RESOLUTION NO. SCV-139

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE SANTA CLARITA VALLEY WATER AGENCY REVISING THE RATES OF FACILITY CAPACITY FEES

WHEREAS, pursuant to California Government Code Section 66013, the Santa Clarita Valley Water Agency (the "Agency") is authorized to establish and impose facility capacity charges for public facilities in existence at the time a charge is imposed or for new public facilities to be acquired or constructed in the future that are of proportional benefit to the person or property being charged, including supply or facility capacity contracts for rights or entitlements, real property interests, and entitlements and other rights of the local agency involving capital expense relating to its use of existing or new public facilities; and

WHEREAS, California Government Code Section 66013 provides that when a local agency imposes facility capacity fees, those fees shall not exceed the estimated reasonable cost of providing the service for which the charge is imposed; and

WHEREAS, the Agency has conducted a rate study and cost of service analysis regarding the appropriate levels for facility capacity fees, and has consulted with Ratepayer Advocate pursuant to SB634 in regards to these facility capacity fees, and the study has been available for public inspection for at least 10 days prior to this meeting; and

WHEREAS, the Agency Board of Directors has reviewed the data and recommendations in the study and has determined that: (1) the rates for the facility capacity fees do not exceed the estimated reasonable cost of the services and facilities for which a facility capacity charge will be imposed; and (2) the allocation of those costs are fair or reasonable in relationship to the burdens on, or benefits that those who pay a facility capacity charge will receive from such services and facilities; and

WHEREAS, the Agency now wishes to adopt the facility capacity fees recommended in the study, which shall be imposed on any person, firm, corporation or other entity that requests a water connection, or wishes to upsize an existing water connection.

NOW, THEREFORE, BE IT RESOLVED, by the Board of Directors of the Santa Clarita Valley Water Agency as follows:

1. The forgoing Recitals are true and correct and by this reference are incorporated herein and made an operative part hereof.

2. A facility capacity charge(s), as established from time-to-time by a resolution of the Board of Directors, shall be paid by any person, firm, corporation or other entity (collectively a Developer) within a WSA when:

   (a) any Developer requests a new water connection; or
   (b) any Developer wishes to upsize an existing water connection.

3. The facility capacity fees are hereby adopted in the amounts set forth below, effective on February 19, 2020:

Proposed Fees based on 1" as a base

Line	Meter Size	Meter Ratio	WSA 1	WSA 2	WSA 3	WSA 4
1	5/8"	0.40	$3,950	$5,967	$3,306	$5,656
2	3/4"	0.60	$5,925	$8,951	$4,958	$8,484
3	1"	1.00	$9,874	$14,918	$8,264	$14,140
4	1-1/2"	2.00	$19,749	$29,835	$16,528	$28,279
5	2"	3.20	$31,598	$47,737	$26,445	$45,247
6	2-1/2"	4.60	$45,422	$68,621	$38,015	$65,043
7	3"	6.00	$59,246	$89,506	$49,585	$84,838
8	4"	10.00	$98,743	$149,177	$82,642	$141,397
9	6"	20.00	$197,486	$298,354	$165,283	$282,795
10	8"	32.00	$315,977	$477,366	$264,453	$452,471
11	10"	46.00	$454,218	$686,214	$380,151	$650,427
12	12"	86.00	$849,189	$1,282,922	$710,718	$1,216,017

The facility capacity charge(s) shall be due and payable, unless otherwise provided for by a resolution of the Board of Directors, at the time the building permit fees are paid, or if a building permit is not required, at the time the retailer's water connection fees must be paid for the new or upsized water meter. In any case, the water facility capacity charge(s) must be paid before the new construction, the addition of any type of dwelling, commercial or industrial unit or units, or the conversion of a portion of any dwelling, commercial or industrial unit or units is completed, as applicable.

4. Commencing July 1, 2020, and each July 1 thereafter, the Agency shall be authorized to increase the facility capacity charge set forth in section 3 above by the change in the Engineering News-Record Construction Cost Index (20-Cities Average) to account for future construction cost inflation; provided, however, such adjustment shall not result in a change to construction costs of greater than 3% or a reduction of more than 3% and not result in the facility capacity charge exceeding the estimated reasonable cost of providing the service for which the facility capacity charge is imposed.

5. The determination of whether new or a larger water meter is required to serve a property shall be determined in accordance with the Agency's current policies and procedures.

6. If any section, subsection, clause or provision in this Resolution or the application thereof to any person or circumstances is for any reason held invalid, the validity of the remainder of this Resolution or the application of such provisions to other persons or circumstances shall not be affected thereby. The Board hereby declares that it would have passed this Resolution and each section, subsection, sentence, clause or phrase thereof irrespective of the fact that one or more sections, subsections, sentences, clauses or phrases or the application thereof to any person or circumstance be held invalid.

7. The Agency staff is hereby authorized and directed to develop such forms and procedures as may be necessary to implement this Resolution.

8. As of the effective date, this Resolution shall supersede and otherwise control over the provisions of any other Resolution or policy which may be in conflict with the provisions of this Resolution.

President

I, the undersigned, hereby certify: That I am the duly appointed and acting Secretary of the Santa Clarita Valley Water Agency, and that at a regular meeting of the Board of Directors of said Agency held on February 18, 2020, the foregoing Resolution No. SCV-139 was duly and regularly adopted by said Board, and that said resolution has not been rescinded or amended since the date of its adoption, and that it is now in full force and effect.

DATED: February 18, 2020

Secretary

SANTA CLARITA VALLEY WATER AGENCY
ESTABLISHED
JANUARY 1, 2018
CALIFORNIA

SANTA CLARITA VALLEY WATER AGENCY

2019 Facility Capacity Fee Study

ADMINISTRATIVE RECORD

January 2020

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1 EXECUTIVE SUMMARY

1.1 STUDY OVERVIEW

In January 2019, the Santa Clarita Valley Water Agency kicked off its Regional Facility Capacity Fee ("FCF") Update Study with a meeting of key stakeholders. The key stakeholders met seven times during the updating of the FCF study to discuss critical inputs such as capital projects, growth in demand, construction cost inflation, and cost allocation. The key stakeholders that participated in these meetings were representatives of:

- Santa Clarita Valley Chamber of Commerce
- Santa Clarita Valley Economic Development Corporation
- Los Angeles/Ventura Chapter of the Building Industry Association of Southern California (BIA-LAV)
- FivePoint Holdings
- JSB Development

The major objectives of this update study of the FCF included the following:

1. Reviewing the FCF calculation methodology
2. Ensuring adequate recovery of system build-out costs
3. Establishing a nexus between proposed FCFs and the Agency's costs
4. Developing an administrative record

This record provides documentation of the work performed to update the Agency's Regional FCFs and enables readers to understand the connection and consideration to fee setting guiding principles of reasonableness and fairness in Staff's analysis. This document contains information regarding the methodology, assumptions, and cost allocations as well as the recommended FCFs to become effective upon Board approval. The fees developed in this study comply with the requirements of the California State Assembly Bill 1600 (AB 1600), Government Code §66013, and Proposition 26.

Table 1-1 Contains the current FCFs and the proposed FCFs that are documented in this record. The current fees were adopted in 2017 and effective January 1, 2018. Subsequently SCV Water and the BIA-LAV met and conferred and entered into a settlement agreement in July, 2018 which, among other things, adjusted the meter ratio and fee calculation for 5/8-inch and 3/4-inch meters. Those fees are reflected as the current fees. Table 1-2 summarizes the amount of change for each FCF between current and proposed values.

Table 1-1 Current and Proposed Facility Capacity Fees

Meter Size	Meter Ratio	WSA 1		WSA 2		WSA 3		WSA 4	
		Current Fee	Proposed Fee	Current Fee	Proposed Fee	Current Fee	Proposed Fee	Current Fee	Proposed Fee
5/8"	0.40	$4,590	$3,950	$6,450	$5,967	$3,898	$3,306	$7,277	$5,656
3/4"	0.60	$6,886	$5,925	$9,674	$8,951	$5,847	$4,958	$10,915	$8,484
1"	1.00	$11,476	$9,874	$16,124	$14,918	$9,745	$8,264	$18,192	$14,140
1-1/2"	2.00	$22,952	$19,749	$32,248	$29,835	$19,489	$16,528	$36,384	$28,279
2"	3.20	$36,723	$31,598	$51,597	$47,737	$31,183	$26,445	$58,215	$45,247
2-1/2"	4.60	$52,789	$45,422	$74,171	$68,621	$44,826	$38,015	$83,684	$65,043
3"	6.00	$68,856	$59,246	$96,745	$89,506	$58,468	$49,585	$109,153	$84,838
4"	10.00	$114,760	$98,743	$161,242	$149,177	$97,447	$82,642	$181,922	$141,397
6"	20.00	$229,519	$197,486	$322,484	$298,354	$194,894	$165,283	$363,843	$282,795
8"	32.00	$367,230	$315,977	$515,974	$477,366	$311,831	$264,453	$582,149	$452,471
10"	46.00	$527,894	$454,218	$741,713	$686,214	$448,257	$380,151	$836,840	$650,427
12"	86.00	$986,932	$849,189	$1,386,680	$1,282,922	$838,045	$710,718	$1,564,527	$1,216,017

Table 1-2 Proposed Changes to Facility Capacity Fees

		Change in Fee Schedule			
Meter Size	Meter Ratio	WSA 1	WSA 2	WSA 3	WSA 4
5/8"	0.40	($931)	($941)	($851)	($2,054)
3/4"	0.60	($1,397)	($1,411)	($1,277)	($3,080)
1"	1.00	($2,328)	($2,353)	($2,128)	($5,134)
1-1/2"	2.00	($4,655)	($4,705)	($4,256)	($10,267)
2"	3.20	($7,448)	($7,528)	($6,810)	($16,428)
2-1/2"	4.60	($10,707)	($10,822)	($9,790)	($23,615)
3"	6.00	($13,966)	($14,116)	($12,769)	($30,802)
4"	10.00	($23,276)	($23,526)	($21,282)	($51,337)
6"	20.00	($46,552)	($47,052)	($42,563)	($102,673)
8"	32.00	($74,483)	($75,284)	($68,101)	($164,277)
10"	46.00	($107,070)	($108,220)	($97,895)	($236,148)
12"	86.00	($200,174)	($202,325)	($183,021)	($441,495)

1.2 PRINCIPLES AND METHODOLOGY

The primary economic principle behind the proposed fees is that "growth-should-pay-for-growth." The costs of providing water service should be paid for by those that benefit from the service, which is reflected in the FCFs that provide access to water for new development. The Agency is required to build new facilities to provide additional capacity for new development, and therefore, new users should pay for their fair share of these costs. The principle is summarized in the American Water Works Association (AWWA) *Manual M26: Water Rates and Related Charges,* as follows:

> *"The purpose of designing customer-contributed [facility capacity fees] is to* ***prevent or reduce*** *the inequity to existing customers that results when these customers must pay the increase in water rates that are needed to pay for added plant costs for new customers. Contributed capital reduces the need for new outside sources of capital, which ordinarily has been serviced from the revenue stream. Under a system of contributed capital, many water utilities are able to finance required facilities by use of a 'growth-pays-for-growth' policy."*

It is important to keep in mind that this is a principle; strictly adhering to this on an annual basis is not realistic given the degree of certainty of the timing of expenditure and the comparative uncertainty of the timing of the revenue generation. The guiding principles in FCF setting are reasonableness and fairness. With periodic updates to this Study, the Agency will collect a reasonable, though not perfect, amount of FCF for the cost of providing infrastructure for growth. The difficult aspect of settling on a specific set of fees is that the timing of fee revenue (which is influenced by economic, permitting and other factors impacting when new growth occurs over time) and timing of capital facility costs (which may be front loaded since facilities are typically sized for planned future needs and financed over a period of years) will vary. Thus, facility capacity fees will not match capital and debt service obligations on a year to year basis. The timing difference between the Agency incurring costs associated to build infrastructure for growth and the related revenues is one of the financial risks for the Agency. If growth does not occur or is delayed by recession, the Agency will continue to pay debt service on infrastructure that in part is sized for future use. These facts are important and should be considered when settling on the pricing of FCFs.

The primary legal limitation on the Agency's authority to price its FCFs is the requirement that fees assessed to new development may not exceed the reasonable estimated cost of providing capacity in the system, on a proportionate basis. The Agency must establish a nexus or relationship between the proposed fees for new development and the capital costs required to build the facilities that will serve new customers.

The proposed fees in this study are calculated based on the incremental cost approach, which is typically used in agencies that have little or no capacity available in the current system and require expansion to accommodate growth. The Agency anticipates

significant growth in new development up until system build-out in FY 2050. Without expansion, the Agency will have insufficient system capacity to meet the increase in demand.

The timing difference between cost incurrence and FCF realization has considerable uncertainty associated with it. The cost components included in the fees are only forward facing; this means that annual infrastructure costs associated to growth (debt principal and interest repayment), if not equal to the FCF realized during the year, are funded by other Agency revenues. The amount of the annual difference between FCF revenues and associated costs cannot be fully considered as a component of future FCF updates as the fee per newly developed meter connection would become prohibitive to growth. This fact was given great consideration and led to the development of a financial model that assigns plausible FCF price points with corresponding levels of confidence as to the likelihood that fees would collect the targeted revenue requirement, if all were paid in 2020.

