2015

Hollister Urban Area

Urban Water Management Plan

July 2016

TODD GROUNDWATER

Sunnyslope County Water District

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PUBLIC DRAFT July 2016

HOLLISTER URBAN AREA

2015 URBAN WATER MANAGEMENT PLAN

Date Plan Submitted to the Department of Water Resources: _____

San Benito County Water District
Sunnyslope County Water District
City of Hollister

Todd Groundwater

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CONTACT SHEET

SAN BENITO COUNTY WATER DISTRICT

Name of Primary Contact Person: **Jeff Cattaneo, District Manager**

Phone: **(831) 637-8218**

Email address: **jcattaneo@sbcwd.com**

The water supplier is a: **Water district and water wholesaler**

Utility services provided by the water supplier include: **Water service**

Is this agency a Bureau of Reclamation Contractor? **Yes**

Is this agency a State Water Project Contractor? **No**

SUNNYSLOPE COUNTY WATER DISTRICT

Name of Primary Contact Person: **Don Ridenhour, General Manager**

Phone: **(831) 637-4670**

Email address: **don@sscwd.org**

The water supplier is a: **Water district and water retailer**

Utility services provided by the water supplier include: **Water and sewer service**

Is this agency a Bureau of Reclamation Contractor? **No**

Is this agency a State Water Project Contractor? **No**

CITY OF HOLLISTER

Name of Primary Contact Person: **Henry Gonzales**

Phone: **(831) 636-4377**

Email address: **Henry.Gonzales@hollister.ca.gov**

The water supplier is a: **City water department and water retailer**

Utility services provided by the water supplier include: **Water and sewer service**

Is this agency a Bureau of Reclamation Contractor? **No**

Is this agency a State Water Project Contractor? **No**

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EXECUTIVE SUMMARY

PURPOSE AND SCOPE

The 2015 Hollister Urban Area (HUA) Urban Water Management Plan (UWMP) has been prepared as a collaborative effort between the San Benito County Water District (District), Sunnyslope County Water District (Sunnyslope or SSCWD), and the City of Hollister (Hollister). The plan has been prepared in accordance with the Urban Water Management Planning Act and guidelines prepared by the Department of Water Resources (DWR). The 2015 HUA UWMP is intended to help guide the area's future water management efforts.

This Plan builds on and updates the 2010 UWMP, accounting for changes in the California Water Code and local planning and water management efforts. Specifically, Senate Bill 7 (Statewide Water Conservation), water loss data, and new water conservation programs have been included in this 2015 UWMP.

The HUA agencies have provided for agency coordination and community participation in their urban water management planning efforts. Much of the coordination and community participation regarding water conservation within the HUA is undertaken by the agency members of the Water Resources Association (WRA) of San Benito County. The WRA serves water customers of Hollister, Sunnyslope, the District, and the City of San Juan Bautista. The WRA has played an integral role in the preparation of this UWMP.

This UWMP presents the following elements relating to water supply and demand in the HUA:

- A description of the HUA service area, which is a regional alliance of the District, Sunnyslope, and Hollister.
- Past and current water demand as reported by the agencies in the HUA.
- Water Loss Audit consistent with AWWA methodology.
- Baseline daily per capita water demand, as required by Senate Bill 7.
- Projected water demand based on estimated population and per capita daily demand reductions as required by Senate Bill 7.
- A water use reduction plan.
- A summary of sources of water supply and plans for future water supply facilities.
- Discussion of water supply reliability and comparison of supply and demand, including the effects of drought and emergencies on water supply availability and the contingency plans in place to manage shortages.
- Details of the demand management measures employed within the HUA.

FINDINGS

The HUA is an approximately 20 square mile area comprising all of the incorporated, and some unincorporated county lands, surrounding the City of Hollister. This is the same area that was used in the 2010 UWMP and in the Hollister Urban Area Water and Wastewater Master Plan (Master Plan). There are two municipal water purveyors within the HUA: the City of Hollister and Sunnyslope County Water District. These water purveyors provide water supply to their individual service areas from sources described in Section 6 of this report. The District has the responsibility and authority to manage groundwater in San Benito County, which includes managing groundwater and surface water supplies. In addition, the District holds the contract for water through the Central Valley Project (CVP) and is the imported water wholesaler from the CVP to Zone 6, which includes the HUA.

Table ES-1
Population — Current and Projected

	2015	2020	2025	2030	2035
Total HUA Population	41,922	49,422	57,871	68,152	80,659
Potable Water Demand (acre-feet per year, AFY)	4,880	6,820	7,740	8,840	10,170
Potable Water Supply - Normal Water Year (AFY)	4,880	6,820	7,740	8,840	10,170
Potable Water Supply - Single Dry Water Year (AFY)	4,880	5,549	6,285	6,717	7,716

POPULATION

The annual estimates for the population of the HUA (for which water is supplied by Sunnyslope and Hollister) were updated through 2015. These historical population estimates are based on data from the online DWR population tool.

Population for the HUA was also estimated through 2035 in five-year intervals. Future population was estimated as part of the Master Plan through examination of general development plans for the City of Hollister and San Benito County. These population growth estimates were based on the Master Plan with some adjustments, as indicated in Section 4.2.

BASELINE AND FUTURE DEMAND

Historical population was combined with measured water use to calculate baseline per capita daily demand for the HUA, in accordance with DWR guidelines and Senate Bill 7. The baseline period selected for the HUA is 1996 through 2005. These calculations were performed for HUA as a region; the per capita daily demand over the baseline period was 157 gpcd for the entire HUA regional alliance. The actual 2015 per capita demand for the region was 105 gcpd, successfully surpassing the 2015 target and 2020 target of 142 gcpd and 126 gcpd, respectively. Consistent with Senate Bill 7 and DWR guidelines, the target daily per capita water use value that the HUA will need to achieve by 2020 is 126 gpcd. Detailed discussions of the baseline and target water demands are presented in Section 5.

Future water demands have been calculated based on the target water use values and the population projections summarized above and described in detail in the relevant sections. The resulting annual water demands are summarized in **Table ES-1**.

WATER SUPPLY

The HUA relies on both local groundwater and imported water from the CVP for municipal water supply. The District manages all CVP imports for both agricultural and municipal and industrial (M&I) water deliveries. The District also manages the groundwater resources of the County, particularly the highly developed basins in the northern County, where the District activities include managed aquifer recharge, monitoring water levels and water quality, and annual reporting. The basins in the northern County are subject to the 2014 Sustainable Groundwater Management Act, which requires development of Groundwater Sustainability Plans by 2022.

Since the initiation of CVP importation and the construction and recent expansion of the Lessalt Water Treatment Plant, the use of groundwater for M&I supply has declined. However, groundwater remains a major source of supply, particularly in drought. In the past five years (2011 through 2015) groundwater has accounted for approximately 73 percent of the total water supplied by Hollister and Sunnyslope. The District's management has resulted in a reliable groundwater resource but levels have declined locally due to pumping and prolonged drought. However, due to groundwater quality concerns groundwater use is expected to decrease.

Blending groundwater with CVP imported water will help the HUA deal with various water quality issues. The quality of groundwater has been described as highly mineralized and of marginal quality for drinking and agricultural purposes. Because of this less-than-desirable water quality, groundwater may be blended with CVP supply; the Master Plan may recommend that groundwater be less than a third of supply. This goal is to achieve better water quality for supply and wastewater but may be temporarily relaxed during drought conditions. In addition, concerns about the concentration of Chromium VI have restricted groundwater pumping to no more than 50 percent in the City of Hollister wells; this is a regulatory

agreement and cannot be relaxed. The blending requirement may be adjusted in the future if the concentration of Chromium VI in groundwater increases.

The District's contract for municipal and industrial CVP deliveries with the United Stated Bureau of Reclamation (USBR) exceeds the current treatment capacity within the HUA. Hollister and Sunnyslope have increased the operational capacity of the Lessalt water treatment plant and are in the process of constructing a second water treatment facility to treat CVP imports for delivery to areas of the HUA not currently served by Lessalt. Eventually, these two facilities will have a combined capacity capable of treating the entire volume of the municipal and industrial CVP contract.

WATER SUPPLY RELIABLITY

Many factors could result in inconsistency of supply and shortages, including legal, environmental, water quality, climatic, or a combination of these. Hollister, Sunnyslope, and the District are preparing for these threats to water supply through their portfolio of supplies, improvement of facilities (e.g., treatment plant expansion and groundwater banking), and demand management. Section 7 presents a detailed discussion of the factors affecting water supply, the steps taken by the HUA agencies to address these factors, and a comparison of supply and demand during water shortages caused by drought.

WATER CONSERVATION

The HUA agencies have a new Water Shortage Contingency Plan (WSCP), which is described in Section 8. In addition to shortage-related prohibitions, the agencies have many ongoing programs to encourage water conservation. These programs, discussed in depth in Section 9, have been successful in reducing water demand by more than 25 percent to meet the state mandated water use reduction. To meet the future water use per capita demand targets, the HUA and WRA, through their water conservation coordinator, plan to focus their efforts on several demand management measures (DMMs) including public outreach, rebates, and turf removal programs. These specific DMMs are targeted as opportunities for maximum water savings.

1. INTRODUCTION

This Urban Water Management Plan (UWMP or Plan) has been prepared for the Hollister Urban Area (HUA) to help guide the area's water management efforts to the year 2020 and beyond. The HUA covers all of the City of Hollister and some of unincorporated areas beyond the city limits. The Hollister Urban Area UWMP is a collaborative effort between the City of Hollister (Hollister), Sunnyslope County Water District (Sunnyslope), and San Benito County Water District (District). The Plan has been prepared in accordance with the Urban Water Management Planning Act (Division 6 Part 2.6 of the Water Code §§10610 – 10656). The location of the HUA is shown in **Figure 1-1**.

This Plan builds on and updates the 2010 UWMP, accounting for changes in the California Water Code and local planning and water management efforts. Major changes include a more robust water contingency plan, expanded discussion of water loss, and tables uploaded.

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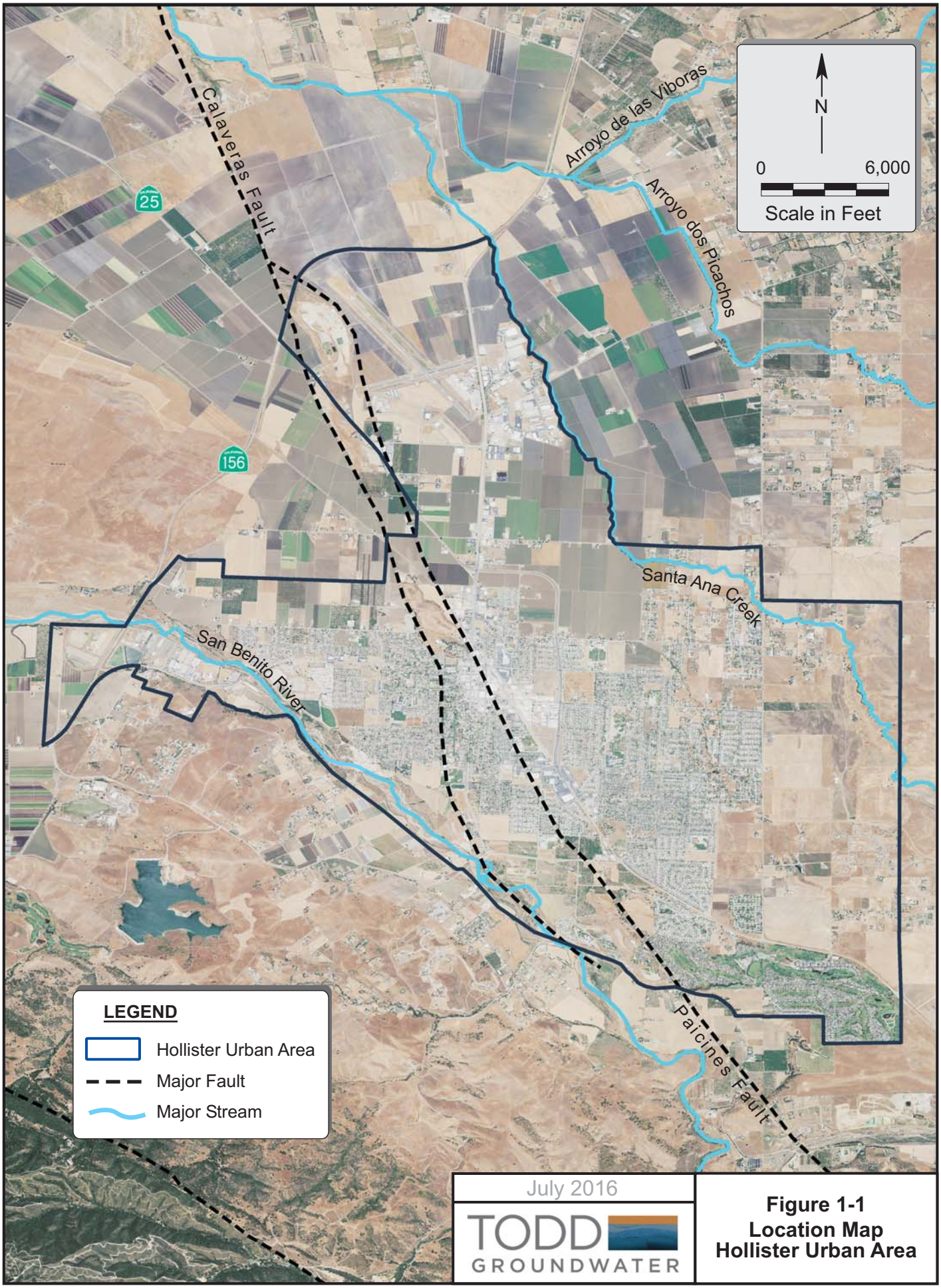

July 2016

TODD GROUNDWATER

Figure 1-1
Location Map
Hollister Urban Area

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2. PLAN PREPARATION

2.1 PLAN PREPARATION AND ADOPTION

This Plan documents Hollister's and Sunnyslope's sources of water supply, defines water demands, presents a water shortage contingency plan, describes implementation of water demand management measures, and projects water supply and demand to the year 2035. The plan also describes ongoing work by the District to ensure and expand water supply in the area. The two water systems and their connections and 2015 water supply are documented in **Table 2-1**.

As indicated in **Table 2-2**, the HUA represents a regional alliance, as defined by Water Code sections 10608.20(a)(1) and 10608.28. Hollister and Sunnyslope choose to plan, comply, and report on a regional basis. Where possible, information for each entity is displayed individually in addition to the regional totals for the entire HUA.

The HUA regional alliance is made up of both retailers (Hollister and Sunnyslope) and a wholesaler (the District), which is indicated in **Table 2-3** as required. Where applicable, the requirements for both retailers and wholesalers are addressed. Because the three agencies work together in preparation of future water demands and supply, **Tables 2-4 R** and **2-4 W** have been updated to reflect that they are aware of each other's planning process. (Note that R indicates Retailer and W indicates Wholesaler.)

Throughout the 2015 UWMP, units are in acre-feet and data are presented in calendar years, unless otherwise stated (**Table 2-3)**. Water volumes and other data are shown to the nearest acre-foot (AF). These values are accurate to one to three significant digits, depending on the measurement. Values in the text may show more significant digits than are warranted to maintain as much precision as possible during subsequent calculations: results of calculations have been rounded to the appropriate number of significant digits.

In accordance with section 10642 of the Water Code and section 6066 of the Government Code, each agency held a public hearing prior to adoption of the Plan. A public notice was posted before the public hearing and included in **Appendix A**. The Final Plan will be adopted by Hollister on August 1, 2016, Sunnyslope on August 16, 2016, and the District on August 31, 2016.

The resolutions to adopt the Plan are included in **Appendix A**. The adopted Plan has been filed with the Office of Conservation in the Department of Water Resources and California State Library, as required by law. California regulations require Urban Water Management Plans to be updated at least once every five years in years ending in five and zero. However, DWR extended the deadline for the 2015 UWMP to July 1, 2016.

2.2 AGENCY COORDINATION AND PUBLIC PARTICIPATION

The HUA agencies have provided for agency coordination and community participation in their urban water management planning efforts. A Draft Plan was made available to the public in July 2016 for comment with public presentations to Hollister on August 1, 2016, Sunnyslope on August 16, 2016, and the District on August 31, 2016.

The Water Resources Association of San Benito County (WRA) is an ongoing means for agency coordination and public participation, focused on water conservation. The WRA serves water customers of the following agencies: City of Hollister, City of San Juan Bautista, Sunnyslope County Water District and San Benito County Water District. The WRA coordinates and conducts water conservation programs for its participating member agencies and maintains an active website, www.wrasbc.org.

The Draft Plan was sent to local organizations with a request to provide comments, including San Benito County and the City of San Juan Bautista. Final Plan copies are available at Hollister City Hall and the City Library. An electronic version is available on the websites of all three agencies (Hollister, Sunnyslope, and the District).

2.3 ACKNOWLEDGEMENTS

This Plan was prepared by Iris Priestaf, Maureen Reilly, and Chad Taylor of Todd Groundwater. We appreciate the considerable assistance provided by District, Hollister, and Sunnyslope staff, most notably Jeff Cattaneo and Shawn Novack. This Plan was prepared using the checklists and worksheets provided by the California Department of Water Resources (DWR) from their website,

http://www.water.ca.gov/urbanwatermanagement/uwmp2015.cfm

and their *Guidebook to Assist Urban Water Suppliers to Prepare a 2015 Urban Water Management Plan* (DWR 2016d).

Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015
3510001	City of Hollister	6,324	3,100
3510003	Sunnyslope CWD	5,497	1,941
	TOTAL	11,821	5,041
NOTES: SSCWD data is from PWSS 2015. COH connections from PWSS 2015, water supplied from 2015 PWSS with volume of recycled water added to the total			

Table 2-2: Plan Identification (Select One)		
☐	Individual UWMP	
☑	Regional UWMP (RUWMP) *(checking this triggers the next line to appear)*	
	Select One:	
	☑	RUWMP includes a Regional Alliance
	☐	RUWMP does not include a Regional Alliance
NOTES:		

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
☑	Agency is a wholesaler
☑	Agency is a retailer
Fiscal or Calendar Year (select one)	
☑	UWMP Tables Are in Calendar Years
☐	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Day that the Fiscal Year Begins (dd/mm)	
dd/mm	
Units of Measure Used in UWMP (select from Drop down)	
Unit	AF
NOTES:	

Table 2-4 Retail: Water Supplier Information Exchange
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name *(Add additional rows as needed)*
San Benito Water District
NOTES:

Table 2-4 Wholesale: Water Supplier Information Exchange (select one)	
☐	Supplier has informed more than 10 other water suppliers of water supplies available in accordance with CWC 10631. Completion of the table below is optional. If not completed include a list of the water suppliers that were informed.
	Provide page number for location of the list.
☑	Supplier has informed 10 or fewer other water suppliers of water supplies available in accordance with CWC 10631. **Complete the table below.**
Water Supplier Name *(Add additional rows as needed)*	
City of Hollister	
Sunnyslope County Water District	
NOTES:	

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3. SYSTEM DESCRIPTION

3.1 LOCATION

The HUA is located about 90 miles south of San Francisco in the northern portion of San Benito County, California. The HUA is in a broad valley between the Gabilan Range on the west and the Diablo Range on the east. As shown in Figure 1-1, the San Benito River runs through the southwestern portion of the HUA and Santa Ana Creek flows through the eastern portion of the HUA. The Arroyo de Las Viboras and Arroyo Dos Picachos flow to the northeast of the HUA. The City of Hollister was incorporated in 1872 and is the largest community in San Benito County. Other communities near the HUA include San Juan Bautista and Tres Pinos, which are also in San Benito County, and Gilroy in Santa Clara County. The HUA overlies a portion of the Gilroy-Hollister groundwater basin, designated as DWR Basin No. 3-3.

3.2 SERVICE AREA

The HUA is an approximately 20 square mile area comprising all of the incorporated, and some unincorporated county lands, surrounding the City of Hollister (**Figure 1-1**). This area has been used in the previous 2010 UWMP (Todd 2011) and the Water and Wastewater Master Plan (HDR 2008a).

There are two municipal water purveyors within the HUA: the City of Hollister and Sunnyslope County Water District. These water purveyors provide water supply to their individual service areas from sources described in Section 4 of this report. The year 2000 service areas for Hollister and Sunnyslope are shown on **Figure 3-1**.

The District was formed by a special act of the State with responsibility and authority to manage groundwater in San Benito County. As part of its management activities, the District manages recharge to the basin, explores expanded groundwater banking, monitors water levels and water quality, and reports annually on the basin. In addition, the District is the imported water wholesaler from the Central Valley Project (CVP) to Zone 6, the northern portion of the County. HUA is located completely within Zone 6.

3.3 CLIMATE

San Benito County has a moderate California coastal climate, with a hot and dry summer season typically lasting from May through October. Average annual rainfall ranges from 7 inches in the drier eastern portion of the County to 27 inches per year in high elevations to the south (PRISM, 2010). The City of Hollister, some 30 miles inland from the coast and separated from it by the Gabilan Range, receives an annual average rainfall of almost 13 inches. Snowfalls in the mountains are infrequent and relatively light. A comparatively long growing season of 265 days or more per year prevails, and year-round cropping is practiced to some extent. The area has a high percentage of sunny days, particularly in summer. Most of the rainfall occurs in the late fall, winter, and early spring, generally between November and April. Therefore, significant irrigation is required during summer months (HDR 2008a).

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Figure 3-2 is a graph of annual rainfall in Hollister from 1975 to 2015. While rainfall data have been collected monthly since 1875, precipitation and other weather data have been collected since June 1994 from a California Irrigation Management Information System (CIMIS) station located by the San Benito County Water District office in Hollister (Station #126). As shown, annual precipitation is subject to wide annual variations.

Evapotranspiration (ET) is the loss of water to the atmosphere by evaporation from soil and plant surfaces and transpiration from plants. It is an indicator of how much water is needed by plants (e.g., crops and landscaping) for healthy growth and productivity. ET from a standardized well-watered grass surface is the common reference, denoted as ETo. The least ET occurs in the cool wet winter months and greatest ET occurs during the hot dry summer months. This results in peak monthly water demands in summer that are three times the comparable winter demand. Average annual ETo in the HUA is 49 inches, peaking at 6.2 to 6.8 inches per month in June, July, and August.

Average monthly temperatures in the HUA range from approximately 48 degrees Fahrenheit in January and December to near 65 degrees in July and August. In these two months, daily maximum temperatures typically reach as high as 86 degrees.

3.4 POPULATION

The HUA is the urban center of a highly productive agricultural area that has been in continuous production for over one hundred years. The primary industry of the HUA is agriculture and agriculture related businesses, although in recent years there has been an increase in the number of residents who commute to other areas for work. The area is characterized primarily by single family residences, with less than sixteen percent of the population in multifamily dwellings.

Tables 3-1 Hollister Retail and 3-1 Sunnyslope Retail show the population for 2015 through 2035 in five year increments for Hollister and Sunnyslope, respectively. The current population is based on the information provided by the DWR online population tool. Additional information on the calculation of the current population is included in **Appendix B**. Population is anticipated to increase in the coming years, as planned developments are constructed. The 2020 through 2035 populations for the City and Sunnyslope are based on the projected connections reported by the retailer, and the average household size. Based on the DWR online tool, the household size for Hollister is 3.39 for single family and 18.93 for multiple family residences. In Sunnyslope, the household size is 3.31 and 10.4 for single family and multiple family residences, respectively. Information about the projected connections is discussed in Section 4.2. While the District is a wholesaler of CVP water to HUA, it does not provide urban water supply directly in the HUA. **Table 3-1 W** shows the total population of the two retailers (Hollister and Sunnyslope) served by the District.

Additional increases in population are expected to occur in the unincorporated part of the county, outside the Hollister Urban Area. The City of Hollister and Sunnyslope have no plans to serve this increase and thus, these increases are not included in the future population or future demand calculations. However, it is recommended that development in neighboring areas continue to be tracked as increases in groundwater pumping for these developments may impact groundwater resources of the HUA.

Table 3-1 Hollister Retail: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040*(opt)*
	22,542	25,803	29,477	33,946	39,384	
NOTES: Hollister. 2015 population based on DWR tool, future population based on projected number of connections						

Table 3-1 Sunnyslope Retail: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040*(opt)*
	19,380	23,619	28,395	34,205	41,275	0
NOTES: Sunnyslope. 2015 population based on DWR tool, future population based on projected number of connections						

Table 3-1 Wholesale: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040*(opt)*
	41,922	49,422	57,871	68,152	80,659	
NOTES: Assumed same as retailer total						

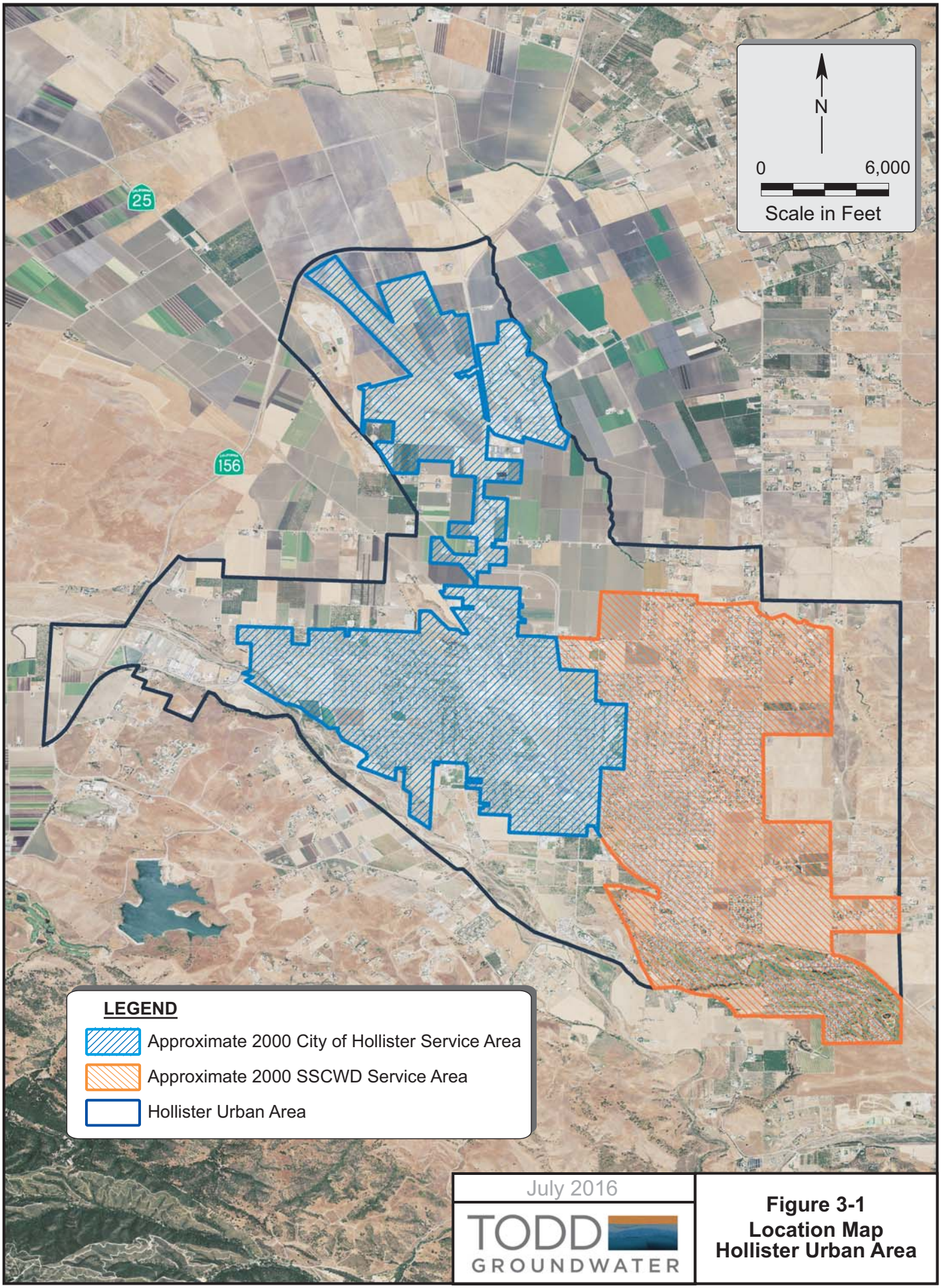

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Figure 3-1
Location Map
Hollister Urban Area

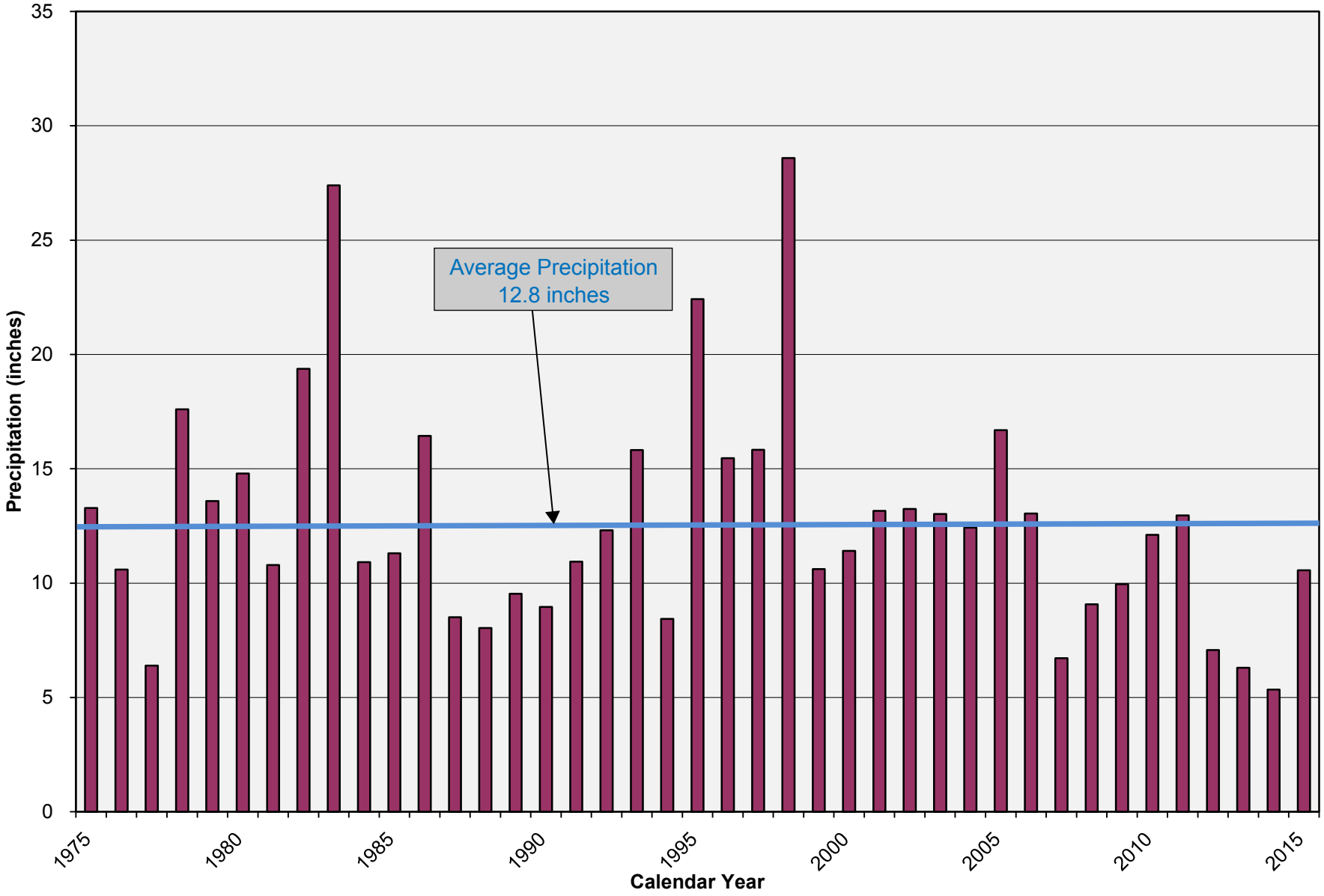

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Figure 3-2
Annual Precipitation
Hollister Urban Area

4. SYSTEM WATER USE

Hollister's and Sunnyslope's past, current and projected water demands are presented in this section. Current water demand is provided by water use sector and projected to 2035 in five-year increments. Current system losses are also provided and projected to 2035.

