

**SANTA CLARA CITY, UTAH**

**WATER IMPACT FEE FACILITIES PLAN**

**&**

**CULINARY WATER MASTER PLAN**

**June 2018**

**INCLUDES:**  
**FIVE POINT ANALYSIS**  
**RECOMMENDED SYSTEM IMPROVEMENTS,**  
**20 YR CASHFLOW PROJECTIONS,**  
**AND**  
**WRITTEN ANALYSIS FOR IMPACT FEES**



**PREPARED BY**  
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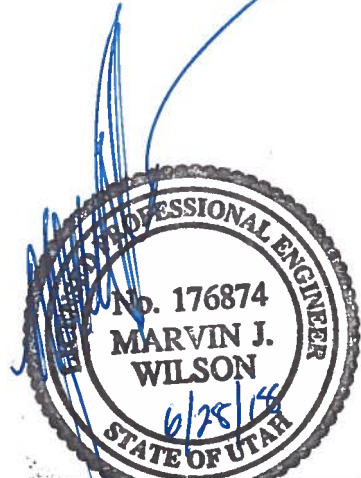
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# **SECTION I INTRODUCTION**

## **A. PREFACE**

For more than two decades several previous master plans have been completed on behalf of Santa Clara City and have provide valuable recommendations, directions and master planning.

Of particular note was the 2007 Master Plan update complete by Sunrise Engineering, which included an analysis to help the City decide whether or not to participate in the Washington County Water Conservancy District (WCWCD) Regional Water Supply Agreement (RWSA) as a solution for additional water sources for future needs. The City did join the regional agreement which has substantially simplified the master planning for water. The City no longer needs to worry about having City owned water rights and water sources necessary for growth. That agreement provides the mechanism for this water to be supplied by the WCWCD. The Water Master Plan completed in 2010 incorporated then current impact fee act provisions and was written with the WCWCD RWSA in place.

Sunrise Engineering, Inc. is contracted to update the plan and bring a Master Plan forward to current conditions and regulations. To conform with the Impact Fee Act the Master Plan will be titled IMPACT FEE FACILITIES PLAN & CULINARY WATER MASTER PLAN, August 2018. It will provide a master planning finding and recommendations that outline proposed culinary water facilities for the impact fee analysis.

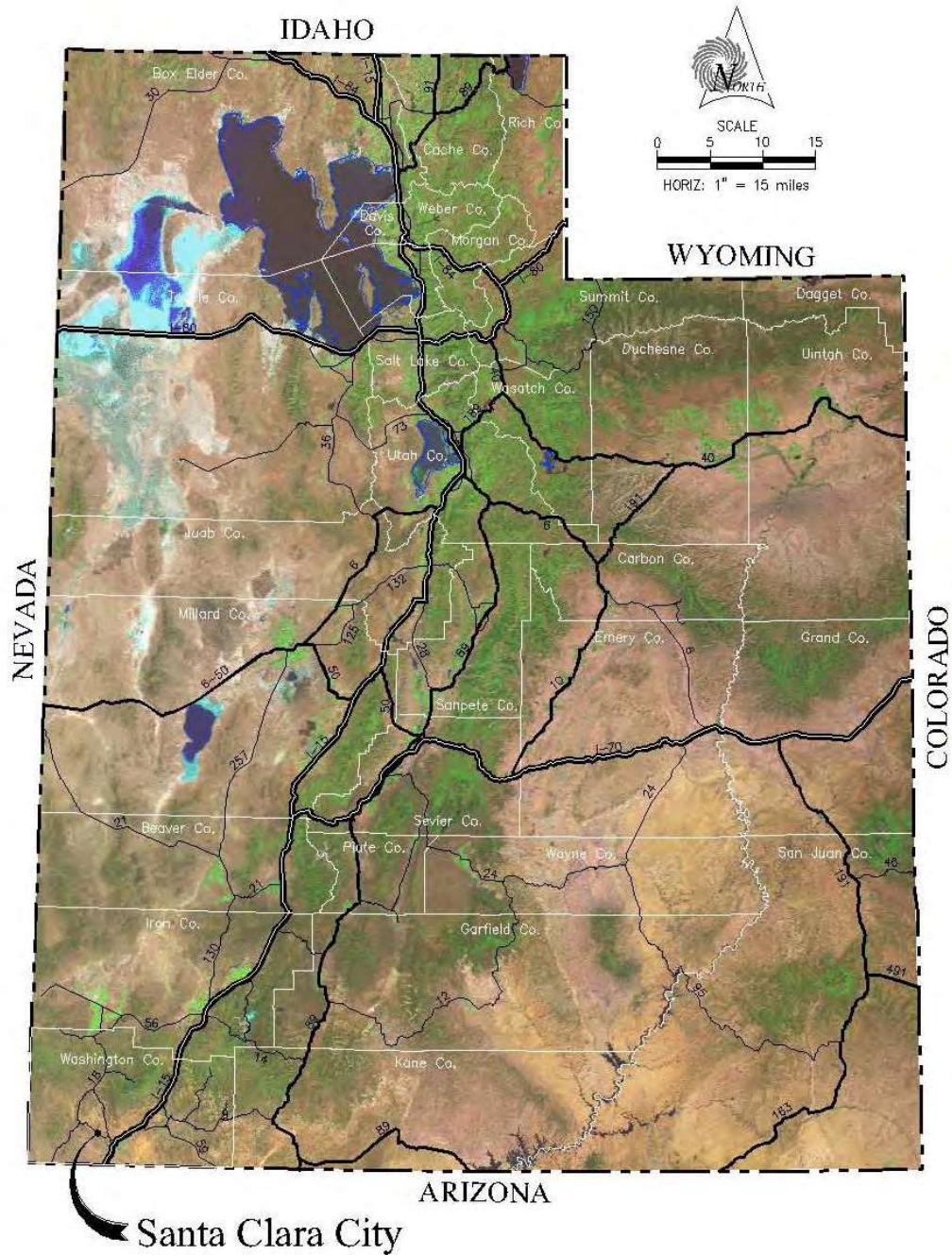
## **B. INTRODUCTION**

This Culinary Water Master Plan has been prepared for Santa Clara City, located west of St. George, Utah in Washington County, along Highway 91. An area map showing the location of Santa Clara City, is provided on Exhibit I.B-1. Santa Clara City has experienced growth, which has been relatively high over the past 40 years. As in all communities that experience growth, the culinary water system required substantial improvements and expansions to support increased demands caused by growth and development within the City.

The culinary water system has been analyzed under The State of Utah Department of Drinking Water Regulations (as of the signing of the agreement) to determine existing system conditions and needs. House bill 303 with revisions to the Utah Code 19-4 has slightly different requirements. HB 303 went into effect in May which will require Santa Clara City to provide additional data to the State no later than 3/1/2019. To which the State will establish system-specific source and storage sizing requirements based on data or engineering study submitted. It is not anticipated this will change the recommendations of the study because future source supply needs will be supplied under the WCWCD Regional Water Service Agreement, and the storage sizing is based on average day, which is well defined in this study.

Additionally, to determine projected system needs as the community grows to the potential represented by undeveloped land with projected growth over the next 20 years and at build-out. Culinary water system improvements have been recommended. This plan will also serve as an Impact Fee Facilities Plan for the culinary water system providing a basis for the impact fee calculations. The resultant recommended impact fees along with the projected user rates have been analyzed in support of the recommended system improvements. The projected culinary water rates and impact fees are fair and reasonable and should allow the City to continue to maintain the level of service that is required of public water systems through the duration of the planning horizon.

## Exhibit I.B-1 Santa Clara City Area Map



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## SECTION II

# SYSTEM USERS ANALYSIS

### A. PROJECTED GROWTH RATE

An important element in the development of a Culinary Water Master Plan is the growth rate projection of the City's water system users. The growth rate gives the planner a glimpse of the future demands that may need to be accommodated by the City's culinary water system.

Projecting the number of future culinary water connections with any degree of accuracy can be a subjective process. With this in mind Table II.A-1 below shows the City's historic growth rate according to the US Census Data and provides an idea of how the community has grown from 1970 through 2017.

#### 1. POPULATION DATA:

Table II.A-1 Historic Growth for Santa Clara City

Year	Census Population	Percent Growth
1970	271	
1980	1,091	14.9 %
1990	2,322	7.8 %
2000	4,630	7.1 %
2010	6,003	2.6 %
2017	7,418	3.1 %

The City of Santa Clara has experienced significant growth since the 1970's. According to the US Census Data, the City grew at almost 15% per year during the 1970's, during the 1980's and 1990's the City grew at over 7% per year. Despite this rapid population growth, there has been very little commercial development in Santa Clara City. The recession of 2007/2008 brought a drastic drop in the growth rate. However, during the last couple of years the growth rate has rebounded to around 6%. Santa Clara is primarily a residential community supporting the St. George area. Because Santa Clara is bordered by other municipalities, lava flows, flood plains, and environmentally sensitive areas, it is not expected to grow as fast as it historically has.

#### 2. CONNECTION DATA:

Table II.A-2 on the following page illustrates the growth in residential culinary water connections from 1994 to 2017.

Table II.A.2					
Year	Residential Conn.	% Growth	Year	Residential Conn.	% Growth
1994	985		2006	1,848	4.0%
1995	1,055	7.1%	2007	1,921	4.0%
1996	1,150	9.0%	2008	1,936	0.8%
1997	1,246	8.3%	2009	1,960	1.2%
1998	1,309	5.1%	2010	1,936	-1.2%
1999	1,350	3.1%	2011	2,018	4.2%
2000	1,377	2.0%	2012	2,048	1.5%
2001	1,418	3.0%	2013	2,076	1.4%
2002	1,525	7.5%	2014	2,136	2.9%
2003	1,541	1.0%	2015	2,207	3.3%
2004	1,620	5.1%	2016	2,301	4.3%
2005	1,777	9.7%	2017	2,459	6.9%

### 3. FUTURE GROWTH:

Growth could possibly be in the “South Hills”. Currently, most of the land on the south side of the Santa Clara River is owned by the Bureau of Land Management (BLM). This portion represents 1,100 acres of the property in the South Hills that was identified in a congressional land bill passed around 10 years ago; although its presence in the bill is no guarantee of BLM disposal (sale). If the BLM were to sell the land in the “South Hills” to a developer, significant growth would be expected in this area.

Regardless of what the BLM does with the property, there is a small portion of the South Hills that is private. That privately-owned area will likely grow fairly quickly as the City has already seen conceptual layouts for some parcels of South Hills.

