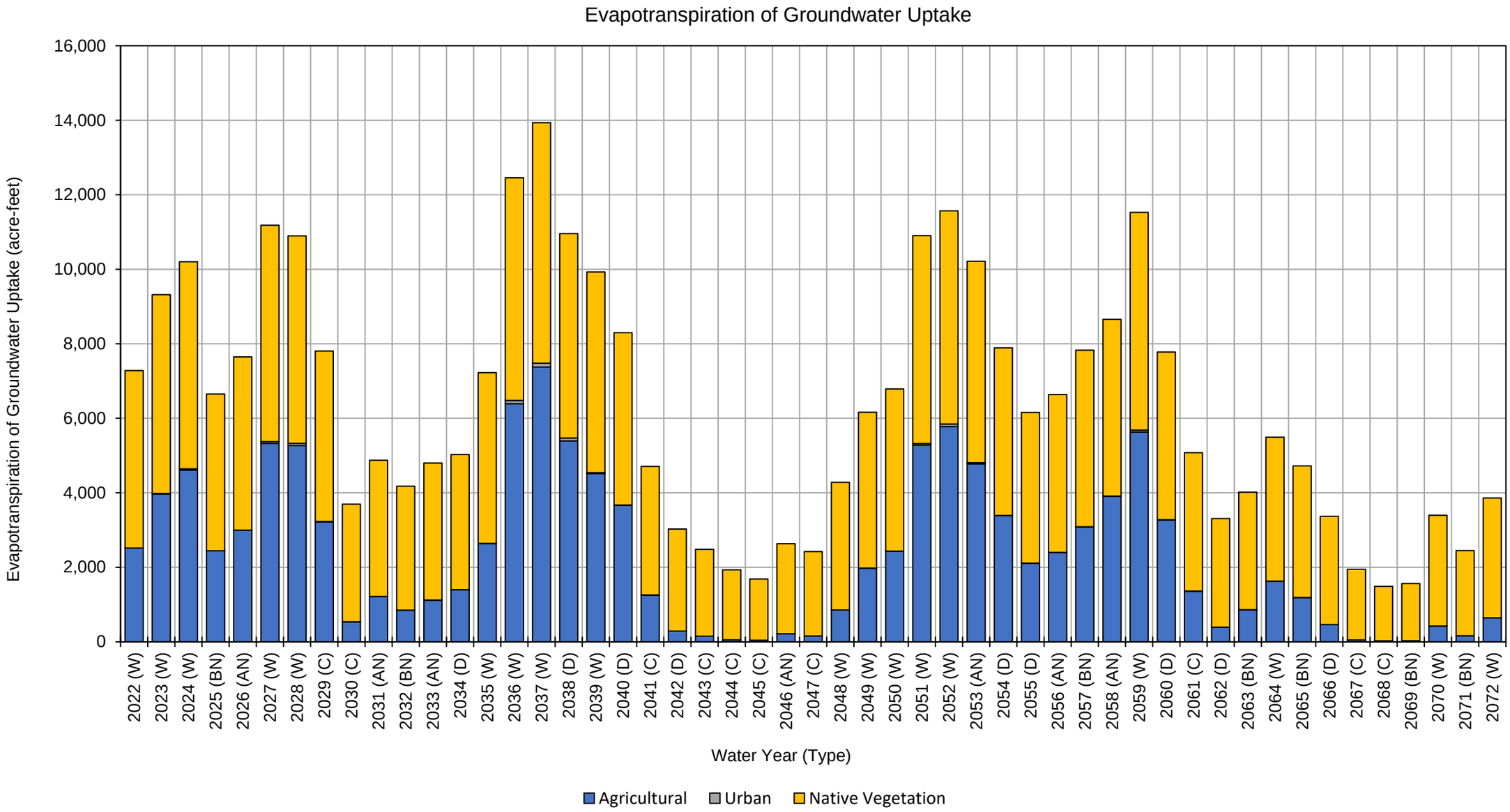
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	72,000	1,300	0	73,000
2023 (W)	73,000	1,400	0	74,000
2024 (W)	74,000	1,400	0	75,000
2025 (BN)	83,000	2,100	0	85,000
2026 (AN)	71,000	1,400	0	72,000
2027 (W)	67,000	1,400	0	68,000
2028 (W)	74,000	1,800	0	76,000
2029 (C)	93,000	1,800	0	95,000
2030 (C)	100,000	2,000	0	100,000
2031 (AN)	71,000	1,500	0	73,000
2032 (BN)	81,000	2,100	0	83,000
2033 (AN)	74,000	1,600	0	76,000
2034 (D)	87,000	1,800	0	89,000
2035 (W)	71,000	1,400	0	72,000
2036 (W)	49,000	980	0	50,000
2037 (W)	70,000	1,400	0	71,000
2038 (D)	84,000	1,800	0	86,000
2039 (W)	77,000	1,400	0	78,000
2040 (D)	78,000	1,800	0	80,000
2041 (C)	88,000	2,100	0	90,000
2042 (D)	90,000	2,100	0	92,000
2043 (C)	83,000	2,100	0	85,000
2044 (C)	83,000	2,100	0	85,000
2045 (C)	88,000	1,900	0	90,000
2046 (AN)	72,000	1,400	0	73,000
2047 (C)	80,000	2,100	0	82,000
2048 (W)	65,000	1,000	0	66,000
2049 (W)	75,000	1,400	0	76,000
2050 (W)	78,000	1,600	0	80,000
2051 (W)	50,000	980	0	51,000
2052 (W)	71,000	1,800	0	73,000
2053 (AN)	71,000	1,600	0	73,000
2054 (D)	77,000	1,800	0	79,000
2055 (D)	88,000	1,800	0	90,000
2056 (AN)	74,000	1,400	0	75,000
2057 (BN)	86,000	1,400	0	87,000
2058 (AN)	63,000	1,600	0	65,000
2059 (W)	67,000	1,400	0	68,000
2060 (D)	85,000	2,100	0	87,000
2061 (C)	95,000	1,800	0	97,000
2062 (D)	89,000	2,000	0	91,000
2063 (BN)	69,000	1,600	0	71,000

Red Bluff Subbasin Projected (Current Land Use) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		64,000	1,800	0	66,000
2065 (BN)		80,000	2,100	0	82,000
2066 (D)		97,000	1,800	0	99,000
2067 (C)		99,000	2,000	0	100,000
2068 (C)		93,000	1,700	0	95,000
2069 (BN)		82,000	1,600	0	84,000
2070 (W)		72,000	1,300	0	73,000
2071 (BN)		84,000	2,100	0	86,000
2072 (W)		71,000	1,300	0	72,000
Average (2022-2072)		78,000	1,700	0	80,000
2022-2072	W	69,000	1,400	0	70,000
	AN	71,000	1,500	0	73,000
	BN	81,000	1,900	0	83,000
	D	86,000	1,900	0	88,000
	C	90,000	2,000	0	92,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

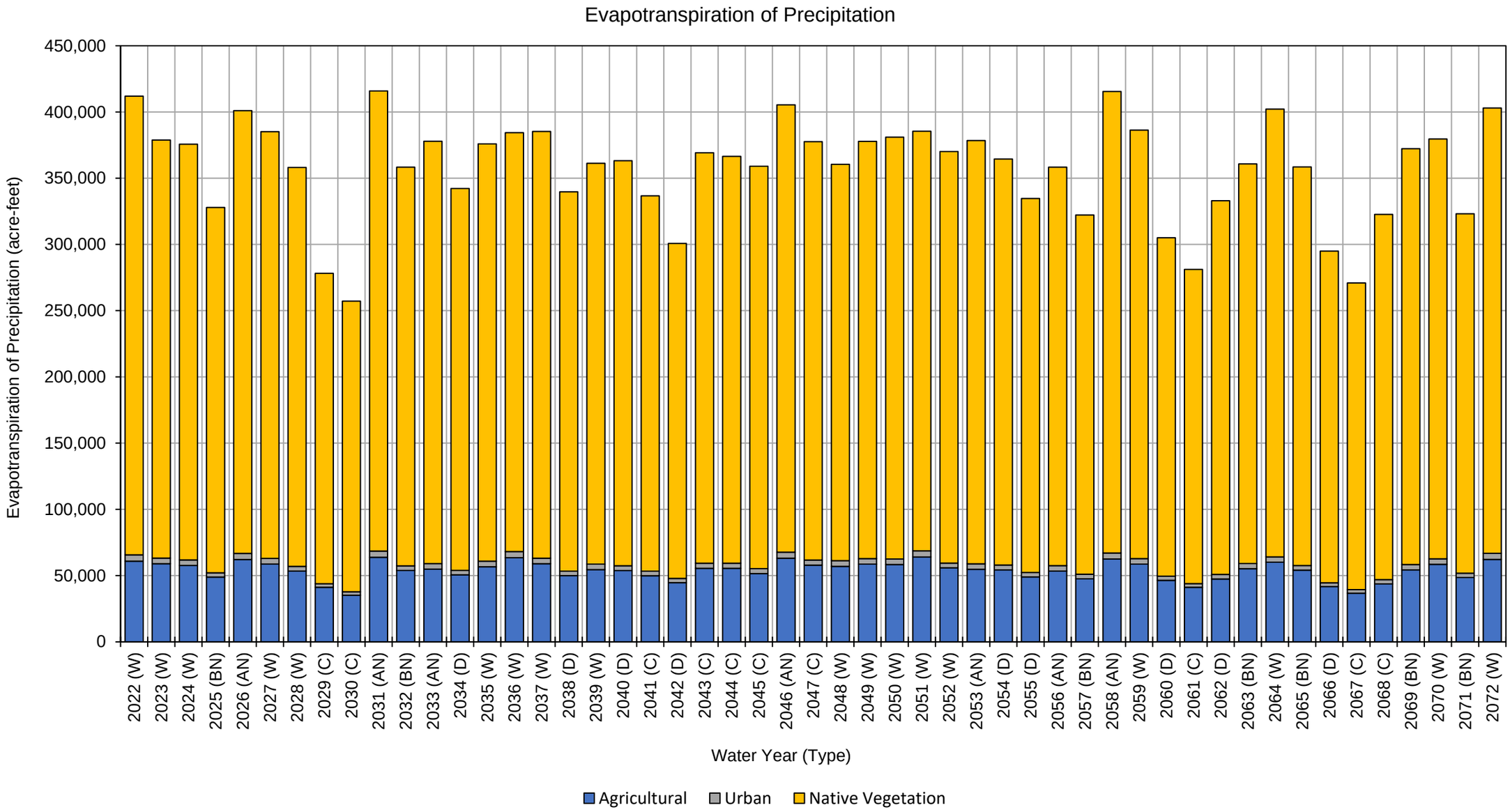
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	2,500	2	4,800	7,300
2023 (W)	4,000	14	5,300	9,300
2024 (W)	4,600	34	5,600	10,000
2025 (BN)	2,400	3	4,200	6,600
2026 (AN)	3,000	2	4,600	7,600
2027 (W)	5,300	48	5,800	11,000
2028 (W)	5,300	59	5,600	11,000
2029 (C)	3,200	8	4,600	7,800
2030 (C)	540	0	3,200	3,700
2031 (AN)	1,200	0	3,700	4,900
2032 (BN)	850	0	3,300	4,200
2033 (AN)	1,100	1	3,700	4,800
2034 (D)	1,400	0	3,600	5,000
2035 (W)	2,600	2	4,600	7,200
2036 (W)	6,400	84	6,000	12,000
2037 (W)	7,400	100	6,500	14,000
2038 (D)	5,400	76	5,500	11,000
2039 (W)	4,500	27	5,400	9,900
2040 (D)	3,700	11	4,600	8,300
2041 (C)	1,300	1	3,500	4,800
2042 (D)	290	0	2,700	3,000
2043 (C)	150	0	2,300	2,500
2044 (C)	52	0	1,900	2,000
2045 (C)	42	0	1,600	1,600
2046 (AN)	220	0	2,400	2,600
2047 (C)	160	0	2,300	2,500
2048 (W)	850	1	3,400	4,300
2049 (W)	2,000	1	4,200	6,200
2050 (W)	2,400	2	4,400	6,800
2051 (W)	5,300	41	5,600	11,000
2052 (W)	5,800	68	5,700	12,000
2053 (AN)	4,800	31	5,400	10,000
2054 (D)	3,400	5	4,500	7,900
2055 (D)	2,100	1	4,000	6,100
2056 (AN)	2,400	1	4,200	6,600
2057 (BN)	3,100	3	4,700	7,800
2058 (AN)	3,900	3	4,700	8,600
2059 (W)	5,600	50	5,800	11,000
2060 (D)	3,300	5	4,500	7,800
2061 (C)	1,400	0	3,700	5,100
2062 (D)	390	0	2,900	3,300
2063 (BN)	860	0	3,200	4,100

Red Bluff Subbasin Projected (Current Land Use) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		1,600	1	3,900	5,500
2065 (BN)		1,200	0	3,500	4,700
2066 (D)		460	0	2,900	3,400
2067 (C)		49	0	1,900	1,900
2068 (C)		25	0	1,500	1,500
2069 (BN)		27	0	1,500	1,500
2070 (W)		420	1	3,000	3,400
2071 (BN)		160	0	2,300	2,500
2072 (W)		640	0	3,200	3,800
Average (2022-2072)		2,300	13	4,000	6,300
2022-2072	W	3,700	30	4,900	8,600
	AN	2,400	6	4,100	6,500
	BN	1,200	1	3,300	4,500
	D	2,300	11	3,900	6,200
	C	680	1	2,600	3,300

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

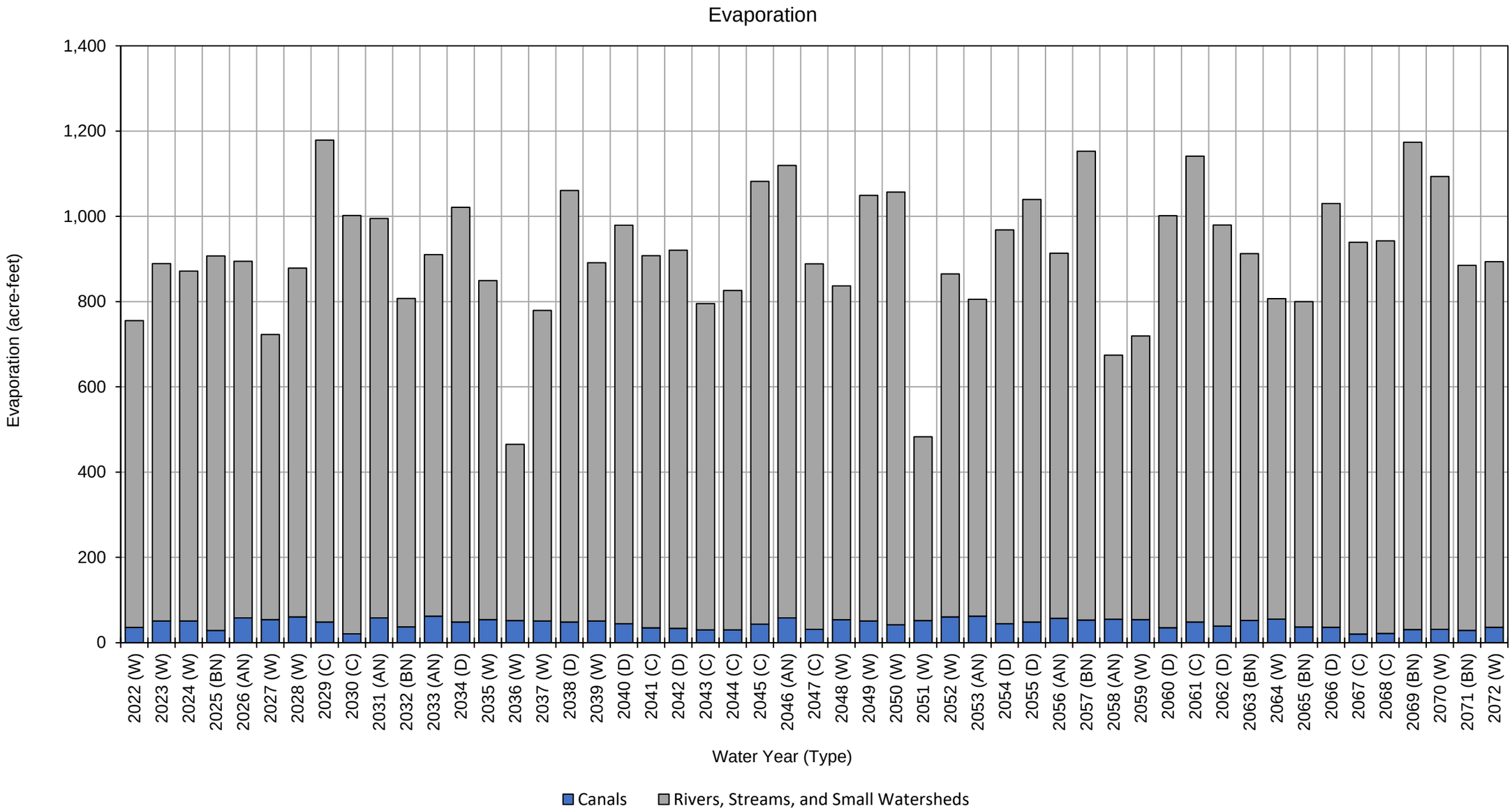
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	61,000	4,800	350,000	420,000
2023 (W)	59,000	4,200	320,000	380,000
2024 (W)	58,000	4,200	310,000	370,000
2025 (BN)	49,000	3,200	280,000	330,000
2026 (AN)	62,000	4,600	330,000	400,000
2027 (W)	59,000	4,200	320,000	380,000
2028 (W)	53,000	3,600	300,000	360,000
2029 (C)	41,000	2,700	230,000	270,000
2030 (C)	35,000	2,700	220,000	260,000
2031 (AN)	64,000	4,700	350,000	420,000
2032 (BN)	54,000	3,500	300,000	360,000
2033 (AN)	55,000	4,100	320,000	380,000
2034 (D)	51,000	3,400	290,000	340,000
2035 (W)	57,000	4,200	320,000	380,000
2036 (W)	64,000	4,600	320,000	390,000
2037 (W)	59,000	4,100	320,000	380,000
2038 (D)	50,000	3,400	290,000	340,000
2039 (W)	54,000	4,200	300,000	360,000
2040 (D)	54,000	3,700	310,000	370,000
2041 (C)	50,000	3,400	280,000	330,000
2042 (D)	45,000	3,200	250,000	300,000
2043 (C)	55,000	3,900	310,000	370,000
2044 (C)	55,000	3,800	310,000	370,000
2045 (C)	51,000	3,700	300,000	350,000
2046 (AN)	63,000	4,600	340,000	410,000
2047 (C)	58,000	3,800	320,000	380,000
2048 (W)	57,000	4,300	300,000	360,000
2049 (W)	59,000	4,200	310,000	370,000
2050 (W)	58,000	4,200	320,000	380,000
2051 (W)	64,000	4,700	320,000	390,000
2052 (W)	56,000	3,600	310,000	370,000
2053 (AN)	55,000	4,100	320,000	380,000
2054 (D)	54,000	3,700	310,000	370,000
2055 (D)	49,000	3,400	280,000	330,000
2056 (AN)	53,000	4,100	300,000	360,000
2057 (BN)	48,000	3,500	270,000	320,000
2058 (AN)	62,000	4,600	350,000	420,000
2059 (W)	59,000	4,200	320,000	380,000
2060 (D)	46,000	3,200	260,000	310,000
2061 (C)	41,000	2,800	240,000	280,000
2062 (D)	47,000	3,500	280,000	330,000
2063 (BN)	55,000	3,900	300,000	360,000

Red Bluff Subbasin Projected (Current Land Use) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		60,000	4,000	340,000	400,000
2065 (BN)		54,000	3,500	300,000	360,000
2066 (D)		42,000	2,900	250,000	290,000
2067 (C)		37,000	2,700	230,000	270,000
2068 (C)		44,000	3,300	280,000	330,000
2069 (BN)		54,000	4,100	310,000	370,000
2070 (W)		58,000	4,100	320,000	380,000
2071 (BN)		49,000	3,200	270,000	320,000
2072 (W)		62,000	4,700	340,000	410,000
Average (2022-2072)		54,000	3,800	300,000	360,000
2022-2072	W	59,000	4,200	320,000	380,000
	AN	59,000	4,400	330,000	390,000
	BN	52,000	3,600	290,000	350,000
	D	49,000	3,400	280,000	330,000
	C	47,000	3,300	270,000	320,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Evaporation (acre-feet, rounded)

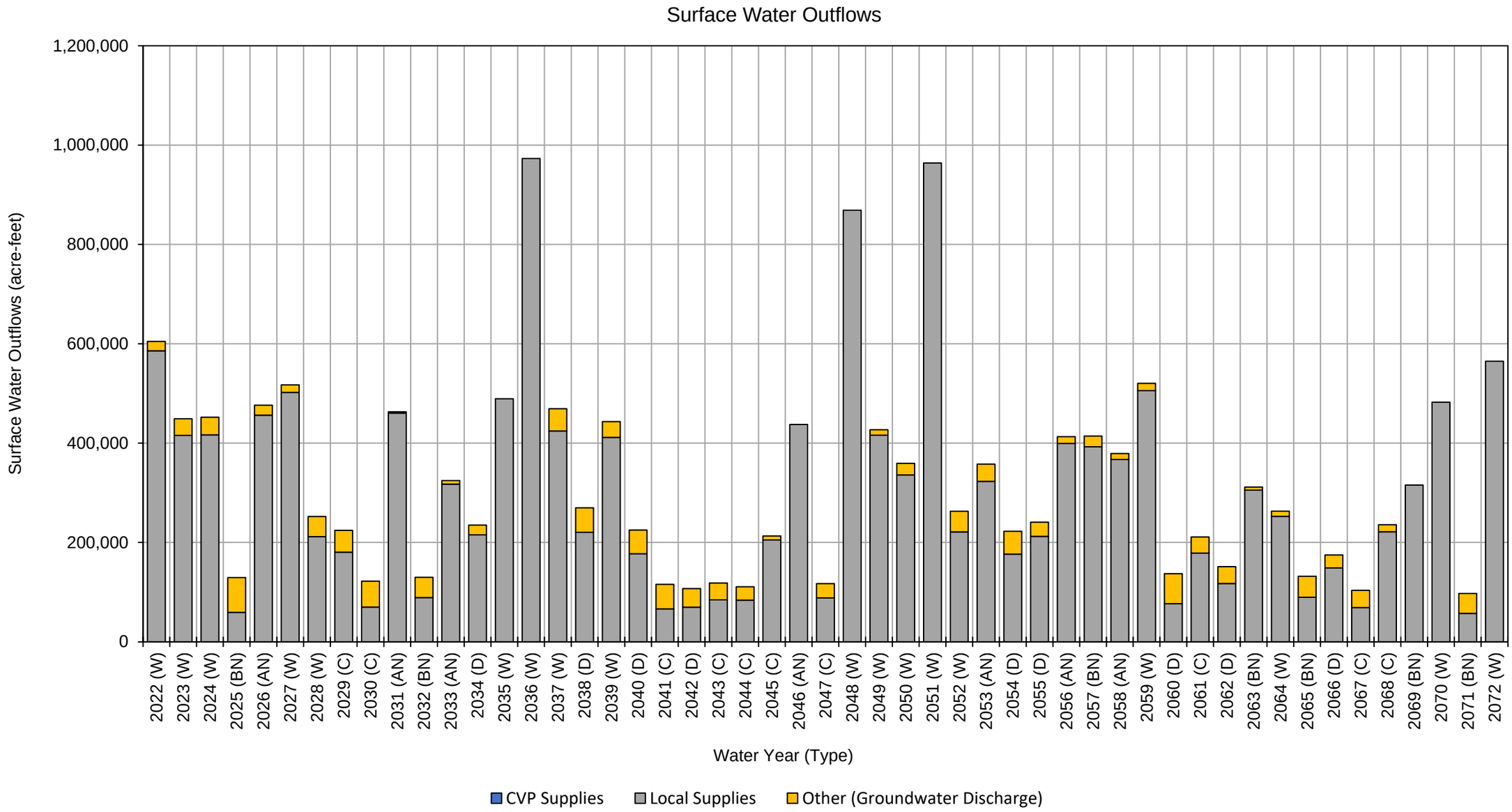
WY (Type)	Canals	Rivers, Streams, and Small Watersheds	Total
2022 (W)	36	720	760
2023 (W)	51	840	890
2024 (W)	51	820	870
2025 (BN)	29	880	910
2026 (AN)	58	840	900
2027 (W)	54	670	720
2028 (W)	60	820	880
2029 (C)	48	1,100	1,100
2030 (C)	21	980	1,000
2031 (AN)	58	940	1,000
2032 (BN)	37	770	810
2033 (AN)	62	850	910
2034 (D)	48	970	1,000
2035 (W)	54	800	850
2036 (W)	52	410	460
2037 (W)	51	730	780
2038 (D)	48	1,000	1,000
2039 (W)	51	840	890
2040 (D)	44	930	970
2041 (C)	35	870	910
2042 (D)	34	890	920
2043 (C)	30	770	800
2044 (C)	30	800	830
2045 (C)	43	1,000	1,000
2046 (AN)	58	1,100	1,200
2047 (C)	31	860	890
2048 (W)	54	780	830
2049 (W)	51	1,000	1,100
2050 (W)	42	1,000	1,000
2051 (W)	52	430	480
2052 (W)	60	800	860
2053 (AN)	62	740	800
2054 (D)	44	920	960
2055 (D)	48	990	1,000
2056 (AN)	57	860	920
2057 (BN)	53	1,100	1,200
2058 (AN)	55	620	680
2059 (W)	54	670	720
2060 (D)	35	970	1,000
2061 (C)	48	1,100	1,100
2062 (D)	39	940	980
2063 (BN)	52	860	910

Red Bluff Subbasin Projected (Current Land Use) Evaporation (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Watersheds	Total
2064 (W)		55	750	810
2065 (BN)		37	760	800
2066 (D)		36	990	1,000
2067 (C)		20	920	940
2068 (C)		22	920	940
2069 (BN)		31	1,100	1,100
2070 (W)		31	1,100	1,100
2071 (BN)		29	860	890
2072 (W)		36	860	900
Average (2022-2072)		45	870	920
2022-2072	W	50	780	830
	AN	59	840	900
	BN	38	910	950
	D	42	960	1,000
	C	33	940	970

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

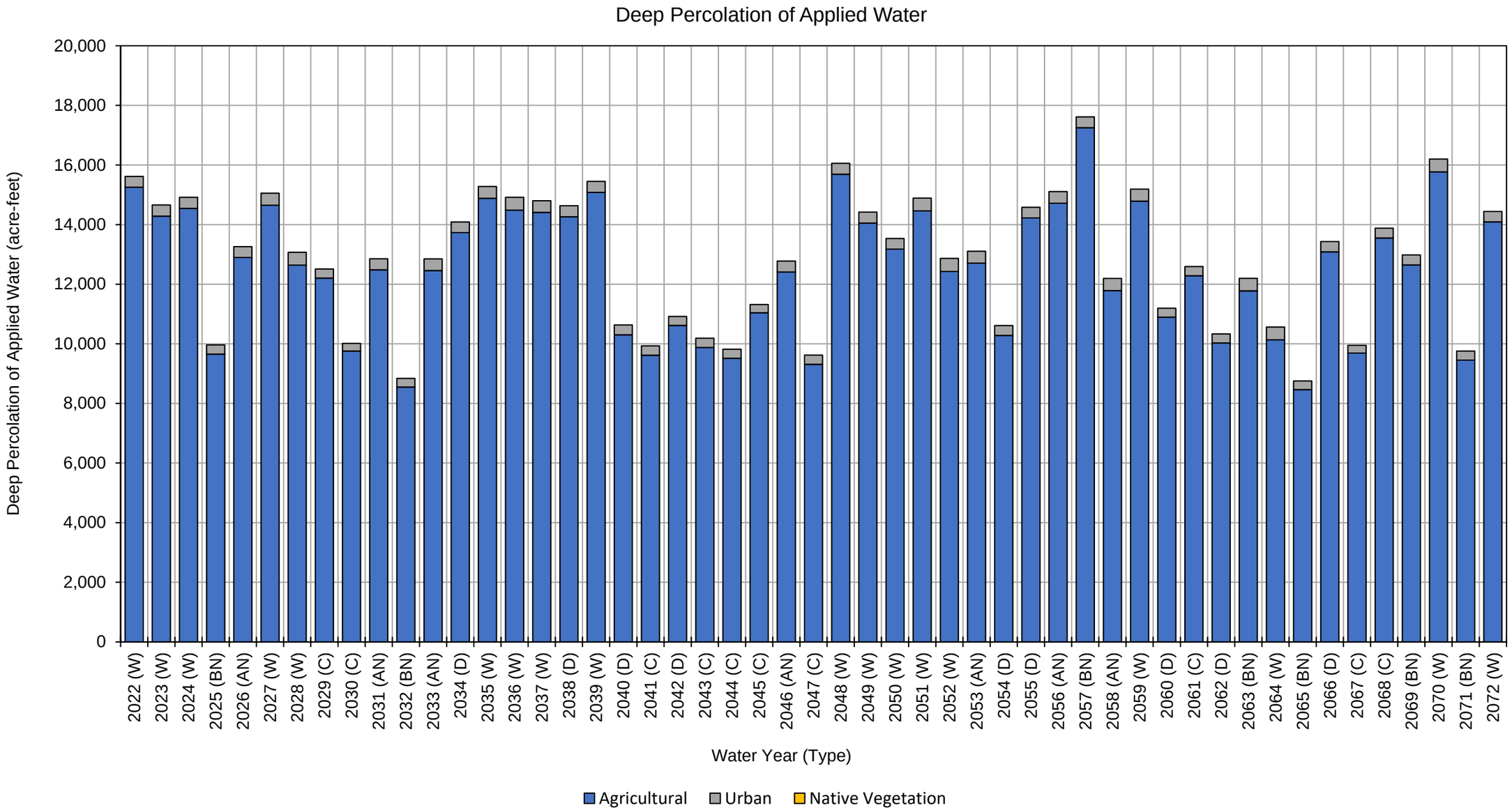
WY (Type)	CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2022 (W)	0	590,000	19,000	610,000
2023 (W)	0	420,000	34,000	450,000
2024 (W)	0	420,000	36,000	460,000
2025 (BN)	0	59,000	70,000	130,000
2026 (AN)	0	460,000	20,000	480,000
2027 (W)	0	500,000	15,000	520,000
2028 (W)	0	210,000	41,000	250,000
2029 (C)	0	180,000	44,000	220,000
2030 (C)	0	70,000	52,000	120,000
2031 (AN)	0	460,000	2,700	460,000
2032 (BN)	0	89,000	41,000	130,000
2033 (AN)	0	320,000	7,300	330,000
2034 (D)	0	220,000	20,000	240,000
2035 (W)	0	490,000	0	490,000
2036 (W)	0	970,000	0	970,000
2037 (W)	0	420,000	45,000	470,000
2038 (D)	0	220,000	49,000	270,000
2039 (W)	0	410,000	32,000	440,000
2040 (D)	0	180,000	48,000	230,000
2041 (C)	0	66,000	49,000	120,000
2042 (D)	0	70,000	37,000	110,000
2043 (C)	0	85,000	34,000	120,000
2044 (C)	0	84,000	27,000	110,000
2045 (C)	0	200,000	8,000	210,000
2046 (AN)	0	440,000	0	440,000
2047 (C)	0	88,000	29,000	120,000
2048 (W)	0	870,000	0	870,000
2049 (W)	0	420,000	11,000	430,000
2050 (W)	0	340,000	23,000	360,000
2051 (W)	0	960,000	0	960,000
2052 (W)	0	220,000	42,000	260,000
2053 (AN)	0	320,000	35,000	360,000
2054 (D)	0	180,000	46,000	230,000
2055 (D)	0	210,000	29,000	240,000
2056 (AN)	0	400,000	14,000	410,000
2057 (BN)	0	390,000	22,000	410,000
2058 (AN)	0	370,000	12,000	380,000
2059 (W)	0	510,000	14,000	520,000
2060 (D)	0	77,000	60,000	140,000
2061 (C)	0	180,000	32,000	210,000
2062 (D)	0	120,000	34,000	150,000
2063 (BN)	0	310,000	6,100	320,000

Red Bluff Subbasin Projected (Current Land Use) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2064 (W)		0	250,000	11,000	260,000
2065 (BN)		0	90,000	42,000	130,000
2066 (D)		0	150,000	26,000	180,000
2067 (C)		0	69,000	35,000	100,000
2068 (C)		0	220,000	14,000	230,000
2069 (BN)		0	320,000	0	320,000
2070 (W)		0	480,000	0	480,000
2071 (BN)		0	57,000	40,000	97,000
2072 (W)		0	560,000	0	560,000
Average (2022-2072)		0	310,000	26,000	340,000
2022-2072	W	0	500,000	18,000	520,000
	AN	0	390,000	13,000	400,000
	BN	0	190,000	32,000	220,000
	D	0	160,000	39,000	200,000
	C	0	120,000	32,000	150,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

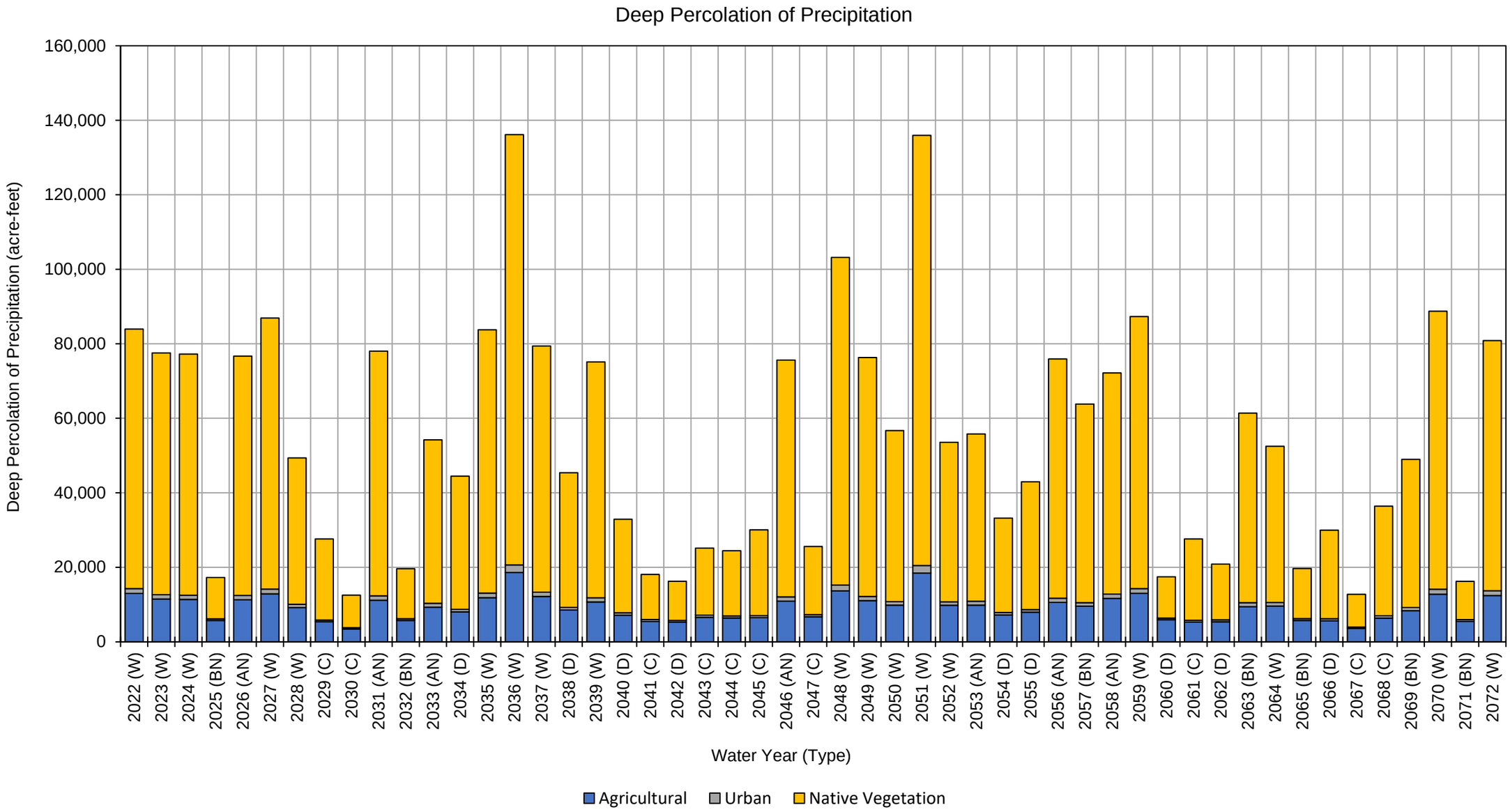
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	15,000	360	0	15,000
2023 (W)	14,000	370	0	14,000
2024 (W)	15,000	380	0	15,000
2025 (BN)	9,700	310	0	10,000
2026 (AN)	13,000	360	0	13,000
2027 (W)	15,000	410	0	15,000
2028 (W)	13,000	430	0	13,000
2029 (C)	12,000	300	0	12,000
2030 (C)	9,800	260	0	10,000
2031 (AN)	12,000	370	0	12,000
2032 (BN)	8,500	290	0	8,800
2033 (AN)	12,000	390	0	12,000
2034 (D)	14,000	360	0	14,000
2035 (W)	15,000	400	0	15,000
2036 (W)	14,000	430	0	14,000
2037 (W)	14,000	390	0	14,000
2038 (D)	14,000	370	0	14,000
2039 (W)	15,000	370	0	15,000
2040 (D)	10,000	330	0	10,000
2041 (C)	9,600	320	0	9,900
2042 (D)	11,000	300	0	11,000
2043 (C)	9,900	310	0	10,000
2044 (C)	9,500	310	0	9,800
2045 (C)	11,000	280	0	11,000
2046 (AN)	12,000	360	0	12,000
2047 (C)	9,300	310	0	9,600
2048 (W)	16,000	370	0	16,000
2049 (W)	14,000	370	0	14,000
2050 (W)	13,000	360	0	13,000
2051 (W)	14,000	430	0	14,000
2052 (W)	12,000	440	0	12,000
2053 (AN)	13,000	400	0	13,000
2054 (D)	10,000	330	0	10,000
2055 (D)	14,000	360	0	14,000
2056 (AN)	15,000	390	0	15,000
2057 (BN)	17,000	360	0	17,000
2058 (AN)	12,000	410	0	12,000
2059 (W)	15,000	410	0	15,000
2060 (D)	11,000	300	0	11,000
2061 (C)	12,000	310	0	12,000
2062 (D)	10,000	310	0	10,000
2063 (BN)	12,000	420	0	12,000

Red Bluff Subbasin Projected (Current Land Use) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		10,000	430	0	10,000
2065 (BN)		8,500	290	0	8,800
2066 (D)		13,000	350	0	13,000
2067 (C)		9,700	260	0	10,000
2068 (C)		14,000	330	0	14,000
2069 (BN)		13,000	330	0	13,000
2070 (W)		16,000	430	0	16,000
2071 (BN)		9,500	300	0	9,800
2072 (W)		14,000	350	0	14,000
Average (2022-2072)		12,000	350	0	12,000
2022-2072	W	14,000	400	0	14,000
	AN	13,000	380	0	13,000
	BN	11,000	330	0	11,000
	D	12,000	330	0	12,000
	C	11,000	300	0	11,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

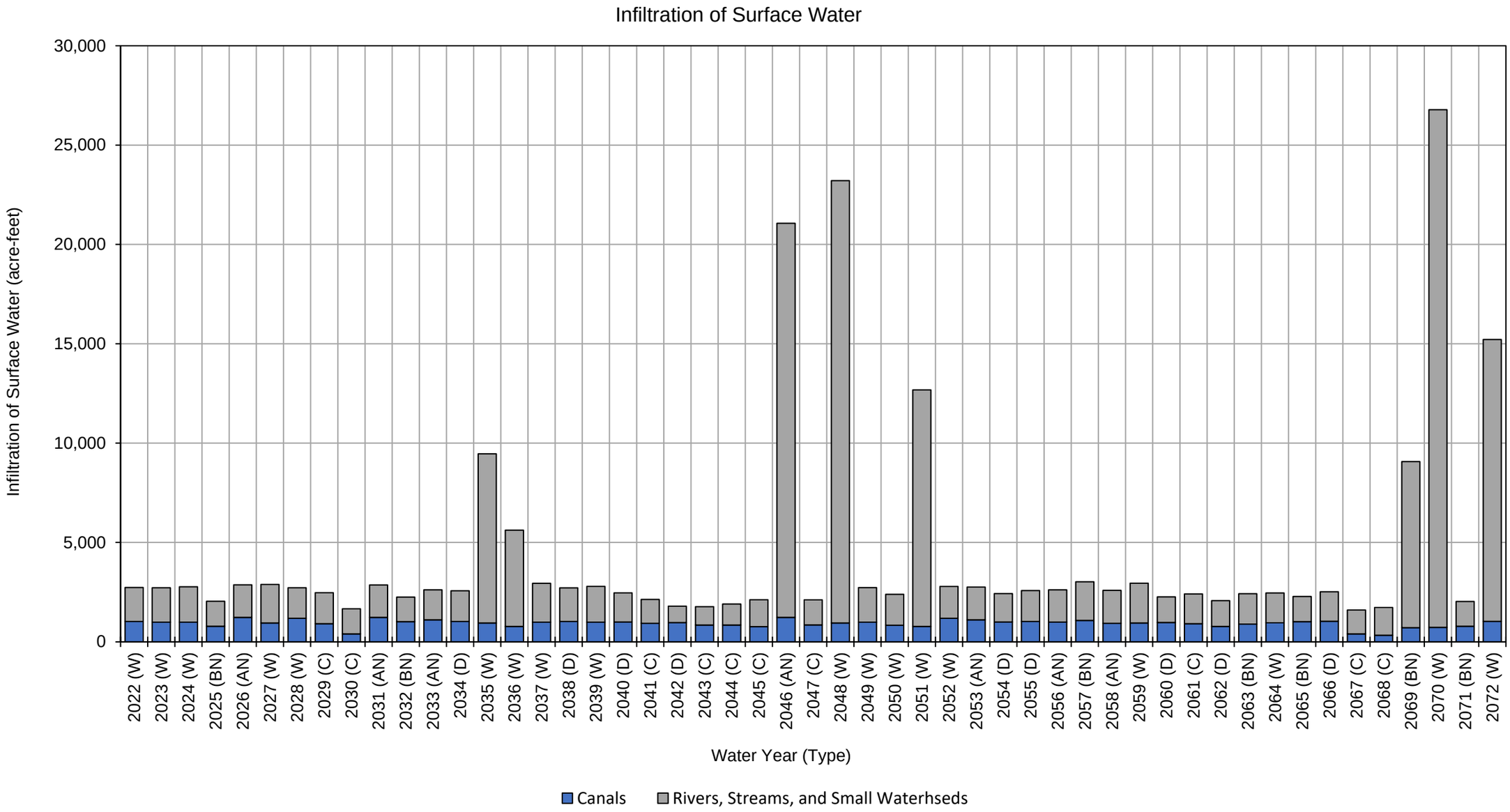
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	13,000	1,300	70,000	84,000
2023 (W)	11,000	1,100	65,000	77,000
2024 (W)	11,000	1,100	65,000	77,000
2025 (BN)	5,700	460	11,000	17,000
2026 (AN)	11,000	1,200	64,000	76,000
2027 (W)	13,000	1,300	73,000	87,000
2028 (W)	9,200	880	39,000	49,000
2029 (C)	5,400	460	22,000	28,000
2030 (C)	3,400	340	8,700	12,000
2031 (AN)	11,000	1,200	66,000	78,000
2032 (BN)	5,700	480	13,000	19,000
2033 (AN)	9,300	1,000	44,000	54,000
2034 (D)	8,000	690	36,000	45,000
2035 (W)	12,000	1,200	71,000	84,000
2036 (W)	19,000	2,000	120,000	140,000
2037 (W)	12,000	1,200	66,000	79,000
2038 (D)	8,500	700	36,000	45,000
2039 (W)	11,000	1,100	63,000	75,000
2040 (D)	7,100	660	25,000	33,000
2041 (C)	5,500	520	12,000	18,000
2042 (D)	5,300	450	11,000	17,000
2043 (C)	6,600	580	18,000	25,000
2044 (C)	6,400	570	18,000	25,000
2045 (C)	6,500	550	23,000	30,000
2046 (AN)	11,000	1,200	64,000	76,000
2047 (C)	6,700	570	18,000	25,000
2048 (W)	14,000	1,600	88,000	100,000
2049 (W)	11,000	1,100	64,000	76,000
2050 (W)	9,800	950	46,000	57,000
2051 (W)	18,000	2,000	120,000	140,000
2052 (W)	9,800	890	43,000	54,000
2053 (AN)	9,800	1,000	45,000	56,000
2054 (D)	7,200	660	25,000	33,000
2055 (D)	7,900	680	34,000	43,000
2056 (AN)	11,000	1,100	64,000	76,000
2057 (BN)	9,600	920	53,000	64,000
2058 (AN)	12,000	1,100	59,000	72,000
2059 (W)	13,000	1,300	73,000	87,000
2060 (D)	5,900	450	11,000	17,000
2061 (C)	5,300	460	22,000	28,000
2062 (D)	5,400	530	15,000	21,000
2063 (BN)	9,400	1,100	51,000	62,000

Red Bluff Subbasin Projected (Current Land Use) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		9,600	970	42,000	53,000
2065 (BN)		5,700	480	13,000	19,000
2066 (D)		5,600	570	24,000	30,000
2067 (C)		3,600	350	8,800	13,000
2068 (C)		6,300	640	29,000	36,000
2069 (BN)		8,300	860	40,000	49,000
2070 (W)		13,000	1,300	75,000	89,000
2071 (BN)		5,500	450	10,000	16,000
2072 (W)		12,000	1,300	67,000	80,000
Average (2022-2072)		9,100	900	44,000	54,000
2022-2072	W	12,000	1,300	69,000	82,000
	AN	11,000	1,100	58,000	70,000
	BN	7,100	670	27,000	35,000
	D	6,800	600	24,000	31,000
	C	5,600	500	18,000	24,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Infiltration of Surface Water (acre-feet, rounded)

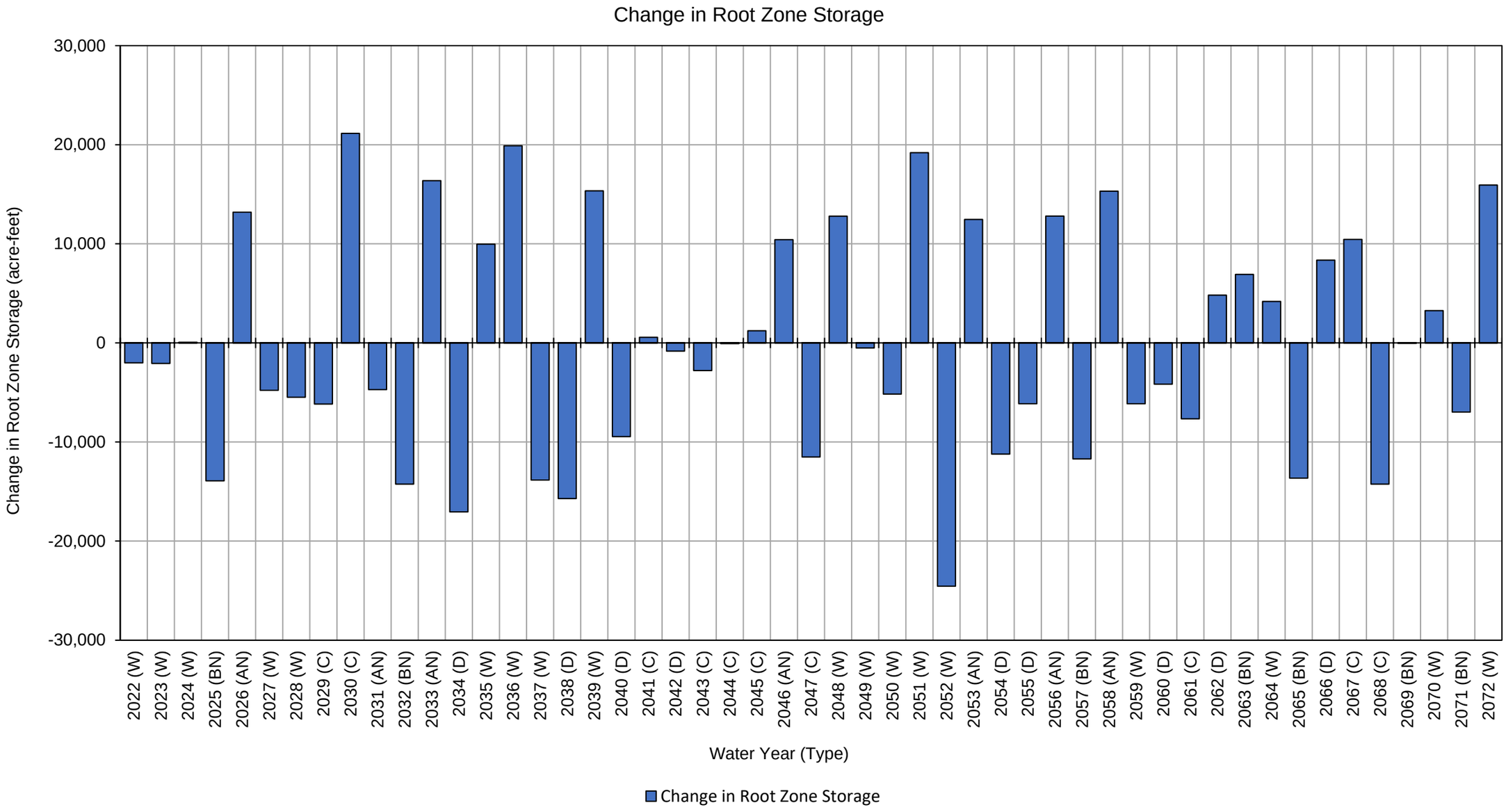
WY (Type)	Canals	Rivers, Streams, and Small Waterhseds	Total
2022 (W)	1,000	1,700	2,700
2023 (W)	990	1,700	2,700
2024 (W)	990	1,800	2,800
2025 (BN)	780	1,300	2,100
2026 (AN)	1,200	1,600	2,800
2027 (W)	950	1,900	2,900
2028 (W)	1,200	1,500	2,700
2029 (C)	910	1,600	2,500
2030 (C)	400	1,300	1,700
2031 (AN)	1,200	1,600	2,800
2032 (BN)	1,000	1,200	2,200
2033 (AN)	1,100	1,500	2,600
2034 (D)	1,000	1,600	2,600
2035 (W)	950	8,500	9,500
2036 (W)	770	4,800	5,600
2037 (W)	990	2,000	3,000
2038 (D)	1,000	1,700	2,700
2039 (W)	990	1,800	2,800
2040 (D)	1,000	1,500	2,500
2041 (C)	930	1,200	2,100
2042 (D)	960	830	1,800
2043 (C)	840	920	1,800
2044 (C)	840	1,100	1,900
2045 (C)	760	1,400	2,200
2046 (AN)	1,200	20,000	21,000
2047 (C)	850	1,300	2,200
2048 (W)	950	22,000	23,000
2049 (W)	990	1,700	2,700
2050 (W)	830	1,600	2,400
2051 (W)	770	12,000	13,000
2052 (W)	1,200	1,600	2,800
2053 (AN)	1,100	1,700	2,800
2054 (D)	1,000	1,400	2,400
2055 (D)	1,000	1,600	2,600
2056 (AN)	990	1,600	2,600
2057 (BN)	1,100	1,900	3,000
2058 (AN)	930	1,700	2,600
2059 (W)	950	2,000	3,000
2060 (D)	970	1,300	2,300
2061 (C)	910	1,500	2,400
2062 (D)	770	1,300	2,100
2063 (BN)	890	1,500	2,400

Red Bluff Subbasin Projected (Current Land Use) Infiltration of Surface Water (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Waterhseds	Total
2064 (W)		960	1,500	2,500
2065 (BN)		1,000	1,300	2,300
2066 (D)		1,000	1,500	2,500
2067 (C)		390	1,200	1,600
2068 (C)		330	1,400	1,700
2069 (BN)		710	8,400	9,100
2070 (W)		730	26,000	27,000
2071 (BN)		780	1,200	2,000
2072 (W)		1,000	14,000	15,000
Average (2022-2072)		930	3,500	4,400
2022-2072	W	950	6,000	7,000
	AN	1,100	4,200	5,300
	BN	890	2,400	3,300
	D	980	1,400	2,400
	C	720	1,300	2,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)	Change in Root Zone Storage
2022 (W)	-2,000
2023 (W)	-2,100
2024 (W)	63
2025 (BN)	-14,000
2026 (AN)	13,000
2027 (W)	-4,800
2028 (W)	-5,500
2029 (C)	-6,200
2030 (C)	21,000
2031 (AN)	-4,700
2032 (BN)	-14,000
2033 (AN)	16,000
2034 (D)	-17,000
2035 (W)	10,000
2036 (W)	20,000
2037 (W)	-14,000
2038 (D)	-16,000
2039 (W)	15,000
2040 (D)	-9,500
2041 (C)	570
2042 (D)	-830
2043 (C)	-2,800
2044 (C)	-77
2045 (C)	1,200
2046 (AN)	10,000
2047 (C)	-12,000
2048 (W)	13,000
2049 (W)	-510
2050 (W)	-5,200
2051 (W)	19,000
2052 (W)	-25,000
2053 (AN)	12,000
2054 (D)	-11,000
2055 (D)	-6,100
2056 (AN)	13,000
2057 (BN)	-12,000
2058 (AN)	15,000
2059 (W)	-6,100
2060 (D)	-4,200
2061 (C)	-7,700
2062 (D)	4,800
2063 (BN)	6,900

Red Bluff Subbasin Projected (Current Land Use) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)		Change in Root Zone Storage
2064 (W)		4,200
2065 (BN)		-14,000
2066 (D)		8,400
2067 (C)		10,000
2068 (C)		-14,000
2069 (BN)		-56
2070 (W)		3,300
2071 (BN)		-7,000
2072 (W)		16,000
Average (2022-2072)		-46
2022-2072	W	2,000
	AN	11,000
	BN	-7,700
	D	-5,700
	C	-910

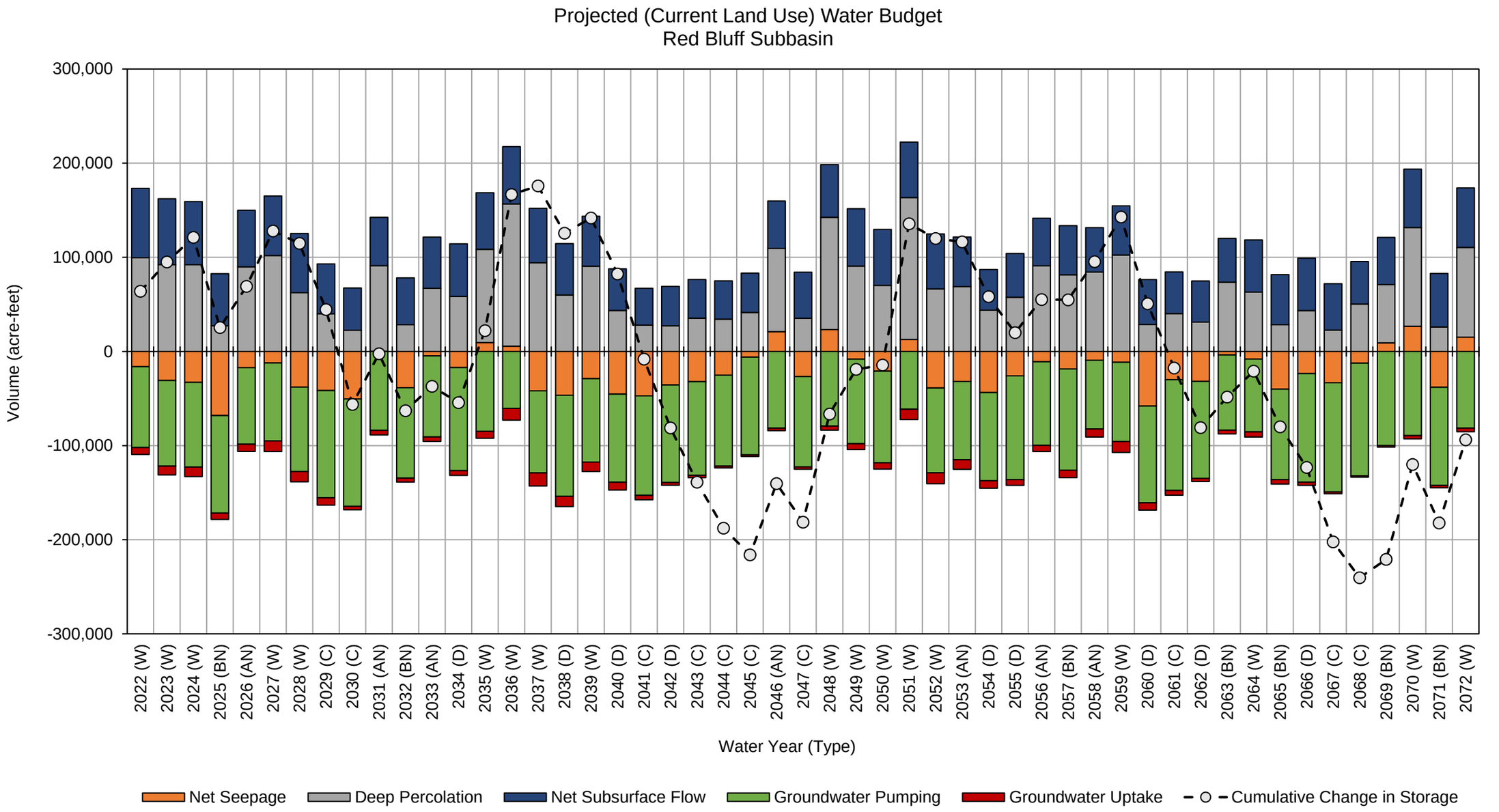
Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX D-2b

Detailed Red Bluff Subbasin Water Budget Results:

Projected (Current Land Use) Model Results – Groundwater System


Projected (Current Land Use) Water Budget
Red Bluff Subbasin
Volume (acre-feet)
300,000
200,000
100,000
0
-100,000
-200,000
-300,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Red Bluff Subbasin Projected (Current Land Use) Water Budget Summary (acre-feet, rounded)

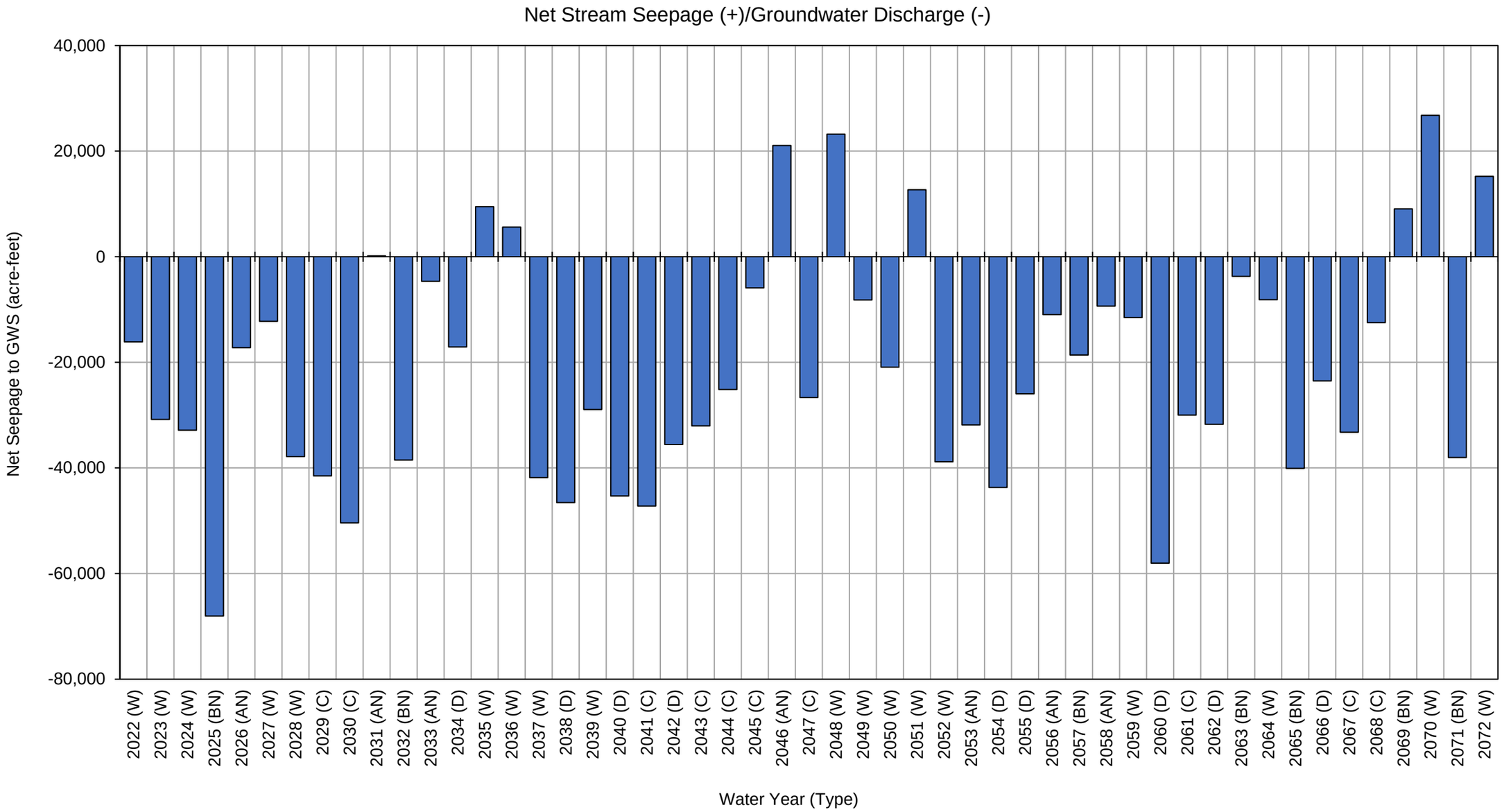
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	-16,000	100,000	-86,000	-7,300	74,000	64,000	64,000
2023 (W)	-31,000	92,000	-91,000	-9,300	70,000	31,000	95,000
2024 (W)	-33,000	92,000	-90,000	-10,000	67,000	26,000	120,000
2025 (BN)	-68,000	27,000	-100,000	-6,700	55,000	-96,000	25,000
2026 (AN)	-17,000	90,000	-81,000	-7,600	60,000	44,000	69,000
2027 (W)	-12,000	100,000	-83,000	-11,000	63,000	59,000	130,000
2028 (W)	-38,000	62,000	-90,000	-11,000	63,000	-13,000	110,000
2029 (C)	-42,000	40,000	-110,000	-7,800	53,000	-70,000	45,000
2030 (C)	-50,000	23,000	-110,000	-3,700	45,000	-100,000	-56,000
2031 (AN)	170	91,000	-84,000	-4,900	51,000	54,000	-2,400
2032 (BN)	-39,000	28,000	-96,000	-4,200	50,000	-61,000	-63,000
2033 (AN)	-4,700	67,000	-86,000	-4,800	54,000	26,000	-37,000
2034 (D)	-17,000	59,000	-110,000	-5,000	56,000	-17,000	-54,000
2035 (W)	9,500	99,000	-85,000	-7,200	60,000	76,000	22,000
2036 (W)	5,600	150,000	-60,000	-12,000	61,000	140,000	170,000
2037 (W)	-42,000	94,000	-87,000	-14,000	58,000	9,200	180,000
2038 (D)	-47,000	60,000	-110,000	-11,000	55,000	-50,000	130,000
2039 (W)	-29,000	91,000	-89,000	-9,900	53,000	16,000	140,000
2040 (D)	-45,000	44,000	-94,000	-8,300	44,000	-59,000	82,000
2041 (C)	-47,000	28,000	-110,000	-4,700	39,000	-90,000	-8,100
2042 (D)	-36,000	27,000	-100,000	-3,000	42,000	-73,000	-81,000
2043 (C)	-32,000	35,000	-100,000	-2,500	41,000	-58,000	-140,000
2044 (C)	-25,000	34,000	-97,000	-1,900	41,000	-49,000	-190,000
2045 (C)	-5,900	41,000	-100,000	-1,700	42,000	-28,000	-220,000
2046 (AN)	21,000	88,000	-81,000	-2,600	50,000	76,000	-140,000
2047 (C)	-27,000	35,000	-96,000	-2,400	49,000	-41,000	-180,000
2048 (W)	23,000	120,000	-79,000	-4,300	56,000	110,000	-66,000
2049 (W)	-8,200	91,000	-90,000	-6,200	61,000	47,000	-19,000
2050 (W)	-21,000	70,000	-97,000	-6,800	59,000	4,600	-14,000
2051 (W)	13,000	150,000	-61,000	-11,000	59,000	150,000	140,000
2052 (W)	-39,000	66,000	-90,000	-12,000	58,000	-16,000	120,000
2053 (AN)	-32,000	69,000	-83,000	-10,000	53,000	-3,600	120,000
2054 (D)	-44,000	44,000	-94,000	-7,900	43,000	-58,000	58,000
2055 (D)	-26,000	58,000	-110,000	-6,200	47,000	-38,000	20,000
2056 (AN)	-11,000	91,000	-89,000	-6,600	51,000	35,000	55,000
2057 (BN)	-19,000	81,000	-110,000	-7,800	52,000	-380	55,000
2058 (AN)	-9,300	84,000	-73,000	-8,700	47,000	41,000	95,000
2059 (W)	-12,000	100,000	-84,000	-12,000	52,000	47,000	140,000
2060 (D)	-58,000	29,000	-100,000	-7,800	48,000	-92,000	51,000
2061 (C)	-30,000	40,000	-120,000	-5,100	44,000	-68,000	-18,000
2062 (D)	-32,000	31,000	-100,000	-3,300	44,000	-63,000	-81,000
2063 (BN)	-3,700	74,000	-80,000	-4,000	47,000	32,000	-48,000
2064 (W)	-8,100	63,000	-77,000	-5,500	55,000	28,000	-21,000
2065 (BN)	-40,000	28,000	-96,000	-4,700	53,000	-59,000	-80,000

Red Bluff Subbasin Projected (Current Land Use) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-24,000	43,000	-120,000	-3,400	56,000	-43,000	-120,000
2067 (C)		-33,000	23,000	-120,000	-1,900	49,000	-79,000	-200,000
2068 (C)		-12,000	50,000	-120,000	-1,500	45,000	-38,000	-240,000
2069 (BN)		9,100	62,000	-100,000	-1,600	50,000	20,000	-220,000
2070 (W)		27,000	100,000	-89,000	-3,400	62,000	100,000	-120,000
2071 (BN)		-38,000	26,000	-100,000	-2,400	57,000	-62,000	-180,000
2072 (W)		15,000	95,000	-81,000	-3,900	63,000	88,000	-94,000
Average (2022-2072)		-21,000	67,000	-94,000	-6,300	53,000	-1,800	
2022-2072	W	-11,000	97,000	-84,000	-8,700	61,000		
	AN	-7,500	83,000	-83,000	-6,500	52,000		
	BN	-28,000	47,000	-98,000	-4,500	52,000		
	D	-36,000	44,000	-100,000	-6,200	48,000		
	C	-30,000	35,000	-110,000	-3,300	45,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Net Stream Seepage (net flows as acre-feet, rounded)

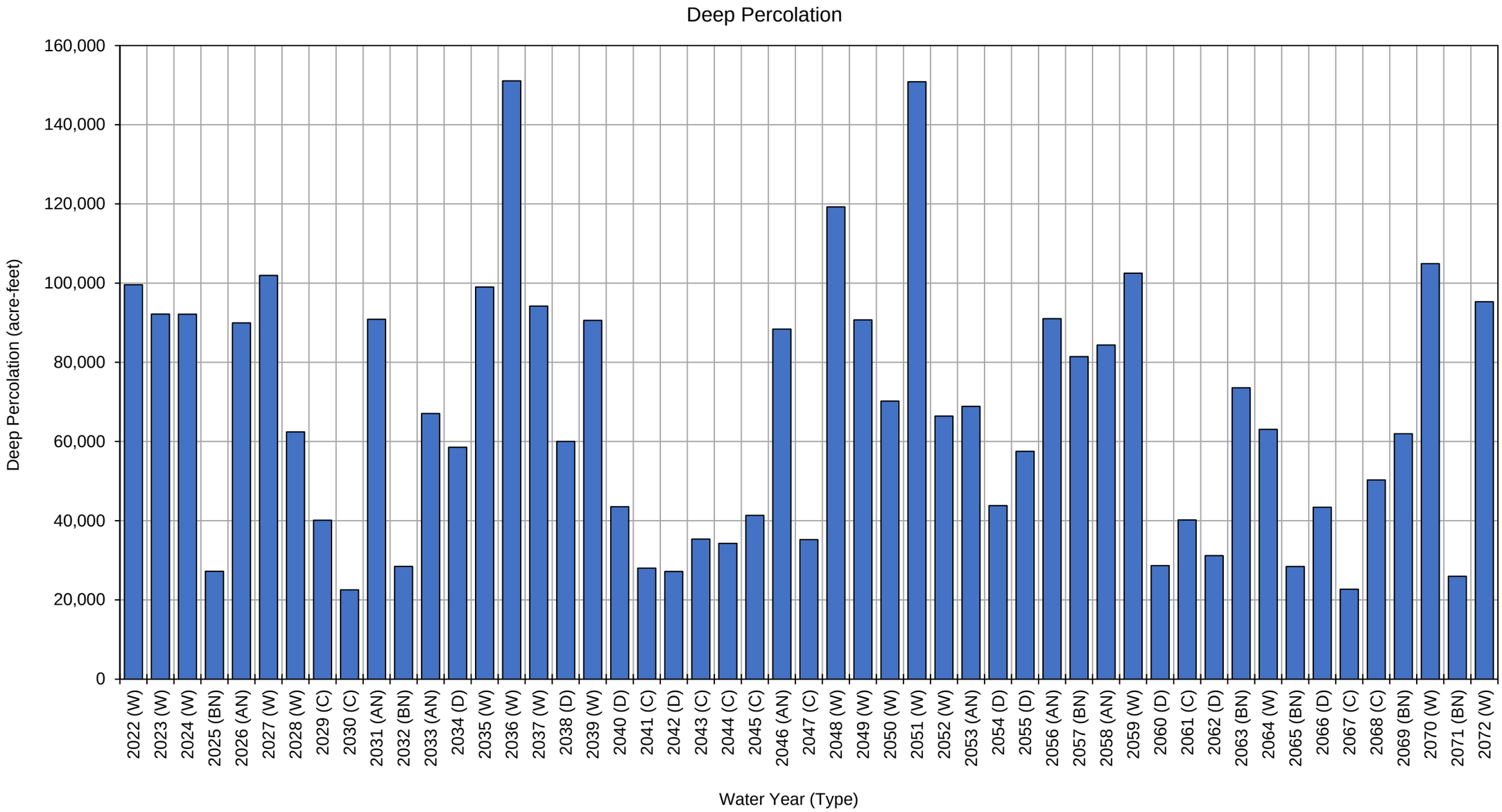
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	-16,000
2023 (W)	-31,000
2024 (W)	-33,000
2025 (BN)	-68,000
2026 (AN)	-17,000
2027 (W)	-12,000
2028 (W)	-38,000
2029 (C)	-42,000
2030 (C)	-50,000
2031 (AN)	170
2032 (BN)	-39,000
2033 (AN)	-4,700
2034 (D)	-17,000
2035 (W)	9,500
2036 (W)	5,600
2037 (W)	-42,000
2038 (D)	-47,000
2039 (W)	-29,000
2040 (D)	-45,000
2041 (C)	-47,000
2042 (D)	-36,000
2043 (C)	-32,000
2044 (C)	-25,000
2045 (C)	-5,900
2046 (AN)	21,000
2047 (C)	-27,000
2048 (W)	23,000
2049 (W)	-8,200
2050 (W)	-21,000
2051 (W)	13,000
2052 (W)	-39,000
2053 (AN)	-32,000
2054 (D)	-44,000
2055 (D)	-26,000
2056 (AN)	-11,000
2057 (BN)	-19,000
2058 (AN)	-9,300
2059 (W)	-12,000
2060 (D)	-58,000
2061 (C)	-30,000
2062 (D)	-32,000
2063 (BN)	-3,700

Red Bluff Subbasin Projected (Current Land Use) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		-8,100
2065 (BN)		-40,000
2066 (D)		-24,000
2067 (C)		-33,000
2068 (C)		-12,000
2069 (BN)		9,100
2070 (W)		27,000
2071 (BN)		-38,000
2072 (W)		15,000
Average (2022-2072)		-21,000
2022-2072	W	-11,000
	AN	-7,500
	BN	-28,000
	D	-36,000
	C	-30,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Deep Percolation from the SWS (acre-feet, rounded)

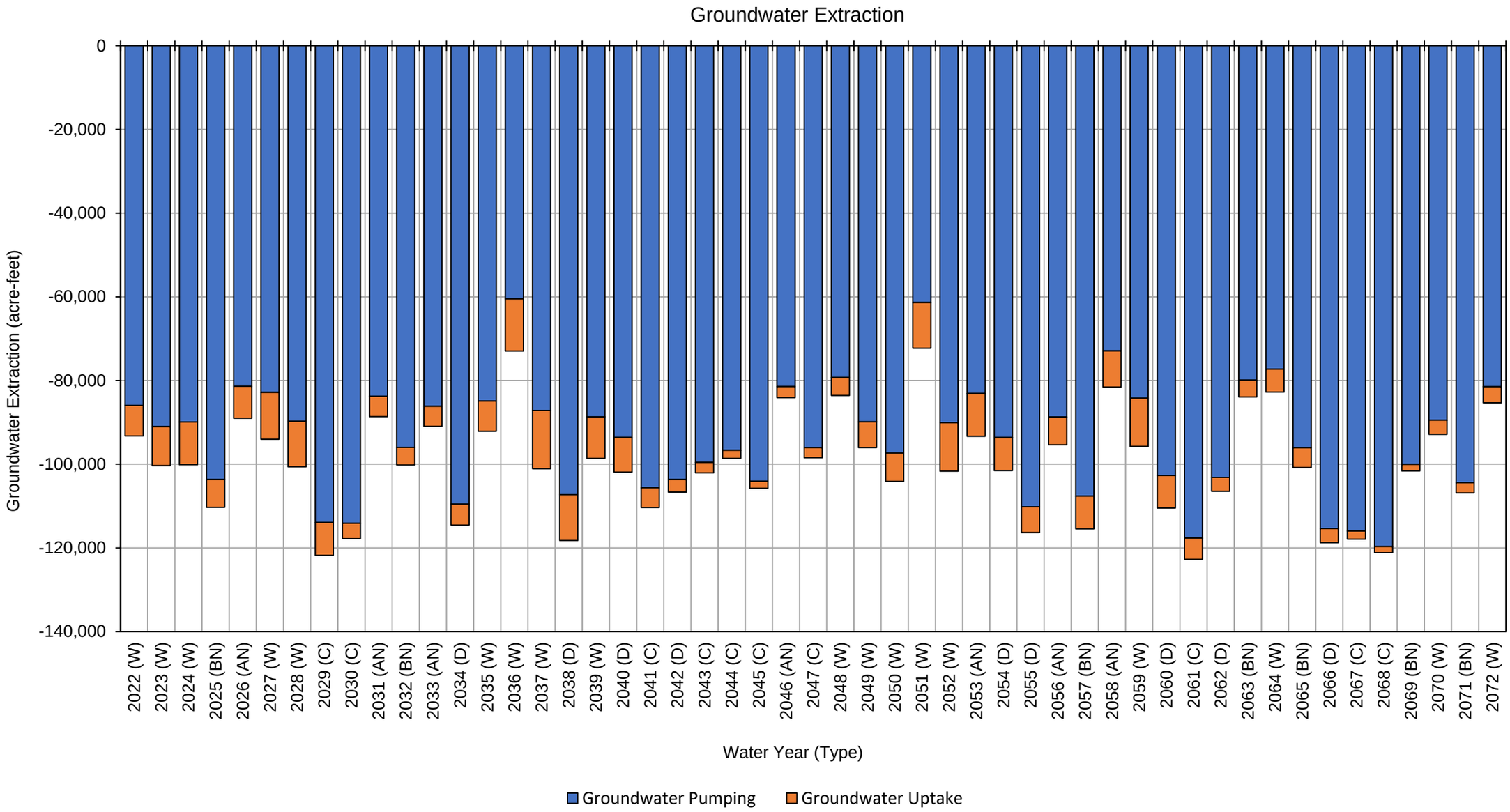
WY (Type)	Deep Percolation from the SWS
2022 (W)	100,000
2023 (W)	92,000
2024 (W)	92,000
2025 (BN)	27,000
2026 (AN)	90,000
2027 (W)	100,000
2028 (W)	62,000
2029 (C)	40,000
2030 (C)	23,000
2031 (AN)	91,000
2032 (BN)	28,000
2033 (AN)	67,000
2034 (D)	59,000
2035 (W)	99,000
2036 (W)	150,000
2037 (W)	94,000
2038 (D)	60,000
2039 (W)	91,000
2040 (D)	44,000
2041 (C)	28,000
2042 (D)	27,000
2043 (C)	35,000
2044 (C)	34,000
2045 (C)	41,000
2046 (AN)	88,000
2047 (C)	35,000
2048 (W)	120,000
2049 (W)	91,000
2050 (W)	70,000
2051 (W)	150,000
2052 (W)	66,000
2053 (AN)	69,000
2054 (D)	44,000
2055 (D)	58,000
2056 (AN)	91,000
2057 (BN)	81,000
2058 (AN)	84,000
2059 (W)	100,000
2060 (D)	29,000
2061 (C)	40,000
2062 (D)	31,000
2063 (BN)	74,000