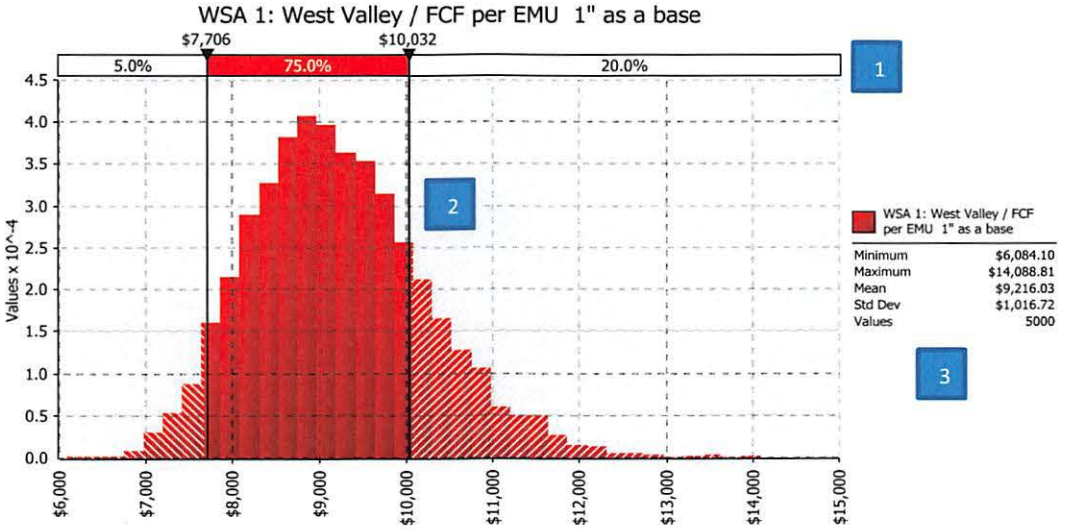
The FCF model was designed to address two of the most uncertain factors required for FCF determination: future interest rates for project financing, and the total number of equivalent meter units ("EMU") at the completion of buildout (Note that a third factor, the timing of FCF generation is arguably the most uncertain factor but is not addressed in this FCF Update). These factors are documented in detail later in this document. For determining the number of equivalent meter units that would be installed by buildout, the population forecast for 2050 contained in the SCVWA's current Urban Water Management Plan (UWMP) was used. In addition, two assumptions were made: 1. The ratio of people per EMU that exists today will be unchanged at buildout. 2. The existing proportion of meters by size will remain unchanged at buildout with the exception of the three smallest meter sizes: 5/8-inch, 3/4-inch, and 1-inch. These will change due to issues including building code changes, housing sizes, meter technology, and residential outdoor irrigation practices.

The model was run for 5,000 iterations of random combinations of the two variables. A frequency distribution was created to illustrate the results and is shown as Figure 1. Blue boxes with white numbers 1-3 have been added to Figure 1 to help describe the content.

Box 1 is at the top of the Figure. It is referencing three rectangles at the top of results, called confidence intervals, each with a percentage (5%, 75%, 20%, reading left to right). These are the percentages of the model outputs that occurred up to specific price points. For example, the first confidence interval of 5% has a price point of $7,706. This means that the lowest 5% of price points (FCF results for WSA 1) occurred at $7,706 or below. This can be interpreted as follows: Model user would have a 5% level of confidence that base fees of $7,706 would be sufficient to collect the revenue requirement of WSA 1. There are two more confidence interval settings in Figure 1. A red 75%, which means the model user could be 75% confident that a base price between $7,706 and $10,032 somewhere in that range) would be enough to collect the revenue requirement of WSA 1.

This can also be interpreted as "at 80% level of confidence base fees of $10,032 would be sufficient to collect the revenue requirement from WSA1. Box 2 is at the 80% confidence interval as 80% of the model results have occurred up to this price point. Box 3 includes a few interesting statistics from the FCF model for a WSA1 base fee. Of the 5,000 random combinations of interest rates and growth in EMUs, the lowest price point derived was $6,084.10 (Highest volume of growth at lowest possible cost to finance); a maximum price of $14,088.81 (Lowest volume of growth and highest possible cost to finance); and a mean (average) price of $9,216.

Figure 1-1 FCF Model Results for WSA1, 1" Meter Pricing



At a very high level, the calculation of FCF for each WSA is as simple formula:

$$\frac{Revenue\ Requirement}{\#\ of\ Equivalent\ Meter\ Units\ (EMU)}$$

Costs types that are included in the FCF Revenue Requirement are:

a. Existing, remaining debt service that has previously been allocated to growth
b. Future estimated debt service allocated to growth
c. Recycled water project costs
d. Contractual obligations with the Buena Vista Water Storage District and the Rosedale-Rio Bravo Storage District for future water supply to serve growth.

Identified costs are then allocated between current system users and future users (Growth). This is accomplished by updating the current demand forecast and deducting this amount from the demand at buildout as published in the most recent Agency UWMP.

The revenue requirement for each WSA is determined by allocating costs into cost categories:

a. **General Benefit**: The cost benefits all future users equally
b. **Recycled Water**: Costs are not allocated to WSA3 as this area is constructing its own source of supply
c. **Costs to specific WSAs** and costs to WSAs not equal in proportion to all WSAs as in (a.)

1.3 COMPONENTS OF THE FCF CALCULATION

The calculation of FCF requires the following:

1. The amount of demand at buildout, the expected demand for the base year, and the amount of growth in demand through buildout of the service area (Table 2-1)
2. Determination of the number of equivalent meter units at buildout (Section 3)
3. Updating the balance of existing/remaining project finance cost allocated to growth (Table 5-2)
4. List of all construction projects, their timing of construction, cost, and a determination of the percentage of need to serve current customers and future customers (Table 6-1)
5. Development of a project financing schedule including the expectations for future interest rates (Table 6-4)
6. For construction cost allocated to future customers, the costs must then be further assessed to allocate the appropriate amounts to specific Water Service Areas ("WSA"s) (Table 6-5)
7. Updating the remaining balance of the Buena Vista/Rancho Rio Bravo payments (Table 7-1)
8. Calculation of the FCF for the base meter size for each WSA (Section 9)
9. Application of the meter size ratios to the base meter FCF to derive the FCF for each meter size for each WSA (Table 9-5)

2 DETERMINATION OF REMAINING GROWTH

2.1 Introduction

One of the first steps in updating the FCFs is to estimate how much growth in demand is planned. In order to approximate the amount of growth expected to be realized, current demand must be forecast. As the FCFs are to become effective January 1, 2020 a forecast was made for the calendar year 2020. This amount was then subtracted from the published amount of demand at full buildout in 2050 as contained in the Agency's current UWMP. The difference is the amount of growth expected. Current demand and expected growth in demand are then restated in terms of a percentage of demand at full buildout as shown in Table 2-1. These percentages are then used to allocate future major construction work between current and future users.

Table 2-1 Current, Future and Total Demand

Current User Demand	66,131
Future User Demand	27,769
Total Demand 2050 from UWMP	93,900
Current User %	**70%**
Future User %	**30%**

2.2 Current Demand Forecast

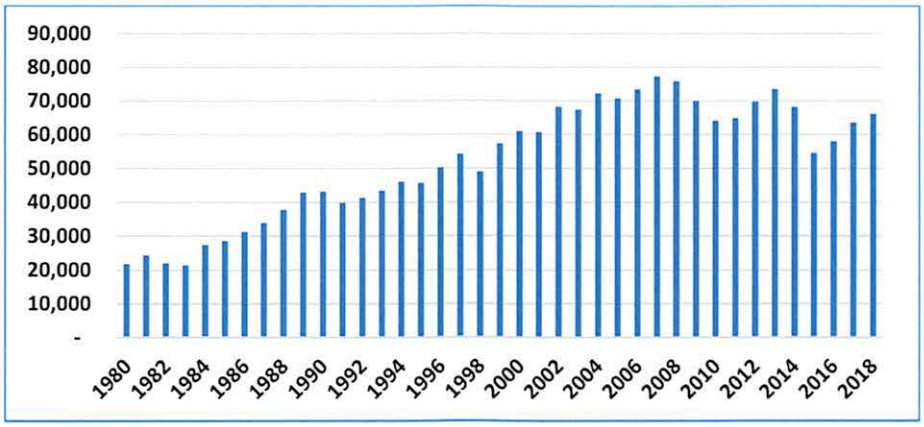
To derive a forecast for current demand, staff first reviewed the prior FCF calculation which used the most recent five-year historical average. Staff does not believe that the most recent five-year historical average is necessarily the best answer due to the large range of actual results in such a short time period. This is shown in Table 2-2

Table 2-2 Most recent five-year historical average demand

Year	Demand (AFY)
2014	68,178
2015	54,491
2016	57,966
2017	63,555
2018	66,082
Average	**62,054**

Staff then reviewed additional years to gain a better understanding of how demand has been trending in the Santa Clarita Valley. Table 2-3 contains the annual demand for the past 39 years. The data clearly shows the growth in demand over time, but it also shows the recent impact of drought, major economic recession, aggressive efforts to encourage conservation (including a state mandated conservation order that was in effect for portions of 2015 and 2016). For this update, staff prepared a variety of alternative demand forecasts for 2020 and reviewed them with the FCF Stakeholder Working Group to consider.

Table 2-3 Santa Clarita Valley Annual Water Demand 1980-2018

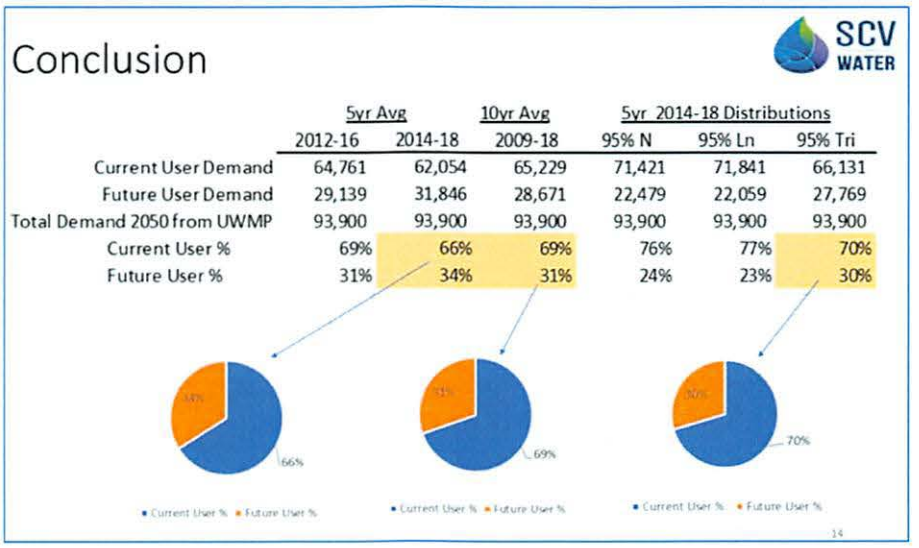


At the February 27, 2019 FCF Stakeholder Working Group Meeting, the following alternative methods to estimate current 2020 demand were presented for the Group to consider:

1. Update to the five-year historical average
2. Use a ten-year historical average
3. Use Monte Carlo simulation (Normal, Log Normal, Triangular distributions)

Figure 2.1 is a summary of these alternatives with the corresponding impact on the amount of remaining growth to buildout. Note that the larger the amount of growth remaining, the larger the amount of General Benefit costs are allocated to growth, resulting in higher FCFs.

Figure 2-1 Summary Comparison of Alternative Methods of Forecasting Demand for 2020



The FCF Stakeholder Working Group indicated a preference for the Monte Carlo simulation method using a Triangular distribution, at the 95% level of confidence. This resulted in a lowering of growth in demand from 31% in the last study to 30% in the current study.

2.3 Growth by WSA

The study involved converting projected growth at system build-out in Acre Feet per Year ("AFY") to Equivalent Meter Units ("EMU") for each WSA. The percentage of growth in system demand for each WSA was kept consistent with the last study. Table 2-4 lists the forecasted growth factors that have been carried forward from the previous Study. Using the prior study data is acceptable because the growth in total at buildout is consistent with the Urban Water Management Plan, and there has been no significant changes within any of the WSAs regarding planned projects that would impact the proportion of total growth attributable to each WSA.

Table 2-4 Forecasted Growth Factor by WSA

Forecasted Growth Factor	
WSA	**Factor**
WSA 1: West Valley	39%
WSA 2: East Valley	14%
WSA 3: Newhall Ranch	46%
WSA 4: Whittaker-Bermite	1%
	100.0%

Table 2-5 shows the growth in AFY and the equivalent growth in EMU for each WSA. The growth factors shown in Table 2-4 were used to create proportionate distribution of both growth in AFY and EMU for each WSA. The projected growth in EMUs are used as the denominator in each WSAs base FCF calculation.

