Valley Water

Protection and Augmentation of Water Supplies

February 2019
48th Annual Report
FY 2019-20

Valley Water
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3614
www.valleywater.org

February 22, 2019

Dear Valley Water Stakeholder:

The Santa Clara Valley Water District, now Valley Water, has released its 48th Annual Report on the Protection and Augmentation of Water Supplies, which documents the water district's efforts to ensure a reliable water supply to support a healthy life, environment and economy in Santa Clara County. The report presents the basis for the proposed maximum groundwater production charges for fiscal year (FY) 2019-20, and is posted on our website, ***www.valleywater.org***.

To provide transparent information, the report is published and filed prior to the water district holding public hearings on the groundwater production charges. On average, the water district replenishes two-thirds of the groundwater used countywide by water retailers, residents, and businesses.

With revenue from groundwater production charges, the water district protects and augments water supplies for the health, welfare and safety of the community. The activities, programs and services undertaken with funding from groundwater production charges include:

Water supplies
- Operate and maintain local reservoirs to capture water and fill groundwater percolation ponds
- Purchase imported water and develop local water supplies to replenish the groundwater basin

Water quality
- Monitor and protect groundwater from pollutants and salt water intrusion
- Ensure proper construction and destruction of wells to prevent contaminants from infiltrating the groundwater basin

Infrastructure
- Plan and construct improvements to infrastructure such as dams, pipelines, recharge ponds, drinking water and recycled water treatment plants, and pump stations
- Operate and maintain dams, pipelines, recharge ponds, treatment plants and pumping stations to help sustain the groundwater aquifer

The historic drought of 2012 to 2016 may be over, but drought conditions could return at any time. Valley Water's Board of Directors continues to remind everyone to make conservation a way of life.

To prepare for the next drought, we must invest in large infrastructure projects. Of critical importance to water supply reliability and public safety are the seismic retrofits and upgrades at several dams, most notably Anderson Dam. Until Anderson Dam is restored, the district must operate the largest reservoir in the county at a fraction of its storage capacity due to state imposed restrictions. The upgrade of Rinconada Water Treatment Plant is more than half complete, and will extend the plant's service life for the next 50 years, increasing its capacity by 25%. The Pacheco Reservoir Expansion Project is an excellent opportunity for Valley Water to increase the reliability of future water supplies through additional storage capacity. The district received $485 million in grant funding from the state last summer for this important project, and continues to seek outside funding to help offset costs. Finally, critical imported water deliveries are expected to decline in the future without the California WaterFix.

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Finally, critical imported water deliveries are expected to decline in the future without the California WaterFix. This state proposed plan will improve the infrastructure that is to provide roughly 40% of the county's water supply. Valley Water is conscientious about the rising cost of water. A concerted effort has been made to reduce the groundwater charge projection by contemplating several water supply investment scenarios in accordance with the Water Supply Master Plan (WSMP), and selecting a path forward that will help ensure future water supply reliability at the lowest cost. The following represents the maximum proposed rate increases in its two groundwater zones for FY 2019-20:

North County Zone W-2 up to 6.6%, average household increase of $2.93 per month
South County Zone W-5 up to 6.9% average household increase of $1.07 per month
Surface water users in North County up to 6.5% average household increase of $2.98 per month
Surface water users in South County up to 6.7% average household increase of $1.12 per month

Regarding Agricultural water, the proposed maximum does not represent a staff recommendation, but instead represents the maximum allowed by the District Act to provide flexibility for the Board as it considers changes to its policy on Agricultural water pricing. The following represents increases associated with the District Act maximum for Agricultural water for FY 2019-20:

Ag groundwater users in either zone up to 345.1% or about $15.54 per month per acre
Ag surface water users in either zone up to 150.6% or about $15.80 per month per acre

I encourage you to learn more about these important groundwater issues. In addition to the information on our website at www.valleywater.org, the following opportunities are also available for you to gather information and provide input:

April 9, 2019
1:00 p.m.
- Board meeting
- Time certain

Public Hearing (opens**)**
Santa Clara Valley Water District Board Room
5700 Almaden Expwy., San Jose

April 11, 2019
- 6:00 p.m. open house
- 7:00 p.m. meeting

Public Hearing & Open House
Morgan Hill City Council Chambers
17555 Peak Avenue, Morgan Hill

April 23, 2019
6:00 p.m.
- Board meeting
- Time certain

Public Hearing (concludes)
Santa Clara Valley Water District Board Room
5700 Almaden Expwy., San Jose

If you have questions or concerns about groundwater, this year's charge-setting process, or how we can better serve you, please join us at an upcoming open house or public hearing, or visit our website, www.valleywater.org. You may also contact us directly by phone at **(408) 265-2600**, or email at ***clerkoftheboard@valleywater.org***.

Sincerely,

Nina Hawk

Chief Operating Officer
Water Utility Enterprise

48th Annual Report

Protection and Augumentation of Water Supplies
2019–2020

Sections

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Introduction

This is the 48th annual report on the Santa Clara Valley Water District's (Valley Water) activities in the protection and augmentation of water supplies. This report is prepared in accordance with the requirements of the District Act, section 26.5.

1 **Section 1**
Provides information on the present water requirements and water supply availability;

2 **Section 2**
Addresses future water requirements and water supply availability;

3 **Section 3**
Discusses programs needed to sustain water supply reliability into the future;

4 **Section 4**
Provides the financial analysis of the water district's water utility system, including future capital improvement and maintenance requirements, operating requirements, financing methods and the proposed maximum groundwater production and other water charges by zone for fiscal year 2019-2020.

For FY 2019-20, water district staff is proposing up to a 6.6 percent increase in the municipal and industrial (M&I) groundwater production charge for the North County and up to a 6.9 percent increase for South County. For M&I surface water users the water district staff is proposing up to a 6.5 percent increase for North County and up to 6.7 percent for South County. These increases are necessary to pay for critical investments that will help ensure reliable water supply in the future.

For agricultural groundwater and surface water, the proposed maximum in both North County and South County reflects the maximum rate allowed by the District Act, which is a placeholder to allow flexibility for the Board as it deliberates changes to its policy on agricultural water pricing.

What do Groundwater Production Charges pay for?

What you get

Benefits

- Reliable, healthy and clean drinking water
- Diverse water supply sources
- Protected and sustained water resources
- Maximized water conservation and recycling

What we do

Replenish the groundwater basin

- Operate and maintain local reservoirs to capture water and fill recharge ponds.
- Purchase imported water.

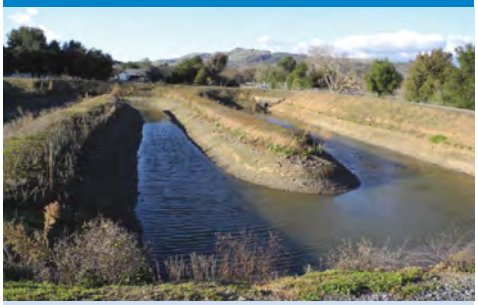
Ensure safe drinking water

- Monitor and protect groundwater from pollutants.
- Ensure proper construction and destruction of wells.

Construct, maintain and repair

- Plan and construct improvements to infrastructure such as dams, pipelines, ponds, treatment plants and pump stations.
- Operate and maintain pipelines and pumping plants to help sustain the groundwater aquifer.

Local water



A complex network of reservoirs, creeks and specialized ponds replenishes the groundwater basin. The same system is also used to transport imported water so that it, too, can be used to replenish the aquifer. It all works so well that "managed" recharge actually exceeds natural recharge in nearly all years. Water pumped from the groundwater basin through wells is used by private well owners, farmers and water retailers. Some water captured in reservoirs is processed at state-of-the art drinking water treatment plants. The treated water is sold to local water retailers, such as San Jose Water Company, who use their own distribution systems to serve customers.

Imported water

Much of the county's current water supply comes from hundreds of miles away, first as snow or rain in the Sierra Nevada range of northern and eastern California, then as water in rivers that flow toward the Sacramento-San Joaquin River Delta. This "imported water" is brought into the county through the complex infrastructure of the State Water Project, the federal Central Valley Project and San Francisco's Hetch Hetchy system. Three drinking water treatment plants deliver imported water to customers, while the rest is used to replenish groundwater basins. Having treated imported water available to meet demands protects the groundwater basin from over pumping.

Recycled/Purified water

An important and growing source of water is recycled and purified water. Used primarily for irrigation by industry and agriculture, recycled water is wastewater that has been treated to meet strict standards set by the State Water Resources Control Board.

Using recycled water helps conserve drinking water supplies and provides a drought-proof water supply, while reducing dependency on imported water and groundwater. Additionally, there are environmental benefits of helping to preserve our saltwater and tidal habitat by reducing freshwater discharge to the San Francisco Bay in the north county. Recycled water also minimizes treated wastewater discharge to the Pajaro River at certain times in the south county.

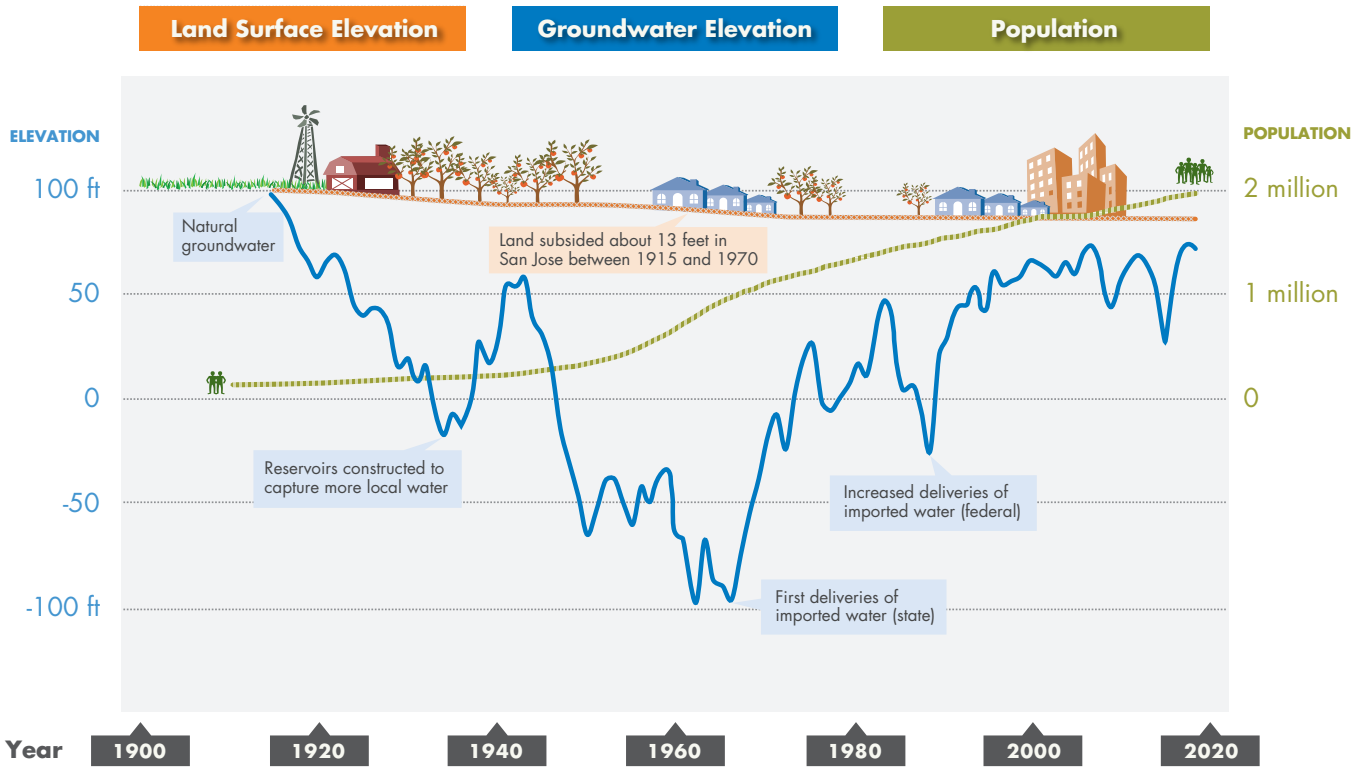
Working to protect future water supply

Previous generations invested in water systems, and it's now our turn to invest for our children and their children.

Smart investments will decrease the magnitude of critical shortages in supplies due to hydrologic conditions and regulatory actions.

Santa Clara County Groundwater at-a-Glance

A graphic representation not intended as a technical exhibit.



Last updated February 1, 2019

Over the years, the water district's water importation and groundwater management activities have stabilized groundwater levels and prevented land subsidence, or sinking.

Estimated 2018 total county water supply

The chart at right shows calendar year 2018 estimated total water supply for Santa Clara County. Water from our 10 local reservoirs and water imported from the federal Central Valley Project and State Water Project is:

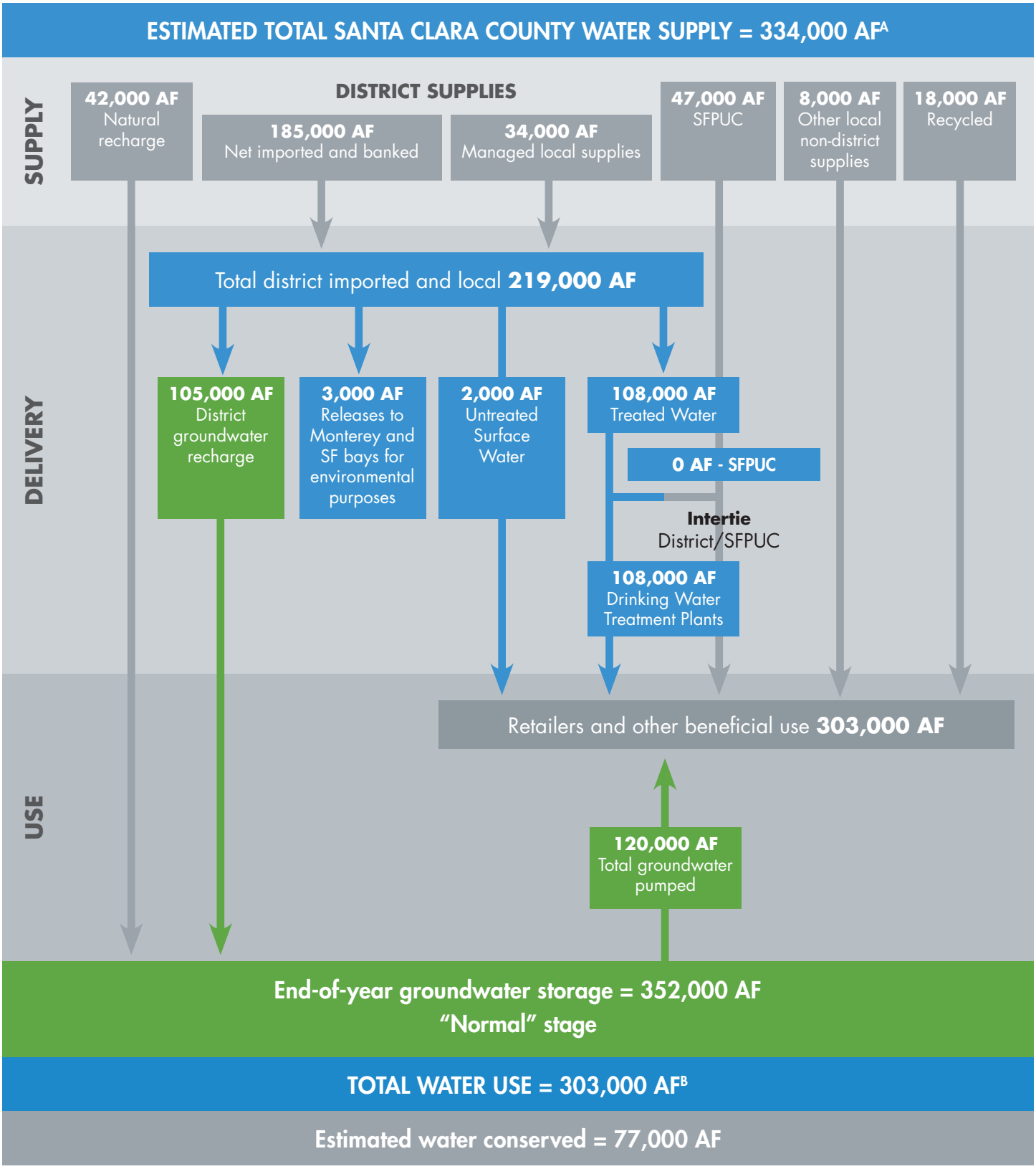
- Used to replenish local groundwater basins, which are pumped for use by individual well owners, municipal and retail water providers
- Sent to the district's three drinking water treatment plants for purification
- Supplied directly to water retailers
- Released to meet environmental needs and regulations

Non-district supplies in the county include rainfall recharge; water from San Francisco's Hetch Hetchy system; and private water rights. Note: stored groundwater is not included in the overall supply figure. For more detail on sources of supply, see Section 1.

Acre-foot: About 326,000 gallons, the amount used by two families of five over one year.

PROTECTION AND AUGMENTATION OF WATER SUPPLIES 2019-2020

Calendar Year 2018



[A] Includes net district and non-district surface water supplies and estimated rainfall recharge to groundwater basins.
[B] Includes municipal, industrial, agricultural and domestic uses.

WATER RATES

		Dollars Per Acre Foot		
	Basic User/Groundwater Production Charge	**FY 2017–18**	**FY 2018–19**	**Proposed Maximum FY 2019–20**
Zone W-2 (North County)	Municipal and Industrial	1,175.00	1,289.00	1,374.00
	Agricultural	25.09	27.02	120.25
	Surface Water Charge			
	Surface Water Master Charge	33.36	35.93	37.50
	Total Surface Water, Municipal and Industrial*	1,208.46	1,324.93	1,411.50
	Total Surface Water, Agricultural*	58.45	62.94	157.75
	Treated Water Charges			
	Contract Surcharge	100.00	100.00	100.00
	Total Treated Water Contract Charge**	1,275.00	1,389.00	1,474.00
	Non-Contract Surcharge	50.00	50.00	50.00
	Total Treated Water Non-Contract Charge***	1,225.00	1,339.00	1,424.00

	Basic User/Groundwater Production Charge	**FY 2017–18**	**FY 2018–19**	**Proposed Maximum FY 2019–20**
Zone W-5 (South County)	Municipal and Industrial	418.00	450.00	481.00
	Agricultural	25.09	27.02	120.25
	Surface Water Charge			
	Surface Water Master Charge	33.36	35.93	37.50
	Total Surface Water, Municipal and Industrial*	451.36	485.93	518.50
	Total Surface Water, Agricultural*	58.45	62.94	157.75
	Recycled Water Charges			
	Municipal and Industrial	398.00	430.00	461.00
	Agricultural	48.88	54.41	147.64

*Note: The total surface water charge is the sum of the basic user charge (which equals the groundwater production charge) plus the water master charge.

**Note: The total treated water contract charge is the sum of the basic user charge (which equals the groundwater production charge) plus the contract surcharge.

***Note: The total treated water non-contract charge is the sum of the basic user charge (which equals the groundwater production charge) plus the non-contract surcharge.

Water district staff is proposing groundwater production charge increases of up to 6.6 percent for North County Municipal and Industrial (M&I) well owners and up to 6.9 percent for South County. For surface water users, the water district staff is proposing increases up to 6.5 percent for North County M&I water users, up to 6.7 percent for South County M&I water users. The increases are necessary to cover water treatment plant upgrades, recycled water system expansion and critical capital program needs, including dam seismic retrofits.

For agricultural groundwater and surface water users in either zone, staff has not prepared a proposed increase, but instead has shown the maximum rate allowed by the District Act, which is a placeholder to allow flexibility for the board as it deliberates changes to its policy on agricultural water pricing. The proposed maximum charges are shown in the right-hand column of the chart above.

1 2019 PAWS REPORT
Present Water Requirements and Water Supply Availability

1-1 WATER SUPPLY OVERVIEW

The mission of the Santa Clara Valley Water District (district) is to provide Silicon Valley safe, clean water for a healthy life, environment and economy. Accordingly, the district employs an integrated approach to manage a sustainable water supply through conjunctive management and use of surface water and groundwater resources to maximize water use efficiency.

Water supply is comprised of "incoming" supplies from local and imported sources, as well as previously-stored supplies, referred to as carryover, withdrawn from in-county and/or out-of-county surface water and groundwater storage.

Local Supplies

Local groundwater resources make up the foundation of water supply in Santa Clara County, but they need to be augmented by the district's comprehensive water supply management activities to reliably meet the needs of county residents, businesses, agriculture and the environment. These activities include direct managed recharge and in-lieu groundwater recharge through the provision of treated and untreated surface water, acquisition of supplemental water supplies, water conservation and recycling, and programs to protect, manage and sustain water resources.

Runoff from precipitation constitutes the bulk of the local water supplies and is captured in local reservoirs. The water is released for groundwater recharge, in-stream beneficial uses, local raw water customers, and treatment at the treatment plants. Some of the precipitation infiltrates and recharges the groundwater basins, although this natural recharge is insufficient to fully replenish groundwater pumped from the basins.

An additional local water supply is recycled water used for non-potable purposes. Use of recycled water offsets demand for potable water. Every gallon of recycled water used in this county saves an equal gallon of groundwater or treated drinking water.

Imported Supplies

The district's imported sources of supply originate from natural runoff and releases from statewide reservoirs and are pumped out of the Sacramento-San Joaquin Delta (Delta) by the State Water Project (SWP) and the federal Central Valley Project (CVP). The district holds contracts with the State government for up to100,000 acre-feet of supply from the SWP and federal government for up to 152,500 acre-feet of supply from the CVP, per year, respectively. Actual deliveries depend on the availability of water supplies after meeting regulations to protect the environment and Delta water quality. The imported water delivered by the SWP and CVP is sent to the district's three water treatment plants, used to supplement groundwater recharge, or stored in local and State reservoirs for use in subsequent years. The district also stores some of its imported water in the Semitropic Groundwater Bank in Kern County for withdrawal during dry periods. Treated imported water is sold to seven of the 13 water retailers located within Santa Clara County to offset groundwater pumping. The district may also augment its imported supplies by taking deliveries of available

temporary flood flows from the Delta early in the year, before imported water contract allocations and local hydrology are known. If water supplies are insufficient to meet needs, the district may also purchase transfer water or participate in exchanges to supplement supplies; both transfer and exchange supplies are conveyed to Santa Clara County from the Delta. Additionally, eight water retailers purchase water from the City and County of San Francisco that originates from the Tuolumne River watershed and watersheds in the Bay Area. Without all these supplemental supplies, groundwater pumping would exceed sustainable groundwater extraction levels.

Conjunctive Water Management

Since the 1930s, the district's water supply strategy has been to coordinate the management and use of surface water and groundwater to maximize water supply reliability, which is known as conjunctive management. The Sustainable Groundwater Management Act (SGMA) was signed into State law in September 2014, with the intent of promoting the local, sustainable management of groundwater supplies. SGMA identifies the Santa Clara Valley Water District as one of fifteen exclusive groundwater management agencies within their jurisdictions. In May 2016, the district Board of Directors (Board) adopted a resolution to become the groundwater sustainability agency for the Santa Clara and Llagas subbasins. In November 2016, the Board adopted the 2016 Groundwater Management Plan (GWMP), which describes the district's conjunctive management activities, as well as groundwater sustainability goals, strategies, and related outcome measures. The GWMP was submitted to the California Department of Water Resources (DWR) in December 2016 as an alternative to a groundwater sustainability plan, in compliance with SGMA. In March 2018, the District submitted the first annual report for water year 2017, which is required by SGMA. The district will continue to sustainably manage the Santa Clara and Llagas subbasins according to the District Act and will fully comply with SGMA.

Key district conjunctive management efforts include using imported and local surface water to recharge the groundwater subbasins. The district also provides treated and raw surface water to customers, which offsets demands on the groundwater subbasins. Water conservation and recycled water use offset demands on both surface water and groundwater. All these activities help maintain a reliable water supply.

In 2018, the district managed recharge program replenished the groundwater basins with about 105,400 acre-feet of local and imported surface water. The largest source of in-lieu recharge was the distribution of treated water (108,200 acre-feet). The district saved an estimated 77,300 acre-feet of water through programs designed to reduce residential, commercial, and agricultural water use and make conservation a way of life in the county. A smaller, but important and growing source of in-lieu recharge is recycled water, which provided about 18,000 acre-feet of water for irrigation, industry, and agriculture in 2018. Using recycled water reduces dependency on groundwater and surface water, helps conserve drinking water supplies, and provides a locally-controlled, drought-resilient supply. The district is partnering with local recycled water producers to further expand the use of recycled water.