Red Bluff Subbasin Projected (Current Land Use) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		63,000
2065 (BN)		28,000
2066 (D)		43,000
2067 (C)		23,000
2068 (C)		50,000
2069 (BN)		62,000
2070 (W)		100,000
2071 (BN)		26,000
2072 (W)		95,000
Average (2022-2072)		67,000
2022-2072	W	97,000
	AN	83,000
	BN	47,000
	D	44,000
	C	35,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Groundwater Extractions (acre-feet, rounded)

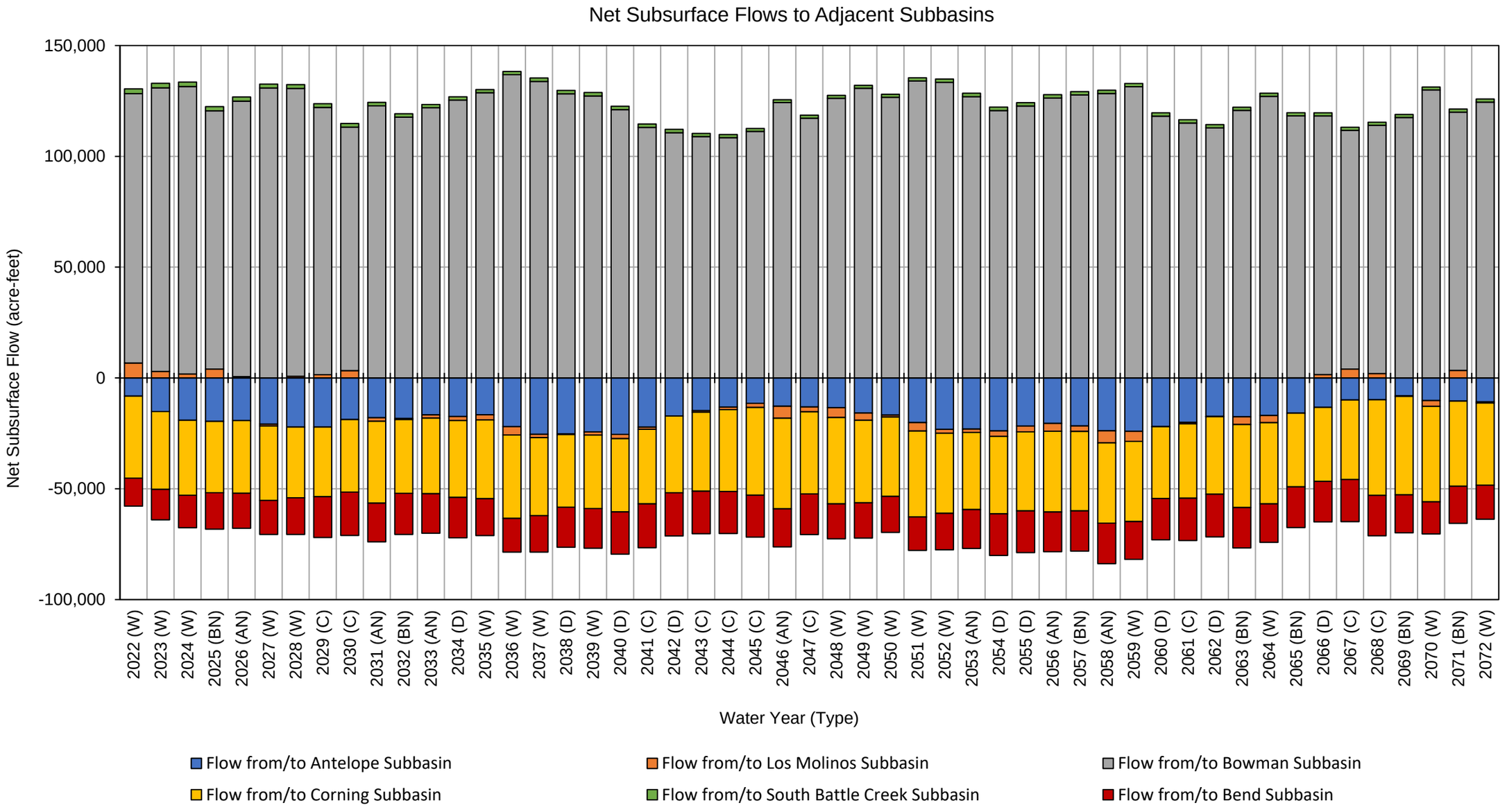
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-86,000	-7,300	-93,000
2023 (W)	-91,000	-9,300	-100,000
2024 (W)	-90,000	-10,000	-100,000
2025 (BN)	-100,000	-6,700	-110,000
2026 (AN)	-81,000	-7,600	-89,000
2027 (W)	-83,000	-11,000	-94,000
2028 (W)	-90,000	-11,000	-100,000
2029 (C)	-110,000	-7,800	-120,000
2030 (C)	-110,000	-3,700	-120,000
2031 (AN)	-84,000	-4,900	-89,000
2032 (BN)	-96,000	-4,200	-100,000
2033 (AN)	-86,000	-4,800	-91,000
2034 (D)	-110,000	-5,000	-110,000
2035 (W)	-85,000	-7,200	-92,000
2036 (W)	-60,000	-12,000	-73,000
2037 (W)	-87,000	-14,000	-100,000
2038 (D)	-110,000	-11,000	-120,000
2039 (W)	-89,000	-9,900	-99,000
2040 (D)	-94,000	-8,300	-100,000
2041 (C)	-110,000	-4,700	-110,000
2042 (D)	-100,000	-3,000	-110,000
2043 (C)	-100,000	-2,500	-100,000
2044 (C)	-97,000	-1,900	-99,000
2045 (C)	-100,000	-1,700	-110,000
2046 (AN)	-81,000	-2,600	-84,000
2047 (C)	-96,000	-2,400	-98,000
2048 (W)	-79,000	-4,300	-84,000
2049 (W)	-90,000	-6,200	-96,000
2050 (W)	-97,000	-6,800	-100,000
2051 (W)	-61,000	-11,000	-72,000
2052 (W)	-90,000	-12,000	-100,000
2053 (AN)	-83,000	-10,000	-93,000
2054 (D)	-94,000	-7,900	-100,000
2055 (D)	-110,000	-6,200	-120,000
2056 (AN)	-89,000	-6,600	-95,000
2057 (BN)	-110,000	-7,800	-120,000
2058 (AN)	-73,000	-8,700	-82,000
2059 (W)	-84,000	-12,000	-96,000
2060 (D)	-100,000	-7,800	-110,000
2061 (C)	-120,000	-5,100	-120,000
2062 (D)	-100,000	-3,300	-110,000
2063 (BN)	-80,000	-4,000	-84,000

Red Bluff Subbasin Projected (Current Land Use) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-77,000	-5,500	-83,000
2065 (BN)		-96,000	-4,700	-100,000
2066 (D)		-120,000	-3,400	-120,000
2067 (C)		-120,000	-1,900	-120,000
2068 (C)		-120,000	-1,500	-120,000
2069 (BN)		-100,000	-1,600	-100,000
2070 (W)		-89,000	-3,400	-93,000
2071 (BN)		-100,000	-2,400	-110,000
2072 (W)		-81,000	-3,900	-85,000
Average (2022-2072)		-94,000	-6,300	-100,000
2022-2072	W	-84,000	-8,700	-93,000
	AN	-83,000	-6,500	-89,000
	BN	-98,000	-4,500	-100,000
	D	-100,000	-6,200	-110,000
	C	-110,000	-3,300	-110,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

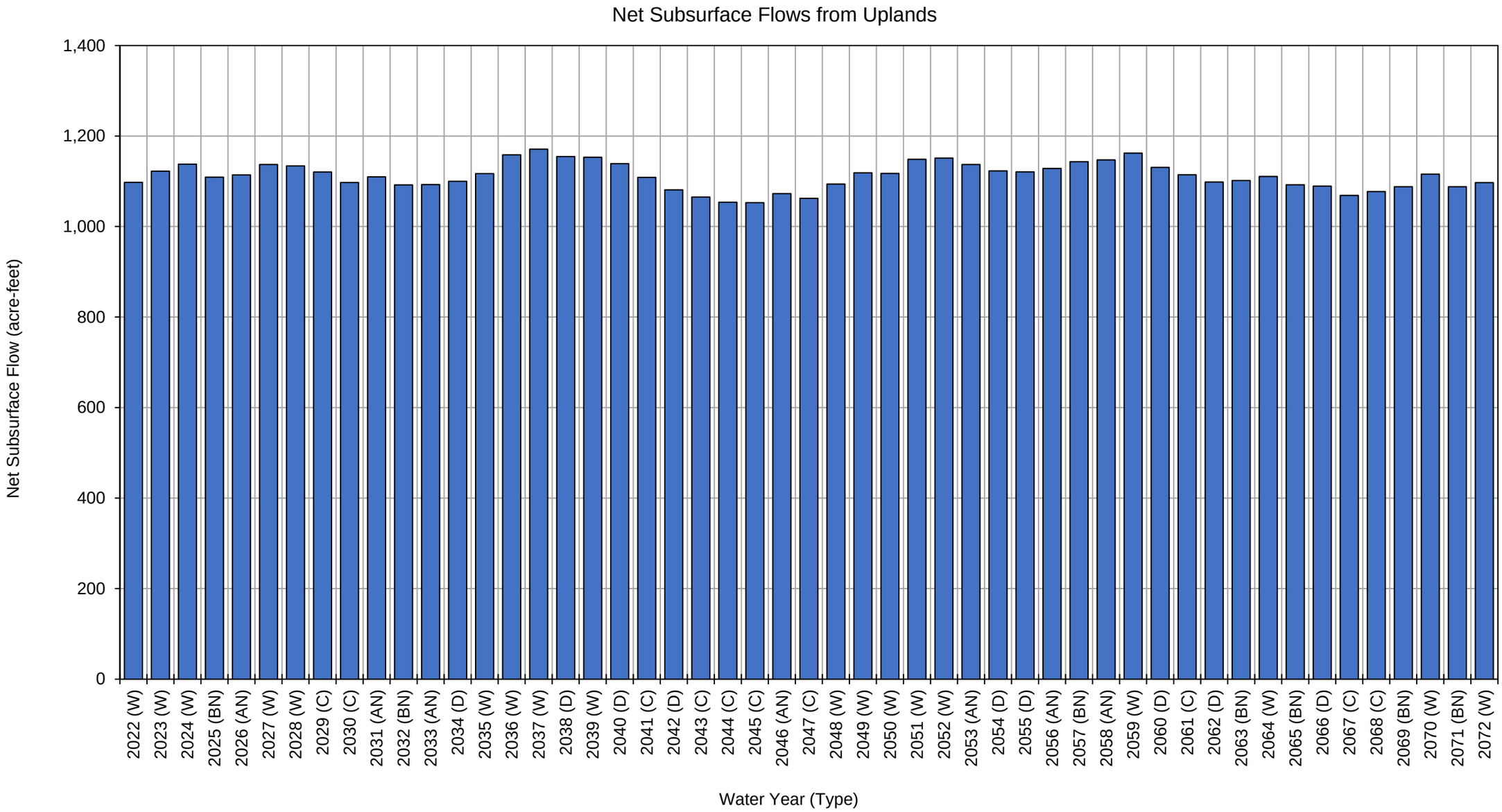
WY (Type)	Flow from/to Antelope Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bowman Subbasin	Flow from/to Corning Subbasin	Flow from/to South Battle Creek Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-8,200	6,700	120,000	-37,000	2,200	-13,000	73,000
2023 (W)	-15,000	2,900	130,000	-35,000	2,100	-14,000	69,000
2024 (W)	-19,000	1,800	130,000	-34,000	2,000	-15,000	66,000
2025 (BN)	-20,000	4,000	120,000	-32,000	1,900	-16,000	54,000
2026 (AN)	-19,000	610	120,000	-33,000	1,800	-16,000	59,000
2027 (W)	-21,000	-820	130,000	-34,000	1,800	-15,000	62,000
2028 (W)	-22,000	760	130,000	-32,000	1,700	-17,000	62,000
2029 (C)	-22,000	1,500	120,000	-31,000	1,700	-18,000	52,000
2030 (C)	-19,000	3,300	110,000	-33,000	1,700	-20,000	44,000
2031 (AN)	-18,000	-1,600	120,000	-37,000	1,600	-17,000	50,000
2032 (BN)	-18,000	-510	120,000	-33,000	1,600	-19,000	49,000
2033 (AN)	-17,000	-1,500	120,000	-34,000	1,500	-18,000	53,000
2034 (D)	-17,000	-1,800	130,000	-35,000	1,500	-18,000	55,000
2035 (W)	-17,000	-2,300	130,000	-36,000	1,400	-17,000	59,000
2036 (W)	-22,000	-3,700	140,000	-38,000	1,400	-15,000	60,000
2037 (W)	-25,000	-1,500	130,000	-35,000	1,500	-16,000	57,000
2038 (D)	-25,000	-270	130,000	-33,000	1,600	-18,000	53,000
2039 (W)	-24,000	-1,400	130,000	-33,000	1,600	-18,000	52,000
2040 (D)	-25,000	-1,900	120,000	-33,000	1,600	-19,000	43,000
2041 (C)	-22,000	-960	110,000	-34,000	1,500	-20,000	38,000
2042 (D)	-17,000	5	110,000	-35,000	1,500	-19,000	41,000
2043 (C)	-15,000	-710	110,000	-36,000	1,400	-19,000	40,000
2044 (C)	-13,000	-1,200	110,000	-37,000	1,400	-19,000	40,000
2045 (C)	-11,000	-1,900	110,000	-40,000	1,400	-19,000	41,000
2046 (AN)	-13,000	-5,400	120,000	-41,000	1,300	-17,000	49,000
2047 (C)	-13,000	-2,200	120,000	-37,000	1,300	-18,000	48,000
2048 (W)	-13,000	-4,400	130,000	-39,000	1,300	-16,000	55,000
2049 (W)	-16,000	-3,300	130,000	-37,000	1,400	-16,000	60,000
2050 (W)	-17,000	-850	130,000	-36,000	1,400	-16,000	58,000
2051 (W)	-20,000	-3,800	130,000	-39,000	1,400	-15,000	58,000
2052 (W)	-23,000	-1,800	130,000	-36,000	1,500	-16,000	57,000
2053 (AN)	-23,000	-1,500	130,000	-35,000	1,500	-18,000	52,000
2054 (D)	-24,000	-2,500	120,000	-35,000	1,600	-19,000	42,000
2055 (D)	-22,000	-2,600	120,000	-36,000	1,500	-19,000	45,000
2056 (AN)	-21,000	-3,500	130,000	-36,000	1,500	-18,000	49,000
2057 (BN)	-22,000	-2,500	130,000	-36,000	1,500	-18,000	51,000
2058 (AN)	-24,000	-5,400	130,000	-36,000	1,500	-18,000	46,000
2059 (W)	-24,000	-4,600	130,000	-36,000	1,500	-17,000	51,000
2060 (D)	-22,000	-110	120,000	-32,000	1,500	-19,000	47,000
2061 (C)	-20,000	-680	110,000	-34,000	1,500	-19,000	43,000
2062 (D)	-17,000	-120	110,000	-35,000	1,500	-19,000	43,000
2063 (BN)	-18,000	-3,500	120,000	-37,000	1,400	-18,000	45,000
2064 (W)	-17,000	-3,300	130,000	-37,000	1,400	-17,000	54,000
2065 (BN)	-16,000	57	120,000	-33,000	1,400	-18,000	52,000
2066 (D)	-13,000	1,500	120,000	-33,000	1,400	-18,000	55,000
2067 (C)	-9,900	4,000	110,000	-36,000	1,400	-19,000	48,000
2068 (C)	-9,800	2,000	110,000	-43,000	1,400	-18,000	44,000
2069 (BN)	-8,000	-280	120,000	-44,000	1,300	-17,000	49,000
2070 (W)	-10,000	-2,600	130,000	-43,000	1,300	-14,000	61,000
2071 (BN)	-10,000	3,400	120,000	-38,000	1,400	-17,000	56,000
2072 (W)	-11,000	-480	120,000	-37,000	1,400	-15,000	62,000

Red Bluff Subbasin Projected (Current Land Use) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Antelope Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bowman Subbasin	Flow from/to Corning Subbasin	Flow from/to South Battle Creek Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
Average (2022-2072)		-18,000	-880	120,000	-36,000	1,500	-17,000	52,000
2022-2072	W	-18,000	-1,300	130,000	-36,000	1,600	-16,000	60,000
	AN	-19,000	-2,600	120,000	-36,000	1,500	-17,000	51,000
	BN	-16,000	100	120,000	-36,000	1,500	-18,000	51,000
	D	-20,000	-870	120,000	-34,000	1,500	-19,000	47,000
	C	-16,000	320	110,000	-36,000	1,500	-19,000	44,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

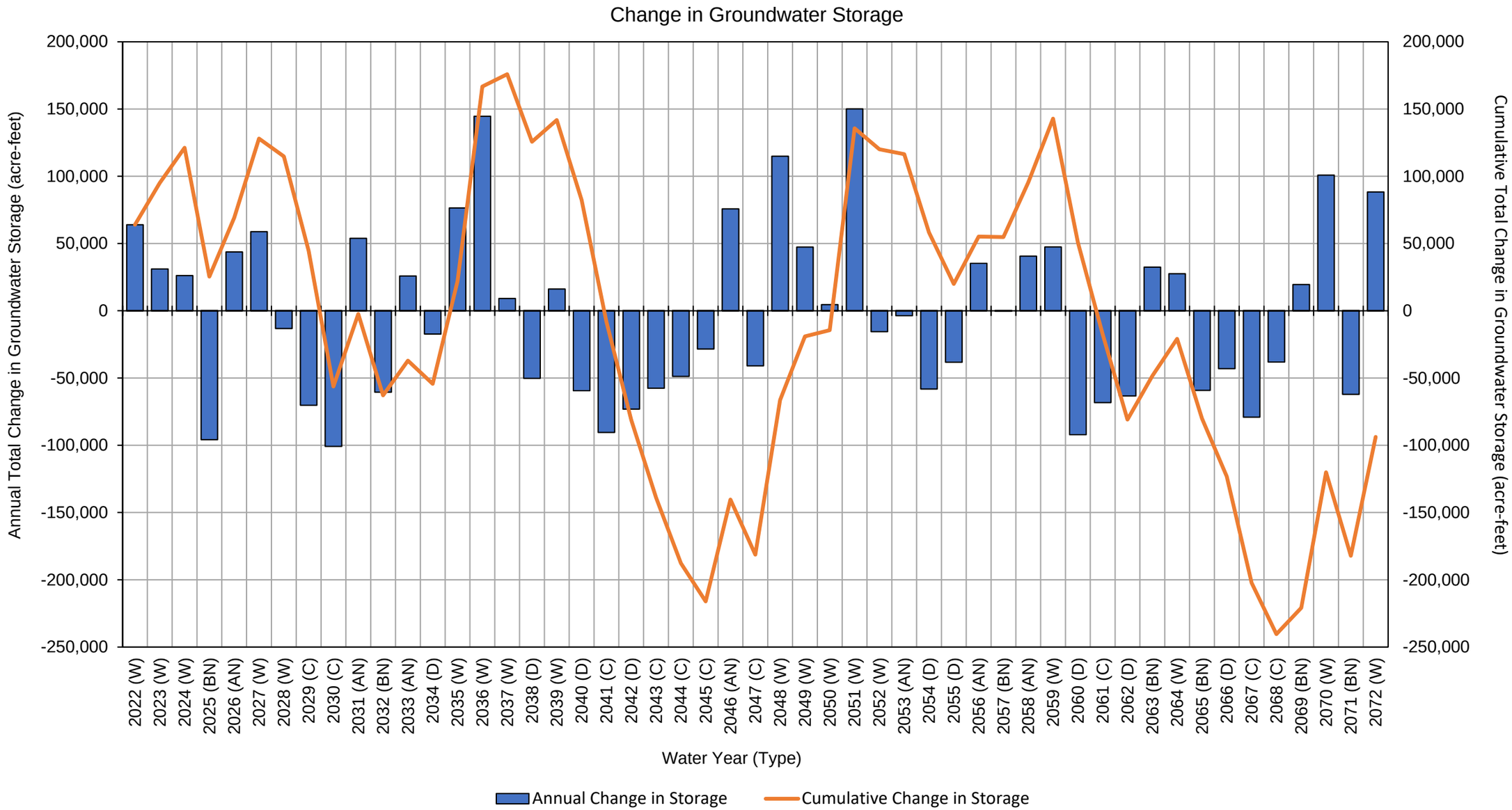
WY (Type)	Subsurface Flows from Uplands
2022 (W)	1,100
2023 (W)	1,100
2024 (W)	1,100
2025 (BN)	1,100
2026 (AN)	1,100
2027 (W)	1,100
2028 (W)	1,100
2029 (C)	1,100
2030 (C)	1,100
2031 (AN)	1,100
2032 (BN)	1,100
2033 (AN)	1,100
2034 (D)	1,100
2035 (W)	1,100
2036 (W)	1,200
2037 (W)	1,200
2038 (D)	1,200
2039 (W)	1,200
2040 (D)	1,100
2041 (C)	1,100
2042 (D)	1,100
2043 (C)	1,100
2044 (C)	1,100
2045 (C)	1,100
2046 (AN)	1,100
2047 (C)	1,100
2048 (W)	1,100
2049 (W)	1,100
2050 (W)	1,100
2051 (W)	1,100
2052 (W)	1,200
2053 (AN)	1,100
2054 (D)	1,100
2055 (D)	1,100
2056 (AN)	1,100
2057 (BN)	1,100
2058 (AN)	1,100
2059 (W)	1,200
2060 (D)	1,100
2061 (C)	1,100
2062 (D)	1,100
2063 (BN)	1,100

Red Bluff Subbasin Projected (Current Land Use) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		1,100
2065 (BN)		1,100
2066 (D)		1,100
2067 (C)		1,100
2068 (C)		1,100
2069 (BN)		1,100
2070 (W)		1,100
2071 (BN)		1,100
2072 (W)		1,100
Average (2022-2072)		1,100
2022-2072	W	1,100
	AN	1,100
	BN	1,100
	D	1,100
	C	1,100

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use)

Red Bluff Subbasin Projected (Current Land Use) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	64,000	64,000
2023 (W)	31,000	95,000
2024 (W)	26,000	120,000
2025 (BN)	-96,000	25,000
2026 (AN)	44,000	69,000
2027 (W)	59,000	130,000
2028 (W)	-13,000	110,000
2029 (C)	-70,000	45,000
2030 (C)	-100,000	-56,000
2031 (AN)	54,000	-2,400
2032 (BN)	-61,000	-63,000
2033 (AN)	26,000	-37,000
2034 (D)	-17,000	-54,000
2035 (W)	76,000	22,000
2036 (W)	140,000	170,000
2037 (W)	9,200	180,000
2038 (D)	-50,000	130,000
2039 (W)	16,000	140,000
2040 (D)	-59,000	82,000
2041 (C)	-90,000	-8,100
2042 (D)	-73,000	-81,000
2043 (C)	-58,000	-140,000
2044 (C)	-49,000	-190,000
2045 (C)	-28,000	-220,000
2046 (AN)	76,000	-140,000
2047 (C)	-41,000	-180,000
2048 (W)	110,000	-66,000
2049 (W)	47,000	-19,000
2050 (W)	4,600	-14,000
2051 (W)	150,000	140,000
2052 (W)	-16,000	120,000
2053 (AN)	-3,600	120,000
2054 (D)	-58,000	58,000
2055 (D)	-38,000	20,000
2056 (AN)	35,000	55,000
2057 (BN)	-380	55,000
2058 (AN)	41,000	95,000
2059 (W)	47,000	140,000
2060 (D)	-92,000	51,000
2061 (C)	-68,000	-18,000
2062 (D)	-63,000	-81,000
2063 (BN)	32,000	-48,000

Red Bluff Subbasin Projected (Current Land Use) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		28,000	-21,000
2065 (BN)		-59,000	-80,000
2066 (D)		-43,000	-120,000
2067 (C)		-79,000	-200,000
2068 (C)		-38,000	-240,000
2069 (BN)		20,000	-220,000
2070 (W)		100,000	-120,000
2071 (BN)		-62,000	-180,000
2072 (W)		88,000	-94,000
Average (2022-2072)		-1,800	
2022-2072	W		
	AN		
	BN		
	D		
	C		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX D-3

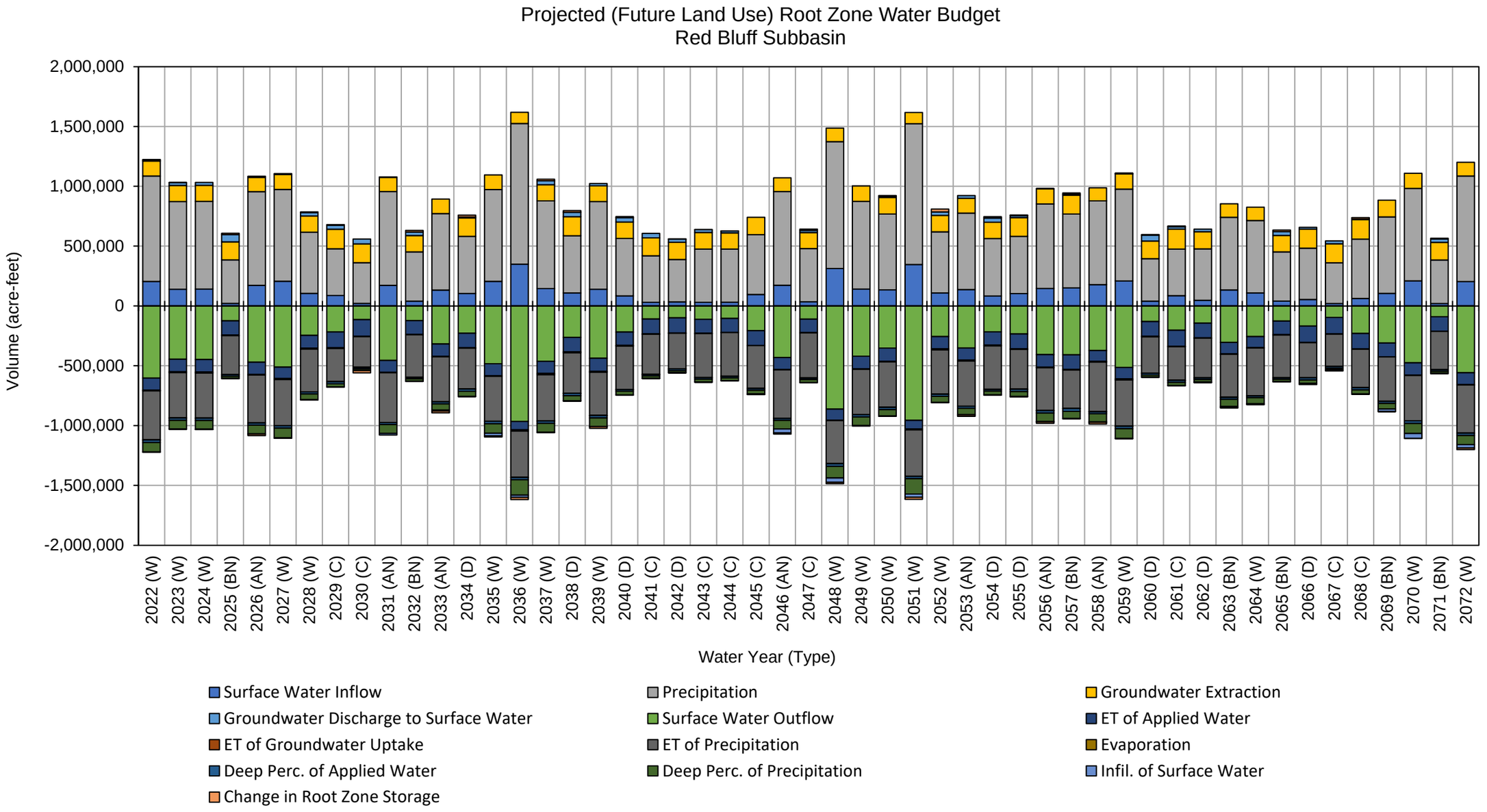
Detailed Red Bluff Subbasin Water Budget Results:

Projected (Future Land Use) Model Results

APPENDIX D-3a

Detailed Red Bluff Subbasin Water Budget Results:

Projected (Future Land Use) Model Results– Surface Water System


Projected (Future Land Use) Root Zone Water Budget
Red Bluff Subbasin
Volume (acre-feet)
2,000,000
1,500,000
1,000,000
500,000
0
-500,000
-1,000,000
-1,500,000
-2,000,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Surface Water Inflow
Precipitation
Groundwater Extraction
Groundwater Discharge to Surface Water
Surface Water Outflow
ET of Applied Water
ET of Groundwater Uptake
ET of Precipitation
Evaporation
Deep Perc. of Applied Water
Deep Perc. of Precipitation
Infil. of Surface Water
Change in Root Zone Storage

Red Bluff Subbasin Projected (Future Land Use) Root Zone Water Budget Summary (acre-feet, rounded)

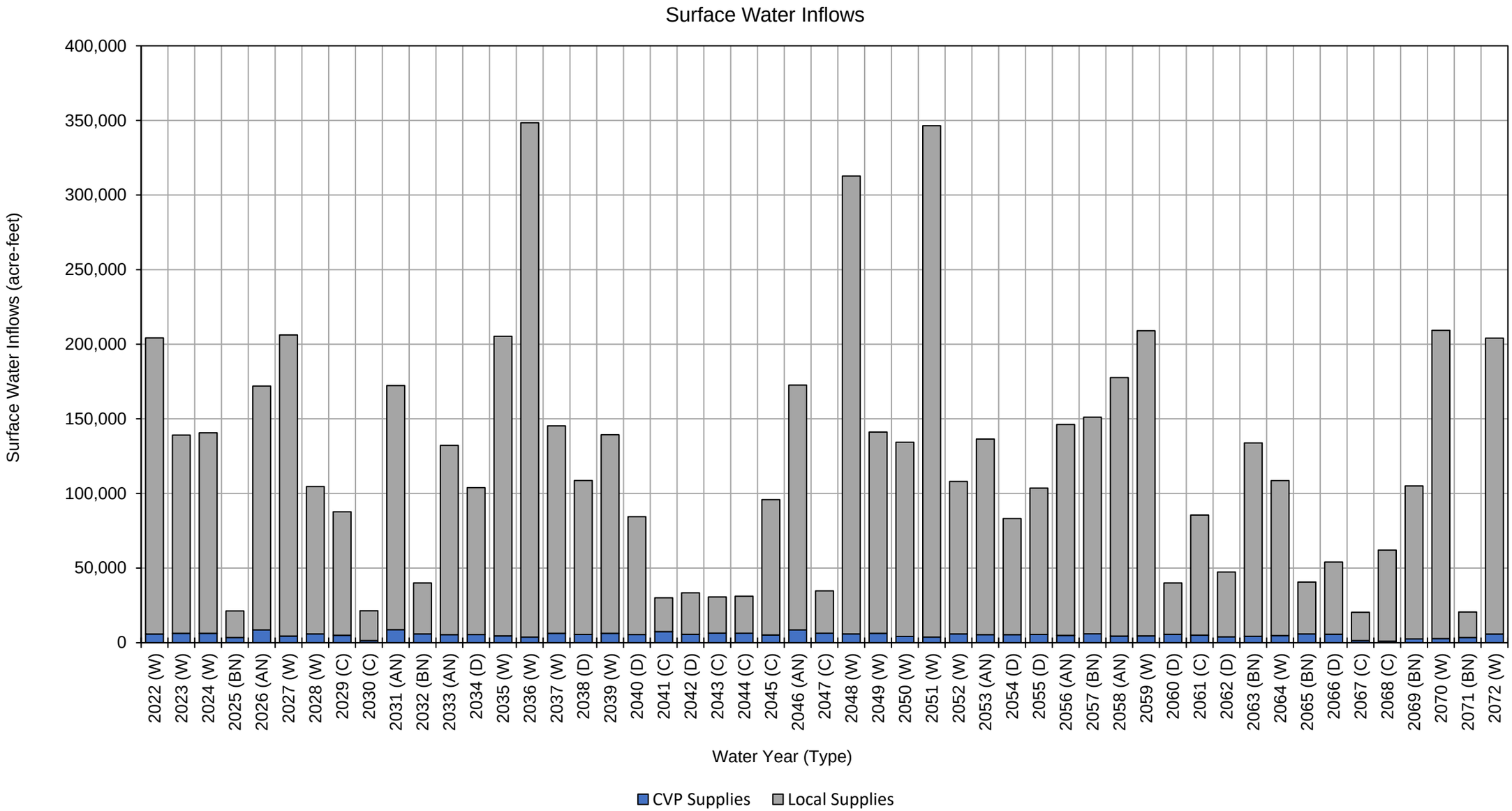
WY (Type)	Inflows				Outflows								Change in Root Zone Storage
	Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2022 (W)	200,000	880,000	130,000	9,800	600,000	100,000	5,900	410,000	800	21,000	79,000	2,700	-2,300
2023 (W)	140,000	730,000	140,000	24,000	450,000	100,000	7,600	380,000	950	19,000	73,000	2,700	-1,100
2024 (W)	140,000	730,000	130,000	25,000	450,000	110,000	8,200	380,000	940	19,000	73,000	2,800	24
2025 (BN)	21,000	360,000	150,000	60,000	120,000	120,000	4,900	330,000	880	13,000	17,000	2,000	-12,000
2026 (AN)	170,000	780,000	120,000	8,500	470,000	100,000	5,800	400,000	970	17,000	72,000	2,900	13,000
2027 (W)	210,000	770,000	130,000	2,900	510,000	95,000	8,900	390,000	780	19,000	82,000	2,900	-4,500
2028 (W)	100,000	510,000	140,000	29,000	250,000	110,000	8,500	360,000	950	17,000	47,000	2,700	-5,200
2029 (C)	88,000	390,000	160,000	32,000	220,000	130,000	5,800	280,000	1,200	16,000	26,000	2,500	-5,700
2030 (C)	21,000	340,000	160,000	41,000	110,000	140,000	2,900	260,000	1,100	13,000	12,000	1,700	18,000
2031 (AN)	170,000	780,000	120,000	0	460,000	100,000	3,500	420,000	1,000	16,000	74,000	13,000	-3,200
2032 (BN)	40,000	410,000	140,000	30,000	120,000	110,000	3,100	360,000	890	12,000	19,000	2,300	-13,000
2033 (AN)	130,000	640,000	120,000	0	320,000	100,000	3,500	380,000	950	17,000	51,000	7,600	15,000
2034 (D)	100,000	480,000	150,000	7,800	230,000	120,000	3,700	340,000	1,000	18,000	43,000	2,600	-16,000
2035 (W)	210,000	770,000	120,000	0	480,000	100,000	5,400	380,000	910	20,000	79,000	23,000	9,300
2036 (W)	350,000	1,200,000	94,000	0	970,000	71,000	10,000	390,000	490	19,000	130,000	19,000	18,000
2037 (W)	150,000	730,000	130,000	33,000	460,000	100,000	11,000	390,000	830	19,000	75,000	2,900	-13,000
2038 (D)	110,000	480,000	160,000	37,000	260,000	120,000	8,600	340,000	1,100	19,000	43,000	2,700	-14,000
2039 (W)	140,000	730,000	130,000	19,000	440,000	110,000	7,600	360,000	980	20,000	70,000	2,800	14,000
2040 (D)	84,000	480,000	140,000	36,000	220,000	110,000	6,100	360,000	1,000	14,000	31,000	2,500	-8,900
2041 (C)	30,000	390,000	150,000	38,000	110,000	120,000	3,400	330,000	1,000	13,000	18,000	2,100	1,500
2042 (D)	33,000	350,000	140,000	26,000	100,000	130,000	2,300	300,000	1,000	15,000	16,000	1,800	-2,500
2043 (C)	31,000	440,000	140,000	23,000	110,000	120,000	1,800	370,000	860	14,000	24,000	1,800	-1,100
2044 (C)	31,000	440,000	130,000	16,000	100,000	120,000	1,400	360,000	870	13,000	24,000	1,900	-40
2045 (C)	96,000	500,000	150,000	0	210,000	120,000	1,200	360,000	1,100	15,000	29,000	5,300	1,300
2046 (AN)	170,000	780,000	120,000	0	430,000	100,000	1,900	410,000	1,200	17,000	71,000	34,000	9,700
2047 (C)	35,000	440,000	130,000	18,000	110,000	110,000	1,800	380,000	960	13,000	25,000	2,100	-11,000
2048 (W)	310,000	1,100,000	110,000	0	860,000	92,000	3,100	360,000	900	21,000	97,000	36,000	12,000
2049 (W)	140,000	730,000	130,000	0	420,000	110,000	4,400	380,000	1,100	19,000	72,000	4,400	-1,300
2050 (W)	130,000	630,000	140,000	11,000	350,000	110,000	5,000	380,000	1,100	18,000	54,000	2,400	-4,400
2051 (W)	350,000	1,200,000	94,000	0	960,000	71,000	8,700	390,000	510	19,000	130,000	26,000	18,000
2052 (W)	110,000	510,000	140,000	30,000	260,000	100,000	9,000	370,000	930	17,000	51,000	2,800	-23,000
2053 (AN)	140,000	640,000	120,000	23,000	350,000	100,000	7,800	380,000	870	17,000	53,000	2,800	11,000
2054 (D)	83,000	480,000	140,000	35,000	220,000	110,000	5,800	360,000	1,000	14,000	32,000	2,400	-11,000
2055 (D)	100,000	480,000	160,000	17,000	230,000	120,000	4,500	330,000	1,000	19,000	41,000	2,600	-4,800
2056 (AN)	150,000	710,000	130,000	810	410,000	110,000	4,800	360,000	980	20,000	72,000	2,600	12,000
2057 (BN)	150,000	620,000	160,000	8,800	410,000	120,000	5,800	320,000	1,200	23,000	61,000	3,000	-11,000
2058 (AN)	180,000	700,000	110,000	0	370,000	91,000	6,400	410,000	740	16,000	68,000	3,700	14,000
2059 (W)	210,000	770,000	130,000	1,700	510,000	96,000	9,000	390,000	780	20,000	82,000	3,000	-5,500
2060 (D)	40,000	350,000	150,000	49,000	130,000	120,000	5,500	300,000	1,000	15,000	17,000	2,300	-5,400
2061 (C)	86,000	390,000	170,000	21,000	200,000	130,000	3,700	280,000	1,200	17,000	26,000	2,400	-5,500
2062 (D)	47,000	430,000	140,000	22,000	140,000	120,000	2,500	330,000	1,100	14,000	20,000	2,100	4,400
2063 (BN)	130,000	610,000	110,000	0	300,000	97,000	2,900	360,000	950	16,000	58,000	8,600	6,000
2064 (W)	110,000	600,000	110,000	0	260,000	91,000	4,000	400,000	880	14,000	50,000	3,600	4,500
2065 (BN)	41,000	410,000	140,000	32,000	130,000	110,000	3,500	360,000	850	12,000	19,000	2,300	-13,000

Red Bluff Subbasin Projected (Future Land Use) Root Zone Water Budget Summary (acre-feet, rounded)

WY (Type)		Inflows				Outflows								Change in Root Zone Storage
		Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2066 (D)		54,000	430,000	160,000	15,000	170,000	140,000	2,600	290,000	1,100	18,000	29,000	2,500	6,600
2067 (C)		20,000	340,000	160,000	24,000	96,000	140,000	1,400	270,000	1,000	13,000	13,000	1,600	10,000
2068 (C)		62,000	500,000	160,000	2,800	230,000	130,000	1,000	320,000	1,000	19,000	35,000	1,700	-13,000
2069 (BN)		110,000	640,000	140,000	0	310,000	120,000	1,100	370,000	1,200	17,000	47,000	21,000	820
2070 (W)		210,000	770,000	130,000	0	480,000	100,000	2,500	380,000	1,200	22,000	84,000	40,000	2,100
2071 (BN)		21,000	360,000	150,000	29,000	90,000	120,000	1,800	320,000	950	13,000	16,000	2,000	-5,700
2072 (W)		200,000	880,000	110,000	0	560,000	100,000	2,800	400,000	970	19,000	76,000	28,000	13,000
Average (2022-2072)		120,000	600,000	140,000	16,000	330,000	110,000	4,800	360,000	970	17,000	51,000	7,100	-50
2022-2072	W	190,000	790,000	120,000	10,000	510,000	98,000	6,800	380,000	890	19,000	78,000	12,000	1,700
	AN	160,000	720,000	120,000	4,600	400,000	100,000	4,800	390,000	960	17,000	66,000	9,400	10,000
	BN	73,000	490,000	140,000	23,000	210,000	110,000	3,300	340,000	990	15,000	34,000	5,900	-7,000
	D	73,000	440,000	150,000	27,000	190,000	120,000	4,600	330,000	1,100	16,000	30,000	2,400	-5,700
	C	50,000	420,000	150,000	22,000	150,000	130,000	2,400	320,000	1,000	15,000	23,000	2,300	-500

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

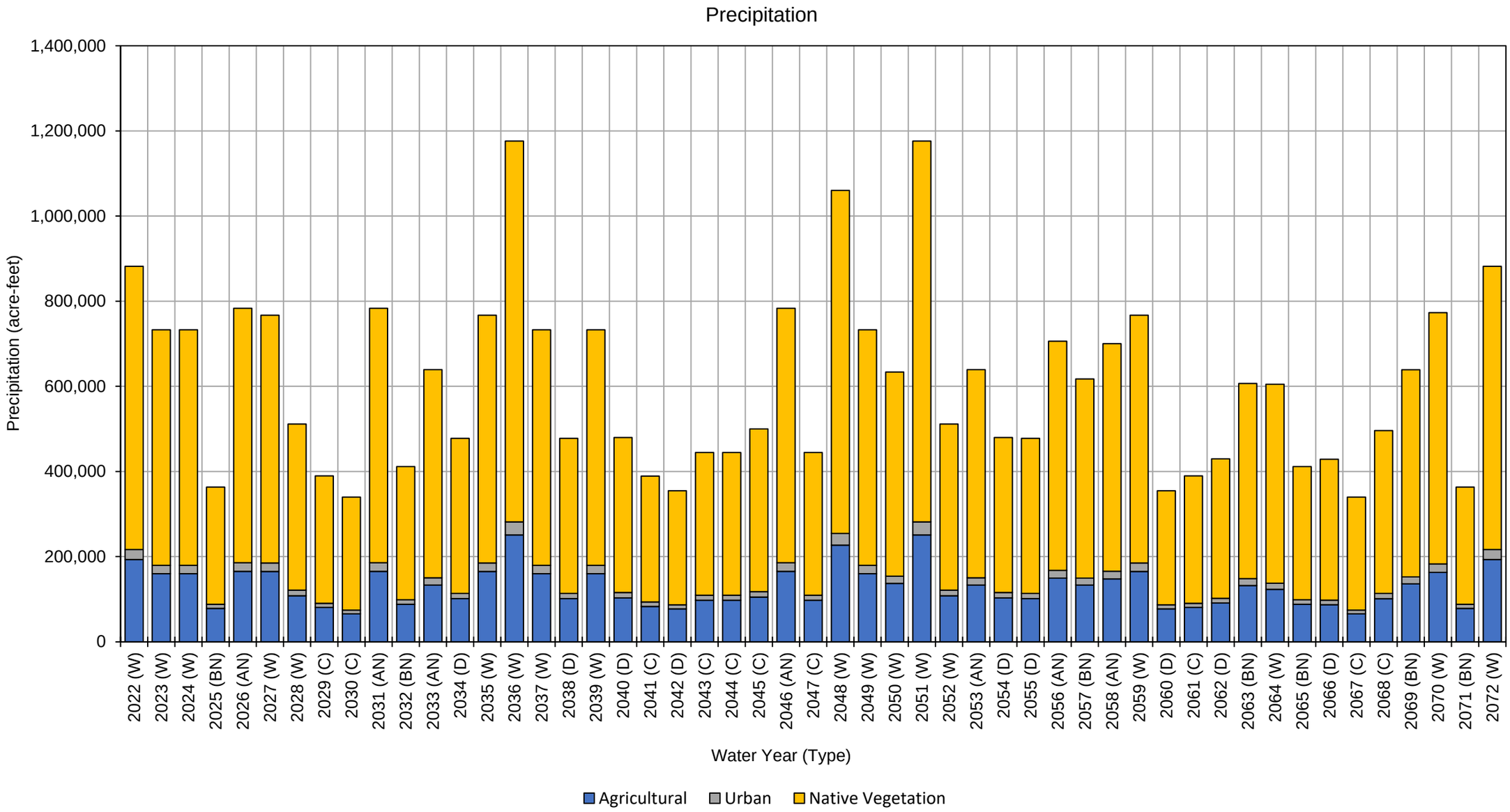
WY (Type)	CVP Supplies	Local Supplies	Total
2022 (W)	5,800	200,000	210,000
2023 (W)	6,200	130,000	140,000
2024 (W)	6,200	130,000	140,000
2025 (BN)	3,400	18,000	21,000
2026 (AN)	8,600	160,000	170,000
2027 (W)	4,400	200,000	200,000
2028 (W)	5,800	99,000	100,000
2029 (C)	4,900	83,000	88,000
2030 (C)	1,400	20,000	21,000
2031 (AN)	8,700	160,000	170,000
2032 (BN)	5,800	34,000	40,000
2033 (AN)	5,300	130,000	140,000
2034 (D)	5,400	98,000	100,000
2035 (W)	4,500	200,000	200,000
2036 (W)	3,700	340,000	340,000
2037 (W)	6,200	140,000	150,000
2038 (D)	5,500	100,000	110,000
2039 (W)	6,200	130,000	140,000
2040 (D)	5,400	79,000	84,000
2041 (C)	7,400	23,000	30,000
2042 (D)	5,600	28,000	34,000
2043 (C)	6,400	24,000	30,000
2044 (C)	6,300	25,000	31,000
2045 (C)	5,100	91,000	96,000
2046 (AN)	8,600	160,000	170,000
2047 (C)	6,300	28,000	34,000
2048 (W)	5,900	310,000	320,000
2049 (W)	6,200	130,000	140,000
2050 (W)	4,200	130,000	130,000
2051 (W)	3,700	340,000	340,000
2052 (W)	5,800	100,000	110,000
2053 (AN)	5,300	130,000	140,000
2054 (D)	5,400	78,000	83,000
2055 (D)	5,500	98,000	100,000
2056 (AN)	4,900	140,000	140,000
2057 (BN)	5,900	150,000	160,000
2058 (AN)	4,400	170,000	170,000
2059 (W)	4,500	200,000	200,000
2060 (D)	5,600	34,000	40,000
2061 (C)	5,000	80,000	85,000
2062 (D)	3,900	43,000	47,000
2063 (BN)	4,300	130,000	130,000

Red Bluff Subbasin Projected (Future Land Use) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Total
2064 (W)		4,700	100,000	100,000
2065 (BN)		5,800	35,000	41,000
2066 (D)		5,700	48,000	54,000
2067 (C)		1,400	19,000	20,000
2068 (C)		950	61,000	62,000
2069 (BN)		2,500	100,000	100,000
2070 (W)		2,700	210,000	210,000
2071 (BN)		3,400	17,000	20,000
2072 (W)		5,700	200,000	210,000
Average (2022-2072)		5,100	120,000	130,000
2022-2072	W	5,100	180,000	190,000
	AN	6,500	150,000	160,000
	BN	4,500	69,000	74,000
	D	5,300	68,000	73,000
	C	4,500	45,000	50,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Precipitation, by Water Use Sector (acre-feet, rounded)

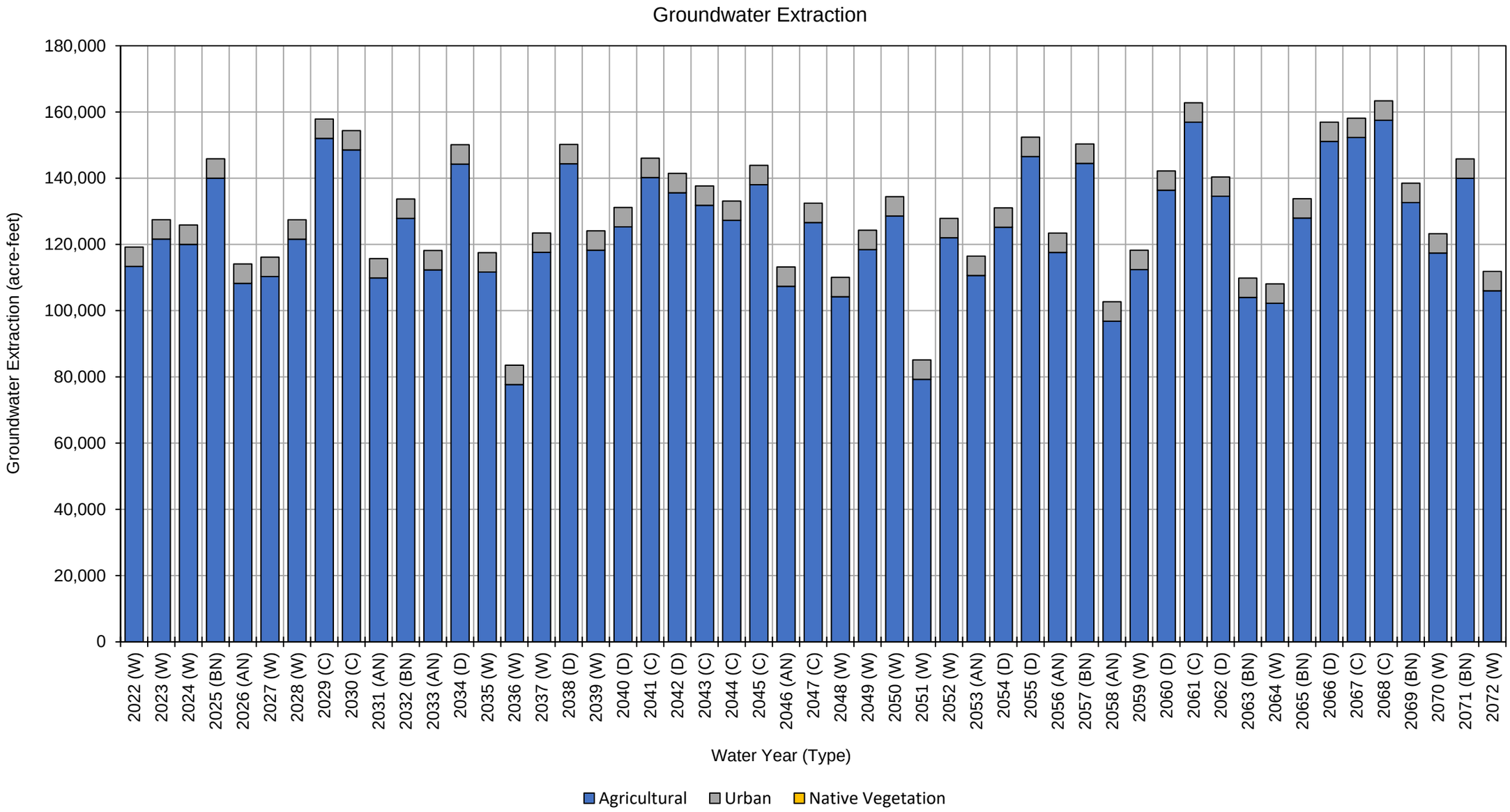
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	190,000	23,000	670,000	880,000
2023 (W)	160,000	19,000	550,000	730,000
2024 (W)	160,000	19,000	550,000	730,000
2025 (BN)	78,000	9,600	280,000	370,000
2026 (AN)	170,000	20,000	600,000	790,000
2027 (W)	170,000	20,000	580,000	770,000
2028 (W)	110,000	13,000	390,000	510,000
2029 (C)	81,000	9,700	300,000	390,000
2030 (C)	66,000	8,500	270,000	340,000
2031 (AN)	170,000	20,000	600,000	790,000
2032 (BN)	88,000	11,000	310,000	410,000
2033 (AN)	130,000	17,000	490,000	640,000
2034 (D)	100,000	12,000	360,000	470,000
2035 (W)	170,000	20,000	580,000	770,000
2036 (W)	250,000	31,000	890,000	1,200,000
2037 (W)	160,000	19,000	550,000	730,000
2038 (D)	100,000	12,000	360,000	470,000
2039 (W)	160,000	19,000	550,000	730,000
2040 (D)	100,000	13,000	360,000	470,000
2041 (C)	83,000	11,000	300,000	390,000
2042 (D)	77,000	9,600	270,000	360,000
2043 (C)	98,000	12,000	340,000	450,000
2044 (C)	98,000	12,000	340,000	450,000
2045 (C)	100,000	13,000	380,000	490,000
2046 (AN)	170,000	20,000	600,000	790,000
2047 (C)	98,000	12,000	340,000	450,000
2048 (W)	230,000	28,000	810,000	1,100,000
2049 (W)	160,000	19,000	550,000	730,000
2050 (W)	140,000	17,000	480,000	640,000
2051 (W)	250,000	31,000	890,000	1,200,000
2052 (W)	110,000	13,000	390,000	510,000
2053 (AN)	130,000	17,000	490,000	640,000
2054 (D)	100,000	13,000	360,000	470,000
2055 (D)	100,000	12,000	360,000	470,000
2056 (AN)	150,000	18,000	540,000	710,000
2057 (BN)	130,000	16,000	470,000	620,000
2058 (AN)	150,000	18,000	530,000	700,000
2059 (W)	170,000	20,000	580,000	770,000
2060 (D)	77,000	9,600	270,000	360,000
2061 (C)	81,000	9,700	300,000	390,000
2062 (D)	91,000	11,000	330,000	430,000
2063 (BN)	130,000	16,000	460,000	610,000

Red Bluff Subbasin Projected (Future Land Use) Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		120,000	14,000	470,000	600,000
2065 (BN)		88,000	11,000	310,000	410,000
2066 (D)		87,000	11,000	330,000	430,000
2067 (C)		66,000	8,500	270,000	340,000
2068 (C)		100,000	13,000	380,000	490,000
2069 (BN)		140,000	16,000	490,000	650,000
2070 (W)		160,000	20,000	590,000	770,000
2071 (BN)		78,000	9,600	280,000	370,000
2072 (W)		190,000	23,000	670,000	880,000
Average (2022-2072)		130,000	16,000	460,000	610,000
2022-2072	W	170,000	21,000	600,000	790,000
	AN	150,000	19,000	550,000	720,000
	BN	100,000	13,000	370,000	480,000
	D	94,000	11,000	340,000	450,000
	C	87,000	11,000	320,000	420,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

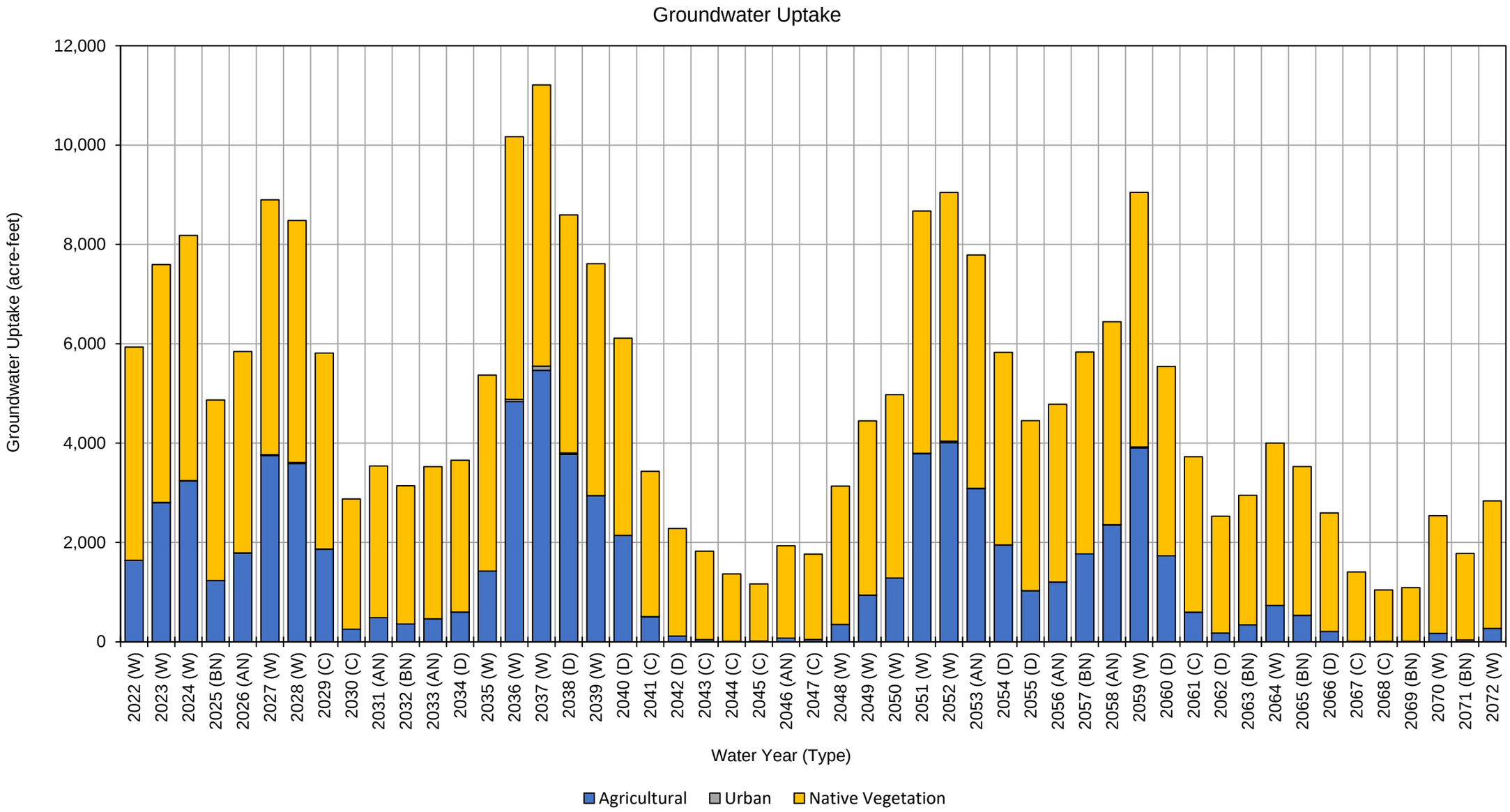
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	110,000	5,900	0	120,000
2023 (W)	120,000	5,900	0	130,000
2024 (W)	120,000	5,900	0	130,000
2025 (BN)	140,000	5,900	0	150,000
2026 (AN)	110,000	5,900	0	120,000
2027 (W)	110,000	5,900	0	120,000
2028 (W)	120,000	5,900	0	130,000
2029 (C)	150,000	5,900	0	160,000
2030 (C)	150,000	5,800	0	160,000
2031 (AN)	110,000	5,900	0	120,000
2032 (BN)	130,000	5,800	0	140,000
2033 (AN)	110,000	5,900	0	120,000
2034 (D)	140,000	5,800	0	150,000
2035 (W)	110,000	5,900	0	120,000
2036 (W)	78,000	5,900	0	84,000
2037 (W)	120,000	5,900	0	130,000
2038 (D)	140,000	5,900	0	150,000
2039 (W)	120,000	5,900	0	130,000
2040 (D)	130,000	5,900	0	140,000
2041 (C)	140,000	5,900	0	150,000
2042 (D)	140,000	5,800	0	150,000
2043 (C)	130,000	5,800	0	140,000
2044 (C)	130,000	5,800	0	140,000
2045 (C)	140,000	5,800	0	150,000
2046 (AN)	110,000	5,800	0	120,000
2047 (C)	130,000	5,800	0	140,000
2048 (W)	100,000	5,900	0	110,000
2049 (W)	120,000	5,900	0	130,000
2050 (W)	130,000	5,900	0	140,000
2051 (W)	79,000	5,900	0	85,000
2052 (W)	120,000	5,900	0	130,000
2053 (AN)	110,000	5,900	0	120,000
2054 (D)	130,000	5,900	0	140,000
2055 (D)	150,000	5,900	0	160,000
2056 (AN)	120,000	5,900	0	130,000
2057 (BN)	140,000	5,900	0	150,000
2058 (AN)	97,000	5,900	0	100,000
2059 (W)	110,000	5,900	0	120,000
2060 (D)	140,000	5,900	0	150,000
2061 (C)	160,000	5,800	0	170,000
2062 (D)	130,000	5,800	0	140,000
2063 (BN)	100,000	5,900	0	110,000

Red Bluff Subbasin Projected (Future Land Use) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		100,000	5,900	0	110,000
2065 (BN)		130,000	5,800	0	140,000
2066 (D)		150,000	5,800	0	160,000
2067 (C)		150,000	5,800	0	160,000
2068 (C)		160,000	5,800	0	170,000
2069 (BN)		130,000	5,800	0	140,000
2070 (W)		120,000	5,800	0	130,000
2071 (BN)		140,000	5,800	0	150,000
2072 (W)		110,000	5,800	0	120,000
Average (2022-2072)		120,000	5,900	0	130,000
2022-2072	W	110,000	5,900	0	120,000
	AN	110,000	5,900	0	120,000
	BN	130,000	5,800	0	140,000
	D	140,000	5,800	0	150,000
	C	140,000	5,800	0	150,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

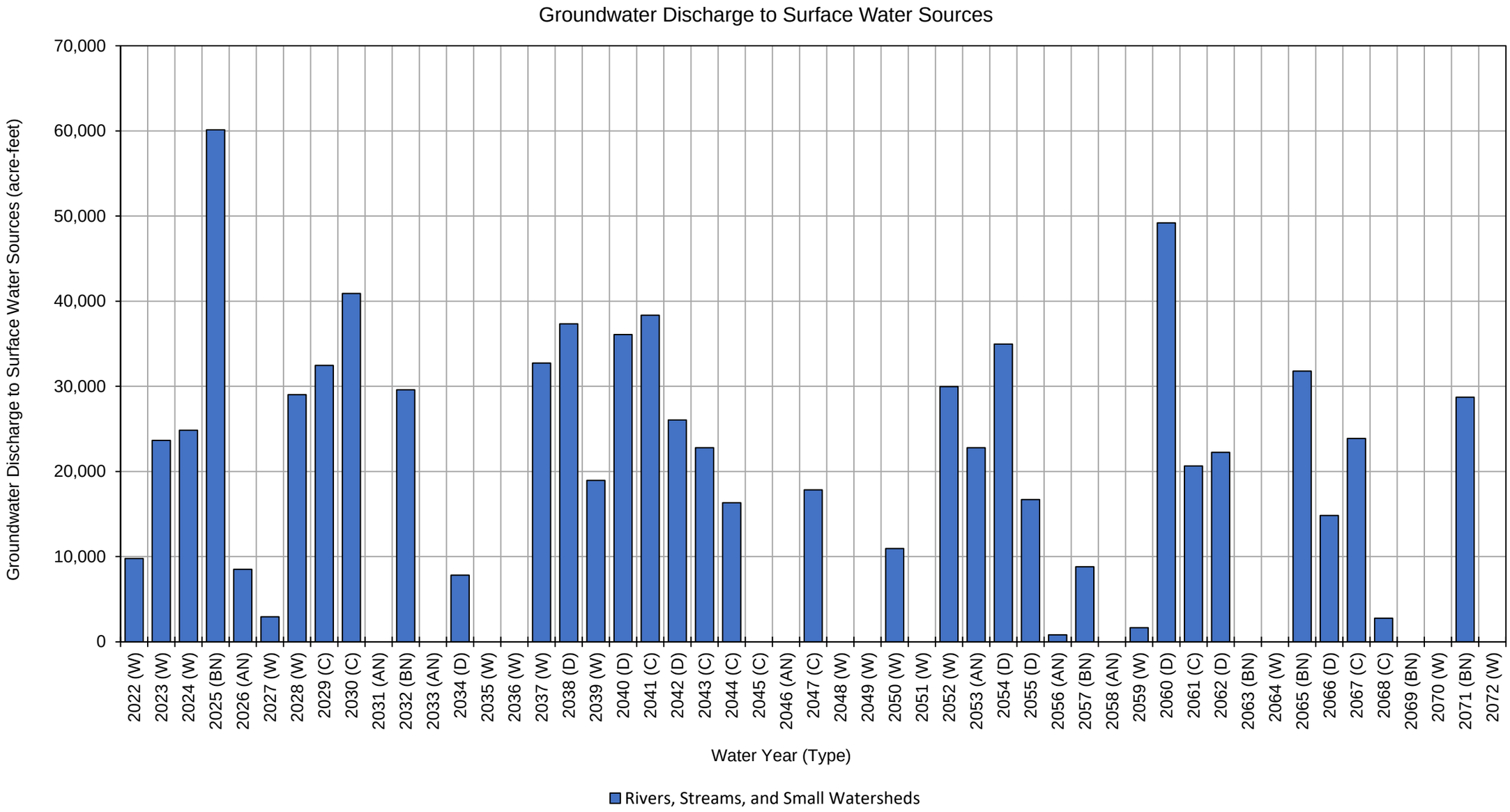
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	1,600	1	4,300	5,900
2023 (W)	2,800	3	4,800	7,600
2024 (W)	3,200	6	4,900	8,100
2025 (BN)	1,200	1	3,600	4,800
2026 (AN)	1,800	1	4,100	5,900
2027 (W)	3,700	18	5,100	8,800
2028 (W)	3,600	22	4,900	8,500
2029 (C)	1,900	2	3,900	5,800
2030 (C)	250	0	2,600	2,900
2031 (AN)	490	0	3,100	3,600
2032 (BN)	360	0	2,800	3,200
2033 (AN)	460	0	3,100	3,600
2034 (D)	600	0	3,100	3,700
2035 (W)	1,400	1	3,900	5,300
2036 (W)	4,800	46	5,300	10,000
2037 (W)	5,500	83	5,700	11,000
2038 (D)	3,800	29	4,800	8,600
2039 (W)	2,900	4	4,700	7,600
2040 (D)	2,100	2	4,000	6,100
2041 (C)	510	0	2,900	3,400
2042 (D)	110	0	2,200	2,300
2043 (C)	44	0	1,800	1,800
2044 (C)	9	0	1,400	1,400
2045 (C)	14	0	1,200	1,200
2046 (AN)	75	0	1,900	2,000
2047 (C)	46	0	1,700	1,700
2048 (W)	350	1	2,800	3,200
2049 (W)	940	0	3,500	4,400
2050 (W)	1,300	1	3,700	5,000
2051 (W)	3,800	8	4,900	8,700
2052 (W)	4,000	29	5,000	9,000
2053 (AN)	3,100	5	4,700	7,800
2054 (D)	1,900	1	3,900	5,800
2055 (D)	1,000	0	3,400	4,400
2056 (AN)	1,200	0	3,600	4,800
2057 (BN)	1,800	1	4,100	5,900
2058 (AN)	2,400	1	4,100	6,500
2059 (W)	3,900	18	5,100	9,000
2060 (D)	1,700	2	3,800	5,500
2061 (C)	600	0	3,100	3,700
2062 (D)	170	0	2,400	2,600
2063 (BN)	340	0	2,600	2,900

Red Bluff Subbasin Projected (Future Land Use) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		730	0	3,300	4,000
2065 (BN)		530	0	3,000	3,500
2066 (D)		210	0	2,400	2,600
2067 (C)		9	0	1,400	1,400
2068 (C)		8	0	1,000	1,000
2069 (BN)		11	0	1,100	1,100
2070 (W)		170	1	2,400	2,600
2071 (BN)		37	0	1,700	1,700
2072 (W)		270	0	2,600	2,900
Average (2022-2072)		1,400	6	3,400	4,800
2022-2072	W	2,500	13	4,300	6,800
	AN	1,400	1	3,500	4,900
	BN	610	0	2,700	3,300
	D	1,300	4	3,300	4,600
	C	340	0	2,100	2,400

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

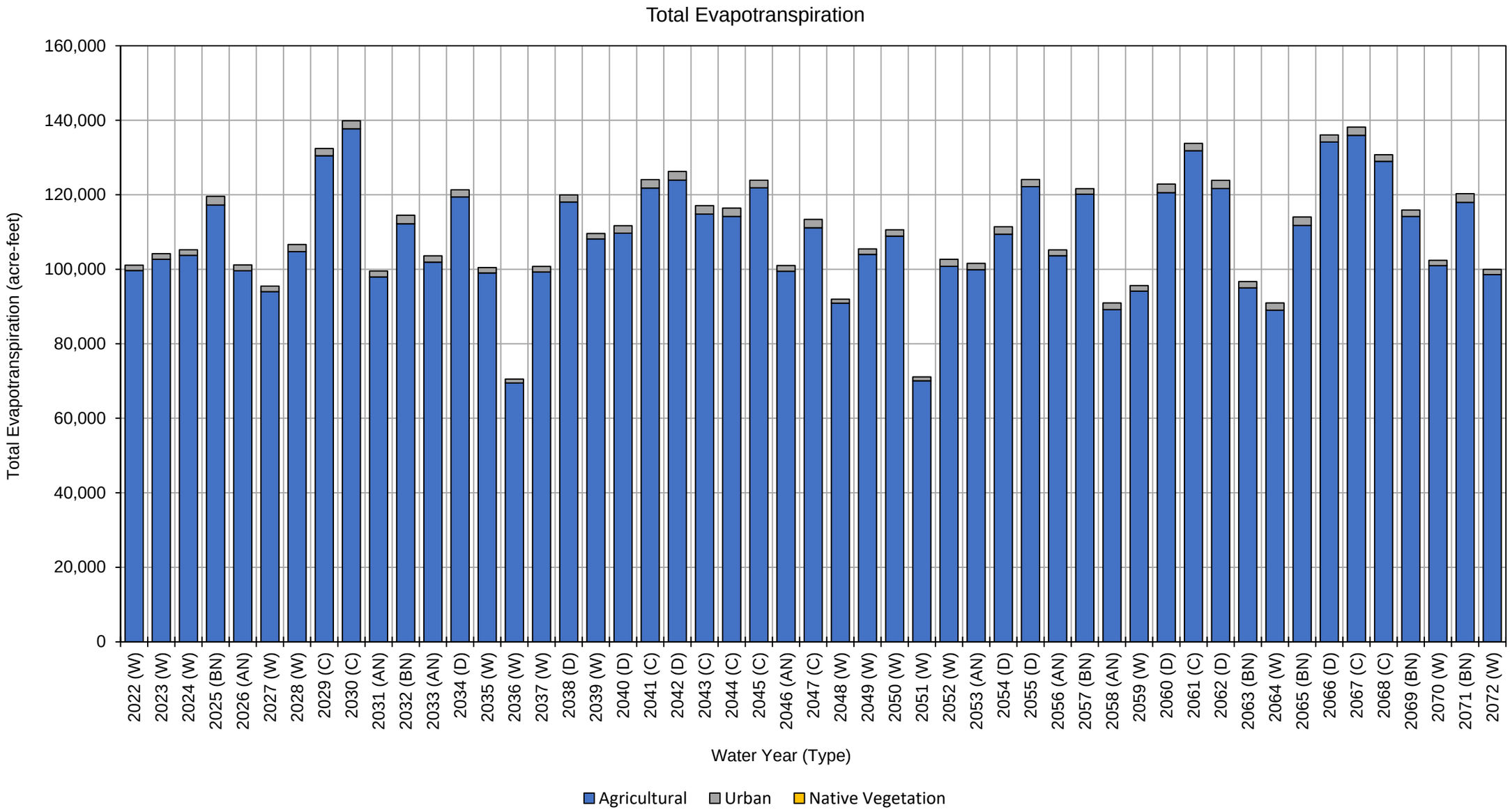
WY (Type)	Rivers, Streams, and Small Watersheds
2022 (W)	9,800
2023 (W)	24,000
2024 (W)	25,000
2025 (BN)	60,000
2026 (AN)	8,500
2027 (W)	2,900
2028 (W)	29,000
2029 (C)	32,000
2030 (C)	41,000
2031 (AN)	0
2032 (BN)	30,000
2033 (AN)	0
2034 (D)	7,800
2035 (W)	0
2036 (W)	0
2037 (W)	33,000
2038 (D)	37,000
2039 (W)	19,000
2040 (D)	36,000
2041 (C)	38,000
2042 (D)	26,000
2043 (C)	23,000
2044 (C)	16,000
2045 (C)	0
2046 (AN)	0
2047 (C)	18,000
2048 (W)	0
2049 (W)	0
2050 (W)	11,000
2051 (W)	0
2052 (W)	30,000
2053 (AN)	23,000
2054 (D)	35,000
2055 (D)	17,000
2056 (AN)	810
2057 (BN)	8,800
2058 (AN)	0
2059 (W)	1,700
2060 (D)	49,000
2061 (C)	21,000
2062 (D)	22,000
2063 (BN)	0

Red Bluff Subbasin Projected (Future Land Use) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

WY (Type)		Rivers, Streams, and Small Watersheds
2064 (W)		0
2065 (BN)		32,000
2066 (D)		15,000
2067 (C)		24,000
2068 (C)		2,800
2069 (BN)		0
2070 (W)		0
2071 (BN)		29,000
2072 (W)		0
Average (2022-2072)		16,000
2022-2072	W	10,000
	AN	4,600
	BN	23,000
	D	27,000
	C	22,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