Table 2-5: Projected Growth in Demand and EMUs at Buildout

(A) WSA	(B) Growth in AFY	(C) Growth in EMUs
WSA 1: West Valley	10,875	18,775
WSA 2: East Valley	3,880	6,740
WSA 3: Newhall Ranch	12,805	22,144
WSA 4: Whittaker -Bermite	209	481
Total	**27,769**	**48,140**

Sources of data (B) Table 2-1 multiplied by Table 2-4 (C) model forecast

3 DETERMINATION OF EQUIVALENT METER UNITS (EMU)

3.1 Alternative Approaches and Assumptions

An Equivalent Meter Unit (or EMU) is a value that reflects the relative capacity of a meter using a common reference meter size. In this case, a 1-inch meter was used as the reference size, and other meter sizes are adjusted to that equivalent using capacity factors (meter ratios) published by the American Water Works Association (AWWA). For the purposes of FCF determination, the existing inventory of meters and their sizes were translated into total number of EMU. Next, it was necessary to estimate the number of EMU that will exist by the end of buildout. Since there is some degree of uncertainty in the number and sizes of meters that will be added to the Agency's service area by the end of buildout, staff considered alternative approaches before determining the approach to take to forecast the number of EMU at buildout. The first approach reviewed was using the meter count forecast in the UWMP. The second approach was to make key assumptions about growth and model these to derive a result. The UWMP was published in 2015, and staff at the Agency expressed the need to review the methodology and assumptions used four years ago to derive this number, particularly in light of new requirements and development standards affecting future proportionate mix of the smaller meter sizes (5/8-inch, 3/4-inch, and 1-inch) that would likely be in place at buildout. As such, staff made key assumptions to modify prior projections regarding growth in EMUs.

The two key assumptions made are: 1. The overall ratio of EMU to population served (EMU/Pop) will remain fairly constant through build out. That is to say that new development will generally be similar in type as exists today. 2. The proportionate mix of meter sizes (except for the three smallest size meters) will remain intact through buildout. Staff believes these assumptions are reasonable, that the Santa Clarita Valley will remain largely similar in terms of land use mix, but the proportionate mix of the three smallest meter connection sizes will change due to building code updates, changes in housing size and product type, and more efficient usage of water by consumers. These assumptions will be monitored for relevance and reviewed in subsequent FCF updates.

3.2 EMU at Buildout

Future growth in EMU was estimated assuming that in general, the proportionate mix of meters will remain intact at build out (except for the mix of the smaller meter sizes). That is to say that the SCVWA service area will continue to be primarily similar in the proportion of residential, commercial and industrial accounts. Table 3-1 presents the projected EMU by meter size in 2050.

Table 3-1 EMU/Population at Buildout

Meter Size	5/8"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	Total EMUs at Buildout
Total EMUs	865	44,047	17,565	4,067	18,992	150	2,402	5,220	29,335	16,483	3,394	959	**143,480**

Table 3-2 Comparison of Meter Mix: Current vs. Buildout Forecast

Factor	43.28%	2.83%	13.25%	0.12%	1.74%	3.83%	20.36%	11.41%	2.48%	0.70%	
Year	5/8"+3/4"+1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	EMU/Pop
2019	43.43%	2.78%	12.98%	0.13%	1.76%	3.87%	20.29%	11.30%	2.74%	0.72%	0.3349
2050	43.05%	2.80%	13.09%	0.10%	1.66%	3.60%	20.21%	11.36%	2.34%	0.66%	0.3444

3.3 Change in Mix of Smaller Meter Connections

The smallest meter connection size, 5/8-inch, is likely to be phased out for future residential use. Very little new growth is expected for this connection size. Many existing 5/8-inch meters will also be replaced with 3/4-inch in the future as they reach the end of their useful service life. There is tendency to equip a higher proportion of new residential construction with 1-inch meter connections due to residential fire sprinkler code changes that occurred in 2010 in California. However, trends in hydraulic meter efficiency, use of attached housing with a common separate sprinkler feed, as well as other efficiency factors have also resulted in some homes utilizing 3/4-inch meters. Table 3-3 lists the Agency's current best estimate of the range of future growth parameters for the three meter sizes. As shown, 5/8-inch meters are expected to have a low case growth of 0%, a most likely case growth of 2%, and a high case of 4% growth; 3/4-inch meters are expected to range between 60% and 80% with a most likely value of 70%, and 1-inch meters are expected to range from 20% to 40% with a most likely range of 30%.

Table 3-3 Future Change in Meter Growth 5/8", 3/4", 1"

5/8" MIN	5/8" ML	5/8" MAX	3/4" MIN	3/4" ML	3/4" MAX	1" MIN	1" ML	1" MAX
0.0%	2.0%	4.0%	60.0%	70.0%	80.0%	20.0%	30.0%	40.0%

The results of these modeling assumptions are shown in Table 3-4. Line 3 has the EMU counts for the three meter connection sizes as well as their proportionate mix when combined. In other words, in 2019 there were 2,288 5/8-inch EMU in the Agency retail service area. This represents 6% of all EMU in the combined group. The model results from using the assumptions of change shown in Table 3-3 results in line 12 of Table 3-4. These results can be read as follows: The model projects that at an 80% level of confidence, at the end of the year 2050, the 5/8-inch meters will be reduced to 865 EMU and represent only 1% of the three smaller meter sizes' combined EMU.

Table 3-4 Changing Count 5/8", ¾", 1" Meters at Buildout

	FACTOR		0.4	0.6	1		% 5/8"+3/4"+1"			
						EMU				
Line	YEAR	POP	5/8"	3/4"	1"	5/8"+3/4"+1"	5/8"	3/4"	1"	TOTAL
1	2017	279,140	2,594	31,207	6,694	40,495	6%	77%	17%	100%
2	2018	282,460	2,409	31,501	7,094	41,004	6%	77%	17%	100%
3	2019	285,780	2,288	31,768	7,510	41,566	6%	76%	18%	100%
4	2020	289,100	2,082	31,437	7,996	41,515	5%	76%	19%	100%
5	2021	295,660	1,918	31,833	8,688	42,439	5%	75%	20%	100%
6	2022	302,220	1,742	32,229	9,415	43,386	4%	74%	22%	100%
7	2023	308,780	1,554	32,613	10,174	44,341	4%	74%	23%	100%
8	2024	315,340	1,353	32,985	10,968	45,306	3%	73%	24%	100%
9	2025	321,900	1,138	33,331	11,793	46,262	2%	72%	25%	100%
10	2026	328,440	910	33,682	12,661	47,253	2%	71%	27%	100%
11	2049	418,880	858	43,721	17,435	62,015	1%	71%	28%	100%
12	2050	421,400	865	44,047	17,565	62,478	1%	71%	28%	100%

Table 3-5 shows the model results for changes in EMU count for each meter connection size. The data in line 14 and 15 can be read as follows: The model projects that at an 80% level of confidence, at the end of the year 2050 there will be 865 remaining 5/8" EMU and compared to the year 2020, this equates to a reduction of 1,217 EMU. In total, EMU will be equal to 143,480 at the end of the year 2050 which will be the result of growth of 48,140 EMU in the Agency's service area.

Table 3-5 Summary: Quantities of Changes in EMU by Meter Connection Size

Line	FACTOR	0.4	0.6	1	2	3.2	4.6	6	10	20	32	46	86	Total EMU
	YEAR	5/8"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	
1	2010	2,974	29,680	4,103	2,412	11,482	83	1,650	3,290	17,060	9,728	1,978	602	85,041
2	2011	2,969	29,852	4,109	2,434	11,421	92	1,554	2,900	17,000	9,696	1,978	602	84,606
3	2012	2,955	29,992	4,242	2,448	11,462	101	1,530	2,940	17,400	9,760	2,024	602	85,456
4	2013	2,938	30,188	4,569	2,490	11,622	87	1,536	3,020	17,720	9,920	2,070	688	86,849
5	2014	2,936	30,451	5,027	2,566	11,907	101	1,518	3,700	18,520	10,368	2,254	602	89,950
6	2015	2,880	30,676	5,680	2,600	12,022	92	1,524	3,760	18,700	10,464	2,254	602	91,255
7	2016	2,745	30,934	6,340	2,602	12,144	106	1,524	3,770	18,940	10,528	2,254	602	92,488
8	2017	2,594	31,207	6,694	2,618	12,211	124	1,554	3,750	19,160	10,624	2,254	602	93,392
9	2018	2,409	31,501	7,094	2,642	12,394	133	1,542	3,730	19,280	10,752	2,668	688	94,833
10	2019	2,288	31,768	7,510	2,656	12,426	129	1,680	3,700	19,420	10,816	2,622	688	95,702
11	2020	2,082	31,437	7,996	2,702	12,620	99	1,596	3,469	19,492	10,952	2,255	638	95,340
12	2021	1,918	31,833	8,688	2,762	12,900	102	1,632	3,546	19,926	11,196	2,306	652	97,461
13	2049	858	43,721	17,435	4,037	18,851	149	2,385	5,182	29,117	16,360	3,369	952	142,416
14	2050	865	44,047	17,565	4,067	18,992	150	2,402	5,220	29,335	16,483	3,394	959	143,480
15		**-1,217**	**12,611**	**9,569**	**1,364**	**6,372**	**50**	**806**	**1,752**	**9,842**	**5,530**	**1,139**	**322**	**48,140**

3.4 Confidence Levels and EMU Count at Buildout

In Section 1.2 Principles and Methodology, Figure 1-1 illustrated Staff's use of simulation to create a frequency distribution of FCF pricing results. The higher the level of confidence that is desired that the FCFs will cover the determined revenue requirement, the higher the FCFs must be. The model's most influential variable in fee determination is the growth in EMU. Section 3.2 documents how population growth was assumed to

impact EMU growth and illustrated how the model carried this out. Section 3.3 documents assumptions in how changes in the proportionate mix of the three smallest meter connection sizes are expected by Staff and how the model carried this out. The results of the model at an 80% level of confidence were used to illustrate the outcomes.

Table 3-6 contains actual output from the Staff FCF model at specific Levels of Confidence. For each level of confidence shown, the number of EMU and the corresponding base FCF for each WSA is listed along with the total number of EMUs of growth that is projected. For comparison purposes, WSA1 base FCF would decrease $840 (8%) by using the model output at 80% level of confidence rather than at the 95% level of confidence. At this lower base FCF ($9,874) the model projects greater EMU growth of 1,617 (18,775 – 17,158). Under any of the level of confidence selected the model pricing points cover the revenue requirement as the number of EMU is the denominator in the FCF calculation.

Table 3-6 Level of Confidence, Confidence Interval, Fees, and Number of EMUs

	Level of Confidence		WSA 1	WSA 2	WSA 3	WSA 4	Total EMUs
Confidence Interval	95.0%	Fee	$10,714	$6,233	$9,004	$15,381	
		EMU's	17,158	6,159	20,238	440	43,995
	92.5%	Fee	$10,496	$15,892	$8,813	$15,060	
		EMU's	17,548	6,299	20,697	450	44,994
	90.0%	Fee	$10,339	$5,645	$674	$4,826	
		EMU's	17,844	6,405	21,047	458	45,754
	87.5%	Fee	$10,157	$15,363	$8,515	$14,560	
		EMU's	18,189	6,529	21,453	466	46,637
	85.0%	Fee	$10,055	$15,202	$8,425	$14,408	
		EMU's	18,396	6,604	21,697	472	47,169
	82.5%	Fee	$9,966	$15,061	$8,345	$14,275	
		EMU's	18,582	6,671	21,918	476	47,647
	80.0%	Fee	$9,874	$14,918	$8,264	$14,140	
		EMU's	18,775	6,740	22,144	481	48,140
	70.0%	Fee	$9,595	$14,477	$8,015	$13,724	
		EMU's	19,396	6,963	22,878	497	49,734
	60.0%	Fee	$9,369	$14,119	$7,813	$13,386	
		EMU's	19,933	7,156	23,511	511	51,111
	50.0%	Fee	$9,148	$13,772	$7,617	$13,059	
		EMU's	20,481	7,352	24,157	525	52,515

4 COST ALLOCATION METHODOLOGY

4.1 Introduction

In this section of the report presents the process to determine the FCF revenue requirement. The specific cost components will be covered in later sections. There is a structure and a process to determining the revenue requirement; the amount of revenue that is necessary to cover the cost of building major infrastructure to support growth.

4.2 Cost Type

There are four major cost types included in the FCF revenue requirement:

1. Existing Debt Service: This cost type includes repayment of principal and interest on the portion of the Agency's outstanding debt attributable to growth. All remaining outstanding debt that has been previously allocated to growth is contained in this category.
2. Future Debt Service: This cost type includes the estimate of future project cost financing for major infrastructure projects. The amount varies by project and is determined based on the percentage of estimated project costs allocated to growth.
3. Recycled Water: This cost type includes the estimated cost of recycled water major infrastructure and the cost to finance the projects. It is given its own cost category and each WSA participates in the various projects differently.
4. Rosedale Rio Bravo/Buena Vista water acquisition agreement. This is a long- term water supply contract that was entered into in anticipation of growth in the service area. The costs are allocated between current and future users.

4.3 Cost Allocation between Current and Future (Growth) users

In Section 2.1 the determination of remaining growth in terms of annual demand was explained. The results of the simulation were used at the point of 95% confidence that the demand in 2020 would not exceed 66,131. This forecasted demand for 2020 was deducted from the expected demand at buildout in 2050, as contained in the Agency's 2015 UWMP (93,900) to arrive at the remaining growth expected due to growth (27,769). This information is shown in Table 4-1.