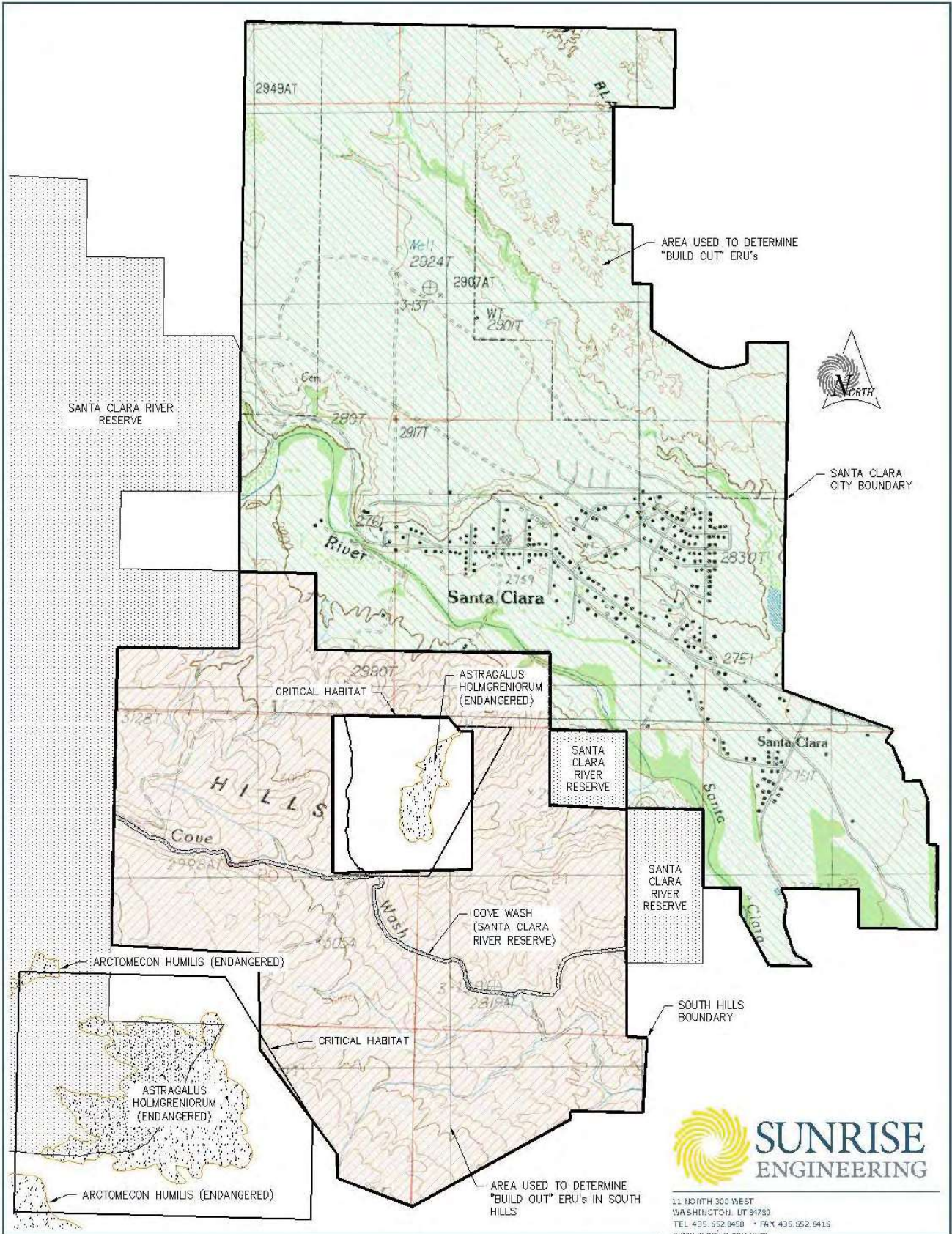
The BLM portion of the South Hills area that may be developed has been reduced as the BLM has identified areas where threatened and endangered plants are located. Exhibit II.A-1 on the following page shows the build-out area; including the original City area and the proposed South Hills area. The South Hills area shown is the current area that the BLM might sell. The area has been adjusted in the past and may be adjusted again.

If the South Hills develop the City of Santa Clara is not expected to develop all available land within the planning period. Nevertheless, the calculations and projections for build-out are included in the study. Although the City has included the South Hills area in their general plan and future improvements in the South Hills area have been recommended in this Master Plan as related to that potential growth, the City has elected to not include the South Hills improvements in the final impact fee calculations.

Since there is a possibility that development in the South Hills may not occur, or that it may not occur until the latter portion of, or following, the 20-year planning period. This IFFP/Master Plan will show projected numbers with South Hills area and without the South Hills in the build-out



**Exhibit II.A-1 Santa Clara City Build-out Map**



numbers. Thus, estimating the additional growth and basic improvements necessary should the South Hills be developed and providing the necessary foundation to update the IFFP and IF analysis quickly in case the development in the South Hills does occur. Regardless, build-out would be expected after the 20-year planning period.

Data from the Santa Clara General Plan and General Plan Update was used in determining build-out projections. Estimates from the General Plan for build-out were 3,000 new residential ERU's for the proposed South Hills area and 3,060 new residential ERU's for the remaining neighborhoods in the City. Therefore, the total estimated number of new residential ERU's is 6,060. The number with South Hills total build-out ERU's to be used by this Master Plan is 9,607. The number of total build-out without South Hills ERU's to be used is 6,741. Based on a household size between 3.10 and 3.78 people, it is estimated that build-out population will be approximately 28,100 people. Table II.A-3 shows the projected population and ERU's at build-out for South Hills and without South Hills. Based on these growth rates, build-out would most likely occur beyond the 20-year planning period; it is realized that the growth will most likely taper off as the City approaches build-out.

Table 11.A-3 Build-out Projections

Includes South Hills

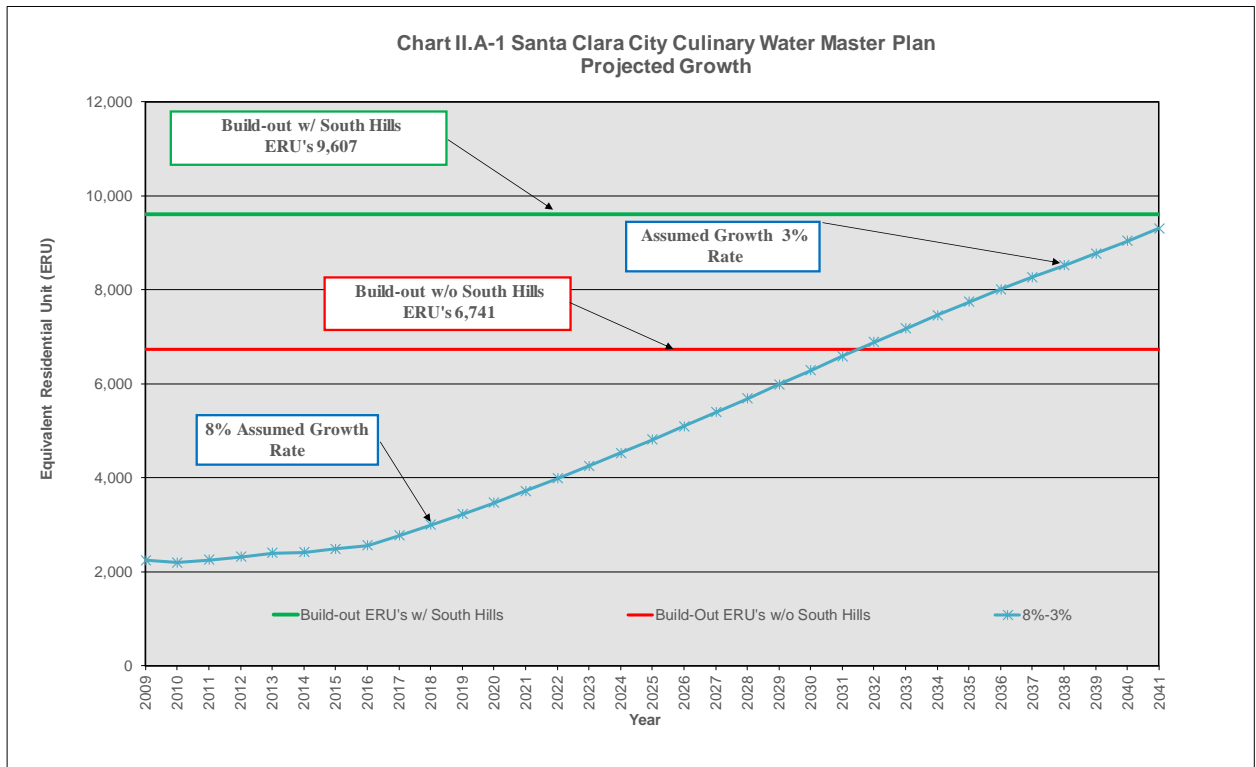
<b>Population</b>	28,100
<b>Estimated Residential ERU's</b>	8,519
<b>Estimated Commercial ERU's</b>	253
<b>Estimated Other ERU's</b>	835
<b>Total ERU's</b>	<b>9,607</b>

Excludes South Hills

<b>Population</b>	20,300
<b>Estimated Residential ERU's</b>	5,978
<b>Estimated Commercial ERU's</b>	177
<b>Estimated Other ERU's</b>	586
<b>Total ERU's</b>	<b>6,741</b>



Chart II.A-1 illustrates the projected ERU growth for the planning period.



It is important to understand that projected population figures are not the cornerstone of this master plan. If the maximum number of system connections projected is reached earlier or later than projected, then future improvements to support growth may either come earlier or later. Impact fees should not be significantly affected if the actual rate of growth varies from the rate used in the plan.

## B. LENGTH OF PLANNING PERIOD

This culinary water master plan uses a 20-year planning period, beginning in fiscal year 2018, and running through fiscal year 2038. We have also considered build-out projections in the plan. This period will allow an adequate evaluation of the system for potential infrastructure improvements or other needs. Revenue sources should be carefully evaluated each year as the City Council sets budgets and anticipates system requirements.

## C. CULINARY WATER CONNECTIONS

### 1. EXISTING CULINARY WATER CONNECTIONS

According to Santa Clara City data, the number of existing culinary connections in 2017 was 2,533. After consultation with the mayor and staff, this number has been projected forth at a diminishing rate from 8% in 2018 to 3% at the end of the planning period. Which gave us the assumed numbers for 2018 that the City of Santa Clara has 2,736 connections; including 2,656

residential connections, 33 commercial connections and 46 “other” connections. “Other” connections include churches, schools, feed yards, City owned facilities, irrigation for parks, and streetscape.