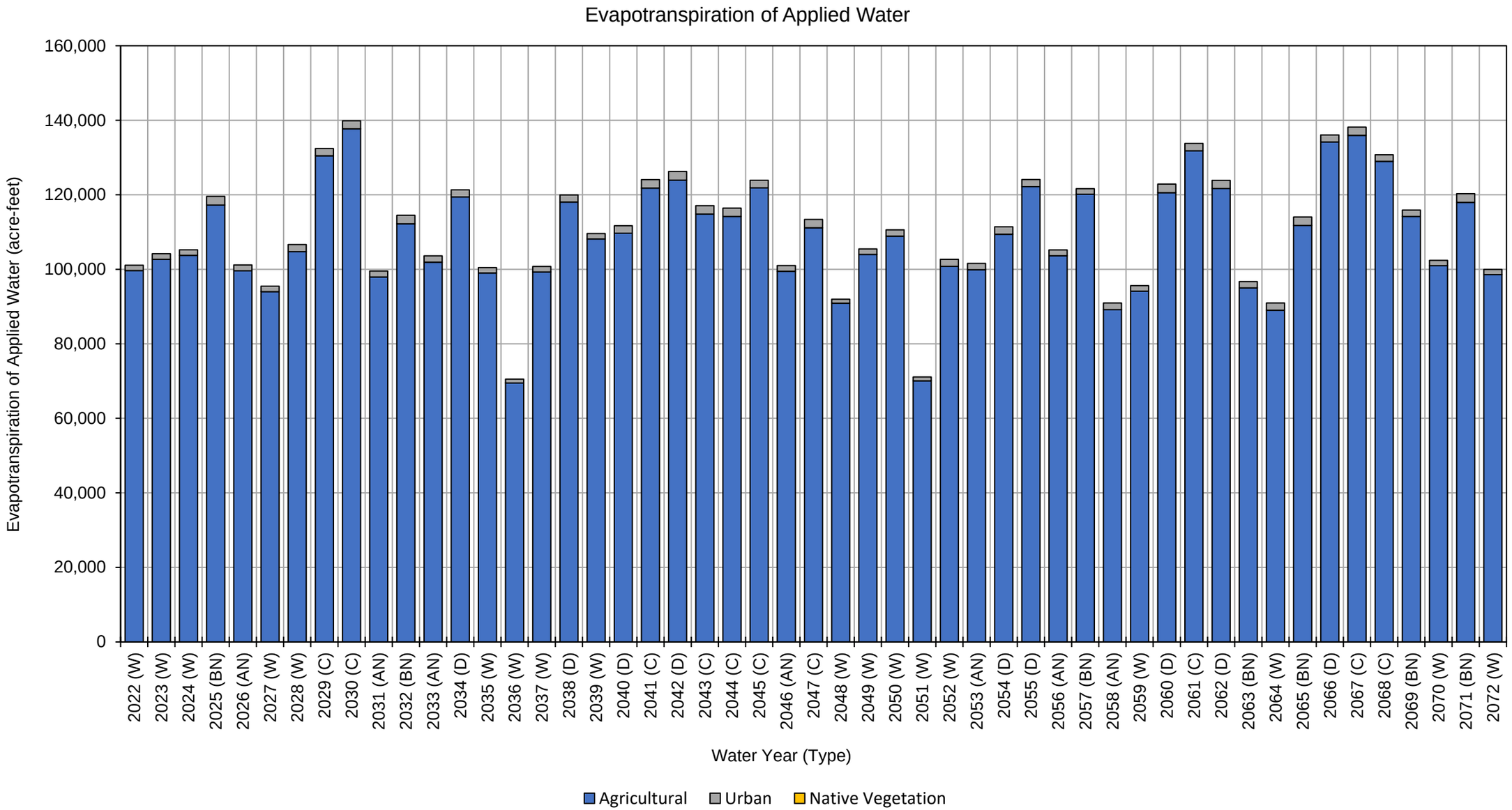
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	180,000	7,100	330,000	520,000
2023 (W)	180,000	6,500	300,000	490,000
2024 (W)	180,000	6,500	300,000	490,000
2025 (BN)	180,000	6,100	260,000	450,000
2026 (AN)	180,000	7,000	320,000	510,000
2027 (W)	180,000	6,500	310,000	500,000
2028 (W)	180,000	6,200	290,000	480,000
2029 (C)	190,000	5,200	220,000	420,000
2030 (C)	180,000	5,300	210,000	400,000
2031 (AN)	180,000	7,100	330,000	520,000
2032 (BN)	180,000	6,500	290,000	480,000
2033 (AN)	170,000	6,600	300,000	480,000
2034 (D)	190,000	6,000	270,000	470,000
2035 (W)	170,000	6,500	300,000	480,000
2036 (W)	160,000	6,600	300,000	470,000
2037 (W)	180,000	6,500	310,000	500,000
2038 (D)	190,000	6,000	270,000	470,000
2039 (W)	180,000	6,400	290,000	480,000
2040 (D)	180,000	6,300	290,000	480,000
2041 (C)	190,000	6,400	270,000	470,000
2042 (D)	180,000	6,100	240,000	430,000
2043 (C)	190,000	6,900	290,000	490,000
2044 (C)	190,000	6,800	290,000	490,000
2045 (C)	190,000	6,500	290,000	490,000
2046 (AN)	180,000	7,000	320,000	510,000
2047 (C)	190,000	6,800	300,000	500,000
2048 (W)	170,000	6,200	280,000	460,000
2049 (W)	180,000	6,400	300,000	490,000
2050 (W)	190,000	6,600	300,000	500,000
2051 (W)	160,000	6,600	300,000	470,000
2052 (W)	180,000	6,200	300,000	490,000
2053 (AN)	180,000	6,600	310,000	500,000
2054 (D)	180,000	6,300	290,000	480,000
2055 (D)	190,000	6,000	270,000	470,000
2056 (AN)	170,000	6,400	290,000	470,000
2057 (BN)	180,000	5,600	260,000	450,000
2058 (AN)	170,000	7,200	330,000	510,000
2059 (W)	180,000	6,500	310,000	500,000
2060 (D)	180,000	6,100	240,000	430,000
2061 (C)	190,000	5,200	230,000	430,000
2062 (D)	180,000	6,300	270,000	460,000
2063 (BN)	170,000	6,300	290,000	470,000

Red Bluff Subbasin Projected (Future Land Use) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		170,000	6,800	320,000	500,000
2065 (BN)		180,000	6,500	290,000	480,000
2066 (D)		190,000	5,300	240,000	440,000
2067 (C)		180,000	5,400	220,000	410,000
2068 (C)		190,000	5,600	260,000	460,000
2069 (BN)		180,000	6,600	300,000	490,000
2070 (W)		180,000	6,300	300,000	490,000
2071 (BN)		180,000	6,100	260,000	450,000
2072 (W)		180,000	6,900	320,000	510,000
Average (2022-2072)		180,000	6,300	290,000	480,000
2022-2072	W	180,000	6,500	300,000	490,000
	AN	180,000	6,800	310,000	500,000
	BN	180,000	6,200	280,000	470,000
	D	180,000	6,000	270,000	460,000
	C	190,000	6,000	260,000	460,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

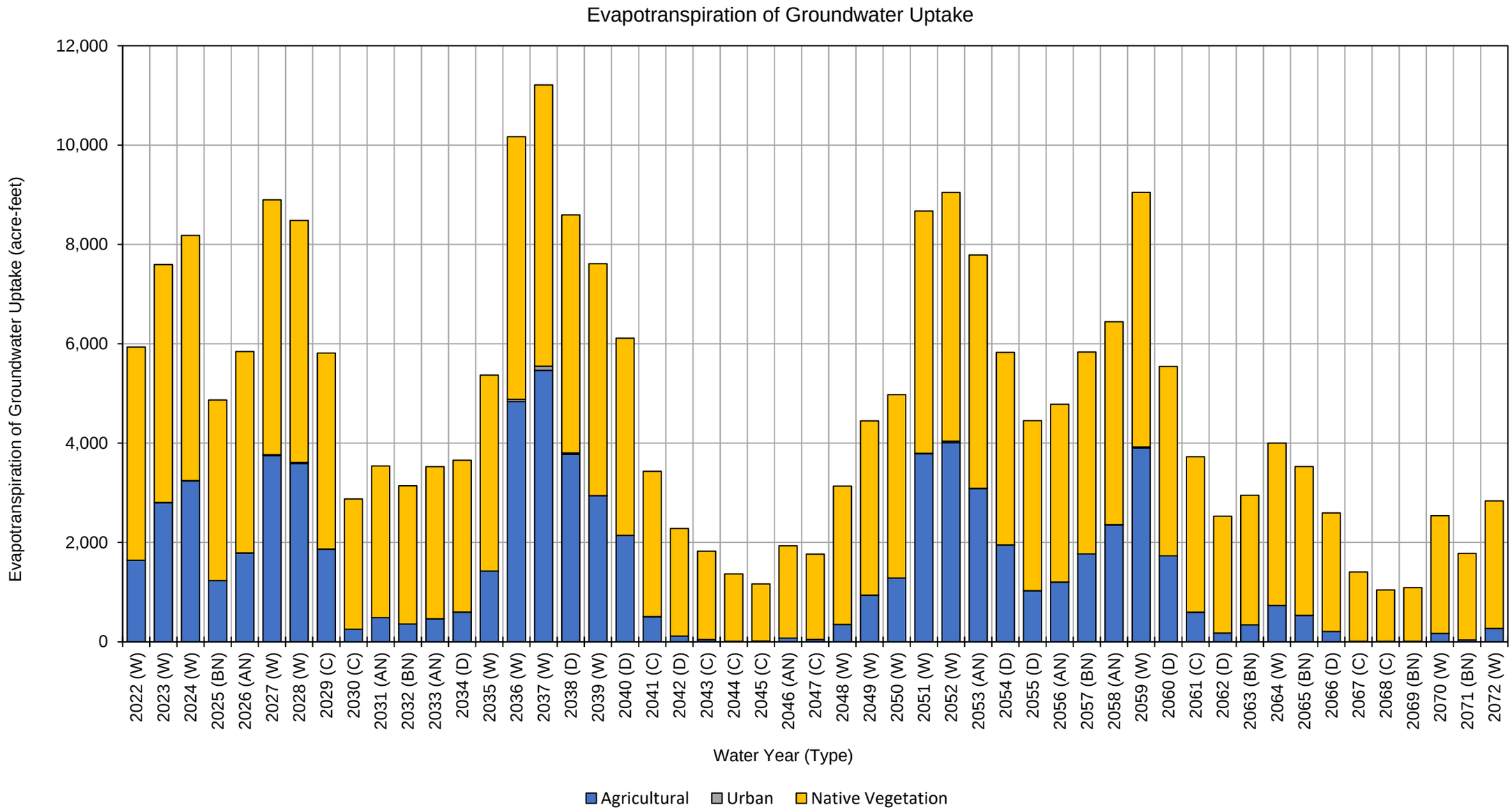
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	100,000	1,400	0	100,000
2023 (W)	100,000	1,500	0	100,000
2024 (W)	100,000	1,500	0	100,000
2025 (BN)	120,000	2,300	0	120,000
2026 (AN)	100,000	1,600	0	100,000
2027 (W)	94,000	1,500	0	96,000
2028 (W)	100,000	1,900	0	100,000
2029 (C)	130,000	1,900	0	130,000
2030 (C)	140,000	2,200	0	140,000
2031 (AN)	98,000	1,600	0	100,000
2032 (BN)	110,000	2,300	0	110,000
2033 (AN)	100,000	1,700	0	100,000
2034 (D)	120,000	1,900	0	120,000
2035 (W)	99,000	1,500	0	100,000
2036 (W)	69,000	1,100	0	70,000
2037 (W)	99,000	1,500	0	100,000
2038 (D)	120,000	1,900	0	120,000
2039 (W)	110,000	1,500	0	110,000
2040 (D)	110,000	2,000	0	110,000
2041 (C)	120,000	2,300	0	120,000
2042 (D)	120,000	2,300	0	120,000
2043 (C)	110,000	2,300	0	110,000
2044 (C)	110,000	2,200	0	110,000
2045 (C)	120,000	2,000	0	120,000
2046 (AN)	99,000	1,600	0	100,000
2047 (C)	110,000	2,200	0	110,000
2048 (W)	91,000	1,100	0	92,000
2049 (W)	100,000	1,500	0	100,000
2050 (W)	110,000	1,700	0	110,000
2051 (W)	70,000	1,100	0	71,000
2052 (W)	100,000	1,900	0	100,000
2053 (AN)	100,000	1,700	0	100,000
2054 (D)	110,000	2,000	0	110,000
2055 (D)	120,000	1,900	0	120,000
2056 (AN)	100,000	1,600	0	100,000
2057 (BN)	120,000	1,500	0	120,000
2058 (AN)	89,000	1,800	0	91,000
2059 (W)	94,000	1,500	0	96,000
2060 (D)	120,000	2,300	0	120,000
2061 (C)	130,000	2,000	0	130,000
2062 (D)	120,000	2,200	0	120,000
2063 (BN)	95,000	1,700	0	97,000

Red Bluff Subbasin Projected (Future Land Use) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		89,000	1,900	0	91,000
2065 (BN)		110,000	2,300	0	110,000
2066 (D)		130,000	1,900	0	130,000
2067 (C)		140,000	2,200	0	140,000
2068 (C)		130,000	1,800	0	130,000
2069 (BN)		110,000	1,700	0	110,000
2070 (W)		100,000	1,400	0	100,000
2071 (BN)		120,000	2,300	0	120,000
2072 (W)		99,000	1,400	0	100,000
Average (2022-2072)		110,000	1,800	0	110,000
2022-2072	W	97,000	1,500	0	99,000
	AN	99,000	1,600	0	100,000
	BN	110,000	2,000	0	110,000
	D	120,000	2,100	0	120,000
	C	120,000	2,100	0	120,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

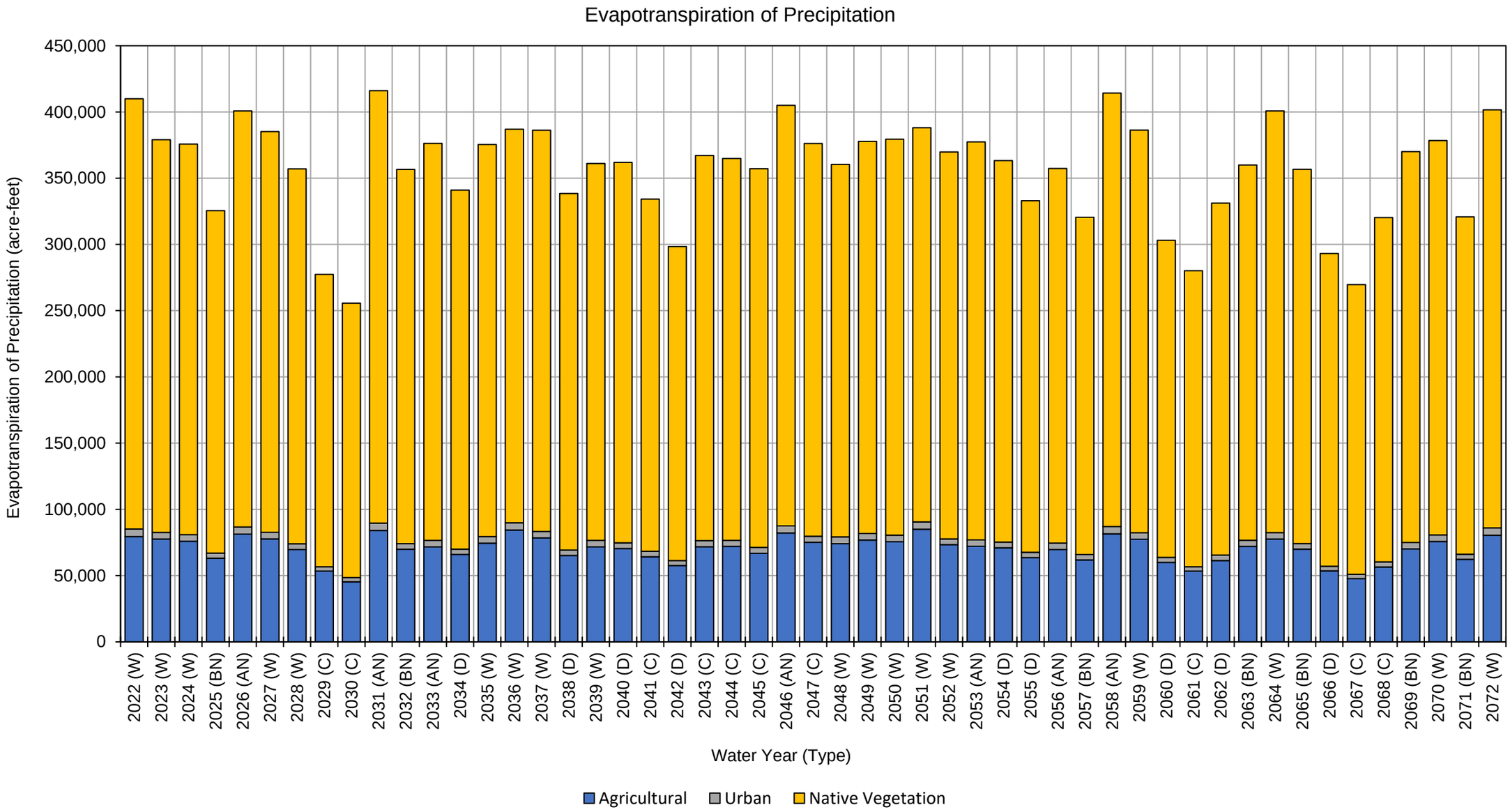
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	1,600	1	4,300	5,900
2023 (W)	2,800	3	4,800	7,600
2024 (W)	3,200	6	4,900	8,100
2025 (BN)	1,200	1	3,600	4,800
2026 (AN)	1,800	1	4,100	5,900
2027 (W)	3,700	18	5,100	8,800
2028 (W)	3,600	22	4,900	8,500
2029 (C)	1,900	2	3,900	5,800
2030 (C)	250	0	2,600	2,900
2031 (AN)	490	0	3,100	3,600
2032 (BN)	360	0	2,800	3,200
2033 (AN)	460	0	3,100	3,600
2034 (D)	600	0	3,100	3,700
2035 (W)	1,400	1	3,900	5,300
2036 (W)	4,800	46	5,300	10,000
2037 (W)	5,500	83	5,700	11,000
2038 (D)	3,800	29	4,800	8,600
2039 (W)	2,900	4	4,700	7,600
2040 (D)	2,100	2	4,000	6,100
2041 (C)	510	0	2,900	3,400
2042 (D)	110	0	2,200	2,300
2043 (C)	44	0	1,800	1,800
2044 (C)	9	0	1,400	1,400
2045 (C)	14	0	1,200	1,200
2046 (AN)	75	0	1,900	2,000
2047 (C)	46	0	1,700	1,700
2048 (W)	350	1	2,800	3,200
2049 (W)	940	0	3,500	4,400
2050 (W)	1,300	1	3,700	5,000
2051 (W)	3,800	8	4,900	8,700
2052 (W)	4,000	29	5,000	9,000
2053 (AN)	3,100	5	4,700	7,800
2054 (D)	1,900	1	3,900	5,800
2055 (D)	1,000	0	3,400	4,400
2056 (AN)	1,200	0	3,600	4,800
2057 (BN)	1,800	1	4,100	5,900
2058 (AN)	2,400	1	4,100	6,500
2059 (W)	3,900	18	5,100	9,000
2060 (D)	1,700	2	3,800	5,500
2061 (C)	600	0	3,100	3,700
2062 (D)	170	0	2,400	2,600
2063 (BN)	340	0	2,600	2,900

Red Bluff Subbasin Projected (Future Land Use) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		730	0	3,300	4,000
2065 (BN)		530	0	3,000	3,500
2066 (D)		210	0	2,400	2,600
2067 (C)		9	0	1,400	1,400
2068 (C)		8	0	1,000	1,000
2069 (BN)		11	0	1,100	1,100
2070 (W)		170	1	2,400	2,600
2071 (BN)		37	0	1,700	1,700
2072 (W)		270	0	2,600	2,900
Average (2022-2072)		1,400	6	3,400	4,800
2022-2072	W	2,500	13	4,300	6,800
	AN	1,400	1	3,500	4,900
	BN	610	0	2,700	3,300
	D	1,300	4	3,300	4,600
	C	340	0	2,100	2,400

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

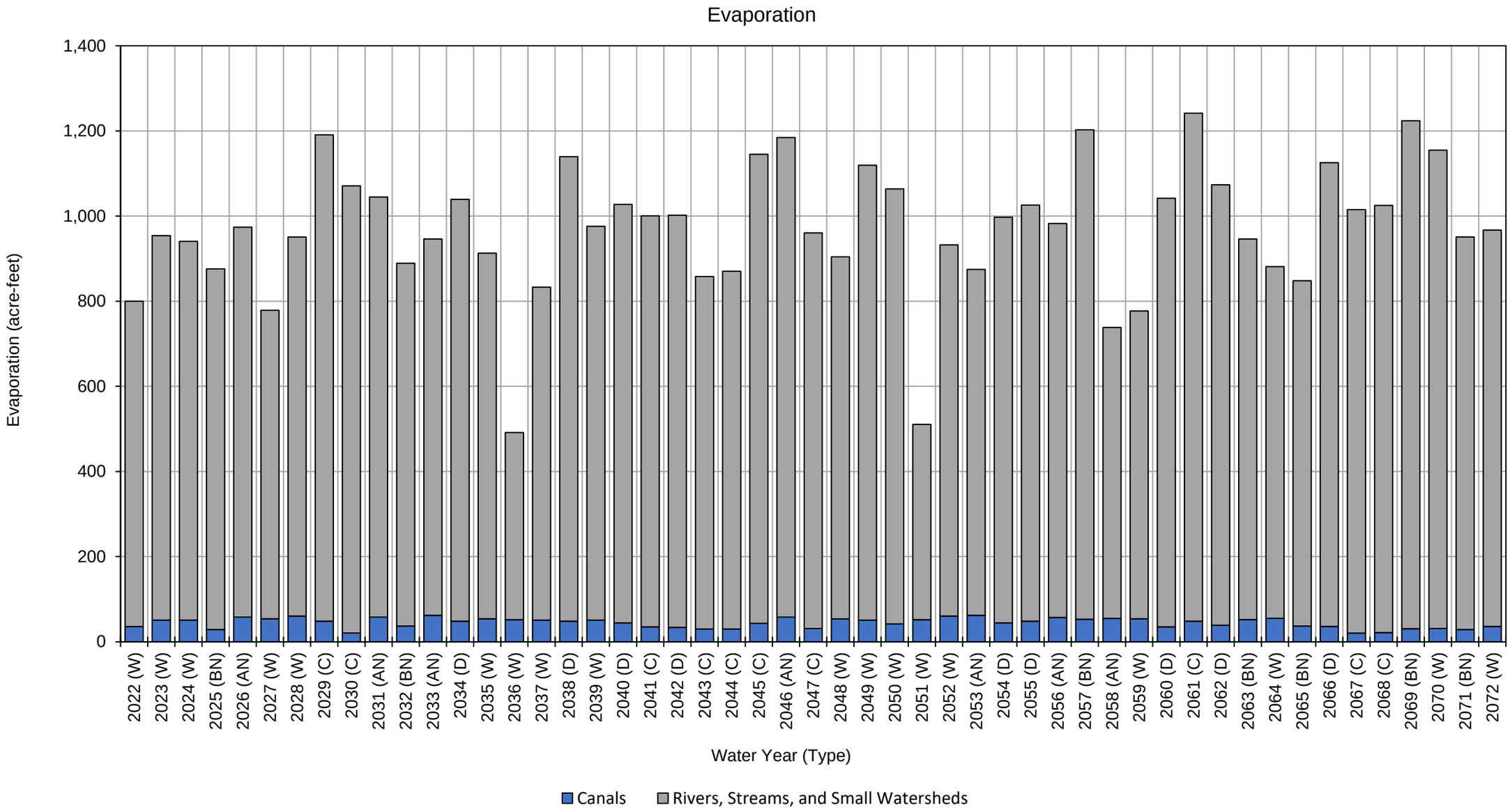
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	79,000	5,600	320,000	400,000
2023 (W)	78,000	5,000	300,000	380,000
2024 (W)	76,000	5,000	290,000	370,000
2025 (BN)	63,000	3,800	260,000	330,000
2026 (AN)	81,000	5,400	310,000	400,000
2027 (W)	78,000	5,000	300,000	380,000
2028 (W)	70,000	4,300	280,000	350,000
2029 (C)	53,000	3,200	220,000	280,000
2030 (C)	45,000	3,200	210,000	260,000
2031 (AN)	84,000	5,500	330,000	420,000
2032 (BN)	70,000	4,200	280,000	350,000
2033 (AN)	72,000	4,900	300,000	380,000
2034 (D)	66,000	4,000	270,000	340,000
2035 (W)	74,000	5,000	300,000	380,000
2036 (W)	84,000	5,500	300,000	390,000
2037 (W)	78,000	4,900	300,000	380,000
2038 (D)	65,000	4,000	270,000	340,000
2039 (W)	72,000	4,900	280,000	360,000
2040 (D)	70,000	4,300	290,000	360,000
2041 (C)	64,000	4,100	270,000	340,000
2042 (D)	58,000	3,800	240,000	300,000
2043 (C)	72,000	4,600	290,000	370,000
2044 (C)	72,000	4,600	290,000	370,000
2045 (C)	67,000	4,400	290,000	360,000
2046 (AN)	82,000	5,400	320,000	410,000
2047 (C)	75,000	4,600	300,000	380,000
2048 (W)	74,000	5,100	280,000	360,000
2049 (W)	77,000	4,900	300,000	380,000
2050 (W)	76,000	4,900	300,000	380,000
2051 (W)	85,000	5,500	300,000	390,000
2052 (W)	73,000	4,300	290,000	370,000
2053 (AN)	72,000	4,900	300,000	380,000
2054 (D)	71,000	4,300	290,000	370,000
2055 (D)	64,000	4,000	270,000	340,000
2056 (AN)	70,000	4,800	280,000	350,000
2057 (BN)	62,000	4,100	250,000	320,000
2058 (AN)	82,000	5,400	330,000	420,000
2059 (W)	77,000	5,000	300,000	380,000
2060 (D)	60,000	3,800	240,000	300,000
2061 (C)	53,000	3,300	220,000	280,000
2062 (D)	61,000	4,100	270,000	340,000
2063 (BN)	72,000	4,600	280,000	360,000

Red Bluff Subbasin Projected (Future Land Use) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		78,000	4,800	320,000	400,000
2065 (BN)		70,000	4,200	280,000	350,000
2066 (D)		54,000	3,400	240,000	300,000
2067 (C)		48,000	3,200	220,000	270,000
2068 (C)		56,000	3,800	260,000	320,000
2069 (BN)		70,000	4,900	300,000	370,000
2070 (W)		76,000	4,900	300,000	380,000
2071 (BN)		62,000	3,800	250,000	320,000
2072 (W)		80,000	5,500	320,000	410,000
Average (2022-2072)		70,000	4,500	280,000	350,000
2022-2072	W	77,000	5,000	300,000	380,000
	AN	77,000	5,200	310,000	390,000
	BN	67,000	4,200	270,000	340,000
	D	63,000	4,000	260,000	330,000
	C	61,000	3,900	260,000	320,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Evaporation (acre-feet, rounded)

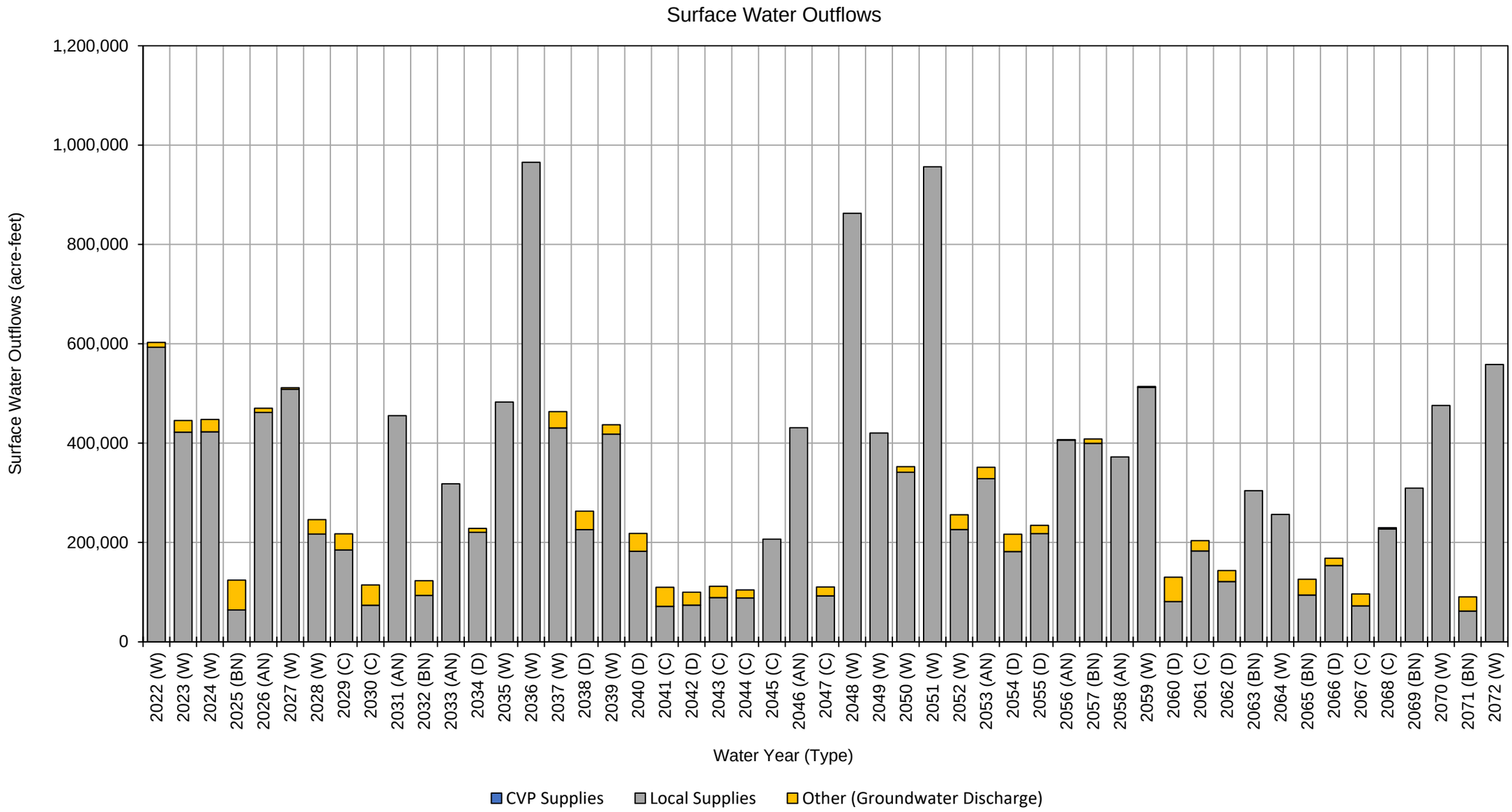
WY (Type)	Canals	Rivers, Streams, and Small Watersheds	Total
2022 (W)	36	760	800
2023 (W)	51	900	950
2024 (W)	51	890	940
2025 (BN)	29	850	880
2026 (AN)	58	920	980
2027 (W)	54	720	770
2028 (W)	60	890	950
2029 (C)	48	1,100	1,100
2030 (C)	21	1,100	1,100
2031 (AN)	58	990	1,000
2032 (BN)	37	850	890
2033 (AN)	62	880	940
2034 (D)	48	990	1,000
2035 (W)	54	860	910
2036 (W)	52	440	490
2037 (W)	51	780	830
2038 (D)	48	1,100	1,100
2039 (W)	51	920	970
2040 (D)	44	980	1,000
2041 (C)	35	970	1,000
2042 (D)	34	970	1,000
2043 (C)	30	830	860
2044 (C)	30	840	870
2045 (C)	43	1,100	1,100
2046 (AN)	58	1,100	1,200
2047 (C)	31	930	960
2048 (W)	54	850	900
2049 (W)	51	1,100	1,200
2050 (W)	42	1,000	1,000
2051 (W)	52	460	510
2052 (W)	60	870	930
2053 (AN)	62	810	870
2054 (D)	44	950	990
2055 (D)	48	980	1,000
2056 (AN)	57	930	990
2057 (BN)	53	1,100	1,200
2058 (AN)	55	680	740
2059 (W)	54	720	770
2060 (D)	35	1,000	1,000
2061 (C)	48	1,200	1,200
2062 (D)	39	1,000	1,000
2063 (BN)	52	890	940

Red Bluff Subbasin Projected (Future Land Use) Evaporation (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Watersheds	Total
2064 (W)		55	830	890
2065 (BN)		37	810	850
2066 (D)		36	1,100	1,100
2067 (C)		20	990	1,000
2068 (C)		22	1,000	1,000
2069 (BN)		31	1,200	1,200
2070 (W)		31	1,100	1,100
2071 (BN)		29	920	950
2072 (W)		36	930	970
Average (2022-2072)		45	930	980
2022-2072	W	50	840	890
	AN	59	910	970
	BN	38	950	990
	D	42	1,000	1,000
	C	33	1,000	1,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

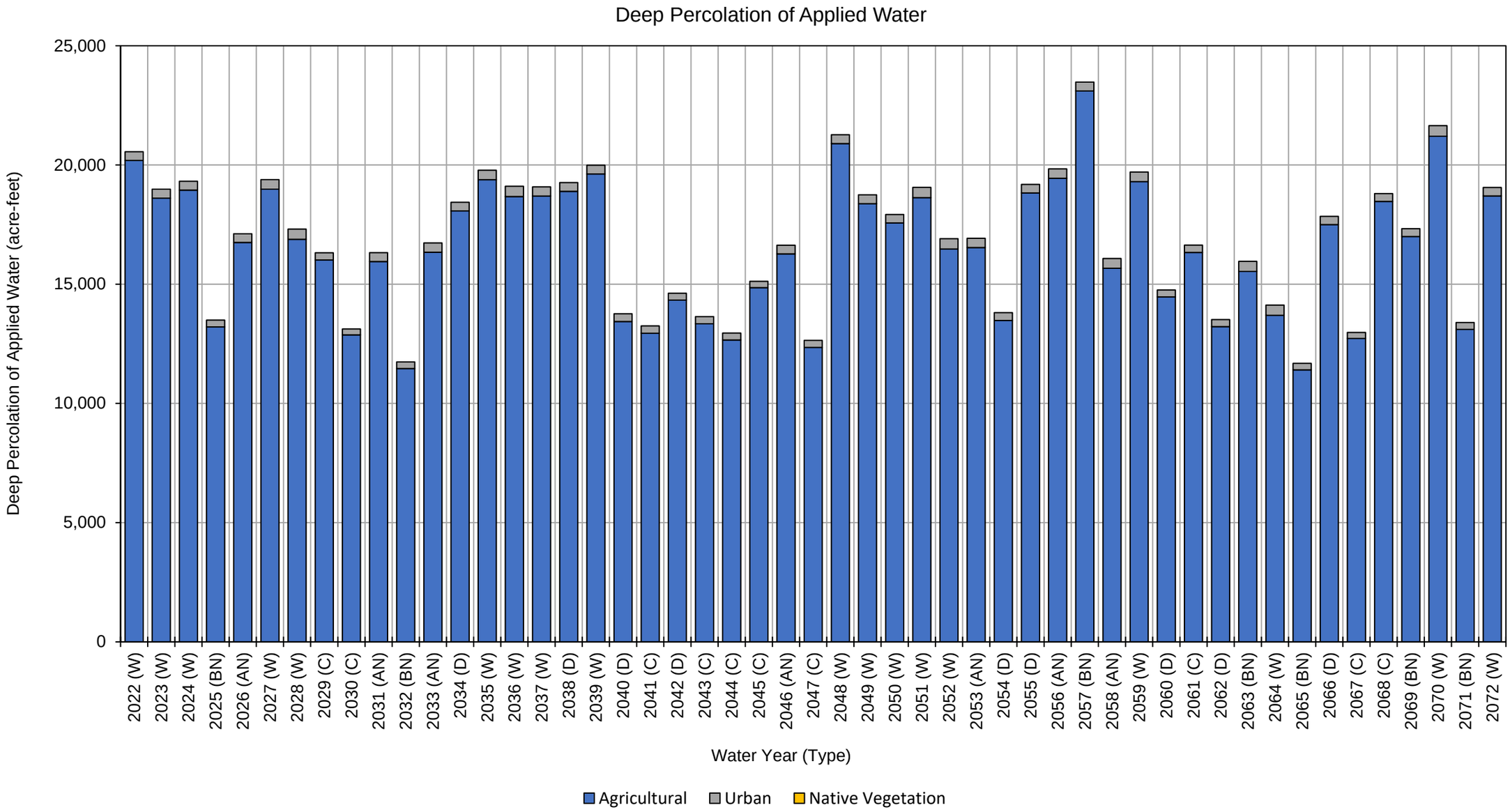
WY (Type)	CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2022 (W)	0	590,000	9,800	600,000
2023 (W)	0	420,000	24,000	440,000
2024 (W)	0	420,000	25,000	450,000
2025 (BN)	0	64,000	60,000	120,000
2026 (AN)	0	460,000	8,500	470,000
2027 (W)	0	510,000	2,900	510,000
2028 (W)	0	220,000	29,000	250,000
2029 (C)	0	180,000	32,000	210,000
2030 (C)	0	73,000	41,000	110,000
2031 (AN)	0	460,000	0	460,000
2032 (BN)	0	93,000	30,000	120,000
2033 (AN)	0	320,000	0	320,000
2034 (D)	0	220,000	7,800	230,000
2035 (W)	0	480,000	0	480,000
2036 (W)	0	970,000	0	970,000
2037 (W)	0	430,000	33,000	460,000
2038 (D)	0	230,000	37,000	270,000
2039 (W)	0	420,000	19,000	440,000
2040 (D)	0	180,000	36,000	220,000
2041 (C)	0	71,000	38,000	110,000
2042 (D)	0	74,000	26,000	100,000
2043 (C)	0	89,000	23,000	110,000
2044 (C)	0	88,000	16,000	100,000
2045 (C)	0	210,000	0	210,000
2046 (AN)	0	430,000	0	430,000
2047 (C)	0	92,000	18,000	110,000
2048 (W)	0	860,000	0	860,000
2049 (W)	0	420,000	0	420,000
2050 (W)	0	340,000	11,000	350,000
2051 (W)	0	960,000	0	960,000
2052 (W)	0	230,000	30,000	260,000
2053 (AN)	0	330,000	23,000	350,000
2054 (D)	0	180,000	35,000	220,000
2055 (D)	0	220,000	17,000	240,000
2056 (AN)	0	410,000	810	410,000
2057 (BN)	0	400,000	8,800	410,000
2058 (AN)	0	370,000	0	370,000
2059 (W)	0	510,000	1,700	510,000
2060 (D)	0	81,000	49,000	130,000
2061 (C)	0	180,000	21,000	200,000
2062 (D)	0	120,000	22,000	140,000
2063 (BN)	0	300,000	0	300,000

Red Bluff Subbasin Projected (Future Land Use) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2064 (W)		0	260,000	0	260,000
2065 (BN)		0	94,000	32,000	130,000
2066 (D)		0	150,000	15,000	170,000
2067 (C)		0	72,000	24,000	96,000
2068 (C)		0	230,000	2,800	230,000
2069 (BN)		0	310,000	0	310,000
2070 (W)		0	480,000	0	480,000
2071 (BN)		0	62,000	29,000	91,000
2072 (W)		0	560,000	0	560,000
Average (2022-2072)		0	310,000	16,000	330,000
2022-2072	W	0	500,000	10,000	510,000
	AN	0	400,000	4,600	400,000
	BN	0	190,000	23,000	210,000
	D	0	160,000	27,000	190,000
	C	0	130,000	22,000	150,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

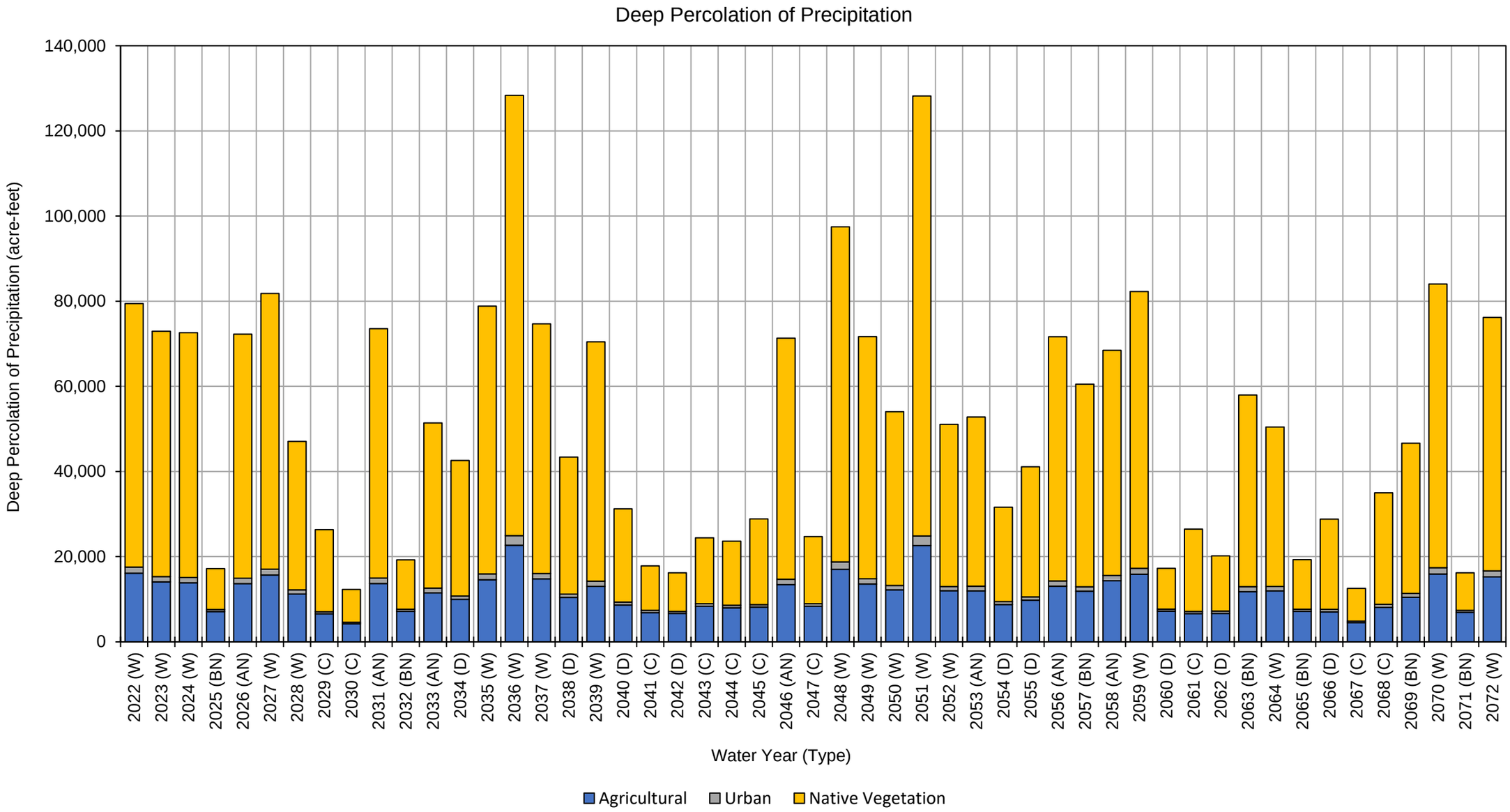
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	20,000	360	0	20,000
2023 (W)	19,000	380	0	19,000
2024 (W)	19,000	370	0	19,000
2025 (BN)	13,000	290	0	13,000
2026 (AN)	17,000	360	0	17,000
2027 (W)	19,000	400	0	19,000
2028 (W)	17,000	430	0	17,000
2029 (C)	16,000	300	0	16,000
2030 (C)	13,000	240	0	13,000
2031 (AN)	16,000	370	0	16,000
2032 (BN)	11,000	280	0	11,000
2033 (AN)	16,000	390	0	16,000
2034 (D)	18,000	360	0	18,000
2035 (W)	19,000	400	0	19,000
2036 (W)	19,000	430	0	19,000
2037 (W)	19,000	390	0	19,000
2038 (D)	19,000	370	0	19,000
2039 (W)	20,000	370	0	20,000
2040 (D)	13,000	330	0	13,000
2041 (C)	13,000	310	0	13,000
2042 (D)	14,000	290	0	14,000
2043 (C)	13,000	300	0	13,000
2044 (C)	13,000	290	0	13,000
2045 (C)	15,000	270	0	15,000
2046 (AN)	16,000	360	0	16,000
2047 (C)	12,000	290	0	12,000
2048 (W)	21,000	370	0	21,000
2049 (W)	18,000	370	0	18,000
2050 (W)	18,000	360	0	18,000
2051 (W)	19,000	430	0	19,000
2052 (W)	16,000	430	0	16,000
2053 (AN)	17,000	390	0	17,000
2054 (D)	13,000	330	0	13,000
2055 (D)	19,000	360	0	19,000
2056 (AN)	19,000	390	0	19,000
2057 (BN)	23,000	370	0	23,000
2058 (AN)	16,000	410	0	16,000
2059 (W)	19,000	410	0	19,000
2060 (D)	14,000	290	0	14,000
2061 (C)	16,000	310	0	16,000
2062 (D)	13,000	290	0	13,000
2063 (BN)	16,000	420	0	16,000

Red Bluff Subbasin Projected (Future Land Use) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		14,000	430	0	14,000
2065 (BN)		11,000	280	0	11,000
2066 (D)		17,000	350	0	17,000
2067 (C)		13,000	250	0	13,000
2068 (C)		18,000	330	0	18,000
2069 (BN)		17,000	330	0	17,000
2070 (W)		21,000	440	0	21,000
2071 (BN)		13,000	290	0	13,000
2072 (W)		19,000	350	0	19,000
Average (2022-2072)		16,000	350	0	16,000
2022-2072	W	19,000	400	0	19,000
	AN	17,000	380	0	17,000
	BN	15,000	320	0	15,000
	D	16,000	330	0	16,000
	C	14,000	290	0	14,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

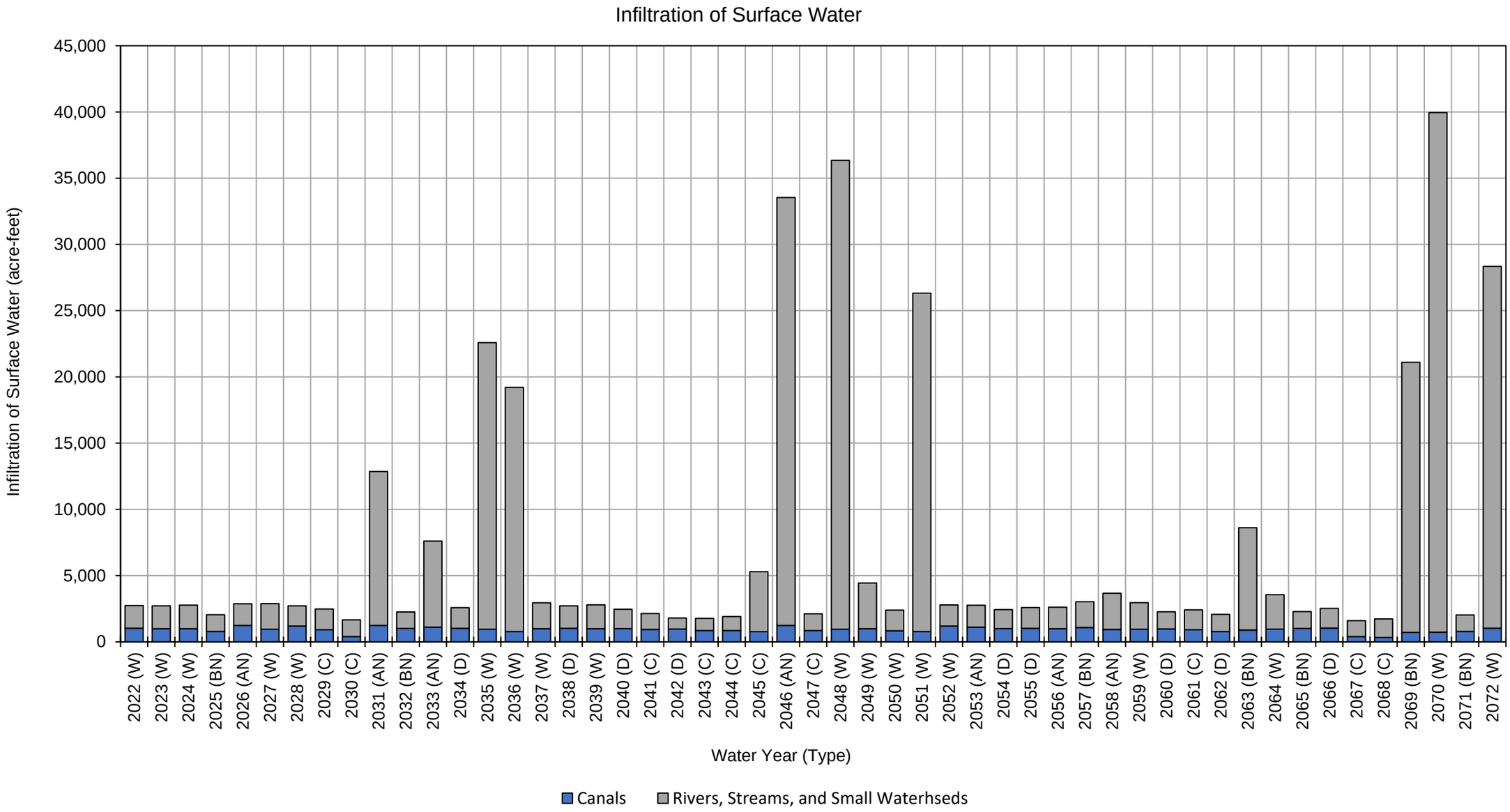
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	16,000	1,400	62,000	79,000
2023 (W)	14,000	1,200	58,000	73,000
2024 (W)	14,000	1,200	57,000	72,000
2025 (BN)	7,100	470	9,600	17,000
2026 (AN)	14,000	1,300	57,000	72,000
2027 (W)	16,000	1,400	65,000	82,000
2028 (W)	11,000	960	35,000	47,000
2029 (C)	6,600	500	19,000	26,000
2030 (C)	4,200	360	7,700	12,000
2031 (AN)	14,000	1,300	59,000	74,000
2032 (BN)	7,100	510	12,000	20,000
2033 (AN)	11,000	1,100	39,000	51,000
2034 (D)	10,000	760	32,000	43,000
2035 (W)	15,000	1,400	63,000	79,000
2036 (W)	23,000	2,300	100,000	130,000
2037 (W)	15,000	1,300	59,000	75,000
2038 (D)	10,000	760	32,000	43,000
2039 (W)	13,000	1,200	56,000	70,000
2040 (D)	8,600	710	22,000	31,000
2041 (C)	6,800	550	10,000	17,000
2042 (D)	6,700	470	9,100	16,000
2043 (C)	8,300	610	15,000	24,000
2044 (C)	8,000	590	15,000	24,000
2045 (C)	8,100	580	20,000	29,000
2046 (AN)	13,000	1,300	57,000	71,000
2047 (C)	8,300	600	16,000	25,000
2048 (W)	17,000	1,700	79,000	98,000
2049 (W)	14,000	1,200	57,000	72,000
2050 (W)	12,000	1,000	41,000	54,000
2051 (W)	23,000	2,300	100,000	130,000
2052 (W)	12,000	970	38,000	51,000
2053 (AN)	12,000	1,100	40,000	53,000
2054 (D)	8,700	710	22,000	31,000
2055 (D)	9,800	760	31,000	42,000
2056 (AN)	13,000	1,200	57,000	71,000
2057 (BN)	12,000	1,000	48,000	61,000
2058 (AN)	14,000	1,300	53,000	68,000
2059 (W)	16,000	1,400	65,000	82,000
2060 (D)	7,200	470	9,600	17,000
2061 (C)	6,600	510	19,000	26,000
2062 (D)	6,700	560	13,000	20,000
2063 (BN)	12,000	1,200	45,000	58,000

Red Bluff Subbasin Projected (Future Land Use) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		12,000	1,100	37,000	50,000
2065 (BN)		7,100	510	12,000	20,000
2066 (D)		7,000	630	21,000	29,000
2067 (C)		4,500	370	7,700	13,000
2068 (C)		8,100	710	26,000	35,000
2069 (BN)		10,000	930	35,000	46,000
2070 (W)		16,000	1,500	67,000	85,000
2071 (BN)		6,900	470	8,800	16,000
2072 (W)		15,000	1,400	60,000	76,000
Average (2022-2072)		11,000	980	39,000	51,000
2022-2072	W	15,000	1,400	61,000	77,000
	AN	13,000	1,200	52,000	66,000
	BN	8,900	730	24,000	34,000
	D	8,300	650	21,000	30,000
	C	7,000	540	16,000	24,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Infiltration of Surface Water (acre-feet, rounded)

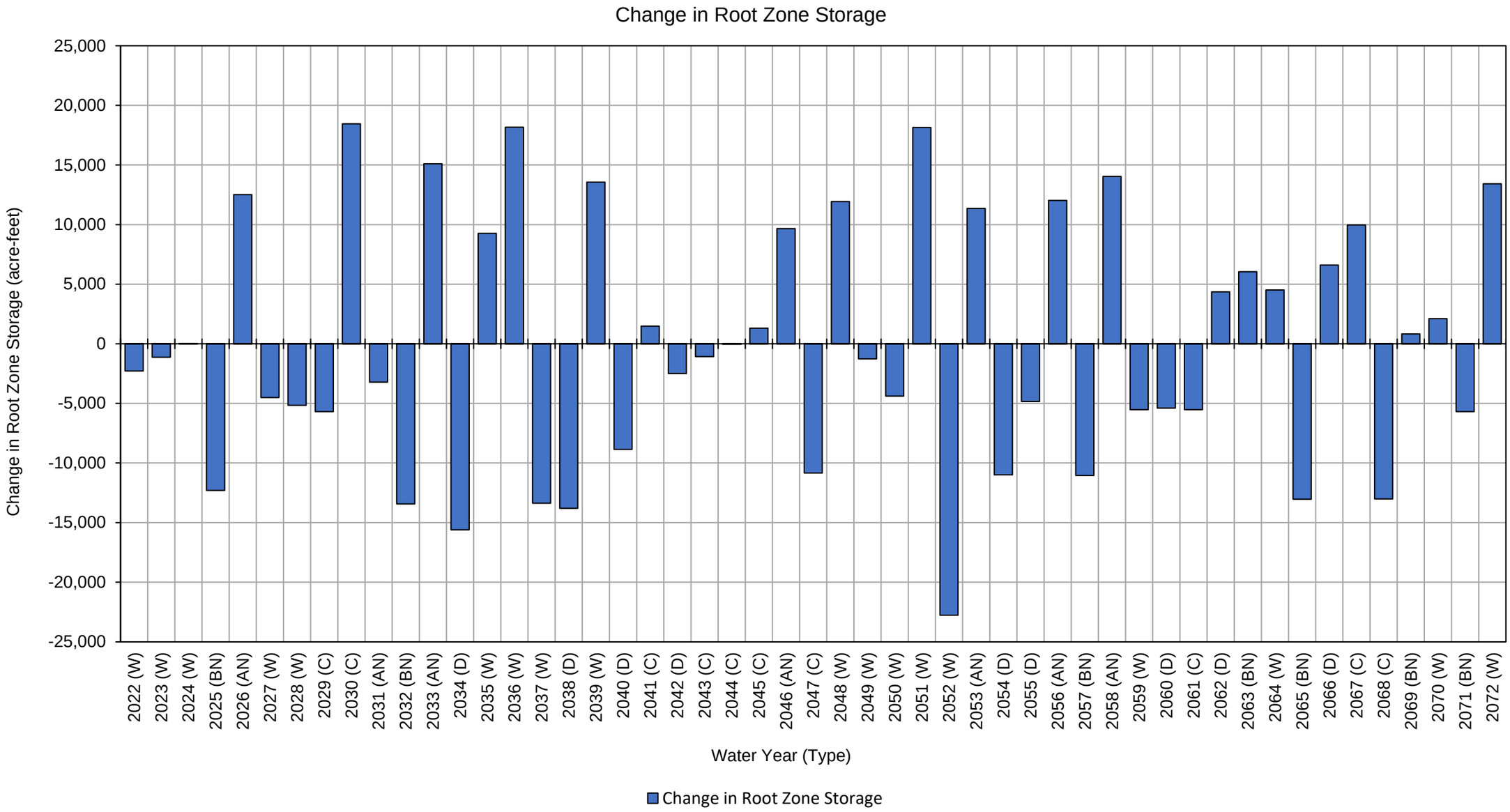
WY (Type)	Canals	Rivers, Streams, and Small Waterhseds	Total
2022 (W)	1,000	1,700	2,700
2023 (W)	990	1,700	2,700
2024 (W)	990	1,800	2,800
2025 (BN)	780	1,300	2,100
2026 (AN)	1,200	1,600	2,800
2027 (W)	950	1,900	2,900
2028 (W)	1,200	1,500	2,700
2029 (C)	910	1,600	2,500
2030 (C)	400	1,300	1,700
2031 (AN)	1,200	12,000	13,000
2032 (BN)	1,000	1,200	2,200
2033 (AN)	1,100	6,500	7,600
2034 (D)	1,000	1,600	2,600
2035 (W)	950	22,000	23,000
2036 (W)	770	18,000	19,000
2037 (W)	990	2,000	3,000
2038 (D)	1,000	1,700	2,700
2039 (W)	990	1,800	2,800
2040 (D)	1,000	1,500	2,500
2041 (C)	930	1,200	2,100
2042 (D)	960	830	1,800
2043 (C)	840	920	1,800
2044 (C)	840	1,100	1,900
2045 (C)	760	4,500	5,300
2046 (AN)	1,200	32,000	33,000
2047 (C)	850	1,300	2,200
2048 (W)	950	35,000	36,000
2049 (W)	990	3,500	4,500
2050 (W)	830	1,600	2,400
2051 (W)	770	26,000	27,000
2052 (W)	1,200	1,600	2,800
2053 (AN)	1,100	1,700	2,800
2054 (D)	1,000	1,400	2,400
2055 (D)	1,000	1,600	2,600
2056 (AN)	990	1,600	2,600
2057 (BN)	1,100	1,900	3,000
2058 (AN)	930	2,700	3,600
2059 (W)	950	2,000	3,000
2060 (D)	970	1,300	2,300
2061 (C)	910	1,500	2,400
2062 (D)	770	1,300	2,100
2063 (BN)	890	7,700	8,600

Red Bluff Subbasin Projected (Future Land Use) Infiltration of Surface Water (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Waterhseds	Total
2064 (W)		960	2,600	3,600
2065 (BN)		1,000	1,300	2,300
2066 (D)		1,000	1,500	2,500
2067 (C)		390	1,200	1,600
2068 (C)		330	1,400	1,700
2069 (BN)		710	20,000	21,000
2070 (W)		730	39,000	40,000
2071 (BN)		780	1,200	2,000
2072 (W)		1,000	27,000	28,000
Average (2022-2072)		930	6,100	7,000
2022-2072	W	950	11,000	12,000
	AN	1,100	8,300	9,400
	BN	890	5,000	5,900
	D	980	1,400	2,400
	C	720	1,600	2,300

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)	Change in Root Zone Storage
2022 (W)	-2,300
2023 (W)	-1,100
2024 (W)	24
2025 (BN)	-12,000
2026 (AN)	13,000
2027 (W)	-4,500
2028 (W)	-5,200
2029 (C)	-5,700
2030 (C)	18,000
2031 (AN)	-3,200
2032 (BN)	-13,000
2033 (AN)	15,000
2034 (D)	-16,000
2035 (W)	9,300
2036 (W)	18,000
2037 (W)	-13,000
2038 (D)	-14,000
2039 (W)	14,000
2040 (D)	-8,900
2041 (C)	1,500
2042 (D)	-2,500
2043 (C)	-1,100
2044 (C)	-40
2045 (C)	1,300
2046 (AN)	9,700
2047 (C)	-11,000
2048 (W)	12,000
2049 (W)	-1,300
2050 (W)	-4,400
2051 (W)	18,000
2052 (W)	-23,000
2053 (AN)	11,000
2054 (D)	-11,000
2055 (D)	-4,800
2056 (AN)	12,000
2057 (BN)	-11,000
2058 (AN)	14,000
2059 (W)	-5,500
2060 (D)	-5,400
2061 (C)	-5,500
2062 (D)	4,400
2063 (BN)	6,000

Red Bluff Subbasin Projected (Future Land Use) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)		Change in Root Zone Storage
2064 (W)		4,500
2065 (BN)		-13,000
2066 (D)		6,600
2067 (C)		10,000
2068 (C)		-13,000
2069 (BN)		820
2070 (W)		2,100
2071 (BN)		-5,700
2072 (W)		13,000
Average (2022-2072)		-50
2022-2072	W	1,700
	AN	10,000
	BN	-7,000
	D	-5,700
	C	-500

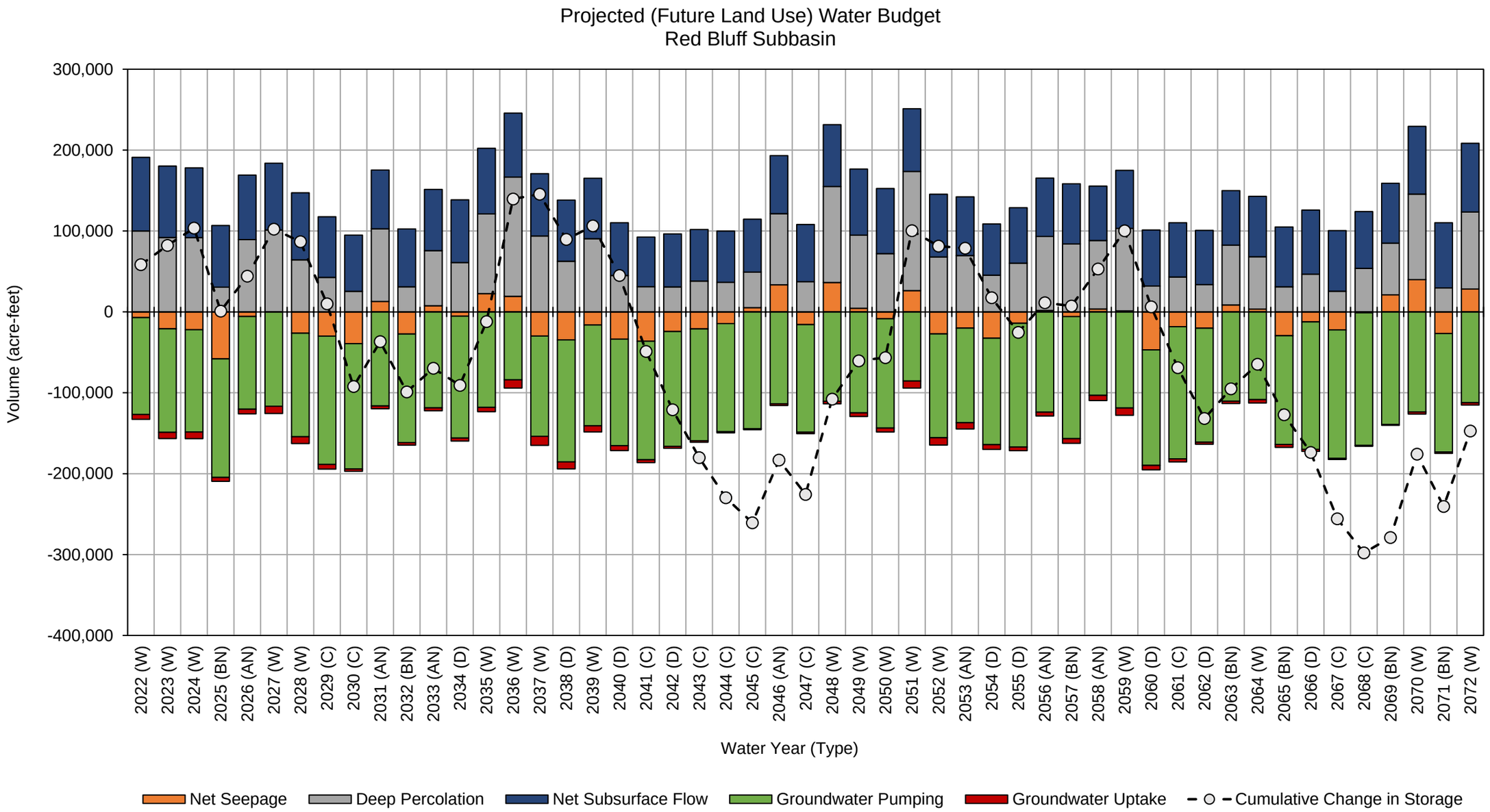
Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX D-3b

Detailed Red Bluff Subbasin Water Budget Results:

Projected (Future Land Use) Model Results – Groundwater System


Projected (Future Land Use) Water Budget
Red Bluff Subbasin
Volume (acre-feet)
300,000
200,000
100,000
0
-100,000
-200,000
-300,000
-400,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Red Bluff Subbasin Projected (Future Land Use) Water Budget Summary (acre-feet, rounded)

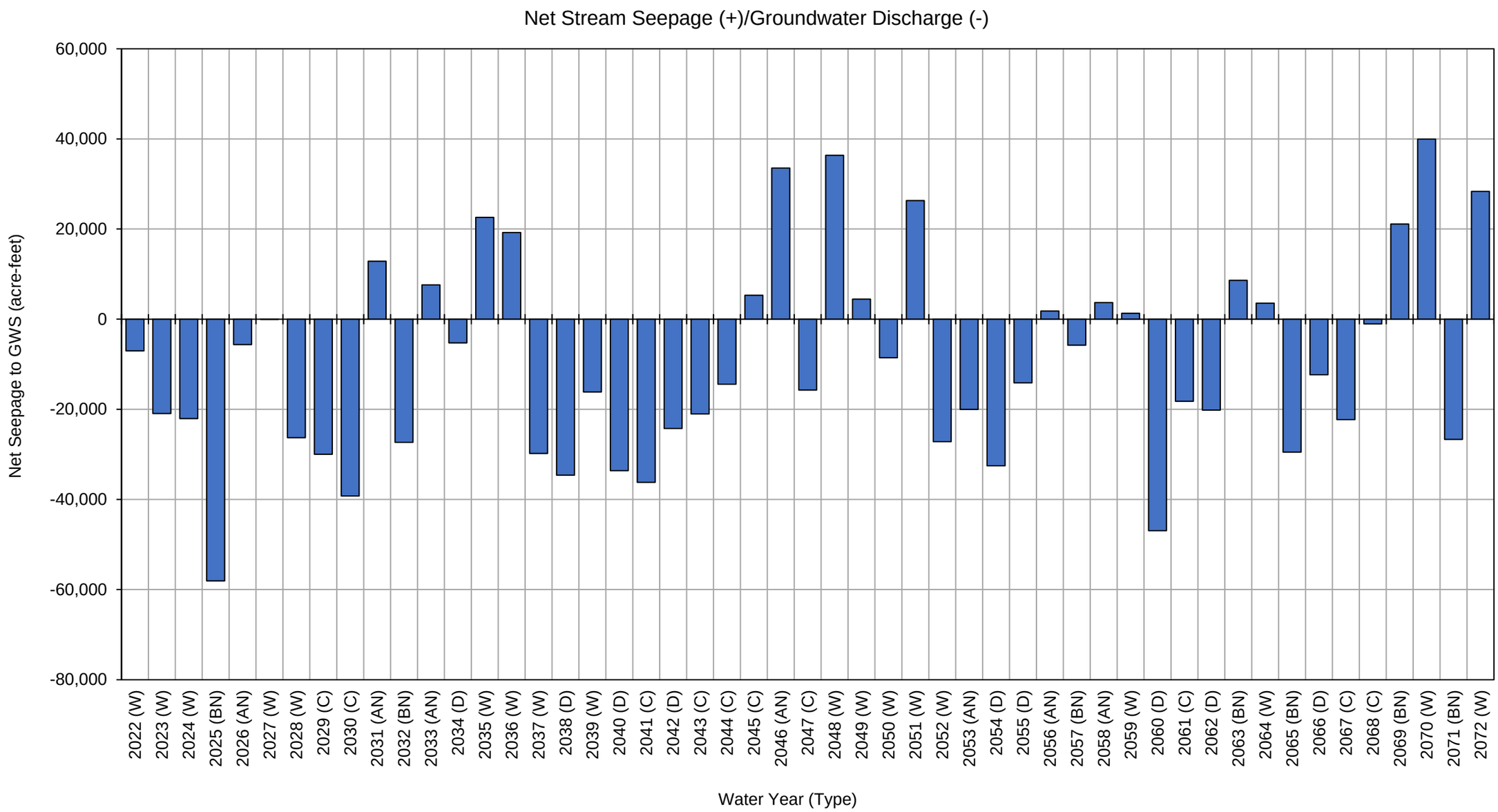
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	-7,000	100,000	-120,000	-5,900	91,000	58,000	58,000
2023 (W)	-21,000	92,000	-130,000	-7,600	88,000	24,000	82,000
2024 (W)	-22,000	92,000	-130,000	-8,200	86,000	21,000	100,000
2025 (BN)	-58,000	31,000	-150,000	-4,900	76,000	-100,000	1,000
2026 (AN)	-5,600	89,000	-110,000	-5,800	80,000	43,000	44,000
2027 (W)	-47	100,000	-120,000	-8,900	83,000	58,000	100,000
2028 (W)	-26,000	64,000	-130,000	-8,500	83,000	-16,000	87,000
2029 (C)	-30,000	43,000	-160,000	-5,800	75,000	-77,000	10,000
2030 (C)	-39,000	25,000	-160,000	-2,900	69,000	-100,000	-92,000
2031 (AN)	13,000	90,000	-120,000	-3,500	73,000	56,000	-37,000
2032 (BN)	-27,000	31,000	-130,000	-3,100	72,000	-62,000	-99,000
2033 (AN)	7,600	68,000	-120,000	-3,500	76,000	29,000	-70,000
2034 (D)	-5,300	61,000	-150,000	-3,700	77,000	-21,000	-91,000
2035 (W)	23,000	99,000	-120,000	-5,400	81,000	79,000	-12,000
2036 (W)	19,000	150,000	-84,000	-10,000	79,000	150,000	140,000
2037 (W)	-30,000	94,000	-120,000	-11,000	77,000	5,900	150,000
2038 (D)	-35,000	63,000	-150,000	-8,600	76,000	-56,000	90,000
2039 (W)	-16,000	90,000	-120,000	-7,600	75,000	17,000	110,000
2040 (D)	-34,000	45,000	-130,000	-6,100	65,000	-61,000	45,000
2041 (C)	-36,000	31,000	-150,000	-3,400	61,000	-94,000	-49,000
2042 (D)	-24,000	31,000	-140,000	-2,300	66,000	-72,000	-120,000
2043 (C)	-21,000	38,000	-140,000	-1,800	64,000	-59,000	-180,000
2044 (C)	-14,000	37,000	-130,000	-1,400	63,000	-50,000	-230,000
2045 (C)	5,300	44,000	-140,000	-1,200	65,000	-31,000	-260,000
2046 (AN)	34,000	88,000	-110,000	-1,900	72,000	78,000	-180,000
2047 (C)	-16,000	37,000	-130,000	-1,800	71,000	-42,000	-230,000
2048 (W)	36,000	120,000	-110,000	-3,100	76,000	120,000	-110,000
2049 (W)	4,400	90,000	-120,000	-4,400	82,000	47,000	-60,000
2050 (W)	-8,600	72,000	-130,000	-5,000	81,000	4,000	-56,000
2051 (W)	26,000	150,000	-85,000	-8,700	78,000	160,000	100,000
2052 (W)	-27,000	68,000	-130,000	-9,000	78,000	-19,000	81,000
2053 (AN)	-20,000	70,000	-120,000	-7,800	73,000	-2,600	79,000
2054 (D)	-33,000	45,000	-130,000	-5,800	63,000	-61,000	18,000
2055 (D)	-14,000	60,000	-150,000	-4,500	69,000	-43,000	-25,000
2056 (AN)	1,800	91,000	-120,000	-4,800	72,000	37,000	11,000
2057 (BN)	-5,800	84,000	-150,000	-5,800	74,000	-4,100	7,200
2058 (AN)	3,700	85,000	-100,000	-6,400	67,000	46,000	53,000
2059 (W)	1,300	100,000	-120,000	-9,000	72,000	47,000	100,000
2060 (D)	-47,000	32,000	-140,000	-5,500	69,000	-94,000	6,300
2061 (C)	-18,000	43,000	-160,000	-3,700	67,000	-75,000	-69,000
2062 (D)	-20,000	34,000	-140,000	-2,500	67,000	-63,000	-130,000
2063 (BN)	8,600	74,000	-110,000	-2,900	67,000	37,000	-95,000
2064 (W)	3,600	65,000	-110,000	-4,000	75,000	30,000	-65,000
2065 (BN)	-30,000	31,000	-130,000	-3,500	74,000	-62,000	-130,000

Red Bluff Subbasin Projected (Future Land Use) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-12,000	47,000	-160,000	-2,600	79,000	-47,000	-170,000
2067 (C)		-22,000	26,000	-160,000	-1,400	75,000	-82,000	-260,000
2068 (C)		-1,000	54,000	-160,000	-1,000	70,000	-42,000	-300,000
2069 (BN)		21,000	64,000	-140,000	-1,100	74,000	19,000	-280,000
2070 (W)		40,000	110,000	-120,000	-2,500	84,000	100,000	-180,000
2071 (BN)		-27,000	30,000	-150,000	-1,800	81,000	-65,000	-240,000
2072 (W)		28,000	95,000	-110,000	-2,800	85,000	93,000	-150,000
Average (2022-2072)		-9,300	68,000	-130,000	-4,800	74,000	-2,900	
2022-2072	W	1,300	97,000	-120,000	-6,800	81,000		
	AN	4,800	83,000	-120,000	-4,800	73,000		
	BN	-17,000	49,000	-140,000	-3,300	74,000		
	D	-25,000	46,000	-140,000	-4,600	70,000		
	C	-19,000	38,000	-150,000	-2,400	68,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Net Stream Seepage (net flows as acre-feet, rounded)

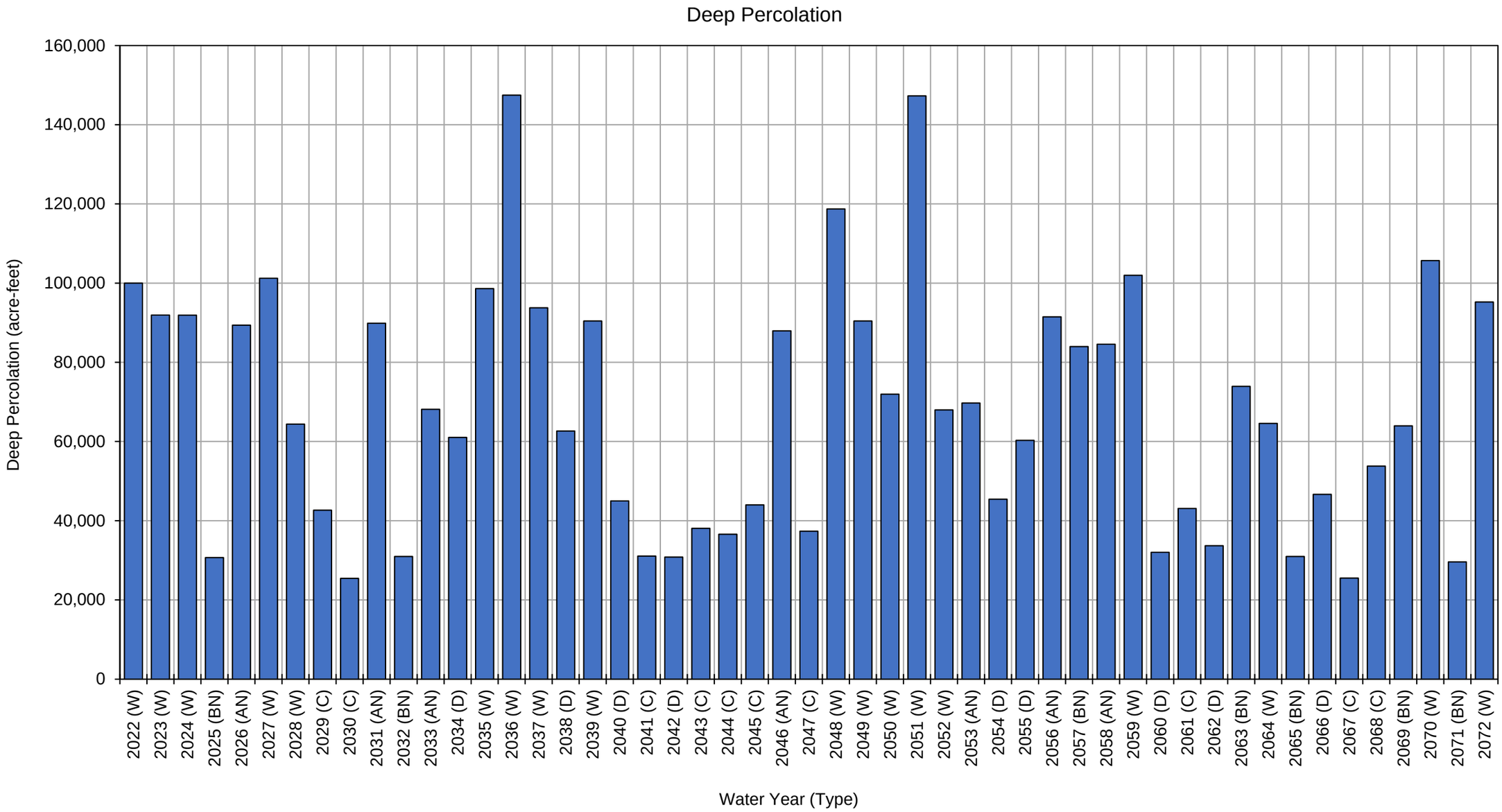
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	-7,000
2023 (W)	-21,000
2024 (W)	-22,000
2025 (BN)	-58,000
2026 (AN)	-5,600
2027 (W)	-47
2028 (W)	-26,000
2029 (C)	-30,000
2030 (C)	-39,000
2031 (AN)	13,000
2032 (BN)	-27,000
2033 (AN)	7,600
2034 (D)	-5,300
2035 (W)	23,000
2036 (W)	19,000
2037 (W)	-30,000
2038 (D)	-35,000
2039 (W)	-16,000
2040 (D)	-34,000
2041 (C)	-36,000
2042 (D)	-24,000
2043 (C)	-21,000
2044 (C)	-14,000
2045 (C)	5,300
2046 (AN)	34,000
2047 (C)	-16,000
2048 (W)	36,000
2049 (W)	4,400
2050 (W)	-8,600
2051 (W)	26,000
2052 (W)	-27,000
2053 (AN)	-20,000
2054 (D)	-33,000
2055 (D)	-14,000
2056 (AN)	1,800
2057 (BN)	-5,800
2058 (AN)	3,700
2059 (W)	1,300
2060 (D)	-47,000
2061 (C)	-18,000
2062 (D)	-20,000
2063 (BN)	8,600

