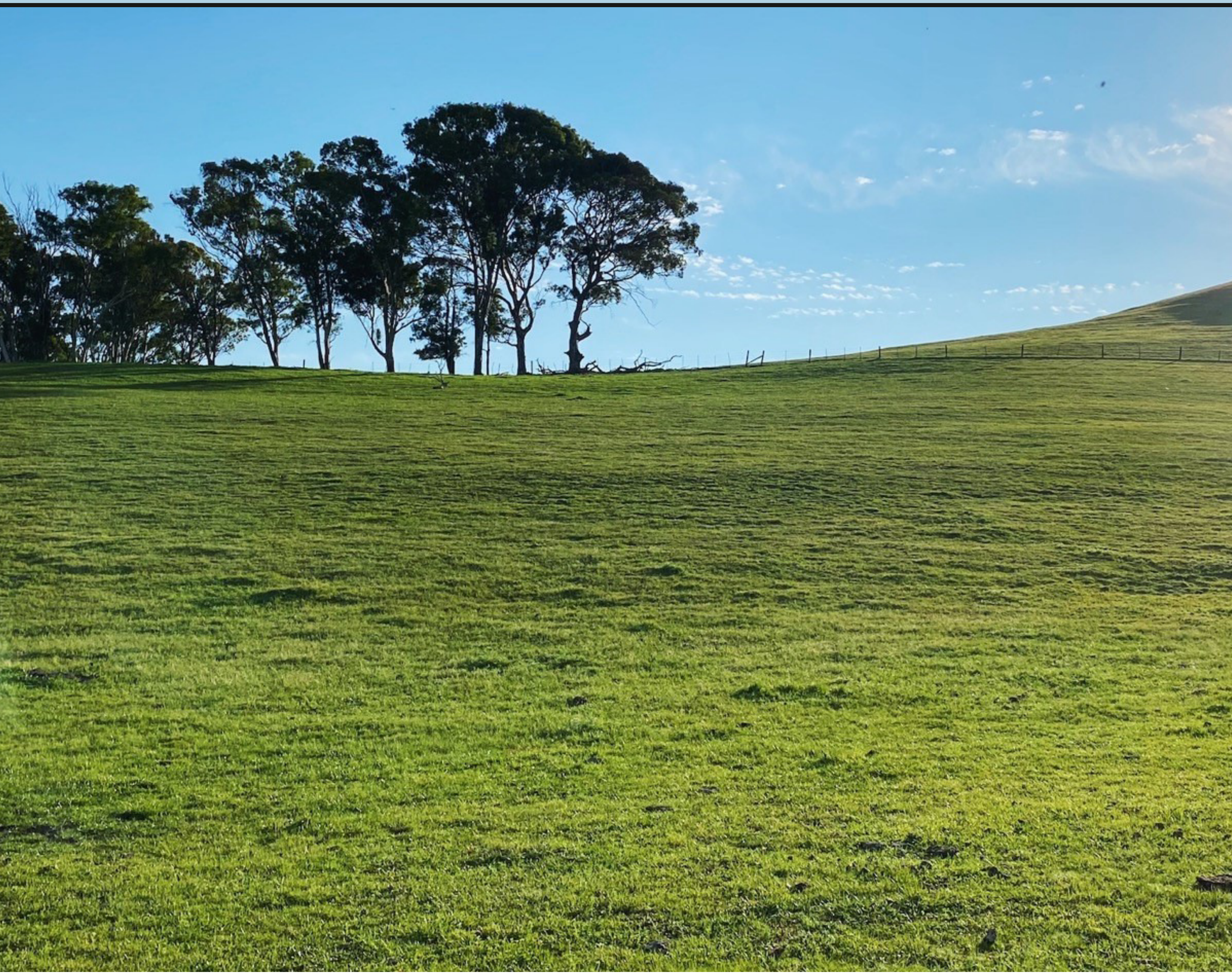
2021

Annual Groundwater Report



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NORTH SAN BENITO ANNUAL GROUNDWATER REPORT 2021

March 2022

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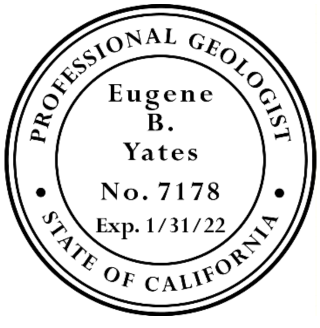

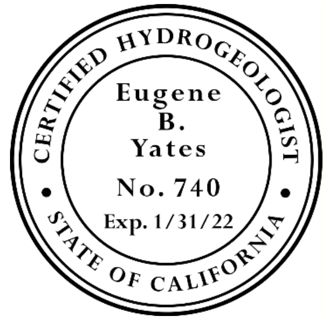

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EXECUTIVE SUMMARY

This Annual Groundwater Report describes groundwater conditions in the North San Benito Basin, a subbasin of the Gilroy-Hollister Basin. Consistent with Annual Groundwater Reports prepared by the San Benito County Water District for decades, this report fulfills requirements of the 1953 San Benito County Water District Act (California Water Code Appendix 70). This Annual Groundwater Report also fulfills requirements of the 2014 Sustainable Groundwater Management Act (SGMA). In brief, this report incorporates adaptive management; it strives to maintain consistency with past Annual Reports while fulfilling requirements for SGMA Annual Reports and supporting sustainable groundwater management into the future.

SGMA requires sustainable management of priority groundwater basins and empowers local Groundwater Sustainability Agencies (GSAs) to manage groundwater resources. San Benito County Water District GSA (SBCWD GSA), in partnership with Valley Water (known as Santa Clara Valley District prior to 2019) GSA has developed a Groundwater Sustainability Plan (GSP) for the North San Benito Basin, which encompasses the historically defined Bolsa, Hollister, and San Juan Bautista Subbasins of the Gilroy-Hollister Basin and the Tres Pinos Valley Basin. The North San Benito Basin is predominantly in San Benito County with small areas in Santa Clara County.

The North San Benito GSP was developed between May 2018 and November 2022 with active outreach and public participation throughout the process. The North San Benito GSP was adopted by SBCWD on November 17, 2021 and by Valley Water GSA on December 14, 2021 and was submitted to the California Department of Water Resources (DWR) in January 2022. The 2022 GSP provides the basic information, analytical tools, and projects and management actions for continued groundwater management, guided by SGMA and by locally defined sustainability goals, objectives, and metrics.

This Annual Groundwater Report for San Benito County Water District (SBCWD or District) documents water sources and uses, groundwater elevations and storage, and management activities for Water Year 2021 and provides recommendations. This Report also details the six Sustainable Management Criteria and their respective Minimum Thresholds (MTs). While Water Year 2021 was the second year of dry conditions and was characterized by below average rainfall, below average CVP allocations, and slightly decreased groundwater storage in parts of the basin, no MTs were triggered during the water year.

The District has effectively managed water resources in San Benito County for decades. Working collaboratively with other agencies, the District has eliminated historical overdraft, developed and managed multiple sources of supply, established an effective water conservation program, protected water quality, and provided annual reporting. Water Year 2021 witnessed a continuation of these collaborative efforts and the completion of the GSP.

This Annual Report reflects the changing scope of groundwater management in the Basin and thus involves adapted methods, for example, to estimate groundwater pumping for agriculture. It builds on the GSP (which includes extensive update and application of the numerical model) and presents an estimate of groundwater pumping simulated by the numerical model. This represents a departure from previous Annual Reports and an important first step toward basin-wide and more accurate assessment of agricultural pumping. This report also describes significant improvements to monitoring and progress in expanding the local capability for managed aquifer recharge.

1-INTRODUCTION

This Annual Groundwater Report describes groundwater conditions in the North San Benito Basin, a subbasin of the Gilroy-Hollister Basin (**Figure 1-1**). Consistent with Annual Groundwater Reports prepared for decades by the San Benito County Water District (SBCWD or District), this report fulfills requirements of the 1953 San Benito County Water District Act (California Water Code Appendix 70). The District Act authorizes the Board of Directors, at its discretion, to direct staff to prepare an annual investigation and report on groundwater conditions of the District and its zones of benefit, such as Zone 6, the area for distribution of Central Valley Project (CVP) water. As documented in **Appendix A**, the District Act specifies the minimum content of the report to be prepared at the direction of the District Board of Directors. This Annual Report fulfills the requirements for a District Annual Report, including a brief Annual Groundwater Memorandum Report prepared for the January 10, 2022 meeting of the Board of Directors (in Appendix A). This Annual Report also provides information to the Board of Directors on the status of the groundwater basin, estimated conditions in the next year, and management recommendations.

This Annual Groundwater Report fulfills requirements of the 2014 Sustainable Groundwater Management Act (SGMA). SGMA requires sustainable management of priority groundwater basins and empowers local Groundwater Sustainability Agencies (GSAs) to manage groundwater resources. San Benito County Water District GSA (SBCWD GSA), in partnership with Valley Water GSA (known as Santa Clara Valley District prior to 2019), has developed a Groundwater Sustainability Plan (GSP) for the North San Benito Basin, which encompasses the historically defined Bolsa, Hollister, and San Juan Bautista Subbasins of the Gilroy-Hollister Basin and the Tres Pinos Valley Basin. The North San Benito Basin is predominantly in San Benito County with small areas in Santa Clara County. As presented in the North San Benito Groundwater Sustainability Plan (Todd 2021), the North San Benito Groundwater Basin has been divided into four management areas, shown in **Figure 1-2**, which have been defined to facilitate implementation of the GSP.

In accordance with SGMA, this Annual Report documents water supply sources and use, groundwater elevations and storage, and management activities from October 2020 through September 2021. The SGMA elements guide, detailing the required SGMA components, is included in **Appendix A**. This Annual Report conveys considerable data, including tables and figures, which are provided largely in **Appendices B through E**. **Appendix F** provides information on water rates and charges and **Appendix G** contains a list of acronyms.

The 2021 Annual Groundwater Report incorporates adaptive management; it strives to maintain consistency with past Annual Reports while fulfilling requirements for SGMA Annual Reports and supporting sustainable groundwater management into the future.

Acknowledgments

This report was prepared by Iris Priestaf, PhD, Maureen Reilly, PE, Gus Yates PG, CHG, Nicole Grimm, and Chad Taylor, PG, CHG of Todd Groundwater. We appreciate the assistance of San Benito County Water District staff, particularly Jeff Cattaneo, Sara Singleton, Garrett Haertel, and David Macdonald.

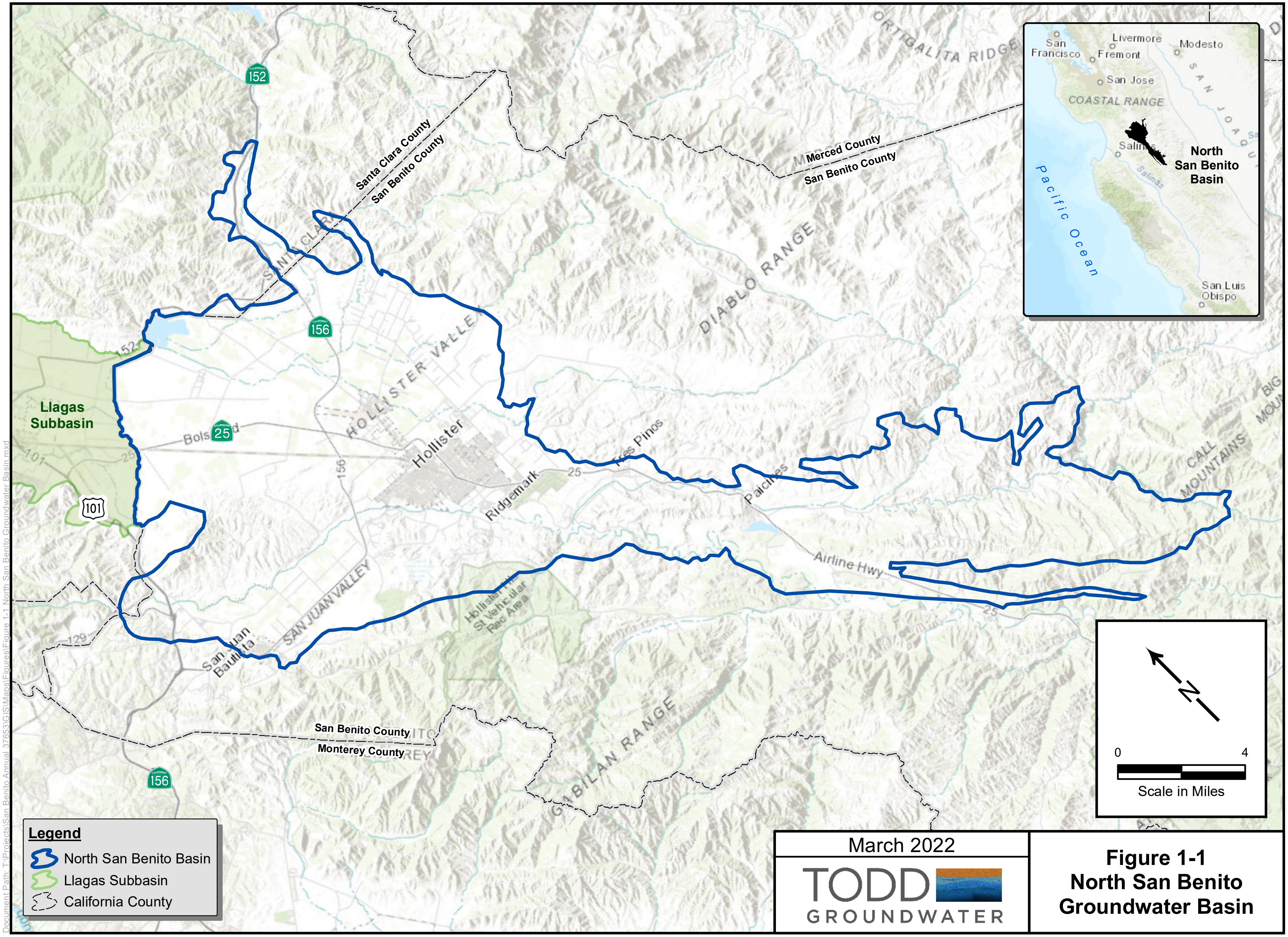

Figure 1-1
North San Benito Groundwater Basin

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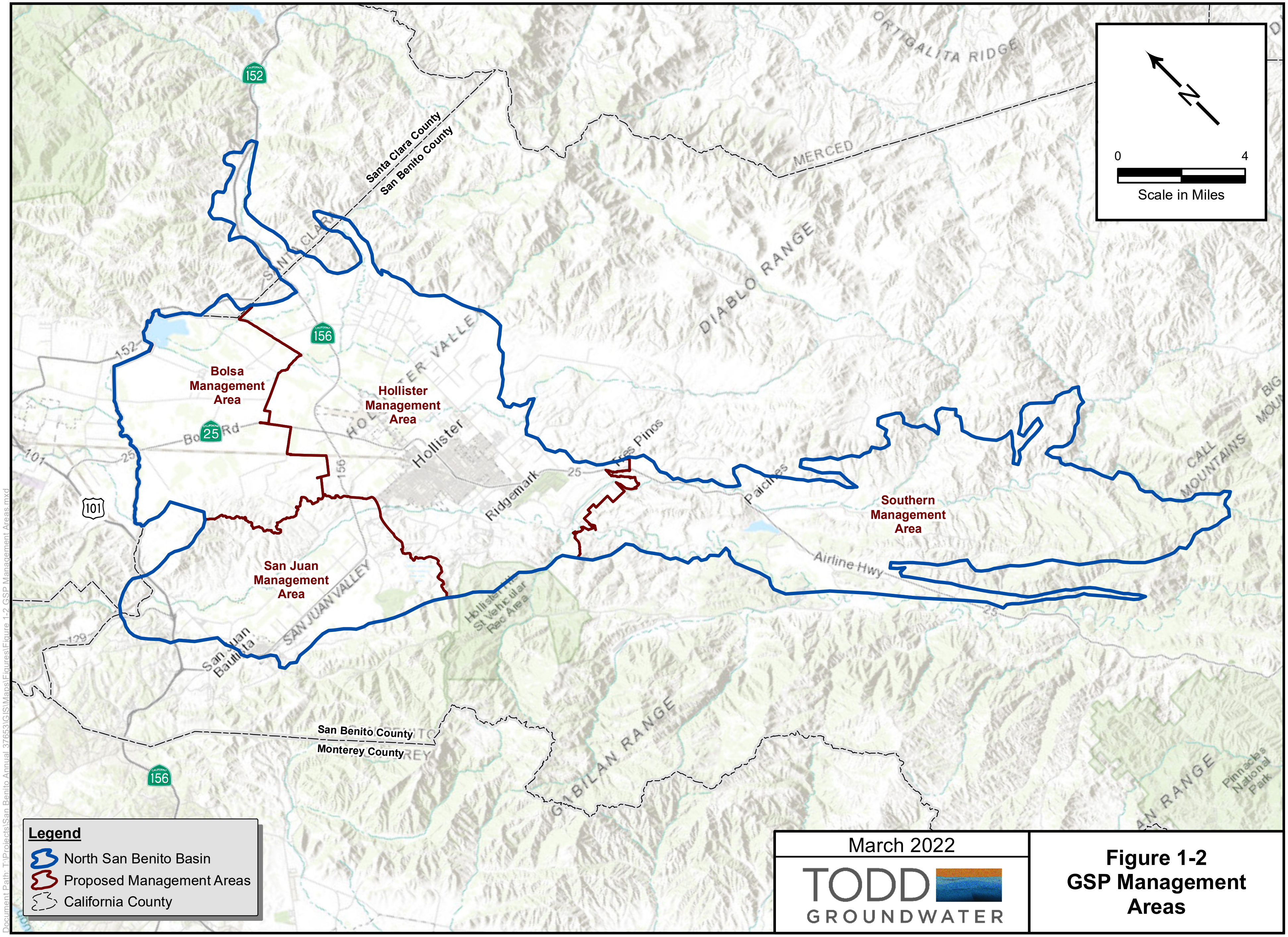

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Figure 1-2
GSP Management Areas

2 – GEOGRAPHIC AREA

This Annual Report describes conditions in the North San Benito Basin (Basin),[1] located predominantly in San Benito County with small areas in Santa Clara County. Consistent with the North San Benito GSP, it uses groundwater basin boundaries described in DWR Bulletin 118, California's Groundwater Update 2020. These boundaries were modified from those presented in earlier versions of Bulletin 118. The most important modification (made at the request of SBCWD) was to merge the historically defined Bolsa, Hollister, and San Juan Bautista Subbasins of the Gilroy-Hollister Basin with the Tres Pinos Valley Basin to form the North San Benito Basin. In addition to Bulletin 118, the geographic areas and boundaries of local groundwater subbasins have been defined differently by SBCWD for its management purposes. The previous and current boundaries are described here to provide a bridge between previous annual reports and the current SGMA analyses and reporting.

District-Defined Subbasins

Previous Annual Reports have used subbasins delineated in 1996 and based on hydrogeologic and other local factors, notably the boundaries of District zones of benefit (see Appendix A) including Zone 6, the area of benefit for importation of Central Valley Project (CVP) water. The 1996 SBCWD-defined subbasins are shown in **Figure 2-1**. Six of these subbasins were defined within Zone 6, including Bolsa Southeast (SE), Pacheco, Hollister East (North and South), Tres Pinos, Hollister West, and San Juan subbasins. The seventh is the Bolsa subbasin, the only 1996-defined subbasin that receives no direct CVP deliveries and relies on local groundwater. In this Annual Report, the SBCWD-defined subbasins are used to report data within Management Areas defined in the 2022 North San Benito GSP.

DWR-Defined Basin

As SGMA planning has proceeded, the area of focus for the annual reports has been changing from the 1996-defined subbasins to the North San Benito Basin area outlined in Figures 1-1 and 1-2. Next year, the 2022 Annual Report will report data only on the basis of the Management Areas (MAs), shown on Figure 1-2. The four MAs were defined in the North San Benito GSP to facilitate implementation. Major factors in defining the MAs within the Basin were watersheds and particularly, availability of water sources and zones of benefit. SBCWD provides local surface water from Hernandez and Paicines reservoirs to the zone of benefit, Zone 3, and provides CVP water to Zone 6. The District-defined subbasins also used Zone 6 as a boundary and thus generally fall within MA boundaries.

[1] The official name is North San Benito Subbasin of the Gilroy Hollister Basin, DWR Basin Number 3-003.05. For this report, it is referred to as North San Benito Basin to clearly differentiate it from previous DWR-defined and SBCWD-defined subbasins. As a matter of context, **Figure C-1** in **Appendix C** shows all DWR Bulletin 118 groundwater basins that are wholly or partially in San Benito County.

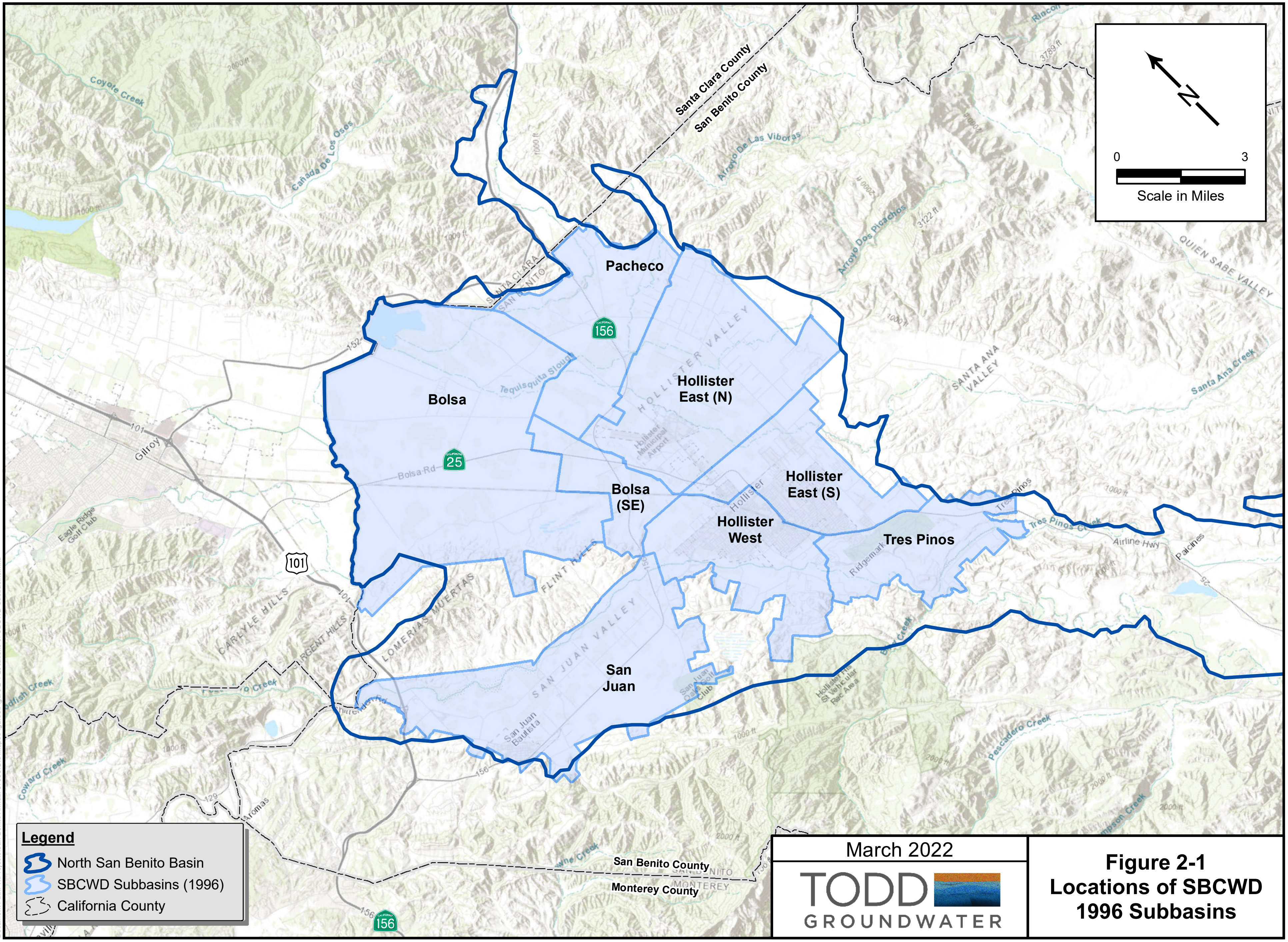

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Figure 2-1
Locations of SBCWD 1996 Subbasins

The four Management Areas are listed below with the SBCWD-defined subbasins that they generally encompass:

- Southern MA
- Hollister MA (includes Tres Pinos, Hollister East and West, Bolsa SE, Pacheco subbasins)
- San Juan MA (includes almost all District-defined San Juan subbasin)
- Bolsa MA (includes almost all District-defined Bolsa subbasin)

Hollister and San Juan MAs include portions of Zone 6; Southern and Bolsa MAs do not.

Ongoing District Monitoring Programs

Data from monitoring programs undertaken by local, state, and federal agencies are summarized below as currently incorporated in the Annual Report. The District data compilation and monitoring programs are being expanded and revised as data needs are identified through the GSP process, for example to address topics such as potential groundwater dependent ecosystems, and to represent the entire North San Benito Basin with appropriate detail.

Climate. Climate data are regularly compiled from DWR's California Irrigation Management Information System (CIMIS) and include total solar radiation, soil temperature, air temperature/relative humidity, wind direction, wind speed, and precipitation. Additional precipitation data are available from the Western Regional Climate Center (WRCC) station at Hollister from 1934-2021 (WRCC, 2021). For the Annual Groundwater Reports, historical annual precipitation data have been compiled and reported using the Hollister rain gage for the long-term precipitation and the CIMIS San Benito station for recent monthly precipitation. Monthly precipitation and evapotranspiration for the Hollister #126 CIMIS station are tabulated in **Appendix B**.

Groundwater levels. SBCWD has had a semi-annual groundwater level monitoring program since Water Year (WY) 1977; groundwater level data gathered by the United States Geological Survey (USGS) and other agencies are available as early as 1913 (Clark, 1924). The Annual Groundwater Reports provide quarterly groundwater level data in **Appendix C** for each year. The data are the basis for groundwater hydrographs and for numerical model update with preparation of groundwater level contour maps, change maps, and storage change computations. The SBCWD monitoring program includes wells in the Pacheco Valley in Santa Clara County, while Valley Water's monitoring program has provided data for the southern Llagas Subbasin; the latter shared data are important to verify groundwater flow across the Llagas-North San Benito subbasin boundary. SBCWD had previously been the designated CASGEM monitoring agency for the GSP Area but now reports water levels for SGMA Key Wells through the SGMA portal.

Water quality. In 1997, SBCWD initiated a program for monitoring nitrate and electrical conductivity (EC) in wells. In 2004, SBCWD established a comprehensive water quality database with records from all water systems and regulated facilities. State-wide sources of groundwater quality data include the Water Data Library (WDL), Geotracker/GAMA program, and the State Water Resources Control Board's

Division of Drinking Water. The SBCWD database is updated and reviewed annually with detailed triennial assessment as described in the GSP; the next assessment is planned for the Annual Report Water Year 2022. Monitoring for the Salt and Nutrient Management Plan is closely coordinated with ongoing monitoring and Annual Report updates.

Reservoirs. The Annual Report summarizes reservoir water budget information for Hernandez, Paicines, and San Justo reservoirs and provides annual total releases from Hernandez and Paicines reservoirs from Water Year 1996 to present. Reservoir storage and release data are available in **Appendix D**.

Surface water flows and percolation. Surface water monitoring and percolation amounts are summarized in **Appendix D** of the Annual Groundwater Reports. For Water Year 1994 to present, percolation of imported CVP water is documented in **Table D-3** and percolation of wastewater is shown in **Tables D-4 and D-5**. The District temporarily suspended its surface water monitoring network but plans to relaunch surface water monitoring at selected sites as part of SGMA implementation.

Wells and groundwater pumping. SBCWD has monitored groundwater pumping in Zone 6 using electrical meters. Pumping amounts are calculated semiannually by metering the number of hours of pump operation and multiplying by the average discharge rate. However, other estimates of pumping have indicated that the power meters underestimate pumping. Irrigation pumping beyond Zone 6 is not monitored but has been estimated for regular water budget updates based on land use information and water use factors. This method of estimating groundwater pumping will be replaced as part of SGMA implementation. The District is currently investigating new water use monitoring programs (like OpenET) that will address the entire GSP area and will be documented in future Annual Reports. Estimation of groundwater pumping using the numerical model by major use category and MA is described in Section 5, which also provides information on CVP use in Zone 6 and recycled water use.

Units and accuracy. Throughout this report, water volumes and changes in storage are shown to the nearest acre-foot (AF). These values are accurate to one to three significant digits (depending on the measurement). All digits are retained in the text to maintain as much accuracy as possible during subsequent calculations, but results should be rounded appropriately.

3 – BASIN CONDITIONS

The Annual Report summarizes basin conditions including climate, groundwater elevations, groundwater storage, and groundwater level trends. Overall, Water Year 2021 was characterized by below average precipitation. As documented in Section 5, the allocations of imported CVP from the U.S. Bureau of Reclamation (USBR) also have been below average over the most recent two USBR water years (March 2020-February 2021 and March 2021-February 2022).

Climate

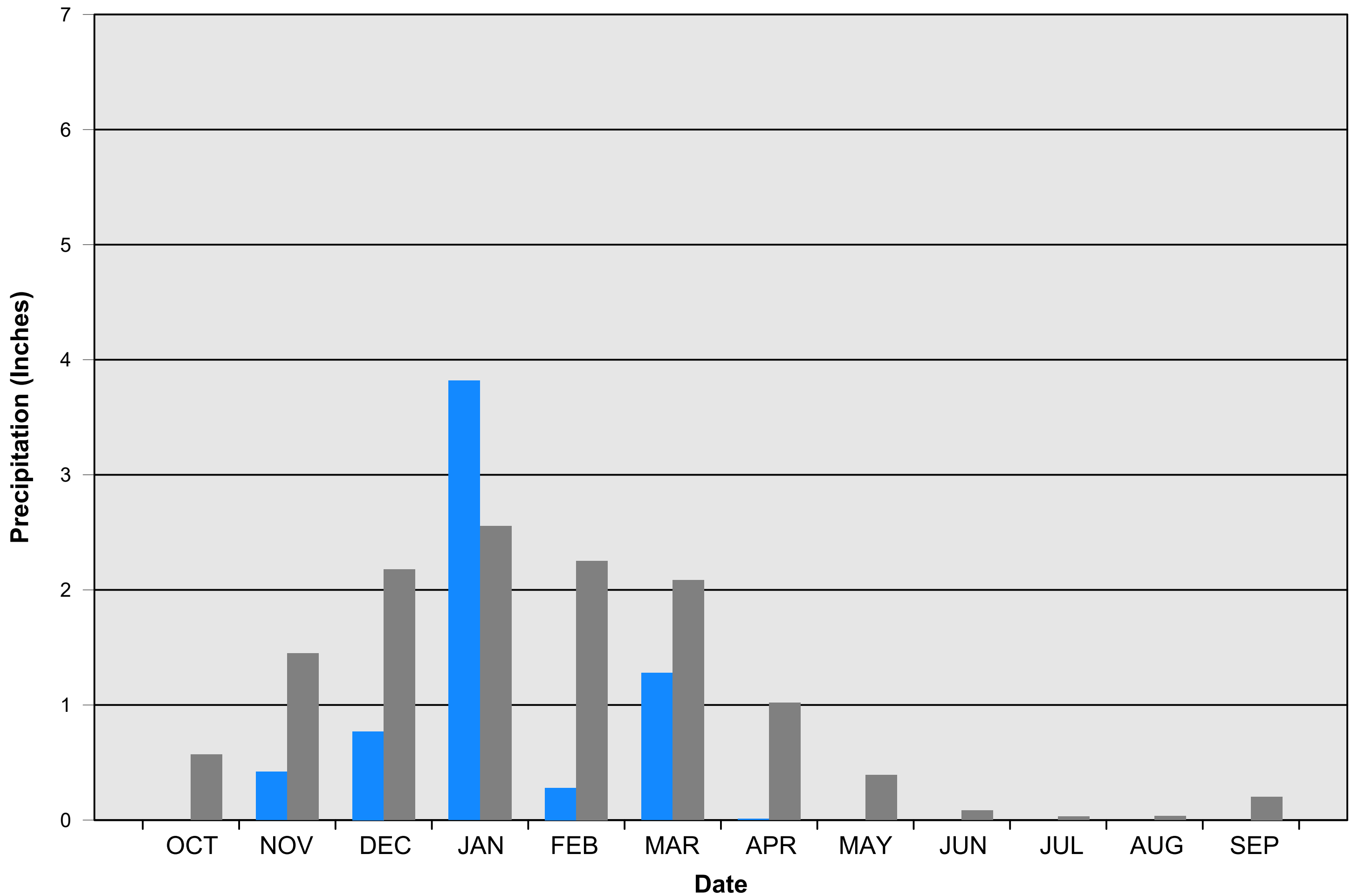
Assessment of climatic conditions begins with collection of climate data (rainfall and evapotranspiration), which are summarized in **Appendix B**. Local rainfall amounts are compiled on a monthly basis and reviewed as an increasingly variable factor that affects basin inflows (e.g., deep percolation) and outflows (groundwater pumping). Recognizing that drought often is extensive across Northern California, local dry years also may be indicative of regional drought and reduced CVP allocations. Dry years often are characterized by increased groundwater pumping for agricultural irrigation to offset lack of rainfall and CVP supply.

In 2021, overall precipitation was 6.58 inches; monthly totals are shown in **Figure 3-1.** January received higher than normal precipitation, but the rest of the months were relatively dry. Monthly rainfall and evapotranspiration data from WY 1996 to WY 2021 are presented in **Appendix B**. Water year 2021 rainfall was below normal with only 50 percent of the long-term average, as illustrated in **Figure 3-2**, which shows annual precipitation and water year type from 1976 through 2021. Precipitation data collected to date (7.2 inches) indicate that WY 2022 will also be a dry year but less dry than WY 2021.