4.1 WATER USES BY SECTOR

Tables 4-1 Hollister Retail and 4-1 Sunnyslope Retail show the number of water service accounts and delivery volumes by customer type in 2015 for the City of Hollister and Sunnyslope, respectively. In recent years, the number of accounts (specifically residential connections) decreased slightly in Hollister but increased slightly in the Sunnyslope service area. Hollister and Sunnyslope water connections are classified into seven water use categories, which are described below along with selected California Water Code (CWC) citations:

- Single-family residential - A single-family dwelling unit. A lot with a free-standing building containing one dwelling unit that may include a detached secondary dwelling.
- Multi-family - Multiple dwelling units contained within one building or several buildings within one complex. It should be noted that the number of multi-family accounts is not the same as the number of multi-family units because one connection could supply multiple units.
- Commercial - A water user that provides or distributes a product or service. CWC 10608.12 (d). This category also includes institutional uses. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions. CWC 10608.12 (i).
- Industrial - A water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System (NAICS) code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development. CWC 10608.12 (h). The following link is to the NAICS website: http://www.census.gov/cgi-bin/sssd/naics/naicsrch.
- Landscape-Water connections supplying water solely for landscape irrigation. Such landscapes may be associated with multi-family, commercial, industrial, or institutional/governmental sites, but are considered a separate water use sector if the connection is solely for landscape irrigation.
- Landscape (recycled water) – Includes meters that only use recycled water solely for landscape irrigation.
- Distribution System Losses -Reporting of system losses is required in the 2015 UWMPs.

The delivery volumes by customer type for both Hollister and Sunnyslope from 1996 through 2015 are illustrated in **Figure 4-1.** The number of water service connections and volume of water served provide insight into water use volumes and trends associated with different types of users, which can be useful in defining effective water conservation measures. On average, single family residential represents most of the total demand at 68 percent. Multiple family homes and commercial uses each total about 10 percent of total demand. Other uses, including industrial and dedicated landscape irrigation, represent a

combined 10 percent of total demand. Water demand in the HUA peaked in the early 2000s and has decreased since then. The decline in total water demand reflects a water conservation response to the multiple year drought achieved through increased public outreach.

Table 4-1 W shows the volume of raw water that the District delivers to the Lessalt Water Treatment Plant (WTP). Raw water losses from conveyance and storage are typically 10 percent in a normal year and 20 percent in a dry year (Cattaneo 2016). Water losses associated with treatment are included in the retailers' estimates. Other water use sectors such as sales to other agencies, groundwater recharge, and conjunctive use are not performed by retailers in the HUA at this time, are not planned in the future, and are not included in these demand tables.

4.2 PROJECTED WATER DEMAND

Tables 4-2 Hollister Retail and 4-2 Sunnyslope Retail provide projections for water service connections and deliveries in five-year intervals between 2020 and 2035, for Hollister and Sunnyslope, respectively. Future water demands were calculated as part of the HUA Master Plan update, which is now underway. The HUA Master Plan update will be a comprehensive water and wastewater plan for the HUA through 2030. Water demand projections to support the HUA Master Plan update were available for this UWMP and are presented in the Water Demands Projection Memo (HDR 2016) included in **Appendix C**. Total future water demand increase for the HUA was calculated based on future population estimates, shown in **Table 3-1**. The table below details the expected water use by type of connection.

Cumulative Increase in Water Use (AFY)

	Increase in Water Demand by Type					Water Demand	
	Single Family	**Multi-Family**	**Commercial/ Industrial**	**Other**	**Losses**	**Cumulative Increase**	**Total**
Base Demand	3,695	559	781	333	629	-	**5,996**
2020	630	80	63	-	51	824	**6,820**
2025	1,340	171	125	-	108	1,743	**7,740**
2030	2,203	281	188	-	172	2,844	**8,840**
2035	3,254	415	250	-	255	4,174	**10,170**

Water conservation measures were considered but since the demands were developed based on historical consumption during a drought period, additional conservation was not included in the demand forecasts. The base demand period (2010 to 2015) has been part of a multiple year drought and many residents have already reduced water use in response to active water conservation outreach. Additional future reductions are not presumed (as recorded in **Table 4-5 R)**.

The population growth and associated water demand increases projected in the 2008 Master Plan have not been realized. The population in the HUA has not increased as expected due in part to the economic downturn that began in 2008 and continued to affect the economy of the HUA until recently. In addition, the recent drought and increases in water conservation have decreased per capita water use.

Table 4-3 R sums the total water demand for the HUA including the non-potable demand that will be satisfied by recycled water (discussed in Section 6). Total water demand is expected to increase to 10,286 AFY by 2035, including recycled water. **Table 4-2 W** shows the expected volume of raw water the District will deliver to HUA WTP. **Table 4-3 W** summarizes the total volume of water the District anticipates delivering through 2035; this includes the CVP deliveries to Hollister and Sunnyslope plus expected raw water losses. **Tables 4-2W and 4-3W** are identical as the District has no plans to serve recycled water to the urban retailers. Losses occur within the District's CVP conveyance and storage system (e.g., from evaporation and seepage); these losses are counted in **Tables 4-2W and 4-3W**.

4.3 WATER SAVINGS

Water conservation is encouraged in the HUA through a variety of programs, which are discussed in depth in Section 9. To meet the future water use per capita demand targets, Hollister, Sunnyslope, the District, and the WRA, through their water conservation coordinator, plan to focus their efforts on several demand management measures (DMMs). These specific DMMs represent opportunities for maximum water savings, based on local experience during the recent drought. The DMMs that will continue to save water include state level programs:

1. Model Water Efficient Landscape Ordinance (effective December 1, 2015) – The revised ordinance is projected to reduce typical residential landscape demands by about 20 percent from demands estimated using the prior ordinance provisions. Commercial landscapes may reduce water demands by about 35 percent over the prior ordinance.

2. California Energy Commission Title 20 appliance standards for toilets, urinals, faucets, and showerheads – The appliance standards determine what can be sold in California and therefore will affect both new construction and replacement fixtures in existing homes.

3. CALGreen Building Code – The CALGreen Building Code requires residential and non-residential water efficiency and conservation measures for new buildings and structures that will reduce the overall potable water use inside each building and structure by 20 percent. The 20 percent water savings can be achieved in one of the following ways: (1) installation of plumbing fixtures and fittings that meet the 20 percent reduced flow rate specified in the CAL Green Code, or (2) by demonstrating a 20 percent reduction in water use from the building "water use baseline." The practical representation of the savings in unit water demands from this code would be to reduce indoor baseline unit demands for recently constructed residential units downward by 2 to 5 percent, although this may be redundant with any reduction already represented by the Title 20 appliance standards.

In addition, several local programs already in place may reduce future water demand:

- Retail conservation pricing – "Conservation pricing" provides incentives to customers to reduce average or peak use, or both. All water rates and charges for Hollister, Sunnyslope, and the District are established through ordinance by the appropriate governing body. Currently, both Hollister's and Sunnyslope's rate structures for water service are increasing block structures for residential customers. Adjusting the rates or adding additional blocks for water rates may continue to improve water conservation.
- Public information programs – One of the cornerstones of an effective water conservation program is effective public outreach and education. Public information and outreach—which convey the need for efficient water use and show how customers can reduce water use—supports all other elements of the program. Public outreach promotes water conservation in general, by informing customers of the needs, benefits, and methods of conserving water. Outreach can also foster understanding regarding how water conservation fits into the overall water management for the HUA. Current public outreach is focused on schools and students with classroom presentations promoting efficient water use and supplementation of presentations with grade level-appropriate education materials. Presentations are also given to local community groups and service organizations. While the effect of public outreach is unquantifiable, its qualitative effect on water conservation is considered very important.
- Water sense specifications (WSS) for residential development – The WSS involves providing incentives (such as rebates, recognition programs, or reduced connection fees), or ordinances requiring residential construction to meet WSS for single-family and multi-family housing units until a state or federal regulation is passed requiring this standard. While the HUA agencies have not yet developed WSS incentives or adopted WSS codes, they do have a variety of rebate and retrofit programs that have successfully reduced water demand.
- Landscape– This DMM applies to non-residential accounts with dedicated irrigation meters and to commercial, industrial, and institutional (CII) accounts with mixed-use meters. Both the City and Sunnyslope continue to implement landscape audit and incentive programs and these programs can be expanded to account for more water savings. In addition, the WRA has offered landscape efficiency programs over the past two years to encourage water conservation for large landscape and residential customers. Several DMMs are targeted to reducing water waste and increasing water efficiency. The turf removal program encourages irrigators to replace their high water demand turf with water efficient landscaping. The program, advertised in both English and Spanish, has been very successful in reducing water demand during the recent drought.

A complete list of the DMMs that will be employed by the HUA and the estimated water reductions resulting from their implementation is presented in **Section 9.**

4.4 DISTRIBUTION SYSTEM WATER LOSSES

Water losses for Hollister and Sunnyslope were calculated using the required methodology and audit tool developed by AWWA (www.awwa.org/resources-tools/water-knowledge/water-loss-control.aspx). The CWC requires reporting of losses for the most recent 12 months, for all three agencies this is the calendar

year. Reported losses for the most recent 12 months are shown in **Table 4-1 Hollister Retail and 4-1 Sunnyslope Retail** for Hollister and Sunnyslope, respectively. The water loss volume and reporting period are repeated in **Tables 4-4 Hollister Retail and 4-4 Sunnyslope Retail** for Hollister and Sunnyslope, respectively. The AWWA audit results for each retailer are included in **Appendix D**. The AWWA tool uses the total water supply and deliveries by agency to estimate the total water loss. The tool also breaks out apparent water losses (unmetered water or inaccurate meter readings) and real water losses (water leaving the system through leaks, or other physical issues).

In 2015, Sunnyslope reported a 3 percent water loss, equivalent to 66 AF. The agency attributes this to inaccurate meters and currently has a program to replace aging meters. During this same period, Hollister reported a 16 percent water loss, equivalent to 451 AFY. Hollister has a large number of unmetered water uses including line flushing for sampling, fire flows, construction uses, and other unmeasured and unclassified uses and losses. In the AWWA tool for Hollister, the default ratio of apparent and real losses is used due to lack of data. However, Hollister estimates most of its water losses are due to the apparent water loss of unmetered activities.

Losses associated within the CVP storage and distribution system are include in **Table 4-4 W**as raw water losses for the District. Losses are associated with evaporation and seepage as a result of storage in an open reservoir. It is estimated that water losses are 10 percent in normal years and 20 percent of supply in dry years for the CVP storage and distribution system operated by the District. As 2015 was a dry year, **Table 4-4 W** shows a 20 percent loss, equivalent to 430 AF.

4.5 WATER USE FOR LOWER INCOME HOUSEHOLDS

State legislation (SB 1087 and Government Code section 65589.7), effective January 1, 2006, specifies that local water agencies and sewer districts must grant priority for service hook-ups to projects that help meet the community's fair housing need.

In other words, policies and procedures should be written to provide priority service to new developments with affordable housing and these policies should be updated every five years. San Benito County completed a regional housing needs assessment (RHNA) in 2014 (Council of San Benito County Governments). The RNHA indicates that approximately 24 percent of the housing for both the City of Hollister and the County unincorporated areas serves the population in the very low income range. The values presented throughout this report represent 24 percent of the estimated single family and multi-family demand for each time period shown, as noted in **Table 4-5 R**.

4.6 CLIMATE CHANGE

Climate change can affect projected water demand. The climate change vulnerability assessment, available from the UWMP guidebook, was performed for the HUA. The checklist is included as **Appendix E**. Water demand may increase as water use varies by more than 50 percent seasonally. Climate change is likely to increase temperatures and ET, and may also increase the duration of high temperature/ET periods. This would increase water demand for landscape irrigation and other residential uses, with particular ramifications for summer months.

Table 4-1 Hollister Retail: Demands for Potable and Raw Water - Actual			
Use Type *(Add additional rows as needed)*	2015 Actual		
Use Drop down list *May select each use multiple times* *These are the only Use Types that will be recognized by the WUEdata online submittal tool*	Additional Description *(as needed)*	Level of Treatment When Delivered *Drop down list*	Volume
Single Family		Drinking Water	1,409
Multi-Family		Drinking Water	260
Commercial	includes institutional	Drinking Water	389
Industrial		Drinking Water	224
Landscape		Drinking Water	145
Other		Drinking Water	0
Losses			451
		TOTAL	2,879
NOTES: Hollister data based on 2015			

Table 4-1 Sunnyslope Retail: Demands for Potable and Raw Water - Actual			
Use Type *(Add additional rows as needed)*	2015 Actual		
Use Drop down list *May select each use multiple times* *These are the only Use Types that will be recognized by the WUEdata online submittal tool*	Additional Description *(as needed)*	Level of Treatment When Delivered *Drop down list*	Volume
Single Family		Drinking Water	1,598
Multi-Family		Drinking Water	195
Commercial	includes institutional	Drinking Water	22
Industrial		Drinking Water	0
Landscape		Drinking Water	88
Other		Drinking Water	39
Losses			66
		TOTAL	1,941
NOTES: Sunnyslope PWSS 2015			

Table 4-1 Wholesale: Demands for Potable and Raw Water - Actual			
Use Type *(Add additional rows as needed)*	2015 Actual		
Use Drop down list *May select each use multiple times* *These are the only use types that will be recognized by the WUE data online submittal tool*	Additional Description *(as needed)*	Level of Treatment When Delivered *Drop down list*	Volume
Sales to other agencies	Imported Water to WTP	Raw Water	1,791
Losses	Losses	Raw Water	358
		TOTAL	2,149
NOTES: SBCWD supplies water to the HUA through imported water to the Lessalt WTP. Losses from convenyance and storage are typically 20 percent in a dry year			

Table 4-2 Hollister Retail: Demands for Potable and Raw Water - Projected						
Use Type *(Add additional rows as needed)*	Additional Description *(as needed)*	Projected Water Use *Report To the Extent that Records are Available*				
Use Drop down list *May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool*		2020	2025	2030	2035	2040-opt
Single Family		2,002	2,308	2,679	3,131	
Multi-Family		354	393	440	498	
Commercial	includes institutional	505	532	559	586	
Industrial		276	276	276	276	
Landscape	not include recycled water der	178	178	178	178	
Other		0	0	0	0	
Losses		569	594	621	657	
TOTAL		3,885	4,280	4,753	5,325	0
NOTES: Hollister						

Table 4-2 Sunnyslope Retail: Demands for Potable and Raw Water - Projected						
Use Type *(Add additional rows as needed)*	Additional Description *(as needed)*	Projected Water Use *Report To the Extent that Records are Available*				
Use Drop down list *May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool*		2020	2025	2030	2035	2040-opt
Single Family		2,322	2,727	3,219	3,818	
Multi-Family		285	337	399	476	
Commercial	includes institutional	63	98	134	170	
Industrial		0	0	0	0	
Landscape		108	108	108	108	
Other		47	47	47	47	
Losses		110	143	179	227	
	TOTAL	2,935	3,460	4,087	4,845	0
NOTES: Sunnyslope						

Table 4-2 Wholesale: Demands for Potable and Raw Water - Projected						
Use Type *(Add additional rows as needed)*	Additional Description *(as needed)*	Projected Water Use *Report To the Extent that Records are Available*				
Drop down list *May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool.*		2020	2025	2030	2035	2040 *(opt)*
Sales to other agencies	HUA agencies	4,360	5,200	5,200	6,880	
Sales to other agencies	Outside HUA	400	400	400	400	
Losses	system losses	872	825	825	825	
TOTAL		5,632	6,425	6,425	8,105	0
NOTES: Based on WTP capacity and projected water supply and demand						

Table 4-3 Retail: Total Water Demands						
	2015	2020	2025	2030	2035	2040 *(opt)*
Potable and Raw Water *From Tables 4-1 and 4-2*	4,820	6,820	7,740	8,840	10,170	0
Recycled Water Demand *From Table 6-4*	116	116	116	116	116	0
TOTAL WATER DEMAND	4,936	6,936	7,856	8,956	10,286	0
NOTES:						

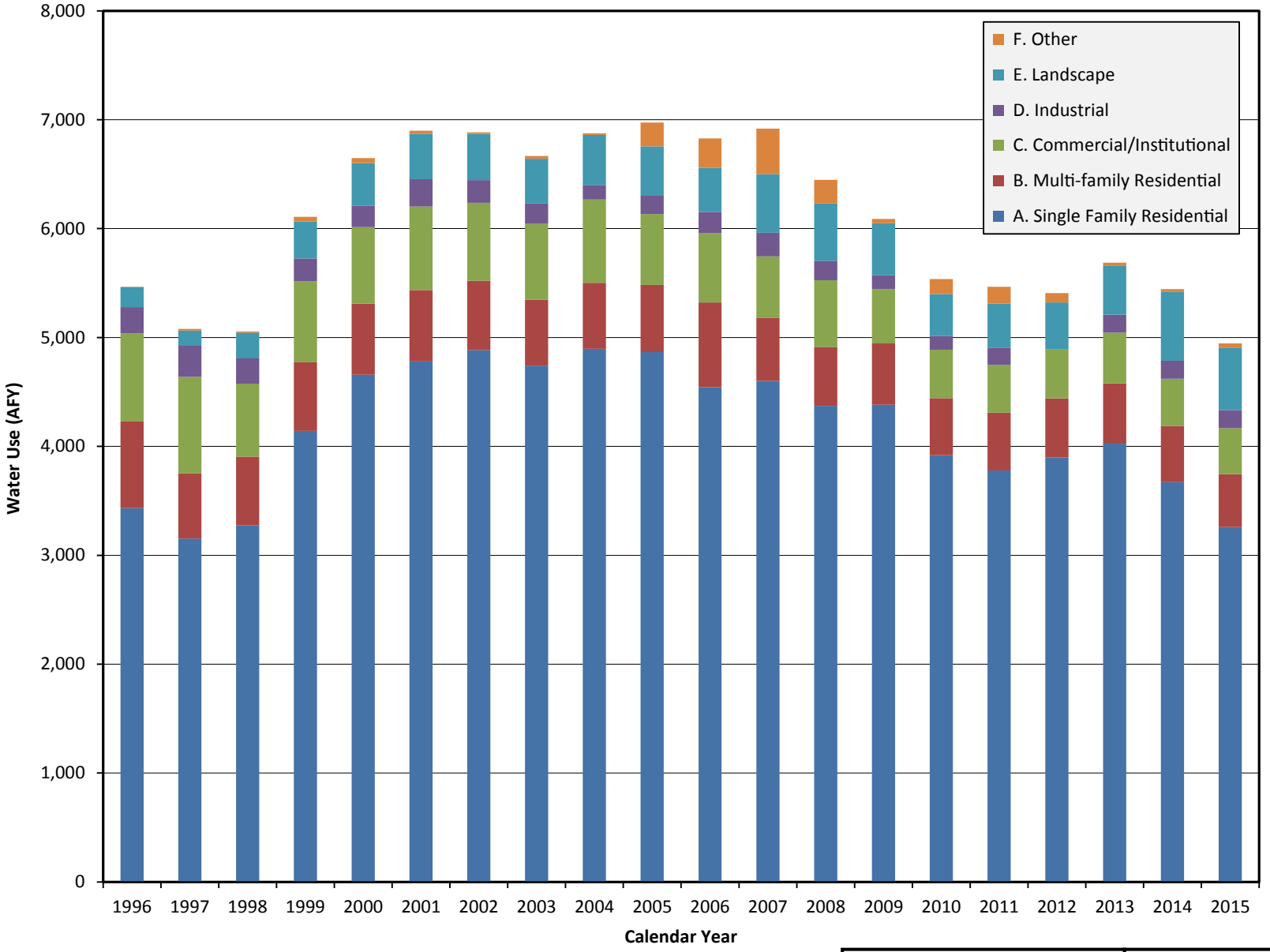
Table 4-3 Wholesale: Total Water Demands						
	2015	2020	2025	2030	2035	2040*(opt)*
Potable and Raw Water *From Tables 4-1 and 4-2*	2,149	5,632	6,425	6,425	8,105	0
Recycled Water Demand *From Table 6-4*	0	0	0	0	0	0
TOTAL WATER DEMAND	2,149	5,632	6,425	6,425	8,105	0
NOTES:						

Table 4-4 Hollister Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss
01/2015	451
NOTES: Hollister based on AWWA tool	

Table 4-4 Sunnyslope Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss
01/2015	66
NOTES: Sunnyslope based on AWWA tool	

Table 4-4 Wholesale: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss
01/2015	358
NOTES: This is not an audited loss. It is estimated as a 20 percent loss during drought conditions. Losses associated with Lessalt WTP are included in the retailer water system losses.	

Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) *Drop down list (y/n)*	No
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc... utilized in demand projections are found.	
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	Yes
NOTES:	



July 2016

TODD GROUNDWATER

Figure 4-1
Historic and Current Demand by Customer Type

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5. BASELINES AND TARGETS

In the 2015 Plan, water agencies must demonstrate compliance with their established water use target for the year 2015. This will also demonstrate whether or not the agency is currently on track to achieve its 2020 target. Compliance is verified by DWR's review of the SB X7-7 Verification Form submitted with an agency's 2015 UWMP. The SB X7-7 Verification Form, which includes all Tables labeled SBX7-7, is described in this section and included in **Appendix F** and summarized in **Tables 5-1 and 5-2**. The process for defining baseline water use and calculating target water use was defined by DWR. This process includes the identification of a suitable baseline period, estimation of the population served for all years in the baseline period, compilation of gross water use for each year of the baseline period, estimation of daily per capita water use for each year in the baseline period, and calculation of water use targets for 2015 and 2020.

5.1 UPDATED CALCULATIONS FROM 2010 UWMP

In the 2010 UWMP, the regional gross water use, baselines, and targets were calculated for Hollister and Sunnyslope separately and then the region's goals were presented as a weighted average of the two agencies. During review of the 2010 UWMP, DWR requested revision of the gross water use estimate. Because flow from the Lessalt WTP to the agencies is not always monitored discretely for each service area, gross water use for the baseline period must be calculated as a regional total (Huff, 2011). This revised gross water use affected the calculated baseline per capita daily use and the per capita demand targets. The revised regional totals from the 2010 UWMP process are included in **Appendix F**, and the methodologies for calculating baseline per capita daily water use and target water use are described below.

Throughout this section, the two retailers are treated as one regional alliance.

5.2 BASELINE PERIOD

In accordance with Senate Bill 7, water suppliers must define a 10- or 15-year water use Base Period. This Base Period is used to calculate a Base Daily per Capita Water Use, which is the baseline for computation of required future reductions. Senate Bill 7 requires retailer to reduce per capita daily water use 10 percent by 2015 and 20 percent by 2020, as compared to Base Daily per Capita Water Use. Because no recycled water was supplied within the HUA in 2008, a 10-year base period is required.

The baseline period selected for the HUA is 1996 through 2005. This period was representative of water use for each retailer; water use in more recent years was artificially low because of drought and economic factors. Base period information including the full 10 year period and the 5-year base period used to calculate the minimum Water Use Reduction Requirement is shown in **SBX7-7 Table 1,** located in **Appendix F**.

5.3 SERVICE AREA POPULATION

Calculation of per capita daily water use for the baseline period requires annual estimates of population. DWR developed an online tool designed specifically for estimating annual population within UWMP areas for baseline and target years. This tool is based on 2010 United States Census (Census) data. The population estimates used in this UWMP were derived from DWR's tool, as noted on **SBX7-7 Table 2**. The Hollister and Sunnyslope populations were estimated separately and added together to produce annual estimates of population for the entire HUA. The first step is to estimate population of the service areas using US Census data. As noted on **SBX7-7 Table 2,** the online population tool provided for UWMP was used and the total population for HUA is shown in **SBX7-7 Table 3.**

5.4 GROSS WATER USE

HUA annual gross water use for the baseline period was calculated for the region rather than for the individual agencies separately. As noted above, this is required because Lessalt WTP water deliveries are not measured separately for the Hollister and Sunnyslope service areas. Regional gross water use for the HUA is shown in **SB X7-7 Table 4**.

Gross water use includes all water into the system, which comes from the following sources:

- CVP imported water – total flow in to the Lessalt WTP is metered; flow out to Hollister and Sunnyslope is not individually measured
- Hollister produced groundwater –monitored at the point of production (e.g. wells)
- Sunnyslope produced groundwater –monitored at the point of production (e.g. wells)
- Unaccounted for water – losses, etc.