Red Bluff Subbasin Projected (Future Land Use) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		3,600
2065 (BN)		-30,000
2066 (D)		-12,000
2067 (C)		-22,000
2068 (C)		-1,000
2069 (BN)		21,000
2070 (W)		40,000
2071 (BN)		-27,000
2072 (W)		28,000
Average (2022-2072)		-9,300
2022-2072	W	1,300
	AN	4,800
	BN	-17,000
	D	-25,000
	C	-19,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Deep Percolation from the SWS (acre-feet, rounded)

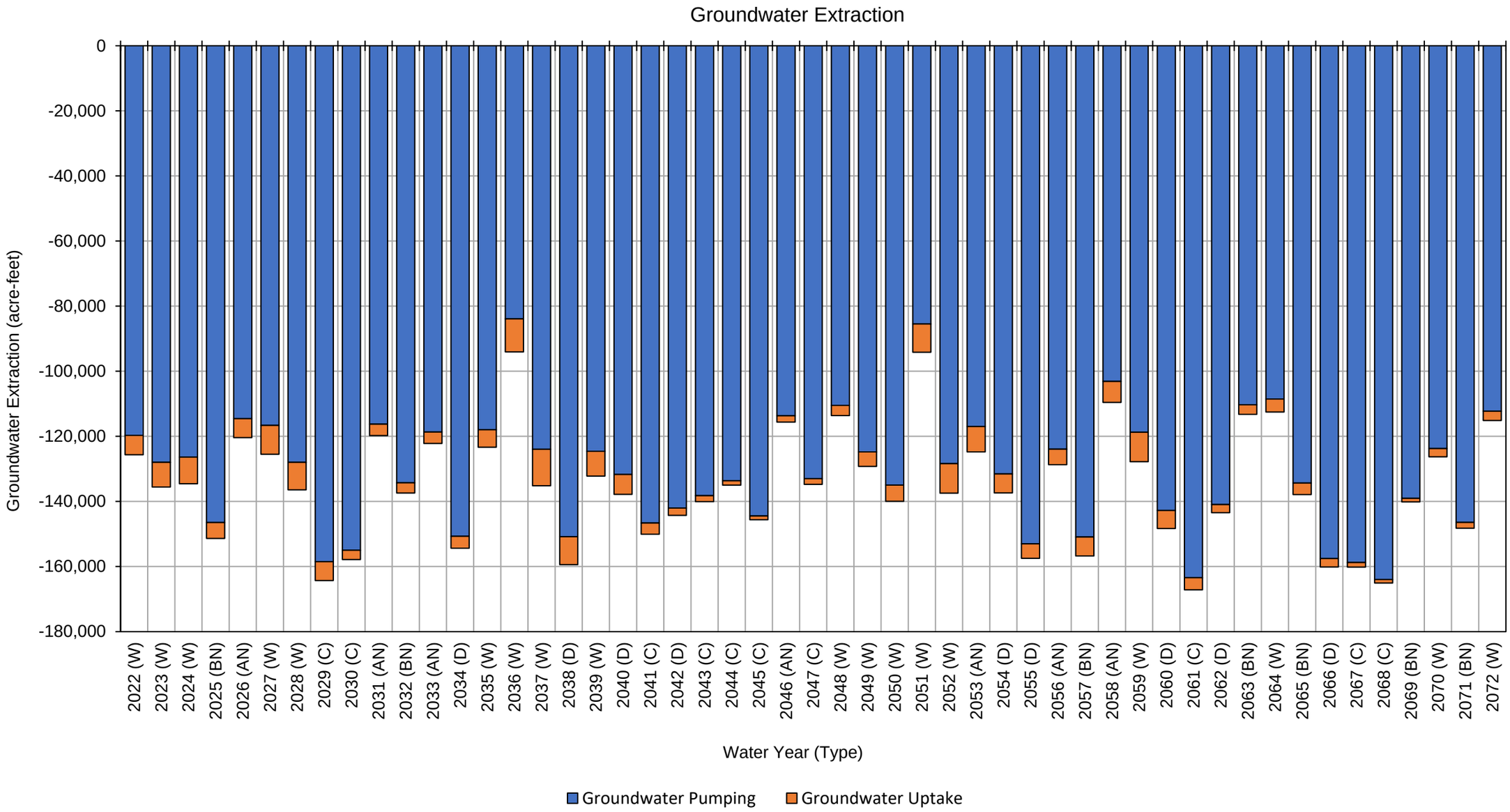
WY (Type)	Deep Percolation from the SWS
2022 (W)	100,000
2023 (W)	92,000
2024 (W)	92,000
2025 (BN)	31,000
2026 (AN)	89,000
2027 (W)	100,000
2028 (W)	64,000
2029 (C)	43,000
2030 (C)	25,000
2031 (AN)	90,000
2032 (BN)	31,000
2033 (AN)	68,000
2034 (D)	61,000
2035 (W)	99,000
2036 (W)	150,000
2037 (W)	94,000
2038 (D)	63,000
2039 (W)	90,000
2040 (D)	45,000
2041 (C)	31,000
2042 (D)	31,000
2043 (C)	38,000
2044 (C)	37,000
2045 (C)	44,000
2046 (AN)	88,000
2047 (C)	37,000
2048 (W)	120,000
2049 (W)	90,000
2050 (W)	72,000
2051 (W)	150,000
2052 (W)	68,000
2053 (AN)	70,000
2054 (D)	45,000
2055 (D)	60,000
2056 (AN)	91,000
2057 (BN)	84,000
2058 (AN)	85,000
2059 (W)	100,000
2060 (D)	32,000
2061 (C)	43,000
2062 (D)	34,000
2063 (BN)	74,000

Red Bluff Subbasin Projected (Future Land Use) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		65,000
2065 (BN)		31,000
2066 (D)		47,000
2067 (C)		26,000
2068 (C)		54,000
2069 (BN)		64,000
2070 (W)		110,000
2071 (BN)		30,000
2072 (W)		95,000
Average (2022-2072)		68,000
2022-2072	W	97,000
	AN	83,000
	BN	49,000
	D	46,000
	C	38,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Groundwater Extractions (acre-feet, rounded)

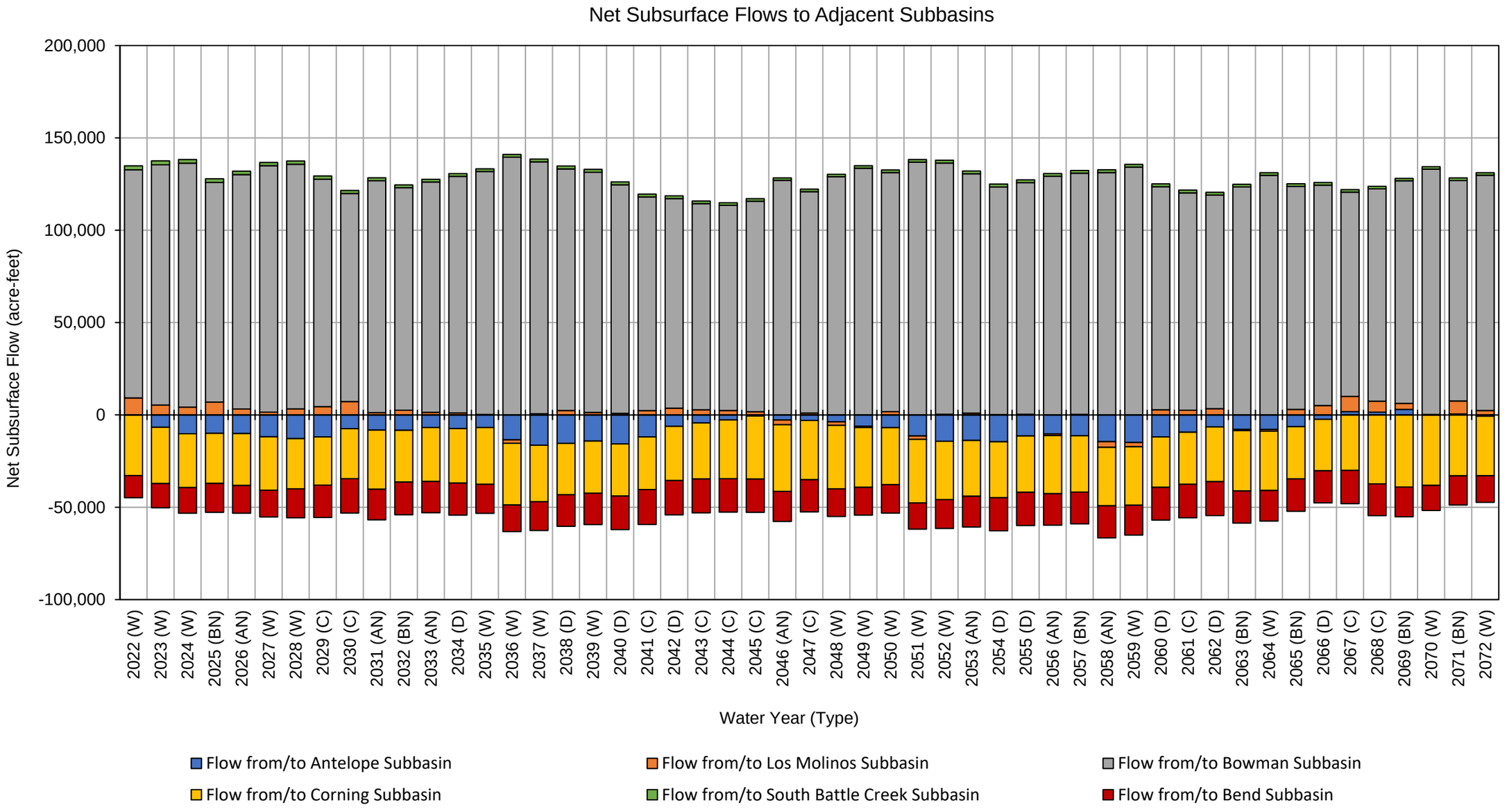
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-120,000	-5,900	-130,000
2023 (W)	-130,000	-7,600	-140,000
2024 (W)	-130,000	-8,200	-130,000
2025 (BN)	-150,000	-4,900	-150,000
2026 (AN)	-110,000	-5,800	-120,000
2027 (W)	-120,000	-8,900	-130,000
2028 (W)	-130,000	-8,500	-140,000
2029 (C)	-160,000	-5,800	-160,000
2030 (C)	-160,000	-2,900	-160,000
2031 (AN)	-120,000	-3,500	-120,000
2032 (BN)	-130,000	-3,100	-140,000
2033 (AN)	-120,000	-3,500	-120,000
2034 (D)	-150,000	-3,700	-150,000
2035 (W)	-120,000	-5,400	-120,000
2036 (W)	-84,000	-10,000	-94,000
2037 (W)	-120,000	-11,000	-140,000
2038 (D)	-150,000	-8,600	-160,000
2039 (W)	-120,000	-7,600	-130,000
2040 (D)	-130,000	-6,100	-140,000
2041 (C)	-150,000	-3,400	-150,000
2042 (D)	-140,000	-2,300	-140,000
2043 (C)	-140,000	-1,800	-140,000
2044 (C)	-130,000	-1,400	-140,000
2045 (C)	-140,000	-1,200	-150,000
2046 (AN)	-110,000	-1,900	-120,000
2047 (C)	-130,000	-1,800	-130,000
2048 (W)	-110,000	-3,100	-110,000
2049 (W)	-120,000	-4,400	-130,000
2050 (W)	-130,000	-5,000	-140,000
2051 (W)	-85,000	-8,700	-94,000
2052 (W)	-130,000	-9,000	-140,000
2053 (AN)	-120,000	-7,800	-120,000
2054 (D)	-130,000	-5,800	-140,000
2055 (D)	-150,000	-4,500	-160,000
2056 (AN)	-120,000	-4,800	-130,000
2057 (BN)	-150,000	-5,800	-160,000
2058 (AN)	-100,000	-6,400	-110,000
2059 (W)	-120,000	-9,000	-130,000
2060 (D)	-140,000	-5,500	-150,000
2061 (C)	-160,000	-3,700	-170,000
2062 (D)	-140,000	-2,500	-140,000
2063 (BN)	-110,000	-2,900	-110,000

Red Bluff Subbasin Projected (Future Land Use) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-110,000	-4,000	-110,000
2065 (BN)		-130,000	-3,500	-140,000
2066 (D)		-160,000	-2,600	-160,000
2067 (C)		-160,000	-1,400	-160,000
2068 (C)		-160,000	-1,000	-170,000
2069 (BN)		-140,000	-1,100	-140,000
2070 (W)		-120,000	-2,500	-130,000
2071 (BN)		-150,000	-1,800	-150,000
2072 (W)		-110,000	-2,800	-120,000
Average (2022-2072)		-130,000	-4,800	-140,000
2022-2072	W	-120,000	-6,800	-120,000
	AN	-120,000	-4,800	-120,000
	BN	-140,000	-3,300	-140,000
	D	-140,000	-4,600	-150,000
	C	-150,000	-2,400	-150,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

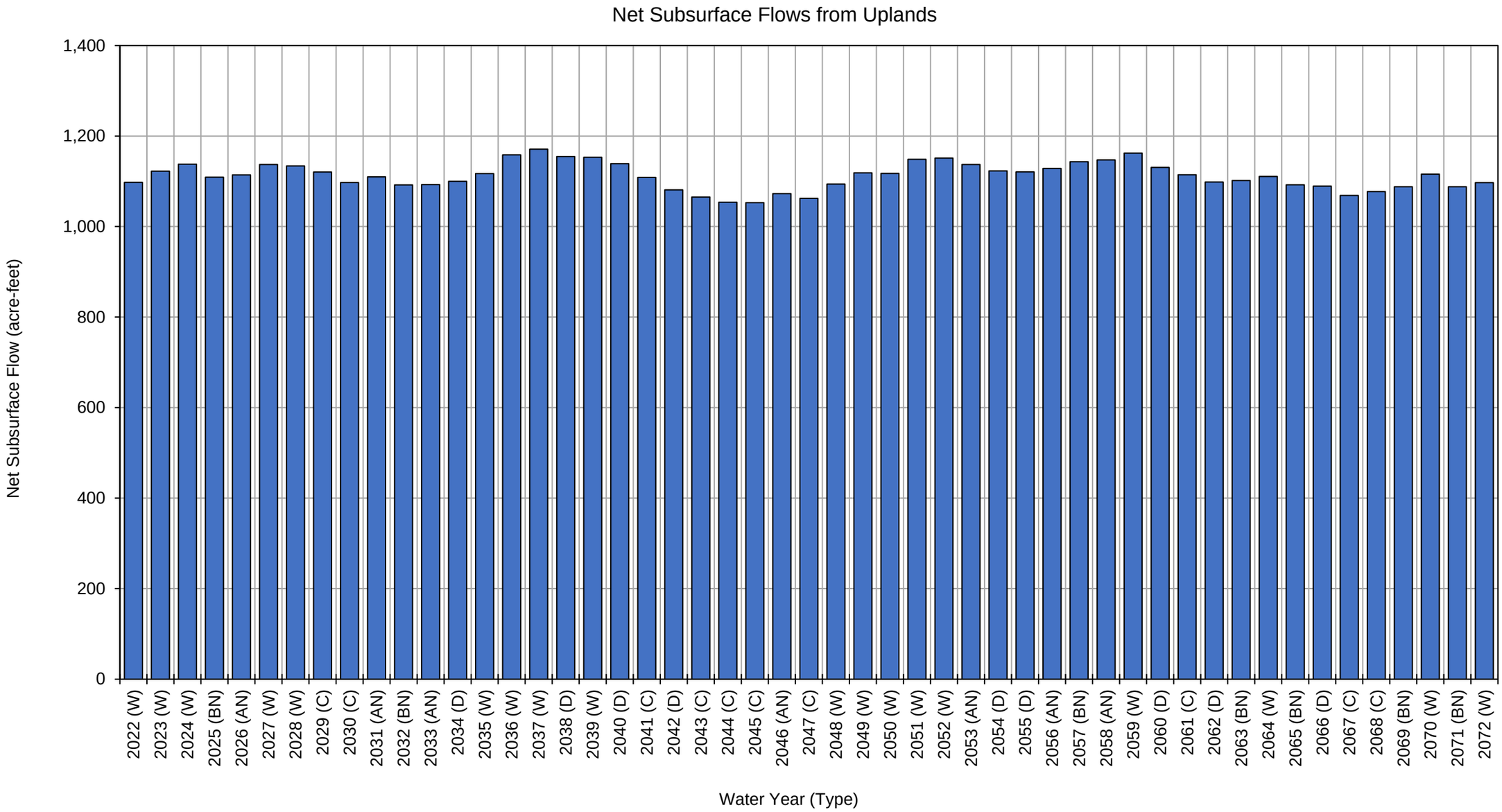
WY (Type)	Flow from/to Antelope Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bowman Subbasin	Flow from/to Corning Subbasin	Flow from/to South Battle Creek Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-88	9,200	120,000	-33,000	2,200	-12,000	90,000
2023 (W)	-6,700	5,300	130,000	-30,000	2,100	-13,000	87,000
2024 (W)	-10,000	4,200	130,000	-29,000	2,000	-14,000	85,000
2025 (BN)	-10,000	6,900	120,000	-27,000	2,000	-16,000	75,000
2026 (AN)	-10,000	3,200	130,000	-28,000	1,900	-15,000	79,000
2027 (W)	-12,000	1,500	130,000	-29,000	1,800	-15,000	81,000
2028 (W)	-13,000	3,200	130,000	-27,000	1,700	-16,000	82,000
2029 (C)	-12,000	4,400	120,000	-26,000	1,700	-18,000	74,000
2030 (C)	-7,500	7,200	110,000	-27,000	1,700	-19,000	68,000
2031 (AN)	-8,200	1,200	130,000	-32,000	1,600	-17,000	72,000
2032 (BN)	-8,300	2,600	120,000	-28,000	1,600	-18,000	70,000
2033 (AN)	-6,900	1,400	120,000	-29,000	1,500	-17,000	75,000
2034 (D)	-7,400	1,100	130,000	-29,000	1,500	-17,000	76,000
2035 (W)	-6,900	240	130,000	-31,000	1,400	-16,000	80,000
2036 (W)	-14,000	-1,800	140,000	-33,000	1,500	-14,000	78,000
2037 (W)	-16,000	630	140,000	-31,000	1,500	-16,000	76,000
2038 (D)	-15,000	2,400	130,000	-28,000	1,600	-17,000	74,000
2039 (W)	-14,000	1,300	130,000	-28,000	1,600	-17,000	74,000
2040 (D)	-16,000	830	120,000	-28,000	1,600	-18,000	64,000
2041 (C)	-12,000	2,300	120,000	-29,000	1,500	-19,000	60,000
2042 (D)	-6,200	3,600	110,000	-29,000	1,500	-19,000	64,000
2043 (C)	-4,300	2,800	110,000	-30,000	1,400	-18,000	63,000
2044 (C)	-2,700	2,400	110,000	-32,000	1,400	-18,000	62,000
2045 (C)	-590	1,700	110,000	-34,000	1,400	-18,000	64,000
2046 (AN)	-2,800	-2,600	130,000	-36,000	1,300	-16,000	71,000
2047 (C)	-3,000	970	120,000	-32,000	1,300	-17,000	70,000
2048 (W)	-3,800	-1,900	130,000	-34,000	1,300	-15,000	75,000
2049 (W)	-6,100	-770	130,000	-32,000	1,400	-15,000	81,000
2050 (W)	-6,900	1,700	130,000	-31,000	1,400	-15,000	79,000
2051 (W)	-11,000	-1,800	140,000	-34,000	1,400	-14,000	76,000
2052 (W)	-14,000	350	140,000	-32,000	1,500	-16,000	76,000
2053 (AN)	-14,000	940	130,000	-30,000	1,500	-17,000	71,000
2054 (D)	-15,000	180	120,000	-30,000	1,600	-18,000	62,000
2055 (D)	-11,000	330	130,000	-31,000	1,500	-18,000	67,000
2056 (AN)	-10,000	-800	130,000	-32,000	1,500	-17,000	71,000
2057 (BN)	-11,000	270	130,000	-31,000	1,500	-17,000	73,000
2058 (AN)	-15,000	-3,100	130,000	-32,000	1,500	-17,000	66,000
2059 (W)	-15,000	-2,300	130,000	-32,000	1,500	-16,000	71,000
2060 (D)	-12,000	2,800	120,000	-27,000	1,500	-18,000	68,000
2061 (C)	-9,400	2,500	120,000	-28,000	1,500	-18,000	66,000
2062 (D)	-6,500	3,400	120,000	-30,000	1,500	-18,000	66,000
2063 (BN)	-7,900	-620	120,000	-33,000	1,400	-17,000	66,000
2064 (W)	-7,900	-840	130,000	-32,000	1,400	-17,000	74,000
2065 (BN)	-6,400	3,000	120,000	-28,000	1,400	-18,000	73,000
2066 (D)	-2,400	5,000	120,000	-28,000	1,400	-17,000	78,000
2067 (C)	1,800	8,200	110,000	-30,000	1,400	-18,000	74,000
2068 (C)	1,500	6,000	110,000	-37,000	1,400	-17,000	69,000
2069 (BN)	3,000	3,200	120,000	-39,000	1,400	-16,000	73,000
2070 (W)	-83	230	130,000	-38,000	1,300	-14,000	83,000
2071 (BN)	500	7,000	120,000	-33,000	1,400	-16,000	80,000
2072 (W)	-710	2,400	130,000	-32,000	1,400	-14,000	84,000

Red Bluff Subbasin Projected (Future Land Use) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Antelope Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bowman Subbasin	Flow from/to Corning Subbasin	Flow from/to South Battle Creek Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
Average (2022-2072)		-8,000	2,000	130,000	-31,000	1,500	-16,000	73,000
2022-2072	W	-8,800	1,200	130,000	-32,000	1,600	-15,000	80,000
	AN	-9,500	44	130,000	-31,000	1,500	-17,000	72,000
	BN	-5,800	3,200	120,000	-31,000	1,500	-17,000	73,000
	D	-10,000	2,200	120,000	-29,000	1,500	-18,000	69,000
	C	-4,800	3,900	120,000	-31,000	1,500	-18,000	67,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

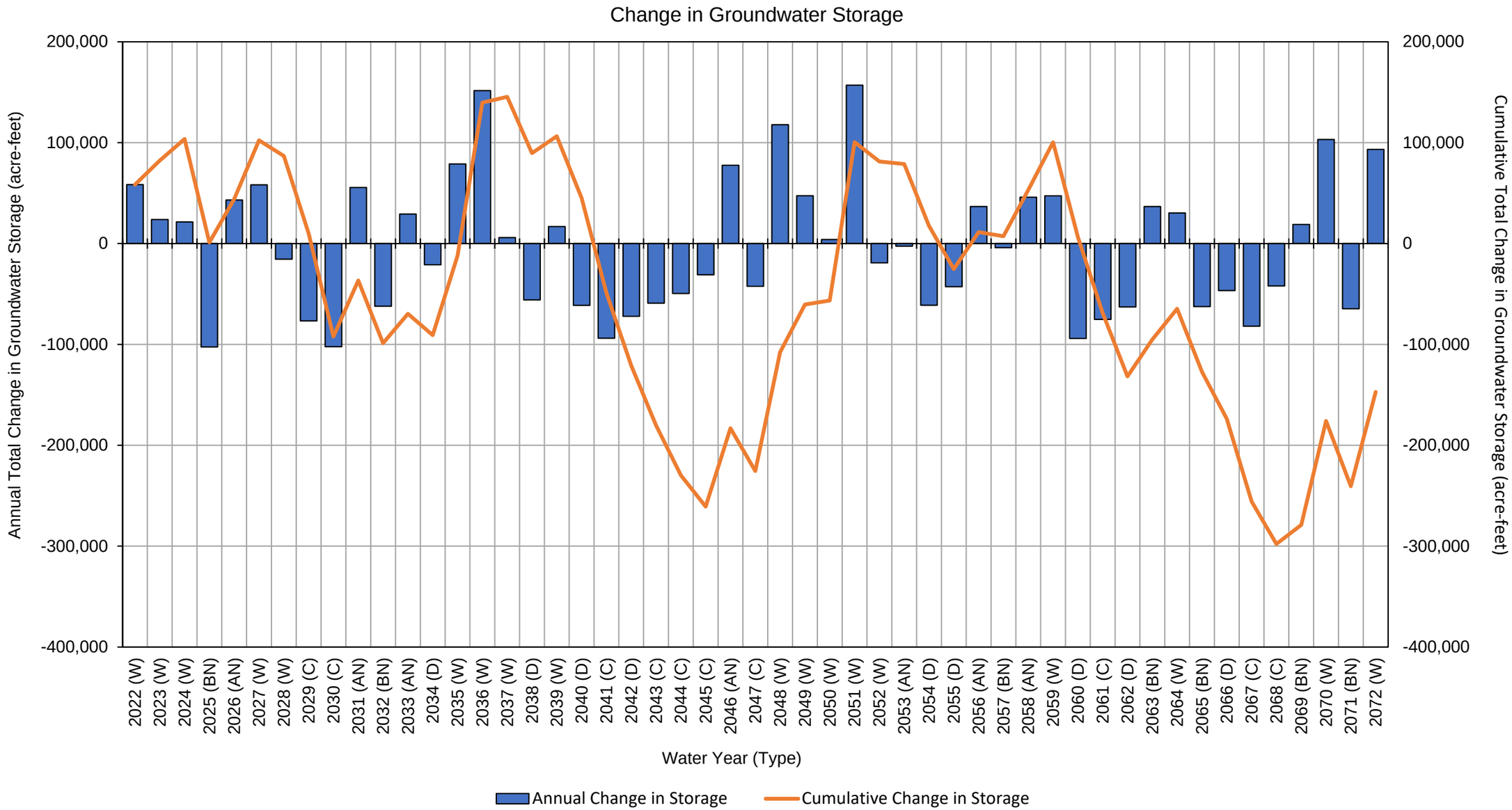
WY (Type)	Subsurface Flows from Uplands
2022 (W)	1,100
2023 (W)	1,100
2024 (W)	1,100
2025 (BN)	1,100
2026 (AN)	1,100
2027 (W)	1,100
2028 (W)	1,100
2029 (C)	1,100
2030 (C)	1,100
2031 (AN)	1,100
2032 (BN)	1,100
2033 (AN)	1,100
2034 (D)	1,100
2035 (W)	1,100
2036 (W)	1,200
2037 (W)	1,200
2038 (D)	1,200
2039 (W)	1,200
2040 (D)	1,100
2041 (C)	1,100
2042 (D)	1,100
2043 (C)	1,100
2044 (C)	1,100
2045 (C)	1,100
2046 (AN)	1,100
2047 (C)	1,100
2048 (W)	1,100
2049 (W)	1,100
2050 (W)	1,100
2051 (W)	1,100
2052 (W)	1,200
2053 (AN)	1,100
2054 (D)	1,100
2055 (D)	1,100
2056 (AN)	1,100
2057 (BN)	1,100
2058 (AN)	1,100
2059 (W)	1,200
2060 (D)	1,100
2061 (C)	1,100
2062 (D)	1,100
2063 (BN)	1,100

Red Bluff Subbasin Projected (Future Land Use) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		1,100
2065 (BN)		1,100
2066 (D)		1,100
2067 (C)		1,100
2068 (C)		1,100
2069 (BN)		1,100
2070 (W)		1,100
2071 (BN)		1,100
2072 (W)		1,100
Average (2022-2072)		1,100
2022-2072	W	1,100
	AN	1,100
	BN	1,100
	D	1,100
	C	1,100

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use)

Red Bluff Subbasin Projected (Future Land Use) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	58,000	58,000
2023 (W)	24,000	82,000
2024 (W)	21,000	100,000
2025 (BN)	-100,000	1,000
2026 (AN)	43,000	44,000
2027 (W)	58,000	100,000
2028 (W)	-16,000	87,000
2029 (C)	-77,000	10,000
2030 (C)	-100,000	-92,000
2031 (AN)	56,000	-37,000
2032 (BN)	-62,000	-99,000
2033 (AN)	29,000	-70,000
2034 (D)	-21,000	-91,000
2035 (W)	79,000	-12,000
2036 (W)	150,000	140,000
2037 (W)	5,900	150,000
2038 (D)	-56,000	90,000
2039 (W)	17,000	110,000
2040 (D)	-61,000	45,000
2041 (C)	-94,000	-49,000
2042 (D)	-72,000	-120,000
2043 (C)	-59,000	-180,000
2044 (C)	-50,000	-230,000
2045 (C)	-31,000	-260,000
2046 (AN)	78,000	-180,000
2047 (C)	-42,000	-230,000
2048 (W)	120,000	-110,000
2049 (W)	47,000	-60,000
2050 (W)	4,000	-56,000
2051 (W)	160,000	100,000
2052 (W)	-19,000	81,000
2053 (AN)	-2,600	79,000
2054 (D)	-61,000	18,000
2055 (D)	-43,000	-25,000
2056 (AN)	37,000	11,000
2057 (BN)	-4,100	7,200
2058 (AN)	46,000	53,000
2059 (W)	47,000	100,000
2060 (D)	-94,000	6,300
2061 (C)	-75,000	-69,000
2062 (D)	-63,000	-130,000
2063 (BN)	37,000	-95,000

Red Bluff Subbasin Projected (Future Land Use) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		30,000	-65,000
2065 (BN)		-62,000	-130,000
2066 (D)		-47,000	-170,000
2067 (C)		-82,000	-260,000
2068 (C)		-42,000	-300,000
2069 (BN)		19,000	-280,000
2070 (W)		100,000	-180,000
2071 (BN)		-65,000	-240,000
2072 (W)		93,000	-150,000
Average (2022-2072)		-2,900	
2022-2072	W		
	AN		
	BN		
	D		
	C		

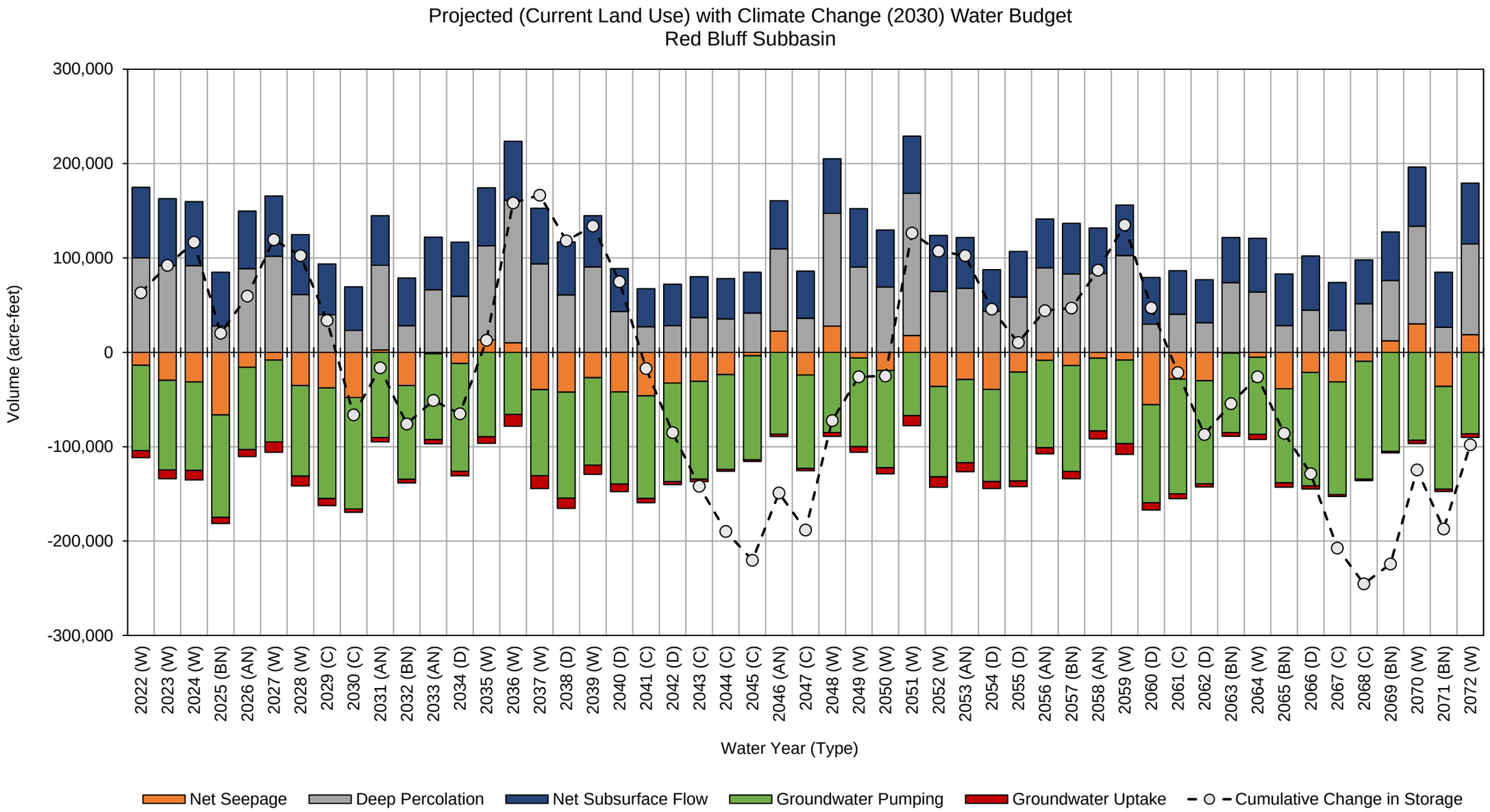
Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX D-4

Detailed Red Bluff Subbasin Water Budget Results:

Projected (Current Land Use) with Climate Change (2030) Model Results


Projected (Current Land Use) with Climate Change (2030) Water Budget
Red Bluff Subbasin
Volume (acre-feet)
300,000
200,000
100,000
0
-100,000
-200,000
-300,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
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2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2030) Water Budget Summary (acre-feet, rounded)

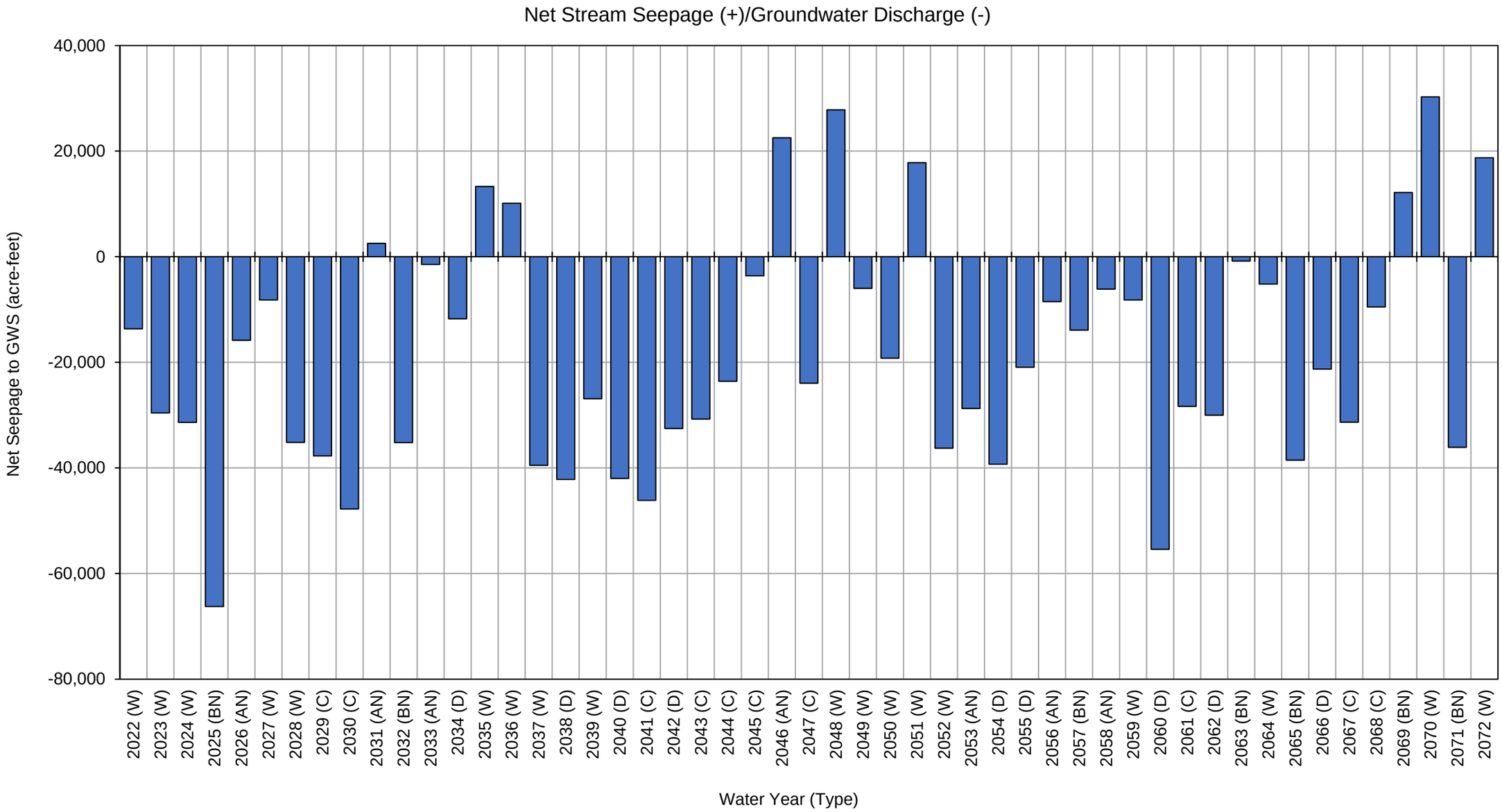
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	-14,000	100,000	-91,000	-7,400	75,000	63,000	63,000
2023 (W)	-30,000	92,000	-95,000	-9,300	71,000	29,000	92,000
2024 (W)	-31,000	92,000	-94,000	-10,000	68,000	25,000	120,000
2025 (BN)	-66,000	28,000	-110,000	-6,500	57,000	-96,000	20,000
2026 (AN)	-16,000	89,000	-87,000	-7,400	61,000	39,000	60,000
2027 (W)	-8,200	100,000	-87,000	-11,000	64,000	60,000	120,000
2028 (W)	-35,000	61,000	-96,000	-10,000	64,000	-17,000	100,000
2029 (C)	-38,000	40,000	-120,000	-7,400	54,000	-69,000	34,000
2030 (C)	-48,000	23,000	-120,000	-3,600	46,000	-100,000	-66,000
2031 (AN)	2,500	90,000	-90,000	-4,600	53,000	50,000	-16,000
2032 (BN)	-35,000	28,000	-99,000	-3,900	51,000	-60,000	-76,000
2033 (AN)	-1,500	66,000	-91,000	-4,500	56,000	25,000	-51,000
2034 (D)	-12,000	59,000	-110,000	-4,800	57,000	-14,000	-65,000
2035 (W)	13,000	100,000	-89,000	-7,000	62,000	78,000	13,000
2036 (W)	10,000	150,000	-66,000	-12,000	63,000	150,000	160,000
2037 (W)	-40,000	94,000	-91,000	-14,000	59,000	8,300	170,000
2038 (D)	-42,000	61,000	-110,000	-11,000	56,000	-48,000	120,000
2039 (W)	-27,000	91,000	-93,000	-9,700	54,000	16,000	130,000
2040 (D)	-42,000	43,000	-98,000	-8,100	45,000	-59,000	75,000
2041 (C)	-46,000	27,000	-110,000	-4,500	40,000	-92,000	-17,000
2042 (D)	-33,000	28,000	-100,000	-3,000	44,000	-68,000	-85,000
2043 (C)	-31,000	37,000	-100,000	-2,500	43,000	-57,000	-140,000
2044 (C)	-24,000	35,000	-100,000	-1,900	43,000	-48,000	-190,000
2045 (C)	-3,600	42,000	-110,000	-1,700	43,000	-31,000	-220,000
2046 (AN)	23,000	87,000	-87,000	-2,500	51,000	71,000	-150,000
2047 (C)	-24,000	36,000	-99,000	-2,300	50,000	-39,000	-190,000
2048 (W)	28,000	120,000	-85,000	-4,200	58,000	120,000	-72,000
2049 (W)	-6,000	90,000	-94,000	-5,900	62,000	46,000	-26,000
2050 (W)	-19,000	69,000	-100,000	-6,500	60,000	890	-25,000
2051 (W)	18,000	150,000	-67,000	-11,000	61,000	150,000	130,000
2052 (W)	-36,000	65,000	-96,000	-11,000	59,000	-19,000	110,000
2053 (AN)	-29,000	68,000	-88,000	-9,500	54,000	-4,800	100,000
2054 (D)	-39,000	43,000	-98,000	-7,400	44,000	-57,000	46,000
2055 (D)	-21,000	59,000	-120,000	-5,900	48,000	-35,000	10,000
2056 (AN)	-8,500	90,000	-93,000	-6,300	52,000	34,000	44,000
2057 (BN)	-14,000	83,000	-110,000	-7,700	54,000	2,700	47,000
2058 (AN)	-6,100	84,000	-77,000	-8,500	48,000	40,000	87,000
2059 (W)	-8,200	100,000	-89,000	-11,000	53,000	48,000	140,000
2060 (D)	-55,000	30,000	-100,000	-7,600	50,000	-88,000	47,000
2061 (C)	-28,000	40,000	-120,000	-5,100	46,000	-69,000	-21,000
2062 (D)	-30,000	31,000	-110,000	-3,300	46,000	-66,000	-87,000
2063 (BN)	-810	74,000	-84,000	-3,900	48,000	33,000	-54,000
2064 (W)	-5,200	64,000	-82,000	-5,400	57,000	28,000	-26,000
2065 (BN)	-39,000	28,000	-100,000	-4,700	55,000	-60,000	-86,000

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2030) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-21,000	45,000	-120,000	-3,300	57,000	-43,000	-130,000
2067 (C)		-31,000	23,000	-120,000	-1,900	51,000	-79,000	-210,000
2068 (C)		-9,500	52,000	-120,000	-1,500	46,000	-38,000	-250,000
2069 (BN)		12,000	64,000	-100,000	-1,600	51,000	21,000	-220,000
2070 (W)		30,000	100,000	-93,000	-3,400	63,000	100,000	-120,000
2071 (BN)		-36,000	27,000	-110,000	-2,400	58,000	-63,000	-190,000
2072 (W)		19,000	96,000	-86,000	-3,800	65,000	89,000	-98,000
Average (2022-2072)		-18,000	67,000	-99,000	-6,200	54,000	-1,900	
2022-2072	W	-7,800	97,000	-89,000	-8,500	62,000		
	AN	-5,100	82,000	-88,000	-6,200	53,000		
	BN	-26,000	47,000	-100,000	-4,400	53,000		
	D	-33,000	44,000	-110,000	-6,000	50,000		
	C	-28,000	36,000	-110,000	-3,200	46,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2030) Net Stream Seepage (net flows as acre-feet, rounded)

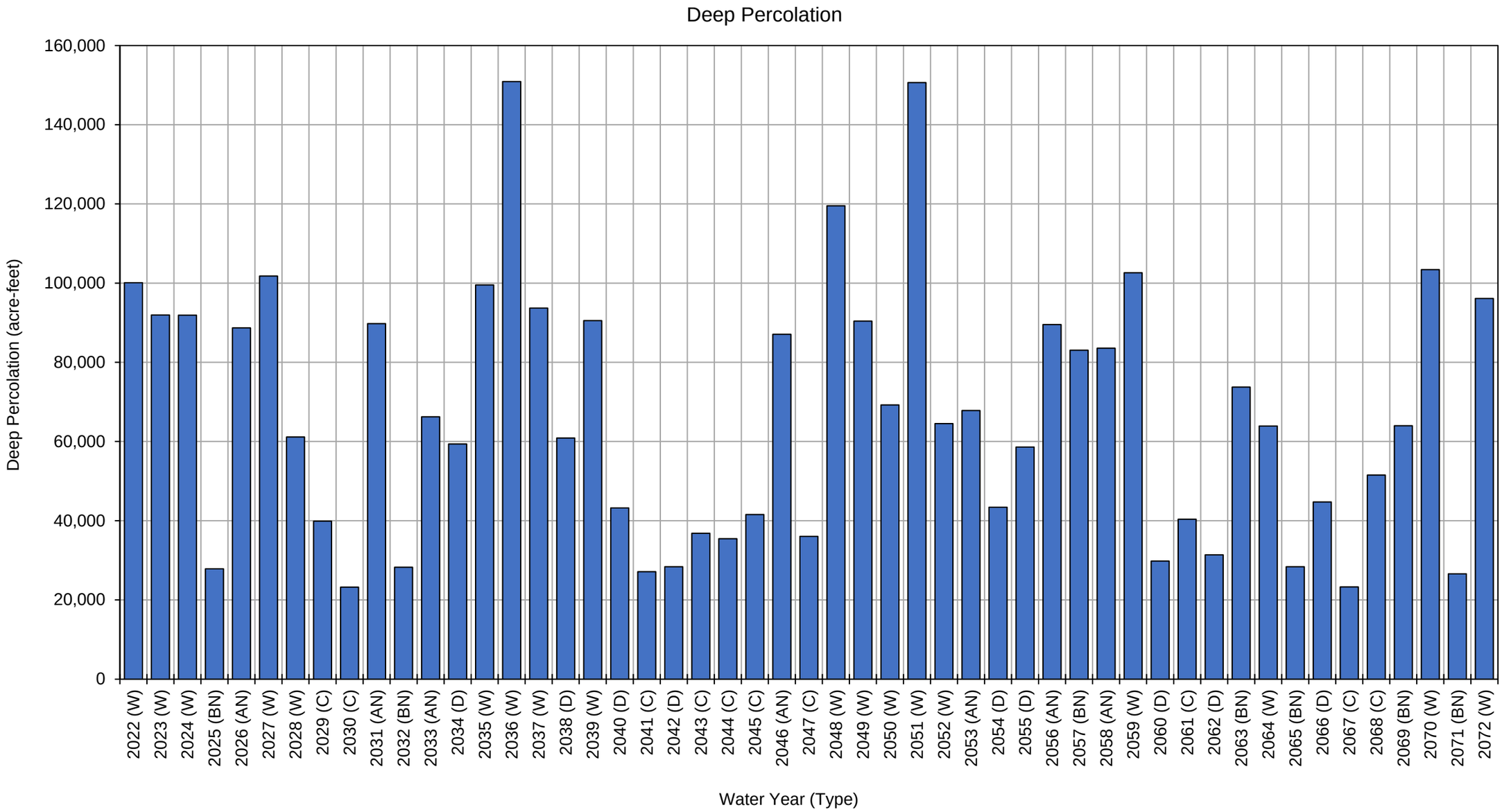
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	-14,000
2023 (W)	-30,000
2024 (W)	-31,000
2025 (BN)	-66,000
2026 (AN)	-16,000
2027 (W)	-8,200
2028 (W)	-35,000
2029 (C)	-38,000
2030 (C)	-48,000
2031 (AN)	2,500
2032 (BN)	-35,000
2033 (AN)	-1,500
2034 (D)	-12,000
2035 (W)	13,000
2036 (W)	10,000
2037 (W)	-40,000
2038 (D)	-42,000
2039 (W)	-27,000
2040 (D)	-42,000
2041 (C)	-46,000
2042 (D)	-33,000
2043 (C)	-31,000
2044 (C)	-24,000
2045 (C)	-3,600
2046 (AN)	23,000
2047 (C)	-24,000
2048 (W)	28,000
2049 (W)	-6,000
2050 (W)	-19,000
2051 (W)	18,000
2052 (W)	-36,000
2053 (AN)	-29,000
2054 (D)	-39,000
2055 (D)	-21,000
2056 (AN)	-8,500
2057 (BN)	-14,000
2058 (AN)	-6,100
2059 (W)	-8,200
2060 (D)	-55,000
2061 (C)	-28,000
2062 (D)	-30,000
2063 (BN)	-810

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2030) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		-5,200
2065 (BN)		-39,000
2066 (D)		-21,000
2067 (C)		-31,000
2068 (C)		-9,500
2069 (BN)		12,000
2070 (W)		30,000
2071 (BN)		-36,000
2072 (W)		19,000
Average (2022-2072)		-18,000
2022-2072	W	-7,800
	AN	-5,100
	BN	-26,000
	D	-33,000
	C	-28,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2030) Deep Percolation from the SWS (acre-feet, rounded)

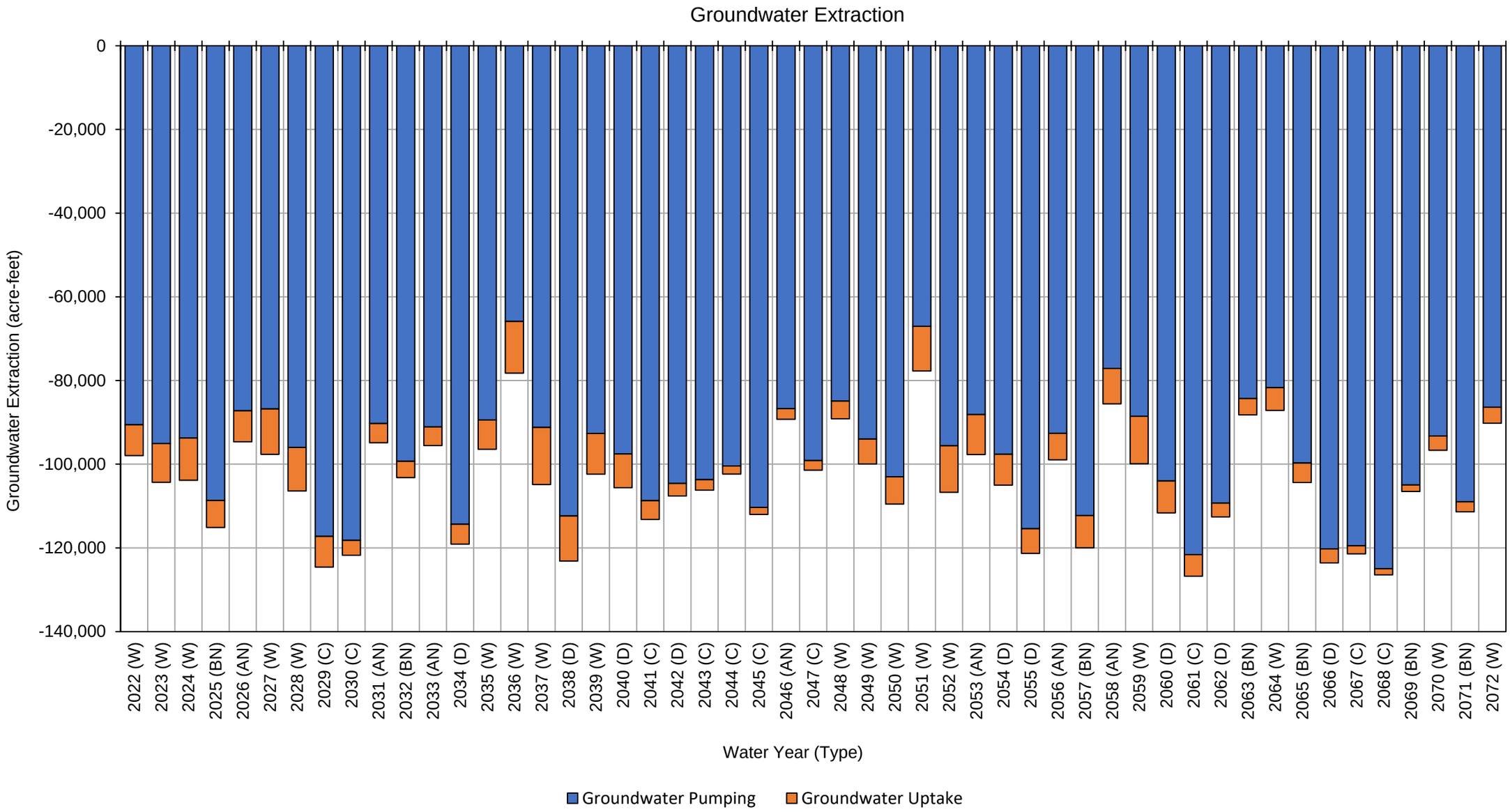
WY (Type)	Deep Percolation from the SWS
2022 (W)	100,000
2023 (W)	92,000
2024 (W)	92,000
2025 (BN)	28,000
2026 (AN)	89,000
2027 (W)	100,000
2028 (W)	61,000
2029 (C)	40,000
2030 (C)	23,000
2031 (AN)	90,000
2032 (BN)	28,000
2033 (AN)	66,000
2034 (D)	59,000
2035 (W)	100,000
2036 (W)	150,000
2037 (W)	94,000
2038 (D)	61,000
2039 (W)	91,000
2040 (D)	43,000
2041 (C)	27,000
2042 (D)	28,000
2043 (C)	37,000
2044 (C)	35,000
2045 (C)	42,000
2046 (AN)	87,000
2047 (C)	36,000
2048 (W)	120,000
2049 (W)	90,000
2050 (W)	69,000
2051 (W)	150,000
2052 (W)	65,000
2053 (AN)	68,000
2054 (D)	43,000
2055 (D)	59,000
2056 (AN)	90,000
2057 (BN)	83,000
2058 (AN)	84,000
2059 (W)	100,000
2060 (D)	30,000
2061 (C)	40,000
2062 (D)	31,000
2063 (BN)	74,000

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2030) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		64,000
2065 (BN)		28,000
2066 (D)		45,000
2067 (C)		23,000
2068 (C)		52,000
2069 (BN)		64,000
2070 (W)		100,000
2071 (BN)		27,000
2072 (W)		96,000
Average (2022-2072)		67,000
2022-2072	W	97,000
	AN	82,000
	BN	47,000
	D	44,000
	C	36,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2030) Groundwater Extractions (acre-feet, rounded)

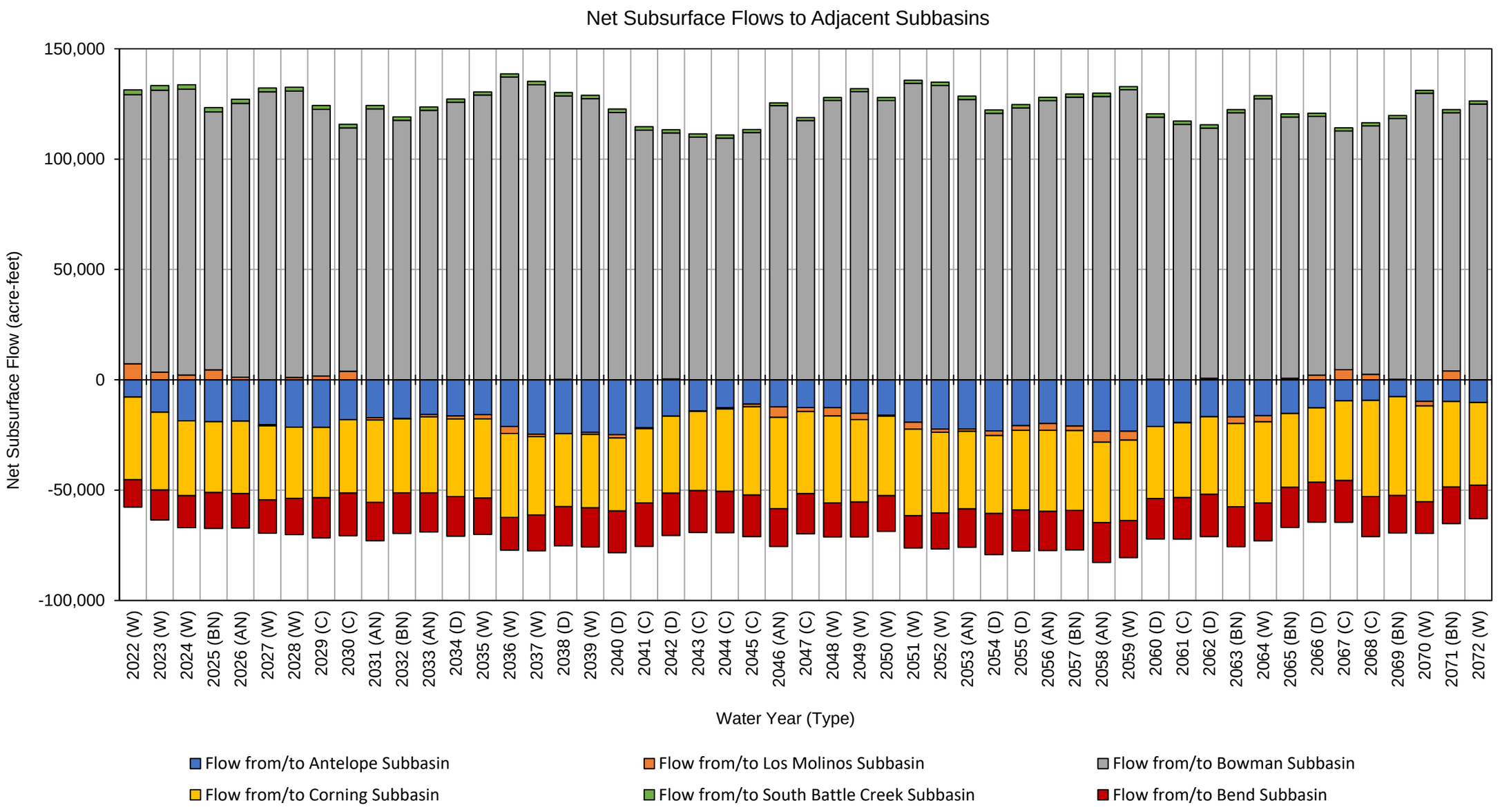
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-91,000	-7,400	-98,000
2023 (W)	-95,000	-9,300	-100,000
2024 (W)	-94,000	-10,000	-100,000
2025 (BN)	-110,000	-6,500	-120,000
2026 (AN)	-87,000	-7,400	-95,000
2027 (W)	-87,000	-11,000	-98,000
2028 (W)	-96,000	-10,000	-110,000
2029 (C)	-120,000	-7,400	-120,000
2030 (C)	-120,000	-3,600	-120,000
2031 (AN)	-90,000	-4,600	-95,000
2032 (BN)	-99,000	-3,900	-100,000
2033 (AN)	-91,000	-4,500	-96,000
2034 (D)	-110,000	-4,800	-120,000
2035 (W)	-89,000	-7,000	-96,000
2036 (W)	-66,000	-12,000	-78,000
2037 (W)	-91,000	-14,000	-100,000
2038 (D)	-110,000	-11,000	-120,000
2039 (W)	-93,000	-9,700	-100,000
2040 (D)	-98,000	-8,100	-110,000
2041 (C)	-110,000	-4,500	-110,000
2042 (D)	-100,000	-3,000	-110,000
2043 (C)	-100,000	-2,500	-110,000
2044 (C)	-100,000	-1,900	-100,000
2045 (C)	-110,000	-1,700	-110,000
2046 (AN)	-87,000	-2,500	-89,000
2047 (C)	-99,000	-2,300	-100,000
2048 (W)	-85,000	-4,200	-89,000
2049 (W)	-94,000	-5,900	-100,000
2050 (W)	-100,000	-6,500	-110,000
2051 (W)	-67,000	-11,000	-78,000
2052 (W)	-96,000	-11,000	-110,000
2053 (AN)	-88,000	-9,500	-98,000
2054 (D)	-98,000	-7,400	-110,000
2055 (D)	-120,000	-5,900	-120,000
2056 (AN)	-93,000	-6,300	-99,000
2057 (BN)	-110,000	-7,700	-120,000
2058 (AN)	-77,000	-8,500	-86,000
2059 (W)	-89,000	-11,000	-100,000
2060 (D)	-100,000	-7,600	-110,000
2061 (C)	-120,000	-5,100	-130,000
2062 (D)	-110,000	-3,300	-110,000
2063 (BN)	-84,000	-3,900	-88,000

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2030) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-82,000	-5,400	-87,000
2065 (BN)		-100,000	-4,700	-100,000
2066 (D)		-120,000	-3,300	-120,000
2067 (C)		-120,000	-1,900	-120,000
2068 (C)		-120,000	-1,500	-130,000
2069 (BN)		-100,000	-1,600	-110,000
2070 (W)		-93,000	-3,400	-97,000
2071 (BN)		-110,000	-2,400	-110,000
2072 (W)		-86,000	-3,800	-90,000
Average (2022-2072)		-99,000	-6,200	-100,000
2022-2072	W	-89,000	-8,500	-97,000
	AN	-88,000	-6,200	-94,000
	BN	-100,000	-4,400	-110,000
	D	-110,000	-6,000	-110,000
	C	-110,000	-3,200	-120,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2030) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

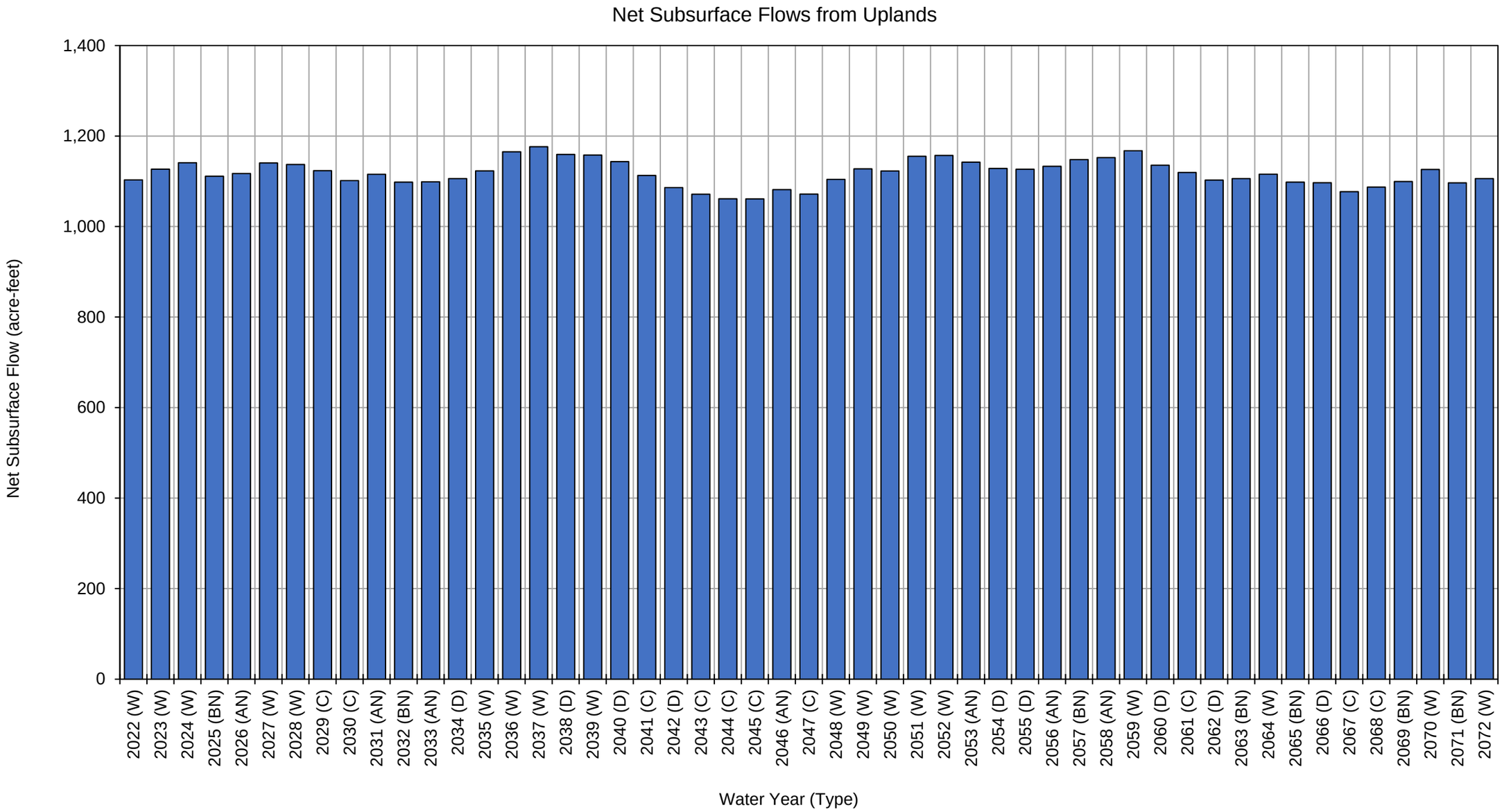
WY (Type)	Flow from/to Antelope Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bowman Subbasin	Flow from/to Corning Subbasin	Flow from/to South Battle Creek Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-7,800	7,300	120,000	-37,000	2,200	-12,000	74,000
2023 (W)	-15,000	3,400	130,000	-35,000	2,100	-14,000	70,000
2024 (W)	-19,000	2,200	130,000	-34,000	2,000	-14,000	67,000
2025 (BN)	-19,000	4,500	120,000	-32,000	2,000	-16,000	56,000
2026 (AN)	-19,000	1,200	120,000	-33,000	1,900	-16,000	60,000
2027 (W)	-20,000	-590	130,000	-34,000	1,800	-15,000	63,000
2028 (W)	-21,000	1,100	130,000	-32,000	1,700	-16,000	62,000
2029 (C)	-22,000	1,700	120,000	-32,000	1,700	-18,000	53,000
2030 (C)	-18,000	3,900	110,000	-33,000	1,700	-19,000	45,000
2031 (AN)	-17,000	-1,000	120,000	-37,000	1,600	-17,000	51,000
2032 (BN)	-18,000	-110	120,000	-34,000	1,600	-18,000	49,000
2033 (AN)	-16,000	-1,100	120,000	-34,000	1,500	-18,000	55,000
2034 (D)	-16,000	-1,400	130,000	-35,000	1,500	-18,000	56,000
2035 (W)	-16,000	-1,900	130,000	-36,000	1,400	-16,000	60,000
2036 (W)	-21,000	-3,100	140,000	-38,000	1,400	-15,000	61,000
2037 (W)	-25,000	-1,100	130,000	-35,000	1,500	-16,000	58,000
2038 (D)	-24,000	170	130,000	-33,000	1,600	-18,000	55,000
2039 (W)	-24,000	-990	130,000	-33,000	1,600	-18,000	53,000
2040 (D)	-25,000	-1,500	120,000	-33,000	1,600	-19,000	44,000
2041 (C)	-22,000	-500	110,000	-34,000	1,500	-20,000	39,000
2042 (D)	-16,000	360	110,000	-35,000	1,500	-19,000	43,000
2043 (C)	-14,000	-160	110,000	-36,000	1,400	-19,000	42,000
2044 (C)	-13,000	-570	110,000	-37,000	1,400	-19,000	42,000
2045 (C)	-11,000	-1,200	110,000	-40,000	1,400	-19,000	42,000
2046 (AN)	-12,000	-4,700	120,000	-41,000	1,300	-17,000	50,000
2047 (C)	-13,000	-1,800	120,000	-37,000	1,300	-18,000	49,000
2048 (W)	-13,000	-3,700	130,000	-39,000	1,300	-15,000	57,000
2049 (W)	-15,000	-2,800	130,000	-37,000	1,400	-16,000	61,000
2050 (W)	-16,000	-380	130,000	-36,000	1,400	-16,000	59,000
2051 (W)	-19,000	-3,100	130,000	-39,000	1,400	-15,000	60,000
2052 (W)	-22,000	-1,400	130,000	-37,000	1,500	-16,000	58,000
2053 (AN)	-22,000	-1,100	130,000	-35,000	1,500	-17,000	53,000
2054 (D)	-23,000	-2,100	120,000	-35,000	1,600	-19,000	43,000
2055 (D)	-21,000	-2,100	120,000	-36,000	1,500	-19,000	47,000
2056 (AN)	-20,000	-3,100	130,000	-37,000	1,500	-18,000	51,000
2057 (BN)	-21,000	-2,100	130,000	-36,000	1,500	-18,000	52,000
2058 (AN)	-23,000	-5,000	130,000	-36,000	1,500	-18,000	47,000
2059 (W)	-23,000	-4,000	130,000	-36,000	1,500	-17,000	52,000
2060 (D)	-21,000	300	120,000	-33,000	1,500	-18,000	48,000
2061 (C)	-19,000	-140	120,000	-34,000	1,500	-19,000	45,000
2062 (D)	-17,000	670	110,000	-35,000	1,500	-19,000	44,000
2063 (BN)	-17,000	-3,000	120,000	-38,000	1,400	-18,000	47,000
2064 (W)	-16,000	-2,800	130,000	-37,000	1,400	-17,000	56,000
2065 (BN)	-15,000	680	120,000	-33,000	1,400	-18,000	54,000
2066 (D)	-13,000	2,100	120,000	-34,000	1,400	-18,000	56,000
2067 (C)	-9,500	4,600	110,000	-36,000	1,400	-19,000	50,000
2068 (C)	-9,300	2,500	110,000	-44,000	1,400	-18,000	45,000
2069 (BN)	-7,600	240	120,000	-45,000	1,400	-17,000	50,000
2070 (W)	-9,800	-2,000	130,000	-43,000	1,300	-14,000	62,000
2071 (BN)	-9,800	4,000	120,000	-39,000	1,400	-17,000	57,000
2072 (W)	-10,000	-23	120,000	-37,000	1,400	-15,000	63,000

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2030) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Antelope Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bowman Subbasin	Flow from/to Corning Subbasin	Flow from/to South Battle Creek Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
Average (2022-2072)		-17,000	-390	120,000	-36,000	1,500	-17,000	53,000
2022-2072	W	-17,000	-790	130,000	-37,000	1,600	-15,000	61,000
	AN	-18,000	-2,100	130,000	-36,000	1,500	-17,000	52,000
	BN	-15,000	600	120,000	-37,000	1,500	-17,000	52,000
	D	-20,000	-380	120,000	-34,000	1,500	-19,000	49,000
	C	-15,000	830	110,000	-36,000	1,500	-19,000	45,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2030) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

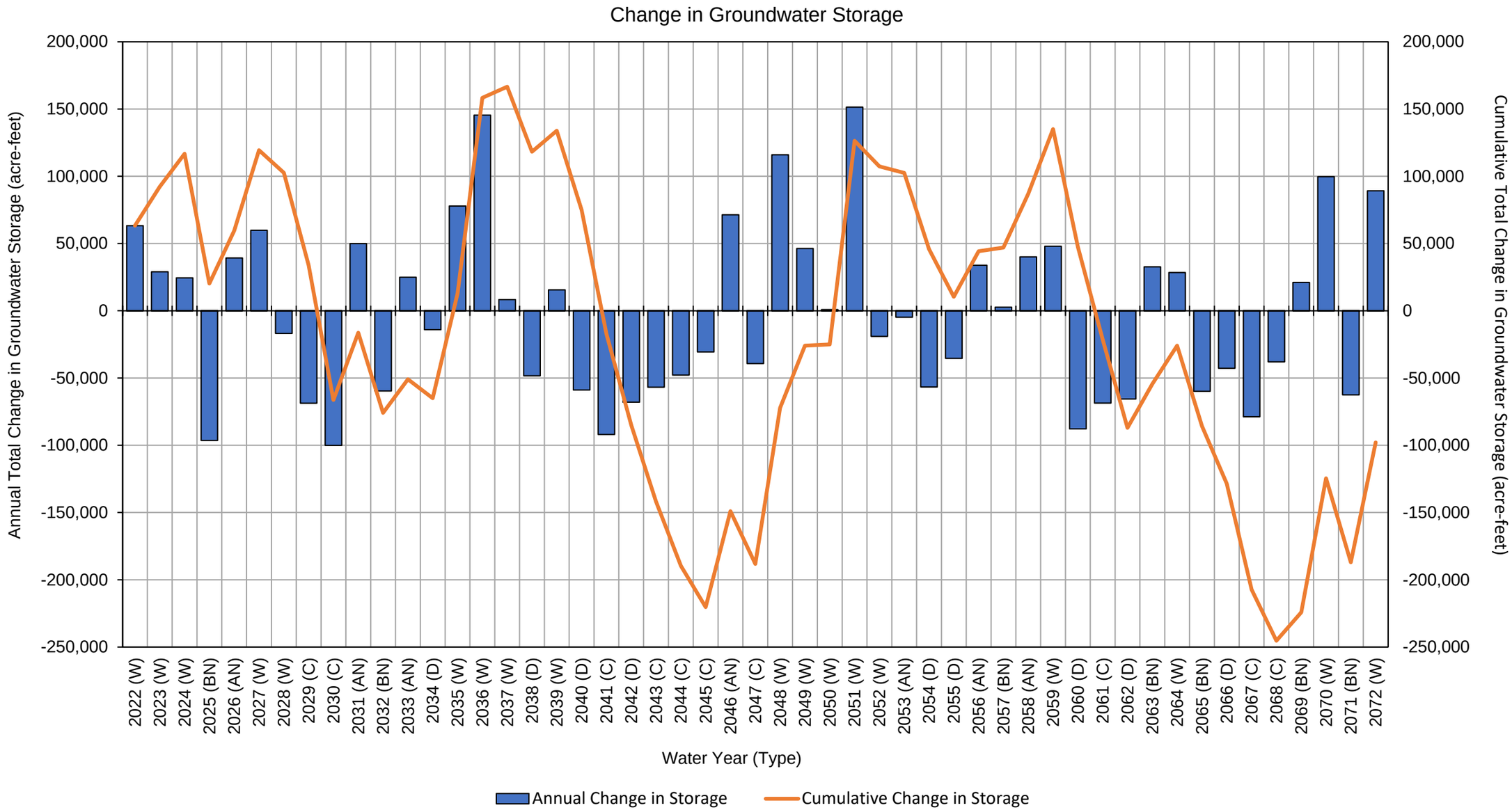
WY (Type)	Subsurface Flows from Uplands
2022 (W)	1,100
2023 (W)	1,100
2024 (W)	1,100
2025 (BN)	1,100
2026 (AN)	1,100
2027 (W)	1,100
2028 (W)	1,100
2029 (C)	1,100
2030 (C)	1,100
2031 (AN)	1,100
2032 (BN)	1,100
2033 (AN)	1,100
2034 (D)	1,100
2035 (W)	1,100
2036 (W)	1,200
2037 (W)	1,200
2038 (D)	1,200
2039 (W)	1,200
2040 (D)	1,100
2041 (C)	1,100
2042 (D)	1,100
2043 (C)	1,100
2044 (C)	1,100
2045 (C)	1,100
2046 (AN)	1,100
2047 (C)	1,100
2048 (W)	1,100
2049 (W)	1,100
2050 (W)	1,100
2051 (W)	1,200
2052 (W)	1,200
2053 (AN)	1,100
2054 (D)	1,100
2055 (D)	1,100
2056 (AN)	1,100
2057 (BN)	1,100
2058 (AN)	1,200
2059 (W)	1,200
2060 (D)	1,100
2061 (C)	1,100
2062 (D)	1,100
2063 (BN)	1,100