Groundwater Elevations

In October 2021, the District collected groundwater elevations in 91 wells from their existing network and 9 additional wells from Valley Water. **Figure 3-3** shows the well locations in the current SBCWD monitoring network, and **Figures 3-4** through **3-8** show hydrographs for Key Wells in the basin. Additional information about the groundwater elevations is discussed in the water balance Section 5.

Over 2021, groundwater elevations declined slightly throughout most the basin. This is the second year of groundwater declines after a three-year period of groundwater recovery. This year’s decline in groundwater storage signals continued drought conditions; groundwater levels may decline further with the reduced CVP allocations for this year and with a relatively dry winter. SBCWD should continue to implement projects that will speed recovery when water becomes available. More information is in **Appendix C.**



2021 - (6.58 in)

Average - (12.9 in)

Source: CIMIS

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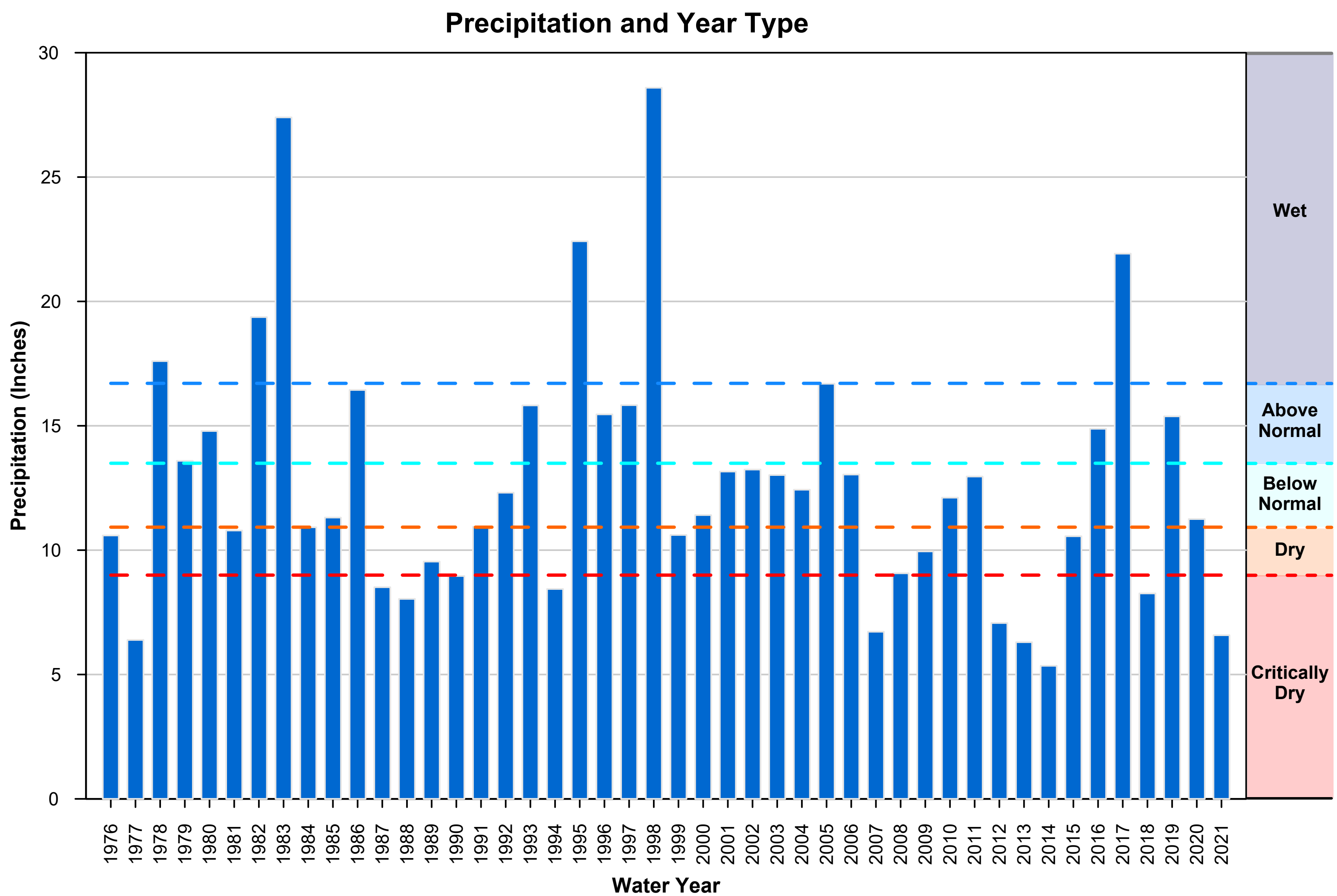
March 2022	**Figure 3-1 Water Year 2021 Precipitation**
TODD GROUNDWATER	



Source: WRCC Hollister 1 and Hollister 2 Stations

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Figure 3-2
Annual Precipitation
1976-2021

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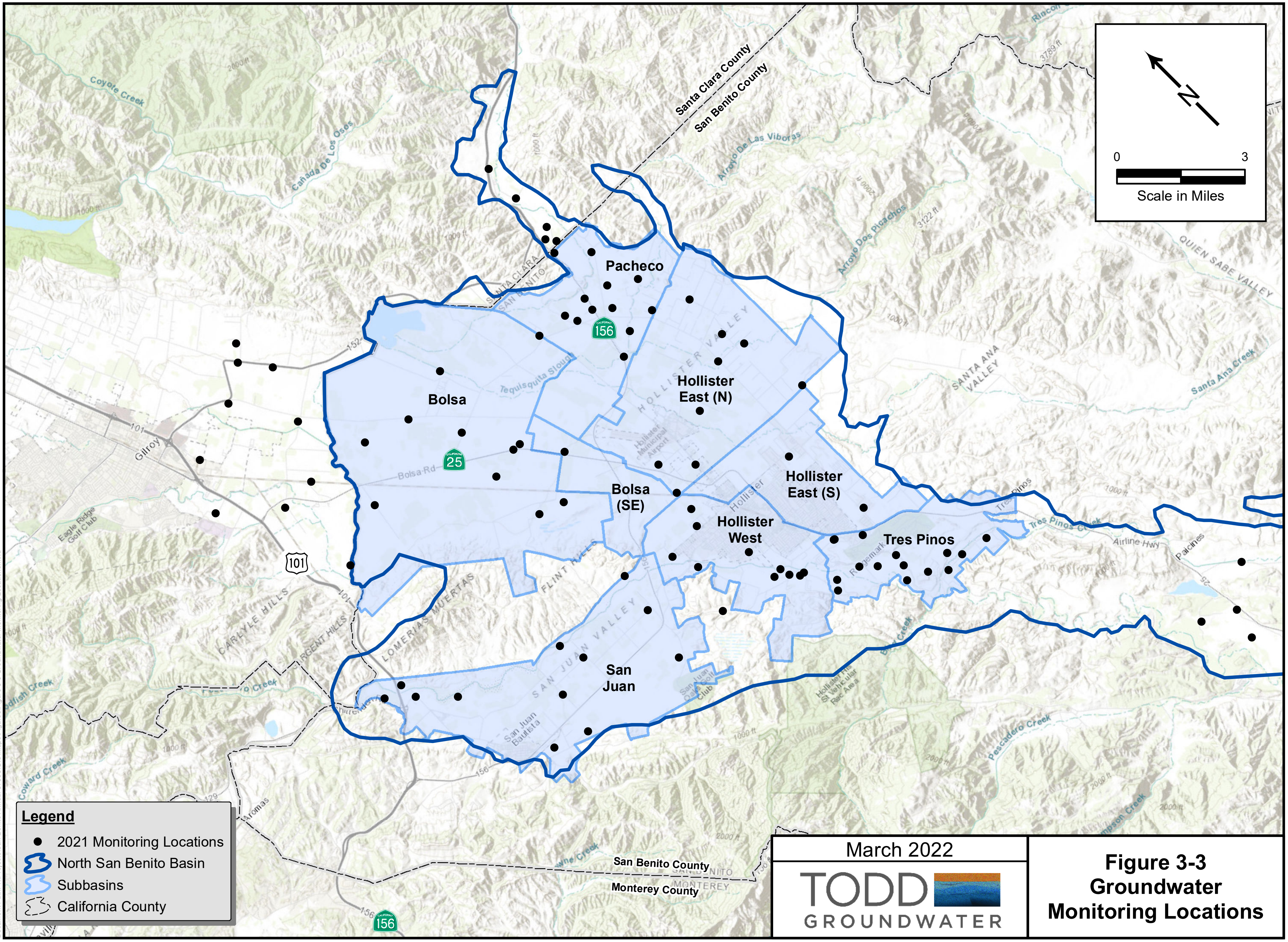

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Figure 3-3
Groundwater Monitoring Locations

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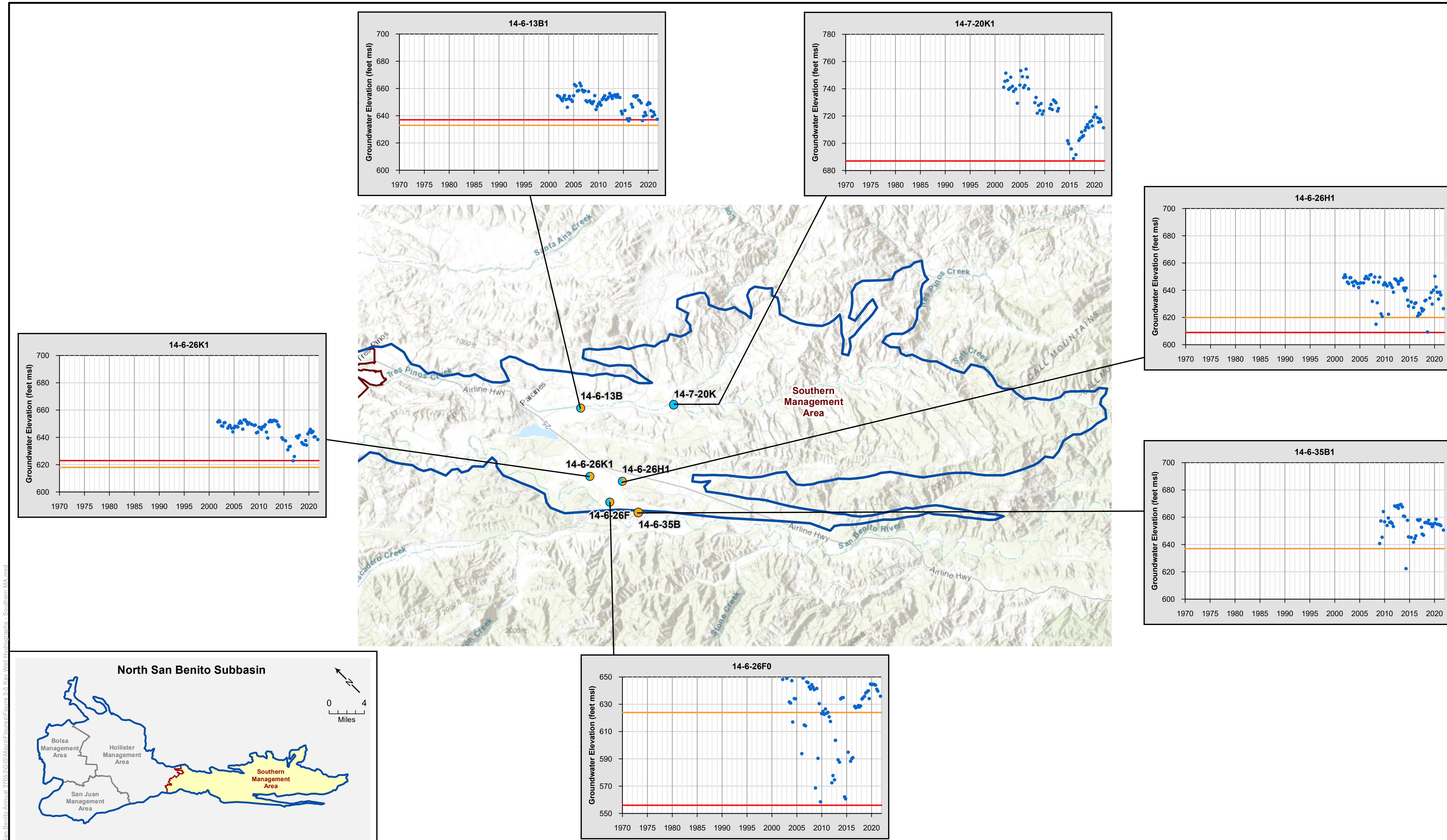

GDE Hydrograph
Water Level Hydrograph
Water Level/GDE Hydrograph
North San Benito Basin
Proposed Management Areas
California County
Groundwater Elevation (ft msl)
Minimum Threshold for Water Level (feet msl)
Minimum Threshold for GDE (feet msl)

0 2
Scale in Miles

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Figure 3-4
Key Well Hydrographs Southern Management Area

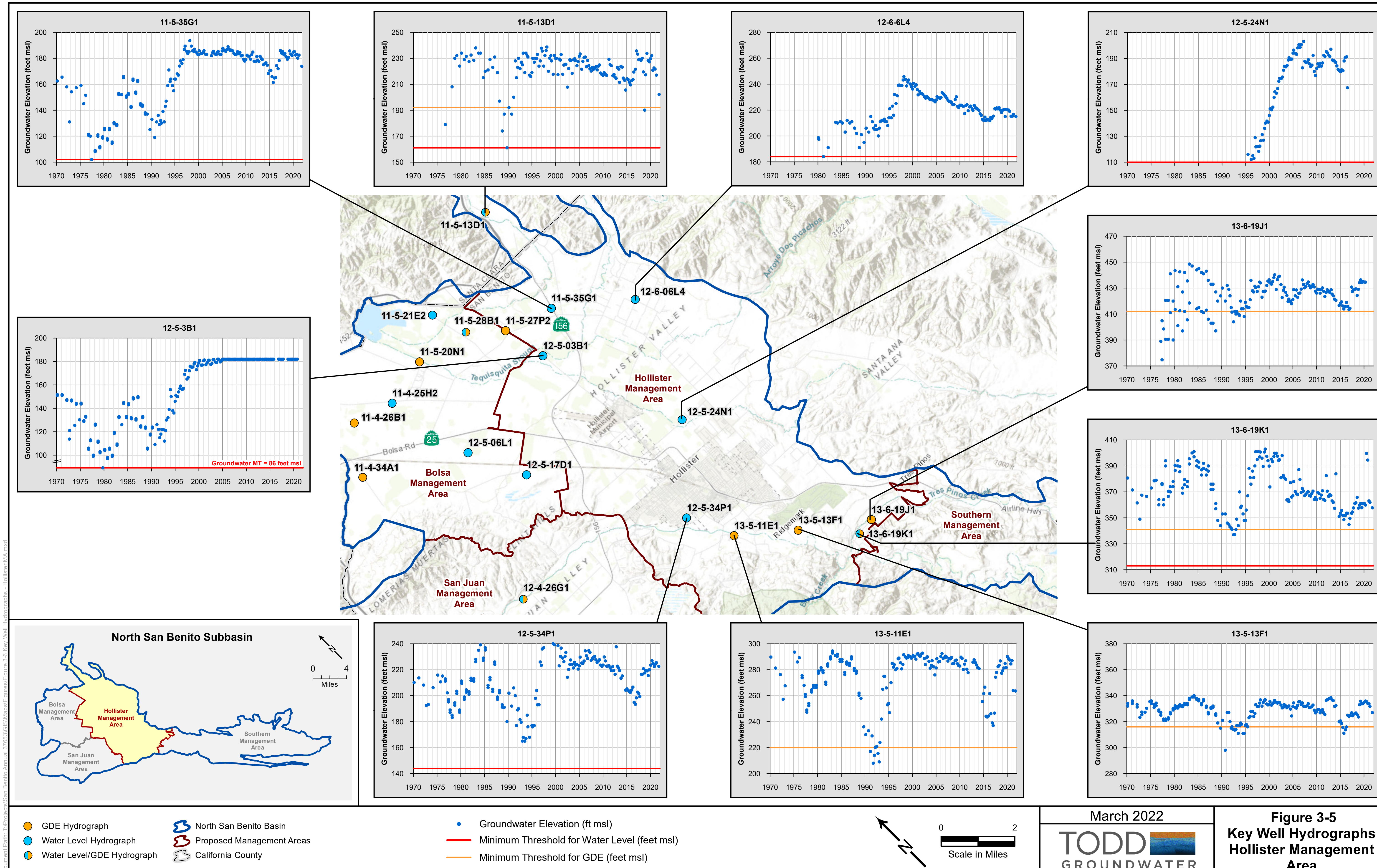

Figure 3-5
Key Well Hydrographs Hollister Management Area

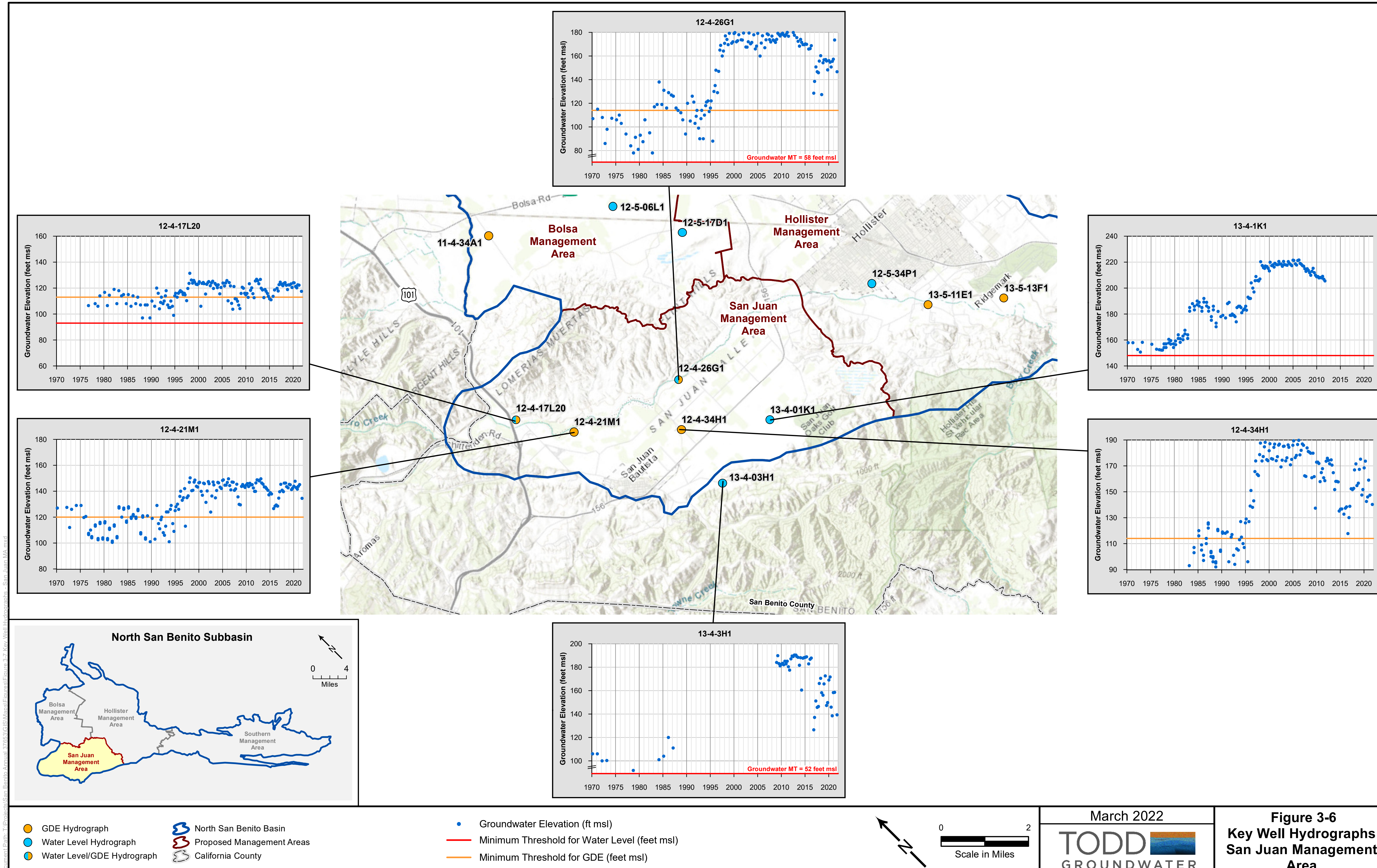

Figure 3-6
Key Well Hydrographs San Juan Management Area

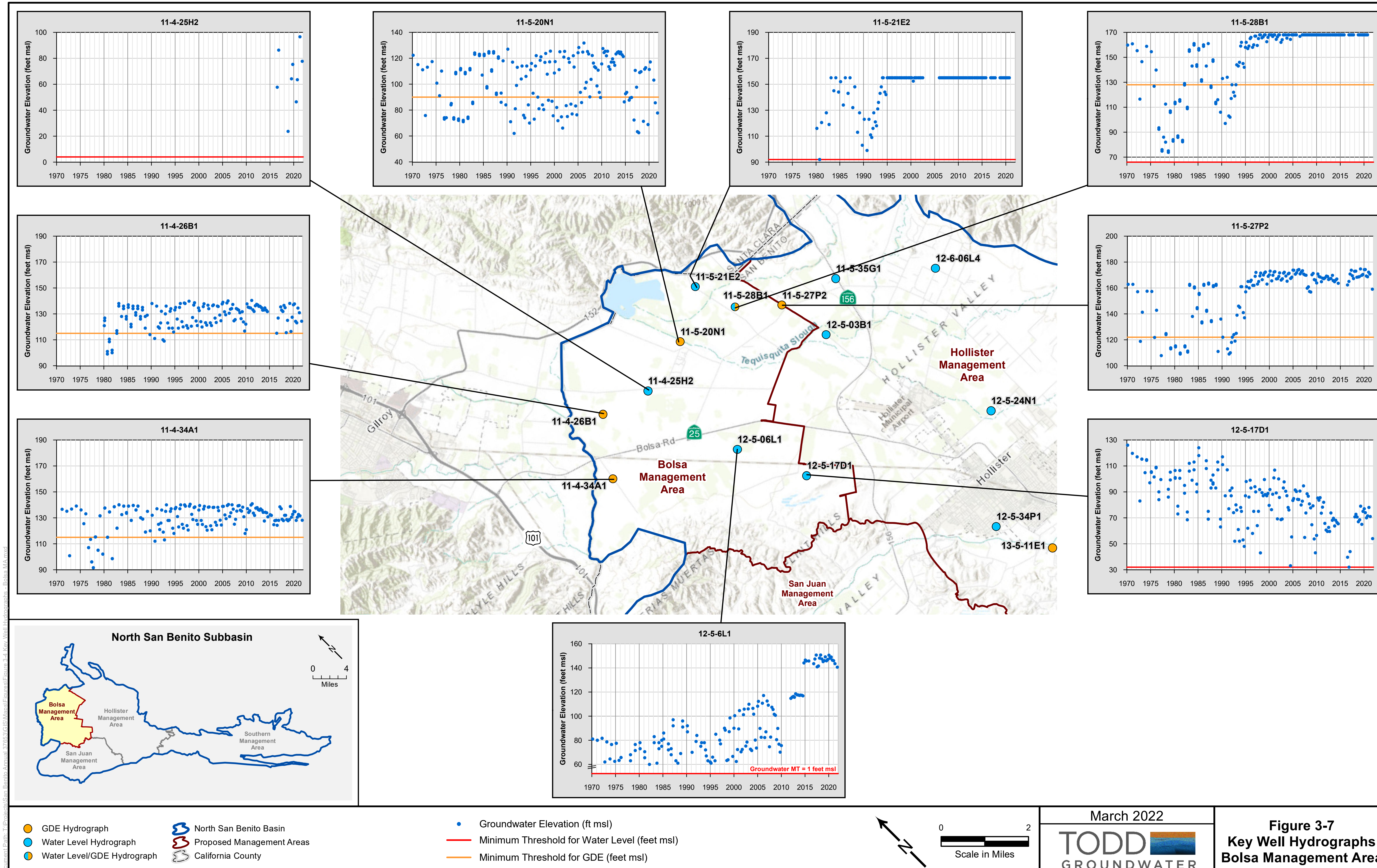

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Figure 3-7
Key Well Hydrographs
Bolsa Management Area

3 – BASIN CONDITIONS

Groundwater Trends

Figures 3-4 through 3-7 shows hydrographs of key wells, illustrating long term groundwater elevation changes throughout the basin. As part of the GSP, a network of key wells was selected to monitor for sustainability. These wells were identified from the larger groundwater monitoring network based on length of record, location, continued monitoring, and proximity to water ways (for interconnected surface water key wells). There are 22 key wells to monitor regional groundwater levels (blue circles) and 19 key wells to monitor interconnected surface water / groundwater dependent ecosystems (orange circles). These two data sets overlap; eight wells are both groundwater level and interconnected surface water key wells (blue and orange circles)

Southern Management Area. Although the District has monitored selected wells in the Southern MA since 2001, elevation data remain limited throughout the MA. The five key wells for water levels and one key well for interconnected surface water (an additional four are key wells for levels) are shown on **Figure 3-4**. Because of topography and groundwater flow direction, water levels in the Southern MA are about 400 feet higher than those in the Hollister MA, about nine miles away. Well 14-7-20K shows that water levels reached a local maximum during 2006, decreased to a local minimum during the drought in 2013-2015, and recovered through 2019. In 2021 groundwater levels decreased slightly, but the decrease is within the range of normal fluctuations for this well. In general, the water level trend observed in 14-7-20K is similar to that of other MAs.

Hollister Management Area. As shown on **Figure 3-5,** the Hollister MA has six key wells for groundwater levels and three interconnected surface water wells (with an addition one that is also a water level well). One key well, 12-5-03B1, is a flowing artesian well under similar conditions as artesian wells in the Bolsa MA. The hydrographs for wells 11-5-35G and 12-5-24N1 exemplify the recovery experienced in the north and central portions of the MA in the 1990s and early 2000s with the introduction of CVP water for agricultural irrigation. Since then, water levels have generally plateaued, declining slightly in drought and rebounding in wet years with sufficient CVP allocation. Water levels in 2021 have maintained this generally steady trend with a slight decrease from WY 2020 that remains above historical lows. Well 12-6-06L4 near Pacheco Creek and Well 13-6-19K1 near Tres Pinos Creek show declining trends not consistent with other wells in the MA. These trends could reflect decreased stream recharge or inflow from upgradient groundwater, or locally increased pumping.

San Juan Management Area. Figure 3-6 shows the four key wells for groundwater levels and the two key wells for interconnected surface water (including two more that are also key wells for levels). Groundwater elevations peaked around 2005-2010 and groundwater elevations have continued to decline, especially in the eastern MA but remain above historical highs. When available, managed recharge at the ponds near the Hollister WRP will help in managing groundwater levels in this area. The westernmost key well 12-4-17L20 (located along the San Benito River) shows more stable groundwater elevation with levels in WY 2021 showing a slight decrease from WY2020 but remaining higher than observed during the previous drought (2015).

Bolsa Management Area. As shown on **Figure 3-7**, the Bolsa MA has five key wells for groundwater levels including two currently flowing artesian wells (11-5-21E2 and 11-5-28B1). These artesian conditions are likely due to local confined conditions created by clay layers in the northern Bolsa and Hollister MAs. Groundwater elevations increased from 1992 until about 1998, when levels were pressurized to above the ground surface. While the groundwater pressure head above the ground surface elevation may vary in artesian wells, artesian groundwater levels are challenging to measure. Consequently, all artesian wells in the San Benito are recorded as having a groundwater elevation at ground surface elevation. The Bolsa MA also contains five key wells for interconnected surface water (including one that is also a water level key well). In 2021, water levels in most of the key wells were similar to past years with the exception of 12-6-06L1, which continues to show increasing groundwater levels and nearby well 12-5-17D1, which continues to show decreasing trends. The different water level patterns and trends in these two wells could be due to differing groundwater flow conditions on either side of a splay of the Calaveras fault. Dedicated monitoring wells are being drilled in this area and the expanded monitoring program will provide additional data.

District Act Determination of Overdraft. The District Act (see **Appendix A**) requires presentation of estimates of annual overdraft for the current water year and ensuing water year. Consistent with previous Annual Reports, this would be represented by long-term groundwater level declines with accounting for rainfall conditions and CVP imports. As of 2021, groundwater elevation trends do not indicate overdraft. Recovery following the drought indicates that overdraft is not anticipated for 2020.

4-WATER BALANCE

For the GSP, a quantitative assessment of the water balance (or water budget) of the North San Benito Subbasin (or Basin) was developed, using the numerical model, and presenting estimates of inflows, outflows, and change in storage for the Management Areas (MAs). The North San Benito GSP numerical model was based on historical data for water years 1975-2017 and was updated for this Annual Report to include water years 2018-2021.

Method of Analysis

The water balance used for the GSP, and updated here, was developed using a rainfall-runoff-recharge model and a groundwater flow model. Complete, itemized surface water and groundwater balances were estimated by combining raw data (rainfall, stream flow, municipal pumping, wastewater percolation) with values simulated using models. Collectively, the models simulate the entire hydrologic system, but each model or model module focuses on part of the system, as described below. In general, the models were used to estimate flows in the surface water and groundwater balances that are difficult to measure directly or that depend on current groundwater levels. These include surface and subsurface inflows from tributary areas, percolation from stream reaches within the Basin, groundwater discharge to streams, subsurface flow from the Llagas Subbasin and between Management Areas, locations and discharges of flowing wells, consumptive use of groundwater by riparian vegetation, and changes in groundwater storage. The two separate models, collectively referred to as the North San Benito Numerical model, are described as follows.

Rainfall-Runoff-Recharge Model. This Fortran-based model simulates hydrologic processes that occur over the entire land surface, including precipitation, interception, infiltration, runoff, evapotranspiration, irrigation, effects of impervious surfaces, pipe leaks in urban areas, deep percolation below the root zone, and shallow groundwater flow to streams and deep recharge.

Groundwater Model. The groundwater flow model uses the MODFLOW 2005 code developed by the U.S. Geological Survey, with pre- and post-processing facilitated using Groundwater Vistas, a readily available commercial software package. The model produces linked simulation of surface water and groundwater, as described below. MODFLOW simulates subsurface flow by combining equations representing flow through porous sediments (the Darcy Equation) with equations that enforce conservation of mass. The equations are implemented numerically, which means they are applied simultaneously between all adjoining cells in a model grid through an iterative process. Dispersed recharge to the top layer of the model grid from deep percolation of rainfall, irrigation water and pipe leaks is obtained from the rainfall-runoff-recharge model.

The numerical model is the best tool to quantify the North San Benito water balance. The model will continue to be updated for future Annual Reports, providing a better understanding of the surface water-groundwater system and a tool to evaluate future conditions and management actions. Additional information about the model can be found in the GSP and the model documentation report found as Appendix G in the GSP. **Tables 4-1 through 4-4** show the updated water balances for each MA. **Figures 4-1 through 4-4** show the water balance for the entire model period.