To calculate how much water is used at an average residential connection, the total amount of water used by all Santa Clara City residential customers over the course of several years was calculated. Table II.C-1 summarizes historic data from Santa Clara City records from 2000 to 2017 (full data found in Appendix G). The average daily use per residential connection over the last five-year period was 572 gal/day. This is a more conservative figure than the 3 year average, which may be what the State of Utah defaults to as they determine the actual requirement.

**TABLE II.C1 Santa Clara City Average Usage Per Residential Connection**

<b>Year</b>	<b>Average (since 2000)</b>	<b>5 year Average</b>	<b>3 year Average</b>
<b>Residential</b>			
Usage (gallons)	449,071,513	465,506,200	468,218,000
Connections	1,895	2,236	2,322
Usage Per Connection (gal/year)	241,315	208,707	201,723
Daily Usage Per Connection (gal/day)	661	572	553
3-year Average Usage (gal/day/connection)			
5-year Average Usage (gal/day/connection)			
<b>Commercial</b>			
Usage (gallons)	10,833,056	9,949,200	10,885,000
Connections	50	42	29
Usage Per Connection (gal/year)	300,470	302,068	371,263
Daily Usage Per Connection (gal/day)	823	828	1,017
Equivalent Residential Unit	1.28	1.47	2.00
Non-Residential ERUs	46	48	54
<b>Other</b>			
Usage (gallons)	50,663,602	50,924,600	46,492,667
Connections	32	37	44
Usage Per Connection (gal/year)	1,750,168	1,803,904	1,060,110
Daily Usage Per Connection (gal/day)	4,795	4,942	2,904
Equivalent Residential Unit	7.38	8.42	5.00
Non-Residential ERUs	214	243	231
Total ERUs	2,155	2,527	2,607

In the subsequent calculations throughout the rest of the plan a value of **572 gal/day** will be used for the average daily flow per residential connection. This number is lower than the 683 gal/day used in the 2010 Culinary Water Master Plan. Records indicate that the average use per water connection has significantly decreased since the 1996 Master Plan. The following were the average residential consumptions that were used in those years.

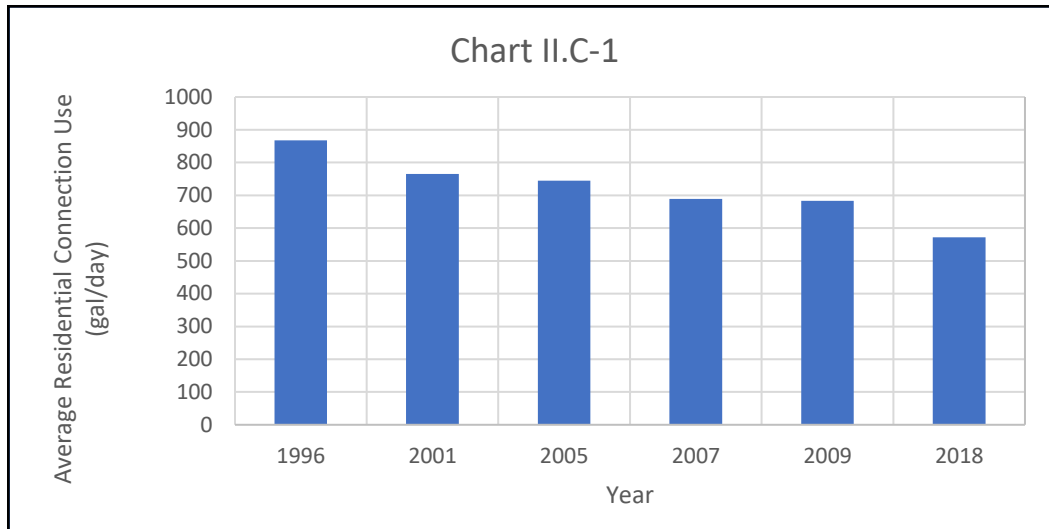
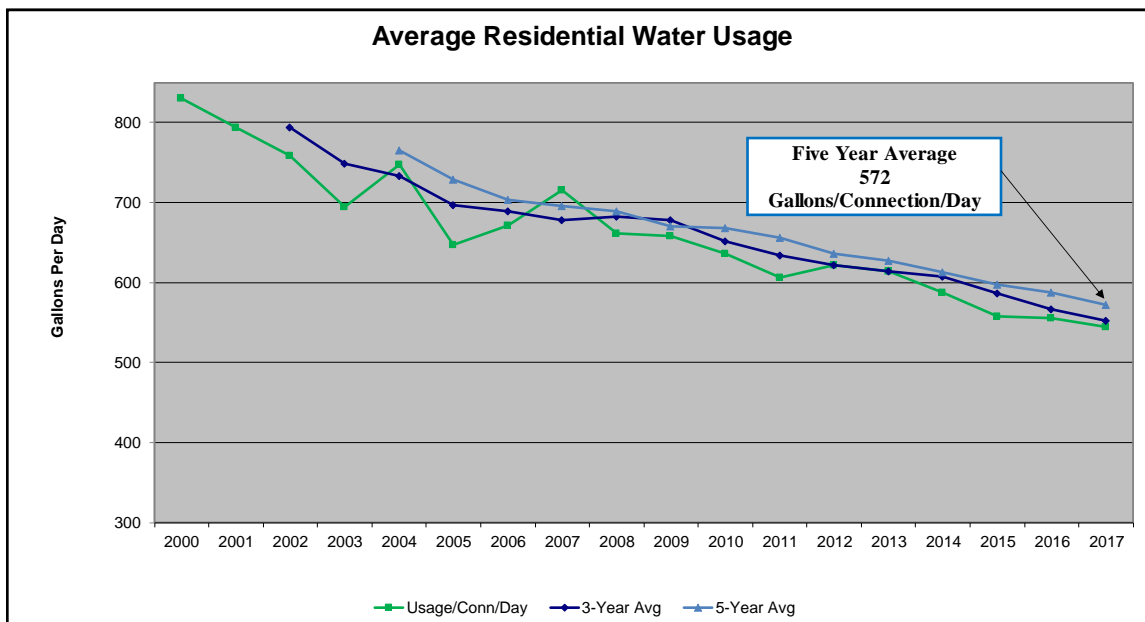


Chart II.C-2



In a typical culinary water master plan, the volume of water required by nonresidential connections is compared to the volume of water required by residential connections. Often, commercial users consume two or three times as much water as residential users. Between the years of 2001 and 2005, the usage per commercial connection was actually lower than the average daily consumption than residential connections. While, between the years of 2005 and 2009, the daily usage for commercial was significantly higher than the residential connection. The increase might have been from the booming economy and the growth in commercial. In 2010, the usage in commercial starts to decrease, in the year 2011, the total usage per commercial

connection was 1/3 the residential usage. The following years, 2012, 2013, 2014 were all consistently 1/2 to 1/3 of the residential usage. The commercial usage per connection started increasing and passing the residential usage per connection in 2015. Since 2015, the commercial usage has increased and has been about 2 times as much as the residential usage, which is more in line than the consumption of commercial is two or three times as much as residential usage. Based on past results this variation between the commercial and residential connection will likely continue to be instable. Nevertheless, for the purposes of this plan it is necessarily assumed that the current usage relationship holds into the future; last year the commercial usage was just 3% of the residential which makes the above observation unstable ratios less significant.

An Equivalent Residential Unit (ERU) represents the ratio of the volume of water required for commercial users compared to the amount used by an average residential connection. The ERU value is determined by comparing the average daily use per commercial connection to the average daily use per residential connection. During the year of 2017, the total water usage by commercial connections was approximately 14,424,000 gallons, distributed to an average of 31 commercial users. The average daily use for commercial users can be calculated as follows:

$$14,424,000 \text{ gallons} / 365 \text{ days} / 31 \text{ connections} = 1,275 \text{ gpd/connection}$$

Each commercial connection uses just over twice the amount used by the average residential connection in 2017 (544 total usage in residential). For the purpose of this master plan, an ERU value for each commercial connection of 2.34, (which is the same number used in the 2009 report) will be used.

Connections classified in this master plan as “other” include mostly large users such as schools, parks, churches, and City facilities. The culinary water connections that are grouped in this category typically require more water than that required by a residential customer. An Equivalent Residential Unit (ERU) represents the additional volume of water required for “other” users above and beyond the amount used by an average residential connection. The ERU value is determined by comparing the average daily use per “other” connection to the average daily use per residential connection. During the year of 2017, the total “other” connection water usage was approximately 47,903,000 gallons, distributed to an average of 43 “other” users. The average daily use for “other” users can be calculated as follows:

$$47,903,000 \text{ gallons} / 365 \text{ days} / 43 \text{ connections} = 3,052 \text{ gpd/connection}$$

Each “other” connection uses approximately 5.6 times the amount used by the average residential connection in 2017 (544). In this WMP, the factor of 5.6 will be used to determine the ERU of the “other” connections. The approximate total water usage for “other” connections during the year 2017 was 47,903,000 gal distributed to an average of 43 “other” users. The average daily use for “other” users can be calculated as follows:

**Current ERU's (End of 2017):**

Residential ERU's	=	2,459
Commercial ERU's (31 X 2.34)	=	73
"Other" ERU's (43 X 5.61)	=	<u>241</u>
<b>Total ERU's</b>	=	<b>2,773</b>

**2. PROJECTED CULINARY WATER CONNECTIONS AND ERU'S**

The number of future culinary connections can be calculated using the simple interest formula and inserting the projected growth rate, the existing number of culinary water ERU's for each year.

As stated in a previous section, this IFFP estimates that the growth rate changes each year from 8% to 3%. Over the course of 20 years, that is a change of .25% per year. Please refer to Table II.C-2.

With the change in growth rate each year, each years growth will be calculated using the simple interest formula by multiplying the year before by the new estimated growth rate for that current year.