Without the district's conjunctive management programs (including managed and in-lieu recharge), groundwater levels would be considerably lower than they are today, reducing water supply reliability and increasing the risks of renewed land subsidence (sinking) and salt water intrusion. Water supplies are becoming increasingly constrained by challenges including uncertainty in surface water supplies, extended droughts, climate change, and increased water demands. Maintaining the district's conjunctive management programs and expanding them as needed is critical to making the best use of local water resources and ensuring a reliable water supply both now and in the future.

Although the groundwater basins are the district's largest water storage facility, the limiting factor of providing a reliable water supply in drought periods is the overall capacity and capability to operate a conjunctive management system of surface water and groundwater supplies. Most of the local reservoirs were sized for annual operations, storing water in winter for release to groundwater recharge in summer and fall. The exception is the Anderson-Coyote reservoir system, which provides valuable carryover of supplies from year to year and can serve as a backup supply source to the district's water treatment plants when imported water deliveries are curtailed. Calero Reservoir also serves as a backup supply to the drinking water treatment plants with dedicated storage preserved for emergency use. However, dam safety operating restrictions placed on Anderson, Coyote, Almaden, Calero and Guadalupe reservoirs have resulted in loss of over 54,800 AF or about a third of the total surface storage capacity (as shown in Table 1-1.1) as well as significant loss of water supply yield.

Table 1-1.1 Current and Restricted Capacities of Major District Reservoirs

Reservoir	Year Built	Reservoir Capacity[3] (acre-feet)	Restricted Capacity[3] (acre-feet)	Primary Use
Almaden[1]	1935	1,586	1,472	Groundwater recharge, treated for drinking water
Anderson[1,2]	1950	89,278	51,766	Groundwater recharge, treated for drinking water
Calero[1]	1935	9,738	4,414	Groundwater recharge, treated for drinking water
Chesbro	1955	7,967	7,967	Groundwater recharge
Coyote[1]	1936	22,541	11,843	Groundwater recharge, treated for drinking water
Guadalupe[1]	1935	3,415	2,218	Groundwater recharge
Lexington	1952	19,044	19,044	Groundwater recharge
Stevens Creek	1935	3,056	3,056	Groundwater recharge
Uvas	1957	9,688	9,688	Groundwater recharge
Vasona	1935	495	495	Groundwater recharge
Total		166,808	111,963	

[1] Reservoirs with dam safety operating restrictions

[2] An interim reservoir elevation restriction of 589.5 feet (NGVD 1929) was approved by DSOD on May 8, 2017 for Anderson Reservoir.

[3] Reservoir and restricted capacities were updated in FY 2018-19 to reflect most recent surveying results.

As part of annual operations planning, the district routinely opts to carry over a portion of imported water supplies for future years. Even though the amount is often limited by state or federal project operations, it provides cost-effective insurance against a subsequent dry year. Additionally, the district has invested in a water banking program at the Semitropic Water Storage District which provides 350,000 acre-feet of out-of-county water storage capacity. Together

with water transfers and exchanges, this additional storage helps the district manage uncertainty and variability in supply as each water year develops.

Managing a complex system of surface water and groundwater resources is further complicated by hydrologic uncertainties, regulatory restrictions and aging infrastructure, as discussed in the following sections of this report.

1-2 PRESENT WATER SUPPLY CONDITIONS

Precipitation

Locally, rainfall for the 2017–18 season at downtown San Jose was at 59 percent of average[1]. Total rainfall from July 2017 through June 2018 resulted in a below-average rainfall season, based on data going back to 1874.

The 2018–19[2] rainfall year began with a below-average December. Cumulative rainfall at the San Jose gauge from July 1, 2018 through December 31, 2018 was estimated to be 3.0 inches. Rainfall at the San Jose gauge in January 2019 totaled 2.8 inches, which is near average for that month. Cumulative local rainfall as of February 1, 2019 was 41 percent of seasonal average to date in San Jose and 65 percent in the Coyote watershed.

Statewide precipitation by December 31, 2018 was at 82 percent of seasonal average to date. As of February 1, 2019, statewide snow water equivalent was 17.5 inches and 98 percent of normal.

Imported Water Allocations

Water year 2017-2018 marked a return to dry conditions statewide with nearly all of the state experiencing below-average precipitation. The SWP allocation for 2018 was initially set at fifteen (15) percent in November 2017 and increased to a final allocation of thirty-five (35) percent by May 2018. The CVP agricultural allocation for water contractors was set to fifty (50) percent and the CVP M&I allocation finalized at seventy-five (75) percent. Table 1-2.1 summarizes the year types and final allocations from the SWP and CVP to the district for the last five years.

The early winter of 2018-2019 has been experiencing drier than average hydrology, and initial allocations are expected to be low. In November 2018, the Department of Water Resources (DWR) set the initial SWP allocation for 2019 at ten (10) percent. In January 2019, DWR increase the SWP allocation for 2019 to fifteen (15) percent. The Bureau of Reclamation (Reclamation) has yet to set its initial CVP allocations for 2019.

[1] Rainfall at San Jose (City of San Jose gauge 6131) was approximately 8.5 inches or 59 percent of average for the rainfall season from July 1, 2017 to June 30, 2018.

[2] Precipitation data for rainfall year 2018-19 is provisional until verified by staff in Spring of 2019.

Table 1-2.1 Statewide Water Year Types and Final Imported Water Allocations

Water Year	Year Type		Final allocations to the district as % of contract amounts		
	Sacramento River	San Joaquin River	SWP	CVP	
				M&I	AG
2013-14	Critical	Critical	5%	50%	0%
2014-15	Critical	Critical	20%	25%	0%
2015-16	Below Normal	Dry	60%	55%	5%
2016-17	Wet	Wet	85%	100%	100%
2017-18	Below Normal	Below Normal	35%	75%	50%

Water Banking

To provide reliability in future years, the district banks water in groundwater storage outside of the county. This involves conveyance of the district's state and/or federal water supplies to a banking partner, another district that operates a groundwater conjunctive use program. Storage in the bank occurs when water is physically delivered to ponds to soak into the aquifer, or when surface water deliveries are used by the banking partner in lieu of groundwater pumping ("in-lieu recharge"). Return of stored water is accomplished when the banking partner uses groundwater in place of surface supplies, or physically pumps groundwater into the surface conveyance system for use by the Department of Water Resources for the SWP. The district is then delivered imported water from the Delta that would have otherwise been delivered to the banking partner or to other SWP contractors. The district banks SWP and CVP water at the Semitropic Water Storage District in Kern County. Table 1-2.2 shows the annual changes and year-end balances for banked water during calendar years 2016 and 2017, and the estimated activity for 2018.

Table 1-2.2 District Water Banking for Calendar Years 2016 through 2018 (Acre-Feet)

Water Banking	Actual 2016	Actual 2017	Estimated 2018 *
SEMITROPIC WATER STORAGE DISTRICT			
Beginning Balance (January 1)	181,668	190,338	254,385
District Deposit or Withdrawal	+8,670	+64,047	+38,340
TOTAL BANKED ENDING BALANCE (December 31)	**190,338**	**254,385**	**292,725**

** 2018 deposit quantity from Semitropic being finalized*

The district has a contractual right to deliver or "put" up to 31,675 acre-feet of water to storage each year. In any given year, the district may be able to deliver more than 31,675 acre-feet by using the unused "put" capacity of other banking partners, including Semitropic. The maximum amount of water the district delivered to storage in a single year was 89,022 acre-feet in 2005. The district has a contractual right to withdraw or "take" up to 31,500 acre-feet of water out of storage each year. The maximum amount of water the district can withdraw in any given year is dependent upon the SWP allocation and if the other banking partners have not made full use of their "take" capacity. The higher the SWP water supply allocation, the greater the "take" capacity. The largest amount of water previously withdrawn by the district in a single year was 45,881 acre-feet in 2015. An estimated 38,340 acre-feet were delivered to the bank in 2018. The estimated 2018 balance is 292,725 acre-feet out of a total capacity of 350,000 acre-feet.

Reservoir Storage

Reservoir storage volumes in Lake Oroville, Shasta Lake, and Folsom Lake at the beginning of calendar year 2018 were 56, 113 and 113 percent of historic average beginning-of-year volumes, respectively. By the end of December 2018, those levels had decreased to 47, 80 and 65 percent of average. Lake Oroville had lower levels primarily due to repair work that it is undergoing. By February 1, 2019, the levels were at 61, 95 and 103 percent, respectively.

Locally, the 2018–19 water year[3] started with district reservoirs at fairly low levels. October 1, 2018 total storage in these reservoirs was 67% of the 20-year average and 32% of capacity at the spillway crest.

Total storage in district reservoirs as of February 1, 2019 was 81 percent of the 20-year average and 43 percent of capacity. However, because of storage restrictions in place for half of the district reservoirs, the combined storage was at 64 percent of restricted capacity.

One of the district's reservoirs, Anderson Reservoir, has recently undergone an increased storage restriction. In a technical memorandum dated January 13, 2017, the district's Anderson Seismic Retrofit consultant recommended restricting the Anderson Reservoir normal storage elevation by an additional 10 feet to Elev. 589.5 feet NGVD 1929 for an interim period until construction of the Anderson Dam Seismic Retrofit Project. The Department of Water Resources, Division of Safety of Dams (DSOD) concurred with this proposal and, in a May 8, 2017 letter, set an interim reservoir operating restriction at Anderson Reservoir at the recommended elevation of 589.5 feet (NGVD 1929). This translates to a storage capacity of 51,766 AF. On October 10, 2017, the Board directed staff to operate the Anderson Reservoir system through the winter of 2017/2018 following the 40% exceedance rule curve to reduce the chances of exceeding the seismic restriction of the reservoir. The District does not expect this to have a significant impact on water supply as it does not change the amount of water that may be stored in Anderson Reservoir given the seismic restriction.

Groundwater Basins

While reservoirs are a visible indicator of our local water supply, the majority of our local reserves lie hidden beneath our feet in the groundwater aquifers. Because the groundwater basins can store two times more water than all the local surface water reservoirs combined, the district strives to maintain adequate groundwater storage in wet and average years to ensure water supply reliability during dry periods or shortages.

Groundwater levels remained sustainable in 2018 throughout the county, including the three index wells used to indicate general groundwater trends and conditions (see locator map in Figure 1-2.1 and related hydrographs in

[3] Water year is the twelve month period between October 1 and September 30.

Figures 1-2.2 through 1-2.4). In 2018, water levels remained well above thresholds established to prevent renewed land subsidence[4]. The district continues to closely monitor groundwater levels and land subsidence conditions.

Figure 1-2.1 Map of Index Well Locations

[4] To avoid additional permanent subsidence due to groundwater overdraft, the district has established water level thresholds at ten index wells throughout the Santa Clara Plain. A tolerable rate of 0.01 feet per year of land subsidence was applied to determine threshold groundwater levels for these wells. Threshold groundwater levels are the groundwater levels that must be maintained to ensure a low risk of unacceptable land subsidence.

Figure 1-2.2 Historical Santa Clara Plain Groundwater Elevations, Index Well 07S01W25L001

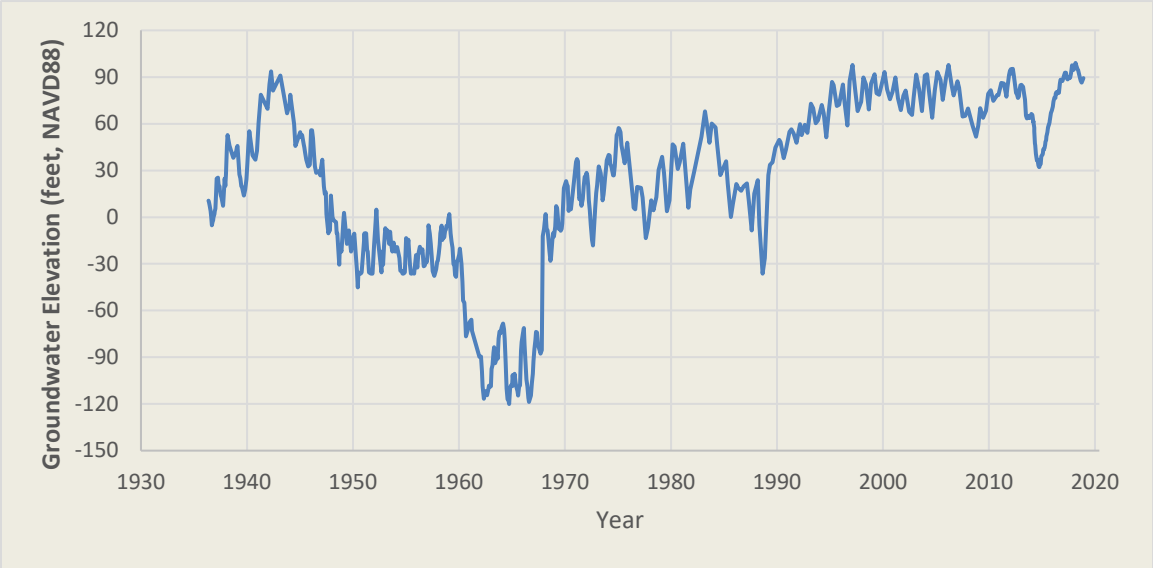


Figure 1-2.3 Historical Coyote Valley Groundwater Elevations, Index Well 09S02E02J002

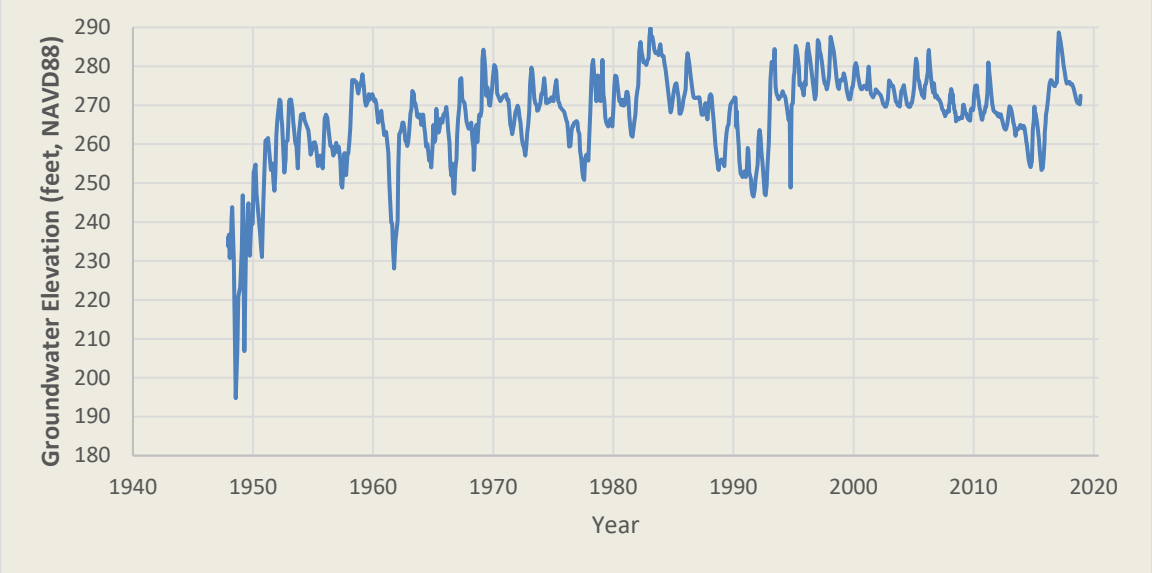
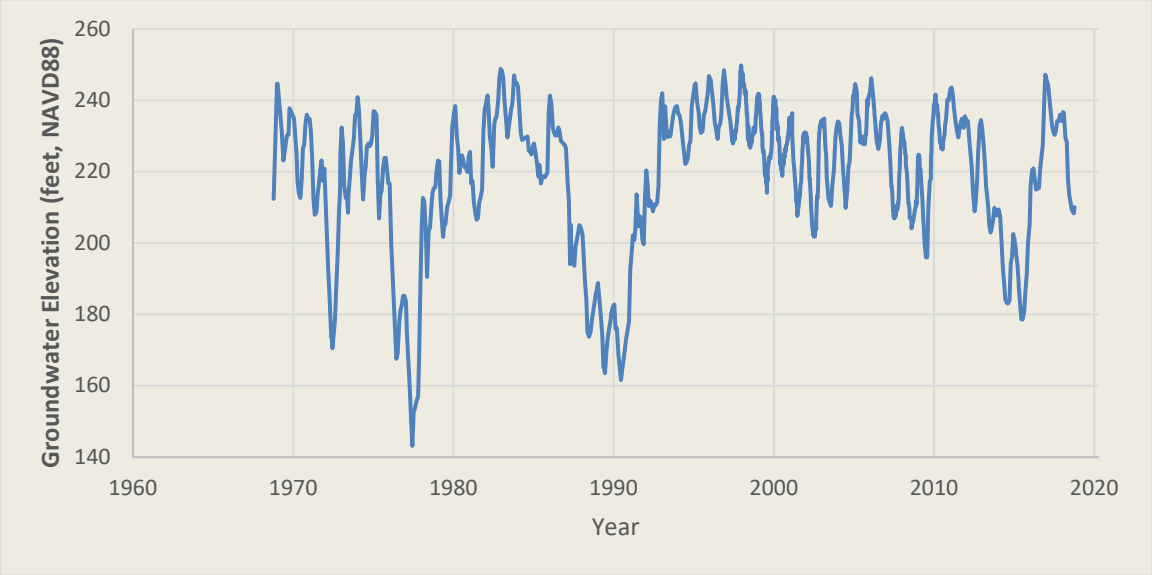


Figure 1-2.4 Historical Llagas Subbasin Groundwater Elevations, Index Well 10S03E13D003



The estimated increase in groundwater storage in 2018 is about 10,500 AF as shown in Table 1-2.3. The increase in groundwater reserves can be attributed to continued water use reduction by the community and fair hydrologic conditions. The district continues to closely track water supply conditions and modify operations accordingly. Monthly water supply conditions are summarized in the district's Water Tracker, which is available on the district website[5]. A more detailed evaluation of groundwater conditions will be presented in the district's annual groundwater report, which will be completed in June 2019 and will include reporting on outcome measures related to groundwater storage, levels, quality and subsidence.

Table 1-2.3 End-of-Year Groundwater Storage and Change in Storage

	Cumulative Groundwater Storage Estimates AF (acre feet)		
	End of Year 2017	End of Year 2018	Change in Storage AF
Santa Clara Subbasin, Santa Clara Plain	305,400	324,200	+18,800
Santa Clara Subbasin, Coyote Valley	10,200	7,600	-2,600
Llagas Subbasin	26,300	20,600	-5,700
Total	341,900	352,400	+10,500

Note: Groundwater storage estimates are based on accumulated groundwater storage since 1970, 1991, and 1990 for the Santa Clara Plain, Coyote Valley, and Llagas Subbasin, respectively. These estimates are refined as additional pumping and managed recharge data become available.

[5] The Water Tracker is available on the district website: https://www.valleywater.org/your-water/water-supply-planning/monthly-water-tracker

Water Use Reduction

The district's Water Shortage Contingency Plan evaluates the water use reduction needed based on projected end of year groundwater storage as shown in Table 1-2.4.

On February 25, 2014, as a result of the 2012 to 2016 drought and reduced water supply outlook in 2014, which included projected groundwater storage, the district's Board of Directors (Board) set a preliminary 2014 water use reduction target equal to 20 percent of 2013 countywide water use. As conditions changed throughout the drought, the board updated its call for water use reductions and recommendations to achieve savings in accordance with the water supply outlook and the Water Shortage Contingency Plan. The Board's most recent resolution adopted June 13, 2017 continues the call for a 20 percent reduction, clarifying that it was a voluntary call.

The estimated end of 2018 storage of about 352,000 acre-feet falls into the "Normal" stage, the first stage in our five-stage Water Shortage Contingency Plan. (The five stages are shown in Table 1-2.4.)

Table 1-2.4 Water Shortage Contingency Plan Action Levels

Stage	Title	Projected End-of-Year Groundwater Storage (Acre-Feet)	Suggested Short-Term Reduction in Water Use
1	Normal	Above 300,000	None
2	Alert	250,000 to 300,000	0 – 10%
3	Severe	200,000 to 250,000	10 – 20%
4	Critical	150,000 to 200,000	20 – 40%
5	Emergency	Less than 150,000	Up to 50%

1-3 PRESENT WATER USE AND WATER REQUIREMENTS

As mentioned above, in June 2017, the Board adopted a resolution calling for a voluntary 20 percent reduction in water use compared to 2013. Accordingly estimated retailer water use in 2018 equates to a 19% reduction versus 2013. Imported water allocations, transfers, exchanges, and groundwater banking brought approximately 166,580 acre-feet to meet 2018 demands.

To meet current and future demands, the district continues to implement its long-term water conservation program. With a target of saving nearly 100,000 acre-feet per year by 2030, the long-term program offers technical assistance and a variety of incentives that achieve sustainable water savings. The program saved approximately 77,300 acre-feet in calendar year 2018.

Table 1-3.1 shows unadjusted water use in Santa Clara County and Table 1-3.2 shows a breakdown of groundwater production and managed recharge by water charge zone. Table 1-3.3 shows a historical summary of surface water supply, use and distribution for the last three years.

Table 1-3.1 Water Use in Santa Clara County for Calendar Years 2016-2018

Historical Calendar Year Water Use	In Acre-feet*		
	Actual 2016	Preliminary 2017	Estimated 2018
Groundwater Pumped	107,700	124,100	119,900
Treated Water	97,900	102,700	108,200
Raw Surface Water Deliveries	1,100	1,600	2,500
SFPUC Supplies to Local Retailers[1]	42,500	46,700	46,800
San Jose Water Company Water Rights	7,600	1,900	8,200
Recycled Water	19,000	16,700	18,000
Total	**275,800**	**293,700**	**303,600**

[1] San Francisco Public Utilities Commission supplies to 8 retailers and NASA-AMES

** All values are rounded to the nearest hundred. Data is as of 1/29/19 and may be subject to change.*

Note: Stanford has historically utilized between 200-1000 Acre Feet/Year of its water rights. This is not reflected in the table above.

Table 1-3.2 Groundwater Production and Managed Recharge by Water Charge Zone

Charge Zone	Zone W-2					Zone W-5				
	Groundwater Production, acre-feet			Managed Recharge		Groundwater Production, acre-feet			Managed Recharge	
Calendar Year	Agricultural	Non Agricultural	Zone Total	Zone Total Recharge, acre-feet	Managed Recharge as % Production	Agricultural	Non-Agricultural	Zone Total	Zone Total Recharge, acre-feet	Managed Recharge as % Production
1997	1,910	118,550	120,460	78,040	65%	32,746	21,710	54,456	32,120	59%
1998	1,101	99,210	100,310	66,670	66%	25,861	20,009	45,870	26,130	57%
1999	1,087	106,403	107,490	80,900	75%	29,144	23,767	52,910	26,500	50%
2000	972	112,399	113,371	88,400	78%	26,920	24,537	51,457	30,200	59%
2001	752	114,606	115,358	84,620	73%	28,510	25,437	53,947	32,040	59%
2002	707	103,952	104,659	71,660	68%	27,537	23,787	51,324	35,300	69%
2003	447	96,208	96,656	74,200	77%	25,964	24,256	50,220	35,000	70%
2004	579	105,137	105,716	66,700	63%	27,634	25,533	53,167	31,000	58%
2005	826	86,640	87,467	69,200	79%	25,458	25,237	50,695	32,500	64%
2006	429	82,195	82,624	65,770	80%	24,420	28,616	53,036	30,440	57%
2007	1,087	108,748	109,835	58,000	53%	27,660	31,424	59,084	33,410	57%
2008	1,074	106,579	107,653	51,290	48%	28,183	33,520	61,703	36,100	59%
2009	608	97,242	97,850	63,000	64%	24,874	32,400	57,274	39,100	68%
2010	437	84,227	84,664	58,540	69%	22,616	29,459	52,075	42,210	81%
2011	298	70,989	71,287	54,820	77%	22,544	29,834	52,378	39,360	75%
2012	460	75,931	76,391	55,940	73%	25,010	30,847	55,857	40,790	73%
2013	562	94,731	95,293	59,600	63%	26,325	32,940	59,265	37,100	63%
2014	924	113,576	114,500	11,490	10%	26,018	28,852	54,870	15,010	27%
2015	569	65,330	65,899	28,300	43%	25,048	25,025	50,073	26,100	52%
2016	398	55,341	55,739	101,000	181%	25,279	26,662	51,941	46,700	90%
Prelim. 2017	300	69,300	69,600	77,300	111%	25,400	29,100	54,500	35,100	64%
Estim. 2018	400	65,700	66,100	76,500	116%	26,400	27,400	53,800	28,900	54%

Table 1-3.3 Historical Surface Water Supply, Use and Distribution for Three Previous Calendar Year

	Calendar Year, in Acre Feet		
	Actual 2016	Preliminary 2017	Estimated 2018
District Supplies			
Local Surface Water			
Inflow (net, minus evap)	123,080	486,460	32,350
Surface Water Storage Releases (+) or additions to(-)	-25,240	+28,910	+1,870
Imported Water			
Prior year carryover	52,690	38,520	73,580
Delta flood flows	0	0	0
State Water Project contract allocation	60,000	85,000	35,000
San Felipe Division contract allocation	73,160	152,500	114,050
Semitropic water bank withdrawals[1]	0	0	0
Water transfers and exchanges[1]	34,410	3,060	17,530
Returned to District from SFPUC via intertie	720	2,110	1,590
Total District Supplies:	**318,820**	**796,560**	**275,970**
Distribution of District Supplies			
To groundwater recharge			
Santa Clara Plain (Santa Clara Subbasin)	101,050	77,280	76,470
Coyote Valley (Santa Clara Subbasin)	20,400	16,830	10,760
Llagas Subbasin	26,290	18,240	18,100
To treated water	97,850	102,690	108,210
To surface water irrigation	1,120	1,590	2,450
To environment	23,330	415,040	2,980
To Semitropic water bank	9,630	71,160	42,600
To imported water carryover			
Used by District	38,520	73,580	10,230
Returned to SWP/CVP	0	0	0
To water transfers and exchanges	0	19,000	2,500
Returned to SFPUC via intertie	630	1,150	1,670
Total Distribution of District Supplies:	**318,820**	**796,560**	**275,970**
Other Supplies			
San Jose Water Co. water rights[2]	7,560	1,900	8,210
Recycled water (including District)	19,010	16,720	17,960
SFPUC deliveries to retailers	42,530	46,690	46,810
Total Other Surface Water Supplies	**69,100**	**65,310**	**72,980**
Total Managed Supplies:	**387,920**	**861,870**	**348,950**

Note: Numbers rounded to the nearest 10AF.

