San Benito County Water District

Annual Groundwater Report 2018

TODD GROUNDWATER

ANNUAL GROUNDWATER REPORT

December 2018

TODD GROUNDWATER

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SIGNATURE PAGE

Iris Priestaf, PhD

President

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EXECUTIVE SUMMARY

This Annual Groundwater Report for San Benito County Water District (District) describes groundwater conditions in the San Benito County portion of the Gilroy-Hollister Basin. Prepared at the request of the District Board of Directors and consistent with the special act of the State that established the District, it documents water sources and uses, groundwater elevations and storage, and management activities for water year 2018 and provides recommendations.

2018 was a dry year. However, Central Valley Project (CVP) water allocations for agriculture and for municipal uses for March 2017-February 2018 were set at 100 percent of the contract and for March 2018-February 2019 were set at 50 percent and 75 percent respectively. The District is using this available imported water, providing it to agricultural users, treating CVP water in the newly-expanded Lessalt and newly-completed West Hills water treatment plants for municipal users, and percolating CVP water in off-stream ponds. In 2018, groundwater elevations generally rose across the basin. Overall, the basin is recovering from the most recent drought (2011-2016) but at a slower rate than in the wet year of 2017. Groundwater storage increased overall despite local declines in Pacheco and Bolsa subbasins.

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.

Passage of the Sustainable Groundwater Management Act (SGMA) in 2014 has created a new framework for groundwater basin management, monitoring, and reporting by local agencies and the District has responded proactively, becoming the exclusive Groundwater Sustainability Agency (GSA) for the subbasins of the Gilroy-Hollister Basin within San Benito County and the adjoining Tres Pinos Valley Basin. As of 2018, SBCWD is progressing toward consolidation of these basins into a single North San Benito Basin and has initiated preparation of a Groundwater Sustainability Plan (GSP) for the North San Benito Basin. In 2018, SBCWD was awarded a State-funded grant of $830,000 to help fund preparation of the GSP.

GSP development in the North San Benito Basin is based on a strategy to:

- Build on existing monitoring, management, and reporting
- Extend existing monitoring, management, and reporting to the entire North San Benito Basin
- Update and refine existing plans, programs, and management tools to address SGMA criteria
- Comply with SGMA requirements and preserve local control of groundwater management.

This strategy recognizes that, while historical management has been effective, SGMA has requirements that are more detailed and comprehensive than ever before. This affects the Annual Reports, which are being modified to satisfy SGMA and GSP regulations, while continuing to fulfill requirements of the District Act. Consistent with the District Act, recommendations are provided regarding continuation of District importation of CVP water and percolation activities and definition of groundwater charges. A key recommendation is to expand the District's groundwater monitoring network to the entire North San Benito Groundwater Basin and to improve the monitoring program to ensure accurate and consistent data for the Annual Reports and for GSP development.

1-INTRODUCTION

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 allows the Board of Directors to require 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 should the District choose to prepare one. Annual Reports have been prepared historically to analyze the status of the groundwater basin, to evaluate conditions in the next year, and to provide management recommendations. Previous Annual Reports have focused on portions of the Gilroy-Hollister Basin within San Benito County and on Zone 6.

With passage of the Sustainable Groundwater Management Act (SGMA) in 2014, the State has created a new framework for groundwater basin management, monitoring, and reporting by local agencies. The District has responded proactively. In 2017, the District became the exclusive Groundwater Sustainability Agency (GSA) for the subbasins of the Gilroy-Hollister Basin within San Benito County and in 2018 became GSA for the adjoining Tres Pinos Valley Basin. Santa Clara Valley Water District (SCVWD) is the GSA for small portions of the Gilroy-Hollister basin in Santa Clara County. Recognizing that the Gilroy-Hollister and Tres Pinos Valley basins are hydraulically connected, SBCWD is seeking their consolidation into a single basin, termed the North San Benito Basin. SBCWD currently is preparing a Groundwater Sustainability Plan (GSP) for the North San Benito Basin in cooperation with SCVWD for the small portions of the newly defined basin within Santa Clara County. In 2018, SBCWD was awarded a State-funded grant of $830,000 to help fund preparation of the GSP.

Consistent with the District Act and prepared at the request of the District, this Annual Report documents water supply sources and use, groundwater elevations and storage, and District management activities from October 2017 through September 2018. It fulfills the minimum content for a District Annual Report and presents an overview of the state of the groundwater basin with recommendations for management. It conveys considerable information, 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 sections of this Annual Groundwater Report have been reorganized relative to recent Annual Reports; this reorganization is intended to support a transition to annual reporting as required by SGMA and the SGMA GSP Regulations. As development of the GSP proceeds over the next three years, the SBCWD Annual Reports may be modified further to ensure compliance with SGMA. While complying with GSP regulations, Annual Reports will also adhere to requirements for SBCWD annual reporting, as described in the District Act.

Acknowledgments

This report was prepared by Iris Priestaf, PhD, Maureen Reilly, PE, 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.

2-GEOGRAPHIC AREA

As described below, the geographic area and boundaries of local groundwater basins have been defined differently by the District and by the California Department of Water Resources (DWR) for their specific purposes. Like previous annual reports, this Annual Report focuses on the northern San Benito County portions of the Gilroy-Hollister Groundwater Basin, including the Bolsa, Hollister, and northern San Juan Bautista subbasins. Nonetheless, it is recognized that the North San Benito Basin (Basin) extends farther to the south and the entire basin is the subject of the GSP. To support a transition to SGMA, the monitoring program is being improved and extended south; a summary is provided in this report.

District-Defined Subbasins

For the past 22 years, the Annual Reports have focused on subbasins delineated in 1996 and based on hydrogeologic and other local factors (e.g., Zone 6 boundaries). These subbasins are shown in **Figure 2-1.** Six of these subbasins are 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; of the subbasins shown on the map, only the Bolsa subbasin receives no direct CVP deliveries and relies on local groundwater.

DWR-Defined Basins

As the District proceeds with SGMA planning and implementation, its area of focus is changing from the 1996-defined subbasins to the North San Benito Basin and GSP area outlined in **Figure 2-2**. The GSP area includes the Bolsa, Hollister, and San Juan Bautista subbasins of the Gilroy-Hollister Basin and the Tres Pinos Valley Basin previously defined by DWR. Groundwater basins wholly or partially in San Benito County as defined historically by DWR are shown in Figure C-1 in Appendix C.

The Plan Area is predominantly in San Benito County with small portions of the Hollister and San Juan Bautista subbasins extending into Santa Clara County. Recognizing that these basins are contiguous, hydraulically connected, and comprehensively managed, in 2018 SBCWD submitted a request to DWR to consolidate the four basins into a single basin, termed the North San Benito Basin. As of November 29, this consolidation has draft DWR approval. Over the next few years, the annual report will transition from examining trends by subbasin to management areas. These management areas will be defined as part of the GSP process.

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 likely to be expanded and revised in the future as data needs are identified in the GSP, for example to address topics such as subsidence and to represent the entire North San Benito Basin.

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. Two CIMIS stations are active in the GSP Area, both of which also measure evapotranspiration (ETo):

- #126 San Benito, located at the SBCWD office on Mansfield Road with a record beginning in June 1994
- #143, San Juan Valley, located at the San Juan Oaks Golf Course with a record beginning in January 1998.

Historical rainfall data are available for Hollister dating back to 1874. For the Annual Groundwater Reports, historical annual precipitation has been compiled and reported using the Hollister rain gage for water years 1875-1995 and the CIMIS San Benito station thereafter. Monthly precipitation and evapotranspiration data for the Hollister #126 CIMIS station are tabulated in **Appendix B**.

Surface water flows and percolation. Surface water monitoring is summarized in **Appendix C** of the Annual Groundwater Reports (e.g., Todd, 2017). **Appendix C** includes Figure C-1 showing groundwater basins and Figure C-2 showing the location of five active and eight inactive USGS stations in and near the San Benito River system. The period of record also is shown; streamflow data are regularly downloaded. Figure C-3 shows 30 locations (including Pacheco Creek in Santa Clara County) with miscellaneous surface water measurements taken by the District. These measurements were associated with various studies, many involving evaluation of streamflow percolation to groundwater. While these locations have not been monitored since 2013, the data may provide useful as part of GSP planning and implementation, specifically in considering historical groundwater-surface water interactions and in evaluating potential managed aquifer recharge.

Appendix D 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. 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.

Wells and groundwater pumping. SBCWD monitors groundwater pumping in Zone 6. Pumping amounts are calculated semiannually by metering the number of hours of pump operation and multiplying by the average discharge rate, which is measured a few times per year. This monitoring program began in

about 1990 (soon after CVP imports started) and was based on recognition that CVP imports resulted in reduced pumping, increased recharge, and sustainable groundwater storage with regional benefits. This contrasts with other California basins where imported water was used to increase irrigated acreage (L&S, 1991) without managing effectively for sustainability. 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. Groundwater pumping data and estimates are summarized by major use category and subbasin in **Appendix E.**

Groundwater levels. SBCWD has had a semi-annual groundwater level monitoring program since Water Year (WY) 1977; groundwater level data gathered by 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 level contour maps, change maps, hydrographs, groundwater level profiles, and storage change computations presented in the Annual Reports. The SBCWD monitoring program includes wells in the Pacheco Valley in Santa Clara County. SCVWD's monitoring program provides data for the southern Llagas Basin; these shared data are used in the SBCWD annual groundwater level maps.

SBCWD is the designated CASGEM monitoring agency for the GSP Area; CASGEM data are available from DWR's online Groundwater Information Center Interactive Map (GICIMA).

Land use. Land use maps have been prepared by DWR for San Benito County, with the earliest maps in 1967. GIS-based land use maps are available online for 1997, 2002, and 2014 with the DWR Land Use Viewer (DWR, 2018b). In 2012, SBCWD prepared an update of the 2002 map to 2010 using 2010 aerial photography. The 1997, 2002, and 2010 maps were used in preparing the Salt and Nutrient Management Plan (Todd, 2014) and in updating water budgets for the 2014 Annual Groundwater Report.

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 that contains over 450,000 records from water systems and regulated facilities. The database has been updated on a triennial basis as part of the Annual Reports; for the 2016 update, maps and data are provided in an appendix of that report. SBCWD surface water quality monitoring sites also are identified. Monitoring for the Salt and Nutrient Management Plan is closely coordinated.

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. These are accessed for the triennial update of the SBCWD Water Quality Database.

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.

Improvements in Monitoring

In 2018, the District initiated a program to increase the number of wells for the groundwater level and groundwater quality monitoring programs. This recognizes that recent years have been marked by a declining number of wells in the program. Gradual attrition in monitored wells is a common problem where private production wells are used for monitoring and then become unavailable, for example due to loss of access or loss of the well (damaged or destroyed). Nonetheless, such attrition results in gaps in the monitoring network, interruptions in historical trend data, and an inability to analyze annual and long-term storage changes (because such analysis requires consistent pairing of annual measurements). The District program recognizes that the GSP process requires more comprehensive and rigorous monitoring.

Accordingly, the District has developed a plan to identify new locations and has detailed the process in a memorandum (**Appendix C**). Figure C-7 depicts the Basin in terms of groundwater monitoring coverage and shows target areas where additional monitoring sites are needed. The District's methodology to select existing wells or new well locations for addition to the program includes:

- Identifying Assessor Parcel Numbers in areas indicated as needing additional monitoring
- Searching through District well permit files to find existing wells in the areas of need
- Examining aerial photographs to verify the locations of permitted wells, and
- Examining the aerial photographs to identify other wells with subsequent documentation or confirmation of the well by APN or another identifier
- Identifying the well owner, requesting permission to access the well for water level measurements and/or sampling of water quality
- Once permission is granted, visiting the site and determining the method of measurement/testing
- Evaluating wells previously monitored but no longer active. This involves communicating with the owner and assessing the need for renewed access or repair.

Subsequently, information on the wells under consideration for monitoring will be summarized. The summary will include a map showing locations relative to the areas of need, tabulation of major well characteristics (construction, depth, use), and other considerations. This summary will be used to select and prioritize wells for incorporation into the program and to develop an action plan and schedule for implementation of the program. The District also is considering the possibility of pursuing grant funding for construction of dedicated monitoring wells.

This process of identifying, evaluating, and securing new monitoring sites will recur throughout the SGMA process. The GSP now under preparation will address the design of a monitoring program (including monitoring network and protocols); subsequently, SGMA requires GSP updates every five years.

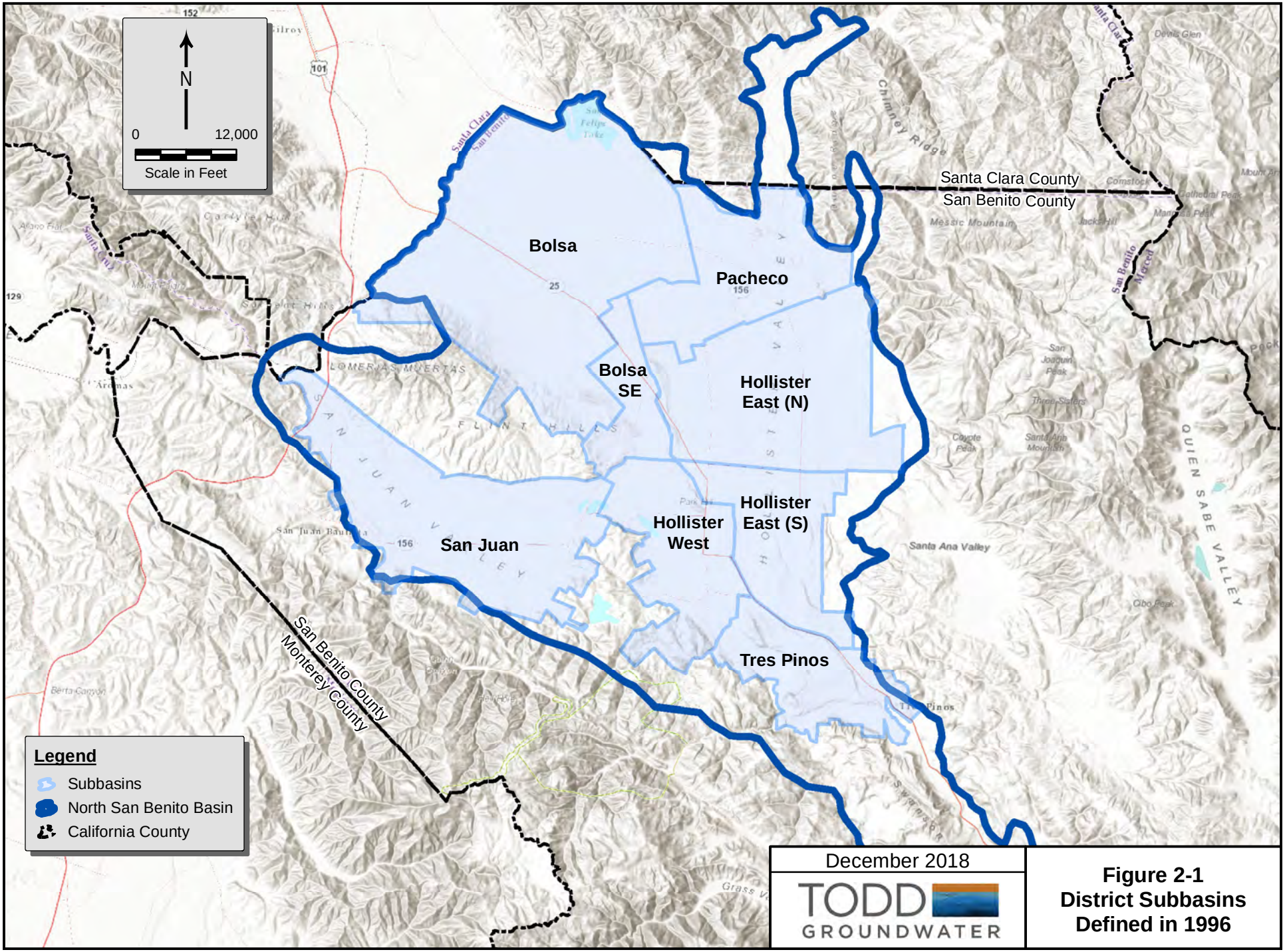

Figure 2-1
District Subbasins Defined in 1996

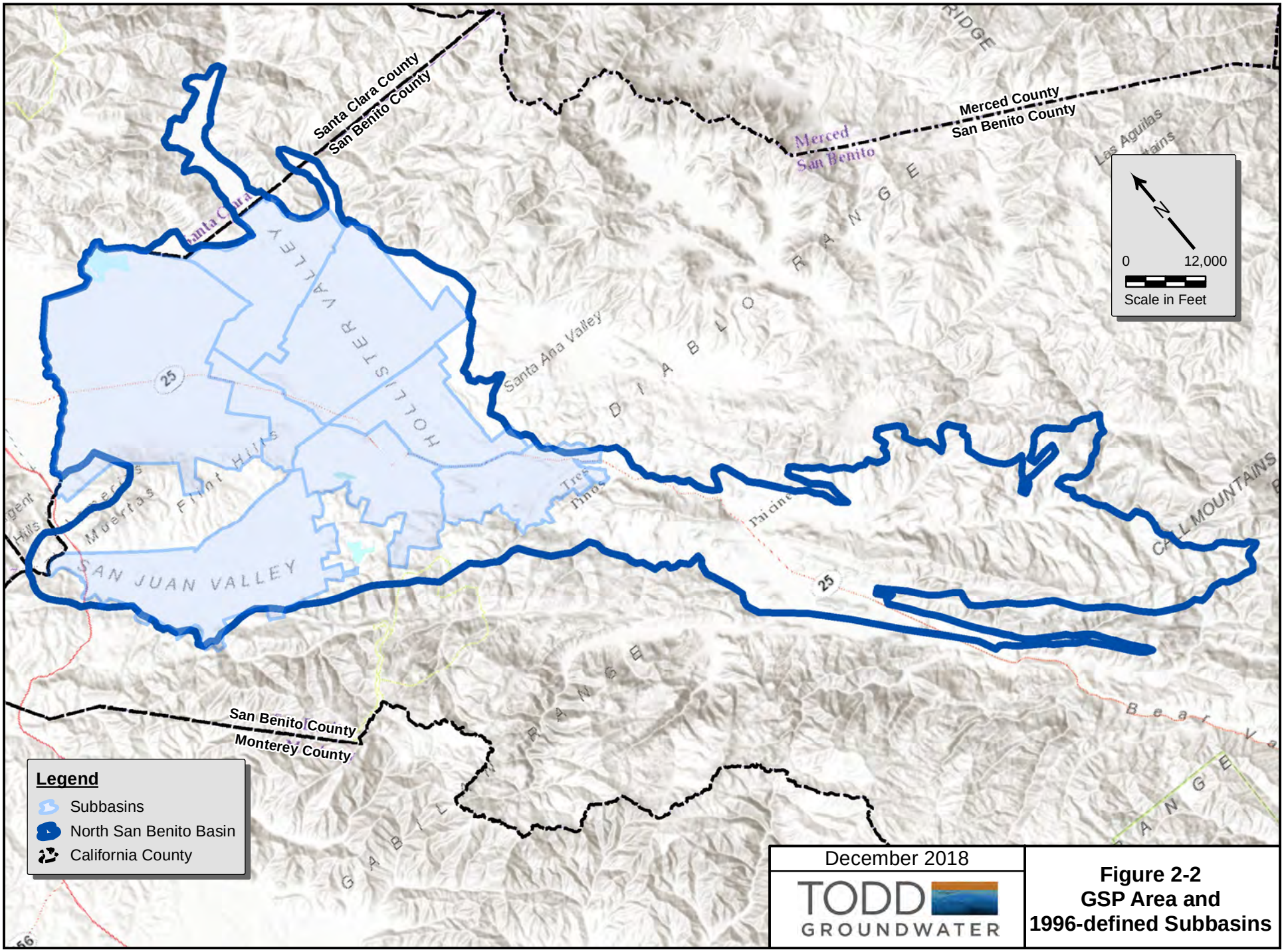
Santa Clara County
San Benito County
Merced County
San Benito County
Merced
San Benito
RIDGE
DIABLO RANGE
Santa Ana Valley
HOLLISTER VALLEY
SAN JUAN VALLEY
Flint Hills
Tres Pinos
Paicines
CACHE MOUNTAINS
Las Aguilas
25
N
0
12,000
Scale in Feet
San Benito County
Monterey County
GABILAN RANGE
Bear Va
Legend
Subbasins
North San Benito Basin
California County
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Figure 2-2
GSP Area and
1996-defined Subbasins

3-BASIN CONDITIONS

The Annual Report summarizes basin conditions including climate, groundwater elevations, groundwater storage, and groundwater level trends. Overall, Water Year 2018 was a dry hydrologic year, but CVP allocations remained high following the wet year of 2017.

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 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 reduced CVP allocations.

In 2018, overall precipitation was 8.3 inches as shown in **Figure 3-1** and documented in **Appendix B**. As shown in **Figure 3-2**, most years have been below- or near-average rainfall and relatively few years have abundant rainfall, especially since 1998. Water year 2018 was 65 percent of normal, reflecting a dry year. The basin is still recovering from the drought of 2011-2016 and another dry year may further stress groundwater reserves. With a weak-moderate El Nino expected for the 2018-2019 winter, rainfall predictions remain uncertain.

The Annual Report has relied on CIMIS station #126 since Water Year 1995. The station, located in Hollister, is maintained by the District. In recent years, the precipitation data have been affected by periodic irrigation overspray that has been recorded on the sensors. The District is considering means to resolve this problem.

Water Year Type

SGMA requires categorization of *water year type,* which is a classification of the amount of annual precipitation in a basin. Water year type is intended to aid in the evaluation of information such as water level hydrographs and groundwater storage changes. **Table 3-1** documents the classification developed for North San Benito, which uses five water year types (critically dry, dry, normal, above normal, wet). The methodology for defining the water year types is based on DWR's Water Budget Best Management Practice (BMPs) Document (DWR, 2016) and is consistent with DWR water year typing in the Central Valley which has been applied to years back to 1924. For North San Benito, the annual rainfall amounts in Hollister over the past 30 years (1988-2018) were expressed as percentages of average annual rainfall. These were then sorted into quintiles, reflecting the five categories. The sorting into quintiles resulted in the classification shown in Table 3-1. The water years from 1924 to 2018 were then classified using the numeric values in Table 3-1. The classified years are illustrated in **Figure 3-3.**

3-BASIN CONDITIONS

The water year classification is based on local Hollister rainfall as representative of the Basin and San Benito River watershed. Local precipitation is important for the overall water balance of the area. While CVP allocations are based on precipitation patterns in the Sierra and Central Valley and are critical to avoiding overdraft, local precipitation has a larger impact by volume on the groundwater basin. Surface water recharge, deep percolation, and irrigation demand are all dependent on local rainfall.

Table 3-1. Water Type Classification

Water Year Type		Range of percent normal
Wet	W	>125
Above Normal	AN	100-125
Below Normal	BN	80-100
Dry	D	65-80
Critically Dry	C	<65

Groundwater Elevations

In October 2018, the District collected groundwater elevations in 97 wells. **Table 3-2** tallies the number of monitored wells by subbasin and **Figure 3-4** shows the well locations in the current monitoring network and the groundwater elevation contours for October 2018.

Groundwater elevations have generally risen throughout the basin over 2018, except for northern portions of Bolsa and Pacheco. Overall, the basin is still recovering from the most recent drought (2011-2016) but at a slower rate than in the wet year of 2017. More information is in **Appendix C.**

Table 3-2. 2018 Monitoring Network

Subbasin	Number of Wells
San Juan	12
Hollister West	9
Tres Pinos	12
Pacheco	13
Northern Hollister East	10
Southern Hollister East	2
Bolsa SE	1
Bolsa	14
Other Subbasins	24
Total	**97**

Change in Storage

Groundwater elevation changes from October 2017 to October 2018 were used to determine the change in storage. **Figure 3-5** displays change data spatially with a color ramp, ranging from red that indicates as much as a 60-foot decline in groundwater levels to blue that indicates as much a 60-foot increase in storage. Groundwater levels and storage continue to recover across the basin. Most areas have shown slight increases (less than 20 feet) from 2017, except portions of Pacheco and Bolsa.

Change is storage is the net volume of water added to or removed from the basin over the water year. The change in storage was calculated using the change in groundwater elevations (feet) and multiplying by the total area (acres) to determine the total bulk volume of change. This bulk volume of change was then multiplied by the average storativity of the subbasin to represent the amount of water that a given volume of aquifer will produce. The storativity values for each subbasin were derived from a numerical model of the basin developed by Yates and Zhang (2001). **Table 3-3** documents the change in groundwater storage.

Figure 3-6 shows the cumulative change in storage for each subbasin over time; the graph extends from 2005 to present, reflecting available data and consistent methodology, but may be extended into the past for the GSP. As shown, groundwater storage was relatively steady from 2005 to 2012. Water years 2012 through 2016 show the decline in storage due to decreased recharge and increased groundwater production during the drought. All subbasins showed recovery in 2017 and most continued this recovery in 2018. San Juan subbasin had the most significant decline in groundwater storage and while recovering, groundwater elevations have not returned to pre-drought levels.

Table 3-3. 2018 Change in Groundwater Storage

Subbasin	Subbasin Area (Acres)	Average Change in Groundwater Height (feet)	Change in Volume (Acre-Feet)	Average Storativity	Change in Storage (Acre-Feet)
San Juan	11,708	3.55	41,538	0.05	2,077
Hollister West	6,050	9.51	57,559	0.05	2,878
Tres Pinos	4,725	0.91	4,314	0.05	216
Pacheco	6,743	-2.41	-16,281	0.03	-488
Northern Hollister East	10,686	2.55	27,281	0.03	818
Southern Hollister East	5,175	7.23	37,418	0.03	1,123
Bolsa SE	2,691	7.17	19,286	0.08	1,543
TOTAL ZONE 6			**171,115**		**8,166**
Bolsa	20,003	-2.57	-51,374	0.01	-514
TOTAL BASIN-WIDE			**119,741**		**7,652**

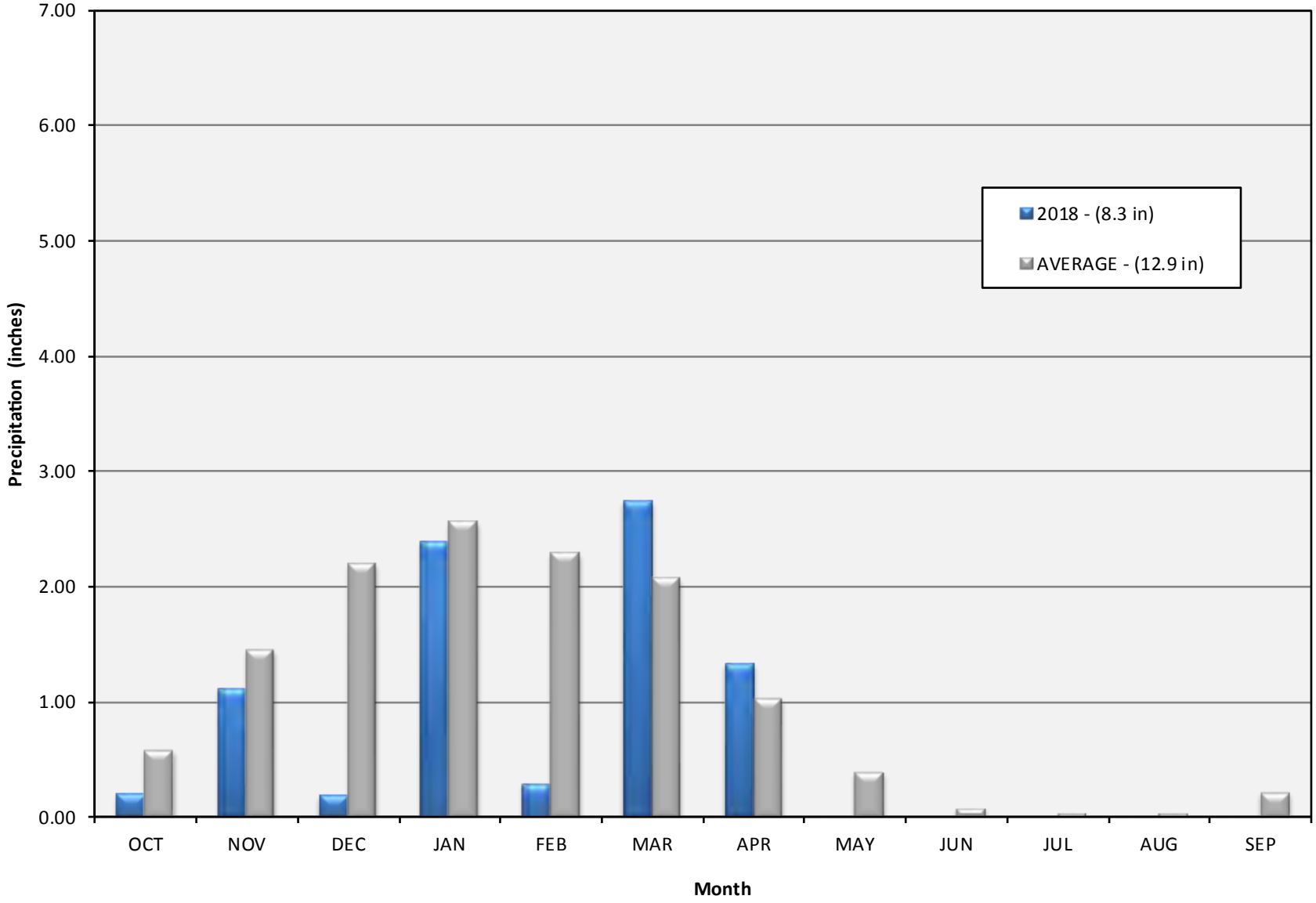
Groundwater Trends

Long term changes in groundwater elevations are illustrated in composite hydrographs; such hydrographs have been prepared annually since the early 1990s. These composite hydrographs are generated by averaging elevations from key wells from each subbasin for each monitoring event. The key well locations are shown on **Figure 3-7** and **Figure 3-8** shows the composite hydrographs. It should be noted that these subbasin hydrographs represent average conditions in each subbasin and illustrate long-term trends, but do not show localized variations in groundwater elevations. Review of the composite graphs reveals recovery from historical overdraft, effects of dry and wet years, and seasonal effects.