Table 4-1 Current, Future and Total Demand

Current User Demand	66,131
Future User Demand	27,769
Total Demand 2050 from UWMP	93,900
Current User %	**70%**
Future User %	**30%**

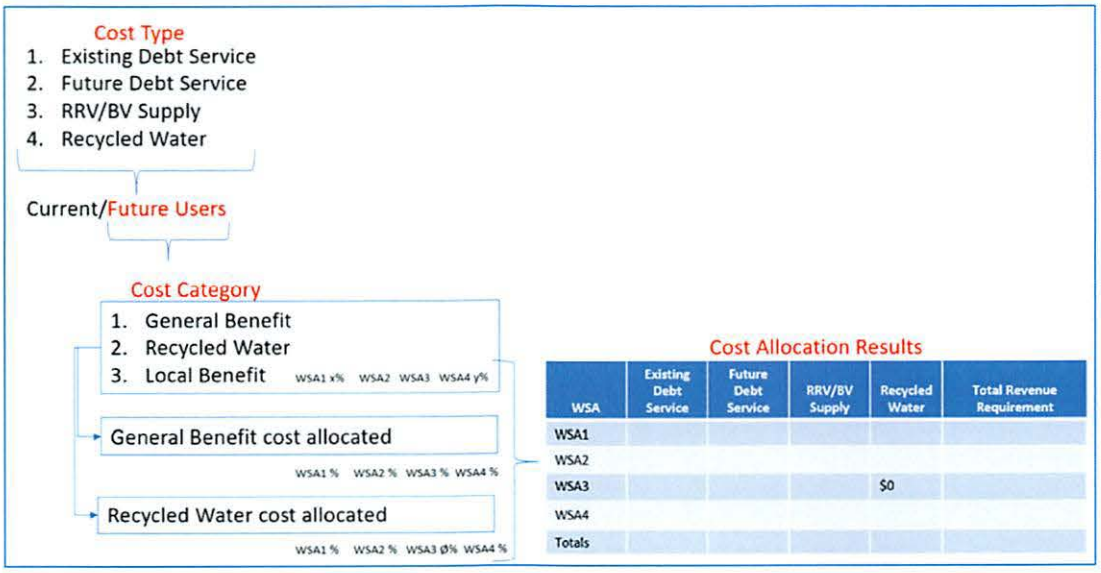
The amounts of demand that were determined for current and future users were each divided by the forecasted total demand in 2050 to arrive at 70% of total forecasted demand being attributable to current users and the remaining 30% attributable to future users. These percentages are used to allocate costs between current and future users.

4.4 Cost Category

The next level of cost allocation is by cost category. There are three cost categories:

1. **General Benefit:** Projects consist of water supply, treatment, and storage projects.
2. **Recycled Water:** Recycled water projects consist projects related to the Agency-wide recycled water system.
3. **Local Benefit (specific WSA(s)):** Projects consist of transmission projects and for WSA 3, recycled water projects. Transmission projects benefit each WSA separately because each WSA has its own specific transmission infrastructure needs. A project may have a different percentage allocated to multiple WSAs if more than one has a determined benefit from the specific project. Figure 4-4 shows an example of this process.

Figure 4-4 Cost Allocation Flow Diagram



5 EXISTING DEBT SERVICE

5.1 Introduction

Many of the Agency's large capital projects are financed with municipal bonds (debt). Repayment of these debt obligations includes principal and interest. As shown in section 4.1 of this report, project costs are allocated to current customers and growth; allocations to growth are allocated to the WSAs and collected through FCFs. Table 5-1 lists the existing debt issues, the amount of remaining debt service (principle and interest) outstanding in total, the amount of debt service remaining that has been previously allocated to growth (determined in prior FCF studies), and the percentage of remaining debt service allocated to growth. There is no need to change the previous allocations to growth for existing debt unless a project did not have work performed funded by the debt (which has not been the case), or a change in assessment of future use attributable to growth changed prior to work performed funded by the specific bond proceeds. Neither of these conditions have occurred since the previous study.

Table 5-1 Existing Debt Service (Principle and Interest) by Obligation

Debt Issue	Outstanding Debt Service (All)	Outstanding Debt Service (Growth Only)	Percentage of Debt Svc Allocated to Growth
1999 COP	$104,450,000	$80,896,525	77.45%
2004A COP/ 2014A	$6,293,250	$4,933,908	78.40%
2008A COP	$12,147,587	$9,523,708	78.40%
2010A COP	$63,015,568	$55,264,653	87.70%
2015A Revenue Bonds	$84,733,575	$53,127,952	62.70%
2016AN Revenue Bonds	$55,025,750	$21,735,171	39.50%
2016AR Revenue Bonds	$30,169,350	$23,366,162	77.45%
Total	**$355,835,080**	**$248,848,079**	**69.93%**

5.2 Allocation to Growth

Table 5-2 contains a detailed breakdown of the existing debt obligations allocated to growth by obligation on an annual basis. For the eleven-year period FY2020 through FY2030, annual debt service allocated to growth is at least $18,363,082. This highlights the difficulty in determining the optimal FCFs. Annually the Agency budgets (plans) on receiving $7,000,000 in FCF revenue. The difference between planned revenue and actual debt obligations is due to timing differences in when growth may occur, and when facilities are built, and debt issued to pay for them over time.

Table 5-2 Existing Annual Principle and Interest Cost Attributable to Growth

Line	Fiscal Year	1999 COP	2014A	2008A COP	2010A COP	2015A Revenue Bonds	2016AN Revenue Bonds	2016AR Revenue Bonds	Total
1	2019/20	$0	$2,466,954	$4,761,854	$5,024,059	$3,125,174	$3,105,024	$2,124,197	$20,607,262
2	2020/21	$0	$2,466,954	$4,761,854	$5,024,059	$3,125,174	$3,105,024	$2,124,197	$20,607,262
3	2021/22	$8,089,653			$5,024,059	$3,125,174	$3,105,024	$2,124,197	$21,468,106
4	2022/23	$8,089,653			$5,024,059	$3,125,174	$3,105,024	$2,124,197	$21,468,106
5	2023/24	$8,089,653			$5,024,059	$3,125,174	$3,105,024	$2,124,197	$21,468,106
6	2024/25	$8,089,653			$5,024,059	$3,125,174	$3,105,024	$2,124,197	$21,468,106
7	2025/26	$8,089,653			$5,024,059	$3,125,174	$3,105,024	$2,124,197	$21,468,106
8	2026/27	$8,089,653			$5,024,059	$3,125,174		$2,124,197	$18,363,082
9	2027/28	$8,089,653			$5,024,059	$3,125,174		$2,124,197	$18,363,082
10	2028/29	$8,089,653			$5,024,059	$3,125,174		$2,124,197	$18,363,082
11	2029/30	$8,089,653			$5,024,059	$3,125,174		$2,124,197	$18,363,082
12	2030/31	$8,089,653				$3,125,174			$11,214,826
13	2031/32					$3,125,174			$3,125,174
14	2032/33					$3,125,174			$3,125,174
15	2033/34					$3,125,174			$3,125,174
16	2034/35					$3,125,174			$3,125,174
17	2035/36					$3,125,174			$3,125,174
18	2036/37								$0
19	**Total**	**$80,896,525**	**$4,933,908**	**$9,523,708**	**$55,264,653**	**$53,127,952**	**$21,735,171**	**$23,366,162**	**$248,848,079**

For the purpose of FCF calculation, capital projects that were funded by the specific debt obligations were further assessed in terms of future users that will benefit from the project, resulting in the "cost category" allocation factors contained in Table 5-3. Cost category allocation factors are determined as soon as practical once financing efforts are completed.

Table 5-3 Existing Cost Category Allocation Factors

Debt Issue	General Benefit Allocation	WSA 1 Allocation	WSA 2 Allocation	WSA 3 Allocation	WSA 4 Allocation
1999 COP	89.74%	5.03%	3.71%	0.00%	1.52%
2004A COP/ 2014A	99.33%	0.42%	0.17%	0.00%	0.08%
2008A COP	89.74%	5.03%	3.71%	0.00%	1.52%
2010A COP	99.33%	0.42%	0.17%	0.00%	0.08%
2015A Revenue Bonds	29.31%	7.37%	61.54%	1.77%	0.00%
2016AN Revenue Bonds	89.74%	5.03%	3.71%	0.00%	1.52%
2016AR Revenue Bonds	80.99%	9.41%	5.79%	0.90%	2.90%

The cost category allocation factors in Table 5-3 are multiplied by the amount of debt service allocated to growth for each of the existing debt issues. This results in the cost allocations shown in Table 5-4. The totals from Table 5-4 will next be seen in Table 9-2 Summary Revenue Requirement (Existing debt service column).

Table 5-4 Existing Debt Service Allocated to Cost Categories

Debt Issue	Outstanding Debt (Growth Only)	General Benefit	WSA 1	WSA 2	WSA 3	WSA 4
1999 COP	$80,896,525	$72,594,674	$4,072,541	$2,999,261	$0	$1,230,050
2004A COP/ 2014A	$4,933,908	$4,900,994	$20,571	$8,229	$0	$4,114
2008A COP	$9,523,708	$8,546,356	$479,448	$353,094	$0	$144,810
2010A COP	$55,264,653	$54,895,980	$230,421	$92,168	$0	$46,084
2015A Revenue Bonds	$53,127,952	$15,573,619	$3,914,865	$32,694,161	$942,698	$2,609
2016AN Revenue Bonds	$21,735,171	$19,504,641	$1,094,205	$805,837	$0	$330,488
2016AR Revenue Bonds	$23,366,162	$18,925,113	$2,198,982	$1,353,968	$211,119	$676,984
Total	**$248,848,079**	**$194,941,376**	**$12,011,032**	**$38,306,718**	**$1,153,817**	**$2,435,140**

6 FUTURE DEBT SERVICE

6.1 Introduction

To estimate future financing needs and costs, a capital plan must be developed. Table 6-1 is a summary of the capital projects that are required to serve growth. Each project in the list is named and the planned construction period is listed along with the cost category (Benefit Type) that the costs were assigned to for FCF cost allocation, the remaining project cost, percent of remaining cost allocated to growth, and the cost allocated to growth. These costs are planned but have not yet occurred. Each FCF Study Update, this list is reviewed and updated to reflect changes in project plans (remaining planned cost, timing).

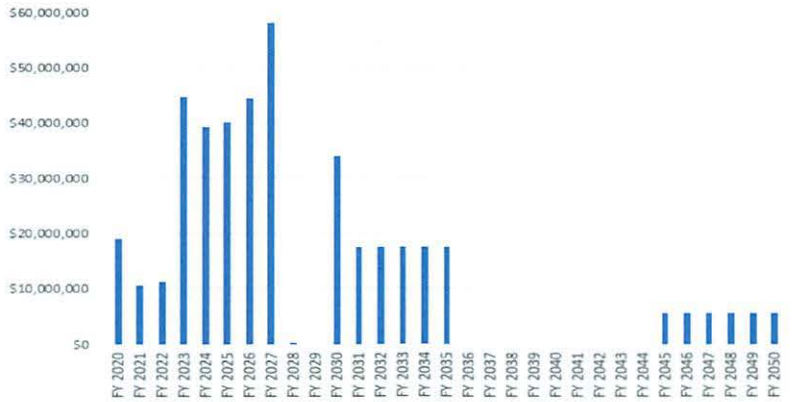
Table 6-1 contains 22 construction projects that have a remaining cost of $423,960,736 of which $110,520,527 is attributable to growth. These costs are in current dollars and are not inflated with expected inflationary cost increases. Exclusion of expected construction inflation costs from the FCF calculation was deemed appropriate so that FCF payers today are paying for the cost of constructing in today's dollars. **This is also important to note as the Agency is seeking approval of an annual capital cost inflation factor to be applied annually in years that a full FCF calculation is not undertaken. This is covered in Section 9 of this report.**

Table 6-1 Construction Projects, Timing of Construction, Cost to Complete, Allocation to Growth

CIP Project No.	Project Name	Start Year	End Year	Benefit Type	Total/Remaining Project Cost	Allocation to Growth	Project Cost (Growth Only)
TBD	Water Supply Banking (10,000 AF)	2030	2030	General Benefit	$16,390,400	30.00%	$4,917,120
TBD	Stored Water Recovery Unit Replacement	2045	2050	General Benefit	$8,195,200	30.00%	$2,458,560
200963	Saugus Formation Dry Year Reliability Wells	2021	2024	General Benefit	$11,155,000	30.00%	$3,346,500
200453	Recycled Water Program Phase II, 2A (Center Park)	2020	2024	Recycled Water	$15,657,000	15.00%	$2,348,550
200454	Recycled Water Program Phase II, 2B (Vista Canyon)	2020	2021	Recycled Water	$4,820,584	15.00%	$723,088
200455	Recycled Water Program Phase II, 2C (South End)	2020	2025	Recycled Water	$11,869,000	15.00%	$1,780,350
200456	Recycled Water Program Phase II, 2D (West Ranch)	2020	2020	Recycled Water	$886,378	15.00%	$132,957
TBD	Recycled Water Projects (Alignments A-H)	2030	2035	Recycled Water	$105,885,000	15.00%	$15,882,750
TBD	ESFP Storage Expansion	2045	2050	General Benefit	$3,721,645	30.00%	$1,116,494
TBD	Rio Vista Reservoir Expansion	2045	2050	General Benefit	$6,957,725	30.00%	$2,087,318
TBD	Sand Canyon Reservoir Expansion I	2021	2045	General Benefit	$18,124,000	30.00%	$5,437,200
TBD	Sand Canyon Reservoir Expansion II	2045	2050	General Benefit	$8,575,252	30.00%	$2,572,576
200525	Magic Mountain Pipelines 4	2020	2020	General Benefit	$3,562,000	30.00%	$1,068,600
200526	Magic Mountain Pipelines 5	2020	2020	General Benefit	$5,339,000	30.00%	$1,601,700
200527	Magic Mountain Pipelines 6	2020	2021	General Benefit	$13,160,000	30.00%	$3,948,000
200528	Magic Mountain Reservoir	2020	2024	General Benefit	$29,865,000	30.00%	$8,959,500
TBD	Magic Mountain Reservoir II	2021	2027	General Benefit	$46,600,000	30.00%	$13,980,000
TBD	Southern Service Area Storage, Pipeline and Pump Station 12 MG	2020	2027	General Benefit	$63,273,000	30.00%	$18,981,900
TBD	Southern Service Area Expansion	2045	2050	General Benefit	$6,782,552	30.00%	$2,034,766
200510	Honby Parallel (Phase 2 - ext of Phase 1)	2020	2025	Local Benefit	$22,953,000	30.00%	$6,885,900
200903	Castaic Conduit	2020	2025	Local Benefit	$14,189,000	30.00%	$4,256,700
NA	NR WSA Integration	2025	2025	Local Benefit	$6,000,000	100.00%	$6,000,000
	Total				**$423,960,736**		**$110,520,527**

Figure 6-1 illustrates the timing of the capital plan in terms of planned expenditure. This is an important visual to keep in mind when attempting to understand the complexity of reasonable and fair FCF development. This figure is showing that most of the approximate $425 million capital outlay occurs by the Agency during the period FY2020 through **FY2027**. However, the FCF are being set to attempt to recover these costs during the period FY2020 through **FY2050**. This results in the Agency serving the role as financier (bank). As the Agency can only charge an FCF to the developer once and there is no going back to request additional funds, the risk of under collecting enough FCF revenues increases as the timing difference between Agency capital expenditure and FCF revenue realization lengthens.