[1] These values include supply secured in that year but may have been carried over to a future year.

[2] Stanford has historically utilized between 200-1000 AFY of its water rights. This is not reflected in the table above.

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2 2019 PAWS REPORT
Future Water Requirements and Water Supply Availability

2-1 OVERVIEW

As the water management agency and principal water wholesaler for Santa Clara County, the district is responsible for planning (in collaboration with San Francisco Public Utilities Commission [SFPUC] and local retailers) the water supply of the county to meet current and future demands.

Water supply reliability includes the availability of the water itself as well as the reliability and integrity of the infrastructure and systems that capture, store, transport, treat and distribute it. The district strives to meet water demand under all hydrologic conditions, including satisfying its treated water contracts for deliveries to the retail water suppliers. As the groundwater manager for the county, the district's goal is to protect and augment groundwater to ensure it is available both now and in the future.

Since water supplies available to the county are obtained from both local and imported sources, the district's water supply is a function of the amount of precipitation that falls both locally and in the watersheds of Northern California. The supply available is also a function of the facilities in place to manage the supply. Sources of water supply in northern Santa Clara County (North County) consist of locally developed and managed water, recycled water, water imported by the district via the SWP and the federal CVP, and supplies to some of the retail water suppliers from the SFPUC's regional water system (Hetch Hetchy and Bay Area watersheds). Southern Santa Clara County (South County including Coyote Valley and Llagas Subbasin) is supplied by locally developed and managed water, recycled water, and CVP water.

2-2 PROJECTED FUTURE WATER SUPPLY AVAILABILITY AND DEMAND

Near Term Water Supply Availability

District staff begins preparing the district's Annual Water Supply Operations and Contingency Strategy for the upcoming calendar year in the fall of each year. The strategy is composed of numerous operations and water supply management scenarios that account for the probable range of water supply conditions that the district can expect in the upcoming year. These variable conditions include precipitation, locally and in the Sierra, as well as imported supplies. Local precipitation and runoff impact our local reservoir storage, stream flow, and natural recharge of the groundwater basins. The quantity of precipitation in the Sierra and the timing of snowmelt impact the district's imported water supplies that are conveyed through the Sacramento-San Joaquin Delta. Other factors that impact the district's water supply include: infrastructure and facility limitations; planned and unplanned facilities outages; contractual obligations; the ability to bring in banked district supplies from Semitropic Water Storage District; and regulatory, institutional, and legal constraints.

As described in Section 1 of the report, rainfall year 2018–19 began with a below average December in terms of local rainfall. Near average precipitation materialized in the month of January. The northern portion of California saw slightly below average precipitation at the onset of the rainfall year. The Northern Sierra 8-Station Precipitation Index total from the beginning of October through the end of January of 2019 was 26.1 inches, which is about 93 percent of the seasonal average to date and 50 percent of an average water year.

The California Department of Water Resources (DWR) announced an initial 2019 allocation of ten (10) percent of contract amounts for the SWP supply and later increased it to fifteen (15) percent on January 25, 2019. The Bureau of Reclamation (Reclamation) has yet to set its initial CVP allocations for 2019. The initial allocations are subject to change as the water year progresses.

Local surface water supplies have been reduced because of the loss in district reservoir storage capacity due to regulatory restrictions to address seismic concerns. Regulatory restrictions at Anderson Reservoir, the largest district-owned surface reservoir, have resulted in the loss of about 40 percent of its storage capacity.

Table 2-2.1 reflects the probable range of local and imported surface water supplies the district currently expects in calendar year 2019. In conjunction with surface water supplies, groundwater reserves are managed to supplement available supplies during dry periods and to ensure that there are adequate supplies to meet current and future demand. The strategy will be continuously updated throughout the year to account for operations to-date and real-time conditions.

Table 2-2.1 Projected Calendar Year 2019 - Range of Surface Water Supply

Projected Calendar Year 2019 Supply in Acre-Feet		
	Average Year	Dry Year
Imported Water[1]	147,400 – 166,400	111,500 – 123,500
Local Surface Water	83,600	43,700
Total	231,000 – 250,000	155,200 – 167,200

1. Imported Water Supplies are based on a range of SWP allocations provided during the January 24, 2019 Water Operations meeting and CVP allocations that may possibly occur in an average or dry year. The average year projection assumes between 35-54% allocation for SWP, 45% allocation for CVP agriculture (Ag), and 75% allocation for CVP municipal & industrial (M&I). The dry year assumes between 9-21% allocation for SWP, 15% allocation for CVP Ag, and 75% for CVP M&I. Transfers, exchanges, banking, and carryover are not included as it is unknown at this point which of these supplies are needed for the upcoming year.

Long-Term Projected Demand and Water Supply

The long-term water supply and demand projections are based on analyses for the Water Supply Master Plan 2040, as well as the district's and retailers' Urban Water Management Plans. The Water Supply Master Plan presents the district's long-term water supply outlook without additional investments. It describes the type and level of investments the district should make to provide a reliable supply of water, and includes a monitoring and assessment plan to make sure the district's investment strategy is on track. The projections below include existing and planned investments, which are described further in Section 3.

Water Demand

The Association of Bay Area Governments projected in 2013 that the population of the county will increase from about 1.9 million in 2015 to about 2.4 million by the year 2040. Jobs are projected to increase from about 1.0 million in 2015 to about 1.2 million in 2040. Even though per capita water use continues to decline, the district estimates that increases in population and jobs will result in an increase in water demands from a current average of about 350,000 acre-feet to about 392,000 acre-feet in 2040. This demand projection takes into account implementation of planned water conservation programs but does not include short-term water use reductions that might be requested during a drought or other water shortage.

Conservation

The district and most major retail water providers partner in regional implementation of a variety of water use efficiency programs to permanently reduce water use in the county. The district's long-term savings goal is to achieve 99,000 acre-feet per year in water savings by 2030. The Water Supply Master Plan's "No Regrets" package includes additional water conservation programs that are designed to achieve 109,000 acre-feet per year of water savings by 2040. Additionally, the Water Conservation Act of 2009 requires all retail water agencies in the state, with assistance from the water wholesalers, to reduce per capita water use 20 percent by 2020. Additional water conservation requirements are being developed consistent with the State's "Making Conservation a California Way of Life" policy.

To achieve these aggressive long-term goals, the district implements nearly 20 different ongoing water conservation programs that use a mix of incentives and rebates, free device installation, one-on-one home visits, site surveys, and educational outreach to reduce water consumption in homes, businesses and agriculture. These programs are designed to achieve sustainable, long-term water savings and are implemented regardless of water supply conditions. Without these savings, the demands shown in Figure 2-2.1 would be substantially higher.

Water Supply

Several sources of supply contribute to the district's ability to meet future demands, including local surface water and natural groundwater recharge, recycled and purified water, supplies delivered to retailers by the SFPUC, and Delta-conveyed imported water supplies:

- Local Surface Water and Natural Groundwater Recharge
  Local surface water supplies are expected to increase over current levels after the district completes seismic retrofits on several dams, so the dams can be operated at full capacity (approximately 2025-2030). In addition, the stormwater capture projects in the Water Supply Master Plan's "No Regrets" package are projected to increase natural groundwater recharge. The district is also considering constructing new groundwater recharge facilities that would increase the district's ability to use local runoff, as well as imported water, to meet water demands.

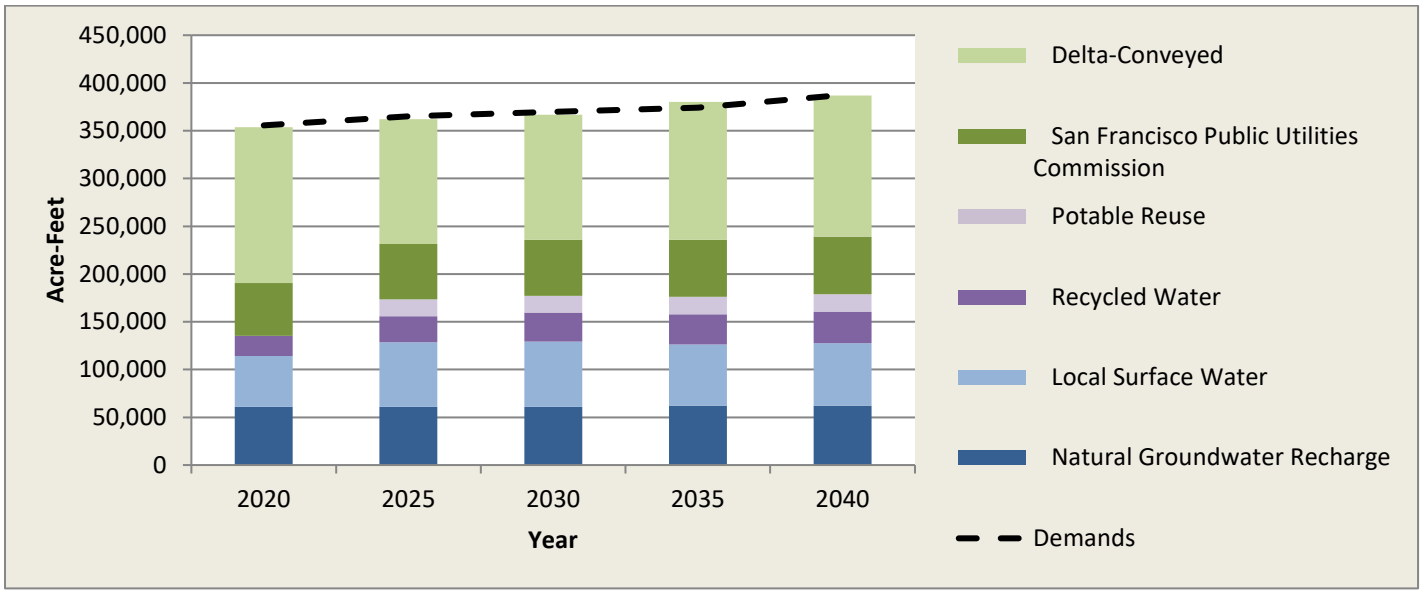
- Recycled and Purified Water
  Recycled and purified water is a local, reliable source of supply that helps meet demands in wet, normal and dry years. Recycled and purified water use is expected to increase in the long-term. The district's 2015 Urban Water Management Plan projects that approximately 33,000 acre-feet of year 2040 demands will be met with non-potable recycled water. The district Board has set an objective to meet at least 10% of the County's total water demands using recycled and purified water. To achieve this objective, the district is developing a Countywide Water Reuse Master Plan in collaboration with recycled water producers, wholesalers, retailers, and other interested stakeholders that will evaluate and recommend non-potable and potable reuse projects that will produce at least 24,000 acre-feet per year of potable reuse (purified water) by 2028 consistent with the Water Supply Master Plan.

- San Francisco Public Utilities Commission (SFPUC)
  SFPUC water supplies to common retailers reduce demands on district supplies in northern Santa Clara County. Most of the common retailers have supply guarantees from SFPUC that are not expected to change over time. However, two retailers (the City of San Jose and the City of Santa Clara) have interruptible contracts. If the SFPUC interrupts supplies to these retailers, there could be additional demand for district supplies.

- Delta-Conveyed Imported Water
  The district holds contracts with the California Department of Water Resources and U.S. Bureau of Reclamation for up to 252,500 AF per year of supplies, with actual deliveries subject to availability of water supplies and the satisfaction of regulatory constraints to protect fish, wildlife, and water quality in the Delta. These Delta-conveyed imported water deliveries from the SWP and CVP have been negatively impacted by significant restrictions on Delta pumping required by biological opinions issued by the U.S. Fish and Wildlife Service (FWS, December 2008) and National Marine Fisheries Service (NMFS, June 2009). Based on modeling projections provided by the California Department of Water Resources, future average imported water deliveries could decrease with additional regulatory restrictions and impacts from climate change. In May 2018, the district Board approved participation in California WaterFix at a level that would maintain existing Delta-conveyed imported water supplies. The district is also considering investing in the Transfer-Bethany Pipeline, which would provide flexibility in how the district receives Delta-conveyed supplies. Furthermore, the district Board approved planning and design efforts for Pacheco Reservoir in November 2018, which would provide flexibility in storing Delta-conveyed supplies for use during drier years.

Figure 2-2.1 shows projected average supplies and demands through year 2040. The projection assumes existing supplies and infrastructure are maintained and that the recently approved projects (No Regrets, potable reuse, and California WaterFix) are fully implemented. In this case, average water supplies appear to be sufficient to meet future water demands. If one or more of these projects are not fully implemented, or if other risks or uncertainties are realized (i.e., demands increasing more than what is projected), additional water supply and/or demand reduction projects may be needed.

Figure 2-2.1 Average Supply & Demand Comparison, Santa Clara County



Reserves

Santa Clara County, like the rest of California, experiences drastic changes in annual precipitation. The variable precipitation causes annual fluctuations in water supply availability. Annual supplies exceed demands in some years, while demands can greatly exceed supplies in other years. As part of its conjunctive management program, the district compensates for this supply variability by storing excess wet year supplies in the local groundwater basins, local reservoirs, San Luis Reservoir, and Semitropic Groundwater Bank. The district draws on these reserve supplies during dry years to help meet demands. These reserves are generally enough to meet demands during a single critical dry year and the initial years of an extended drought. Based on analyses being conducted as part of the Water Supply Master Plan update, the district anticipates that supplies would be sufficient to meet at least 80 percent of demands during an extended drought with full implementation of the recently approved water supply investments in water conservation, stormwater capture, potable reuse, and imported supplies.

2-3 CONCLUSIONS, FINDINGS AND CHALLENGES TO FUTURE WATER SUPPLY AVAILABILITY

Future Water Supply Reliability

The Water Supply Master Plan is the district's long-term strategy for providing a reliable water supply for Santa Clara County's municipalities, industries, agriculture, and the environment. The strategy has three elements: 1) secure existing supplies and infrastructure, 2), increase water reuse and conservation, and 3) optimize the use of existing supplies and infrastructure. The district must secure existing supplies and facilities for future generations because they are, and will continue to be, the foundation of our water supply system. The district is committed to working with the community to meet Silicon Valley's future increases in water demand through conservation, reuse, and other drought-resistant strategies. Finally, the district has opportunities to make more effective use of its existing assets. By balancing water supply investments and working with the community, the district can provide a reliable water supply for Santa Clara County under normal and drought conditions and respond to future challenges and risks.

Future Challenges and Risks

Droughts

Droughts are the district's greatest water supply challenge. Single year droughts can impact the district's ability to maintain a groundwater recharge program. Multi-year droughts deplete reserves and can result in groundwater level declines and the risk of land subsidence. The district's conjunctive management program mitigates this risk but needs to be supported with continued investments in the district's existing water supply system, increased water conservation, and the expansion of recycled and purified water.

Imported Water Supplies

Imported water supplies are at risk from increased regulatory restrictions, Delta levee failure, and climate change. These risks could impact not only the Districts supplies but those of SFPUC as well. To mitigate these risks and improve the reliability of its imported water supplies, the district participates with state and federal agencies, other water contractors, and environmental organizations in long-term planning efforts to improve Delta conveyance and ecosystem restoration. The goals of these planning efforts are to protect and restore both water supply reliability and the ecological health of the Delta. On May 8, 2018 the district voted to participate in the California WaterFix and is now working with the state and water agency partners in support of a project that will meet the needs of the county.

The State Water Resources Control Board (SWRCB) approved amendments to the Water Quality Control Plan for the San Francisco/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan) in December 2018 that will result in increased restrictions on water users within the San Joaquin Basin (Basin), potentially reducing SFPUC supplies. SWRCB staff are working with Basin stakeholders to develop voluntary agreements that will achieve an equivalent level of environmental protection while reducing impacts on water supplies. If these voluntary agreements are not developed and adopted by the SWRCB as an alternative to the December 2018 approved changes and the objectives in the recently approved plan are implemented, SFPUC supplies to Santa Clara County retailers will likely be reduced, which could increase demand for district supplies. The District filed a lawsuit to challenge the plan due to concerns about drought supplies and the effectiveness of the plan actions and will continue to negotiate with state officials and other agencies to address our concerns.

Climate Change

Future climate projections for the Southwestern U.S. and California generally indicate increasing temperatures, increasing storm severity, shifting seasonal and annual precipitation patterns, and increasing drought severity. Reduced Sierra Nevada snow pack and San Francisco Bay sea level rise will likely affect imported water deliveries. The district's water supply strategy is intended to adapt well to future climate change by managing demands, providing drought-proof supplies, and increasing system flexibility in managing supplies.

Other Risks and Uncertainties

Other risks and uncertainties to water supply include: fisheries protection measures, random occurrences of hazards and extreme events resulting in local and/or imported water outages, more stringent water quality standards, water quality contamination, SFPUC changes in contracts with local water retailers, and demand growth different than projected.

Investment Needs

The district manages and addresses risks and uncertainties by building and maintaining an integrated and diverse water supply system. The water supply system that exists today will continue to meet most of the county's future water needs and is the foundation of future water supply investments. Thus, securing existing water supplies and infrastructure is critical to water supply reliability. The district needs to continue to be vigilant in protecting the groundwater basins from overdraft and contamination, mitigating risks to imported and local supplies, expanding water conservation and water reuse, and maintaining and replacing the aging water supply infrastructure. These infrastructure investment needs will be further discussed in Section 3 of this report.

The Water Supply Master Plan's Monitoring and Assessment Program (MAP) provides a mechanism for adapting to changing supply and demand conditions, climate change, regulatory and policy changes, other risks, and uncertainty. Through regular monitoring of specific projects and overall conditions, the district will assess whether changes to Water Supply Master Plan strategy or projects are needed. Alternative projects will be evaluated based on their impacts to the water supply reliability level of service, costs, relationships with other projects, risks and opportunities, and stakeholder input. Any changes to the Water Supply Master Plan will be reflected in this annual report, as well as the Capital Improvement Program and budget.

3 2019 PAWS REPORT
Programs to Sustain Water Supply Availability

3-1 ACTIVITIES TO PROTECT AND AUGMENT WATER SUPPLIES OF THE DISTRICT

Groundwater production charges and other water charges finance a program of activities to protect and augment water supplies of the district. The program is comprised of activities and service functions in the areas of operations, maintenance and construction, as illustrated in Table 3-1.1. These activities are designed to work together to meet district Board-adopted end goals and policies as well as to provide benefits to the community.

Table 3-1.1 Program Activities to Manage and Provide a Sustainable Water Supply

Activities to Protect & Augment Water Supplies		End Goals & Benefits
Operation	Services and Functions • Planning & development • Water purchases • Transmission • Treatment • Distribution • Storage • Groundwater recharge • Conservation & water recycling • Regulatory compliance and mitigation	• Reliable, clean water supply for current and future generations • Delivery of reliable high quality drinking water • Sustainable water supply through integrated water management • Assets and resources managed for efficiency and reliability • Healthy, safe and enhanced quality of living in Santa Clara County
Maintenance	• Surface water & groundwater resources protection & management • Asset protection & management	
Construction	• Capital improvement • Infrastructure management	

Revenue from groundwater production charges and treated water charges constitute the majority of funds needed to finance the operations costs of the Water Utility. About a third of the operating budget[1] is needed for imported water purchases to augment local supplies. About a quarter of the operating budget is needed to provide treated water to augment groundwater supply in meeting water demand. The balance is used to provide program services including conjunctive management and protection of surface and groundwater resources, operation and maintenance of facilities, water conservation, planning and development of recycled water and other alternative sources of supply, as well as administrative and support services.

[1] The budget document is available on the district website: www.valleywater.org

District managed water use is a key driver of the district's water revenue. For FY 2017–18, the district managed water use is estimated at 226,000 acre-feet, which is slightly higher than the prior year actual of 215,000 acre-feet. The higher water usage was anticipated due to the Board lowering its water use reduction target to 20% relative to calendar year 2013 at the end of FY 2015-16. Water usage for FY 2018-19 is also anticipated to be 226,000 acre-feet.

Groundwater levels and storage remain at normal, pre-drought levels. The district was able to meet treated water demands with no water quality violations in FY 2017-18. The Board continues to call for a 20% reduction in water use and accordingly, the district continues to adjust contracted water deliveries to 90% of the originally contracted amount. Surface water deliveries continued in FY 2017-18 for surface water users. Water conservation program services and outreach activities were significantly enhanced during FY 2014-15 and 2015-16 in response to the historic drought but were ratcheted back to pre-drought funding levels for FY 2016-17 and FY 2017-18. The FY 2018-19 budget is $6.2 million.

The asset management program and maintenance activities continued, including work at the district's water treatment plants, pipelines, and pump stations.

The district is involved in three Proposition 1 Water Storage investment (WSIP) funding applications – Pacheco Reservoir Expansion, Sites Reservoir, and Los Vaqueros Reservoir Expansion. Proposition 1 dedicated $2.7 billion for investment in new water storage projects and the California Water Commission announced conditional funding awards in July of 2018. The Pacheco Reservoir Expansion Project has been conditionally awarded the full amount requested by the district of $484.55 million, which also includes an early funding award of $24.2 million. The California Water Commission conditionally awarded the Sites Reservoir project $816.38 million (including $40.8 million in early funding) and the Los Vaqueros Reservoir Expansion project $459 million (including $13.7 million in early funding).

3-2 FUTURE CAPITAL IMPROVEMENT, OPERATING AND MAINTENANCE REQUIREMENTS

The highest priority work of the district's Water Utility, now and on into the future, is to implement a program of activities to ensure reliable water supplies both for today, as well as the decades ahead, to protect local surface water and groundwater supplies, and to meet treated water quality standards. This program of operations, maintenance and capital improvement activities will require continued funding from groundwater production charges and other sources of revenue, as described in Section 4 of this report.

The proposed FY 2019–20 operations and capital programs, as shown in Tables 4-5.1 and 4-5.2, continue to emphasize activities to protect and maintain existing water supplies and assets, and to plan for uncertainties including hydrologic conditions and regulatory restrictions on imported and local supplies. This is consistent with the District's long-term water supply strategy, described in the Water Supply Master Plan, to 1) invest in existing supplies and infrastructure, 2) increase recycling and conservation, and 3) optimize the use of existing supplies and infrastructure. Thus, the proposed programs, if funded accordingly, will enable the Water Utility to provide reliable water supplies in the next year as well as in the future.

The current capital program is composed of seismic retrofit, recycled water, surface water storage expansion, and asset renewal and improvement projects. Maintaining existing assets provides the foundation for meeting current and future supply needs. Fiscal Year 2019-20 will be Year 3 for the District's 10-Year Pipeline Inspection and Rehabilitation Program to assess and remediate conditions of critical transmission and distribution pipelines.