SGMA and GSP regulations require preparation of groundwater level hydrographs for specific sites (i.e., not composite) that depict long-term groundwater elevations and historical high and lows. This Annual Report presents seven such hydrographs in **Figure 3-9**, which have been selected for their geographic distribution across the basin and for their respective long and relatively complete historical records. Groundwater levels are expressed in terms of feet above mean sea level (msl). Review of the hydrographs shows the following major features:

- Effects of historical overdraft on groundwater levels. Prior to the first delivery of CVP water (beginning September 1987), a state of overdraft affected the basin. This is most clearly shown by the hydrograph for Hollister East (which shows groundwater level declines from 200 feet msl to nearly sea level) but is apparent in other hydrographs.
- Recovery from historical overdraft after 1987 is apparent in the rise of groundwater levels, followed by general flattening of groundwater level trends with conjunctive management. This is apparent in the Hollister West and San Juan graphs among others.
- Groundwater levels also respond to wet cycles and drought; for example, the wet years in the early 1980s are apparent from groundwater level increases in Pacheco, Hollister West, and San Juan and likely reflect substantial stream percolation. Response to drought is indicated, for example, by groundwater level declines during the recent drought.

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 is interpreted as long-term groundwater level declines with accounting for rainfall conditions and CVP imports. As of 2018, groundwater elevation trends do not indicate overdraft. Recovery following the drought indicates that overdraft is not anticipated for 2019.



Data have been affected by irrigation overspray.

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Figure 3-1
Water Year
2018 Precipitation

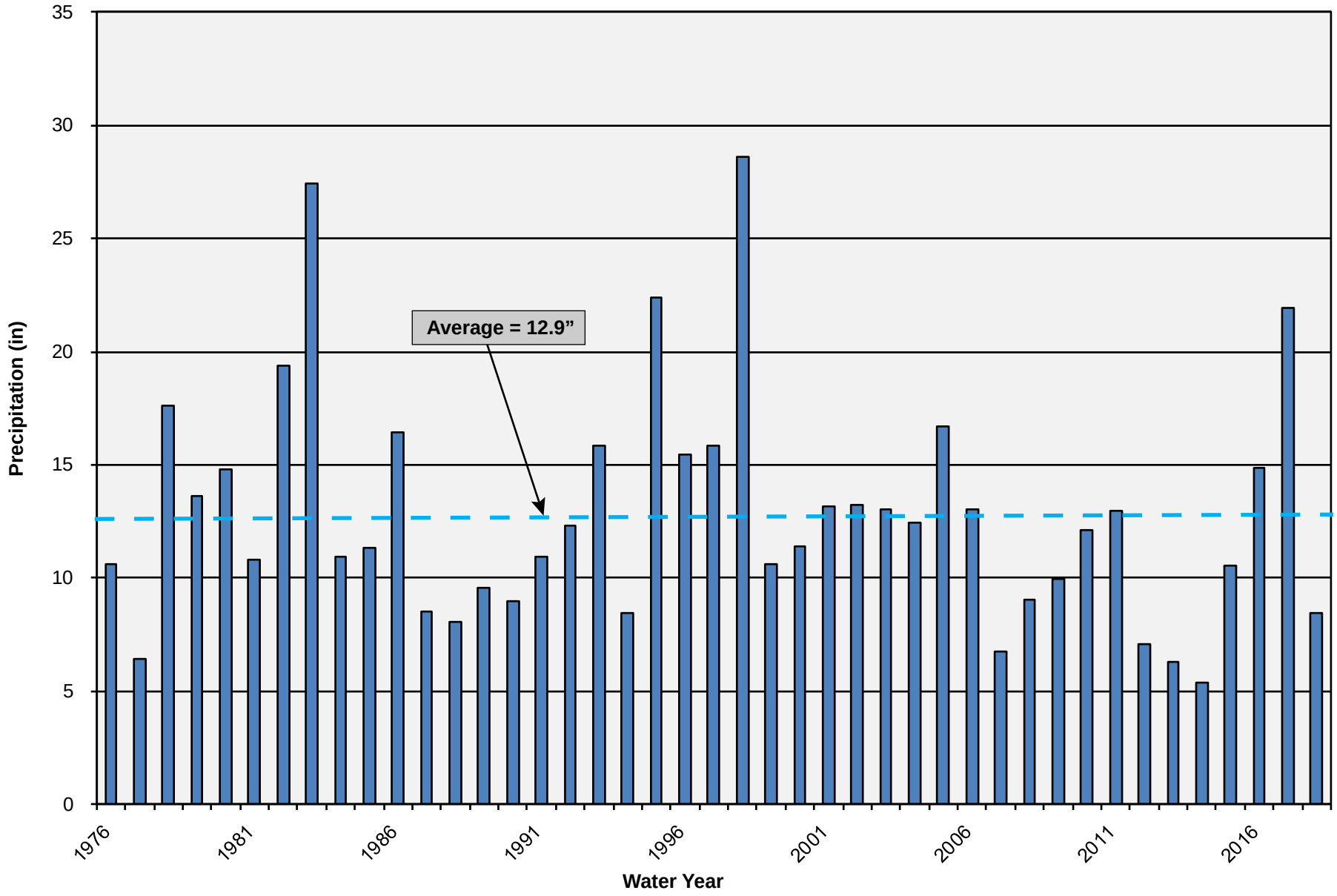

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Figure 3-2
Annual Precipitation
1976 - 2018

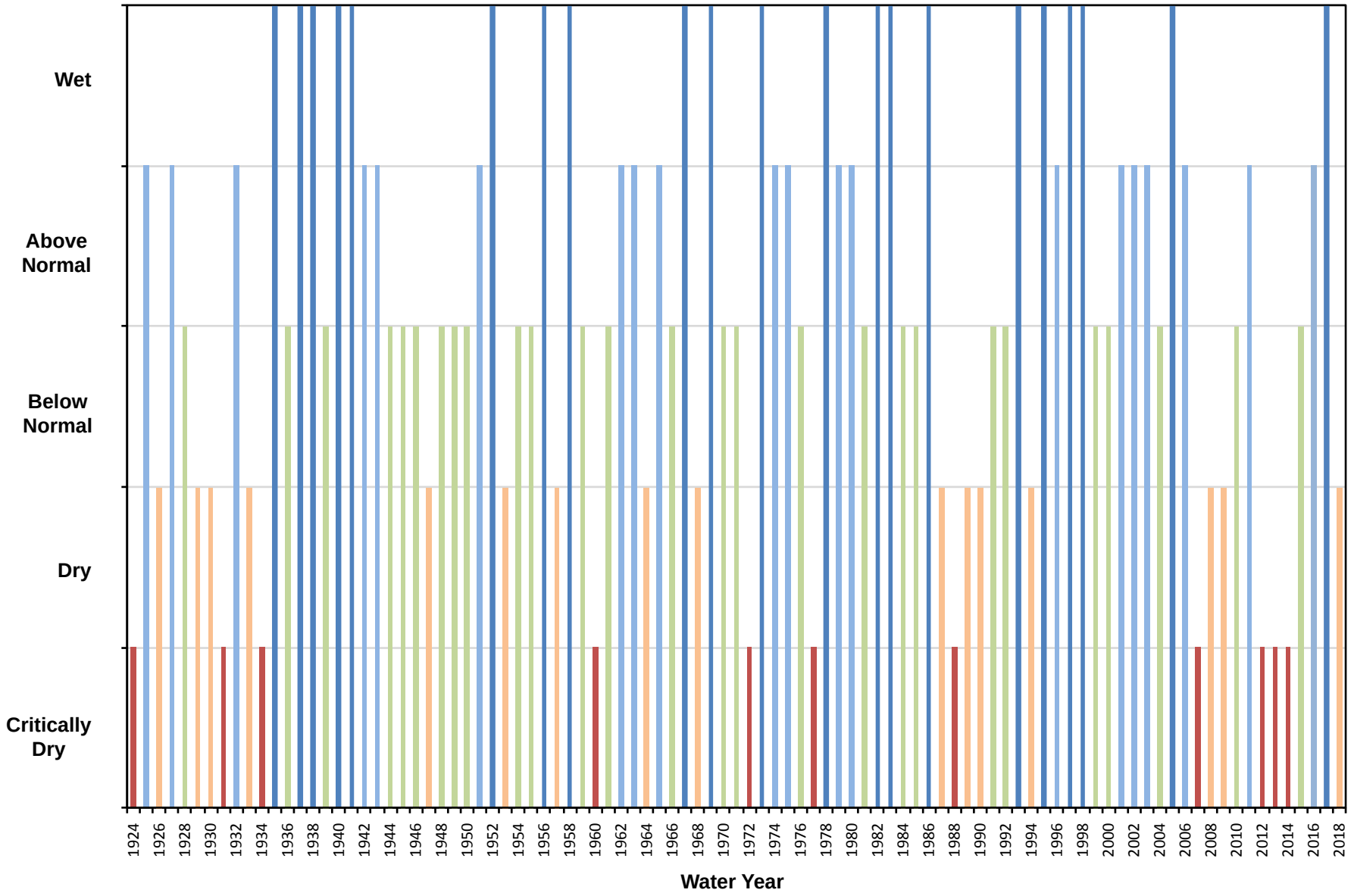

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Figure 3-3
Water Year Classification

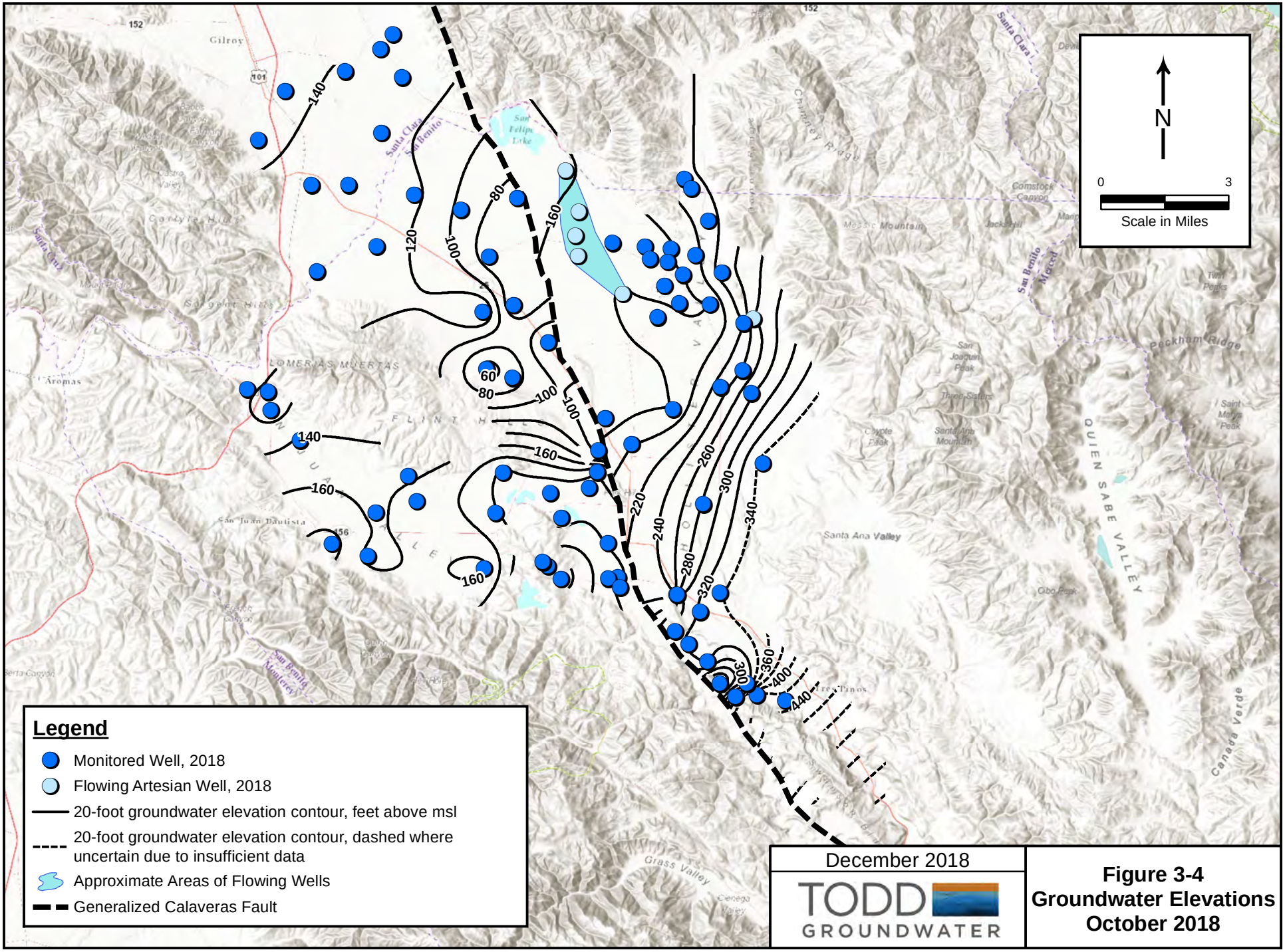
N
0
3
Scale in Miles
Legend
Monitored Well, 2018
Flowing Artesian Well, 2018
20-foot groundwater elevation contour, feet above msl
20-foot groundwater elevation contour, dashed where uncertain due to insufficient data
Approximate Areas of Flowing Wells
Generalized Calaveras Fault
December 2018
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Figure 3-4
Groundwater Elevations
October 2018

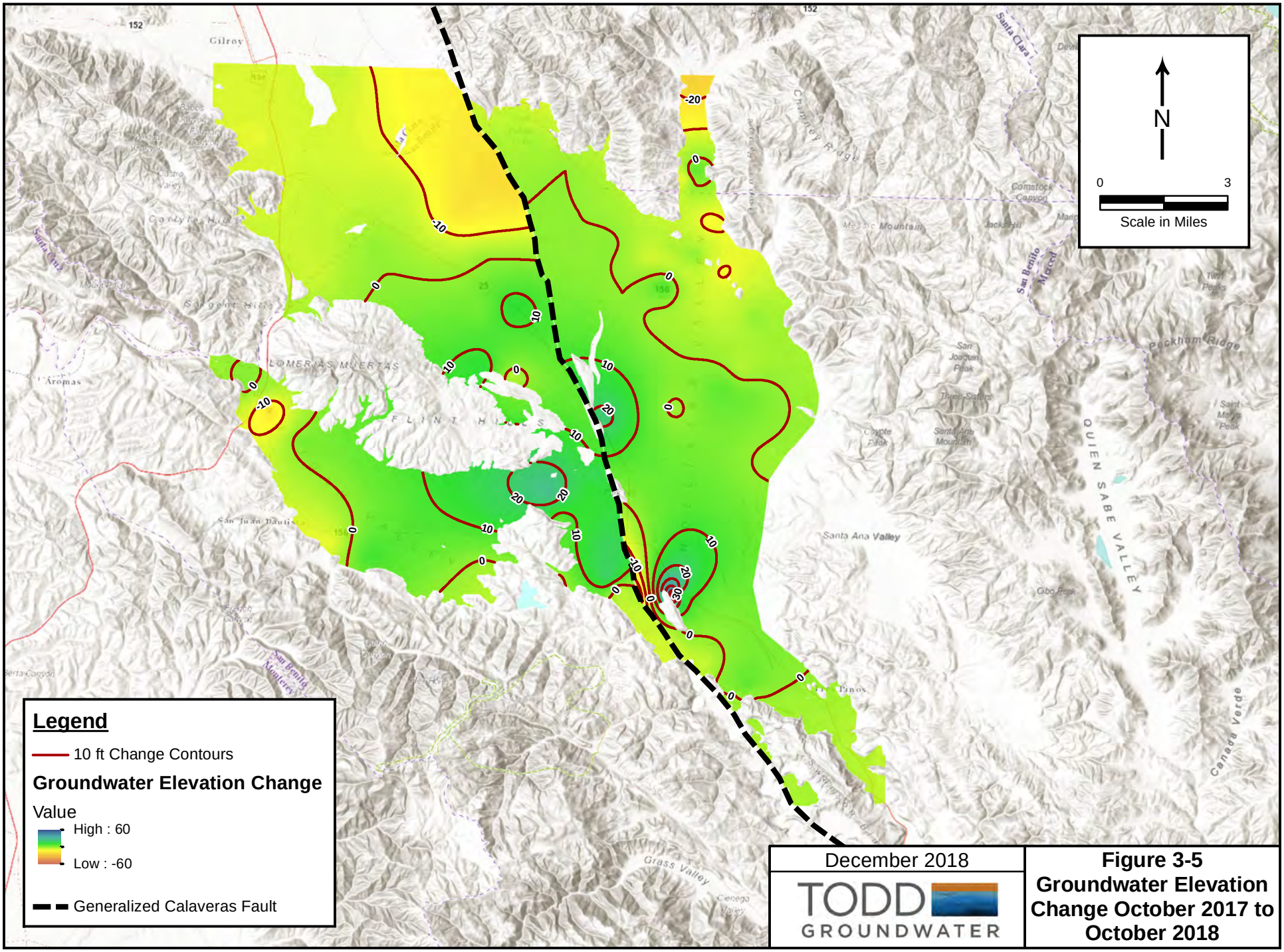
N
0
3
Scale in Miles
Legend
10 ft Change Contours
Groundwater Elevation Change
Value
High : 60
Low : -60
Generalized Calaveras Fault
December 2018
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Figure 3-5
Groundwater Elevation Change October 2017 to October 2018
Gilroy
Santa Ana Valley
QUIEN SABE VALLEY
LOMERIAS MUERTAS
FLINT HILLS
Pinos
Grass Valley
Cienega Valley

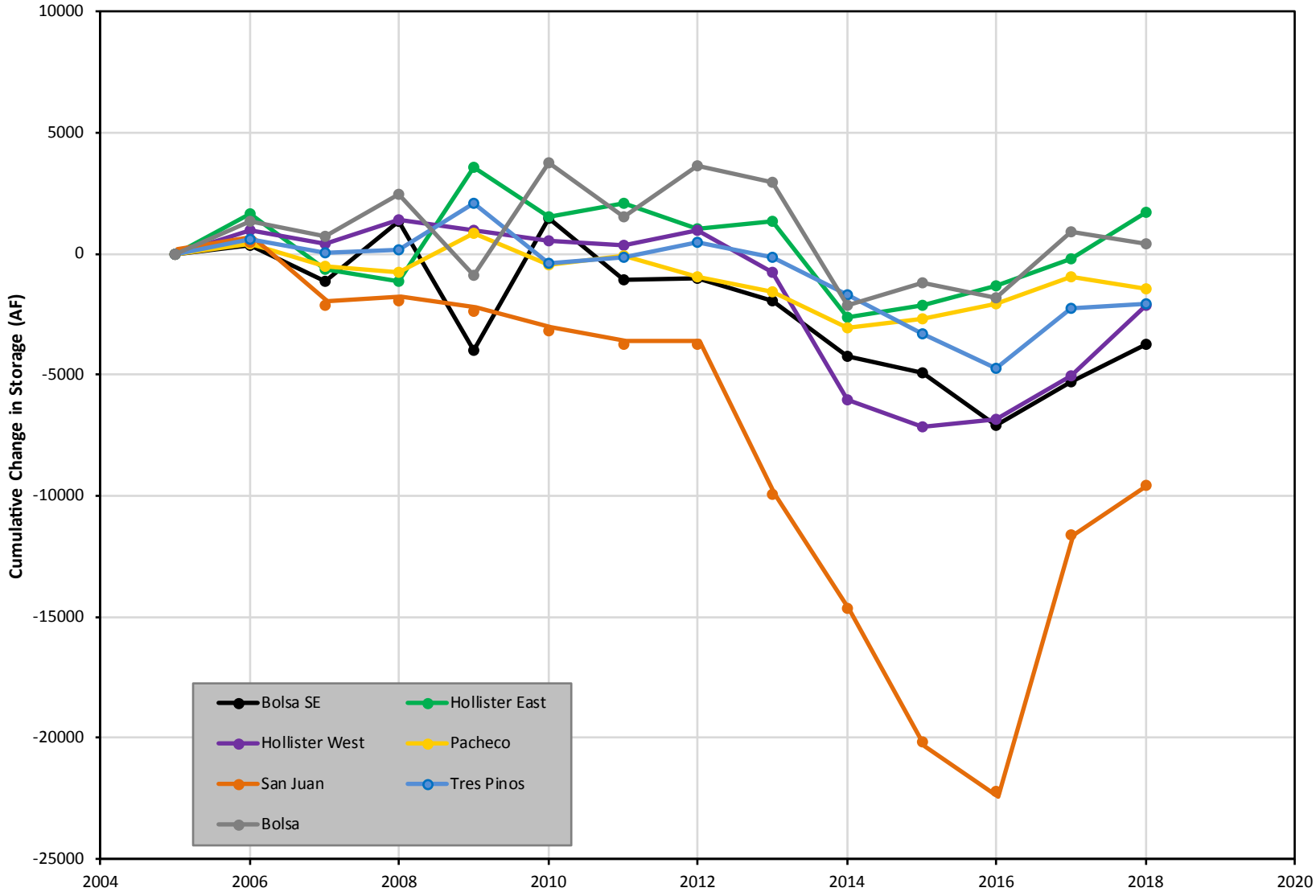

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Figure 3-6
Cumulative Change in Storage
2005 - 2018