The contribution of each of these water sources are shown in **SB X7-7 Table 4 A.**

5.5 BASELINE DAILY PER CAPITA WATER USE

The annual population estimates and gross water use data for the HUA were used to calculate per capita daily water use for each year of the baseline period, as shown in **SB X7-7 Table 5**. This is a simple calculation wherein the annual gross water use is converted to average daily water use and then divided by population for each year. As shown in **SB X7-7 Table 5** baseline per capita daily water use for the HUA was 157 gallons per capita day (gpcd).

SB X7-7 Table 5 includes calculations of the five-year baseline per capita water use for the HUA. The five-year baseline period was 2003 through 2007 as noted above, and the same period was used for both agencies. Average per capita daily water use during this five year period in the HUA was 155 gpcd.

SB X7-7 Table 5 also shows estimated per capita daily water use for 2015, which was 103 gpcd. Baseline and 2015 daily per capita water use estimates are summarized in **SB X7-7 Table 6.**

5.6 2015 AND 2020 TARGETS

Four methods are allowed by Senate Bill 7 for calculating the 2015 and 2020 water use targets. The first method is to simply calculate 90 and 80 percent of the baseline daily per capita water use as the 10 percent reduction for 2015 and 20 percent reduction for 2020. This first method was used for the HUA because it is the most applicable to the available data as well as the water use and demographic characteristics of the HUA. Target water use in 2020 should be 80 percent of baseline daily per capita water use. For the HUA, the calculated 2020 water use target is 126 gpcd (157 gpcd x 0.80 = 125.6 gpcd). The regional calculation is shown in **SB X7-7 Table 7A**.

Water Code requires that the HUA also calculate the minimum water use reduction requirement because the five-year baseline per capita water use is greater than 100 gpcd (Water Code Section 10608.22). The minimum reduction requirement, **SB X7-7 Table 7F,** ensures that the retailers, regardless of method used to generate future targets, will reduce water demand by an adequate amount. The target 2020 per capita water use target cannot exceed 95 percent of the 5-year baseline water use. For the HUA, the 2020 minimum water use target is 147 gpcd (0.95 x 155 gpcd = 147.25 gpcd). The calculated water use target from Method 1 above is a smaller volume than the minimum reduction requirement (126 gpcd versus 147 gpcd). Therefore, the retailers meet the minimum reduction requirement and are free to use the target calculated by Method 1.

Water Code also requires that 2015 UWMPs track progress towards meeting the 2020 goal of 20 percent water use reductions. DWR has established a target requirement for 2015 that is halfway to the 2020 target. The HUA regional water use target for 2015 is 142 gpcd (the average of the baseline use and 2020 target values). The HUA regional 2015 and 2020 water use targets are shown in **SB X7-7 Table 8**. The 2020 target per capita water use of 126 gpcd applies to all years beyond 2020, including the five year increments used throughout this UWMP (i.e. 2025, 2030, and 2035).

5.7 2015 COMPLIANCE DAILY PER CAPITA WATER USE

SB X7-7 Table 9 compares actual 2015 per capita use to the interim target. While DWR allows optional adjustments to the interim target, these allowances do not apply to the HUA. Based on estimated population (using the DWR population tool) and gross water use, the actual 2015 per capita daily water use was 103 gpcd. The HUA not only met, but exceeded the interim goal of 142 gpcd.

5.8 WHOLESALER PARTICIPATION

As the wholesaler, the District is not required to establish and meet baseline and targets for daily per capita water use. However, wholesale agencies are required to provide an assessment of their present and proposed future measures, programs and policies that will help the retail water suppliers meet water use targets. These demand management programs are administered by the WRA, which is funded in large part by the District. The demand management programs and DMMs developed and administered by the WRA are detailed in **Section 9**.

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Table 5-1 Baselines and Targets Summary *Retail Agency or Regional Alliance Only*					
Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	*1996*	*2005*	*157*	*142*	*126*
5 Year	*2003*	*2007*	*155*		
*All values are in Gallons per Capita per Day (GPCD)					
NOTES:					

Table 5-2: 2015 Compliance

*Retail Agency or Regional Alliance Only**

Actual 2015 GPCD	2015 Interim Target GPCD	**Optional Adjustments to 2015 GPCD** "0" for adjustments not used				Enter *From Methodology 8*	2015 GPCD *(Adjusted if applicable)*	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events	Economic Adjustment	Weather Normalization	TOTAL Adjustments	Adjusted 2015 GPCD		
103	142				0	103	103	Yes

**All values are in Gallons per Capita per Day (GPCD)*

NOTES:

6. SYSTEM SUPPLIES

The HUA relied historically on the San Benito County portion of the Gilroy-Hollister Valley Groundwater Basin (**Figure 6-1**) for its municipal water supply. Since 2003, CVP water imported by the District has been available for urban uses. This section describes the existing water sources plus recycled water, a planned future supply. The historical and current supply by source for the HUA is shown in **Figure 6-2.**

6.1 IMPORTED WATER

The CVP is a Federal water system operated by the U.S. Bureau of Reclamation (USBR) and created to protect the Central Valley from water shortages and floods; improve navigation on the Sacramento River; provide supplies of municipal and industrial water; enhance water quality; generate electric power, conserve fish and wildlife; and create opportunities for recreation. The CVP consists of 20 dams and reservoirs, 11 power plants, and 500 miles of major canals, conduits, and tunnels. About nine million AFY of water are managed by the CVP and about seven million AFY of water for agricultural, urban, and wildlife uses are delivered annually. An average of five million AFY of CVP water is provided to farms to irrigate about three million acres of land and about 600,000 AFY of water is provided for municipal and industrial uses. About 800,000 AFY are provided for fish and wildlife habitats and 410,000 AFY to State and Federal wildlife refuges and wetlands, pursuant to the Central Valley Project Improvement Act (CVPIA). Finally, the CVP generates 5.6 billion kilowatt hours of electricity annually (Mintier Harnish 2009).

The San Benito County Water District has a 40-year contract (extending to 2027) for a maximum of 8,250 AFY of municipal and industrial (M&I) water and 35,550 AFY of agricultural water. The District negotiated the renewal of this contract in May 2007. Imported water is delivered to agricultural, municipal, and industrial customers in Zone 6 through 12 subsystems containing approximately 120 miles of pressurized pipeline laterals (SBCWD 2011). Zone 6 is the District's zone of benefit for CVP water, and it overlies the Pacheco, Bolsa Southeast, San Juan, Hollister East, Hollister West, and Tres Pinos groundwater subbasins (as defined by SBCWD, see **Figure 6-3**).

The District distributes CVP water to both agricultural and M&I customers in Zone 6. Hollister and Sunnyslope purchase CVP water directly from the District as they are the primary M&I CVP customers. Other M&I uses of CVP water include urban irrigation, golf courses, and potable supply for the Stonegate community. Actual CVP deliveries are modified on an annual basis by USBR, reflecting hydrologic conditions (e.g., drought), reservoir storage, and the environmental status of the Sacramento-San Joaquin Delta. In water year 2015, the allocation for M&I users was 25 percent of historical use while agricultural users received zero percent of contract amounts. Reductions in recent years are primarily the result of the cumulative effects of the sustained state-wide drought (Todd 2015a).

The USBR has instituted its Shortage Policy in five of the past six years in response to drought, over-commitment of CVP supplies, and supply limitations imposed by environmental, regulatory, and legal constraints in the Sacramento-San Joaquin River Delta (Delta). The Shortage Policy provides that the allocation of M&I CVP water will be based on a contractor's historical use of CVP M&I water, with opportunities for adjustments to account for growth, extraordinary conservation measures, and use of

non-CVP water. The historical M&I usage served by the District is currently set at 8,250 AFY, which is the District's full CVP M&I contract volume.

WATER SUPPLY FACILITIES

Water treatment for potable M&I supplies within the HUA is provided by the Lessalt WTP, a facility owned by the District and operated by Sunnyslope. The Lessalt WTP, placed into operation in January 2003, is designed to treat imported CVP water using microfiltration and chlorine disinfection (HDR 2008a). In 2015, the plant was upgraded to not produce THMs through granulated activated carbon filtration to remove organic materials prior to. In addition, further treatment to remove iron and manganese was added. Treated water is distributed to Hollister and Sunnyslope customers. The Lessalt WTP was constructed to provide an additional source of water and to improve water quality by supplementing existing groundwater with higher quality surface water. The Lessalt WTP was completed in 2002 with a nominal design capacity of 3 million gallons per day (MGD). Because of hydraulic constraints, process limitations, and reductions in CVP water availability, the WTP has, until recently, operated at an average rate less than 1.6 MGD. A WTP expansion completed in April 2015 increased the operational capacity of Lessalt to 2.0 MGD, which extends the current capacity of the WTP to an annual total of 2,240 AFY. Currently, direct use of CVP water for M&I purposes within the HUA is limited by the capacity of the Lessalt WTP.

The District manages San Justo Reservoir as storage for imported CVP water. In times of full allocation, the District is able to purchase additional water to keep as a reserve for future dry years. The District's planned reserve is 3,000 AF, sufficient to provide 1,000 AF for each dry year for up to three years. Based on future demand and supply calculations, this reserve may only be needed when CVP allocations are at or below 50 percent.

FUTURE WATER PROJECTS

The HUA agencies are currently moving forward with a second surface water treatment plant to treat CVP imports for delivery to urban areas not served by the Lessalt plant. The new plant, which will be called the West Hills WTP, has been sized to treat an additional annual capacity of 2.25 MGD, with a peak monthly treatment capacity of 4.5 MGD. This will increase the treated M&I CVP water available to the HUA by 2,520 AFY. Construction of the West Hills WTP has begun and the plant is expected to be online by the end of 2017. With the West Hills and Lessalt WTPs, the HUA will have the capability to treat up to 4,760 AFY.

6.2 GROUNDWATER

Groundwater is a major source of supply for Hollister and Sunnyslope. The two retailers pump directly from wells located in the HUA. The District, formed by a special act of the State, has regional responsibility and authority to manage groundwater. As part of its management activities, the District provides recharge to the basin, explores expanded groundwater banking, monitors water levels and water quality, and reports annually on groundwater conditions in the basin.

6.2.1 BASIN DESCRIPTION

LOCATION

The HUA overlies the Gilroy- Hollister basin, designated as DWR Basin No. 3-3, shown on **Figure 6-1** (DWR 2016a). The basin covers 200 square miles of the Pajaro River watershed and is drained by its tributaries, most notably the San Benito River. The San Benito River, intermittent in some parts of the basin, runs through the southern portion of the basin before reaching the Pajaro River. The San Benito River, when flowing, is a recharging stream along much of its channel, but groundwater contributes some base flow upstream of its confluence with the Pajaro River. The Hernandez Reservoir, located upstream of the basin on the San Benito River, is operated to enhance flow in the river and recharge the groundwater basin.

GEOLOGY

The Gilroy-Hollister groundwater basin lies within the Coast Ranges of California, which are a series of elongated ranges and valleys with a predominantly northwesterly trend. The Hollister Valley's origin and shape has been controlled by folding and faulting of basement rocks in the area, resulting in low-lying areas that have been infilled with unconsolidated to poorly consolidated alluvium of Tertiary and Quaternary age. The Quaternary alluvial deposits compose the valley floor and generally define the groundwater basin (California Geologic Survey 2002, Todd 2004). Numerous investigators have recognized the difficulty in describing the subsurface stratigraphy of the basin, due, in part, to sparse geophysical log data and a lack of distinctive textures and composition among the sedimentary units (Kilburn 1972, Faye 1974 and 1976, Luhdorff and Scalmanini 1991).

Major geologic faults, including the San Andreas and Calaveras, trend northwestward through the area. Most notably, the Calaveras fault is active and cuts through the basin, trending north-northwest from Hollister to the Pajaro River at San Felipe Lake, and separating the northern valley into two distinct geologic units at depth. The fault is perceived to impact groundwater flow locally, perhaps due to the presence of low permeability rock fragments and blocks displaced upward and adjacent to more permeable alluvial material along the fault zone (Todd 2004).

The Quaternary-age alluvium contains the main aquifers in the groundwater basin. The aquifers are the coarse-grain layers of sands and gravels with interbedded layers of silts and clays. The geometry of the basin suggests that basin-fill units were deposited in alluvial fan and fluvial environments from a variety of source rocks and directions. These deposits interfinger in the subsurface, making the differentiation of

discrete aquifer packages difficult on a regional basis. This also results in variable aquifer properties across the basin. Previous investigators indicate wide variability in aquifer transmissivities (Luhdorff and Scalmanini 1991, Faye 1974). Although poorly defined, regional variations in permeability likely create preferential pathways for groundwater, especially in paleo-channel deposits, which may exist beneath current major stream courses or elsewhere in the basin (Todd 2004).

SUBAREAS

Figure 6-3 shows the eight subbasins delineated in 1996 for the District annual reports: Bolsa, Bolsa Southeast (SE), Pacheco, Hollister East, Tres Pinos, Hollister West, and San Juan subbasins, and the Llagas subbasin in Santa Clara County. This definition of subbasins is maintained in this report, supporting consistent reporting of groundwater conditions.

The Hollister Urban Area overlies the Hollister East, Hollister West, and Tres Pinos subbasins. Hollister and Sunnyslope pump directly from these subbasins. In water year 2015, 45 percent of Hollister and Sunnyslope pumping was located in the Hollister West subbasin, 35 percent in the Tres Pinos subbasin and 20 percent in the Hollister East subbasin. The subbasins are hydrologically connected and pumping in the HUA affects the entire groundwater basin.

GROUNDWATER LEVELS AND FLOW

In general, groundwater in the basin flows from the southeast and eastern portions of the basin toward the western and northwestern portions of the basin to the Pajaro River. However, general flow directions have been reversed in the Bolsa subbasin due to groundwater pumping; groundwater in the Bolsa subbasin near the Pajaro River flows southeast toward lower water levels.

Groundwater levels have been recorded in the basin since at least 1913 by various agencies including USBR, DWR, Pacheco Pass Water District, San Benito County, University of California Cooperative Extension, and the United States Geological Survey (USGS) (Clark 1924, Kilburn 1972, Farrar 1981, Creegan & D'Angelo 1990). The District monitors water levels in approximately 80 to 100 wells on a semiannual and, more recently, a quarterly basis and reports the data to CASGEM. Water levels and trends are presented in the District annual reports (e.g. Todd 2015a). Groundwater generally occurs under unconfined and confined conditions. Surficial clay deposits, especially in the Bolsa and San Juan Valley subbasins, create confining layers. These layers have resulted in local artesian conditions wherein groundwater levels in wells have risen to the surface.

Figure 6-4 illustrates long term changes in groundwater levels in the basin. Water elevations in key wells from each subbasin for each monitoring event have been averaged to produce representative hydrographs for each subbasin. These key wells are shown on the map in **Figure 6-4**. 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 water levels.

GROUNDWATER RECHARGE

The District owns and operates two reservoirs along the San Benito River. Hernandez Reservoir (capacity 17,200 AF) is located on the upper San Benito River in southern San Benito County. Paicines Reservoir (capacity 2,870 AF) is an offstream reservoir between the San Benito River and Tres Pinos Creek. It is filled by water diverted from the San Benito River, with some of the diversions consisting of natural runoff and some consisting of water released from Hernandez Reservoir. Water stored in the two reservoirs is released for percolation in Tres Pinos Creek and the San Benito River to augment groundwater recharge during the dry season. Since 1996, releases from Hernandez have ranged between 0 AFY and 26,300 AFY, generally reflecting variations in inflow. The total releases from Paicines Reservoir range from 0 AFY to 6,139 AFY (Todd 2015a).

In the past, the District has purchased and percolated additional CVP imported water for groundwater management. This program began in 1988, and CVP percolation peaked in 1997 at 11,087 AFY. Managed CVP percolation volumes were reduced following 1997 in response to successful recovery of the groundwater basin from overdraft. In recent years, no significant releases of CVP imported water have occurred due to reduced allocations and local areas of high water levels.

Hollister and Sunnyslope percolate treated wastewater discharge to the groundwater basin. The City of Hollister Domestic Wastewater Treatment Plant (DWWTP) represents the major portion, amounting to 1,816 AF in water year 2015. Wastewater percolation has been decreasing in recent years and is expected to continue to decrease as recycled water use increases.

WATER QUALITY

The District conducts semiannual sampling (spring and fall) of more than 24 wells distributed spatially over the basin. In addition, water suppliers with more than six connections, including Hollister and Sunnyslope, are required to monitor and report water quality to the State Water Resources Control Board Division of Drinking Water (DDW). These data and others are used by the District to monitor and track the status of water quality basin-wide.

A comprehensive water quality database for the District was created in 2004. This database, funded in part by a DWR grant, involved compilation of all available water quality data with the intent of regular update with future data. The first major update occurred as part of the 2007 Annual Groundwater Report. The database is now regularly updated with readily available local data. A more complete update of the water quality database, including research at local, regional, and state agencies, occurs on a triennial basis. The database was updated in November 2013, as part of the Annual Groundwater Report for Water Year 2013 (Todd 2013).

The quality of groundwater in the Gilroy-Hollister groundwater basin has been described as highly mineralized and of marginal quality for drinking and agricultural purposes. The mineralized water quality is typical of other relatively small Coast Range groundwater basins, but has also been impacted by decades of human-related activities, both agricultural and urban.

A general measure of groundwater quality is total dissolved solids (TDS). For drinking water purposes, TDS concentration of 500 milligrams per liter (mg/L) or less are recommended; however, TDS concentrations up to 1,000 mg/L are acceptable. TDS concentrations are affected by both natural and anthropogenic sources. **Figure 6-5** shows generalized areas of similar TDS concentrations. The map is based on the maximum historical concentrations of TDS of all monitored wells and was updated in 2013 (Todd 2013).

The agencies in the HUA plan to blend treated imported CVP water with local groundwater to reduce TDS in Hollister and Sunnyslope's water supplies. If CVP is available, at least 65 percent of the M&I water supplied in the HUA is planned to come from CVP imports, with the remaining 35 percent of supply made up from groundwater. This blending would result in better water supply, and sufficient wastewater quality to produce high quality recycled water and meet wastewater discharge requirements with the California Regional Water Quality Control Board (RWQCB).

Recent analyses of water quality in Hollister wells reported hexavalent chromium (also known as chromium VI, or CrVI) concentrations above the newly reduced California maximum contaminant level (MCL) of 10 micrograms per liter (µg/L) (SWRCB 2015). These problematic concentrations occurred in all four of Hollister's existing active water supply wells, located on the west side of the City (Todd 2015b). Treatment for CrVI is expensive, and not all of the wells have equal treatment options. As such, Hollister investigated the source of CrVI in the wells and assessed the potential to reduce CrVI concentrations by modifying the construction of the wells. These assessments addressed geologic, water quality, well construction, and water distribution system information (Todd 2015b) and included a field investigation with vertical flow and water quality profiling of a selected well (Hollister Well 4). Subsequent analysis of field data showed that CrVI was present throughout the perforated interval in Hollister Well 4, and indicated no feasible well modification to reduce CrVI concentrations in this well or the other three Hollister wells, which have similar lithology and construction (Todd 2015c). Therefore, Hollister is pursuing the option of blending groundwater from the existing wells with treated imported water from the West Hills WTP currently under construction. DDW has approved the HUA's proposal for a 50/50 blend of groundwater and treated water from the West Hills WTP (SWRCB 2016). Sunnyslope is currently monitoring their wells for CrVI problems and will continue to plan for possible water quality issues.

Other chemicals of concern (COC) for the groundwater basin include boron, chloride, hardness, nitrate, and total dissolved solids (TDS). In some parts of the basin, groundwater does not meet water quality standards; accordingly, the District, water purveyors, and other agencies are examining ways to improve quality in these areas. In addition to the historical COCs, current operations by regulated facilities have introduced new local COCs including perchlorate, metals, and volatile organic chemicals. All areas where these COCs have been discovered are regulated by the Regional Water Quality Control Board (RWQCB) (Todd 2010).

In most of the basin, water quality has remained stable in recent years. Other areas, such as the eastern portion of the San Juan subbasin, have shown variable but increasing trends in key constituents like nitrate and chloride. This limited change in water quality results from local factors including nearby regulated facilities, land use changes, and high groundwater levels.

The preferred and required blending of groundwater with imported CVP water results in a linkage between groundwater supply and CVP allocations. In dry years, when CVP allocations are low, the volume of groundwater supply used by the HUA agencies for urban supplies will be limited to maintain the planned blending ratio. While the blending required for mitigating CrVI concentrations (groundwater limited to 50 percent of supply) is unlikely to be relaxed, blending to achieve other water quality goals may be relaxed on a short term basis in response to drought conditions.

WATER BALANCE AND SUSTAINABLE YIELD

The District produces an annual report that examines changes in groundwater levels and storage as basic indicators of net water balance conditions. A complete water balance for the basin—including detailed estimation of all inflows, outflows, and changes in storage—is documented on a triennial basis. All values for the basin-wide water balance in this section are those calculated and reported in the Annual Groundwater Report for water year 2014 (Todd 2014). The water balance encompasses the subbasins underlying the HUA.

Major inflows include deep percolation from rainfall, return flow from urban and agricultural uses, recharge of reclaimed water, stream percolation (both natural and managed through reservoir and CVP releases), and subsurface inflow from adjacent groundwater basins. Most of these inflows are controlled by hydrological conditions and are generally greater in wet years and reduced in dry years.

Major outflows include pumping from agricultural and urban sources and subsurface outflow to adjacent basins. Agricultural groundwater pumping is measured in Zone 6, but not in other parts of the basin. The volume of agricultural pumping in Zone 6 in any given year is dependent on the volume of CVP imports and the amount and distribution of rainfall, as growers often rely on both groundwater and CVP for water supply. In 2015, domestic, municipal, and industrial pumping decreased in response to the state-wide conservation mandate. As noted, municipal pumping is largely concentrated in the Hollister West, Hollister East, and Tres Pinos subbasins.

The annual change in groundwater storage can be determined by computing the difference in outflows and inflows or by independently assessing change in groundwater levels. The change in storage is calculated by change in water levels annually and by water balance triennially in the District annual report. From 2010 to 2015, the volume of groundwater in storage in Zone 6 decreased every year. The annual decrease ranged from 683 AF to 19,268 AFY. These storage declines show the effect of drought and limited imported water availability on the groundwater basin, and that the basin serves as a reserve during dry times. It is anticipated that in normal and wet years the basin will recover, but recovery rates and extents will depend on precipitation, runoff, water availability, and water use patterns.

Previous studies have estimated safe yield values, defined as the amount of groundwater that can be continually withdrawn without adverse impacts. These estimates of safe yield were completed prior to 2003, and they range from 40,000 to 54,000 AFY (Kennedy/Jenks 2003). No recent safe or sustainable

yield evaluations have been completed for the HUA or the rest of the groundwater basin. [1] One means of quickly estimating sustainable yield on a large scale is to identify the volume of outflow associated with time period corresponding to relatively stable groundwater elevation and groundwater storage conditions. The period from 2006 through 2008 represents such a period of stable conditions. The storage change during this period was a relatively small decrease of 1,116 AFY, generally indicating equilibrium. Estimated average annual groundwater outflow during this period was 17,852 AFY for the subbasins in which the HUA is located (Hollister East, Hollister West, and Tres Pinos). Despite recent drought conditions and groundwater storage decreases, the HUA sustainable yield value of 16,000 AFY remains applicable for planning purposes (Todd 2010).

Hollister and Sunnyslope are not the only users of the three subbasins that the HUA is within. Agricultural users, small water purveyors, and domestic well users also rely on these groundwater subbasins for their water supply. The District measures all groundwater use in Zone 6 and records the amount of groundwater pumped semi-annually (February and September). In water year 2015 (October to September), groundwater pumped from the Hollister East, Hollister West, and Tres Pinos subbasins totaled 14,908 AFY (Todd 2015). Hollister and Sunnyslope pumped a total of 3,308 AFY (1,960 AFY and 1,348 AFY from Hollister and Sunnyslope, respectively) over the same period. In water year 2015, the retailers represented only 22 percent of total pumping in these three subbasins.

The portion of the local sustainable yield available to Hollister and Sunnyslope in the future is better represented by long-term averages, and not the use patterns observed during the recent drought. This extended state-wide drought had the effect of decreasing water demand in Hollister and Sunnyslope as a result of conservation and limited availability of treated CVP water for municipal supply. In addition, other water users in these subbasins increased pumping due to lack of CVP water for agricultural supply. Moreover, it is anticipated that future urban development will be concentrated in the Hollister and Sunnyslope service areas, thereby increasing demand for local groundwater and potentially altering some land uses with high water demands. As noted above, future use of local groundwater supply may be limited or require treatment due to water quality concerns.

6.2.2 GROUNDWATER MANAGEMENT

The District manages the water resources for all of San Benito County. The District is a California Special District formed in 1953 by the San Benito County Water Conservation and Flood Control Act. The District has jurisdiction throughout San Benito County, and has formed three zones of benefit to fund surface water and groundwater management activities. Zone 1 covers the entire county and provides the funding base for certain District administrative expenses. Zone 3 generally covers the San Benito River Valley to the confluence with the Pajaro River, from the Highway 25 Bridge nine miles south of the town of Paicines to San Juan Bautista, plus the Tres Pinos Creek Valley from Paicines to the San Benito River. Zone 3 provides the funding base for operation of Hernandez and Paicines reservoirs and related percolation and

[1] These estimates will be revised with local implementation of the Sustainable Groundwater Management Act.

groundwater management activities. Zone 6 includes the six major delineated subbasins in the northern portion of the Gilroy-Hollister groundwater basin and provides the funding base for importation and distribution of CVP water and related groundwater management activities (Todd 2010, HDR 2008a).

SUSTAINABLE GROUNDWATER MANAGEMENT ACT (SGMA)

The 2014 Sustainable Groundwater Management Act (SGMA) continues to unfold through development of regulations by the Department of Water Resources (DWR) and clarifications to the law through Senate Bill 13 (effective January 1, 2016). In brief, SGMA requires sustainable groundwater management for designated medium- and high-priority groundwater basins, which includes the Gilroy-Hollister basin. Future SGMA activities may change the way the Gilroy-Hollister basin is managed, including the preparation of a Groundwater Sustainability Plan (GSP) expected in 2022. While SGMA does not affect this 2015 UWMP, it is expected to be a central part of the next UWMP due in 2020.

ANNUAL GROUNDWATER REPORT

Each water year, the District oversees the preparation of an Annual Groundwater Report that describes current groundwater conditions in the District and two zones of benefit: Zone 3 and Zone 6. The report documents water supply sources and use, groundwater levels and storage, and District management activities over the water year (October to September). Recommendations are provided with regard to the future water year imports, groundwater replenishment, groundwater pumping, and groundwater charges. This Annual Report is prepared at the request of the District to meet its information needs and to fulfill statutory reporting requirements (Todd 2015).

GROUNDWATER MANAGEMENT PLAN (GWMP)

The GWMP is a voluntary planning process for groundwater basin management. The GWMP process was established in 1992 by the State Legislature through Assembly Bill (AB) 3030, amended in 2002 by Senate Bill (SB) 1938 and codified in the Water Code. While the Water Code lays out specific requirements (used for State funding eligibility), a GWMP is voluntary. A completed GWMP must be sponsored and adopted by one or more eligible public agencies (such as the City or County), but is intended to be a collaborative process with local landowners, groundwater users, and other interested people. Such a plan describes groundwater conditions, addresses groundwater issues, identifies basin management objectives and actions to achieve objectives, and lays out an implementation plan for actions including funding sources, continued monitoring, and regular reporting.

In 1998, the first GWMP was prepared for the San Benito portion of the Gilroy-Hollister Valley Groundwater Basin as a collaborative effort among major water retailers and wholesalers of the basin including Aromas Water District, the cities of Hollister and San Juan Bautista, the District, Sunnyslope, and Tres Pinos County Water District. The GWMP was updated in 2003 and attached as an appendix to the 2010 UWMP.

WATER RIGHTS

The Gilroy-Hollister basin is not an adjudicated basin and groundwater entitlements or rights have not otherwise been defined. The long-term reliability of groundwater supply for the HUA is not likely to be predicated on water rights, but is likely to be defined by the overall state of the groundwater basin.