Figure 6-1 Capital Plan Timing



6.2 Capital Expenditure Plan

Table 6-2 shows the annual capital expenditure plan that is in place as of August 2019. This information was used for determining a forecast for capital project financing requirements. The Table shows annual planned capital expenditures for each year for FY 2020-FY2027. It contains a final column for the remaining capital plan covering the period FY2028-FY2050. For these later years an estimate has been developed for the annual capital expenditure and is contained in the Appendix.

Table 6-2 Timing of Capital Project Expenditure FY2020-FY2027

CIP Project No.	Project Name	Total/Remaining Project Cost	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY2028-Buildout
TBD	Water Supply Banking (10,000 AF)	$16,390,400	$0	$0	$0	$0	$0	$0	$0	$0	$16,390,400
TBD	Stored Water Recovery Unit Replacement	$8,195,200	$0	$0	$0	$0	$0	$0	$0	$0	$8,195,200
200963	Saugus Formation Dry Year Reliability Wells	$11,155,000	$0	$380,000	$775,000	$5,000,000	$5,000,000	$0	$0	$0	$0
200453	Recycled Water Program Phase II, 2A (Center Park)	$15,657,000	$5,000	$5,000	$5,000	$13,990,000	$1,652,000	$0	$0	$0	$0
200454	Recycled Water Program Phase II, 2B (Vista Canyon)	$4,820,584	$3,135,000	$3,627,000	$10,000	$0	$0	$0	$0	$0	$0
200455	Recycled Water Program Phase II, 2C (South End)	$11,869,000	$150,000	$150,000	$5,000	$5,000	$6,500,000	$5,059,000	$0	$0	$0
200456	Recycled Water Program Phase II, 2D (West Ranch)	$886,378	$985,000	$578,000	$10,000	$0	$0	$0	$0	$0	$0
TBD	Recycled Water Projects (Alignments A-H)	$105,885,000	$0	$0	$0	$0	$0	$0	$0	$0	$105,885,000
TBD	ESFP Storage Expansion	$3,721,645	$0	$0	$0	$0	$0	$0	$0	$0	$3,721,645
TBD	Rio Vista Reservoir Expansion	$6,957,725	$0	$0	$0	$0	$0	$0	$0	$0	$6,957,725
TBD	Sand Canyon Reservoir Expansion I	$18,124,000	$0	$0	$311,000	$573,000	$487,000	$537,000	$10,476,000	$5,720,000	$20,000
TBD	Sand Canyon Reservoir Expansion II	$8,575,252	$0	$0	$0	$0	$0	$0	$0	$0	$8,575,252
200525	Magic Mountain Pipelines 4	$3,562,000	$3,562,000	$0	$0	$0	$0	$0	$0	$0	$0
200526	Magic Mountain Pipelines 5	$5,339,000	$5,339,000	$0	$0	$0	$0	$0	$0	$0	$0
200527	Magic Mountain Pipelines 6	$13,160,000	$5,500,000	$7,650,000	$10,000	$0	$0	$0	$0	$0	$0
200528	Magic Mountain Reservoir	$29,865,000	$170,000	$315,000	$3,000,000	$16,000,000	$10,000,000	$380,000	$0	$0	$0
TBD	Magic Mountain Reservoir II	$46,600,000	$0	$0	$200,000	$700,000	$700,000	$15,000,000	$15,000,000	$15,000,000	$0
TBD	Southern Service Area Storage, Pipeline and Pump Station 12 MG	$63,273,000	$0	$0	$711,000	$1,416,000	$1,747,000	$3,247,000	$18,839,000	$37,293,000	$20,000
TBD	Southern Service Area Expansion	$6,782,552	$0	$0	$0	$0	$0	$0	$0	$0	$6,782,552
200510	Honby Parallel (Phase 2 - ext of Phase 1)	$22,953,000	$50,000	$150,000	$100,000	$546,000	$12,084,000	$9,869,000	$77,000	$77,000	$0
200903	Castaic Conduit	$14,189,000	$200,000	$200,000	$6,259,000	$6,500,000	$950,000	$80,000	$0	$0	$0
NA	NR WSA Integration	$6,000,000	$0	$0	$0	$0	$0	$6,000,000	$0	$0	$0
	Total	**$423,960,736**	**$19,096,000**	**$13,055,000**	**$11,396,000**	**$44,730,000**	**$39,120,000**	**$40,172,000**	**$44,392,000**	**$58,090,000**	**$156,547,774**

6.3 Project Finance

All the capital project costs shown in Table 6-2 are currently planned to be financed through debt. This debt will be secured by the Agency's revenues. As a result of the Agency merger, this future debt will be secured by retail rate revenues. To derive an interest rate for project financing through buildout the following methodology was used: A review of historical municipal AA rated interest rates for the past 30 years were in the range of 2% to 6%. A distribution was created using the historical highest and lowest interest rates as the boundaries for rates, and 4.22% was used as the most likely as this was the average of the rates published. The historic interest rate data is shown in Table 6-3. The results of the simulation are shown in Figure 6-2.

Table 6-3 Historic 30YR Bond AA Rated Interest Rates

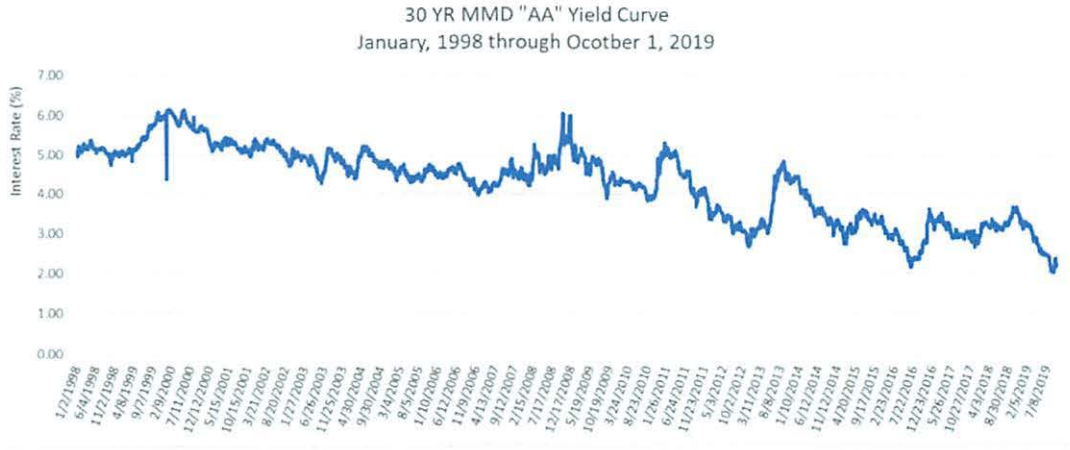
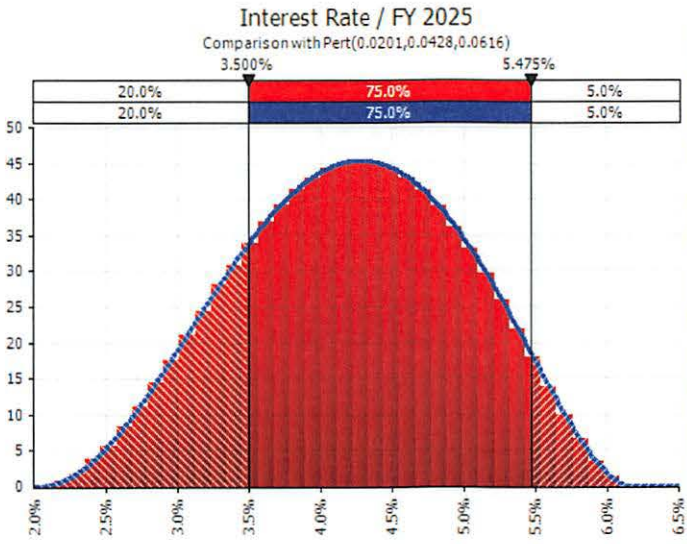


Figure 6-2 Interest rate simulation results



	Interest Rate / FY 2025	Pert (0.0201,0.0428,
Cell	FutureDebt&..	
Minimum	2.1354%	2.0100%
Maximum	6.0912%	6.1600%
Mean	4.2150%	4.2150%
90% CI	± 0.0182%	
Mode	4.1972%	4.2800%
Median	4.2303%	4.2303%
Std Dev	0.7828%	0.7827%
Skewness	-0.0828	-0.0830
Kurtosis	2.3426	2.3425
Values	5000	
Errors	0	
Filtered	0	
Left X	3.500%	3.500%
Left P	20.0%	20.0%
Right X	5.475%	5.475%
Right P	95.0%	95.0%
Dif. X	1.9754%	1.9754%
Dif. P	75.0%	75.0%

Table 6-4 shows the project financing assumptions used. The amounts listed as CIP costs for three years on line six are taken from Table 6-2. The simulation for interest rates was put through a single 5,000 iteration simulation and the results at the 20% level of confidence were used for the bond issues from 2026 through buildout. What this means is it can be expected that with an 80% level of confidence, future interest rates will be at least 3.5%. The lower side of the interest rate simulations were used to avoid accusation of over inflating financing costs. For the nearer term planned debt issuances, the Agency has used 4.5% which is closer to what is expected for the next new money issue that is being planned as of December 2019. Line 9 shows the amounts of each planned bond issue through FY2035 after taking into consideration bond issuance costs (Line 4) and interest earnings on bond proceeds prior to expenditure (Line 7). The sum of the six bond issues shown in Table 6-4 (Line 9) is approximately $390,000,000.

Table 6-4 Project Financing Requirements Forecast FY2020-FY2035

Line		FY 2020	FY 2023	FY 2026	FY 2029	FY 2032	FY 2035
1	**Proposed Debt Terms**						
2	Interest Rate	4.50%	4.50%	3.50%	3.50%	3.50%	3.50%
3	Term (years)	30	30	30	30	30	30
4	Bond Issuance Cost	0.85%	0.85%	0.85%	0.85%	0.85%	0.85%
5	Interest Earning Rate	2%	2%	2%	2%	2%	2%
6	CIP Costs for 3 Years	$43,547,000	$124,022,000	$102,522,000	$51,685,400	$52,942,500	$17,647,500
7	Interest on Debt Proceeds	$0	$716,940	$2,360,602	$1,068,976	$1,343,899	$1,005,094
8	Funding Needed for CIP	$43,547,000	$123,305,060	$100,161,398	$50,616,424	$51,598,601	$16,642,406
9	Proposed Debt Issue	$43,917,150	$124,353,153	$101,012,769	$51,046,664	$52,037,189	$16,783,866
10	Annual Debt Service	$2,696,142	$7,634,232	$5,492,394	$2,775,574	$2,829,432	$912,594

6.4 Cost Allocation

Table 6-5 Contains the annual capital expenditure for the projects from Table 6-2 that is attributable to growth for the time period FY2020 through FY2027. These amounts are in today's dollars. Financing costs have not been added at this point. The way to read the cost allocations in Table 6-5 is as follows: Column A is the Cost Category assigned to the project (see Section 4.4 Cost Category), Column B is the amount of the project's cost allocated to growth (see Section 4.3 Cost Allocation between Current and Future (Growth) users and Table 6-1).