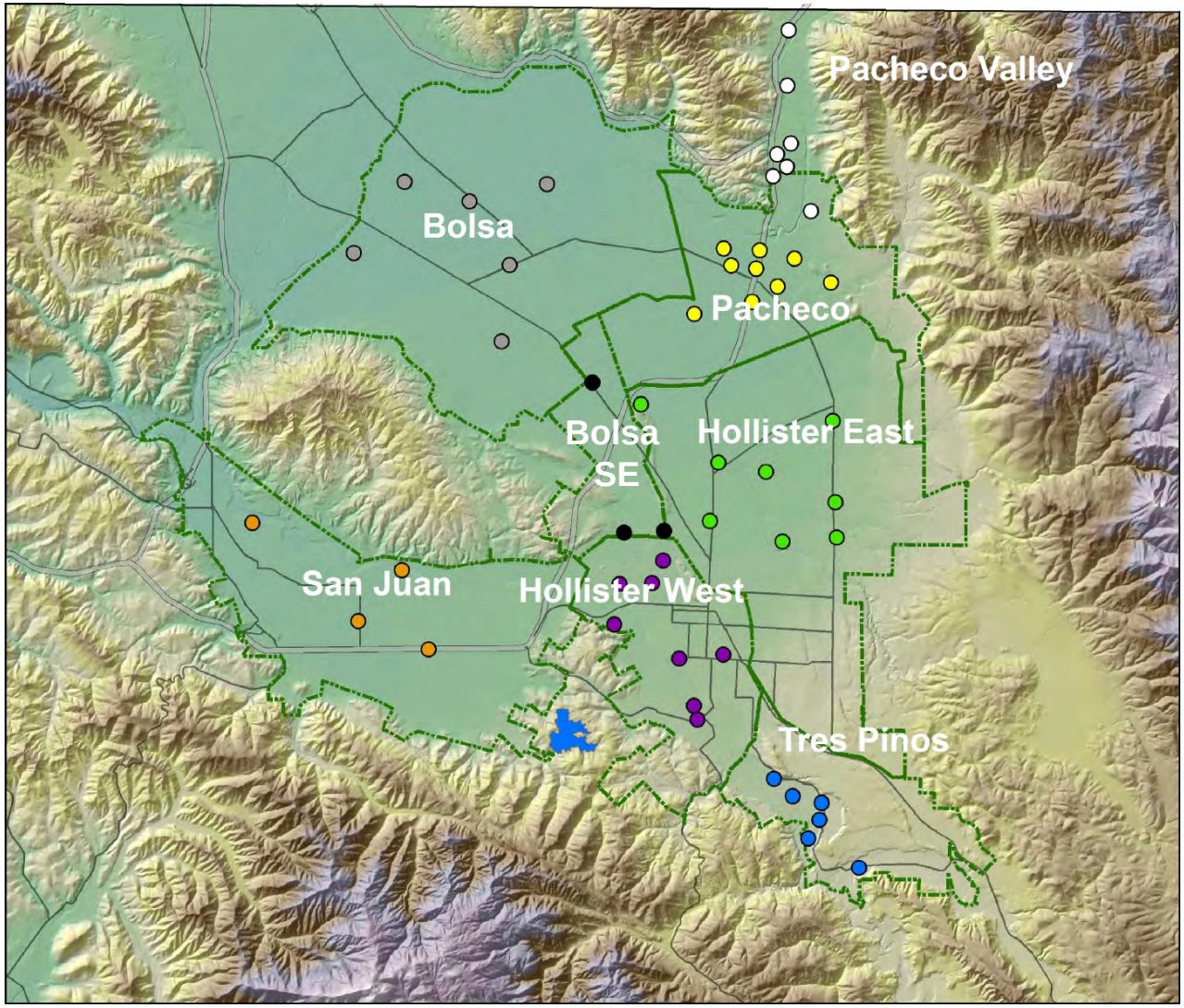

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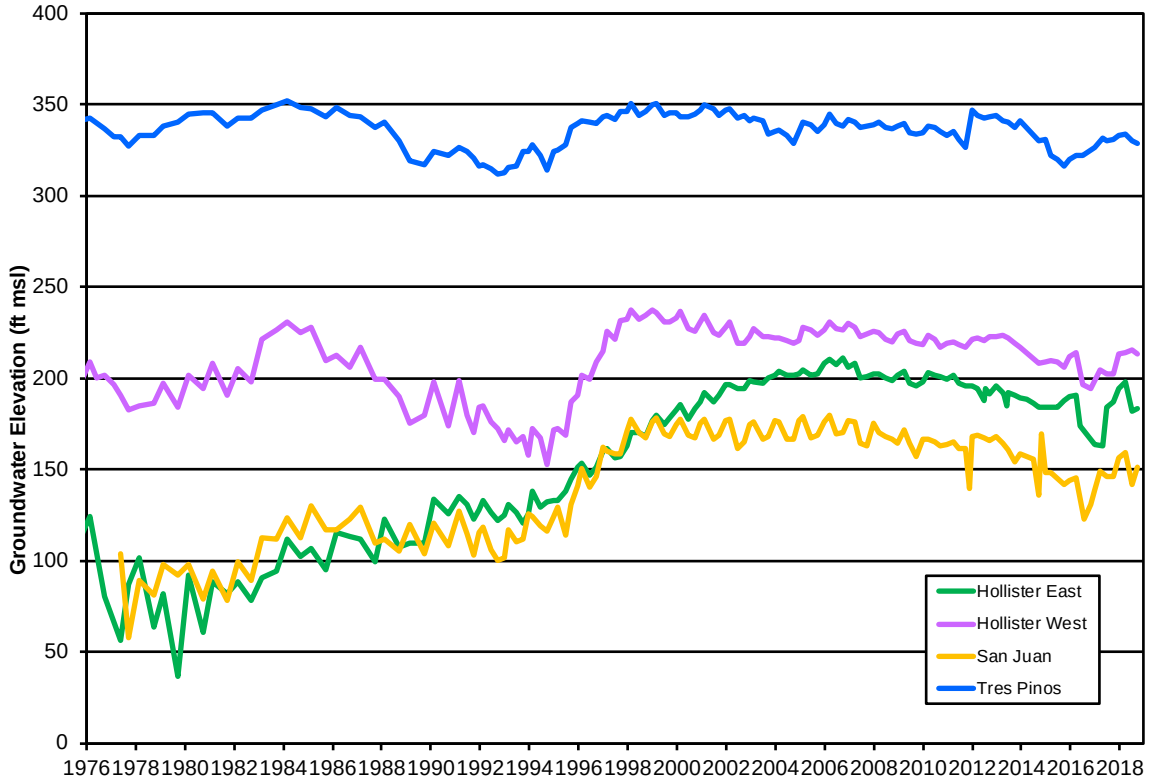
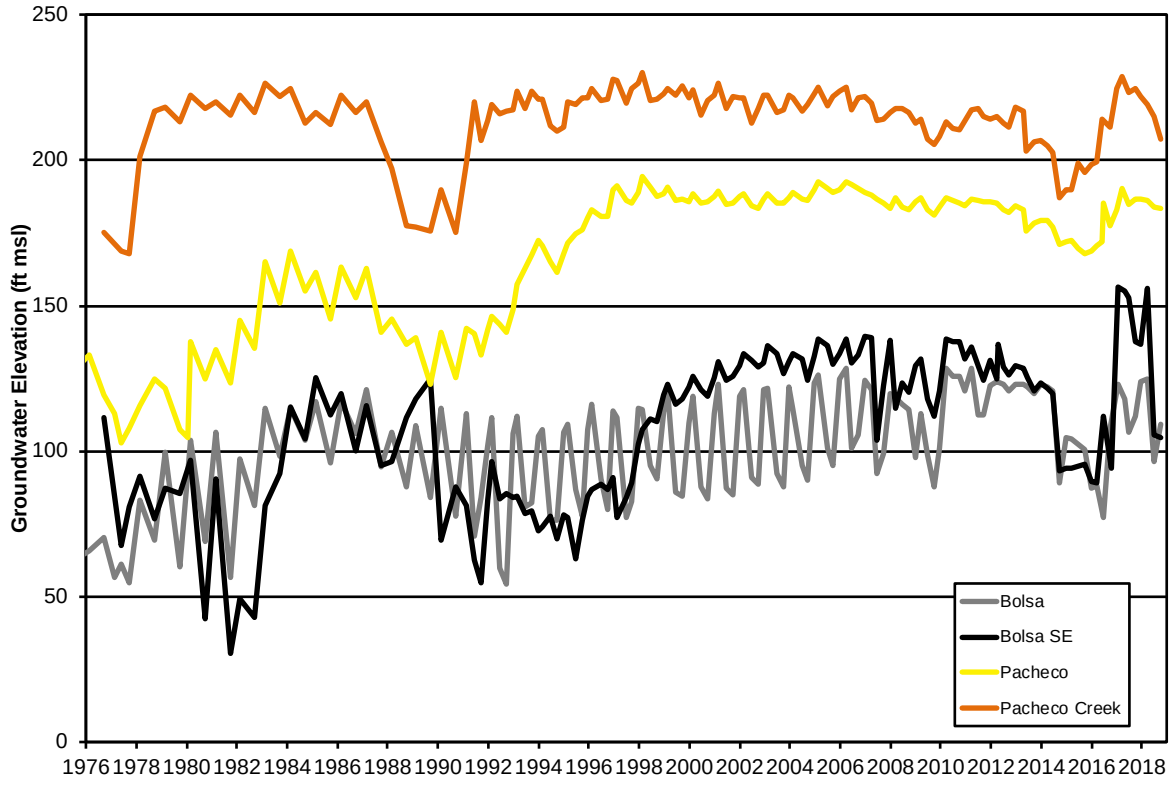
Figure 3-7
Locations of Key Wells Used in Hydrographs

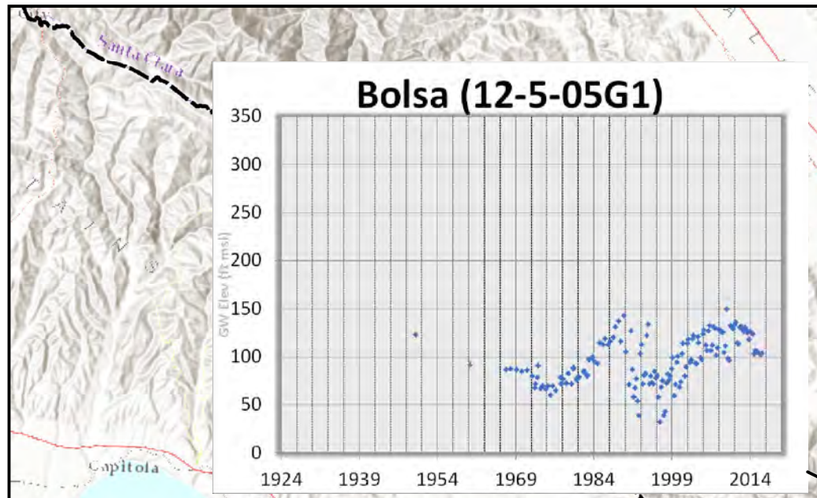


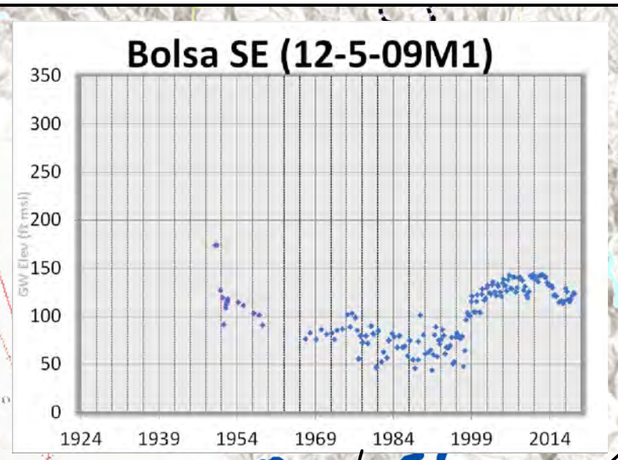


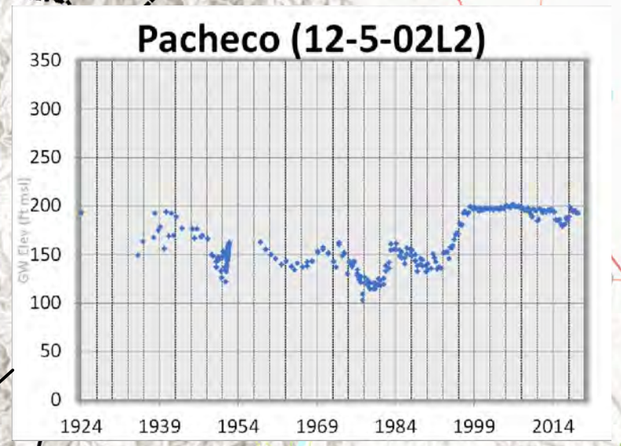
December 2018

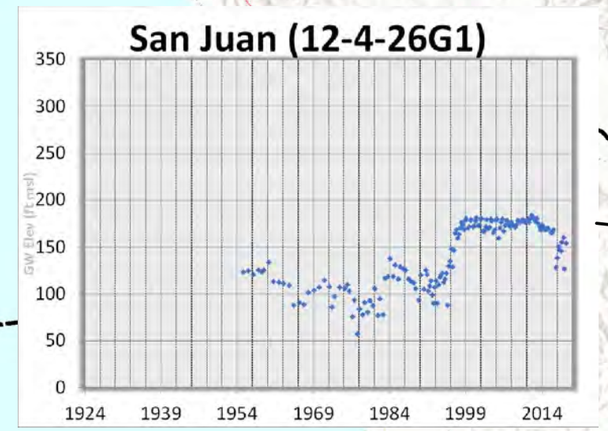
TODD GROUNDWATER

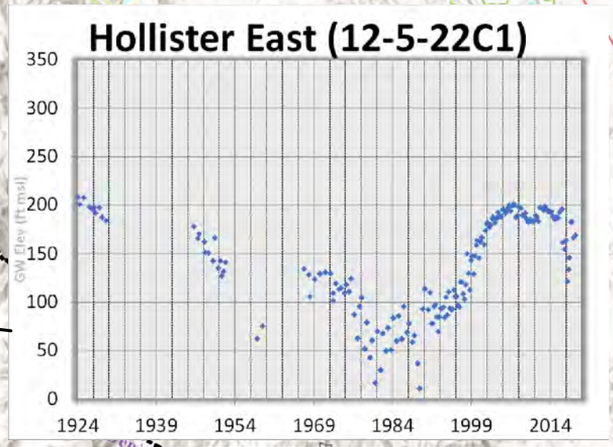
Figure 3-8
Composite Hydrographs

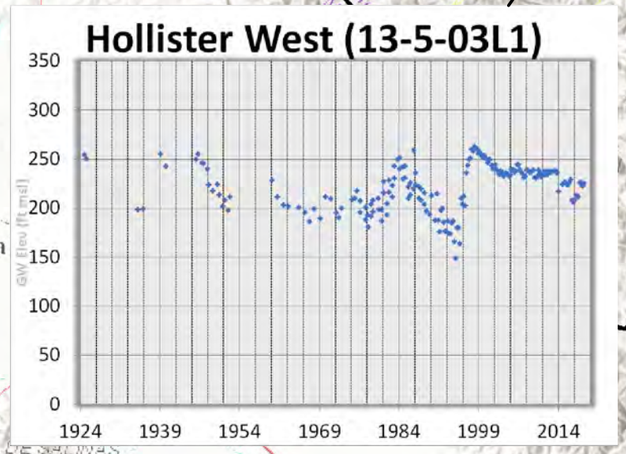


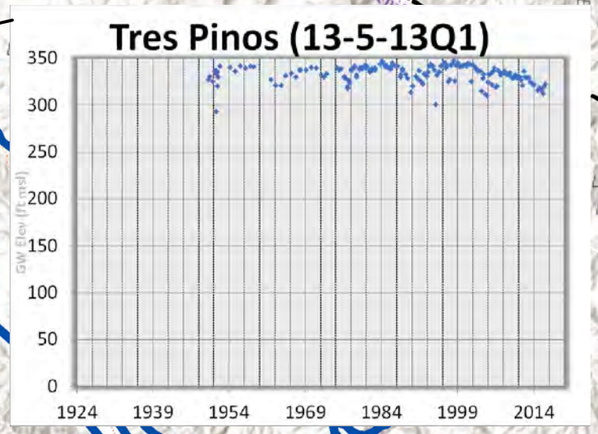


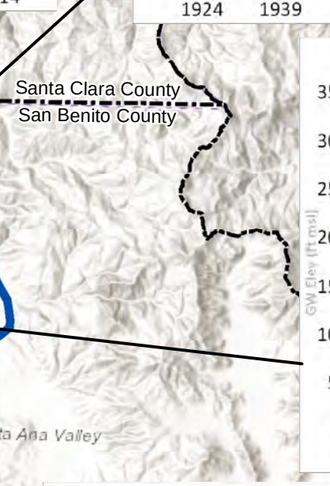


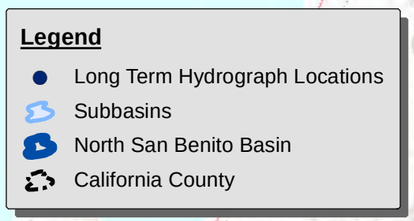


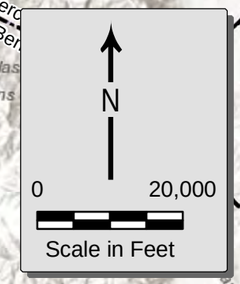












December 2018

TODD GROUNDWATER

Figure 3-9
Longterm Hydrographs

Water Supply Sources

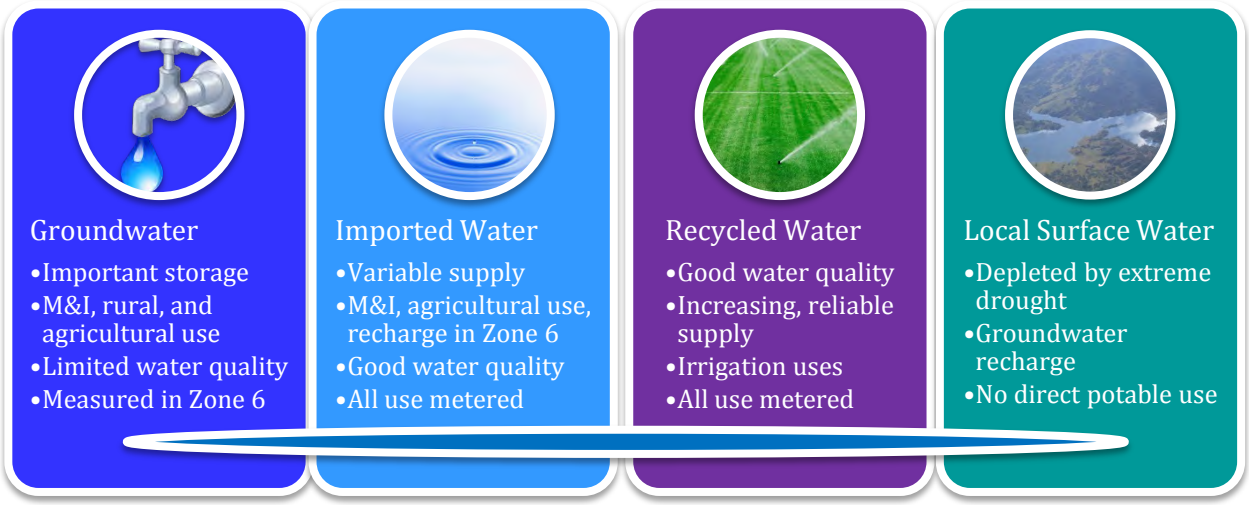
Four major sources of water supply are available for municipal, rural, and agricultural water demands. These are summarized below; for more data and graphs, see **Appendix E.**

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 40-year contract (extending to 2027 and renewable thereafter) for a maximum of 8,250 AFY of M&I water and 35,550 AFY of agricultural water.

Recycled Water. Water recycling began in 2010 with landscape irrigation at Riverside Park. Recycled water currently is provided to selected landscape irrigation and agricultural users. This source is reliable during drought and helps secure a sustainable water supply.

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. Releases from the District's Hernandez and Paicines reservoirs were below average in 2018, but still contributed to recharge of the groundwater basin. 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.



Available Imported Water

The District distributes CVP water to agricultural and M&I customers in Zone 6. The allocation of the contract for each year is potentially quite 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 2018 (Oct 2017-Sept 2018) overlapped two contract years. In this water year, the effects of the previous wet year continue to be seen in the allocations for the March 2017-February 2018.

For USBR contract year 2017 (March 2017 - February 2018), both agriculture and M&I customers were provided the full contract allocation, for the first time since 2006. In the current USBR contract year 2018 (March 2018 - February 2019), agriculture customers received 50 percent of their allocation and M&I customers were provided the 75 percent of the allocation. **Table 4-1** shows the contract entitlements and recent allocations (SLDMWA 2017).

Table 4-1. Allocation for USBR Water Years 2017-2018

March 2017 - February 2018			
	Contract Amount	% Allocation	Allocation Volume (AF)
Agriculture	35,550	100%	35,550
M&I	8,250	100%	8,250
TOTAL	43,800		43,800
March 2018 - February 2019			
	Contract Amount	% Allocation	Allocation Volume (AF)
Agriculture	35,550	50%	17,775
M&I	8,250	75%	6,188
TOTAL	43,800		23,963

Water Use

Table 4-2 shows the total water use in Zone 6 by source and user type for water years 2017 and 2018. Total water use increased 27 percent. The increased availability of CVP imported water is reflected in the volume of CVP delivered to agricultural users in both years. As a point of comparison, in 2016 the allocation for agriculture use was a mere 5 percent and the total CVP water delivered to agricultural customers was 3,700 AF. CVP water used for M&I almost doubled in 2018. This year was the first full year of production for the new West Hills Water Treatment Plant (WTP) and newly expanded Lessalt WTP. Both WTPs are designed to treat and deliver CVP water to urban users.

Figure 4-1 shows Zone 6 total water use by source and use over the past 30 years. Overall, the graph indicates that water use has a general declining trend. However, 2018 was marked by a significant increase in the total water use. Both CVP and groundwater demand increased from 2017, by approximately 24 and 30 percent, respectively. **Figure 4-2** illustrates the changing relative proportion of groundwater and CVP supply in Zone 6 (with recycled water after 2010). The graph shows the general increase in CVP water until 2006 and the corresponding decrease in groundwater as a supply. Thereafter, the graph illustrates the variability of CVP supply because of drought and wet years and other restrictions. To be specific, when CVP supply has been reduced, groundwater supply has been available, reflecting conjunctive management. While the total volume of supply was higher in 2018, the relationship between CVP and groundwater remained similar to water year 2017, with CVP accounting for 42 percent and 45 percent for 2018 and 2017 respectively (**Figure 4-2)**. Due to the variability in CVP allocations, the percent of supply satisfied by imported water is also variable. For example, in 2016 only 16 percent of supply was from CVP, and in 2018, CVP supply increased to 42 percent.

Table 4-2. Total Water Use in Zone 6 by User and Water Source 2017-2018

	CVP Water		Groundwater		Recycled Water		Total	
	2017	2018	2017	2018	2017	2018	2017	2018
Agriculture	13,288	14,453	14,727	21,108	258	364	28,273	35,925
M&I	2,909	5,679	5,088	4,748	108	107	8,105	10,533
TOTAL	16,197	20,131	19,815	25,856	366	471	36,378	46,458

Groundwater use for agricultural customers increased by 50 percent from 2017 to 2018. The reasons for the increased use are not specifically known but could be attributed to the cost of CVP water. It could also be that during the drought, growers improved their infrastructure (drilling new wells, installing pipelines, etc.) and continue to use these even as CVP allocations were increased. The largest increase in agricultural groundwater use was in Bolsa South East, but all subbasins except Tres Pinos showed increased groundwater pumping by agricultural use. There was a slight decrease in groundwater use for M&I, largely due to the increase in CVP water available to municipal users. Overall, M&I demand increased 29 percent, possibly reflecting the combined effect of urban growth, decreased public

attentiveness of water conservation measures after the drought, and other factors. Recycled water showed a slight increase as more recycled water has been delivered to agricultural users.

Table 4-3 shows the breakdown of total water use by each subbasin in Zone 6. Consistent with past patterns, San Juan is the largest producer of groundwater and the second largest user of CVP supplies, mainly for agricultural irrigation. Hollister East is the largest user of CVP for both agricultural users and municipal uses. This is the first full year when both water treatment plants have been online to treat CVP water for municipal use.

Table 4-3. Zone 6 Water Use by User and Water Source 2017-2018

	CVP Water		Groundwater		Recycled Water	
Subbasin	Agriculture	Domestic & Municipal	Agriculture	Domestic & Municipal	Agriculture	Domestic & Municipal
Bolsa South East	291	0	3,021	43	3	0
Hollister East	6,190	3,496	3,404	295	0	0
Hollister West	64	1,990	1,912	2,010	361	107
Pacheco	1,456	72	4,207	168	0	0
San Juan	6,310	74	8,258	673	0	0
Tres Pinos	142	47	306	1,559	0	0
TOTAL	**14,453**	**5,679**	**21,108**	**4,748**	**364**	**107**

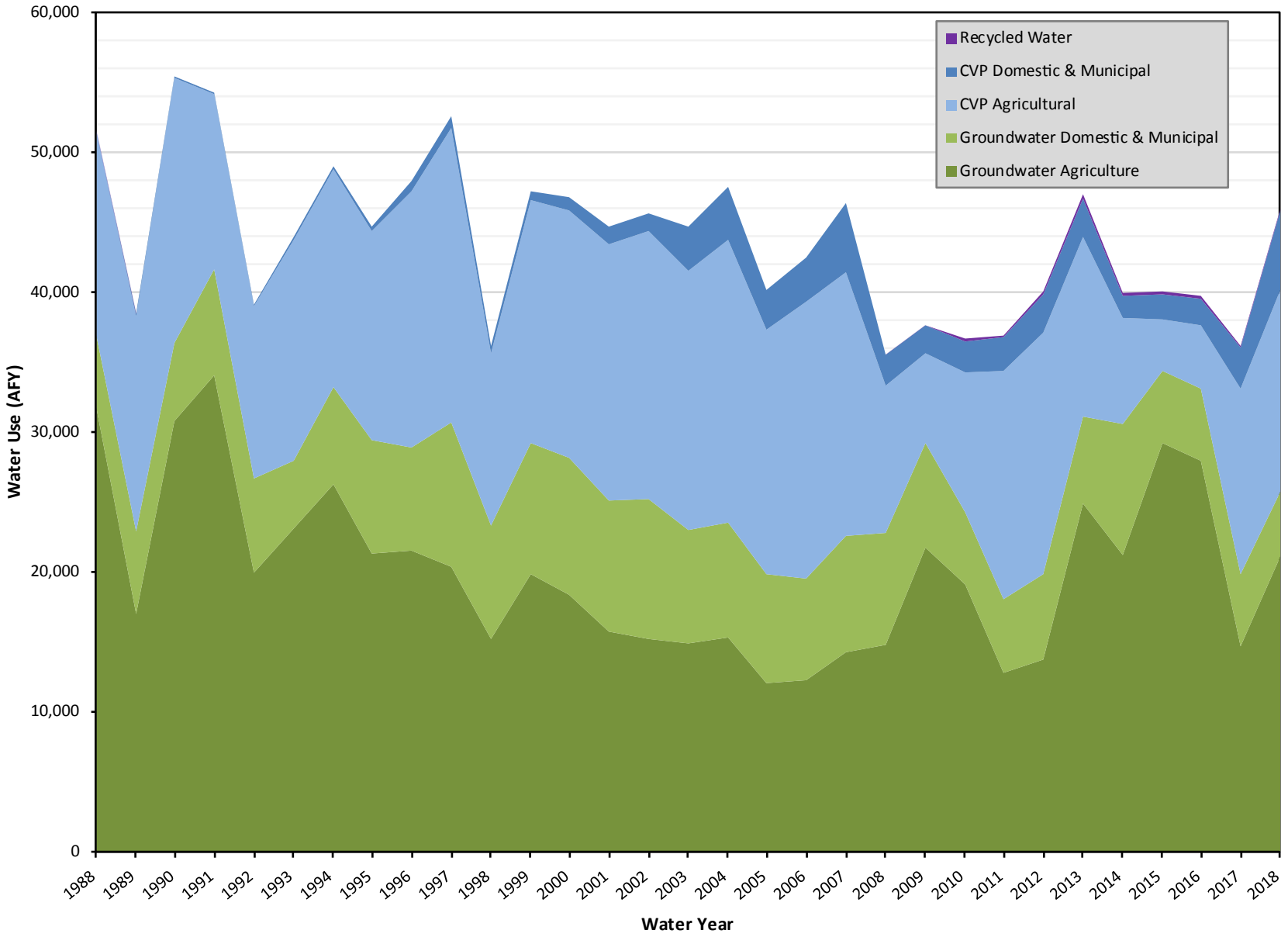
Table 4-4 shows the subbasin areas, total water use, total pumping, and rate of pumping (total pumping over area). This allows a general comparison by area, normalizing for the size of the basin. **Figure 4-3** shows the distribution of pumping by subbasin. While the volume of pumping is highest in San Juan, **Table 4-4** shows that the rate of pumping is also one of the highest, at 0.76 AFY per acre. The table also shows the percent of total supply from groundwater for each subbasin. Bolsa, an area that does not receive CVP water, is 100 percent reliant on groundwater, with Bolsa SE and Tres Pinos also relying on groundwater for 91 percent of total supply.

Table 4-4. Pumping Patterns by Subbasin

Subbasin	Subbasin Area (Acres)	Total Water Use (AFY)	Total Groundwater Use (AFY)	Rate of pumping (AFY/Acre)	% GW
Bolsa SE	2,691	3,358	3,063	1.14	91%
Hollister East	15,860	13,385	3,699	0.23	28%
Hollister West	6,050	6,444	3,922	0.65	61%
Pacheco	6,743	5,904	4,375	0.65	74%
San Juan	11,708	15,315	8,932	0.76	58%
Tres Pinos	4,725	2,053	1,865	0.39	91%
Bolsa*	20,003	6,245	6,245	0.31	100%

*based on 2017 water balance estimate

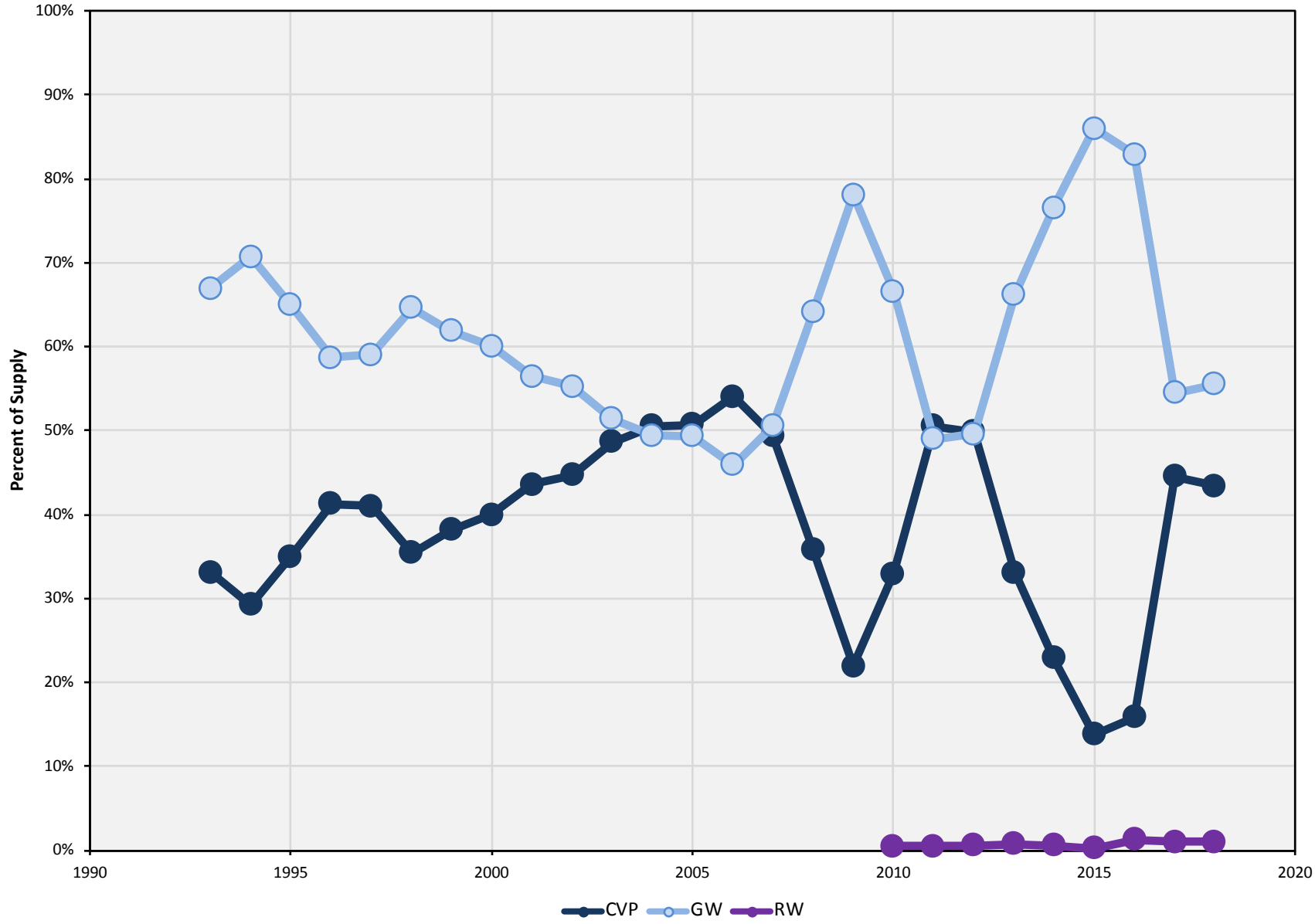
The percent of subbasin supply met by groundwater can vary widely over time and by subbasin. **Figure 4-4** shows the percent of total subbasin supply provided by groundwater. The trend lines show the same general pattern as **Figure 4-2**, with groundwater supply decreasing until 2006 (as CVP supply increased) and then fluctuating considerably as imported water and groundwater are used conjunctively. The substantial variability in groundwater use (i.e., in Pacheco, San Juan, and Hollister East) indicate significant structural capacity and flexibility for local water users to use groundwater or CVP.