6.2.2 OVERDRAFT CONDITIONS

Water levels over time have varied in response to precipitation, groundwater pumping, and artificial recharge conditions. Water levels are estimated to have been at historical highs prior to 1913 before development of groundwater pumping (Kilburn 1972). In the drought conditions of the late 1970s, water levels in some areas had declined more than 150 feet from the estimated highs (Creegan & D'Angelo 1990). With the exception of a few areas of persistent water level lows, by 1998 groundwater levels had recovered close to the historical highs as a result of decreased pumping (following CVP importation), increased precipitation, and artificial recharge (Jones & Stokes 1999). During the recent drought that began in 2012, groundwater levels have declined over much of the basin, most notably in agricultural areas of the basin that rely on groundwater. These subbasins have now sustained four successive years of drought with limited CVP imports. During this time groundwater elevations have declined slightly or remained steady in areas of municipal pumping including Hollister East and Tres Pinos subbasins.

Groundwater elevation declines during drought do not constitute overdraft; nevertheless, the continued reduced supplies of imported water in tandem with increased groundwater demands are a warning of potential groundwater overdraft. It appears that sufficient storage remains in the basin to accommodate additional dry conditions with limited imported water availability. However, if drought conditions persist, avoidance of significant impacts will require delivery of alternative supplies to sensitive areas or more rigorous water demand management.

6.2.3 HISTORICAL PUMPING

Table 6-1 Hollister Retail and Table 6-1 Sunnyslope Retail show the historical pumping of Hollister and Sunnyslope, respectively. In general, municipal pumping in the area has decreased over time due to increased treatment and use of imported water and water conservation measures (**Figure 6-2)**. Average municipal pumping in water years 1995 through 2003 (before Lessalt WTP came online) was 6,319 AFY. The average pumping in water years 2003 through 2015 (after Lessalt WTP) was 4,561 AFY, a 28 percent reduction in groundwater pumping.

The groundwater basin is a shared resource and other users (mainly agricultural) rely on groundwater supplies from the same subbasins. Total pumping in the three subbasins of the Hollister Urban Area has ranged from 8,345 AFY in 2011 to 16,614 AFY in 1993. Municipal pumping has ranged between 22 and 56 percent of total pumping in these basins. Locations of municipal wells in the HUA are shown on **Figure 6-6**.

6.3 SURFACE WATER

While local surface water is not directly used for water supply, it is used as a source of managed recharge to the groundwater aquifer. In most years, local surface water released from Hernandez and Paicines Reservoirs is percolated along the San Benito River and Tres Pinos Creek. Releases of local surface water have been limited typically to percolation upstream of the confluence of San Benito River and Tres Pinos Creek. This has helped maintain groundwater levels without causing shallow groundwater problems and competing for available storage space with the City of Hollister wastewater percolation ponds.

For the past two years (water years 2014 and 2015) both Paicines and Hernandez were dry for the entire year because of ongoing drought conditions; there were no releases from either reservoir.

6.4 STORM WATER

Currently, storm water is not diverted for direct beneficial use. However, some runoff that enters the City's storm water system is treated in the wastewater industrial plant and some stormwater runs off to the San Benito River. The collected storm water serves to increase the volume recharged in the disposal ponds and improves the discharge water quality.

6.5 WASTEWATER AND RECYCLED WATER OPPORTUNITIES

This section presents a summary of HUA wastewater collection, treatment, and disposal; current and projected recycled water use; programs to encourage recycled water use; and the HUA plan for optimizing recycled water use.

6.5.1 RECYCLED WATER COORDINATION

In 2004, the City of Hollister, the County, and the District executed a Memorandum of Understanding (MOU) forming a partnership to undertake the development of the Master Plan for the HUA. The MOU was amended in 2008 to include Sunnyslope. A new MOU with Hollister was completed in 2014 that allowed the District to receive recycled water from the Hollister wastewater treatment plant and make it available to agricultural customers in the area. These parties have undertaken a coordinated effort to plan water supply and wastewater strategies for the HUA. These strategies include the collection and treatment of wastewater as well as disposal and recycled use, as appropriate.

Planning for recycled water use has included the preparation of a Recycled Water Feasibility Study prepared by the District in 2005 (RMC 2005) and a subsequent Recycled Water Feasibility Study Update prepared jointly by the District and Hollister (HDR 2008b), the Long Term Waste Water Master Plans (LTWWMPs) prepared respectively by Hollister and Sunnyslope, and the Master Plan prepared jointly by Hollister, Sunnyslope, and the District (HDR 2008a). A Master Plan update is expected to be completed later in 2016.

Recycled water is currently being used for irrigation at one site within the HUA. While there are no detailed plans to increase recycled water use in the HUA, there are coordinated efforts to supply recycled water to areas outside of the HUA for agricultural irrigation (HDR 2008a, HDR 2008b). Currently, these agricultural customers rely on CVP imports and groundwater. If irrigation demands are met by recycled water, groundwater pumping in the area could be reduced, increasing available groundwater supplies for other parties, including the HUA retailers.

Although recycled water is currently available, and will become more widely available in the near term, neither increased non-potable use offsetting existing uses nor potable reuse opportunities are targeted for implementation within the HUA because of water quality concerns. A major goal of the 2008 MOU was to improve the quality of treated wastewater in order to provide recycled water with TDS concentrations between 500 and 700 mg/L. As efforts to improve potable water quality become more effective, recycled water quality will also improve and use in the area will increase.

6.5.2 WASTEWATER COLLECTION, TREATMENT AND DISCHARGE

As indicated on **Table 6-2 R**, five wastewater treatment plants treat the domestic, commercial, and industrial wastewater flows generated within the HUA (**Figure 6-6**). The existing wastewater facilities are owned by three separate agencies: Hollister, Sunnyslope, and San Benito County (Cielo Vista Estates Wastewater Treatment Plant). The facility descriptions are included below, organized by agency.

Current wastewater collection and treatment volumes for each of the treatment plants are presented on **Table 6-3 R**. The Hollister Water Reclamation Facility treated 2,061 AF of wastewater in 2015. While most of the treated wastewater was disposed in percolation ponds, 116 AFY of recycled water was used for irrigation.

CITY OF HOLLISTER WASTEWATER FACILITIES

Hollister owns and operates two waste water treatment plants (WWTPs); the domestic wastewater treatment plant/water reclamation facility (DWWTP/WRF) and the industrial wastewater treatment plant (IWWTP). The DWWTP/WRF, located on the western edge of the HUA (**Figure 6-6**), was built in 1979 to treat Hollister's domestic wastewater. The IWWTP (located west of downtown Hollister) treats seasonal industrial wastewater and storm water from the downtown area. The City of Hollister's collection system consists of gravity pipelines and force mains ranging from 4- to 36-inches in diameter.

The Hollister DWWTP/WRF began operating in March 1980, was renovated in 1987 to increase capacity, improved in 2002 and 2003 to improve treatment efficiency, and upgraded in 2009 to include the WRF and improve treatment to tertiary levels. Construction of distribution systems connecting to the City of Hollister Reclamation facility have begun. This system will increase the use of recycled water in the District. Recycled water will augment supply to agricultural users in the Hollister subbasin area. The DWWTP/WRF receives wastewater flow from all municipal and most industrial customers within Hollister City limits, including portions of the Sunnyslope service area. The system treats water to disinfected tertiary recycled water standards through the use of a Membrane Bioreactor (MBR).

The DWWTP/WRF is currently capable of treating up to 4 MGD and the current dry weather average flow is approximately 3 MGD. The DWWTP/WRF can be expanded to accommodate peak flows of 5 MGD through the installation of additional membranes, when required by additional development.

The Hollister IWWTP began operating in 1971 and is located on 78 acres less than a mile east of the DWWTP/WRF (**Figure 6-6**). The facility was constructed to treat effluent from local tomato canneries and storm water. Only one of the canneries, San Benito Foods, is currently in operation from mid-June through mid-October. The IWWTP is a conventional aerated pond treatment system that produces secondary-treated discharge. The capacity of the IWWTP has been estimated to be as high as 7.5 MGD; however, the current RWQCB permit limits flows to 3.5 MGD during the canning season and 1.72 MGD of storm water during the non-canning season (HDR 2008a). The estimated maximum cannery wastewater flow is 4.0 MGD, and the maximum sustained disposal capacity is 2.6 MGD. The Industrial WWTP receives approximately 0.2 million gallons of storm water flow per inch of rainfall (RMC 2005).

The secondary effluent from the IWWTP is discharged to evaporation and percolation ponds, which recharge the Hollister West and San Juan groundwater subbasins (RMC 2005).

SUNNYSLOPE COUNTY WATER DISTRICT WASTEWATER FACILITIES

The domestic wastewater treatment plant serving the Ridgemark Estates community is managed by Sunnyslope. A new wastewater treatment plant was constructed at the Ridgemark I facility (**Figure 6-6**). The new treatment plant is a sequential batch reactor facility with sludge handling facilities and four percolation ponds. The plant was completed in September 2013 and can treat 330,000 gallons per day. In 2015 the total treated wastewater was 178 acre feet or approximately 159,000 gallons per day. The Ridgemark II facility was converted to a pump station to pump the wastewater to the new treatment plant constructed at the Ridgemark I facility. At the Ridgemark II site, the treatment ponds and disposal ponds, are being dried out but will remain as excess facilities owned by Sunnyslope.

Sunnyslope has no plans to provide recycled water for irrigation in the next 5 years. In the past, Sunnyslope had planned to provide recycled water for Ridgemark Golf Course but this would require additional upgrades to its WWTP.

OTHER WASTEWATER FACILITIES

Wastewater treatment within the HUA by parties other than the two municipal water purveyors is limited to the Cielo Vista Estates, operated by San Benito County, and private residential septic systems.

Cielo Vista Estates is a residential development within Sunnyslope's service area and includes approximately 75 single-family homes located at the intersection of Airline Highway and Fairview Road. Wastewater from the community is treated by a Sequencing Batch Reactor (SBR) system operated by San Benito County. Secondary effluent from the treatment system is infiltrated to the groundwater basin via a leach line system. The Cielo Vista development is complete and new connections to the wastewater system are not anticipated (Schaaf & Wheeler 1999).

Some private residences within the HUA are still serviced by individual septic systems. No estimate has been made of the quantity of wastewater generated from these small systems.

6.5.3 RECYCLED WATER SYSTEM

The wastewater treatment facilities within the HUA utilize a number of treatment methods, which result in varying effluent quality, as described above. Current requirements for recycled water use are administered by Title 22 of the California Code of Regulations, referred to hereafter as Title 22. The Hollister DWWTP/WRF has the capacity to meet the requirements for disinfected tertiary recycled water as defined by Title 22. The remaining wastewater treatment facilities produce effluent that meets the Title 22 requirements for undisinfected secondary recycled water. However, the effluent streams from all of the treatment facilities have high levels of TDS, which may preclude local reuse on orchards and vineyards or non-food bearing trees. The parties to the MOU have committed to reducing these high concentrations by reducing the TDS of supplied water as part of the Master Plan (HDR 2008a). The Hollister DWWTP/WRF currently treats all wastewater flows to tertiary standards, but only disinfects what is used offsite for landscape irrigation.

As previously noted, the remaining wastewater treatment facilities (the Ridgemark WWTP and Cielo Vista Estates) produce undisinfected secondary effluent, which is disposed of through evaporation and/or percolation.

There are no plans to upgrade or expand the Cielo Vista Estates wastewater treatment system.

The current and anticipated future quantities of wastewater treated to recycled water standards are presented in **Table 6-4 R.** Recycled water will be available from only Hollister's domestic wastewater treatment plant/water reclamation facility (DWWTP/WRF). There are no plans to provided recycled water from other facilities.

6.5.4 RECYCLED WATER BENEFICIAL USES

CURRENT USES

Offsite reuse of recycled water from the DWWTP/WRF takes place at Riverside Park (formerly known as the Brigantino Site). Irrigation at these sites began in a limited capacity in 2009 and use increased in 2010 as the projects neared completion. In 2015, 116 AF of recycled water was delivered to Riverside Park, while no recycled water was delivered to the airport site. The remaining treated wastewater from the DWWTP/WRF is currently disposed of by evaporation and percolation. The DWWTP/WRF will increase the quantity of disinfected tertiary recycled water that it produces as demand for recycled water increases, in accordance with the Master Plan.

PLANNED VERSUS ACTUAL USE OF RECYCLED WATER

In the 2010 UWMP, recycled water use in the HUA was projected to be 1,091 AFY by 2015. The actual recycled water use in 2015 was 116 AF. In **Table 6-5 R**, The projected recycled water use from the 2010 UWMP is compared to the 2015 actual use. The volume of landscape irrigation is significantly lower and the projected use of golf course irrigation did not occur. The recycled water distribution system is still under construction and the water quality targets for the wastewater have not been met. In addition, Sunnyslope has not pursued recycled water as a supply source and thus did not provide recycled water to Ridgemark golf course as planned.

FUTURE USES

Current plans for use of HUA recycled water focus primarily on agricultural irrigation of high value, quality-sensitive crops. This agricultural use is currently outside the service areas of Hollister and Sunnyslope. Planning for recycled water use is an ongoing and iterative process that has been carefully considered by the parties to the MOU. Any agricultural recycled water use will depend on the ability of the MOU parties to meet their TDS goals of 500 to 700 mg/L. The MOU established 2015 as the target date for meeting these water quality goals. Plans to meet these goals are described in the Master Plan (HDR 2008a).

Currently, these agricultural customers rely on CVP imports and groundwater pumping. If irrigation demands are met by recycled water, groundwater pumping in the area could be reduced, increasing the available groundwater supply for the HUA retailers.

6.5.5 ACTIONS TO ENCOURAGE AND OPTIMIZE FUTURE RECYCLED WATER USE

There are no current plans to increase recycled water use in the HUA. Accordingly, no implementation strategies are listed on Table 6-6 R and Table 6-7 R. The District plans to distribute the recycled water produced by the City's WWTP for agricultural users outside the HUA. Sunnyslope may pursue recycled water in the future but has no plans in place.

6.6 DESALINATION WATER OPPORTUNITIES

The 2008 Master Plan PEIR examined the demineralization of urban wells as a potential project to increase water supply reliability and improve water quality. This improved water quality would in turn improve wastewater and recycled water quality. Groundwater pumped from local wells would be treated using reverse osmosis (R/O). The Master Plan developed a phased approach for implementation. The phasing would result in 3 mgd (3,400 AFY) of demineralization capacity by 2015, and a total of 5 mgd (5,600 AFY) by 2019. This schedule represents the earliest implementation of phased demineralization of urban wells (AECOM 2011). Facilities may include a mix of existing and new wells, with either wellhead or centralized treatment. The timing and capacity of demineralization facilities are being considered but there are no plans to begin a demineralization project at this time.

The District, Hollister, and Sunnyslope are not considering desalination from ocean water or brackish surface water at this time because of a lack of such water sources in the region.

6.7 EXCHANGES OR TRANSFERS

Through its CVP contract, the District has the capability to engage in transfer or exchange with other CVP customers.

6.7.1 EXCHANGES AND TRANSFERS

The District is the CVP wholesaler to many agricultural and M&I users in addition to Hollister and Sunnyslope. During the next water shortage, Hollister and Sunnyslope may be eligible to purchase additional water that the District has obtained from its water transfers with other CVP customers, purchases on the spot market, and water banked at the Semitropic water bank. The amount of available water would be variable, based on the District's overall water needs. Currently, the District has 4,500 AFY stored with Semitropic.

6.7.3 EMERGENCY INTERTIES

Hollister and Sunnyslope share a connected water system and in an emergency, water can flow from one retailer to the other as needed.

6.8 FUTURE WATER PROJECTS

NORTH COUNTY GROUNDWATER

The 2008 Master Plan identified north county groundwater subbasins as sources of additional long-term supply. Initial investigations indicated that north county pumping could provide additional supply to the Lessalt WTP and help alleviate local high groundwater conditions. In addition, banking groundwater in the north could provide opportunities for percolation and storage of relatively high quality imported supplies when available, and these supplies would then be available to the HUA agencies during dry years. The north county groundwater recharge project would include a combination of facilities to pump and recharge water, plus a network of monitoring wells. Water from the groundwater bank would be pumped into the Hollister Conduit for conveyance to the HUA. Initial investigations indicated that the north county groundwater recharge project could produce 1,400 to 2,000 AFY of groundwater with TDS concentrations less than 500 mg/L.

NEW MUNICIPAL WELLS

In light of water demand projections and water quality concerns for existing wells, Hollister and Sunnyslope are considering new municipal wells. No specific sites or plans for new wells have been identified, but new wells are being considered as part of the current Master Plan process.

6.9 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER

The Hollister Urban Area currently relies on imported water from the CVP, groundwater, and a small volume of recycled water for limited landscape irrigation. **Tables 6-8 Hollister Retail and 6-8 Sunnyslope Retail** show the current water supply by source for 2015, for Hollister and Sunnyslope respectively. **Figure 6-2** shows the historical water supply by source for the HUA from 1995 through 2015.

Table 6-9 R documents future CVP supply availability based on projected combined capacity of the existing and new surface water treatment plants. By the end of 2017, the combined average annual imported water treatment capacity in the HUA is projected to be 4.25 MGD, which is equivalent to 4,760 AFY). These increased imported water treatment capacities come from the recently completed upgrades to the Lessalt WTP and the currently under construction West Hills WTP, which is scheduled to be completed in 2017. The upgraded Lessalt WTP now has a treatment capacity of 2MGD, or 2,240 AFY, and the West Hills WTP is designed to treat an additional 2.25 MGD, or 2,520 AFY. The West Hills WTP design includes the potential for future expansion to treat up to 4.5 MGD, which is an average annual volume of 5,040 AFY. If these expansions to the yet-to-be completed West Hills WTP are implemented, the total imported water treatment capacity in the HUA would be 6.5 MGD, which is 7,280 AFY. Based on the projected growth and limits on groundwater use, the West Hills WTP should be expanded at least partially to an average annual capacity of 3 MGD by 2025, and full expansion may be required by 2035 to achieve the preferred supply blend of 65 percent CVP and 35 percent groundwater.

Treated water entering Hollister's and Sunnyslope's water systems is metered and tracked. The goal is to deliver 50 percent of CVP imports to each retailer; however it is estimated the most of the treated water flows into the Sunnyslope system. During drought conditions, the CVP allocation could be reduced based on the Water Shortage Policy. This is discussed further in the Water Reliability section.

Table 6-9 R also shows the projected future groundwater supply for Hollister and Sunnyslope respectively. As discussed in the groundwater section, the HUA overlays three groundwater subbasins. These subbasins have a sustainable yield of roughly 16,000 AFY. Of this yield, 9,263 AFY would be available to Hollister and Sunnyslope; the remaining yield is available for agricultural users, small purveyors, and domestic wells. In addition, the north county groundwater bank and recycled water delivered to agricultural customers in the area could make additional groundwater available. In 2035, the HUA plans to use groundwater as a supplemental supply during normal, single dry, and multiple dry years. The projected volume of groundwater pumping required to meet normal, single dry, and multiple dry year demand in 2035 is within the sustainable yield of the subbasins that the HUA is within, as discussed in detail above.

It is expected that CVP imports will continue to be the most desirable water source for the HUA in the future and that additional demand will be met with local groundwater blended with imported supplies. The preferred distribution is two thirds imported water and one third groundwater. However, this distribution could be relaxed to half groundwater and half imported water in order to meet regulatory water quality thresholds.

Table 6-9 R shows the projected recycled water use in Hollister; no recycled water use is expected in Sunnyslope's service area. The projected recycled water for the retailers in the HUA from 2010 to 2030 is expected to stay at 116 AFY as most of the recycled water will be delivered to agricultural customers, as shown in **Table 6-7 R.**

To meet future demand, the District, Hollister and Sunnyslope plan to rely on a portfolio of supplies. By utilizing different types of supply, the HUA agencies will reduce the impact of water shortage from each source.

6.10 CLIMATE CHANGE IMPACTS TO SUPPLY

Climate change is likely to affect water supply as well as demand (see Section 4.6). The climate change vulnerability assessment performed for the HUA is included as **Appendix E**. The most significant impact to supply will be the availability of imported water. Snowpack is expected to decrease as the climate warms and CVP allocations will likely decrease and become more variable as a result. In addition, CVP relies in part on the Delta, which is a climate-sensitive habitat where environmental requirements may also reduce CVP allocation.

Table 6-1 Hollister Retail: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type ***Drop Down List*** *May use each category multiple times*	Location or Basin Name	2011	2012	2013	2014	2015
Add additional rows as needed						
Alluvial Basin	Gilroy Hollister	1,601	2,004	2,953	2,754	1,949
	TOTAL	1,601	2,004	2,953	2,754	1,949
NOTES: Hollister PWSS (2011, 2013, 2014,2015), Internal data 2012						

Table 6-1 Sunnyslope Retail: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type ***Drop Down List*** *May use each category multiple times*	Location or Basin Name	2011	2012	2013	2014	2015
Add additional rows as needed						
Alluvial Basin	Gilroy Hollister	2,353	2,121	1,719	2,096	1,278
	TOTAL	2,353	2,121	1,719	2,096	1,278
NOTES: Sunnyslope PWSS						

Table 6-1 Wholesale: Groundwater Volume Pumped						
☑	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type ***Drop Down List*** *May use each category multiple times*	Location or Basin Name	2011	2012	2013	2014	2015
TOTAL		0	0	0	0	0
NOTES:						

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2015 service area covered by wastewater collection system *(optional)*					
	Percentage of 2015 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? *Drop Down List*	Volume of Wastewater Collected in 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? *Drop Down List*	Is WWTP Operation Contracted to a Third Party? *(optional)* *Drop Down List*
Add additional rows as needed						
City of Hollister	Metered	2,468	City of Hollister	Hollister Water Reclamation Facility	Yes	No
City of Hollister	Metered	21	City of Hollister	Industrial Wastewater Treatment Facility	Yes	No
Sunnyslope County Water District	Metered	178	Sunnyslope County Water District	Ridgemark I	Yes	No
Sunnyslope County Water District	Metered	0	Sunnyslope County Water District	Ridgemark II	Yes	No
San Benito County	Estimated	18	San Benito County	Cielo Vista Estates Wastewater Treatment	Yes	No
Total Wastewater Collected from Service Area in 2015:		2,664				
NOTES:						

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015										
☐	No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.									
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)*	Method of Disposal *Drop down list*	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level *Drop down list*	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
Add additional rows as needed										
Hollister Water Reclamation Facility	2690 San Juan Hollister Road			Percolation ponds	No	Tertiary	2,061	2,061	116	0
Industrial Wastewater Treatment Facility	1335 South St. Hollister CA		WDR-3 350100002		No	Secondary, Undisinfected	21	16	0	0
Ridgemark I			R3-2004-0065 3 351000001	Percolation ponds	No	Secondary, Undisinfected	178	178	0	0
Ridgemark II			R3-2004-0065 3 351000001	Percolation ponds	No	Secondary, Undisinfected	0	0	0	0
Cielo Vista Estates Wastewater Treatment Plant				Percolation ponds	No	Secondary, Undisinfected	18	18	0	0
						Total	2,278	2,272	116	0
NOTES:										

Table 6-3 Wholesale: Wastewater Treatment and Discharge Within Service Area in 2015										
☑	Wholesale supplier does not provide supplemental treatment to recycled water it distributes. The supplier will not complete the table below.									
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)*	Method of Disposal *Drop down list*	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level *Drop down list*	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
Add additional rows as needed										
						Total	0	0	0	0
NOTES:										

Table 6-4a Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

☐	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.

Name of Agency Producing (Treating) the Recycled Water:	
Name of Agency Operating the Recycled Water Distribution System:	
Supplemental Water Added in 2015	
Source of 2015 Supplemental Water	

Beneficial Use Type *These are the only Use Types that will be recognized by the DWR online submittal tool*	General Description of 2015 Uses	Level of Treatment *Drop down list*	2015	2020	2025	2030	2035	2040 (opt)
Agricultural irrigation								
Landscape irrigation (excludes golf courses)	Park Irrigation	Tertiary	116	116	116	116	116	
Golf course irrigation								
Commercial use								
Industrial use								
Geothermal and other energy production								
Seawater intrusion barrier								
Recreational impoundment								
Wetlands or wildlife habitat								
Groundwater recharge (IPR)								
Surface water augmentation (IPR)								
Direct potable reuse								
Other Type of Use								
		Total:	116	116	116	116	116	0

IPR - Indirect Potable Reuse

NOTES:

Table 6-4 Wholesale: Current and Projected Retailers Provided Recycled Water Within Service Area							
☑	Recycled water is not directly treated or distributed by the supplier. The supplier will not complete the table below.						
Name of Receiving Supplier or Direct Use by Wholesaler	Level of Treatment *Drop down list*	2015	2020	2025	2030	2035	2040 *(opt)*
Add additional rows as needed							
	Total	0	0	0	0	0	0
NOTES: Recycled water is not planned to be supplied by SBWD to urban customers							

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual			
☐	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.		
Use Type *These are the only Use Types that will be recognized by the WUEdata online submittal tool*		2010 Projection for 2015	2015 actual use
Agricultural irrigation		0	0
Landscape irrigation (excludes golf courses)		960	116
Golf course irrigation		131	0
Commercial use			
Industrial use			
Geothermal and other energy production			
Seawater intrusion barrier			
Recreational impoundment			
Wetlands or wildlife habitat			
Groundwater recharge (IPR)			
Surface water augmentation (IPR)			
Direct potable reuse			
Other	Required for this use		
Total		1,091	116
NOTES:			

Table 6-5 Wholesale: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual		
☑	Recycled water was not used or distributed by the supplier in 2010, nor projected for use or distribution in 2015. The wholesale supplier will not complete the table below.	
Name of Receiving Supplier or Direct Use by Wholesaler	2010 Projection for 2015	2015 actual use
Add additional rows as needed		
Total	0	0
NOTES:		

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☑	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
Add additional rows as needed			
		Total	0
NOTES:			

Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☑	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type *Drop Down List User may select more than one.*	Expected Increase in Water Supply to Agency *This may be a range*
	Drop Down List (y/n)	*If Yes, Agency Name*				
Add additional rows as needed						
NOTES:						

Table 6-7 Wholesale: Expected Future Water Supply Projects or Programs						
☑	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description *(if needed)*	Planned Implementation Year	Planned for Use in Year Type *Drop Down list User may select more than one.*	Expected Increase in Water Supply to Agency
	Drop Down Menu	*If Yes, Agency Name*				
Add additional rows as needed						
NOTES:						

Table 6-8 Hollister Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*		Actual Volume	Water Quality *Drop Down List*	Total Right or Safe Yield *(optional)*
Add additional rows as needed				
Purchased or Imported Water	CVP	429	Drinking Water	
Purchased or Imported Water	Pumped by Sunnyslope	589	Drinking Water	
Groundwater	Pumped by Hollister	1,892	Drinking Water	
Recycled Water		116	Recycled Water	
	Total	3,026		0
NOTES: Hollister 2015 data				

Table 6-8 Sunnyslope Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*		Actual Volume	Water Quality *Drop Down List*	Total Right or Safe Yield *(optional)*
Add additional rows as needed				
Purchased or Imported Water	CVP	1,285	Drinking Water	
Groundwater	Pumped by Sunnyslope	688	Drinking Water	
Groundwater	Pumped by Hollister	57	Drinking Water	
	Total	2,031		0
NOTES: Sunnyslope 2015				

Table 6-8 Wholesale: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*		Actual Volume	Water Quality *Drop Down List*	Total Right or Safe Yield *(optional)*
Add additional rows as needed				
Purchased or Imported Water		1,714	Raw Water	
	Total	1,714		0
NOTES: The value shows actual deliveries and does not include losses in storage system				

Table 6-9 Retail: Water Supplies — Projected									
Water Supply	Additional Detail on Water Supply	Projected Water Supply *Report To the Extent Practicable*							
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*		**2020**		**2025**		**2030**		**2035**	
		Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*
Add additional rows as needed									
Purchased or Imported Water		7,425	8,250	7,425	8,250	7,425	8,250	7,425	8,250
Groundwater		3,998	9,263	3,998	9,263	3,998	9,263	3,998	9,263
Recycled Water		116	116	116	116	116	116	116	116
	Total	11,539	17,629	11,539	17,629	11,539	17,629	11,539	17,629

NOTES: CVP imported water will be reduced under drought conditions, this is discussed in Section 7. The reasonably available volume in a normal year is the full contract less 10 percent system losses.