Table II.C-2

Year	Est. Growth Rate	Estimated Residential ERU's	Estimated Commercial ERU's	Other ERU's	Estimated ERU's	Estimated Conn.	New Conn. (i.e. Building
2009	-	1,960	42	239	2,241	2,032	58
2010	-	1,936	38	218	2,192	2,083	62
2011	-	2,018	40	197	2,255	2,139	82
2012	-	2,048	37	228	2,313	2,139	97
2013	-	2,076	40	285	2,401	2,185	75
2014	-	2,136	38	240	2,414	2,203	18
2015	-	2,207	38	245	2,490	2,277	74
2016	-	2,301	52	206	2,559	2,376	99
2017	-	2,459	73	241	2,773	2,533	157
2018	8.0%	2,656	79	260	2,995	2,736	203
2019	7.8%	2,862	85	280	3,227	2,948	212
2020	7.5%	3,076	92	301	3,469	3,169	221
2021	7.3%	3,299	98	323	3,721	3,398	230
2022	7.0%	3,530	105	346	3,981	3,636	238
2023	6.8%	3,768	112	369	4,250	3,882	245
2024	6.5%	4,013	119	393	4,526	4,134	252
2025	6.3%	4,264	127	418	4,809	4,393	258
2026	6.0%	4,520	134	443	5,097	4,656	264
2027	5.8%	4,780	142	468	5,391	4,924	268
2028	5.5%	5,043	150	494	5,687	5,195	271
2029	5.3%	5,308	158	520	5,986	5,467	273
2030	5.0%	5,573	166	546	6,285	5,741	273
2031	4.8%	5,838	174	572	6,583	6,013	273
2032	4.5%	6,100	181	598	6,880	6,284	271
2033	4.3%	6,360	189	623	7,172	6,551	267
2034	4.0%	6,614	197	648	7,459	6,813	262
2035	3.8%	6,862	204	673	7,739	7,069	255
2036	3.5%	7,102	211	696	8,010	7,316	247
2037	3.3%	7,333	218	719	8,270	7,554	238
2038	3.0%	7,553	225	740	8,518	7,780	227
2039	3.0%	7,780	231	762	8,773	8,014	233

As shown above, the total number of culinary water ERU's projected for the end of the planning period is 8,518.

### 3. BUILD-OUT CULINARY WATER CONNECTIONS AND ERU'S

**This Water Master plan will include two build out scenarios, one with South Hills and one without South Hills developments.**

Residential ERU's at build-out:

To determine the number of residential connections at build-out, data from SC General Plan and

General Plan Update was used. The following table illustrates the identified number of future dwelling units in sub-areas of Santa Clara according to the General Plan.

Table II.C-3

<b>Buildout Projections According to Santa Clara General Plan 2014</b>			
<b>Neighborhood</b>	<b>* Future Dwelling Units</b>	<b>Estimated Household Size</b>	<b>Estimated Pop. Added</b>
Historic Downtown Core	110	3.1	341
East Gateway	500	3.78	1890
The Heights	400	3.78	1512
Pioneer Parkway Retail Core	250	3.5	875
Santa Clara North - Knolls Pasture	1800	3.78	6804
The Edge at Grand Desert	459	3.1	1423
<b>South Hills</b>	<b>2541</b>	3.1	7877
<b>Total:</b>	<b>6060</b>		<b>20722</b>
*Future Dwelling units came from SC General Plan and <i>General Plan update</i>			

The current estimate for build-out with South Hills is 8,519 residential ERU's, which includes the existing 2,459 residential ERU's and 6,060 estimated new residential ERU's at build-out. Without South Hills is 5,978 residential ERU's, which includes the existing 2,459 residential ERU's and 3,519 estimated new residential ERU's at build-out.

Commercial ERU's at build-out:

In the absence of growth data for commercial and "other" connections from SC General Plan and General Plan Update, a simple ratio was used that assumes the same proportions through the future as currently exists. Therefore, the ratio of residential ERU's to commercial ERU's in 2017 was used to estimate the number of commercial ERU's at build-out.

"Other" ERU's at build-out:

"Other" ERU's include schools, churches, City owned facilities, feed yards, irrigation for parks, and streetscape, and have been assumed to grow at the same rate as residential ERU's. The same method used to find commercial ERU's at build-out will also be used to find the number of "other" ERU's at build-out. The ratio of residential ERU's to "other" ERU's in 2017 was be used to estimate the number of "other" ERU's at build-out.

The total number of ERU's at build-out with South Hills is estimated as 9,607 and 6,741 ignoring the South Hills as shown below:

Table II.C-4

<b>Santa Clara City Build-Out Projections</b>					
<b>South Hills</b>	<b>Population</b>	<b>Estimated ERU's</b>			<b>Total ERU's</b>
		<b>Residential</b>	<b>Commercial</b>	<b>Other</b>	
<b>No</b>	20,300	5,978	177	586	<b>6,741</b>
<b>Yes</b>	28,100	8,519	253	835	<b>9,607</b>

# SECTION III

## WATER RIGHTS ANALYSIS

### A. EXISTING WATER RIGHT

The existing Santa Clara City water rights used for culinary water are identified in Table III.A-1 below. The water rights are listed according to number, source, and flow and separated between Snow Canyon Source and Spring source. Santa Clara is not currently using the Springs as a source; therefore, the total available Culinary source is 2,550.6 acre feet from the Snow Canyon sources. According to an agreement with St. George City, the usage of the water from the springs is in Saint George City at the fish ponds and softball complex.

It is recommended that Santa Clara City protect those rights with a written formal agreement with St. George City and to consult a water rights professional to make sure that all the water rights are protected. Santa Clara City owns water rights that are not currently being used in the culinary water system. These rights are not included in the analysis but are significant and represent the right to provide more secondary water if so desired. The same recommendation applies to them as above, that water rights should be protected. It is not in the scope of this report to delve any further into these water rights issues or provide detailed analysis of protections or strategies.

Table III.A-1

Culinary Water Rights		Flow		
W.R. #	Source	gpm	cfs	AcFt.
81-782	Snow Canyon Compact	224.4	0.50	362.0
81-973	Snow Canyon Compact	439.8	0.98	709.5
81-893	Snow Canyon Wells # 6 & 7	897.6	2.00	1447.9
81-4123	Snow Canyon Wells # 6 & 7	1.7	0.00	2.7
81-4225	Snow Canyon Wells # 6 & 7	12.4	0.03	20.0
81-4226	Snow Canyon Wells # 6 & 7	5.2	0.01	8.4
	WCWCD Regional Supply Agreement			
Sub Total		1,581.2	3.5	2,550.6
81-149	Sheep Spring	8.1	0.02	13.0
81-741	Miller, Beecham & Gray Springs	79.9	0.18	128.9
81-742	Miller, Beecham & Gray Springs	25.1	0.06	40.5
81-1061	Miller Springs	4.9	0.01	8.0
Sub Total		118.0	0.3	190.4
Total		1699.2	3.79	2741.4



## B. EXISTING REQUIRED WATER RIGHT

The previous State of Utah Public Drinking Water Regulations, stated that a community should have adequate water right to supply each culinary connection with 400 gallons per day for indoor water use, plus an amount for outdoor use as dictated by irrigated acreage and a consumptive use value obtained from the State Guidelines. If allowed, the community may substitute historical use data for indoor and outdoor requirements. The new regulations dictate that the State will determine these amounts based on the reporting received. For planning purposes, the Santa Clara City average daily use is assumed to be the 5 year average of 572 gallons per ERU over the 3 year average because it is slightly higher thus more conservative. It is not anticipated to vary from that significantly after the State reviews the data and issues a determination. This amount includes all water usage, indoor and outdoor, provided by the culinary water system.

Santa Clara City has the ability and right to use all the available water rights out of Wells 6 & 7, besides those of the springs. Exhibit III.B-1 shows the points of diversion for each water right owned by Santa Clara.

From Table III.A-1, the total amount of culinary water rights that are at least partially used by Santa Clara City is 2,550.6 acre-feet. Based on an average of 572 gallons per day per ERU and 2,773 existing ERU's, the existing required water right is calculated as follows:

### Existing required water right:

$$\frac{2,773 \text{ ERU's} \times 572 \text{ gpd}}{\text{ERU}} \times \frac{1 \text{ day}}{1440 \text{ min.}} = 1,101 \text{ gpm}$$

$$1,101 \text{ gpm} \times 1.613 \text{ Ac-ft/gpm} = 1,777 \text{ Ac-ft}$$

The existing water right surplus or deficit is determined by subtracting the existing required water right of 1,777 Ac-ft from the total available culinary water right of 2550.6 Ac-ft, which yields a **surplus of 773.6 Ac-ft.**

## C. PROJECTED REQUIRED WATER RIGHT (YEAR 2038)

The projected required water right at the end of the 20-year planning period is calculated by using the same information and calculations explained in Part B, except the number of projected culinary water ERU's at the end of the 20-year planning period is substituted into the calculations.