The seismic stability evaluations of Anderson, Almaden, Calero, Lenihan, Stevens Creek and Guadalupe Dams have been completed and four resulting CIP projects are budgeted and currently in the design phase. The seismic stability evaluation for three remaining dams, Coyote, Chesbro and Uvas, was initiated in the fall of 2014; the findings may require seismic retrofit work at these locations in the future. In addition to seismic retrofit improvements at four of the above-listed dams, the conditions of the outlet system, and the adequacy of the spillway and freeboard are being evaluated and will be incorporated into the retrofit work as appropriate. With operating restrictions on several district dams due to seismic deficiencies or questions about seismic adequacy, there may be impacts to current and future operating budgets, such as the need to purchase additional water because of an inability to capture and utilize local runoff or store imported water.

The district is also looking to make significant investments to help secure existing imported water supply as well as expand local surface water storage. On May 8, 2018, the district voted to participate in the California WaterFix, a conveyance project that would build new state-of-the-art intakes in the northern Delta and a pair of tunnels to channel water to existing pumping facilities in the southern Delta. This new conveyance option would minimize impacts to fish and provide the SWP and CVP greater flexibility to adjust operations in response to environmental conditions and climate change effects, protect exports from the threat of salinity intrusion from levee failures and sea level rise, improve access to transfer supplies, improve water quality, and enhance the benefit of storage projects. The WaterFix was also identified by district staff as one of the least expensive per-acre-foot water supply options available to the district to meet current and future water supply needs.

Additionally, in conjunction with the San Benito County Water District and Pacheco Pass Water District, the district continues to explore the possibility of expanding the existing Pacheco Reservoir on the North Fork Pacheco Creek in south-east Santa Clara County. The reservoir is located 60 miles southeast of San Jose and sits north of Highway 152. The expanded reservoir project includes the construction of an earthen dam made of rock and other soil materials located within the footprint of the existing reservoir. The project will increase the reservoir's capacity from 5,500 to up to 140,000-acre feet, enough water to supply 1.4 million residents for a year. The Pacheco Reservoir Expansion Project will provide a number of benefits including: reducing the frequency and severity of water shortages, increased emergency water supplies, improved water quality, providing flood protection for disadvantaged communities, ecosystems benefits through our region and the Sacramento – San Joaquin Delta, and protecting and growing the native steelhead population.

Dam seismic retrofits, the Rinconada Water Treatment Plant reliability improvements and other aging infrastructure renewal projects comprise the bulk of planned expenditures in the current capital program. Some highlights of the proposed FY 2019–20 capital program are listed next.

Storage:

- Seismic retrofit of Anderson, Calero, and Guadalupe Dams
- Rehabilitation of Almaden Dam outlet works, replacement of spillway and rehabilitation of the Almaden-Calero Canal.
- Seismic evaluations of Coyote, Chesbro and Uvas Dams
- Pacheco Reservoir Expansion

Transmission:

- Raw and treated water pipeline inspection and rehabilitation
- Main Avenue and Madrone Pipelines Restoration
- Vasona Pumping Plant Upgrades
- Coyote Pumping Plant Adjustable Speed Drivers Replacement

Water Treatment Plants:

- Year 5 construction for a 6+year makeover of the Rinconada Water Treatment Plant processes to ensure plant reliability for the next 50 years; this will include the addition of fluoridation facilities.
- Rinconada Water Treatment Plant Residuals Remediation

Recycled and Purified Water:

- The development of a Countywide Water Reuse Master Plan, currently underway, will identify potential projects to produce up to 24,000 acre-feet per year of purified water for indirect potable reuse (IPR) by 2028.
- Expansion of the recycled water pipeline system in Gilroy to increase non-potable water reuse by 2,000 to 3,000 acre-feet per year.

Detailed cost projections for the preliminary FY 2020–24 Capital Improvement Program (CIP) can be found in Section 4-5.

Another expected impact on future operating and capital budgets is the cost to meet requirements associated with the anticipated modified water rights order that will specify changes in operations and infrastructure improvements necessary to process the water rights change petitions and to resolve the water rights complaint.

The Fisheries and Aquatic Habitat Collaborative Effort (FAHCE) was established to address a water rights complaint after the 1996 listing of steelhead trout as a threatened species under Federal Endangered Species Act (ESA)[2] by National Marine Fisheries Service (NMFS). In 2003, a settlement agreement was initialed by parties involved. Preparation of the FAHCE Fish Habitat Restoration Plan (FHRP) and associated environmental impact report is necessary to complete the water rights change petitions, resolve the water rights complaint and address issues raised in the 2003 Settlement Agreement. Once water rights change petitions are processed, the operation and maintenance of the district's Water Utility Enterprise facilities, including water diversions in the Guadalupe River, Coyote Creek and Stevens Creek watersheds (Three Creeks) will be modified. Further, fish habitat restoration measures specified in the FHRP will be implemented. Hence completing and implementing FHRP and addressing the 2003 Settlement Agreement is necessary to protect water rights and is an unavoidable cost of distributing, recharging, and using water diverted from the Three Creeks into the district's groundwater zones and a cost of maintaining and operating related district facilities. Moreover, those who rely directly and/or indirectly on groundwater supplies within the district's zones receive a benefit from the FHRP, without which the groundwater supplies in the district's groundwater zones would be significantly impacted.

Resolution of the water rights complaint and implementation of the FHRP and the 2003 Settlement Agreement will require a large financial commitment on the part of the district for construction, operation and maintenance of infrastructure that improve habitat for fish in creeks located in the Three Creeks. Costs have been estimated but have not been completely integrated into the groundwater production charge projections, pending resolution of the water rights complaint following the completion of the FAHCE Fish Habitat Restoration Plan and Environmental Impact Report.

[2] The Endangered Species Act (ESA) is a federal law to ensure the conservation of threatened and endangered plants and animals and the habitats in which they are found. The ESA prohibits "take" of listed species through direct harm or destruction or adverse modification of designated critical habitat of such species. In the 1982 ESA amendments, Congress authorized the federal ESA implementing agencies, U.S. Fish and Wildlife Service and National Marine Fisheries Service, through the Secretary of the Interior, to issue permits for the "incidental take" of listed species before permittees could proceed with an activity that is legal in all other respects but would result in the incidental taking of a listed species. Prior to issuance of "take" permits, permit applicants are required to design, implement, and secure funding for a conservation plan that minimizes and mitigates harm to the impacted species during the proposed project. That plan is commonly called a Habitat Conservation Plan (HCP). HCPs are legally binding agreements between the U.S. Secretary of the Interior or Commerce and the permit holder.

The California Endangered Species Act (CESA) is the state equivalent of the federal ESA. It states that all native species and habitats of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation, will be protected or preserved. CESA also allows for take incidental to otherwise lawful development projects. The state Department of Fish and Wildlife is the CESA implementing agency, authorized to issue permits and memorandum of understanding.

4 2019 PAWS REPORT
Financial Outlook of Water Utility System

4-1 INTRODUCTION

This section summarizes the maximum proposed charges for fiscal year (FY) 2019–20 and the multi-year financial analysis that serves as the foundation for those water charges in each zone. The major sources of revenue for the Water Utility are from the imposition of charges on groundwater production and from contracts for the sale of treated surface water produced by its three treatment plants. The district also receives revenue from surface water charges, recycled water charges, property tax, interest earnings, grants, capital reimbursements and other sources. The district assesses the need for groundwater production and other water charges annually and, in accordance with state law, prepares this report to describe the activities undertaken to provide a water supply, along with the associated capital, maintenance, and operating requirements.

The Rate Setting Process

According to Section 26.3 of the district's founding legislation (District Act), proceeds from groundwater production charges can be used for the following purposes:

1. Pay for construction, operation and maintenance of imported water facilities
2. Pay for imported water purchases
3. Pay for constructing, maintaining and operating facilities which will conserve or distribute water including facilities for groundwater recharge, surface distribution, and purification and treatment
4. Pay for debt incurred for purposes 1, 2 and 3

The work of the district is divided into projects. Every project has a detailed description including objectives, milestones, and an estimate of resources needed to deliver the project. To ensure compliance with the District Act, each project manager must justify whether or not groundwater production charges can be used to pay for the activities associated with their project. The financial analysis presented in this report is based on the financial forecasts for these vetted projects.

This year's groundwater production and surface water charge setting process will be conducted consistent with the District Act, and Board Resolutions 99-21 and 12-10[1]. While recognizing the Supreme Court found Proposition 218 inapplicable to groundwater production charges, only the surface water charge setting process will mirror the process described in Proposition 218 for property-related fees for water services. Both the Groundwater and the Surface Water rate setting process are consistent with Proposition 26 requirements that the groundwater production and surface water charges are no more than necessary to cover reasonable costs, and bear a fair or reasonable relationship to the rate payor's burdens on or benefits received from the groundwater and surface water programs.

[1] Resolutions 99-21 and 12-10 can be found at https://www.valleywater.org/2019-20GroundwaterChargeProcess

Financial Outlook of Water Utility System

The district has conducted a formal protest procedure of the proposed groundwater production charge increase for the past nine years and of surface water charges for the past seven years. Last year, the results of the groundwater production charge protest procedure were that in the North County Zone W-2, no more than 1.1 percent of well operators or property owners protested the proposed groundwater production charges, while in the South County Zone W-5, no more than 0.3 percent of well operators or property owners protested. There were no protests by surface water account holders. FY 2019–20 will be the first year in which the process will not include a formal protest procedure to allow well operators and property owners to decide whether the Board may authorize an increase to the existing groundwater production charges. It will be the eighth year that a protest procedure will be implemented for surface water users. As in the past, the Board will continue to hold public hearings and seek input from its advisory committees and the public before rendering a final decision on groundwater production and surface water charges for FY 2019–20.

In late 2009, the district engaged Raftelis Financial Consultants, Inc. (RFC) to review the district's cost of service and rate setting methodology used to calculate groundwater production charges for FY 2010–11. At that time, RFC had conducted over 600 rate and financial planning studies for water and wastewater utilities across the country. Specifically, RFC reviewed the cost of service and financial planning model developed by the district to calculate groundwater production charges for FY 2010–11. RFC reviewed the district's rate setting methodology for consistency with industry standards, best practices, and legal considerations such as Proposition 218, the District Act, and Resolution 99-21. The methodology used to calculate groundwater production charges for FY 2010–11 is detailed in RFC's report titled "Review of the Santa Clara Valley District's Cost of Service and Rate Setting Methodology for Setting FY 2011 Groundwater Production Charges"[2]. The report was completed in March 2010 and demonstrates that the district developed groundwater production charges and other charges consistent with cost of service principles and legal considerations including Proposition 218, the District Act, and Resolution 99-21. The district will use the same cost of service methodology for the FY 2019–20 rate setting process.

In 2010, the district engaged RFC and the water resources engineering firms of Hydrometrics Water Resources and Carollo Engineers to further analyze and quantify the conjunctive use benefit of treated water to groundwater and surface water customers. In addition, RFC analyzed the benefits of agricultural water usage to M&I users. The report titled "Report Documenting the Reasonableness of the Conjunctive Use Benefit of Treated Water to Groundwater and Surface Water Customers and the Benefit of Agricultural Customers to Municipal and Industrial Customers"[3] was completed in February 2011 and provides further support and justification for the district's cost of service methodology.

In 2014, the district engaged RFC once again to analyze and quantify the conjunctive use benefit of surface and recycled water to groundwater customers. The report titled "Report Documenting the Reasonableness of the Conjunctive Use Benefit of Surface Water and Recycled Water to Groundwater Customers"[4] was completed in February 2015 and provides further support and justification for the district's cost of service methodology.

[2] The initial RFC report, dated March 5, 2010 can be found at https://www.valleywater.org/2019-20GroundwaterChargeProcess
[3] The second RFC report, dated February 17, 2011 can be found at https://www.valleywater.org/2019-20GroundwaterChargeProcess
[4] The third RFC report, dated February 27, 2015 can be found at https://www.valleywater.org/2019-20GroundwaterChargeProcess

Overview of Customer Classes and Charges

As the wholesale water provider for Santa Clara County, the district serves 4 customer classes including, groundwater users, treated water users, surface water users and recycled water users. Resolution 99-21 guides staff in the development of the overall pricing structure based on principles established in 1971. The general approach is to charge the recipients of the various benefits for the benefits received. More specifically, pricing is structured to manage surface water, groundwater supplies and recycled water conjunctively to prevent the over use or under use of the groundwater basin. Consequently, staff is very careful to recommend pricing for groundwater production charges, treated water charges, surface water charges and recycled water charges that work in concert to achieve the effective use of available resources (as supported by the 2010 RFC study).

Groundwater users pump water from the ground that is both naturally and artificially recharged into the groundwater basin. The groundwater production charge recoups the district's costs to protect and augment this source of water, as outlined in the District Act.

Treated water users are comprised of 7 retail water companies that take treated surface water from one of the district's 3 treatment plants and sell it to their end user customers. The water comes from locally captured runoff or water imported into the county. The district recoups the cost of providing treated water by charging users the basic user charge, which is set equivalent to the groundwater production charge, and a treated water surcharge. The provision of treated water helps preserve the groundwater basin and therefore benefits groundwater users. This fact provides the rationale for setting the basic user charge equal to the groundwater production charge in accordance with cost of service principles as justified by the 2011 RFC study. The treated water surcharge is set by Board policy at an amount that promotes the effective use of available water resources.

Surface water users are those users permitted by the district to tap raw district-managed surface water from creeks, streams or raw water pipelines. To the extent the district releases stored water from its local reservoirs, the district considers this to be surface water, which is not subject to diversion by third parties. Local supplies and imported water are made available to district surface water permittees. Surface water users pay the basic user charge, which is set equivalent to the groundwater production charge, plus a surface water master charge. The basic user charge helps pay for the cost to manage and augment surface water supplies and is set equal to the groundwater production charge, as justified by the 2015 RFC study, because surface water is considered in-lieu groundwater usage. The surface water master charge pays for costs that are specific to surface water users only, including the work to operate surface water turnouts, and maintain surface water accounts.

Recycled water users are those users who take purified wastewater for irrigation purposes. Recycled water is an all-weather supply. Recycled water charges are established at rates that maximize cost recovery while providing an economic incentive to use recycled water. The provision of recycled water helps preserve the groundwater basin and therefore benefits groundwater users. Consequently, groundwater users pay for recycled water to the extent that recycled water charges do not achieve full cost recovery, as justified by the 2015 RFC study.

Agricultural water users are a subset of the groundwater, surface water and recycled water customer classes. Section 26.1 of the District Act defines agricultural water use as "water primarily used in the commercial production of agricultural crops or livestock." Agricultural charges are limited to a maximum of 25% of non-agricultural charges per the District Act. Board policy further limits agricultural charges to no more than 10% of non-agricultural charges in order to help preserve open space. Non-rate related revenue is used to offset lost agricultural water revenue for each customer class and is referred to as the Open Space Credit.

Non-agricultural users (also referred to as Municipal and Industrial users) are a subset of all 4 customer classes and consist of all water use other than agricultural. Non-agricultural water use charges are established for each customer class as described in the preceding paragraphs.

4-2 THE WATER CHARGE RECOMMENDATIONS FOR FISCAL YEAR 2019–20

Last year, FY 2018–19, the Board chose to increase groundwater production charges in both zones of benefit. In the North County Zone W-2, the Board adopted a groundwater production charge of $1,289 per acre-foot for non-agricultural water, $27.02 per acre-foot for agricultural water, and $1,389 per acre-foot for contract treated water. In the South County Zone W-5, the Board adopted a $450 per acre-foot groundwater production charge for non-agricultural water, and a $27.02 per acre-foot groundwater production charge for agricultural water.

Staff has developed a FY 2019-20 groundwater production charge projection, which is lower than the prior year projection for North County driven by: 1) a refined Capital Improvement Program that includes pushing the scheduled construction of Calero and Almaden dam retrofits to FY27 and beyond; 2) exclusion of the Central Valley Project portion of the California WaterFix due to the significant uncertainty surrounding that portion of the project; 3) the push out of phase 1 of the Expedited Purified Water Program to FY 28 from FY 25: and 4) delaying phase 2 of the Expedited Purified Water Program to occur beyond FY 29. These changes allow the District to absorb the cost of the Pacheco Reservoir Expansion and reflect future rate increases that are lower than projected last year.

For South County, the FY 2019-20 groundwater production charge scenario is lower than the prior year projection due to the exclusion of the Central Valley Project portion of the California WaterFix. It should be noted that the Board has directed staff to continue its participation in both the Central Valley Project and the State Water Project sides of the California WaterFix to get the best deal for Santa Clara County.

Staff is assuming a water usage projection for FY2019-20 of 239,000 AF, which is 13,000 AF higher than the FY 2018–19 estimate, and represents a 16 percent reduction relative to Calendar Year 2013. Lower water use relative to historical usage patterns translates to reduced revenue and therefore upward pressure on water rates.

The draft FY 2020–24 Capital Improvement Plan (CIP) totals approximately $3.3 billion over the next 10 years. Significant investments planned for FY 2019–20 include:

- $42 million for the Pacheco Reservoir Expansion
- $41 million for the Rinconada Water Treatment Plant Reliability Improvements
- $25 million for various pipeline rehabilitation projects
- $6 million for Dam Seismic retrofits and improvements at Anderson, Guadalupe, and Calero Dams
- $10 million CVP capital payments, not CWF
- $19 million for recycled water pipeline expansion in South County Zone W-5

Over the next 10 years, the draft FY 2019-20 CIP is higher than the prior year CIP driven by the Pacheco Reservoir Expansion project currently estimated to be a $1.3 billion investment to secure water supply reliability for the future.

Financial Outlook of Water Utility System

The district must continue investing significant capital dollars into repairing and rehabilitating the infrastructure required to deliver safe, reliable drinking water to Silicon Valley residents and businesses. The district is projecting rate increases over the next 10 years in order to significantly invest in several key areas:

- $1.5 billion over the next 10 years for repair, rehabilitation and seismic retrofitting of the system behind your water supply, including treatment plants, pipelines, pump stations, dams and recharge ponds.
- $121 million over the next 10 years to solve the statewide issue of the Bay Delta, where 40 percent of our water supply travels through. A catastrophic event in the Delta could interrupt this vital supply of water to Santa Clara County for up to two years or more. Not included in this proposal is the federal portion of the California Water Fix, estimated to be another $108 million of costs, or the Long-term Transfers for the State Water Project, estimated to be another $83 million of costs.
- $670 million to develop new supplies that help ensure future sustainability of which $215 million would be direct Capital investments by the District and the remainder would come from a private partner. Recently completed planning efforts show that additional water supply investments will be needed in the future to accommodate and support the local economy and population.

The increase for FY 2019–20 will bring in revenue required to pay for rising operating costs, critical investments in the water supply infrastructure, and investments in future supplies. The effective management of the region's water supply system includes securing imported water supplies, storing surface water in local reservoirs, replenishment and protection of our groundwater basin, purification at local water treatment plants, testing for consistent water quality, transport and delivery of water to local water providers, and conservation programs.

Given the financial picture summarized above, staff proposes the following maximum water charges for FY 2019–20:

In the North County Zone W-2, staff proposes a maximum 6.6 percent increase, or $1,374 per acre-foot groundwater production charge for non-agricultural water; 6.1 percent increase, or $1,474 per acre-foot for contract treated water; and 6.3 percent increase or, $1,424 per acre-foot for non-contract treated water. The average household would experience an increase in their monthly bill of $2.93 or about 10 cents a day.

In the South County Zone W-5, staff proposes a maximum 6.9 percent increase to non-agricultural water. This results in a $481 per acre-foot groundwater production charge for non-agricultural water. The average household would experience an increase in their monthly bill of $1.07 or about 3 cents per day.

The proposed maximum for agricultural groundwater production in both North County and South County is $120.25 per acre-foot and reflects the maximum rate allowed by the District Act. This is not a staff recommendation but rather a placeholder which allows flexibility for the Board as it deliberates changes to its policy on agricultural water pricing.

Staff recommends increasing the surface water master charge by 4.4 percent, from $35.93 per acre-foot to $37.50 per acre-foot, to align revenues with the costs related to managing, operating and billing for surface water diversions.

For recycled water, staff recommends increasing the M&I charge by 7.2 percent to $461 per acre-foot. For agricultural recycled water, the proposed maximum $147.64 per acre-foot is a placeholder that aligns with the proposed maximum agricultural groundwater production charge which would allow flexibility for the Board as it deliberates changes to its policy on agricultural water pricing.

Figure 4-2.1 illustrates the multi-year groundwater production charge projection. It reflects a range of potential groundwater production charges over the next ten years depending on the level of service to be provided. The high end of the range (line at the top of the shaded areas) represents the groundwater production charges required to fund

all the operations and capital projects identified by staff to meet the board's Ends Policies over the next few years. The potential impacts of not funding the high end of the range include increased risk of: (1) service interruptions; (2) higher corrective maintenance costs to repair facilities that have not been well maintained; and (3) reduced ability to respond to drought. While staff has identified as many projects as possible, there are initiatives and/or potential future uncertainties that could result in the identification of additional capital or operations projects that are not reflected in the high end of the range.

The lower end of the range (line at the bottom of the shaded areas) represents staff's proposed maximum groundwater production charges for FY 2019–20 and the corresponding future trajectory based on the assumption that operating services will continue at the level budgeted in FY 2019–20.

Figure 4-2.1 Ten Year Projection

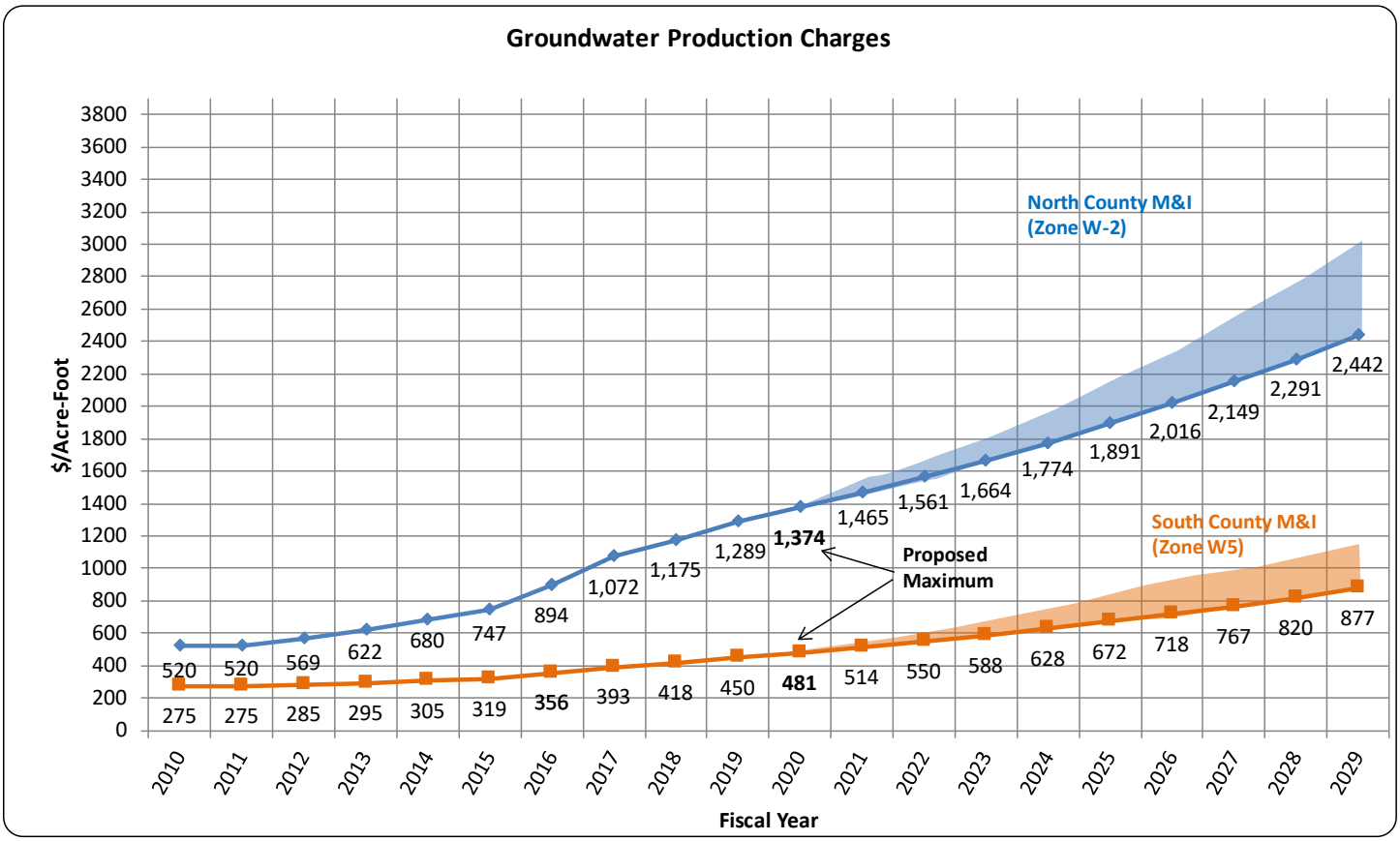


Table 4-2.1 shows groundwater production and other charges in fiscal years 2018–19 and 2019–20. The final column contains the proposed maximum water charges for FY 2019–20, which are in accordance with the pricing policy described in Resolution 99-21.