Table 6-9 Wholesale: Water Supplies — Projected									
Water Supply	Additional Detail on Water Supply	Projected Water Supply *Report To the Extent Practicable*							
		2020		2025		2030		2035	
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*		Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*
Add additional rows as needed									
Purchased or Imported Water	CVP	8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250
Other									
Total		8,250	8,250	8,250	8,250	8,250	8,250	8,250	8,250

NOTES: CVP imported water will be reduced under drought conditions, this is discussed in Section 7. The volume of supply does not reflect system losses

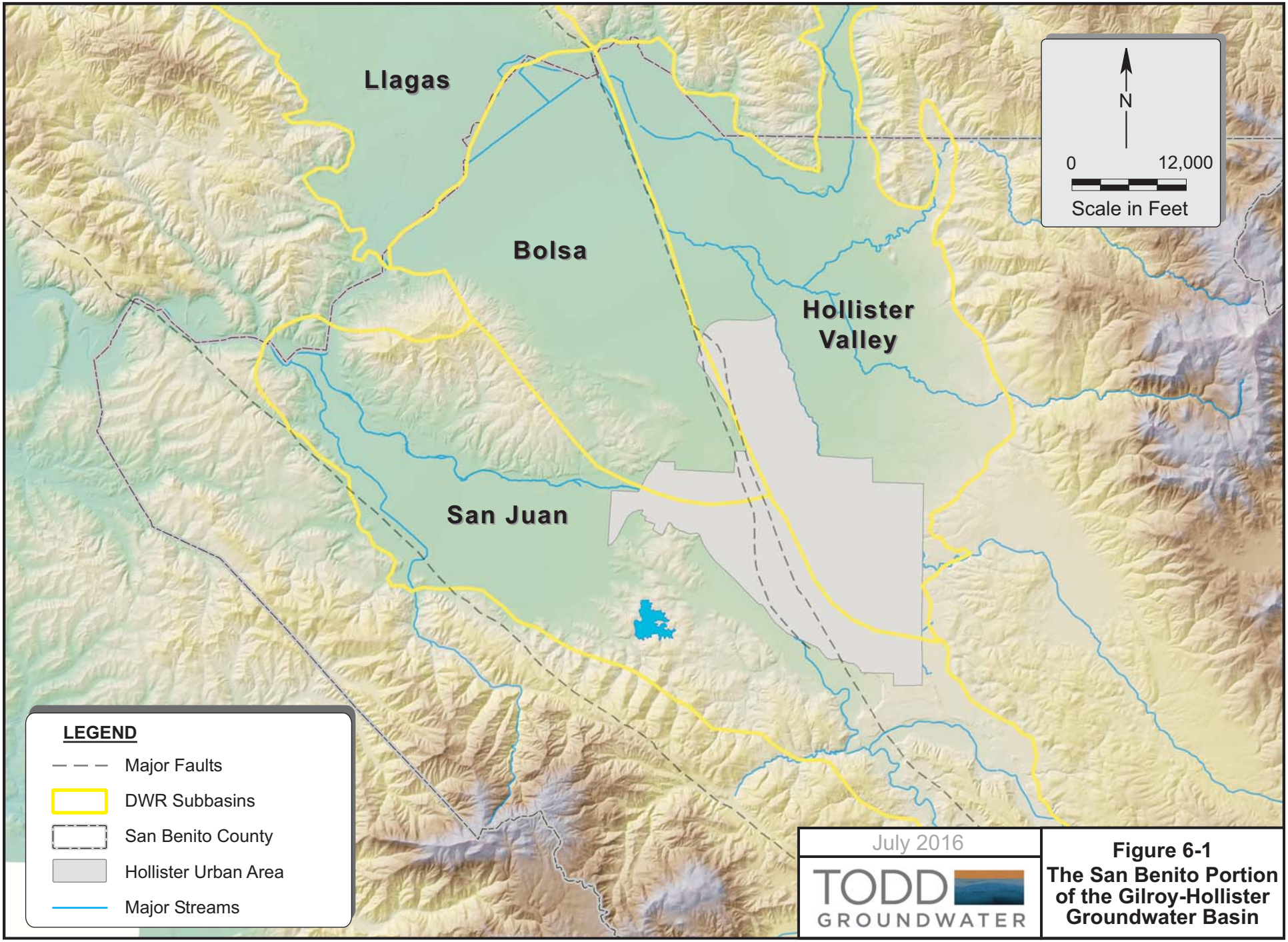
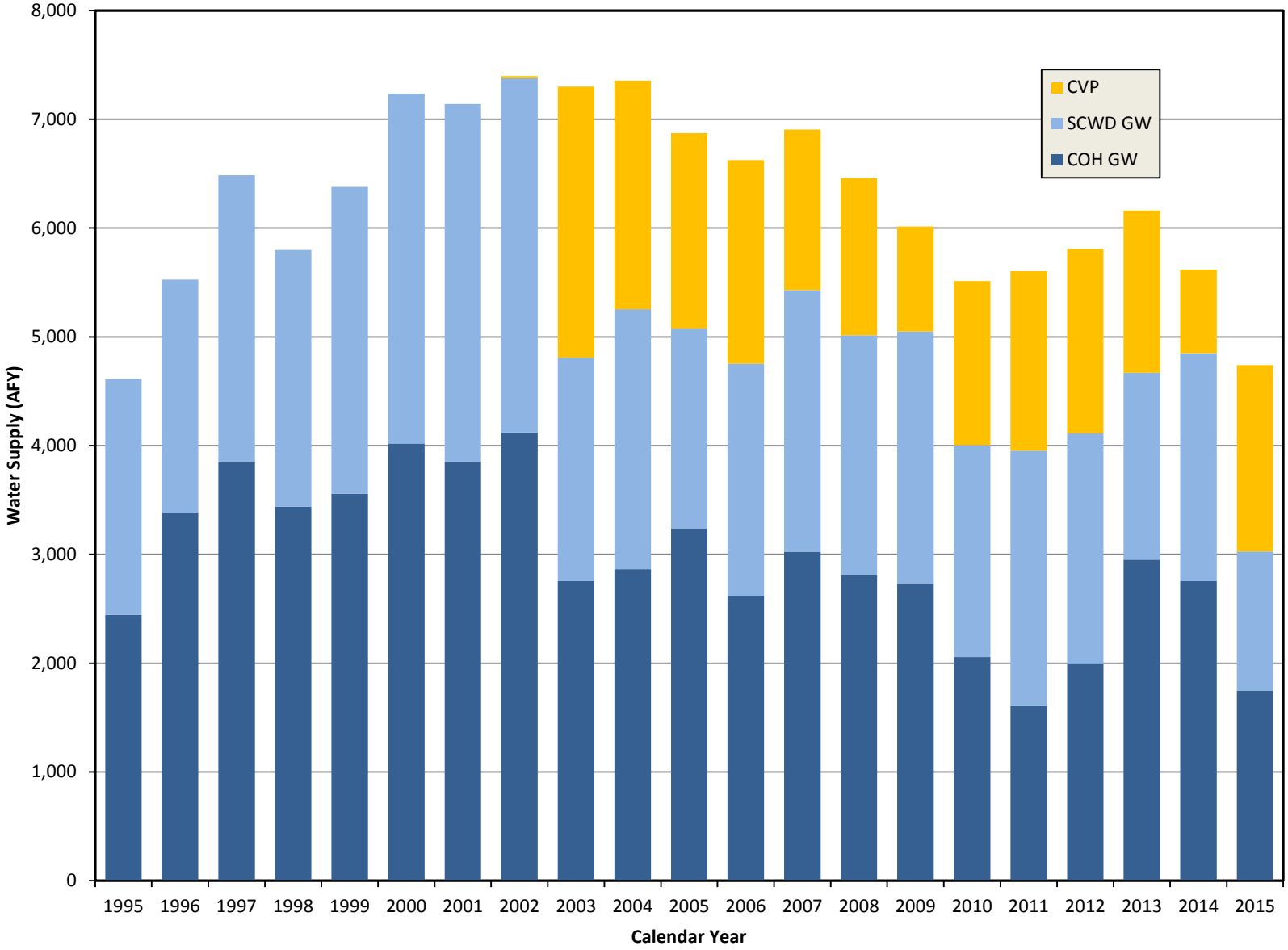


Figure 6-1
The San Benito Portion of the Gilroy-Hollister Groundwater Basin



July 2016

TODD GROUNDWATER

Figure 6-2
Historic and Current Supply by Source Type

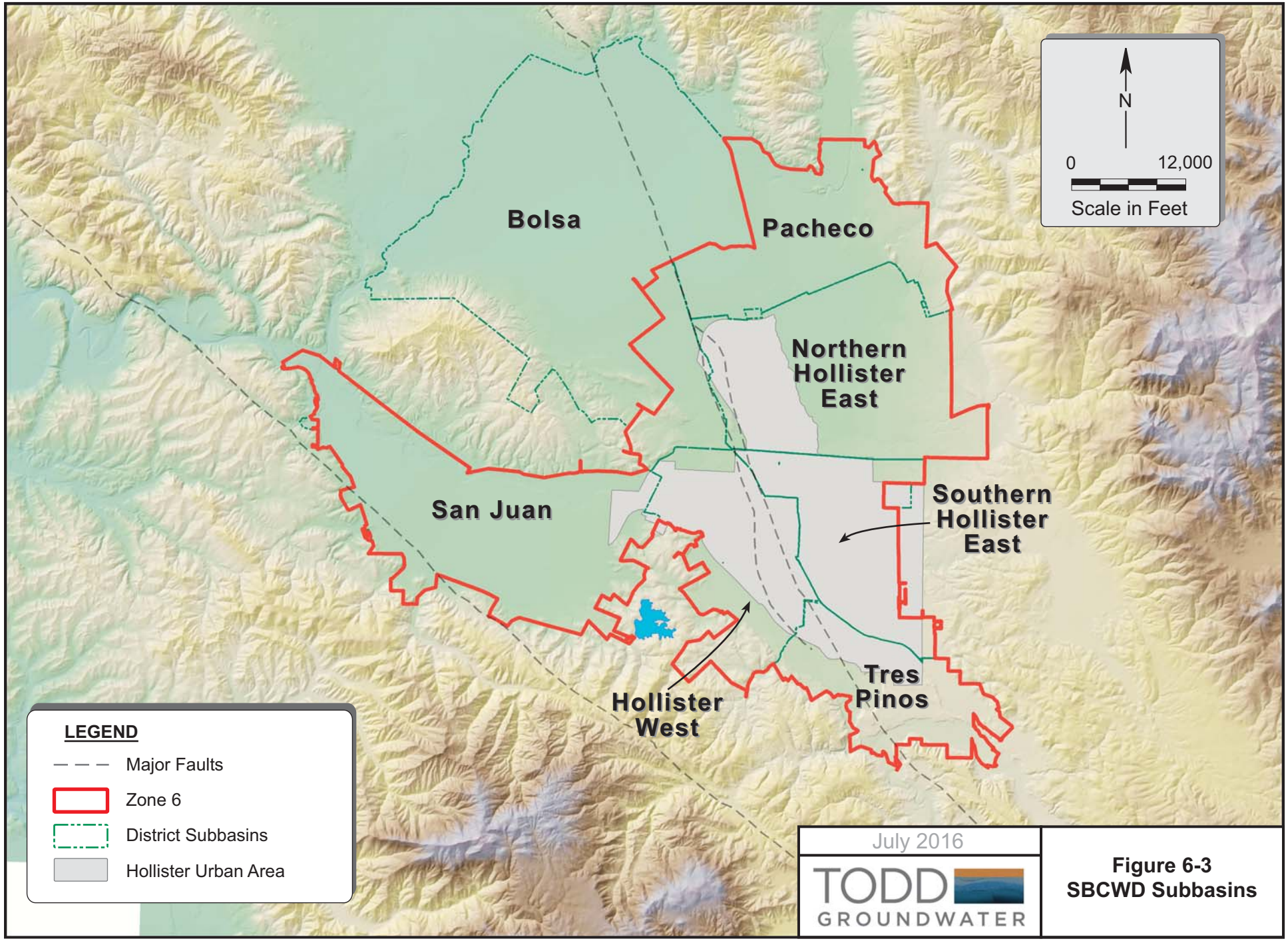
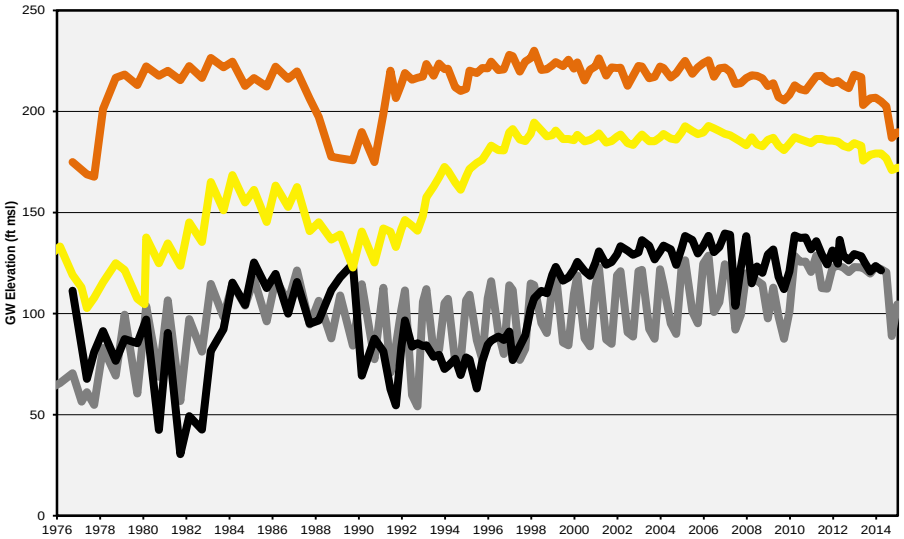
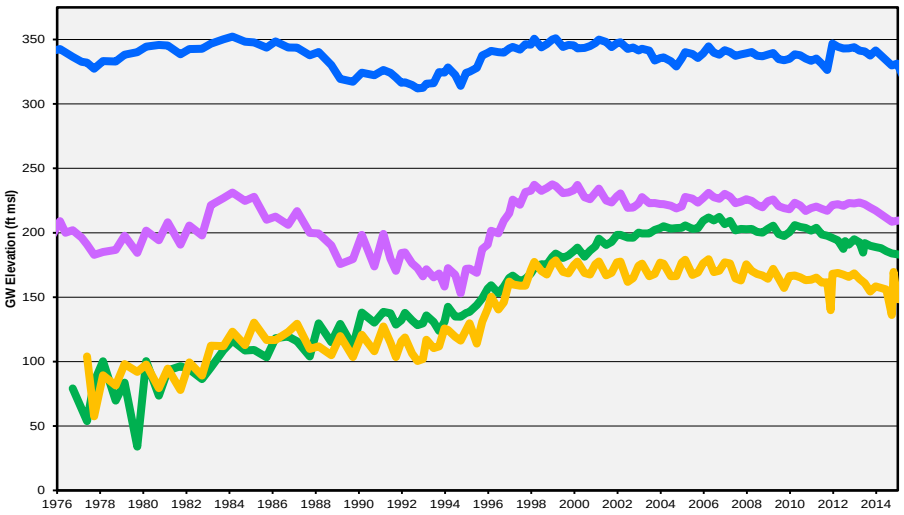
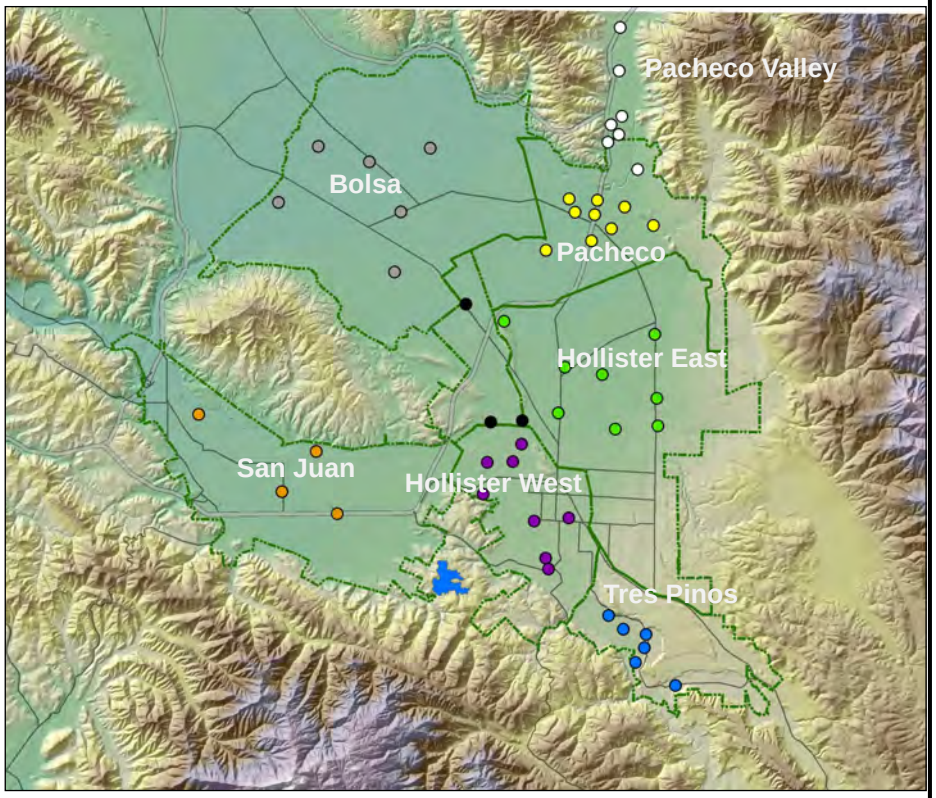


Figure 6-3
SBCWD Subbasins







July 2016

TODD GROUNDWATER

Figure 6-4
Hydrographs of Key Wells

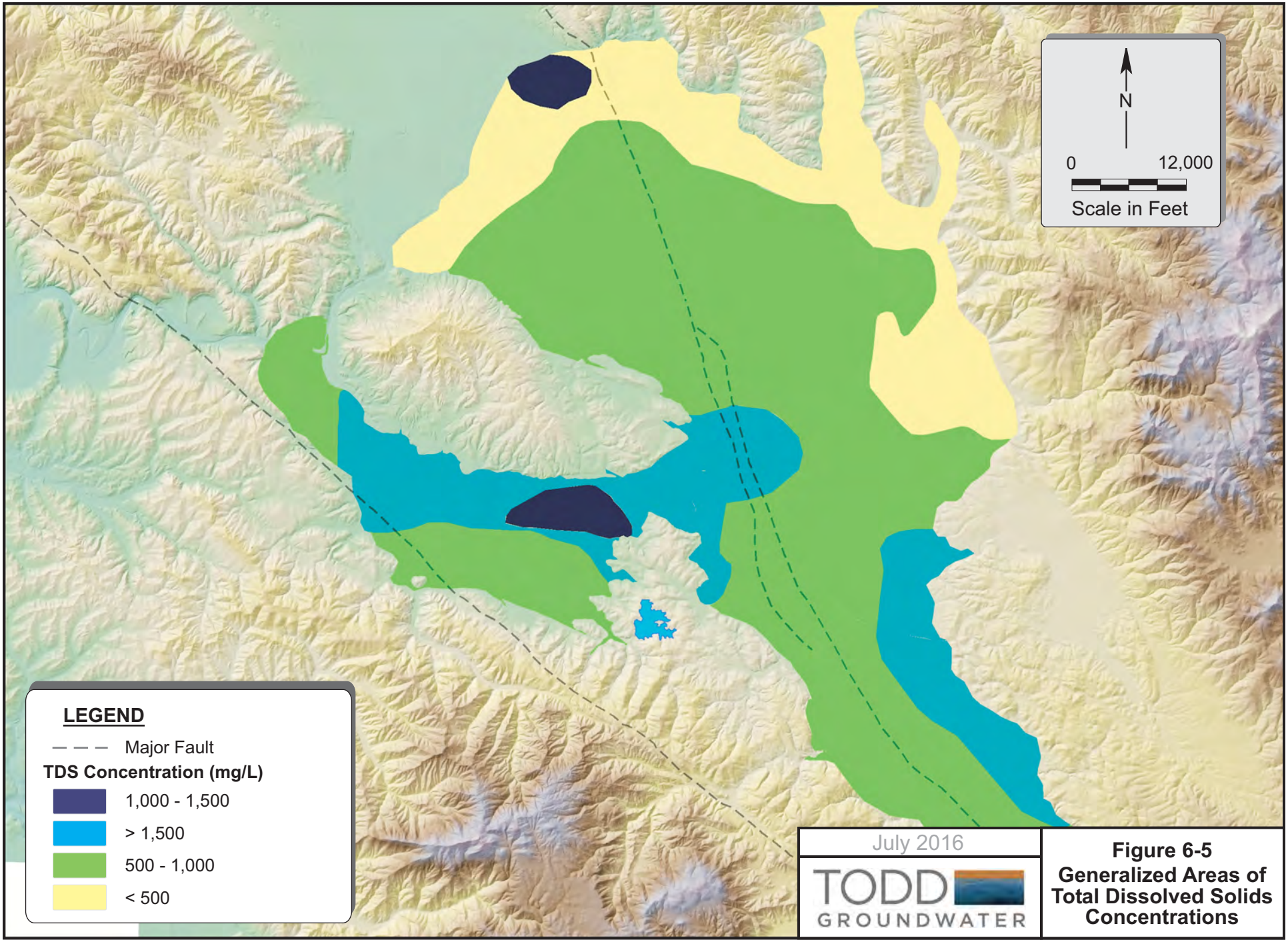
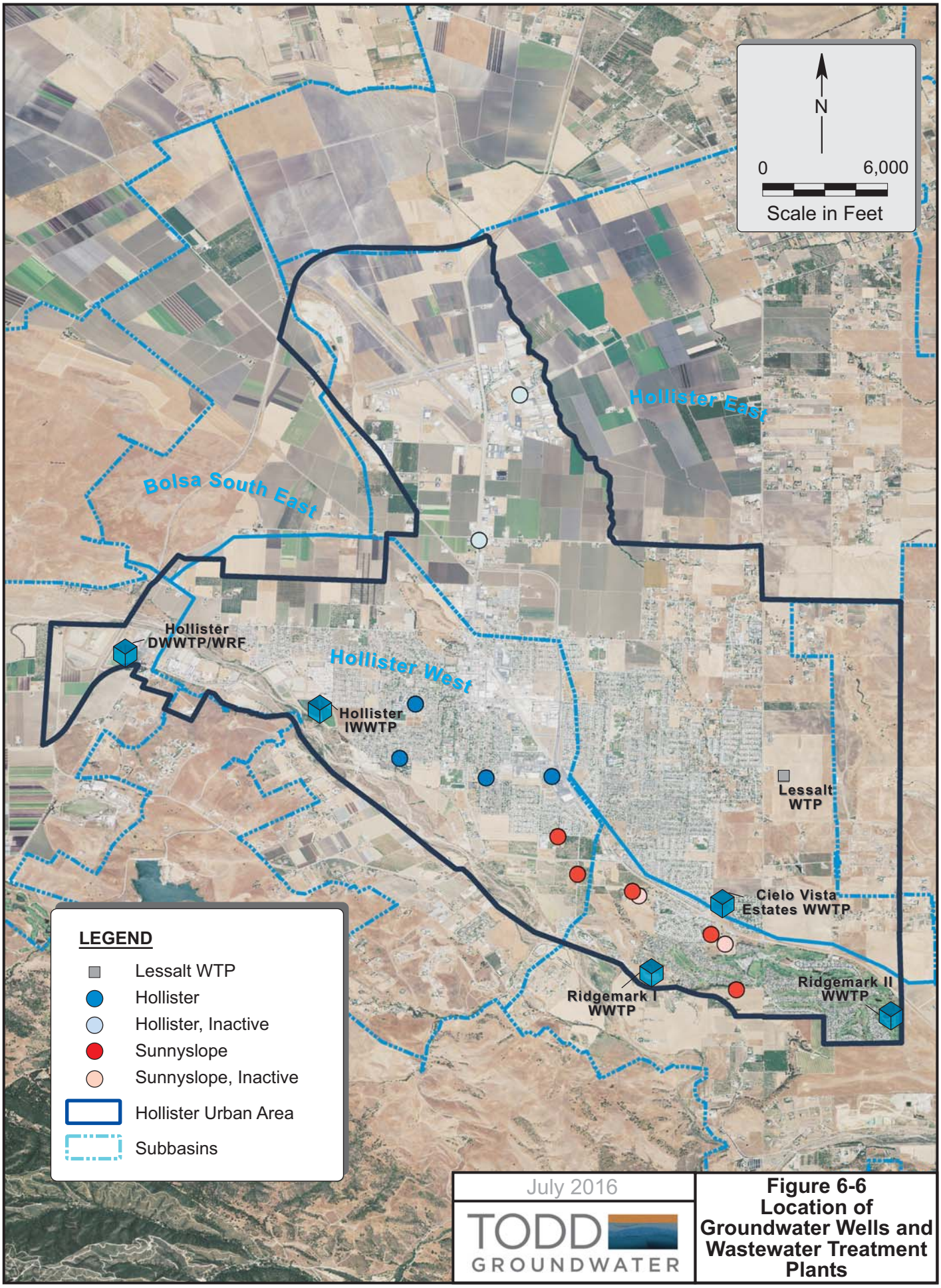


Figure 6-5
Generalized Areas of Total Dissolved Solids Concentrations



July 2016

TODD GROUNDWATER

Figure 6-6
Location of Groundwater Wells and Wastewater Treatment Plants

7. WATER SUPPLY RELIABILITY ASSESSMENT

7.1 CONSTRAINTS ON WATER SOURCES

The HUA has multiple water supply sources—CVP, groundwater, and recycled water—that increase overall water supply reliability. However, many factors could result in inconsistency of supply and shortages. These factors may include legal, environmental, water quality, and/or climatic considerations, as discussed below. Major factors affecting surface water supply from the CVP include environmental issues and climatic variation. The groundwater basin has a recent history of consistent supply, but may be affected by climatic variations and poor water quality. Increased future uses of recycled water may be affected by the water quality of the source and legal/environmental constraints on use.

Hollister, Sunnyslope, and the District are addressing these potential constraints on water supply through development of a portfolio of supplies, improvement of facilities (e.g., treatment plant expansion and groundwater banking), and through demand management as summarized in the Water Shortage Contingency Plan (**Section 8**).

The current Pajaro River Watershed Integrated Regional Water Management Plan (IRWMP), completed in 2006, does not address regional climate change. An expanded climate change section is expected in the next update of the IRWMP. Water supply reliability in general is a goal for the plan; planned water supply projects would increase reliability through groundwater banking and increase supplies such as recycled water to reduce dependence on CVP and groundwater for agricultural users (PRWIRMP 2006).

7.1.1 LEGAL

The Hollister basin has not been adjudicated, so specific groundwater rights have not been quantified. Although the possibility exists that adjudication proceedings could be initiated, the success of local groundwater management activities with stakeholder involvement reduces the likelihood that such lengthy and costly legal action will occur.

Imported water is secured for the future through contracts that include provisions for reductions in water supply. Such interruption of imported water would induce additional groundwater pumping that, depending on the magnitude and persistence of the interruption, could reduce groundwater storage and affect the reliability of the groundwater supply.

The collection, treatment, and disposal of wastewater and recycled water uses are governed by the MOUs between the County, the District, Hollister, and Sunnyslope, and regulatory requirements. The local parties have undertaken a coordinated effort to plan water supply and wastewater strategies for the HUA.

7.1.2 ENVIRONMENTAL

The most likely environmental factors affecting HUA water supplies would be reductions to CVP imports due to concerns over endangered species in the Delta. The potential for use of recycled water may also be limited by environmental concerns. Any and all potential recycled water uses will need to be in compliance with policies set by the RWQCB and other agencies. Other environmental concerns could

include substantially increased pumping from other groundwater basin users, resulting in basin overdraft; SGMA defines overdraft as involving undesirable impacts including chronic lowering of groundwater levels, reduction of groundwater storage, seawater intrusion, degraded water quality, land subsidence, and surface water depletions with adverse impacts on beneficial uses.

7.1.3 DELTA PUMPING RESTRICTIONS

The Sacramento-San Joaquin Delta is a key component to the state's water system (DWR 2009b), as much of the water that feeds the State Water Project and Central Valley Project flows through the Delta. The Delta is also home to a sensitive ecosystem with several federally listed threatened species. In 2007, pumping from the Delta for water supply was limited by a federal court to protect the Delta Smelt, a federally listed threatened species. Further restrictions have been imposed to protect other fish species, including the Longfin Smelt and Chinook salmon. Further appeals have upheld these restrictions (Los Angeles Times 2014).