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2030) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		1,100
2065 (BN)		1,100
2066 (D)		1,100
2067 (C)		1,100
2068 (C)		1,100
2069 (BN)		1,100
2070 (W)		1,100
2071 (BN)		1,100
2072 (W)		1,100
Average (2022-2072)		1,100
2022-2072	W	1,100
	AN	1,100
	BN	1,100
	D	1,100
	C	1,100

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2030)

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2030) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	63,000	63,000
2023 (W)	29,000	92,000
2024 (W)	25,000	120,000
2025 (BN)	-96,000	20,000
2026 (AN)	39,000	60,000
2027 (W)	60,000	120,000
2028 (W)	-17,000	100,000
2029 (C)	-69,000	34,000
2030 (C)	-100,000	-66,000
2031 (AN)	50,000	-16,000
2032 (BN)	-60,000	-76,000
2033 (AN)	25,000	-51,000
2034 (D)	-14,000	-65,000
2035 (W)	78,000	13,000
2036 (W)	150,000	160,000
2037 (W)	8,300	170,000
2038 (D)	-48,000	120,000
2039 (W)	16,000	130,000
2040 (D)	-59,000	75,000
2041 (C)	-92,000	-17,000
2042 (D)	-68,000	-85,000
2043 (C)	-57,000	-140,000
2044 (C)	-48,000	-190,000
2045 (C)	-31,000	-220,000
2046 (AN)	71,000	-150,000
2047 (C)	-39,000	-190,000
2048 (W)	120,000	-72,000
2049 (W)	46,000	-26,000
2050 (W)	890	-25,000
2051 (W)	150,000	130,000
2052 (W)	-19,000	110,000
2053 (AN)	-4,800	100,000
2054 (D)	-57,000	46,000
2055 (D)	-35,000	10,000
2056 (AN)	34,000	44,000
2057 (BN)	2,700	47,000
2058 (AN)	40,000	87,000
2059 (W)	48,000	140,000
2060 (D)	-88,000	47,000
2061 (C)	-69,000	-21,000
2062 (D)	-66,000	-87,000
2063 (BN)	33,000	-54,000

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2030) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		28,000	-26,000
2065 (BN)		-60,000	-86,000
2066 (D)		-43,000	-130,000
2067 (C)		-79,000	-210,000
2068 (C)		-38,000	-250,000
2069 (BN)		21,000	-220,000
2070 (W)		100,000	-120,000
2071 (BN)		-63,000	-190,000
2072 (W)		89,000	-98,000
Average (2022-2072)		-1,900	
2022-2072	W		
	AN		
	BN		
	D		
	C		

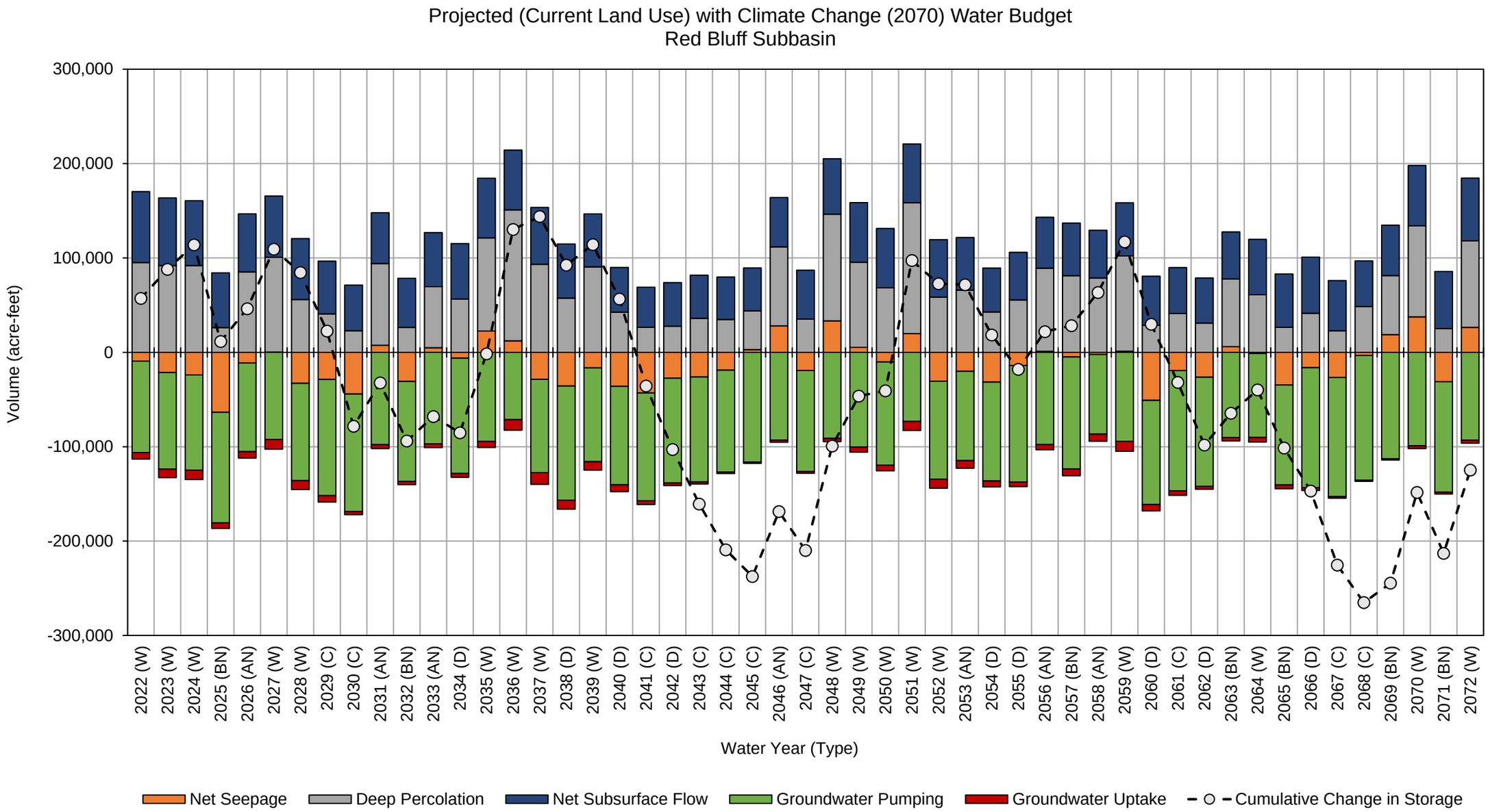
Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX D-5

Detailed Red Bluff Subbasin Water Budget Results:

Projected (Current Land Use) with Climate Change (2070) Model Results


Projected (Current Land Use) with Climate Change (2070) Water Budget
Red Bluff Subbasin
Volume (acre-feet)
300,000
200,000
100,000
0
-100,000
-200,000
-300,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2070) Water Budget Summary (acre-feet, rounded)

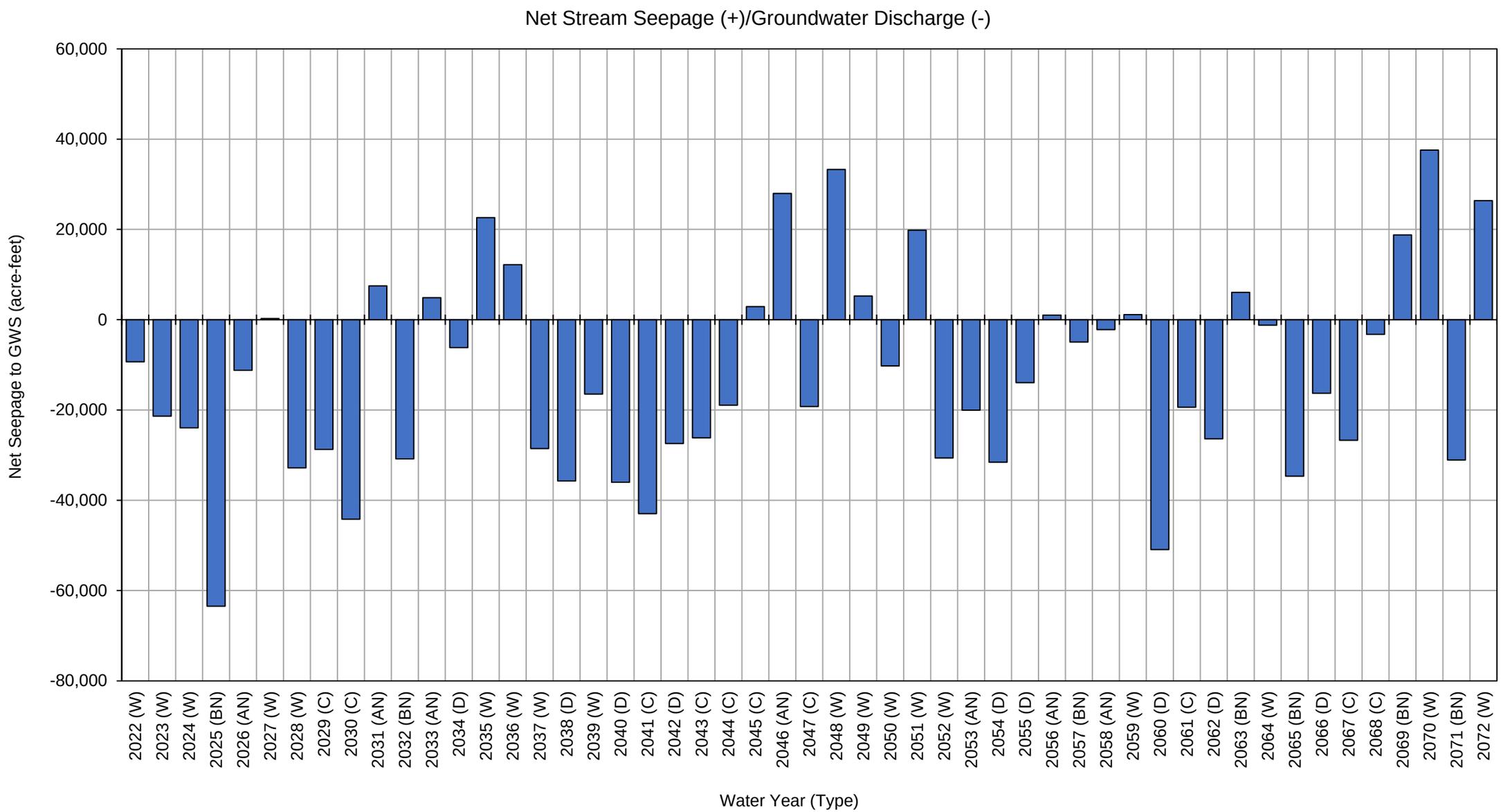
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	-9,300	95,000	-97,000	-6,900	75,000	57,000	57,000
2023 (W)	-21,000	92,000	-100,000	-9,000	72,000	31,000	88,000
2024 (W)	-24,000	92,000	-100,000	-9,900	69,000	26,000	110,000
2025 (BN)	-63,000	26,000	-120,000	-5,900	58,000	-100,000	12,000
2026 (AN)	-11,000	85,000	-94,000	-6,700	61,000	35,000	46,000
2027 (W)	250	100,000	-92,000	-10,000	65,000	63,000	110,000
2028 (W)	-33,000	56,000	-100,000	-9,400	65,000	-25,000	85,000
2029 (C)	-29,000	41,000	-120,000	-6,800	56,000	-62,000	23,000
2030 (C)	-44,000	23,000	-120,000	-3,300	48,000	-100,000	-78,000
2031 (AN)	7,500	87,000	-98,000	-4,100	54,000	46,000	-32,000
2032 (BN)	-31,000	26,000	-110,000	-3,400	52,000	-62,000	-94,000
2033 (AN)	4,900	65,000	-97,000	-3,900	57,000	26,000	-68,000
2034 (D)	-6,200	57,000	-120,000	-4,100	59,000	-17,000	-85,000
2035 (W)	23,000	99,000	-94,000	-6,400	63,000	84,000	-1,600
2036 (W)	12,000	140,000	-71,000	-11,000	63,000	130,000	130,000
2037 (W)	-29,000	93,000	-99,000	-13,000	60,000	14,000	140,000
2038 (D)	-36,000	57,000	-120,000	-9,600	57,000	-51,000	92,000
2039 (W)	-16,000	91,000	-99,000	-9,000	56,000	22,000	110,000
2040 (D)	-36,000	43,000	-100,000	-7,300	47,000	-58,000	57,000
2041 (C)	-43,000	27,000	-110,000	-3,900	42,000	-92,000	-36,000
2042 (D)	-27,000	28,000	-110,000	-2,700	46,000	-67,000	-100,000
2043 (C)	-26,000	36,000	-110,000	-2,200	46,000	-58,000	-160,000
2044 (C)	-19,000	35,000	-110,000	-1,600	45,000	-49,000	-210,000
2045 (C)	2,900	41,000	-120,000	-1,400	45,000	-28,000	-240,000
2046 (AN)	28,000	84,000	-93,000	-2,200	52,000	69,000	-170,000
2047 (C)	-19,000	35,000	-110,000	-1,900	52,000	-41,000	-210,000
2048 (W)	33,000	110,000	-91,000	-3,500	59,000	110,000	-99,000
2049 (W)	5,300	90,000	-100,000	-5,300	63,000	53,000	-46,000
2050 (W)	-10,000	68,000	-110,000	-6,000	63,000	5,700	-41,000
2051 (W)	20,000	140,000	-73,000	-9,500	62,000	140,000	97,000
2052 (W)	-31,000	59,000	-100,000	-9,400	61,000	-25,000	73,000
2053 (AN)	-20,000	66,000	-95,000	-8,000	56,000	-1,100	72,000
2054 (D)	-32,000	43,000	-100,000	-6,200	47,000	-53,000	18,000
2055 (D)	-14,000	56,000	-120,000	-4,900	50,000	-36,000	-18,000
2056 (AN)	1,000	88,000	-98,000	-5,500	54,000	40,000	22,000
2057 (BN)	-5,000	81,000	-120,000	-7,000	56,000	6,300	28,000
2058 (AN)	-2,200	79,000	-84,000	-7,500	51,000	35,000	63,000
2059 (W)	1,100	100,000	-94,000	-10,000	56,000	54,000	120,000
2060 (D)	-51,000	29,000	-110,000	-6,700	52,000	-87,000	30,000
2061 (C)	-19,000	41,000	-130,000	-4,800	49,000	-62,000	-32,000
2062 (D)	-26,000	31,000	-120,000	-3,100	48,000	-66,000	-98,000
2063 (BN)	6,100	72,000	-90,000	-3,600	50,000	34,000	-65,000
2064 (W)	-1,200	61,000	-89,000	-4,900	59,000	25,000	-40,000
2065 (BN)	-35,000	27,000	-110,000	-4,100	57,000	-62,000	-100,000

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2070) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-16,000	41,000	-130,000	-3,000	59,000	-46,000	-150,000
2067 (C)		-27,000	23,000	-130,000	-1,700	53,000	-78,000	-230,000
2068 (C)		-3,300	49,000	-130,000	-1,300	48,000	-40,000	-270,000
2069 (BN)		19,000	63,000	-110,000	-1,300	53,000	21,000	-240,000
2070 (W)		38,000	97,000	-99,000	-3,000	64,000	96,000	-150,000
2071 (BN)		-31,000	25,000	-120,000	-2,000	61,000	-65,000	-210,000
2072 (W)		26,000	92,000	-93,000	-3,200	66,000	88,000	-120,000
Average (2022-2072)		-12,000	64,000	-110,000	-5,500	56,000	-2,400	
2022-2072	W	-890	93,000	-95,000	-7,800	63,000		
	AN	1,100	79,000	-94,000	-5,400	55,000		
	BN	-20,000	46,000	-110,000	-3,900	55,000		
	D	-27,000	43,000	-120,000	-5,300	52,000		
	C	-23,000	35,000	-120,000	-2,900	48,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

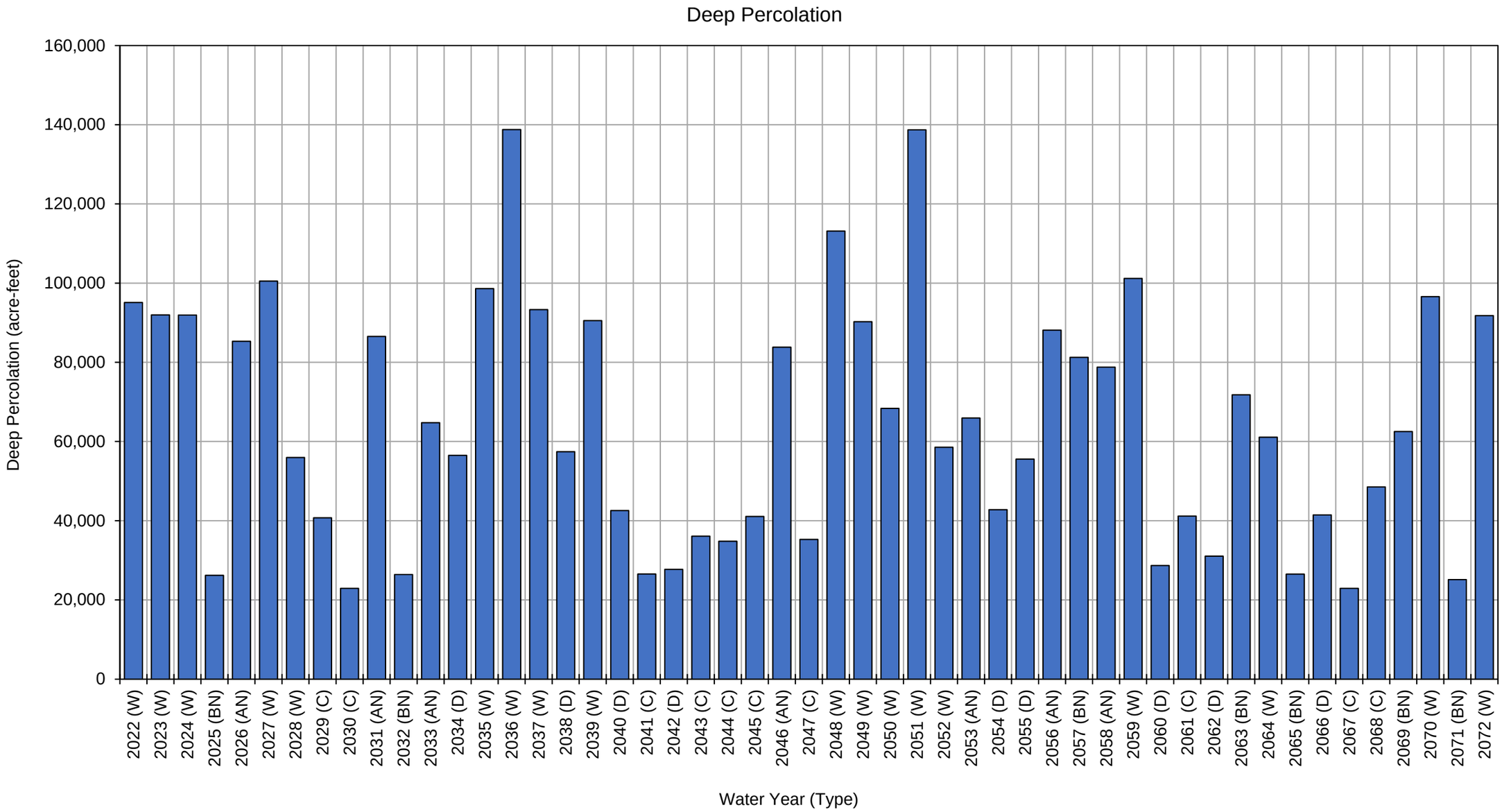
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	-9,300
2023 (W)	-21,000
2024 (W)	-24,000
2025 (BN)	-63,000
2026 (AN)	-11,000
2027 (W)	250
2028 (W)	-33,000
2029 (C)	-29,000
2030 (C)	-44,000
2031 (AN)	7,500
2032 (BN)	-31,000
2033 (AN)	4,900
2034 (D)	-6,200
2035 (W)	23,000
2036 (W)	12,000
2037 (W)	-29,000
2038 (D)	-36,000
2039 (W)	-16,000
2040 (D)	-36,000
2041 (C)	-43,000
2042 (D)	-27,000
2043 (C)	-26,000
2044 (C)	-19,000
2045 (C)	2,900
2046 (AN)	28,000
2047 (C)	-19,000
2048 (W)	33,000
2049 (W)	5,300
2050 (W)	-10,000
2051 (W)	20,000
2052 (W)	-31,000
2053 (AN)	-20,000
2054 (D)	-32,000
2055 (D)	-14,000
2056 (AN)	1,000
2057 (BN)	-5,000
2058 (AN)	-2,200
2059 (W)	1,100
2060 (D)	-51,000
2061 (C)	-19,000
2062 (D)	-26,000
2063 (BN)	6,100

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		-1,200
2065 (BN)		-35,000
2066 (D)		-16,000
2067 (C)		-27,000
2068 (C)		-3,300
2069 (BN)		19,000
2070 (W)		38,000
2071 (BN)		-31,000
2072 (W)		26,000
Average (2022-2072)		-12,000
2022-2072	W	-890
	AN	1,100
	BN	-20,000
	D	-27,000
	C	-23,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

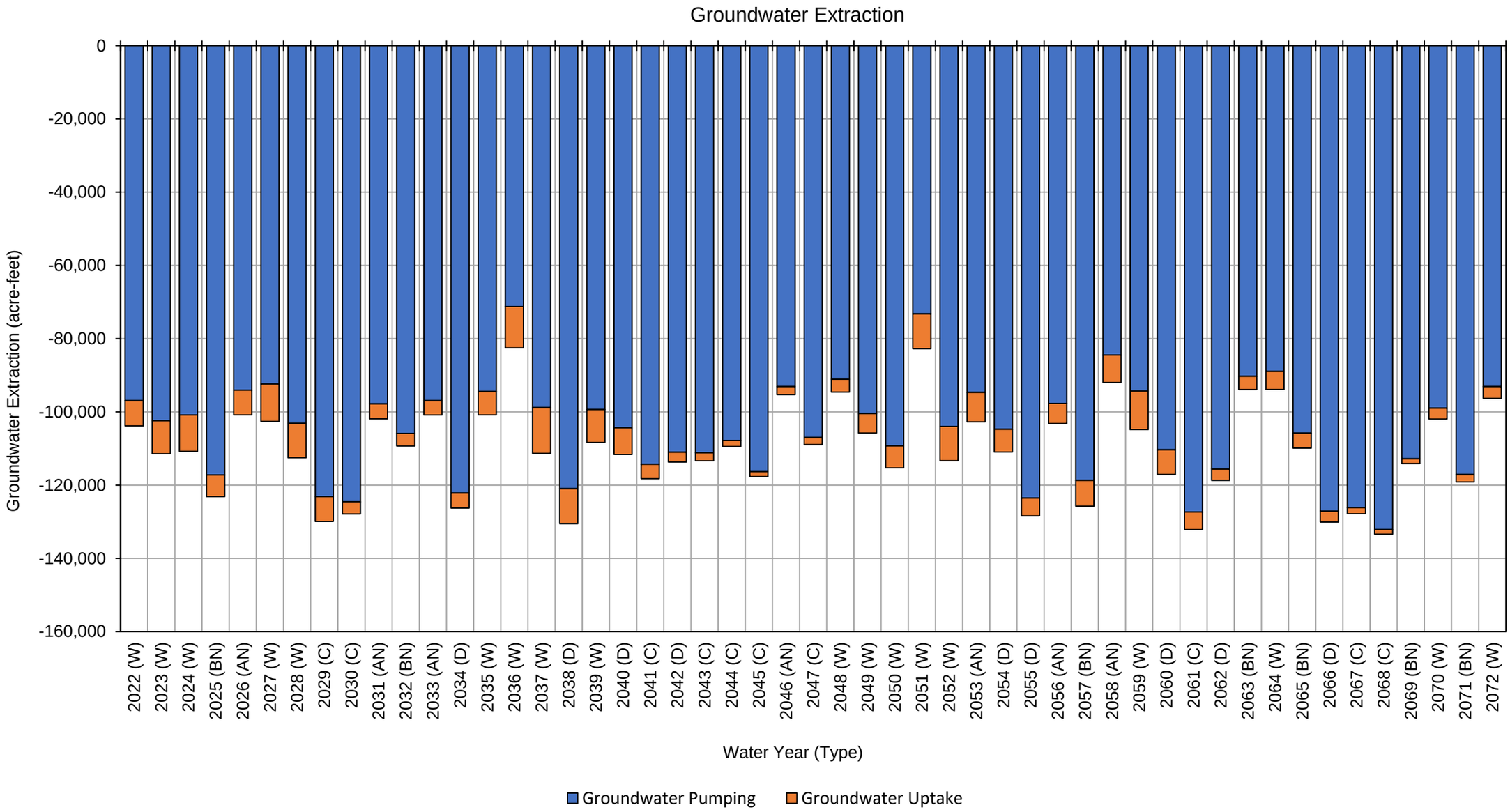
WY (Type)	Deep Percolation from the SWS
2022 (W)	95,000
2023 (W)	92,000
2024 (W)	92,000
2025 (BN)	26,000
2026 (AN)	85,000
2027 (W)	100,000
2028 (W)	56,000
2029 (C)	41,000
2030 (C)	23,000
2031 (AN)	87,000
2032 (BN)	26,000
2033 (AN)	65,000
2034 (D)	57,000
2035 (W)	99,000
2036 (W)	140,000
2037 (W)	93,000
2038 (D)	57,000
2039 (W)	91,000
2040 (D)	43,000
2041 (C)	27,000
2042 (D)	28,000
2043 (C)	36,000
2044 (C)	35,000
2045 (C)	41,000
2046 (AN)	84,000
2047 (C)	35,000
2048 (W)	110,000
2049 (W)	90,000
2050 (W)	68,000
2051 (W)	140,000
2052 (W)	59,000
2053 (AN)	66,000
2054 (D)	43,000
2055 (D)	56,000
2056 (AN)	88,000
2057 (BN)	81,000
2058 (AN)	79,000
2059 (W)	100,000
2060 (D)	29,000
2061 (C)	41,000
2062 (D)	31,000
2063 (BN)	72,000

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		61,000
2065 (BN)		27,000
2066 (D)		41,000
2067 (C)		23,000
2068 (C)		49,000
2069 (BN)		63,000
2070 (W)		97,000
2071 (BN)		25,000
2072 (W)		92,000
Average (2022-2072)		64,000
2022-2072	W	93,000
	AN	79,000
	BN	46,000
	D	43,000
	C	35,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

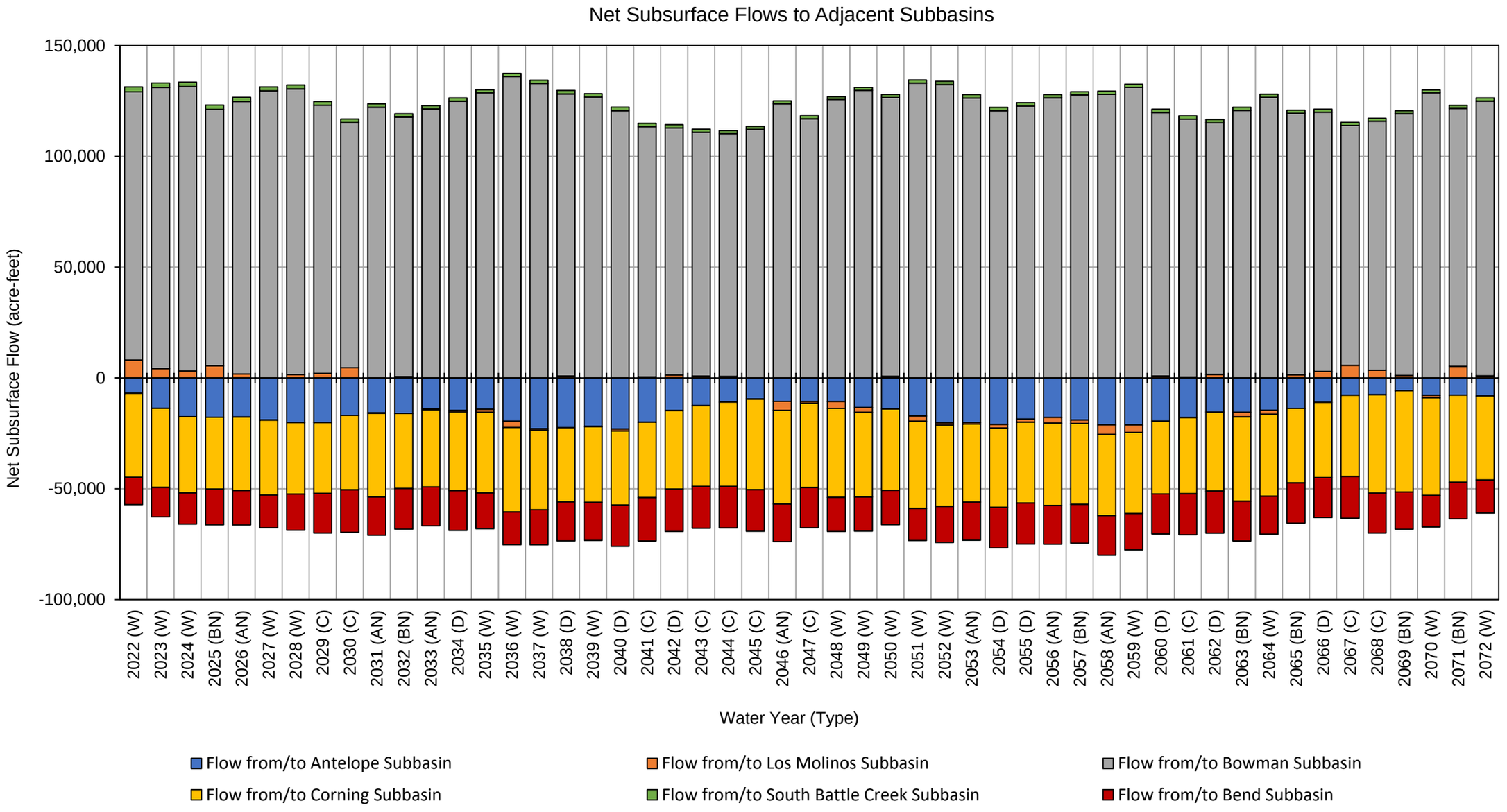
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-97,000	-6,900	-100,000
2023 (W)	-100,000	-9,000	-110,000
2024 (W)	-100,000	-9,900	-110,000
2025 (BN)	-120,000	-5,900	-120,000
2026 (AN)	-94,000	-6,700	-100,000
2027 (W)	-92,000	-10,000	-100,000
2028 (W)	-100,000	-9,400	-110,000
2029 (C)	-120,000	-6,800	-130,000
2030 (C)	-120,000	-3,300	-130,000
2031 (AN)	-98,000	-4,100	-100,000
2032 (BN)	-110,000	-3,400	-110,000
2033 (AN)	-97,000	-3,900	-100,000
2034 (D)	-120,000	-4,100	-130,000
2035 (W)	-94,000	-6,400	-100,000
2036 (W)	-71,000	-11,000	-83,000
2037 (W)	-99,000	-13,000	-110,000
2038 (D)	-120,000	-9,600	-130,000
2039 (W)	-99,000	-9,000	-110,000
2040 (D)	-100,000	-7,300	-110,000
2041 (C)	-110,000	-3,900	-120,000
2042 (D)	-110,000	-2,700	-110,000
2043 (C)	-110,000	-2,200	-110,000
2044 (C)	-110,000	-1,600	-110,000
2045 (C)	-120,000	-1,400	-120,000
2046 (AN)	-93,000	-2,200	-95,000
2047 (C)	-110,000	-1,900	-110,000
2048 (W)	-91,000	-3,500	-95,000
2049 (W)	-100,000	-5,300	-110,000
2050 (W)	-110,000	-6,000	-120,000
2051 (W)	-73,000	-9,500	-83,000
2052 (W)	-100,000	-9,400	-110,000
2053 (AN)	-95,000	-8,000	-100,000
2054 (D)	-100,000	-6,200	-110,000
2055 (D)	-120,000	-4,900	-130,000
2056 (AN)	-98,000	-5,500	-100,000
2057 (BN)	-120,000	-7,000	-130,000
2058 (AN)	-84,000	-7,500	-92,000
2059 (W)	-94,000	-10,000	-100,000
2060 (D)	-110,000	-6,700	-120,000
2061 (C)	-130,000	-4,800	-130,000
2062 (D)	-120,000	-3,100	-120,000
2063 (BN)	-90,000	-3,600	-94,000

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-89,000	-4,900	-94,000
2065 (BN)		-110,000	-4,100	-110,000
2066 (D)		-130,000	-3,000	-130,000
2067 (C)		-130,000	-1,700	-130,000
2068 (C)		-130,000	-1,300	-130,000
2069 (BN)		-110,000	-1,300	-110,000
2070 (W)		-99,000	-3,000	-100,000
2071 (BN)		-120,000	-2,000	-120,000
2072 (W)		-93,000	-3,200	-96,000
Average (2022-2072)		-110,000	-5,500	-110,000
2022-2072	W	-95,000	-7,800	-100,000
	AN	-94,000	-5,400	-100,000
	BN	-110,000	-3,900	-110,000
	D	-120,000	-5,300	-120,000
	C	-120,000	-2,900	-120,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

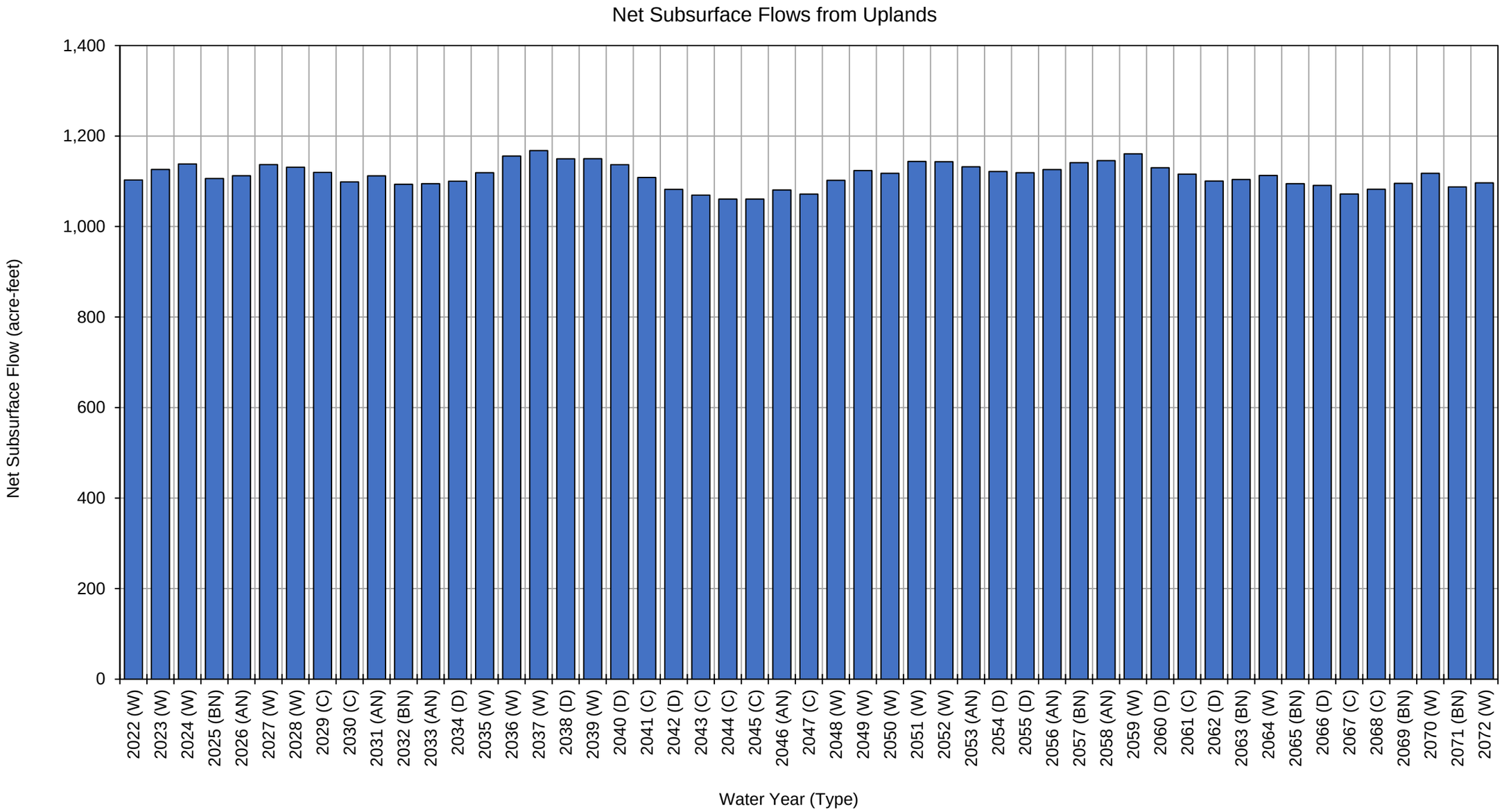
WY (Type)	Flow from/to Antelope Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bowman Subbasin	Flow from/to Corning Subbasin	Flow from/to South Battle Creek Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	-6,900	8,100	120,000	-38,000	2,200	-12,000	74,000
2023 (W)	-14,000	4,200	130,000	-36,000	2,100	-13,000	71,000
2024 (W)	-17,000	3,100	130,000	-34,000	2,000	-14,000	68,000
2025 (BN)	-18,000	5,500	120,000	-32,000	2,000	-16,000	57,000
2026 (AN)	-18,000	1,800	120,000	-33,000	1,900	-15,000	60,000
2027 (W)	-19,000	-75	130,000	-34,000	1,800	-15,000	64,000
2028 (W)	-20,000	1,500	130,000	-32,000	1,700	-16,000	63,000
2029 (C)	-20,000	2,100	120,000	-32,000	1,700	-18,000	55,000
2030 (C)	-17,000	4,600	110,000	-34,000	1,700	-19,000	47,000
2031 (AN)	-16,000	-290	120,000	-38,000	1,600	-17,000	53,000
2032 (BN)	-16,000	610	120,000	-34,000	1,500	-18,000	51,000
2033 (AN)	-14,000	-430	120,000	-35,000	1,500	-18,000	56,000
2034 (D)	-15,000	-660	120,000	-36,000	1,500	-18,000	58,000
2035 (W)	-14,000	-1,300	130,000	-36,000	1,400	-16,000	62,000
2036 (W)	-20,000	-2,800	140,000	-38,000	1,400	-15,000	62,000
2037 (W)	-23,000	-670	130,000	-36,000	1,500	-16,000	59,000
2038 (D)	-22,000	870	130,000	-33,000	1,600	-18,000	56,000
2039 (W)	-22,000	-160	130,000	-34,000	1,500	-17,000	55,000
2040 (D)	-23,000	-890	120,000	-33,000	1,600	-19,000	46,000
2041 (C)	-20,000	490	110,000	-34,000	1,500	-20,000	41,000
2042 (D)	-15,000	1,300	110,000	-35,000	1,500	-19,000	45,000
2043 (C)	-13,000	840	110,000	-36,000	1,400	-19,000	45,000
2044 (C)	-11,000	710	110,000	-38,000	1,400	-19,000	44,000
2045 (C)	-9,400	-220	110,000	-41,000	1,400	-19,000	44,000
2046 (AN)	-11,000	-4,000	120,000	-42,000	1,300	-17,000	51,000
2047 (C)	-11,000	-770	120,000	-38,000	1,300	-18,000	51,000
2048 (W)	-11,000	-3,100	130,000	-40,000	1,300	-15,000	58,000
2049 (W)	-13,000	-2,100	130,000	-38,000	1,300	-15,000	62,000
2050 (W)	-14,000	730	130,000	-37,000	1,400	-15,000	62,000
2051 (W)	-17,000	-2,400	130,000	-39,000	1,400	-14,000	61,000
2052 (W)	-20,000	-1,100	130,000	-37,000	1,500	-16,000	60,000
2053 (AN)	-20,000	-720	130,000	-35,000	1,500	-17,000	55,000
2054 (D)	-21,000	-1,600	120,000	-36,000	1,500	-18,000	45,000
2055 (D)	-19,000	-1,400	120,000	-37,000	1,500	-18,000	49,000
2056 (AN)	-18,000	-2,600	130,000	-37,000	1,500	-17,000	53,000
2057 (BN)	-19,000	-1,600	130,000	-36,000	1,500	-18,000	55,000
2058 (AN)	-21,000	-4,300	130,000	-37,000	1,500	-18,000	49,000
2059 (W)	-21,000	-3,400	130,000	-37,000	1,400	-16,000	55,000
2060 (D)	-19,000	900	120,000	-33,000	1,500	-18,000	51,000
2061 (C)	-18,000	440	120,000	-34,000	1,500	-18,000	48,000
2062 (D)	-15,000	1,600	110,000	-36,000	1,500	-19,000	47,000
2063 (BN)	-15,000	-2,100	120,000	-38,000	1,400	-18,000	49,000
2064 (W)	-15,000	-1,900	130,000	-37,000	1,400	-17,000	58,000
2065 (BN)	-14,000	1,400	120,000	-34,000	1,400	-18,000	55,000
2066 (D)	-11,000	2,900	120,000	-34,000	1,400	-18,000	58,000
2067 (C)	-7,800	5,700	110,000	-37,000	1,400	-19,000	52,000
2068 (C)	-7,600	3,500	110,000	-44,000	1,400	-18,000	47,000
2069 (BN)	-5,800	1,100	120,000	-46,000	1,300	-17,000	52,000
2070 (W)	-7,900	-1,100	130,000	-44,000	1,300	-14,000	63,000
2071 (BN)	-7,800	5,300	120,000	-39,000	1,400	-16,000	59,000
2072 (W)	-8,100	960	120,000	-38,000	1,400	-15,000	65,000

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Antelope Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bowman Subbasin	Flow from/to Corning Subbasin	Flow from/to South Battle Creek Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
Average (2022-2072)		-15,000	360	120,000	-37,000	1,500	-17,000	55,000
2022-2072	W	-16,000	-78	130,000	-37,000	1,600	-15,000	62,000
	AN	-17,000	-1,500	120,000	-37,000	1,500	-17,000	54,000
	BN	-14,000	1,500	120,000	-37,000	1,500	-17,000	54,000
	D	-18,000	340	120,000	-35,000	1,500	-18,000	51,000
	C	-13,000	1,700	110,000	-37,000	1,500	-19,000	47,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2070) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

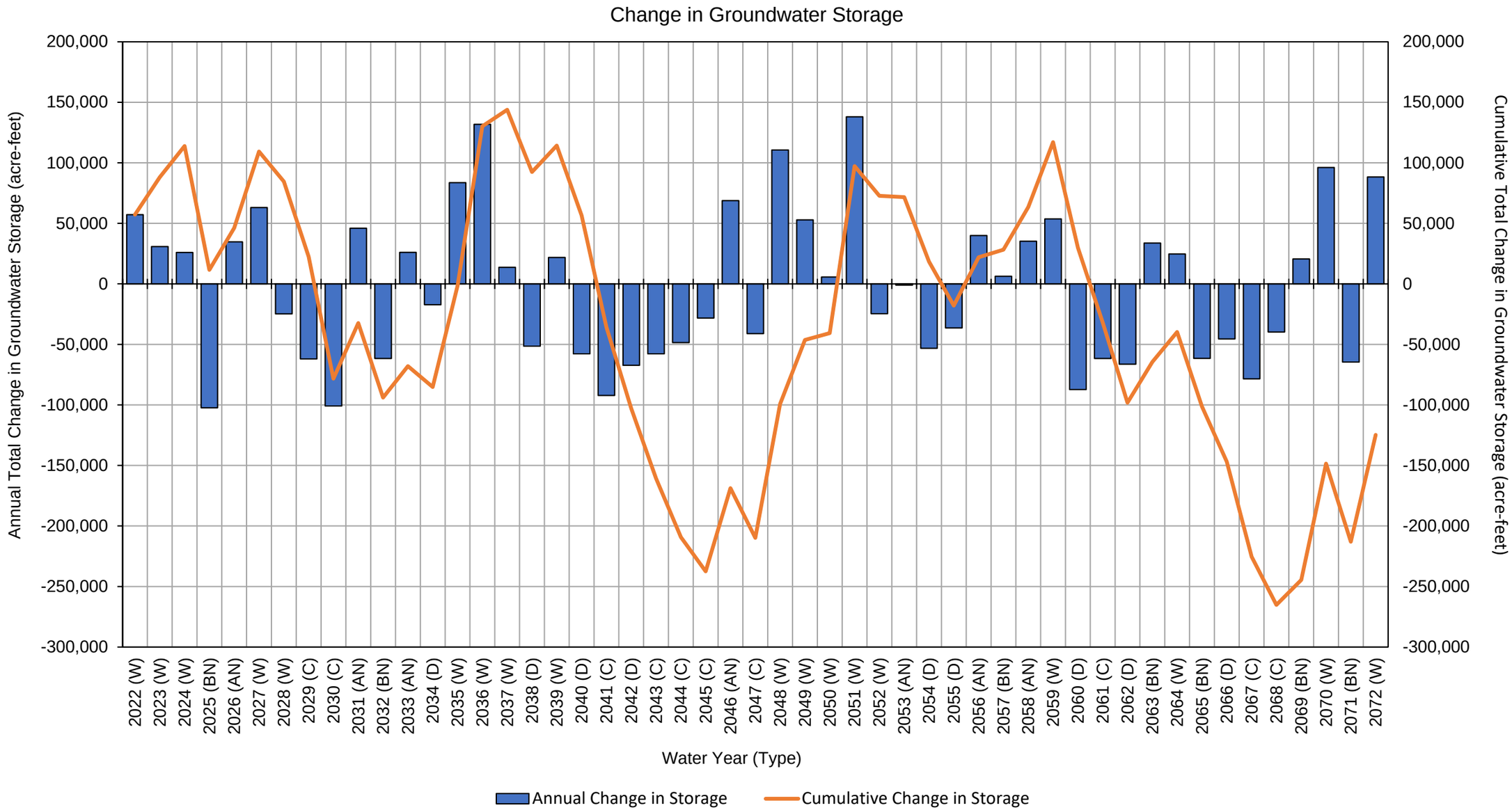
WY (Type)	Subsurface Flows from Uplands
2022 (W)	1,100
2023 (W)	1,100
2024 (W)	1,100
2025 (BN)	1,100
2026 (AN)	1,100
2027 (W)	1,100
2028 (W)	1,100
2029 (C)	1,100
2030 (C)	1,100
2031 (AN)	1,100
2032 (BN)	1,100
2033 (AN)	1,100
2034 (D)	1,100
2035 (W)	1,100
2036 (W)	1,200
2037 (W)	1,200
2038 (D)	1,100
2039 (W)	1,100
2040 (D)	1,100
2041 (C)	1,100
2042 (D)	1,100
2043 (C)	1,100
2044 (C)	1,100
2045 (C)	1,100
2046 (AN)	1,100
2047 (C)	1,100
2048 (W)	1,100
2049 (W)	1,100
2050 (W)	1,100
2051 (W)	1,100
2052 (W)	1,100
2053 (AN)	1,100
2054 (D)	1,100
2055 (D)	1,100
2056 (AN)	1,100
2057 (BN)	1,100
2058 (AN)	1,100
2059 (W)	1,200
2060 (D)	1,100
2061 (C)	1,100
2062 (D)	1,100
2063 (BN)	1,100

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2070) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		1,100
2065 (BN)		1,100
2066 (D)		1,100
2067 (C)		1,100
2068 (C)		1,100
2069 (BN)		1,100
2070 (W)		1,100
2071 (BN)		1,100
2072 (W)		1,100
Average (2022-2072)		1,100
2022-2072	W	1,100
	AN	1,100
	BN	1,100
	D	1,100
	C	1,100

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Current Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	57,000	57,000
2023 (W)	31,000	88,000
2024 (W)	26,000	110,000
2025 (BN)	-100,000	12,000
2026 (AN)	35,000	46,000
2027 (W)	63,000	110,000
2028 (W)	-25,000	85,000
2029 (C)	-62,000	23,000
2030 (C)	-100,000	-78,000
2031 (AN)	46,000	-32,000
2032 (BN)	-62,000	-94,000
2033 (AN)	26,000	-68,000
2034 (D)	-17,000	-85,000
2035 (W)	84,000	-1,600
2036 (W)	130,000	130,000
2037 (W)	14,000	140,000
2038 (D)	-51,000	92,000
2039 (W)	22,000	110,000
2040 (D)	-58,000	57,000
2041 (C)	-92,000	-36,000
2042 (D)	-67,000	-100,000
2043 (C)	-58,000	-160,000
2044 (C)	-49,000	-210,000
2045 (C)	-28,000	-240,000
2046 (AN)	69,000	-170,000
2047 (C)	-41,000	-210,000
2048 (W)	110,000	-99,000
2049 (W)	53,000	-46,000
2050 (W)	5,700	-41,000
2051 (W)	140,000	97,000
2052 (W)	-25,000	73,000
2053 (AN)	-1,100	72,000
2054 (D)	-53,000	18,000
2055 (D)	-36,000	-18,000
2056 (AN)	40,000	22,000
2057 (BN)	6,300	28,000
2058 (AN)	35,000	63,000
2059 (W)	54,000	120,000
2060 (D)	-87,000	30,000
2061 (C)	-62,000	-32,000
2062 (D)	-66,000	-98,000
2063 (BN)	34,000	-65,000

Red Bluff Subbasin Projected (Current Land Use) with Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		25,000	-40,000
2065 (BN)		-62,000	-100,000
2066 (D)		-46,000	-150,000
2067 (C)		-78,000	-230,000
2068 (C)		-40,000	-270,000
2069 (BN)		21,000	-240,000
2070 (W)		96,000	-150,000
2071 (BN)		-65,000	-210,000
2072 (W)		88,000	-120,000
Average (2022-2072)		-2,400	
2022-2072	W		
	AN		
	BN		
	D		
	C		

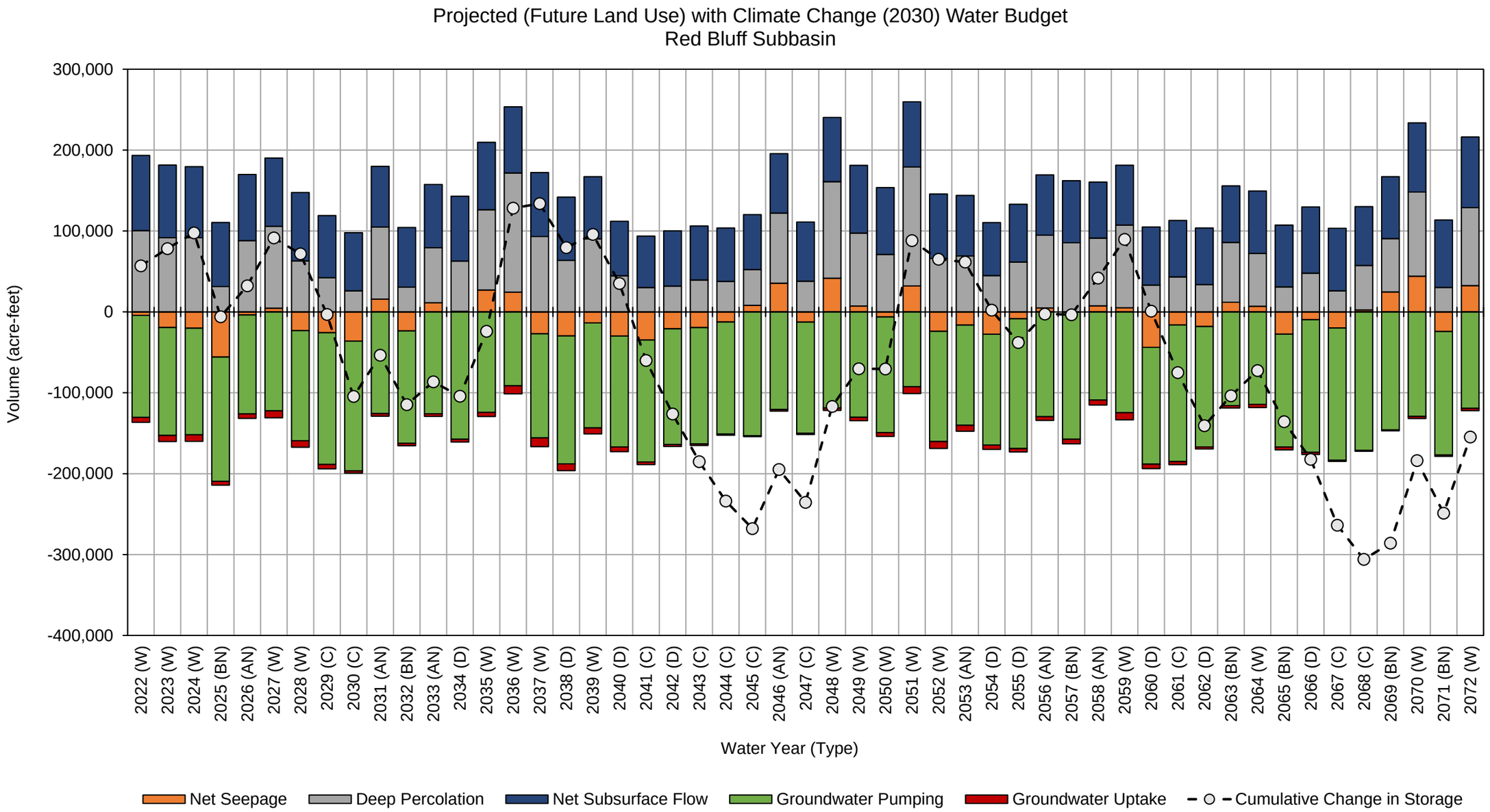
Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX D-6

Detailed Red Bluff Subbasin Water Budget Results:

Projected (Future Land Use) with Climate Change (2030) Model Results


Projected (Future Land Use) with Climate Change (2030) Water Budget
Red Bluff Subbasin
Volume (acre-feet)
300,000
200,000
100,000
0
-100,000
-200,000
-300,000
-400,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2030) Water Budget Summary (acre-feet, rounded)

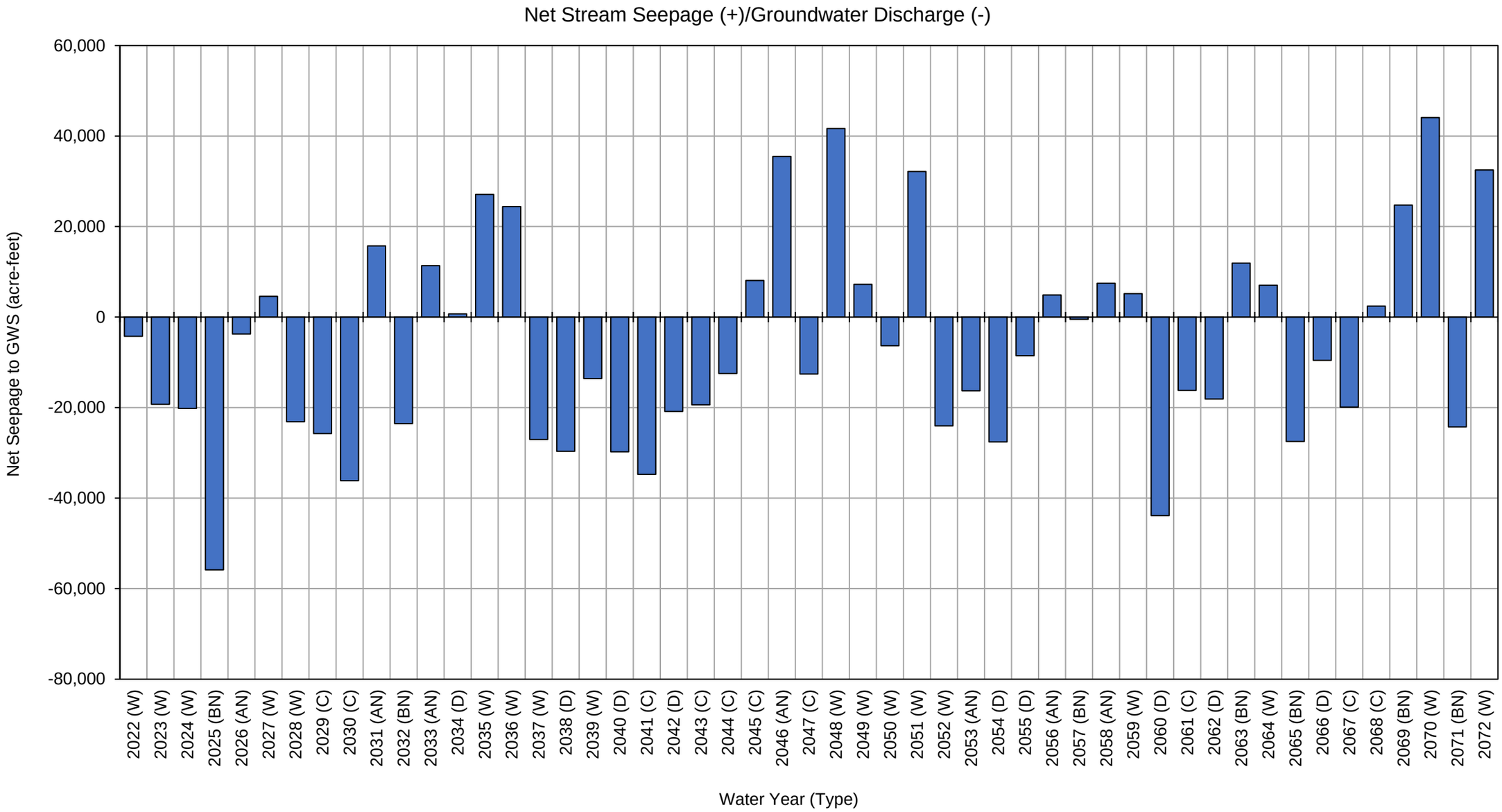
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	-4,300	100,000	-130,000	-6,000	93,000	57,000	57,000
2023 (W)	-19,000	92,000	-130,000	-7,500	90,000	21,000	78,000
2024 (W)	-20,000	92,000	-130,000	-8,100	88,000	19,000	98,000
2025 (BN)	-56,000	31,000	-150,000	-4,700	79,000	-100,000	-5,900
2026 (AN)	-3,700	88,000	-120,000	-5,600	82,000	38,000	32,000
2027 (W)	4,600	100,000	-120,000	-8,500	84,000	59,000	91,000
2028 (W)	-23,000	63,000	-140,000	-8,000	85,000	-20,000	72,000
2029 (C)	-26,000	42,000	-160,000	-5,400	77,000	-75,000	-3,100
2030 (C)	-36,000	26,000	-160,000	-2,700	72,000	-100,000	-100,000
2031 (AN)	16,000	89,000	-130,000	-3,300	75,000	51,000	-54,000
2032 (BN)	-24,000	31,000	-140,000	-2,900	74,000	-61,000	-110,000
2033 (AN)	11,000	68,000	-130,000	-3,300	78,000	28,000	-86,000
2034 (D)	710	62,000	-160,000	-3,400	80,000	-18,000	-100,000
2035 (W)	27,000	99,000	-120,000	-5,200	83,000	80,000	-24,000
2036 (W)	24,000	150,000	-91,000	-10,000	82,000	150,000	130,000
2037 (W)	-27,000	93,000	-130,000	-11,000	79,000	5,600	130,000
2038 (D)	-30,000	64,000	-160,000	-8,300	78,000	-54,000	80,000
2039 (W)	-14,000	90,000	-130,000	-7,400	77,000	16,000	96,000
2040 (D)	-30,000	45,000	-140,000	-5,900	67,000	-61,000	35,000
2041 (C)	-35,000	30,000	-150,000	-3,300	63,000	-95,000	-60,000
2042 (D)	-21,000	32,000	-140,000	-2,200	68,000	-66,000	-130,000
2043 (C)	-19,000	39,000	-140,000	-1,800	67,000	-59,000	-190,000
2044 (C)	-12,000	38,000	-140,000	-1,400	66,000	-49,000	-230,000
2045 (C)	8,100	44,000	-150,000	-1,100	68,000	-34,000	-270,000
2046 (AN)	35,000	87,000	-120,000	-1,800	74,000	73,000	-190,000
2047 (C)	-13,000	38,000	-140,000	-1,600	73,000	-41,000	-240,000
2048 (W)	42,000	120,000	-120,000	-3,100	79,000	120,000	-120,000
2049 (W)	7,200	90,000	-130,000	-4,200	84,000	47,000	-70,000
2050 (W)	-6,300	71,000	-140,000	-4,700	83,000	-280	-71,000
2051 (W)	32,000	150,000	-93,000	-8,300	80,000	160,000	88,000
2052 (W)	-24,000	66,000	-140,000	-8,600	80,000	-23,000	65,000
2053 (AN)	-16,000	69,000	-120,000	-7,200	75,000	-3,500	62,000
2054 (D)	-28,000	45,000	-140,000	-5,400	66,000	-59,000	2,200
2055 (D)	-8,500	62,000	-160,000	-4,200	71,000	-40,000	-38,000
2056 (AN)	4,900	90,000	-130,000	-4,500	74,000	35,000	-2,600
2057 (BN)	-490	85,000	-160,000	-5,700	77,000	-880	-3,500
2058 (AN)	7,500	84,000	-110,000	-6,200	69,000	45,000	42,000
2059 (W)	5,200	100,000	-120,000	-8,800	74,000	48,000	90,000
2060 (D)	-44,000	33,000	-140,000	-5,400	72,000	-89,000	910
2061 (C)	-16,000	43,000	-170,000	-3,700	70,000	-76,000	-75,000
2062 (D)	-18,000	34,000	-150,000	-2,500	70,000	-66,000	-140,000
2063 (BN)	12,000	74,000	-120,000	-2,900	70,000	37,000	-100,000
2064 (W)	7,000	65,000	-110,000	-4,000	77,000	31,000	-72,000
2065 (BN)	-27,000	31,000	-140,000	-3,500	76,000	-63,000	-140,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2030) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-9,600	48,000	-160,000	-2,500	82,000	-47,000	-180,000
2067 (C)		-20,000	26,000	-160,000	-1,400	77,000	-81,000	-260,000
2068 (C)		2,400	55,000	-170,000	-1,000	73,000	-42,000	-310,000
2069 (BN)		25,000	66,000	-150,000	-1,100	76,000	20,000	-290,000
2070 (W)		44,000	100,000	-130,000	-2,500	86,000	100,000	-180,000
2071 (BN)		-24,000	30,000	-150,000	-1,700	83,000	-65,000	-250,000
2072 (W)		32,000	96,000	-120,000	-2,800	87,000	94,000	-150,000
Average (2022-2072)		-6,000	68,000	-140,000	-4,600	77,000	-3,000	
2022-2072	W	4,900	97,000	-120,000	-6,600	83,000		
	AN	7,800	82,000	-120,000	-4,600	75,000		
	BN	-14,000	50,000	-140,000	-3,200	77,000		
	D	-21,000	47,000	-150,000	-4,400	73,000		
	C	-17,000	38,000	-160,000	-2,400	71,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2030) Net Stream Seepage (net flows as acre-feet, rounded)

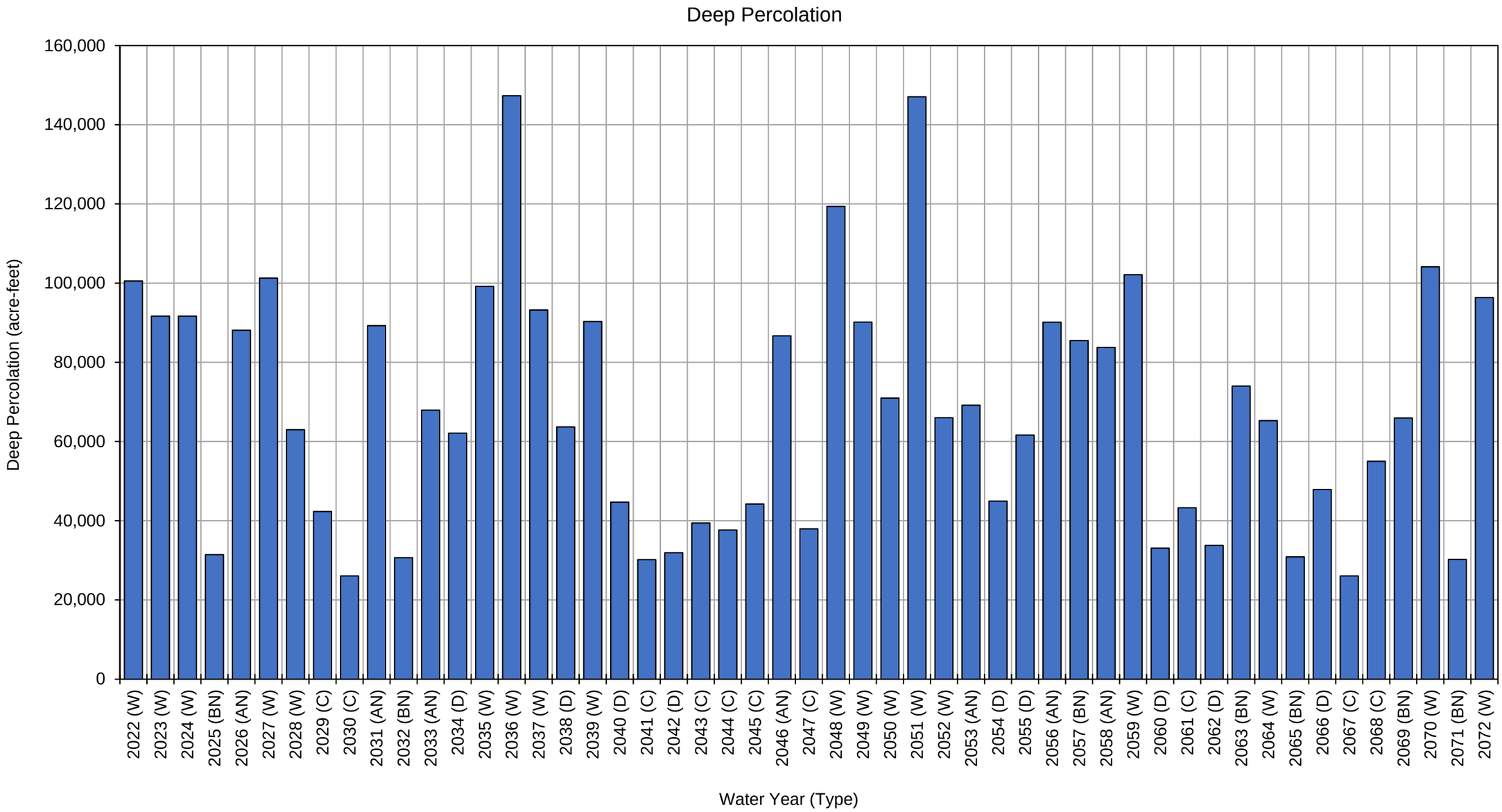
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	-4,300
2023 (W)	-19,000
2024 (W)	-20,000
2025 (BN)	-56,000
2026 (AN)	-3,700
2027 (W)	4,600
2028 (W)	-23,000
2029 (C)	-26,000
2030 (C)	-36,000
2031 (AN)	16,000
2032 (BN)	-24,000
2033 (AN)	11,000
2034 (D)	710
2035 (W)	27,000
2036 (W)	24,000
2037 (W)	-27,000
2038 (D)	-30,000
2039 (W)	-14,000
2040 (D)	-30,000
2041 (C)	-35,000
2042 (D)	-21,000
2043 (C)	-19,000
2044 (C)	-12,000
2045 (C)	8,100
2046 (AN)	35,000
2047 (C)	-13,000
2048 (W)	42,000
2049 (W)	7,200
2050 (W)	-6,300
2051 (W)	32,000
2052 (W)	-24,000
2053 (AN)	-16,000
2054 (D)	-28,000
2055 (D)	-8,500
2056 (AN)	4,900
2057 (BN)	-490
2058 (AN)	7,500
2059 (W)	5,200
2060 (D)	-44,000
2061 (C)	-16,000
2062 (D)	-18,000
2063 (BN)	12,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2030) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		7,000
2065 (BN)		-27,000
2066 (D)		-9,600
2067 (C)		-20,000
2068 (C)		2,400
2069 (BN)		25,000
2070 (W)		44,000
2071 (BN)		-24,000
2072 (W)		32,000
Average (2022-2072)		-6,000
2022-2072	W	4,900
	AN	7,800
	BN	-14,000
	D	-21,000
	C	-17,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2030) Deep Percolation from the SWS (acre-feet, rounded)

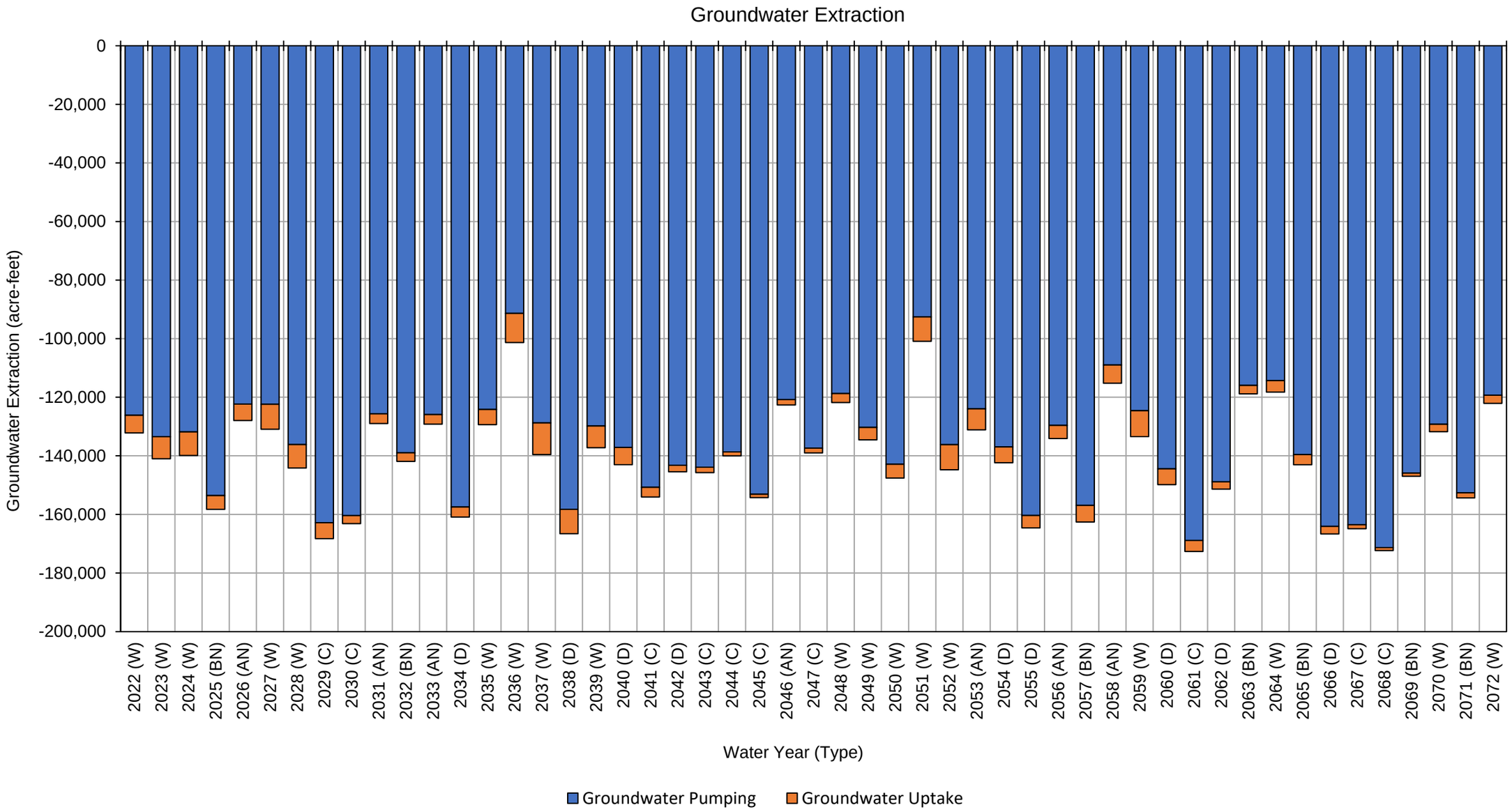
WY (Type)	Deep Percolation from the SWS
2022 (W)	100,000
2023 (W)	92,000
2024 (W)	92,000
2025 (BN)	31,000
2026 (AN)	88,000
2027 (W)	100,000
2028 (W)	63,000
2029 (C)	42,000
2030 (C)	26,000
2031 (AN)	89,000
2032 (BN)	31,000
2033 (AN)	68,000
2034 (D)	62,000
2035 (W)	99,000
2036 (W)	150,000
2037 (W)	93,000
2038 (D)	64,000
2039 (W)	90,000
2040 (D)	45,000
2041 (C)	30,000
2042 (D)	32,000
2043 (C)	39,000
2044 (C)	38,000
2045 (C)	44,000
2046 (AN)	87,000
2047 (C)	38,000
2048 (W)	120,000
2049 (W)	90,000
2050 (W)	71,000
2051 (W)	150,000
2052 (W)	66,000
2053 (AN)	69,000
2054 (D)	45,000
2055 (D)	62,000
2056 (AN)	90,000
2057 (BN)	85,000
2058 (AN)	84,000
2059 (W)	100,000
2060 (D)	33,000
2061 (C)	43,000
2062 (D)	34,000
2063 (BN)	74,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2030) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		65,000
2065 (BN)		31,000
2066 (D)		48,000
2067 (C)		26,000
2068 (C)		55,000
2069 (BN)		66,000
2070 (W)		100,000
2071 (BN)		30,000
2072 (W)		96,000
Average (2022-2072)		68,000
2022-2072	W	97,000
	AN	82,000
	BN	50,000
	D	47,000
	C	38,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2030) Groundwater Extractions (acre-feet, rounded)