Table 4-2.1 Summary of Charges (Dollars Per Acre-Foot, $/AF)

	Dollars Per Acre Foot		
	FY 2017–18	FY 2018–19	Proposed Maximum FY 2019–20
Zone W-2 (North County)			
Basic User/Groundwater Production Charge			
Municipal & Industrial	1,175.00	1,289.00	1,374.00
Agricultural	25.09	27.02	120.25
Net Agricultural (With Mobile Lab & INAAP Discounts)			
Surface Water Charge			
Surface Water Master Charge	33.36	35.93	37.50
Total Surface Water, Municipal & Industrial*	1,208.36	1,324.93	1,411.50
Total Surface Water, Agricultural*	58.45	62.94	157.75
Treated Water Charges			
Contract Surcharge	100.00	100.00	100.00
Total Treated Water Contract Charge**	1,275.00	1,389.00	1,474.00
Non-Contract Surcharge	50.00	50.00	50.00
Total Treated Water Non-Contract Charge***	1,225.00	1,339.00	1,424.00
Zone W-5 (South County)			
Basic User/Groundwater Production Charge			
Municipal & Industrial	418.00	450.00	481.00
Agricultural	25.09	27.02	120.25
Surface Water Charge			
Surface Water Master Charge	33.36	35.93	37.50
Total Surface Water, Municipal & Industrial*	451.36	485.93	518.50
Total Surface Water, Agricultural*	58.45	62.94	157.75
Recycled Water Charges			
Municipal & Industrial	398.00	430.00	461.00
Agricultural	48.88	54.41	147.64

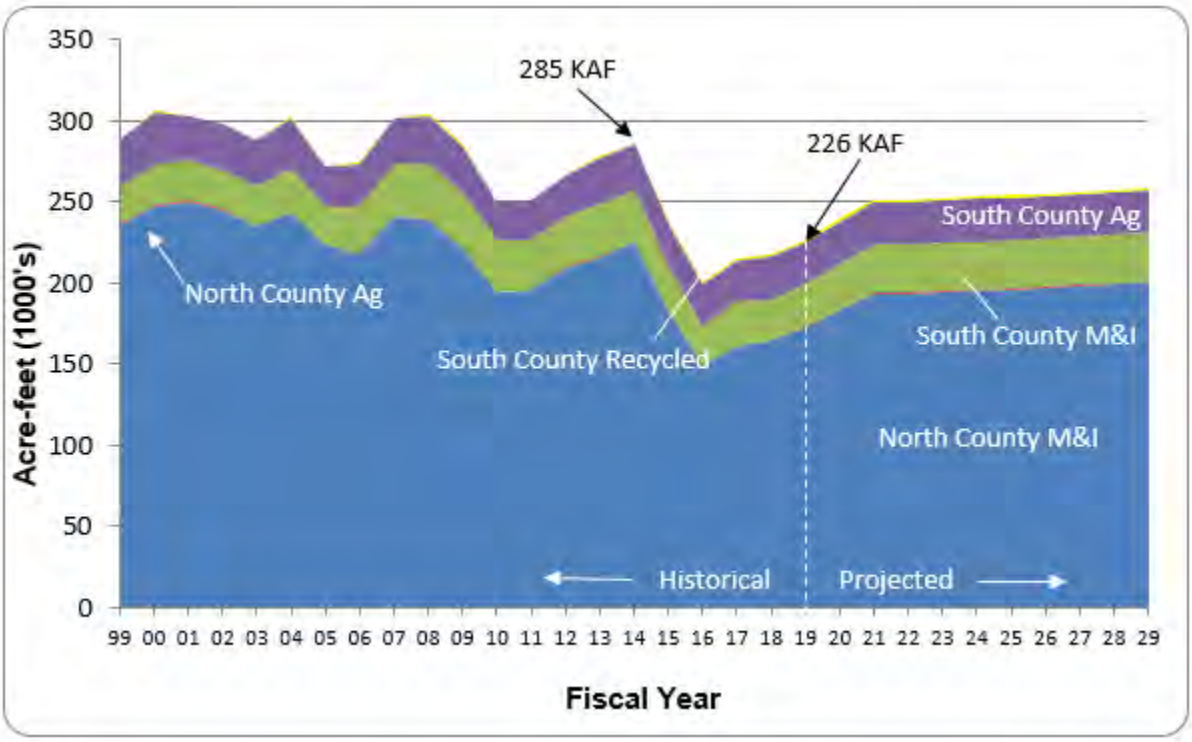
*Note: The total surface water charge is the sum of the basic user charge (which equals the groundwater production charge) plus the water master charge

**Note: The total treated water contract charge is the sum of the basic user charge (which equals the groundwater production charge) plus the contract surcharge

***Note: The total treated water non-contract charge is the sum of the basic user charge (which equals the groundwater production charge) plus the non-contract surcharge

Figure 4-2.2 illustrates historical and projected district water use, which is a key driver of the district's water revenue. Water usage in FY 2017–18 was estimated at approximately 226,000 AF, which is roughly 9,000 AF higher than budgeted and is roughly a 21% reduction versus Calendar Year 2013 of 286,000 AF. For the current year, FY 2018-19, staff estimates that water usage will be approximately 226,000 AF or flat to the FY 2018-19 budget and roughly a 21% reduction versus calendar year 2013. For FY 2019–20, staff assumed a water usage projection of 239,000 AF, which is 13,000 AF higher than the FY 2018–19 estimated actual, and represents a 16 percent reduction relative to Calendar Year 2013.

Figure 4-2.2 Historical and Projected District Water Use



4-3 FINANCIAL OVERVIEW OF THE DISTRICT

The district uses fund accounting to ensure and demonstrate compliance with finance-related legal requirements. Fund accounting allows government resources to be segregated and accounted for according to their intended purposes. Accounts related to activities of the Water Utility are segregated into the Water Utility Funds comprised of the Water Utility Enterprise Fund and the State Water Project (SWP) Fund. For the Water Utility Enterprise Fund, revenue accounts include groundwater production, treated water, property taxes, surface water, interest earnings, reimbursements, grants and other. Cost accounts include both direct and indirect or overhead costs associated with Water Utility projects and activities. The SWP Fund accounts specifically for SWP Tax revenue and SWP contractual costs (Note that SWP Tax revenue can only be spent on SWP contractual costs). Table 4-3.1 shows an overview of the funds at the district including the Water Utility Funds and the estimated revenues, costs and reserves for FY 2019–20 for each fund. Throughout this report, the term "Water Utility" or "Water Utility Enterprise" refers to the combination of the Water Utility Enterprise Fund and the SWP Fund.

Table 4-3.1 FY 2019–20 Projected Funds Analysis

	Water Utility Funds				
	Water Utility	State Water	Safe, Clean Water	Watershed	Administration
(Millions $)	Enterprise Fund	Project Fund	Fund	Funds	Funds
Revenue	314.8	19.0	60.8	97.0	9.4
Interfund Transfer	(0.7)	-	1.1	(0.3)	3.7
Ops Costs	(160.0)	(25.1)	(16.7)	(56.9)	(82.5)
Debt Svc	(43.9)	-	(2.6)	-	(0.5)
Capital	(166.0)	-	(53.8)	(66.9)	(11.6)
Debt Proceeds	59.6	-	-	-	-
Intra-District Reimb.[1]	-	-	-	-	81.0
Balance	**3.8**	**(6.1)**	**(11.1)**	**(27.1)**	**(0.6)**
Reserves					
Restricted	65.6	-	48.9	-	-
Committed	40.4	-	-	50.1	11.7
Designated Liability	-	-	-	-	13.0
Total Reserves	**106.0**	**-**	**48.9**	**50.1**	**24.7**

Notes:

[1] Intra-District Reimbursements represent overhead costs that have been allocated to the Water Utility; Safe, Clean Water; and Watersheds (included in the operations and capital costs for those funds)

The Safe, Clean Water Fund accounts for a 15-year program that was approved by the voters in November 2012 for the purpose of addressing several community priorities. These priorities include: securing a safe, reliable water supply; protecting our water system from earthquakes and natural disasters; preventing contaminants from entering the water supply; restoring habitat for fish, birds and wildlife and increasing open space; and enhancing flood protection. The primary source of revenue for this fund is a special parcel tax. This fund supports several projects that benefit not only the community at large but also the Water Utility including hazardous materials management, water conservation grants, rebates to remove excess nitrate from drinking water, and stormwater runoff management. Most notably this fund will contribute $66 million toward the Anderson Dam Seismic retrofit project in the form of a reimbursement to the Water Utility Enterprise Fund. It will also apportion some of the revenue towards the Treated Water Pipeline Reliability and Main/Madrone Avenues Pipeline Restoration projects. For more information on the Safe, Clean Water program please visit www.valleywater.org.

The Watershed Funds are a segregated grouping of funds with separate funding sources (including Benefit Assessments and 1 percent ad valorem property taxes) for the purpose of providing flood protection and watershed management.

The Administration Funds include the General Fund, Fleet Fund, Information Technology Fund, and Risk Fund to account for all revenues and expenditures necessary to carry out basic governmental activities of the district that are not accounted for through other funds. Administration Funds expenditures that are not offset by Administration Funds revenues are allocated to the Water Utility; Safe, Clean Water; and Watershed funds through an overhead rate at the project level.

4-4 WATER UTILITY FINANCES FOR FISCAL YEARS 2017–18 & 2018–19

Fiscal Year 2017– 18

Actual overall revenue for FY 2017–18 was $31.4 million more than the adopted budget of $254.6 million. Slightly higher water usage along with a mix shift from groundwater to higher priced treated water resulted in $15.7 million higher operating revenues. Capital reimbursement revenue was $1.7 million higher than the budget of $2.7 million. Property tax revenue exceeded budget by $4.6 million and interest earnings, intergovernmental services, and other revenues exceeded budget by $9.2 million.

Actual operations outlays came in at $197.0 million and were $8.7 million lower than the adopted budget. The savings were driven by $9 million lower debt service due to extending a planned debt issuance from FY 2017–18 to FY 2018–19 in order to better coordinate with the Capital Improvement Program.

Unspent capital budget was carried forward to FY 2017–18 consistent with accounting practices.

Fiscal Year 2018–19

Current estimates for FY 2018–19 show revenue trending on target to slightly exceed the adopted budget revenue of $276.1 million. Operations and capital costs are also trending to meet budget. Consequently, staff is anticipating that discretionary reserve levels will also meet budget at year end.

4-5 OVERVIEW OF OPERATING AND LONG-TERM CAPITAL PLANS

To develop a charge structure that will support planned work, staff analyzes the immediate needs of the district as well as anticipated requirements in the years to come.

Operating Outlays

Operations costs are projected to increase at an average of 7.2 percent per year over the next ten years. The increase is largely driven by: 1) the start of payments (referred to as Water Service Agreement payments) in FY 28 to the District's P3 partner upon completion of the Expedited Purified Water Program facilities and commencement of delivery of the new water supply; and 2) the ramp up of anticipated payments associated with the California WaterFix. Other drivers of increasing operations costs include anticipated inflation, and cost increases associated with employee salaries and benefits.

Table 4-5.1 shows the district's Water Utility operating program for FY 2017–18, FY 2018–19, and projected for FY 2019–20. The Water Utility Enterprise strives to implement a program that ensures that treated water quality standards are met and that water supplies are reliable to meet current and future demand.

Table 4-5.1 Operating Budget Summary

		Thousands $			
Cost Center	Ends Policy	Actual FY 18	Adjusted FY 19	Projected FY 20	Description of Cost Centers and Activities
Source of Supply	E-2.1 Current and future water supply for municipalities, industries, agriculture and the environment is reliable	95,777	96,464	101,655	This cost center contains all the anticipated expenditures that relate to obtaining, producing, and protecting a water supply; including all conservation, reclamation, and importation costs. Activities include: groundwater level & quality monitoring; groundwater modeling; dams and reservoir operations & maintenance; imported water supply management; long-term Delta issues resolution; operations and maintenance of San Felipe Reaches 1-3, including mechanical and electrical; operations planning; water rights protection; Urban Water Management Plan; administration of recycled water agreements, technical studies; water conservation technical assistance, financial incentives, outreach and education; environmental planning & compliance; well permitting and destruction; Silicon Valley Advanced Water Purification Center operations and maintenance; and habitat conservation and mitigation commitments.
Raw Water Transmission & Distribution	E-2.2 Raw Water Transmission and Distribution Assets Are Managed to Ensure Efficiency and Reliability	14,471	14,953	16,394	This cost center contains all expenditures relating to the distribution of raw water. The distribution system consists of pipelines, canals, and percolation ponds and includes the use of creek systems. Activities include: operations and maintenance of recharge ponds, canals, pipelines & diversions including vegetation management; operations and maintenance of raw water distribution system, including mechanical and electrical; raw water corrosion control; environmental compliance support.
Water Treatment and Treated Water Transmission & Distribution	E-2.3 Reliable High Quality Water is Delivered	38,441	40,571	43,507	These cost centers contain all expenditures associated with the treatment of water at the Rinconada, Penitencia and Santa Teresa Water Treatment Plants, as well as those expenditures related to the distribution of treated water to retail customers and includes costs associated with the treated water reservoirs, pumping plants, pipelines, and turnouts. Activities include: operations and maintenance of 3 water treatment plants; Water District laboratory operations; water quality planning, testing, research, and reporting; operations and maintenance of treated water transmission and distribution system; and recycled water transmission and distribution general maintenance.
Administration & General	Support Services	25,379	25,652	23,520	This cost center contains all expenditures of an administrative nature which cannot be properly assigned to another of the other four cost centers. Activities include: asset protection evaluation and planning; integrated regional water management plan; water system computer modeling; urban runoff pollution prevention; general & division management; performance measures; financial support & water charge setting; customer relations; health and safety training; billing; data maintenance; auditing; meter reading, testing, repair, installation, backflow prevention; emergency services; warehouse and equipment services; real estate services; and ethics & diversity.
	Total Program Requirements	**174,068**	**177,641**	**185,075**	

Capital Improvement Program

The district constructs, operates and maintains reservoirs, pipelines, recharge facilities, and water treatment plants that are needed to achieve the Board's Ends Policies. On an annual basis, the district conducts a process to plan for capital improvements and identify the resource needs and constraints to implement the projects. The result of this process is Board approval of a rolling 5-Year Capital Improvement Program (CIP)[5].

Table 4-5.2 shows the capital projects identified in a preliminary version of the FY 2019–20 CIP and associated expenditures for the next ten fiscal years. The table shows funding $3.3 billion worth of capital projects between FY 2019–20 and FY 2028–29. Approximately $1.3 billion of the program is allocated to a reservoir expansion project that will provide additional storage capacity for storm runoff and imported water. Roughly $216 million of the program is for recycled and purified water expansion, which will provide new drought-proof water supplies to help ensure future water supply reliability. The remaining portion of the capital program is primarily dedicated to asset management of Water Utility Enterprise facilities throughout the county. Staff continues to conduct a validation process as part of the district's Asset Management Program, to identify if there is a compelling business case for capital projects. All newly-proposed projects will undergo the validation process prior to being proposed for inclusion in the CIP.

The capital program, including debt proceeds and debt service flow through the North County Zone W-2 financial model. The North County Zone W-2 is reimbursed for all capital projects that benefit South County Zone W-5 via a capital cost recovery payment over a time period of 30 years, beginning when the project is completed.

[5] The latest CIP can be accessed at www.valleywater.org/CIP

Table 4-5.2 Capital Improvements Projects – Fiscal Years 2019–20 Through 2028–29

Water Utility CIP FY 2020-29 Sorted by Cost Center (Funded)	Planned Funding with Inflation (Thousands of Dollars)						
Name	FY20	FY21	FY22	FY23	FY24	FY 25-29	Total FY 20-29
SOURCE OF SUPPLY							
Dam Seismic Stability Evaluation*	638	437	5,706	477	498	1,359	9,115
South County Recycled Water Pipeline - Short-Term Implementation Phase 1B*	18,660	2,114					20,774
Central Valley Project Capital Payments*	10,411	10,777	11,156	11,549	11,955	62,580	118,428
Silicon Valley Advanced Water Purification Center	36						36
Small Capital Improvements, San Felipe Reach 1*	6,507	2,729	3,449	1,323	1,912	23,187	39,107
Small Capital Improvements, San Felipe Reach 2*						615	615
Coyote Pumping Plant ASD[1] Replacement	779	3,105	6,115	4,261	667	85	15,012
Small Capital Improvements, San Felipe Reach 3*	643		33		22	714	1,412
Coyote Warehouse*	2,464	158	74	72			2,768
EPWP[2] - Indirect Potable Water Reuse Projects Planning	2,613	3,609	2,288	5,628	11,593	169,710	195,441
Almaden Dam Improvements						1,086	1,086
Anderson Dam Seismic Retrofit (C1)*	4,180	3,890	109,381	88,022	99,469	208,227	513,169
Calero Dam Seismic Retrofit - Design & Constuct	408	218	114	119	100	120,615	121,574
Guadalupe Dam Seismic Retrofit - Design & Construct	789	569	12,753	25,522	25,594	6,535	71,762
Pacheco Reservoir Expansion Project*	42,305	43,937	33,307	25,309	243,929	939,178	1,327,965
Source of Supply Subtotal	90,433	71,543	184,376	162,282	395,739	1,533,891	2,438,264
RAW WATER TRANSMISSION & DISTRIBUTION							
Pacheco/Santa Clara Conduit Right of Way Acquisition*	853	306					1,159
Vasona Pumping Plant Upgrade	1,433	524	20,487	560			23,004
SCADA[3] Remote Architecture & Communications Upgrade*	293	299	981	1,026	1,072	2,432	6,103
Small Capital Improvements, Raw Water Transmission*	547	33	136		260	1,596	2,572
FAHCE[4] Stevens Creek Moffett Ave Fish Ladder - 90%		1,283	1,790				3,073
FAHCE[4] Stevens Creek Multi-Port Outlet at Dam - 90%		366	1,165				1,531
FAHCE[4] Implementation		4,739	4,379	14,691		106,609	130,418
Raw Water Transmission & Distribution Subtotal	3,126	7,550	28,938	16,277	1,332	110,637	167,860
WATER TREATMENT							
PWTP[5] Residuals Management		710	1,484	7,856			10,050
RWTP[6] Residuals Management Remediation	1,168	13,264	1,404	2,155	692		18,683
RWTP[6] Treated Water Valves Upgrade	21						21
RWTP[6] Reliability Improvement	40,781	51,061	5,896				97,738
Water Treatment Plant Electrical Improvement Project	535	871	2,323	5,328	1,803		10,860
STWTP[7] Filter Media Replacement Project	488	773	2,021	4,611	1,567		9,460
Small Capital Improvements, Water Treatment	10,024	2,465	3,800	1,026	5,893	23,800	47,008
Water Treatment Subtotal	53,017	69,144	16,928	20,976	9,955	23,800	193,820
TREATED WATER TRANSMISSION & DISTRIBUTION							
Treated Water Isolation Valves	761	6,594					7,355
Westside Retailer Interties		3	374	1,417	120		1,914
Small Capital Improvements, Treated Water Transmission	185	51	203	179	75	199	892
Treated Water Transmission & Distribution Subtotal	946	6,648	577	1,596	195	199	10,161
ADMINISTRATION AND GENERAL							
CIP Development & Administration*	764	866	1,344	1,567	1,683	8,110	14,334
Survey Management & Technical Support*	291	329	511	596	640	3,083	5,450
Capital Program Services Administration*	3,094	3,665	5,684	6,629	7,121	34,308	60,501
Capital Warranty Services*		27,279	85,587	59,626	31,155	1,068	204,715
10-Year Pipeline Rehabilitation (FY18-FY27)*	24,659	14,935	6,138	5,239	6,334	18,064	75,369
WTP-WQL[8] Network Equipment*	184		97	1,519	3,061	3,448	8,309
Metcalf Ponds Design & Construction*		2,184	2,282	2,385	11,680	12,049	30,580
Ogier Ponds Design & Construction*			1,141	1,193	1,869	11,642	15,845
Headquarters Operations Building	1,252	2,228	4,067	2,862			10,409
Capital Placeholder						75,000	75,000
Projected Carryforward*	10,098						10,098
Administration and General Subtotal	40,340	51,487	106,851	81,616	63,543	166,772	510,610
TOTAL FUNDED	187,862	206,372	337,670	282,747	470,764	1,835,299	3,320,714

Footnotes for Table 4-5.2, Capital Improvements Projects – Fiscal Years 2019-20 Through 2029-29:

1. Adjustable Speed Drive
2. Expedited Purified Water Program
3. Supervisory Control and Data Acquisition
4. Fisheries and Aquatic Habitat Collaborative Effort
5. Penitencia Water Treatment Plant
6. Rinconada Water Treatment Plant
7. Santa Teresa Water Treatment Plant
8. Water Treatment Plant – Water Quality Lab

* The asterisked projects would benefit the South County, Zone W-5, and therefore would be funded in part of in whole by the South County.

Table 4-5.3 lists the validated but not yet funded capital projects under the maximum proposed charges for FY 2019–20. The validated unfunded capital projects total approximately $346 million over the next ten years. A higher groundwater production charge projection would be necessary to fund these capital projects.

Table 4-5.3 List of Validated Unfunded Capital Projects

	Proposed Funding in Raw Dollars (Thousands of Dollars)						
Name	Year 1	Year 2	Year 3	Year 4	Year 5	Years 6-10	Total Yr 1-10
SOURCE OF SUPPLY							
Dam Seismic Retrofit at 2 Dams (Chesbro & Uvas)*			17,900	17,900	17,900	35,800	89,500
Long-Term Purified Water Program Elements				6,681	8,296	192,175	207,152
So. County Recycled Water Reservoir Expansion*	1,000	1,500	2,000	1,500	1,000		7,000
SCADA[1] Small Capital Improvements - Source of Supply*	55	448	466	786	606	1,267	3,628
Land Rights - South County Recycled Water Pipeline*		541	2,643	2,632			5,816
Source of Supply Subtotal	1,055	2,489	23,009	29,499	27,802	229,242	313,096
RAW WATER TRANSMISSION & DISTRIBUTION							
Alamitos Diversion Dam Improvements	974	1,371					2,345
Coyote Diversion Dam Improvements	114	1,259	765				2,138
SCADA[1] Small Capital Improvements - Raw Water Trans & Dist*	61	499	519	875	675	1,411	4,040
Raw Water Transmission & Distribution Subtotal	1,149	3,129	1,284	875	675	1,411	8,523
WATER TREATMENT							
SCADA[1] Small Capital Improvements - Water Treatment	180	1,476	1,535	2,586	1,996	4,171	11,944
Water Treatment Subtotal	180	1,476	1,535	2,586	1,996	4,171	11,944
ADMINISTRATION AND GENERAL							
Fleet and Facility Annex Improvements (assume 60% WU)*	552	2,077	202				2,831
Employee Workspace Optimization Project (assume 60% WU)*		1,910	1,967	2,701	2,782		9,360
Administration and General Subtotal	552	3,987	2,169	2,701	2,782	0	12,191
TOTAL UNFUNDED	2,935	11,081	27,997	35,661	33,256	234,824	345,754

1. Supervisory Control and Data Acquisition

* The asterisked projects would benefit the South County, Zone W-5, and therefore would be funded in part or in whole by the South County.

4-6 FINANCES

Financing and Bond Rating

To fund the construction of new facilities, the district has historically relied on both pay-as-you-go financing as well as short-term and long-term debt financing. Water utility debt service will increase by roughly $2 million in FY 2019–20 due to a planned long-term debt issuance. Looking forward, capital improvement needs total a little over $3 billion for the ten fiscal years 2019–20 through 2028–29. As shown in Figure 4-6.1, the district will see debt service rise from $44 million in FY 2019–20 to roughly $127.9 million in FY 2028–29 as a result of periodic debt issuances to fund capital projects. Total outstanding debt is shown in Figure 4-6.2 and is projected to increase from $577 million in FY 2019–20 to almost $2.0 billion in FY 2028–29. This outstanding debt could be significantly higher if all postponed capital projects were funded. Conversely, the debt could also be reduced if projects are reduced or further external funding is found.