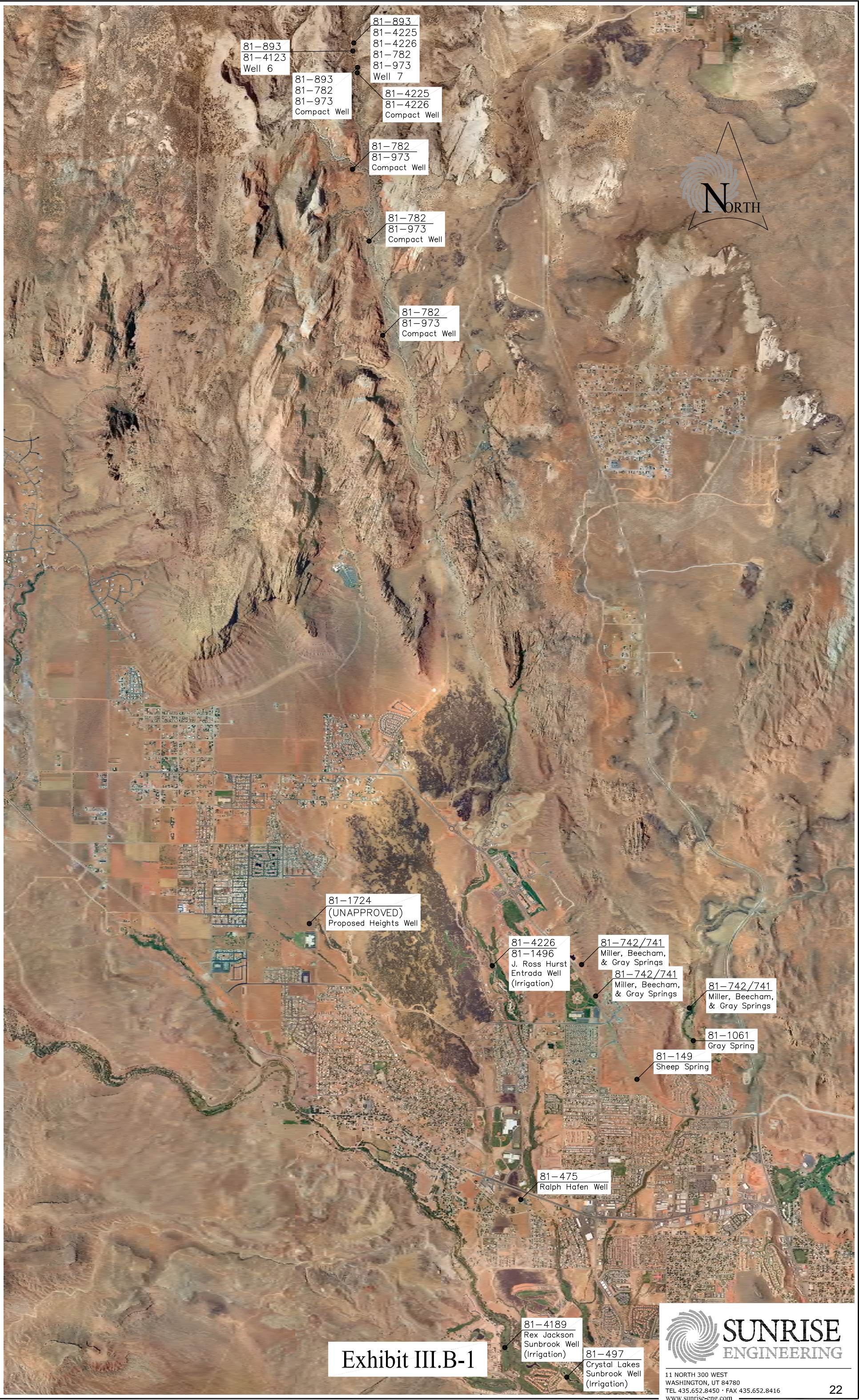


Exhibit III.B-1



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Table III.C-1

Culinary Water Rights Only: excluding springs				With South Hills	Excluding South Hills		
Average Water Right Required		Year 2017	Year 2038	Build-Out	Build-Out	Year 2058	
ERU's		2,773	8,518	9,607	6,741	9,607	ERU's
Average Water Use (Indoor + Outdoor)		572	572	572	572	572	gpd/ERU
Required Culinary Water Right (Indoor + Outdoor)		1,101	3,384	3,816	2,678	3,816	gpm
Required Culinary Water Right (Indoor + Outdoor)		1,777	5,458	6,156	4,319	6,156	Ac-Ft
Culinary Water Right Surplus/(Deficit)		479.7	(1,802.4)	(2,235.0)	(731)	(2,235.0)	gpm
Culinary Water Right Surplus/(Deficit)		773.6	(2,907.4)	(3,605.4)	(1,073)	(3,605.4)	Ac-Ft

**Projected required water right in year 2038:**

$$\frac{8,518 \text{ ERU} \times 572 \text{ gpd} \times 1 \text{ day}}{1,440 \text{ min ERU}} = 3,384 \text{ gpm}$$

$$\frac{3,384 \text{ gpm} \times 1.613 \text{ Ac - ft}}{\text{gpm}} = 5,458 \text{ Ac - ft}$$

The projected water right surplus or deficit is determined by subtracting the projected required water right of 5,457.6 Ac-ft from the grand total available water right of 2,550.6 Ac-ft, which yields a **shortage of 2,907 Ac-ft.**

**D. PROJECTED REQUIRED WATER RIGHT (BUILD-OUT)**

The projected required water right at build-out is calculated using the same information and calculations explained in Part B, except the number of projected culinary water ERU's at build-out is substituted into the calculations.

**Projected required water right at build-out with South Hills:**

$$\frac{9,607 \text{ ERU} \times 572 \text{ gpd} \times 1 \text{ day}}{1,440 \text{ min ERU}} = 3,816 \text{ gpm}$$

$$\frac{3,816 \text{ gpm} \times 1.613 \text{ Ac - ft}}{\text{gpm}} = 6,155 \text{ Ac - ft}$$

The projected water right surplus or deficit is determined by subtracting the projected required water right of 6,155.4 Ac-ft from the grand total available water right of 2550.6 Ac-ft, which **yields a shortage of 3,604.8 Ac-ft.**

**Projected required water right at build-out without South Hills:**

$$\frac{6,741 \text{ ERU} \times 572 \text{ gpd} \times 1 \text{ day}}{1,440 \text{ min ERU}} = 2,678 \text{ gpm}$$

$$\frac{2,678 \text{ gpm} \times 1.613 \text{ Ac-ft}}{\text{gpm}} = 4,319 \text{ Ac-ft}$$

The projected water right surplus or deficit is determined by subtracting the projected required water right of 4,319.1 Ac-ft from the grand total available water right of 2550.6 Ac-ft, **which yields a shortage of 1,768.5 Ac-ft.**

#### E. PROJECTED REQUIRED WATER RIGHT (YEAR 2058)

For planning purposes, and to have the capability of requiring new subdivisions to supply their own water rights, the projected water right at the end of the 40 years was also included for the water right analysis. Because build-out is projected to be reached prior to the end of the 40 years, 40-year requirements are equivalent to build-out requirements.

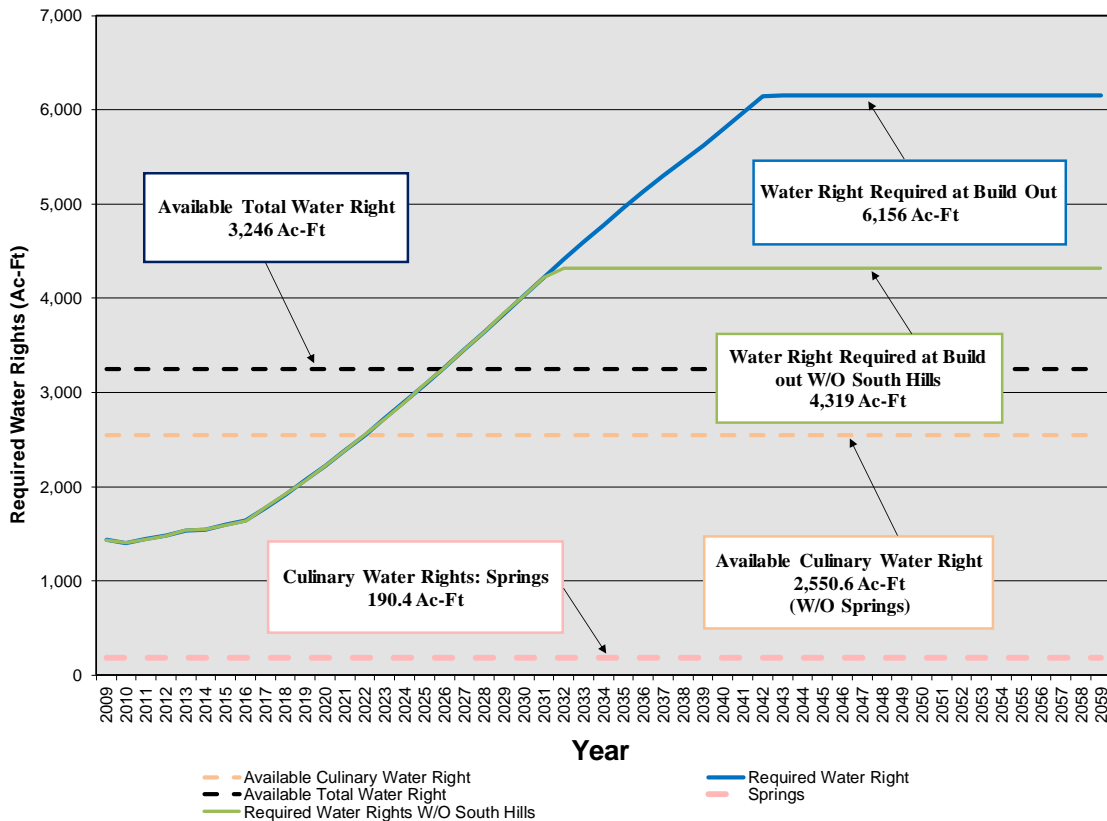
#### F. TOTAL WATER RIGHTS

Also of interest is the amount of total water rights owned by the City. Table III.H-1 shows the existing total water rights capacity including those rights not included with the culinary system but utilized for secondary water, etc.

Table III.H-1

Total Water Rights		Flow		
W.R. #	Source	gpm	cfs	AcFt.
81-149	Sheep Spring	8.1	0.02	13.0
81-741	Miller, Beecham & Gray Springs	79.9	0.18	128.9
81-742	Miller, Beecham & Gray Springs	25.1	0.06	40.5
81-1061	Miller Springs	4.9	0.01	8.0
Sub Total		118.0	0.26	190.4
81-782	Snow Canyon Compact	224.4	0.50	362.0
81-973	Snow Canyon Compact	439.8	0.98	709.5
81-893	Snow Canyon Wells # 6 & 7	897.6	2.00	1447.9
81-4123	Snow Canyon Wells # 6 & 7	1.7	0.00	2.7
81-4225	Snow Canyon Wells # 6 & 7	12.4	0.03	20.0
81-4226	Snow Canyon Wells # 6 & 7	5.2	0.01	8.4
81-1496	J. Ross Hurst Entrada Well (Irrigation)	16.3	0.04	26.2
Sub Total		1,597.4	3.56	2,576.8
81-4189	Rex Jackson Sunbrook Well (Irrigation)	58.9	0.13	95.0
81-497	Crystal Lakes Sunbrook Well (Irrigation)	74.4	0.17	120.0
81-475	Ralph Hafen Well (Irrigation)	4.7	0.01	7.6
81-4184	McDermitt Well	93.0	0.21	150.0
	Irrigation Company 24 Shares (McDermitt)	0.0	0.00	96.2
	Irrigation Company Shares (Santa Clara)	0.0	0.00	10.0
Sub Total		231.0	0.5	478.8
Total		1,946.4	4.34	3,246.0

**CHART III.F-1 Existing Water Rights vs. Projected Requirements**



## G. RECOMMENDED WATER RIGHT IMPROVEMENTS

It is recommended that Santa Clara City protect all existing water rights not currently being used in their system. It is not in the scope of this report to derive specific recommendations for each individual right or provide detailed analysis of protections or strategies. However, it is recommended that the spring water rights be protected with a written formal agreement with St. George City. Further consultations with a water rights professional to make sure that all the water rights are protected is recommended.

Santa Clara City owns water rights that are not currently being used in the culinary water system. These rights are not included in the analysis but are significant and represent the right to provide more secondary water if so desired. The same recommendation applies to them as above, that water rights should be protected.