4-WATER BALANCE

TABLE 4-1. WATER BALANCE UPDATE - SOUTHERN MA, AF

Water Balance Items	2018	2019	2020	2021
Groundwater Inflow				
Subsurface inflow from external basins	-	-	-	-
Percolation from streams	14,311	28,049	14,513	11,749
Bedrock inflow	3,416	2,306	1,325	569
Dispersed recharge from rainfall[1]	3,783	10,051	4,847	2,907
Irrigation deep percolation	675	588	705	848
Reclaimed water percolation	0	0	0	0
Inflow from Hollister MA	1,216	1,408	1,019	715
Total inflow	**23,400**	**42,402**	**22,409**	**16,788**
Groundwater Outflow				
Subsurface outflow to external basins	0	0	0	0
Wells - M&I and domestic	(70)	(71)	(72)	(73)
Wells - agricultural	(7,738)	(6,830)	(7,435)	(8,087)
Groundwater discharge to streams	(20,214)	(19,943)	(19,617)	(14,394)
Riparian evapotranspiration	(1,742)	(1,468)	(1,676)	(1,696)
Outflow to Hollister MA	(3,041)	(2,306)	(2,218)	(2,372)
Total outflow	**(32,805)**	**(30,618)**	**(31,019)**	**(26,622)**
Net Change in Storage	**(9,405)**	**11,784**	**(8,609)**	**(9,834)**

1. Dispersed recharge volumes adjusted from pre-processor to match model inflows

TABLE 4-2. WATER BALANCE UPDATE - HOLLISTER MA, AF

Water Balance Items	2018	2019	2020	2021
Groundwater inflow				
Subsurface inflow from external basins	-	-	-	-
Percolation from streams	16,397	27,616	16,936	14,074
Bedrock inflow	16,844	19,237	10,059	2,137
Dispersed recharge from rainfall[1]	8,196	22,976	18,539	5,946
Irrigation deep percolation	5,476	4,877	5,500	6,405
Reclaimed water percolation	2,240	1,755	1,940	2,150
Inflow from other MAs	5,678	4,990	4,738	5,208
Total inflow	**54,830**	**81,451**	**57,712**	**35,920**
Groundwater Outflow				
Subsurface outflow to external basins	0	0	0	0
Wells - M&I and domestic	(2,673)	(1,632)	(1,880)	(3,571)
Wells - agricultural	(43,907)	(39,915)	(43,349)	(49,070)
Groundwater discharge to streams	(3,563)	(7,391)	(11,927)	(1,660)
Riparian evapotranspiration	(184)	(193)	(169)	(141)
Outflow to other MAs	(9,852)	(10,891)	(10,759)	(9,283)
Total outflow	**(60,180)**	**(60,023)**	**(68,083)**	**(63,726)**
Net Change in Storage	**(5,349)**	**21,428**	**(10,372)**	**(27,806)**

1. Dispersed recharge volumes adjusted from pre-processor to match model inflows

TABLE 4-3. WATER BALANCE UPDATE - SAN JUAN MA, AF

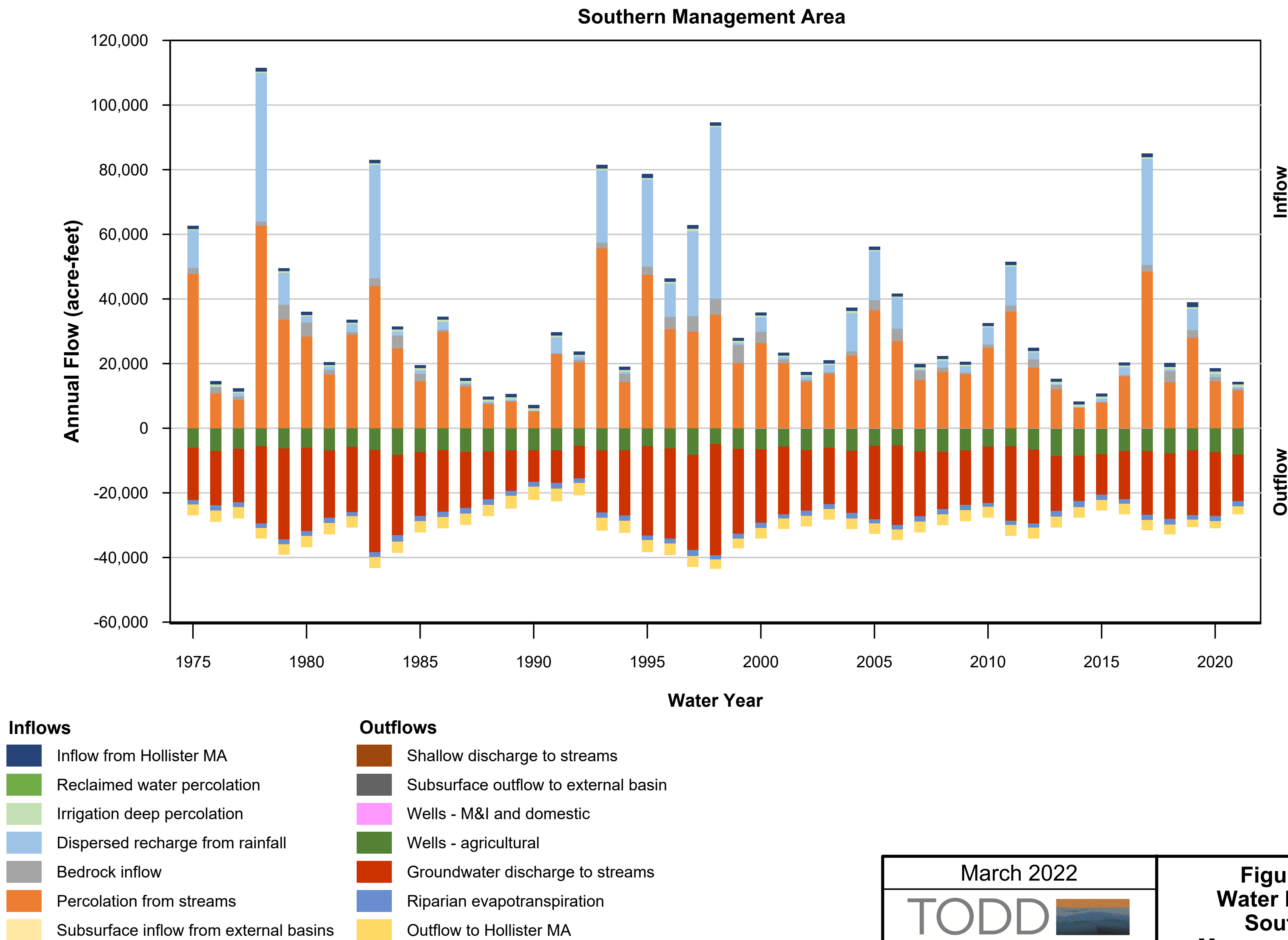
Water Balance Items	2018	2019	2020	2021
Groundwater Inflow				
Subsurface inflow from external basins	-	-	-	-
Percolation from streams	3,417	8,875	5,304	7,488
Bedrock inflow	1,119	679	843	522
Dispersed recharge from rainfall[1]	2,528	9,493	4,135	2,093
Irrigation deep percolation	2,071	1,865	2,062	2,440
Reclaimed water percolation	2,136	1,457	1,256	1,888
Inflow from Hollister and Bolsa MAs	4,163	4,597	5,128	4,747
Total inflow	**15,434**	**26,965**	**18,728**	**19,179**
Groundwater Outflow				
Subsurface outflow to external basins	0	0	0	0
Wells - M&I and domestic	(777)	(785)	(793)	(799)
Wells - agricultural	(17,394)	(15,935)	(17,463)	(18,826)
Groundwater discharge to streams	(962)	(1,145)	(949)	(2,330)
Riparian evapotranspiration	(1,165)	(998)	(1,123)	(1,245)
Outflow to Bolsa MA	(1,621)	(1,686)	(1,581)	(1,668)
Total outflow	**(21,919)**	**(20,548)**	**(21,910)**	**(24,870)**
Net Change in Storage	**(6,484)**	**6,417**	**(3,182)**	**(5,690)**

1. Dispersed recharge volumes adjusted from pre-processor to match model inflows

TABLE 4-4. WATER BALANCE UPDATE - BOLSA MA, AF

Water Balance Items	2018	2019	2020	2021
Groundwater Inflow				
Subsurface inflow from external basins	5,697	4,943	6,250	7,163
Percolation from streams	4,045	4,188	3,094	7,310
Bedrock inflow	0	-	-	498
Dispersed recharge from rainfall[1]	5,103	14,668	7,313	5,271
Irrigation deep percolation	2,524	2,312	2,445	2,630
Reclaimed water percolation	0	0	0	0
Inflow from Hollister and San Juan MAs	5,100	5,496	5,255	5,113
Total inflow	**22,469**	**31,607**	**24,356**	**27,985**
Groundwater Outflow				
Subsurface outflow to external basins	0	(15)	0	0
Wells - M&I and domestic	(24)	(25)	(25)	(25)
Wells - agricultural	(25,962)	(23,858)	(25,124)	(29,449)
Groundwater discharge to streams	(1,277)	(3,519)	(1,230)	(262)
Riparian evapotranspiration	(239)	(226)	(176)	(152)
Outflow to San Juan MA	(1,643)	(1,608)	(1,582)	(2,994)
Total outflow	**(29,145)**	**(29,250)**	**(28,137)**	**(32,881)**
Net Change in Storage	**(6,676)**	**2,357**	**(3,780)**	**(4,896)**

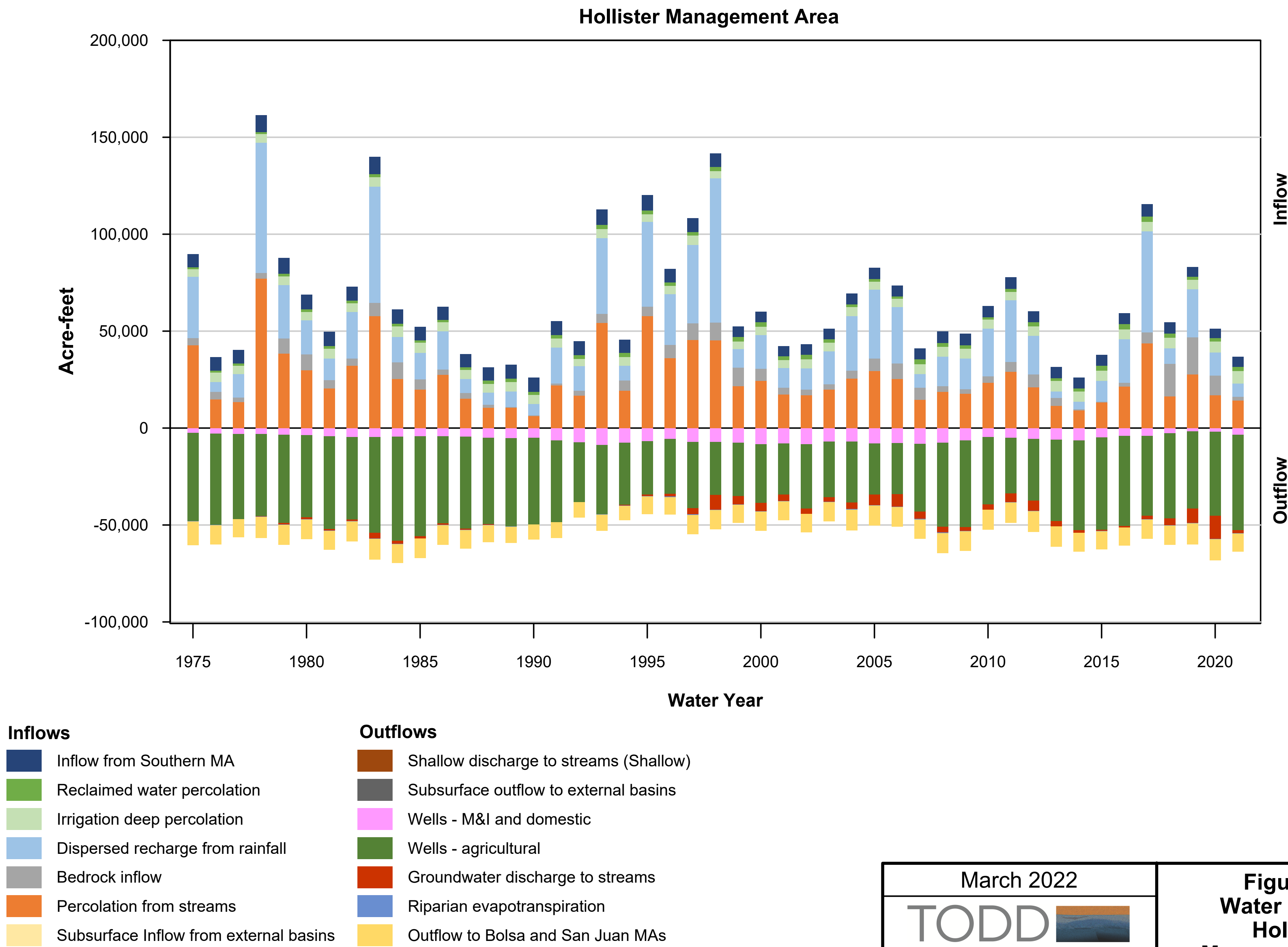
1. Dispersed recharge volumes adjusted from pre-processor to match model inflows



March 2022

TODD GROUNDWATER

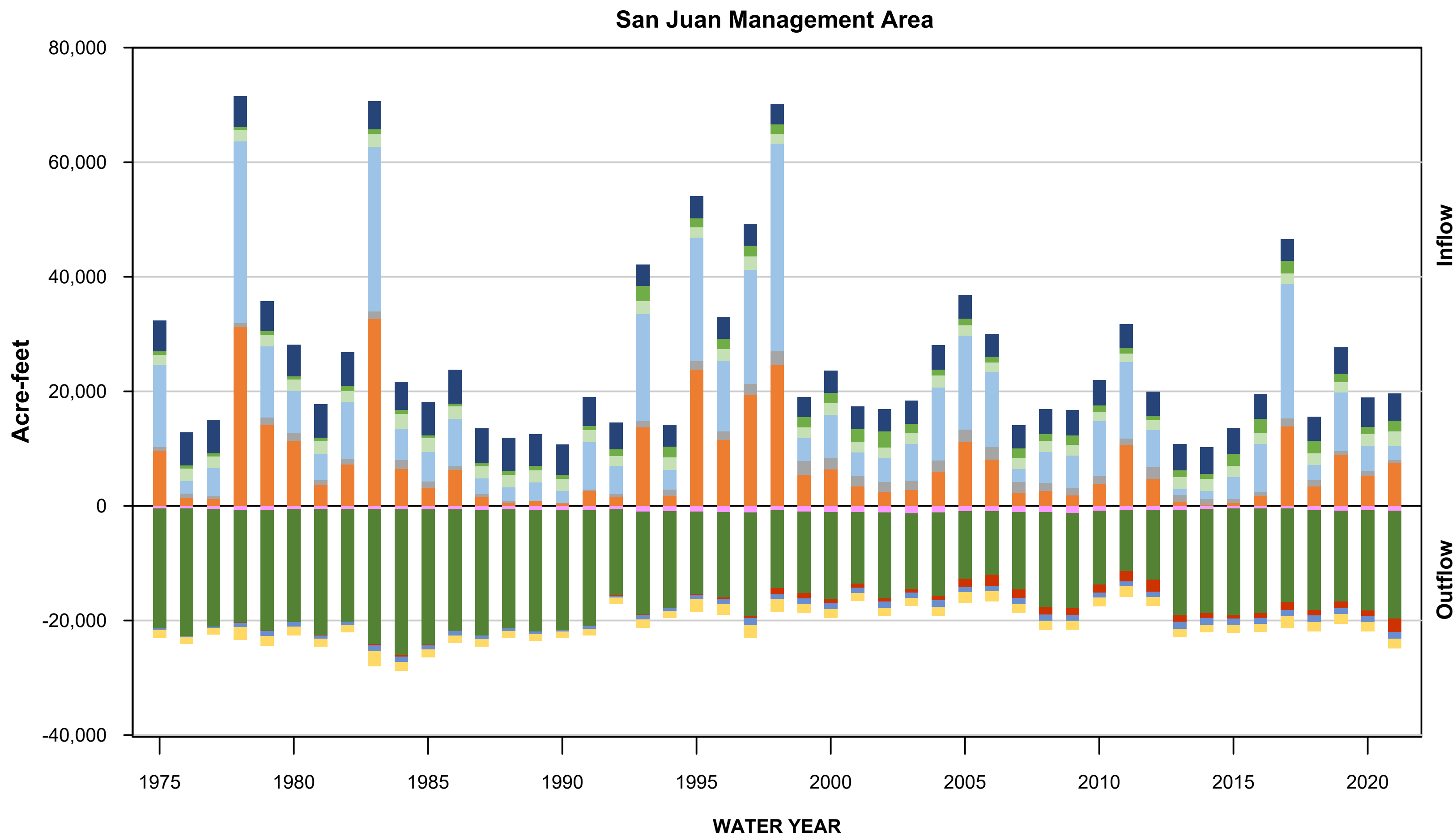
Figure 4-1
Water Balance
Southern
Management Area



March 2022

TODD GROUNDWATER

Figure 4-2
Water Balance
Hollister
Management Area



Inflows

- Inflow from Hollister MA
- Reclaimed water percolation
- Irrigation deep percolation
- Dispersed recharge from rainfall
- Bedrock inflow
- Percolation from streams
- Subsurface inflow from external basins

Outflows

- Shallow discharge to streams
- Subsurface outflow to external basins
- Wells - M&I and domestic
- Wells - agricultural
- Groundwater discharge to streams
- Riparian evapotranspiration
- Outflow to Bolsa MA

March 2022

TODD GROUNDWATER

Figure 4-3
Water Balance
San Juan
Management Area

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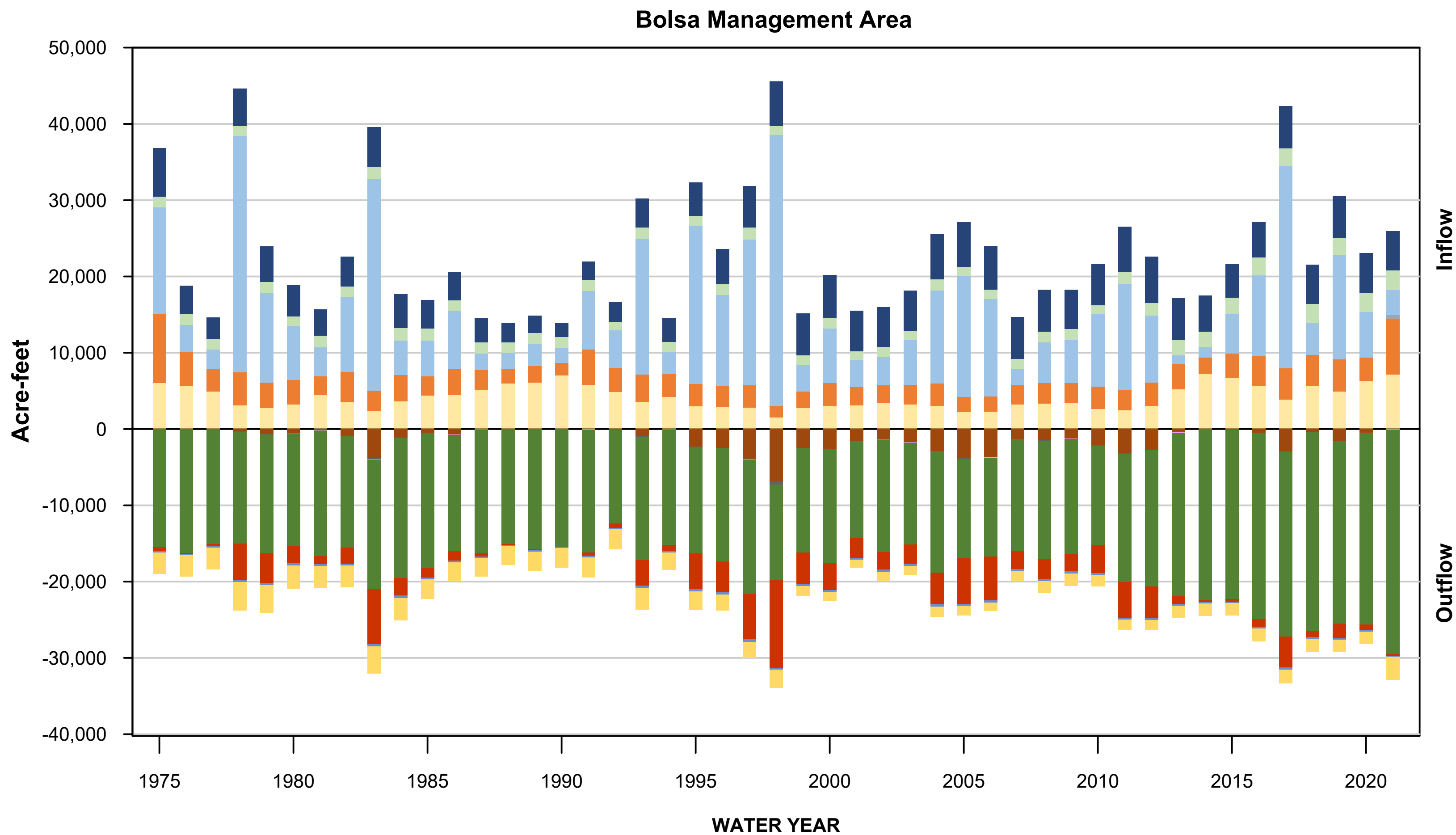


Inflows

- Inflow from Hollister and San Juan MAs
- Reclaimed water percolation
- Irrigation deep percolation
- Dispersed recharge from rainfall
- Bedrock inflow
- Percolation from streams
- Subsurface inflow from external basins

Outflows

- Shallow discharge to streams
- Subsurface outflow to external basins
- Wells - M&I and domestic
- Wells - agricultural
- Groundwater discharge to streams
- Riparian evapotranspiration
- Outflow to San Juan MA

March 2022

TODD GROUNDWATER

Figure 4-4
Water Balance
Bolsa
Management Area

Inflows

The rainfall-runoff-recharge model and groundwater model were updated to reflect conditions from Water Years 2018-2021. Data, assumptions and calculations for individual hydrologic processes and groundwater inflows are described below.

Precipitation and Evaporation. Precipitation and evaporation on the land surface are accounted for in the rainfall-runoff-recharge model. Data are obtained from local climate stations.

CVP Imported Water. Two Management Areas (Hollister and San Juan) receive imported water from the CVP, which is delivered to municipal and agricultural users and to several percolation ponds to enhance groundwater recharge. CVP imported water stored in San Justo Reservoir seeps from the reservoir to the local groundwater. In addition, water evaporates from the surfaces. These seepage and evaporation losses remain consistent through the period of record and are included in the groundwater model.

Dispersed Recharge from Rainfall and Irrigation. Dispersed recharge from rainfall and applied irrigation water is estimated by the rainfall-runoff-recharge model. The model simulates soil moisture storage in the root zone, which derives from rainfall infiltration and irrigation, and outflows to evapotranspiration and deep percolation. Simulation is on a daily basis. In recharge zones with irrigated crops, irrigation is simulated by assuming water is applied when soil moisture falls below a certain threshold. When soil moisture exceeds the root zone storage capacity, any excess rainfall or irrigation becomes deep percolation. Rainfall and irrigation water comingle in the root zone and in deep percolation. In urban recharge zones, pipe leaks are included in the amount shown as rainfall recharge. The resulting net recharge is passed to the top layer of the groundwater model.

Percolation from Streams. Percolation from streams depends on the flow, stage, width, length, and bed permeability of stream reaches, as well as the elevation difference between the stream surface and groundwater in the underlying model cell. Point sources of recharge (such as wastewater percolation facilities) are entered into the top model layer as if they were injection wells. Surface inflows to the stream network in the surface water module of the groundwater model include a combination of gauged flows (for the San Benito River at the upstream end of the Southern MA only), simulated runoff from tributary watersheds and valley floor areas obtained from the rainfall-runoff-recharge model, and historical amounts of CVP water percolated in local streams. The effects of Hernandez Reservoir operation on San Benito River flows are included in the gauged flows, and the effects of Pacheco Reservoir on Pacheco Creek inflows were estimated by applying simple rules for seasonal storage and release. Valley floor areas are flatter than the tributary watersheds, and the amount of runoff per acre is consequently smaller. The rainfall-runoff-recharge model simulates runoff from valley floor areas, and those flows are added to the inflows of nearby stream segments in the groundwater model.

Reclaimed Water Percolation. Percolation of reclaimed water in wastewater disposal ponds occurs in two Management Areas (San Juan and Hollister) at facilities operated by the City of Hollister, SSCWD, and Tres Pinos County Water District. Discharges from the San Juan Bautista wastewater treatment plant flow are not included. Percolation is assumed to be the plant inflow less net evaporation and amounts of wastewater recycled for irrigation use. Additional percolation may occur around rural residential septic systems. For the numerical model, it is assumed to be negligible as the volumes would be small and spread out over the basin.

Subsurface Groundwater Inflow. Three types of subsurface inflow are listed separately in the water balance tables. Subsurface inflow from external basins occurs only in the Bolsa MA, where flow enters from the adjacent Llagas Subbasin. This is simulated as a head-dependent flow that varies depending on simulated groundwater levels near the boundary (lower water levels increase the simulated inflow rate). Along the rest of the Basin perimeter, small amounts of subsurface inflow result from recharge percolating through fractured bedrock in tributary watershed areas. Bedrock inflow is simulated as shallow injection wells along the perimeter of the Basin.

Finally, subsurface flow occurs across the management area boundaries within the Basin. Although flow across MA boundaries is predominantly in one direction in most cases, local variations in boundary alignment relative to regional gradients can result in inflow at one location concurrent with outflow at another. For example, **Table 4-1** indicates inflow from Hollister to Southern MA although Southern MA is generally upgradient of Hollister MA. This reflects the zig-zag character of the boundary between the two MAs, such that groundwater flows from Hollister into portions of Southern MA and then flows out again.

Most groundwater inflows to the basin are controlled by hydrologic conditions. Natural stream percolation and deep percolation from rainfall are related to the volume and distribution of rainfall. The availability of imported water similarly reflects wet and dry conditions in the source area, which for CVP water is the Sierra Nevada. Because they are related to rainfall, almost all Basin inflows are higher in wet years and lower in dry years. In contrast, deep percolation of applied irrigation water (irrigation return flow) is generally similar from year to year.

Outflows

Major outflows from the Basin are pumping (agricultural, municipal, industrial, and domestic), groundwater seepage into streams, subsurface outflow, and evapotranspiration by riparian vegetation.

Pumping by Wells. Agricultural pumping is much larger than the other types and is listed separately in the water balance tables and shown in green on the water balance bar charts. Agricultural pumping is dependent not only on cropping patterns and irrigation practices, but also on the volume of CVP imports and the amount and timing of rainfall. Spring rains decrease total irrigation demand, and growers adjust pumping to compensate for wet weather and the availability of CVP imports. Agricultural groundwater pumping in the model and water balance tables is simulated by the rainfall-runoff-recharge model. When simulated soil moisture falls below a specified threshold in a recharge zone with irrigated crops, irrigation is assumed to be applied and to refill soil moisture to capacity. Irrigation not derived from CVP water or recycled water is assumed to be from groundwater.

Agricultural pumping in Zone 6 is also monitored by SBCWD by recording the operating time of pump motors and multiplying that by a measured discharge rate. Previous studies have found that the pumping estimates obtained by this method are significantly smaller than the estimates obtained by simulating crop water demand and soil moisture. The simulation approach improved model calibration during the 2014 model update, and that approach is retained in the current model.

Reliable measurements of agricultural pumping are a recognized data gap. Given the large range or uncertainty and the model sensitivity to the volume and location of agricultural pumping, evaluation is needed of alternative methodologies for accurately evaluating agricultural pumping.

Municipal pumping by City of Hollister and SSCWD is in the Hollister MA, with additional pumping by San Juan Bautista in the San Juan MA. Pumping by major municipal providers is measured, as is pumping by smaller community water systems and self-supplied commercial and industrial facilities within Zone 6. Actual pumping and well locations are used in the numerical model. Additional pumping for potable use at rural residences and agricultural buildings was estimated by inventorying the number and locations of those buildings on aerial photos. This domestic pumping is assigned to 200 hypothetical wells near building locations.

A map showing the locations of agricultural and municipal, commercial, industrial, and domestic pumping is presented in **Figure 4-5**. Irrigation pumping is shown as a one-dimensional annual groundwater application rate on the irrigated fraction of each recharge analysis polygon. Use of CVP water and recycled water has already been subtracted from total irrigation demand to obtain these estimates of groundwater-supplied irrigation. Monthly one-dimensional rates are multiplied by irrigated area and entered into the groundwater model as a hypothetical irrigation well located at the centroid of each irrigated recharge polygon. Municipal, commercial, industrial, and domestic wells are displayed as circles with areas proportional to annual pumping in 2021. Points representing the first three categories are actual well locations, and the pumping is measured and reported to the District. The small dots representing rural domestic pumping are located where rural residences are visible in aerial photographs, and a uniform production rate was assumed at all those locations.

Subsurface Outflow. Subsurface outflows to other basins and other Management Areas were calculated using the groundwater model by the same methods used to simulate subsurface inflows.

Groundwater Discharge to Streams. Discharges from the groundwater basin to surface water bodies are simulated by the groundwater model based on stream bed wetted area and permeability and on the amount by which the simulated groundwater elevation in a model stream cell is higher than the simulated surface water elevation. This occurs in all Management Areas, but notably where Pacheco Creek and Tequisquita Slough approach the Calaveras Fault, where the Pajaro River approaches the downstream end of the Bolsa MA, and along the San Benito River at the downstream end of the San Juan MA. The relatively large amounts of simulated groundwater discharge to streams in the Southern MA is balanced by high amounts of percolation from streams. The San Benito River and Tres Pinos Creek transition between gaining and losing at various locations in the Southern MA.

Riparian Evapotranspiration. The presence of dense, vigorous trees and shrubs along a stream channel is often a sign that the roots of the vegetation extend to the water table and have access to groundwater throughout the dry season. Plants that draw water directly from groundwater are called phreatophytes. In the groundwater model, riparian ET is a function of water table depth, decreasing from unrestricted water use when the water table is at the ground surface to zero when it is 15 feet or more below the ground surface. This reflects a reasonable range of root depth distribution for a mix of riparian shrub and tree species.

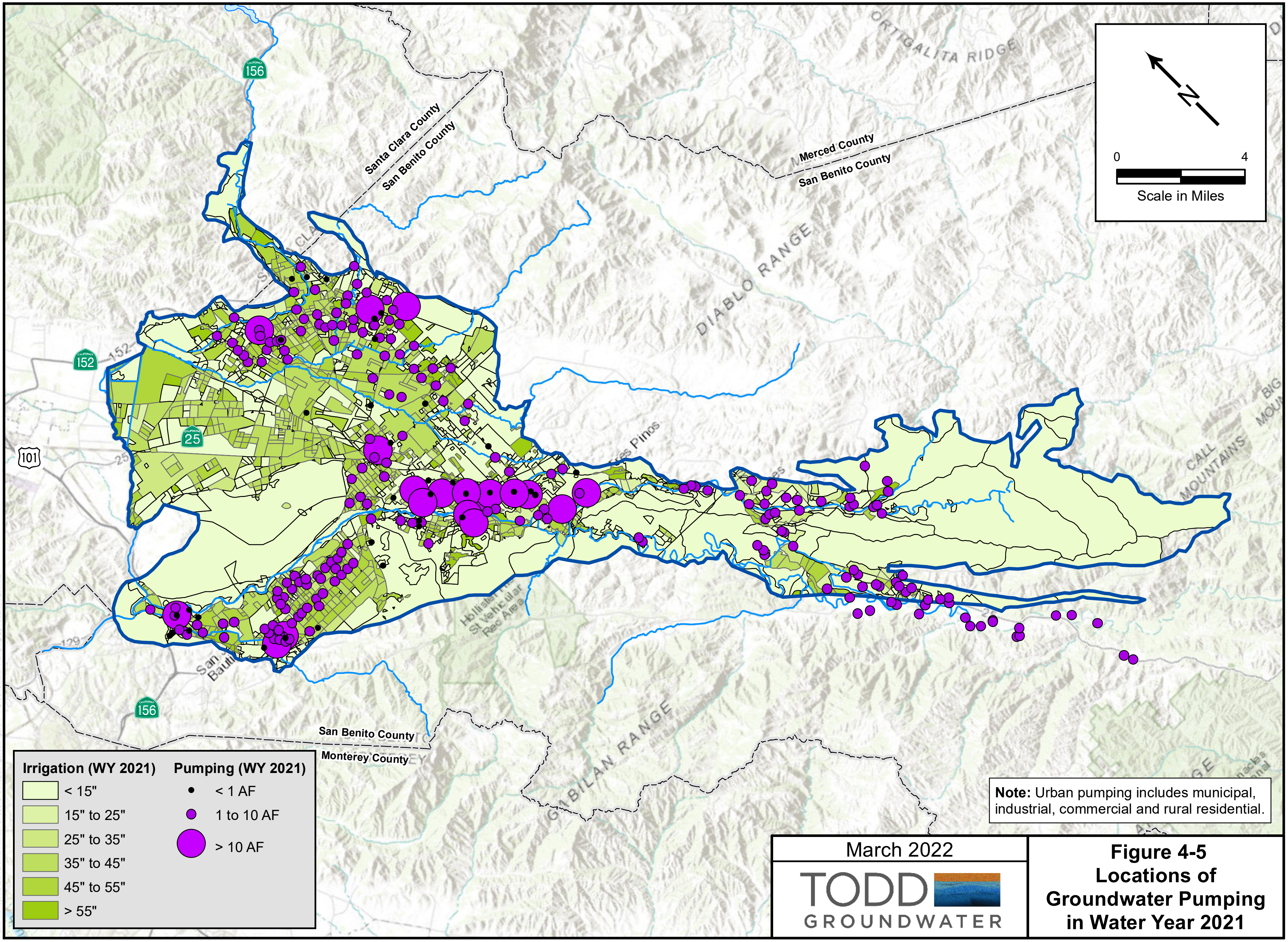


Figure 4-5
Locations of Groundwater Pumping in Water Year 2021

4-WATER BALANCE

The Management Area water balances for 2021 are easiest to interpret in the context of balances in prior years (see **Figures 4-1 through 4-4**). In the Southern MA, total inflows and total outflows were very low in 2021 and had been declining over the previous two years. In the Hollister MA, total inflows were lower than in almost all other years of the past three decades. Outflows, however, were slightly above average. Total inflows in the San Juan MA were not so unusually low, but total outflows were above average. In the Bolsa MA, total inflows were considerably above average, but agricultural pumping has increased substantially over the past decade. The increase has been partially offset by increased subsurface inflow from the Llagas Subbasin.