December 2018

TODD GROUNDWATER

Figure 4-1
Total Water Use by Source and Use
Zone 6



December 2018

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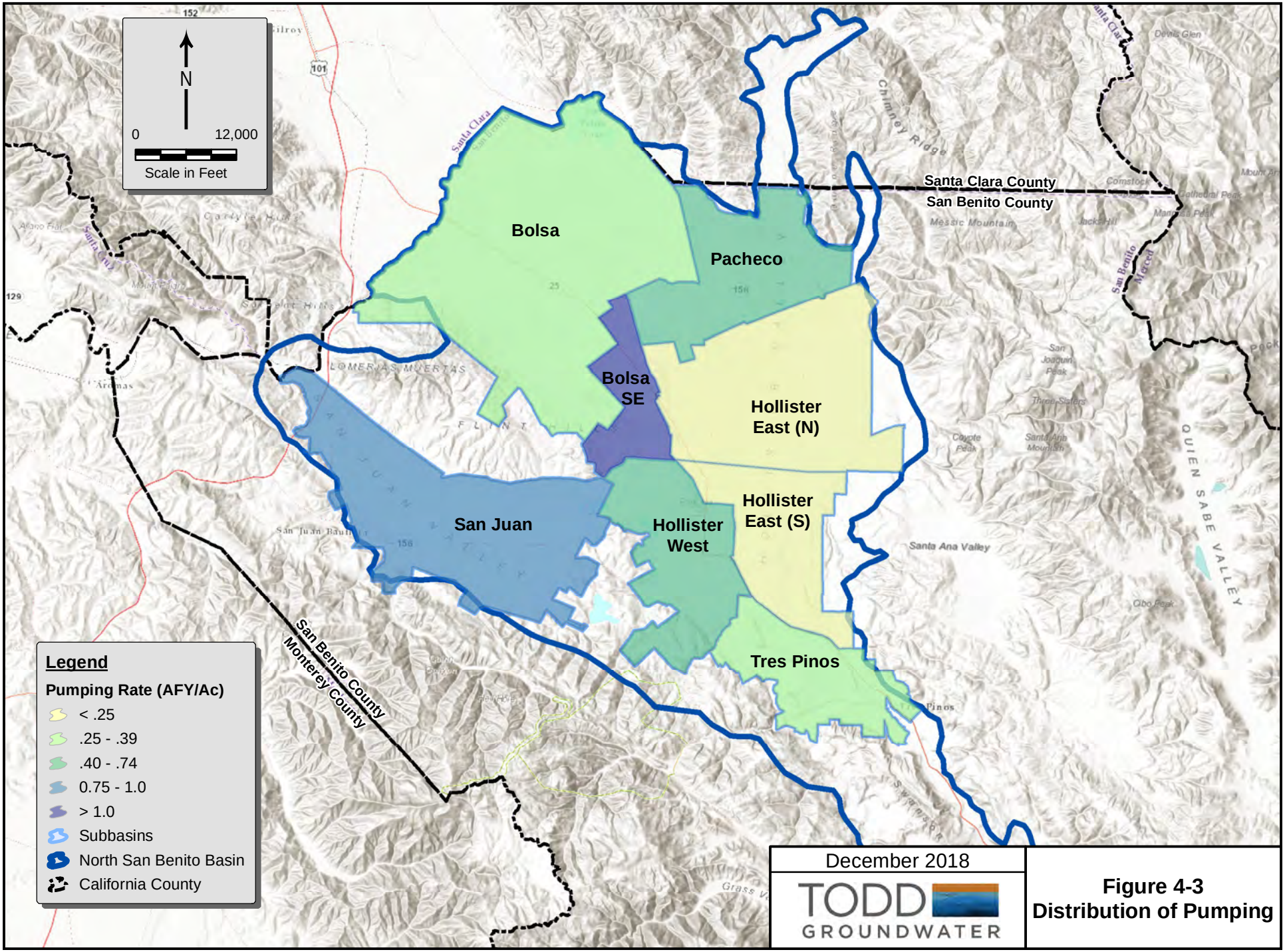
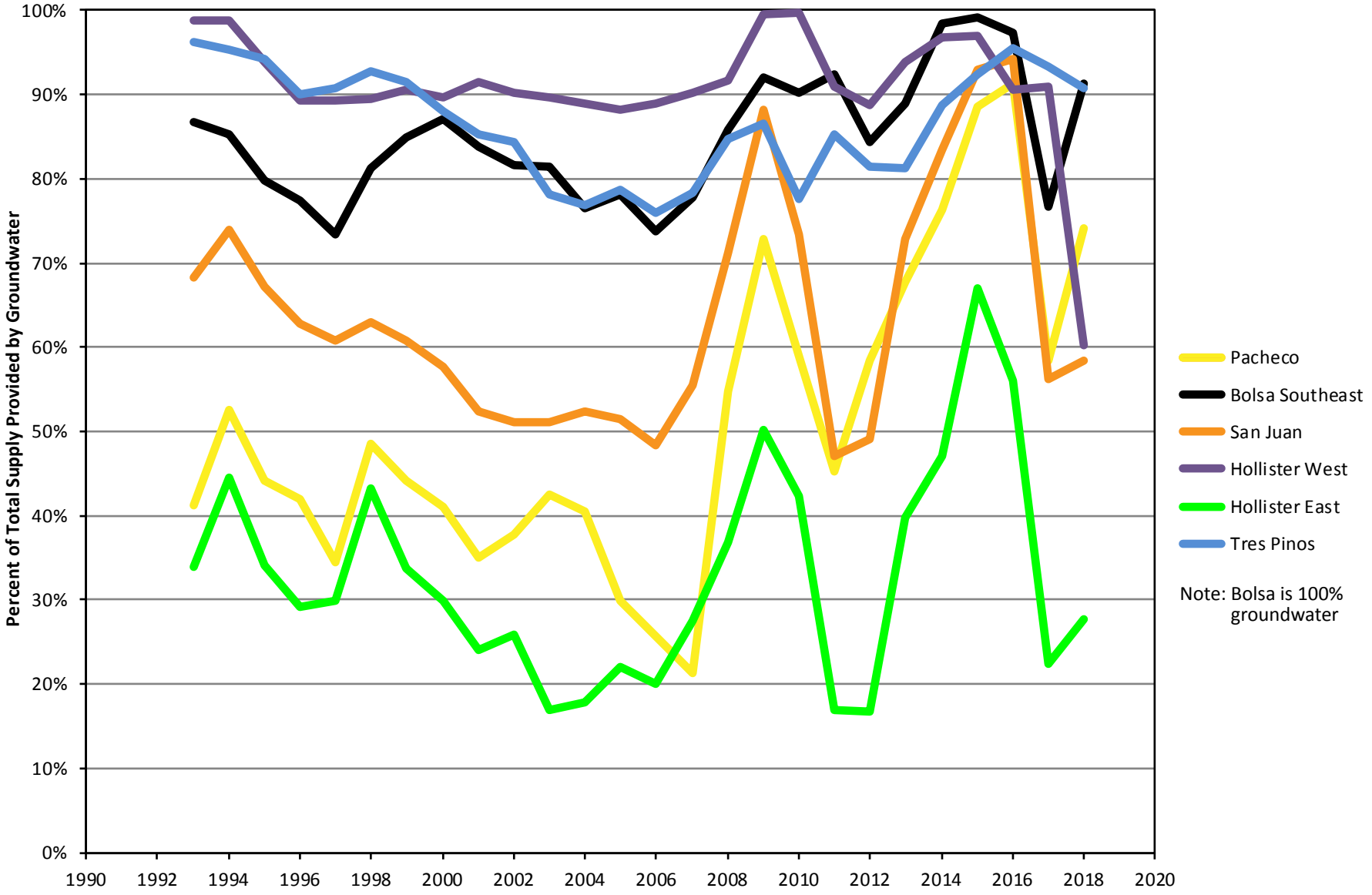
Figure 4-2
Percent of Supply by Source Zone 6


N
0
12,000
Scale in Feet
Bolsa
Pacheco
Bolsa SE
Hollister East (N)
Hollister East (S)
Hollister West
San Juan
Tres Pinos
Santa Clara County
San Benito County
San Benito County
Monterey County
Legend
Pumping Rate (AFY/Ac)
< .25
.25 - .39
.40 - .74
0.75 - 1.0
> 1.0
Subbasins
North San Benito Basin
California County
December 2018
TODD GROUNDWATER
Figure 4-3
Distribution of Pumping



December 2018

TODD GROUNDWATER

Figure 4-4
Percent of Subbasin Supply by Groundwater

5-WATER MANAGEMENT ACTIVITIES

District water management activities include comprehensive monitoring (summarized in Section 2) and importation and distribution of CVP water in Zone 6 (Section 4). In addition, the District provides water resources planning, water conservation support services, and managed percolation of local surface water to augment groundwater; these are summarized in this section. Sources of revenue to support District operations also are presented here.

Water Resources Planning

The District has used multiple planning efforts to support groundwater sustainability. These have included water management plans such as the Groundwater Management Plan (1998 and 2003), Integrated Regional Water Management Plan (2007), Salt and Nutrient Management Plan (2014), Agricultural Water Management Plan (2015), and Urban Water Management Plans (2016). These plans have addressed the full range of groundwater sustainability issues with advancement of conjunctive use of imported water, local surface water, recycled water and groundwater; with water conservation, and with protection of water quality. Current efforts and recent accomplishments are summarized below.

Hollister Urban Area Water Project. This project is an ongoing collaborative effort with local agencies 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. 2018 was the first full year of production for the new West Hills WTP and newly expanded Lessalt WTP. The District also has worked cooperatively for years with the City of Hollister to implement recycled water use primarily for agricultural irrigation, which continued to increase in 2018.

Pacheco Reservoir Expansion Project. In 2018, SCVWD was awarded $484.5 million in funding from the State of California for the Pacheco Reservoir Expansion Project, which is a collaborative effort of SBCWD, SCVWD, and Pacheco Pass Water District. This project would establish a new dam and expanded reservoir on the North Fork of Pacheco Creek in Santa Clara County. The expanded reservoir, with a capacity of 140,000 acre-feet, would allow storage of CVP supplies and local inflows for use by the water districts, provide more flexibility for use of CVP water, enhance the continuity of flows in Pacheco Creek, reduce flood risks downstream, and benefit downstream habitats along Pacheco Creek and the local steelhead population.

Water Conservation

Water conservation is an important tool to manage demands on the groundwater basin, particularly during drought. During the most recent drought, intensified water conservation efforts were successful in reducing water demands to meet State and local goals. 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.

Activities in 2018 have included provision of information, home surveys, and rebates. To keep the public informed, the WRA has prepared bill inserts that highlight water conservation programs and provide updates on water conditions; the October 2018 bill insert describes SGMA and how it may affect the groundwater users. Provision of information by WRA staff also has included school presentations to over 660 students last year and presentations to local organization such as the Chamber of Commerce and Rotary Club. In addition, print articles promoting water conservation have been published in the Free Lance newspaper and Benito Link.

The Home Water Survey allows the WRA to directly work with customers who have a leak or large water bill. The WRA has been able to reach approximately 400 people a year with this service.

WRA also provides 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.

Managed Percolation

Percolation of Local Surface Water. In most years, local surface water released from Hernandez and Paicines reservoirs is percolated along the San Benito River and Tres Pinos Creek. 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 2018 were below average (reflecting the below normal rainfall), amounting to 6,054 AF. Releases from Paicines were 384 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 Water District. 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 these wastewater facilities is found in **Appendix D**.

Percolation of CVP Water. In Water Year 2018, the District percolated 2,965 AFY of CVP water in offline stream channels in San Juan, Tres Pinos, and Pacheco subbasins; locations are shown in **Figure 5-1.** This amount is slighter higher than the 2,549 AFY percolated in 2017. With carryover water from 2017-18 (100% allocation) and a late allocation of 50% agricultural and 75% municipal and industrial water (2018-19) the District had additional CVP water to percolate that would have otherwise gone unused. Before this recent wet year, the District had not percolated water since the last year with 100 percent allocation (2006-2007).

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.

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 2018 – February 2019, District rates are $7.95 for agricultural use and $24.25 for M&I use. The District is in the process of adopting groundwater rates for the next three years. The proposed rates for March 2019 – February 2020 are subject to Board adoption at a public hearing to be held January 30, 2019.

Table 5-1. Current and Proposed Groundwater Charges

Year	Agriculture	M&I
2018-2019	$7.95	$24.25
2019-2020 (proposed)	$12.75	$38.25

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). The 2019-2020 proposed CVP water charges, like the groundwater charges, are subject to Board adoption at a public Hearing to be held January 30, 2019. **Table 5-2** shows the CVP water charge and **Table 5-3** shows the CVP power charge.

Table 5-2. Current and Proposed Blue Valve Water Charges

Blue Valve Water Charge ($/AF)				
	Agricultural			
Year	Non - Full Cost	Full Cost (1a)	Full Cost (1b)	Municipal & Industrial
2018-2019	$209.00	$382.00	$400.00	$363.00
2019-2020 (proposed)	$254.00	$386.00	$407.00	$379.00

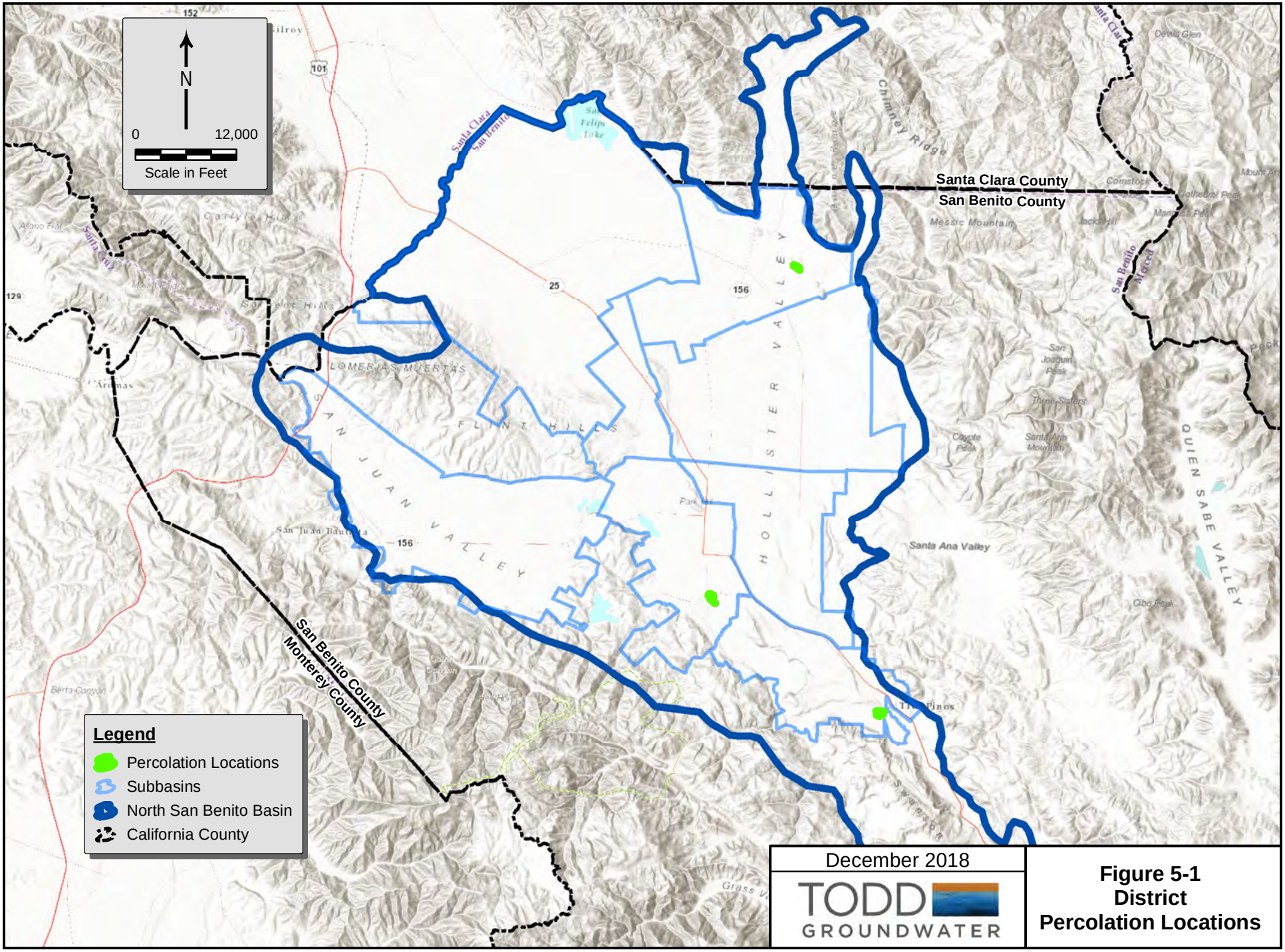
Table 5-3. Current and Proposed Blue Valve Power Charges

Blue Valve Power Charge ($/acre-foot)	Subsystem 2	Subsystem 6H	Subsystem 9L	Subsystem 9H	All other subsystems
2018-2019	$130.60	$80.25	$116.65	$172.45	$70.10
2019-2020 (proposed)	$68.00	$37.10	$73.80	$105.40	$33.00

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 5-4. Current Recycled Water Charges

	Recycled Water	
Effective	Agriculture Rate	Power Charge
Mar-17	$183.45	$59.45
Mar-18	$183.45	$59.45


N
0
12,000
Scale in Feet
Santa Clara County
San Benito County
San Benito County
Monterey County
Legend
Percolation Locations
Subbasins
North San Benito Basin
California County
December 2018
TODD GROUNDWATER
Figure 5-1
District
Percolation Locations

Sustainable Groundwater Management Act (SGMA)

The Sustainable Groundwater Management Act (SGMA) requires sustainable management of priority groundwater basins and empowers local Groundwater Sustainability Agencies (GSAs) to manage groundwater resources in a sustainable manner. San Benito County Water District GSA (SBCWD GSA), in partnership with Santa Clara Valley Water District GSA (SCVWD GSA) for the small portions of the basin in Santa Clara County, is developing 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. This GSP is being funded in part with a $830,000 grant from the California Department of Water Resources (DWR) and with GSA cost sharing.

Figure 2-2 shows the GSP area, which is mostly in San Benito County with small portions extending into Santa Clara County. The groundwater subbasin area highlighted in Figure 2-2 has been managed and monitored by SBCWD for decades, although the definition of basin boundaries and the focus of various studies have differed over the years. In 2018, recognizing that the basins are contiguous, hydraulically connected, and comprehensively managed, SBCWD requested DWR to consolidate the four basins into a single basin, termed the North San Benito Groundwater Basin. This consolidation allows preparation of a single, comprehensive GSP.

Groundwater Sustainability Plan Development

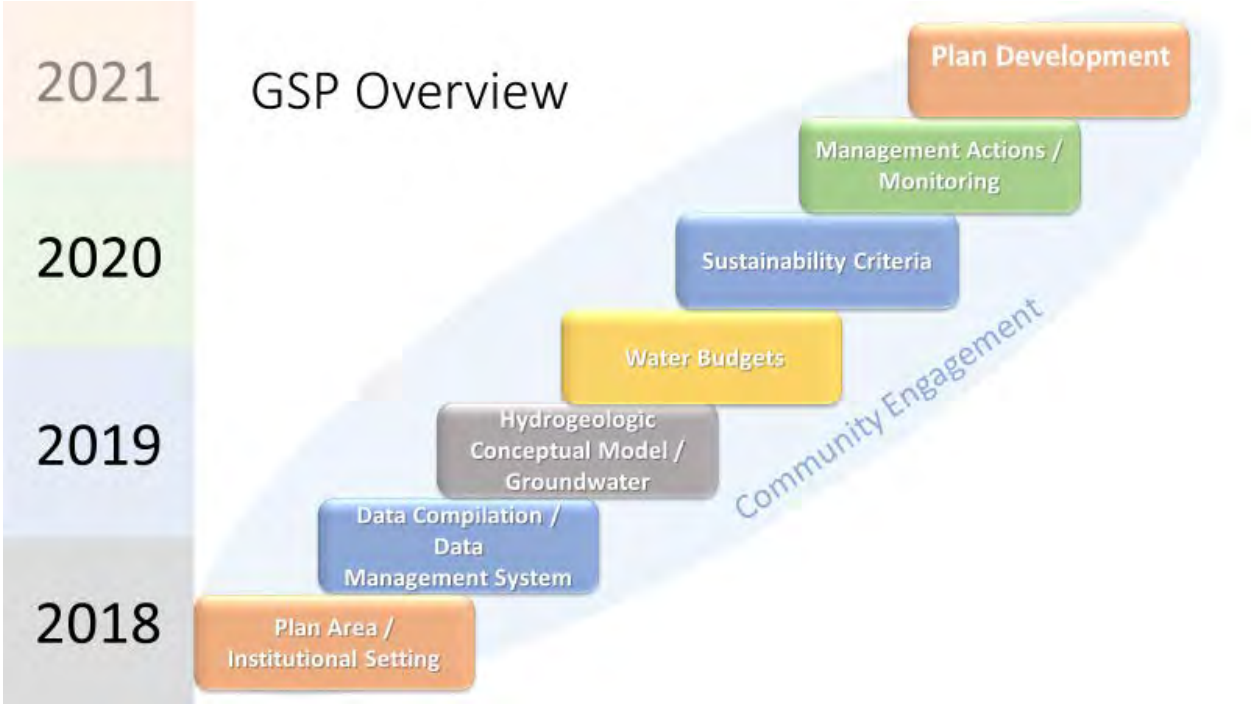
GSP development in the North San Benito Basin is based on a strategy to:

- Build on existing monitoring, management, and reporting
- Extend existing monitoring, management, and reporting to DWR-defined basin boundaries
- Update and refine existing plans, programs, and management tools to address SGMA criteria
- Comply with SGMA requirements and preserve local control of groundwater management.

DWR has defined comprehensive and detailed requirements for development of GSPs, but also recognizes and supports local control of groundwater management. Hence, the GSP being developed for North San Benito County is building on decades of local monitoring and management, while complying with DWR regulations and recognizing future challenges such as increasing uncertainty of limited imported water supplies and growing demand for local supplies. Consistent with the intent of local control, the GSP also is being developed with engagement of local groundwater users, agencies, stakeholders, and the public. This community engagement, sustained throughout the GSP process, supports the effectiveness, credibility, and acceptance of the GSP.

Figure 6-1 illustrates the major steps toward development of the GSP within the context of community engagement and with reference to an approximate timeframe. These steps will be documented in a series of deliverables—including GSP sections, memoranda, and technical reports—that will be compiled into the draft and final GSP. The GSP process, initiated in June 2018, will be completed in late 2021, meeting the deadline of January 31, 2022 for GSP completion, adoption by the GSAs, and submittal to DWR. While adoption and approval are the culmination of initial GSP development, the GSP process continues in the future with implementation of management activities, preparation of Annual Reports, and GSP updates every five years; this is intended to be an ongoing, adaptive process.

Figure 6-1. Major Steps in GSP Development



The major technical steps in developing the initial GSP are as follows:

Plan Area/Institutional Setting. The first step in developing the GSP is description of the Plan Area and the institutional setting. This is accomplished in the first two sections of the GSP document: Introduction and Plan Area. The *Introduction* presents the North San Benito Basin and the authority of the GSAs to prepare a GSP. The *Plan Area* section provides basic information on the North San Benito Basin including its physical boundaries, jurisdictions of water and land use planning agencies, water sources and water use sectors, existing monitoring and management, land use planning, and well permitting.

The Introduction also will summarize the estimated cost of GSP implementation and the means of funding GSP implementation, when this information is developed later in the GSP process. SBCWD has existing funding sources (e.g., through Zones 3 and 6); however, GSP implementation (monitoring, management, and reporting) is likely to be more intensive than ever before (because of increasing water

demand and uncertainties) and is required for the entire North San Benito Basin. Accordingly, the GSP process will include evaluation of a fiscal structure to fund implementation fairly across the Basin. This evaluation will account for estimated ongoing costs of GSP monitoring and management in the context of current funding sources. This funding evaluation is scheduled to begin in early 2020.

Data Compilation/Data Management System. SBCWD has an annual program of collecting and compiling groundwater data into a data management system (DMS) that includes groundwater elevation, water quality, and water use data for the Annual Groundwater Reports. The effort for the GSP will be to review and update the DMS, to identify data gaps, and to support the GSP monitoring program. Available information will support the entire GSP including analysis of the hydrologic setting, groundwater conditions, sustainability criteria, and potential projects and management actions.

Hydrogeologic Conceptual Model/Groundwater Conditions. The third major step includes development of the hydrogeologic conceptual model (HCM), which is a description of the structural and physical characteristics that govern groundwater occurrence, flow, storage, and quality. These characteristics—described in text, tables, maps, and cross-sections—include regional geology, soils, geologic structures (such as faults) and boundaries (including bottom of the basin), aquifer properties. This step also includes documentation of historical and current groundwater conditions. This includes groundwater levels and flow, groundwater quality, land subsidence, and interactions of groundwater and surface water. In brief, this step describes how the local surface water-groundwater system works. It also will be an important basis for definition of *management areas*, involving subdivision of the North San Benito Basin to facilitate sustainable groundwater management.

Water Budgets. In the fourth major step, water budgets will be quantified for historical and current conditions. This will involve use of past studies, the existing numerical model, and recent monitoring data and investigations. Water balances developed by SCVWD for the adjacent Llagas Basin also will be reviewed to promote a consistent approach. The GSP Water Budgets will build on past Annual Report water balances and include use of available data and best available science to quantify inflows, outflows, and change in storage, including sustainable yield and potential overdraft. As shown here, this step includes numerical modeling that will be used to explore how the groundwater systems works, to assess potential management actions and projects, and to demonstrate how a GSP will achieve sustainable basin operation. SBCWD has a numerical model (Yates, 2001) that will be updated, expanded to cover the entire basin, and improved for application in the GSP.

Sustainability Criteria. While SBCWD has a long history of groundwater management, such management has not included systematic quantification of undesirable results, minimum thresholds, or measurable objectives to the extent required by SGMA. The fifth step of the GSP process will address the five undesirable results/sustainability indicators relevant to North San Benito Basin and indicated by the icons below. These include: chronic lowering of groundwater levels, groundwater storage depletion, water quality degradation, land subsidence, and depletion of interconnected surface water. Each of these will be defined in terms of minimum thresholds where occurrence of an undesirable result becomes significant and unreasonable and in terms of measurable management objectives.

Management Actions/Monitoring. In the sixth step, the GSP will present management actions—policies, programs, and projects—that will address the sustainability criteria and provide for sustainable management into the future. This step also will establish the GSP monitoring network and protocols that: 1) provides data to inform the hydrogeologic conceptual model, water budget and numerical model, 2) provides tracking and early warning regarding groundwater conditions and undesirable results, and 3) demonstrates progress toward and achievement of sustainability.

Plan Development. The GSP preparation process will culminate with development of GSP document including GSP sections with text, tables, and graphics plus appendices. The GSP document will be provided on the SBCWD website as a draft; following a comment period, a final GSP document will be presented for GSA consideration and adoption.