## SECTION IV

### WATER SOURCE CAPACITY ANALYSIS

#### A. EXISTING WATER SOURCE CAPACITY

To analyze source capacity, all available culinary water sources are first identified and listed in Table IV.A-1 below. The flow capacity numbers were determined from actual meter readings and are based on a maximum flow if all the wells are running at maximum capacity. In the absence of historical records for Well #5, a best estimate from operators was used.

Table IV.A-1

Shared Wells	Total Flow	Santa Clara's 24.7%	
	gpm	CFS	gpm
Snow Canyon #3a	539	0.297	133
Snow Canyon #2	587	0.323	145
Snow Canyon #3	428	0.235	106
Snow Canyon #4	511	0.281	126
Snow Canyon #5	218	0.120	54
Sub-total Shared Wells =		1.256	564
Santa Clara Owned Sources		CFS	gpm
Snow Canyon Well #6		2.048	919
Snow Canyon Well #7		2.345	1,052
Regional Water Line / Wash. County water district		1.560	700
Sub-total Santa Clara Owned Water =		5.952	2,671
<b>Total Culinary Water Source=</b>		<b>7.209</b>	<b>3,235</b>

#### B. EXISTING REQUIRED WATER SOURCE CAPACITY

State of Utah Public Drinking Water Regulations at the time the scope of work was established for this study state that a community should have an adequate water source capacity to supply a peak day demand for indoor use and the regulations also require the source to be capable of meeting peak irrigation demands, where no secondary source of irrigation water is available. As mentioned in previous sections HB 303 may change those requirements.

In this master plan, the peak day demand for source capacity requirement is assumed to be equal to the peak month demand based on historic use figures. Although the peak day demand will be larger than the peak month demand because of fluctuations in usage throughout the month, such fluctuations can be expected to be relatively small and in this case are mitigated by the extra storage capacity of the system as will be shown in Section V of this Master Plan. The source capacity required was selected as the 90th percentile of readings during the months of June, July, August, and September as allowed by R309-510-5 of the State of Utah Drinking Water Regulations when using historical data. The 90th percentile of readings, or source capacity

required, was converted to source capacity required per ERU by dividing by the current number of ERU's. Consequently, the required source capacity per ERU in Santa Clara City is assumed to be 1,155 gallons per day per ERU. The required existing source capacity is calculated below:

**Existing required source capacity:**

$$\frac{2,773 \text{ ERU} \times 1,155 \text{ gpd} \times 1 \text{ day}}{1,440 \text{ min ERU}} = 2,224.8 \text{ gpm}$$

The existing source capacity surplus or deficit is determined by subtracting the existing required source capacity of 2,225 gpm from the total available source capacity of 2,535 gpm, which yields a surplus of 310 gpm.

Table IV.B-1

Average Source Required	Year 2017	Year 2038	Build Out With South Hills	Build Out Excluding South Hills	
ERU's	2,773	8,518	9,607	6,741	ERU's
Peak Day Water Use	1,155	1,155	1,155	1,155	gpd/ERU
Required Water Source	2,225	6,834	7,708	5,408	gpm
<b>Culinary Water Source Surplus/(Deficit)</b>	<b>310</b>	<b>(4,299)</b>	<b>(5,173)</b>	<b>(2,873)</b>	<b>gpm</b>

**C. PROJECTED REQUIRED WATER SOURCE CAPACITY (YEAR 2038)**

Projected required water source capacity at the end of the planning period is determined from the same information and calculations explained in Part B, except the projected number of culinary water ERU's at the end of the planning period are substituted into the calculations in place of the current number of ERU's.

**Projected required source capacity in year 2038:**

$$\frac{8,518 \text{ ERU} \times 1,155 \text{ gpd} \times 1 \text{ day}}{1,440 \text{ min ERU}} = 6,834 \text{ gpm}$$

The projected source capacity surplus or deficit is determined by subtracting the projected required source capacity of 6,834 gpm from the total available source capacity of 2,535 gpm, which yields a **projected shortage of 4,299 gpm** at the end of the 20-year planning period.

**D. PROJECTED REQUIRED WATER SOURCE CAPACITY (BUILD-OUT)**

Projected required water source capacity at build-out is determined from the same information and calculations explained in Part B, except the projected number of culinary water ERU's at build-out are substituted into the calculations in place of the current number of ERU's.

### Projected required source capacity at build-out with South Hills:

$$\frac{9,607 \text{ ERU} \times 1,155 \text{ gpd} \times 1 \text{ day}}{1,440 \text{ min} \text{ ERU}} = 7,707.8 \text{ gpm}$$

The projected source capacity surplus or deficit is determined by subtracting the projected required source capacity of 7,708 gpm from the total available source capacity of 2,535 gpm, which yields a **projected shortage of 5,173 gpm at build-out.**

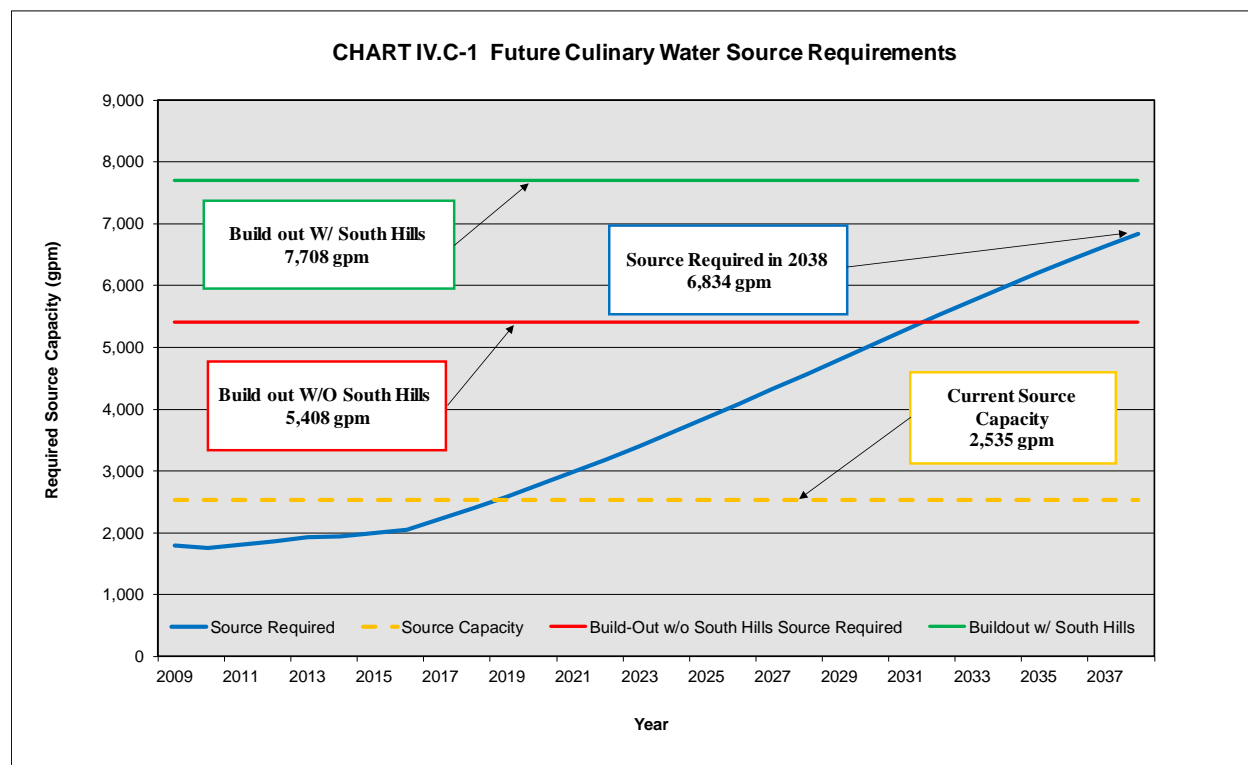
Chart IV.C-1 shows Santa Clara City's current water source capacity and its future water source requirements.

### Projected required source capacity at build-out without South Hills:

$$\frac{6,741 \text{ ERU} \times 1,155 \text{ gpd} \times 1 \text{ day}}{1,440 \text{ min} \text{ ERU}} = 5,408.4 \text{ gpm}$$

The projected source capacity surplus or deficit is determined by subtracting the projected required source capacity of 5408 gpm from the total available source capacity of 2,535 gpm, which yields a **projected shortage of 2,873 gpm at build-out.**

Chart IV.C-1 shows Santa Clara City's current water source capacity and its future water source requirements.





# SECTION V

## WATER STORAGE CAPACITY ANALYSIS

### A. EXISTING WATER STORAGE CAPACITY

Santa Clara City's culinary water storage capacity is identified in Table V.A-1 below.

Table V.A-1

<b>Existing Storage Capacity:</b>	
Snow Canyon Compact tanks	600,000 gal.
Concrete tank at Snow Canyon	2,500,000 gal.
South Hills Tank	1,000,000 gal.
<b>Total Existing Capacity =</b>	<b>4,100,000 gal.</b>

### B. EXISTING REQUIRED WATER STORAGE CAPACITY

Water storage capacity requirements have been found in the State of Utah Public Drinking Water Regulations. These regulations required storage for a community's culinary water system in the amount of the average day use for all connections in the community plus sufficient storage to provide fire flows for a minimum of two hours.

As shown in previous sections, the historic average use per ERU in Santa Clara City is assumed to be 572 gallons per day. Storage requirements for fire protection vary from community to community. In general, fire flow requirements are set by the local Fire Chief or are based on building size, and type of construction. The statewide minimum fire flow for one and two-family dwellings under 3,600 square feet is 1,000 gpm. Fire flows of 1,500 gpm or greater are required for all others. The City's existing system and the majority of all projected improvements recommended for the distribution system will be analyzed and designed to a minimum fire flow of 1,250 gpm per the local fire chief's requirements from previous reports.

Based on the above data Santa Clara City storage capacity is calculated below:

<b>Existing Required Storage Capacity</b>									
<b>Using Santa Clara City's 5 year Historic Average Consumption</b>									
		<u>572 gpd</u>	X	2,773	ERU's	=		1,586,156	gpd
		ERU							
1250 gpm	X	<u>60 min</u>	X		2 hr	=		150,000	gal.
		1 hr							
<b>Total Existing Required Storage</b>								1,736,156	gal.
<b>Total Existing Capacity</b>								<u>4,100,000</u>	gal.
<b>Existing Capacity Surplus</b>								<b>2,363,844</b>	gal.

The existing water storage capacity surplus or deficit is determined by subtracting the existing required water storage capacity of 1,736,156 gallons from the total available water storage capacity of 4,100,000 gallons, which yields an **existing surplus of 2,363,844 gallons**.