These pumping limits directly affect the amount of CVP imported water available to the HUA and other San Benito County users.

7.1.4 WATER QUALITY

Water samples from the municipal wells are monitored for various water quality constituents. If these constituents are detected at concentrations higher than the drinking water standard or maximum concentration limit (MCL) set by the U.S. Environmental Protection Agency (USEPA) or the DDW, the well may be taken offline. In the past, municipal wells have been taken offline as a result of high nitrate concentrations. Although high nitrate concentrations can be treated, removal of wells from the system and fitting for treatment technology may temporarily impact the system and affect the cost of supply.

As discussed in the supply section, local groundwater is highly mineralized and the relative poor water quality may limit some uses of groundwater. The HUA agencies are taking steps to improve water quality of the groundwater supply. The new CrVI thresholds will require Hollister to blend groundwater with imported water to meet water quality goals. The blending requirement may limit the volumes of groundwater that can be used if insufficient imported water is available for blending.

As with groundwater, the water quality of recycled water (also characterized by high TDS concentrations) may also limit its potential uses. The 2008 Master Plan (HDR 2008a) includes procedures by which the quality of recycled water can be improved over time. The changing quality of recycled water was taken into consideration in the projection of future use.

7.1.5 CLIMATIC

The climatic events most likely to affect water supply are droughts, which are addressed in other sections of this report by examining historical droughts and considering their impact on current and future water supply and demand. However, future climate change—and specifically global warming—brings additional uncertainty to water supply management. It is notable that five of the six extreme drought years have occurred within the past 26 years, suggesting greater climatic variability in recent decades.

DROUGHT

Recorded droughts have been sufficiently intense and prolonged to temporarily affect groundwater levels in the basin, but have not affected the long-term consistency of supply. However, paleoclimatic data indicate that extreme prolonged droughts have occurred in prehistoric California and current climate research indicates that extreme drought may occur more frequently with climate change. This is discussed in more detail below.

As reported in past UWMPs, basic review of groundwater hydrographs for wells in the basin suggested that one or even three consecutive extreme dry years did not have a discernable impact on groundwater levels. However, as experienced in the current drought, CVP allocations may be significantly reduced during these periods. Future water supply will need to be managed as a portfolio to take advantage of local storage and supplies that are more robust in drought times.

GLOBAL CLIMATE CHANGE

While global climate change is recognized as a serious threat to water supply, potential local impacts are not fully understood. According to the Intergovernmental Panel on Climate Change, global warming could significantly alter California's hydrologic cycles and water supply. These impacts could include decreased Sierra snowpack, increased temperatures, more severe droughts, sea level rise, and increased floods. Climate models indicate that precipitation as rainfall is expected to increase as snowfall decreases over the Sierra Nevada and Cascade mountain ranges. By the end of this century, the Sierra snowpack is projected to be 48 to 65 percent less than the historical average (DWR 2016c). This reduction would directly impact the volume of imported water available for all the District CVP customers, including Hollister and Sunnyslope. Sierra snowmelt feeds rivers that flow to the Delta, the source of CVP imported water. The Delta is also at risk from the predicted increases in climate variability associated with climate change. More severe flooding and rising sea levels threaten the waterways that serve as a vital link in the CVP system within the Delta.

Climate change may also increase regional temperatures and cause more variable weather patterns. The minimum daily temperature in California has increased over one degree Fahrenheit and continues to rise (DWR 2009). In addition to decreasing snowpack, these increased temperatures may also increase water demand. Higher temperatures could increase water demand throughout the state through increased agricultural irrigation and in the HUA through increased outdoor residential and commercial irrigation. Changing weather patterns could cause more severe flooding and longer droughts.

The State of California and DWR in particular are working to reduce the effects of climate change through reduction of emissions and strategies to address the impacts of climate change. The State of California plans to reduce its impact on climate change through recent legislation such as AB 32, which called for a reduction in greenhouse gas emissions. DWR voluntarily joined the California Climate Action Registry, a tool to track and report emissions. DWR is also working to add more clean and renewable energy resources to its power portfolio and to reduce its carbon footprint. To address the impacts of climate change, DWR has included an extensive discussion of the topic in the state's Water Plan Update 2014. In addition, DWR has developed strategies to address impacts including increased monitoring of climatologic

and water resource conditions, reduction of greenhouse gas emissions from water management activities, study of the combined effects of increased atmospheric carbon dioxide and increased temperature (to predict future water demand), and adaptation of statewide water management systems by incorporating more flexibility. In 2012, DWR adopted phase 1 of its Climate Action Plan, a Department-wide Greenhouse Gas Emissions Reduction Plan. Phase 2, guidance for consistent incorporation and alignment of analysis for climate change impacts, is expected in 2016 (DWR 2016b).

7.1.6 CATASTROPHIC WATER SHORTAGE

The Urban Water Management Planning Act requires that water purveyors describe actions to be taken in the event of catastrophic water supply interruption, such as earthquake and regional power outage. Regional power outages represent a potential interruption in water supply.

REGIONAL POWER OUTAGE

Heat waves have resulted in power outages in the HUA that disrupt water supply. To ensure that the water system is capable of providing an adequate level of service during power outages, Hollister Well Nos. 4 and 5 are equipped with standby power. Hollister also has portable generators to supply emergency power for the other active wells (HDR 2008a). Sunnyslope has portable generators at all potable well sites, wastewater pump stations, and their wastewater treatment plant. A backup generator has not been installed at the Lessalt WTP because the size of the generator that would be required to run the plant and pump stations is cost prohibitive. However, the treatment plant has been wired with a quick-connect electrical connection so that a rental generator could easily be brought in and quickly connected to power the plant if needed.

NATURAL DISASTERS

Disasters such as earthquakes could disrupt water delivery infrastructure. The wholesalers that provide imported water to the HUA are taking steps to ensure water supply reliability. USBR is responsible for about 370 storage dams and for dikes that form a significant part of the water resources infrastructure for the western United States. As the owner of these facilities, USBR is committed to providing the public and the environment with adequate protection from the risks inherent to collecting and storing large volumes of water for later distribution and/or release (USBR 2016). The District routinely monitors the conditions of Hernandez and Paicines dams used for both water supply and flood prevention.

Recognizing the proximity of the San Andreas and Calaveras faults, the City of Hollister, San Benito County, and the District have a joint water shortage emergency response plan included in **Appendix G.**

7.2 RELIABILITY BY TYPE OF YEAR

The California Urban Water Management Planning Act requires that each water supplier provide an assessment of the reliability of its water supply during normal, dry, and multiple dry years. This section considers the impact on water supplies during a single extreme dry year and a multiple dry year period. In addition, a catastrophic water shortage could also occur, for example, as a result of earthquake damage,

regional power outage, or water quality emergency. This section presents the response to potential water shortages for Hollister, Sunnyslope, and the District, including catastrophic water supply interruption and drought. **Table 7-1 R** shows the base years selected to define average, single-dry year, and multiple-dry year period.

7.2.1 TYPES OF YEARS

AVERAGE CONDITIONS

Rainfall data have been collected monthly in the Hollister area since 1875. Precipitation and other weather data have been collected from a California Irrigation Management Information System (CIMIS) station located by the District office in Hollister since June 1994 (Station #126). The average rainfall from 1875-2015 was 12.8 inches in Hollister (**Figure 3-3)**.

Rainfall in 1986, 1992, 2003, 2004, and 2011 was about average. For the purposes of this UWMP, 2011 is selected as the typical average year because the most recent year is representative of current basin operations.

SINGLE-DRY YEAR

DWR guidelines suggest that a single dry year should be the lowest supply available to the retailers, in addition to lower precipitation. Supply has been reduced due to reductions in the CVP allocations for both agricultural and M&I (municipal and industrial) uses. A decrease in agriculture allocations, while not affecting the retailers directly, indirectly affects supply as groundwater pumping from other uses in the basin generally increases. This increased groundwater use could affect groundwater availability in the long term.

In water year 2014, the year selected as a single dry year, local precipitation was 5.4 inches, 41 percent of normal and the lowest annual precipitation recorded at the San Benito CIMIS station. In addition, CVP allocations for agricultural and M&I users were 0 percent and 50 percent, respectively, the second lowest allocations since imported water began over twenty five years ago. In addition. The low allocations and low precipitation resulted in significant groundwater level drawdown. Accordingly, 2014 is representative of a severe single-dry year.

MULTIPLE –DRY YEAR PERIOD

DWR guidelines suggest that a multiple dry year period should represent the lowest average water supply availability for a consecutive multiple year period (three years or more). As with the single dry year, CVP allocations significantly affect available supply.

In water years 2013 through 2015, CVP allocations for both agricultural and M&I users were the lowest on record. For example, the M&I allocation was 70, 50, and 25 percent of historical use for years 2013, 2014, and 2015, respectively. In addition, average annual precipitation for the three years was 7.4 inches, or 58 percent of normal. While other three-year periods had lower rainfall, the low rainfall during this

period (combined with the low CVP allocation) significantly decreased the retailers' available water supply.

7.2.2 SOURCES FOR WATER DATA

Information regarding local climate conditions is available from the CIMIS station located in Hollister, while imported CVP allocations are available from the USBR. Groundwater availability and storage change is reported in the District's Annual Groundwater Reports (Todd 2015).

7.2.3 AGENCIES WITH MULTIPLE SOURCES OF WATER

While the HUA agencies have multiple water sources, the sources are interdependent. For example, lower CVP allocation results in higher groundwater use which could limit supply in the long term. The HUA region chooses to provide aggregated information for all sources, rather than examining each water source separately.

7.3 SUPPLY AND DEMAND ASSESSMENT

7.3.1 IMPACTS TO WATER SUPPY

The HUA relies primarily on groundwater and CVP imported water, with some use of recycled water. Both groundwater and CVP supplies are impacted during dry years.

Table 7-1 W shows the supply reliability of CVP imported water for the District. **Tables 7-1 Imported Water Retail, 7-1 Groundwater Retail, and 7-1 Recycled Water Retail** show the retailer supply reliability of CVP imported water, groundwater, and recycled water based on the different year types.

Table 7-1 W estimates the reduction in CVP for single and multiple year droughts based on past allocations. The District renegotiated the shortage policy with USBR in 2015. Now the District will receive allocations as percentage of their full M&I contract (8,250 AFY), even in dry years. In past years if the allocation were decreased due to water shortages (an allocation of 75 percent or less), the District received the allocated percent of historical use, not contract volume. In 2014, for example, the historical use was 5,556 AFY. In Water Year 2015, the District was allocated 25 percent of the full contract volume of 8,250 AFY. This could increase the M&I amount allocated to the District, and therefore available to Hollister and Sunnyslope, in shortage years.

Although past allocations were reduced based on the shortage policy, CVP imports have historically been limited more significantly by M&I treatment capacity at the Lessalt WTP. The upgraded treatment capacity of Lessalt WTP is now approximately 2,240 AFY. Total surface water treatment capacity is expected to increase another 3,360 AFY when the West Hills WTP is completed in late 2017.

Increased treatment capacity, combined with the changes in application of the USBR shortage policy, would allow full use of the M&I CVP contract by Hollister and Sunnyslope. The table below shows the M&I allocations as reported by the San Luis & Delta-Mendota Water Authority (SLDMWA) for the USBR water year (March through February).

CVP M&I allocations for the District

USBR Water Year	Allocation	Year Type
2006	100%	wet year
2007	100%	
2008	75%	
2009	60%	
2010	75%	
2011	100%	average year
2012	75%	
2013	70%	multiple dry year
2014	50%	single and multiple dry year
2015	25%	multiple dry year

As shown in the table, in 2011 (an average year) M&I allocation was 100 percent or as much as 8,250 AFY under the adjusted shortage policy. During the single dry year of 2014, the allocation was 50 percent, or up to 4,125 AFY. The allocations during the three year drought were 70, 50, and 25 percent for 2013, 2014, and 2015, respectively.

The allocation in 2015 was the most severe restriction of M&I supply that has ever occurred and the likelihood of a repeat is considered small. The severity of the allocation was due in part to outstanding agreements and contracts that reduced available supply to CVP users. It is assumed these one-time agreements and contracts will not affect the CVP allocation to such a critical extent in the future. In addition, the US Bureau of Reclamation published a Municipal and Industrial Water Shortage Policy and Environmental Impact Statement for the Central Valley Project in August 2015 (USBR 2015). The M&I shortage policy recognizes that CVP M&I water is needed to meet Public Health and Safety (PHS) needs but cannot guarantee allocation. The minimum M&I water service allocation would be 50 percent of historic use (full contract for the District) or unmet PHS need to the extent that CVP supplies are available (USBR 2015). A reasonable expected allocation for the third year of a multiple year drought is 50 percent, as occurred in the single dry year of 2014.These allocations result in 5,775 AFY, 4,125 AFY, and 4,125 AFY for the 1st, 2nd and 3rd year of the multiple year drought. **Table 7-1 Imported Water Retail** shows the total CVP water available for the retailers, representing the allocation less CVP conveyance and storage losses. These losses are estimated as 10 percent in normal years and 20 percent during years with 50 percent or less allocation (given that losses are increased with less water in the system). Losses include evaporation and seepage as a result of storage in an open reservoir.

The District supplies approximately 400 AFY to M&I customers other than the City and Hollister. This additional M&I demand will be met during normal years, a single dry year, or the first year of a multiple year drought. In the event of a prolonged drought, this non-urban demand may be unmet in order to provide the minimum human health and safely for urban residents.

In **Table 7-1 Groundwater Retail**, the volume of available groundwater is not reduced from the sustainable yield of 9,263 AFY (discussed in **Section 6**). The yield available to Hollister and Sunnyslope is based on the sustainable yield of the three groundwater subbasins currently supplying the HUA less the groundwater pumped by other users in the area. Actual total pumping by Hollister, Sunnyslope, and other users in the three HUA subbasins has ranged from 10,000 AFY to 16,600 AFY depending on factors including CVP allocations. Overall, groundwater levels remain relatively stable; although localized declines have occurred during the most recent drought (see hydrographs on **Figure 6-4**). As shown, groundwater levels in the Hollister East and Tres Pinos subbasins remained steady, while groundwater levels in Hollister West continued a long term trend slightly decreasing from historical highs in the late nineties. As reported in past UWMPs, review of groundwater hydrographs for wells in the basin suggest that one or even three consecutive extreme dry years did not have a discernable impact on groundwater levels.

The level of recycled water is based on 2015 values, 116 AF. Recycled water is also not reduced in **Table 7-1 Recycled Water Retail** because the source is not affected significantly by year to year hydrological variability. However, a significant long-term increase of groundwater use (for example due to low CVP allocation and assuming no wellhead demineralization) could affect wastewater quality and thus the quality of the recycled water. A decrease in recycled water quality would affect its desirability as a supply for some sensitive uses.

7.3.2 COMPARISON OF SUPPLY AND DEMAND

The volume of groundwater used by the HUA is dependent on the CVP allocation. Groundwater quality in the area is relatively poor and users prefer the higher quality CVP water. All of the CVP allocation is expected to be used by Hollister and Sunnyslope and groundwater is expected to be used as a supplemental source. Groundwater volumes in **Tables 7-2 through 7-4** reflect this water preference and have been checked to ensure that groundwater pumping does not exceed yield. Groundwater yield is the sustainable yield of the three subbasins in which the HUA is located (Hollister East, Hollister, West, and Tres Pinos) less the pumping from other users. In addition, the need to blend groundwater with CVP supply due to water quality concerns is taken into account. Groundwater must be less than 50 percent of supply for regulatory requirements but it is preferred to be less than 35 percent of supply to achieve water quality goals.

The District manages San Justo Reservoir as storage for imported CVP water. In times of full allocation, the District is able to purchase additional water to keep as a reserve for future dry years. The District plans to reserve sufficient water to provide up to an additional 500 AF for a limited time during the most severe droughts for up to two years. The District also banks surplus water in Semitropic Water Storage District; this banking provides additional reserve during severe droughts.

In addition, as seen in the most recent drought, water conservation can reduce demand effectively. Through public outreach and a water shortage contingency plan, it is expected that in a single dry year and multiple dry years, water demand will be reduced by 20 percent in 2020 and 2025, and by 25 percent in 2030 and 2035. Additional conservation may be possible if required.

Table 7-2 R shows the projected supply totals and demands in normal years from 2020 through 2035 in five year intervals. **Table 7-3 R** shows the supply totals and demands for a single dry year (similar to 2014)

for the same time period. And **Table 7-4 R** shows the supply totals and demands for each year of a multiple year drought (similar to 2013 through 2015) for the same time period. Additional tables are shown in the text summarizing categories of supply and describing how much of the supply is groundwater, for blending goals, and expected conservation.

Normal Year Supply and Demand

Normal Year	2020	2025	2030	2035
Supply totals (*autofill from Table 6-9*)	7,336	8,256	9,356	10,686
CVP	*4,760*	*5,600*	*5,600*	*7,280*
Groundwater	*2,460*	*2,540*	*3,640*	*3,290*
Recycled Water	*116*	*116*	*116*	*116*
Drought Demand	**7,336**	**8,256**	**9,356**	**10,686**
CVP Users Outside HUA	*400*	*400*	*400*	*400*
Projected Full HUA Demand (including recycled water)	*6,936*	*7,856*	*8,956*	*10,286*
Less Conservation	*0*	*0*	*0*	*0*
Difference	**0**	**0**	**0**	**0**
% Groundwater	25%	24%	28%	24%
Required conservation	0%	0%	0%	0%

Table 7-3 R provides a comparison of supply and demand in a single dry year. In a typical single dry year, CVP allocations are expected to be 50 percent of the contracted amount less losses, which is a total of 3,300 AFY. Because of water quality concerns, groundwater would also be limited to 3,300 AFY to meet the 50 percent blending requirement. Additional supply to District M&I customers outside of the HUA area is needed to meet demand in a single dry year. Recycled water is expected to be available to meet the full potential recycled water use of 116 AFY. As discussed above, the District manages San Justo reservoir and Semitropic Water Storage District to keep surplus CVP imported water from past years as a reserve. In dry years, the District is able to release up to 1,500 AFY from the reserve to meet demand. The WSCP would be triggered to at least Stage 2 to achieve the required conservation (up to 25 percent in 2035).

Single Dry Year Supply and Demand

Single Dry Year	2020	2025	2030	2035
Supply totals	**5,949**	**6,685**	**7,117**	**8,115**
CVP	*3,300*	*3,300*	*3,300*	*3,300*
CVP - reserve		*100*	*500*	*1,399*
Groundwater	*2,533*	*3,169*	*3,201*	*3,300*
Recycled Water	*116*	*116*	*116*	*116*
Drought Demand	**5,949**	**6,685**	**7,117**	**8,115**
CVP Users Outside HUA	*400*	*400*	*400*	*400*
Projected Full HUA Demand (including recycled water)	*6,936*	*7,856*	*8,956*	*10,286*
Less Conservation	*(1,387)*	*(1,571)*	*(2,239)*	*(2,572)*
Difference	**0**	**0**	**0**	**0**
% Groundwater	43%	49%	49%	50%
Required conservation	20%	20%	25%	25%

Table 7-4 R provides a comparison of supply and demand in multiple dry year periods, respectively. As with the single dry year, supply is limited by the CVP allocations and the 50 percent groundwater blending requirements. In the first dry year (similar to 2013), the CVP allocation is expected to be 70 percent of the contract less 10 percent for losses, 5,197.5 AFY. The HUA WSCP could be triggered to decrease water demand up to 10 percent in 2035. In the second dry year (similar to 2014), the CVP allocation is expected to be 50 percent of the contract less 20 percent for losses, or 3,300 AFY, and thus groundwater would be limited to 3,300 AFY, to meet blending requirements. The District supplies approximately 400 AFY to M&I customers other than the City and Sunnyslope and will deliver that supply in the first year of a multiple year drought. In the event of a prolonged drought, this non-urban demand may be unmet in order to provide the minimum human health and safely for urban residents.

Conservation would be needed to reduce demand by up to 25 percent by year 2030 (Stage 3 in the WSCP). In the third dry year (similar to 2015), CVP allocation is expected to be 50 percent of the contract less 20 percent for losses (3,300 AFY). The rationale for projecting these allocations is discussed in section 7.3.1.

Because CVP allocations are limited, groundwater would also be limited to the same volume for blending. Based on the projected future supply, water demand would have to be reduced up to 25 percent by 2035. This 25 percent demand reduction can be obtained through the WSCP and water conservation. The CVP reserve release would not be needed until CVP allocations drop to 50 percent, expected in a single dry or the end of a multiple year drought.

Multiple Dry Years Supply and Demand

Multiple Dry Year 1	2020	2025	2030	2035
Supply totals	**6,296**	**7,078**	**8,013**	**8,629**
CVP	*4,760*	*5,198*	*5,198*	*5,198*
CVP - reserve				
Groundwater	*1,420*	*1,764*	*2,699*	*3,315*
Recycled Water	*116*	*116*	*116*	*116*
Drought Demand	**6,296**	**7,078**	**8,013**	**8,629**
CVP Users Outside HUA	*400*	*400*	*400*	*400*
Projected Full Demand (including recycled water)	*6,936*	*7,856*	*8,956*	*10,286*
Less Conservation	*(1,040)*	*(1,178)*	*(1,343)*	*(2,057)*
Difference	**0**	**0**	**0**	**0**
% Groundwater	23%	25%	34%	39%
Required conservation	15%	15%	15%	20%
Multiple Dry Year 2	**2020**	**2025**	**2030**	**2035**
Supply totals	**5,549**	**6,285**	**6,716**	**7,715**
CVP	*3,300*	*3,300*	*3,300*	*3,300*
CVP - reserve				*999*
Groundwater	*2,133*	*2,869*	*3,300*	*3,300*
Recycled Water	*116*	*116*	*116*	*116*
Drought Demand	**5,549**	**6,285**	**6,716**	**7,715**
CVP Users Outside HUA	*0*	*0*	*0*	*0*
Projected Full HUA Demand (including recycled water)	*6,936*	*7,856*	*8,956*	*10,286*
Less Conservation	*(1,387)*	*(1,571)*	*(2,239)*	*(2,572)*
Difference	**0**	**0**	**0**	**0**
% Groundwater	39%	47%	50%	50%
Required conservation	20%	20%	25%	25%
Multiple Dry Year 3	**2020**	**2025**	**2030**	**2035**
Supply totals	**5,549**	**6,285**	**6,716**	**7,715**
CVP	*3,300*	*3,300*	*3,300*	*3,300*
CVP - reserve				*999*
Groundwater	*2,133*	*2,869*	*3,300*	*3,300*
Recycled Water	*116*	*116*	*116*	*116*
Drought Demand	**5,549**	**6,285**	**6,716**	**7,715**
CVP Users Outside HUA	*0*	*0*	*0*	*0*
Projected Full HUA Demand (including recycled water)	*6,936*	*7,856*	*8,956*	*10,286*
Less Conservation	*(1,387)*	*(1,571)*	*(2,239)*	*(2,572)*
Difference	**0**	**0**	**0**	**0**
% Groundwater	39%	47%	50%	50%
Required conservation	20%	20%	25%	25%

7.4 REGIONAL SUPPLY RELIABILITY

The HUA agencies are currently working to increase their regional supply reliability by increasing recycled water and using groundwater as available. The HUA continues to pursue water conservation to reduce the need for additional imported supplies. In addition, enhanced groundwater management, or improvements in regional water management and coordination will strengthen the local supply sources.

Table 7-1 Wholesale: Basis of Water Year Data			
Year Type	Base Year	Available Supplies if Year Type Repeats Agency may provide volume only, percent only, or both	
		Volume Available	% of Average Supply
Average Year	2011	8,250	100%
Single-Dry Year	2014	4,125	50%
Multiple-Dry Years 1st Year	2013	5,775	70%
Multiple-Dry Years 2nd Year	2014	4,125	50%
Multiple-Dry Years 3rd Year	2015	4,125	50%
Multiple-Dry Years 4th Year *Optional*			
Multiple-Dry Years 5th Year *Optional*			
Multiple-Dry Years 6th Year *Optional*			
Agency may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If an agency uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			
NOTES: The volume of supply does not reflect system losses.			

Table 7-1 Imported Water Retail: Basis of Water Year Data			
Year Type	Base Year	Available Supplies if Year Type Repeats	
		Agency may provide volume only, percent only, or both	
		Volume Available	% of Average Supply
Average Year	2011	7,425	100%
Single-Dry Year	2014	3,300	50%
Multiple-Dry Years 1st Year	2013	5,198	70%
Multiple-Dry Years 2nd Year	2014	3,300	50%
Multiple-Dry Years 3rd Year	2015	3,300	50%
Multiple-Dry Years 4th Year *Optional*			
Multiple-Dry Years 5th Year *Optional*			
Multiple-Dry Years 6th Year *Optional*			
Agency may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If an agency uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			
NOTES: CVP Imported Water less District system losses			

Table 7-1 Groundwater Retail: Basis of Water Year Data			
Year Type	Base Year	Available Supplies if Year Type Repeats	
		Agency may provide volume only, percent only, or both	
		Volume Available	% of Average Supply
Average Year	2011	9,263	100%
Single-Dry Year	2014	9,263	100%
Multiple-Dry Years 1st Year	2013	9,263	100%
Multiple-Dry Years 2nd Year	2014	9,263	100%
Multiple-Dry Years 3rd Year	2015	9,263	100%
Multiple-Dry Years 4th Year *Optional*			
Multiple-Dry Years 5th Year *Optional*			
Multiple-Dry Years 6th Year *Optional*			
Agency may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If an agency uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			
NOTES: Maximum Groundwater Available. The volume of supply does not take into account limitation for blending groundwater with treated water to achieve water quality goals			

Table 7-1 Recycled Water Retail: Basis of Water Year Data			
Year Type	Base Year	Available Supplies if Year Type Repeats	
		Agency may provide volume only, percent only, or both	
		Volume Available	% of Average Supply
Average Year	2011	116	100%
Single-Dry Year	2014	116	100%
Multiple-Dry Years 1st Year	2013	116	100%
Multiple-Dry Years 2nd Year	2014	116	100%
Multiple-Dry Years 3rd Year	2015	116	100%
Multiple-Dry Years 4th Year *Optional*			
Multiple-Dry Years 5th Year *Optional*			
Multiple-Dry Years 6th Year *Optional*			
Agency may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If an agency uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			
NOTES: Recycled Water volumes based on actual 2015 supply			

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 *(Opt)*
Supply totals *(autofill from Table 6-9)*	11,539	11,539	11,539	11,539	0
Demand totals *(autofill from Table 4-3)*	6,936	7,856	8,956	10,286	0
Difference	4,603	3,683	2,583	1,253	0

NOTES: Demand totals include non-potable demand and CVP users outside of the HUA. CVP imported water will be reduced under drought conditions, this is discussed in Section 7. The reasonably available volume in a normal year is the full contract less 10 percent system losses.

Table 7-2 Wholesale: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 *(Opt)*
Supply totals *(autofill from Table 6-9)*	8,250	8,250	8,250	8,250	0
Demand totals *(autofill fm Table 4-3)*	5,632	6,425	6,425	8,105	0
Difference	2,618	1,825	1,825	145	0
NOTES:					

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	7,336	8,256	9,356	10,686	
Demand totals	7,336	8,256	9,356	10,686	
Difference	0	0	0	0	0

NOTES: Assume CVP allocations at 50 percent (4,125 AFY), groundwater limited to 4,125 AFY due to blending requirements. The WSCP would be triggered to at least Stage 2 to achieve the required conservation (up to 20 percent in 2035). Demand totals include non-potable demand and CVP users outside of the HUA.