Technical Advisory Committee (TAC)

As suggested by the technical steps described above, development of an effective and credible GSP is a multi-disciplinary process that combines engineering, science, and planning with local stakeholder interests and community values. To help guide this process, a Technical Advisory Committee (TAC) was organized in 2018. The purpose of the TAC is to incorporate community and stakeholder interests into consensus recommendations on SGMA implementation for consideration by the GSA Board in its decision-making process. The TAC members are responsible for reviewing draft products and materials and providing recommendations to support a technically sound GSP. Members of the TAC have been selected to represent GSP-related subject areas, including but not limited to environmental, technical, and land use planning fields. The TAC members began their quarterly meetings in August 2018 and are working collaboratively with SBCWD GSA staff and consultants. TAC meetings are open to the public.

Community Engagement

The GSP process seeks to engage the diverse public, stakeholders, and groundwater interests. This will be accomplished with provision of information materials (e.g., posters and fact sheets), public workshops and other meetings, media (e.g., press releases) and the District website, and other outreach opportunities (e.g., fairs and festivals). In 2018, the following were accomplished:

- SGMA section on the redesigned SBCWD website: http://scbwd.com that provides information, announcements, and access to draft GSP documents
- Community Engagement Plan, poster, and three fact sheets addressing SGMA, the GSP process, and existing water management
- Two TAC meetings (August 15 and November 7), open to the public
- First Public Workshop (November 14) in Hollister, which provided an overview of SGMA and the GSP process and a forum for discussion of groundwater conditions, concerns, and challenges.

7-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 look forward to continuing effective management consistent with SGMA.

Monitoring Programs

The District monitoring programs should be expanded to the entire North San Benito Groundwater Basin and improved to ensure accurate and consistent data for the Annual Reports and for GSP development.

- A high-priority task is to update and expand the groundwater level and quality monitoring network as discussed in the District November 21, 2018 technical memorandum.
- CIMIS station #126, maintained by the District, provides important data on increasingly variable climate conditions. However, the rain gage data have been compromised by spray irrigation. The irrigation system and practices need to be corrected to ensure that the CIMIS rain gage (part of a state-wide network) collects only precipitation.

Groundwater Charges

The groundwater charge for the USBR contract year (March 2019-February 2020) is recommended to be $12.75 for agricultural use in Zone 6 and a groundwater charge of $38.25 is recommended for M&I use in Zone 6, subject to Board approval at the Public Hearing January 30, 2019.

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, including completion of the implementation and calibration of the new operations planning tool. In 2018, 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. Given the decreased reliability of imported supplies and continuing threat of drought, such replenishment operations are critical to sustainable groundwater supply.

8-REFERENCES

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APPENDIX A REPORTING REQUIREMENTS

List of Tables

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 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 at the end of this appendix.
- Each water year a special topic is identified for further consideration. These topics have included water quality, salt loading, shallow wells, and others. Additional analyses and documentation provided in previous annual reports are summarized in the following table.

District management of water resources is focused on three Zones of Benefit, listed below.

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

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

APPENDIX A REPORTING REQUIREMENTS

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 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	0.1	0	2.2	4.4	4.5	1.6	1.3	1.3	0	0	0	0	**15.5**	**120%**
1997	1.0	3.2	4.3	6.8	0.2	0.1	0.2	0	0.1	0	0	0	**15.9**	**123%**
1998	0.2	3.8	2.6	4.9	9.1	2.7	2.3	2.4	0.1	0	0	0.1	**28.1**	**218%**
1999	0.5	1.9	0.8	2.5	2.5	1.5	0.7	0.1	0.1	0	0	0	**10.6**	**82%**
2000	0.1	1.0	0.1	4.1	4.5	0.7	0.4	0.5	0.1	0	0	0	**11.5**	**89%**
2001	3.5	0.8	0.2	2.9	2.8	0.6	2.2	0	0	0	0	0	**13.1**	**101%**
2002	0.7	11.5	11.9	0.7	1.2	1.6	0.4	0.3	0	0	0	0	**28.1**	**218%**
2003	0.0	1.7	5.0	0.8	1.4	1.1	3.1	0.1	0	0	0.1	0	**13.1**	**102%**
2004	0.2	0.6	5.3	1.3	4.2	0.6	0.3	0.1	0	0	0	0	**12.5**	**97%**
2005	2.0	0.5	3.5	2.5	2.9	3.4	0.8	0.6	0.4	0	0	0	**16.7**	**129%**
2006	0.1	0.3	3.1	1.5	1.0	5.0	1.7	0.4	0	0	0	0	**13.0**	**101%**
2007	0.2	0.7	1.7	0.6	2.2	0.3	0.6	0	0	0	0	0.4	**6.7**	**52%**
2008	0.7	0.7	0.9	4.6	2.1	0.1	0.1	0	0	0	0	0	**9.1**	**70%**
2009	0.3	1.1	1.9	0.4	3.7	1.8	0.2	0.5	0	0	0	0.2	**10.0**	**77%**
2010	0.5	0	1.3	2.3	2.2	1.7	3.4	0.6	0	0	0	0	**12.1**	**94%**
2011	0.7	1.9	2.6	1.6	2.6	2.3	0.2	0.8	0	0	0	0	**13.0**	**100%**
2012	0.7	1.0	0.1	0.8	0.5	2.3	1.4	0.3	0	0	0	0	**7.1**	**55%**
2013	0.0	2.2	1.2	1.4	0.6	0.5	0.3	0.0	0	0	0	0	**6.3**	**49%**
2014	0.1	0.4	0.2	0.2	1.9	1.6	0.9	0.0	0	0	0	0	**5.4**	**41%**
2015	1.6	0.5	5.8	0.0	1.2	0.2	0.2	0.9	0.0	0.0	0.1	0.1	**10.6**	**82%**
2016	0.2	3.7	1.6	4.0	0.6	3.7	0.8	0.1	0.1	0.1	0.1	0.1	**14.9**	**115%**
2017	1.8	2.5	3.3	4.7	6.1	1.7	1.1	0.5	0.3	0.0	0.0	0.0	**21.9**	**170%**
2018	0.2	1.1	0.2	2.4	0.3	2.7	1.3	0.0	0.0	0.0	0.0	0.0	**8.3**	**64%**
AVG	**0.6**	**1.5**	**2.2**	**2.6**	**2.3**	**2.1**	**1.0**	**0.4**	**0.1**	**0.0**	**0.0**	**0.2**	**12.9**	**102%**

Note: The average precipitation is based on the period of record (1875-2018).
-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.
-Previous years of CIMIS data may have also been affected by irrigation overspray - the data before 2017 have not been corrected.

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	3.9	2.2	1.2	1.5	1.9	3.7	5.1	6.1	6.7	7.4	6.7	4.7	**51.0**	**104%**
1997	3.8	1.8	1.4	1.4	2.5	4.3	5.8	7.5	7.1	7.2	6.7	5.7	**55.2**	**113%**
1998	3.9	1.8	1.5	1.3	1.4	2.8	4.3	4.5	5.3	6.9	6.8	4.7	**45.2**	**92%**
1999	3.5	1.7	1.5	1.5	1.8	3.0	4.7	5.8	6.7	6.9	5.9	4.7	**47.8**	**98%**
2000	4.0	2.0	1.9	1.2	1.6	3.7	5.1	6.0	6.7	6.7	6.2	4.7	**50.0**	**102%**
2001	2.9	1.7	1.5	1.5	1.8	3.1	3.9	6.2	6.5	6.0	6.2	4.8	**46.0**	**94%**
2002	3.5	1.9	1.2	1.5	2.3	3.7	4.2	6.4	7.1	7.2	6.1	5.4	**50.5**	**103%**
2003	3.6	1.9	1.3	1.6	1.8	3.9	3.8	6.0	6.5	7.3	6.2	5.1	**48.8**	**100%**
2004	4.1	1.7	1.2	1.3	1.7	4.0	5.2	6.4	6.7	6.6	6.0	5.3	**50.3**	**103%**
2005	3.1	1.7	1.4	1.3	1.7	3.0	4.4	5.7	6.4	6.9	6.1	4.6	**46.2**	**94%**
2006	3.6	2.0	1.2	1.4	2.2	2.4	3.0	5.5	6.4	7.0	5.6	4.4	**44.7**	**91%**
2007	3.3	1.7	1.4	1.8	1.8	4.1	4.8	6.3	6.9	6.8	6.5	4.7	**49.8**	**102%**
2008	3.5	2.2	1.4	1.3	2.0	3.8	5.2	6.0	6.9	6.7	6.3	5.0	**50.2**	**103%**
2009	3.8	1.9	1.4	1.7	1.7	3.5	4.8	5.5	6.3	7.1	6.3	5.3	**49.3**	**101%**
2010	3.5	2.2	1.7	1.3	1.8	3.5	3.9	5.4	6.7	6.3	5.9	5.0	**47.0**	**96%**
2011	3.0	1.9	1.1	1.6	2.1	2.7	4.4	5.3	6.0	6.6	5.7	4.6	**45.0**	**92%**
2012	3.3	1.9	1.8	1.8	2.5	3.3	4.4	6.4	6.8	6.6	6.0	4.6	**49.5**	**101%**
2013	3.3	1.8	1.2	1.5	2.1	3.7	5.4	6.3	6.4	6.5	6.0	4.8	**48.8**	**100%**
2014	3.5	2.0	1.8	2.1	1.9	3.6	4.9	6.8	6.6	6.4	6.0	4.7	**50.4**	**103%**
2015	3.9	1.9	1.5	1.8	2.2	4.1	5.1	5.0	6.4	6.5	6.5	5.3	**50.2**	**102%**
2016	4.1	2.1	1.4	1.3	2.7	3.4	4.7	5.7	7.5	7.2	5.7	5.2	**51.0**	**104%**
2017	3.4	2.1	1.5	1.6	1.8	3.7	4.5	6.3	6.8	7.6	6.0	5.2	**50.4**	**103%**
2018	4.2	1.9	2.0	1.6	2.7	3.3	4.8	5.8	7.3	7.7	6.6	5.2	**52.9**	**108%**
AVG	3.6	1.9	1.4	1.5	2.0	3.5	4.6	6.0	6.6	6.8	6.2	4.9	**49.0**	**100%**

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

APPENDIX C HYDROLOGICAL DATA

List of Tables and Figures

Other Documents

Table C-1. Groundwater Elevations October 2017 through October 2018

Well Number	Well Depth (feet)	Depth to Top of Screens (feet)	Subbasin	Key Well	Groundwater Elevations (feet MSL)				
					Oct-17	Jan-18	Apr-18	Jul-18	Oct-18
Bolsa SE									
12-5-09M1	240.00	105.00	BSE	*	115.6	118.4	121.6	124.3	123.7
12-5-21Q1	500.00	0.00	BSE	*	260.0	260.0	260.0		
12-5-22N1	372.00	250.00	BSE	*	77.7	84.6	86.9	86.9	85.6
Hollister East									
2317	0.00	0.00	HE		221.5	224.1	224.2	223.8	222.7
12-5-14N1	0.00	0.00	HE	*	229.0	229.0	229.0		
12-5-22C1	237.00	102.00	HE	*	146.3	182.9	182.9	166.7	169.7
12-5-22J2	355.00	120.00	HE	*	190.1	194.6	195.7	192.3	199.5
12-5-23A20	862.00	178.00	HE	*	182.6	181.8	183.6	187.0	181.0
12-5-36B20	500.00	430.00	HE						191.0
12-6-07P1	147.00	0.00	HE		243.9	245.3	248.5	244.2	240.2
12-6-18G1	198.00	70.00	HE		273.6	267.5	270.2	266.4	277.2
12-6-30E1	0.00	0.00	HE		348.9	348.6	349.0	348.0	347.5
13-6-07D2	0.00	0.00	HE		332.9	336.9	337.0	338.0	337.9
ROSSI 1	0.00	0.00	HE		222.4	218.6	222.9	227.3	229.0
Hollister West									
12-5-27E1	175.00	0.00	HW	*	181.7	198.3	199.8	195.2	198.8
12-5-28J1	220.00	0.00	HW	*	198.6	210.2	211.7	209.7	210.7
12-5-28N1	408.00	168.00	HW						217.7
12-5-33E2	121.00	81.00	HW	*	205.4	212.9	213.1	212.6	211.8
12-5-34P1	195.00	153.00	HW	*	199.3	216.6	216.6	220.8	217.6
13-5-03L1	126.00	0.00	HW	*	211.7	225.8	226.3	222.8	225.6
13-5-04B	0.00	0.00	HW		207.4	212.6	212.7	225.1	226.8
13-5-10B1	0.00	0.00	HW	*	219.6	218.6	218.8	231.0	215.6
13-5-10L1	252.00	52.00	HW		312.0	312.0	312.0	312.0	
13-5-11E1	0.00	0.00	HW		277.9	282.3	283.5	286.8	277.3
San Justo 4 (INDART)	0.00	0.00	HW		272.7		272.4	271.8	271.4
San Justo 6 (ROSE)	0.00	0.00	HW		231.9		234.7	233.4	234.2
Pacheco									
11-5-26N2	232.00	95.00	P	*	173.6	173.2	173.5	169.2	168.7
11-5-26R3	225.00	65.00	P	*	180.4	181.9	183.9	179.6	177.5
11-5-35C1	180.00	0.00	P	*	176.7	178.3	178.7	173.1	169.7
11-5-35G1	230.00	0.00	P	*	185.1	183.1	183.8	181.2	179.3
11-5-35Q3	0.00	0.00	P	*	159.7	168.4	157.2	144.7	167.8
11-5-36C1	98.00	0.00	P	*	194.3	196.2	198.7	194.9	194.0
11-5-36M1	0.00	0.00	P	*	185.7	184.2	184.8	182.5	180.4
11-6-31M2	188.00	155.00	P	*	241.8	227.0	228.7	225.7	231.0
12-5-01G2	300.00	0.00	P		186.7	184.0	185.0	182.2	180.4
12-5-02H5	128.00	42.00	P		178.8	176.3	180.6	178.3	176.8
12-5-02L2	170.00	0.00	P		194.6	194.5	195.6	193.3	192.4
12-5-03B1	128.00	100.00	P	*	182.0				182.0
12-6-06K1	260.00	16.00	P		260.0				260.0
12-6-06L4	235.00	50.00	P		221.6	220.9	222.0	220.1	218.1
San Juan									
12-4-17L20	0.00	0.00	SJ		121.9	123.6	124.2	122.2	118.9
12-4-18J1	0.00	0.00	SJ		121.6	124.2	122.6	123.1	122.6
12-4-20C3	0.00	0.00	SJ				110.2	107.2	110.0
12-4-21M1	250.00	0.00	SJ	*	139.7	146.3	146.3	143.5	142.6
12-4-26G1	876.00	240.00	SJ	*	145.9	155.7	160.3	127.4	154.3
12-4-34H1	387.00	120.00	SJ	*	152.7	166.9	171.6	154.8	156.7
12-4-35A1	325.00	110.00	SJ		165.5	187.5	192.4	176.3	174.1
12-5-30H1	240.00	0.00	SJ		185.7	203.3	204.3	205.5	204.8
12-5-31H1	0.00	0.00	SJ			206.3	207.6	178.9	198.6
13-4-03H1	312.00	168.00	SJ		146.4	166.1	170.5	158.2	156.1
13-4-4A3	0.00	0.00	SJ		197.9	197.2	195.4	191.9	188.1
RIDER BERRY	0.00	0.00	SJ		155.9		171.6	146.5	146.7

Table C-1. Groundwater Elevations October 2017 through October 2018

Well Number	Well Depth (feet)	Depth to Top of Screens (feet)	Subbasin	Key Well	Groundwater Elevations (feet MSL)				
					Oct-17	Jan-18	Apr-18	Jul-18	Oct-18
Tres Pinos									
13-5-12D4	0.00	0.00	TP		169.0	249.0	253.0	231.0	234.5
13-5-12K1	0.00	0.00	TP		316.0	320.0	322.0	322.8	321.9
13-5-12N20	352.00	301.00	TP	*	310.1	313.1	312.9	310.6	308.3
13-5-13F1	134.00	30.00	TP	*	325.7	326.2	326.7	325.3	323.6
13-5-13J2	180.00	0.00	TP	*	330.6	333.7	333.5	318.8	325.2
13-6-19J1	340.00	128.00	TP		428.6	429.1	429.4	424.4	429.0
13-6-19K1	211.00	0.00	TP	*	357.6	361.1	361.6	365.8	357.5
13-6-20K1	0.00	0.00	TP		427.5	427.8	428.7	422.1	426.2
Bolsa									
11-4-25H1	0.00	0.00	B		114.4	116.5	118.2	(5.2)	23.7
11-4-26B1	642.00	149.00	B	*	131.9	136.6	134.8	115.5	125.0
11-4-34A1	100.00	0.00	B	*	127.9	132.0	132.0	128.6	127.8
11-5-20N1	300.00	0.00	B	*	62.5	109.0	109.6	48.9	71.3
11-5-21E2	220.00	100.00	B		155.0				155.0
11-5-27P2	331.00	67.00	B		167.3	172.9	173.0	168.3	168.5
11-5-28B1	198.00	125.00	B		168.0				168.0
11-5-28P4	140.00	80.00	B		165.0				165.0
11-5-31F1	515.00	312.00	B	*	68.0	94.9	96.5	41.2	67.5
11-5-33B1	125.00	0.00	B		169.0				169.0
12-5-05M1	0.00	0.00	B		47.7	82.5	27.1	35.9	61.4
12-5-06L1	0.00	0.00	B	*	141.6	148.2	150.7	147.4	145.2
12-5-07P1	750.00	360.00	B		36.7	56.8	58.3	55.1	50.0
12-5-17D1	950.00	314.00	B			70.8	72.8	70.7	67.0
Paicines									
DONATI 6	0.00	0.00	Paicines		631.6	626.0	628.5	618.6	617.7
RFP Vineyard 3 (FRANCHIONI)	0.00	0.00	Paicines		646.9	656.0	656.3	655.8	657.8
RIDGEMARK 5	0.00	0.00	Paicines		639.6	641.6	601.3	636.3	635.1
RIDGEMARK 7	0.00	0.00	Paicines		628.7	633.8	634.6	635.8	638.3
SCHIELDS 2	0.00	0.00	Paicines		737.0	737.0	737.0		
SCHIELDS 4 (vineyard)	0.00	0.00	Paicines		625.7	632.3	632.8	609.3	608.3
Pacheco Creek									
11-5-12E1	103.00	52.00	PC	*	243.3	238.6			
11-5-13D1	125.00	0.00	PC	*	229.3	228.4	230.1	219.5	190.1
11-5-24C1	134.00	0.00	PC	*	213.9			212.9	207.4
11-5-24C2	165.00	70.00	PC	*	225.9	224.7	226.0	223.0	216.3
11-5-24L1	70.00	0.00	PC	*	212.7	210.4	211.7	207.9	211.8
11-5-25G1	225.00	0.00	PC	*	223.0	206.8	207.9	211.8	210.7
Tres Pinos Creek Valley									
1536	0.00	0.00	TPCV		276.0	295.0	297.0	294.5	293.0
DONATI 2	0.00	0.00	TPCV		654.6	651.5	651.1	649.4	636.4
GRANITE ROCK WELL 1	0.00	0.00	TPCV		299.6		305.7	304.9	305.5
GRANITE ROCK WELL 2	0.00	0.00	TPCV		314.5		319.7	315.4	315.9
San Justo 5 (WINDMILL)	0.00	0.00	TPCV		273.9		276.1	275.7	275.4
WILDLIFE CENTER 5	0.00	0.00	TPCV		705.6	709.5	711.7	713.8	711.5
SCVWD									
11S04E02D008	0.00	0.00	SCVWD		151.4	163.6	150.4	126.6	142.7
11S04E02N001	0.00	0.00	SCVWD		147.0	156.7	155.6	116.1	134.8
11S04E03J002	0.00	0.00	SCVWD		152.5	161.4	149.7	122.4	140.4
11S04E08K002	0.00	0.00	SCVWD		152.5	161.5	161.4	144.9	145.0
11S04E10D004	0.00	0.00	SCVWD		143.8	159.0	152.1	127.0	137.9
11S04E15J002	0.00	0.00	SCVWD		133.0			111.6	123.1
11S04E17N004	0.00	0.00	SCVWD		153.7	161.7	160.4	145.2	144.9
11S04E21P003	0.00	0.00	SCVWD		139.2	147.8	143.4	120.6	132.8
11S04E22N001	0.00	0.00	SCVWD		134.6	142.3	139.2	114.4	128.0
11S04E32R002	0.00	0.00	SCVWD		128.0	133.6	128.6	111.1	121.4

Table C-2. Groundwater Change Attributes

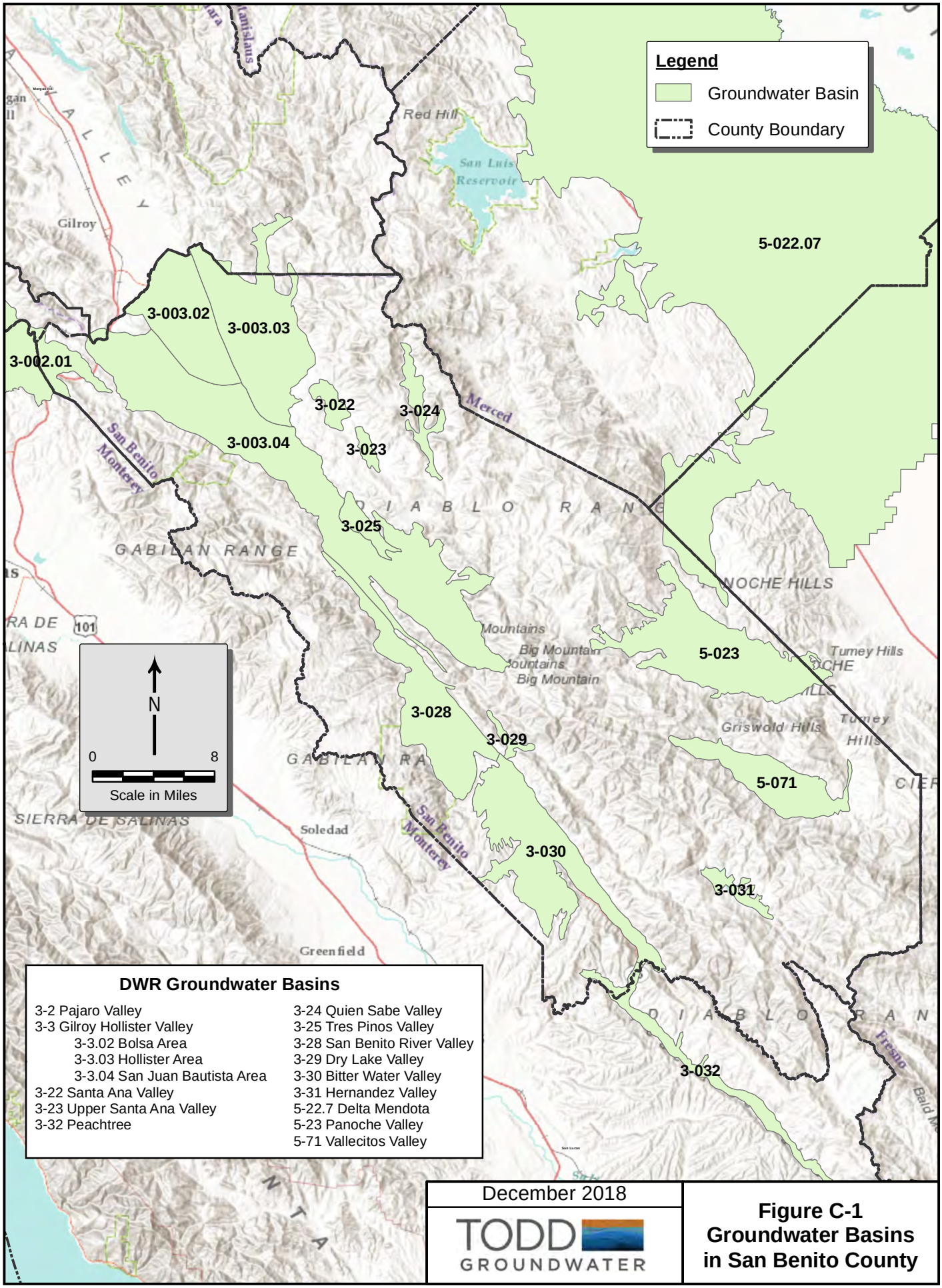
Subbasin	Subbasin Area (Acres)	Average Storativity
San Juan	11,708	0.05
Hollister West	6,050	0.05
Tres Pinos	4,725	0.05
Pacheco	6,743	0.03
Northern Hollister East	10,686	0.03
Southern Hollister East	5,175	0.03
Bolsa SE	2,691	0.08
Bolsa	20,003	0.01

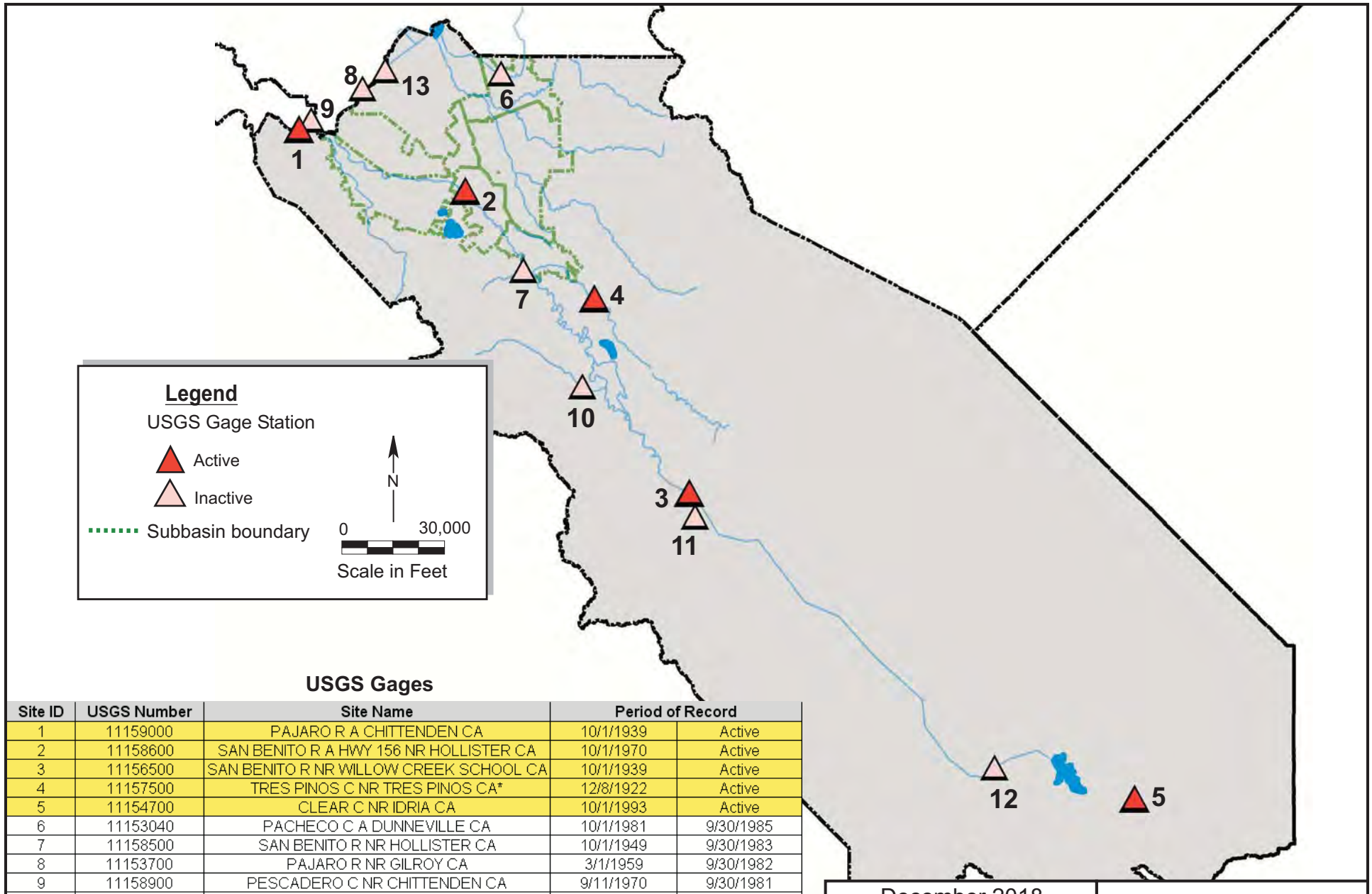
Table C-3. Groundwater Change in Elevation 2017-2018 (feet)