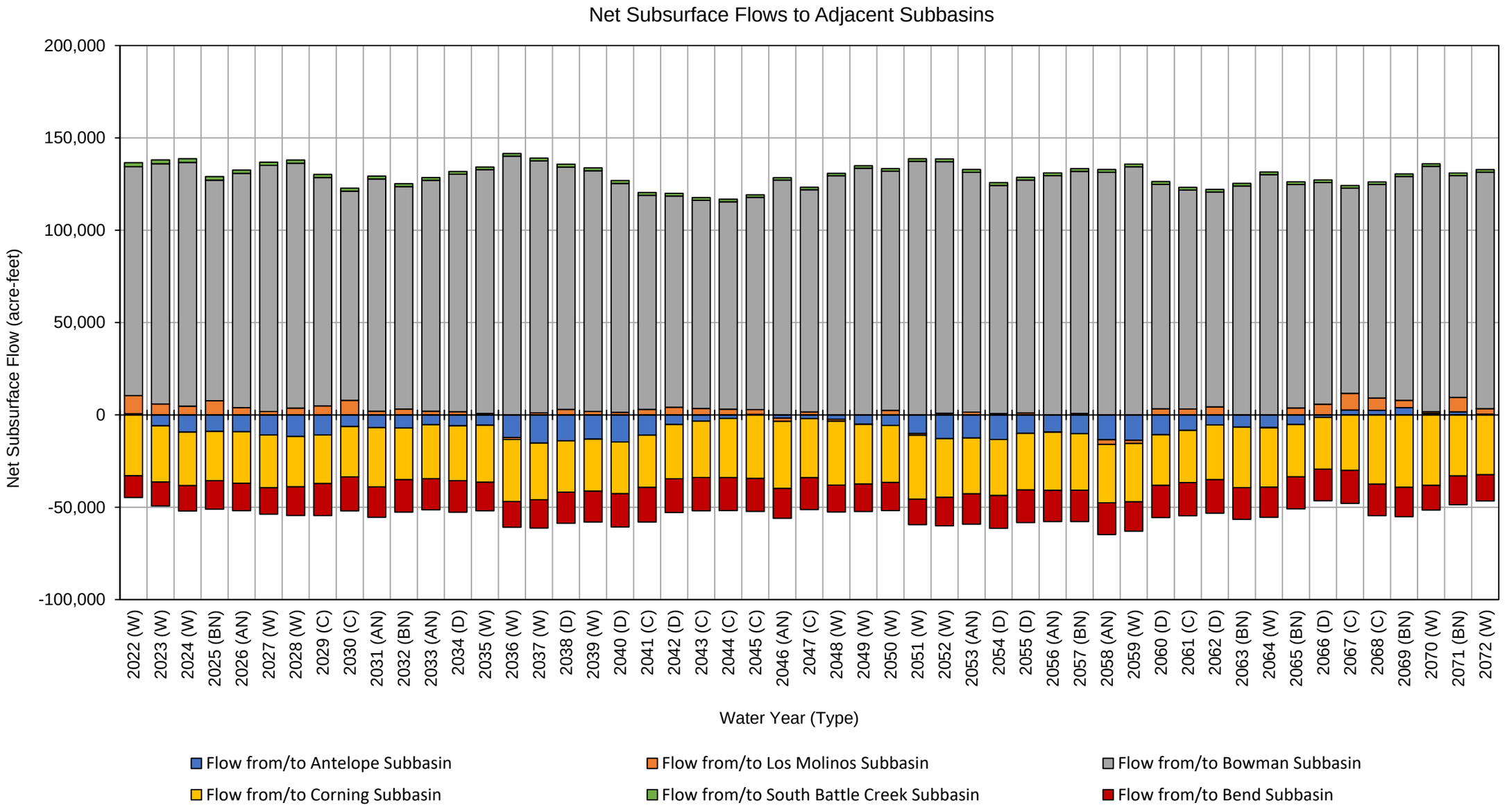
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-130,000	-6,000	-130,000
2023 (W)	-130,000	-7,500	-140,000
2024 (W)	-130,000	-8,100	-140,000
2025 (BN)	-150,000	-4,700	-160,000
2026 (AN)	-120,000	-5,600	-130,000
2027 (W)	-120,000	-8,500	-130,000
2028 (W)	-140,000	-8,000	-140,000
2029 (C)	-160,000	-5,400	-170,000
2030 (C)	-160,000	-2,700	-160,000
2031 (AN)	-130,000	-3,300	-130,000
2032 (BN)	-140,000	-2,900	-140,000
2033 (AN)	-130,000	-3,300	-130,000
2034 (D)	-160,000	-3,400	-160,000
2035 (W)	-120,000	-5,200	-130,000
2036 (W)	-91,000	-10,000	-100,000
2037 (W)	-130,000	-11,000	-140,000
2038 (D)	-160,000	-8,300	-170,000
2039 (W)	-130,000	-7,400	-140,000
2040 (D)	-140,000	-5,900	-140,000
2041 (C)	-150,000	-3,300	-150,000
2042 (D)	-140,000	-2,200	-150,000
2043 (C)	-140,000	-1,800	-150,000
2044 (C)	-140,000	-1,400	-140,000
2045 (C)	-150,000	-1,100	-150,000
2046 (AN)	-120,000	-1,800	-120,000
2047 (C)	-140,000	-1,600	-140,000
2048 (W)	-120,000	-3,100	-120,000
2049 (W)	-130,000	-4,200	-130,000
2050 (W)	-140,000	-4,700	-150,000
2051 (W)	-93,000	-8,300	-100,000
2052 (W)	-140,000	-8,600	-140,000
2053 (AN)	-120,000	-7,200	-130,000
2054 (D)	-140,000	-5,400	-140,000
2055 (D)	-160,000	-4,200	-160,000
2056 (AN)	-130,000	-4,500	-130,000
2057 (BN)	-160,000	-5,700	-160,000
2058 (AN)	-110,000	-6,200	-120,000
2059 (W)	-120,000	-8,800	-130,000
2060 (D)	-140,000	-5,400	-150,000
2061 (C)	-170,000	-3,700	-170,000
2062 (D)	-150,000	-2,500	-150,000
2063 (BN)	-120,000	-2,900	-120,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2030) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-110,000	-4,000	-120,000
2065 (BN)		-140,000	-3,500	-140,000
2066 (D)		-160,000	-2,500	-170,000
2067 (C)		-160,000	-1,400	-160,000
2068 (C)		-170,000	-1,000	-170,000
2069 (BN)		-150,000	-1,100	-150,000
2070 (W)		-130,000	-2,500	-130,000
2071 (BN)		-150,000	-1,700	-150,000
2072 (W)		-120,000	-2,800	-120,000
Average (2022-2072)		-140,000	-4,600	-140,000
2022-2072	W	-120,000	-6,600	-130,000
	AN	-120,000	-4,600	-130,000
	BN	-140,000	-3,200	-150,000
	D	-150,000	-4,400	-150,000
	C	-160,000	-2,400	-160,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2030) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

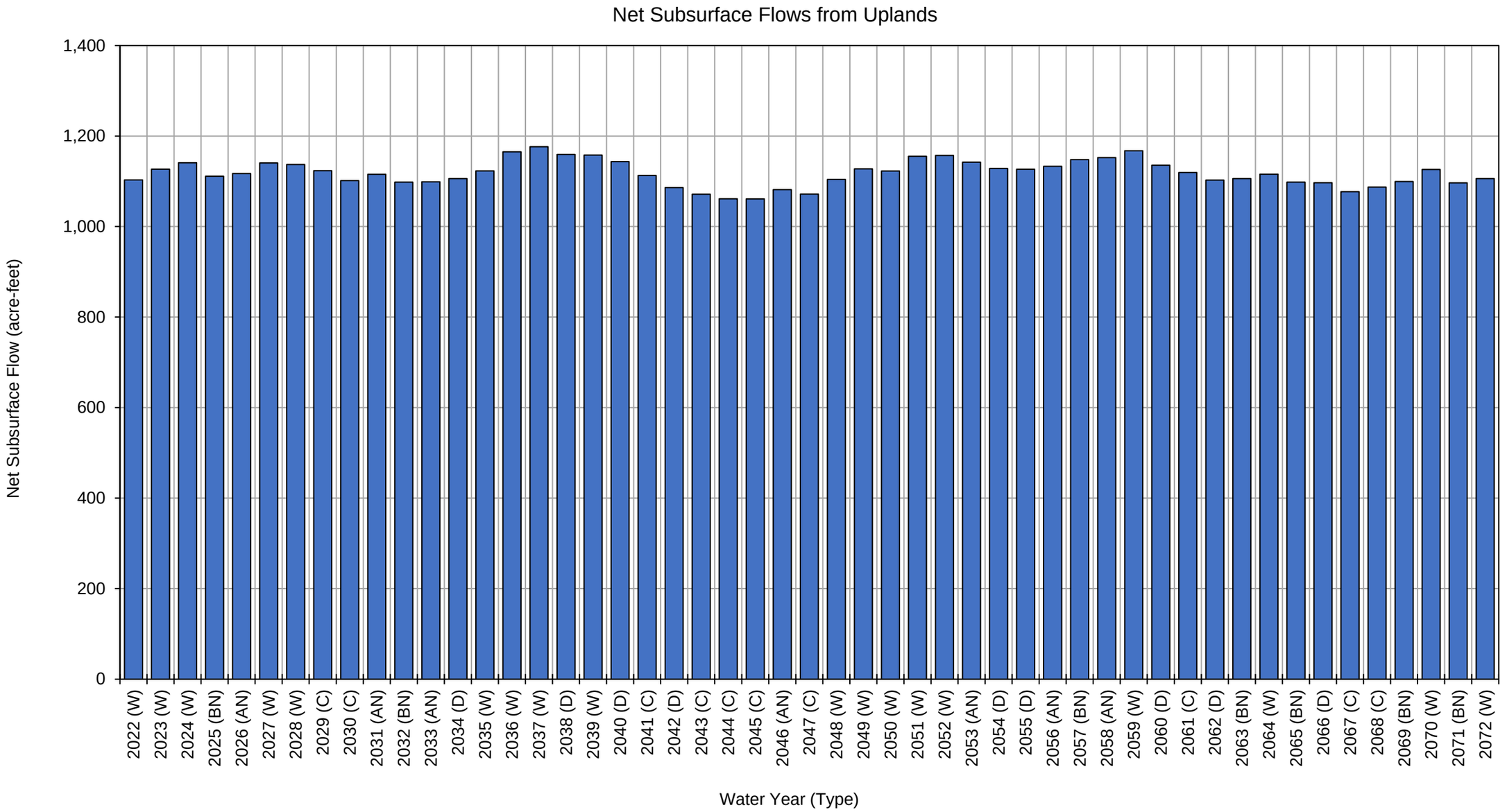
WY (Type)	Flow from/to Antelope Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bowman Subbasin	Flow from/to Corning Subbasin	Flow from/to South Battle Creek Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	590	9,900	120,000	-33,000	2,200	-12,000	92,000
2023 (W)	-5,900	5,900	130,000	-30,000	2,100	-13,000	89,000
2024 (W)	-9,400	4,700	130,000	-29,000	2,000	-14,000	87,000
2025 (BN)	-9,000	7,600	120,000	-27,000	2,000	-15,000	78,000
2026 (AN)	-9,100	3,900	130,000	-28,000	1,900	-15,000	81,000
2027 (W)	-11,000	1,800	130,000	-29,000	1,800	-14,000	83,000
2028 (W)	-12,000	3,700	130,000	-27,000	1,800	-16,000	84,000
2029 (C)	-11,000	4,800	120,000	-26,000	1,700	-17,000	76,000
2030 (C)	-6,300	7,900	110,000	-27,000	1,700	-18,000	71,000
2031 (AN)	-6,900	2,000	130,000	-32,000	1,600	-16,000	74,000
2032 (BN)	-7,100	3,200	120,000	-28,000	1,600	-18,000	73,000
2033 (AN)	-5,300	2,000	130,000	-29,000	1,500	-17,000	77,000
2034 (D)	-5,900	1,700	130,000	-30,000	1,500	-17,000	79,000
2035 (W)	-5,600	780	130,000	-31,000	1,400	-15,000	82,000
2036 (W)	-12,000	-1,000	140,000	-34,000	1,500	-14,000	81,000
2037 (W)	-15,000	1,100	140,000	-31,000	1,500	-15,000	78,000
2038 (D)	-14,000	3,000	130,000	-28,000	1,600	-17,000	77,000
2039 (W)	-13,000	1,900	130,000	-28,000	1,600	-17,000	76,000
2040 (D)	-15,000	1,400	120,000	-28,000	1,600	-18,000	66,000
2041 (C)	-11,000	3,000	120,000	-28,000	1,500	-19,000	62,000
2042 (D)	-5,200	4,100	110,000	-29,000	1,500	-18,000	67,000
2043 (C)	-3,400	3,400	110,000	-31,000	1,400	-18,000	66,000
2044 (C)	-1,900	3,100	110,000	-32,000	1,400	-18,000	65,000
2045 (C)	300	2,600	110,000	-34,000	1,400	-18,000	67,000
2046 (AN)	-1,800	-1,700	130,000	-36,000	1,300	-16,000	72,000
2047 (C)	-2,000	1,600	120,000	-32,000	1,300	-17,000	72,000
2048 (W)	-2,400	-1,000	130,000	-35,000	1,300	-15,000	78,000
2049 (W)	-5,000	-160	130,000	-32,000	1,400	-15,000	83,000
2050 (W)	-5,700	2,400	130,000	-31,000	1,400	-15,000	82,000
2051 (W)	-10,000	-960	140,000	-35,000	1,400	-14,000	79,000
2052 (W)	-13,000	910	140,000	-32,000	1,500	-15,000	79,000
2053 (AN)	-12,000	1,500	130,000	-30,000	1,500	-16,000	74,000
2054 (D)	-13,000	740	120,000	-30,000	1,600	-18,000	64,000
2055 (D)	-10,000	1,000	130,000	-31,000	1,500	-18,000	70,000
2056 (AN)	-9,200	-180	130,000	-32,000	1,500	-17,000	73,000
2057 (BN)	-10,000	790	130,000	-31,000	1,500	-17,000	76,000
2058 (AN)	-13,000	-2,500	130,000	-32,000	1,500	-17,000	68,000
2059 (W)	-14,000	-1,700	130,000	-32,000	1,500	-16,000	73,000
2060 (D)	-11,000	3,300	120,000	-27,000	1,500	-17,000	71,000
2061 (C)	-8,400	3,200	120,000	-28,000	1,500	-18,000	69,000
2062 (D)	-5,400	4,300	120,000	-30,000	1,500	-18,000	69,000
2063 (BN)	-6,700	45	120,000	-33,000	1,400	-17,000	69,000
2064 (W)	-6,800	-260	130,000	-32,000	1,400	-16,000	76,000
2065 (BN)	-5,200	3,700	120,000	-28,000	1,400	-17,000	75,000
2066 (D)	-1,300	5,800	120,000	-28,000	1,400	-17,000	81,000
2067 (C)	2,600	9,000	110,000	-30,000	1,400	-18,000	76,000
2068 (C)	2,500	6,600	120,000	-38,000	1,400	-17,000	72,000
2069 (BN)	3,900	3,900	120,000	-39,000	1,400	-16,000	75,000
2070 (W)	820	890	130,000	-38,000	1,300	-13,000	84,000
2071 (BN)	1,600	7,800	120,000	-33,000	1,400	-16,000	82,000
2072 (W)	380	3,000	130,000	-32,000	1,400	-14,000	86,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2030) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Antelope Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bowman Subbasin	Flow from/to Corning Subbasin	Flow from/to South Battle Creek Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
Average (2022-2072)		-6,800	2,600	130,000	-31,000	1,500	-16,000	76,000
2022-2072	W	-7,700	1,800	130,000	-32,000	1,600	-15,000	82,000
	AN	-8,300	710	130,000	-31,000	1,500	-16,000	74,000
	BN	-4,700	3,900	120,000	-31,000	1,500	-17,000	75,000
	D	-9,000	2,800	120,000	-29,000	1,500	-18,000	72,000
	C	-3,800	4,500	120,000	-31,000	1,500	-18,000	69,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2030) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

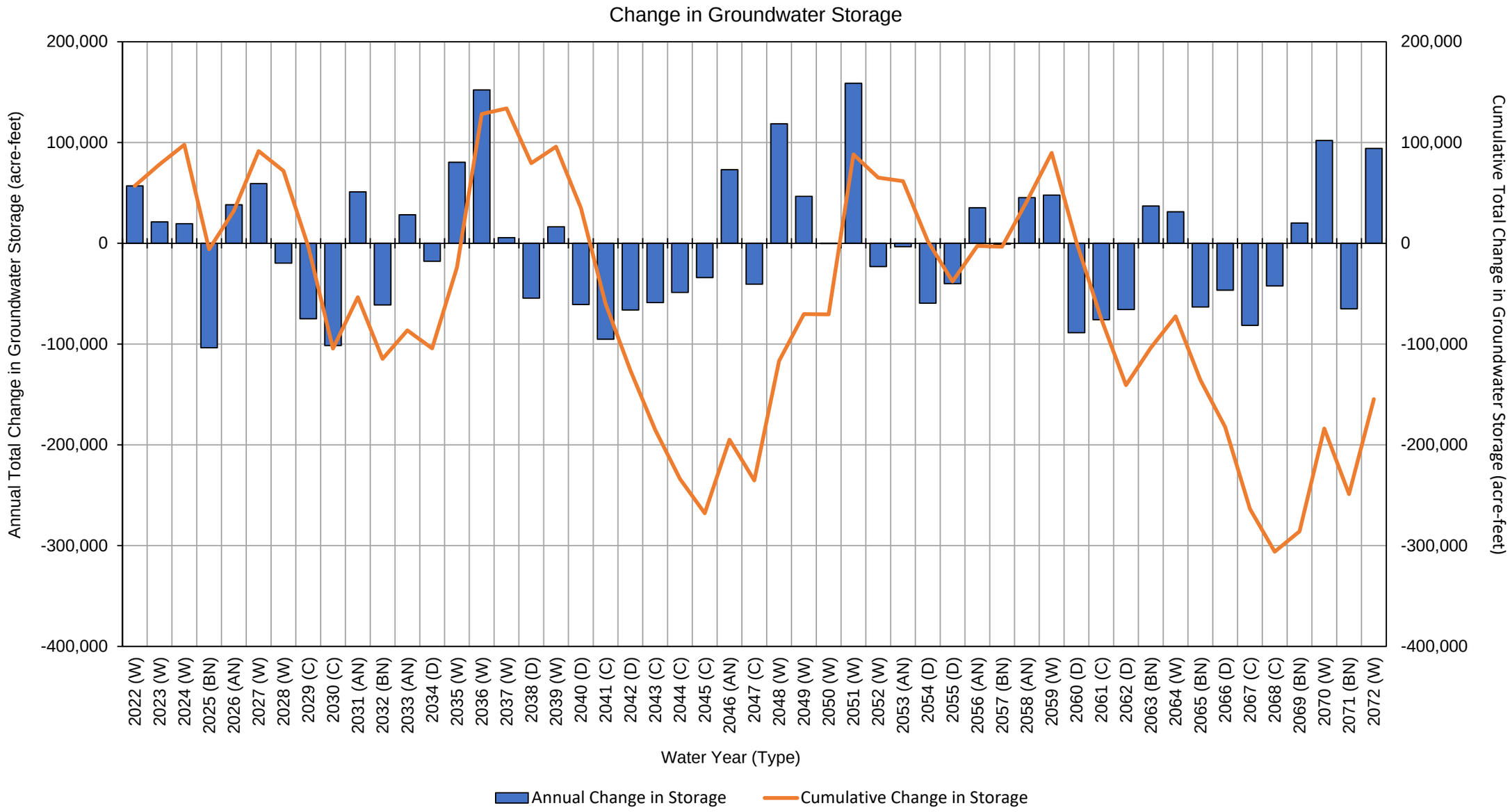
WY (Type)	Subsurface Flows from Uplands
2022 (W)	1,100
2023 (W)	1,100
2024 (W)	1,100
2025 (BN)	1,100
2026 (AN)	1,100
2027 (W)	1,100
2028 (W)	1,100
2029 (C)	1,100
2030 (C)	1,100
2031 (AN)	1,100
2032 (BN)	1,100
2033 (AN)	1,100
2034 (D)	1,100
2035 (W)	1,100
2036 (W)	1,200
2037 (W)	1,200
2038 (D)	1,200
2039 (W)	1,200
2040 (D)	1,100
2041 (C)	1,100
2042 (D)	1,100
2043 (C)	1,100
2044 (C)	1,100
2045 (C)	1,100
2046 (AN)	1,100
2047 (C)	1,100
2048 (W)	1,100
2049 (W)	1,100
2050 (W)	1,100
2051 (W)	1,200
2052 (W)	1,200
2053 (AN)	1,100
2054 (D)	1,100
2055 (D)	1,100
2056 (AN)	1,100
2057 (BN)	1,100
2058 (AN)	1,200
2059 (W)	1,200
2060 (D)	1,100
2061 (C)	1,100
2062 (D)	1,100
2063 (BN)	1,100

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2030) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		1,100
2065 (BN)		1,100
2066 (D)		1,100
2067 (C)		1,100
2068 (C)		1,100
2069 (BN)		1,100
2070 (W)		1,100
2071 (BN)		1,100
2072 (W)		1,100
Average (2022-2072)		1,100
2022-2072	W	1,100
	AN	1,100
	BN	1,100
	D	1,100
	C	1,100

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2030)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2030) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	57,000	57,000
2023 (W)	21,000	78,000
2024 (W)	19,000	98,000
2025 (BN)	-100,000	-5,900
2026 (AN)	38,000	32,000
2027 (W)	59,000	91,000
2028 (W)	-20,000	72,000
2029 (C)	-75,000	-3,100
2030 (C)	-100,000	-100,000
2031 (AN)	51,000	-54,000
2032 (BN)	-61,000	-110,000
2033 (AN)	28,000	-86,000
2034 (D)	-18,000	-100,000
2035 (W)	80,000	-24,000
2036 (W)	150,000	130,000
2037 (W)	5,600	130,000
2038 (D)	-54,000	80,000
2039 (W)	16,000	96,000
2040 (D)	-61,000	35,000
2041 (C)	-95,000	-60,000
2042 (D)	-66,000	-130,000
2043 (C)	-59,000	-190,000
2044 (C)	-49,000	-230,000
2045 (C)	-34,000	-270,000
2046 (AN)	73,000	-190,000
2047 (C)	-41,000	-240,000
2048 (W)	120,000	-120,000
2049 (W)	47,000	-70,000
2050 (W)	-280	-71,000
2051 (W)	160,000	88,000
2052 (W)	-23,000	65,000
2053 (AN)	-3,500	62,000
2054 (D)	-59,000	2,200
2055 (D)	-40,000	-38,000
2056 (AN)	35,000	-2,600
2057 (BN)	-880	-3,500
2058 (AN)	45,000	42,000
2059 (W)	48,000	90,000
2060 (D)	-89,000	910
2061 (C)	-76,000	-75,000
2062 (D)	-66,000	-140,000
2063 (BN)	37,000	-100,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2030) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		31,000	-72,000
2065 (BN)		-63,000	-140,000
2066 (D)		-47,000	-180,000
2067 (C)		-81,000	-260,000
2068 (C)		-42,000	-310,000
2069 (BN)		20,000	-290,000
2070 (W)		100,000	-180,000
2071 (BN)		-65,000	-250,000
2072 (W)		94,000	-150,000
Average (2022-2072)		-3,000	
2022-2072	W		
	AN		
	BN		
	D		
	C		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX D-7

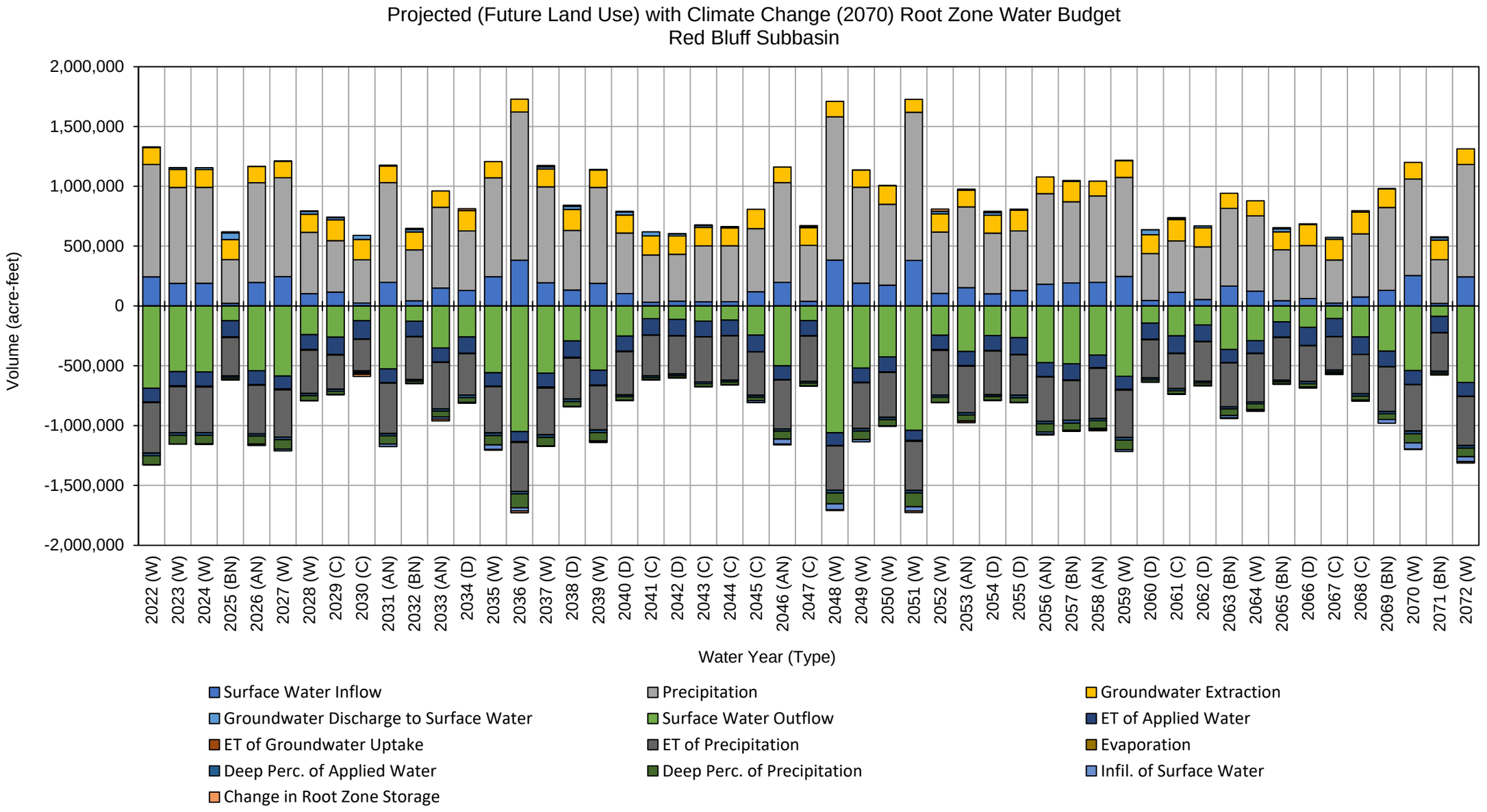
Detailed Red Bluff Subbasin Water Budget Results:

Projected (Future Land Use) with Climate Change (2070) Model Results

APPENDIX D-7a

Detailed Red Bluff Subbasin Water Budget Results:

Projected (Future Land Use) with Climate Change (2070) Model Results – Surface Water System


Projected (Future Land Use) with Climate Change (2070) Root Zone Water Budget
Red Bluff Subbasin
Volume (acre-feet)
2,000,000
1,500,000
1,000,000
500,000
0
-500,000
-1,000,000
-1,500,000
-2,000,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Surface Water Inflow
Precipitation
Groundwater Extraction
Groundwater Discharge to Surface Water
Surface Water Outflow
ET of Applied Water
ET of Groundwater Uptake
ET of Precipitation
Evaporation
Deep Perc. of Applied Water
Deep Perc. of Precipitation
Infil. of Surface Water
Change in Root Zone Storage

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Root Zone Water Budget Summary (acre-feet, rounded)

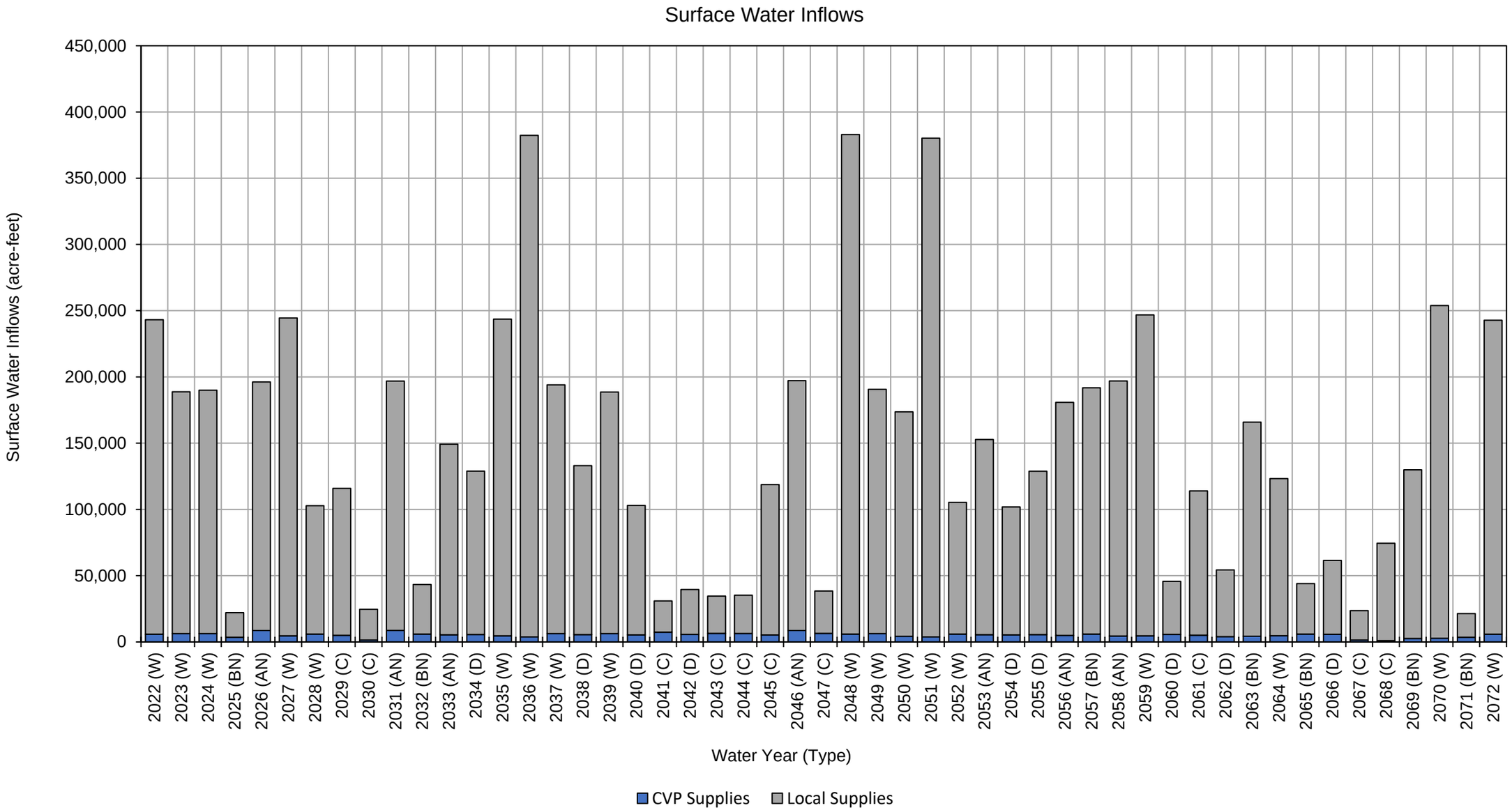
WY (Type)	Inflows				Outflows								Change in Root Zone Storage
	Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2022 (W)	240,000	940,000	140,000	2,200	690,000	110,000	5,600	420,000	970	21,000	75,000	2,800	-4,600
2023 (W)	190,000	800,000	150,000	13,000	550,000	120,000	7,300	390,000	1,100	20,000	72,000	2,800	-1,900
2024 (W)	190,000	800,000	150,000	15,000	550,000	120,000	7,900	380,000	1,100	21,000	71,000	2,900	15
2025 (BN)	22,000	360,000	170,000	55,000	120,000	140,000	4,300	320,000	950	14,000	16,000	2,000	-9,500
2026 (AN)	200,000	830,000	140,000	1,300	540,000	120,000	5,000	410,000	1,200	18,000	67,000	2,900	9,100
2027 (W)	240,000	830,000	140,000	0	590,000	110,000	7,900	390,000	950	20,000	80,000	14,000	-2,200
2028 (W)	100,000	510,000	150,000	23,000	240,000	120,000	7,100	360,000	1,200	17,000	41,000	2,700	-4,200
2029 (C)	120,000	430,000	170,000	19,000	260,000	150,000	5,000	290,000	1,400	16,000	27,000	2,500	-4,300
2030 (C)	25,000	360,000	170,000	34,000	120,000	150,000	2,500	260,000	1,200	13,000	12,000	1,700	17,000
2031 (AN)	200,000	830,000	140,000	0	530,000	120,000	3,000	420,000	1,300	18,000	69,000	21,000	-6,900
2032 (BN)	43,000	430,000	150,000	21,000	130,000	130,000	2,500	360,000	1,000	12,000	17,000	2,300	-9,500
2033 (AN)	150,000	680,000	140,000	0	350,000	120,000	2,900	390,000	1,200	18,000	49,000	18,000	15,000
2034 (D)	130,000	500,000	170,000	0	260,000	140,000	3,000	350,000	1,100	20,000	40,000	6,900	-15,000
2035 (W)	240,000	830,000	140,000	0	560,000	110,000	4,600	390,000	1,100	21,000	78,000	37,000	7,300
2036 (W)	380,000	1,200,000	110,000	0	1,000,000	83,000	8,800	410,000	640	20,000	120,000	27,000	14,000
2037 (W)	190,000	800,000	150,000	18,000	560,000	120,000	9,700	390,000	1,100	20,000	73,000	3,000	-11,000
2038 (D)	130,000	500,000	180,000	25,000	290,000	140,000	7,200	340,000	1,300	20,000	40,000	2,700	-10,000
2039 (W)	190,000	800,000	150,000	5,100	540,000	120,000	6,700	370,000	1,200	21,000	70,000	2,900	9,900
2040 (D)	100,000	510,000	150,000	26,000	250,000	130,000	5,200	360,000	1,100	14,000	30,000	2,600	-5,300
2041 (C)	31,000	400,000	160,000	33,000	110,000	140,000	2,900	340,000	1,200	13,000	16,000	2,100	2,200
2042 (D)	39,000	390,000	150,000	17,000	110,000	140,000	1,900	320,000	1,100	15,000	17,000	1,900	-1,200
2043 (C)	35,000	470,000	150,000	16,000	130,000	130,000	1,500	380,000	990	14,000	25,000	2,000	-3,700
2044 (C)	35,000	470,000	150,000	9,300	120,000	130,000	1,100	370,000	1,000	13,000	24,000	2,100	-33
2045 (C)	120,000	530,000	160,000	0	240,000	140,000	930	360,000	1,300	16,000	28,000	15,000	860
2046 (AN)	200,000	830,000	130,000	0	500,000	120,000	1,600	410,000	1,400	17,000	66,000	42,000	6,600
2047 (C)	38,000	470,000	150,000	9,500	120,000	130,000	1,300	380,000	1,100	13,000	24,000	2,200	-7,400
2048 (W)	380,000	1,200,000	130,000	0	1,100,000	110,000	2,500	370,000	1,100	22,000	91,000	48,000	7,900
2049 (W)	190,000	800,000	140,000	0	520,000	120,000	3,800	380,000	1,300	20,000	70,000	19,000	-68
2050 (W)	170,000	680,000	150,000	0	430,000	130,000	4,300	380,000	1,200	18,000	52,000	3,500	-1,800
2051 (W)	380,000	1,200,000	110,000	0	1,000,000	84,000	7,100	410,000	660	20,000	120,000	35,000	13,000
2052 (W)	110,000	510,000	150,000	21,000	250,000	120,000	7,000	370,000	1,200	17,000	44,000	2,800	-18,000
2053 (AN)	150,000	680,000	140,000	9,600	380,000	120,000	5,900	390,000	1,100	18,000	50,000	2,700	12,000
2054 (D)	100,000	510,000	150,000	22,000	250,000	120,000	4,500	370,000	1,100	14,000	31,000	2,600	-11,000
2055 (D)	130,000	500,000	170,000	3,600	270,000	140,000	3,500	340,000	1,100	20,000	39,000	2,600	-4,700
2056 (AN)	180,000	760,000	140,000	0	470,000	120,000	3,900	370,000	1,100	20,000	69,000	15,000	9,400
2057 (BN)	190,000	680,000	170,000	0	480,000	130,000	5,100	330,000	1,300	24,000	60,000	9,200	-8,300
2058 (AN)	200,000	720,000	120,000	0	410,000	110,000	5,300	420,000	980	17,000	63,000	12,000	9,000
2059 (W)	250,000	830,000	140,000	0	590,000	110,000	8,000	400,000	950	21,000	80,000	15,000	-2,600
2060 (D)	46,000	390,000	160,000	41,000	140,000	130,000	4,700	320,000	1,100	15,000	17,000	2,300	-1,500
2061 (C)	110,000	430,000	180,000	8,900	250,000	150,000	3,500	290,000	1,400	17,000	27,000	2,500	-7,100
2062 (D)	54,000	440,000	160,000	16,000	160,000	140,000	2,300	330,000	1,200	14,000	19,000	2,200	2,900
2063 (BN)	170,000	650,000	130,000	0	360,000	110,000	2,700	370,000	1,100	16,000	56,000	19,000	5,500
2064 (W)	120,000	630,000	130,000	0	290,000	100,000	3,600	400,000	1,000	15,000	48,000	12,000	2,300
2065 (BN)	44,000	430,000	150,000	25,000	130,000	130,000	3,100	360,000	1,000	12,000	18,000	2,300	-9,600

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Root Zone Water Budget Summary (acre-feet, rounded)

WY (Type)		Inflows				Outflows								Change in Root Zone Storage
		Surface Water Inflow	Precipitation	Groundwater Extraction	Groundwater Discharge to Surface Water	Surface Water Outflow	ET of Applied Water	ET of Groundwater Uptake	ET of Precipitation	Evaporation	Deep Perc. of Applied Water	Deep Perc. of Precipitation	Infil. of Surface Water	
2066 (D)		61,000	440,000	180,000	6,600	180,000	150,000	2,200	300,000	1,200	18,000	27,000	2,500	6,700
2067 (C)		24,000	360,000	170,000	16,000	110,000	150,000	1,100	280,000	1,100	13,000	12,000	1,600	9,600
2068 (C)		74,000	530,000	180,000	0	260,000	150,000	830	330,000	1,100	19,000	33,000	9,400	-12,000
2069 (BN)		130,000	690,000	160,000	0	380,000	130,000	890	370,000	1,400	18,000	46,000	32,000	-1,500
2070 (W)		250,000	810,000	140,000	0	540,000	120,000	2,200	390,000	1,300	21,000	76,000	52,000	2,900
2071 (BN)		21,000	360,000	160,000	21,000	87,000	140,000	1,400	320,000	980	14,000	15,000	2,000	-5,800
2072 (W)		240,000	940,000	130,000	0	640,000	120,000	2,300	410,000	1,200	20,000	72,000	41,000	11,000
Average (2022-2072)		140,000	640,000	150,000	10,000	380,000	120,000	4,100	360,000	1,100	17,000	48,000	11,000	-95
2022-2072	W	230,000	840,000	140,000	5,400	590,000	110,000	5,900	390,000	1,100	20,000	74,000	18,000	1,300
	AN	180,000	760,000	130,000	1,600	460,000	120,000	3,900	400,000	1,200	18,000	62,000	16,000	7,800
	BN	88,000	510,000	150,000	17,000	240,000	130,000	2,800	350,000	1,100	16,000	32,000	9,900	-5,500
	D	88,000	460,000	160,000	17,000	210,000	140,000	3,800	340,000	1,200	17,000	29,000	2,900	-4,400
	C	61,000	440,000	170,000	15,000	170,000	140,000	2,100	330,000	1,200	15,000	23,000	4,100	-410

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

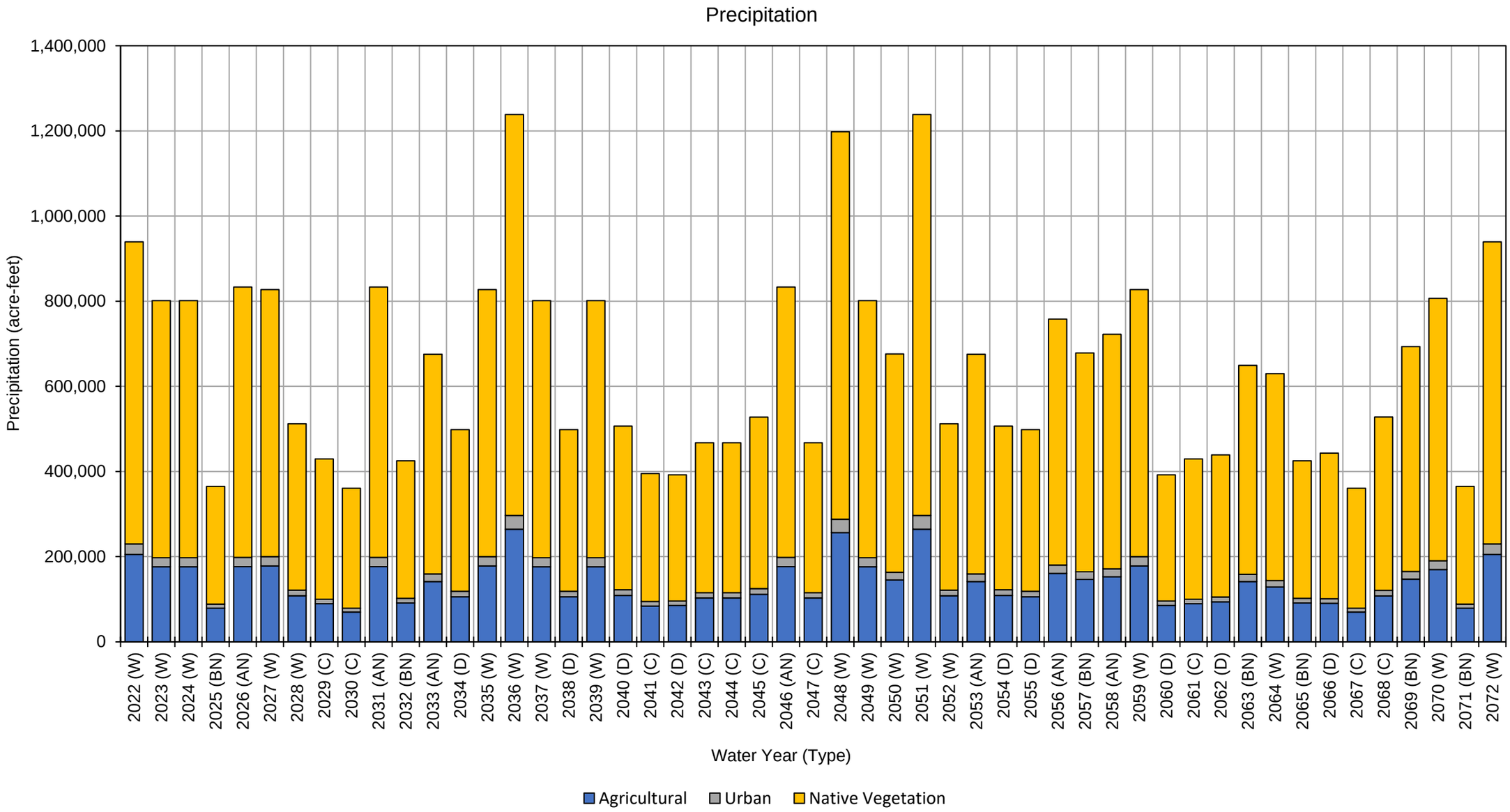
WY (Type)	CVP Supplies	Local Supplies	Total
2022 (W)	5,800	240,000	250,000
2023 (W)	6,300	180,000	190,000
2024 (W)	6,200	180,000	190,000
2025 (BN)	3,400	19,000	22,000
2026 (AN)	8,500	190,000	200,000
2027 (W)	4,600	240,000	240,000
2028 (W)	5,900	97,000	100,000
2029 (C)	5,000	110,000	120,000
2030 (C)	1,400	23,000	24,000
2031 (AN)	8,600	190,000	200,000
2032 (BN)	5,900	37,000	43,000
2033 (AN)	5,400	140,000	150,000
2034 (D)	5,500	120,000	130,000
2035 (W)	4,600	240,000	240,000
2036 (W)	3,700	380,000	380,000
2037 (W)	6,200	190,000	200,000
2038 (D)	5,500	130,000	140,000
2039 (W)	6,200	180,000	190,000
2040 (D)	5,200	98,000	100,000
2041 (C)	7,300	24,000	31,000
2042 (D)	5,600	34,000	40,000
2043 (C)	6,400	28,000	34,000
2044 (C)	6,300	29,000	35,000
2045 (C)	5,200	110,000	120,000
2046 (AN)	8,500	190,000	200,000
2047 (C)	6,400	32,000	38,000
2048 (W)	5,900	380,000	390,000
2049 (W)	6,200	180,000	190,000
2050 (W)	4,100	170,000	170,000
2051 (W)	3,700	380,000	380,000
2052 (W)	5,800	99,000	100,000
2053 (AN)	5,400	150,000	160,000
2054 (D)	5,300	97,000	100,000
2055 (D)	5,500	120,000	130,000
2056 (AN)	4,900	180,000	180,000
2057 (BN)	5,900	190,000	200,000
2058 (AN)	4,400	190,000	190,000
2059 (W)	4,500	240,000	240,000
2060 (D)	5,600	40,000	46,000
2061 (C)	5,000	110,000	120,000
2062 (D)	3,900	50,000	54,000
2063 (BN)	4,200	160,000	160,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Surface Water Inflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Total
2064 (W)		4,700	120,000	120,000
2065 (BN)		5,800	38,000	44,000
2066 (D)		5,700	56,000	62,000
2067 (C)		1,400	22,000	23,000
2068 (C)		950	73,000	74,000
2069 (BN)		2,500	130,000	130,000
2070 (W)		2,700	250,000	250,000
2071 (BN)		3,400	18,000	21,000
2072 (W)		5,700	240,000	250,000
Average (2022-2072)		5,200	140,000	150,000
2022-2072	W	5,200	220,000	230,000
	AN	6,500	170,000	180,000
	BN	4,500	84,000	89,000
	D	5,300	83,000	88,000
	C	4,500	56,000	61,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Precipitation, by Water Use Sector (acre-feet, rounded)

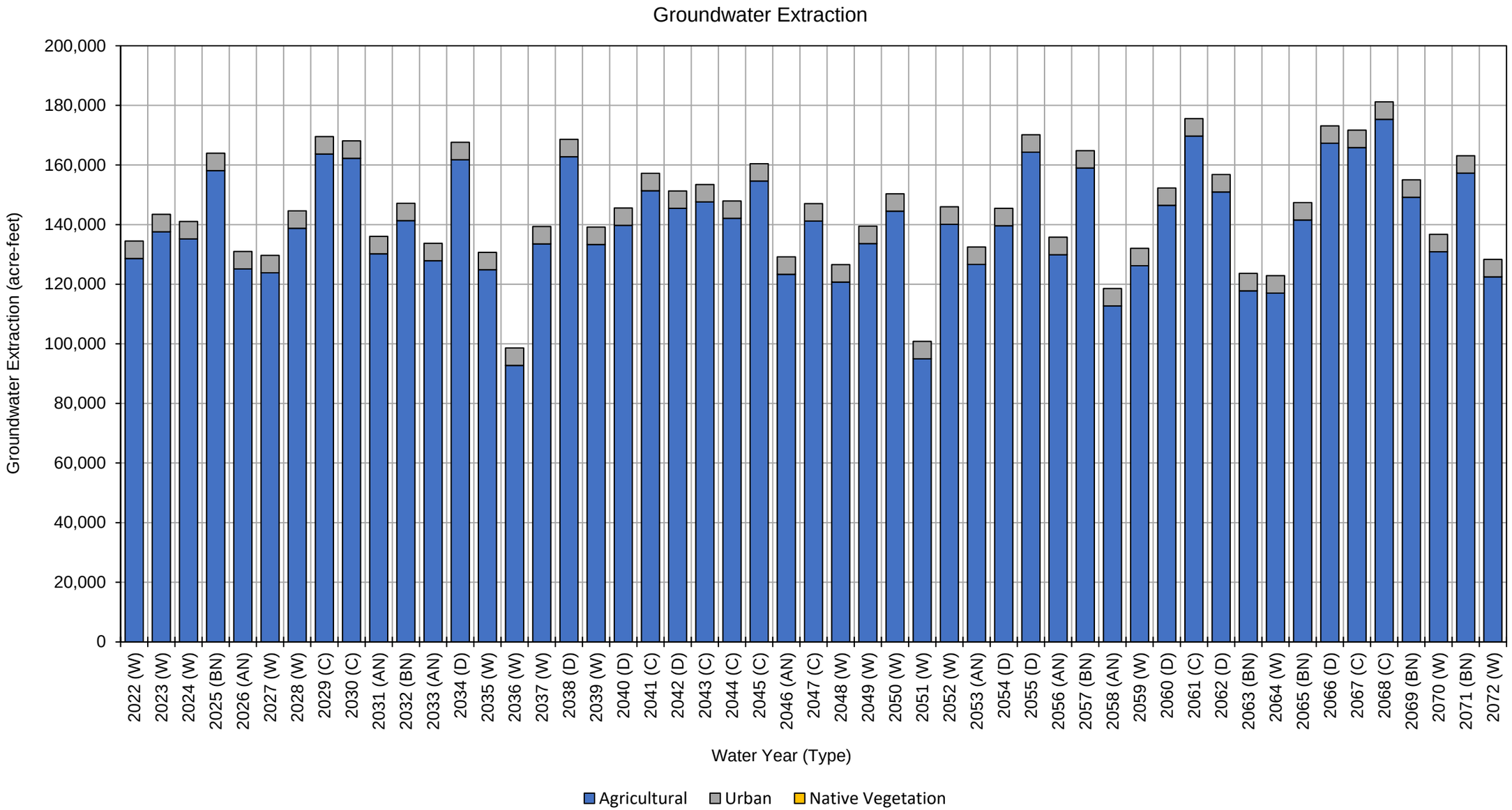
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	210,000	25,000	710,000	950,000
2023 (W)	180,000	21,000	600,000	800,000
2024 (W)	180,000	21,000	600,000	800,000
2025 (BN)	79,000	9,600	280,000	370,000
2026 (AN)	180,000	22,000	640,000	840,000
2027 (W)	180,000	22,000	630,000	830,000
2028 (W)	110,000	13,000	390,000	510,000
2029 (C)	89,000	11,000	330,000	430,000
2030 (C)	70,000	9,100	280,000	360,000
2031 (AN)	180,000	22,000	640,000	840,000
2032 (BN)	91,000	11,000	320,000	420,000
2033 (AN)	140,000	18,000	520,000	680,000
2034 (D)	110,000	13,000	380,000	500,000
2035 (W)	180,000	22,000	630,000	830,000
2036 (W)	260,000	32,000	940,000	1,200,000
2037 (W)	180,000	21,000	600,000	800,000
2038 (D)	110,000	13,000	380,000	500,000
2039 (W)	180,000	21,000	600,000	800,000
2040 (D)	110,000	13,000	380,000	500,000
2041 (C)	84,000	11,000	300,000	400,000
2042 (D)	85,000	11,000	300,000	400,000
2043 (C)	100,000	13,000	350,000	460,000
2044 (C)	100,000	13,000	350,000	460,000
2045 (C)	110,000	14,000	400,000	520,000
2046 (AN)	180,000	22,000	640,000	840,000
2047 (C)	100,000	13,000	350,000	460,000
2048 (W)	260,000	31,000	910,000	1,200,000
2049 (W)	180,000	21,000	600,000	800,000
2050 (W)	150,000	18,000	510,000	680,000
2051 (W)	260,000	32,000	940,000	1,200,000
2052 (W)	110,000	13,000	390,000	510,000
2053 (AN)	140,000	18,000	520,000	680,000
2054 (D)	110,000	13,000	380,000	500,000
2055 (D)	110,000	13,000	380,000	500,000
2056 (AN)	160,000	20,000	580,000	760,000
2057 (BN)	150,000	18,000	510,000	680,000
2058 (AN)	150,000	19,000	550,000	720,000
2059 (W)	180,000	22,000	630,000	830,000
2060 (D)	85,000	11,000	300,000	400,000
2061 (C)	89,000	11,000	330,000	430,000
2062 (D)	94,000	11,000	330,000	440,000
2063 (BN)	140,000	17,000	490,000	650,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		130,000	15,000	490,000	640,000
2065 (BN)		91,000	11,000	320,000	420,000
2066 (D)		90,000	11,000	340,000	440,000
2067 (C)		70,000	9,100	280,000	360,000
2068 (C)		110,000	13,000	410,000	530,000
2069 (BN)		150,000	18,000	530,000	700,000
2070 (W)		170,000	21,000	620,000	810,000
2071 (BN)		79,000	9,600	280,000	370,000
2072 (W)		210,000	25,000	710,000	950,000
Average (2022-2072)		140,000	17,000	490,000	650,000
2022-2072	W	180,000	22,000	640,000	840,000
	AN	160,000	20,000	580,000	760,000
	BN	110,000	13,000	390,000	510,000
	D	99,000	12,000	350,000	460,000
	C	93,000	11,000	340,000	440,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

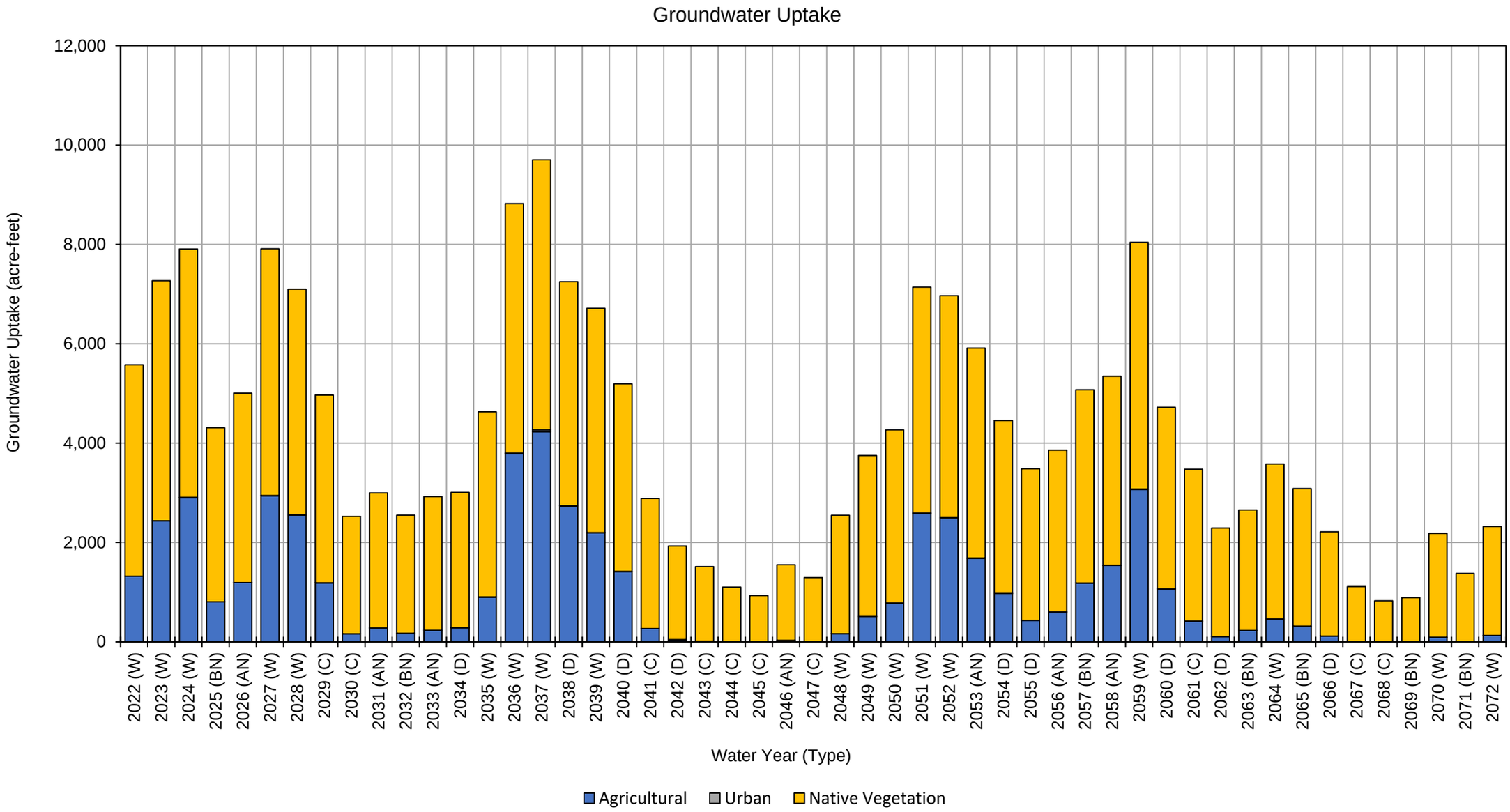
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	130,000	5,900	0	140,000
2023 (W)	140,000	5,900	0	150,000
2024 (W)	140,000	5,900	0	150,000
2025 (BN)	160,000	5,900	0	170,000
2026 (AN)	130,000	5,900	0	140,000
2027 (W)	120,000	5,900	0	130,000
2028 (W)	140,000	5,900	0	150,000
2029 (C)	160,000	5,900	0	170,000
2030 (C)	160,000	5,800	0	170,000
2031 (AN)	130,000	5,900	0	140,000
2032 (BN)	140,000	5,800	0	150,000
2033 (AN)	130,000	5,900	0	140,000
2034 (D)	160,000	5,800	0	170,000
2035 (W)	120,000	5,900	0	130,000
2036 (W)	93,000	5,900	0	99,000
2037 (W)	130,000	5,900	0	140,000
2038 (D)	160,000	5,900	0	170,000
2039 (W)	130,000	5,900	0	140,000
2040 (D)	140,000	5,900	0	150,000
2041 (C)	150,000	5,900	0	160,000
2042 (D)	150,000	5,800	0	160,000
2043 (C)	150,000	5,800	0	160,000
2044 (C)	140,000	5,800	0	150,000
2045 (C)	150,000	5,800	0	160,000
2046 (AN)	120,000	5,900	0	130,000
2047 (C)	140,000	5,800	0	150,000
2048 (W)	120,000	5,900	0	130,000
2049 (W)	130,000	5,900	0	140,000
2050 (W)	140,000	5,900	0	150,000
2051 (W)	95,000	5,900	0	100,000
2052 (W)	140,000	5,900	0	150,000
2053 (AN)	130,000	5,900	0	140,000
2054 (D)	140,000	5,900	0	150,000
2055 (D)	160,000	5,900	0	170,000
2056 (AN)	130,000	5,900	0	140,000
2057 (BN)	160,000	5,900	0	170,000
2058 (AN)	110,000	5,900	0	120,000
2059 (W)	130,000	5,900	0	140,000
2060 (D)	150,000	5,900	0	160,000
2061 (C)	170,000	5,900	0	180,000
2062 (D)	150,000	5,800	0	160,000
2063 (BN)	120,000	5,900	0	130,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Extraction, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		120,000	5,900	0	130,000
2065 (BN)		140,000	5,800	0	150,000
2066 (D)		170,000	5,800	0	180,000
2067 (C)		170,000	5,800	0	180,000
2068 (C)		180,000	5,800	0	190,000
2069 (BN)		150,000	5,800	0	160,000
2070 (W)		130,000	5,900	0	140,000
2071 (BN)		160,000	5,800	0	170,000
2072 (W)		120,000	5,900	0	130,000
Average (2022-2072)		140,000	5,800	0	150,000
2022-2072	W	130,000	5,900	0	140,000
	AN	130,000	5,900	0	140,000
	BN	150,000	5,800	0	160,000
	D	150,000	5,800	0	160,000
	C	160,000	5,800	0	170,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

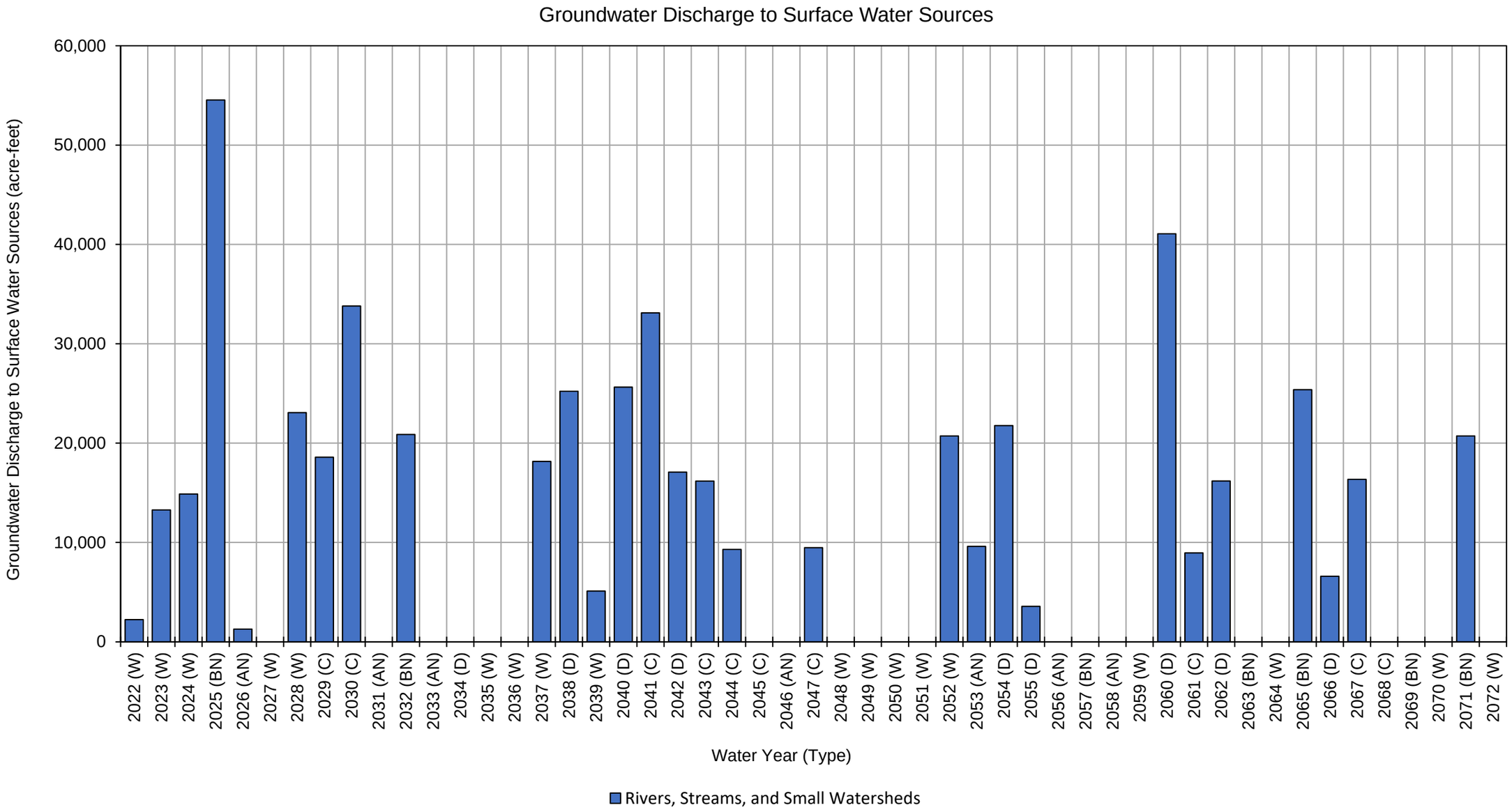
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	1,300	1	4,300	5,600
2023 (W)	2,400	3	4,800	7,200
2024 (W)	2,900	4	5,000	7,900
2025 (BN)	810	0	3,500	4,300
2026 (AN)	1,200	0	3,800	5,000
2027 (W)	2,900	5	5,000	7,900
2028 (W)	2,500	4	4,500	7,000
2029 (C)	1,200	1	3,800	5,000
2030 (C)	160	0	2,400	2,600
2031 (AN)	280	0	2,700	3,000
2032 (BN)	170	0	2,400	2,600
2033 (AN)	230	0	2,700	2,900
2034 (D)	280	0	2,700	3,000
2035 (W)	900	1	3,700	4,600
2036 (W)	3,800	11	5,000	8,800
2037 (W)	4,200	37	5,400	9,600
2038 (D)	2,700	3	4,500	7,200
2039 (W)	2,200	2	4,500	6,700
2040 (D)	1,400	1	3,800	5,200
2041 (C)	270	0	2,600	2,900
2042 (D)	43	0	1,900	1,900
2043 (C)	13	0	1,500	1,500
2044 (C)	6	0	1,100	1,100
2045 (C)	8	0	920	930
2046 (AN)	30	0	1,500	1,500
2047 (C)	9	0	1,300	1,300
2048 (W)	160	1	2,400	2,600
2049 (W)	510	1	3,200	3,700
2050 (W)	780	1	3,500	4,300
2051 (W)	2,600	3	4,500	7,100
2052 (W)	2,500	3	4,500	7,000
2053 (AN)	1,700	2	4,200	5,900
2054 (D)	970	0	3,500	4,500
2055 (D)	430	0	3,100	3,500
2056 (AN)	600	0	3,300	3,900
2057 (BN)	1,200	1	3,900	5,100
2058 (AN)	1,500	0	3,800	5,300
2059 (W)	3,100	5	5,000	8,100
2060 (D)	1,100	0	3,700	4,800
2061 (C)	420	0	3,100	3,500
2062 (D)	100	0	2,200	2,300
2063 (BN)	230	0	2,400	2,600

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		460	0	3,100	3,600
2065 (BN)		310	0	2,800	3,100
2066 (D)		120	0	2,100	2,200
2067 (C)		6	0	1,100	1,100
2068 (C)		4	0	820	820
2069 (BN)		7	0	880	890
2070 (W)		91	1	2,100	2,200
2071 (BN)		9	0	1,400	1,400
2072 (W)		130	0	2,200	2,300
Average (2022-2072)		1,000	2	3,100	4,100
2022-2072	W	1,900	5	4,000	5,900
	AN	790	0	3,100	3,900
	BN	390	0	2,500	2,900
	D	800	1	3,000	3,800
	C	210	0	1,900	2,100

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

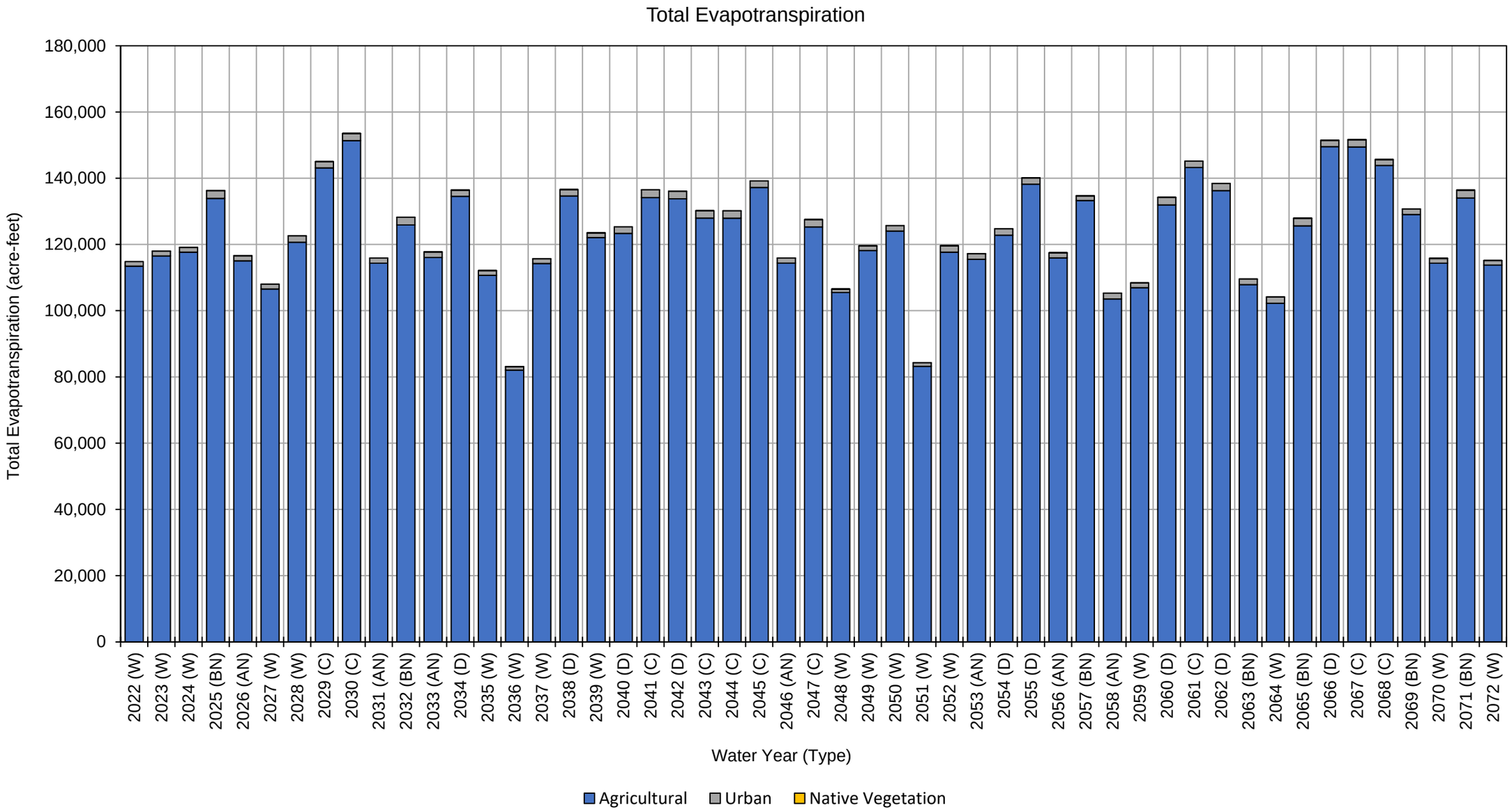
WY (Type)	Rivers, Streams, and Small Watersheds
2022 (W)	2,200
2023 (W)	13,000
2024 (W)	15,000
2025 (BN)	55,000
2026 (AN)	1,300
2027 (W)	0
2028 (W)	23,000
2029 (C)	19,000
2030 (C)	34,000
2031 (AN)	0
2032 (BN)	21,000
2033 (AN)	0
2034 (D)	0
2035 (W)	0
2036 (W)	0
2037 (W)	18,000
2038 (D)	25,000
2039 (W)	5,100
2040 (D)	26,000
2041 (C)	33,000
2042 (D)	17,000
2043 (C)	16,000
2044 (C)	9,300
2045 (C)	0
2046 (AN)	0
2047 (C)	9,500
2048 (W)	0
2049 (W)	0
2050 (W)	0
2051 (W)	0
2052 (W)	21,000
2053 (AN)	9,600
2054 (D)	22,000
2055 (D)	3,600
2056 (AN)	0
2057 (BN)	0
2058 (AN)	0
2059 (W)	0
2060 (D)	41,000
2061 (C)	8,900
2062 (D)	16,000
2063 (BN)	0

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Discharge to Surface Water Sources (acre-feet, rounded)

WY (Type)		Rivers, Streams, and Small Watersheds
2064 (W)		0
2065 (BN)		25,000
2066 (D)		6,600
2067 (C)		16,000
2068 (C)		0
2069 (BN)		0
2070 (W)		0
2071 (BN)		21,000
2072 (W)		0
Average (2022-2072)		10,000
2022-2072	W	5,400
	AN	1,600
	BN	17,000
	D	17,000
	C	15,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

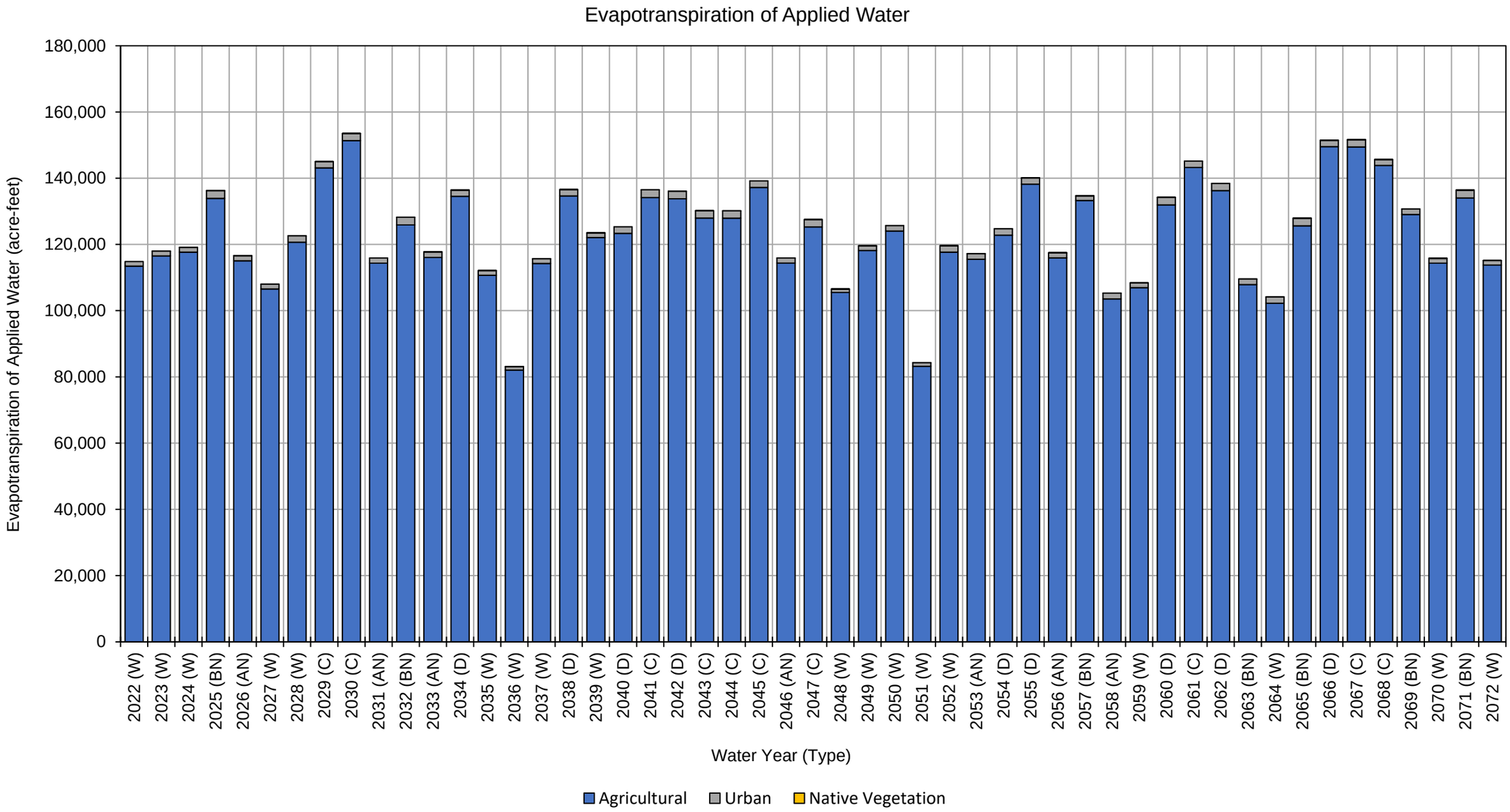
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	200,000	7,300	340,000	550,000
2023 (W)	200,000	6,700	310,000	520,000
2024 (W)	200,000	6,600	300,000	510,000
2025 (BN)	200,000	6,200	260,000	470,000
2026 (AN)	200,000	7,100	320,000	530,000
2027 (W)	190,000	6,700	320,000	520,000
2028 (W)	190,000	6,300	290,000	490,000
2029 (C)	200,000	5,300	230,000	440,000
2030 (C)	200,000	5,400	220,000	430,000
2031 (AN)	200,000	7,300	340,000	550,000
2032 (BN)	200,000	6,600	290,000	500,000
2033 (AN)	190,000	6,900	310,000	510,000
2034 (D)	200,000	6,100	280,000	490,000
2035 (W)	190,000	6,700	310,000	510,000
2036 (W)	170,000	6,900	320,000	500,000
2037 (W)	200,000	6,600	310,000	520,000
2038 (D)	200,000	6,100	280,000	490,000
2039 (W)	200,000	6,600	300,000	510,000
2040 (D)	200,000	6,400	290,000	500,000
2041 (C)	200,000	6,600	270,000	480,000
2042 (D)	190,000	6,400	250,000	450,000
2043 (C)	200,000	7,000	300,000	510,000
2044 (C)	200,000	7,000	290,000	500,000
2045 (C)	210,000	6,600	290,000	510,000
2046 (AN)	200,000	7,100	320,000	530,000
2047 (C)	200,000	7,000	300,000	510,000
2048 (W)	180,000	6,400	290,000	480,000
2049 (W)	200,000	6,600	300,000	510,000
2050 (W)	200,000	6,700	300,000	510,000
2051 (W)	170,000	7,000	320,000	500,000
2052 (W)	190,000	6,300	300,000	500,000
2053 (AN)	190,000	6,900	310,000	510,000
2054 (D)	200,000	6,500	290,000	500,000
2055 (D)	200,000	6,100	270,000	480,000
2056 (AN)	190,000	6,600	300,000	500,000
2057 (BN)	200,000	5,800	270,000	480,000
2058 (AN)	190,000	7,400	340,000	540,000
2059 (W)	190,000	6,700	320,000	520,000
2060 (D)	200,000	6,400	260,000	470,000
2061 (C)	200,000	5,400	240,000	450,000
2062 (D)	200,000	6,400	270,000	480,000
2063 (BN)	180,000	6,500	290,000	480,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		180,000	6,900	320,000	510,000
2065 (BN)		200,000	6,600	290,000	500,000
2066 (D)		200,000	5,500	240,000	450,000
2067 (C)		200,000	5,600	230,000	440,000
2068 (C)		200,000	5,800	270,000	480,000
2069 (BN)		200,000	6,700	300,000	510,000
2070 (W)		190,000	6,600	310,000	510,000
2071 (BN)		200,000	6,200	260,000	470,000
2072 (W)		190,000	7,200	330,000	530,000
Average (2022-2072)		190,000	6,500	290,000	490,000
2022-2072	W	190,000	6,700	310,000	510,000
	AN	190,000	7,000	320,000	520,000
	BN	190,000	6,400	280,000	480,000
	D	200,000	6,200	270,000	480,000
	C	200,000	6,200	260,000	470,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