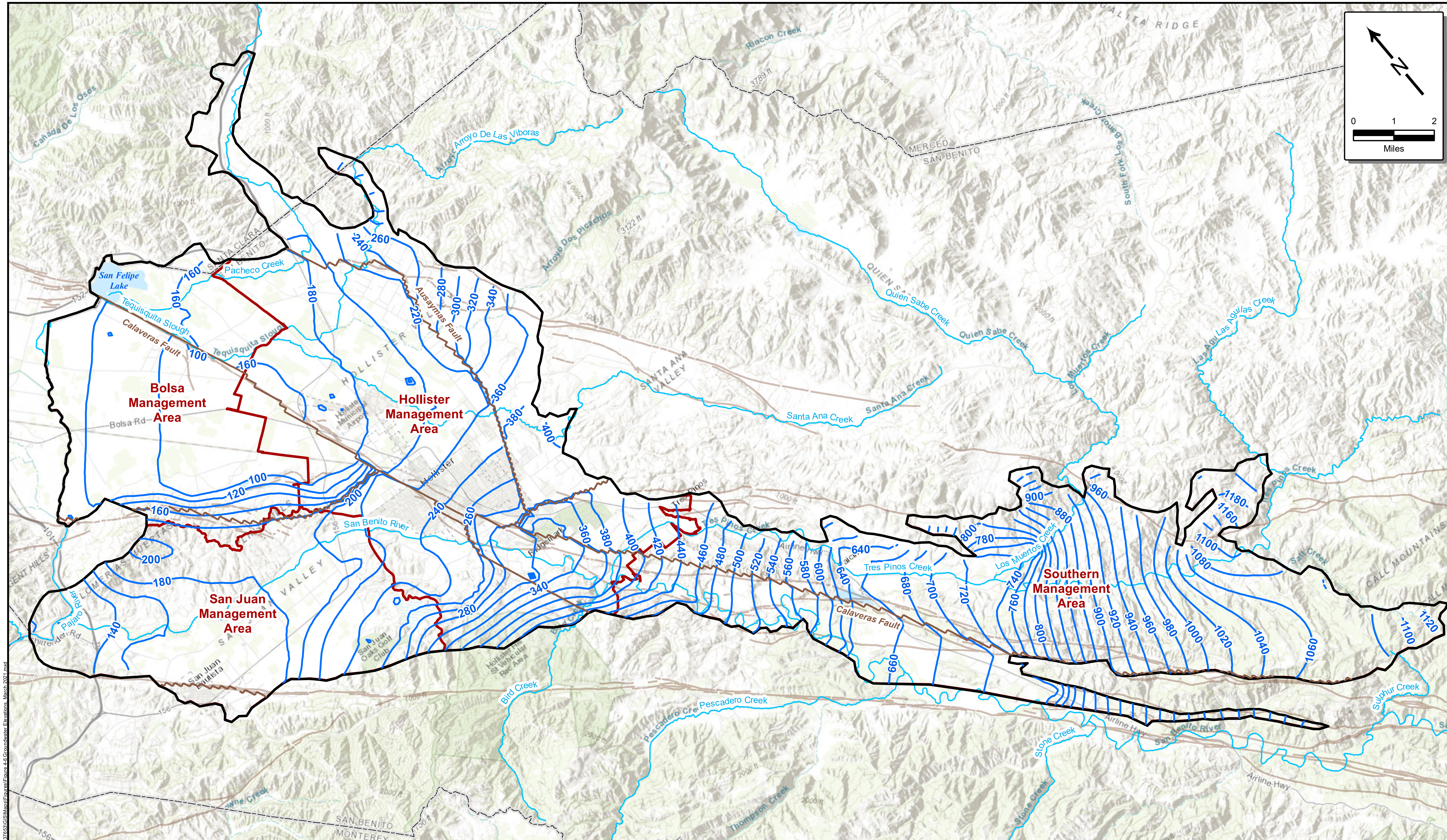
Simulated Groundwater Elevations

In previous annual reports, contours of groundwater elevation surfaces in a portion of the Basin were constructed using measurements from monitored wells with refinement to account for the effects on groundwater of faults and other hydrogeologic conditions. These previous groundwater elevation surfaces were highly influenced by variability in data available from the monitoring network. For example, contours would change significantly when wells were temporarily or permanently unavailable for monitoring. This would in turn affect the estimated change in storage.

One of the changes to the annual reports associated with SGMA compliance is the inclusion of groundwater contours for the entire Basin. A consequence of this basin-wide approach is inclusion of areas with limited or no groundwater monitoring. As a result, contouring with relatively simple software or by hand is more difficult and subjective. However, the calibrated groundwater model, which will now be updated annually, provides simulation of groundwater elevations for every month of the model period in a way that is internally consistent with the hydrogeologic conceptualization of the Basin and the water budget. Using contours from the model produces groundwater surface elevation representations that are consistent with the water budget and change in storage estimates.

Figure 4-6 shows contours of groundwater elevations in March 2021, representing seasonal high conditions, while **Figure 4-7** shows groundwater elevations in September 2021, representing seasonal low conditions. These are contours of elevations simulated by the calibrated groundwater model, which provides estimates of water levels throughout the basin. They are from model layer 3, which is within the typical range of screened intervals for irrigation and municipal wells. The pattern of contours is similar for both years. Groundwater in the Southern MA flows northwest toward the Hollister MA. On the east side of the Calaveras Fault, flow is northward and westward, converging toward San Felipe Lake, where groundwater that hasn't leaked through the fault emerges into surface waterways and crosses the fault as stream base flow. On the west side of the Calaveras Fault, inflow from the Southern MA flows northwest beneath the San Benito River and bends west to ender the San Juan MA. In the latter area, flow is toward the west end of the MA, where groundwater exits by emerging as surface flow in San Juan Creek, the San Benito River or the Pajaro River.

Figure 4-8 shows contours of the net change in groundwater elevation during the water year from September 2020 to September 2021. The net change was negative almost everywhere, reflecting decreased recharge and increased pumping due to below-average rainfall and CVP imports. The net decline was typically about 5 feet in the Hollister and San Juan MAs and up to 15 feet in the Bolsa MA. Declines in the Southern MA were mostly smaller but exceeded 5 feet in a few places. A few contour bullseyes are visible where individual wells had much different pumping amounts in 2020 and 2021.



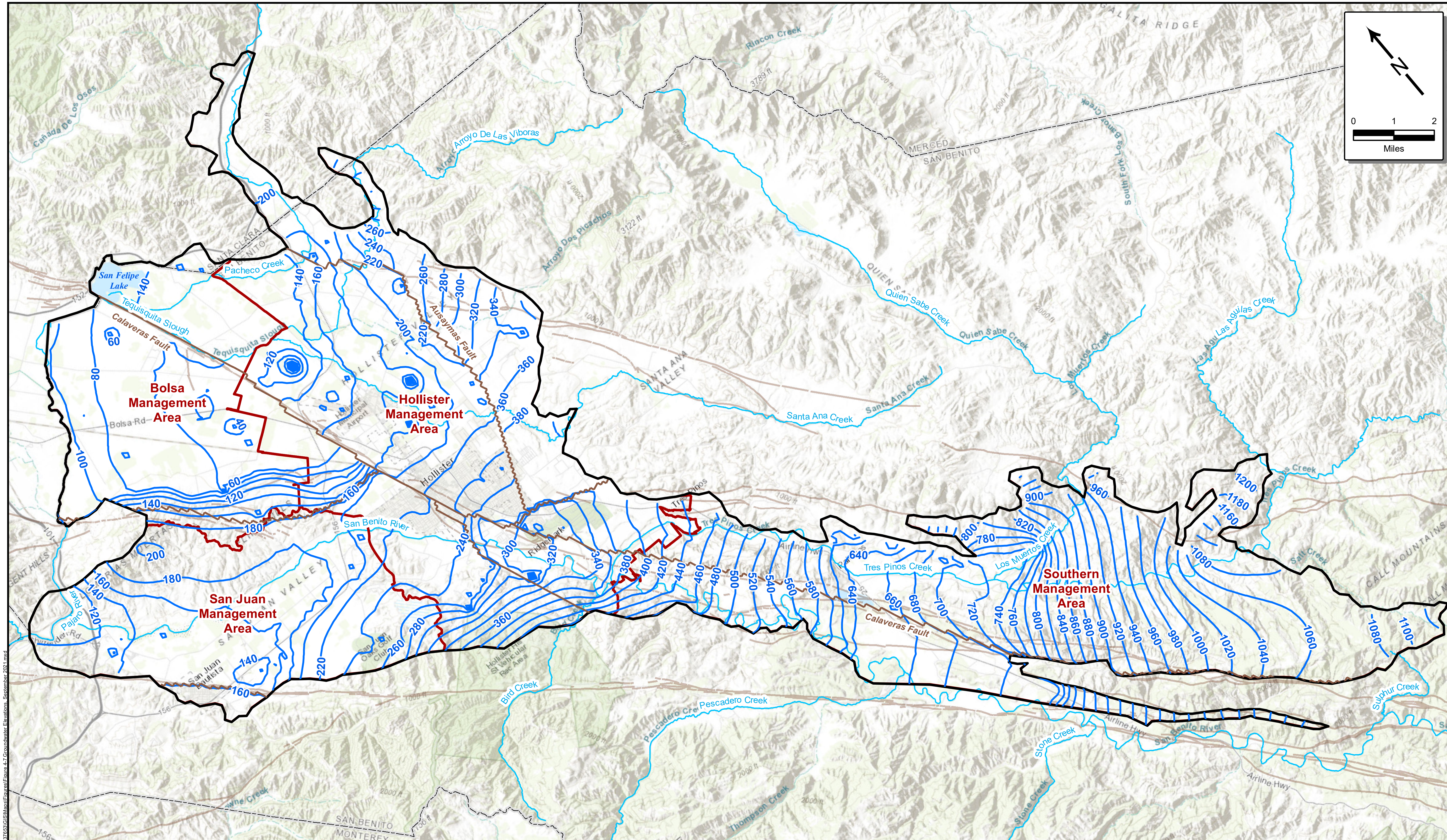
Faults
Groundwater Elevation Contour (feet msl)
Major Streams and Rivers
Management Areas
North San Benito Basin
San Benito County

Note:
Groundwater discharge from the Basin occurs as discharge to streams, subsurface outflow, and groundwater pumping from wells. The distribution of active wells changes over time, so wells are not shown on this map.

March 2022

TODD GROUNDWATER

Figure 4-6
Groundwater Elevations (ft msl)
March 2021



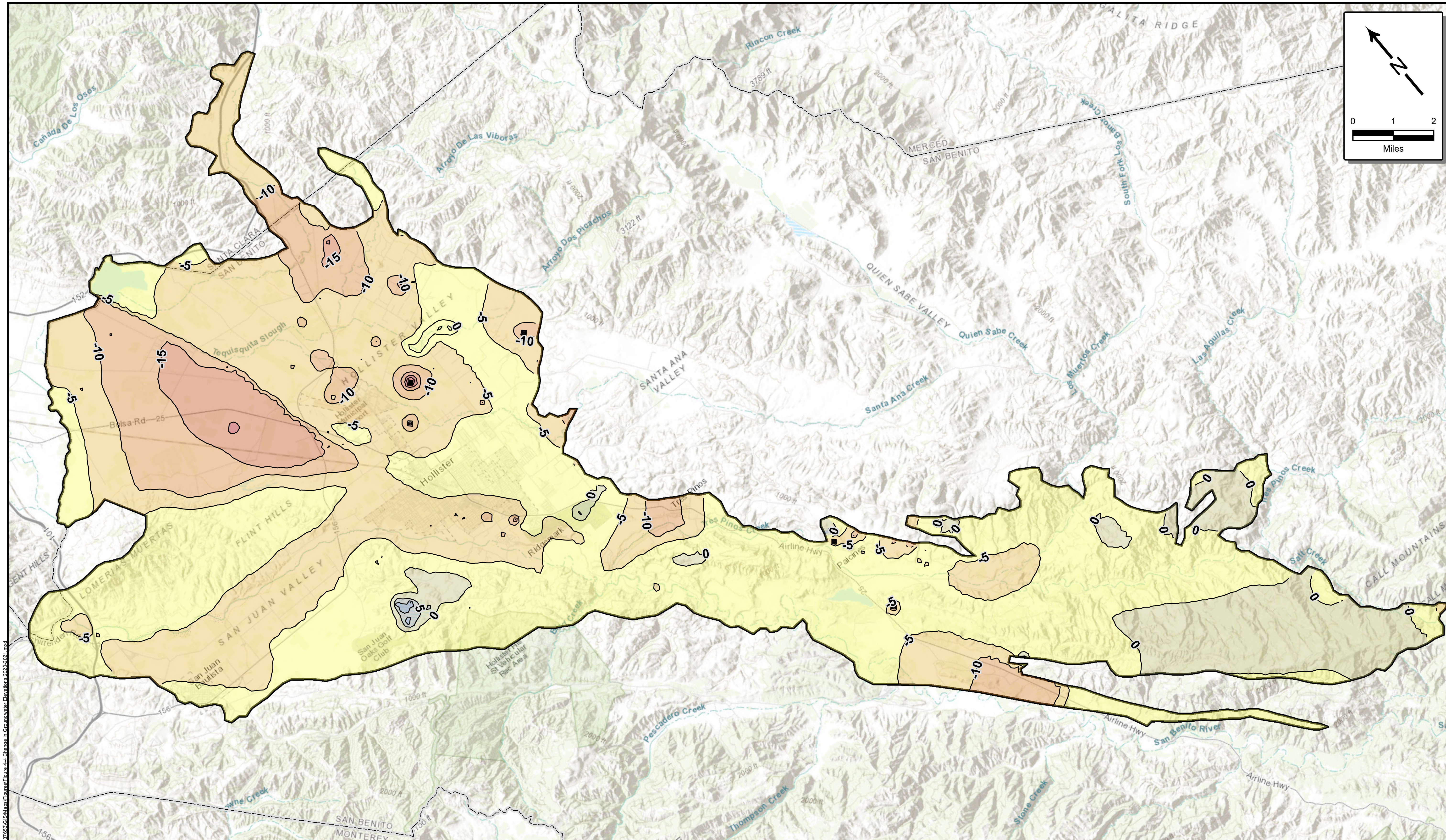
Faults
Groundwater Elevation Contour (feet msl)
Major Streams and Rivers
Management Areas
North San Benito Basin
San Benito County

Note:
Groundwater discharge from the Basin occurs as discharge to streams, subsurface outflow, and groundwater pumping from wells. The distribution of active wells changes over time, so wells are not shown on this map.

March 2022

TODD GROUNDWATER

Figure 4-7
Groundwater Elevations (ft msl)
September 2021



1 Year Change in Groundwater Level

- < -20'
- -20' to -15'
- -15' to -10'
- -10' to -5'
- -5' to 0'
- 0' to 5'
- 5' to 10'
- 10' to 15'
- > 15'
- Change in Groundwater Elevation (feet)
- North San Benito Basin
- San Benito County

Note:
Groundwater discharge from the Basin occurs as discharge to streams, subsurface outflow, and groundwater pumping from wells. The distribution of active wells changes over time, so wells are not shown on this map.

March 2022

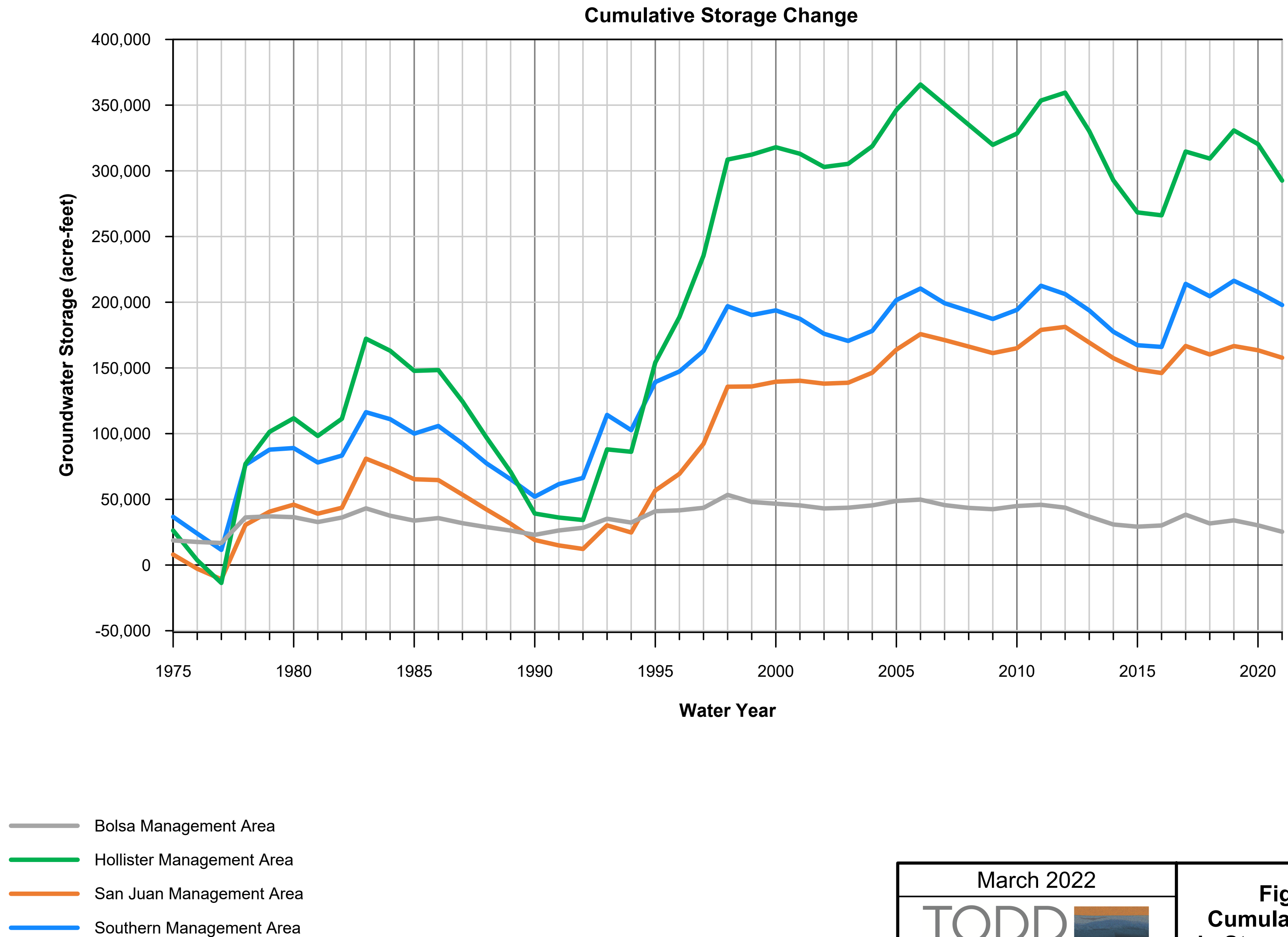
TODD GROUNDWATER

Figure 4-8
Change in Groundwater Elevations Sep. 2020 to Sep. 2021

Change in Storage

Figure 4-9 shows the cumulative change in storage from the model for the four Management Areas for 1975-2021. The change in storage for each MA for the model update period (2018-2021) is documented in **Tables 4-1 through 4-4**. In **Appendix E, Figures E-1** through **E-4** illustrate the annual storage change, cumulative storage change, and estimated groundwater pumping for each MA from 1975 to present**.** The water year type is indicated with the first letter of the types: Wet, Above normal, Below normal, Dry, and Critically dry (see Figure 3-2).

Storage decreased in all four Management Areas for the second consecutive year in 2021. However, total storage is far above the 1975 amounts in the Southern, Hollister and San Juan MAs. Storage tends to change very little in the Bolsa MA, probably due to the influence of subsurface inflow simulated at the model boundaries along the Calaveras Fault and the border with the Llagas Subbasin. Storage declined slightly in 2021 and is about equal to the amount of storage in 1975.



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March 2022

TODD GROUNDWATER

Figure 4-9
Cumulative Change in Storage, 1975-2021

5-WATER SUPPLY AND USE

Water Supply Sources

Four major sources of water supply are available for municipal, rural, and agricultural water demands in NBGB. These are summarized below; for more data and graphs, see **Appendix E.**

Local Groundwater. Groundwater is pumped by private irrigation and domestic wells and by public water supply retailers. The District does not directly produce or sell groundwater but has the responsibility and authority to manage groundwater throughout San Benito County.

Imported Water. The District purchases Central Valley Project (CVP) water from the U.S. Bureau of Reclamation (USBR) and distributes to customers in Zone 6. Some CVP water has also been released for groundwater recharge. The District has a contract with no expiration for a maximum of 8,250 AFY of municipal and industrial (M&I) water and 35,550 AFY of agricultural water. CVP water is not available in the Bolsa or Southern MAs.

Recycled Water. Water recycling began in 2010 with landscape irrigation at Riverside Park. The system was expanded in 2014, including infrastructure and treatment capability for the purpose of agricultural irrigation. Recycled water currently is provided to approximately 865 acres for agricultural production and landscape irrigation. This source is reliable during drought and helps secure a sustainable water supply. Recycled water is only available in the Hollister MA.

Local Surface Water. Surface water is not used directly for potable or irrigation use in the basin, but creek percolation is a significant source of groundwater recharge. In 2021, releases from the District's Hernandez and Paicines reservoirs were below average, reflecting drought. Stormwater capture currently is limited to some diversion by the City of Hollister to the Hollister Industrial WWTP (via a combined sewer system) with subsequent treatment and discharge to percolation and evaporation ponds.

5-WATER SUPPLY AND USE

Available Imported Water – Zone 6

The District distributes CVP water to agricultural and M&I customers in Zone 6. The allocation of the contract for each year is variable and contingent on total available supply of the CVP system. In dry years, the allocation may be zero and in wet years, it may be 100 percent of the contract amount. The USBR contract years are March through February, so Water Year 2021 (Oct 2020-Sept 2021) overlapped two contract years. Both years were below-average hydrological conditions which resulted in relatively low allocations. **Table 5-1** shows the contract entitlements and recent allocations for both USBR contract years that overlap Water Year 2021 (SLDMWA 2021).

As shown in **Table 5-1**, USBR contract year 2020 (March 2020- February 2021) allocations were 15 percent and 65 percent for agricultural users and M&I users respectively. For USBR contract year 2021 (March 2021 - February 2022), allocations were 0 percent and 25 percent for agricultural users and M&I users, respectively. Both years had less than average allocations for agricultural users and while M&I users had average and record low allocations for WY 2020 and WY 2021, respectively. For the last ten years (2012-2021), the average allocations were 31 percent and 62 percent for agricultural users and M&I users respectively. More information of past years allocations can be found in **Appendix E**.

In February 2022, USBR announced the initial water supply allocations for CVP for South-of-Delta (including North San Benito) would be 0 percent. CVP reservoir storage was below the historical average, and without substantial spring precipitation, the allocation is unlikely to be revised upward.

TABLE 5-1. ALLOCATION FOR USBR WATER YEARS 2020-2021

March 2020 - February 2021

	Contract	% Allocation	Allocation Volume (AF)
Agriculture	35,550	15%	5,333
M&I	8,250	65%	5,363
TOTAL	43,800		10,695

March 2021 - February 2022

	Contract	% Allocation	Allocation Volume (AF)
Agriculture	35,550	0%	0
M&I	8,250	25%	2,063
TOTAL	43,800		2,063

5-WATER SUPPLY AND USE

Municipal Use

Figure 5-1 shows the municipal water supply for the City of Hollister, SSCWD, San Juan Bautista, and Tres Pinos County Water District. Municipal demand was satisfied entirely by groundwater prior to 2003. The completion of Lessalt Water Treatment Plant (WTP) in 2003, expansion of Lessalt in 2016, and completion of West Hills WTP in 2018 have significantly increased the availability and use of CVP water for the Hollister and SSCWD municipal systems. In **Figure 5-1**, annual water supply provided through the Lessalt WTP is shown in grey and West Hills WTP in blue. In 2021, these two treatment plants served about 39 percent of the municipal supply, a decrease from last water year when CVP imports provided 67 percent of the municipal supply. The retailers continue to rely on the groundwater reserve when CVP allocations are low. When CVP allocations are higher, the retailers can return to delivering treated imported water to their customers. This ability to maximize CVP use will increase flexibility for local water users to use groundwater or CVP. CVP also provides better quality water for delivery to municipal customers and results in improved wastewater quality, which supports water recycling.

Agricultural Use

Figure 5-2 shows the annual volume of imported water by use. The low allocation of USBR Water Year 2020-2021 and the zero allocation Water Year 2021-2022 severely impacted the CVP imports for agricultural uses in the Hollister and San Juan MAs. The total CVP volume was decreased by 45 percent and by 50 percent for agricultural deliveries specifically. The available CVP supply in WY 2021 was the lowest since the 2013-2016 multiple year drought. With initial allocations set for another zero-allocation year, agricultural users will have to pump more groundwater, plant less water intensive crops, or fallow land.

Groundwater is an important source of supply in all four MAs. In Hollister and San Juan MAs, it continues to provide a reserve in times of dry hydrologic conditions, like WY 2021 when CVP allocations are reduced. In Bolsa and Southern MAs, it is the sole source of supply.

This Annual Report reflects the changing scope of groundwater management in the Basin and thus involves adapted methods, for example, to estimate groundwater pumping. It builds on the GSP (which includes extensive update and application of the numerical model) and presents an estimate of groundwater pumping simulated by the numerical model. This represents a departure from previous Annual Reports and a first step toward basin-wide and more accurate assessment of agricultural pumping.

As described in the water balance section, the simulated estimate relies on the 2014 land use map and applies a crop coefficient to identified agricultural parcels. Annual crop evapotranspiration (ET) is calculated by applying the crop coefficient to the daily observed reference ET from the CIMIS station. Groundwater pumping is then estimated based on the crop ET and an irrigation efficiency assumption less the available CVP and recycled water delivered to agricultural customers in the MA. The volume is simulated as a well in the center of the identified parcel. Groundwater pumping as simulated by the model for each MA is shown on **Table 5-2.**

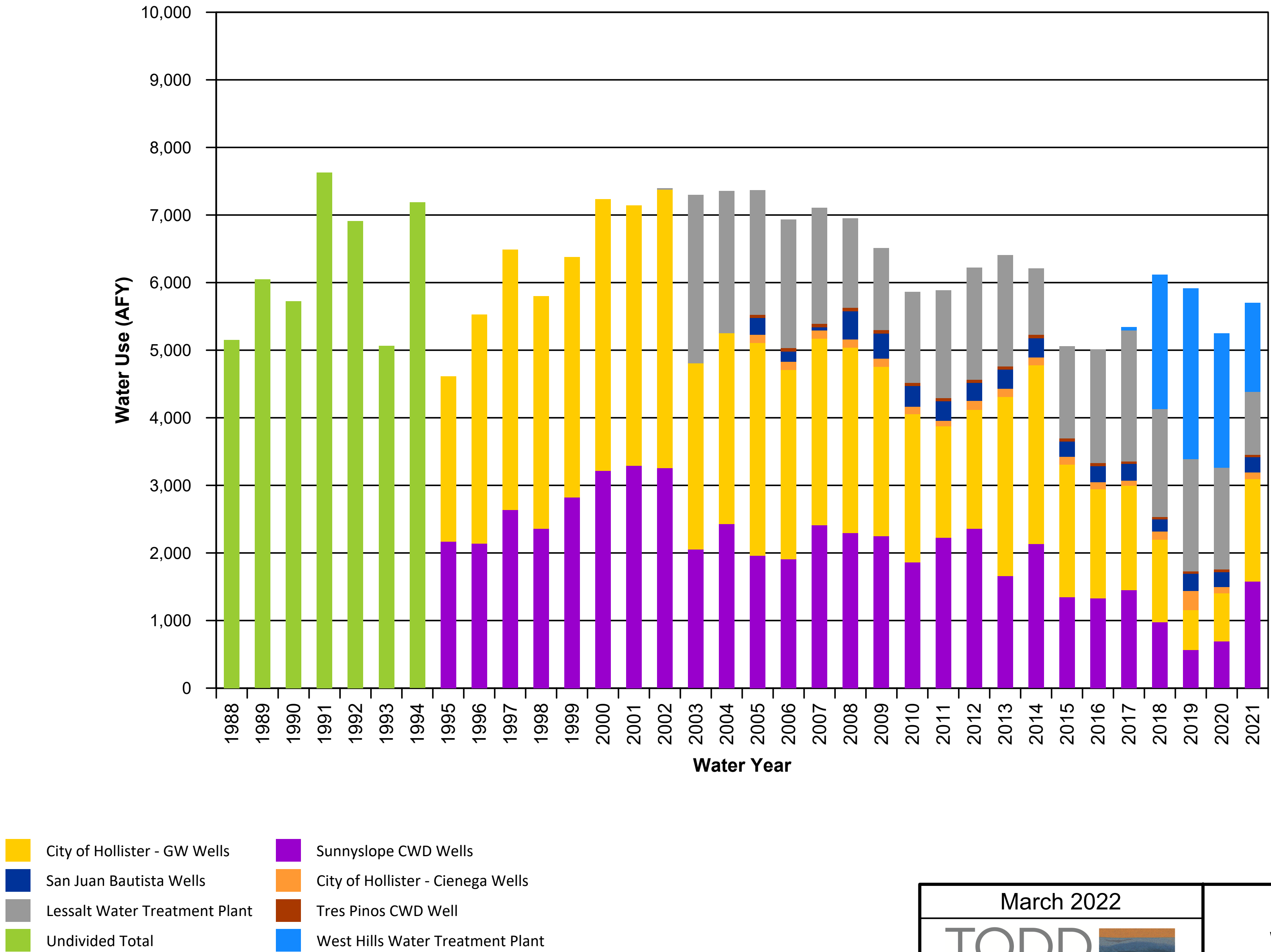
In previous annual reports, the water use patterns for Zone 6 were presented using the reported pumping from available power meters. Pumping amounts have been calculated semiannually by metering the number of hours of pump operation and multiplying by the average discharge rate. This monitoring program began in about 1990 (soon after CVP imports started) but was not applied to irrigation pumping beyond Zone 6. This historical method of estimating groundwater pumping based on power consumption has drifted from original calibration and is now considered insufficiently accurate and is being replaced as part of SGMA implementation. Accordingly, the pumping recorded by these meters are not shown in this annual report.

The District is currently developing a new water use monitoring program that will address the entire basin area and will be documented in future SGMA Annual Reports. One method currently identified to evaluate agricultural water use is termed OpenET. OpenET is a tool developed by a consortium of private and public partners and led by Environmental Defense Fund, NASA, Desert Research Institute, and HabitatSeven. The tool utilizes satellite-based estimates of the total ET by month by parcel. The data will be available at a spatial resolution of 30 meters by 30 meters (0.22 acres per pixel). As of March 2022, the web viewer is open to the public and tools to download data on a basin scale will be released in Spring 2022. In the future, these data—ET by parcel over time—will be available for import into the numerical model to improve the model simulation of groundwater pumping. **Figure 5-3** (below) shows a screen capture showing the irrigated parcels in the Basin with a color ramp indicating ET (OpenET, 2022).

Total Water Use

Table 5-2 shows the total water use in the Basin by source and user type for Water Years 2018- 2021. CVP and recycled water is monitored directly. Municipal use is metered and included in the model simulated pumping.

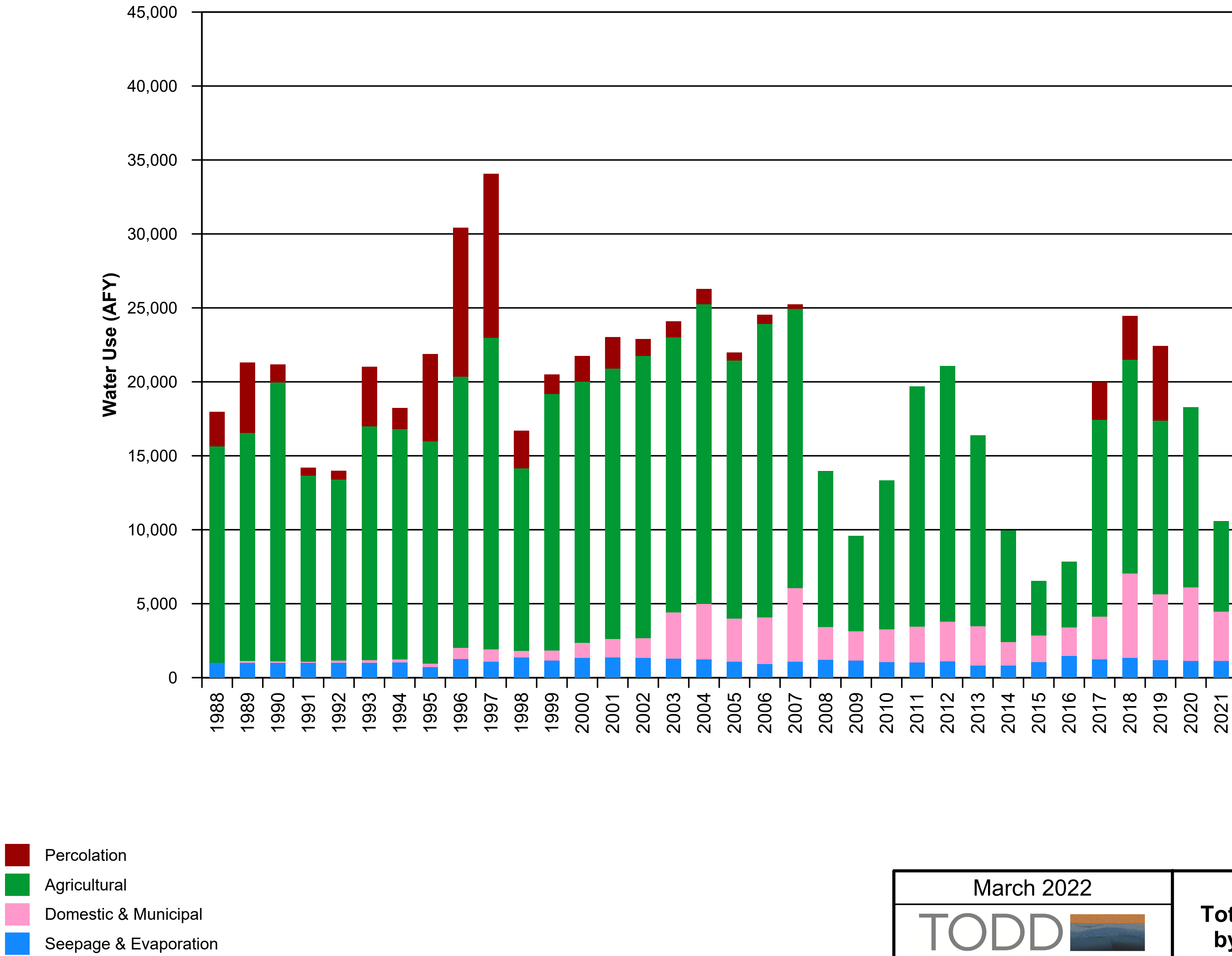
In WY 2021, total water use was higher than 2020 as simulated. The CVP imports were reduced by 45 percent in WY 2021 recognizing this year was the second dry year in a row. As a result, groundwater pumping increased significantly. Groundwater continues to be a reserve that is heavily relied on during multiple year droughts. However, the simulated agricultural pumping may over-represent irrigated areas and may not have accounted for land that was fallowed or converted to urban uses in recent years. In WY 2021, groundwater pumping patterns across the basin were impacted by local dry hydrologic conditions and the ongoing COVID pandemic that affected labor and market conditions. In Zone 6, the reduced allocation of CVP water continued to prompt some growers to fallow land or increase groundwater pumping. Additional analysis of changing crop patterns and an update of the model is recommended before the next annual report. Water use information will be uploaded to DWR as part of the Annual Report. The tables are included in Appendix A, following the Elements Guide.