	Average Change in Groundwater Elevation												
Subbasin	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
San Juan	0.87	(4.49)	0.29	(0.75)	(1.39)	(0.89)	-	(10.66)	(7.95)	(9.45)	(3.56)	14.57	3.55
Hollister West	3.13	(1.69)	3.31	(1.43)	(1.58)	(0.66)	2.12	(5.72)	(17.41)	(3.60)	0.93	6.89	9.51
Tres Pinos	2.47	(2.34)	0.72	8.10	(10.52)	0.97	2.54	(2.48)	(6.66)	(6.68)	(6.04)	4.38	0.91
Pacheco	1.93	(4.41)	(1.36)	8.10	(6.60)	1.92	(4.36)	(2.95)	(7.37)	1.92	2.98	8.58	(2.41)
Northern Hollister East	3.64	(6.51)	(4.21)	10.15	(8.73)	2.72	(2.36)	1.65	(9.10)	0.76	(1.48)	5.82	2.55
Southern Hollister East	3.26	(1.46)	5.45	9.39	4.93	(1.94)	(2.18)	(1.14)	(6.87)	1.61	8.13	0.46	7.23
Bolsa SE	1.55	(6.78)	11.51	(24.80)	25.29	(11.65)	0.25	(4.27)	(10.68)	(3.34)	(9.94)	8.21	7.17
Bolsa	6.79	(3.30)	8.97	(16.86)	23.15	(11.19)	10.72	(3.37)	(25.56)	4.57	(2.89)	10.62	(2.57)

Table C-4. Groundwater Change in Storage 2006-2018 (acre-feet)

	Average Change in Groundwater Storage (AF)												
Subbasin	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
San Juan	510	(2,626)	168	(437)	(811)	(523)	-	(6,239)	(4,653)	(5,530)	(2,086)	8,531	2,077
Hollister West	947	(510)	1,001	(431)	(477)	(198)	640	(1,730)	(5,267)	(1,090)	282	2,084	2,878
Tres Pinos	584	(553)	169	1,913	(2,485)	228	601	(586)	(1,574)	(1,579)	(1,427)	1,034	216
Pacheco	391	(892)	(275)	1,639	(1,335)	389	(882)	(597)	(1,490)	388	604	1,736	(488)
Northern Hollister East	1,167	(2,087)	(1,350)	3,253	(2,798)	870	(757)	528	(2,918)	242	(474)	1,867	818
Southern Hollister East	506	(227)	846	1,457	766	(301)	(339)	(177)	(1,067)	250	1,263	72	1,123
Bolsa SE	333	(1,458)	2,478	(5,338)	5,443	(2,508)	53	(918)	(2,300)	(719)	(2,139)	1,767	1,543
Bolsa	1,358	(659)	1,794	(3,372)	4,631	(2,239)	2,144	(674)	(5,112)	915	(578)	2,125	(514)


Legend
Groundwater Basin
County Boundary
5-022.07
3-003.02
3-003.03
3-002.01
3-022
3-024
3-003.04
3-023
3-025
5-023
3-028
3-029
5-071
3-030
3-031
3-032
Red Hill
San Luis Reservoir
Gilroy
Merced
San Benito
Monterey
GABILAN RANGE
DIABLO RANGE
PANOCHE HILLS
Mountains
Big Mountain
Tumey Hills
Griswold Hills
SIERRA DE SALINAS
Soledad
Greenfield
Fresno
N
0
8
Scale in Miles
DWR Groundwater Basins
3-2 Pajaro Valley
3-3 Gilroy Hollister Valley
3-3.02 Bolsa Area
3-3.03 Hollister Area
3-3.04 San Juan Bautista Area
3-22 Santa Ana Valley
3-23 Upper Santa Ana Valley
3-32 Peachtree
3-24 Quien Sabe Valley
3-25 Tres Pinos Valley
3-28 San Benito River Valley
3-29 Dry Lake Valley
3-30 Bitter Water Valley
3-31 Hernandez Valley
5-22.7 Delta Mendota
5-23 Panoche Valley
5-71 Vallecitos Valley
December 2018
TODD GROUNDWATER
Figure C-1
Groundwater Basins
in San Benito County



USGS Gages

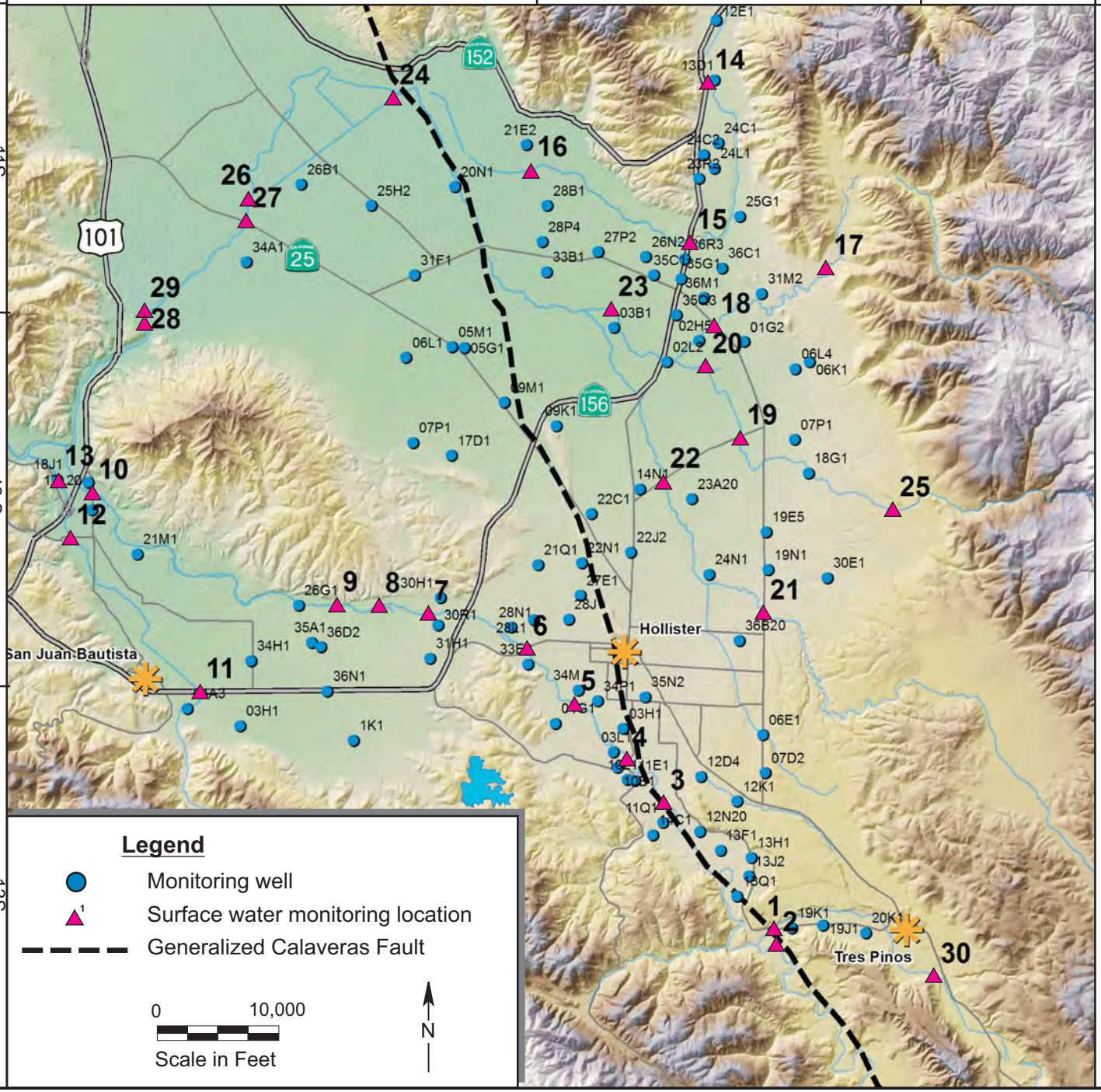
Site ID	USGS Number	Site Name	Period of Record	
1	11159000	PAJARO R A CHITTENDEN CA	10/1/1939	Active
2	11158600	SAN BENITO R A HWY 156 NR HOLLISTER CA	10/1/1970	Active
3	11156500	SAN BENITO R NR WILLOW CREEK SCHOOL CA	10/1/1939	Active
4	11157500	TRES PINOS C NR TRES PINOS CA*	12/8/1922	Active
5	11154700	CLEAR C NR IDRIA CA	10/1/1993	Active
6	11153040	PACHECO C A DUNNEVILLE CA	10/1/1981	9/30/1985
7	11158500	SAN BENITO R NR HOLLISTER CA	10/1/1949	9/30/1983
8	11153700	PAJARO R NR GILROY CA	3/1/1959	9/30/1982
9	11158900	PESCADERO C NR CHITTENDEN CA	9/11/1970	9/30/1981
10	11156700	PESCADERO C NR PAICINES CA	7/1/1959	10/7/1970
11	11156450	WILLOW C TRIB NR SAN BENITO CA	7/1/1964	9/30/1969
12	11156000	SAN BENITO R BL M C NR HERNANDEZ CA	10/1/1949	9/30/1963
13	11154500	PAJARO R A SARGENT CA	10/1/1940	9/30/1941

* WY 2006 data for gage height only

December 2018

TODD GROUNDWATER

Figure C-2
Location of Streamflow Stations



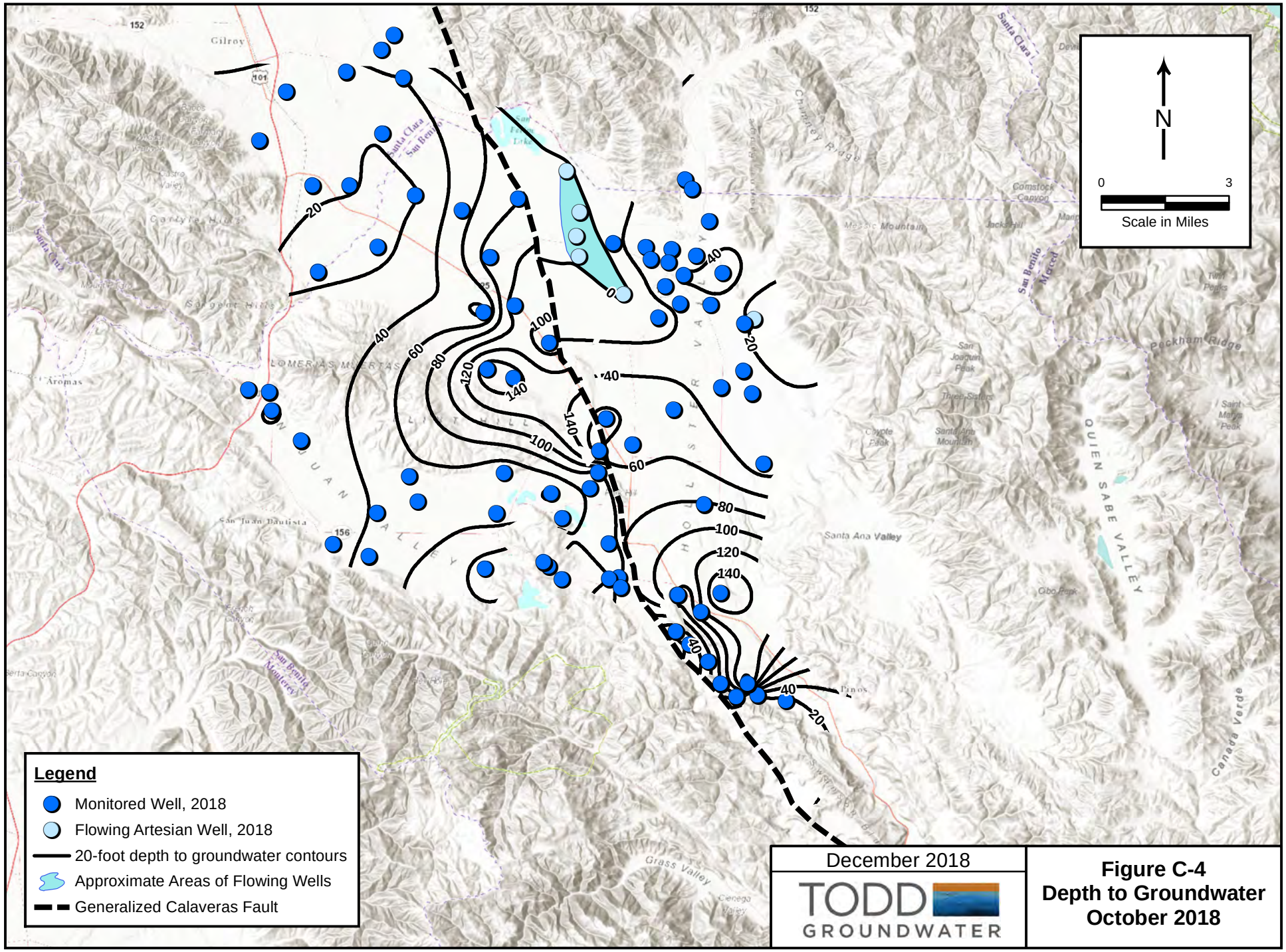
Surface Water Monitoring Locations

1. Tres Pinos Cr - Southside Road Bridge (West)
2. San Benito River - KT Road bridge
3. San Benito River - Hospital Road
4. San Benito River - Cienega Road
5. San Benito River - Nash Road
6. San Benito River - Old Highway 156
7. San Benito River - near Mitchell Road
8. San Benito River - near Flint Road
9. San Benito River - upstream of Bixby Road
10. San Benito River - Y Road
11. San Juan Creek - - Highway 156
12. San Juan Creek - Anzar Road
13. San Juan Creek - 2000 ft downstream of Highway101
14. Pacheco Creek - Walnut Avenue
15. Pacheco Creek - Highway 156
16. Pacheco Creek - Lovers Lane
17. Arroyo de las Viboras - Hawkins Ranch driveway
18. Arroyo de las Viboras - Fairview Road
19. Arroyo Dos Picachos - Fallon Road
20. Arroyo Dos Picachos - Aquistapace Road
21. Santa Ana Creek - Fairview Road
22. Santa Ana Creek - Fallon Road
23. Tequisquita Sough - San Felipe Road
24. Millers Canal - 2000 ft downstream of San Felipe Lake
25. Arroyo Dos Picachos - Lone Tree Road
26. Pajaro River - above Millers Canal
27. Pajaro River - Highway 25
28. Pajaro River - below Carnadero Creek
29. Carnadero Creek - above Pajaro River
30. Tres Pinos Creek - Bolado Park

Figure C-3
Monitoring Locations

December 2018

TODD GROUNDWATER


N
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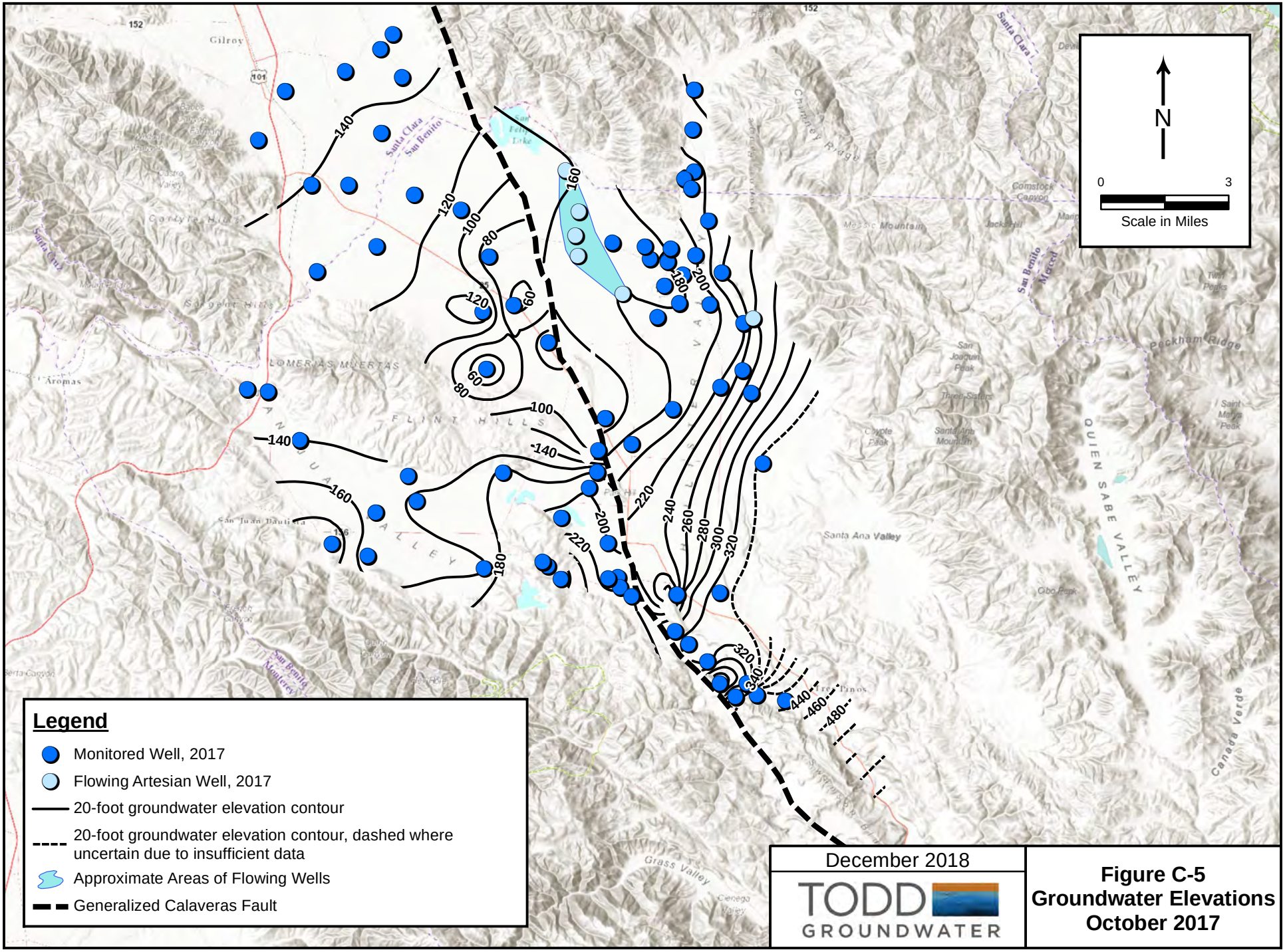
3
Scale in Miles
Legend
Monitored Well, 2018
Flowing Artesian Well, 2018
20-foot depth to groundwater contours
Approximate Areas of Flowing Wells
Generalized Calaveras Fault
December 2018
TODD GROUNDWATER
Figure C-4
Depth to Groundwater
October 2018


N
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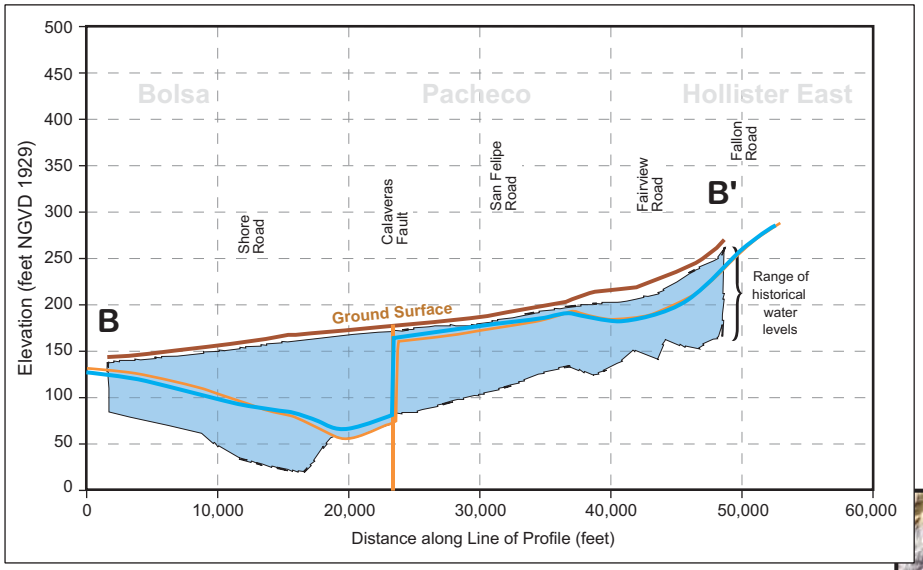
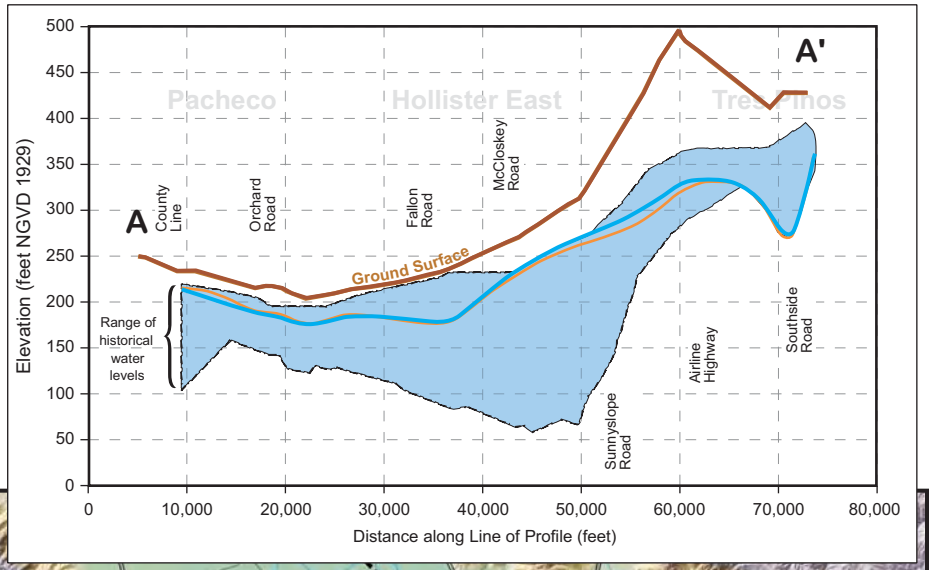
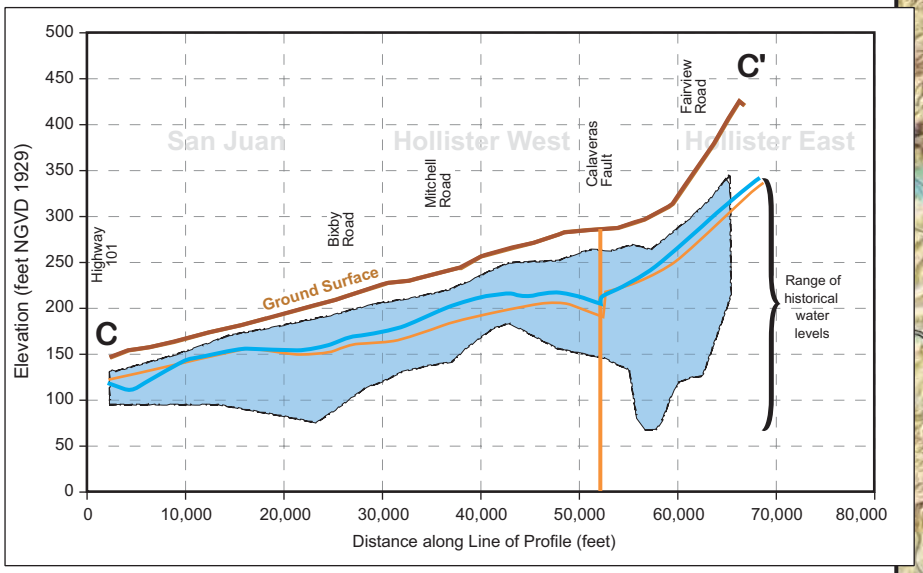
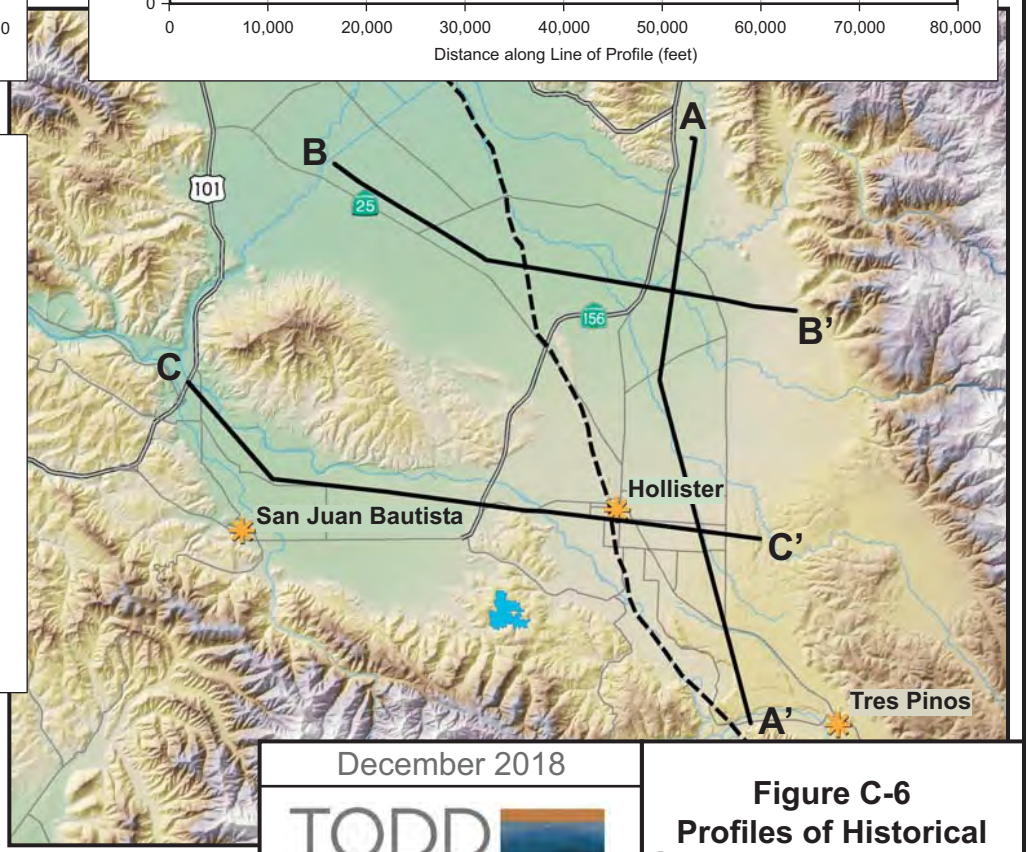
3
Scale in Miles
Legend
Monitored Well, 2017
Flowing Artesian Well, 2017
20-foot groundwater elevation contour
20-foot groundwater elevation contour, dashed where uncertain due to insufficient data
Approximate Areas of Flowing Wells
Generalized Calaveras Fault
December 2018
TODD GROUNDWATER
Figure C-5
Groundwater Elevations
October 2017