Table 6-5 Allocation of Project Costs to Growth

CIP Project No.	Project Name	A Benefit Type	B Total Project Cost- Growth	C General Benefit	D Recycled Water	E WSA 1	F WSA 2	G WSA 3	H WSA 4
TBD	Water Supply Banking (10,000 AF)	General Benefit	$4,917,120	100.00%					
TBD	Stored Water Recovery Unit Replacement	General Benefit	$2,458,560	100.00%					
200963	Saugus Formation Dry Year Reliability Wells	General Benefit	$3,346,500	100.00%					
200453	Recycled Water Program Phase II, 2A (Center Park)	Recycled Water	$2,348,550		100.00%				
200454	Recycled Water Program Phase II, 2B (Vista Canyon)	Recycled Water	$723,088		100.00%				
200455	Recycled Water Program Phase II, 2C (South End)	Recycled Water	$1,780,350		100.00%				
200456	Recycled Water Program Phase II, 2D (West Ranch)	Recycled Water	$132,957		100.00%				
TBD	Recycled Water Projects (Alignments A-H)	Recycled Water	$15,882,750		100.00%				
TBD	ESFP Storage Expansion	General Benefit	$1,116,494	100.00%					
TBD	Rio Vista Reservoir Expansion	General Benefit	$2,087,318	100.00%					
TBD	Sand Canyon Reservoir Expansion I	General Benefit	$5,437,200	100.00%					
TBD	Sand Canyon Reservoir Expansion II	General Benefit	$2,572,576	100.00%					
200525	Magic Mountain Pipelines 4	General Benefit	$1,068,600	100.00%					
200526	Magic Mountain Pipelines 5	General Benefit	$1,601,700	100.00%					
200527	Magic Mountain Pipelines 6	General Benefit	$3,948,000	100.00%					
200528	Magic Mountain Reservoir	General Benefit	$8,959,500	100.00%					
TBD	Magic Mountain Reservoir II	General Benefit	$13,980,000	100.00%					
TBD	Southern Service Area Storage, Pipeline and Pump Station 12 MG	Local Benefit	$18,981,900	100.00%					
TBD	Southern Service Area Expansion	Local Benefit	$2,034,766	100.00%					
200510	Honby Parallel (Phase 2 - ext of Phase 1)	Local Benefit	$6,885,900			72.57%	26.02%		1.40%
200903	Castaic Conduit	Local Benefit	$4,256,700			38.91%	13.95%	46.38%	0.75%
NA	NR WSA Integration	Local Benefit	$6,000,000					100.00%	
			$110,520,527						

Table 6-6 The timing of project costs FY2020-FY2027 attributable to growth

CIP Project No.	Project Name	Total/Remaining Project Growth Cost	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028-Buildout
TBD	Water Supply Banking (10,000 AF)	$4,917,120	$0	$0	$0	$0	$0	$0	$0	$0	$4,917,120
TBD	Stored Water Recovery Unit Replacement	$2,458,560	$0	$0	$0	$0	$0	$0	$0	$0	$2,458,560
200963	Saugus Formation Dry Year Reliability Wells	$3,346,500	$0	$836,625	$836,625	$836,625	$836,625	$0	$0	$0	$0
200453	Recycled Water Program Phase II, 2A (Center Park)	$2,348,550	$469,710	$469,710	$469,710	$469,710	$469,710	$0	$0	$0	$0
200454	Recycled Water Program Phase II, 2B (Vista Canyon)	$723,088	$361,544	$361,544	$0	$0	$0	$0	$0	$0	$0
200455	Recycled Water Program Phase II, 2C (South End)	$1,780,350	$296,725	$296,725	$296,725	$296,725	$296,725	$296,725	$0	$0	$0
200456	Recycled Water Program Phase II, 2D (West Ranch)	$132,957	$132,957	$0	$0	$0	$0	$0	$0	$0	$0
TBD	Recycled Water Projects (Alignments A-H)	$15,882,750	$0	$0	$0	$0	$0	$0	$0	$0	$15,882,750
TBD	ESFP Storage Expansion	$1,116,494	$0	$0	$0	$0	$0	$0	$0	$0	$1,116,494
TBD	Rio Vista Reservoir Expansion	$2,087,318	$0	$0	$0	$0	$0	$0	$0	$0	$2,087,318
TBD	Sand Canyon Reservoir Expansion I	$5,437,200	$0	$217,488	$217,488	$217,488	$217,488	$217,488	$217,488	$217,488	$3,914,784
TBD	Sand Canyon Reservoir Expansion II	$2,572,576	$0	$0	$0	$0	$0	$0	$0	$0	$2,572,576
200525	Magic Mountain Pipelines 4	$1,068,600	$1,068,600	$0	$0	$0	$0	$0	$0	$0	$0
200526	Magic Mountain Pipelines 5	$1,601,700	$1,601,700	$0	$0	$0	$0	$0	$0	$0	$0
200527	Magic Mountain Pipelines 6	$3,948,000	$1,974,000	$1,974,000	$0	$0	$0	$0	$0	$0	$0
200528	Magic Mountain Reservoir	$8,959,500	$1,791,900	$1,791,900	$1,791,900	$1,791,900	$1,791,900	$0	$0	$0	$0
TBD	Magic Mountain Reservoir II	$13,980,000	$0	$1,997,143	$1,997,143	$1,997,143	$1,997,143	$1,997,143	$1,997,143	$1,997,143	$0
TBD	Southern Service Area Storage, Pipeline and Pump Station 12 MG	$18,981,900	$2,372,738	$2,372,738	$2,372,738	$2,372,738	$2,372,738	$2,372,738	$2,372,738	$2,372,738	$0
TBD	Southern Service Area Expansion	$2,034,766	$0	$0	$0	$0	$0	$0	$0	$0	$2,034,766
200510	Honby Parallel (Phase 2 - ext of Phase 1)	$6,885,900	$1,147,650	$1,147,650	$1,147,650	$1,147,650	$1,147,650	$1,147,650	$0	$0	$0
200903	Castaic Conduit	$4,256,700	$709,450	$709,450	$709,450	$709,450	$709,450	$709,450	$0	$0	$0
NA	NR WSA Integration	$6,000,000	$0	$0	$0	$0	$0	$6,000,000	$0	$0	$0
	Total	**$110,520,527**	**$11,926,973**	**$12,174,972**	**$9,839,428**	**$9,839,428**	**$9,839,428**	**$12,741,193**	**$4,587,368**	**$4,587,368**	**$34,984,366**

The cost of capital projects allocated to growth will be financed. Table 6-7 shows the cost allocation of debt service for financing the portion of capital work attributed to growth. That is to say that the capital project cost allocated to growth increases from $110,520,527 to an expected $157,455,137 once financed.

Table 6-7 Debt Service Cost Allocation to Growth

Line	Year	General Benefit	Recycled Water	WSA 1	WSA 2	WSA 3	WSA 4	Total Debt Service
1	FY 2020	$1,561,129	$195,358	$205,976	$73,861	$61,113	$3,988	$2,101,425
2	FY 2021	$1,561,129	$195,358	$205,976	$73,861	$61,113	$3,988	$2,101,425
3	FY 2022	$1,561,129	$195,358	$205,976	$73,861	$61,113	$3,988	$2,101,425
4	FY 2023	$2,709,419	$305,340	$407,833	$146,244	$472,113	$7,896	$4,048,845
5	FY 2024	$2,709,419	$305,340	$407,833	$146,244	$472,113	$7,896	$4,048,845
6	FY 2025	$2,709,419	$305,340	$407,833	$146,244	$472,113	$7,896	$4,048,845
7	FY 2026	$3,207,506	$303,965	$404,330	$144,988	$458,635	$7,828	$4,527,253
8	FY 2027	$3,207,506	$303,965	$404,330	$144,988	$458,635	$7,828	$4,527,253
9	FY 2028	$3,207,506	$303,965	$404,330	$144,988	$458,635	$7,828	$4,527,253
10	FY 2029	$3,508,086	$594,333	$404,470	$145,039	$459,174	$7,830	$5,118,933
11	FY 2030	$3,508,086	$594,333	$404,470	$145,039	$459,174	$7,830	$5,118,933
12	FY 2031	$3,508,086	$594,333	$404,470	$145,039	$459,174	$7,830	$5,118,933
13	FY 2032	$3,537,949	$1,021,090	$404,465	$145,037	$459,153	$7,830	$5,575,524
14	FY 2033	$3,537,949	$1,021,090	$404,465	$145,037	$459,153	$7,830	$5,575,524
15	FY 2034	$3,537,949	$1,021,090	$404,465	$145,037	$459,153	$7,830	$5,575,524
16	FY 2035	$3,573,248	$1,157,885	$404,465	$145,037	$459,154	$7,830	$5,747,619
17	FY 2036	$3,573,248	$1,157,885	$404,465	$145,037	$459,154	$7,830	$5,747,619
18	FY 2037	$3,573,248	$1,157,885	$404,465	$145,037	$459,154	$7,830	$5,747,619
19	FY 2038	$3,608,330	$1,158,220	$404,465	$145,037	$459,154	$7,830	$5,783,036
20	FY 2039	$3,608,330	$1,158,220	$404,465	$145,037	$459,154	$7,830	$5,783,036
21	FY 2040	$3,608,330	$1,158,220	$404,465	$145,037	$459,154	$7,830	$5,783,036
22	FY 2041	$3,643,421	$1,158,206	$404,465	$145,037	$459,154	$7,830	$5,818,113
23	FY 2042	$3,643,421	$1,158,206	$404,465	$145,037	$459,154	$7,830	$5,818,113
24	FY 2043	$3,643,421	$1,158,206	$404,465	$145,037	$459,154	$7,830	$5,818,113
25	FY 2044	$3,854,299	$1,158,207	$404,465	$145,037	$459,154	$7,830	$6,028,992
26	FY 2045	$3,854,299	$1,158,207	$404,465	$145,037	$459,154	$7,830	$6,028,992
27	FY 2046	$3,854,299	$1,158,207	$404,465	$145,037	$459,154	$7,830	$6,028,992
28	FY 2047	$4,130,029	$1,158,207	$404,465	$145,037	$459,154	$7,830	$6,304,722
29	FY 2048	$4,130,029	$1,158,207	$404,465	$145,037	$459,154	$7,830	$6,304,722
30	FY 2049	$4,130,029	$1,158,207	$404,465	$145,037	$459,154	$7,830	$6,304,722
31	FY 2050	$2,657,360	$962,849	$198,489	$71,176	$398,040	$3,843	$4,291,756
32	**Total**	**$102,657,606**	**$25,595,281**	**$11,746,690**	**$4,212,233**	**$13,015,914**	**$227,413**	**$157,455,137**

7 BV/RRB SUPPLY

7.1 Introduction

In addition to the existing debt service for all previous COPs and revenue bonds, the Agency also has outstanding payments for the BV/RRB water supply system. The BV/RRB expansion is operating under a 30-year payment stream that is divided between existing and future users.

The Agency currently has a water acquisition agreement with the Buena Vista Water Storage District and the Rosedale-Rio Bravo Storage District to increase the water supply availability. The BV/RRB payments reflect the acquisition of water supply based on this agreement.

7.2 Cost Allocation

Table 7-1 shows the final outstanding cost of the BV/RRB system at build-out in FY 2050. The total BV/RRB costs (Column B) encompass costs for all demand (Column C), which includes the annexation contribution (Column D) and current users' demand (Column E). To determine the cost allocation to future users, anticipated growth is factored into the calculation. Column F is the percentage of the future user quantity of water remaining after recognition of planned annual growth. Column G represents the annual additional amount of demand that is shifting from future users to current users as growth occurs. Column H contains the remaining quantity of water procured for future use. This amount is divided by the total amount procured (11,000) to create the factor used for determining how much of the cost of the supply should be allocated to growth. This results in the percentage of demand remaining (Column H) to eventually be reduced to zero at the end of build out in 2050. The total in Column I is allocated amount future users in the General Benefit Cost Category as the most appropriate way to allocate this cost is by the amount of growth expected for each WSA; this can be seen in Table 9-1 of the report.

The math used for the determination of the amounts in columns (H) & (I) in Table 7-1 is as follows:

Total Demand		11,000	
Less:			
Purchased for annexed properties		3,000	
Initially purchased for current users		4,560	
Amount initially purchased for future users		3,440	
Less:			
Future use allocation evolved to current use due to growth		116	
Available for future growth		3,324	(H)
Available for future growth		3,324	
Divided by	÷		
Total quantity purchased		11,000	
Cost allocation factor for growth		30.22%	
Annual Costs		$ 7,990,482	
Multiplied by the cost allocation factor for growth	x	30.22%	
		$ 2,414,578	(I)
Amount per schedule		$ 2,414,585	
Difference due to rounding		$ 7	