March 2022

TODD GROUNDWATER

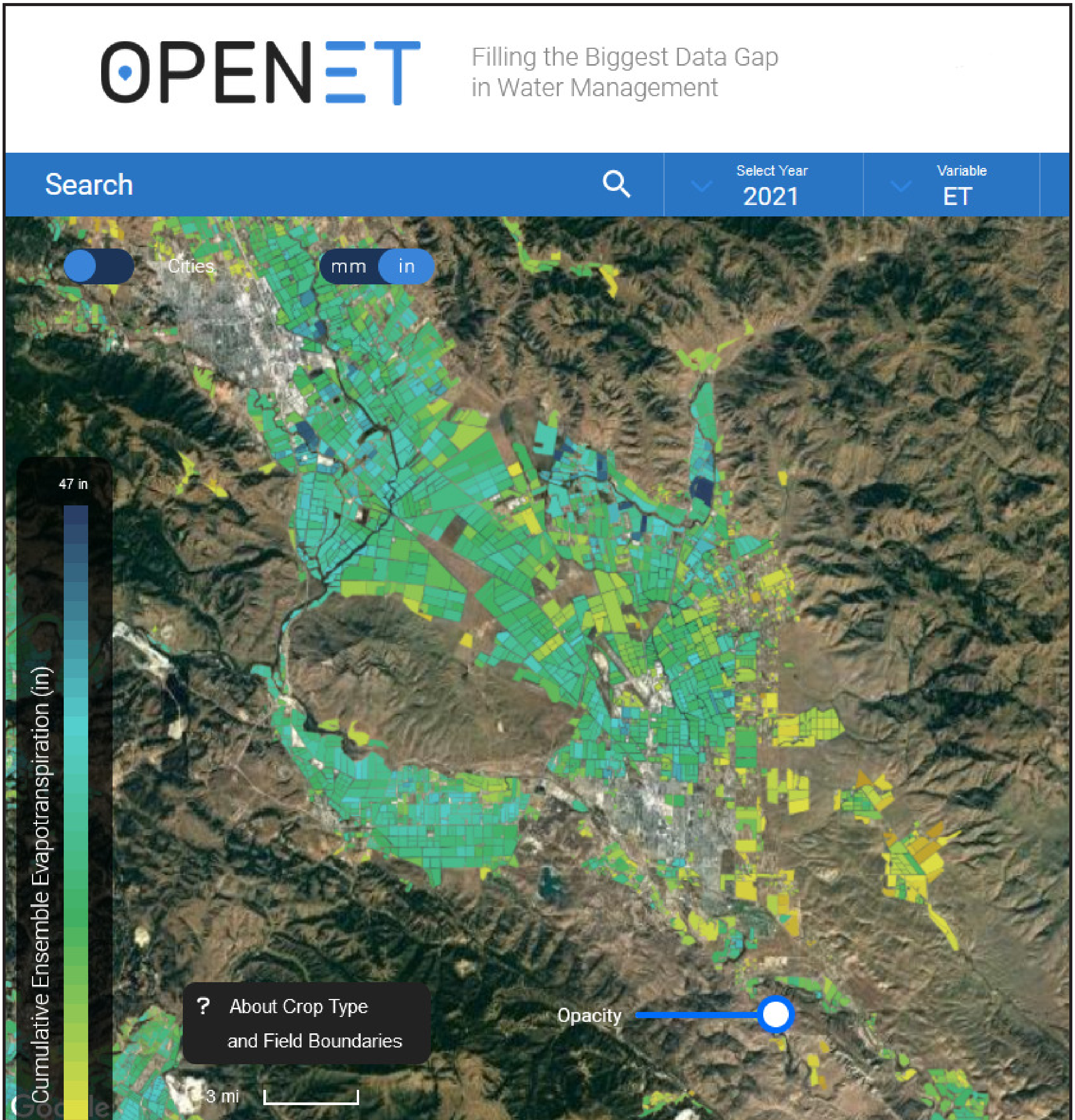
Figure 5-1
Water Use in Zone 6 by Source



March 2022

TODD GROUNDWATER

Figure 5 2
Total CVP Water Use by Source and MA 1976-2021 (AFY)



March 2022

TODD GROUNDWATER

Figure 5-3
OpenET Public Data Viewer

TABLE 5-2. TOTAL WATER USE, AF

Management Area	Water Type	User Type	2018	2019	2020	2021	Method
Southern	Groundwater	M&I and Domestic	70	71	72	73	Simulated
		Agricultural	7,738	6,830	7,435	8,087	Simulated
Hollister	Groundwater	M&I and Domestic	2,673	1,632	1,880	3,571	Simulated
		Agricultural	40,831	35,724	39,336	46,683	Simulated
	CVP	M&I and Domestic	5,605	4,334	3,937	3,314	Reported Flow Meters
		Agricultural	8,143	7,864	8,564	4,519	Reported Flow Meters
	Recycled Water	M&I and Domestic	107	108	97	21	Reported Flow Meters
		Agricultural	364	461	428	405	Reported Flow Meters
San Juan	Groundwater	M&I and Domestic	777	785	793	799	Simulated
		Agricultural	17,394	15,935	17,463	18,826	Simulated
	CVP	M&I and Domestic	74	123	1,016	27	Reported Flow Meters
		Agricultural	6,310	3,867	3,602	1,561	Reported Flow Meters
Bolsa	Groundwater	M&I and Domestic	24	25	25	25	Simulated
		Agricultural	25,962	23,858	25,124	29,449	Simulated
Total	**Groundwater**	**All**	**95,469**	**84,858**	**92,128**	**107,513**	**Simulated**
	CVP	**All**	**20,131**	**16,188**	**17,119**	**9,421**	**Reported Flow Meters**
	Recycled Water	**All**	**471**	**569**	**526**	**426**	**Reported Flow Meters**
	TOTAL	**ALL**	**116,072**	**101,615**	**109,773**	**117,360**	**Various**

6-WATER MANAGEMENT ACTIVITIES

As presented in the North San Benito GSP, the GSAs have been actively managing their local groundwater resources for decades with various projects and management actions. The GSP summarizes ongoing efforts, indicates supplementary work on those efforts, and identifies potential future projects and management actions. This Annual Report provides an update on significant progress.

As defined in the GSP, *Projects* are substantial efforts that involve an increase in water supply or a reduction in demand for the GSP Area. Projects outlined in the GSP include:

- Develop Surface Water Storage (Pacheco Reservoir Expansion Project)
- Expand Managed Aquifer Recharge (MAR)
- Enhance Conjunctive Use
    - Hollister Urban Area Water and Wastewater Project
    - City of San Juan Bautista Regional Water and Wastewater Solution
    - North County Project
    - Zone 3 Operations Planning Tool
- Enhance Water Conservation.

Actions provide a framework for groundwater management and include establishing GSP procedures or policies, filling data gaps with scientific studies or improved monitoring, and providing for funding. Management Actions identified in the GSP include:

- Improve Monitoring Program and Data Management System (DMS)
- Measure agricultural groundwater extraction
- Improve monitoring well network and DMS
    - Improve water quality monitoring program
    - Enhance surface water gaging
- Develop Response Plans
- Enhance Water Quality Improvement Programs
- Reduce Potential Impacts to Groundwater Dependent Ecosystems (GDEs)
- Provide Long-term Basin-wide Funding Mechanism
- Provide GSP Administration, Monitoring, and Reporting.

The projects and management actions are presented in the GSP with an Implementation Plan that extends to 2045 in five-year intervals; the last interval includes the 2042 deadline for the 20-year implementation to achieve and demonstrate sustainability. Not all projects and management actions are updated specifically in this first Annual Report. This recognizes that the GSP was just adopted in January 2022 and focuses on projects and management actions with active implementation.

It is noted that the District monitoring program is summarized in Section 2, presenting the basis for subsequent information and analyses. Importation and distribution of CVP water in Zone 6 is described in Section 5. Sources of revenue to support District operations are presented in this section.

6-WATER MANAGEMENT ACTIVITIES

Surface Water Storage

Pacheco Reservoir Expansion Project. The surface water storage project with the most advanced planning is the Pacheco Reservoir Expansion Project (PREP). PREP is a collaborative effort of Valley Water, San Benito County Water District, and Pacheco Pass Water District. The project would establish a new dam and expanded reservoir on the North Fork of Pacheco Creek that would store local watershed inflows and CVP supplies for use by the involved agencies. Recent progress includes completion and release in November 2021 of the Draft Environmental Impact Report (EIR) on the Pacheco Reservoir Expansion Project for public review. The next step would be preparation of a Final EIR that addresses public comments.

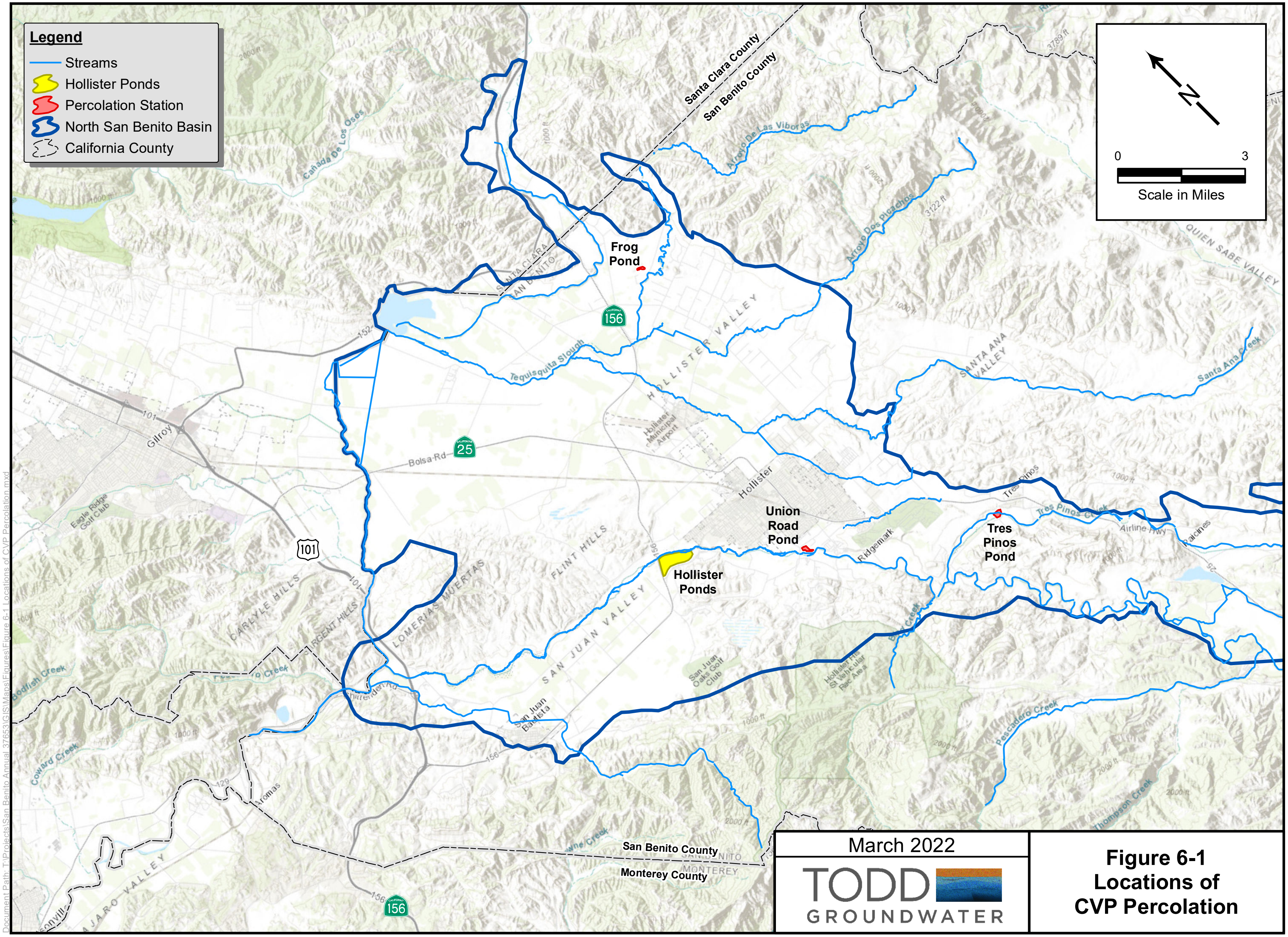
Managed Percolation

Ongoing North San Benito Basin management includes percolation of local surface water, wastewater, and CVP water. Considering climate change and potential growth in urban and agricultural water demand, the GSP recognizes the importance of continued percolation activities.

Percolation of Local Surface Water. In most years, local surface water is released from Hernandez and Paicines reservoirs for percolation along the San Benito River and Tres Pinos Creek (see **Appendix D**). Releases are managed to maximize percolation along the stream channels of the San Benito River and Tres Pinos Creek and to avoid any losses out of the basin. Hernandez Reservoir releases in 2021 were below average (reflecting the below normal rainfall), amounting to 7,480 AF. Releases from Paicines were 504 AF, also below average.

Percolation of Wastewater. Wastewater is percolated by the City of Hollister at its Domestic and Industrial plants, by SSCWD at its Ridgemark Facilities, and by Tres Pinos County Water District. While the City of San Juan Bautista wastewater treatment plant also discharges wastewater, the flows are not considered to percolate to the groundwater basin because of local hydrogeologic conditions that result in outflow to San Juan Creek. Recent changes in operation of the wastewater facilities (including increased water recycling) and decreased municipal water use have decreased the volume percolating to the groundwater. Information about the amount of groundwater recharged from wastewater facilities is found in **Appendix D**.

Percolation of CVP Water. In Water Year 2021, the District only percolated 28 AF of CVP water because CVP allocations were severely reduced. In normal and wet years, the District percolates in four dedicated off-stream basins; locations are shown in **Figure 5-1. Figure 5-2** shows the volume of CVP recharge by major water way over time. The managed recharge of the imported water was critical in replenishing the basin in the 1980s and 1990s; however, the threat of zebra mussel contamination and low CVP allocations prevented the practice from 2008 to 2016. The District has resumed recharge at dedicated basins adjacent to streams.

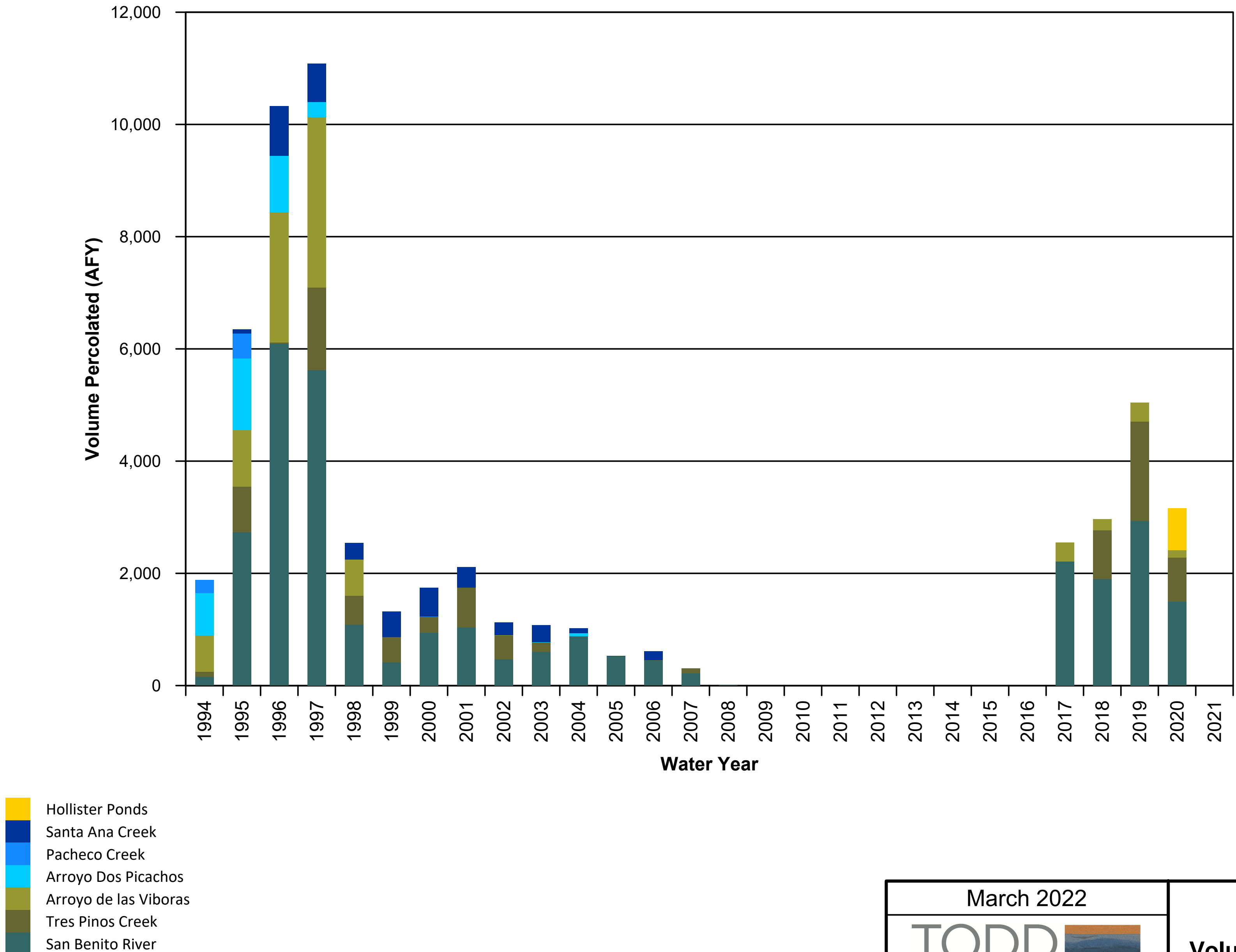


March 2022

TODD GROUNDWATER

Figure 6-1
Locations of CVP Percolation

Document Path: T:\Projects\San Benito Annual 37653\GIS\Maps\Figures\Figure 6-1 Locations of CVP Percolation.mxd



Path: \\todd-file\data\Projects\San Benito Annual 37653\GRAPHICS\Figure 6-2 Volume of percolation.gpj

March 2022

TODD GROUNDWATER

Figure 6-2
Volume of Percolation

6-WATER MANAGEMENT ACTIVITIES

Managed Aquifer Recharge Study

A managed aquifer recharge (MAR) study has been conducted as part of GSP development to evaluate potential locations, general methods of recharge, and multiple sources of water throughout the entire basin. To evaluate locations, the MAR study has used best available information on recharge parameters and applied a detailed geographic information system (GIS) index-overlay method to evaluate potential locations. Numerical modeling also was applied to assess issues such as mounding, migration, and recovery of recharge water. The combination of water source, method, and location that currently appears to have the greatest advantages and the fewest disadvantages involves recharge of CVP water using injection or Aquifer Storage Recovery (ASR) wells in the Hollister MA.

Injection wells were selected as the best method for implementing MAR in the Basin. Disadvantages (including relatively high installation and operation and maintenance costs) are outweighed by advantages, including low land costs, avoidance of percolation rate limitations, and a long potential recharge season. Injection wells also have two important water quality benefits. First, injection avoids moving poor-quality shallow groundwater down to deep water-supply aquifers, and second, it dilutes the mineral content of native groundwater and thereby improves the quality of water pumped from nearby downgradient water supply wells. ASR wells are advantageous in providing recovery/production capabilities in addition to recharge. The MAR study is slated for completion in May 2022.

San Benito County Water District (SBCWD) is currently planning for a multi-year pilot study to assess the physical potential for injection of CVP water north of the City of Hollister. This pilot study would include a single well and associated distribution system connection and control systems designed for ASR. The study would be permitted through the State Water Resources Control Board (SWRCB) statewide general order for ASR (SWRCB 2012). The SBCWD, in its capacity as a GSA for the Basin, will pursue grant funding for a pilot ASR study in upcoming GSP grant cycles.

Water Resources Planning and Conjunctive Use

The District has conducted multiple collaborative planning efforts to support groundwater sustainability. As presented in the GSP, SBCWD is engaged in several conjunctive use projects; significant updates and recent accomplishments are summarized below.

Urban Water Management Plan (UWMP) and Agricultural Water Management Plan (AWMP). The UWMP, AWMP, and North San Benito GSP were all under preparation in 2021; this allowed coordination of these three efforts. The District, in collaboration with Sunnyslope County Water District (SSCWD) and the City of Hollister, developed the 2020 UWMP for the Hollister Urban Area, which was submitted to DWR by the July 2021 deadline. The UWMP provides detailed information on the current and future water supply and demand for the Hollister Urban Area and provides a comparison of supply and demand in normal years plus single-year and multi-year droughts. To address drought and other water shortages, the UWMP promotes water conservation, conjunctive use, and water recycling.

The 2020 Agricultural Water Management Plan (Todd Groundwater, Sept 2021) describes and evaluates water deliveries and uses, sources of supply, water quality, water delivery measurements, water rates and charges, water shortage allocation policies, drought management, and reasonable and practical efficient water management practices. Consistent with the GSP, the AWMP encourages more efficient water use at the farm level, seeks to optimize conjunctive management of imported CVP water with groundwater resources through direct use and groundwater banking and recovery, and promotes implementation of GSP projects and management actions.

Hollister Urban Area Water Project. This project is an ongoing collaborative effort of SBCWD, City of Hollister, and Sunnyslope County Water District to provide a secure and stable water supply to the region. The project has involved provision of water treatment for CVP water, which allows its direct use for municipal and industrial (M&I) purposes. It also allows delivery of improved quality water to customers. While recent USBR allocations for M&I users have been reduced because of drought (see Section 5), the availability of water treatment capacity remains an important element of sustainability.

City of San Juan Bautista Regional Water and Wastewater Solution. As described in the GSP, the Regional Solution involves importing high quality water from the West Hills WTP to San Juan Bautista, replacing groundwater use, removing residential self-generating water softeners, reducing industrial salt loading to the City wastewater, and then conveying San Juan Bautista wastewater to the City of Hollister WWTP. This project is in planning stages; next steps include preparation of the preliminary design report for the sanitary sewer force main project, a sewer rate study, and CEQA compliance.

North County Project. In March 2021, an 810-foot-deep test well was installed just east of the intersection of Highway 156 and San Felipe Road in an area of generally good water quality. Two rounds of sampling occurred (in February and again in June 2021 with discrete zone sampling). The sampling indicated poor water quality (elevated TDS and nitrate) throughout the aquifer zones at that location (Todd Groundwater, 2022). It was recommended that the Test Well be retained and incorporated into the North San Benito GSP groundwater level and quality monitoring program.

Zone 3 Operations Planning Tool. The Zone 3 Operations Planning Tool is continuing to be updated annually and applied to guide Hernandez and Paicines reservoir operations.

Water Recycling. Water recycling is an ongoing conjunctive use project with the City of Hollister. Recycled water currently is provided to approximately 865 acres for agricultural production and landscape irrigation. Recycled water use is documented in Section 5 and Appendix D.

Water Conservation

Water conservation is an important tool to manage demands on the groundwater basin particularly during drought. Water conservation efforts in San Benito County are conducted through the Water Resources Association (WRA). WRA is a cooperative effort among the District, City of Hollister, City of San Juan Bautista, and Sunnyslope County Water District. Following two dry winters and the Governor's proclamations of drought emergencies, Stage 1 -Voluntary Water Conservation was initiated for customers of the City of Hollister, City of San Juan Bautista, and the Sunnyslope County Water District. A special focus was placed on landscape irrigation because over 50% of residential water use is for landscape irrigation in summer.

In Water Year 2021, the COVID-19 pandemic continued to alter the programs offered by the WRASBC. Field programs resumed but on a limited basis, including irrigation system checks and water softener replacement assistance. These programs were altered to meet all safety measures including social distancing and masks for all participants. Indoor programs such as residential water use surveys were not restarted.

The public education program had been growing steadily over the past several years. The in-person program, which included school visits and guided field trips, was suspended due to COVID-19 but will resume when appropriate. However, WRA staff continued to find creative ways to continue the program. In partnership with the school district, water conservation activity books were distributed to elementary to offer additional enrichment during distance learning. The WRA staff is also pursuing additional education activities including virtual tours of the water treatment and wastewater plants for students.

Public outreach has also shifted to virtual platforms. WRA staff continues to author news articles for the online news sites that serve San Benito County. The articles provided water conservation and efficiency tips that were seasonal in nature and they continue to provide timely advice for water use. To supplement this effort, the WRA is developing a series of water conservation videos for distribution to the local news media and the newly updated WRA website.

WRA has been monitoring changes in water use sectors due to the COVID-19 response. With more residential water use and less water use in the agricultural and business sector, they are focusing their conservation message to residential customers. This focus extends to new residential development in the City. WRA reviews landscape plans for the City of Hollister to make sure that new homes comply with the State's Model Water Efficient Landscape Ordinance (MWELO) and follows up with a post inspection after the landscape materials are installed to ensure the landscape plans were followed.

Finally, WRA continues to provide various rebates (toilets, landscape hardware, etc.). The most popular rebate program is the water softener demolishing/replacement program. With provision of CVP supply for municipal use, the delivered water quality has improved, and customers are willing to abandon unneeded water softeners. This program has the benefit of improving the water quality of municipal wastewater and recycled water.

6-WATER MANAGEMENT ACTIVITIES

Monitoring Program and DMS

The GSP recognized that a single, reliable, and consistent method of measuring agricultural pumping is needed for the entire basin. This was identified as a high-priority action, noting that it is required specifically for annual reporting. SBCWD conducted a brief pilot study in 2021 to test the remote sensing services offered by a private vendor. Exploration of remote sensing options has since been focused on OpenET as a promising option. OpenET is a new online platform (launched in October 2021) that uses satellites to estimate water consumed by crops and other plants and provides free ET data to public water managers throughout the western states. SBCWD is investigating its applicability to accurately evaluating groundwater pumping in North San Benito.

In addition, the GSP's monitoring network assessment provided recommendations for the DMA well inventory, including prompt development of a unique well identification for monitored wells that discontinues use of well names as identifiers. Well identifications were updated to be consistent with DWR site IDs used in the SGMA Portal's Monitoring Network Module (MNM). All wells are identified in this report by State Well Number. Another recommendation was to enhance the DMS with cross-referencing of monitoring sites (groundwater and surface water) relative to location and monitoring for regional groundwater level, groundwater quality, shallow groundwater, subsidence, or managed aquifer recharge. The DMS was updated for groundwater levels, pumping, CVP deliveries, water quality, and reservoir water balances, and cross referencing has been initiated.

Monitoring Well Network

The GSP's assessment of the monitoring network identified data gaps including the uneven distribution of monitored wells across the basin, reliance on private production wells, and insufficient Data on vertical gradients. Installation of new dedicated monitoring wells in the Basin was identified as a top priority to enhance the existing groundwater monitoring network. This need reflected historical data gaps in the Basin related to water level and water quality monitoring and newly identified data gaps related to monitoring groundwater elevations in areas of interconnected surface water monitoring.

In 2021, new dedicated monitoring well locations were selected using a geographically based index overlay methodology. This indexed overlay method included development of GIS datasets and subsequent mapping of these datasets together to find locations that fill multiple data gaps. This process identified areas for the installation of six deep monitoring wells for general groundwater condition monitoring and six shallow monitoring wells for monitoring groundwater levels near areas of interconnected surface water. SBCWD staff located private properties where owners were willing to allow well installation and ongoing monitoring. All the deep and shallow monitoring wells have been constructed and monitoring has begun. These wells will continue to be monitored by SBCWD for inclusion in future annual reports and periodic GSP updates.

6-WATER MANAGEMENT ACTIVITIES

Develop Response Plans

The GSP concludes that the Basin is managed sustainably relative to groundwater levels, but nonetheless, recognizes that declining groundwater levels could occur rapidly and approach MTs during drought. Regular groundwater level monitoring and annual reporting were identified to provide an early warning system. WY 2021 provided real-time experience; groundwater level data and hydrographs were reviewed as they came available. Some changing trends in groundwater levels noted in 2021 may be due in part to land use and pumping changes; more information should be gathered about the volume and location of agricultural pumping.

Similarly, the GSP's review of water quality data has indicated potential for rapid increases in some constituents. While likely indicating a local problem and not a basin-wide sustainability issue, the usefulness of a systematic examination was recognized. Water quality data were compiled and reviewed as part of this Annual Report; no issues were readily identified.

Water Quality Improvement Programs

The GSP identified potential management actions to enhance water quality including collaboration with UC Extension and other organizations toward reduced nitrate and salt loading by agriculture, support to farmers for use of remote sensing to optimize fertilizer applications, and cooperation with the County and local agencies on regulation of water softeners and wastewater treatment/disposal including onsite wastewater treatment systems. In 2021, SBCWD conducted a brief pilot study to test remote sensing not only for ET evaluation, but also to provide additional information on soil moisture and nutrient levels to aid farmers in managing water and fertilizer applications.

As noted above, the most popular rebate program for the WRA is the water softener demolishing / replacement program.

Shallow Monitoring Wells

A recommended management action is to reduce potential impacts to GDEs. Foremost among specific actions is installation of dedicated shallow monitoring wells to measure water table depth at locations where riparian vegetation might potentially be impacted by pumping. In 2021, six shallow monitoring wells were installed at selected locations near the Pajaro River, Pacheco Creek, San Benito River (three sites), and Tres Pinos Creek. Monitoring has begun and will be continued by SBCWD for inclusion in future annual reports and periodic GSP updates.

6-WATER MANAGEMENT ACTIVITIES

Long-term Funding

Groundwater sustainability necessitates the continuation of activities including monitoring, data compilation, data analysis, numerical model update, public outreach and annual reporting, five-year GSP updates, investigations, coordination with other agencies, and program administration. While SBCWD has conducted such activities, SGMA requirements are more comprehensive and rigorous. In addition, the extent of activities encompasses the entire North San Benito Groundwater Basin. Accordingly, the GSP identifies management actions to provide for long-term, basin wide funding.

This section describes SBCWD's ongoing sources of operating revenue for Zone 6 and presents an update on establishment of a groundwater management fee for the entirety of the North San Benito Basin.

Financial Information

The District derives its operating revenue from charges levied on landowners and water users. Non-operating revenue is generated from property taxes, interest, standby and availability charges, and grants. District zones of benefit are listed in **Appendix A**. Zone 6 charges, relating to the importation and distribution of CVP water, are the focus of this section. A brief Annual Groundwater Memorandum Report (Appendix A) was presented to the SBCWD Board of Directors on January 10, 2022 including the recommended groundwater rates and presenting the technical justification for the rates.

Table 5-1 presents the groundwater charges for Zone 6 water users, which reflect costs associated with monitoring and management. A full worksheet of how groundwater charges are determined can be found in **Appendix F**. Groundwater charges are adjusted annually in March. For March 2021 – February 2022, District rates are $13.55 for agricultural use and $40.55 for M&I use. The District adopts rates on a three-year cycle.

TABLE 6-1. ADOPTED GROUNDWATER CHARGES

Year	Agriculture ($/AF)	M&I ($/AF)
2021-2022	$13.55	$40.55
2022-2023	$13.55	$40.55

CVP rates (provided by the USBR) include the cost of service, restoration fund payment, charges for maintenance of San Luis Delta Mendota Water Authority facilities, and other fees (the breakdown is found in **Appendix F**). The District's blue valve rates (paid by users of CVP water) include a water charge and a power charge. Additionally, the standby and availability charge is a $6 per-acre charge assessed on all parcels with access to CVP water (an active or idle turnout from the distribution system). **Table 5-2** shows the CVP water charge and **Table 5-3** shows the CVP power charge.

TABLE 6-2. ADOPTED BLUE VALVE WATER CHARGES

Blue Valve Water Charge ($/AF)					
	Agricultural			Municipal & Industrial	
Year	Non - Full Cost	Full Cost (1a)	Full Cost (1b)	Small Parcel & Contract	Wholesale
2021-2022	$274.00	$411.00	$433.00	$424.00	$424.00
2022-2023	$274.00	$411.00	$433.00	$424.00	$647.00

TABLE 6-3. ADOPTED BLUE VALVE POWER CHARGES

Blue Valve Power Charge ($/AF)	Subsystem 2	Subsystem 6H	Subsystem 9L	Subsystem 9H	All other subsystems
2021-2022	$85.35	$41.50	$93.55	$138.25	$35.75
2022-2023	$85.35	$41.50	$93.55	$138.25	$35.75

Recycled water charges (**Table 5-4**) are set to recover current operating and maintenance costs related to the water service. Recycled water rates include those associated with water supply, water quality, and infrastructure.

TABLE 6-4. ADOPTED RECYCLED WATER CHARGES

Recycled Water ($/AF)		
Effective	Agriculture Rate	Power Charge
3/1/2021	$210.00	$61.85
4/1/2022	$211.00	$63.09

Groundwater Management Fee

The District is authorized by California Water Code Section 10730(a), to collect fees to recover costs for GSP development, monitoring, and GSP Annual Reports. In July 2021, the SBCWD Board of Directors passed two resolutions respectively to levy a groundwater management fee and to request that the County of San Benito collect the groundwater management fee on the property tax rolls. The groundwater management fee is based on assessor's parcels and acreage, as the most appropriate way to ensure property owners are paying their fair share toward cost recovery. The annual rates are shown in **Table 6-5**.

Land categories as outlined below have been identified as the basis for application of fees to land within the basin:

- Valley areas overlying productive portions of the basin and benefitting significantly from GSP development and implementation, including major municipal and industrial areas, will be charged a land-based fee.
- Upland areas (UA) with less access to groundwater and insignificant benefit of groundwater management and GSP development will not be charged a fee.