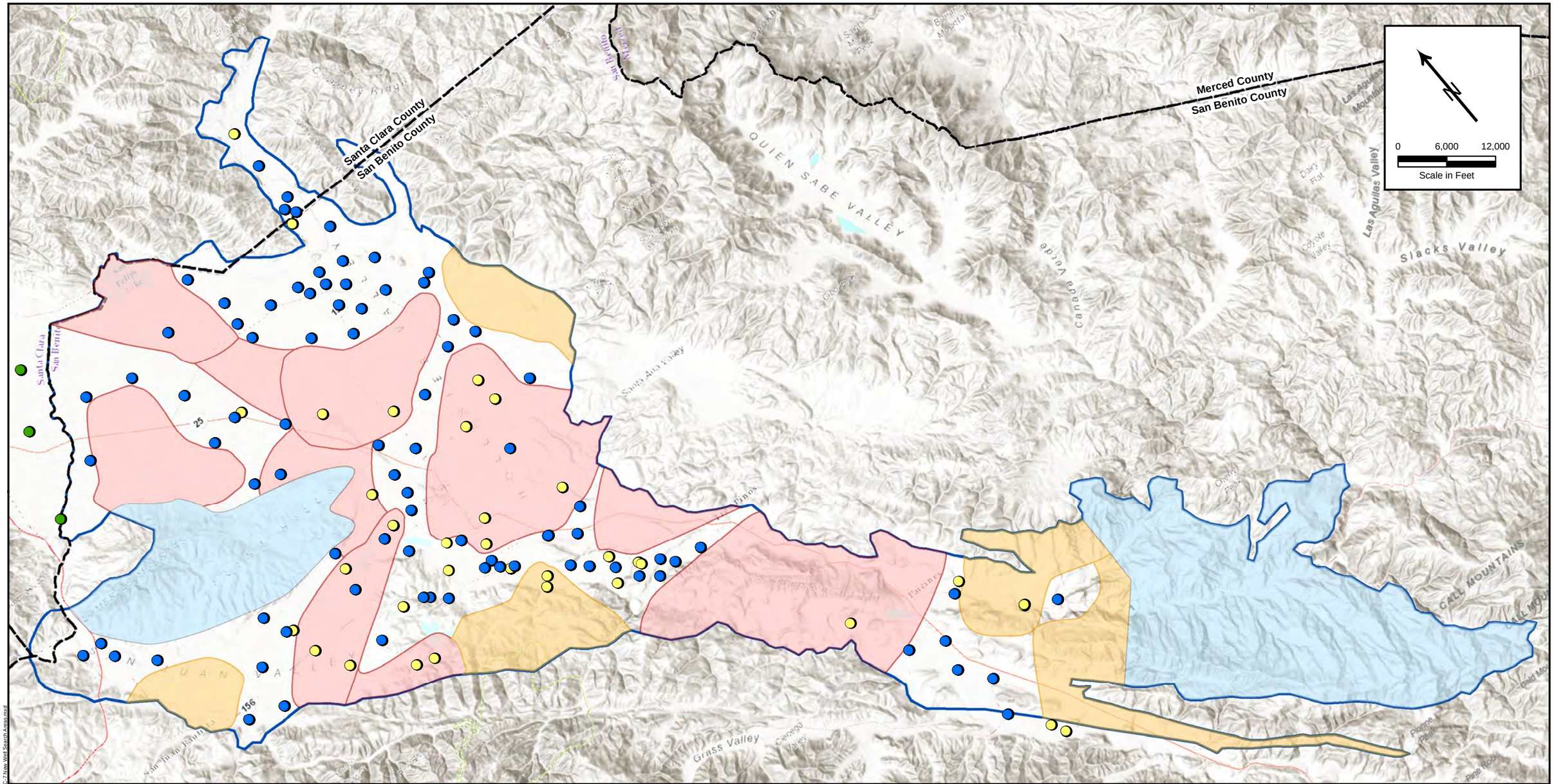
Legend

Ground Surface | Water year 2017 | Water Year 2018 | Range of Historical Water Levels

December 2018

TODD GROUNDWATER

Figure C-6
Profiles of Historical Groundwater Elevations



SBCWD Monitored Wells, October 2018

SCVWD Monitored Wells, October 2018

Well Monitored in Prior Years and not October 2018

Adequately Monitored Area

High Priority Target Area

Low Priority Area

Area with Few to No Wells

North San Benito Basin

December 2018

TODD GROUNDWATER

Figure C-7
Monitored and Unmonitored Areas
North San Benito Basin

Path: T:\Projects\San Benito Annual\37606\2018 Annual Report\GIS\Maps\Figure C-7 New Well Search Areas.mxd

TECHNICAL MEMORANDUM

Subject:	Sustainable Groundwater Management Act – Process for Establishing Well Network to Monitor Groundwater in San Benito County
Prepared For:	Jeff Cattaneo, P.E. SBCWD General Manager
Prepared by:	David Macdonald, Assistant Engineer
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Date:	November 21, 2018

Organization of TM

- Background
- Purpose
- Discussion
- Conclusions
- Recommendations

BACKGROUND

San Benito County Water District (SBCWD) has continuously managed the groundwater in San Benito County for over 50 years. In 2017, SBCWD became the Groundwater Sustainability Agency (GSA) for San Benito County to satisfy requirements of the Sustainable Groundwater Management Act (SGMA). This designation allows SBCWD to be the lead agency in preparing a Groundwater Sustainability Plan (GSP) for a significant portion of San Benito County.

After reviewing the current network of monitored wells, it became evident that in order to fully comply with SGMA, additional wells were needed to increase monitoring coverage of the groundwater basin.

PURPOSE

The purpose of this technical memorandum is to detail the procedure for finding and adding new wells to the monitoring network.

DISCUSSION

Additional wells are needed in the San Juan Bautista, Tres Pinos Valley, Bolsa, and Hollister sub-basins in order to provide quality coverage. Todd Groundwater is SBCWD's consultant regarding groundwater management, and they have provided a map titled "Historically Monitored Wells" which indicates areas where data is lacking. These areas were targeted in the search for additional

wells to add to the monitoring network. SBCWD utilized the following procedure to locate potential wells to add extra coverage within the groundwater subbasins.

Finding Wells for Monitoring Groundwater Conditions

First Method

1. Determine areas of need based on the "Historically Monitored Wells" map.
2. Use county GIS map to determine Assessor's Parcel Number (APN) of parcels within areas of need.
3. Use the APNs to locate well logs within SBCWD's files.
4. Locate the well on an aerial map to verify location/existence.

Second Method

1. Search the targeted areas on an aerial map to locate wells that may not be in SBCWD's files. This is done by looking for pipes and lone power poles in locations where a well would be advantageous.
2. Use the coordinates from Google Maps to map the location of the well on ArcGIS.
3. Use county GIS map to determine APN numbers of parcels within areas of need.
4. Confirm and verify location.

Acquiring Rights to Use Wells for Monitoring Groundwater Conditions

1. Use APN's to determine the owner of each well.
2. Produce and send a letter requesting permission to access the well for water level measurements and/or test water quality.
3. Once permission is granted, visit site and determine method of measurement/testing.

Repairing/Re-activating Previous Wells for use

1. Determine wells with access issues and follow up with owner to get keys/access.
2. Determine wells that can be altered/repaired to re-activate, and assess access.
3. If well can be reactivated, assess well condition (functioning, collapsed, etc.)

CONCLUSIONS

More monitoring wells are necessary to cover the entire area of the groundwater basins in San Benito County. This effort will improve the quality and credibility of data that SBCWD can produce to ensure compliance with SGMA. SBCWD's groundwater management activities can be further improved by increasing the amount of data collected within the county subbasins.

RECOMMENDATIONS

Based on this information it is recommended that the following actions be taken:

- Locate as many potential wells as possible.
- Request Owners to allow SBCWD access/permission to monitor groundwater conditions.
- Increase long term monitoring network.

APPENDIX D PERCOLATION DATA

List of Tables and Figures

Table D-1. Reservoir Water Budgets for Water Year 2018 (acre-feet)

	Hernandez	Paicines	San Justo	
Observed Storage				
Starting Storage (Oct 2017)	800	300	7,942	
Ending Storage (Sept 2018)	375	300	5,131	
Inflows				
Rainfall	106	13	145	
San Benito River	6,437	8	n.a.	
Hernandez-Paicines transfer	n.a.	516	n.a.	
San Felipe Project*	n.a.	n.a.	18,952	*
Total Inflows	**6,543**	**537**	**19,097**	
Outflows				
Hernandez spills	0	n.a.	n.a.	
Hernandez-Paicines transfer	516	n.a.	n.a.	
Tres Pinos Creek percolation releases	n.a.	384	n.a.	
San Benito River percolation releases	6,054	n.a.	n.a.	
CVP Deliveries*	n.a.	n.a.	21,899	*
Evaporation and seepage	136	58	1,360	
Total Outflows	**6,707**	**442**	**23,259**	
Change in Storage				
Observed storage change (Ending - Starting)	**-425**	**0**	**-2,811**	
Calculated net storage change (Inflow - Outflows)	**-163**	**95**	**-4,162**	
Unaccounted for Water (Observed - Calculated)**	**-262**	**-95**	**1,351**	

Reservoir Information			
Reservoir capacity	17,200	2,870	11,000
Maximum storage	4,154	515	10,349
Minimum storage	375	100	4,113

* 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
AVG	**9,413**	**1,318**	**10,731**

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

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

*2017-2018 percolation occurred only to recharge basins adjacent to the listed streams.

Table D-4. Percolation of Municipal Wastewater during Water Year 2018

	Pond Area[1] (acres)	Effluent Discharge (acre-feet)	Evaporation[2] (acre-feet)	Percolation (acre-feet)
Hollister - domestic*	92.9	1,631	266	1,365
Hollister - industrial*	39.0	85	28	57
Ridgemark Estates I & II	7.2	171	21	150
Tres Pinos	1.8	20	5	15
Total	**141**	**1,907**	**320**	**1,587**

Notes:

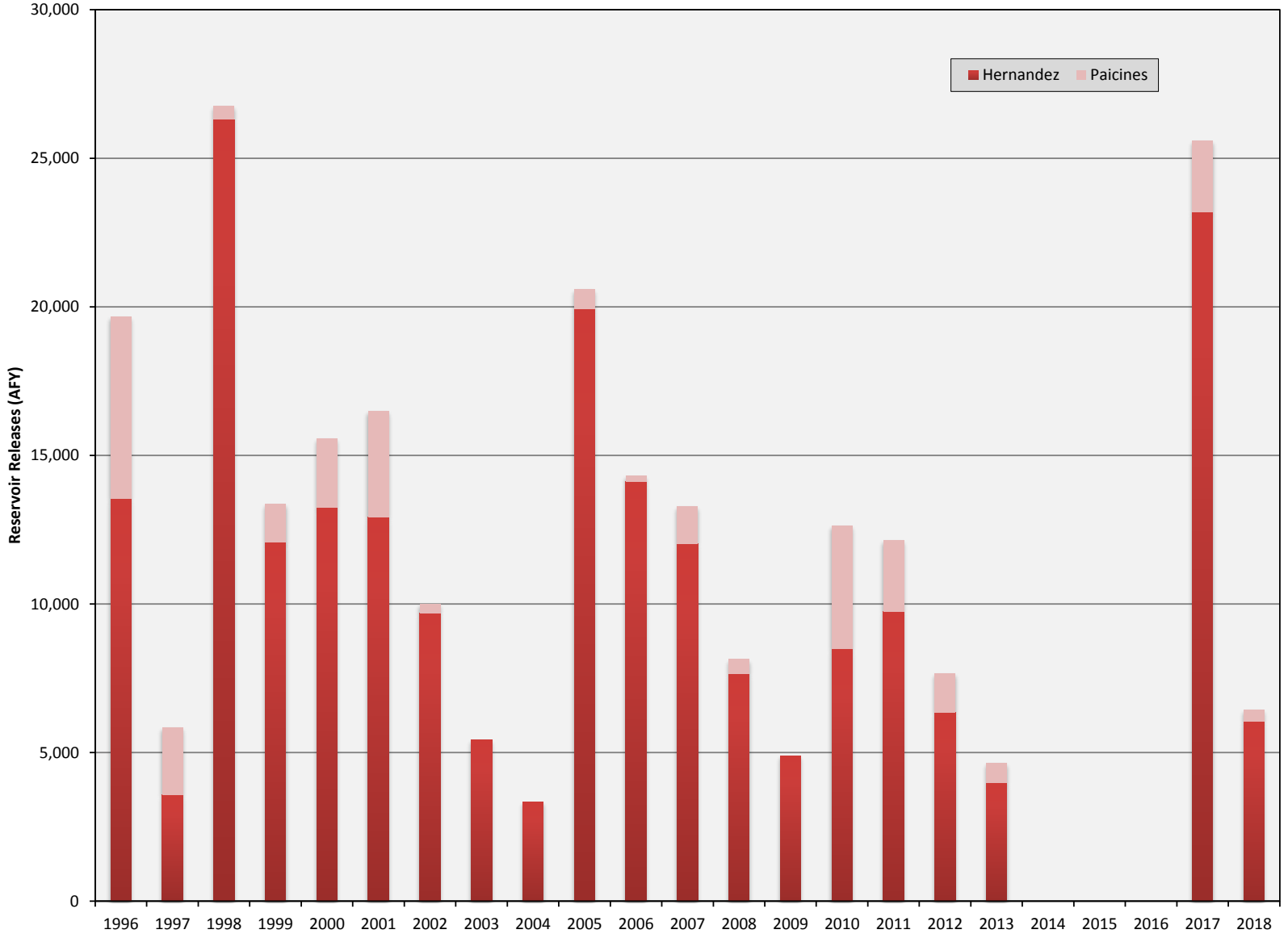
1. Hollister pond areas are from Dickson and Kenneth D. Schmidt and Associates (1999) and include treatment ponds in addition to percolation ponds at the domestic wastewater treatment plant. Assumes 80% of total pond area in use at any time (Rose, pers. comm.). These areas should be updated as operations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

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

	Hollister Reclamation Plant - Domestic	Hollister - industrial	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

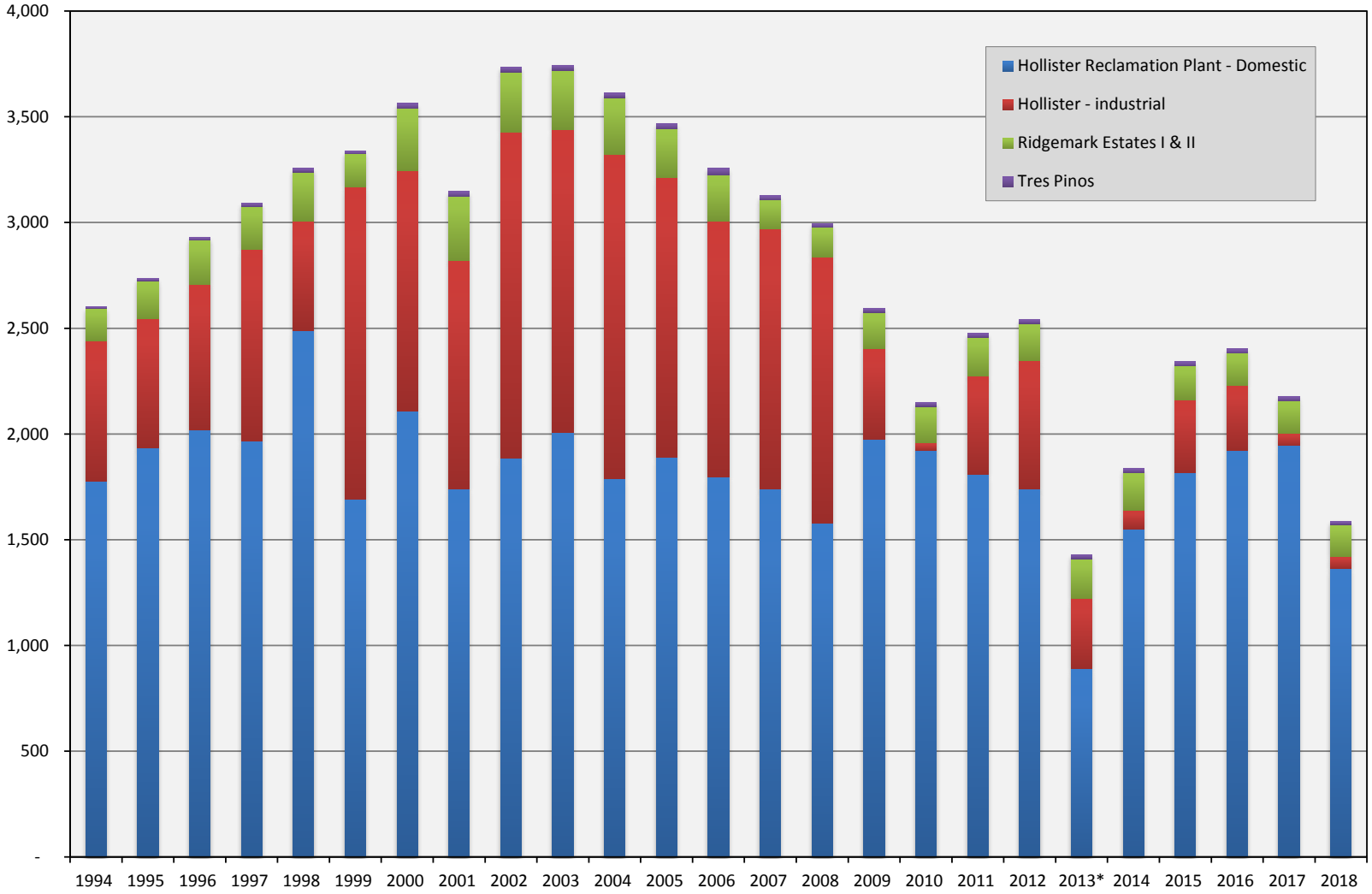
*Potential missing data



December 2018

TODD GROUNDWATER

Figure D-1
Reservoir Releases for Percolation



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TODD GROUNDWATER

Figure D-2
Wastewater Percolation by Facility

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	Percent of Historic Average	Contract Amount Used (AF)	Contract Amount Used (%)	Percent of Contract Allocation	Percent of Contract and M&I Adjustment[1]	Contract Amount Used (AF)	Contract Amount Used (%)
	(USBR Water Year Mar-Feb)		(Hydrologic Water Year Oct-Sep)		(USBR Water Year Mar-Feb)		(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%		13,288	37%
2018	75%		5,679	69%	50%		14,453	41%

Notes: [1]Shortage Policy Adjustments

Table E-2. Historical Water Use by Subbasin and Water Source (AFY)

Subbasin	Pacheco		Bolsa Southeast			San Juan		Hollister West			Hollister East			Tres Pinos		Total Zone 6		
Source	GW	CVP	GW	CVP	RW	GW	CVP	GW	CVP	RW	GW	CVP	RW	GW	CVP	GW	CVP	RW
1993	2,251	3,210	3,474	533		9,278	4,300	7,213	90		3,744	7,275		5,658	224	31,618	15,633	-
1994	3,748	3,394	3,467	602		10,859	3,836	7,327	87		5,475	6,808		5,294	263	36,169	14,990	-
1995	2,756	3,474	2,855	720		9,328	4,554	7,092	460		3,428	6,647		4,475	275	29,935	16,130	-
1996	2,533	3,500	2,682	782		8,726	5,187	5,717	679		3,396	8,267		3,695	408	26,748	18,823	-
1997	2,209	4,205	2,755	997		9,587	6,191	7,602	907		3,534	8,284		4,620	466	30,307	21,048	-
1998	2,035	2,165	1,561	361		6,963	4,099	4,991	591		4,037	5,291		3,751	289	23,338	12,796	-
1999	2,553	3,219	2,453	433		9,312	5,990	7,013	726		3,701	7,279		4,199	391	29,231	18,038	-
2000	2,270	3,256	2,418	355		8,681	6,372	7,590	869		3,108	7,279		4,006	542	28,073	18,673	-
2001	1,848	3,443	2,126	411		7,977	7,232	7,377	685		2,213	7,010		3,599	621	25,140	19,402	-
2002	2,322	3,840	2,193	497		7,571	7,242	6,577	706		2,588	7,390		3,994	737	25,244	20,411	-
2003	2,425	3,277	2,175	493		7,434	7,127	6,222	720		1,897	9,329		2,805	788	22,958	21,734	-
2004	2,461	3,607	2,405	740		8,121	7,357	4,971	614		2,321	10,726		3,204	966	23,484	24,010	-
2005	1,320	3,106	1,849	514		6,608	6,245	5,084	680		2,586	9,198		2,378	642	19,825	20,384	-
2006	1,208	3,495	1,864	661		6,741	7,200	4,633	579		2,555	10,253		2,537	803	19,538	22,992	-
2007	1,034	3,832	2,005	572		7,658	6,160	5,118	553		3,867	10,194		2,908	804	22,590	22,115	-
2008	1,900	1,568	2,014	333		7,796	3,160	4,375	399		3,962	6,792		2,743	493	22,789	12,745	-
2009	3,370	1,257	2,082	179		11,956	1,605	4,186	19		4,733	4,697		2,871	447	29,199	8,204	-
2010	2,553	1,771	1,897	207		9,561	3,452	4,081	10	151	4,460	6,056		1,686	488	24,238	11,984	151
2011	1,992	2,420	2,781	229		4,987	5,623	3,940	394	183	1,947	9,575		2,454	427	18,102	18,667	183
2012	3,723	2,652	1,556	288		5,782	5,976	4,298	549	230	2,004	9,917		2,492	568	19,855	19,949	230
2013	4,157	1,976	2,348	292		11,044	4,134	5,656	374	357	5,430	8,224		2,452	565	31,087	15,566	357
2014	3,303	1,020	2,157	32		10,018	1,984	7,227	233	262	4,872	5,490		3,014	384	30,592	9,144	262
2015	4,279	555	2,401	20		12,739	975	4,730	148	101	7,230	3,568		2,948	241	34,327	5,507	101
2016	4,386	420	2,558	30	38	13,581	819	4,031	162	253	6,383	4,810	207	2,223	106	33,162	6,347	499
2017	2,949	2,097	1,414	365	66	7,542	5,853	3,255	217	108	2,209	7,488	192	2,447	177	19,815	16,197	366
2018	4,375	1,529	3,063	291	3	8,932	6,383	3,922	2,054	468	3,699	9,686	-	1,865	188	25,856	20,131	471
AVG 03-18	**2,840**	**2,161**	**2,161**	**328**	**36**	**8,781**	**4,628**	**4,733**	**482**	**235**	**3,760**	**7,875**	**133**	**2,564**	**505**	**24,839**	**15,980**	**164**

GW = groundwater, CVP = Central Valley Project, RW = recycled water

Table E-3. Recent Water Use by Subbasin and User Type, Includes Recycled Water (AFY)

SUBBASIN	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Agriculture														
Bolsa SE	2,352	2,517	2,570	2,334	2,252	2,103	3,004	1,837	2,635	2,180	2,417	2,601	1,831	3,315
Hollister East	8,543	9,526	10,685	8,012	6,860	8,315	9,067	9,453	10,832	8,151	8,464	8,784	7,756	9,594
Hollister West	2,128	1,936	2,145	1,509	1,708	1,888	2,190	2,228	3,324	2,584	2,750	2,192	1,338	2,337
Pacheco	4,190	4,469	4,573	3,220	4,304	4,242	4,279	6,148	5,990	4,121	4,658	4,616	4,964	5,663
San Juan	11,496	12,622	12,185	9,581	12,397	11,960	10,009	10,964	14,376	11,183	13,123	13,826	11,916	14,568
Tres Pinos	800	1,004	954	655	670	640	471	641	652	514	1,513	572	468	448
TOTAL	**29,509**	**32,074**	**33,112**	**25,310**	**28,192**	**29,148**	**29,020**	**30,980**	**37,810**	**28,734**	**32,926**	**32,591**	**28,273**	**35,925**
M&I														
Bolsa SE	12	8	7	13	9	0	6	6	4	9	5	25	14	43
Hollister East	3,241	3,280	3,203	2,742	2,570	2,307	2,594	2,608	2,961	2,277	2,334	2,617	2,132	3,790
Hollister West	3,636	3,168	3,361	3,265	2,710	2,555	2,235	2,710	2,796	5,072	2,229	2,254	2,242	4,106
Pacheco	235	234	293	248	323	83	133	227	144	203	176	191	81	241
San Juan	1,356	1,320	1,640	1,375	1,164	1,053	601	793	803	820	590	574	1,479	747
Tres Pinos	2,220	2,336	2,748	2,581	2,648	1,534	2,410	2,710	2,365	2,884	1,676	1,757	2,156	1,606
TOTAL	**10,700**	**10,345**	**11,252**	**10,225**	**9,424**	**7,532**	**7,979**	**9,055**	**9,073**	**11,263**	**7,010**	**7,417**	**8,105**	**10,533**

Table E-4. Historical Water Use by User Type in Zone 6 - Includes Recycled Water (AFY)

WY	Agricultural	Municipal, and Industrial	Total	% Ag
1988	46,366	5,152	51,518	90%
1989	32,387	6,047	38,434	84%
1990	49,663	5,725	55,388	90%
1991	46,640	7,631	54,271	86%
1992	32,210	6,912	39,122	82%
1993	38,878	5,066	43,944	88%
1994	41,854	7,186	49,040	85%
1995	36,399	8,272	44,671	81%
1996	39,845	8,131	47,976	83%
1997	41,482	11,068	52,550	79%
1998	27,526	8,605	36,131	76%
1999	37,203	10,066	47,269	79%
2000	36,062	10,764	46,826	77%
2001	34,035	10,640	44,675	76%
2002	34,354	11,300	45,654	75%
2003	33,533	11,159	44,692	75%
2004	35,597	11,898	47,495	75%
2005	29,510	10,699	40,209	73%
2006	32,074	10,456	42,530	75%
2007	33,112	13,311	46,424	71%
2008	25,310	10,225	35,535	71%
2009	28,192	9,424	37,616	75%
2010	29,148	7,531	36,679	79%
2011	29,020	7,932	36,952	79%
2012	30,980	9,055	40,095	77%
2013	37,810	9,073	46,653	81%
2014	28,734	11,226	39,960	72%
2015	32,926	7,161	39,935	82%
2016	32,591	7,417	40,008	81%
2017	28,273	8,105	36,012	79%
2018	35,925	10,533	46,458	77%
AVERAGE	**34,763**	**8,960**	**43,701**	**79%**

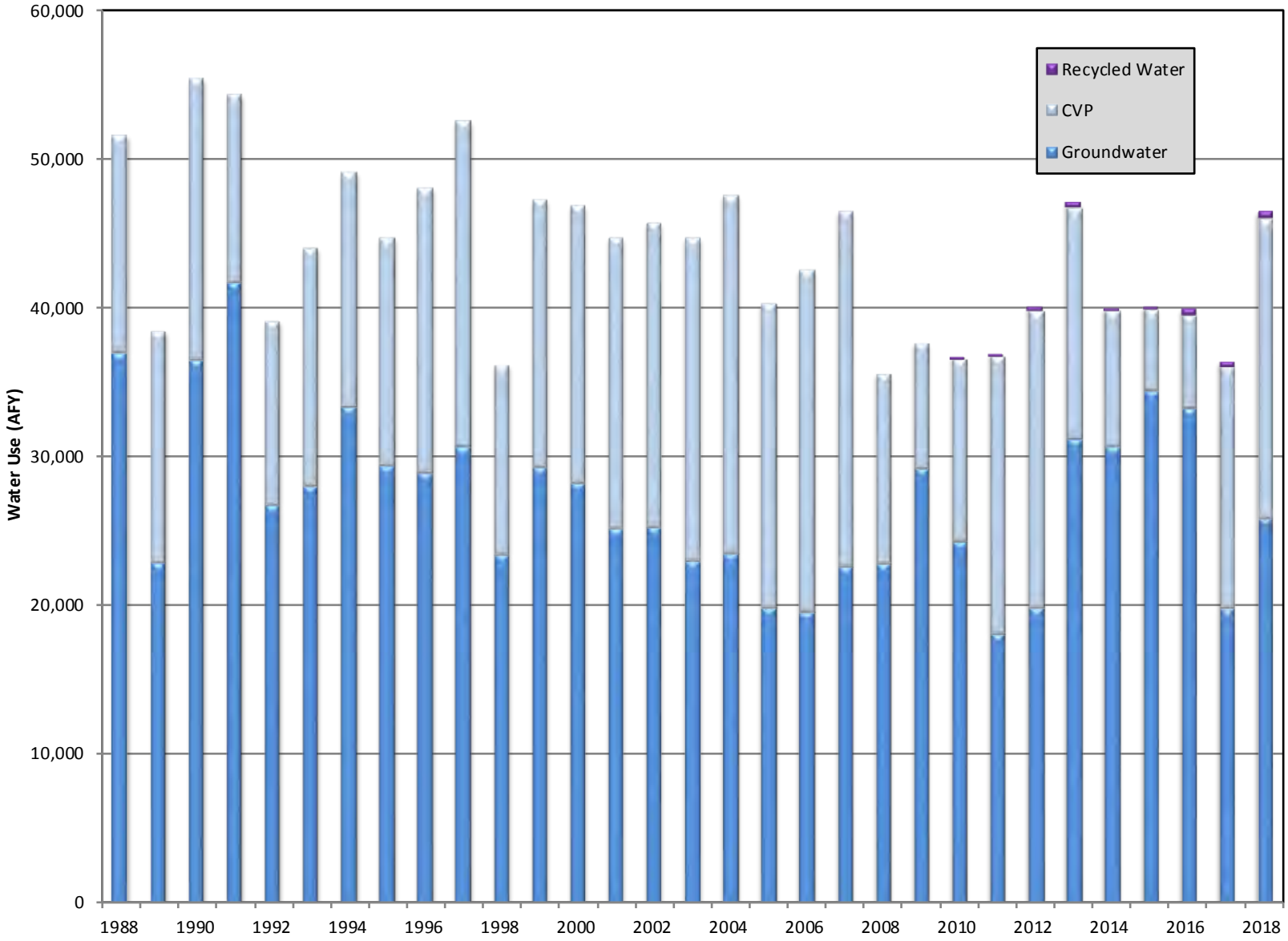
Table E-5. Municipal Water Use by Major Purveyor for Water Year 2018 (AF)