Table 7-1 BV/RRB Cost Allocation

Line	A Year	B Total BV/RRB Costs	C Total Demand (AF)	D Annexation Contribution (AF)	E Current Use Portion (AF)	F Percent Allocated to Future Use	G Existing Use from FY 2020 (AF)	H Future Use Portion (AF)	I Future Use Costs
1	FY 2020	$7,990,482	11,000	3,000	4,560	96.63%	116	3,324	$2,414,585
2	FY 2021	$8,390,006	11,000	3,000	4,560	96.63%	116	3,324	$2,535,314
3	FY 2022	$8,809,507	11,000	3,000	4,560	93.14%	236	3,204	$2,566,003
4	FY 2023	$9,249,982	11,000	3,000	4,560	89.93%	346	3,094	$2,601,396
5	FY 2024	$9,712,481	11,000	3,000	4,560	86.72%	457	2,983	$2,633,913
6	FY 2025	$10,198,105	11,000	3,000	4,560	83.51%	567	2,873	$2,663,179
7	FY 2026	$10,708,011	11,000	3,000	4,560	80.29%	678	2,762	$2,688,786
8	FY 2027	$11,243,411	11,000	3,000	4,560	77.08%	788	2,652	$2,710,297
9	FY 2028	$11,805,582	11,000	3,000	4,560	73.87%	899	2,541	$2,727,236
10	FY 2029	$12,395,861	11,000	3,000	4,560	70.66%	1,009	2,431	$2,739,093
11	FY 2030	$13,015,654	11,000	3,000	4,560	67.45%	1,120	2,320	$2,745,319
12	FY 2031	$13,666,436	11,000	3,000	4,560	64.23%	1,230	2,210	$2,745,319
13	FY 2032	$14,349,758	11,000	3,000	4,560	61.02%	1,341	2,099	$2,738,455
14	FY 2033	$15,067,246	11,000	3,000	4,560	57.81%	1,451	1,989	$2,724,042
15	FY 2034	$15,820,608	11,000	3,000	4,560	54.60%	1,562	1,878	$2,701,342
16	FY 2035	$16,611,639	11,000	3,000	4,560	51.39%	1,672	1,768	$2,669,562
17	FY 2036	$17,442,221	11,000	3,000	4,560	48.18%	1,783	1,657	$2,627,850
18	FY 2037	$18,314,332	11,000	3,000	4,560	44.96%	1,893	1,547	$2,575,293
19	FY 2038	$19,230,048	11,000	3,000	4,560	41.75%	2,004	1,436	$2,510,910
20	FY 2039	$20,191,551	11,000	3,000	4,560	38.54%	2,114	1,326	$2,433,652
21	FY 2040	$21,201,128	11,000	3,000	4,560	35.33%	2,225	1,215	$2,342,390
22	FY 2041	$22,261,185	11,000	3,000	4,560	32.12%	2,335	1,105	$2,235,917
23	FY 2042	$23,374,244	11,000	3,000	4,560	28.91%	2,446	994	$2,112,942
24	FY 2043	$24,542,956	11,000	3,000	4,560	25.69%	2,556	884	$1,972,079
25	FY 2044	$25,770,104	11,000	3,000	4,560	22.48%	2,667	773	$1,811,848
26	FY 2045	$27,058,609	11,000	3,000	4,560	19.27%	2,777	663	$1,630,663
27	FY 2046	$28,411,540	11,000	3,000	4,560	16.06%	2,888	552	$1,426,830
28	FY 2047	$29,832,117	11,000	3,000	4,560	12.85%	2,998	442	$1,198,537
29	FY 2048	$31,323,723	11,000	3,000	4,560	9.64%	3,109	331	$943,848
30	FY 2049	$32,889,909	11,000	3,000	4,560	6.42%	3,219	221	$660,694
31	FY 2050	$34,534,404	11,000	3,000	4,560	3.21%	3,330	110	$346,864
32	**Total**	**$565,412,842**							**$69,434,157**

8 RECYCLED WATER

8.1 Introduction

While all Agency customers benefit from the creation of recycled water, for the purposes of FCFs, WSA3 does not contribute to the cost of the capital projects in Table 8-1 as WSA3 is constructing its own source of supply and necessary infrastructure. As a result, recycled water capital projects costs are allocated between current users and future users of WSA1, WSA2, and WSA4. This is accomplished by reducing the Demand at buildout (93,900 AFY per the current UWMP) by the amount of total demand that was determined during the 2017 FCF Update Study (16,095). The result of that calculation is what the demand forecast at buildout would be if WSA3 was not included in development plans. From this number, the current demand forecast of 66,131 is deducted to arrive at the growth in demand that is attributable to WSA1, WSA2, and WSA4, 11,674 AFY which is 15% of total demand at buildout.

Table 8-1 Cost Allocation Factors for Recycled Water Projects

Recycled Water Allocation	AFY	Percentage of Total Demand
Current Demand Forecast (AFY)	66,131	**85%**
Demand at Buildout	93,900	
Less: WSA3 Demand at Buildout	(16,095)	
Subtotal	77,805	
New Users' Demand	**11,674**	**15%**

8.2 Cost Allocation

The 15% cost allocation factor is applied to the recycled water capital projects listed in Table 8-2. The remaining 85% of these projects' costs are allocated to current users.

Table 8-2 Recycled Water Projects and Cost Allocation

CIP Project No.	Project Name	Total/Remaining Project Cost	Allocation to Growth	Project Cost (Growth Only)
200453	Recycled Water Program Phase II, 2A (Center Park)	$15,657,000	15.00%	$2,348,550
200454	Recycled Water Program Phase II, 2B (Vista Canyon)	$4,820,584	15.00%	$723,088
200455	Recycled Water Program Phase II, 2C (South End)	$11,869,000	15.00%	$1,780,350
200456	Recycled Water Program Phase II, 2D (West Ranch)	$886,378	15.00%	$132,957
TBD	Recycled Water Projects (Alignments A-H)	$105,885,000	15.00%	$15,882,750
	Total	**$139,117,962**		**$20,867,694**

The project costs included in Table 8-2 will be financed. The total/remaining project costs are obtained from the Agency's Chief Engineer, the allocation factor(s) are contained in Table 8-1. Table 6-7 shows the annual financing costs (Principle and Interest) for recycled water projects that are allocated to growth ($25,595,281).

9 FEE CALCULATION

9.1 Introduction

In this section we will summarize the work documented in the previous sections to arrive at recommended FCFs for each WSA. The content of the data tables in this Section have been explained previously in this report. Table 9-1 provides a list of the cost allocation factors for each WSA for the Cost Categories used in the FCF calculation.

Table 9-1 Summary of Cost Allocation Factors

Cost Category	WSA 1	WSA 2	WSA 3	WSA 4
General Benefit	39.00%	14.00%	46.00%	1.00%
Recycled Water	72.22%	25.93%	0.00%	1.85%
WSA 1: West Valley	100.00%			
WSA 2: East Valley		100.00%		
WSA 3: Newhall Ranch			100.00%	
WSA 4: Whittaker-Bermite				100.00%

Recall that the General Benefit cost category includes costs that benefit all future customers equally and these costs are allocated to the WSAs based on the proportionate amount of growth each WSA is bringing to the Agency (Table 2-4). The recycled water projects are not allocated to WSA3 as this WSA is building its own source of recycled water; the distribution of recycled water costs to the remaining WSAs is based on their proportionate share of growth being added to the system. The remaining cost categories are the individual WSAs and have been referred to as Local Benefit costs elsewhere in this report.

The math used to arrive at the Recycled Water Cost Allocations in Table 9-1 are shown below:

	WSA 1	WSA 2	WSA 3	WSA 4	Total
Proportionate share of growth (Table 2-4)	39%	14%	46%	1%	100%
Recycled Water Participants (X)	x	x		x	
Excluding WSA 3 growth for a RW allocation factor	39%	14%	0%	1%	54%
Equations	.39/.54	.14/.54	0/.54	.01/.54	
Result	72.22%	25.93%	0.00%	1.85%	100.00%

Table 9-2 Summary of Revenue Requirement

Benefit Type	Existing Debt Service	BV/RRB Payments	Proposed Debt Service for CIP	Total Revenue Requirement
General Benefit	$194,941,376	$69,434,157	$102,657,606	$367,033,139
Recycled Water	$0	$0	$25,595,281	$25,595,281
WSA 1: West Valley	$12,011,032	$0	$11,746,690	$23,757,723
WSA 2: East Valley	$38,306,718	$0	$4,212,233	$42,518,951
WSA 3: Newhall Ranch	$1,153,817	$0	$13,015,914	$14,169,731
WSA 4: Whittaker -Bermite	$2,435,140	$0	$227,413	$2,662,553
Total	**$248,848,083**	**$69,434,157**	**$157,455,137**	**$475,737,376**

Table 9-2 is a summary list of the revenue requirement (costs) by Cost Type allocated to growth that are allocated to growth. Recall from Figure 4-4 that Recycled Water was identified as a Cost Type, for the purposes of this summary table those costs have been included in the Cost Type "Future Debt Service".

9.2 Recommended Fees

Table 9-3 Summarizes the cost allocations to the WSAs. This table is showing the amount of revenue that should be collected from each WSA from the FCFs. The amounts allocated to each WSA is divided by the modeled growth in EMU to derive a base FCF for each WSA. Table 9-4 lists these FCFs.

Table 9-3 Summary of Cost Allocation

Benefit Type	Total Revenue Requirement	WSA 1	WSA 2	WSA 3	WSA 4
General Benefit	$367,033,139	$143,142,924	$51,384,639	$168,835,244	$3,670,331
Recycled Water	$25,595,281	$18,485,481	$6,635,814	$0	$473,987
WSA 1: West Valley	$23,757,723	$23,757,723	$0	$0	$0
WSA 2: East Valley	$42,518,951	$0	$42,518,951	$0	$0
WSA 3: Newhall Ranch	$14,169,731	$0	$0	$14,169,731	$0
WSA 4: Whittaker -Bermite	$2,662,553	$0	$0	$0	$2,662,553
Total	**$475,737,376**	**$185,386,128**	**$100,539,404**	**$183,004,974**	**$6,806,871**

Table 9-4 Revenue Requirement and Proposed Base Fee by WSA

WSA	Total Revenue Requirement	Growth in EMUs	FCF per EMU 1" as a base
WSA 1: West Valley	$185,386,128	18,775	**$9,874**
WSA 2: East Valley	$100,539,404	6,740	**$14,918**
WSA 3: Newhall Ranch	$183,004,974	22,144	**$8,264**
WSA 4: Whittaker-Bermite	$6,806,871	481	**$14,140**
	$475,737,376	**48,140**	

A base FCF is the fee set for 1-inch meter connections. In order to derive FCFs for the other meter connection sizes, the American Water Works Association's hydraulic capacity ratios are used. By aligning the FCFs to the hydraulic capacity of the meter connections, the fees are proportionate to the capacity that the new service could demand from the Agency's infrastructure. Table 9-5 lists the proposed FCFs for each WSA, for each meter connection size.

Table 9-5 Proposed Facility Capacity Fee Table

Proposed Fees based on 1" as a base					
Meter Size	Meter Ratio	WSA 1	WSA 2	WSA 3	WSA 4
5/8"	0.40	$3,950	$5,967	$3,306	$5,656
3/4"	0.60	$5,925	$8,951	$4,958	$8,484
1"	1.00	$9,874	$14,918	$8,264	$14,140
1-1/2"	2.00	$19,749	$29,835	$16,528	$28,279
2"	3.20	$31,598	$47,737	$26,445	$45,247
2-1/2"	4.60	$45,422	$68,621	$38,015	$65,043
3"	6.00	$59,246	$89,506	$49,585	$84,838
4"	10.00	$98,743	$149,177	$82,642	$141,397
6"	20.00	$197,486	$298,354	$165,283	$282,795
8"	32.00	$315,977	$477,366	$264,453	$452,471
10"	46.00	$454,218	$686,214	$380,151	$650,427
12"	86.00	$849,189	$1,282,922	$710,718	$1,216,017

10 CONCLUSION

This the first time that FCFs have been fully updated since the formation of the new Santa Clarita Valley Water Agency in 2018. Determination of fair and reasonable FCFs using financial simulation modeling that result in providing results that can be interpreted with levels of confidence is new to the Agency. It is appropriate for a large retail water purveyor, with aspirations of becoming "Best in class", to fully consider uncertainty and risk when determining a fair and reasonable fee.

Staff identified and modeled key areas of uncertainty that must be considered when developing FCFs. The model was used to simulate 5,000 independent iterations of randomly selected variations of the interest rates and levels of growth within prescribed boundaries. Staff has recommended a set of FCFs that were produced by their model at an 80% level of confidence that the revenue generated from the FCFs would cover the determined revenue requirement.

It is important to mention again that the risk parameters used in the model are not financially conservative (slanted) towards the Agency. For example, when determining the remaining amount of growth in the Santa Clarita Valley at buildout, the first step was to develop the demand forecast for 2020. This effort was explained in detail to the FCF Key Stakeholder Working Group using the same approach as the past study plus several other alternatives. The FCF Key Stakeholder Working Group agreed to use the results from a financial simulation at a 95% level of confidence that the demand in 2020 would not exceed 66,131 AF (Section 2, Table 2-1). This level of confidence for current demand resulted in a lower amount of growth in demand and a correspondingly lower percentage of capital costs being allocated to growth.

Another example is the interest rate used for financing capital expenditures. A conservative financing rate for the Agency would have been at the higher end of the observed historic values (6.1% as shown in the Statistics Grid of Figure 6.2). The Staff model used rates for future financing that averages 3.63% through buildout, compared to the observed average rate observed 4.22% resulting in lower debt service costs built into the FCFs. These decisions show that the Agency has not only taken steps to address risk in its decision making but has also kept in mind the fee setting objectives of fairness and reasonableness.

The costs associated with growth, while identified, are not guaranteed to be recovered fully through the FCFs. The quantity and sizes of meter connections that will ultimately be added is unknown. Economic conditions, regulatory mandates, technological and cultural changes over the next 30 years will contribute to modifications to full buildout meter connection count. This risk is most appropriately managed by carefully considering the number of EMUs that will be developed. For the 2020 FCF Study Update, financial simulation was used to derive a quantity of EMUs that can be expected at a selected level of confidence. Given the uncertainty recognized by all involved with this Study, as the level of confidence rises, the number of EMUs is reduced (Table 3-5 Level of Confidence, Fees, and Number of EMUs).