Figure 4-6.1 Projected Debt Service

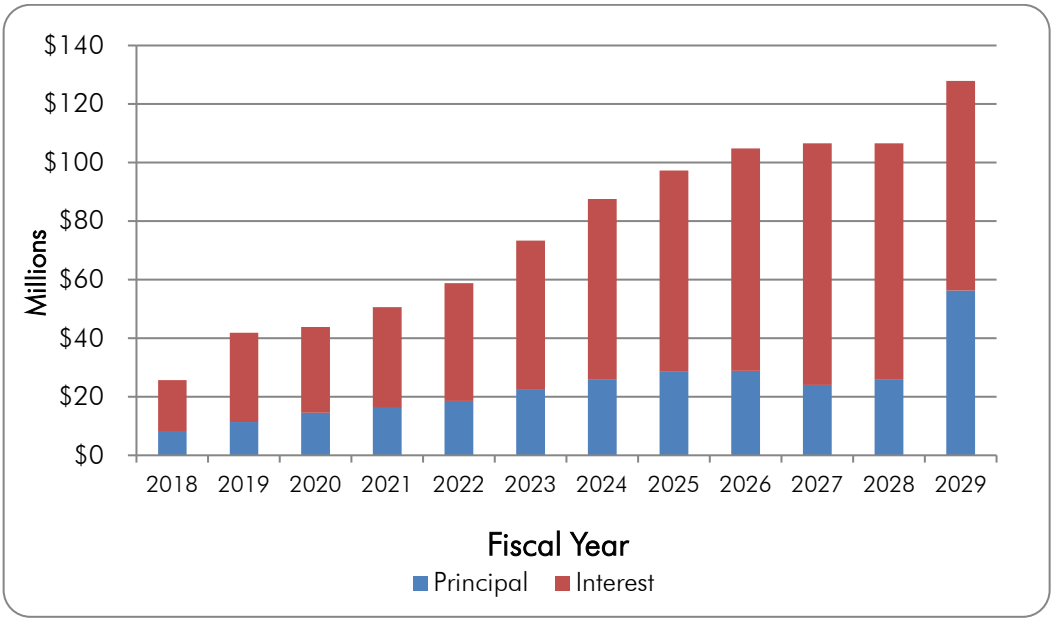
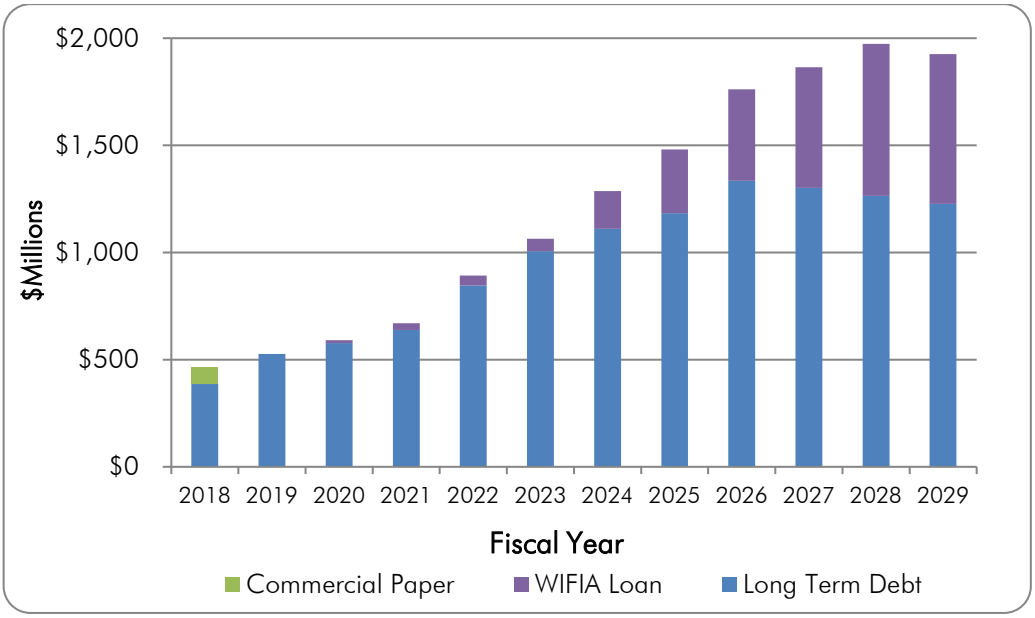


Figure 4-6.2 Projected Outstanding Debt



Current Water Utility senior lien debt issuances are rated Aa1 from Moody's, AA+ from Fitch, and AA- from Standard & Poor's. These ratings reflect the district's strong financial position and the highly rated creditworthiness of district issued securities. The ratings are among the highest for a water-related governmental entity in the state of California, which helps keep interest costs borne by the district at a minimum.

Water Utility Funds Projected Proforma

Table 4-6.1 shows the projected revenues, expenditures, and reserves over the next ten years for the Water Utility Funds. By financing with a combination of debt, current year revenue, and reserves, the district is able to achieve its capital investment plan. Under the maximum proposed projection, the financial model assumes that discretionary reserves (the operating and capital reserve plus the supplemental water supply reserve) are maintained at minimum per district policy. The minimum per policy for these reserves equates to having roughly 3 months worth of Water Utility operating outlays in the bank. These reserves serve several purposes including: 1) to meet cash flow needs; 2) provide emergency funding; and 3) to provide a funding source for future operating and capital needs. In FY 2016-17, the Board established a Drought Contingency Reserve that would be built up in healthier rainfall and economic times. The purpose of this reserve is to offset costs that arise during a drought and minimize spikes in the rates. The financial model includes a $3 million increase in FY 20 to the Drought Contingency Reserve for a total balance of $10 million. The district's current reserve policy can be found within the Financial Summaries section of the FY 2018–19 Budget document.[6]

The financial model under the FY 2019–20 maximum proposed projection reflects a Senior/Parity Lien Debt Service Coverage Ratio ranging between 1.96 and 3.87 between FY 2019-20 and FY 2028–29. Targeting a ratio of 2.0 or better helps to ensure financial stability and continued high credit ratings.

[6] The FY 2017-18 Budget document is located at https://www.valleywater.org/how-we-operate/FinanceBudget

Table 4-6.1 Ten-Year Water Utility Plan – ($ in Thousands)

	Projected 2017-18	Projected 2018-19	Projected 2019-20	Projected 2020-21	Projected 2021-22	Projected 2022-23	Projected 2023-24	Projected 2024-25	Projected 2025-26	Projected 2026-27	Projected 2027-28	Projected 2028-29
Operating Revenues												
Groundwater Production Charges	$97,483	$90,696	$105,036	$128,638	$137,175	$146,751	$156,997	$167,957	$179,716	$192,299	$205,762	$220,169
Surface & Recycled Water Charges	$1,041	$2,653	$2,820	$3,005	$3,203	$3,413	$3,639	$3,879	$4,135	$4,408	$4,699	$5,010
Treated Water Charges	$132,477	$152,787	$169,519	$179,948	$191,065	$203,935	$217,719	$232,483	$248,502	$265,673	$284,080	$303,812
Other	$4,706	$625	$625	$625	$625	$625	$625	$625	$625	$625	$625	$625
Inter-governmental Services	$4,396	$735	$1,237	$1,254	$1,282	$1,320	$1,325	$1,348	$1,386	$1,396	$1,420	$1,355
Total Operating Revenue	**$240,103**	**$247,496**	**$279,237**	**$313,470**	**$333,350**	**$356,044**	**$380,305**	**$406,292**	**$434,364**	**$464,401**	**$496,586**	**$530,971**
Non-Operating Revenues												
Property Taxes	$37,416	$25,282	$25,537	$25,801	$33,074	$34,356	$36,649	$38,951	$40,265	$41,589	$43,924	$45,272
Interest	$2,406	$2,640	$2,800	$2,178	$2,591	$3,111	$3,642	$4,130	$4,667	$5,011	$6,714	$7,604
Capital Contributions	$4,350	$12,898	$24,851	$22,677	$16,019	$17,217	$129,577	$125,829	$129,508	$133,517	$140,612	$339
Semitropic Sales	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other	$1,725	$1,200	$1,392	$1,400	$1,408	$1,416	$1,424	$1,433	$1,442	$1,452	$1,462	$1,473
Total Non-Operating Revenues	$45,898	$42,020	$54,580	$52,055	$53,091	$56,099	$171,292	$170,343	$175,882	$181,569	$192,713	$54,688
Total Revenue	**$286,001**	**$289,516**	**$333,817**	**$365,525**	**$386,441**	**$412,143**	**$551,597**	**$576,635**	**$610,246**	**$645,970**	**$689,299**	**$585,659**
	10.2%	1.2%	15.3%	9.5%	5.7%	6.7%	33.8%	4.5%	5.8%	5.9%	6.7%	-15.0%
Operating Outlays												
Operations	$171,066	$177,302	$184,815	$202,809	$214,464	$227,654	$231,276	$235,886	$244,663	$255,446	$336,525	$345,174
Operating Projects	$222	$339	$260	$273	$286	$398	$411	$426	$439	$455	$470	$487
Debt Service	$25,717	$41,886	$43,874	$50,589	$58,803	$73,312	$87,611	$97,234	$104,823	$106,563	$106,627	$127,887
Total Operating Outlays	**$197,005**	**$219,526**	**$228,949**	**$253,672**	**$273,553**	**$301,364**	**$319,298**	**$333,546**	**$349,925**	**$362,465**	**$443,622**	**$473,548**
Operations + OP % Increase	4.3%	3.7%	4.2%	9.7%	5.7%	6.2%	1.6%	2.0%	3.7%	4.4%	31.7%	2.6%
Operating Transfers In/(Out)	(8,225)	(2,015)	(652)	2,129	840	2,643	6,153	6,856	7,618	8,444	61,390	10,303
Debt Proceeds	51,570	64,193	59,559	71,321	208,519	169,304	119,098	93,721	169,157	0	0	0
Capital Outlay	(124,899)	(144,032)	(166,028)	(179,487)	(315,582)	(270,818)	(353,395)	(337,389)	(431,445)	(276,456)	(217,742)	(156,953)
Total Other Financing Sources/ (Uses)	(81,554)	(81,854)	(107,122)	(106,037)	(106,223)	(98,872)	(228,144)	(236,811)	(254,669)	(268,012)	(156,352)	(146,650)
Balance Available	**7,442**	**(11,865)**	**(2,254)**	**5,816**	**6,665**	**11,908**	**4,155**	**6,278**	**5,652**	**15,493**	**89,325**	**(34,540)**
Reserves:												
Restricted Reserves:												
WUE - Rate Stablization Reserve	$21,066	$22,478	$23,534	$26,198	$28,676	$32,445	$35,369	$37,519	$39,643	$40,862	$47,631	$52,251
San Felipe Emergency Reserve	$3,040	$3,053	$3,103	$3,153	$3,203	$3,253	$3,303	$3,353	$3,403	$3,453	$3,503	$3,553
State Water Project Tax Reserve	$12,778	$10,883	$4,816	$0	$0	$0	$0	$0	$0	$0	$0	$0
P3 Reserve	$0	$4,000	$8,000	$10,000	$12,000	$14,000	$16,000	$17,000	$18,000	$19,000	$20,000	$20,000
Drought Contingency Reserve	$5,000	$7,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
Supplemental Water Supply Appropo.	$14,677	$14,677	$15,077	$15,477	$15,877	$16,277	$16,677	$17,077	$17,477	$17,877	$18,277	$18,677
SVAWPC Sinking Fund	$1,066	$1,066	$1,066	$1,066	$1,066	$1,066	$1,066	$1,066	$1,066	$1,066	$1,066	$1,066
Total Restricted	**$57,627**	**$63,157**	**$65,596**	**$65,894**	**$70,823**	**$77,041**	**$82,416**	**$86,015**	**$89,589**	**$92,258**	**$100,477**	**$105,547**
Committed Reserves:												
Designated for Operating and Capital	$20,486	$35,003	$40,408	$45,926	$47,663	$53,352	$52,133	$54,811	$56,890	$69,713	$150,819	$111,209
Currently Authorized Projects	$42,010	$10,098	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Designated Reserves	**$62,496**	**$45,101**	**$40,408**	**$45,926**	**$47,663**	**$53,352**	**$52,133**	**$54,811**	**$56,890**	**$69,713**	**$150,819**	**$111,209**
Total	**$120,123**	**$108,258**	**$106,004**	**$111,820**	**$118,485**	**$130,393**	**$134,548**	**$140,826**	**$146,479**	**$161,971**	**$251,296**	**$216,756**
Debt Service Coverage												
Senior & Parity Debt Service Coverage	3.87	2.65	3.37	3.31	2.99	2.54	2.47	2.48	2.51	2.70	2.77	1.96

North County (Zone W-2) Finances

North County (Zone W-2) is generally defined as the portion of the county north of Metcalf Road. North County accounts for approximately 80 percent of district water consumption, but because of higher charges due to higher North County costs, about 95 percent of the Water Utility Enterprise's revenue. As shown at the beginning of the financial section in Table 4-2.1, the proposed maximum is $1,374 per acre-foot groundwater production charge for M&I or other non-agricultural water and a $1,474 per acre-foot for contract treated water for FY 2019–20. If adopted, there would be a 6.6 percent increase for groundwater production and 6.1 percent for contract treated water compared to FY 2018–19. The average household would experience an increase in their monthly bill of $2.93 or about 10 cents a day. Customers may also experience additional charge increases enacted by their retail water provider.

Staff is not making a recommendation on the North County agricultural groundwater production charge, but rather the proposed maximum is a placeholder which allows flexibility for the Board as it deliberates changes to its policy on agricultural water pricing. The proposed maximum represents the District Act maximum of $120.75 per acre-foot.

Staff recommends maintaining the surcharge on treated water delivered under the contracts with retail agencies at $100 per acre-foot. As outlined in treated water contracts, the district has the discretion to make available treated water in excess of the retailers' basic contract amounts, so-called non-contract treated water, "… at such times and such prices as determined by the District." Staff recommends maintaining the non-contract surcharge at $50 per acre-foot for FY 2019–20 to encourage retail customers to continue taking treated water at current levels as surface water supplies are projected to be adequate.

It is recommended that the surface water master charge be increased from $35.93 per acre-foot to $37.50 per acre-foot to align revenues with costs related to managing, operating and billing for surface water diversions. The increases in the basic user charge and surface water master charge result in a total surface water charge for M&I water of $1,411.50 per acre-foot or a 6.5 percent increase. The total surface water charge for agricultural water again represents the maximum for the District Act at $157.75 per acre-foot. Due to the severity of the drought, the district suspended almost all raw surface water deliveries in 2014. With the historic drought over, the district restored surface water service to existing permit holders who requested it. Current Board policy does not permit new surface water connections.

To ease the burden on proposed groundwater production charge increases, staff recommends setting the SWP tax collection for FY 2019–20 at $18 million. The district incurs an annual indebtedness to the State of California pursuant to its Water Supply Contract dated November 20, 1961. Such indebtedness is proportional to the district's allocation of water from the SWP and pays for construction, maintenance and operation of SWP infrastructure and facilities. Staff anticipates that the district's contractual indebtedness to the State under the State Water Supply Contract for FY 2019–20 will be approximately $25 million. Not levying the SWP tax in FY 20 would result in revenue loss equivalent to $92 per AF in terms of the North County M&I groundwater production charge, $19 per AF in terms of the South County M&I groundwater production charge, and $523K in terms of the Open Space Credit. (See Page 55 for further information on the Open Space Credit).

Staff does not recommend utilizing the SWP tax to pay for the State Water Project portion of the California WaterFix at this time given the current legal uncertainty as to whether the California WaterFix can be considered a part of the State Water Program approved by voters in 1960. If the Board were to direct staff to pay for the State Water Project portion of the California WaterFix with the SWP tax instead of with water charges, then the groundwater charge projection shown in the report would be reduced accordingly, and the average annual SWP tax bill for a single family residence could increase by as much as $37 per year over time. Today, the average annual SWP tax bill is approximately $27 per year. Staff recommends that the Board not consider use of the SWP tax to pay for the SWP portion of the California WaterFix until after the successful completion of a validation action, which was filed by the Department of Water Resources (DWR) in July 2017. DWR's validation action seeks judicial determination of DWR's statutory authority to issue revenue bonds for California WaterFix, which could bring into question whether CWF is part of the State Water Project, and whether override taxes may be levied.

Table 4-6.2 shows the relationship between expenditures and the sources of revenue in North County Zone W-2. The maximum proposed groundwater production charges for FY 2019–20 are necessary to conduct "district activities in the protection and augmentation of the water supplies for users within a zone or zones of the district which are necessary for the public health, welfare, and safety of the people of this State" (District Act, Section 26.3).

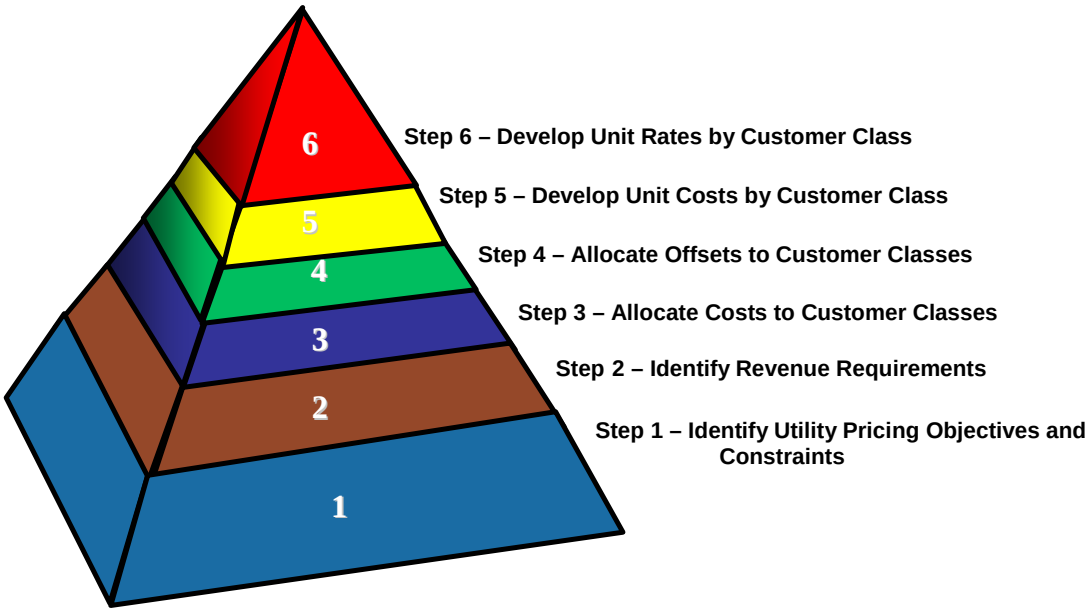
Table 4-6.2 Fiscal Year 2019–20 North County Water Utility Water Program Requirements and Financing Sources

Cost Center	FY 20		
	Ends Policy	Projected ($K)	Description of Cost Center/Activities
Source of Supply	E-2.1 Current and future water supply for municipalities, industries, agriculture and the environment is reliable	89,871	This cost center contains all the anticipated expenditures that relate to obtaining, producing, and protecting a water supply; including all conservation, reclamation, and importation costs.
Raw Water Transmission & Distribution	E-2.2 Raw Water Transmission and Distribution Assets Are Managed to Ensure Efficiency and Reliability	12,611	This cost center contains all expenditures relating to the distribution of raw water. The distribution system consists of pipelines, canals, and percolation ponds and includes the use of creek systems.
Water Treatment and Treated Water Transmission & Distribution	E-2.3 Reliable High Quality Water is Delivered	43,238	These cost centers contain all expenditures associated with the treatment of water at the Rinconada, Penitencia and Santa Teresa Water Treatment Plants, as well as those expenditures related to the distribution of treated water to water utilities and includes costs associated with the treated water reservoirs, pumping plants, pipelines, and turnouts.
Administration & General	Support Services	19,272	This cost center contains all expenditures of an administrative nature which cannot be properly assigned to another of the other four cost centers. Work performed in this cost center cover items such as the collection of groundwater charges, financial and cash flow studies, annual reports, and general water management planning.
Capital & Other	Debt Service	43,874	Principal and Interest payments on outstanding debt
	Capital Improvements	167,693	Capital Improvement Program
	Open Space Credit	5,598	Help preserve the open space benefits provided by agricultural lands
	Adjustments		
	Adjust for FY 17 Actuals Versus Plan	15,665	
	Total Program Requirements	**397,822**	
	Financing Sources		
	Capital Cost recovery	6,546	
	Debt Proceeds	59,559	
	Interest & Other	34,311	
	Property Tax	22,872	
	Treated Water Sales	169,519	
	Surface Water Charges	2,120	
	Groundwater Production Charges	90,845	
	Capital Carryforward Reserves	10,098	
	Change in Reserves	1,952	
	Total Financing Sources	**397,822**	

Figure 4-6.3 and Table 4-6.3 show the cost of service analysis by customer class following six industry standard rate making steps:

1. Identify utility pricing objectives and constraints
2. Identify revenue requirements
3. Allocate costs to customer classes
4. Reduce costs by revenue offsets or non-rate related funding sources
5. Develop unit costs by customer class or net revenue requirements by customer class
6. Develop unit rates by customer class

Figure 4-6.3 Industry Standard Rate Making Steps



Water Utility pricing objectives and constraints are identified in Resolution 99-21, the District Act, Proposition 218, and existing contracts.

Line 11 in Table 4-6.3 represents rate making steps 2 and 3 summarizing the revenue requirements for North County Zone W-2 including operations costs, capital costs and debt service. Step 2 involves allocating water utility costs between zones W-2 (North County) and W-5 (South County) according to the benefits provided in each zone. Appendix B shows the percentage of operations costs allocated to the South County, along with a brief description of the basis of the allocation. Appendix C shows the percentage of capital and debt service costs allocated to South County along with a brief description of the basis of the allocations. Costs not allocated to the South County are allocated to the North County. Step 3 involves allocating costs directly to each customer class where possible, or allocating based on volume where the program services benefit multiple customer classes.

Line 29 in Table 4-6.3 represents rate making steps 4 and 5. It reflects the unit cost per acre-foot by customer class after applying non-rate related offsets to the revenue requirements. Offsets have been allocated directly to each zone and customer class where possible, or allocated based on volume where the offset applies to multiple customer

classes. FY 2019–20 unit costs include an adjustment for the reconciliation of FY 2016–17 actual costs and revenues against what should have been collected given actual costs.

Line 39 represents rate making step 6. There are two adjustments that have been made to achieve a pricing structure that meets the objectives of Resolution 99-21, namely a structure that facilitates managing surface water (SW) and groundwater (GW) supplies conjunctively to prevent the over use or under use of the groundwater basin. First, non-rate related revenues are offset against the cost of agricultural water. This is referred to as the "Open Space Credit." The purpose of the credit is to preserve the open space benefits provided by agricultural lands by keeping agricultural groundwater production charges low.

The second adjustment involves reallocating the cost of treated water to groundwater and surface water users based on proportional water usage. Importing water into the county for treatment and subsequent distribution to treated water (TW) users offsets the need to pump water from the ground. Without treated imported water supplies, the groundwater basin would become over drafted, which would also impact surface water users (who are permitted to take surface water in-lieu of pumping it from the ground). Consequently, the reallocation of treated water cost represents the value of treated water to groundwater and surface water users and facilitates a pricing structure that prevents the over use of the groundwater basin. The 2011 RFC report mentioned earlier in the section supports the reasonableness of such an adjustment.

Another aspect of the second adjustment is related to setting the basic user charge for surface water equal to the groundwater production charge. Surface water use is effectively in-lieu groundwater use permitted by the district to help preserve the groundwater basin. As such, the costs related to preserving the groundwater basin provide value to surface water users because it makes available district surface water, which otherwise would only be used for groundwater recharge. Similarly, the costs related to providing surface water benefit groundwater users because surface water usage helps preserve the groundwater basin. The second adjustment reallocates cost between surface water and groundwater customers in order to set the basic user charge for surface water equal to the groundwater production charge in recognition of this conjunctive use relationship, and in accordance with board policy. The 2015 RFC report mentioned earlier in the section supports the reasonableness of such an adjustment.