TABLE 6-5. GROUNDWATER MANAGEMENT FEE

Groundwater Management Fee ($/Acre)	
2021-2022	$5.77
2022-2023	$5.92
2023-2024	$6.07
2024-2025	$6.23
2025-2026	$6.39

Those who receive their water through municipal agencies pay fees to their respective agencies. All other landowners are charged a fee as part of their San Benito County tax bill. It is expected that the District will have sufficient data to revise the Groundwater Management Fee to account for cost-recovery of extraction measurements during the Periodic Update of the GSP, in five years.

7-GROUNDWATER SUSTAINABILITY

SGMA Indicators

Of the six sustainability criteria developed by DWR, five are relevant to North San Benito Basin (seawater intrusion is not relevant). As documented in the GSP, the basin has been and is being managed sustainably relative to all criteria. Accordingly, sustainability does not need to be achieved, but it does need to be maintained through the planning and implementation horizon. This will involve continuation and improvement of existing management actions—most notably import of Central Valley Project (CVP) water and its conjunctive use with groundwater. It also will include improvement and expansion of management actions and monitoring.

TABLE 7-1. SGMA INDICATORS

	Indicator	Status of Minimum Threshold
	Groundwater-Level Declines	Compile water level data. Compare key wells elevations with MTs
	Groundwater-Storage Reductions	Compute groundwater storage using the numerical model.
	Water-Quality Degradation	Compile water quality data. Summarize the findings for the triennal review.
	Land Subsidence	Download and review DWR InSar data
	Interconnected Surface-Water Depletions	Review key shallow wells elevations with MTs

While the North San Benito Basin has been managed sustainably, the following sustainability criteria were defined in the GSP because potential exists for undesirable results.

- The Minimum Threshold relative to **chronic lowering of groundwater levels** is defined at designated Key Wells by historical groundwater low levels adjusted to provide reasonable protection to nearby wells. Undesirable results are indicated when two consecutive exceedances occur in each of two consecutive years, in 60 percent or more of the Key Wells (e.g., three of five wells) in each Management Area. The Measurable Objective is to maintain groundwater levels above the MTs and to maintain groundwater levels within the historical operating range.

- The Minimum Threshold for **reduction of storage** for all Management Areas is fulfilled by the minimum threshold for groundwater levels as proxy. The Measurable Objective for storage is fulfilled by the MT for groundwater levels, which maintains groundwater levels within the historical operating range.
- The Minimum Threshold for **land subsidence** is defined as a rate of decline equal to or greater than 0.2 feet in any five-year period. This has been considered in terms of a potential cumulative decline equal to or greater than one foot of decline since 2015; 2015 represents current conditions and the SGMA start date. The extent of cumulative subsidence across the basin will be monitored and evaluated using InSAR and UNAVCO data. Subsidence is closely linked to groundwater levels, and it is unlikely that significant inelastic subsidence would occur if groundwater levels remain above minimum thresholds.
- The Minimum Thresholds for **degradation of water quality** address nitrate and TDS for each MA. The MT for nitrate is defined initially as the percentage of wells with concentrations exceeding the nitrate Maximum Contaminant Limit (MCL) (45 mg/L) based on current conditions (2015-2017). The MT for TDS is defined initially as the percentage of wells with concentrations exceeding the TDS value of 1,200 mg/L based on current conditions. The Measurable Objectives for both are defined as maintaining or reducing the percentage of wells with median concentrations exceeding the MTs.
- The Minimum Threshold for **depletion of interconnected surface water** is the amount of depletion associated with the lowest water levels during the 1987-1992 drought, with some adjustments made for wells with groundwater levels lower in 2016 than in 1992. Undesirable results would occur if more than 25 percent of monitored wells within 1 mile of a shallow water table reach along the Pajaro River, Pacheco Creek, San Benito River, or Tres Pinos Creek had static spring water levels lower than the lowest static spring water level during 1987-1992.

Updates on SGMA Indicators

Chronic lowering of groundwater levels. Sustainability criteria (minimum thresholds and measurable objectives) for groundwater levels rely on a network of representative monitoring wells (Key Wells). The MT for specific wells was based on its historical low levels and adjusted as needed to minimize any risk to nearby domestic wells of future low-water levels. For each Management Area, **Figures 3-4 through 3-7** show the Key Well hydrographs and their respective MTs for groundwater levels. Current water levels are above the MT in all Key Wells. **Table 7-3** lists the 22 Key Wells and their respective MTs, as well as the minimum groundwater elevation for WY 2021. Groundwater elevations were measured above the MT in 17 wells, three wells were flowing artesian wells (and thus above the MT), and two wells were listed as temporarily inaccessible. Overall, the data indicate that the basin is not currently affected by undesirable results due to chronic lowering of groundwater levels.

TABLE 7-2. KEY WELLS

Groundwater Level Key Well	MA	Minimum Threshold Depth to Water (ft-bgs)	Minimum Threshold Elevation ft (NAVD 88)	Minimum Groundwater Elevation ft WY 2021
11-4-25H2	Bolsa	145.0	4.0	63.5
11-5-21E2	Bolsa	63.0	92.0	Artesian
11-5-28B1	Bolsa	102.0	66.0	Artesian
12-5-06L1	Bolsa	176.0	1.0	140.6
12-5-17D1	Bolsa	185.0	32.0	54.0
11-5-13D1	Hollister	97.0	161.0	202.2
11-5-35G1	Hollister	104.0	102.0	173.8
12-5-03B1	Hollister	96.0	86.0	Artesian
12-5-24N1	Hollister	160.0	110.0	Temporarily inaccessible
12-5-34P1	Hollister	150.0	144.0	222.5
12-6-06L4	Hollister	64.0	184.0	215.0
13-6-19K1	Hollister	109.0	313.0	357.8
12-4-17L20	San Juan	47.0	93.0	117.5
12-4-26G1	San Juan	152.0	58.0	146.7
13-4-01K1	San Juan	75.0	148.0	Temporarily inaccessible
13-4-03H1	San Juan	155.0	52.0	139.3
13-5-6L1	San Juan	110.0	131.5	127.1
14-6-13B1	Southern	59.0	637.0	637.4
14-6-26F0	Southern	45.0	556.0	635.9
14-6-26H1	Southern	136.0	609.0	626.5
14-6-26K1	Southern	73.0	623.0	638.4
14-7-20K1	Southern	79.0	687.0	711.4

Reduction of storage. This indicator is tracked using the groundwater levels at key wells as a proxy. In addition, the change in groundwater in storage is estimated by the numerical model (Section 4). The groundwater level data indicate that the basin is not currently affected by undesirable results due to depletion of groundwater storage.

Land Subsidence. Land subsidence is tracked using the regional InSAR data and the site-specific UNAVCO station data provided by DWR) on its SGMA Data Viewer (DWR 2021). While the UNAVCO data for station P242 continue to indicate land surface decline at that site in Bolsa MA, the newly released InSAR data set (v2021) shows no negative displacement across the North San Benito Basin. A more comprehensive analysis of the potential for subsidence will be included in the five-year GSP update.

Degradation of water quality. Water quality (TDS, nitrate) continues to be monitored in the SBCWD Water Quality Monitoring Program. The annual data were reviewed for any trends and updated to the DMS. However, it is recognized that the water quality Minimum Threshold is based on the Triennial Update, which compiles data from the State Division of Drinking Water, Regulated Facilities, and Irrigated Lands Program. These involve data collection on various schedules but generally within three years. A detailed analysis and comparison of triennial data with the Minimum Thresholds will be performed as part of the Periodic Evaluation of the GSP in five years.

Depletion of interconnected surface water. Nineteen wells are currently monitored for water levels within 1 mile of stream reaches where spring depth to water is typically 20 feet or less and are not separated from the reach by a fault. The locations of the wells are shown as orange dots in **Figure 3-4** through **3-7** for each management area. The MT for these wells is based on spring 1992 water levels or in some cases Spring 2016, whichever was lower. **Table 7-3** lists the nineteen wells and their respective MTs, as well as the groundwater elevation for Spring 2021. Based on spring water levels, 16 wells had groundwater elevations measured above the MT and one well was a flowing artesian and thus above the MT. One well was listed as temporarily inaccessible. Only one of the key wells for surface water interconnection was below the MT. More analysis is needed at this well to understand the seasonal variation. Future monitoring will include monthly sampling to provide more baseline data about the spring season. This one well represents six percent of the total monitored in Spring 2021. To represent an undesirable result, the MT indicates that 25 percent of wells would show levels below the MT. This has not occurred as of 2021.

TABLE 7-3. INTERCONNECTED SURFACE WATER WELLS

Surface Water / GDE Key Well	Spring MT Groundwater Elevation (ft NAVD88)	Depth to Water (ft)	Groundwater Elevation ft Spring 2021	Above MT
11-4-26B1	127.0	18.0	130.9	Y
11-4-34A1	128.0	14.0	131.6	Y
11-5-13D1	214.0	44.0	217.0	Y
11-5-20N1	90.0	61.0	85.6	N
11-5-27P2	122.0	64.0	170.8	Y
11-5-28B1	128.0	39.0	Artesian	Y
12-4-17L20	113.0	27.0	122.3	Y
12-4-21M1	120.0	51.0	145.1	Y
12-4-26G1	114.0	96.0	173.5	Y
12-4-34H1	117.0	82.0	147.4	Y
13-5-11E1	220.0	87.0	264.1	Y
13-5-13F1	316.0	31.0	331.8	Y
13-6-19J1	412.0	38.0	Temporarily inaccessible	-
13-6-19K1	341.0	81.0	361.9	Y
14-6-13B1	633.0	63.0	640.7	Y
14-6-35B1	637.0	69.0	639.6	Y
14-6-26K1	618.0	50.0	636.5	Y
14-6-26F0	624.0	68.0	640.5	Y
14-6-26H1	620.0	62.0	653.9	Y

8-RECOMMENDATIONS

District policies and programs have served to effectively manage water resources for many years. The District, working collaboratively with other agencies, has eliminated historical overdraft through importation of CVP water, has developed and managed multiple sources of supply to address drought, has established an active and effective water conservation program, has initiated programs to protect water quality, and has improved delivered water quality to many municipal customers. The District also has provided consistent reporting and outreach. The following recommendations are responsive to the District Act and support effective management consistent with SGMA.

Monitoring Programs

Through GSP implementation, the monitoring programs will continue to be improved to provide the SBCWD Board of Directors with information to support management of the groundwater supplies of the District and its zones. Detailed monitoring recommendations are being developed as part of the GSP, including accurate measurement of groundwater pumping, which has been identified as an important data gap. Accurate groundwater production data is consistent not only with SGMA but also with the District Act, by which the Board of Directors can order an Annual Report, which reports on total production of water from the groundwater supplies of the District during the water year. This supports the following recommendations, provided in response to the District Act, as to the quantity of water needed for surface delivery and for replenishment of groundwater supplies, and whether or not a groundwater charge should be levied and if so, what rate per acre-foot.

Groundwater Production and Replenishment

Past District percolation operations helped to reverse historical overdraft and then accumulate a water supply reserve. The District currently manages groundwater storage and surface water to minimize excessively high or low groundwater elevations on a temporal and geographic basis. The District should continue to operate Hernandez and Paicines to improve downstream groundwater conditions. In 2021, the District provided off-channel percolation of CVP water; this too should be continued given availability of CVP water and persistence of local low groundwater levels. Basin-wide analysis of opportunities for additional percolation is being conducted as part of the Round 3 Managed Aquifer Recharge Study to develop additional percolation capacity to capture and store available imported water when available; such replenishment operations are critical to sustainable groundwater supply.

Groundwater Charges

The groundwater charge for the USBR contract year (March 2022-February 2023) is recommended to be $13.55 per AF for agricultural use in Zone 6 and a groundwater charge of $40.55 per AF is recommended for M&I use. The District adopts rates on a three-year cycle. Current water rates were adopted January 30, 2019.

9-REFERENCES

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APPENDIX A REPORTING REQUIREMENTS

SGMA Annual Report Elements Guide

SGMA Annual Report Data Upload

List of Tables

Water Code Appendix 70 Excerpts

Memorandum Report:

San Benito County Water District Annual Groundwater Report
for January 10, 2022 Meeting of the Board of Directors

Groundwater Sustainability Plan Annual Report Elements Guide

Basin Name			
GSP Local ID			
California Code of Regulations - GSP Regulation Sections	***Groundwater Sustainability Plan Elements***	**Document *page number(s) that address the applicable GSP element.***	***Notes: Briefly describe the GSP element does not apply.***
Article 5	**Plan Contents**		
Subarticle 4	***Monitoring Networks***		
§ 354.40	**Reporting Monitoring Data to the Department**		
	Monitoring data shall be stored in the data management system developed pursuant to Section 352.6. A copy of the monitoring data shall be included in the Annual Report and submitted electronically on forms provided by the Department.	21-28;101-102	
	Note: Authority cited: Section 10733.2, Water Code. Reference: Sections 10728, 10728.2, 10733.2 and 10733.8, Water Code.		
Article 7	**Annual Reports and Periodic Evaluations by the Agency**		
§ 356.2	**Annual Reports**		
	Each Agency shall submit an annual report to the Department by April 1 of each year following the adoption of the Plan. The annual report shall include the following components for the preceding water year:		
	(a) General information, including an executive summary and a location map depicting the basin covered by the report.	9-11	
	(b) A detailed description and graphical representation of the following conditions of the basin managed in the Plan:		
	(1) Groundwater elevation data from monitoring wells identified in the monitoring network shall be analyzed and displayed as follows:		
	(A) Groundwater elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.	43-45	
	(B) Hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year.	21-28	
	(2) Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in a table that summarizes groundwater extractions by water use sector, and identifies the method of measurement (direct or estimate) and accuracy of measurements, and a map that illustrates the general location and volume of groundwater extractions.	41; 58	
	(3) Surface water supply used or available for use, for groundwater recharge or in-lieu use shall be reported based on quantitative data that describes the annual volume and sources for the preceding water year.	52-58; 60-62;107-112	

California Code of Regulations - GSP Regulation Sections	*Groundwater Sustainability Plan Elements*	**Document** *page number(s) that address the applicable GSP element.*	*Notes: Briefly describe the GSP element does not apply.*
	(4) Total water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type, and identifies the method of measurement (direct or estimate) and accuracy of measurements. Existing water use data from the most recent Urban Water Management Plans or Agricultural Water Management Plans within the basin may be used, as long as the data are reported by water year.	41;58; 83-86	
	(5) Change in groundwater in storage shall include the following:		
	(A) Change in groundwater in storage maps for each principal aquifer in the basin.	47	
	(B) A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.	119-122	
	(c) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.	63-76	

Basin Number	**3-003.05**
Water Year	2021 (Oct. 2020 - Sept. 2021)
Total Groundwater Extractions (AF)	107,513
Water Use Sector Urban (AF)	4,468
Water Use Sector Industrial (AF)	
Water Use Sector Agricultural (AF)	103,045
Water Use Sector Managed Wetlands (AF)	
Water Use Sector Managed Recharge (AF)	-
Water Use Sector Native Vegetation (AF)	-
Water Use Sector Other (AF)	
Water Use Sector Other Description	Urban includes all municipal and industrial uses

Basin Number	3-003.05
Water Year	2021 (Oct. 2020 - Sept. 2021)
Meters Volume (AF)	-
Meters Description	
Meters Type	
Meters Accuracy (%)	
Meters Accuracy Description	
Electrical Records Volume (AF)	
Electrical Records Description	
Electrical Records Type	
Electrical Records Accuracy (%)	
Electrical Records Accuracy Description	
Land Use Volume (AF)	
Land Use Description	
Land Use Type	
Land Use Accuracy (%)	
Land Use Accuracy Description	
Groundwater Model Volume (AF)	107,513.0
Groundwater Model Description	Numerical Model developed for the GSP and updated for the Annual Report
Groundwater Model Type	MODFLOW
Groundwater Model Accuracy (%)	UNK
Groundwater Model Accuracy Description	Without data on the actual water use it is impossible to calculate the % accuracy
Other Method(s) Volume (AF)	
Other Method(s) Description	
Other Method(s) Type	
Other Method(s) Accuracy (%)	
Other Method(s) Accuracy Description	

Basin Number	3-003.05
Water Year	2021 (Oct. 2020 - Sept. 2021)
Methods Used To Determine	Meters
Water Source Type Central Valley Project (AF)	9,421
Water Source Type State Water Project (AF)	-
Water Source Type Colorado River Project (AF)	-
Water Source Type Local Supplies (AF)	-
Water Source Type Local Imported Supplies (AF)	-
Water Source Type Recycled Water (AF)	426
Water Source Type Desalination (AF)	-
Water Source Type Other (AF)	-
Water Source Type Other Description	-

Basin Number	3-003.05
Water Year	2021 (Oct. 2020 - Sept. 2021)
Total Water Use (AF)	117,360
Methods Used To Determine	
Water Source Type Groundwater (AF)	107,513
Water Source Type Surface Water (AF)	
Water Source Type Recycled Water (AF)	426
Water Source Type Reused Water (AF)	
Water Source Type Other (AF)	9,421
Water Source Type Other Description	CVP
Water Use Sector Urban (AF)	7,830
Water Use Sector Industrial (AF)	
Water Use Sector Agricultural (AF)	109,530
Water Use Sector Managed Wetlands (AF)	
Water Use Sector Managed Recharge (AF)	
Water Use Sector Native Vegetation (AF)	-
Water Use Sector Other (AF)	
Water Use Sector Other Description	Urban includes all municipal and industrial use.

APPENDIX A REPORTING REQUIREMENTS

The San Benito County Water District Act (1953) is codified in California Water Code Appendix 70. Section 70-7.6 authorizes the District Board of Directors to require the District to prepare an annual groundwater report; this report addresses groundwater conditions of the District and its zones of benefit (**Table A-1**) for the water year, which begins October 1 of the preceding calendar year and ends September 30 of the current calendar year. The Board has consistently ordered preparation of Annual Reports, and the reports have included the contents specified Section 70-7.6:

- An estimate of the annual overdraft for the current water year and for the ensuing water year
- Information for the consideration of the Board in its determination of the annual overdraft and accumulated overdraft as of September 30 of the current year
- A report as to the total production of water from the groundwater supplies of the District and its zones as of September 30 of the current year
- Information for the consideration of the Board in its determination of the estimated amount of agricultural water and the estimated amount of water other than agricultural water to be withdrawn from the groundwater supplies of the District and its zones
- The amount of water the District is obligated to purchase during the ensuing water year
- A recommendation as to the quantity of water needed for surface delivery and for replenishment of the groundwater supplies of the District and its zones during the ensuing water year
- A recommendation as to whether or not a groundwater charge should be levied in any zone(s) of the District in the ensuing water year and if so, a rate per acre-foot for all water other than agricultural water for such zone(s)
- Any other information the Board requires.

The full text of Appendix 70, Section 70-7.6 through 7.8 is enclosed in this appendix.

Table A-1. District Zones of Benefit

Zone	Area	Provides
1	Entire County	Specific District administrative expenses
3	San Benito River Valley (Paicines to San Juan) and Tres Pinos River Valley (Paicines to San Benito River)	Operation of Hernandez and Paicines reservoirs and related groundwater recharge and management activities
6	San Juan, Hollister East, Hollister West, Pacheco, Bolsa SE, and Tres Pinos subbasins	Importation and distribution of CVP water and related groundwater management activities

Previous annual reports have addressed specific topics that have included water quality, salt loading, shallow wells, and others. These are listed in **Table A-2.**

Table A-2. Special Topics in Previous Annual Reports

Water Year	Additional Analyses and Reporting
2000	Methodology to calculate water supply benefits of Zone 3 and 6 operations
2001	Preliminary salt balance
2002	Investigation of individual salt loading sources
2003	Documentation of nitrate in supply wells, drains, monitor wells, San Juan Creek
2004	Documentation of depth to groundwater in shallow wells
2005	Tabulation of waste discharger permit conditions and recent water quality monitoring results
2006	Rate study
2007	Water quality update
2008	Water budget update
2009	Water demand and supply
2010	Water quality update
2011	Water budget update
2012	Land use update
2013	Water quality update
2014	Water balance update and Groundwater Sustainability
2015	Groundwater Sustainability – Basin Boundaries and GSAs
2016	Water quality update
2017	Water budget update
2018	GSP Update
2019	Water quality update

Water Code Appendix 70 Excerpts

Section 70-7.6. Groundwater; investigation and report: recommendations San Benito County

Sec. 7.6. the board by resolution require the district to annually prepare an investigation and report on groundwater conditions of the district and the zones thereof, for the period from October 1 of the preceding calendar year through September 30 of the current year and on activities of the district for protection and augmentation of the water supplies of the district and the zones thereof. The investigation and report shall include all of the following information:

(a) Information for the consideration of the board in its determination of the annual overdraft.

(b) Information for the consideration of the board in its determination of the accumulated overdraft as of September 30 of the current calendar year.

(c) A report as to the total production of water from the groundwater supplies of the district and the zones thereof as of September 30 of the current calendar year.

(d) An estimate of the annual overdraft for the current water year and for the ensuing water year.

(e) Information for the consideration of the board in its determination of the estimated amount of agricultural water and the estimated amount of water other than agricultural water to be withdrawn from the groundwater supplies of the district and the zones thereof for the ensuing water year.

(f) The amount of water the district is obligated to purchase during the ensuing water year.

(g) A recommendation as to the quantity of water needed for surface delivery and for replenishment of the groundwater supplies of the district and the zones thereof the ensuing water year.

(h) A recommendation as to whether or not a groundwater charge should be levied in any zone or zones of the district during the ensuing year.

(i) If any groundwater charge is recommended, a proposal of a rate per acre-foot for agricultural water and a rate per acre-foot for all water other than agricultural water for such zone or zones.

(j) Any other information the board requires.

(Added by Stats. 1965, c. 1798, p.4167, 7. Amended by Stats.1967,c.934, 5, eff. July27,1967; Stats. 1983, c. 402, 1; Stats. 1998, c. 219 (A.B.2135), 1.)

Section 70-7.7. Receipt of report; notice of hearing; contents; hearing

Sec. 7.7. (a) On the third Monday in December of each year, the groundwater report shall be delivered to the clerk of the board in writing. The clerk shall publish, pursuant to Section 6061 of the Government Code, a notice of the receipt of the report and of a public hearing to be held on the second Monday of January of the following year in a newspaper of general circulation printed and published within the district, at least 10 days prior to the date at which the public hearing regarding the groundwater report shall be held. The notice shall include, but is not limited to, an invitation to all operators of water producing facilities within the district to call at the offices of the district to examine the groundwater report.

(b) The board shall hold, on the second Monday of January of each year, a public hearing, at which time any operator of a water-producing facility within the district, or any person interested in the condition of the groundwater supplies or the surface water supplies of the district, may in person, or by representative, appear and submit evidence concerning the groundwater conditions and the surface water supplies of the district. Appearances also may be made supporting or protesting the written groundwater report, including, but not limited to, the engineer's recommended groundwater charge.

(Added by Stats. 1965, c. 1798, p. 4167, 8. Amended by Stats. 1983, c. 02,2; Stats. 1998, c. 219 (A.B.2135,2.)

Section 70-7.8. Determination of groundwater charge; establishment of rates; zones; maximum charge; clerical errors

Sec. 7.8. (a) Prior to the end of the water year in which a hearing is held pursuant to subdivision (b) of Section 7.7, the board shall hold a public hearing, noticed pursuant to Section 6061 of the government Code, to determine if a groundwater charge should be levied, it shall levy, assess, and affix such a charge or charges against all persons operating groundwater- producing facilities within the zone or zones during the ensuing water year. The charge shall be computed at fixed and uniform rate per acre-foot for agricultural water, and at a fixed and uniform rate per acre-foot for all water other than agricultural water. Different rates may be established in different zones. However, in each zone, the rate for agricultural water shall be fixed and uniform and the rate for water other than agricultural water shall be fixed and uniform. The rate for agricultural water shall not exceed one-third of the rate for all water other than agricultural water.

(b) The groundwater charge in any year shall not exceed the costs reasonably borne by the district in the period of the charge in providing the water supply service authorized by this act in the district or a zone or zones thereof.

(c) Any groundwater charge levied pursuant to this section shall be in addition to any general tax or assessment levied within the district or any zone or zones thereof.

(d) Clerical errors occurring or appearing in the name of any person or in the description of the water-producing facility where the production of water there from is otherwise properly charged, or in the making or extension of any charge upon the records which do not affect the substantial rights of the assesse or assesses, shall not invalidate the groundwater charge.

(Added by Stats. 1965, c. 1798, p. 4168, 9. Amended by Stats. 1983, c. 402, 3; Stats.1983, c. 402, 3; Stats. 1998, c. 219 (A.B.2135), 3.)

APPENDIX A REPORTING REQUIREMENTS

Memorandum Report:

San Benito County Water District Annual Groundwater Report
for January 10, 2022 Meeting of the Board of Directors

TODD GROUNDWATER

January 5, 2022

MEMORANDUM REPORT

To: Jeff Cattaneo, San Benito County Water District

From: Iris Priestaf, PhD and Maureen Reilly, PE

Re: San Benito County Water District Annual Groundwater Report for January 10, 2022 Meeting of the Board of Directors

The San Benito County Water District (District or SBCWD) was formed in 1953 by a special act (District Act) of the State with responsibility and authority to manage groundwater. The District Act authorizes the Board of Directors, at its discretion, to direct staff to prepare an annual report on groundwater conditions of the District and its zones of benefit, such as Zone 6, the area for distribution of Central Valley Project (CVP) water. The groundwater report (addressing the previous water year from October 1 through September 30) also summarizes activities of the District for protection and augmentation of water supplies and provides management recommendations. Annual Groundwater Reports have been prepared since the 1970s and District Act requirements are listed in Appendix A of recent reports.

In response to the 2014 Sustainable Groundwater Management Act (SGMA), the District has become the exclusive Groundwater Sustainability Agency (GSA) for the North San Benito Groundwater Basin (Basin) in San Benito County, has led preparation of a Groundwater Sustainability Plan (GSP) for the basin, and has initiated preparation of the first Annual Report in accordance with SGMA and consistent with the District Act. The SGMA Annual Report is planned for completion before April 1, 2022.

This brief Memorandum Report has been prepared at the direction of the SBCWD Board of Directors to address requirements of the District Act, while recognizing that the SGMA Annual Report will provide the substantial documentation that has been presented in previous Annual Groundwater Reports.

Groundwater Basin Conditions

As documented in the GSP, the Basin is not in overdraft. Historical overdraft was halted through importation of CVP water and other management actions. In Water Year 2020-2021 State-wide drought conditions prevailed, and in March 2021, CVP allocations were reduced to zero for agricultural uses and to 25 percent of the SBCWD contract for M&I uses. Consistent with the coordinated use of available surface water supplies and groundwater, Zone 6 groundwater production increased in 2020-2021 relative to previous years (Table 1).

Table 1. Groundwater Production in Zone 6 by Water Year, acre-feet per year

	2018-2019	2019-2020	2020-2021*
Agriculture	15,423	17,021	22,356
Municipal & Industrial	2,660	3,514	4,448
* preliminary values			

While a drought year such as 2020-2021 may be characterized by increased pumping, short-term groundwater level decline, and storage depletion, North San Benito Basin groundwater levels and storage reserves are managed to stay above quantitative minimum thresholds that are protective of beneficial uses of groundwater.

Water Supplies and Management Activities

As described in the previous Annual Reports, water supply sources available in Zone 6 include local groundwater, imported CVP water, recycled water, and local surface water. These are used conjunctively with the groundwater basin providing important storage. Management actions (also described in the GSP Chapter 8) involve water importation, local water storage, managed aquifer recharge, and water recycling. SBCWD has a contract with USBR for 35,550 and 8,250 AFY of imported water for agricultural and for M&I use, respectively. CVP allocations were reduced to zero for agricultural uses and to 25 percent of contract for M&I uses. Ongoing activities include monitoring, data compilation and analysis, numerical modeling, water conservation, water quality improvement programs, stakeholder outreach, reporting, and administrative activities among others that contribute to long-term sustainability.

Recommendations

The following recommendations are responsive to the District Act:

- The District should continue to purchase and supply all imported CVP water available under the SBCWD contract and any additional supplies that can reasonably be attained.
- The District should continue to operate Hernandez and Paicines reservoirs for downstream percolation to improve downstream groundwater conditions.
- The District should continue off-channel percolation of CVP water as available and expand percolation capabilities.
- A groundwater charge should be levied in Zone 6 as substantiated and recommended in the 2021 Annual Groundwater Report. The groundwater charge for the USBR contract year (March 2022-February 2023) is recommended to be $13.55 per AF for agricultural use in Zone 6 and a groundwater charge of $40.55 per AF is recommended for M&I use.

APPENDIX B CLIMATE DATA

List of Tables and Figures

Table B-1. Monthly Precipitation at the SBCWD CIMIS Station (inches)

Water Year	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL	% Normal
1996	0.12	0.01	2.21	4.38	4.52	1.56	1.33	1.32	0.00	0.01	0.00	0.00	15.46	117%
1997	0.96	3.16	4.26	6.84	0.21	0.09	0.19	0.02	0.10	0.00	0.00	0.03	15.86	120%
1998	0.16	3.78	2.59	4.94	9.06	2.70	2.31	2.40	0.09	0.02	0.00	0.08	28.13	213%
1999	0.54	1.93	0.79	2.54	2.49	1.52	0.67	0.06	0.07	0.00	0.00	0.00	10.61	80%
2000	0.14	0.98	0.11	4.05	4.53	0.68	0.40	0.45	0.10	0.00	0.00	0.02	11.46	87%
2001	3.54	0.80	0.23	2.86	2.77	0.62	2.20	0.01	0.01	0.03	0.02	0.00	13.09	99%
2002	0.70	11.48	11.93	0.66	1.15	1.57	0.37	0.28	0.00	0.00	0.00	0.00	28.14	213%
2003	0.00	1.67	5.04	0.77	1.41	1.06	3.05	0.06	0.00	0.00	0.06	0.00	13.12	99%
2004	0.20	0.60	5.25	1.31	4.21	0.59	0.27	0.08	0.01	0.00	0.00	0.01	12.53	95%
2005	1.95	0.54	3.46	2.49	2.89	3.42	0.83	0.64	0.43	0.00	0.00	0.04	16.69	126%
2006	0.07	0.27	3.08	1.49	1.01	4.96	1.73	0.39	0.01	0.00	0.02	0.01	13.04	99%
2007	0.20	0.73	1.69	0.57	2.22	0.29	0.55	0.02	0.00	0.02	0.00	0.43	6.72	51%
2008	0.71	0.67	0.92	4.56	2.06	0.09	0.06	0.00	0.00	0.00	0.00	0.00	9.07	69%
2009	0.28	1.05	1.89	0.35	3.73	1.83	0.20	0.47	0.00	0.00	0.00	0.15	9.95	75%
2010	0.50	0.02	1.31	2.29	2.19	1.74	3.44	0.61	0.00	0.01	0.00	0.00	12.11	92%
2011	0.72	1.85	2.59	1.57	2.63	2.33	0.19	0.78	0.30	0.00	0.00	0.00	12.96	98%
2012	0.69	0.96	0.07	0.81	0.46	2.34	1.39	0.26	0.09	0.00	0.00	0.00	7.07	54%
2013	0.01	2.23	1.15	1.35	0.64	0.46	0.30	0.02	0.01	0.00	0.03	0.10	6.30	48%
2014	0.07	0.37	0.17	0.22	1.91	1.59	0.86	0.02	0.00	0.00	0.00	0.14	5.35	41%
2015	1.57	0.48	5.78	0.02	1.20	0.22	0.24	0.87	0.00	0.01	0.09	0.08	10.56	80%
2016	0.22	3.65	1.58	3.98	0.57	3.72	0.79	0.05	0.08	0.08	0.06	0.10	14.88	113%
2017	1.77	2.48	3.33	4.66	6.05	1.70	1.09	0.50	0.32	0.00	0.02	0.00	21.92	166%
2018	0.20	1.12	0.19	2.39	0.29	2.74	1.33	0.00	0.00	0.00	0.00	0.00	8.26	63%
2019	0.17	2.52	1.48	2.24	4.02	2.55	0.25	1.95	0.20	0.00	0.00	0.00	15.38	117%
2020	0.00	1.40	3.69	1.39	0.00	2.78	1.18	0.42	0.24	0.13	0.02	0.00	11.25	85%
2021	0.00	0.42	0.77	3.82	0.28	1.28	0.01	0.00	0.00	0.00	0.00	0.00	6.58	50%
AVG	0.62	1.79	2.59	2.35	2.49	1.73	1.01	0.47	0.08	0.01	0.01	0.05	13.20	100%

-The CIMIS value for September 2017 (2.4") includes measurement error due to irrigation overspray. The corrected District value is 0".
-The CIMIS value for February, May, June, and August 2018 (0.8", 2.6", 0.1", 0.03") includes measurement error due to irrigation overspray. The corrected District value is 0.3" for February and 0" for all other months.
-The CIMIS value for October and November 2018 included measurement error due to irrigation overspray. The corrected District value is 0.17" for October and 2.52" for November (WRCC Hollister2 Station)

Table B-2. Reference Evapotranspiration at the SBCWD CIMIS Station (inches)

Water Year	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL	% Normal
1996	3.88	2.24	1.22	1.48	1.88	3.67	5.10	6.06	6.73	7.39	6.68	4.71	51.04	104%
1997	3.84	1.84	1.37	1.38	2.48	4.27	5.84	7.51	7.13	7.18	6.71	5.67	55.22	112%
1998	3.85	1.84	1.52	1.29	1.38	2.82	4.26	4.53	5.27	6.91	6.83	4.72	45.22	92%
1999	3.51	1.73	1.52	1.54	1.84	3.01	4.72	5.80	6.66	6.92	5.91	4.67	47.83	97%
2000	4.00	1.98	1.89	1.22	1.62	3.69	5.14	6.04	6.73	6.74	6.19	4.74	49.98	101%
2001	2.91	1.71	1.47	1.47	1.81	3.07	3.90	6.15	6.54	6.02	6.23	4.75	46.03	93%
2002	3.51	1.91	1.24	1.53	2.26	3.66	4.21	6.37	7.05	7.24	6.14	5.39	50.51	102%
2003	3.57	1.94	1.25	1.56	1.80	3.87	3.79	6.00	6.47	7.29	6.15	5.07	48.76	99%
2004	4.11	1.73	1.24	1.32	1.72	3.98	5.19	6.38	6.71	6.63	5.98	5.32	50.31	102%
2005	3.08	1.69	1.44	1.30	1.69	2.95	4.38	5.74	6.36	6.86	6.13	4.55	46.17	94%
2006	3.59	2.00	1.19	1.43	2.18	2.43	3.00	5.49	6.41	7.02	5.60	4.38	44.72	91%
2007	3.28	1.69	1.37	1.77	1.77	4.11	4.76	6.29	6.89	6.79	6.46	4.65	49.83	101%
2008	3.48	2.21	1.44	1.25	2.03	3.76	5.17	5.97	6.88	6.74	6.31	5.00	50.24	102%
2009	3.82	1.87	1.36	1.70	1.72	3.51	4.83	5.53	6.31	7.08	6.31	5.30	49.34	100%
2010	3.45	2.21	1.71	1.26	1.80	3.49	3.87	5.37	6.71	6.29	5.88	4.98	47.02	95%
2011	3.02	1.86	1.05	1.59	2.05	2.71	4.43	5.34	5.99	6.56	5.74	4.64	44.98	91%
2012	3.27	1.89	1.83	1.84	2.46	3.34	4.39	6.39	6.81	6.63	6.00	4.60	49.45	100%
2013	3.25	1.82	1.16	1.50	2.10	3.71	5.39	6.26	6.36	6.46	5.98	4.83	48.82	99%
2014	3.51	2.02	1.80	2.08	1.85	3.58	4.89	6.83	6.61	6.43	6.02	4.74	50.36	102%
2015	3.90	1.86	1.45	1.80	2.16	4.13	5.12	5.01	6.41	6.52	6.49	5.34	50.19	102%
2016	4.11	2.05	1.39	1.32	2.72	3.40	4.65	5.71	7.54	7.22	5.74	5.15	51.00	103%
2017	3.40	2.11	1.47	1.55	1.76	3.73	4.45	6.29	6.82	7.62	6.03	5.16	50.39	102%
2018	4.15	1.93	1.98	1.57	2.66	3.25	4.81	5.83	7.29	7.65	6.60	5.15	52.87	107%
2019	3.85	2.20	1.54	1.58	1.91	3.42	4.81	5.17	6.68	7.15	6.54	5.36	50.21	102%
2020	4.24	2.31	1.37	1.60	2.78	3.15	4.54	6.53	7.17	6.96	6.23	4.78	51.66	105%
2021	4.16	2.24	1.82	1.79	2.45	3.79	5.27	6.54	7.09	7.15	6.18	5.27	53.75	109%
AVG	3.62	1.95	1.45	1.52	2.02	3.47	4.63	5.94	6.66	6.89	6.20	4.95	49.29	100%

Note: The averages are for the available period of record, 1995 for reference evapotranspiration.