### C. PROJECTED REQUIRED WATER STORAGE CAPACITY (YEAR 2038)

Projected required culinary water storage capacity at the end of the planning period is determined from the same information and calculations explained in part B, but the projected number of culinary water ERU's at the end of the planning period are used.

Year 2038 Required Storage Capacity With South Hills Using Santa Clara City's 5 year Historic Average Consumption									
		$\frac{572 \text{ gpd}}{\text{ERU}}$	X	8,518	ERU's	=	4,872,296	gpd	
1250 gpm	X	$\frac{60 \text{ min}}{1 \text{ hr}}$		X	2 hr	=	150,000	gal.	
<b>Total Existing Required Storage</b>							5,022,296	gal.	
<b>Total Existing Capacity</b>							4,100,000	gal.	
<b>Future Capacity Deficit</b>							<b>(922,296)</b>	gal.	

The projected water storage capacity surplus or deficit is determined by subtracting the projected required water storage capacity of 5,022,296 gallons from the total available water storage capacity of 4,100,000 gallons, which yields a **projected deficit of 922,296 gallons** at the end of the planning period.

### D. PROJECTED REQUIRED WATER STORAGE CAPACITY (BUILD-OUT)

Projected required culinary water storage capacity at build-out is determined from the same information and calculations explained in part B, but the projected number of culinary water ERU's at build-out are used. In this section, the calculation of projected required water storage, the number of ERU's will consider scenarios of developing South Hills and not developing South Hills.

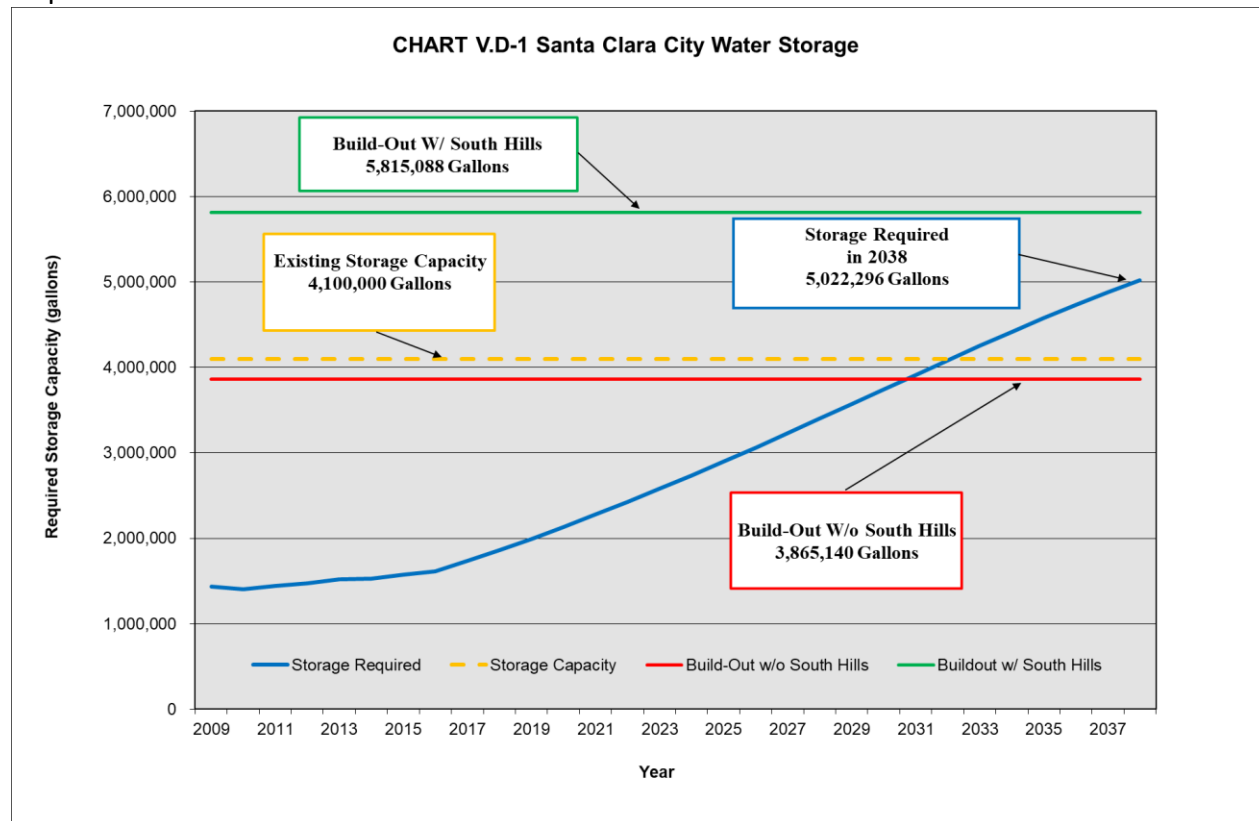
<b>Required Storage Capacity at Build Out With South Hills</b>						
<b>Using Santa Clara City's 5 year Historic Average Consumption</b>						
		$\frac{572 \text{ gpd}}{\text{ERU}}$	X	9,607	ERU's	= 5,495,204 gpd
1250 gpm	X	$\frac{60 \text{ min}}{1 \text{ hr}}$		X	2 hr	= 150,000 gal.
<b>Total Required Storage</b>						5,645,204 gal.
<b>Total Existing Capacity</b>						4,100,000 gal.
<b>Future Capacity Deficit</b>						<b>(1,545,204) gal.</b>

The projected water storage capacity surplus or deficit is determined by subtracting the capacity of 5,645,204 gallons from the total available water storage capacity of 4,100,000 gallons, which yields a **projected shortage of 1,545,204 gallons** at build-out.

<b>Required Storage Capacity at Build Out <b>Without South Hills</b></b>						
<b>Using Santa Clara City's 5 year Historic Average Consumption</b>						
		$\frac{572 \text{ gpd}}{\text{ERU}}$	X	6,741	ERU's	= 3,855,852 gpd
1250 gpm	X	$\frac{60 \text{ min}}{1 \text{ hr}}$		X	2 hr	= 150,000 gal.
<b>Total Required Storage</b>						4,005,852 gal.
<b>Total Existing Capacity</b>						4,100,000 gal.
<b>Future Capacity Surplus</b>						<b>94,148 gal.</b>

The projected water storage capacity surplus or deficit is determined by subtracting the projected required water storage capacity of 4,005,852 gallons from the total available water storage capacity of 4,100,000 gallons, which yields a projected **Surplus of 94,148 gallons** at build-out when excluding the South Hills.

Chart V.D-1, shows Santa Clara City’s current water storage capacity and its future water storage requirements.



## E. RECOMMENDED WATER STORAGE CAPACITY IMPROVEMENTS

Santa Clara City has adequate water storage to meet existing demands according to past Utah Division of Drinking Water standards. It appears regardless of the impending system-specific storage requirement to be established by the Division of Drinking Water that the amount of storage will suffice through build-out excluding the South Hills.

An additional tank may be needed in the South Hills area if development expands into areas of higher elevations that are too high for the existing tank to serve. This tank should be sized to accommodate the build-out in the South Hills area. The new tank should be 1.5 million gallons in storage capacity. The recommended new tank would also compensate for the build-out storage capacity shortage. It is recommended that the new tank be placed at an elevation that would serve the entire South Hills area. This would require coordination with the Bureau of Land Management (BLM) because the recommended tank location is in or near the Santa Clara River Reserve. If the tank were instead built on the highest location within the South Hills boundary, a portion of the South Hills area would not be able to realistically maintain the required pressures without using a booster pump system to artificially provide the pressures and flows.

# **SECTION VI**

## **WATER TREATMENT REQUIREMENTS**

### **A. EXISTING TREATMENT SYSTEM ANALYSIS**

Santa Clara City currently does not chlorinate its culinary water as it is already chlorinated by the Snow Canyon Compact. However, the tank facility in the South Hills was designed with the capability to generate and dose water in the tank with sodium hypochlorite should the chlorine level in the tank drop below acceptable levels. No additional water treatment is anticipated with the City's current system. However, continued vigilance is recommended to ensure that the chlorine residual is maintained at various points in the system. Should the water need a chlorine residual, there are several options that the City can consider. One option is to add a sodium hypochlorite plant to generate the chlorine onsite, which can then be injected into the system.

The Snow Canyon Compact wells currently provide water that exceeds the maximum arsenic levels allowed by the E.P.A. for drinking water. The current practice is to treat this water as necessary by dilution with WCWCD Regional Water at the approximate ratio of 63:37 compact water to regional water and mixing with water from Wells 6 and 7. There are no plans to modify this procedure; however, the City of St. George is nearing the completion of an arsenic treatment plant for the Gunlock Well Fields. This may provide additional treated source for exchange or mixing. There are treatment options available if necessary.

### **B. RECOMMENDED TREATMENT SYSTEM IMPROVEMENTS**

If the recommended 1.5 million-gallon tank is built in the South Hills area, an additional capability should be produced to add chlorine to the water stored there. The water coming from the tank should be carefully monitored to ensure that there is sufficient chlorine residual.

# SECTION VII

## WATER DISTRIBUTION SYSTEM ANALYSIS

### A. EXISTING DISTRIBUTION SYSTEM ANALYSIS

State of Utah Public Drinking Water Regulations require distribution systems to be sized to supply peak day flows and fire flow, while maintaining a minimum system pressure of 20 psi. The system must also maintain a pressure of 30 psi throughout the system while providing peak instantaneous flows without fire flows and 40 psi throughout the system while providing peak day flows without fire flows. As a general guideline it is recommended that pressures be maintained between 50 and 90 psi during normal system operations. The regulations require a minimum fire flow of 1,000 gpm for residential buildings less than 3,600 square feet and 1,500 gpm for all others. Santa Clara City has identified 1,250 gpm as a goal for all hydrants throughout the City.

Past experience of Santa Clara City and other southwest Utah communities had shown that the peak instantaneous flow can be considerably higher than state guidelines might indicate. The climate and irrigation needs, along with public service announcements, tend to promote early morning irrigation by the majority of users at the same time. As a community grows in size, the peaks and valleys of the demands on a system should tend to even out. Previous reports have identified a peaking factor for Santa Clara City at 5.7 times the average day. With the growth since 2010 there is a point to consider reducing that factor but in light of the significant reduction in average day demand it is our opinion that it should be kept at the 5.7. We have used this 5.7 peaking factor in our analysis for peak instantaneous flow.