Table 4-6.3 Fiscal Year 2019–20 North County (Zone W-2) Cost of Service by Customer Class

	FY '20 Projection ($K)	Zone W-2					
		GW		TW	SW		Total W-2
		M&I	AG	M&I	M&I	Ag	
1	**Operating Outlays**						
2	Operations/Operating Projects	36,308	350	102,206	1,034	27	139,924
3	SWP Imported Water Costs	6,078	60	18,621	301	8	25,068
4	Debt Service	10,318	101	33,313	138	4	43,874
5	**Total Operating Outlays**	52,703	511	154,140	1,473	39	208,866
6							
7	**Capital & Transfers**						
8	Operating Transfers Out	600	6	1,044	14	0	1,664
9	Capital Outlays excl. carryforward	34,753	342	120,057	758	20	155,931
10	**Total Capital & Transfers**	35,353	348	121,101	772	21	157,595
11	**Total Annual Program Costs**	88,057	859	275,241	2,245	60	366,461
12							
13	**Revenue Requirement Offsets**						
14	Capital Cost Recovery	(2,360)	(23)	(4,107)	(54)	(1)	(6,545)
15	Debt Proceeds	(13,274)	(131)	(45,857)	(290)	(8)	(59,559)
16	Inter-governmental Services	(390)	(4)	(678)	(9)	(0)	(1,081)
17	SWP Property Tax	(4,102)	(40)	(12,569)	(203)	(5)	(16,920)
18	South County Deficit/Reserve	(1,418)	(14)	(2,467)	(32)	(1)	(3,932)
19	Interest Earnings	(1,010)	(10)	(1,757)	(23)	(1)	(2,800)
20	Inter-zone Interest	73	1	127	2	0	202
21	Capital Contributions	(8,962)	(88)	(15,592)	(203)	(5)	(24,851)
22	Other	(953)	(9)	(903)	(14)	(0)	(1,880)
23	Reserve Requirements	(1,751)	17	(181)	(38)	1	(1,952)
24	**Adjusted Revenue Requirement (FY 19)**	**53,908**	**557**	**191,259**	**1,381**	**39**	247,144
25	**Adjusted Revenue Requirement (FY 16 adj)**	(22,017)	(235)	37,018	913	(15)	15,665
26	**Total Adjusted Revenue Requirement**	**31,892**	**323**	**228,276**	**2,293**	**24**	262,809
27	Volume (KAF)	66.1	0.7	115.0	1.5	0.0	183.3
28							
29	Revenue Requirement per AF	$ 482	$ 497	$ 1,985	$ 1,529	$ 603	
30							
31	**Adjustments for Agricultural Preservation**						
32	Allocate WU 1% Ad Valorem Prop Tax	-	(304)	-	-	(21)	(326)
33	Transfer GF 1% Ad valorem Prop Tax	-	-	-	-	-	-
34	Transfer WS 1% Ad Valorem Prop Tax	-	-	-	-	-	-
35	Revenue Requirement per AF	$ 482.5	$ 28.9	$ 1,985	$ 1,529	$ 66.4	
36							
37	**Adjustments to Facilitate Conjunctive Use**						
38	Reallocate TW/SW/RW costs	58,934	-	(58,758)	(176)	-	0
39	Charge per AF	$ 1,374	$ 28.9	$ 1,474	$ 1,412	$ 66.4	
40	Total Revenue ($K)	$90,826	$19	$169,518	$2,117	$3	$262,483

Step 2- Identify revenue reqmnts

Step 3 - Allocate costs to customer classes

Step 4 Reduce costs by revenue offsets

Step 5 - Develop unit costs by customer class

Step 6 - Rate Design

South County (Zone W-5) Finances

South County (Zone W-5) is generally defined as the portion of Santa Clara County south of Metcalf Road, including Coyote Valley, Morgan Hill, San Martin, Gilroy and other unincorporated areas within the zone. Within the Water Utility Fund, district staff track revenue and costs associated with the South County Zone W-5 separately so that the groundwater production charge for services that benefit the South County Zone can be calculated.

Charges in the South County Zone W-5 are based on the costs of specific facilities, imported water costs, and operations costs related to managing a conjunctive use program, ensuring water quality, and measuring water supplies and usage. Historically, South County finances have been managed to maintain an approximate balance between cumulative revenues and costs. However, going forward, staff believe that maintaining a cumulative surplus or reserve balance would be prudent to provide a funding source for future costs.

For South County, the proposed maximum groundwater production charge is $481 per acre-foot for M&I water. The average household would experience an increase in their monthly bill of $1.07 per month or about 3 cents per day. Customers may also experience additional water charge increases enacted by their retail water provider.

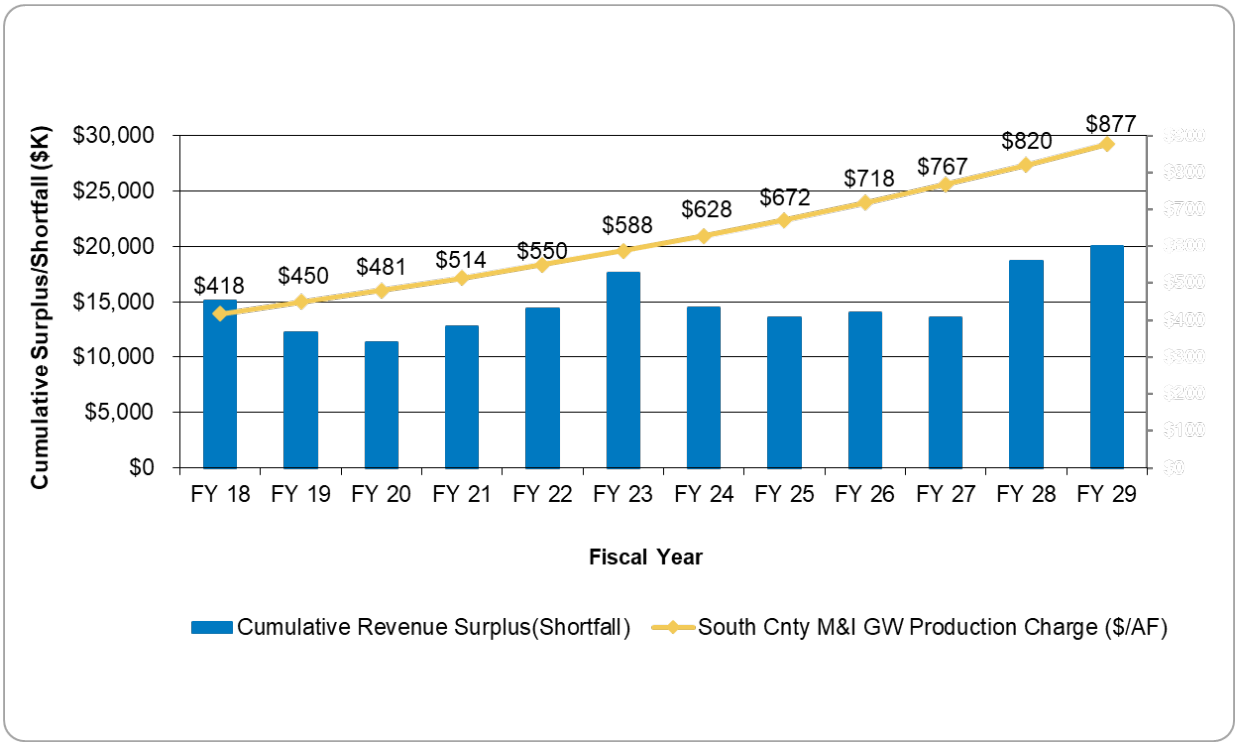
The proposed maximum agricultural groundwater production charge of $120.25 per acre-foot reflects the maximum rate allowed by the District Act. This is not a staff recommendation, but rather a placeholder, which allows flexibility for the Board as it deliberates changes to its policy on agricultural water pricing.

It is recommended that the surface water master charge be increased from $35.93 per acre-foot to $37.50 per acre-foot to align revenues with costs related to managing, operating and billing for surface water diversions. The increases in the basic user charge and surface water master results in a total surface water charge for M&I water of $518.50 per acre-foot or a 6.7 percent increase. The total surface water charge for agricultural water again represents the maximum per the District Act at $157.75 per acre-foot.

For recycled water, staff recommends increasing the M&I charge by 7.2 percent to $461 per acre-foot. For agricultural recycled water, the proposed maximum is a placeholder of $147.64 per acre-foot that aligns with the proposed maximum agricultural groundwater production charge, which would allow flexibility for the Board as it deliberates changes to its policy on agricultural water pricing.

On a year over year basis, costs are estimated to exceed revenues by approximately $1.2 million at the end of FY 2019–20. Figure 4-6.4 shows a cumulative revenue surplus projected in subsequent years which could help pay for potential dam seismic work at Uvas and Chesbro dams. The projection assumes an average increase of 6.9 percent in the M&I groundwater charge between FY 2019–20 and FY 2028–29. The average increase under the high end of the projected range shown in Figure 4-2.1 is 10.9 percent, over the same time frame.

Figure 4-6.4 South County Cumulative Revenue Surplus / Shortfall Projection ($/Thousands)



Open Space Credit

The District Act limits agricultural groundwater production charges to a maximum of 25 percent of the M&I groundwater production charges. Current Board policy adds an "open space" credit to agricultural revenues. The purpose of the credit is to help preserve the open space benefits provided by agricultural lands by keeping agricultural groundwater production charges low.

In 2013 and at the request of the Board, staff completed a study of the Board's Open Space Credit policy to address whether or not the property taxes used to support the Open Space Credit should be used to fund other important district activities, and whether increasing the agricultural groundwater production charges would affect the viability of the agricultural lands. Staff engaged a diverse group of stakeholders to gain insight on the impact of the current Open Space Credit policy on them and the impact of any potential changes to this policy. Staff convened a Working Group comprised of members representing agriculture, water retailers, the business community and the County of Santa Clara Land Planning. Staff solicited feedback from the Agricultural Advisory Committee, the Environmental Advisory Committee, Santa Clara County Farm Bureau, Water Commission, and farmers in North County and South. At the completion of the study in November 2013, the Board agreed with the Working Group recommendation and decided to maintain the Open Space Credit as is but agreed to have further discussions on the policy as necessary in the future.

The Board has had preliminary discussions during this fiscal year's (FY 2019-20) rate setting process regarding potential changes to the policy. Potential changes would decrease the Open Space Credit and therefore provide more funding for flood protection projects. However, reductions in the Open Space Credit could cause a negative impact to the farming industry in Santa Clara County. Consequently, the Boiard has asked staff to obtain feedback on potential policy changes from several of the Board's advisory committees and bring that back to the Board later in the process. Accordingly, the Board has request that the proposed maximum agricultural groundwater charge be set at the District Act maximum for the purposes of this report to allow the Board maximum flexibility as it considers stakeholder feedback and deliberates changes to its policy on agricultural water pricing.

If the Board were to continue with the current policy of setting the agricultural groundwater production charge at 6% of M&I, the estimated open space credit received by South County be $8.1 million in FY 2019–20 (funded by 1 percent ad valorem property taxes). This includes an adjustment that reconciles FY 2017–18 actuals against what was projected. The resulting agricultural groundwater production charge for FY 2019–20 would be $28.88 per acre foot, which is 6.0 percent of the South County M&I groundwater production charge.

Program Requirements and Financing Sources

Table 4-6.4 shows the relationship between expenditures and sources of revenue in South County for FY 2019–20. The specific operating costs allocated to South County can be found in Appendix B. Details on capital cost recovery can be found in Appendix C. The maximum groundwater production charges proposed for FY 2019–20 in South County Zone W-5 are necessary to conduct, "district activities in the protection and augmentation of the water supplies for users within a zone or zones of the district which are necessary for the public health, welfare, and safety of the people of this State" (District Act, Section 26.3).

Table 4-6.4 Fiscal Year 2019–20 South County Water Utility Program Requirements and Financing Sources

Cost Center	FY 20		
	Ends Policy	Projected ($K)	Description of Cost Center/Activities
Source of Supply	E-2.1 Current and future water supply for municipalities, industries, agriculture and the environment is reliable	11,783	This cost center contains all the anticipated expenditures that relate to obtaining, producing, and protecting a water supply; including all conservation, reclamation, and importation costs.
Raw Water Transmission & Distribution	E-2.2 Raw Water Transmission and Distribution Assets Are Managed to Ensure Efficiency and Reliability	3,782	This cost center contains all expenditures relating to the distribution of raw water. The distribution system consists of pipelines, canals, and percolation ponds and includes the use of creek systems.
Water Treatment and Treated Water Transmission & Distribution	E-2.3 Reliable High Quality Water is Delivered	269	These cost centers contain all expenditures associated with the Water Quality Laboratory
Administration & General	Support Services	4,248	This cost center contains all expenditures of an administrative nature which cannot be properly assigned to another of the other four cost centers. Work performed in this cost center cover items such as the collection of groundwater charges, financial and cash flow studies, annual reports, and general water management planning.
Capital & Other	Capital Cost Recovery	6,546	Annual payment for completed capital facilities and improvements
	Interest (Earned)/Due Utility Reserves	(202)	Based on cumulative revenue surplus at the current interest earnings rate
	Adjust for FY 17 Actuals Versus Plan	(5,869)	
	Total Program Requirements	20,557	
	Financing Sources		
	Open Space Credit	6,610	
	Property Tax & Other Revenue	2,987	
	Surface Water Charges	346	
	Recycled Water Charges	354	
	Groundwater Production Charges	14,191	
	Total Financing Sources	**24,488**	
	FY 19 Revenue Surplus/(Shortfall)	**3,931**	

Figure 4-6.3 and Table 4-6.5 show the cost of service analysis by customer class following the six industry standard rate making steps for South County Zone W-5:

1. Identify utility pricing objectives and constraints
2. Identify revenue requirements
3. Allocate costs to customer classes
4. Reduce costs by revenue offsets or non-rate related funding sources
5. Develop unit costs by customer class or net revenue requirements by customer class
6. Develop unit rates by customer class

Line 11 in Table 4-6.5 represents rate making steps 2 and 3 summarizing the revenue requirements for South County Zone W-5. Costs have been allocated directly to each customer class where possible, or allocated based on volume where the costs benefit multiple customer classes.

Line 29 in Table 4-6.5 represents rate making steps 4 and 5. It reflects the unit cost per acre-foot by customer class after applying non-rate related offsets to the revenue requirements. Offsets have been allocated directly to each customer class where possible, or allocated based on volume where the offset applies to multiple customer classes. FY 2019–20 unit costs include an adjustment for the reconciliation of FY 2016–17 actual costs and revenue against what should have been collected given actual costs.

Line 39 represents rate making step 6. There are two adjustments that have been made to achieve a pricing structure that meets the objectives of Resolution 99-21, namely a structure that facilitates managing surface water and groundwater supplies conjunctively to prevent the over use or under use of the groundwater basin. First, non-rate related revenues are offset against the cost of agricultural water. This is referred to as the "Open Space Credit". The purpose of the credit is to help preserve the open space benefits provided by agricultural lands by keeping agricultural groundwater production charges low.

The second adjustment involves reallocating the cost of recycled water (RW) to groundwater and surface water users. Without recycled water supplies, there would be additional demand on the groundwater basin and a higher risk of overdraft, which would also impact surface water users (who are permitted to take surface water in lieu of pumping it from the ground). Consequently, the reallocation of recycled water cost represents the value of recycled water to groundwater and surface water users and facilitates a pricing structure that helps prevent the over use of the groundwater basin.

Another aspect of the second adjustment is related to setting the basic user charge for surface water equal to the groundwater production charge. Surface water use is effectively in-lieu groundwater use permitted by the district to help preserve the groundwater basin. As such, the costs related to preserving the groundwater basin provide value to surface water users because it makes available district surface water which otherwise would only be used for groundwater recharge. Similarly, the costs related to providing surface water benefit groundwater users because surface water usage helps preserve the groundwater basin. The second adjustment reallocates cost between surface water and groundwater customers in order to set the basic user charge for surface water equal to the groundwater production charge in recognition of this conjunctive use relationship, and in accord with board policy. The 2015 RFC report mentioned earlier in the section supports the reasonableness of these recycled and surface water conjunctive use adjustments.

Table 4-6.5 Fiscal Year 2019–20 South County (Zone W-5) Cost of Service by Customer Class

	FY '20 Projection ($K)	Zone W-5						
		GW		SW		RW		Total W-5
		M&I	AG	M&I	AG	M&I	AG	
1	**Operating Outlays**							
2	Operations/Operating Projects	10,076	8,692	254	650	221	189	20,083
3	SWP Imported Water Costs	-	-	-	-	-	-	-
4	Debt Service	-	-	-	-	-	-	-
5	**Total Operating Outlays**	10,076	8,692	254	650	221	189	20,083
6								
7	**Capital & Transfers**							
8	Operating Transfers Out	-	-	-	-	-	-	-
9	Capital Outlays excl. carryforward	-	-	-	-	-	-	-
10	**Total Capital & Transfers**	-	-	-	-	-	-	-
11	**Total Annual Program Costs**	10,076	8,692	254	650	221	189	20,083
12								
13	**Revenue Requirement Offsets**							
14	Capital Cost Recovery	2,779	2,481	50	129	595	510	6,545
15	Debt Proceeds	-	-	-	-	-	-	-
16	Inter-governmental Services	(80)	(71)	(1)	(4)	-	-	(156)
17	SWP Property Tax	(539)	(481)	(10)	(25)	(13)	(12)	(1,080)
18	South County Deficit/Reserve	3,370	768	(12)	40	(252)	18	3,932
19	Interest Earnings	-	-	-	-	-	-	-
20	Inter-zone Interest	(101)	(90)	(2)	(5)	(3)	(2)	(202)
21	Capital Contributions	-	-	-	-	-	-	-
22	Other	(71)	(64)	(1)	(2)	-	-	(138)
23	Reserve Requirements	-	-	-	-	-	-	-
24	**Adjusted Revenue Requirement (FY 19)**	**15,434**	**11,235**	**278**	**783**	**548**	**705**	**28,984**
25	**Adjusted Revenue Requirement (FY 16 adj)**	(2,510)	(3,052)	27	(208)	274	(400)	(5,869)
26	**Total Adjusted Revenue Requirement**	**12,925**	**8,183**	**305**	**576**	**822**	**304**	23,115
27	Volume (KAF)	28.0	25.0	0.5	1.3	0.7	0.6	**56.1**
28								
29	Revenue Requirement per AF	$ 462	$ 327	$ 611	$ 443	$ 1,174	$ 507	
30								
31	**Adjustments for Agricultural Preservation**							
32	Allocate WU 1% Ad Valorem Prop Tax	-	(7,211)	-	-	-	-	(7,211)
33	Transfer GF 1% Ad valorem Prop Tax	-	(506)	-	-	-	-	(506)
34	Transfer WS 1% Ad Valorem Prop Tax	-	256	-	(490)	-	(272)	(506)
35	Revenue Requirement per AF	$ 462	$ 28.9	$ 611	$ 66.4	$ 1,174	$ 52.9	
36								
37	**Adjustments to Facilitate Conjunctive Use**							
38	Reallocate TW/SW/RW costs	545	-	(46)	-	(499)	-	0
39	Charge per AF	$ 481	$ 28.9	$ 519	$ 66	$ 461	$ 52.9	
40	Total Revenue ($K)	$13,470	$722	$259	$86	$323	$32	$14,892

Step 2- Identify revenue reqmnts

Step 3 - Allocate costs to customer classes

Step 4- Reduce costs by revenue offsets

Step 5 - Develop unit costs by customer class

Step 6 - Rate Design

APPENDIX A

WATER UTILITY CHARGE COMPONENTS AND MAXIMUM PROPOSED CHARGES

Table A-1 Maximum Proposed Charge Components for Fiscal Year 2019–20

Component	Charge ($/AF)
Basic User, Zone W-2 (North County)	
Agricultural	120.05
M&I	1,374.00
Basic User, Zone W-5 (South County/Coyote Valley)	
Agricultural	120.25
M&I	481.00
Treated Water Surcharge	
Contract	100.00
Non-contract	50.00
Surface Water Charge	
Water Master	37.50

Table A-2 Maximum Proposed Charge Components for Fiscal Year 2019–20

Type of Charge	AG Water ($/AF)	M&I Water ($/AF)
Groundwater Production		
Zone W-2	$120.05	$1,374.00
Zone W-5	$120.05	$481.00
Surface Water[1]		
Other Zone W-2 Deliveries[2]	$157.55	$1,411.50
Other Zone W-5 Deliveries[3]	$157.55	$518.50
Minimum Charge Zone W-2[4]	$90.19	$1,030.50
Minimum Charge Zone W-5[5]	$90.19	$360.75
Treated Water		
Contract[6]	N/A	$1,474.00
Non-contract[7]	N/A	$1,424.00
Recycled Water		
Gilroy	$147.64	$461.00

[1] Surface water charge is the sum of the basic user charge plus the water master charge.
[2] Other Zone W-2 Deliveries = Basic User (AG or M&I @ $120.25/AF or $1,374.00/AF) + Water Master ($37.50/AF).
[3] Other Zone W-5 Deliveries = Basic User (AG or M&I @ $120.25/AF or $481.00/AF) + Water Master ($37.50/AF).
[4] Minimum Charge W-2 = 0.75 X Basic User W-5 (M&I @ $1,374.00/AF, AG @ $120.25/AF).
[5] Minimum Charge W-5 = 0.75 X Basic User W-2 (M&I @ $481.00/AF, AG @ $120.25/AF).
[6] Treated Water Charge is the sum of Basic User ($1,374.00/AF) and Treated Water Surcharge ($100.00/AF).
[7] The charge for non-contract deliveries is the sum of the basic user charge ($1,374.00/AF) and the treated water surcharge for non-contract water ($50.00/AF).