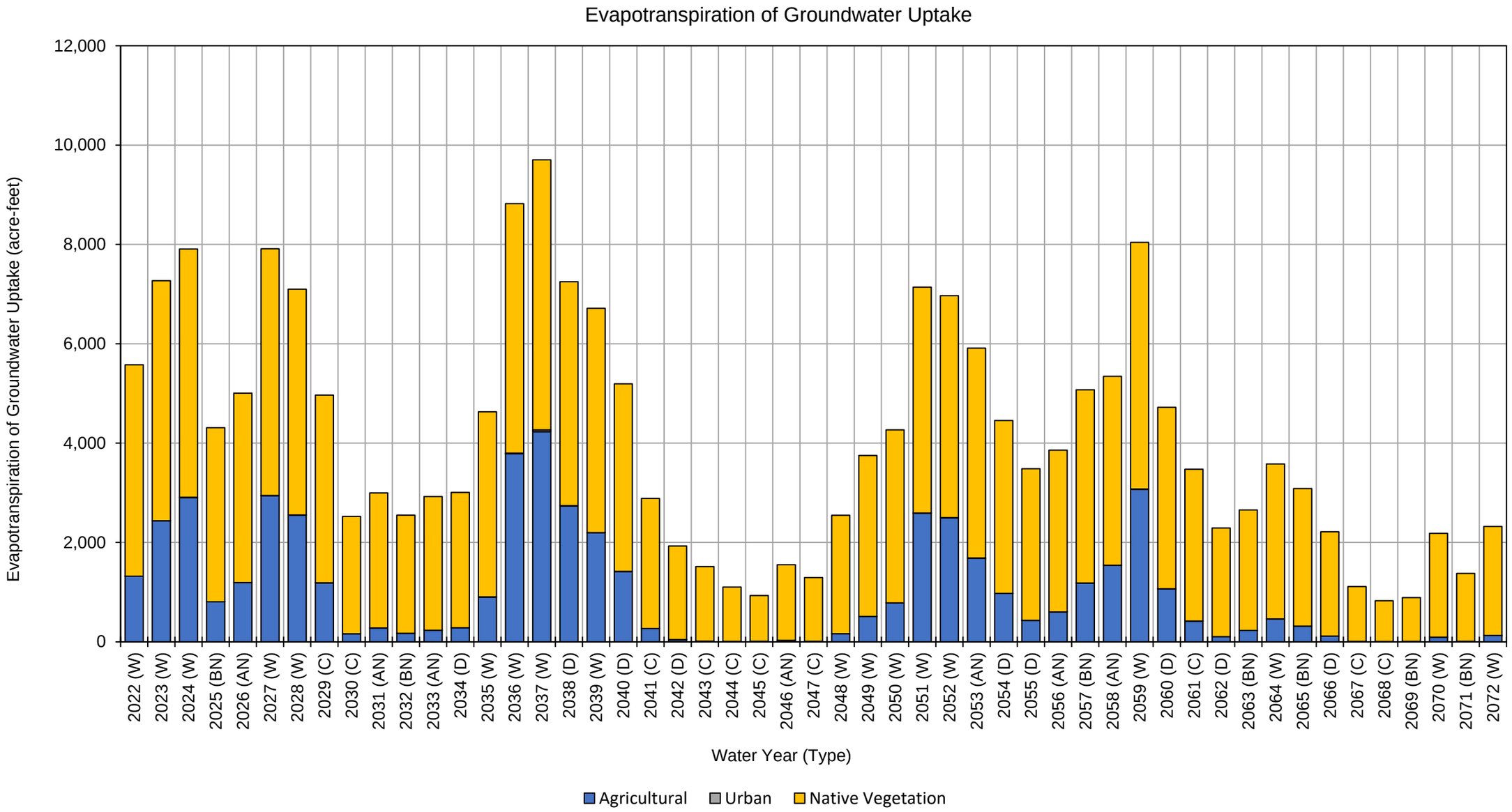
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	110,000	1,400	0	110,000
2023 (W)	120,000	1,400	1	120,000
2024 (W)	120,000	1,400	2	120,000
2025 (BN)	130,000	2,400	3	130,000
2026 (AN)	120,000	1,500	4	120,000
2027 (W)	110,000	1,400	5	110,000
2028 (W)	120,000	1,900	6	120,000
2029 (C)	140,000	1,900	7	140,000
2030 (C)	150,000	2,100	8	150,000
2031 (AN)	110,000	1,500	9	110,000
2032 (BN)	130,000	2,300	10	130,000
2033 (AN)	120,000	1,700	11	120,000
2034 (D)	130,000	1,900	12	130,000
2035 (W)	110,000	1,400	13	110,000
2036 (W)	82,000	1,100	14	83,000
2037 (W)	110,000	1,400	15	110,000
2038 (D)	130,000	1,900	16	130,000
2039 (W)	120,000	1,400	17	120,000
2040 (D)	120,000	2,000	18	120,000
2041 (C)	130,000	2,300	19	130,000
2042 (D)	130,000	2,300	20	130,000
2043 (C)	130,000	2,200	21	130,000
2044 (C)	130,000	2,200	22	130,000
2045 (C)	140,000	2,000	23	140,000
2046 (AN)	110,000	1,500	24	110,000
2047 (C)	130,000	2,200	25	130,000
2048 (W)	110,000	1,000	26	110,000
2049 (W)	120,000	1,400	27	120,000
2050 (W)	120,000	1,600	28	120,000
2051 (W)	83,000	1,100	29	84,000
2052 (W)	120,000	1,900	30	120,000
2053 (AN)	120,000	1,700	31	120,000
2054 (D)	120,000	2,000	32	120,000
2055 (D)	140,000	1,900	33	140,000
2056 (AN)	120,000	1,500	34	120,000
2057 (BN)	130,000	1,400	35	130,000
2058 (AN)	100,000	1,800	36	100,000
2059 (W)	110,000	1,400	37	110,000
2060 (D)	130,000	2,300	38	130,000
2061 (C)	140,000	1,900	39	140,000
2062 (D)	140,000	2,100	40	140,000
2063 (BN)	110,000	1,700	41	110,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		100,000	1,900	42	100,000
2065 (BN)		130,000	2,300	43	130,000
2066 (D)		150,000	1,900	44	150,000
2067 (C)		150,000	2,200	45	150,000
2068 (C)		140,000	1,800	46	140,000
2069 (BN)		130,000	1,600	47	130,000
2070 (W)		110,000	1,500	48	110,000
2071 (BN)		130,000	2,400	49	130,000
2072 (W)		110,000	1,400	50	110,000
Average (2022-2072)		120,000	1,800	25	120,000
2022-2072	W	110,000	1,500	22	110,000
	AN	110,000	1,600	21	110,000
	BN	130,000	2,000	33	130,000
	D	130,000	2,000	28	130,000
	C	140,000	2,100	26	140,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

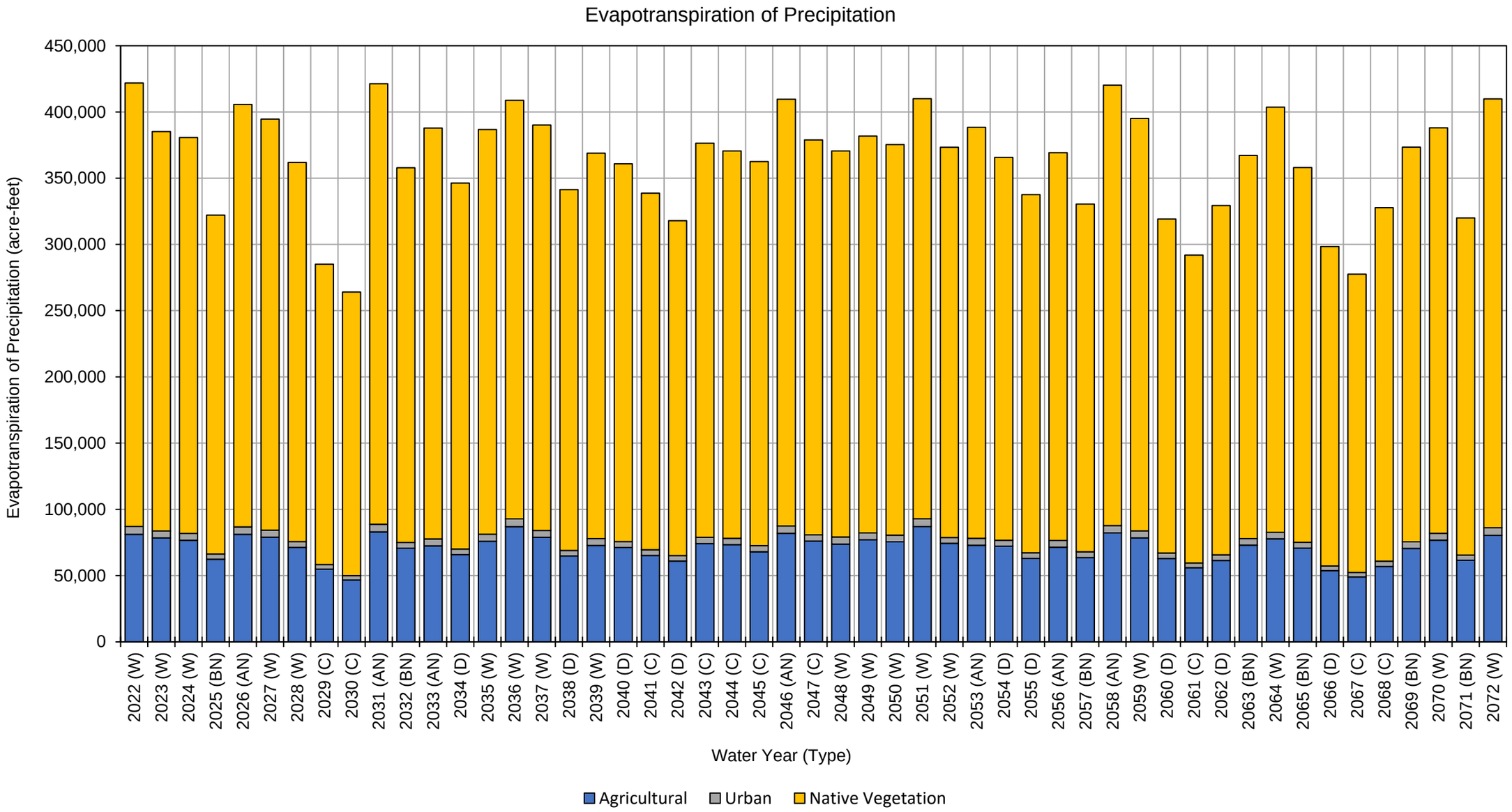
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	1,300	1	4,300	5,600
2023 (W)	2,400	3	4,800	7,200
2024 (W)	2,900	4	5,000	7,900
2025 (BN)	810	0	3,500	4,300
2026 (AN)	1,200	0	3,800	5,000
2027 (W)	2,900	5	5,000	7,900
2028 (W)	2,500	4	4,500	7,000
2029 (C)	1,200	1	3,800	5,000
2030 (C)	160	0	2,400	2,600
2031 (AN)	280	0	2,700	3,000
2032 (BN)	170	0	2,400	2,600
2033 (AN)	230	0	2,700	2,900
2034 (D)	280	0	2,700	3,000
2035 (W)	900	1	3,700	4,600
2036 (W)	3,800	11	5,000	8,800
2037 (W)	4,200	37	5,400	9,600
2038 (D)	2,700	3	4,500	7,200
2039 (W)	2,200	2	4,500	6,700
2040 (D)	1,400	1	3,800	5,200
2041 (C)	270	0	2,600	2,900
2042 (D)	43	0	1,900	1,900
2043 (C)	13	0	1,500	1,500
2044 (C)	6	0	1,100	1,100
2045 (C)	8	0	920	930
2046 (AN)	30	0	1,500	1,500
2047 (C)	9	0	1,300	1,300
2048 (W)	160	1	2,400	2,600
2049 (W)	510	1	3,200	3,700
2050 (W)	780	1	3,500	4,300
2051 (W)	2,600	3	4,500	7,100
2052 (W)	2,500	3	4,500	7,000
2053 (AN)	1,700	2	4,200	5,900
2054 (D)	970	0	3,500	4,500
2055 (D)	430	0	3,100	3,500
2056 (AN)	600	0	3,300	3,900
2057 (BN)	1,200	1	3,900	5,100
2058 (AN)	1,500	0	3,800	5,300
2059 (W)	3,100	5	5,000	8,100
2060 (D)	1,100	0	3,700	4,800
2061 (C)	420	0	3,100	3,500
2062 (D)	100	0	2,200	2,300
2063 (BN)	230	0	2,400	2,600

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Groundwater Uptake, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		460	0	3,100	3,600
2065 (BN)		310	0	2,800	3,100
2066 (D)		120	0	2,100	2,200
2067 (C)		6	0	1,100	1,100
2068 (C)		4	0	820	820
2069 (BN)		7	0	880	890
2070 (W)		91	1	2,100	2,200
2071 (BN)		9	0	1,400	1,400
2072 (W)		130	0	2,200	2,300
Average (2022-2072)		1,000	2	3,100	4,100
2022-2072	W	1,900	5	4,000	5,900
	AN	790	0	3,100	3,900
	BN	390	0	2,500	2,900
	D	800	1	3,000	3,800
	C	210	0	1,900	2,100

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

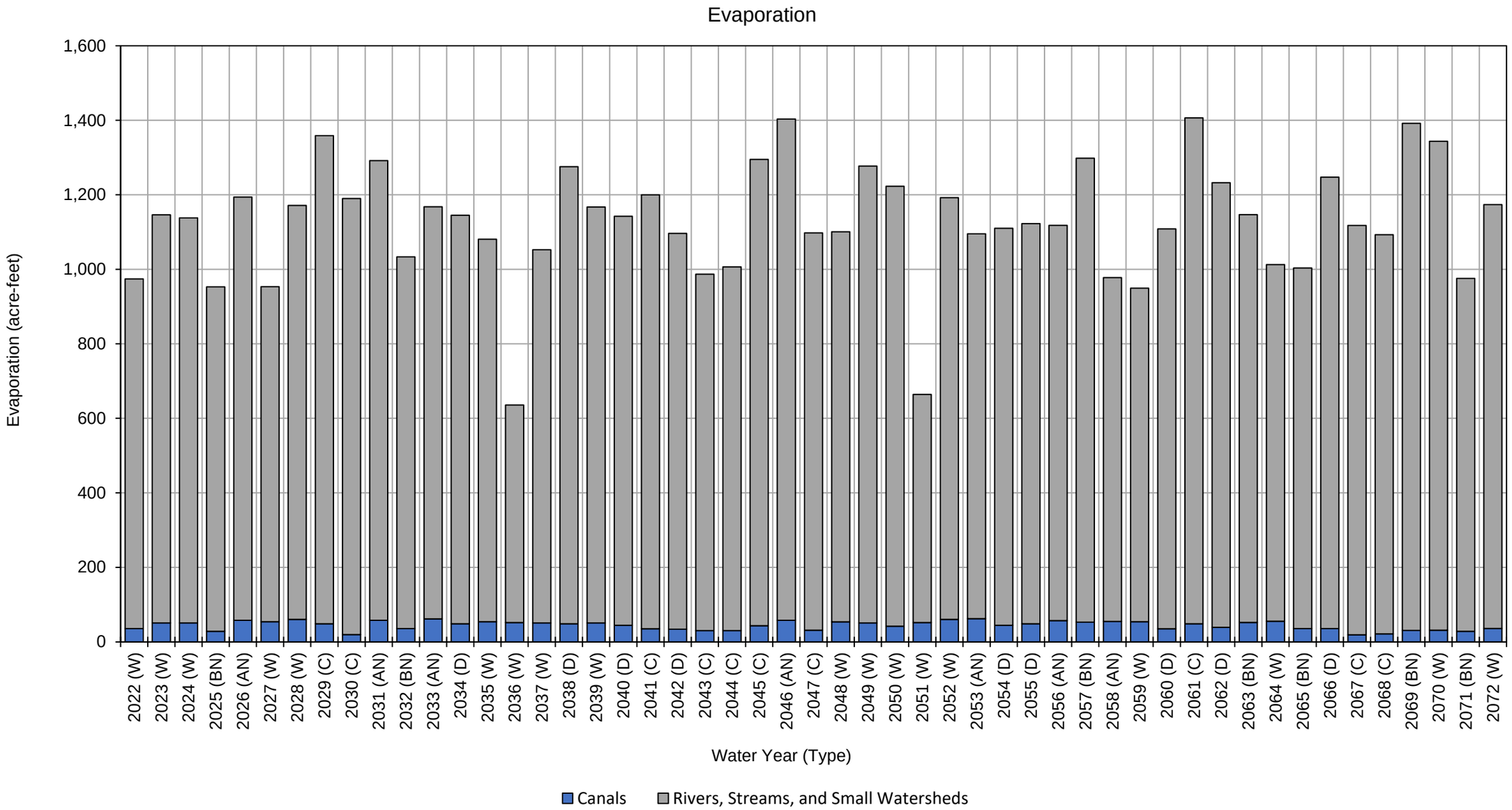
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	81,000	5,900	330,000	420,000
2023 (W)	78,000	5,300	300,000	380,000
2024 (W)	77,000	5,200	300,000	380,000
2025 (BN)	62,000	3,900	260,000	330,000
2026 (AN)	81,000	5,600	320,000	410,000
2027 (W)	79,000	5,300	310,000	390,000
2028 (W)	71,000	4,400	290,000	370,000
2029 (C)	55,000	3,400	230,000	290,000
2030 (C)	47,000	3,300	210,000	260,000
2031 (AN)	83,000	5,700	330,000	420,000
2032 (BN)	71,000	4,300	280,000	360,000
2033 (AN)	72,000	5,200	310,000	390,000
2034 (D)	66,000	4,200	280,000	350,000
2035 (W)	76,000	5,300	310,000	390,000
2036 (W)	87,000	5,900	320,000	410,000
2037 (W)	79,000	5,200	310,000	390,000
2038 (D)	65,000	4,200	270,000	340,000
2039 (W)	73,000	5,200	290,000	370,000
2040 (D)	71,000	4,500	290,000	370,000
2041 (C)	65,000	4,300	270,000	340,000
2042 (D)	61,000	4,100	250,000	320,000
2043 (C)	74,000	4,800	300,000	380,000
2044 (C)	73,000	4,700	290,000	370,000
2045 (C)	68,000	4,600	290,000	360,000
2046 (AN)	82,000	5,600	320,000	410,000
2047 (C)	76,000	4,700	300,000	380,000
2048 (W)	74,000	5,400	290,000	370,000
2049 (W)	77,000	5,200	300,000	380,000
2050 (W)	75,000	5,000	290,000	370,000
2051 (W)	87,000	5,900	320,000	410,000
2052 (W)	74,000	4,400	290,000	370,000
2053 (AN)	73,000	5,200	310,000	390,000
2054 (D)	72,000	4,500	290,000	370,000
2055 (D)	63,000	4,200	270,000	340,000
2056 (AN)	71,000	5,100	290,000	370,000
2057 (BN)	64,000	4,300	260,000	330,000
2058 (AN)	82,000	5,600	330,000	420,000
2059 (W)	78,000	5,300	310,000	390,000
2060 (D)	63,000	4,100	250,000	320,000
2061 (C)	56,000	3,500	230,000	290,000
2062 (D)	61,000	4,200	260,000	330,000
2063 (BN)	73,000	4,900	290,000	370,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Total Evapotranspiration of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		78,000	5,000	320,000	400,000
2065 (BN)		71,000	4,300	280,000	360,000
2066 (D)		54,000	3,600	240,000	300,000
2067 (C)		49,000	3,400	230,000	280,000
2068 (C)		57,000	4,000	270,000	330,000
2069 (BN)		70,000	5,000	300,000	380,000
2070 (W)		77,000	5,100	310,000	390,000
2071 (BN)		62,000	3,900	250,000	320,000
2072 (W)		80,000	5,800	320,000	410,000
Average (2022-2072)		71,000	4,700	290,000	370,000
2022-2072	W	78,000	5,300	310,000	390,000
	AN	78,000	5,400	320,000	400,000
	BN	67,000	4,400	280,000	350,000
	D	64,000	4,200	270,000	340,000
	C	62,000	4,100	260,000	330,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Evaporation (acre-feet, rounded)

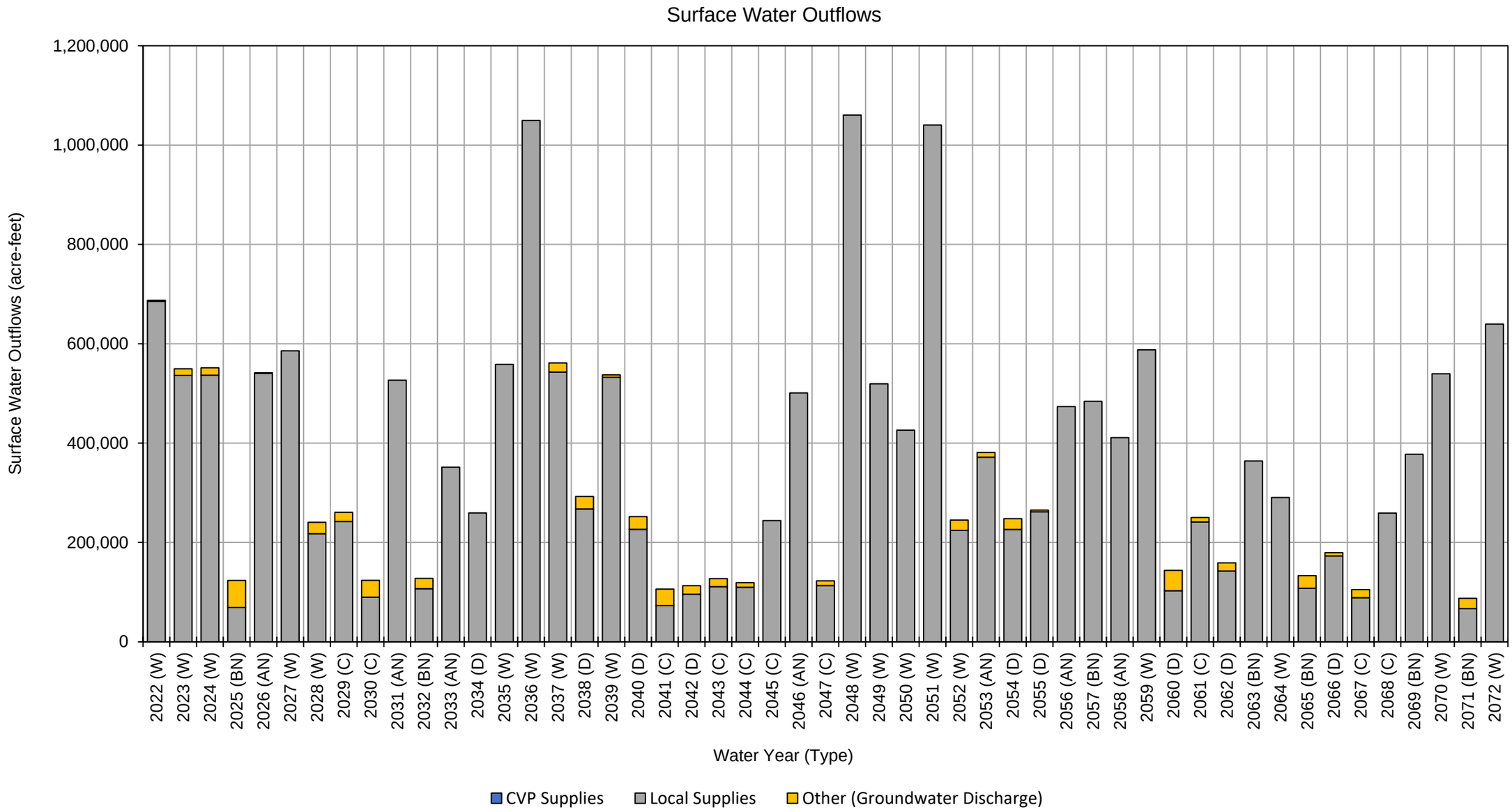
WY (Type)	Canals	Rivers, Streams, and Small Watersheds	Total
2022 (W)	36	940	980
2023 (W)	51	1,100	1,200
2024 (W)	51	1,100	1,200
2025 (BN)	28	920	950
2026 (AN)	58	1,100	1,200
2027 (W)	54	900	950
2028 (W)	60	1,100	1,200
2029 (C)	48	1,300	1,300
2030 (C)	19	1,200	1,200
2031 (AN)	58	1,200	1,300
2032 (BN)	36	1,000	1,000
2033 (AN)	62	1,100	1,200
2034 (D)	48	1,100	1,100
2035 (W)	54	1,000	1,100
2036 (W)	52	580	630
2037 (W)	51	1,000	1,100
2038 (D)	48	1,200	1,200
2039 (W)	51	1,100	1,200
2040 (D)	44	1,100	1,100
2041 (C)	35	1,200	1,200
2042 (D)	34	1,100	1,100
2043 (C)	30	960	990
2044 (C)	30	980	1,000
2045 (C)	43	1,300	1,300
2046 (AN)	58	1,300	1,400
2047 (C)	31	1,100	1,100
2048 (W)	54	1,000	1,100
2049 (W)	51	1,200	1,300
2050 (W)	42	1,200	1,200
2051 (W)	52	610	660
2052 (W)	60	1,100	1,200
2053 (AN)	62	1,000	1,100
2054 (D)	44	1,100	1,100
2055 (D)	48	1,100	1,100
2056 (AN)	57	1,100	1,200
2057 (BN)	53	1,200	1,300
2058 (AN)	55	920	980
2059 (W)	54	900	950
2060 (D)	35	1,100	1,100
2061 (C)	48	1,400	1,400
2062 (D)	39	1,200	1,200
2063 (BN)	52	1,100	1,200

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Evaporation (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Watersheds	Total
2064 (W)		55	960	1,000
2065 (BN)		36	970	1,000
2066 (D)		36	1,200	1,200
2067 (C)		19	1,100	1,100
2068 (C)		21	1,100	1,100
2069 (BN)		31	1,400	1,400
2070 (W)		31	1,300	1,300
2071 (BN)		28	950	980
2072 (W)		36	1,100	1,100
Average (2022-2072)		45	1,100	1,100
2022-2072	W	50	1,000	1,100
	AN	58	1,100	1,200
	BN	38	1,100	1,100
	D	42	1,100	1,100
	C	33	1,100	1,100

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

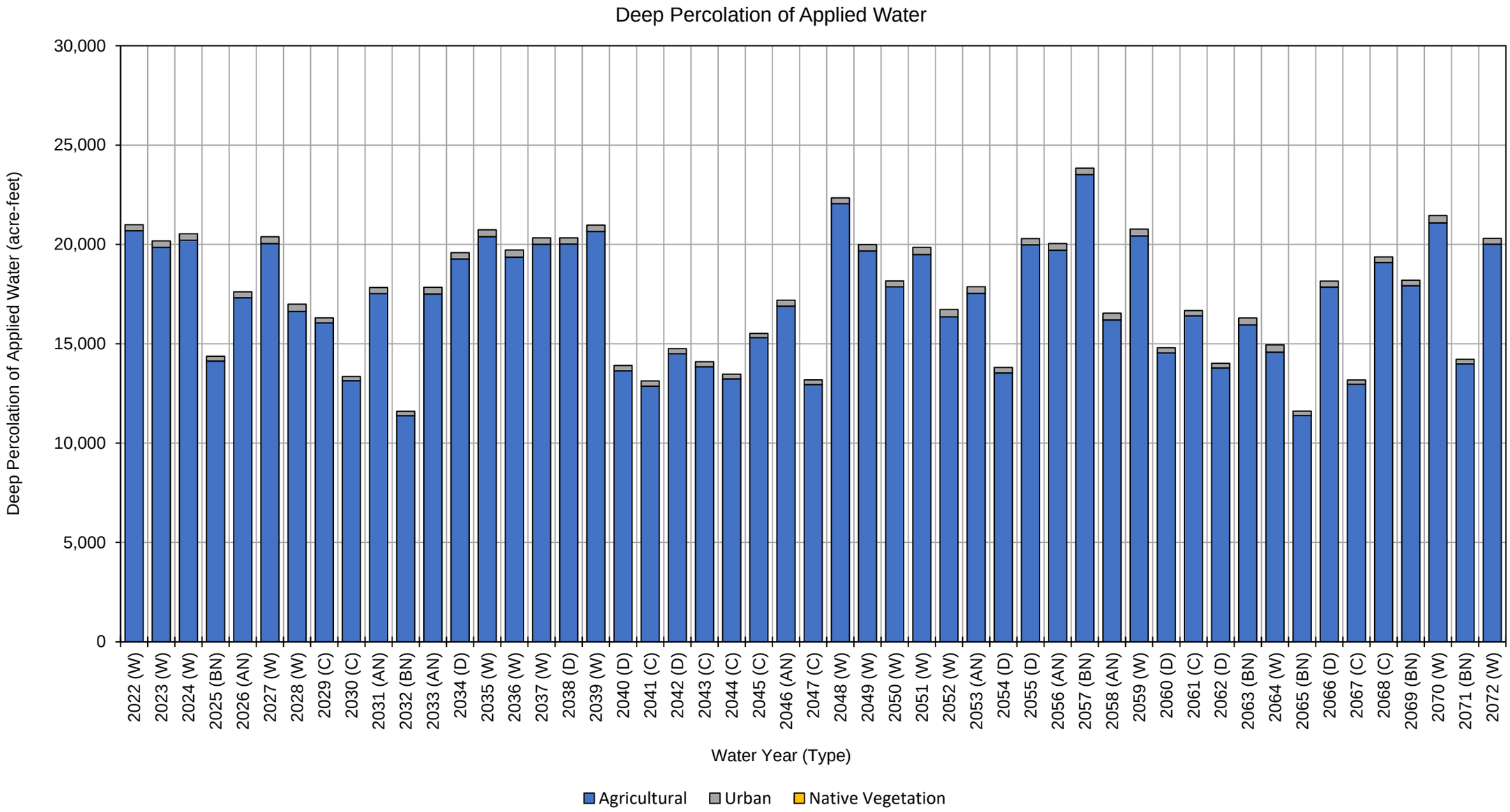
WY (Type)	CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2022 (W)	0	690,000	2,200	690,000
2023 (W)	0	540,000	13,000	550,000
2024 (W)	0	540,000	15,000	560,000
2025 (BN)	0	69,000	55,000	120,000
2026 (AN)	0	540,000	1,300	540,000
2027 (W)	0	590,000	0	590,000
2028 (W)	0	220,000	23,000	240,000
2029 (C)	0	240,000	19,000	260,000
2030 (C)	0	90,000	34,000	120,000
2031 (AN)	0	530,000	0	530,000
2032 (BN)	0	110,000	21,000	130,000
2033 (AN)	0	350,000	0	350,000
2034 (D)	0	260,000	0	260,000
2035 (W)	0	560,000	0	560,000
2036 (W)	0	1,000,000	0	1,000,000
2037 (W)	0	540,000	18,000	560,000
2038 (D)	0	270,000	25,000	300,000
2039 (W)	0	530,000	5,100	540,000
2040 (D)	0	230,000	26,000	260,000
2041 (C)	0	73,000	33,000	110,000
2042 (D)	0	96,000	17,000	110,000
2043 (C)	0	110,000	16,000	130,000
2044 (C)	0	110,000	9,300	120,000
2045 (C)	0	240,000	0	240,000
2046 (AN)	0	500,000	0	500,000
2047 (C)	0	110,000	9,500	120,000
2048 (W)	0	1,100,000	0	1,100,000
2049 (W)	0	520,000	0	520,000
2050 (W)	0	430,000	0	430,000
2051 (W)	0	1,000,000	0	1,000,000
2052 (W)	0	220,000	21,000	240,000
2053 (AN)	0	370,000	9,600	380,000
2054 (D)	0	230,000	22,000	250,000
2055 (D)	0	260,000	3,600	260,000
2056 (AN)	0	470,000	0	470,000
2057 (BN)	0	480,000	0	480,000
2058 (AN)	0	410,000	0	410,000
2059 (W)	0	590,000	0	590,000
2060 (D)	0	100,000	41,000	140,000
2061 (C)	0	240,000	8,900	250,000
2062 (D)	0	140,000	16,000	160,000
2063 (BN)	0	360,000	0	360,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Surface Water Outflows, by Water Source Type (acre-feet, rounded)

WY (Type)		CVP Supplies	Local Supplies	Other (Groundwater Discharge)	Total
2064 (W)		0	290,000	0	290,000
2065 (BN)		0	110,000	25,000	140,000
2066 (D)		0	170,000	6,600	180,000
2067 (C)		0	89,000	16,000	110,000
2068 (C)		0	260,000	0	260,000
2069 (BN)		0	380,000	0	380,000
2070 (W)		0	540,000	0	540,000
2071 (BN)		0	67,000	21,000	88,000
2072 (W)		0	640,000	0	640,000
Average (2022-2072)		0	370,000	10,000	380,000
2022-2072	W	0	590,000	5,400	600,000
	AN	0	450,000	1,600	450,000
	BN	0	230,000	17,000	250,000
	D	0	190,000	17,000	210,000
	C	0	160,000	15,000	180,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

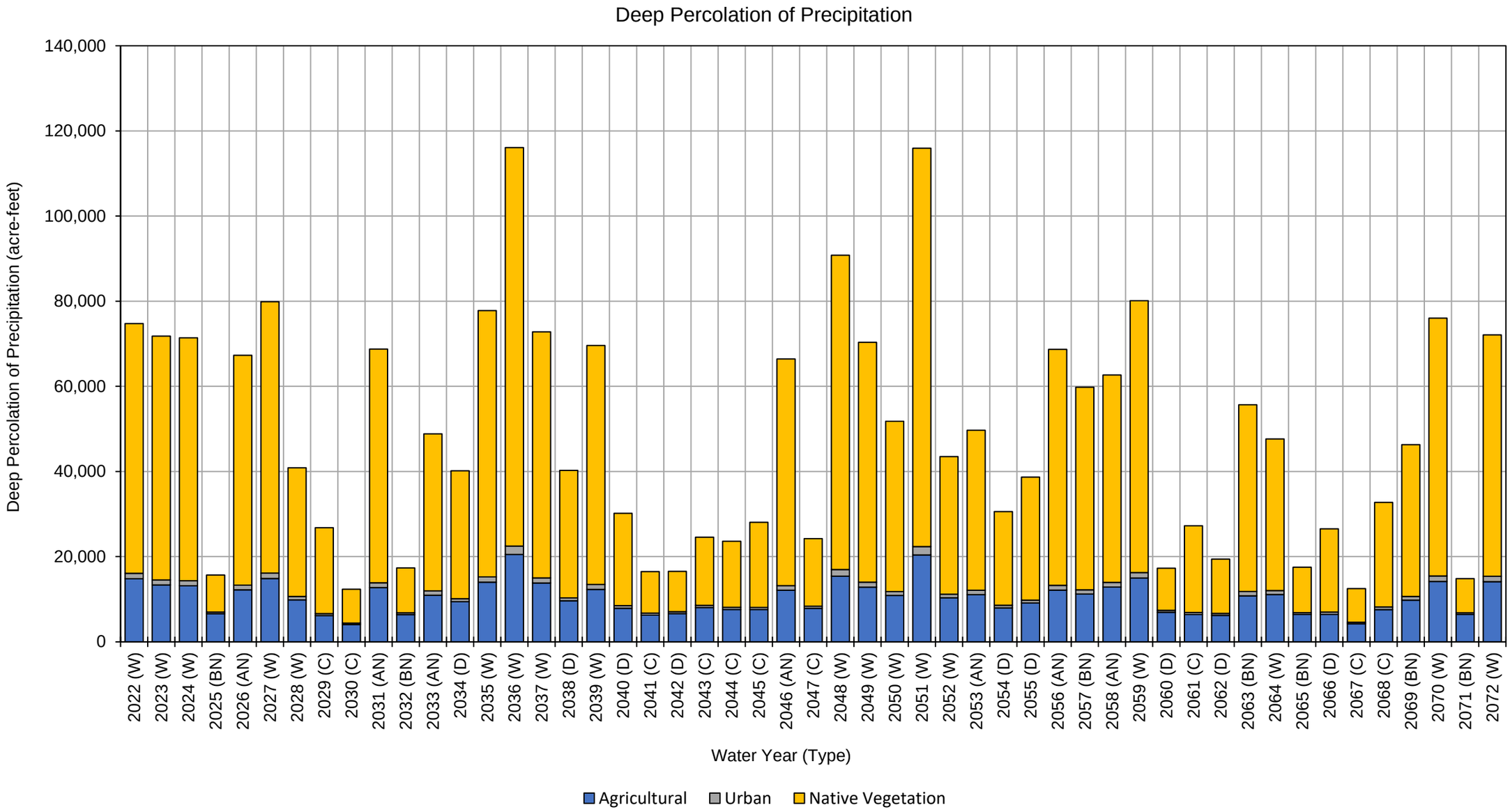
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	21,000	300	0	21,000
2023 (W)	20,000	320	0	20,000
2024 (W)	20,000	320	0	20,000
2025 (BN)	14,000	240	0	14,000
2026 (AN)	17,000	300	0	17,000
2027 (W)	20,000	350	0	20,000
2028 (W)	17,000	360	0	17,000
2029 (C)	16,000	250	0	16,000
2030 (C)	13,000	210	0	13,000
2031 (AN)	18,000	300	0	18,000
2032 (BN)	11,000	220	0	11,000
2033 (AN)	18,000	330	0	18,000
2034 (D)	19,000	320	0	19,000
2035 (W)	20,000	340	0	20,000
2036 (W)	19,000	360	0	19,000
2037 (W)	20,000	330	0	20,000
2038 (D)	20,000	310	0	20,000
2039 (W)	21,000	320	0	21,000
2040 (D)	14,000	270	0	14,000
2041 (C)	13,000	270	0	13,000
2042 (D)	14,000	260	0	14,000
2043 (C)	14,000	250	0	14,000
2044 (C)	13,000	240	0	13,000
2045 (C)	15,000	210	0	15,000
2046 (AN)	17,000	300	0	17,000
2047 (C)	13,000	240	0	13,000
2048 (W)	22,000	290	0	22,000
2049 (W)	20,000	320	0	20,000
2050 (W)	18,000	300	0	18,000
2051 (W)	19,000	360	0	19,000
2052 (W)	16,000	370	0	16,000
2053 (AN)	18,000	330	0	18,000
2054 (D)	14,000	280	0	14,000
2055 (D)	20,000	310	0	20,000
2056 (AN)	20,000	330	0	20,000
2057 (BN)	24,000	320	0	24,000
2058 (AN)	16,000	340	0	16,000
2059 (W)	20,000	350	0	20,000
2060 (D)	15,000	260	0	15,000
2061 (C)	16,000	260	0	16,000
2062 (D)	14,000	230	0	14,000
2063 (BN)	16,000	350	0	16,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation of Applied Water, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		15,000	370	0	15,000
2065 (BN)		11,000	220	0	11,000
2066 (D)		18,000	290	0	18,000
2067 (C)		13,000	220	0	13,000
2068 (C)		19,000	280	0	19,000
2069 (BN)		18,000	280	0	18,000
2070 (W)		21,000	370	0	21,000
2071 (BN)		14,000	230	0	14,000
2072 (W)		20,000	300	0	20,000
Average (2022-2072)		17,000	300	0	17,000
2022-2072	W	19,000	330	0	19,000
	AN	18,000	320	0	18,000
	BN	15,000	270	0	15,000
	D	16,000	280	0	16,000
	C	15,000	240	0	15,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

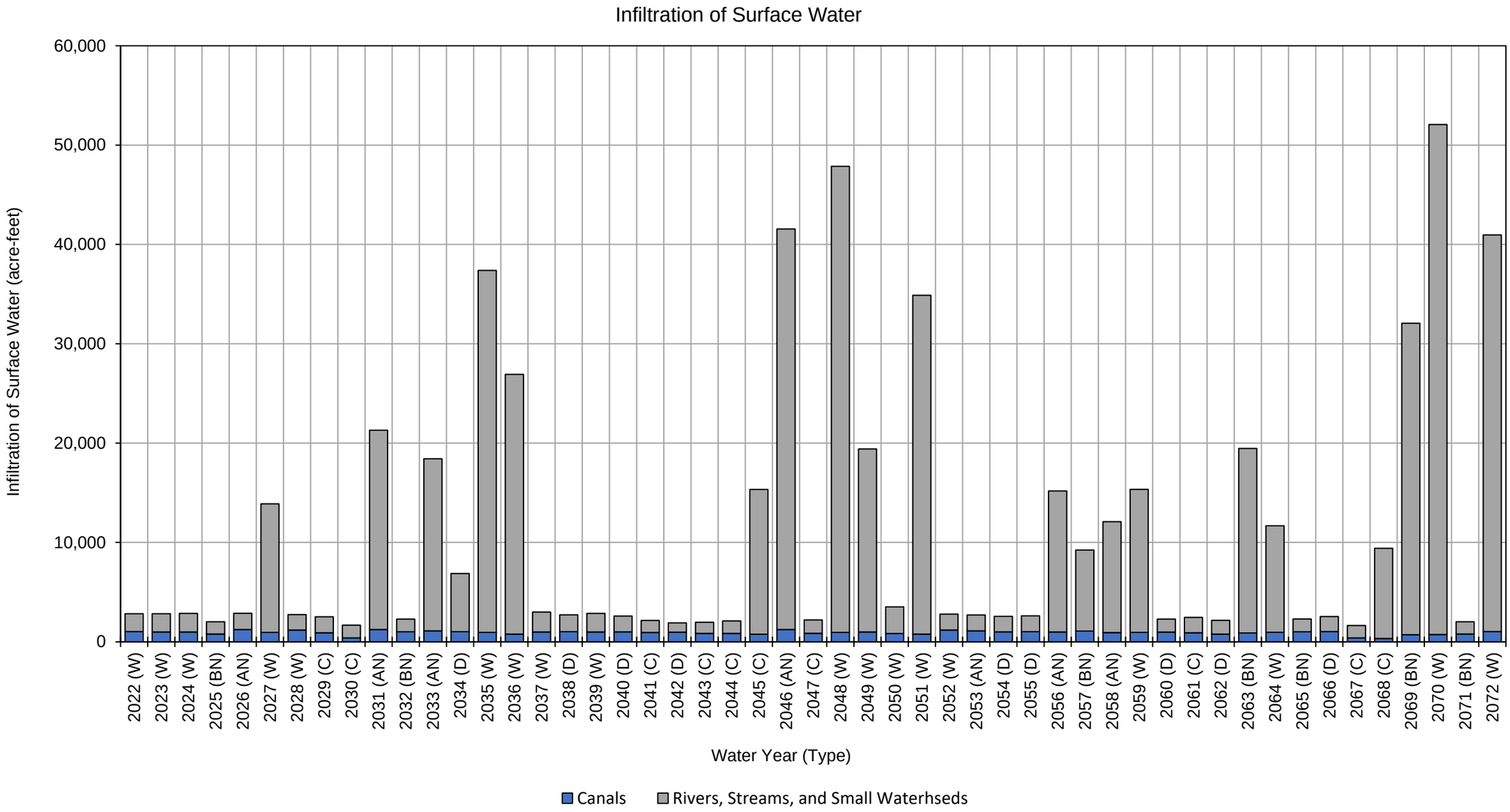
WY (Type)	Agricultural	Urban	Native Vegetation	Total
2022 (W)	15,000	1,300	59,000	75,000
2023 (W)	13,000	1,200	57,000	71,000
2024 (W)	13,000	1,200	57,000	71,000
2025 (BN)	6,600	390	8,700	16,000
2026 (AN)	12,000	1,100	54,000	67,000
2027 (W)	15,000	1,300	64,000	80,000
2028 (W)	9,800	820	30,000	41,000
2029 (C)	6,100	460	20,000	27,000
2030 (C)	4,000	330	8,000	12,000
2031 (AN)	13,000	1,100	55,000	69,000
2032 (BN)	6,400	420	11,000	18,000
2033 (AN)	11,000	1,000	37,000	49,000
2034 (D)	9,400	690	30,000	40,000
2035 (W)	14,000	1,300	63,000	78,000
2036 (W)	21,000	2,000	94,000	120,000
2037 (W)	14,000	1,200	58,000	73,000
2038 (D)	9,600	690	30,000	40,000
2039 (W)	12,000	1,200	56,000	69,000
2040 (D)	7,900	630	22,000	31,000
2041 (C)	6,300	490	9,800	17,000
2042 (D)	6,600	460	9,500	17,000
2043 (C)	8,000	530	16,000	25,000
2044 (C)	7,600	510	16,000	24,000
2045 (C)	7,600	500	20,000	28,000
2046 (AN)	12,000	1,100	53,000	66,000
2047 (C)	7,900	520	16,000	24,000
2048 (W)	15,000	1,600	74,000	91,000
2049 (W)	13,000	1,200	56,000	70,000
2050 (W)	11,000	930	40,000	52,000
2051 (W)	20,000	2,000	94,000	120,000
2052 (W)	10,000	830	32,000	43,000
2053 (AN)	11,000	1,000	38,000	50,000
2054 (D)	8,000	630	22,000	31,000
2055 (D)	9,100	680	29,000	39,000
2056 (AN)	12,000	1,100	55,000	68,000
2057 (BN)	11,000	980	48,000	60,000
2058 (AN)	13,000	1,100	49,000	63,000
2059 (W)	15,000	1,300	64,000	80,000
2060 (D)	6,900	460	9,900	17,000
2061 (C)	6,400	480	20,000	27,000
2062 (D)	6,200	460	13,000	20,000
2063 (BN)	11,000	1,000	44,000	56,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation of Precipitation, by Water Use Sector (acre-feet, rounded)

WY (Type)		Agricultural	Urban	Native Vegetation	Total
2064 (W)		11,000	950	36,000	48,000
2065 (BN)		6,400	420	11,000	18,000
2066 (D)		6,400	550	20,000	27,000
2067 (C)		4,200	340	7,900	12,000
2068 (C)		7,500	640	25,000	33,000
2069 (BN)		9,800	840	36,000	47,000
2070 (W)		14,000	1,300	61,000	76,000
2071 (BN)		6,400	380	8,000	15,000
2072 (W)		14,000	1,200	57,000	72,000
Average (2022-2072)		10,000	880	37,000	48,000
2022-2072	W	14,000	1,300	58,000	73,000
	AN	12,000	1,100	49,000	62,000
	BN	8,200	640	24,000	33,000
	D	7,800	580	20,000	28,000
	C	6,600	480	16,000	23,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Infiltration of Surface Water (acre-feet, rounded)

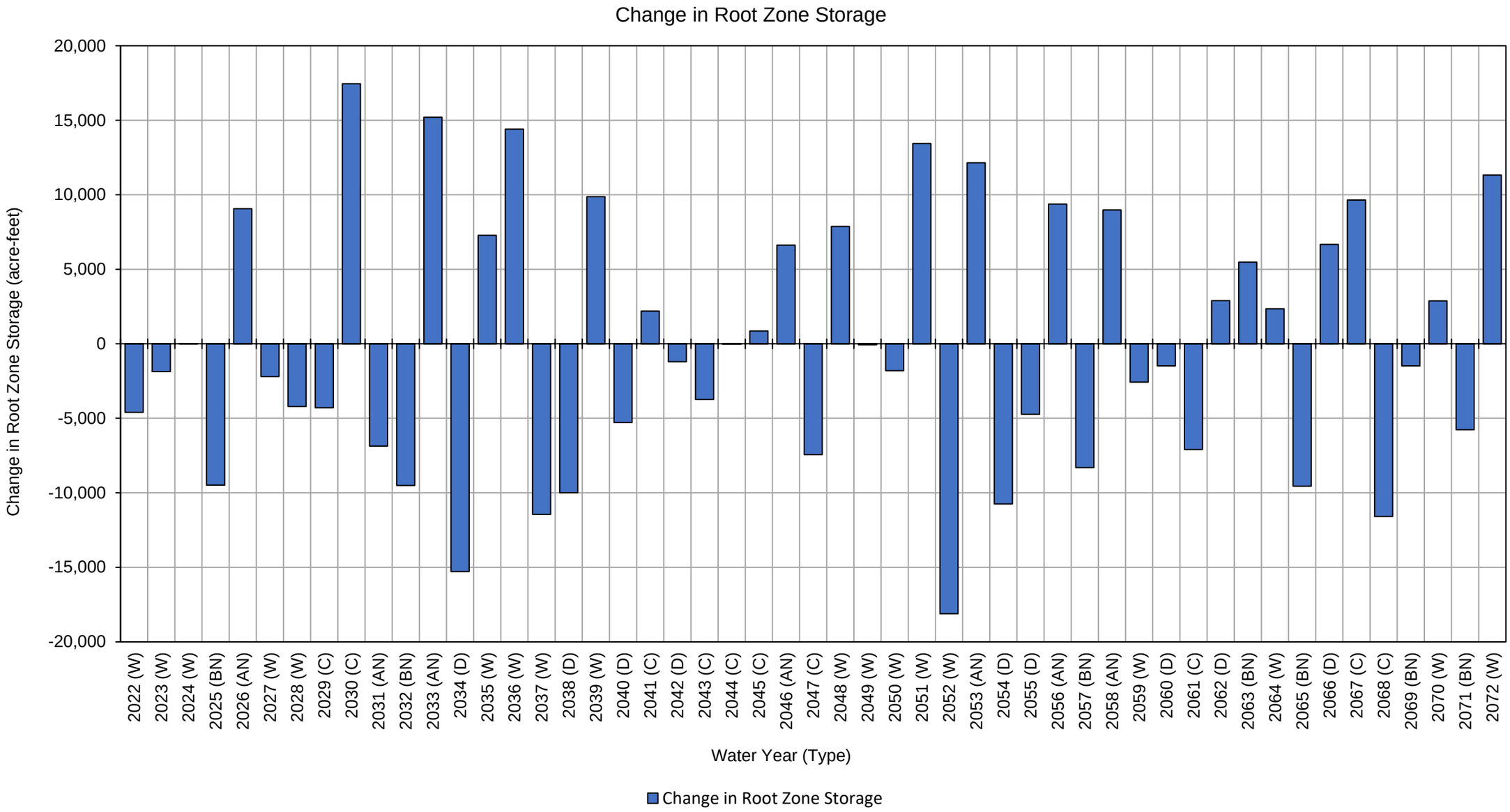
WY (Type)	Canals	Rivers, Streams, and Small Waterhseds	Total
2022 (W)	1,000	1,800	2,800
2023 (W)	990	1,800	2,800
2024 (W)	990	1,900	2,900
2025 (BN)	780	1,200	2,000
2026 (AN)	1,200	1,600	2,800
2027 (W)	950	13,000	14,000
2028 (W)	1,200	1,500	2,700
2029 (C)	910	1,600	2,500
2030 (C)	390	1,300	1,700
2031 (AN)	1,200	20,000	21,000
2032 (BN)	1,000	1,300	2,300
2033 (AN)	1,100	17,000	18,000
2034 (D)	1,000	5,900	6,900
2035 (W)	950	36,000	37,000
2036 (W)	770	26,000	27,000
2037 (W)	990	2,000	3,000
2038 (D)	1,000	1,700	2,700
2039 (W)	990	1,900	2,900
2040 (D)	1,000	1,600	2,600
2041 (C)	930	1,200	2,100
2042 (D)	970	940	1,900
2043 (C)	850	1,100	2,000
2044 (C)	850	1,300	2,200
2045 (C)	760	15,000	16,000
2046 (AN)	1,200	40,000	41,000
2047 (C)	850	1,400	2,300
2048 (W)	950	47,000	48,000
2049 (W)	990	18,000	19,000
2050 (W)	830	2,700	3,500
2051 (W)	770	34,000	35,000
2052 (W)	1,200	1,600	2,800
2053 (AN)	1,100	1,600	2,700
2054 (D)	1,000	1,600	2,600
2055 (D)	1,000	1,600	2,600
2056 (AN)	990	14,000	15,000
2057 (BN)	1,100	8,200	9,300
2058 (AN)	930	11,000	12,000
2059 (W)	950	14,000	15,000
2060 (D)	970	1,300	2,300
2061 (C)	910	1,600	2,500
2062 (D)	770	1,400	2,200
2063 (BN)	890	19,000	20,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Infiltration of Surface Water (acre-feet, rounded)

WY (Type)		Canals	Rivers, Streams, and Small Waterhseds	Total
2064 (W)		960	11,000	12,000
2065 (BN)		1,000	1,300	2,300
2066 (D)		1,000	1,500	2,500
2067 (C)		390	1,200	1,600
2068 (C)		320	9,100	9,400
2069 (BN)		710	31,000	32,000
2070 (W)		730	51,000	52,000
2071 (BN)		780	1,200	2,000
2072 (W)		1,000	40,000	41,000
Average (2022-2072)		930	10,000	11,000
2022-2072	W	950	17,000	18,000
	AN	1,100	15,000	16,000
	BN	890	9,000	9,900
	D	980	1,900	2,900
	C	720	3,400	4,100

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)	Change in Root Zone Storage
2022 (W)	-4,600
2023 (W)	-1,900
2024 (W)	15
2025 (BN)	-9,500
2026 (AN)	9,100
2027 (W)	-2,200
2028 (W)	-4,200
2029 (C)	-4,300
2030 (C)	17,000
2031 (AN)	-6,900
2032 (BN)	-9,500
2033 (AN)	15,000
2034 (D)	-15,000
2035 (W)	7,300
2036 (W)	14,000
2037 (W)	-11,000
2038 (D)	-10,000
2039 (W)	9,900
2040 (D)	-5,300
2041 (C)	2,200
2042 (D)	-1,200
2043 (C)	-3,700
2044 (C)	-33
2045 (C)	860
2046 (AN)	6,600
2047 (C)	-7,400
2048 (W)	7,900
2049 (W)	-68
2050 (W)	-1,800
2051 (W)	13,000
2052 (W)	-18,000
2053 (AN)	12,000
2054 (D)	-11,000
2055 (D)	-4,700
2056 (AN)	9,400
2057 (BN)	-8,300
2058 (AN)	9,000
2059 (W)	-2,600
2060 (D)	-1,500
2061 (C)	-7,100
2062 (D)	2,900
2063 (BN)	5,500

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Change in Root Zone Storage (acre-feet, rounded)

WY (Type)		Change in Root Zone Storage
2064 (W)		2,300
2065 (BN)		-9,600
2066 (D)		6,700
2067 (C)		9,600
2068 (C)		-12,000
2069 (BN)		-1,500
2070 (W)		2,900
2071 (BN)		-5,800
2072 (W)		11,000
Average (2022-2072)		-95
2022-2072	W	1,300
	AN	7,800
	BN	-5,500
	D	-4,400
	C	-410

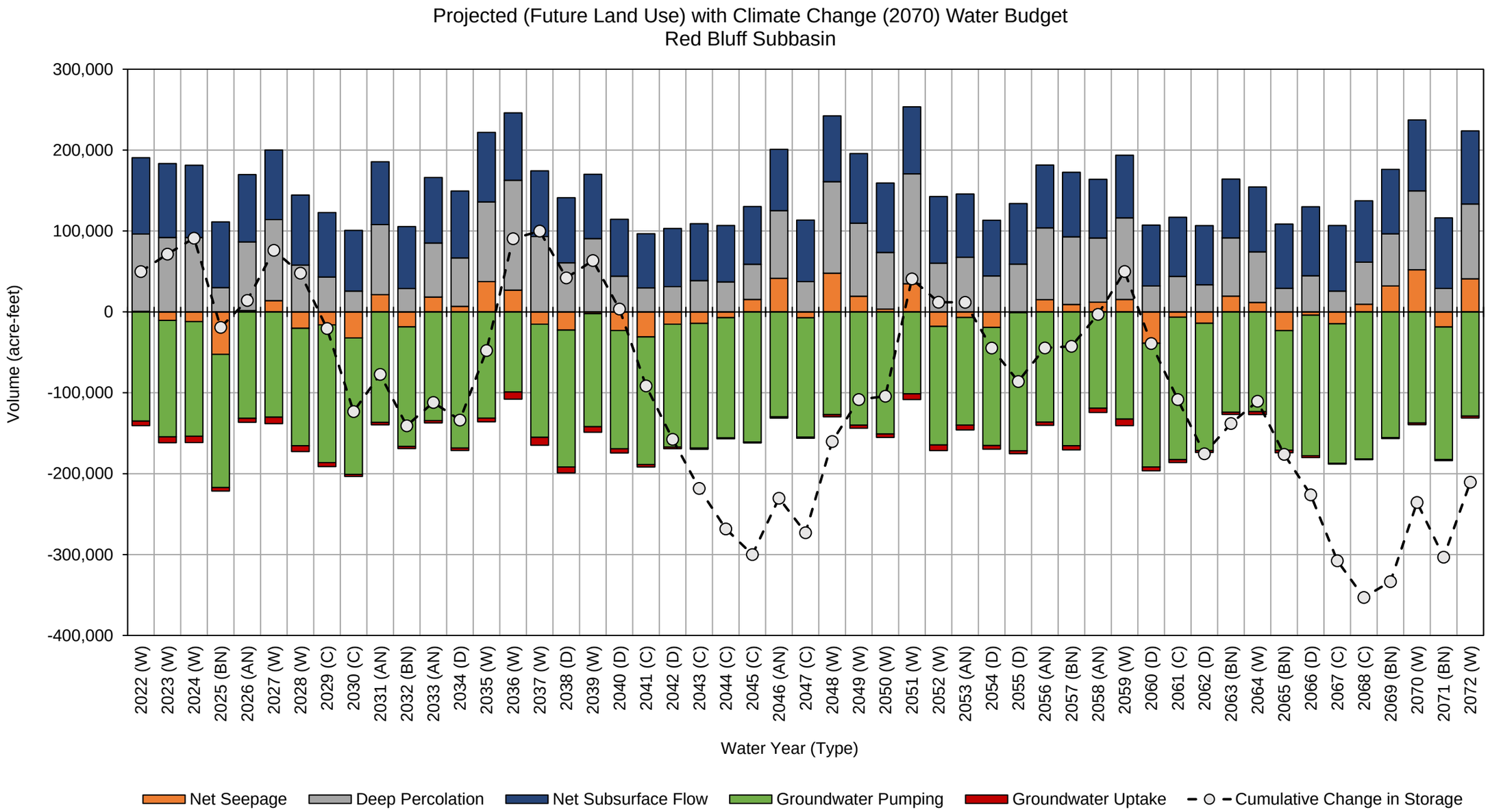
Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX D-7b

Detailed Red Bluff Subbasin Water Budget Results:

Projected (Future Land Use) with Climate Change (2070) Model Results – Groundwater System


Projected (Future Land Use) with Climate Change (2070) Water Budget
Red Bluff Subbasin
Volume (acre-feet)
300,000
200,000
100,000
0
-100,000
-200,000
-300,000
-400,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Water Budget Summary (acre-feet, rounded)

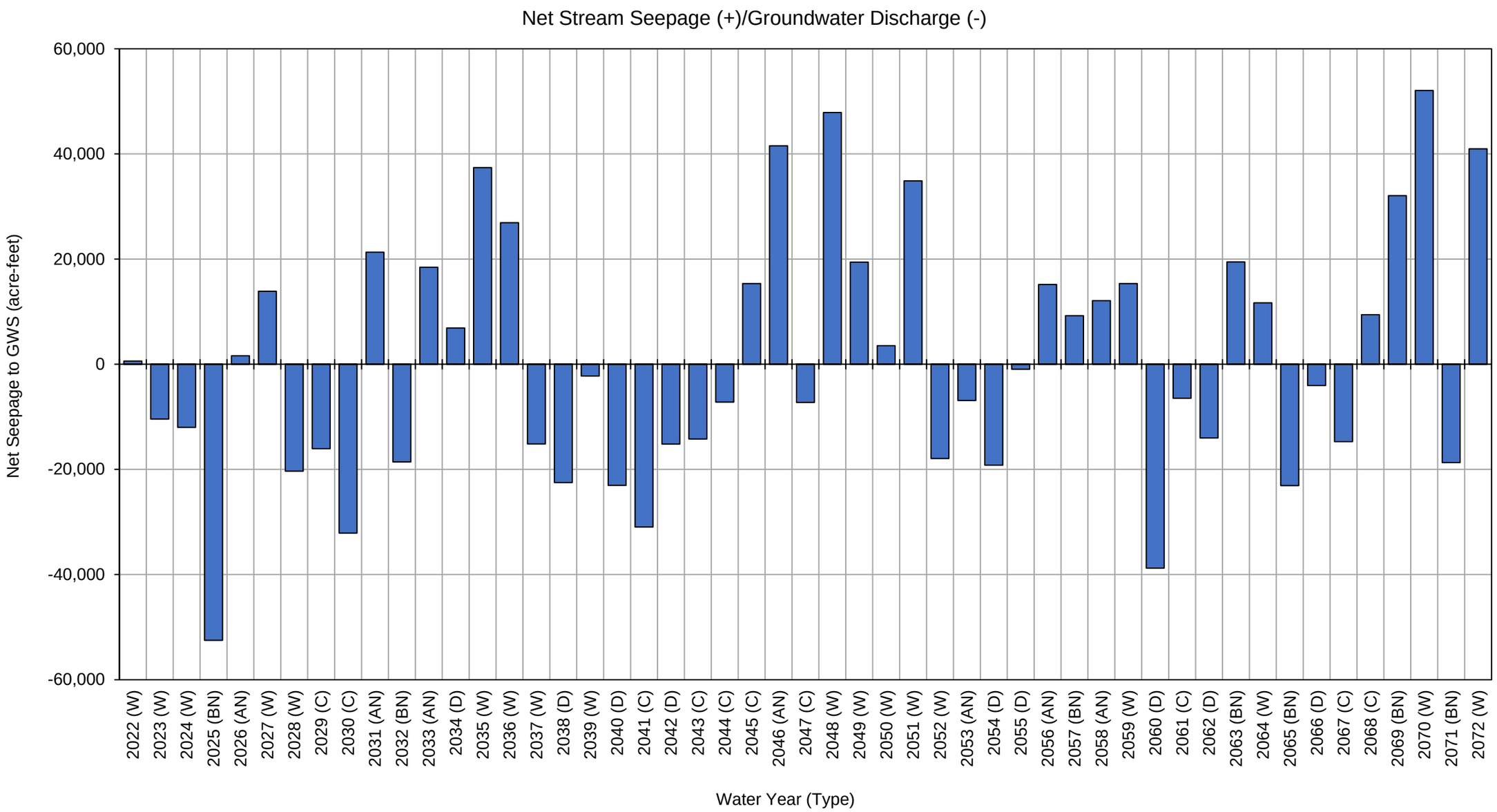
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	600	96,000	-140,000	-5,600	94,000	50,000	50,000
2023 (W)	-10,000	92,000	-140,000	-7,300	91,000	22,000	72,000
2024 (W)	-12,000	92,000	-140,000	-7,900	89,000	20,000	91,000
2025 (BN)	-53,000	30,000	-160,000	-4,300	81,000	-110,000	-19,000
2026 (AN)	1,600	85,000	-130,000	-5,000	83,000	33,000	14,000
2027 (W)	14,000	100,000	-130,000	-7,900	86,000	62,000	76,000
2028 (W)	-20,000	58,000	-150,000	-7,100	87,000	-28,000	48,000
2029 (C)	-16,000	43,000	-170,000	-5,000	80,000	-68,000	-21,000
2030 (C)	-32,000	26,000	-170,000	-2,500	75,000	-100,000	-120,000
2031 (AN)	21,000	87,000	-140,000	-3,000	78,000	46,000	-77,000
2032 (BN)	-19,000	29,000	-150,000	-2,500	76,000	-64,000	-140,000
2033 (AN)	18,000	67,000	-130,000	-2,900	81,000	29,000	-110,000
2034 (D)	6,900	60,000	-170,000	-3,000	83,000	-22,000	-130,000
2035 (W)	37,000	99,000	-130,000	-4,600	86,000	86,000	-48,000
2036 (W)	27,000	140,000	-99,000	-8,800	83,000	140,000	91,000
2037 (W)	-15,000	93,000	-140,000	-9,700	81,000	9,500	100,000
2038 (D)	-23,000	61,000	-170,000	-7,200	81,000	-58,000	42,000
2039 (W)	-2,200	91,000	-140,000	-6,700	80,000	21,000	64,000
2040 (D)	-23,000	44,000	-150,000	-5,200	70,000	-60,000	3,600
2041 (C)	-31,000	30,000	-160,000	-2,900	67,000	-95,000	-92,000
2042 (D)	-15,000	31,000	-150,000	-1,900	72,000	-66,000	-160,000
2043 (C)	-14,000	39,000	-150,000	-1,500	70,000	-61,000	-220,000
2044 (C)	-7,200	37,000	-150,000	-1,100	70,000	-50,000	-270,000
2045 (C)	15,000	44,000	-160,000	-930	71,000	-32,000	-300,000
2046 (AN)	42,000	84,000	-130,000	-1,600	76,000	70,000	-230,000
2047 (C)	-7,300	37,000	-150,000	-1,300	76,000	-43,000	-270,000
2048 (W)	48,000	110,000	-130,000	-2,500	81,000	110,000	-160,000
2049 (W)	19,000	90,000	-140,000	-3,800	86,000	52,000	-110,000
2050 (W)	3,500	70,000	-150,000	-4,300	86,000	4,100	-100,000
2051 (W)	35,000	140,000	-100,000	-7,100	83,000	150,000	41,000
2052 (W)	-18,000	60,000	-150,000	-7,000	82,000	-29,000	12,000
2053 (AN)	-6,900	68,000	-130,000	-5,900	78,000	-180	12,000
2054 (D)	-19,000	44,000	-150,000	-4,500	69,000	-56,000	-45,000
2055 (D)	-960	59,000	-170,000	-3,500	75,000	-41,000	-86,000
2056 (AN)	15,000	89,000	-140,000	-3,900	78,000	41,000	-45,000
2057 (BN)	9,200	84,000	-170,000	-5,100	80,000	2,000	-43,000
2058 (AN)	12,000	79,000	-120,000	-5,300	73,000	40,000	-3,000
2059 (W)	15,000	100,000	-130,000	-8,000	77,000	53,000	50,000
2060 (D)	-39,000	32,000	-150,000	-4,700	75,000	-89,000	-39,000
2061 (C)	-6,500	44,000	-180,000	-3,500	73,000	-69,000	-110,000
2062 (D)	-14,000	33,000	-160,000	-2,300	73,000	-67,000	-180,000
2063 (BN)	19,000	72,000	-120,000	-2,700	73,000	37,000	-140,000
2064 (W)	12,000	63,000	-120,000	-3,600	80,000	28,000	-110,000
2065 (BN)	-23,000	29,000	-150,000	-3,100	79,000	-66,000	-180,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-4,100	45,000	-170,000	-2,200	85,000	-50,000	-230,000
2067 (C)		-15,000	26,000	-170,000	-1,100	81,000	-81,000	-310,000
2068 (C)		9,400	52,000	-180,000	-830	76,000	-45,000	-350,000
2069 (BN)		32,000	65,000	-160,000	-890	80,000	20,000	-330,000
2070 (W)		52,000	97,000	-140,000	-2,200	88,000	98,000	-240,000
2071 (BN)		-19,000	29,000	-160,000	-1,400	87,000	-68,000	-300,000
2072 (W)		41,000	92,000	-130,000	-2,300	90,000	93,000	-210,000
Average (2022-2072)		830	66,000	-150,000	-4,100	80,000	-4,100	
2022-2072	W	13,000	93,000	-130,000	-5,900	85,000		
	AN	15,000	80,000	-130,000	-3,900	78,000		
	BN	-7,400	48,000	-150,000	-2,800	79,000		
	D	-15,000	45,000	-160,000	-3,800	76,000		
	C	-10,000	38,000	-160,000	-2,100	74,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

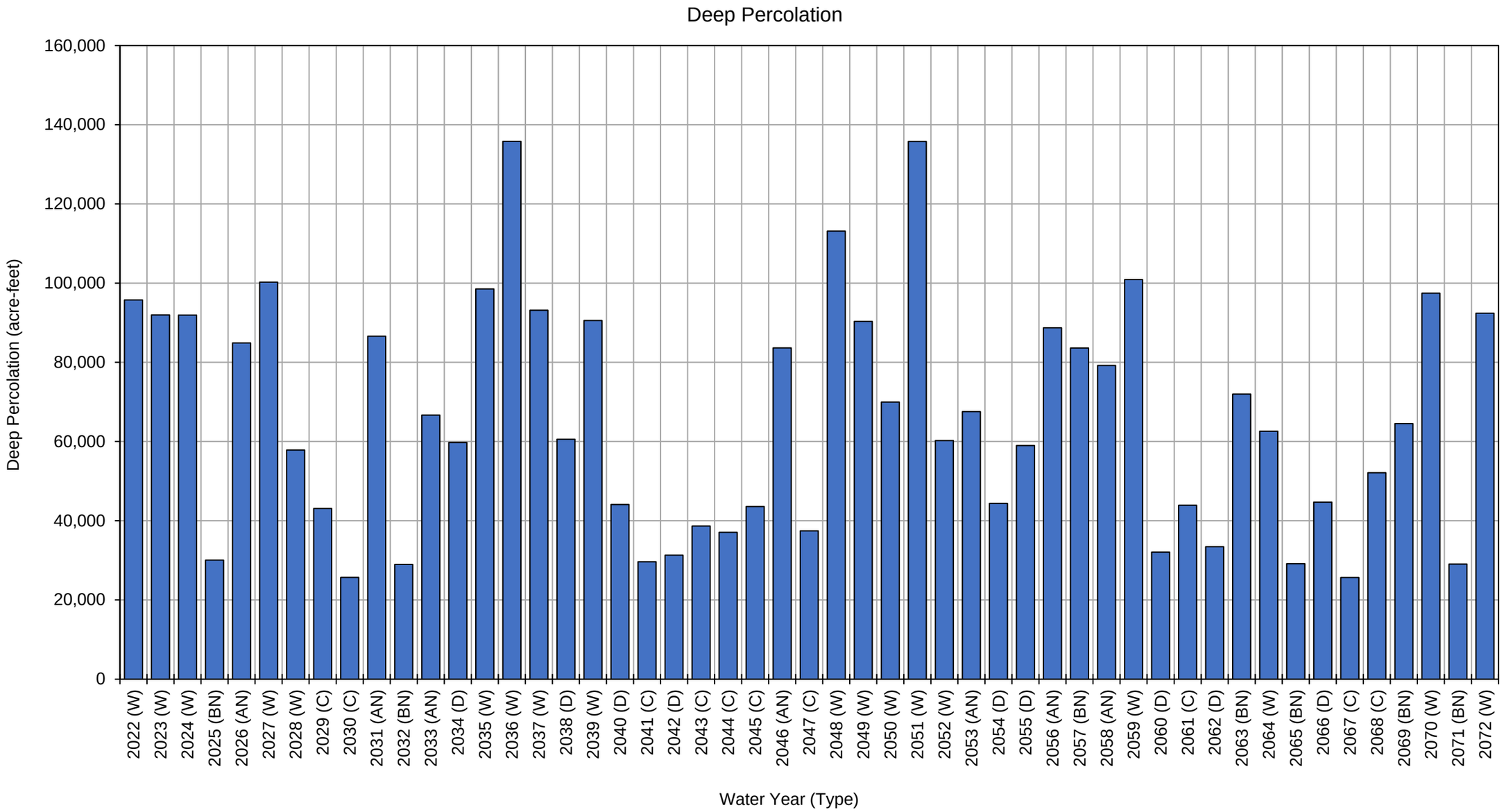
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	600
2023 (W)	-10,000
2024 (W)	-12,000
2025 (BN)	-53,000
2026 (AN)	1,600
2027 (W)	14,000
2028 (W)	-20,000
2029 (C)	-16,000
2030 (C)	-32,000
2031 (AN)	21,000
2032 (BN)	-19,000
2033 (AN)	18,000
2034 (D)	6,900
2035 (W)	37,000
2036 (W)	27,000
2037 (W)	-15,000
2038 (D)	-23,000
2039 (W)	-2,200
2040 (D)	-23,000
2041 (C)	-31,000
2042 (D)	-15,000
2043 (C)	-14,000
2044 (C)	-7,200
2045 (C)	15,000
2046 (AN)	42,000
2047 (C)	-7,300
2048 (W)	48,000
2049 (W)	19,000
2050 (W)	3,500
2051 (W)	35,000
2052 (W)	-18,000
2053 (AN)	-6,900
2054 (D)	-19,000
2055 (D)	-960
2056 (AN)	15,000
2057 (BN)	9,200
2058 (AN)	12,000
2059 (W)	15,000
2060 (D)	-39,000
2061 (C)	-6,500
2062 (D)	-14,000
2063 (BN)	19,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		12,000
2065 (BN)		-23,000
2066 (D)		-4,100
2067 (C)		-15,000
2068 (C)		9,400
2069 (BN)		32,000
2070 (W)		52,000
2071 (BN)		-19,000
2072 (W)		41,000
Average (2022-2072)		830
2022-2072	W	13,000
	AN	15,000
	BN	-7,400
	D	-15,000
	C	-10,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

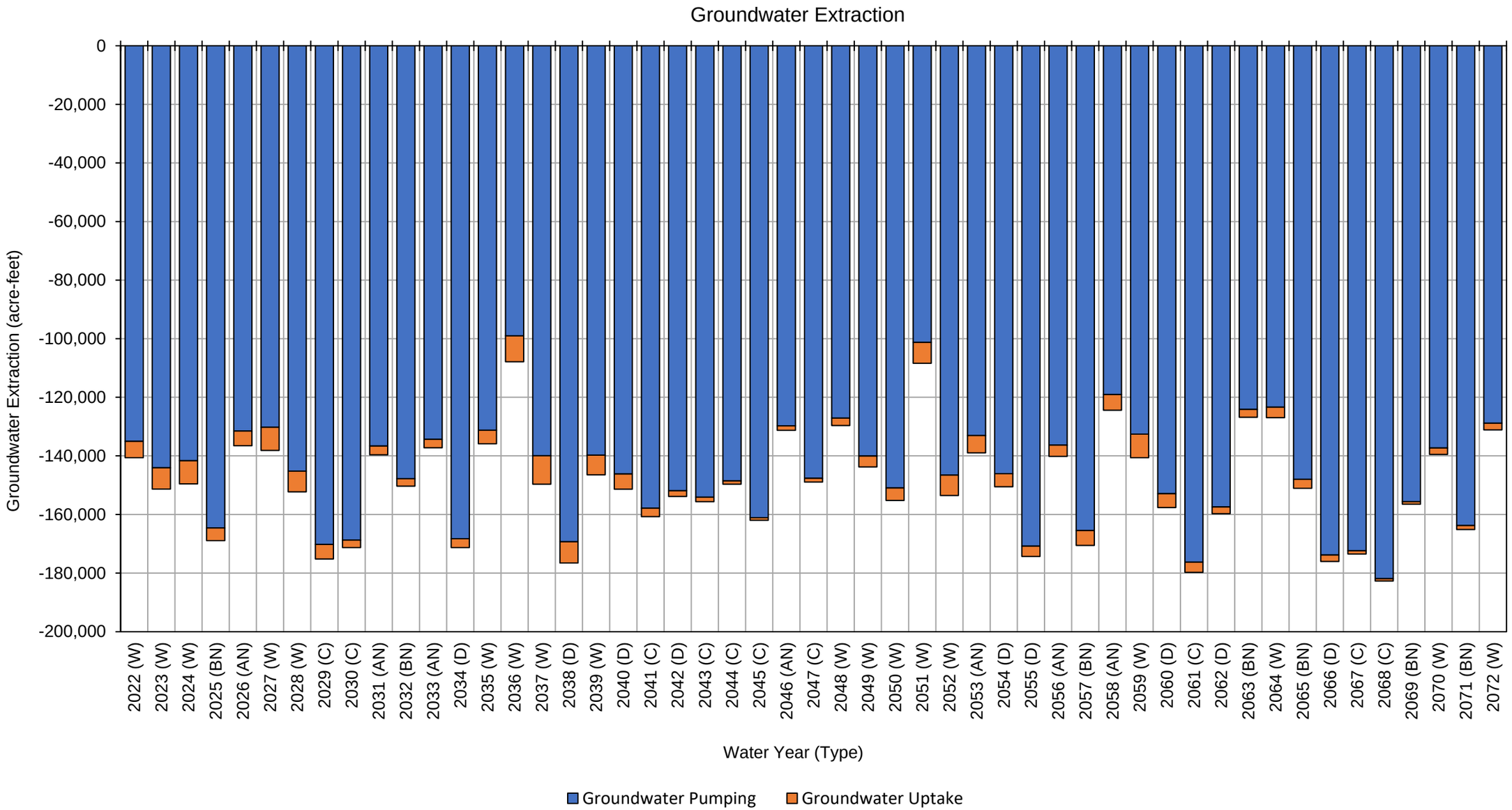
WY (Type)	Deep Percolation from the SWS
2022 (W)	96,000
2023 (W)	92,000
2024 (W)	92,000
2025 (BN)	30,000
2026 (AN)	85,000
2027 (W)	100,000
2028 (W)	58,000
2029 (C)	43,000
2030 (C)	26,000
2031 (AN)	87,000
2032 (BN)	29,000
2033 (AN)	67,000
2034 (D)	60,000
2035 (W)	99,000
2036 (W)	140,000
2037 (W)	93,000
2038 (D)	61,000
2039 (W)	91,000
2040 (D)	44,000
2041 (C)	30,000
2042 (D)	31,000
2043 (C)	39,000
2044 (C)	37,000
2045 (C)	44,000
2046 (AN)	84,000
2047 (C)	37,000
2048 (W)	110,000
2049 (W)	90,000
2050 (W)	70,000
2051 (W)	140,000
2052 (W)	60,000
2053 (AN)	68,000
2054 (D)	44,000
2055 (D)	59,000
2056 (AN)	89,000
2057 (BN)	84,000
2058 (AN)	79,000
2059 (W)	100,000
2060 (D)	32,000
2061 (C)	44,000
2062 (D)	33,000
2063 (BN)	72,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		63,000
2065 (BN)		29,000
2066 (D)		45,000
2067 (C)		26,000
2068 (C)		52,000
2069 (BN)		65,000
2070 (W)		97,000
2071 (BN)		29,000
2072 (W)		92,000
Average (2022-2072)		66,000
2022-2072	W	93,000
	AN	80,000
	BN	48,000
	D	45,000
	C	38,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