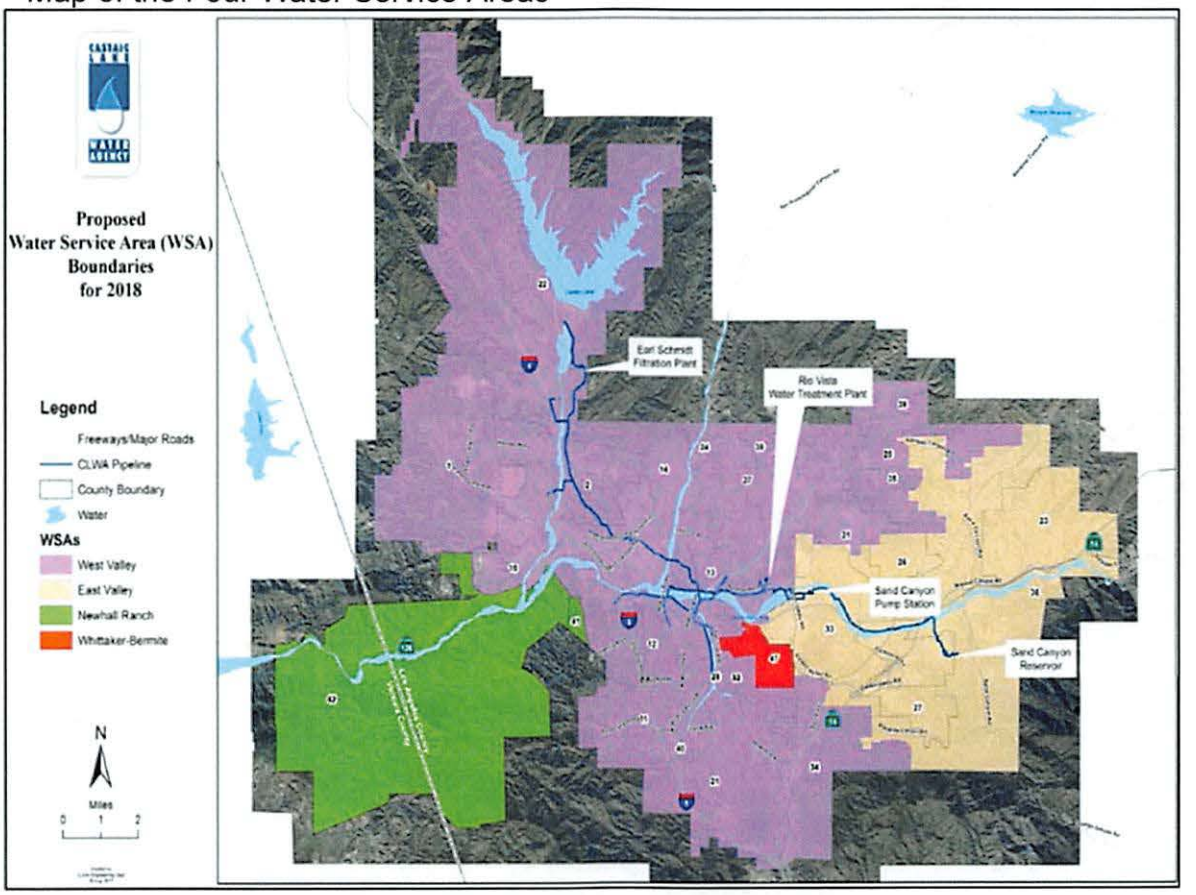
Finally, the recommendation by Staff is to use the modeled FCFs that result in an 80% level of confidence that they would collect the proper amount of revenue has been thoroughly explained in this document. The Agency's Ratepayer Advocate has reviewed the model and its underlying assumptions and has made the following statement in its December 18, 2019 report to the Board of Directors of the Agency:

> "...RDN found the FCF model developed by the Agency comprehensive and effective. We believe that the EMU forecasting methodology is defensible."

However, the model was designed to produce results at other levels of confidence (Table 3-6). There is not a single correct set of FCFs; it is a question of risk tolerance. An acceptable level of risk tolerance for FCF performance will be set by updating the existing FCFs. It is Staff's opinion that more importantly than having the recommended fees approved, output from the model be used as making a risk informed financial decision is a key indicator of growth towards becoming a "Best in Class" Agency.

APPENDIX

Map of the Four Water Service Areas



Total Capital Projects

Line	CIP Project No.	Project Name	Total/Remaining Project Cost	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
1	TBD	Water Supply Banking (10,000 AF)	$16,390,400	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$16,390,400
2	TBD	Stored Water Recovery Unit Replacement	$8,195,200	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	200963	Saugus Formation Dry Year Reliability Wells	$11,155,000	$0	$380,000	$775,000	$5,000,000	$5,000,000	$0	$0	$0	$0	$0	$0
4	200453	Recycled Water Program Phase II, 2A (Center Park)	$15,657,000	$5,000	$5,000	$5,000	$13,990,000	$1,652,000	$0	$0	$0	$0	$0	$0
5	200454	Recycled Water Program Phase II, 2B (Vista Canyon)	$4,820,584	$3,135,000	$3,627,000	$10,000	$0	$0	$0	$0	$0	$0	$0	$0
6	200455	Recycled Water Program Phase II, 2C (South End)	$11,869,000	$150,000	$150,000	$5,000	$5,000	$6,500,000	$5,059,000	$0	$0	$0	$0	$0
7	200456	Recycled Water Program Phase II, 2D (West Ranch)	$886,378	$985,000	$578,000	$10,000	$0	$0	$0	$0	$0	$0	$0	$0
8	TBD	Recycled Water Projects (Alignments A-H)	$105,885,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$17,647,500
9	TBD	ESFP Storage Expansion	$3,721,645	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	TBD	Rio Vista Reservoir Expansion	$6,957,725	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
11	TBD	Sand Canyon Reservoir Expansion I	$18,124,000	$0	$0	$311,000	$573,000	$487,000	$537,000	$10,476,000	$5,720,000	$20,000	$0	$0
12	TBD	Sand Canyon Reservoir Expansion II	$8,575,252	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	200525	Magic Mountain Pipelines 4	$3,562,000	$3,562,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
14	200526	Magic Mountain Pipelines 5	$5,339,000	$5,339,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
15	200527	Magic Mountain Pipelines 6	$13,160,000	$5,500,000	$7,650,000	$10,000	$0	$0	$0	$0	$0	$0	$0	$0
16	200528	Magic Mountain Reservoir	$29,865,000	$170,000	$315,000	$3,000,000	$16,000,000	$10,000,000	$380,000	$0	$0	$0	$0	$0
17	TBD	Magic Mountain Reservoir II	$46,600,000	$0	$0	$200,000	$700,000	$700,000	$15,000,000	$15,000,000	$15,000,000	$0	$0	$0
18	TBD	Southern Service Area Storage, Pipeline and Pump Station 12 MG	$63,273,000	$0	$0	$711,000	$1,416,000	$1,747,000	$3,247,000	$18,839,000	$37,293,000	$20,000	$0	$0
19	TBD	Southern Service Area Expansion	$6,782,552	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
20	200510	Honby Parallel (Phase 2 - ext of Phase 1)	$22,953,000	$50,000	$150,000	$100,000	$546,000	$12,084,000	$9,869,000	$77,000	$77,000	$0	$0	$0
21	200903	Castaic Conduit	$14,189,000	$200,000	$200,000	$6,259,000	$6,500,000	$950,000	$80,000	$0	$0	$0	$0	$0
22	NA	NR WSA Integration	$6,000,000	$0	$0	$0	$0	$0	$6,000,000	$0	$0	$0	$0	$0
23		**Total**	**$423,960,736**	**$19,096,000**	**$13,055,000**	**$11,396,000**	**$44,730,000**	**$39,120,000**	**$40,172,000**	**$44,392,000**	**$58,090,000**	**$40,000**	**$0**	**$34,037,900**

FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	FY 2037	FY 2038	FY 2039	FY 2040
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$17,647,500	$17,647,500	$17,647,500	$17,647,500	$17,647,500	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$17,647,500	**$17,647,500**	**$17,647,500**	**$17,647,500**	**$17,647,500**	**$0**	**$0**	**$0**	**$0**	**$0**

FY 2041	FY 2042	FY 2043	FY 2044	FY 2045	FY 2046	FY 2047	FY 2048	FY 2049	FY 2050
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$1,365,867	$1,365,867	$1,365,867	$1,365,867	$1,365,867	$1,365,867
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$620,274	$620,274	$620,274	$620,274	$620,274	$620,274
$0	$0	$0	$0	$1,159,621	$1,159,621	$1,159,621	$1,159,621	$1,159,621	$1,159,621
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$1,429,209	$1,429,209	$1,429,209	$1,429,209	$1,429,209	$1,429,209
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$1,130,425	$1,130,425	$1,130,425	$1,130,425	$1,130,425	$1,130,425
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	**$0**	**$0**	**$0**	**$5,705,396**	**$5,705,396**	**$5,705,396**	**$5,705,396**	**$5,705,396**	**$5,705,396**

Total Capital Projects Allocated to Growth

Line	CIP Project No.	Project Name	Total/Remaining Project Growth Cost	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
1	TBD	Water Supply Banking (10,000 AF)	$4,917,120	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,917,120
2	TBD	Stored Water Recovery Unit Replacement	$2,458,560	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	200963	Saugus Formation Dry Year Reliability Wells	$3,346,500	$0	$836,625	$836,625	$836,625	$836,625	$0	$0	$0	$0	$0	$0
4	200453	Recycled Water Program Phase II, 2A (Center Park)	$2,348,550	$469,710	$469,710	$469,710	$469,710	$469,710	$0	$0	$0	$0	$0	$0
5	200454	Recycled Water Program Phase II, 2B (Vista Canyon)	$723,088	$361,544	$361,544	$0	$0	$0	$0	$0	$0	$0	$0	$0
6	200455	Recycled Water Program Phase II, 2C (South End)	$1,780,350	$296,725	$296,725	$296,725	$296,725	$296,725	$296,725	$0	$0	$0	$0	$0
7	200456	Recycled Water Program Phase II, 2D (West Ranch)	$132,957	$132,957	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	TBD	Recycled Water Projects (Alignments A-H)	$15,882,750	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,647,125
9	TBD	ESFP Storage Expansion	$1,116,494	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	TBD	Rio Vista Reservoir Expansion	$2,087,318	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
11	TBD	Sand Canyon Reservoir Expansion I	$5,437,200	$0	$217,488	$217,488	$217,488	$217,488	$217,488	$217,488	$217,488	$217,488	$217,488	$217,488
12	TBD	Sand Canyon Reservoir Expansion II	$2,572,576	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	200525	Magic Mountain Pipelines 4	$1,068,600	$1,068,600	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
14	200526	Magic Mountain Pipelines 5	$1,601,700	$1,601,700	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
15	200527	Magic Mountain Pipelines 6	$3,948,000	$1,974,000	$1,974,000	$0	$0	$0	$0	$0	$0	$0	$0	$0
16	200528	Magic Mountain Reservoir	$8,959,500	$1,791,900	$1,791,900	$1,791,900	$1,791,900	$1,791,900	$0	$0	$0	$0	$0	$0
17	TBD	Magic Mountain Reservoir II	$13,980,000	$0	$1,997,143	$1,997,143	$1,997,143	$1,997,143	$1,997,143	$1,997,143	$1,997,143	$0	$0	$0
18	TBD	Southern Service Area Storage, Pipeline and Pump Station 12 MG	$18,981,900	$2,372,738	$2,372,738	$2,372,738	$2,372,738	$2,372,738	$2,372,738	$2,372,738	$2,372,738	$0	$0	$0
19	TBD	Southern Service Area Expansion	$2,034,766	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
20	200510	Honby Parallel (Phase 2 - ext of Phase 1)	$6,885,900	$1,147,650	$1,147,650	$1,147,650	$1,147,650	$1,147,650	$1,147,650	$0	$0	$0	$0	$0
21	200903	Castaic Conduit	$4,256,700	$709,450	$709,450	$709,450	$709,450	$709,450	$709,450	$0	$0	$0	$0	$0
22	NA	NR WSA Integration	$6,000,000	$0	$0	$0	$0	$0	$6,000,000	$0	$0	$0	$0	$0
23		**Total**	**$110,520,527**	**$11,926,973**	**$12,174,972**	**$9,839,428**	**$9,839,428**	**$9,839,428**	**$12,741,193**	**$4,587,368**	**$4,587,368**	**$217,488**	**$217,488**	**$7,781,733**

FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	FY 2037	FY 2038	FY 2039	FY 2040	FY 2041	FY 2042	FY 2043	FY 2044	FY 2045	FY 2046	FY 2047	FY 2048	FY 2049	FY 2050
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$409,760	$409,760	$409,760	$409,760	$409,760	$409,760
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$2,647,125	$2,647,125	$2,647,125	$2,647,125	$2,647,125	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$186,082	$186,082	$186,082	$186,082	$186,082	$186,082
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$347,886	$347,886	$347,886	$347,886	$347,886	$347,886
$217,488	$217,488	$217,488	$217,488	$217,488	$217,488	$217,488	$217,488	$217,488	$217,488	$217,488	$217,488	$217,488	$217,488	$217,488	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$428,763	$428,763	$428,763	$428,763	$428,763	$428,763
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$339,128	$339,128	$339,128	$339,128	$339,128	$339,128
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$2,864,613	**$2,864,613**	**$2,864,613**	**$2,864,613**	**$2,864,613**	**$217,488**	**$217,488**	**$217,488**	**$217,488**	**$217,488**	**$217,488**	**$217,488**	**$217,488**	**$217,488**	**$1,929,107**	**$1,711,619**	**$1,711,619**	**$1,711,619**	**$1,711,619**	**$1,711,619**

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