Table 7-3 Wholesale: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	4,125	4,125	4,125	4,125	
Demand totals	4,125	4,125	4,125	4,125	
Difference	0	0	0	0	0
NOTES:					

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	6,296	7,078	8,013	8,629	
	Demand totals	6,296	7,078	8,013	8,629	
	Difference	0	0	0	0	0
Second year	Supply totals	5,549	6,285	6,716	7,715	
	Demand totals	5,549	6,285	6,716	7,715	
	Difference	0	0	0	0	0
Third year	Supply totals	5,549	6,285	6,716	7,715	
	Demand totals	5,549	6,285	6,716	7,715	
	Difference	0	0	0	0	0
NOTES:						

Table 7-4 Wholesale: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	5,950	6,497	6,497	6,497	
	Demand totals	5,950	6,497	6,497	6,497	
	Difference	0	0	0	0	0
Second year	Supply totals	4,125	4,125	4,125	5,124	
	Demand totals	4,125	4,125	4,125	5,124	
	Difference	0	0	0	0	0
Third year	Supply totals	4,125	4,125	4,125	5,124	
	Demand totals	4,125	4,125	4,125	5,124	
	Difference	0	0	0	0	0
NOTES: Volumes include losses						

8. WATER SHORTAGE CONTINGENCY PLANNING

The District, the City, and Sunnyslope have all passed ordinances/resolutions to address shortages in water supply. In addition, the HUA agencies have developed a Water Shortage Contingency Plan (WSCP) that details how to reduce demand in the event of a water supply shortage. The WSCP was updated to include five water waste prohibitions cited by the Governor Brown in Executive Order B-37-16, on May 9, 2016. The entire WSCP is included in **Appendix G**.

Emergency responses to natural disasters are also discussed in a joint Water Shortage Emergency Response Plans to assist in planning and managing supply disruption, **Appendix H.**

8.1 STAGES OF ACTION

The HUA agencies have developed a water shortage response plan in the event of supply interruption. The plan includes a four-stage rationing plan with voluntary and mandatory rationing depending on the severity and duration of the water supply shortage. This water shortage response was based on the Sunnyslope No Water Waste Ordinance No. 45 and was first documented for the HUA as part of the 2000 UWMP.

Table 8-1 R shows the four stages of action based on a series of triggers. Because water supply is dependent on CVP and blending requirements tie groundwater with the amount of imported water, an important trigger for conservation stages is the CVP allocation. The table below shows the reduction of CVP allocation and the resulting water shortage stage. It should be noted that other factors can cause a water supply shortage (e.g., water quality issues or natural disasters) and may be cited in declaring a water shortage.

Stage	CVP Allocation	Demand Reduction
0	100 to 75 percent	0 percent
1	50 to 75 percent	10-15 percent
2	50 percent, single dry year	15-25 percent
3	50 percent, for more than one year	25-35 percent
4	Less than 50% for multiple years	50 percent

* Additional water from the District will reduce reductions

The first stage occurs when current supply is reduced by up to 15 percent and uses voluntary rationing to reach the demand reduction goal of up to 15 percent. The other stages operate in a similar manner using mandatory rationing to reach the stage goal.

8.2 PROHIBITIONS ON END USERS

Table 8-2 R shows the restrictions and prohibitions on end users by stage; these are discussed below.

8.2.1 WATER USE PRIORITIES AND END USERS

Potential implementation of restrictions and prohibitions on end users is based on a fundamental prioritization of domestic supply for human health and safety over non-essential uses, including landscape irrigation. In the event of a water shortage, water service may be restricted or prohibited for non-essential uses, recognizing that certain end users may be required to save more water than others because of their specific use. Prohibitions on end uses will affect user types differently:

- For urban residential users (who typically rely on HUA agencies for domestic supply), water service will continue during a shortage with restrictions on outdoor water use in Stages 1 through 3 and prohibitions in Stage 4.
- Rural residential users of CVP M&I water (i.e., five-acre parcels) would also be subject to restrictions and prohibitions on outside water features and landscape irrigation.
- Landscape irrigators (e.g., golf courses, dedicated irrigation meters) are subject to the restrictions listed below for Stages 1 through 3 and the prohibition in Stage 4.

8.2.2 LANDSCAPE IRRIGATION

Restrictions and prohibitions on irrigation include:

- Water Waste – Landscape irrigation cannot occur within 48 hours following measurable rainfall at any stage, per Executive Order B-37-16.
- Water Hours – Beginning in Stage 1 the watering is discouraged between the hours of 9:00 a.m. and 5:00 p.m. Under Stage 2, watering during these hours is prohibited.
- Water Duration - Watering or irrigating of lawn, landscape or other vegetated area with potable water using a landscape irrigation system or a watering device that is not continuously attended is limited. In stage 1 irrigation can be no more than three days a week with a total fifteen (15) minutes watering per water day per station. Due to clay soils in most areas of the HUA, irrigators are recommended to break up irrigation times into five (5) minute intervals. Instead of constant irrigation for fifteen (15) minutes, schedule five (5) minute cycles, let the soil rest for at least an hour, than do another five (5) minute interval. This will reduce puddling and runoff.
- Limits on Watering Days – In Stage 2 Watering or irrigating of lawn, landscape or other vegetated area with potable water is limited to three days per week from April through October. Watering is limited to two days a week in Stage 3.
- Types of Irrigation - Stage 3 restricts the irrigation of roadway medians and irrigation for new homes. In Stage 4, no potable water for irrigation is permitted.

8.2.3 COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL (CII)

During a drought several CII prohibitions come into effect including:

- Dish Washing Water Use - Restaurants are required to Use Water Conserving Dish Wash Spray Valves. The prohibition is triggered by Stage 2 but is encouraged under Stage 1.
- Water by Request Only – Beginning in Stage 1, restaurants and hotels are prohibited from providing drinking water to any person unless expressly requested.
- Commercial Car Wash Systems - Commercial conveyor car wash systems must have installed operational re-circulating water systems in Stage 2, this is encouraged under Stage 1.
- Single Pass Cooling Systems - Installation of single pass cooling systems is not recommended in Stage 1 and prohibited in Stage 2.
- Hotel Laundry - Commercial lodging establishments must provide guests option to decline daily linen services in Stage 1 and increase the program under stage 2.

8.2.4 WATER FEATURES AND SWIMMING POOLS

Water features including decorative water features and does not apply to swimming pools or spas.

- Water feature restrictions - In Stage 1, use of recirculated water is encouraged in operating a water fountain or other decorative water features. In Stage 2 recirculation is required. While under Stage 3, filling or re-filling ornamental lakes or ponds with potable water is prohibited, except to the extent needed to sustain aquatic life.
- Pools are treating differently than water features. Pools are required to have pool covers to reduce evaporation when Stage 2 is triggered.

8.2.5 OTHER

Other restrictions include:

- Hoses – Hoses are required to have automatic shut off nozzles for vehicle washing at any stage, per Executive Order B-37-16.
- Hard Surfaces - Use of potable water for washing hard surfaces is only permitted with hand held buckets or hoses with shut off nozzles at any stage, per Executive Order B-37-16.
- Leaks - Customers must repair leaks, breaks, and malfunctions in a timely manner. Broken or malfunctioning sprinkler heads must be repaired within 48 hours after the customer receives a notification from the water agency; all leaks or breaks must be repaired by the customer within 48 hours of receiving a notification from the water agency. In Stage 3, all leaks must be repaired in 72 hours; under stage 3 and 4, this decreases to within 48 and 24 hours, respectively.
- Dust Control – In Stage 3, use of potable water for construction and dust control is prohibited.
- Vehicle Washing – In Stage 2, it is prohibited to wash vehicles at facilities except those using recycled or recirculating water.

- Drought Rates - In Stage 4, the agencies may consider adopting rate structures and other pricing mechanisms to maximize water conservation.
- No new Building Permits - Upon declaration of a Stage 4 Water Supply Shortage Emergency condition, the City Administrator and/or County Administrator, is authorized to implement a program in his or her discretion to limit or withhold the issuance of building permits which require new or expanded water service

8.3 PENALTIES, CHARGES, OTHER ENFORCEMENT OF PROHIBITIONS

Any customer violating the regulations and restrictions on water use set forth in the “No Waste" Ordinances will receive a written warning for the first violation. On the third violation, the customer will receive a third written warning and the retailer may install a flow-restrictor. If a flow-restrictor is placed, the violator will pay the cost of installation and removal. Any willful violation occurring subsequent to the issuance of the second written warning will constitute a misdemeanor and may be referred to the District Attorney’s office for prosecution pursuant. Misdemeanor convictions could include imprisonment and/or fines. The length of time for imprisonment and the magnitude of the fine vary between Hollister and Sunnyslope. If water service is disconnected, it will be restored only upon payment of a reconnection charge. These penalties apply at any time but are likely to be more closely adhered to during drought periods.

8.4 CONSUMPTION REDUCTION METHODS BY AGENCIES

Consumption reduction methods are actions that are taken by the water agency to reduce their consumption, whereas the prohibitions on end uses, addressed in Section 8.2, restricts end uses that are the responsibility of end users. These consumption reduction methods are shown in **Table 8-3**. It has been shown during the current drought (2013-2015) that increases in public outreach has had a significant impact in reducing demand. Public outreach was expanded by 200 percent and over a 25 percent reduction was achieved by both Hollister and Sunnyslope. Based on this recent experience, the implementation of the specific consumption reduction methods listed below is expected to reduce demand during drought or water supply interruptions.

1. Expand Public Information Campaign – Newsletter and other flyers in both English and Spanish were used to publicize programs and explain the importance of drought conservation.
2. Improve Customer Billing – Customers with higher than average bills were contacted and possible water savings were recommended.
3. Offer Water Use Surveys – Both residential and landscape surveys help high water users to identify areas of potential conservation.
4. Provide Rebates or Giveaways of Plumbing Fixtures and Devices – Rebates and plumbing retrofits are available at all times but are publicized more during drought conditions. Plumbing retrofits including hose nozzles, faucet aerators, and shower heads are available at no cost to customers. Rebates are available for low flow toilets and high efficiency washing machines.

5. Provide Rebates for Landscape Irrigation Efficiency – There is currently a landscape efficiency rebate program that provides rebates for landscape conversion, low-volume sprinkler heads, rain sensors, hose timers, and also includes customized sprinkler schedules.
6. Increase Water Waste Patrols – Examples include: Implement a Water Waste Patrol program; Increase staffing for Water Waste Patrol; Increase authority of Water Waste Patrol.
7. Moratorium or Net Zero Demand Increase on New Connections – The agencies have added a no new connection element to their WSCP that is triggered in Stage 4.
8. Implement or Modify Drought Rate Structure or Surcharge –a drought rate structure may be implemented in future droughts.

8.5 DETERMINING REDUCTIONS

Under normal water supply conditions, potable water production values for Hollister and Sunnyslope are recorded daily and reported monthly to the Water Supervisor. During a Stage I or Stage II water shortage, daily production figures will be reported to the Water Supervisor of each agency. The Supervisor will compare the weekly production to the target weekly production to verify that the reduction goal is being met. Weekly reports will be forwarded respectively to the General Manager of Sunnyslope, the Public Works Director at the City of Hollister and to the Program Manager of the WRA. During a Stage III or Stage IV water shortage, the daily production report will be provided to the General or City Manager of each agency. In Stages I through IV, monthly reports will be sent to the City Council and the Sunnyslope Board of Directors. If reduction goals are not met, the respective managers will notify the governing board of each agency that additional action is required.

8.6 IMPACT ON REVENUES AND EXPENSES

All surplus revenues that the District, Hollister, and Sunnyslope collect are currently reinvested into the water supply system.

Based on projected and observed declines in revenue during shortages, the entities determined rate increases may be needed in Stage II through IV. In Stage I, no additional water purchases and no rate increases are required. For stages II, III, and IV, a rate increase of 25, 50, and 100 percent may be needed, respectively.

8.7 SBCWD ORDINANCE

In April 2015, the San Benito County Water District declared a Water Shortage Emergency and passed a resolution to implement the district's Water Shortage Contingency Plan. The ordinance No. 2015-04, include some elements that affect the HUA including voluntary conservation. Most of the end prohibitions and enforcement are directed to agricultural customers and M&I customers than directly receives water from the District. The ordinance is included as **Appendix I**.

8.8 CATASTROPHIC SUPPLY INTERRUPTION

Hollister, Sunnyslope, and the District also have water shortage emergency response plans in place. Hollister has general emergency plans that include their water supply. Sunnyslope and the City have general Emergency Disaster Response Plan as well as a Power Failure Emergency Response Plans. The plans also include steps to be taken during and after a disaster and the use of the Standard Emergency Management System (SEMS). Copies of these plans are included as **Appendix H**. The District relies on their current Water User's Handbook and County emergency plans.

These plans develop the procedures for each agency before and during a disruption of water supply during a natural disaster. In 1999, the California Emergency Management Agency (Cal EMA) published *Emergency Planning Guidance for Public and Private Water Utilities* to improve coordination among water utilities and other emergency response agencies and to assist water utilities in developing or revising emergency plans and procedures. It is recommended that ongoing coordination between the City, Sunnyslope, and the District take place to ensure these water supply emergency plans remain consistent and meet the goals provided in the guidance documents. With these plans in place, the retailers in the HUA can adequately handle a water supply shortage due to a natural disaster or another interruption of the water supply (Cal EMA 1999).

8.9 MINIMUM SUPPLY NEXT THREE YEARS

Water agencies must provide an estimate of the minimum water supply available during each of the next three water years, 2016, 2017, and 2018. This will reflect the combined availability of all water sources and will assume the same hydrology as was noted during the historical multiple-dry year period. (Chapter 7, Section 7.3).

The estimate of the minimum supply for the next three years is shown in **Table 8-4 R**. The HUA is currently experiencing a multiple year drought. The average local precipitation of the last three water years has been 58 percent of normal. In addition, CVP allocation for M&I users in 2015 was the lowest on record for the HUA. The allocation during the three year drought were 70, 50, and 25 percent for 2013, 2014, and 2015, respectively. In response to this continued drought and decreased supply and expanded public outreach the HUA reduced its supply by over 25 percent. Given the deep conservation, historical low allocations, and expected growth water demand in 2015 likely reflects the minimum water supply required for the next three years.

Table 8-4 W shows the minimum wholesaler supply for the next three years. As with the retailer, 2015 likely reflects the minimum water supply required for the next three years. The delivered 1,719 AFY plus 20 percent to reflect system losses, for a total 2,149 AFY.

Table 8-1 Retail Stages of Water Shortage Contingency Plan		
Stage	Complete Both	
	Percent Supply Reduction[1] *Numerical value as a percent*	Water Supply Condition (*Narrative description)*
Add additional rows as needed		
1	15%	Any short term supply reduction
2	25%	Moderate supply reductions, including but not limited to short term supply limitations (i.e. droughts, infrastructure issues, etc.)
3	35%	Moderate to severe supply reductions, including but not limited to moderate supply shortages (i.e. prolonged droughts)
4	50%	Severe water supply reductions, including but not limited to supply disruption (i.e. water quality issues or natural disasters) or prolonged droughts
[1] *One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.*		
NOTES:		

Table 8-1 Wholesale Stages of Water Storage Contingency Plan		
Stage	Complete Both	
	Percent Supply Reduction[1] *Numerical value as a percentage*	Water Supply Condition (*Narrative description)*
Add additional rows as needed		
1	15%	Any short term supply reduction
2	25%	Moderate supply reductions, including but not limited to short term supply limitations (i.e. droughts, infrastructure issues, etc.)
3	35%	Moderate to severe supply reductions, including but not limited to moderate supply shortages (i.e. prolonged droughts)
4	50%	Severe water supply reductions, including but not limited to supply disruption (i.e. water quality issues or natural disasters) or prolonged droughts
[1] *One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.*		
NOTES:		

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? *Drop Down List*
Add additional rows as needed			
1,2,3,4	Landscape - Restrict or prohibit runoff from landscape irrigation	Excess runoff is discouraged under stage 1 and profited for Stage 2 and above	Yes
1,2,3,4	Landscape - Limit landscape irrigation to specific times	Irrigation is discouraged between the hours of 9:00 a.m. and 5:00 p.m in Stage 1 and prohibited for Stage 2 and above	Yes
2,3	Landscape - Limit landscape irrigation to specific days	Irrigation is limited to three days a week in Stage 2 and reduced to two days a week in Stage 3.	Yes
4	Landscape - Prohibit certain types of landscape irrigation	Irrigation outside new homes or on medians is prohibited in Stage 3. No new turf is allowed in Stage 4	Yes
4	Landscape - Prohibit all landscape irrigation		Yes
1,2,3,4	Landscape - Other landscape restriction or prohibition	Irrigation within 48 hours after rainfall is prohibited.	Yes
1,2,3,4	Landscape - Other landscape restriction or prohibition	Duration of irrigation is suggested to be no more than 15 minutes per watering in Stage 1. This limit is required in Stage 2	
1, 2,3,4	CII - Other CII restriction or prohibition	Commercial car washes are required to have recirculating systems. Recirculation is encouraged in stage 1 and required in stage 2 and above	Yes
1,2,3,4	CII - Lodging establishment must offer opt out of linen service	Hotel programs are encouraged in stage 1 and required for Stage 2 and above	Yes

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? *Drop Down List*
Add additional rows as needed			
1,2,3,4	CII - Restaurants may only serve water upon request	Drinking water by request is encouraged in stage 1 and required for Stage 2 and above	Yes
1,2,3,4	CII - Other CII restriction or prohibition	Installation of Single Pass Cooling Systems are discouraged in Stage 1 and prohibited for stage 2 and above	
1,2,3,4	CII - Other CII restriction or prohibition	Washing a vehicle requires a hose with a shut valve in Stage 2 and above. This is encouraged in Stage 1	Yes
1,2,3,4	Water Features - Restrict water use for decorative water features, such as fountains	Recirculating water features are encouraged at all stages	Yes
3	Water Features - Restrict water use for decorative water features, such as fountains	Filling or refilling ornamental lakes and ponds are prohibited	Yes
1,2,3,4	Pools and Spas - Require covers for pools and spas	All new pools should have a pool cover, this is encouraged in stage 1 and required in stage 2 and above	Yes
2	Pools and Spas - Require covers for pools and spas	Existing pools should not be refilled	Yes
1,2,3,4	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Fixing leaks is encouraged under stage 1. Leaks must be fixed with 72, 48 and 24 hours in Stages 2, 3 and 4, respectively	Yes
1,2,3,4	Other - Require automatic shut of hoses	Washing a vehicle requires a hose with a shut valve in all stages.	Yes
1,2,3,4	Other - Prohibit use of potable water for washing hard surfaces	Washing hard surfaces is prohibited in all stages.	Yes
4	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water		Yes
4	Other	Limits on new water service, building permits, and annexation	Yes
3	Other	Agencies may consider drought rates, if applicable	Yes
NOTES:			

Table 8-3 Retail Only: Stages of Water Shortage Contingency Plan - Consumption Reduction Methods		
Stage	Consumption Reduction Methods by Water Supplier ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*
Add additional rows as needed		
1,2,3,4	Expand Public Information Campaign	
1,2,3,4	Improve Customer Billing	
1,2,3,4	Increase Frequency of Meter Reading	
1,2,3,4	Offer Water Use Surveys	
1,2,3,4	Provide Rebates on Plumbing Fixtures and Devices	
1,2,3,4	Provide Rebates for Landscape Irrigation Efficiency	
1,2,3,4	Provide Rebates for Turf Replacement	
	Reduce System Water Loss	
2,3,4	Increase Water Waste Patrols	
4	Moratorium or Net Zero Demand Increase on New Connections	
3,4	Implement or Modify Drought Rate Structure or Surcharge	
NOTES:		

Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	4,820	4,820	4,820
NOTES: Reflects total water supply for 2015			

Table 8-4 Wholesale: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	2,149	2,149	2,149
NOTES: The delivered 1,719 AFY plus 20 percent to reflect system losses.			

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9. DEMAND MANAGEMENT MEASURES

9.1 WHOLESALE AGENCY PROGRAMS

The District is the wholesaler to Zone 6 (Northern San Benito County) for CVP imported water, while Hollister and Sunnyslope are retailers that purchase CVP water from the District. These three agencies have a strong partnership to plan the future water supply for the HUA through this document and others, including the Master Plan. With regard to demand management, the District provides the conservation coordinator for the WRA, financial contribution and technical support to the WRA, and reporting on BMP implementation for Sunnyslope (not a signatory to the CUWCC MOU).

The District continues to:

- Join with retail water agencies to plan, design, implement, manage, and evaluate regional conservation programs
- Provide conservation-related technical support and information to retail agencies they serve
- Operate part of the conservation program
- Provide reports on BMP implementation within their service area by retail water agencies that are not signatories to the CUWCC MOU
- Encourage all of their retail agencies to be part of the Water Resources Association (WRA).

9.2 DEMAND MANAGEMENT MEASURES FOR HUA

Hollister, Sunnyslope, and the District are committed to implementing water conservation and water recycling programs. The three agencies, along with the City of San Juan Bautista, participate in the WRA of San Benito County. The WRA retains a Water Conservation Coordinator, who is a District employee, to serve the water conservation needs for the WRA members.

As required by USBR, the WRA coordinator also enters water conservation data to the CUWCC database for Sunnyslope and the District. Hollister's Utility Technician, a certified and functional Conservation Practitioner, enters this information into the CUWCC's database on behalf of the City. The CUWCC BMP number is included with each section for consistency with CUWCC reporting. The WRA coordinator also enters data for District activities into the Agricultural Water Management Council (AWMC) database each year as required by the Bureau. In addition, the WRA coordinator updates the Agricultural Water Management Plan for the District every five years.

UTILITY OPERATIONS RESOURCES – BMP 1

Water waste prevention ordinances. Both Hollister and Sunnyslope have approved water conservation ordinances to reduce water waste at all times. San Benito County has also created a Water Conservation Plan (also included in **Appendix G**). The plan prohibits certain water wasting uses, limits others, creates guidelines for plumbing fixtures in new developments, and encourages water conservation.

Metering. Hollister and Sunnyslope are fully metered and currently have meter replacement programs in place. Sunnyslope requires separate irrigation meters for commercial landscaping, parks, and other non-residential water services.

Tiered pricing. A tiered pricing structure is always in place and is not dependent upon a water shortage for implementation, although a future rate structures could include drought rate structures. Tiered pricing sends a signal to customers regarding their water use. Both the City and Sunnyslope use a tiered rate structure for single family residences, where efficient water use is billed at a low price and higher water use is billed at progressively higher prices. The rate structures are included in **Appendix K**.

Programs to assess and manage distribution system real loss. The City and Sunnyslope generally have small water losses for the overall system. Each retailer regularly inspects the distribution system, to check for leaks. In addition, customers are contacted if water bill increases suggest leaks.

PUBLIC EDUCATION AND OUTREACH – BMP 2

WRA, through its Water Conservation Coordinator and other staff, supports a variety of public education and outreach efforts. This includes bill inserts, flyers, Water Awareness Month, school presentations, and more. Water Awareness Month (WAM) is in May at the start of the irrigation season. The timing is optimal to remind water customers about irrigation programs and water efficiency. In addition, Proclamations are read at the Member Agencies board and council meetings as well as the Board of Supervisors meeting in proclaiming May as Water Awareness Month. During WAM, a banner is strung across San Benito Street to urge people to contact their water provider for water saving ideas, the WRA sets up a booth at the local Farmer's Market, and holds workshops or classes covering a variety of topics concerning water use reduction.

The WRA retains a Water Conservation Coordinator, who is a District employee, to serve the water conservation needs for the WRA members. This person's duties focus primarily on ongoing programs within the District to encourage wise water use among the agricultural community and within the Hollister Urban Area. The duties of this position (and any support staff, as necessary) are described in section 9.3.

RESIDENTIAL PROGRAMS – BMP 3

Residential Surveys. This survey is a free home water conservation checkup including identification of the need for plumbing retrofits, a water softener check, household leak checks and identification of other possible water conservation improvements.

Plumbing Retrofits. As a complement to the residential surveys, WRA offers plumbing retrofits that replace older shower heads, add aerators in faucets and free hose nozzles. While this program has been successful in the past, it is estimated that it has reached over 75 percent of customers and may not provide significant water demand reduction in the future.

High Efficiency Clothes Washers (HECW) Rebates. These HECW use half as much water as traditional top loading clothes washers. These machines also use less detergent and help protect the quality of groundwater supplies.

WaterSense Specification (WSS) Toilet Rebates. Rebates and giveaways are available for residential customers who replace existing toilets with high efficiency models.

Water Softener Rebate Program. Since 2007, a program has been in place to issue rebates to those water customers who remove a self-regenerating water softeners (SRWS) without replacement ($300) or with transition to an off-site exchange service ($250). In July 2014, the City of Hollister enacted an ordinance that prohibits the installation of SRWS that use sodium and/or potassium salts. In February 2015, Sunnyslope adopted a new District Code prohibiting the installation of SRWS that use sodium and/or potassium salts.

Residential Bill Comparison. In addition to public outreach information. The agencies revised their bills to reflect a comparison of 2013 water consumption and current consumption for customers to gauge their reduction efforts.

High-Bill Contact Programs This programs alerts residential users if the monthly bill is higher than a pre-determined threshold. This will help the residential user identify leaks or changes in water use.

Notification of Leaks. If a leak is detected on a customer's property, they are alerted so they can repair the leak and avoid further water waste.

CII PROGRAMS – BMP 4

Commercial High - Efficiency Single Load Clothes Washers. Rebates are available for commercial customers who replace existing washers with high efficiency single load machines.

Commercial High - Efficiency Toilets. Rebates are available for commercial customers who replace existing toilets with high efficiency model.

Green Business Certification. The WRASBC is working together with the San Benito County Chamber of Commerce, San Benito County Integrated Waste Management and PG&E to assist, recognize and promote businesses and government agencies that volunteer to operate in a more environmentally responsible way.

Hotel Program. The WRASBC provides table cards to hotels and motels that allow guests to have linens washed only upon request.

LANDSCAPE PROGRAMS – BMP 5

Landscape Water Surveys. This survey is a free water conservation checkup for large urban irrigators including the identification of needs for plumbing retrofits and/or updated irrigation hardware, leak checks and identification of other possible water conservation improvements.

Landscape Irrigation Hardware Rebate Program. The WRA has rebates on hose timers, rain sensors and MP Rotator irrigation nozzles and sprinkler bodies with pressure regulators. A rebate is offered of 50 percent of the cost of qualifying products, up to $100.

Turf Removal Program. In July 2014 the WRA added a Turf Removal Program to encourage customers to remove high water use turf areas from residential parcels. This program complements the irrigation hardware rebates and free water efficient landscape plans. In Fiscal Year 2015/16 the program expanded its offer from a $1 per square of turf removed up to 500 square feet to 1,000 square feet. The only land cover allowed in the area where the turf is removed includes: drought tolerant or native plants, permeable hardscapes and/or a combination. As of November 2015, over 88,000 square feet of turf have been removed in the Hollister Urban Area. The turf removal program includes extensive public outreach in Spanish and English. As of August 2015, the WRASBC allocated all its' funding for this program. However, the WRASBC promotes the State-wide Turf Removal Program and any residents have taken advantage of this rebate.

Irrigation Education. The District, in collaboration with the WRA, has been offering a series of classes since 2009 on irrigation efficiency and other agriculture practices.These workshops provide concepts, tools, and examples for optimizing irrigation and nitrogen management efficiency in row, tree, and greenhouse crop production. The classes also focus on keeping records and acquiring data needed for water quality regulation and reporting. The WRA also offers classes to residential customers. These classes instruct customers on topics such as efficient irrigation practices, converting landscapes to be water wise, and composting.

Custom Sprinkler Schedule. A Water Conservation Specialist will design a watering schedule tailored to customer habits, sprinkler's output, and the seasonal water needs of the individual lawn and garden. The plan is free and includes a schedule for each season, and even programming of the automatic sprinkler timer upon request.

9.3 IMPLEMENTATION OVER THE PAST FIVE YEARS

Each DMM listed above is discussed below including the following details:

- Nature – Description of the DMM program (e.g., the dollar value for individual toilet replacements, the process used to inform customers of a landscape water budget program, or the content of a school education program.)
- Extent – Quantification of the implementation of the DMM (e.g., the number of customers who have used the toilet rebate program, the number of large landscape accounts that have been assigned a water budget, or the number of school presentations given by the WRA). In addition, extent includes a description of the methods used to estimate the expected water savings from DMMs, or the agency's implementation plan for a particular DMM.

A summary table on the following page shows the implementation from 2011 to 2015 along with current budget allocations.