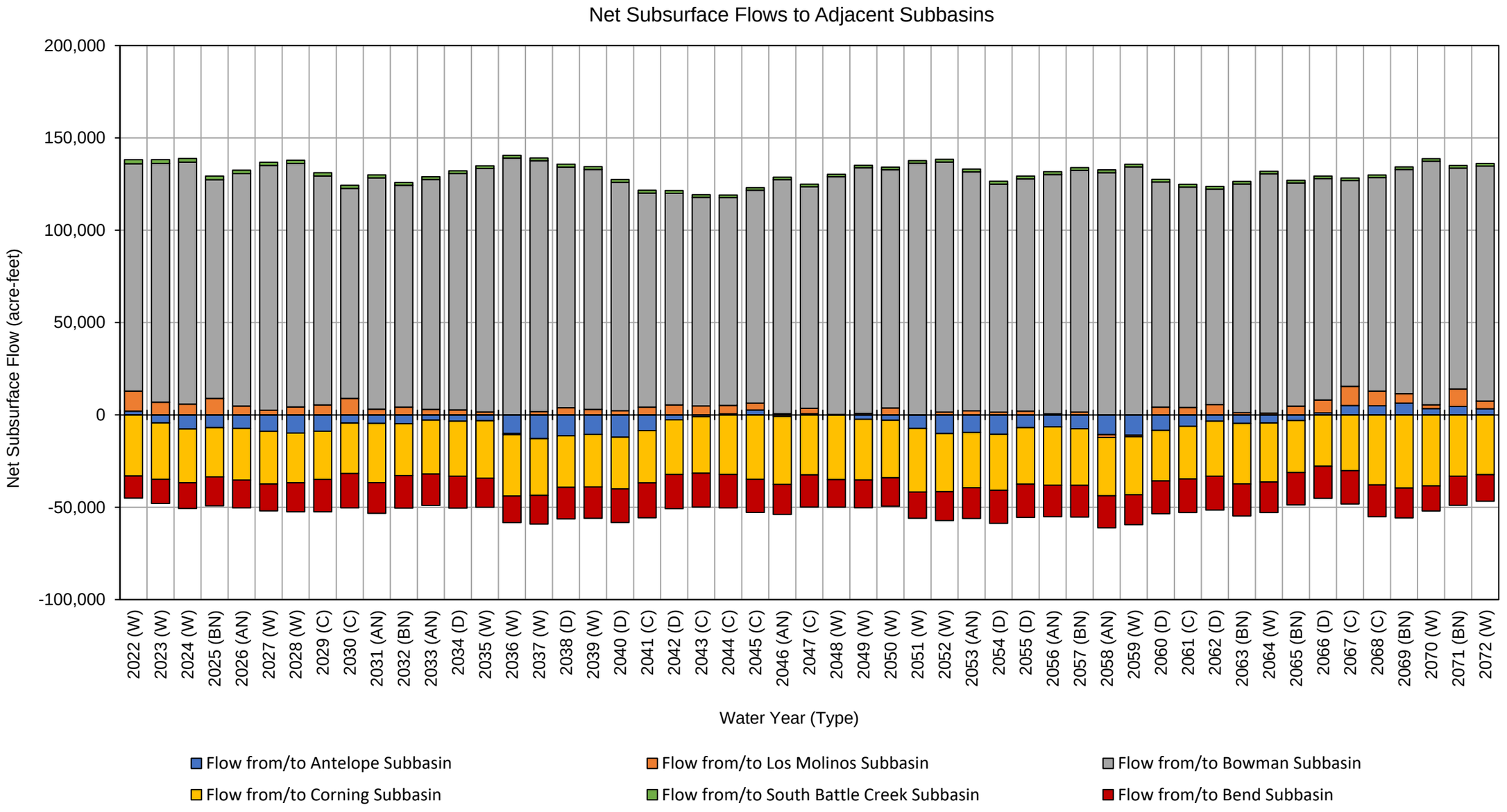
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-140,000	-5,600	-140,000
2023 (W)	-140,000	-7,300	-150,000
2024 (W)	-140,000	-7,900	-150,000
2025 (BN)	-160,000	-4,300	-170,000
2026 (AN)	-130,000	-5,000	-140,000
2027 (W)	-130,000	-7,900	-140,000
2028 (W)	-150,000	-7,100	-150,000
2029 (C)	-170,000	-5,000	-180,000
2030 (C)	-170,000	-2,500	-170,000
2031 (AN)	-140,000	-3,000	-140,000
2032 (BN)	-150,000	-2,500	-150,000
2033 (AN)	-130,000	-2,900	-140,000
2034 (D)	-170,000	-3,000	-170,000
2035 (W)	-130,000	-4,600	-140,000
2036 (W)	-99,000	-8,800	-110,000
2037 (W)	-140,000	-9,700	-150,000
2038 (D)	-170,000	-7,200	-180,000
2039 (W)	-140,000	-6,700	-150,000
2040 (D)	-150,000	-5,200	-150,000
2041 (C)	-160,000	-2,900	-160,000
2042 (D)	-150,000	-1,900	-150,000
2043 (C)	-150,000	-1,500	-160,000
2044 (C)	-150,000	-1,100	-150,000
2045 (C)	-160,000	-930	-160,000
2046 (AN)	-130,000	-1,600	-130,000
2047 (C)	-150,000	-1,300	-150,000
2048 (W)	-130,000	-2,500	-130,000
2049 (W)	-140,000	-3,800	-140,000
2050 (W)	-150,000	-4,300	-160,000
2051 (W)	-100,000	-7,100	-110,000
2052 (W)	-150,000	-7,000	-150,000
2053 (AN)	-130,000	-5,900	-140,000
2054 (D)	-150,000	-4,500	-150,000
2055 (D)	-170,000	-3,500	-170,000
2056 (AN)	-140,000	-3,900	-140,000
2057 (BN)	-170,000	-5,100	-170,000
2058 (AN)	-120,000	-5,300	-120,000
2059 (W)	-130,000	-8,000	-140,000
2060 (D)	-150,000	-4,700	-160,000
2061 (C)	-180,000	-3,500	-180,000
2062 (D)	-160,000	-2,300	-160,000
2063 (BN)	-120,000	-2,700	-130,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-120,000	-3,600	-130,000
2065 (BN)		-150,000	-3,100	-150,000
2066 (D)		-170,000	-2,200	-180,000
2067 (C)		-170,000	-1,100	-170,000
2068 (C)		-180,000	-830	-180,000
2069 (BN)		-160,000	-890	-160,000
2070 (W)		-140,000	-2,200	-140,000
2071 (BN)		-160,000	-1,400	-170,000
2072 (W)		-130,000	-2,300	-130,000
Average (2022-2072)		-150,000	-4,100	-150,000
2022-2072	W	-130,000	-5,900	-140,000
	AN	-130,000	-3,900	-140,000
	BN	-150,000	-2,800	-160,000
	D	-160,000	-3,800	-160,000
	C	-160,000	-2,100	-170,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

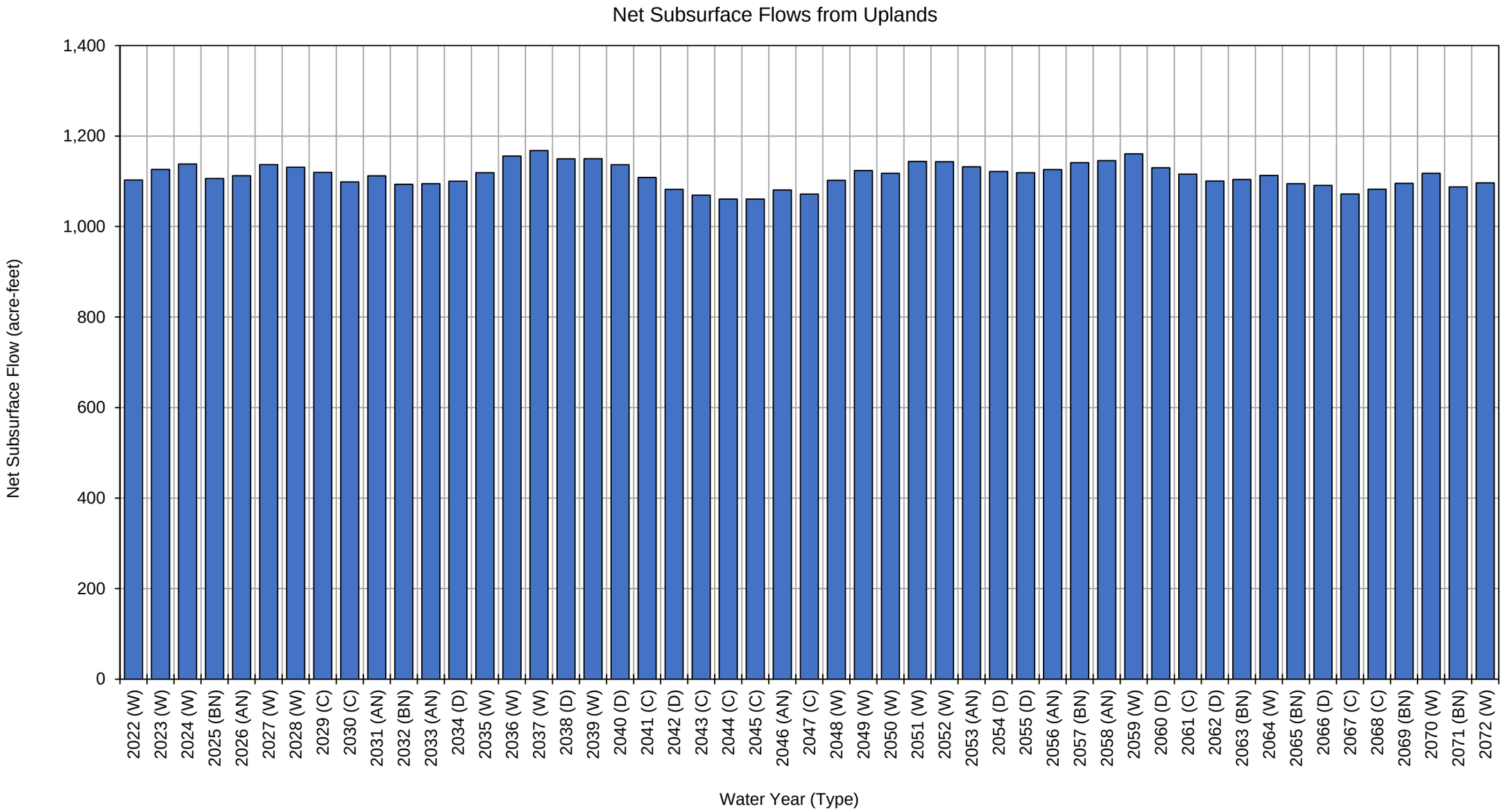
WY (Type)	Flow from/to Antelope Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bowman Subbasin	Flow from/to Corning Subbasin	Flow from/to South Battle Creek Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	2,000	11,000	120,000	-33,000	2,200	-12,000	93,000
2023 (W)	-4,400	6,900	130,000	-31,000	2,100	-13,000	90,000
2024 (W)	-7,600	5,800	130,000	-29,000	2,000	-14,000	88,000
2025 (BN)	-6,900	8,900	120,000	-27,000	2,000	-16,000	80,000
2026 (AN)	-7,400	4,800	130,000	-28,000	1,900	-15,000	82,000
2027 (W)	-8,900	2,500	130,000	-29,000	1,800	-15,000	85,000
2028 (W)	-9,800	4,300	130,000	-27,000	1,700	-16,000	85,000
2029 (C)	-8,800	5,400	120,000	-26,000	1,700	-18,000	79,000
2030 (C)	-4,500	8,900	110,000	-27,000	1,700	-19,000	74,000
2031 (AN)	-4,600	3,100	130,000	-32,000	1,600	-17,000	77,000
2032 (BN)	-4,800	4,200	120,000	-28,000	1,600	-18,000	75,000
2033 (AN)	-2,900	3,000	120,000	-29,000	1,500	-17,000	80,000
2034 (D)	-3,400	2,700	130,000	-30,000	1,500	-17,000	82,000
2035 (W)	-3,200	1,600	130,000	-31,000	1,400	-16,000	85,000
2036 (W)	-10,000	-610	140,000	-33,000	1,500	-14,000	82,000
2037 (W)	-13,000	1,800	140,000	-31,000	1,500	-16,000	80,000
2038 (D)	-11,000	3,900	130,000	-28,000	1,600	-17,000	79,000
2039 (W)	-11,000	3,000	130,000	-28,000	1,600	-17,000	78,000
2040 (D)	-12,000	2,300	120,000	-28,000	1,600	-18,000	69,000
2041 (C)	-8,500	4,200	120,000	-28,000	1,500	-19,000	66,000
2042 (D)	-2,700	5,400	110,000	-30,000	1,500	-19,000	71,000
2043 (C)	-1,000	4,800	110,000	-31,000	1,400	-18,000	69,000
2044 (C)	550	4,600	110,000	-32,000	1,400	-18,000	69,000
2045 (C)	2,600	3,700	120,000	-35,000	1,400	-18,000	70,000
2046 (AN)	590	-830	130,000	-37,000	1,300	-16,000	75,000
2047 (C)	620	3,000	120,000	-32,000	1,300	-17,000	75,000
2048 (W)	250	-110	130,000	-35,000	1,300	-15,000	80,000
2049 (W)	-2,400	760	130,000	-33,000	1,400	-15,000	85,000
2050 (W)	-2,900	3,800	130,000	-31,000	1,400	-15,000	85,000
2051 (W)	-7,300	17	140,000	-34,000	1,400	-14,000	82,000
2052 (W)	-10,000	1,500	140,000	-31,000	1,500	-16,000	81,000
2053 (AN)	-9,500	2,200	130,000	-30,000	1,500	-17,000	77,000
2054 (D)	-10,000	1,500	120,000	-30,000	1,600	-18,000	68,000
2055 (D)	-6,900	2,000	130,000	-31,000	1,500	-18,000	74,000
2056 (AN)	-6,500	570	130,000	-32,000	1,500	-17,000	77,000
2057 (BN)	-7,500	1,500	130,000	-31,000	1,500	-17,000	79,000
2058 (AN)	-11,000	-1,600	130,000	-32,000	1,500	-17,000	72,000
2059 (W)	-11,000	-810	130,000	-31,000	1,500	-16,000	76,000
2060 (D)	-8,400	4,200	120,000	-27,000	1,500	-18,000	74,000
2061 (C)	-6,200	4,000	120,000	-29,000	1,500	-18,000	72,000
2062 (D)	-3,400	5,500	120,000	-30,000	1,500	-18,000	72,000
2063 (BN)	-4,600	1,200	120,000	-33,000	1,400	-17,000	72,000
2064 (W)	-4,400	960	130,000	-32,000	1,400	-17,000	79,000
2065 (BN)	-3,000	4,800	120,000	-28,000	1,400	-18,000	78,000
2066 (D)	1,100	6,900	120,000	-28,000	1,400	-17,000	84,000
2067 (C)	5,100	10,000	110,000	-30,000	1,400	-18,000	80,000
2068 (C)	5,000	7,900	120,000	-38,000	1,400	-17,000	75,000
2069 (BN)	6,400	5,000	120,000	-40,000	1,400	-16,000	78,000
2070 (W)	3,400	2,100	130,000	-38,000	1,300	-14,000	87,000
2071 (BN)	4,500	9,500	120,000	-33,000	1,400	-16,000	86,000
2072 (W)	3,300	4,200	130,000	-32,000	1,400	-14,000	89,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Antelope Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bowman Subbasin	Flow from/to Corning Subbasin	Flow from/to South Battle Creek Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
Average (2022-2072)		-4,400	3,700	130,000	-31,000	1,500	-16,000	78,000
2022-2072	W	-5,400	2,700	130,000	-32,000	1,600	-15,000	84,000
	AN	-5,800	1,600	130,000	-31,000	1,500	-17,000	77,000
	BN	-2,300	5,000	120,000	-31,000	1,500	-17,000	78,000
	D	-6,400	3,800	120,000	-29,000	1,500	-18,000	75,000
	C	-1,500	5,700	120,000	-31,000	1,500	-18,000	73,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

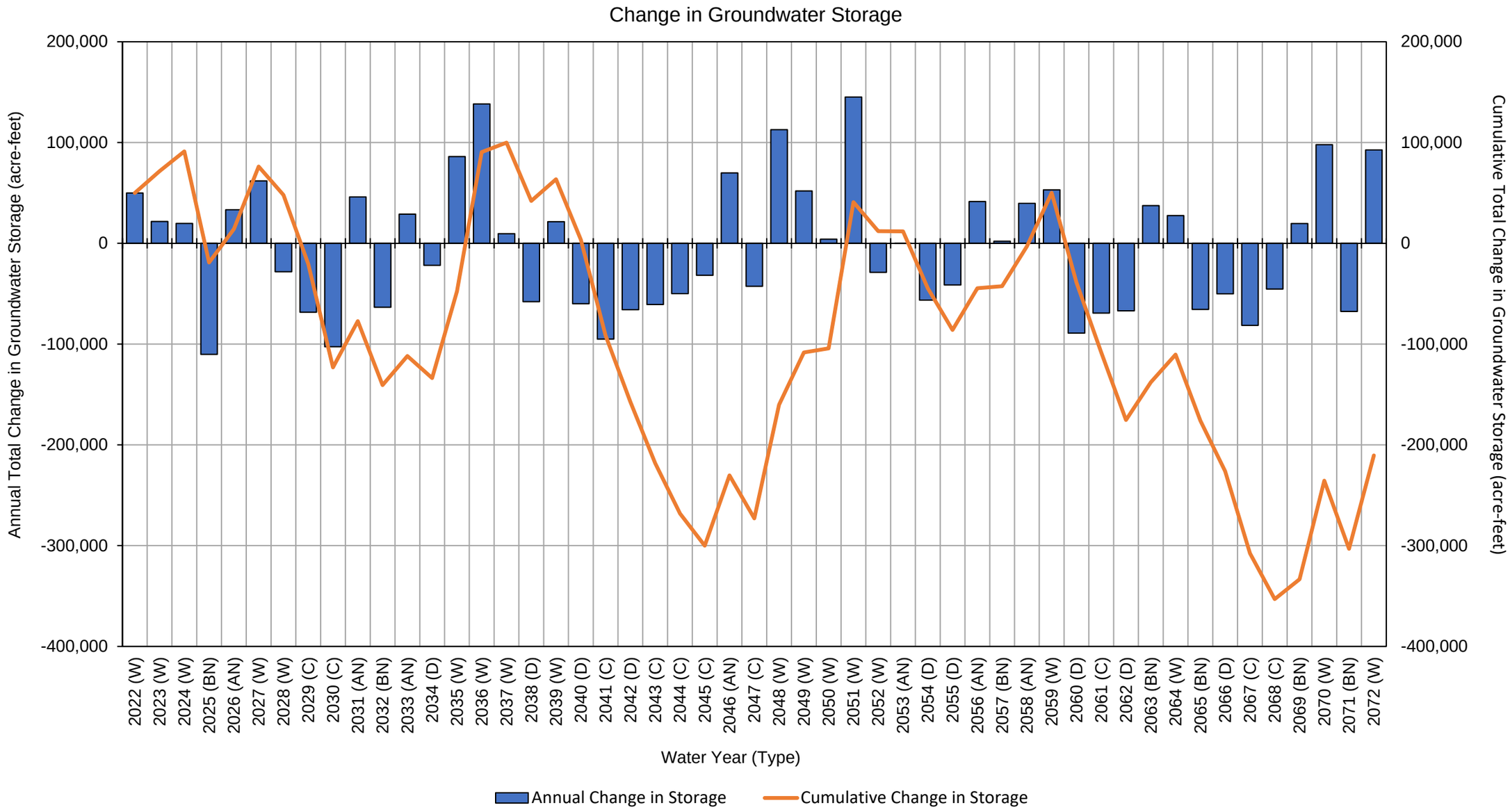
WY (Type)	Subsurface Flows from Uplands
2022 (W)	1,100
2023 (W)	1,100
2024 (W)	1,100
2025 (BN)	1,100
2026 (AN)	1,100
2027 (W)	1,100
2028 (W)	1,100
2029 (C)	1,100
2030 (C)	1,100
2031 (AN)	1,100
2032 (BN)	1,100
2033 (AN)	1,100
2034 (D)	1,100
2035 (W)	1,100
2036 (W)	1,200
2037 (W)	1,200
2038 (D)	1,100
2039 (W)	1,100
2040 (D)	1,100
2041 (C)	1,100
2042 (D)	1,100
2043 (C)	1,100
2044 (C)	1,100
2045 (C)	1,100
2046 (AN)	1,100
2047 (C)	1,100
2048 (W)	1,100
2049 (W)	1,100
2050 (W)	1,100
2051 (W)	1,100
2052 (W)	1,100
2053 (AN)	1,100
2054 (D)	1,100
2055 (D)	1,100
2056 (AN)	1,100
2057 (BN)	1,100
2058 (AN)	1,100
2059 (W)	1,200
2060 (D)	1,100
2061 (C)	1,100
2062 (D)	1,100
2063 (BN)	1,100

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		1,100
2065 (BN)		1,100
2066 (D)		1,100
2067 (C)		1,100
2068 (C)		1,100
2069 (BN)		1,100
2070 (W)		1,100
2071 (BN)		1,100
2072 (W)		1,100
Average (2022-2072)		1,100
2022-2072	W	1,100
	AN	1,100
	BN	1,100
	D	1,100
	C	1,100

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	50,000	50,000
2023 (W)	22,000	72,000
2024 (W)	20,000	91,000
2025 (BN)	-110,000	-19,000
2026 (AN)	33,000	14,000
2027 (W)	62,000	76,000
2028 (W)	-28,000	48,000
2029 (C)	-68,000	-21,000
2030 (C)	-100,000	-120,000
2031 (AN)	46,000	-77,000
2032 (BN)	-64,000	-140,000
2033 (AN)	29,000	-110,000
2034 (D)	-22,000	-130,000
2035 (W)	86,000	-48,000
2036 (W)	140,000	91,000
2037 (W)	9,500	100,000
2038 (D)	-58,000	42,000
2039 (W)	21,000	64,000
2040 (D)	-60,000	3,600
2041 (C)	-95,000	-92,000
2042 (D)	-66,000	-160,000
2043 (C)	-61,000	-220,000
2044 (C)	-50,000	-270,000
2045 (C)	-32,000	-300,000
2046 (AN)	70,000	-230,000
2047 (C)	-43,000	-270,000
2048 (W)	110,000	-160,000
2049 (W)	52,000	-110,000
2050 (W)	4,100	-100,000
2051 (W)	150,000	41,000
2052 (W)	-29,000	12,000
2053 (AN)	-180	12,000
2054 (D)	-56,000	-45,000
2055 (D)	-41,000	-86,000
2056 (AN)	41,000	-45,000
2057 (BN)	2,000	-43,000
2058 (AN)	40,000	-3,000
2059 (W)	53,000	50,000
2060 (D)	-89,000	-39,000
2061 (C)	-69,000	-110,000
2062 (D)	-67,000	-180,000
2063 (BN)	37,000	-140,000

Red Bluff Subbasin Projected (Future Land Use) with Climate Change (2070) Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		28,000	-110,000
2065 (BN)		-66,000	-180,000
2066 (D)		-50,000	-230,000
2067 (C)		-81,000	-310,000
2068 (C)		-45,000	-350,000
2069 (BN)		20,000	-330,000
2070 (W)		98,000	-240,000
2071 (BN)		-68,000	-300,000
2072 (W)		93,000	-210,000
Average (2022-2072)		-4,100	
2022-2072	W		
	AN		
	BN		
	D		
	C		

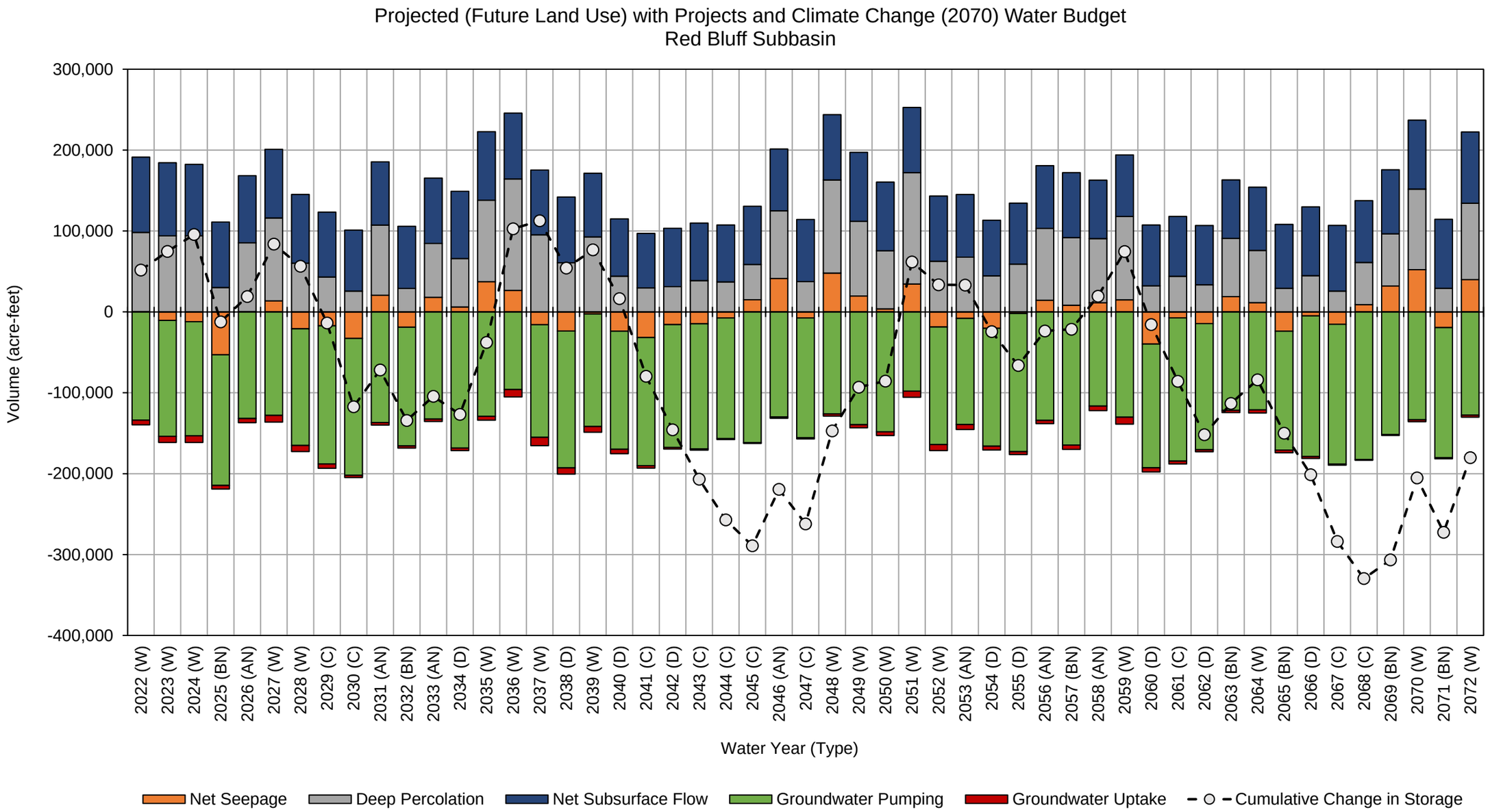
Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical

APPENDIX D-8

Detailed Red Bluff Subbasin Water Budget Results:

Projected (Future Land Use) with Projects and Climate Change (2070) Model Results


Projected (Future Land Use) with Projects and Climate Change (2070) Water Budget
Red Bluff Subbasin
Volume (acre-feet)
300,000
200,000
100,000
0
-100,000
-200,000
-300,000
-400,000
2022 (W)
2023 (W)
2024 (W)
2025 (BN)
2026 (AN)
2027 (W)
2028 (W)
2029 (C)
2030 (C)
2031 (AN)
2032 (BN)
2033 (AN)
2034 (D)
2035 (W)
2036 (W)
2037 (W)
2038 (D)
2039 (W)
2040 (D)
2041 (C)
2042 (D)
2043 (C)
2044 (C)
2045 (C)
2046 (AN)
2047 (C)
2048 (W)
2049 (W)
2050 (W)
2051 (W)
2052 (W)
2053 (AN)
2054 (D)
2055 (D)
2056 (AN)
2057 (BN)
2058 (AN)
2059 (W)
2060 (D)
2061 (C)
2062 (D)
2063 (BN)
2064 (W)
2065 (BN)
2066 (D)
2067 (C)
2068 (C)
2069 (BN)
2070 (W)
2071 (BN)
2072 (W)
Water Year (Type)
Net Seepage
Deep Percolation
Net Subsurface Flow
Groundwater Pumping
Groundwater Uptake
Cumulative Change in Storage

Red Bluff Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Water Budget Summary (acre-feet, rounded)

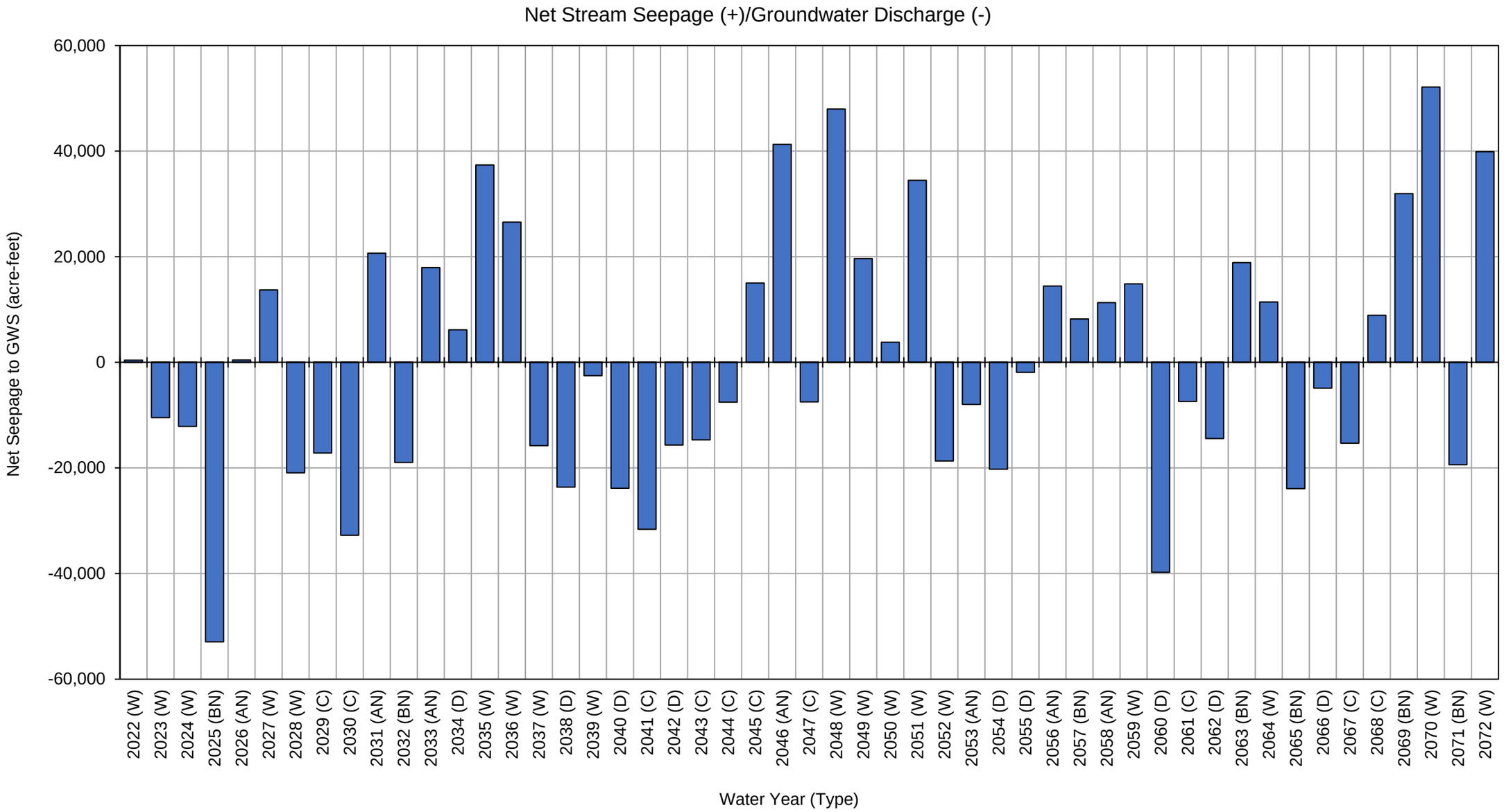
WY (Type)	Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	400	98,000	-130,000	-5,800	93,000	52,000	52,000
2023 (W)	-10,000	94,000	-140,000	-7,600	90,000	23,000	75,000
2024 (W)	-12,000	94,000	-140,000	-8,300	88,000	21,000	96,000
2025 (BN)	-53,000	30,000	-160,000	-4,500	81,000	-110,000	-12,000
2026 (AN)	450	85,000	-130,000	-5,300	83,000	31,000	19,000
2027 (W)	14,000	100,000	-130,000	-8,300	85,000	65,000	84,000
2028 (W)	-21,000	60,000	-140,000	-7,600	85,000	-27,000	56,000
2029 (C)	-17,000	43,000	-170,000	-5,300	80,000	-70,000	-14,000
2030 (C)	-33,000	26,000	-170,000	-2,600	75,000	-100,000	-120,000
2031 (AN)	21,000	87,000	-140,000	-3,100	78,000	46,000	-72,000
2032 (BN)	-19,000	29,000	-150,000	-2,600	77,000	-63,000	-130,000
2033 (AN)	18,000	67,000	-130,000	-3,000	81,000	30,000	-100,000
2034 (D)	6,100	60,000	-170,000	-3,100	83,000	-22,000	-130,000
2035 (W)	37,000	100,000	-130,000	-4,800	85,000	89,000	-38,000
2036 (W)	27,000	140,000	-96,000	-9,200	81,000	140,000	100,000
2037 (W)	-16,000	95,000	-140,000	-10,000	80,000	10,000	110,000
2038 (D)	-24,000	61,000	-170,000	-7,700	81,000	-59,000	54,000
2039 (W)	-2,500	93,000	-140,000	-7,100	79,000	23,000	77,000
2040 (D)	-24,000	44,000	-150,000	-5,500	71,000	-60,000	16,000
2041 (C)	-32,000	30,000	-160,000	-3,000	67,000	-96,000	-80,000
2042 (D)	-16,000	31,000	-150,000	-2,000	72,000	-66,000	-150,000
2043 (C)	-15,000	39,000	-150,000	-1,600	71,000	-61,000	-210,000
2044 (C)	-7,600	37,000	-150,000	-1,100	70,000	-50,000	-260,000
2045 (C)	15,000	44,000	-160,000	-950	72,000	-32,000	-290,000
2046 (AN)	41,000	84,000	-130,000	-1,600	76,000	70,000	-220,000
2047 (C)	-7,500	37,000	-150,000	-1,300	77,000	-43,000	-260,000
2048 (W)	48,000	120,000	-130,000	-2,600	81,000	110,000	-150,000
2049 (W)	20,000	92,000	-140,000	-3,900	85,000	54,000	-93,000
2050 (W)	3,800	72,000	-150,000	-4,500	85,000	7,600	-85,000
2051 (W)	34,000	140,000	-98,000	-7,600	81,000	150,000	62,000
2052 (W)	-19,000	63,000	-150,000	-7,500	81,000	-28,000	34,000
2053 (AN)	-8,000	68,000	-130,000	-6,300	77,000	-400	33,000
2054 (D)	-20,000	44,000	-150,000	-4,700	69,000	-57,000	-24,000
2055 (D)	-1,900	59,000	-170,000	-3,700	75,000	-42,000	-66,000
2056 (AN)	14,000	89,000	-130,000	-4,000	78,000	43,000	-24,000
2057 (BN)	8,200	84,000	-160,000	-5,300	80,000	2,200	-21,000
2058 (AN)	11,000	79,000	-120,000	-5,600	72,000	41,000	19,000
2059 (W)	15,000	100,000	-130,000	-8,500	76,000	55,000	75,000
2060 (D)	-40,000	32,000	-150,000	-5,100	75,000	-90,000	-16,000
2061 (C)	-7,400	44,000	-180,000	-3,600	74,000	-70,000	-86,000
2062 (D)	-14,000	33,000	-160,000	-2,400	73,000	-66,000	-150,000
2063 (BN)	19,000	72,000	-120,000	-2,800	72,000	39,000	-110,000
2064 (W)	11,000	65,000	-120,000	-3,800	78,000	29,000	-84,000
2065 (BN)	-24,000	29,000	-150,000	-3,200	79,000	-66,000	-150,000

Red Bluff Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Water Budget Summary (acre-feet, rounded)

WY (Type)		Total Net Seepage	Deep Percolation	Groundwater Pumping	Groundwater Uptake	Total Net Subsurface Flows	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2066 (D)		-4,900	45,000	-170,000	-2,300	85,000	-51,000	-200,000
2067 (C)		-15,000	26,000	-170,000	-1,200	81,000	-82,000	-280,000
2068 (C)		8,900	52,000	-180,000	-850	76,000	-46,000	-330,000
2069 (BN)		32,000	65,000	-150,000	-910	79,000	23,000	-310,000
2070 (W)		52,000	100,000	-130,000	-2,300	85,000	100,000	-210,000
2071 (BN)		-19,000	29,000	-160,000	-1,500	85,000	-67,000	-270,000
2072 (W)		40,000	94,000	-130,000	-2,500	88,000	92,000	-180,000
Average (2022-2072)		300	67,000	-150,000	-4,300	79,000	-3,500	
2022-2072	W	12,000	95,000	-130,000	-6,200	84,000		
	AN	14,000	80,000	-130,000	-4,100	78,000		
	BN	-8,000	48,000	-150,000	-3,000	79,000		
	D	-15,000	46,000	-160,000	-4,000	76,000		
	C	-11,000	38,000	-160,000	-2,200	75,000		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

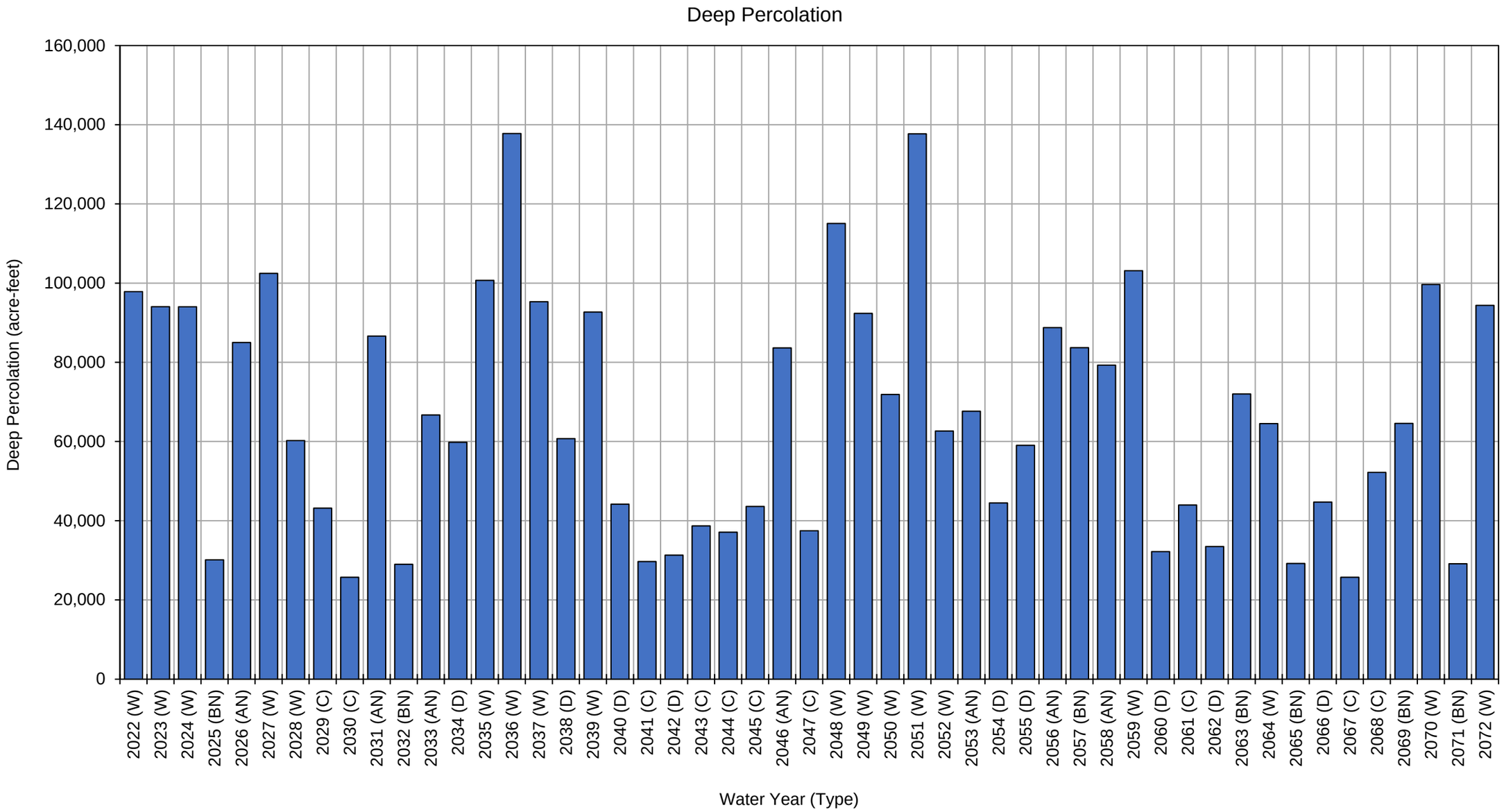
WY (Type)	Total Net Seepage from Surface Waterways and Canals
2022 (W)	400
2023 (W)	-10,000
2024 (W)	-12,000
2025 (BN)	-53,000
2026 (AN)	450
2027 (W)	14,000
2028 (W)	-21,000
2029 (C)	-17,000
2030 (C)	-33,000
2031 (AN)	21,000
2032 (BN)	-19,000
2033 (AN)	18,000
2034 (D)	6,100
2035 (W)	37,000
2036 (W)	27,000
2037 (W)	-16,000
2038 (D)	-24,000
2039 (W)	-2,500
2040 (D)	-24,000
2041 (C)	-32,000
2042 (D)	-16,000
2043 (C)	-15,000
2044 (C)	-7,600
2045 (C)	15,000
2046 (AN)	41,000
2047 (C)	-7,500
2048 (W)	48,000
2049 (W)	20,000
2050 (W)	3,800
2051 (W)	34,000
2052 (W)	-19,000
2053 (AN)	-8,000
2054 (D)	-20,000
2055 (D)	-1,900
2056 (AN)	14,000
2057 (BN)	8,200
2058 (AN)	11,000
2059 (W)	15,000
2060 (D)	-40,000
2061 (C)	-7,400
2062 (D)	-14,000
2063 (BN)	19,000

Red Bluff Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Net Stream Seepage (net flows as acre-feet, rounded)

WY (Type)		Total Net Seepage from Surface Waterways and Canals
2064 (W)		11,000
2065 (BN)		-24,000
2066 (D)		-4,900
2067 (C)		-15,000
2068 (C)		8,900
2069 (BN)		32,000
2070 (W)		52,000
2071 (BN)		-19,000
2072 (W)		40,000
Average (2022-2072)		300
2022-2072	W	12,000
	AN	14,000
	BN	-8,000
	D	-15,000
	C	-11,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

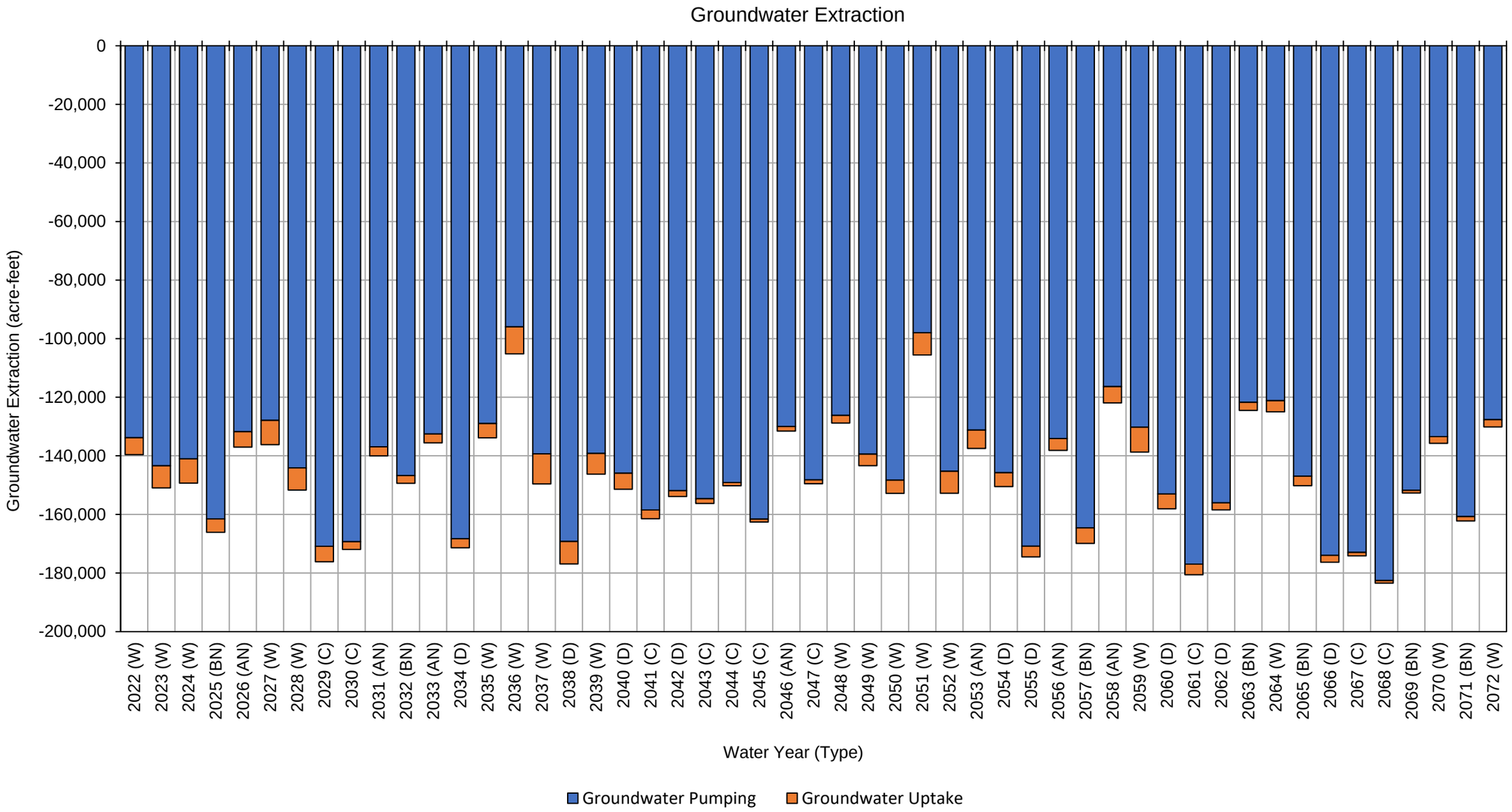
WY (Type)	Deep Percolation from the SWS
2022 (W)	98,000
2023 (W)	94,000
2024 (W)	94,000
2025 (BN)	30,000
2026 (AN)	85,000
2027 (W)	100,000
2028 (W)	60,000
2029 (C)	43,000
2030 (C)	26,000
2031 (AN)	87,000
2032 (BN)	29,000
2033 (AN)	67,000
2034 (D)	60,000
2035 (W)	100,000
2036 (W)	140,000
2037 (W)	95,000
2038 (D)	61,000
2039 (W)	93,000
2040 (D)	44,000
2041 (C)	30,000
2042 (D)	31,000
2043 (C)	39,000
2044 (C)	37,000
2045 (C)	44,000
2046 (AN)	84,000
2047 (C)	37,000
2048 (W)	120,000
2049 (W)	92,000
2050 (W)	72,000
2051 (W)	140,000
2052 (W)	63,000
2053 (AN)	68,000
2054 (D)	44,000
2055 (D)	59,000
2056 (AN)	89,000
2057 (BN)	84,000
2058 (AN)	79,000
2059 (W)	100,000
2060 (D)	32,000
2061 (C)	44,000
2062 (D)	33,000
2063 (BN)	72,000

Red Bluff Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Deep Percolation from the SWS (acre-feet, rounded)

WY (Type)		Deep Percolation from the SWS
2064 (W)		65,000
2065 (BN)		29,000
2066 (D)		45,000
2067 (C)		26,000
2068 (C)		52,000
2069 (BN)		65,000
2070 (W)		100,000
2071 (BN)		29,000
2072 (W)		94,000
Average (2022-2072)		67,000
2022-2072	W	95,000
	AN	80,000
	BN	48,000
	D	46,000
	C	38,000

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

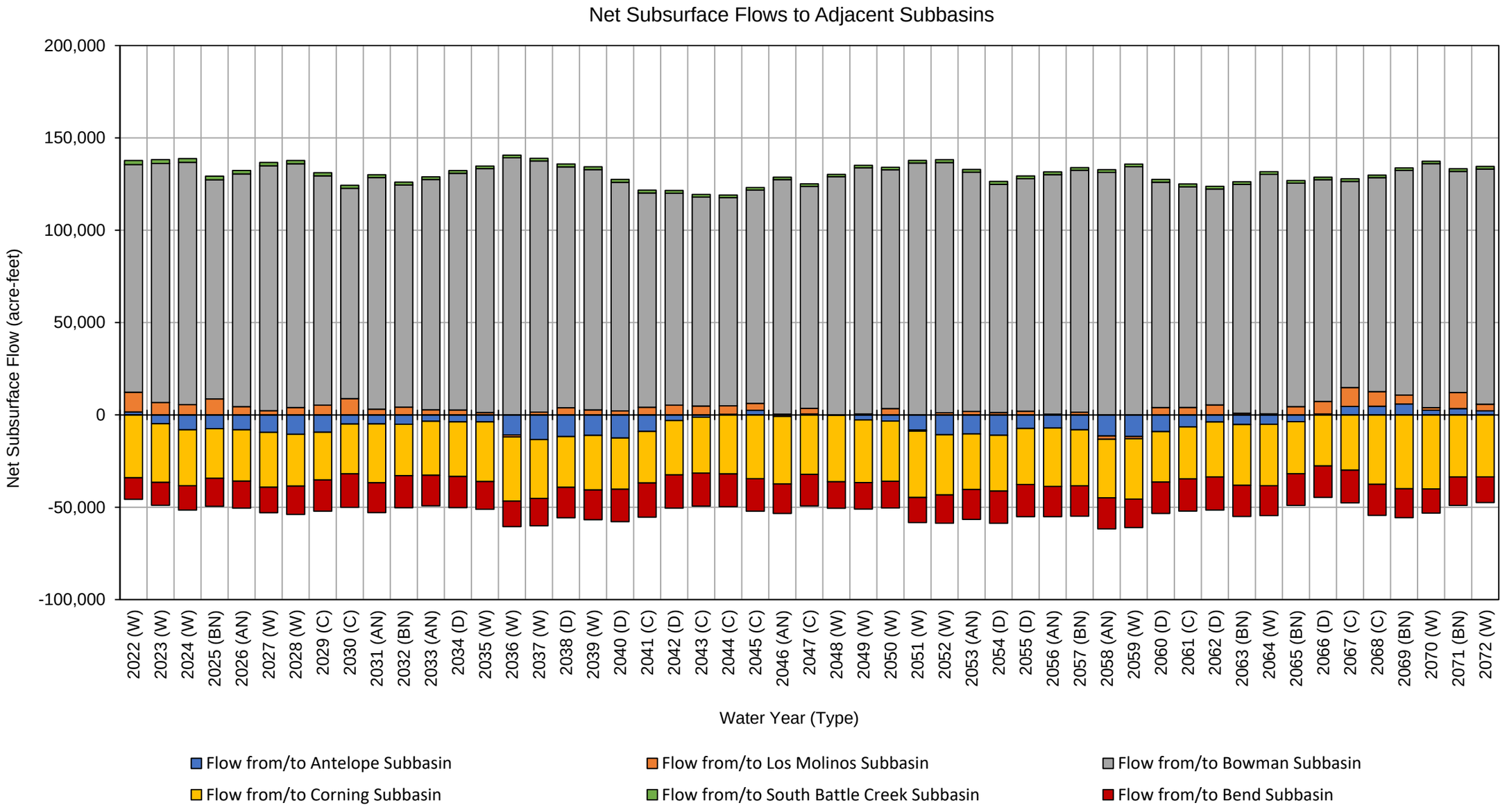
WY (Type)	Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2022 (W)	-130,000	-5,800	-140,000
2023 (W)	-140,000	-7,600	-150,000
2024 (W)	-140,000	-8,300	-150,000
2025 (BN)	-160,000	-4,500	-170,000
2026 (AN)	-130,000	-5,300	-140,000
2027 (W)	-130,000	-8,300	-140,000
2028 (W)	-140,000	-7,600	-150,000
2029 (C)	-170,000	-5,300	-180,000
2030 (C)	-170,000	-2,600	-170,000
2031 (AN)	-140,000	-3,100	-140,000
2032 (BN)	-150,000	-2,600	-150,000
2033 (AN)	-130,000	-3,000	-140,000
2034 (D)	-170,000	-3,100	-170,000
2035 (W)	-130,000	-4,800	-130,000
2036 (W)	-96,000	-9,200	-110,000
2037 (W)	-140,000	-10,000	-150,000
2038 (D)	-170,000	-7,700	-180,000
2039 (W)	-140,000	-7,100	-150,000
2040 (D)	-150,000	-5,500	-150,000
2041 (C)	-160,000	-3,000	-160,000
2042 (D)	-150,000	-2,000	-150,000
2043 (C)	-150,000	-1,600	-160,000
2044 (C)	-150,000	-1,100	-150,000
2045 (C)	-160,000	-950	-160,000
2046 (AN)	-130,000	-1,600	-130,000
2047 (C)	-150,000	-1,300	-150,000
2048 (W)	-130,000	-2,600	-130,000
2049 (W)	-140,000	-3,900	-140,000
2050 (W)	-150,000	-4,500	-150,000
2051 (W)	-98,000	-7,600	-110,000
2052 (W)	-150,000	-7,500	-150,000
2053 (AN)	-130,000	-6,300	-140,000
2054 (D)	-150,000	-4,700	-150,000
2055 (D)	-170,000	-3,700	-170,000
2056 (AN)	-130,000	-4,000	-140,000
2057 (BN)	-160,000	-5,300	-170,000
2058 (AN)	-120,000	-5,600	-120,000
2059 (W)	-130,000	-8,500	-140,000
2060 (D)	-150,000	-5,100	-160,000
2061 (C)	-180,000	-3,600	-180,000
2062 (D)	-160,000	-2,400	-160,000
2063 (BN)	-120,000	-2,800	-120,000

Red Bluff Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Groundwater Extractions (acre-feet, rounded)

WY (Type)		Groundwater Pumping	Groundwater (Root Water) Uptake	Total Groundwater Extraction
2064 (W)		-120,000	-3,800	-120,000
2065 (BN)		-150,000	-3,200	-150,000
2066 (D)		-170,000	-2,300	-180,000
2067 (C)		-170,000	-1,200	-170,000
2068 (C)		-180,000	-850	-180,000
2069 (BN)		-150,000	-910	-150,000
2070 (W)		-130,000	-2,300	-140,000
2071 (BN)		-160,000	-1,500	-160,000
2072 (W)		-130,000	-2,500	-130,000
Average (2022-2072)		-150,000	-4,300	-150,000
2022-2072	W	-130,000	-6,200	-140,000
	AN	-130,000	-4,100	-130,000
	BN	-150,000	-3,000	-150,000
	D	-160,000	-4,000	-160,000
	C	-160,000	-2,200	-170,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

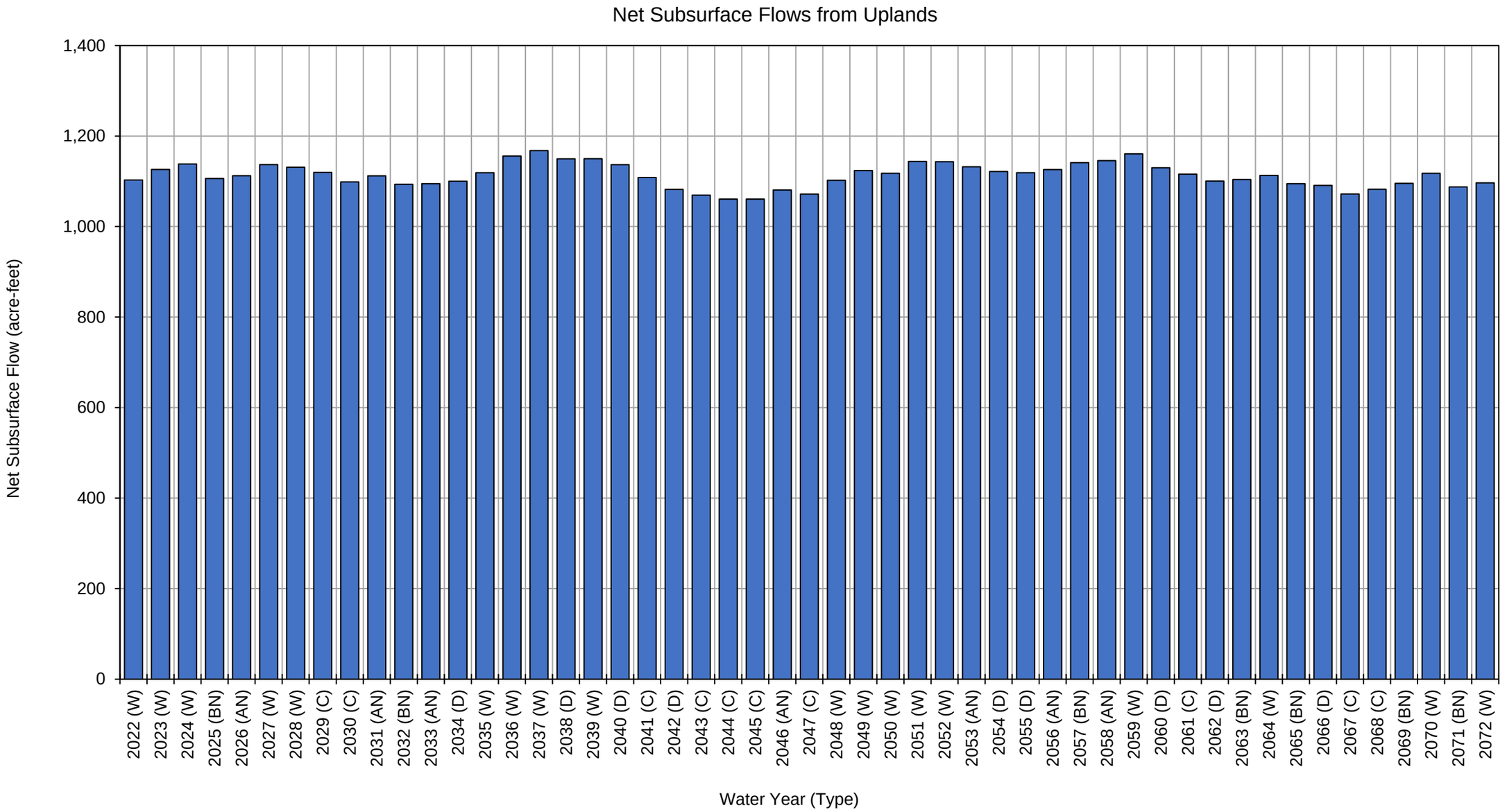
WY (Type)	Flow from/to Antelope Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bowman Subbasin	Flow from/to Corning Subbasin	Flow from/to South Battle Creek Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
2022 (W)	1,600	11,000	120,000	-34,000	2,200	-12,000	92,000
2023 (W)	-4,800	6,700	130,000	-32,000	2,100	-12,000	89,000
2024 (W)	-8,100	5,600	130,000	-30,000	2,000	-13,000	87,000
2025 (BN)	-7,500	8,600	120,000	-27,000	2,000	-15,000	80,000
2026 (AN)	-8,100	4,500	130,000	-28,000	1,900	-15,000	82,000
2027 (W)	-9,400	2,300	130,000	-30,000	1,800	-14,000	84,000
2028 (W)	-10,000	4,000	130,000	-28,000	1,700	-15,000	84,000
2029 (C)	-9,400	5,300	120,000	-26,000	1,700	-17,000	79,000
2030 (C)	-4,900	8,800	110,000	-27,000	1,700	-18,000	74,000
2031 (AN)	-4,900	3,100	130,000	-32,000	1,600	-16,000	77,000
2032 (BN)	-5,000	4,200	120,000	-28,000	1,600	-17,000	76,000
2033 (AN)	-3,400	2,800	120,000	-29,000	1,500	-17,000	80,000
2034 (D)	-3,800	2,600	130,000	-30,000	1,500	-17,000	82,000
2035 (W)	-3,800	1,300	130,000	-32,000	1,400	-15,000	84,000
2036 (W)	-11,000	-1,100	140,000	-35,000	1,400	-14,000	80,000
2037 (W)	-13,000	1,500	140,000	-32,000	1,500	-15,000	79,000
2038 (D)	-12,000	3,800	130,000	-28,000	1,600	-16,000	80,000
2039 (W)	-11,000	2,700	130,000	-30,000	1,500	-16,000	78,000
2040 (D)	-13,000	2,200	120,000	-28,000	1,600	-18,000	70,000
2041 (C)	-8,900	4,100	120,000	-28,000	1,500	-19,000	66,000
2042 (D)	-3,100	5,300	110,000	-29,000	1,500	-18,000	71,000
2043 (C)	-1,300	4,800	110,000	-30,000	1,400	-18,000	70,000
2044 (C)	330	4,600	110,000	-32,000	1,400	-18,000	69,000
2045 (C)	2,500	3,800	120,000	-35,000	1,400	-18,000	71,000
2046 (AN)	420	-800	130,000	-37,000	1,300	-16,000	75,000
2047 (C)	520	3,000	120,000	-32,000	1,300	-17,000	76,000
2048 (W)	26	-260	130,000	-36,000	1,300	-14,000	80,000
2049 (W)	-2,700	510	130,000	-34,000	1,400	-14,000	84,000
2050 (W)	-3,300	3,400	130,000	-33,000	1,400	-14,000	84,000
2051 (W)	-8,200	-560	140,000	-36,000	1,400	-14,000	79,000
2052 (W)	-11,000	1,200	140,000	-33,000	1,500	-15,000	80,000
2053 (AN)	-10,000	1,900	130,000	-30,000	1,500	-16,000	76,000
2054 (D)	-11,000	1,300	120,000	-30,000	1,500	-17,000	68,000
2055 (D)	-7,400	2,000	130,000	-30,000	1,500	-17,000	74,000
2056 (AN)	-7,100	370	130,000	-32,000	1,500	-16,000	76,000
2057 (BN)	-8,100	1,400	130,000	-30,000	1,500	-16,000	79,000
2058 (AN)	-11,000	-1,800	130,000	-32,000	1,500	-17,000	71,000
2059 (W)	-12,000	-1,200	130,000	-33,000	1,500	-15,000	75,000
2060 (D)	-9,100	4,000	120,000	-27,000	1,500	-17,000	74,000
2061 (C)	-6,600	4,000	120,000	-28,000	1,500	-17,000	73,000
2062 (D)	-3,900	5,400	120,000	-30,000	1,500	-18,000	72,000
2063 (BN)	-5,200	910	120,000	-33,000	1,400	-17,000	71,000
2064 (W)	-5,100	570	130,000	-33,000	1,400	-16,000	77,000
2065 (BN)	-3,700	4,500	120,000	-28,000	1,400	-17,000	78,000
2066 (D)	520	6,800	120,000	-28,000	1,400	-17,000	84,000
2067 (C)	4,600	10,000	110,000	-30,000	1,400	-18,000	80,000
2068 (C)	4,700	7,900	120,000	-38,000	1,400	-17,000	75,000
2069 (BN)	5,900	4,800	120,000	-40,000	1,300	-16,000	78,000
2070 (W)	2,500	1,400	130,000	-40,000	1,300	-13,000	84,000
2071 (BN)	3,400	8,700	120,000	-34,000	1,400	-15,000	84,000
2072 (W)	2,200	3,600	130,000	-34,000	1,400	-14,000	87,000

Red Bluff Subbasin Projected (Future Land Use) with Projects and Climate Change (2070) Lateral Subsurface Groundwater Flows Between Adjacent Subbasins (net flows as acre-feet, rounded)

WY (Type)		Flow from/to Antelope Subbasin	Flow from/to Los Molinos Subbasin	Flow from/to Bowman Subbasin	Flow from/to Corning Subbasin	Flow from/to South Battle Creek Subbasin	Flow from/to Bend Subbasin	Net Subsurface Flow from Adjacent Subbasins
Average (2022-2072)		-5,000	3,400	130,000	-31,000	1,500	-16,000	78,000
2022-2072	W	-6,000	2,300	130,000	-33,000	1,600	-14,000	83,000
	AN	-6,400	1,400	130,000	-31,000	1,500	-16,000	77,000
	BN	-2,900	4,700	120,000	-31,000	1,500	-16,000	78,000
	D	-6,900	3,700	120,000	-29,000	1,500	-17,000	75,000
	C	-1,900	5,700	120,000	-31,000	1,500	-18,000	73,000

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Projects and Climate Change (2070)
Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

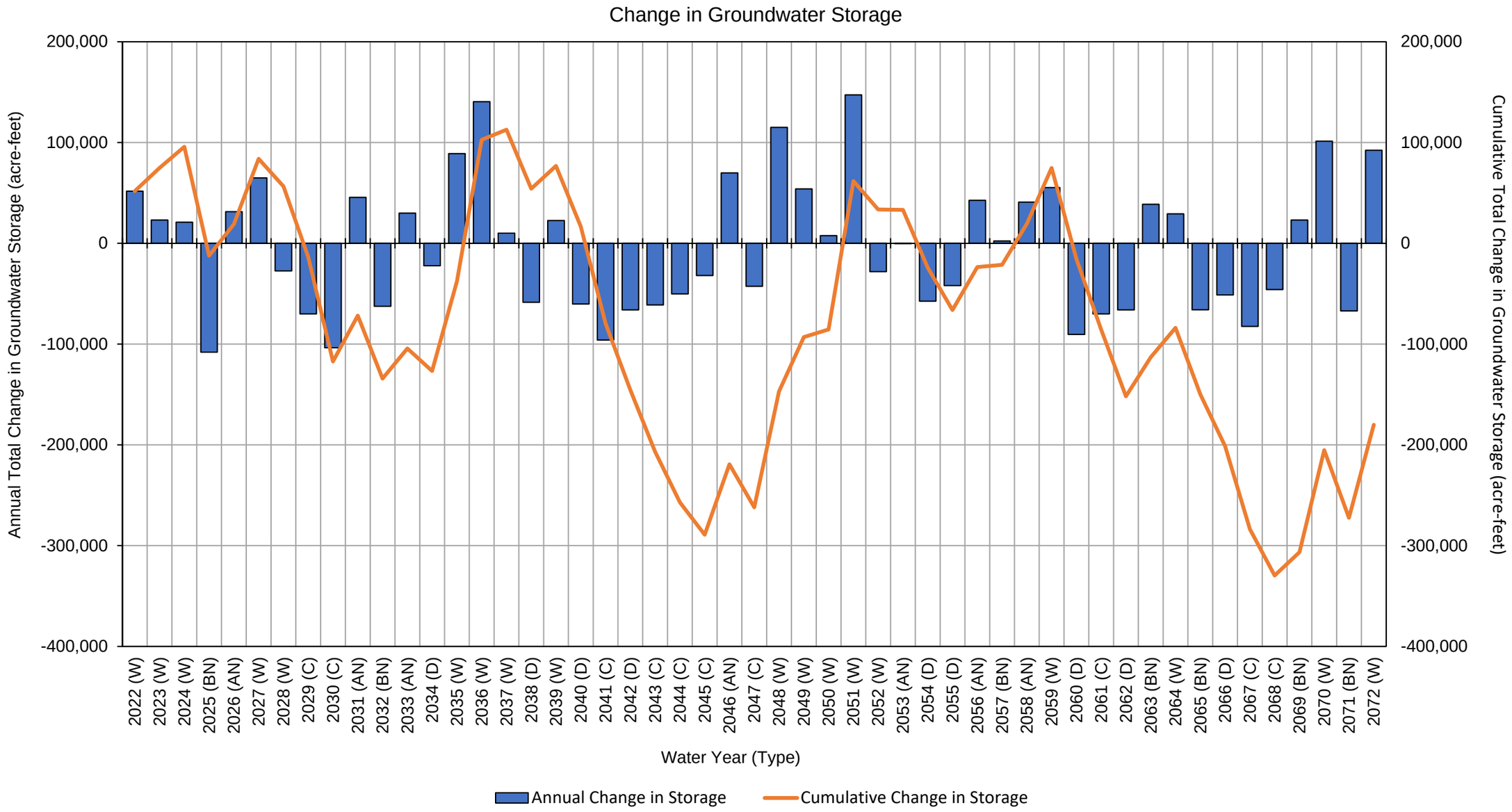
WY (Type)	Subsurface Flows from Uplands
2022 (W)	1,100
2023 (W)	1,100
2024 (W)	1,100
2025 (BN)	1,100
2026 (AN)	1,100
2027 (W)	1,100
2028 (W)	1,100
2029 (C)	1,100
2030 (C)	1,100
2031 (AN)	1,100
2032 (BN)	1,100
2033 (AN)	1,100
2034 (D)	1,100
2035 (W)	1,100
2036 (W)	1,200
2037 (W)	1,200
2038 (D)	1,100
2039 (W)	1,100
2040 (D)	1,100
2041 (C)	1,100
2042 (D)	1,100
2043 (C)	1,100
2044 (C)	1,100
2045 (C)	1,100
2046 (AN)	1,100
2047 (C)	1,100
2048 (W)	1,100
2049 (W)	1,100
2050 (W)	1,100
2051 (W)	1,100
2052 (W)	1,100
2053 (AN)	1,100
2054 (D)	1,100
2055 (D)	1,100
2056 (AN)	1,100
2057 (BN)	1,100
2058 (AN)	1,100
2059 (W)	1,200
2060 (D)	1,100
2061 (C)	1,100
2062 (D)	1,100
2063 (BN)	1,100

Red Bluff Subbasin Projected (Future Land Use) with Projects and Climate Change (2070)
Subsurface Groundwater Inflows from Adjacent Uplands (small watersheds) (acre-feet, rounded)

WY (Type)		Subsurface Flows from Uplands
2064 (W)		1,100
2065 (BN)		1,100
2066 (D)		1,100
2067 (C)		1,100
2068 (C)		1,100
2069 (BN)		1,100
2070 (W)		1,100
2071 (BN)		1,100
2072 (W)		1,100
Average (2022-2072)		1,100
2022-2072	W	1,100
	AN	1,100
	BN	1,100
	D	1,100
	C	1,100

Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical



Tehama IHM - Projected (Future Land Use) with Projects and Climate Change (2070)

Red Bluff Subbasin Projected (Future Land Use) with Projects and Climate Change (2070)
Change in Groundwater Storage (acre-feet, rounded)

WY (Type)	Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2022 (W)	52,000	52,000
2023 (W)	23,000	75,000
2024 (W)	21,000	96,000
2025 (BN)	-110,000	-12,000
2026 (AN)	31,000	19,000
2027 (W)	65,000	84,000
2028 (W)	-27,000	56,000
2029 (C)	-70,000	-14,000
2030 (C)	-100,000	-120,000
2031 (AN)	46,000	-72,000
2032 (BN)	-63,000	-130,000
2033 (AN)	30,000	-100,000
2034 (D)	-22,000	-130,000
2035 (W)	89,000	-38,000
2036 (W)	140,000	100,000
2037 (W)	10,000	110,000
2038 (D)	-59,000	54,000
2039 (W)	23,000	77,000
2040 (D)	-60,000	16,000
2041 (C)	-96,000	-80,000
2042 (D)	-66,000	-150,000
2043 (C)	-61,000	-210,000
2044 (C)	-50,000	-260,000
2045 (C)	-32,000	-290,000
2046 (AN)	70,000	-220,000
2047 (C)	-43,000	-260,000
2048 (W)	110,000	-150,000
2049 (W)	54,000	-93,000
2050 (W)	7,600	-85,000
2051 (W)	150,000	62,000
2052 (W)	-28,000	34,000
2053 (AN)	-400	33,000
2054 (D)	-57,000	-24,000
2055 (D)	-42,000	-66,000
2056 (AN)	43,000	-24,000
2057 (BN)	2,200	-21,000
2058 (AN)	41,000	19,000
2059 (W)	55,000	75,000
2060 (D)	-90,000	-16,000
2061 (C)	-70,000	-86,000
2062 (D)	-66,000	-150,000
2063 (BN)	39,000	-110,000

Red Bluff Subbasin Projected (Future Land Use) with Projects and Climate Change (2070)
Change in Groundwater Storage (acre-feet, rounded)

WY (Type)		Annual Change in Groundwater Storage	Cumulative Change in Groundwater Storage
2064 (W)		29,000	-84,000
2065 (BN)		-66,000	-150,000
2066 (D)		-51,000	-200,000
2067 (C)		-82,000	-280,000
2068 (C)		-46,000	-330,000
2069 (BN)		23,000	-310,000
2070 (W)		100,000	-210,000
2071 (BN)		-67,000	-270,000
2072 (W)		92,000	-180,000
Average (2022-2072)		-3,500	
2022-2072	W		
	AN		
	BN		
	D		
	C		

Note: Water Year Type is based on the Sacramento Valley Water Year Index and is classified into five types:

W Wet
AN Above Normal
BN Below Normal
D Dry
C Critical