APPENDIX B

BASIS OF COST ALLOCATIONS BETWEEN NORTH AND SOUTH ZONES (IN THOUSANDS $)

Cost Center	Project #	Project Name	South County Allocation	South County Share	North County Share	Total FY 2020	Basis of Allocation
Source of Supply	91041012	Water Operations Planning	17.9%	122	560	682	Raw Water Deliveries
	91041018	Groundwater Management Program	42.3%	1,919	2,618	4,538	Groundwater Production Ratio
	91061012	Facilities Env Compliance	17.9%	7	34	41	Raw Water Deliveries
	91081007	Dam Safety Program	14.4%	291	1,733	2,024	Program Benefit Calculation
	91101004	Recycled Water Program	5.7%	487	8,055	8,542	Population
	91111001	Water Rights	17.9%	71	325	396	Raw Water Deliveries
	91131004	Imported Water Program	12.7%	594	4,084	4,678	Imported Water Ratio
	91131006	IW San Felipe Division Delvrs	20.7%	4,859	18,616	23,475	Program Benefit Calculation
	91131007	IW South Bay Aqueduct Delvrs	0.0%	-	2,612	2,612	No South County Benefit
	91131008	State Water Project Costs	0.0%	-	25,068	25,068	No South County Benefit
	91151001	Water Conservation Program	7.3%	484	6,144	6,628	Program Benefit Calculation
	91151012	Recycled/Purified Water Public Engagement	5.7%	51	844	895	Population
	91151013	Water Banking Operations	12.7%	327	2,250	2,577	Imported Water Ratio
	91211004	San Felipe Reach 1 Operation	20.8%	160	609	769	CVP Imported Water Ratio
	91211005	SFD Reach 1 Administration	20.8%	2	8	10	CVP Imported Water Ratio
	91211084	San Felipe Reach1 Ctrl and Ele	20.8%	85	322	407	CVP Imported Water Ratio
	91211085	SF Reach 1-Engineering - Other	20.8%	80	306	387	CVP Imported Water Ratio
	91211099	San Felipe Reach 1 Gen Maint	20.8%	183	695	878	CVP Imported Water Ratio
	91221002	San Felipe Reach 2 Operation	20.8%	29	112	142	CVP Imported Water Ratio
	91221006	SF Reach 2-Engineering - Other	20.8%	67	257	324	CVP Imported Water Ratio
	91221099	San Felipe Reach 2 Gen Maint	20.8%	29	110	139	CVP Imported Water Ratio
	91231002	San Felipe Reach 3 Operation	20.8%	51	439	490	CVP Imported Water Ratio
	91231084	San Felipe Reach3 Ctrl and Ele	20.8%	41	351	391	CVP Imported Water Ratio
	91231085	SF Reach 3-Engineering - Other	20.8%	21	180	201	CVP Imported Water Ratio
	91231099	San Felipe Reach 3 Gen Maint	20.8%	144	782	926	CVP Imported Water Ratio
	91251001	Los Vaqueros-Transfer Bethany Pipeline	0.0%	-	889	889	Raw Water Deliveries
	91281007	SVAWPC Facility Operations	0.0%	-	2,742	2,742	No South County Benefit
	91281008	SVAWPC Facility Maintenance	0.0%	-	2,133	2,133	No South County Benefit
	91441003	Desalination	13.6%	25	161	186	M&I Water Usage Ratio
	91451002	Well Ordinance Program	20.3%	333	1,309	1,642	Well Permits and Inpections
	91451005	Source Water Quality Mgmt	13.6%	58	371	429	M&I Water Usage Ratio
	91451011	Invasive Mussel Prevention	17.9%	120	548	668	Raw Water Deliveries
	91601001	California WaterFix	12.7%	1,930	13,280	15,210	Imported Water Ratio
	91761001	Local Res / Div Plan & Analysis	22.4%	501	1,734	2,234	Total Water Deliveries Ratio
	91761013	SCADA Systems Upgrades	20.8%	37	141	178	CVP Imported Water Ratio
	91761099	Dams / Reservoir Gen Maint	22.0%	529	1,875	2,404	Program Benefit Calculation
	91061007	Districtwide Salary Savings	13.6%	(199)	(1,266)	(1,465)	M&I Water Usage Ratio
		Adjustments	12.7%	(1,213)	(8,337)	(9,550)	Imported Water Ratio
		Adjustments	13.6%	(444)	(2,822)	(3,266)	M&I Water Usage Ratio
				11,783	**89,871**	**101,655**	

BASIS OF COST ALLOCATIONS BETWEEN NORTH AND SOUTH ZONES (IN THOUSANDS $) ... CONTINUED

Cost Center	Project #	Project Name	South County Allocation	South County Share	North County Share	Total FY 2020	Basis of Allocation
Raw Water Transmission & Distribution	92041014	FAHCE/Three Creeks HCP Project	7.1%	272	3,555	3,826	Coyote Water Supply Ratio
	92061012	Facilities Env Compliance	17.9%	13	61	75	Raw Water Deliveries
	92261099	Vasona Pump Station Gen Main	0.0%	-	236	236	No South County Benefit
	92761001	Raw Water T and D Genrl Oper	17.9%	325	1,491	1,816	Raw Water Deliveries
	92761008	Recycled Water T&D Genrl Maint	100.0%	316	-	316	Benefits only South County
	92761009	Recharge/RW Field Ops	36.4%	1,126	1,967	3,093	Groundwater Recharge Ratio
	92761010	Rchrg / RW Field Fac Maint	36.4%	766	1,339	2,105	Groundwater Recharge Ratio
	92761012	Untreated Water Prog Plan&Analysis	53.9%	131	112	244	Untreated Water Deliveries Ratio
	92761013	SCADA Systems Upgrades	17.9%	18	84	102	Raw Water Deliveries
	92761082	Raw Water T&D Ctrl and Electr	17.9%	140	643	783	Raw Water Deliveries
	92761083	Raw Water T&D Eng Other	17.9%	165	755	920	Raw Water Deliveries
	92761085	Anderson Hydrelctrc Fclty Main	13.6%	16	105	121	Anderson Water Deliveries Ratio
	92761099	Raw Water T / D Gen Maint	17.9%	382	1,754	2,136	Raw Water Deliveries
	92781002	RW Corrosion Control	17.9%	111	509	620	Raw Water Deliveries
				3,782	12,611	16,394	
Water Treatment and Treated Water Transmission & Distribution	93061012	Facilities Env Compliance	0.0%	-	505	505	No South County Benefit
	93081008	W T General Water Quality	0.0%	-	2,350	2,350	No South County Benefit
	93081009	Water Treatment Plant Engineering	0.0%	-	150	150	No South County Benefit
	93231007	PWTP Landslide Monitoring	0.0%	-	51	51	No South County Benefit
	93231009	PWTP General Operations	0.0%	-	5,727	5,727	No South County Benefit
	93231099	Penitencia WTP General Maint	0.0%	-	2,588	2,588	No South County Benefit
	93281005	STWTP - General Operations	0.0%	-	5,636	5,636	No South County Benefit
	93281099	Santa Teresa WTP General Maint	0.0%	-	3,234	3,234	No South County Benefit
	93291012	RWTP General Operations	0.0%	-	8,908	8,908	No South County Benefit
	93291099	Rinconada WTP General Maint	0.0%	-	3,291	3,291	No South County Benefit
	93401002	Water District Laboratory	5.3%	269	4,805	5,074	Lab Analyses
	93761001	SF/SCVWD Intertie General Ops	0.0%	-	331	331	No South County Benefit
	93761004	Campbell Well Field Operations	0.0%	-	112	112	No South County Benefit
	93761005	Campbell Well Field Maintenance	0.0%	-	112	112	No South County Benefit
	93761006	Treated Water Ctrl & Elec Eng	0.0%	-	2,691	2,691	No South County Benefit
	93761013	SCADA Systems Upgrades	0.0%	-	299	299	No South County Benefit
	93761099	SF/SCVWD Intertie Gen Maint	0.0%	-	105	105	No South County Benefit
	94761005	TW T&D - Engineering - Other	0.0%	-	551	551	No South County Benefit
	94761013	SCADA Systems Upgrades	0.0%	-	57	57	No South County Benefit
	94761099	Treated Water T/D Gen Maint	0.0%	-	1,230	1,230	No South County Benefit
	94781001	Treated Water T/D Corrosion	0.0%	-	504	504	No South County Benefit
				269	43,238	43,507	

BASIS OF COST ALLOCATIONS BETWEEN NORTH AND SOUTH ZONES (IN THOUSANDS $) ... CONTINUED

Cost Center	Project #	Project Name	South County Allocation	South County Share	North County Share	Total FY 2020	Basis of Allocation
Administration & General	95001090	Unscoped Projects-Budget Only	13.6%	14	86	100	M&I Water Usage Ratio
	95011003	WU Asset Protection Support	2.4%	23	949	973	Program Benefit Calculation
	95021008	Electrical Power Support	1.5%	4	270	275	Labor Hours
	95031002	Grants Management	41.6%	162	228	391	Program Benefit Calculation
	95041039	Integrated Regional Water Mgmt	13.6%	14	89	103	M&I Water Usage Ratio
	95061012	Rental Expense San Pedro,MH	100.0%	29	-	29	Benefits only South County
	95061037	WUE Training & Development	13.6%	227	1,443	1,671	M&I Water Usage Ratio
	95061038	WUE Administration	13.6%	1,041	6,614	7,655	M&I Water Usage Ratio
	95061043	WUE ER Response Plan & Implement	0.0%	-	1,310	1,310	No South County Benefit
	95061045	AM Framework Implementation	13.6%	262	1,666	1,929	M&I Water Usage Ratio
	95061047	WUE Technical Training Program	13.6%	171	1,089	1,260	M&I Water Usage Ratio
	95061048	Climate Change Adaptation/Mtg.	13.6%	14	88	102	M&I Water Usage Ratio
	95071041	Welding Services	1.8%	9	514	523	Program Benefit Calculation
	95101003	W2 W5 Wtr Revenue Program	63.0%	888	521	1,409	Labor Hours
	95111003	Water Use Measurement	46.1%	868	1,014	1,882	Labor Hours
	95121003	Long Term Financial Planning	13.6%	74	470	544	M&I Water Usage Ratio
	95151002	Water Utility Customer Relations	5.7%	26	436	463	Population
	95741001	WUE Long-term Planning	13.6%	187	1,189	1,377	M&I Water Usage Ratio
	95741042	Water Resources EnvPlng & Permtg	18.0%	185	844	1,029	Program Benefit Calculation
	95761003	SCADA Network Administration	2.8%	6	223	230	Program Benefit Calculation
	95761071	Emergency Preparedness Prog	5.7%	56	931	987	Population
	95762011	Tree Maintenance Program	13.6%	35	225	260	M&I Water Usage Ratio
	95771011	InterAgency Urban Runoff Program	17.9%	87	397	484	Raw Water Deliveries
	95771031	HAZMAT Emergency Response	8.3%	8	87	95	Emergency Response Events
	95811043	Hydrologic Data Msrmt & Mgmt	26.0%	256	729	985	Stream Gauge location
	95811046	Warehouse Services	13.6%	101	643	745	M&I Water Usage Ratio
	95811049	X Valley Subsidence Survey	8.1%	26	292	318	No South County Benefit
	95811054	District Real Property Administration	0.0%	-	274	274	Program Benefit Calculation
		Adjustment for Anticipated Budget Changes	13.6%	(528)	(3,352)	(3,879)	M&I Water Usage Ratio
				4,248	**19,272**	**23,520**	
		TOTAL		**20,083**	**164,992**	**185,075**	

APPENDIX C
SOUTH COUNTY CAPITAL COST RECOVERY

(In Thousands $)						
Job Description	Total Project Cost	South County %	South County Cost	FY 20 Cost Recovery*	Year Cost Recovery is Complete	Basis of Allocation to the South
Uvas Dam & Reservoir	$ 1,124	100.0%	$ 1,124	$ 88	FY 22	Benefits only South County
San Pedro Recharge Facility	$ 1,882	100.0%	$ 1,882	$ 147	FY 22	Benefits only South County
San Pedro Recharge house	$ 700	100.0%	$ 700	$ 47	FY 31	Benefits only South County
Recycled Water Improvements I	$ 7,232	100.0%	$ 7,232	$ 481	FY 31	Benefits only South County
Recycled Water Improvements II	$ 118	100.0%	$ 118	$ 8	FY 33	Benefits only South County
Recycled Water Improvements III	$ 1,721	100.0%	$ 1,721	$ 115	FY 33	Benefits only South County
Water Banking Rights	$ 6,226	8.0%	$ 498	$ 33	FY 35	Total Imported Water Ratio
Dam Instrumentation	$ 6,243	21.0%	$ 1,311	$ 87	FY 41	Program benefit calculation
Geodetic Control Maintenance	$ 236	41.0%	$ 97	$ 6	FY 36	Survey Analysis
Dam Maintenance Mitigation	$ 244	22.0%	$ 54	$ 4	FY 44	Program benefit calculation
SC Recycled Water Masterplan - Immediate Term	$ 3,257	100.0%	$ 3,257	$ 216	FY 37	Benefits only South County
SC Recycled Water Masterplan - Short Term Implementation 1A	$ 4,314	100.0%	$ 4,314	$ 286	FY 42	Benefits only South County
Water Banking FY 06	$ 18,895	9.0%	$ 1,701	$ 113	FY 36	Total Imported Water Ratio
San Felipe Division Capital	$ 10,411	15.2%	$ 1,582	$ 1,582	N/A	Repayment Cost Distribution
Pacheco Conduit Inspection and Rehab	$ 8,041	20.8%	$ 1,672	$ 87	FY 48	CVP Imported Water Ratio
Pacheco Pumping Plant Regulating Tank Recoating	$ 2,550	17.0%	$ 434	$ 29	FY 42	CVP Imported Water Ratio
San Felipe Communications Cable Replacement	$ 235	17.0%	$ 40	$ 3	FY 42	CVP Imported Water Ratio
Small Caps, San Felipe Reach 1	$ 5,869	20.8%	$ 1,221	$ 1,221	N/A	CVP Imported Water Ratio
Santa Clara Tunnel Landslide	$ 4,509	15.1%	$ 681	$ 45	FY 39	CVP Imported Water Ratio
SC Tunnel Landslide Mitigation	$ 217	16.9%	$ 37	$ 2	FY 39	CVP Imported Water Ratio
Small Caps, San Felipe Reach 3	$ 643	20.8%	$ 134	$ 134	N/A	CVP Imported Water Ratio
Coyote Pumping Plant Warehouse	$ 10,324	13.6%	$ 1,404	$ 73	FY 49	M&I Water Usage Ratio
Water Infrastructure Reliability Program	$ 2,134	1.5%	$ 32	$ 2	FY 36	Program benefit calculation
Water Infrastructure Baseline Improvement	$ 2,403	3.6%	$ 87	$ 6	FY 38	Spare pipe usage
Coyote Dam Control Building Improvements	$ 576	19.6%	$ 113	$ 7	FY 42	Anderson deliveries ratio
Pacheco Pumping Plant ASD Replace	$ 19,169	18.6%	$ 3,565	$ 236	FY 50	CVP Imported Water Ratio

APPENDIX C
SOUTH COUNTY CAPITAL COST RECOVERY ... CONTINUED

(In Thousands $)						
Job Description	Total Project Cost	South County %	South County Cost	FY 20 Cost Recovery*	Year Cost Recovery is Complete	Basis of Allocation to the South
Radio Repeater Infill	$ 5	11.1%	$ 1	$ 0	FY 42	M&I Water Usage Ratio
Santa Clara Conduit Rehab	$ 1,814	17.0%	$ 308	$ 20	FY 42	CVP Imported Water Ratio
Raw Water Control System	$ 9,188	4.3%	$ 399	$ 26	FY 37	Program benefit calculation
Small Caps, Raw Water T&D	$ 765	17.9%	$ 137	$ 98	N/A	Raw Water Usage
Main-Madrone PL Restoration	$ 11,378	100.0%	$ 11,378	$ 590	FY 48	Benefits only South County
Inf Reliability Master Plan	$ 2,065	12.3%	$ 254	$ 16	FY 46	M&I Water Usage Ratio
Water Protection	$ 11,387	2.3%	$ 261	$ 17	FY 45	Program benefit calculation
Microwave Telecomunications	$ 4,595	11.5%	$ 528	$ 35	FY 44	M&I Water Usage Ratio
Capital Warranty Services	$ 162	13.6%	$ 22	$ -	N/A	M&I Water Usage Ratio
5-year Pipeline Rehabilitation	$ 28,879	4.6%	$ 1,328	$ 83	FY 47	Program benefit calculation
Pipeline Hydraulic Reliability Upgrades	$ 335	2.3%	$ 8	$ 1	FY 45	Program benefit calculation
WTP_WQL Network Equipment	$ 503	13.6%	$ 68	$ 25	N/A	M&I Water Usage Ratio
Winfield Capital Improvement	$ 481	12.7%	$ 61	$ 3	FY 48	M&I Water Usage Ratio
Corp Yard Relocation	$ 26	10.2%	$ 3	$ 0	FY 40	M&I Water Usage Ratio
Information Systems Management	$ 5,802	9.8%	$ 569	$ 38	FY 40	M&I Water Usage Ratio
Peoplesoft Upgrade	$ 78	9.8%	$ 8	$ 1	FY 39	M&I Water Usage Ratio
Peoplesoft System Upgrade & Expansion	$ 1,217	12.3%	$ 150	$ 9	FY 46	M&I Water Usage Ratio
Uvas Property Acquisition	$ 1,251	100.0%	$ 1,251	$ 79	FY 46	Benefits only South County
IT Capital Fund Transfers	$ 4,162	13.2%	$ 549	$ 28	N/A	Total Capital Cost Ratio
Capital Program Administration	$ 4,134	10.1%	$ 418	$ 418	N/A	Total Capital Cost Ratio
Grand Total	$ 207,501		$ 52,710	$ 6,546		

* Capital projects that benefit South County are paid for over the life of the project (typically 30 years) beginning when the project is completed

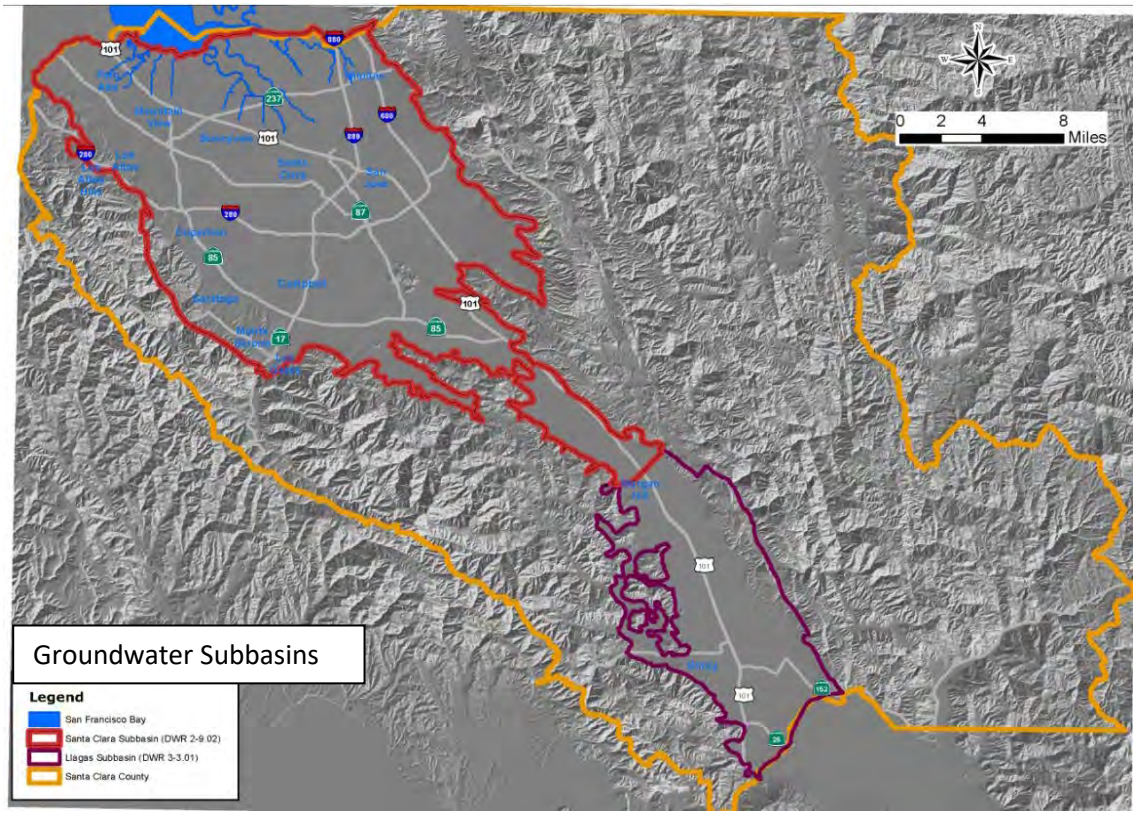
APPENDIX D
ACRONYMS

AF	Acre-Foot or Acre-Feet
AG	Agriculture
Basin	San Joaquin Basin
Board	Board of Directors
CESA	California Endangered Species Act
CIP	Capital Improvement Program
CVP	Central Valley Project
Delta	Sacramento-San Joaquin Delta
district	Santa Clara Valley Water District
DSOD	Department of Water Resources, Division of Safety of Dams
DWR	Department of Water Resources
ESA	Endangered Species Act
FAHCE	Fisheries and Aquatic Habitat Collaborative Effort
FHRP	FAHCE fish habitat restoration plan
FWS	Fish and Wildlife Service
FY	Fiscal Year
GW	Groundwater
GWMP	Groundwater Management Plan
HCP	Habitat Conservation Plan
IPR	Indirect Potable Reuse
Llagas Subbasin	Groundwater Subbasin as defined by DWR bulletin 118-2003 and as shown in map of Groundwater Subbasins, area south of Cochrane Road
MAP	Water Supply Master Plan's Monitoring and Assessment Program
M&I	Municipal and Industrial
NMFS	National Marine Fisheries Service
North County	Northern Santa Clara County, north of Metcalf Road
Reclamation	Bureau of Reclamation
Reuse Master Plan	Countywide Water Reuse Master Plan
RFC	Raftelis Financial Consultants, Inc.
RW	Recycled Water
Santa Clara Subbasin	Groundwater Subbasin as defined by DWR bulletin 118-2003 and as shown in map of Groundwater Subbasins, area north of Cochrane Road and includes Coyote Valley
SCADA	Supervisory Control and Data Acquisition
SFPUC	San Francisco Public Utilities Commission
SGMA	Sustainable Groundwater Management Act
South County	Southern Santa Clara County, south of Metcalf Road
SVAWPC	Silicon Valley Advanced Water Purification Center
SW	Surface Water
SWP	State Water Project
SWRCB	State Water Resources Control Board
Three Creeks	Guadalupe River, Coyote Creek and Stevens Creek
TW	Treated Water
Zone W-2	Charge zone W-2, as defined by zone boundary in map of Water Utility Zones
Zone W-5	Charge zone W-5, as defined by zone boundary in map of Water Utility Zones

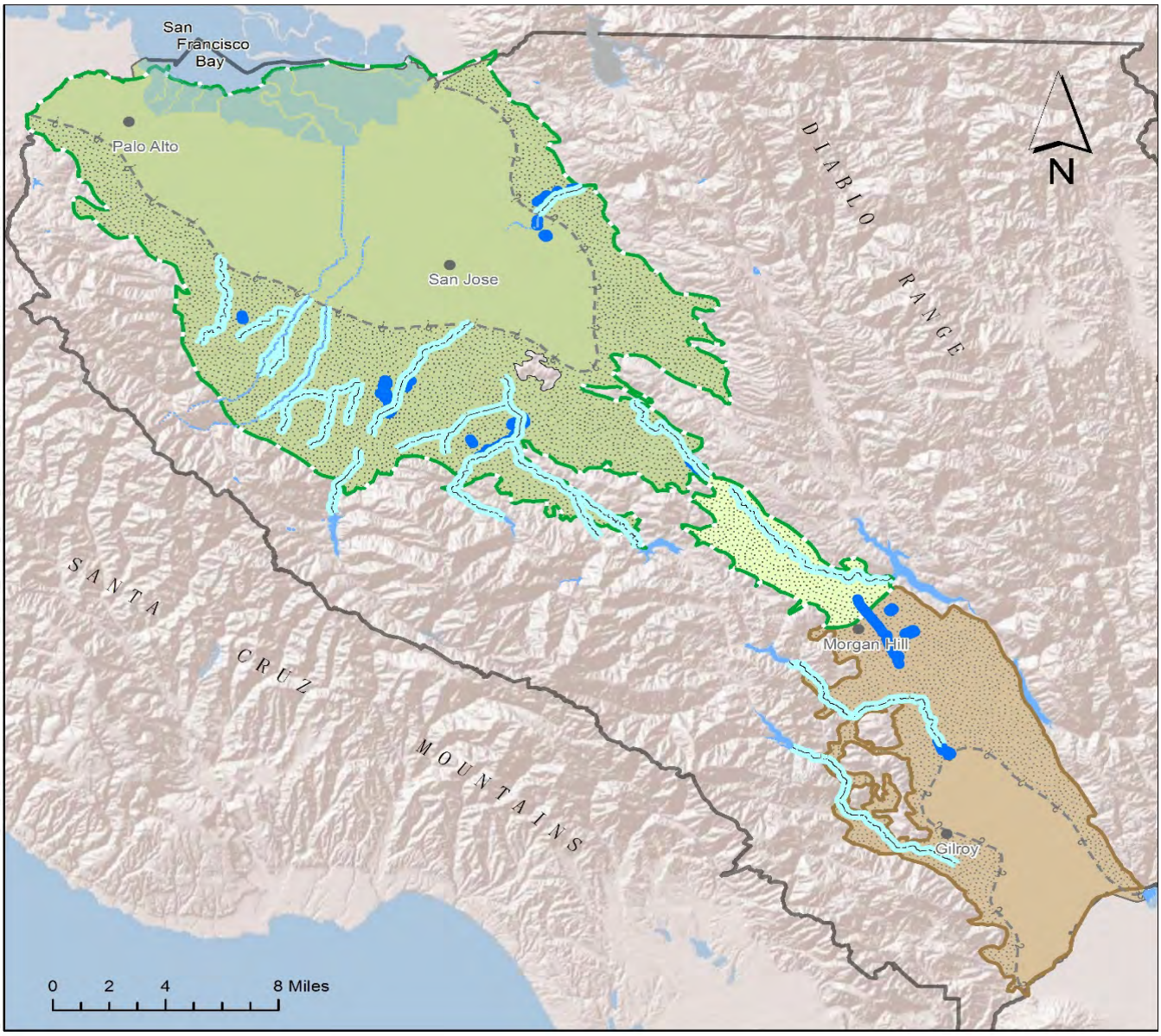
APPENDIX E
MAP

Water Utility Zones in Santa Clara County

Groundwater Subbasins in Santa Clara County



Managed Recharge Facilities



Legend

- District Recharge Pond or Facility
- Instream Recharge
- District Reservoir
- Santa Clara Plain Confined Area
- Santa Clara Plain Recharge Area
- Coyote Valley Recharge Area
- Llagas Confined Area
- Llagas Recharge Area
- Santa Clara County
- Santa Clara Subbasin (DWR Basin 2-9.02)
- Approximate Extent Confined Area
- Llagas Subbasin (DWR Basin 3-3.01)

Valley Water

Clean Water • Healthy Environment • Flood Protection

Santa Clara Valley Water District
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