CUWCC BMP	Program	Unit	TOTAL 2011-2015
1	Water Waste Ordinances	In Effect	
1	Metering	No unmetered	
1	Conservation Pricing	Tier Rates - Single Family	
1	Water Conservation Coordinator		
2.1	Newsletter and Articles	# of articles published	38
2.1	Flyers/ Bill Inserts	# reached	161,900
2.1	Website	# reached	2,600
2.1	Booths at Festivals	# of attendees	6,200
2.1	Email	email sent	675
2.2	School classroom presentations	# students reached	700
2.2	Large School Assemblies	# students reached	3600
2.2	Field Trips to WTP and WWTP	# students reached	350
2.2	Focus on Water Career Education	# students reached	425
3	Surveys- Residential Single Family	# surveys	1,547
3	Surveys- Residential Multi Family	# surveys	184
3	Plumbing Retrofits Single Family (showerhead/faucet aerators)	# replaced	1,642
3	Plumbing Retrofits Multi Family (showerheads/faucet aerators)	# replaced	161
3	High Efficiency Clothes Washers HECW Rebates ($100)	# replaced	280
3	Water Sense Specification (WSS) Toilets Rebates	# replaced	995
3	Water Softener Replacement Program	# replaced	319
3	Residential Bill Comparison	total hh reached	3,050
3	High Bill Contact Programs	total hh reached	3,950
3	Notification of Leaks	total hh reached	1,150
4	Commercial High-Efficiency Toilets	# replaced	50
4	Commercial High - Efficiency Single Load Clothes Washers	# replaced	2
4	Green Business Certification	# of businesses	11
4	The Hotel Program	# of hotels	2
5	Landscape Irrigation Hardware Rebate Program	# of rebates	89
5	Turf Removal Program	sq ft removed	88,000
5	Landscape Water Surveys	# of surveys	6
5	Custom Sprinkler Schedule	# reached	6
5	Landscape Classes	# of attendees	400
5	Landscape Plans	# downloads	UNK

WATER WASTE PREVENTION ORDINANCES

The ordinances were originally created as a response to the multiple dry years of the early 1990's but have continued to support sustainable water supply by prohibiting water wasting activities, which include:

- Indiscriminate or excessive water use, which results in water waste.
- Washing of cars, buildings, or exterior surfaces without the use of a quick-acting, positive shut-off nozzle.
- Use of potable water to irrigate turf, lawns, gardens, or ornamental landscaping between 9:00 a.m. and 5:00 p.m. by means other than drip irrigation or hand watering with a quick-acting, positive shut-off nozzle.
- Use of potable water to wash sidewalks or roadways when the use of airblowers or sweeping would provide a reasonable alternative.
- Allowing water waste caused by easily correctable leaks, breaks, or malfunctions, after a reasonable time within which to correct the problem.
- Operation of decorative fountains, even if they use recirculating systems.
- Use of water for construction purposes, such as consolidation of backfill, except when no other method can be used.
- Restaurant water service unless upon customer request.
- Hydrant flushing, except where required for public health and safety.
- Refilling existing private pools, except to maintain water levels.

Hollister, Sunnyslope, the District, and San Benito County have all established "No-Waste" ordinances, policies, and resolutions for their respective jurisdictions. The District has a Water Users Handbook that explains how each water user must take steps to control tailwater. If these policies are not followed, the District has the authority to discontinue service.

In addition to these existing ordinances, Emergency Water Conservation Regulations were passed in 2015 that added outdoor water restrictions. The Emergency regulations also added penalties for violating these restrictions including fines for repeated violations. The Regulations are included in **Appendix I**.

The water waste ordinances are enforceable for retailer customers in the City of Hollister and Sunnyslope. Enforcement costs are a part of each agency's overhead.

The WRA handles complaints of water waste or pursues water waste violations if observed by staff. The WRA issues 'Water Waste' violation cards and follows up with letters to the violators and offers assistance to correct the problem.

In 2015, due to drought awareness and the Emergency Water Conservation Regulations imposed by the state, the response from the public was increased. The WRA fielded approximately 75 phone calls from April through December 2015 relating to water waste. In the past, there have been an average of four calls per year.

METERING

Both Hollister and Sunnyslope meter all customers within their service areas and both retailers have a meter replacement program.

Hollister has been replacing approximately 700 to 800 meters annually, about 10 percent of total connections. As of early 2008, nearly half of the City's old meters have been replaced with new meters that allow reading through a radio. Hollister is making continuous efforts to identify the number of accounts by specific customer type, including installation of dedicated landscape meters for customers who had mixed-use meters. Meter installation costs are part of new service connection fees.

Sunnyslope began the meter replacement program about 10 years ago, replacing up to 600 meters annually, 11 percent of total connections. Sunnyslope's goal is to replace any meter older than 15 years to ensure meter accuracy. In Fiscal year 14/15, approximately 350 water meters were replaced; Sunnyslope added staff to assist with this maintenance task in January 2015.

CONSERVATION PRICING

Both the City and Sunnyslope use a tiered rate structure for single family residences, where efficient water use is billed at a low price and higher water use billed at progressively higher prices. Both entities assess a monthly service charge based on water meter size, plus a monthly consumption rate based on the amount of water consumed.

The monthly consumption rates for single-family residential customers are an inclining block with three tiers, while non-single-family customers are charged one rate for all water consumption. The City and Sunnyslope tiers and rates are included in **Appendix K**.

The current Sunnyslope water rates were approved by the Board of Directors on August 6, 2013 by Ordinance No. 73 and took effect on December 21, 2015.

Comparison with previous average usage rates might provide some information regarding the effectiveness of changing from non-conserving to conservation pricing. It is assumed that the economic incentive to customers to conserve water under conservation pricing structures is sufficient to make this program efficient.

It is expected that most of the conservation savings will occur with the largest water users, who will see larger benefits for conserving water. The expected annual water savings is 100 AFY, compared to the scenario where non-conserving pricing is used.

PUBLIC EDUCATION AND OUTREACH

Public outreach is central to the HUA water conservation efforts. These ongoing activities were ramped up in response to the State mandated water conservation. Specific activities include:

- Newsletter articles on conservation - These articles are included as **Appendix L.**

- Flyers and/or brochures, bill stuffers, messages printed on bill, information packets. The flyers are included as **Appendix L**.
- Development and update of a website with resources for water conservation: www.wrasbc.org.The website provides details about ongoing water conservation programs and has three different water wise landscape plans available for download.
- Booths at Children's Festivals
- Engagement with the community through responsiveness to emailed questions and concerns
- Water Awareness Festival in May

The total budget approved for the fiscal year 2014/15 was $28,600, for meeting coordination and materials. Three agencies (Hollister, Sunnyslope, and the District) split the costs. During the recent drought, the budget was expanded by $45,000 in response to the state mandated reductions. Much of the increased spending focused on informing customers of the state mandatory water conservation rules.

The full time water conservation coordinator records the number and type of outreach activities. Newsletters are sent with water bills and are estimated to reach 40,000 people per year. Booths at festivals reached over 1,400 people in 2015. Other outreach includes the website and email communication which reached about 900 people in 2015.

While there is no direct way to quantify public outreach, it is the foundation for all other programs. With methods to advertise and connect customers to other programs and information, all other demand management measures would be less effective. In addition, the expanded public outreach in response to the drought shows a direct connect between increased public outreach and decreased water use.

SCHOOL EDUCATION AND OUTREACH

The WRA also provides specific school focus outreach including:

- Presentations to school groups (both classroom and large assemblies
    - Water Cycle presentation to 4 and 5th graders
    - Water and Your World presentation to elementary students
- Field trips to the Water Treatment Plant and Wastewater Treatment Plant

In May 2015, the WRA was awarded a grant of $17,000 for the California Board of Education to focus on education of careers in water resources. The purpose of the grant is to provide ways to expose high school students to the field through additional courses at Gavilan community college and field trips to the WTP and WWTP.

The fiscal year 2014/15 budget allocated $3,980 to school education. The grant for water resources careers brings the total school outreach budget to $20,980. The number of students who have participated in these school programs totaled 1,075 in 2015. The school career grant reached 150 students in 2015 and the program is increasing its reach in 2016.

WRA will continue to reach out to students at all grade levels. Before the start of each school year, the Water Conservation Coordinator visits every school in the Hollister Urban Area along with those in San Juan Bautista to alert them of the School Education Program offered through the WRA. The direct effect on water demand is not quantifiable, but there is long-term benefit to educating students on the science and impacts of water supply and conservation.

PROGRAMS TO ASSESS AND MANAGE DISTRIBUTION SYSTEM REAL LOSS

As all connections in Sunnyslope and Hollister are metered, water loss in the HUA is due to leaks, flushing fire hydrants, maintenance of water tanks, metering accuracy, and other small unmetered releases due to maintenance procedures. No additional programs are planned to further manage water distribution system losses.

WATER CONSERVATION PROGRAM COORDINATION AND STAFFING SUPPORT

The WRA conservation coordinator's duties focus primarily on ongoing programs within the District to encourage wise water use among the agricultural community and within the Hollister Urban Area. The duties of this position (and any support staff, as necessary) include the following:

- Coordination and oversight of conservation programs and BMP implementation
- Preparation and submittal of the CUWCC BMP Implementation reports
- Communication and promotion of water conservation issues to agency senior management
- Coordination of agencies' conservation programs with operations and planning staff
- Preparation of annual conservation budget
- Attendance at Bay Area Water Conservation Coordinator Meetings with representatives from the CUWCC
- Reporting to the governing bodies of the participatory agencies on the progress of the Water Conservation Program.

As required by USBR, the WRA coordinator also enters water conservation data to the CUWCC database for Sunnyslope, the District, and San Juan Bautista. Hollister's Utility Technician, a certified and functional Conservation Practitioner, enters this information into the CUWCC's database on behalf of the City.

The total budget for the fiscal year 2014/15 is $95,000 for water conservation staff costs. The water conservation coordinator works on behalf of the WRA which included Hollister, Sunnyslope, San Juan Bautista and the District. Like public outreach, this demand management measure provides a foundation for all other programs. Having key personnel to coordinate ongoing programs and begin new initiatives is critical for continued water use efficiency. The Conservation Coordinator will continue to oversee water conservation activities for the HUA. To gauge the effectiveness of this DMM, the conservation coordinator and Hollister staff will continue to document the number of programs, materials and attendance at water conservation activities. The benefits of a coordinator are indirect and the water savings due to this DMM cannot be quantified.

Residential Surveys

This DMM involves assisting customers with leak detection and minimization. This may include, but is not limited to: a water conservation survey, water efficiency suggestions and/or inspection, and provision of showerheads and faucet aerators that meet current Water Sense specifications. The primary focus is older neighborhoods with pre-1980 plumbing and the second priority is other pre-1992 housing. Houses constructed after 1992 were required by state building codes to utilize water conserving plumbing fixtures. The program is marketed through advertising in bill inserts, bill messages, and newsletters. During the water survey, water conservation staff performs the following:

- Check for leaks, including toilets, faucets, and meter check
- Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, as necessary
- Check toilet flow rates and direct customer to ultra low flush toilet (ULFT) replacement programs, as necessary, and replace leaking toilet flappers and floats if applicable
- Check irrigation system and timers
- Review or develop customer irrigation schedule
- Evaluate water softener operations and test water hardness to ensure proper settings
- Promote the retrofit program and provide other information on local water resource topics

Surveys require between 30 and 90 minutes. For each dwelling unit, a Water Conservation Assistant completes a customer data form (including number of people per household, number of bathrooms, age of clothes washer and water softener, and approximate landscaped area square footage). These data are used to analyze the customer's water use for both pre- and post-audit conditions, and to refine the program. The results of the residential water survey are provided to the customer with water saving recommendations and specific local information packets prepared as part of the public information program described for DMM 7. The individual contacts made during the survey are used to actively promote the other programs and services offered by the Water Conservation Program, including retrofit and rebate programs offered under other BMPs. Both English and Spanish speaking persons conduct the surveys, and both English and Spanish language materials are available. The form used in the survey is shown in **Appendix L**.

The annual budget for both residential surveys and retrofits is $40,500. This budget amount assumes $72.00 per residence is available for the program. From 2011-2015, over 1,700 residences participated.

Based on available information, the potential water savings from this BMP are estimated to be 20 to 30 gpd and 18 to 28 gpd for single family and multi-family residences, respectively. Based on the surveys completed, approximately 38 to 58 AF have been saved since 2011. It is expected that the number of surveys per year will decline with the decrease in older residences that have not completed these surveys.

REBATES AND RETROFITS

The WRA provides several rebates and plumbing retrofits for residential customers, including:

- Plumbing retrofits (shower heads, aerators in faucets and free hose nozzles)
- High Efficiency Clothes Washers (HECW) Rebates
- Water Sense Specification (WSS) toilets
- Water Softeners (demolishing)

The rebate programs have been very active and successful. The total annual 2015 budget is $15,800. The three major programs (HECW, low flow toilets, and water softeners) have all seen great success in the past but the number of rebates issued has dwindled from 2011 to 2015. Water savings from these programs has totaled 130 AFY (2.5 percent of total demand).

The HECW rebate is $100 per washer, and the budget in 2015 was $8,000. Since 2011, 280 rebates for HECW have been issued. The CUWCC reports a water savings estimate of 5,250 gallons per year (0.2 AFY) per high efficiency washing machine, for a total savings of 56 AFY since 2011 (Todd 2011). The number of washers replaced from 2007-2010 was significantly higher, 729 units. The slowdown of rebates for HECW may be an indication that the market is becoming saturated.

For WSS toilets, the financial incentive currently is $75 per toilet, and an additional $10 is given when residents deliver their old toilet to the District, as administrator of the program. In addition, the WRA provides a free toilets by appointment, limited to two free toilets per residence, unless a WRA representative inspects the property to confirm more than two toilets are required. In the past, this program has been extremely successful, with over 6,000 ULFTs installed from 2001 to 2010. From 2011 to 2015, only 995 toilets rebates were issued. Projected total annual water savings from toilet retrofits at full implementation are 20 gpcd each or 66.87 AFY for rebates issued (2011-2015), both in water demand and wastewater generation. The fiscal year 2014/15 budget for the WRA is $ $25,000for materials, rebates, and advertising costs. The decrease in rebates and budget are another indication that the area already has many water saving devices with limited additional water savings potential.

Since 2007, WRA has conducted a water softener rebate program that encourages people to upgrade from their timer-based models (pre-1999) to demand-initiated regenerating (DIR) models or to demolish these older softeners with no replacement. A shared goal of the District, City and Sunnyslope is to reduce salt loading to wastewater and thereby help maintain groundwater quality and support water recycling. The program includes water softener checks as part of the home water audit programs. It also provides the public with information about DIR and exchange-type water softeners, encouraging replacement of less efficient timer models. Currently, the rebate offer is $150 (per household) for a water softener replacement, $250 for a water softener replacement with offsite service, and $300 for a water softener demolition. The water softener rebates are funded by a grant. It is estimated these rebates save 600 gallons per month per household. From 2011-2015, 319 rebates were issued, for an estimated total savings of 7 AFY.

Participation from the public in various residential rebate programs has declined in recent years and may indicate saturation. The WRA and Hollister estimate that 70 percent of toilets in the HUA are low flow toilets.

This DMM was budgeted for 200 rebates for the current fiscal year. The fiscal year budget approved by the WRA is $20,000 for high efficiency washing machine rebate program, including a separate budget of approximately $6,500 for Hollister and Sunnyslope, and a budget of $6,800 for the District.

OTHER RESIDENTIAL PROGRAMS

In addition to rebate and retrofit programs, there are demand management measures aimed at residential customer education and outreach. The agencies revised their bills to reflect a comparison of 2013 water consumption and current consumption for customers to gauge their reduction efforts. The WRA also alerts residential users if the monthly bill is higher than a pre-determined threshold. This helps the residential user identify leaks or changes in water use. If a leak is detected on a customer's property, they are alerted so they can repair the leak and avoid further water waste.

The WRA included water use comparisons for over 3,000 customers over the last five years. The WRA also contacted 3,950 customers directly over this time to alert them of their high water use. This program has greatly expanded in the last few years from 500 customers in 2011 to 1,500 customers in 2015. As part of this program and others, 1,150 customers were notified of identified leaks.

There is no single budget amount for these programs which are administered by the water conservation coordinator and agency staff.

The direct water savings cannot be calculated but it is assumed these program reduces water waste and system water loss significantly.

COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL PROGRAMS

The WRA works with businesses to encourage water conservation. The two main programs include the Green Business Certification which recognizes and promotes businesses and government agencies that volunteer to operate in a more environmentally responsible way. The other program serves hotels and provides table cards to hotels and motels that allow guests to have linens washed only upon request.

These programs are conducted jointly with SBC Chamber of Commerce. The WRA works closely with their partners to establish policies that are both business friendly and promote environmental stewardship. As part of this partnership, they produce the TV show "Going Green" which is aired on the Community Media Access Partnership through the local cable provider (Charter). This show discusses "green" topics including water conservation both locally and worldwide.

There is no single budget amount for these programs administered by the water conservation coordinator.

LANDSCAPE WATER SURVEYS

A landscape water survey includes a check of an irrigation system and timers for maintenance and repairs needs, development of a customer irrigation schedule, reviewing scheduling with the customer, and providing the customer with an evaluation.

During a survey, the WRA checks irrigation schedules to see if they are adjusted for the season, checks/adjust sprinkler heads to make sure landscape is being irrigated and not fences or walkways, etc., develops an irrigation schedule to follow for the year, and makes recommendations to upgrade or repair equipment.

Hollister has a landscape ordinance that pertains to new and existing single family homes, and has adopted the model water efficiency landscape ordinance (MWELO) to promote landscape irrigation efficiency. The City is also considering a financial incentive program to help homeowners to convert landscaping toward more water efficiency (e.g., landscape materials, irrigation conversions, automatic controllers, etc.)

The WRA water conservation coordinator offers water use surveys and audits to single family residences, which are modified versions of audits offered to large landscape customers. The WRA also publishes a newsletter biannually entitled, "Water Conservation Update", included in **Appendix L.** The newsletter provides landscape water conservation information, and suggests seasonal water conservation measures such as turning off irrigation systems in the fall. WRA also offers free irrigation inspections in the spring and irrigation controller assistance in the fall. The WRA website provides useful tips for outside water conservation, a Watering Index to guide irrigation, and a Residential Lawn Watering Guide. The website also promotes a free custom sprinkler schedule.

From 2011 to 2015, six surveys were performed. The proposed annual budget for all residential surveys is $6,500. The water savings of this measure would depend on the existing volume of irrigation and the implemented reduction of irrigation. The 2010 UWMP estimated 25-50 AFY savings for this program.

The City of Hollister and the County have adopted Large Landscape Conservation Requirements, including the MWELO. The HUA entities will continue to implement this DMM through annual review of customers' water use, and by offering on-site follow-up evaluations to customers whose total water use exceeds their total annual water budget. The overall target of providing large landscape audits is 3 percent of existing accounts each year.

Landscape Irrigation Hardware Rebate Program

The WRA has rebates on hose timers, rain sensors and MP Rotator irrigation nozzles. Information on how residents apply for this rebate and what models are available are included in **Appendix L**.

The rebate of 50 percent of the cost of qualifying products, up to $100. A total 89 rebates have been granted from 2011 to 2015. The budget for Fiscal year 14/15 was $9,000.

Turf Removal Program

In July 2014 the WRA added a Turf Removal Program to encourage customers to remove high water use turf areas from residential parcels. This program complements the irrigation hardware rebates and free water efficient landscape plans. The turf removal program includes extensive public outreach in both Spanish and English.

In Fiscal Year 2015/16 the program expanded from offering a $1 per square of turf removed up to 500 square feet to 1,000 square feet. The only land cover allowed in the area where the turf is removed includes drought tolerant or native plants, permeable hardscapes and/or a combination. As of November 2015, over 88,000 square feet of turf have been removed in the Hollister Urban Area. The total budget for Fiscal year 2014/15 was $28,000.

In fiscal year 2015/16, the WRA received another $100K of funding to support the Turf Removal Program. It is anticipated that by the end of the Fiscal Year over 200,000 square feet of turf will be removed and either replaced with hardscape, drought tolerant plants or a combination of both. The WRA has had several customers apply for the state's turf removal rebate program. While the rate of turf removal requests may slow after the drought, the water savings effects of the removed drought will continue unless new turf is planted.

IRRIGATION EDUCATION

The District, in collaboration with the WRA, has been offering a series of classes since 2009 on irrigation efficiency and other agriculture practices.These workshops provide concepts, tools, and examples for optimizing irrigation and nitrogen management efficiency in row, tree, and greenhouse crop production. The classes also focus on keeping records and acquiring data needed for water quality regulation and reporting. The WRA also offers classes to residential customers. These classes instruct customers on topics such as composting, implementing efficient irrigation practices, and converting landscapes to be water wise. From 2011 to 2015, there were four classes per year, for a total of 16 classes.

Custom Sprinkler Schedule

A Water Conservation Specialist will design a watering schedule tailored to customer habits, sprinkler's output, and the seasonal water needs of the individual lawn and garden. The plan is free and includes a schedule for each season plus programming of the automatic sprinkler timer.

Six schedules have been developed for large landscapes customers from 2011 to 2015. It is estimated a custom sprinkler schedule could reduce irrigation by 20 to 30 gallons per day. This program can be expanded by reaching out directly to large landscape as well as residential customers. Schedules are created for residential customers through the water survey program.

9.4 PLANNED IMPLEMENTATION TO ACHIEVE WATER USE TARGETS *(RETAIL AGENCIES ONLY)*

Water conservation efforts over the past five years have resulted in numerous plumbing and hardware retrofits in older buildings. These existing efforts (combined with new plumbing codes that require new developments to have water saving fixtures) have resulted in a large percent of buildings (both residential and commercial) with water saving technology. While these improvements have resulted in decreased water demand, the future potential gains from the rebate and retrofit programs may be limited.

In response to the State mandated water reduction due to the drought, the WRA and agencies stepped up their public outreach. They increased bill inserts, contacted high water users, and increased the advertisement of existing programs in multiple languages. In addition, the WRA also used public outreach to alert users to the new Emergency Water Conservation Regulations. These regulations focused on implementing efficient irrigation and outdoor water use. The increased public outreach and the focus on reducing water waste outdoors had measurable results. The agencies were able to reduce water demand in 2015 by more than 25 percent.

The WRA plans to continue its focus on public outreach and education about irrigation efficiency. While these programs are difficult to account per unit water savings, the overall effect of reducing demand during the drought demonstrates the overall water savings.

9.5 MEMBERS OF THE CALIFORNIA URBAN WATER CONSERVATION COUNCIL

The City of Hollister is signatory to the CUWCC MOU for urban water conservation in California. Signatory agencies agree to follow guidelines for developing, implementing and evaluating water conservation BMPs included in their UWMP. As a signatory to the CUWCC MOU, Hollister reports implementation of BMPs directly to the CUWCC database (http://bmp.cuwcc.org/). Although the District and Sunnyslope have not signed the MOU, they also report BMP implementation to the CUWCC as requested by the USBR through the CVP contract agreement. Information on BMPs by the District and Sunnyslope is compiled by the WRA and entered into the CUWCC database by the WRA.

Signatories to the CUWCC MOU are required to report the status of each BMP implementation every two years. Reporting includes the status for two consecutive years. In addition to the CUWCC reporting requirements, the Water Conservation Coordinator reports to the WRA during the WRA meetings, providing the status of BMP implementation, ongoing activities, and scheduled events. The WRA funds water conservation activities through contributions from Hollister, Sunnyslope, the District, and to a lesser extent, the City of San Juan Bautista.

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10. COMPLETED UWMP CHECKLIST

The UWMP checklist is found on the following pages.

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Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
San Jaun Bautista	☑	☑
	☐	☐
	☐	☐
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
San Benito County	☑	☑
	☐	☐
	☐	☐
NOTES:		

Table 10-1 Wholesale: Notification to Cities and Counties (select one)		
☐	Supplier has notified more than 10 cities or counties in accordance with CWC 10621 (b) and 10642. **Completion of the table below is not required. Provide a separate list of the cities and counties that were notified.**	
	Provide the page or location of this list in the UWMP.	
☑	Supplier has notified 10 or fewer cities or counties. **Complete the table below.**	
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
San Jaun Bautista	☑	☑
	☐	☐
	☐	☐
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
San Benito County	☑	☑
	☐	☐
	☐	☐
NOTES:		

Checklist Arranged by Water Code Section

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	Section 5.6
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5 and App E	Section 5.7
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply is the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	Section 5.5
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	Section 5.7
1608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	Section 5.7
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	Section 2.1
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	Section 5.7 and Section 9
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	Section 5.7 and Appendix E
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	Section 2.1
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.5.2	Section 2.2
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	Section 7.4
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	Section 2.1
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	Section 3.1
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	Section 3.3
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	Sections 3.4 and 5.3

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	Section 3.4
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	Section 3.4
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	Chapter 6
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	Section 6.2
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	Section 6.2
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	Section 6.2
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	Section 6.2
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	Section 6.2
10631(b)(3)	Provide a detailed description and analysis of the location, amount, and sufficiency of	System Supplies	Section 6.2.4	Section 6.2
	groundwater pumped by the urban water supplier for the past five years			
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	Sections 6.2 and 6.9
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	Section 7.1
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	Section 7.2
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	Section 7.1
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long- term basis.	System Supplies	Section 6.7	Section 6.7
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	Section 4.1 and 4.2
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	Section 4.4
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	Sections 9.2 and 9.3
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	Sections 9.1 and 9.3

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	Section 6.8
10631(i)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	Section 6.6
10631(j)	CUWCC members may submit their 2013- 2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	NA
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use	System Supplies	Section 2.5.1	NA
	projections from that source.			
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	NA
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	Section 4.5
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	Section 8.1
10632(a)(2)	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three- year historic sequence for the agency.	Water Shortage Contingency Planning	Section 8.9	Section 8.9
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	Section 8.8
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	Section 8.2
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	Section 8.2 and 8.4
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	Section 8.3
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	Section 8.6
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	Section 8.7
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	Section 8.5
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	Section 6.5

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of	System Supplies (Recycled Water)	Section 6.5.2	Section 6.5
	wastewater collected and treated and the methods of wastewater disposal.			
10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	Section 6.5
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	Section 6.5
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	Section 6.5
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.4	Section 6.5
10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.5	Section 6.5
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	Section 6.5
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	Section 7.1
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	Section 7.3
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	Section 2.1 and Section 8.1
10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	Section 2
10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	Section 2.1
	about the plan.			
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	Section 2 And Appendix A
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	Section 2 And Appendix A
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	Section 2 And Appendix A

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	Section 2 And Appendix A
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	Section 2 And Appendix A
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	Section 2 And Appendix A
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	Section 2
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.5.2	Section 2
10642	Provide supporting documentation that the water supplier has encouraged active	Plan Preparation	Section 2.5.2	Section 2
	involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.			
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	Section 3.1
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	Section 3.3
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	Section 3.4
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	Section 3.4
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	Sections 3.4 and 5.4
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	Section 4.2
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	Section 4.3
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	Section 4.5
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	Section 5.7 and App F
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5 and App E	Chapter 5 and App F

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply is the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	Section 5.7.2
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	Section 5 and App F
1608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	Section 5.8.2
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted	Baselines and Targets	Section 5.1	Section 5.1
	water use reductions.			
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	Section 5 and App F
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	Chapter 6
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	Section 6.2
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	Section 6.2.2
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	Section 6.2
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	Section 6.2
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	Section 6.2
10631(b)(3)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Section 6.2.4	Section 6.2
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	Sections 6.2 and 6.9
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long- term basis.	System Supplies	Section 6.7	Section 6.7
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	Section 6.8
10631(i)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	Section 6.6

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	Section 2.5.1
10631(j)	Wholesale suppliers will include	System Supplies	Section 2.5.1	Section 2
	documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.			
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	Section 6.5
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	Section 6.5
10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	Section 6.5
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	Section 6.5
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	Section 6.5
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.4	Section 6.5
10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.5	Section 6.5
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	Section 6.5
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	Section 7.4
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	Section 7.1
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	Section 7.2
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that	Water Supply Reliability Assessment	Section 7.1	Section 7.1
	source.			
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	Section 7.1

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	Section 7.3
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	Section 8.1
10632(a)(2)	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three- year historic sequence for the agency.	Water Shortage Contingency Planning	Section 8.9	Section 8.9
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	Section 8.8
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	Section 8.2
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	Section 8.4
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	Section 8.3
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	Section 8.6
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	Section 8.7
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	Section 8.5
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	Sections 9.2 and 9.3
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in	Demand Management	Sections 9.1 and 9.3	Sections 9.1 and 9.3
	code, their distribution system asset management program, and supplier assistance program.	Measures		
10631(j)	CUWCC members may submit their 2013- 2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	NA
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	Section 2
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	Section 2

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	Section 2
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	Section 2
10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	Section 2
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	Section 2
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	Section 2
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	Section 2
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	Section 2
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	Section 2
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	Section 2

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