APPENDIX C GROUNDWATER DATA

List of Tables and Figures

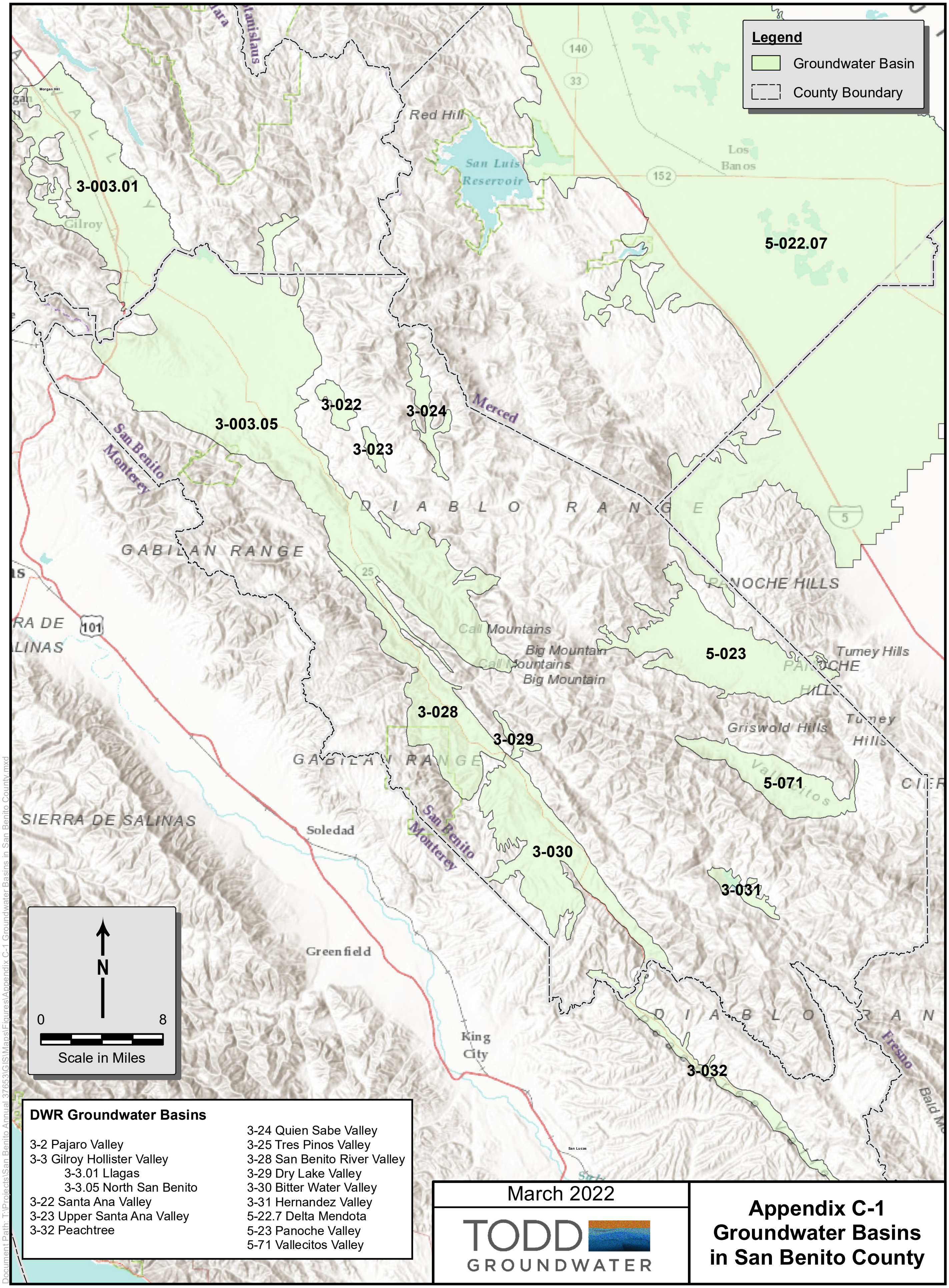
Table C-1. Groundwater Elevations October 2020 through October 2021

Well Number	Well Depth (feet)	Depth to Top of Screens (feet)	1996 Defined Subbasin	Groundwater Elevations (feet MSL)			
				Oct-20	Jan-21	Apr-21	Oct-21
Southern Management Area							
13-5-12D3	UNK	UNK	Southern	294.0	NM	NM	NM
13-6-19L0	UNK	UNK	Southern	307.5	309.4	304.5	297.1
13-6-19L1	UNK	UNK	Southern	321.1	322.8	321.1	306.2
14-6-13B1	UNK	UNK	Southern	639.4	642.7	640.7	637.4
14-7-19G0	UNK	UNK	Southern	705.8	708.5	707.8	702.8
14-7-20K1	UNK	UNK	Southern	715.5	718.0	715.9	711.4
14-6-14Q0	UNK	UNK	Southern	635.4	637.1	636.0	631.9
14-6-26F0	UNK	UNK	Southern	644.0	641.0	639.6	635.9
14-6-26H1	UNK	UNK	Southern	633.5	638.5	636.5	626.5
14-6-26K1	UNK	UNK	Southern	644.3	640.3	640.5	638.4
14-6-35B1	UNK	UNK	Southern	654.8	654.5	653.9	650.6
14-6-36D0	UNK	UNK	Southern	640.5	648.8	644.8	639.0
San Juan Management Area							
12-4-17L20	UNK	UNK	SJ	120.2	122.5	122.3	117.5
12-4-18J1	UNK	UNK	SJ	120.6	122.4	123.1	120.0
12-4-21M1	250	UNK	SJ	141.6	143.8	145.1	134.5
12-4-26G1	876	240	SJ	155.5	157.3	173.5	146.7
12-4-34H1	387	120	SJ	146.0	159.0	147.4	140.2
12-4-35A1	325	110	SJ	167.7	179.6	181.3	161.2
12-5-30H1	240	UNK	SJ	207.0	206.8	207.2	196.3
12-5-31H1	UNK	UNK	SJ	195.4	200.7	201.6	189.4
13-4-3H1	312	168	SJ	138.5	158.3	158.5	139.3
13-4-4A3	195	48	SJ		174.5	186.0	179.2
13-5-6L1	UNK	UNK	SJ	134.4	136.6	135.1	127.1
Bolsa Management Area							
11-4-26B1	642	149	B	123.1	134.5	130.9	124.3
11-4-34A1	100	UNK	B	130.5	132.6	131.6	128.2
11-5-20N1	300	UNK	B	55.6	103.1	85.6	77.8
11-5-21E2	220	100	B	Artesian	Artesian	Artesian	Artesian
11-5-27P2	331	67	B	168.7	172.2	170.8	159.0
11-5-28B1	198	125	B	Artesian	Artesian	Artesian	Artesian
11-5-28P4	140	80	B	Artesian	Artesian	Artesian	Artesian
11-5-31F1	515	312	B	51.5	89.2	78.3	67.4
11-5-33B1	125	UNK	B	Artesian	Artesian	Artesian	Artesian
12-5-17D1	950	314	B	71.5	78.0	71.0	54.0
12-5-5G1	500	150	B	104.8	105.5	101.3	97.3
12-5-5M1	UNK	UNK	B	49.6	78.9	63.3	44.8
12-5-6L1	UNK	UNK	B	146.4	146.0	143.5	140.6
12-5-7P1	750	360	B	65.8	61.0	48.5	33.3
Llagas - SCVWD							
11-4-10D4	UNK	UNK	SCVWD	142.8	154.0	150.9	119.9
11-4-15J2	UNK	UNK	SCVWD	130.9	143.4	133.9	99.3
11-4-17N4	UNK	UNK	SCVWD	148.3	157.5	158.0	131.6
11-4-21P3	UNK	UNK	SCVWD	142.4	144.8	134.9	NM
11-4-22N1	UNK	UNK	SCVWD	130.0	142.6	136.8	112.3
11-4-2D8	UNK	UNK	SCVWD	144.3	158.5	151.9	121.0
11-4-2N1	UNK	UNK	SCVWD	134.5	149.7	138.1	108.9
11-4-32R2	UNK	UNK	SCVWD	124.1	135.7	131.0	103.0
11-4-3J2	UNK	UNK	SCVWD	140.8	157.7	149.1	112.8
11-4-8K2	UNK	UNK	SCVWD	148.6	157.5	158.9	134.1

Table C-1. Groundwater Elevations October 2020 through October 2021

Well Number	Well Depth (feet)	Depth to Top of Screens (feet)	1996 Defined Subbasin	Groundwater Elevations (feet MSL)			
				Oct-20	Jan-21	Apr-21	Oct-21
Hollister Management Area							
12-5-22N1	372	250	BSE	90.3			
12-5-9M1	240	105	BSE	127.8	135.9	128.4	123.8
12-5-13H1	UNK	UNK	HE	230.5	226.1	228.6	225.0
12-5-22C1	237	102	HE	178.3	172.3	183.0	171.9
12-5-22J2	355	120	HE	194.2	197.6	196.6	191.3
12-5-23A20	862	178	HE	180.0	187.0	185.5	181.0
12-5-36B20	500	430	HE	194.8	197.7	196.8	193.7
12-6-18G1	198	70	HE	265.0	267.0	264.5	260.9
12-6-19N1	UNK	UNK	HE	225.2	NM	NM	NM
12-6-30E1	UNK	UNK	HE	347.0	349.3	348.4	347.0
12-6-7P1	147	UNK	HE	242.5	243.3	242.0	238.3
13-6-7D2	UNK	UNK	HE	337.3	338.1	337.0	335.2
12-5-27E1	175	UNK	HW	204.6	208.3	209.0	200.7
12-5-28J1	220	UNK	HW	217.0	218.7	218.8	213.0
12-5-28N1	408	168	HW		222.9	224.8	218.0
12-5-33E2	121	81	HW	218.0	218.9	221.0	215.7
12-5-34P1	195	153	HW	222.5	224.3	225.5	222.7
13-5-10B1	UNK	UNK	HW	216.5	220.0	218.8	215.0
13-5-11E1	UNK	UNK	HW	284.5	287.0	264.1	263.6
13-5-3L1	126	UNK	HW	233.1	233.9	234.4	231.8
13-5-4B	UNK	UNK	HW	231.3	NM	NM	NM
13-5-4P1	UNK	UNK	HW	271.0	272.0	270.8	268.0
13-5-5J0	UNK	UNK	HW	234.3	236.3	234.5	231.5
11-5-26N2	232	95	P	169.3	171.7	172.2	163.3
11-5-26R3	225	65	P	178.6	180.9	179.7	165.0
11-5-35C1	180	UNK	P	174.6	177.6	175.3	168.5
11-5-35G1	230	UNK	P	182.9	180.2	182.5	173.8
11-5-35Q3	UNK	UNK	P	168.7	175.6	166.4	NM
11-5-36C1	98	UNK	P	192.2	191.9	190.4	184.1
11-5-36M1	UNK	UNK	P	182.0	182.0	180.2	NM
11-6-31M2	188	155	P	218.9	216.4	214.3	NM
12-5-1G2	300	UNK	P	180.8	183.2	182.5	179.8
12-5-2H5	128	42	P	178.8	178.4	178.0	173.6
12-5-2L2	170	UNK	P	194.1	194.5	195.5	NM
12-5-3B1	128	100	P	Artesian	Artesian	Artesian	NM
12-6-6K1	260	16	P	Artesian	Artesian	Artesian	Artesian
12-6-6L4	235	50	P	215.3	215.0	216.7	215.0
13-5-11Q1	178	61	TP	294.6	295.3	294.5	291.7
13-5-12D4	UNK	UNK	TP	244.0	NM	NM	NM
13-5-12K1	UNK	UNK	TP	288.0	NM	NM	NM
13-5-12N20	352	301	TP	317.4	318.3	318.0	314.3
13-5-13F1	134	30	TP	334.0	333.7	331.8	327.0
13-5-13H1	252	112	TP	342.7	342.6	342.0	337.8
13-5-13J2	180	UNK	TP	344.2	345.4	342.1	334.1
13-5-13Q1	185	44	TP	331.5	334.9	333.5	329.3
13-5-14C1	UNK	UNK	TP	289.3	290.2	289.4	288.5
13-6-19K1	211	UNK	TP	394.6	363.1	361.9	357.8
13-6-20K1	UNK	UNK	TP	417.8	413.5	412.6	407.3

UNK - Unknown
NM - Not Monitored
Figure 2-1 for 1996 Defined Subbasins



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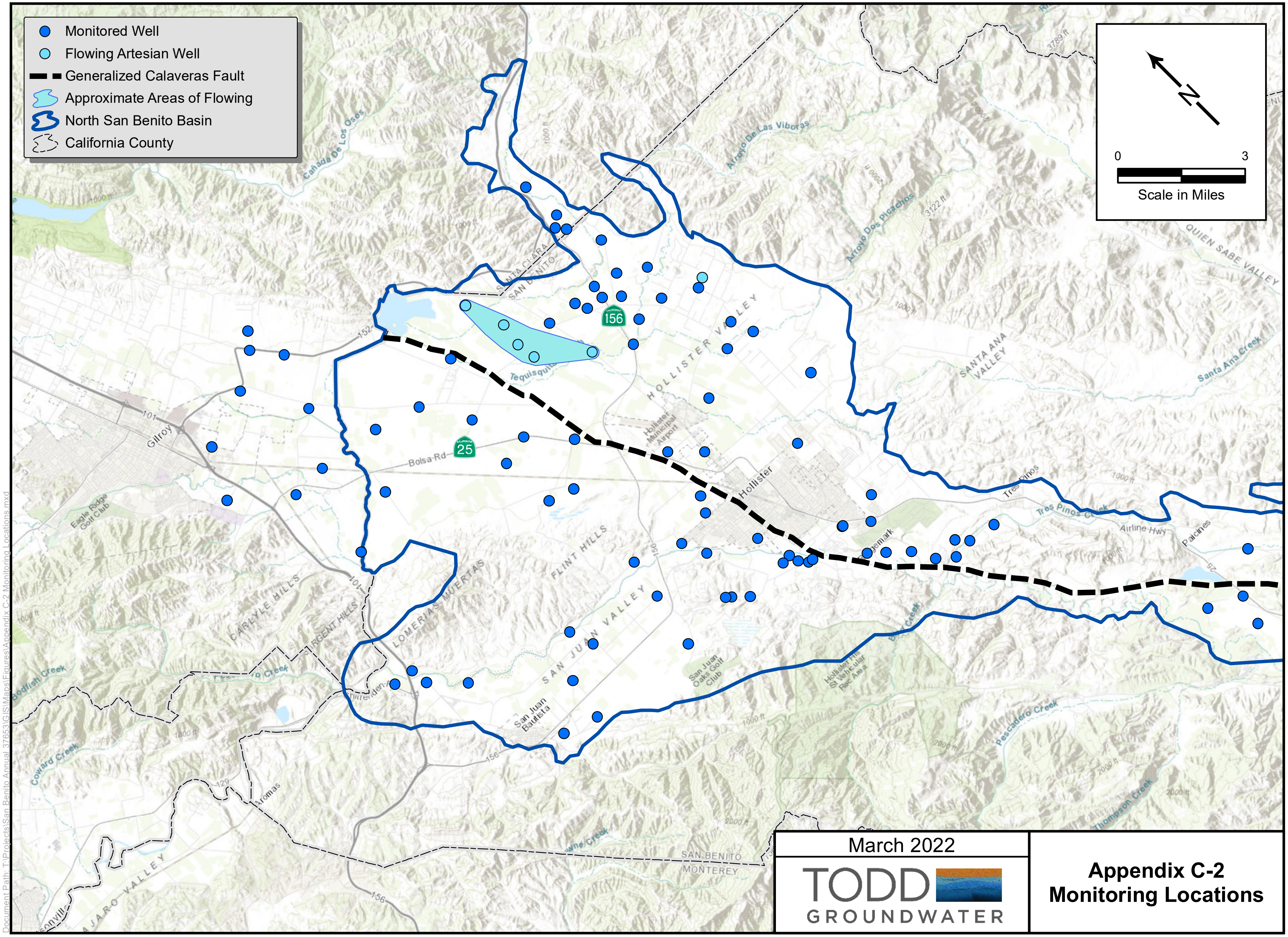
TODD GROUNDWATER

Appendix C-1
Groundwater Basins in San Benito County



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TODD GROUNDWATER

Appendix C-2
Monitoring Locations

APPENDIX D PERCOLATION DATA

List of Tables and Figures

Table D-1. Reservoir Water Budgets for Water Year 2021 (acre-feet)

	Hernandez	Paicines	San Justo	
Observed Storage				
Starting Storage (Oct 2020)	506	300	6,143	
Ending Storage (Sept 2021)	496	300	7,566	
Inflows				
Rainfall	236	n.a.	117	
San Benito River	8,263	0	n.a.	
Hernandez-Paicines transfer	n.a.	554	n.a.	
San Felipe Project*	n.a.	n.a.	12,206	*
Total Inflows	**8,499**	**554**	**12,323**	
Outflows				
Hernandez spills	0	n.a.	n.a.	
Hernandez-Paicines transfer	554	n.a.	n.a.	
Tres Pinos Creek percolation releases	n.a.	504	n.a.	
San Benito River percolation releases	7,480	0	n.a.	
CVP Deliveries*	n.a.	n.a.	8,766	*
Evaporation and seepage (less interceptor wells)	506	12	1,132	
Total Outflows	**8,540**	**516**	**9,898**	
Change in Storage				
Observed storage change (Ending - Starting)	**-10**	**0**	**1,423**	
Calculated net storage change (Inflow - Outflows)	**-40**	**38**	**2,425**	
Unaccounted for Water (Observed - Calculated)**	**30**	**-38**	**-1,002**	
Reservoir Information				
Reservoir capacity	17,200	2,870	11,000	
Maximum storage	12,572	2,580	10,308	
Minimum storage	558	250	4,573	

* Reflects imported water for beneficial use, not all stored in reservoir

** Negative value is water shortage, positive value is water surplus

Table D-2. Historical Reservoir Releases (AFY)

WY	Hernandez	Paicines	TOTAL
1996	13,535	6,139	19,674
1997	3,573	2,269	5,842
1998	26,302	450	26,752
1999	12,084	1,293	13,377
2000	13,246	2,326	15,572
2001	12,919	3,583	16,502
2002	9,698	310	10,008
2003	5,434	0	5,434
2004	3,336	0	3,336
2005	19,914	677	20,591
2006	14,112	196	14,308
2007	12,022	1,254	13,276
2008	7,646	495	8,141
2009	4,883	0	4,883
2010	8,484	4,147	12,631
2011	9,757	2,397	12,154
2012	6,341	1,321	7,662
2013	3,963	677	4,640
2014	0	0	0
2015	0	0	0
2016	0	0	0
2017	23,191	2,407	25,597
2018	6,054	384	6,438
2019	15,924	2,045	17,969
2020	9,473	2,037	11,510
2021	7,480	504	7,984
AVG	**9,591**	**1,343**	**11,052**

Table D-3. Historical Percolation of CVP Water (AFY)

		Arroyo de las Viboras			Arroyo Dos Picachos			Santa Ana Creek					San Benito River		
Water Year[1]	Pacheco Creek	Road	Creek 1 (Frog Ponds)	Creek 2	Fallon Road	Jarvis Lane	Creek	John Smith Road	Maranatha Road	Airline Highway	Ridgemark	Tres Pinos Creek (and Pond)	Union Road Pond	Hollister Ponds	Total
1994	232	136	515	0	0	550	209	0	0	0	0	85	158	0	1,885
1995	444	238	770	2	0	654	622	73	0	0	0	809	2,734	0	6,345
1996	0	494	989	832	67	235	708	531	197	134	25	21	6,097	0	10,330
1997	0	447	601	1,981	77	0	200	17	353	286	29	1,477	5,619	0	11,087
1998	0	132	109	403	0	0	0	65	0	158	74	518	1,084	0	2,543
1999	0	0	0	0	0	0	4	256	48	141	10	452	413	0	1,322
2000	1	0	0	6	0	0	3	236	21	240	12	285	938	0	1,740
2001	0	0	0	0	0	0	0	161	17	186	1	703	1,041	0	2,110
2002	0	0	0	2	0	0	1	78	2	143	0	426	470	0	1,122
2003	0	0	0	0	0	0	5	119	9	172	0	163	605	0	1,074
2004	0	0	0	0	0	0	52	83	0	0	0	1	882	0	1,018
2005	0	0	0	0	0	0	0	0	0	0	0	0	527	0	527
2006	0	0	0	0	0	0	7	156	0	0	0	1	451	0	614
2007	0	0	0	0	0	0	0	0	0	0	0	88	216	0	304
2008	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6
2009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2017	0	0	340	0	0	0	0	0	0	0	0	0	2,209	0	2,549
2018	0	0	199	0	0	0	0	0	0	0	0	867	1,899	0	2,965
2019	0	0	335	0	0	0	0	0	0	0	0	1,775	2,932	0	5,043
2020	0	0	134	0	0	0	0	0	0	0	0	780	1,499	747	3,161
2021	0	0	2	0	0	0	0	0	0	0	0	2	3	20	28

1. 2017-2021 percolation occurred only to recharge basins adjacent to the listed streams.

Table D-4. Percolation of Municipal Wastewater during Water Year 2021

	Pond Area[1] (acres)	Effluent Discharge (acre-feet)	Evaporation[2] (acre-feet)	Percolation (acre-feet)
Hollister - domestic	93	2,671	266	2,405
Hollister - industrial	39	0	0	0
Ridgemark Estates I & II	7	182	21	161
Tres Pinos	2	21	5	16
Total	141	2,874	292	2,582

Notes:

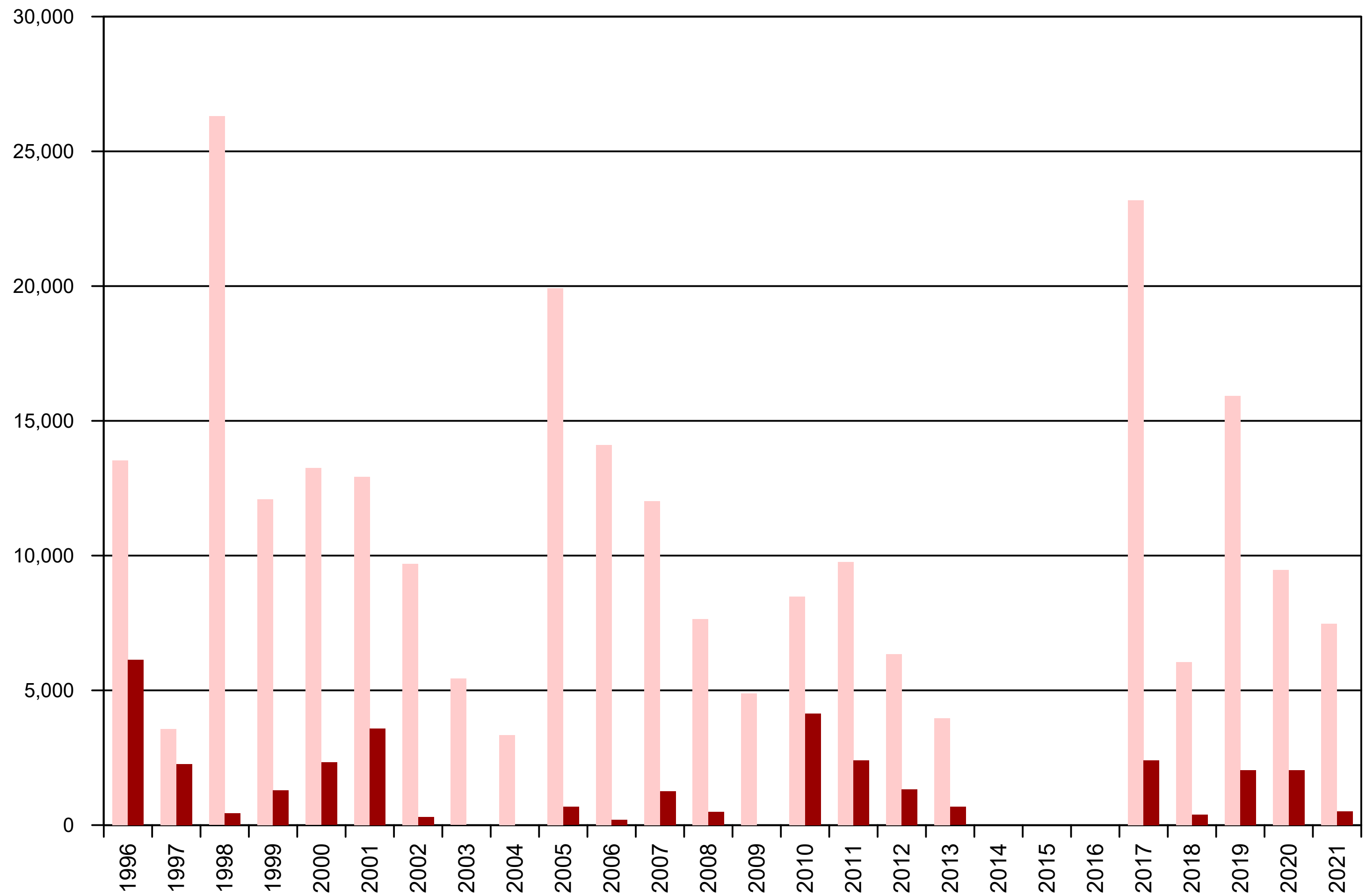
1. Hollister pond areas are from Dickson and Kenneth D. Schmidt and Associates (1999) and include treatment ponds in addition to percolation ponds at the domestic wastewater treatment plant. Assumes 80% of total pond area in use at any time (Rose, pers. comm.). These areas should be updated as operations change.

2. Average evaporation less precip = 43 inches (56 in/yr evaporation (DWR Bulletin 73-79) less 13 in/yr precip (CIMIS) The IWTP evaporation was adjusted to account only for when the ponds are in use.
The San Juan Bautista plant is not included because the unnamed tributary of San Juan Creek that receives its effluent usually gains flow along the affected reach and is on the southwest side of the San Andreas Fault. These conditions prevent the effluent from recharging the basin.

Table D-5. Historical Percolation of Municipal Wastewater (AFY)

	Hollister Reclamation Plant - Domestic	Hollister - industrial wastewater and stormwater	Ridgemark Estates I & II	Tres Pinos	TOTAL
1994	1,775	665	155	5	2,600
1995	1,935	610	180	10	2,735
1996	2,020	689	207	14	2,930
1997	1,965	909	201	17	3,092
1998	2,490	518	231	17	3,256
1999	1,693	1,476	156	12	3,337
2000	2,110	1,136	293	24	3,563
2001	1,742	1,078	303	24	3,147
2002	1,884	1,545	283	24	3,736
2003	2,009	1,432	279	24	3,744
2004	1,787	1,536	268	21	3,612
2005	1,891	1,323	227	26	3,468
2006	1,797	1,211	216	33	3,257
2007	1,740	1,228	139	19	3,126
2008	1,580	1,257	139	19	2,996
2009	1,976	428	172	19	2,594
2010	1,922	37	172	19	2,150
2011	1,807	466	183	19	2,476
2012	1,740	605	177	19	2,541
2013*	889	332	188	21	1,430
2014	1,552	86	179	21	1,838
2015	1,816	344	161	21	2,342
2016	1,923	305	154	21	2,402
2017	1,945	57	154	20	2,177
2018	1,365	57	150	15	1,587
2019	1,822	0	149	16	1,986
2020	2,392	0	155	6	2,553
2021	2,405	0	161	16	2,582

*Potential missing data



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Appendix D-1
Reservoir Releases for Percolation

APPENDIX E WATER USE DATA

List of Tables and Figures

Table E-1. Recent CVP Allocation and Use

Water Year	Municipal and Industrial (M&I) CVP				Agricultural CVP			
	Percent of Contract Allocation[1] (USBR Water Year Mar-Feb)	Percent of Historic Average[2] (USBR Water Year Mar-Feb)	Contract Amount Used (AF) (Hydrologic Water Year Oct-Sep)	Contract Amount Used (%) (Hydrologic Water Year Oct-Sep)	Percent of Contract Allocation[3] (USBR Water Year Mar-Feb)	Percent of Contract and M&I Adjustment[2] (USBR Water Year Mar-Feb)	Contract Amount Used (AF)[4] (Hydrologic Water Year Oct-Sep)	Contract Amount Used (%) (Hydrologic Water Year Oct-Sep)
2006	100%		3,152	38%	100%		19,840	56%
2007	100%		4,969	60%	40%		18,865	53%
2008	37%	75%	2,232	27%	40%	45%	10,514	30%
2009	29%	60%	1,978	24%	10%	11%	6,439	18%
2010	37%	75%	2,197	27%	45%	50%	10,061	28%
2011	100%		2,433	29%	80%		16,234	46%
2012	51%	75%	2,683	33%	40%	40%	17,267	49%
2013	47%	70%	2,652	32%	20%	22%	12,914	36%
2014	34%	50%	1,599	29%	0%	0%	7,545	21%
2015	25%		1,810	22%	0%		3,697	10%
2016	55%		1,914	23%	5%		4,434	12%
2017	100%		2,909	35%	100%		15,837	45%
2018	75%		5,679	69%	50%		17,418	49%
2019	100%		4,457	54%	75%		16,774	47%
2020	65%		4,953	60%	15%		15,327	43%
2021	65%		3,341	40%	0%		6,108	17%
Average (12-21)	62%				31%			

Notes: 1 Total contract (100% allocation) M&I 8,250 AFY
2 Shortage Policy Adjustments
3 Total contract (100% allocation) Ag 35,550 AFY
4 Includes water percolated

Table E-2. Historical CVP and RW Use by MA in Zone 6 (AFY)

MA:	San Juan MA	Hollister MA		Total Zone 6	
Source:	CVP	CVP	RW	CVP	RW
1993	4,300	11,333	0	15,633	0
1994	3,836	11,155	0	14,990	0
1995	4,554	11,576	0	16,130	0
1996	5,187	13,636	0	18,823	0
1997	6,191	14,858	0	21,048	0
1998	4,099	8,697	0	12,796	0
1999	5,990	12,048	0	18,038	0
2000	6,372	12,301	0	18,673	0
2001	7,232	12,170	0	19,402	0
2002	7,242	13,169	0	20,411	0
2003	7,127	14,607	0	21,734	0
2004	7,357	16,653	0	24,010	0
2005	6,245	14,139	0	20,384	0
2006	7,200	15,792	0	22,992	0
2007	6,160	15,955	0	22,115	0
2008	3,160	9,586	0	12,745	0
2009	1,605	6,599	0	8,204	0
2010	3,452	8,532	151	11,984	151
2011	5,623	13,045	183	18,667	183
2012	5,976	13,973	230	19,949	230
2013	4,134	11,431	357	15,566	357
2014	1,984	7,160	262	9,144	262
2015	975	4,532	101	5,507	101
2016	819	5,528	499	6,347	499
2017	5,853	10,344	366	16,197	366
2018	6,383	13,748	471	20,131	471
2019	3,990	12,198	569	16,188	569
2020	4,618	12,501	526	17,119	526
2021	1,587	7,859	472	9,446	472
AVG 93-21	4,802	11,556	144	16,358	144

* No Recycled Water is used in San Juan MA

Table E-3. Municipal Water Use by Major Purveyor for Water Year 2021 (AF)

	WY 2021	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Groundwater													
Sunnyslope CWD	**1,576**	172	127	48	34	36	52	85	115	157	204	236	309
City of Hollister	**1,517**	130	122	31	52	67	70	120	154	218	216	146	192
City of Hollister - Cienega Wells	**101**	9	8	9	9	8	8	8	8	8	8	8	8
San Juan Bautista	**224**	25	15	15	16	19	13	10	15	16	26	23	32
Tres Pinos CWD	**35**	3	3	2	2	2	2	3	3	4	3	4	4
Groundwater Subtotal	**3,453**	**339**	**275**	**104**	**112**	**133**	**146**	**226**	**296**	**403**	**457**	**417**	**545**
CVP Imported Water													
Lessalt Treatment Plant	**931**	38	84	100	101	105	108	103	104	111	56	17	4
West Hills Treatment Plant	**1,314**	93	99	126	138	107	140	135	130	72	69	136	70
Imported Water Subtotal	**2,245**	**132**	**182**	**226**	**239**	**212**	**247**	**239**	**234**	**182**	**125**	**152**	**75**
Municipal Total													
TOTAL Municipal Water Supply	**5,698**	**470**	**457**	**331**	**351**	**345**	**393**	**464**	**530**	**585**	**583**	**570**	**620**

Table E-4. Historical Municipal Water Use by Major Purveyor (AFY)

WY	Sunnyslope CWD - GW	City of Hollister - GW	City of Hollister - Cienega Wells[1]	San Juan Bautista	Tres Pinos CWD	Lessalt Treatment Plant	West Hills Treatment Plant	Undivided Total	TOTAL
1988						0	0	5,152	5,152
1989						0	0	6,047	6,047
1990						0	0	5,725	5,725
1991						0	0	7,631	7,631
1992						0	0	6,912	6,912
1993						0	0	5,066	5,066
1994						0	0	7,186	7,186
1995	2,167	2,446				0	0		4,613
1996	2,139	3,386				0	0		5,525
1997	2,638	3,848				0	0		6,486
1998	2,357	3,441				0	0		5,798
1999	2,820	3,558				0	0		6,378
2000	3,214	4,021				0	0		7,235
2001	3,290	3,851				0	0		7,141
2002	3,256	4,120				21	0		7,398
2003	2,053	2,754				2,494	0		7,302
2004	2,426	2,828				2,101	0		7,356
2005	1,959	3,147	123	247	49	1,843	0		7,368
2006	1,907	2,801	123	150	49	1,900	0		6,930
2007	2,413	2,758	123	47	49	1,719	0		7,108
2008	2,294	2,746	123	417	47	1,323	0		6,949
2009	2,251	2,503	123	373	47	1,212	0		6,509
2010	1,861	2,194	108	308	47	1,344	0		5,861
2011	2,225	1,651	80	292	47	1,593	0		5,887
2012	2,360	1,761	130	267	45	1,657	0		6,219
2013	1,655	2,655	120	281	46	1,648	0		6,405
2014	2,134	2,646	114	285	49	979	0		6,207
2015	1,348	1,960	114	225	49	1,364	0		5,060
2016	1,331	1,615	105	232	49	1,682	0		5,014
2017	1,449	1,543	79	249	32	1,940	51		5,344
2018	978	1,217	121	184	34	1,596	1,990		6,119
2019	565	588	283	257	33	1,660	2,524		5,912
2020	694	707	95	224	35	1,503	1,990		5,248
2021	1,576	1,517	101	224	35	931	1,314		5,698

1. Data from Hollister Cienega Wells for 2005-2008 was estimated to be the same as WY 2009
Cells with no data indicate that the information is unavailable, while years with no use are shown explicitly as 0's.