	WY 2018	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Groundwater													
Sunnyslope CWD	**978**	136	141	65	66	31	24	26	47	79	118	138	108
City of Hollister	**1,217**	83	36	25	108	97	98	139	137	144	162	113	74
City of Hollister - Cienega Wells	**121**	10	10	10	10	10	12	11	10	10	11	8	10
San Juan Bautista	**184**	24	19	19	17	-	17	19	22	12	18	10	7
Tres Pinos CWD	**34**	3	2	2	2	2	2	2	3	4	4	4	3
Groundwater Subtotal	**2,533**	**256**	**208**	**120**	**203**	**141**	**152**	**196**	**220**	**249**	**312**	**274**	**202**
CVP Imported Water													
Lessalt Treatment Plant	**1,596**	178	86	92	102	107	102	124	144	169	162	149	181
West Hills Treatment Plant	**1,990**	140	124	127	124	113	124	142	202	207	230	277	179
Imported Water Subtotal	**3,586**	**318**	**210**	**220**	**226**	**220**	**226**	**266**	**346**	**376**	**391**	**425**	**360**
Municipal Total													
Municipal Water Supply Total	**6,119**	**574**	**418**	**340**	**429**	**361**	**378**	**462**	**566**	**624**	**704**	**699**	**562**

Table E-6. 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		5,152	**5,152**
1989						0		6,047	**6,047**
1990						0		5,725	**5,725**
1991						0		7,631	**7,631**
1992						0		6,912	**6,912**
1993						0		5,066	**5,066**
1994						0		7,186	**7,186**
1995	2,167	2,446				0			**4,613**
1996	2,139	3,386				0			**5,525**
1997	2,638	3,848				0			**6,486**
1998	2,357	3,441				0			**5,798**
1999	2,820	3,558				0			**6,378**
2000	3,214	4,021				0			**7,235**
2001	3,290	3,851				0			**7,141**
2002	3,256	4,120				21			**7,398**
2003	2,053	2,754				2,494			**7,302**
2004	2,426	2,828				2,101			**7,356**
2005	1,959	3,147	123	247	49	1,843			**7,368**
2006	1,907	2,801	123	150	49	1,900			**6,930**
2007	2,413	2,758	123	47	49	1,719			**7,108**
2008	2,294	2,746	123	417	47	1,323			**6,949**
2009	2,251	2,503	123	373	47	1,212			**6,509**
2010	1,861	2,194	108	308	47	1,344			**5,861**
2011	2,225	1,651	80	292	47	1,593			**5,887**
2012	2,360	1,761	130	267	45	1,657			**6,219**
2013	1,655	2,655	120	281	46	1,648			**6,405**
2014	2,134	2,646	114	285	49	979			**6,207**
2015	1,348	1,960	114	225	49	1,364			**5,060**
2016	1,331	1,615	105	232	49	1,682			**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**

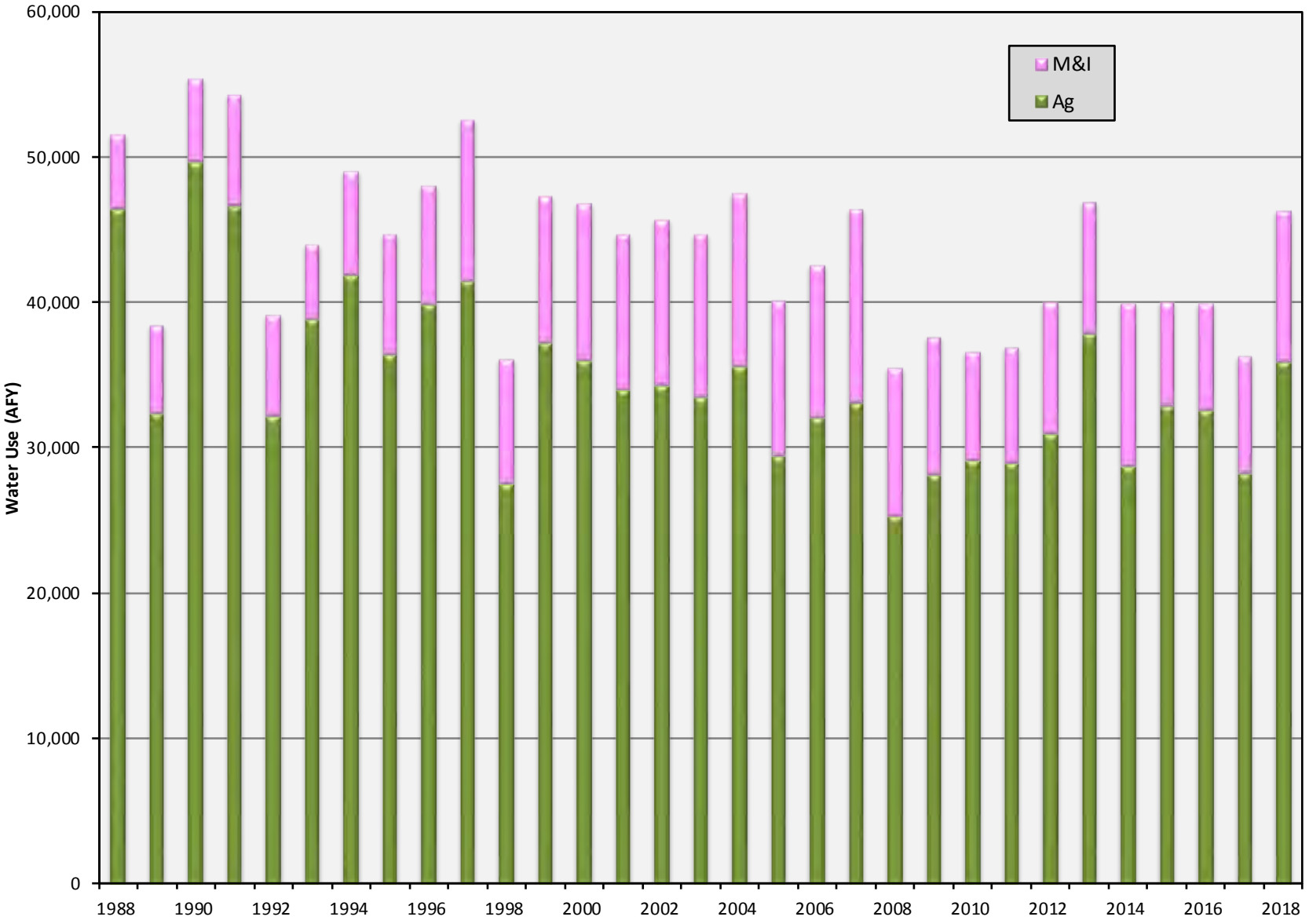
1. Data from Hollister Cienega Wells for 2005-2008 was estimated to be the same as WY 2009
Cells with no data indicate that the information is unavailable, while years with no use are shown explicitly as 0's.



December 2018

TODD GROUNDWATER

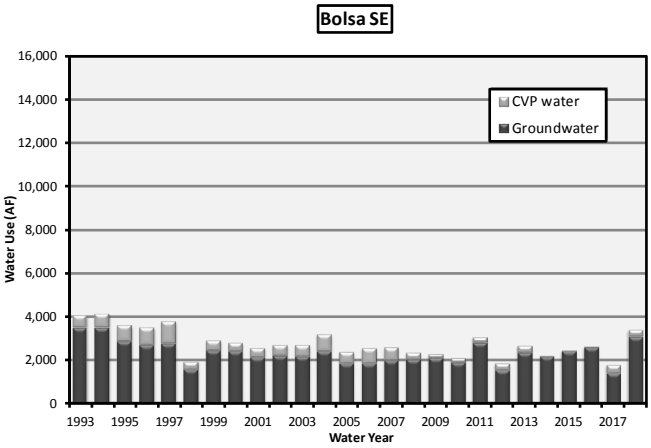
Figure E-1
Total Water Use by Water Source Zone 6

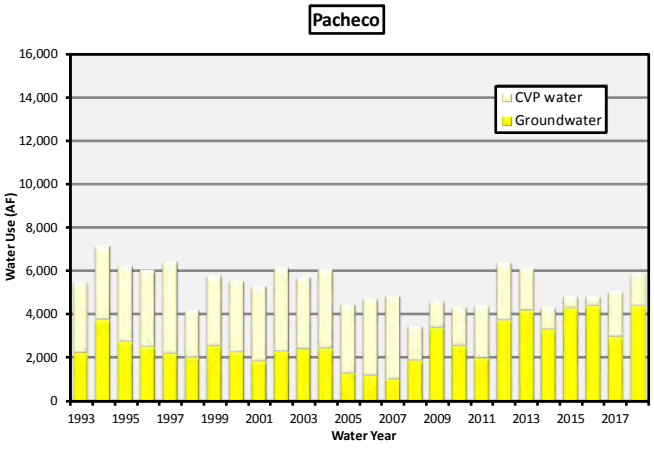


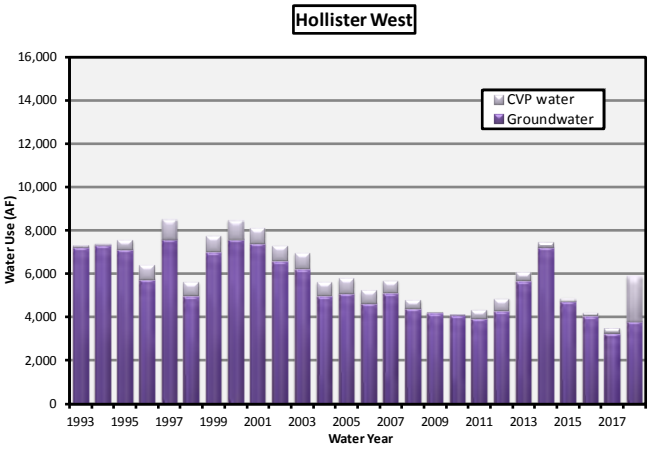
December 2018

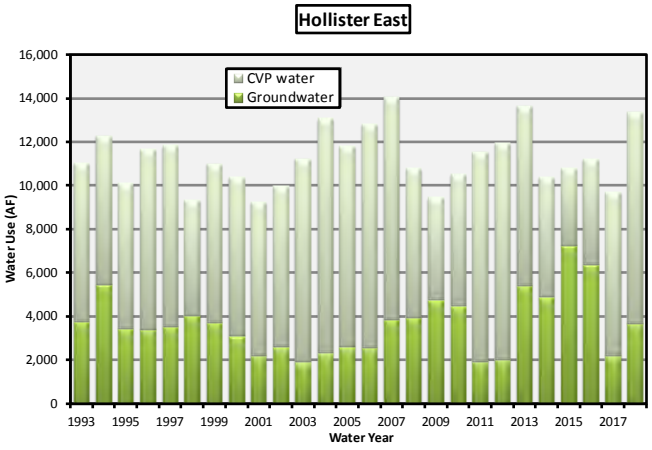
TODD GROUNDWATER

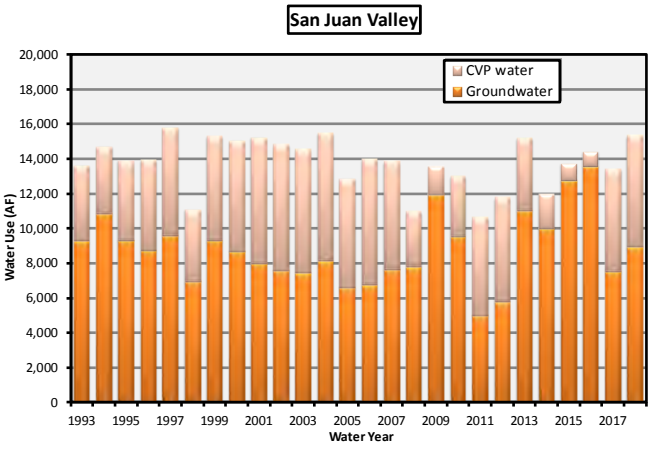
Figure E-2
Water Use in Zone 6 by User Category











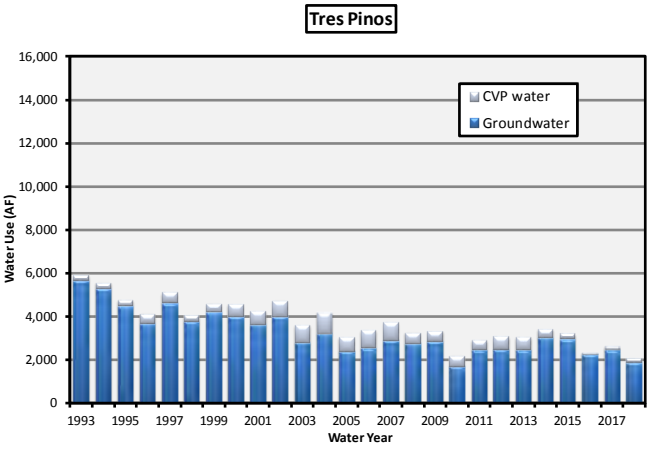


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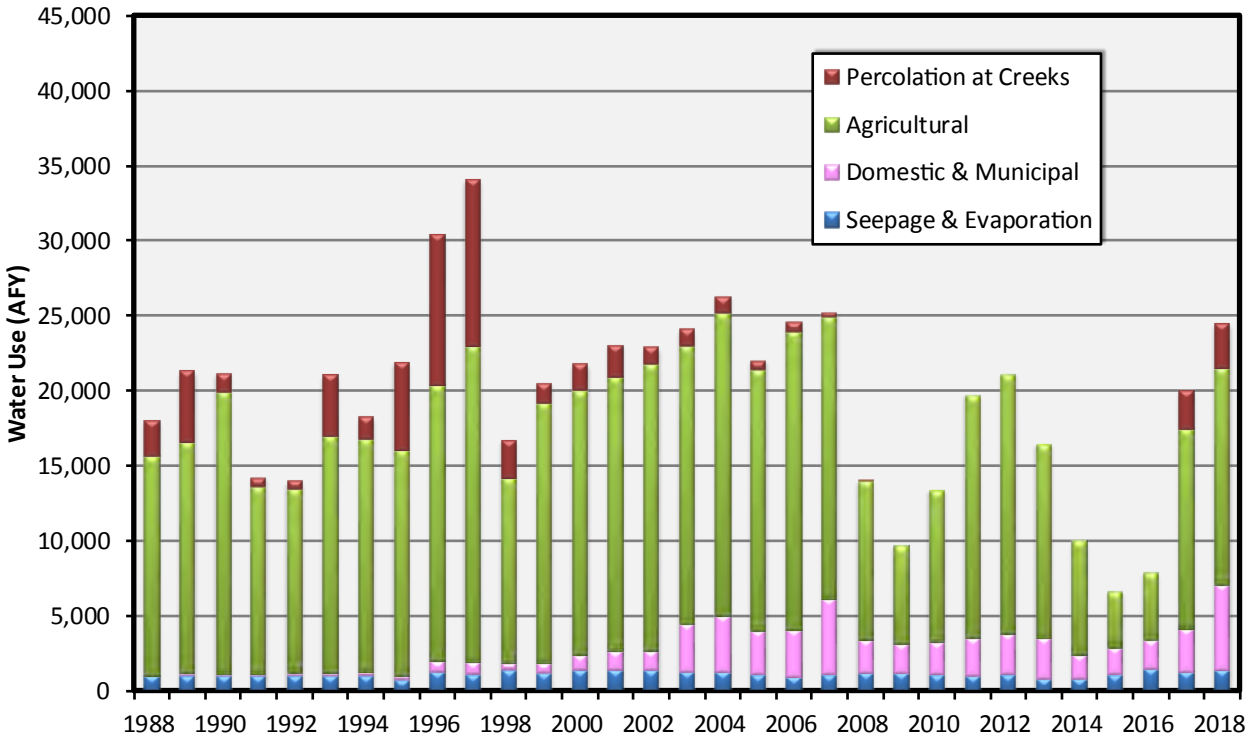
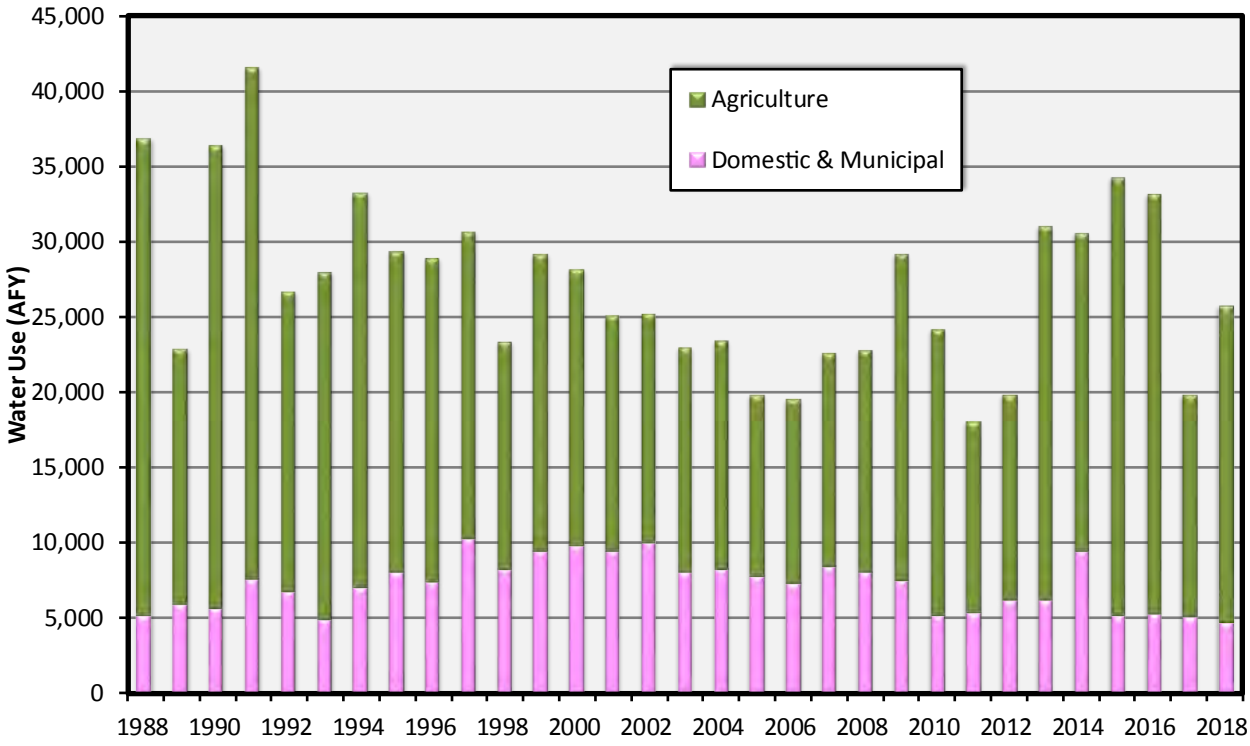
Figure E-3
Total Subbasin Water Use by Water Type





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TODD GROUNDWATER

Figure E-4
Annual Total of CVP and Groundwater by Use

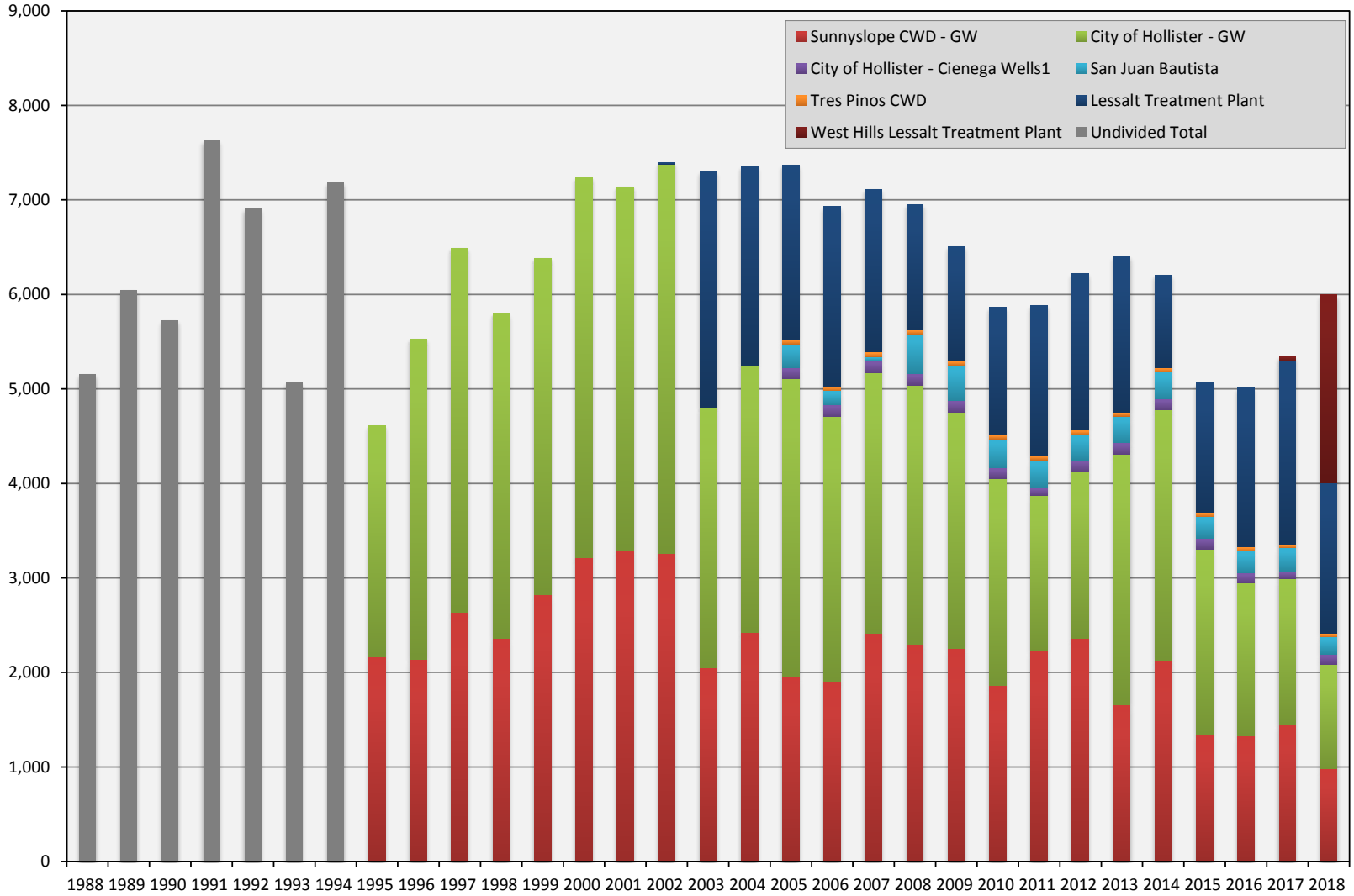

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Figure E-5
Municipal Water Use By Purveyor

APPENDIX F RATES AND CHARGES

List of Tables and Figures

Table F-1. 2018 Recommended Groundwater Revenue Requirement/Charges

San Benito County Water District
Groundwater Rates
Water Year
2019-2020, 2020-2021, 2021-2022
Zone 6

REVENUE REQUIREMENTS				Rates[2]	
Component	**Rate ($/AF)**	**Quantity (A/F)[1]**	**Amount**	**Ag** (per A/F)	**M & I** (per A/F)
SOURCE OF SUPPLY O&M					
AG	$ 18.68	23,974	$ 447,851	$ 18.68	
M&I	$ 18.68	4,877	$ 91,110		$ 18.68
PERCOLATION COSTS					
Cost of Water					
AG Cost of Water[3]	$ 53.51	2,105	$ 112,612	$ 4.70	
M&I Cost of Water[3]	$ 163.58	428	$ 70,036		$ 14.36
Power Costs					
AG Power Charge for percolation	$ 58.83	2,105	123,812	$ 5.16	
M&I Power Charge for percolation	$ 58.83	428	25,188		$ 5.16
TOTAL				$ 28.54	$ 38.21
Current Groundwater Charge[4] (per acre foot)				$ 7.95	$ 24.25
RECOMMENDED Rate Basis (per acre foot)					
Water Year 2019-2020				**$ 12.74**	**$ 38.21**
Water Year 2020-2021				**$ 13.12**	**$ 39.36**
Water Year 2021-2022				**$ 13.51**	40.54
RECOMMENDED CHARGES (per acre foot)				**$ 12.75**	38.25
Water Year 2019-2020				**$ 13.15**	39.40
Water Year 2020-2021				**$ 13.55**	40.55
Water Year 2021-2022					

Notes:

1 Assumed Volumes
Groundwater usage (based on average of past 4 years)

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 charge adopted by San Benito County Water District Board of Directors in January 2017 (Ag) and January 2016 (M&I)

5 Assumed volumes for percolation (based on 3 year average)

Ag	83%	2105
M&I	17%	428
Total	100%	2533

6 Annual escalation rate 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
				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	$24.30	$46.75	$25.05	$53.70	$15.25	$1.50	$10.00			
2005	$6.00	$80.00	$150.00	$26.15	$49.40	$35.00	$66.90	$17.10	$1.50	$21.50			
2006	$6.00	$85.00	$160.00	$23.60	$36.05	$34.70	$65.75	$18.40	$1.50	$21.50			
2007	$6.00	$85.00	$160.00	$23.60	$36.05	$34.70	$65.75	$18.40	$1.50	$21.50			
2008	$6.00	$100.00	$170.00	$17.25	$19.40	$32.60	$62.75	$14.85	$1.50	$21.50			
2009	$6.00	$115.00	$180.00	$17.50	$20.25	$42.55	$74.85	$16.30	$2.50	$22.50			
2010	$6.00	$135.00	$200.00	$22.00	$27.30	$49.75	$84.35	$21.75	$2.50	$22.50			
2011	$6.00	$155.00	$220.00	$22.70	$28.15	$51.25	$86.90	$22.40	$2.50	$22.50			
2012	$6.00	$170.00	$235.00	$23.35	$29.00	$52.80	$89.50	$23.10	$2.50	$22.50			
2013	$6.00	$170.00	$235.00	$40.30	$29.25	$43.05	$91.55	$22.40	$3.25	$23.25			
2014	$6.00	$170.00	$238.00	$41.55	$30.15	$44.35	$94.30	$23.10	$3.60	$23.25			
2015	$6.00	$179.00	$247.00	$42.75	$31.05	$45.70	$97.15	$23.80	$3.95	$23.25			
2016	$6.00	$272.00	$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	$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	$130.60	$80.25	$116.25	$172.45	$70.10	$7.95	$24.25		$183.45	$59.45

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	$10.07	$30.66	$0.23	$126.08	$53.82	$61.24	$20.14	$30.66	$0.23	$112.27	$34.74
2017	$91.57	$10.23	$14.15	$0.30	$90.85	$39.90	$49.50	$20.45	$14.15	$0.30	$84.40	$22.85
2018	$85.13	$10.47	$20.39	$0.30	$107.87	$48.35	$21.42	$20.94	$20.39	$0.30	$63.05	$17.45

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.

(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
DWR	California Department of Water Resources
DWTP	Domestic Wastewater Treatment Plant
ET	evapotranspiration
ft	feet
gpd	gallons per day
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GW	groundwater
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
MGD	million gallons per day
msl	mean sea level
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
SCVWD	Santa Clara Valley Water District
SEIR	Supplemental Environmental Impact Report
SGMA	Sustainable Groundwater Management Act
SLDMWA	San Luis & Delta-Mendota Water Authority
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