Todd Groundwater 3/10/2022

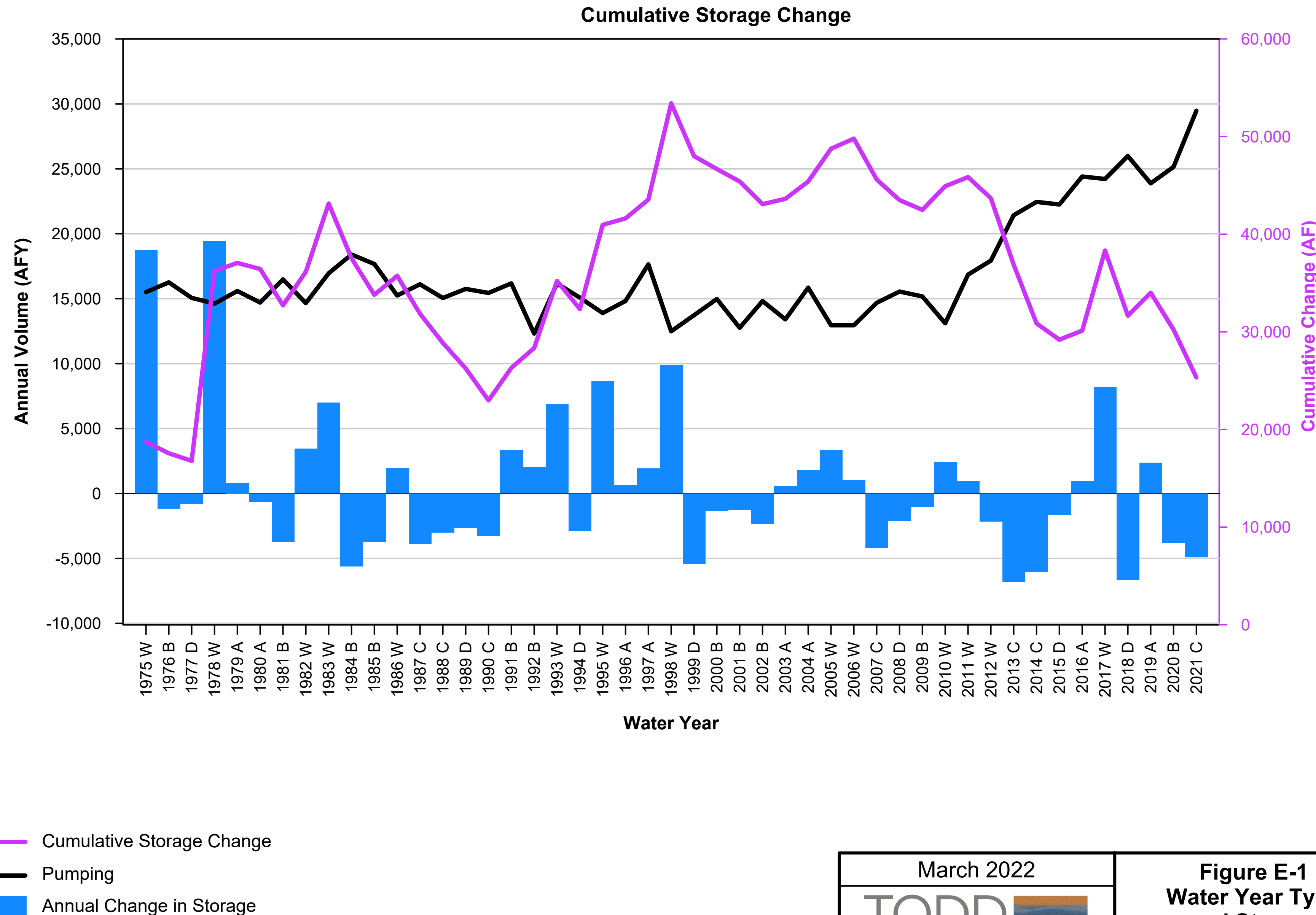

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Figure E-1
Water Year Type and Storage
Bolsa Management Area

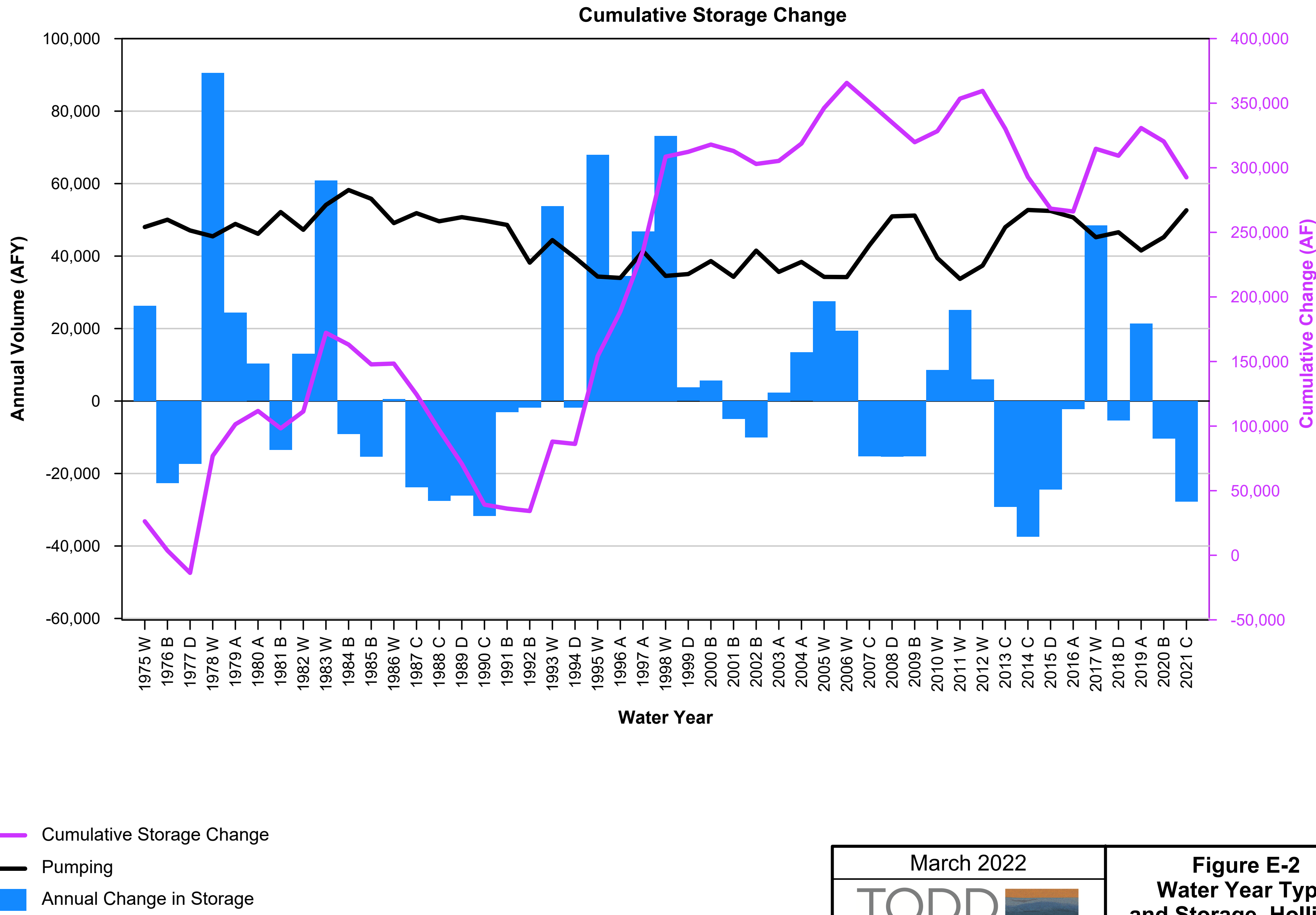

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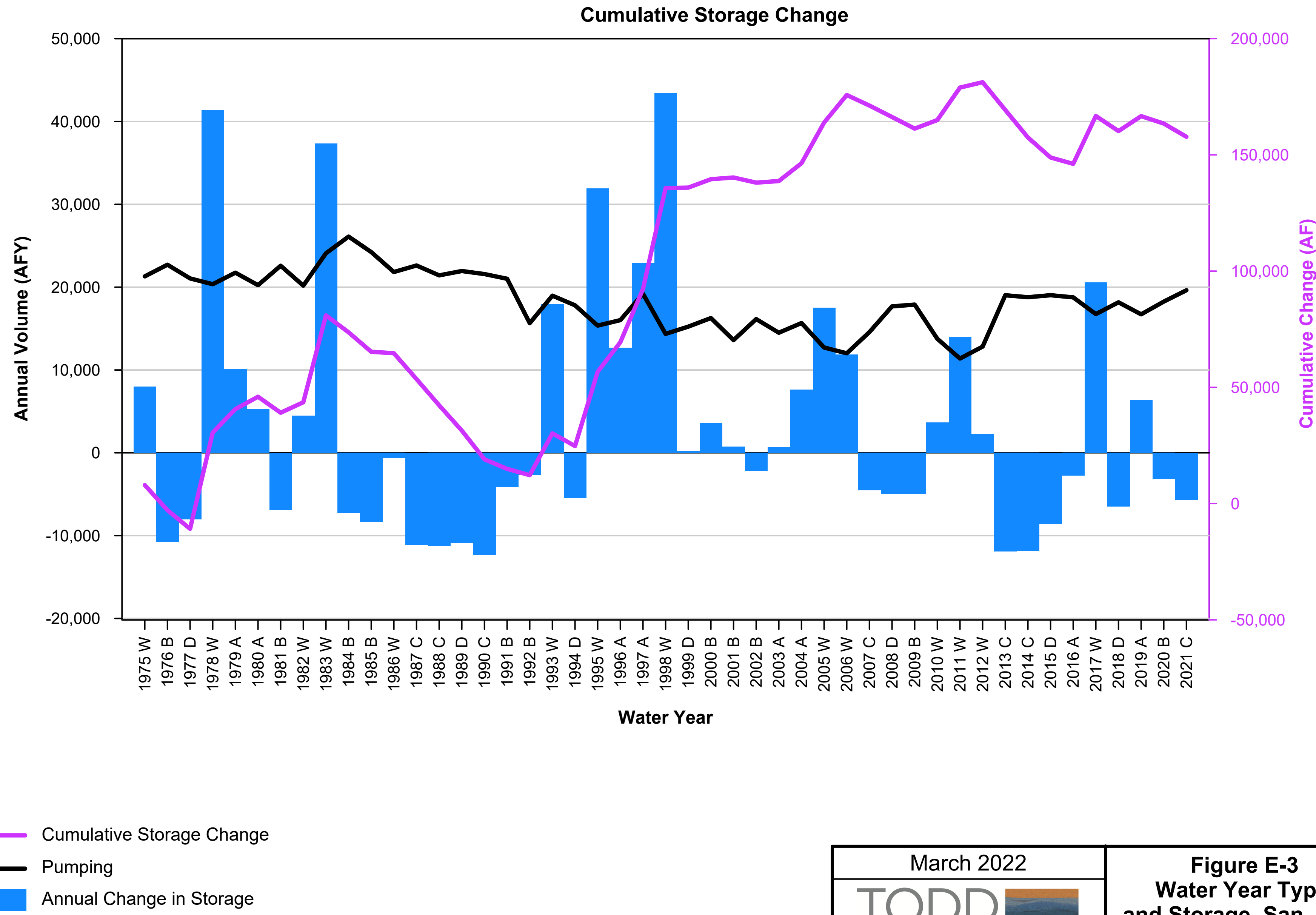
Figure E-2
Water Year Type and Storage, Hollister Management Area



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March 2022	**Figure E-3 Water Year Type and Storage, San Juan Management Area**
TODD GROUNDWATER	

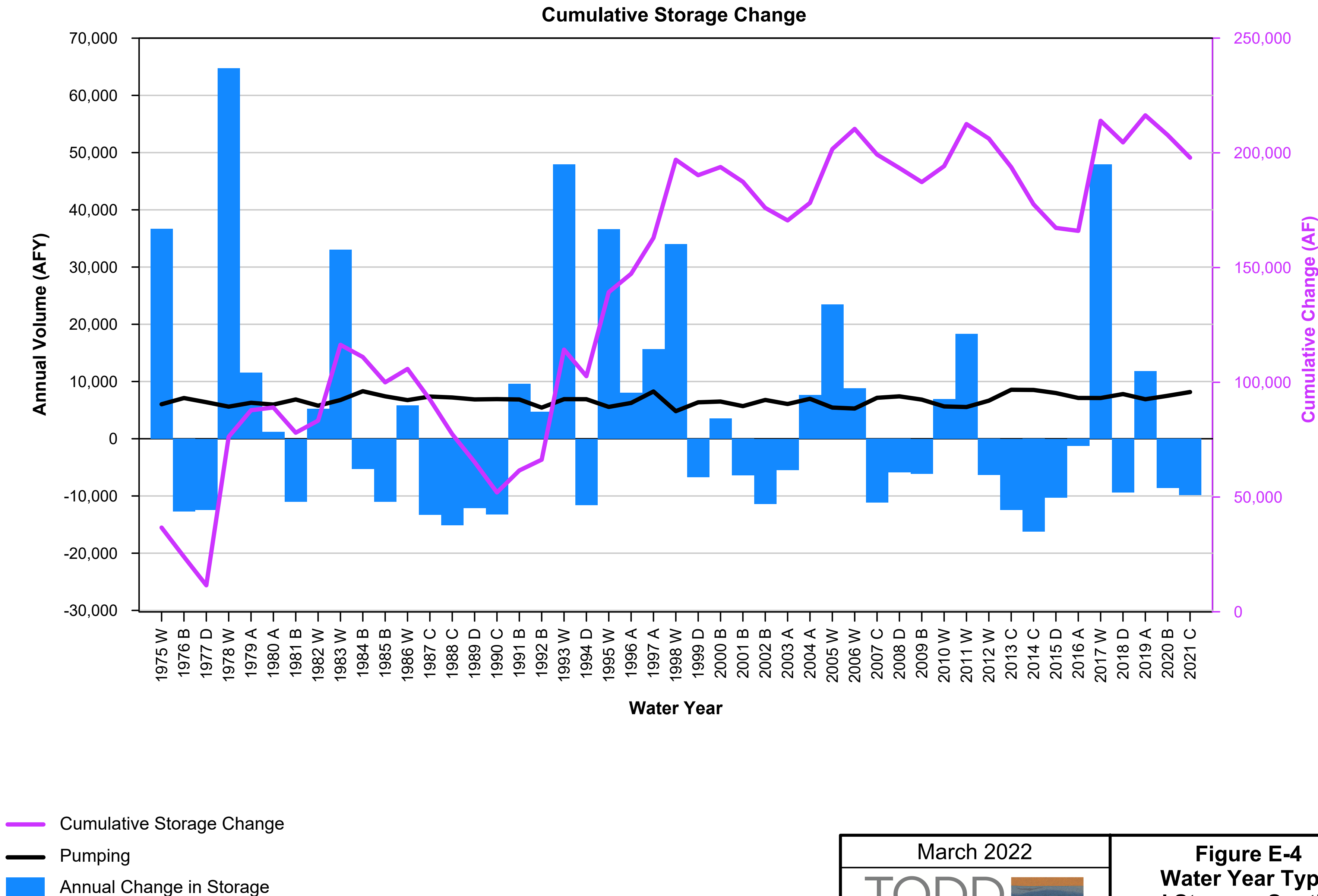

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Figure E-4
Water Year Type and Storage, Southern Management Area

APPENDIX F RATES AND CHARGES

List of Tables and Figures

EXHIBIT A

Groundwater Rates
Water Year
2022-2023
Zone 6

					Rates[2]	
Component		**Rate ($/AF)[1]**	**Quantity (A/F)[1]**	**Amount**	**Ag**	**M & I**
REVENUE REQUIREMENTS					(per A/F)	(per A/F)
SOURCE OF SUPPLY O&M						
AG		$ 18.68	23,974	$ 447,834	$ 18.68	
M&I		$ 18.68	4,877	$ 91,102		$ 18.68
PERCOLATION COSTS						
Cost of Water						
AG	Cost of Water[3]	$ 53.51	2,105	$ 112,617	$ 4.70	
M&I	Cost of Water[3]	$ 163.58	428	$ 70,034		$ 14.36
Power Costs						
AG	Power Charge for percolation	$ 58.83	2,105	123,813	$ 5.16	
M&I	Power Charge for percolation	$ 58.83	428	25,187		$ 5.16
	TOTAL 2019-2020				$ 28.54	$ 38.21
Previously approved Groundwater Charges[4]						
2019-2020 Water Year Groundwater Charge					$ 12.75	$ 38.25
2020-2021 Water Year Groundwater Charge					$ 13.15	$ 39.40
2021-2022 Water Year Groundwater Charge					$ 13.55	40.55
RECOMMENDED CHARGES						
2022-2023 Water Year Groundwater Charge					**$ 13.55**	**40.55**

Notes:

1	Rate Basis is unchanged from the basis used for prior year rates.		
	Assumed Volumes		
	Groundwater usage		
	Ag usage		23,974
	M&I usage		4,877
	Total		28,851
2	Rates=Revenue Requirements/projected groundwater usage		
3	Cost of Water:		
	AG: USBR and SLDMWA O&M		
	M&I: USBR and SLDMWA O&M, USBR Out-of-Basin Interest		
4	Groundwater charges adopted by San Benito County Water District Board of Directors in		
	Jan-19		
5	Assumed volumes for percolation (based on 3 year average)		
	Ag	83%	2105
	M&I	17%	428
	Total	100%	2533
6	Annual escalation rate for previous rates	3%	
7	Rates charged will be rounded up to nearest $.05		

Note: Section 70-7.8 (a) of the District Act states that the agricultural rate shall not exceed one-third of the rates for all water other than agricultural water.

Table F-2. Historical and Current San Benito County Water District CVP (Blue Valve) Water Rates (dollars/af)

USBR Water Year	Standby & Availability Charge (dollars/acre)	Water Charge			Power Charge					Groundwater Charge (dollars/af)			Recycled Water (per AF)	
		Agricultural	Municipal & Industrial		Distribution Subsystem					Agricultural	Municipal & Industrial		Agricultural	Power Charge
			Small Parcel & Contract	Wheolsale	2	6H	9L	9H	Others					
1987	$8.00	$34.00	n.c.							n.i.	n.i.			
1988	$2.00	$34.00	n.c.							n.i.	n.i.			
1991	$4.00	$38.00	$110.00							$6.25	$22.00			
1992	$4.00	$45.00	$120.00							$2.00	$10.00			
1994	$4.50	$77.61	$168.92							$1.00	$5.00			
1995	$4.50	$77.61	$168.92							$1.00	$15.75	First 100 af		
											$36.70	Next 500 af		
											$54.60	Over 600 af		
1996	$6.00	$75.00	$150.00							$1.50	$33.00			
1997	$6.00	$75.00	$157.00							$1.50	$33.00			
1998	$6.00	$75.00	$155.00							$1.50	$33.00			
2000	$6.00	$75.00	$155.00							$1.50	$11.50			
2001	$6.00	$75.00	$155.00							$1.50	$25.00			
2004	$6.00	$75.00	$150.00	$150.00	$24.30	$46.75	$25.05	$53.70	$15.25	$1.50	$10.00			
2005	$6.00	$80.00	$150.00	$150.00	$26.15	$49.40	$35.00	$66.90	$17.10	$1.50	$21.50			
2006	$6.00	$85.00	$160.00	$160.00	$23.60	$36.05	$34.70	$65.75	$18.40	$1.50	$21.50			
2007	$6.00	$85.00	$160.00	$160.00	$23.60	$36.05	$34.70	$65.75	$18.40	$1.50	$21.50			
2008	$6.00	$100.00	$170.00	$170.00	$17.25	$19.40	$32.60	$62.75	$14.85	$1.50	$21.50			
2009	$6.00	$115.00	$180.00	$180.00	$17.50	$20.25	$42.55	$74.85	$16.30	$2.50	$22.50			
2010	$6.00	$135.00	$200.00	$200.00	$22.00	$27.30	$49.75	$84.35	$21.75	$2.50	$22.50			
2011	$6.00	$155.00	$220.00	$220.00	$22.70	$28.15	$51.25	$86.90	$22.40	$2.50	$22.50			
2012	$6.00	$170.00	$235.00	$235.00	$23.35	$29.00	$52.80	$89.50	$23.10	$2.50	$22.50			
2013	$6.00	$170.00	$235.00	$235.00	$40.30	$29.25	$43.05	$91.55	$22.40	$3.25	$23.25			
2014	$6.00	$170.00	$238.00	$238.00	$41.55	$30.15	$44.35	$94.30	$23.10	$3.60	$23.25			
2015	$6.00	$179.00	$247.00	$247.00	$42.75	$31.05	$45.70	$97.15	$23.80	$3.95	$23.25			
2016	$6.00	$272.00	$363.00	$363.00	$123.10	$75.65	$109.95	$162.55	$66.05	$4.95	$24.25		$182.55	$57.70
2017	$6.00	$191.00	$363.00	$363.00	$126.80	$77.90	$113.25	$167.45	$68.05	$6.45	$24.25		$183.45	$59.45
2018	$6.00	$209.00	$363.00	$363.00	$130.60	$80.25	$116.25	$172.45	$70.10	$7.95	$24.25		$183.45	$59.45
2019	$6.00	$254.00	$404.00	$404.00	$80.45	$39.30	$88.15	$130.30	$33.70	$12.75	$38.25		$183.45	$59.45
2020	$6.00	$265.00	$415.00	$415.00	$82.85	$40.45	$90.80	$134.10	$34.75	$13.15	$39.40		$208.00	$60.64
2021	$6.00	$274.00	$424.00	$424.00	$85.35	$41.50	$93.55	$138.25	$35.75	$13.55	$40.55		$210.00	$61.85
2022	$6.00	$274.00	$424.00	$647.00	$85.35	$41.50	$93.55	$138.25	$35.75	$13.55	$40.55		$211.00	$63.09

Notes:
af = acre-feet.
n.c. = no classification.
n.i. = not implemented
All rates effective March 1 through following February.

Table F-3. Recent US Bureau of Reclamation Charges per Acre-Foot for CVP Water

User Category and Cost Item	Irrigation[1]						Municipal & Industrial					
	Cost of service (non-full cost)	Restoration fund[3]	SLDMWA[4]	Trinity PUD Assessment	Total	Contract rate[5]	Cost of service[2] (non-full cost)	Restoration fund[3]	SLDMWA[4]	Trinity PUD Assessment	Total	Contract rate[5]
1994	$71.68	$6.20	n.a.		$77.88	$17.21	$165.67	$12.40	n.a.		$178.07	$85.86
1995	$66.47	$6.35	n.a.		$72.82	$17.21	$132.90	$12.69	n.a.		$145.59	$85.86
1996	$65.63	$6.53	n.a.		$72.16	$27.46	$127.40	$13.06	n.a.		$140.46	$85.86
1997	$69.57	$6.70	n.a.		$76.27	$27.46	$143.27	$13.39	n.a.		$156.66	$85.86
1998	$61.58	$6.88	$5.00		$73.46	$27.46	$130.88	$13.76	$5.00		$149.64	$85.86
1999	$60.30	$6.98	$2.73		$70.01	$27.46	$127.91	$13.96	$2.73		$144.60	$85.86
2000	$64.24	$7.10	$6.43		$77.77	$27.46	$129.59	$14.20	$6.43		$150.22	$85.86
2001	$69.50	$7.28	$2.65		$79.43	$27.46	$129.40	$14.56	$4.15		$148.11	$85.86
2002	$68.71	$7.54	$6.61		$82.86	$24.30	$130.32	$15.08	$6.61		$152.01	$79.13
2003	$72.20	$7.69	$5.46		$85.35	$24.30	$129.07	$15.38	$5.46		$149.91	$79.13
2004	$74.52	$7.82	$6.61		$88.95	$24.30	$134.86	$15.64	$6.61		$157.11	$79.13
2005	$77.10	$7.93	$7.99		$93.02	$24.30	$132.01	$15.87	$7.99		$155.87	$79.13
2006	$91.13	$8.24	$9.31		$108.68	$30.93	$214.41	$16.49	$9.31		$240.21	$77.12
2007	$93.53	$8.58	$9.99	$0.11	$112.21	$30.93	$215.32	$17.15	$9.99	$0.11	$242.46	$80.08
2008[6]	$28.12	$8.79	$10.95	$0.07	$47.93	$30.93	$33.34	$17.57	$10.95	$0.07	$61.68	$33.34
2009	$30.20	$9.06	$11.49	$0.07	$50.82	$30.20	$32.77	$18.12	$11.49	$0.07	$62.45	$32.77
2010	$33.27	$9.11	$11.91	$0.11	$54.40	$33.27	$36.11	$18.23	$11.91	$0.11	$66.36	$36.11
2011	$38.92	$9.29	$9.51	$0.05	$57.77	$38.92	$42.58	$18.59	$9.51	$0.05	$70.73	$42.58
2012	$39.71	$9.39	$15.20	$0.05	$64.35	$39.71	$37.95	$18.78	$15.20	$0.05	$71.98	$37.95
2013	$40.39	$9.79	$17.29	$0.05	$67.52	$39.91	$38.71	$19.58	$17.29	$0.05	$75.63	$40.92
2014	$46.87	$9.99	$28.81	$0.23	$85.90	$46.87	$29.70	$19.98	$28.81	$0.23	$78.72	$29.70
2015	$53.82	$10.07	$30.66	$0.23	$94.78	$53.82	$34.74	$20.14	$30.66	$0.23	$85.77	$34.74
2016	$85.12	$10.21	$30.66	$0.30	$126.29	$38.28	$61.24	$20.41	$30.66	$0.30	$112.61	$23.42
2017	$66.17	$10.23	$14.15	$0.30	$90.85	$39.90	$49.50	$20.45	$14.15	$0.30	$84.40	$22.85
2018	$79.09	$10.47	$20.39	$0.30	$110.25	$48.35	$43.74	$20.94	$20.39	$0.30	$85.37	$17.45
2019	$67.32	$10.63	$20.26	$0.30	$98.51	$40.14	$37.54	$21.26	$20.26	$0.30	$79.36	$17.98
2020	$72.24	$10.91	$27.57	$0.12	$110.84	$52.76	$37.18	$21.82	$27.57	$0.12	$86.69	$17.87
2021	$48.42	$11.11	$38.52	$0.15	$98.20	$48.42	$35.47	$22.23	$38.52	$0.15	$96.37	$35.47

Notes:

(1) Total USBR rate given for non-full cost users only, as they represent the majority of water users.

(2) Cost-of-service for agricultural and municipal and industrial users includes a capital repayment rate and an operation and maintenance (O&M) rate. For municipal and industrial customers, cost-of-service also includes a deficit charge, which includes interest on unpaid O&M and interest on capital and on unpaid deficit.

(3) Restoration fund charges apply October 1 through September 30. All other rates effective March 1 through following February.

(4) Beginning in 1998, the San Luis-Delta Mendota Water Authority instituted this charge to "self-fund" costs associated with maintaining the Delta-Mendota Canal and certain other facilities, which were formerly funded directly by the Bureau of Reclamation. SLDMWA issues preliminary rates in December for the upcoming contract year (March-February). These rates are used for rate-setting purposes; actual rates may vary.

(5) The contract rate is the minimum rate CVP contractors are allowed to pay. To the extent that the contract rate does not cover interest plus actual operation and maintenance costs, a contractor deficit is accumulated that is charged interest at the current-year treasury borrowing rate.

(6) Per the amendatory contract with the USBR "out of basin" capital costs that were previously included in the cost of service are now under a separate repayment contract.

(7) Cost of service rates are inclusive of USBR direct pumping and Project Use Energy costs.

APPENDIX G LIST OF ACRONYMS

List of Acronyms

AF or A/F	acre-foot
AFY	acre-foot per year
AG	agriculture
BMP	Best Management Practices
CASGEM	California Statewide Groundwater Elevation Monitoring
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CIMIS	California Irrigation Management Information System
COC	Constituent of Concern
CVP	Central Valley Project
District or SBCWD	San Benito County Water District
CWD	County Water District
DDW	Division of Drinking Water
DWR	California Department of Water Resources
DWTP	Domestic Wastewater Treatment Plant
ET	evapotranspiration
ft	feet
GAMA	Groundwater Ambient Monitoring and Assessment
GICIMA	Groundwater Information Center Interactive Map
GPBO	General Basin Plan Objective
gpd	gallons per day
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GW	groundwater
HUA	Hollister Urban Area
IRWMP	Integrated Regional Water Management Plan
ITRC	Irrigation Training and Research Center, California Polytechnic State University
IWTP	Industrial Wastewater Treatment Plant
M&I	Municipal and Industrial
MA	Management Area
MCL	Maximum Contaminant Level
MGD	million gallons per day
msl	mean sea level
MT	Minimum Threshold
MW	Monitored well
NGVD	National Geodetic Vertical Datum
pdf	Adobe Acrobat Portable Document Format
PPWD	Pacheco Pass Water District
PVWMA	Pajaro Valley Water Management Agency
RW	recycled water
RWQCB	Regional Water Quality Control Board

List of Acronyms (cont.)

SCVWD	Santa Clara Valley Water District
SEIR	Supplemental Environmental Impact Report
SGMA	Sustainable Groundwater Management Act
SLDMWA	San Luis & Delta-Mendota Water Authority
SMCL	Secondary Maximum Contaminant Levels
SSCWD	Sunnyslope County Water District
USBR	U.S. Bureau of Reclamation
UWMP	Urban Water Management Plan
WRA	Water Resources Association of San Benito County
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant
WY	water year