Average Day Demand and Peak Day Demands were identified under the Storage and Source section and were used in the model accordingly. Changes in the system specific requirements from the state may alter those after they make that determination but we don't anticipate that they will change significantly. Peak instantaneous flow was not addressed in the latest guidance of the DDW as to whether they will require something different than current regulations or require further study. For the purposes of this plan we will stick with the past methodology used for Santa Clara until additional information or guidance is received. We would recommend the installation of metering systems that can measure and record accurate peak instantaneous flows.

#### Existing Average Day Demand:

$$Q \text{ Avg Day} = \frac{572 \text{ gpd} \times 2,773 \text{ ERU}}{1,440 \text{ min}} = 1,101 \text{ gpm}$$

#### Peak Day Demand:

$$Q \text{ Peak Day} = \frac{1,155 \text{ gpd} \times 2,773 \text{ ERU}}{1,440 \text{ min}} = 2,224 \text{ gpm}$$

**Existing Design Peak Instantaneous Demand**

Peaking Factor = 5.7

$$5.7 \times 572 \frac{\text{gpd}}{\text{Conn}} \times 2,773 \text{ Conn} \times \frac{1 \text{ day}}{1440 \text{ min}} = 6,279 \text{ gpm}$$

The City's existing system and all projected improvements recommended for the distribution system will be analyzed and designed to minimum fire flow of 1,250 gpm.

**Existing Peak Day Demand w/ Fire Flow:**

$$Q_{\text{Peak Day w/ Fire Flow}} = Q_{\text{Peak Day}} + Q_{\text{Fire Flow}} = \underline{3475 \text{ gpm}}$$

State Drinking Water Regulations require all fire hydrants to be supplied from 8-inch diameter or larger lines, unless it can be proven through the use of modeling that a smaller line is sufficient.

The existing Santa Clara City culinary water distribution system has been modeled, using the computer program H2O NET by MWH Soft, Inc.

The main network of Santa Clara City's distribution system appears to be providing good service to the majority of connections. At the existing peak day demand, the model shows that all the junctions in the system are able to produce the required fire flows while maintaining the minimum required pressure of 20 psi at all other connections. The system was capable of maintaining pressures of 30 psi at all nodes while experiencing peak instantaneous demands and 40 psi while experiencing peak day demands.

**B. PROJECTED DISTRIBUTION SYSTEM ANALYSIS (YEAR 2038)**

The projected distribution system analysis is performed using the same assumptions as used in the existing system analysis, except that the projected number of connections in the year 2038 are inserted into the calculations along with the projected peaking factor in the year 2038 of 5.7. The projected distribution peak instantaneous demand and total instantaneous peak demand are calculated below:

**Year 2038 Distribution Requirements Peak Instantaneous Demand Without South Hills**

Peaking Factor = 5.7

$$5.7 \times 572 \frac{\text{gpd}}{\text{Conn}} \times 6,741 \text{ Conn} \times \frac{1 \text{ day}}{1440 \text{ minutes}} = 15,263 \text{ gpm}$$

### Year 2038 Distribution Requirements Peak Instantaneous Demand With South Hills

$$\begin{array}{rclclcl} \text{Peaking Factor} & = & 5.7 & & & \\ 5.7 & \times & 572 & \frac{\text{gpd}}{\text{Conn}} & \times & 8,518 \text{ Conn} \times \frac{1 \text{ day}}{1440 \text{ minutes}} = 19,286 \text{ gpm} \end{array}$$

The fire flow demand added to the Peak Day Demand used in the projected system analysis was generally the same as that used in the existing analysis, or 1,250 gpm for the majority of the distribution system.

In the previous points of analysis, it was not necessarily important to project where in the system growth would occur. However, for the distribution system it is important to try to model the growth where it will most likely take place. The General Plan was used to distribute the growth out over different areas in the City. The following charts indicate the distribution of that growth from current to end of planning period or buildout which ever comes first.

Chart VII.B-1

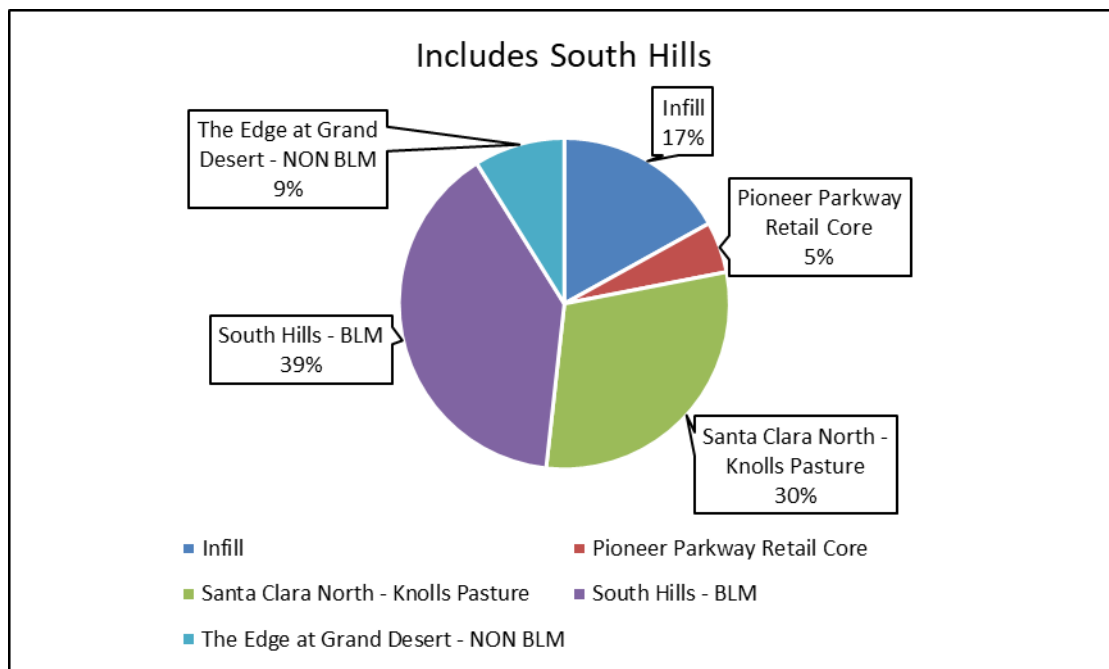
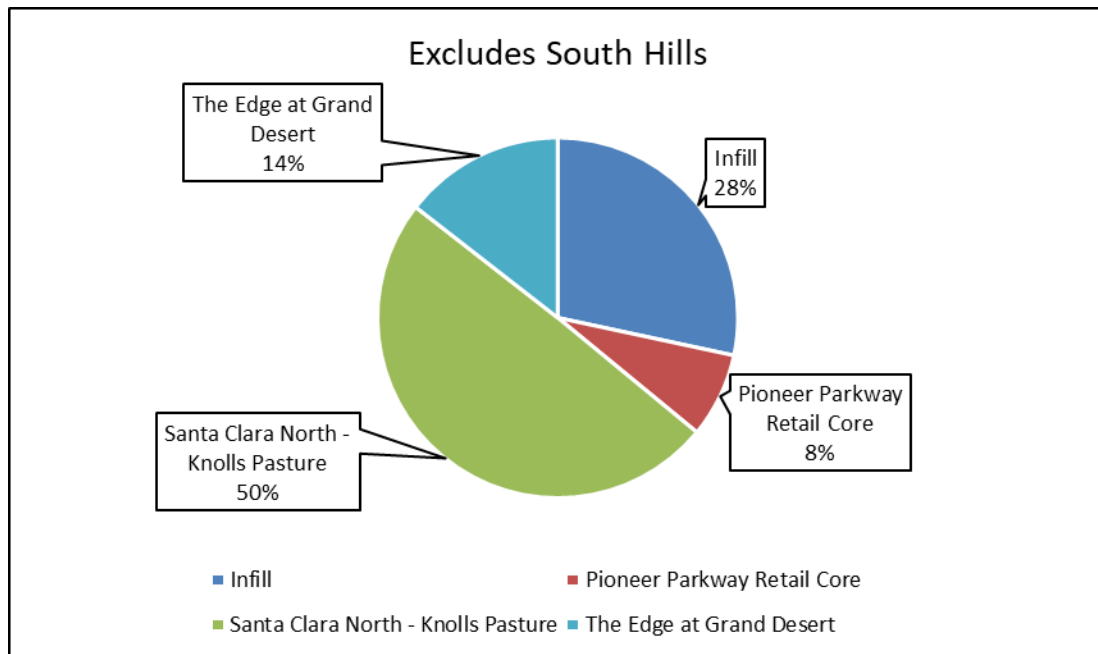




Chart VII.B-2



A computer model of the projected distribution system has been created. In this model, all recommended distribution system changes have been incorporated and modeled. The system was capable of maintaining pressures of 30 psi at all nodes while experiencing peak instantaneous demands and 40 psi while experiencing peak day demands.

### C. RECOMMENDED DISTRIBUTION SYSTEM IMPROVEMENTS

#### 1. City / Developer Financed Improvements

The City/Developer Financed Improvements should be constructed as development takes place and should be paid for by the developer (See Exhibit VII.C-1). However, for pipelines larger than 8", the City would be required to cover the difference in costs between the larger line and an 8" line.

#### 2. Other System Improvements

Inadequate pipes that were not addressed in the above improvement projects have been lumped into Miscellaneous System Improvements (See Exhibit VII.C-1).

When modeled with build-out peak instantaneous demands, the system failed to meet the minimum pressure requirement of 30 psi in the Heights East area on a number of nodes. A pipeline is recommended to connect the line in Santa Clara Drive to that of Valley View Circle.

### **3. South Hills Improvements**

In order to feed the possible new tank in the South Hills area, a 12" supply line and booster pump station would be necessary. Also, transmission lines are recommended from the proposed new South Hills tank: a 16" transmission line is recommended to be installed to serve the area south of Cove Wash, and 12" transmission lines are recommended to be installed to connect to the existing system (see Exhibit VII.C-1). A PRV is also required to create a separate pressure zone for the South Hills phase II area. It should be noted that the tank and pipelines will need to be coordinated with the Bureau of Land Management (BLM) because the recommended tank site is on the Santa Clara River Reserve. Also, all efforts should be made to not align pipelines through the critical habitat areas. All other improvements should be required by the developer.

The City determined not to include the BLM portion of the South Hills area in their impact fee. Regardless, If the BLM disposes of the property and development of the land is eminent, the City will need to work closely with the potential developers to ensure that the IFFP is valid for the expansion using this plan as a foundation; and recalculate their impact fees if necessary.



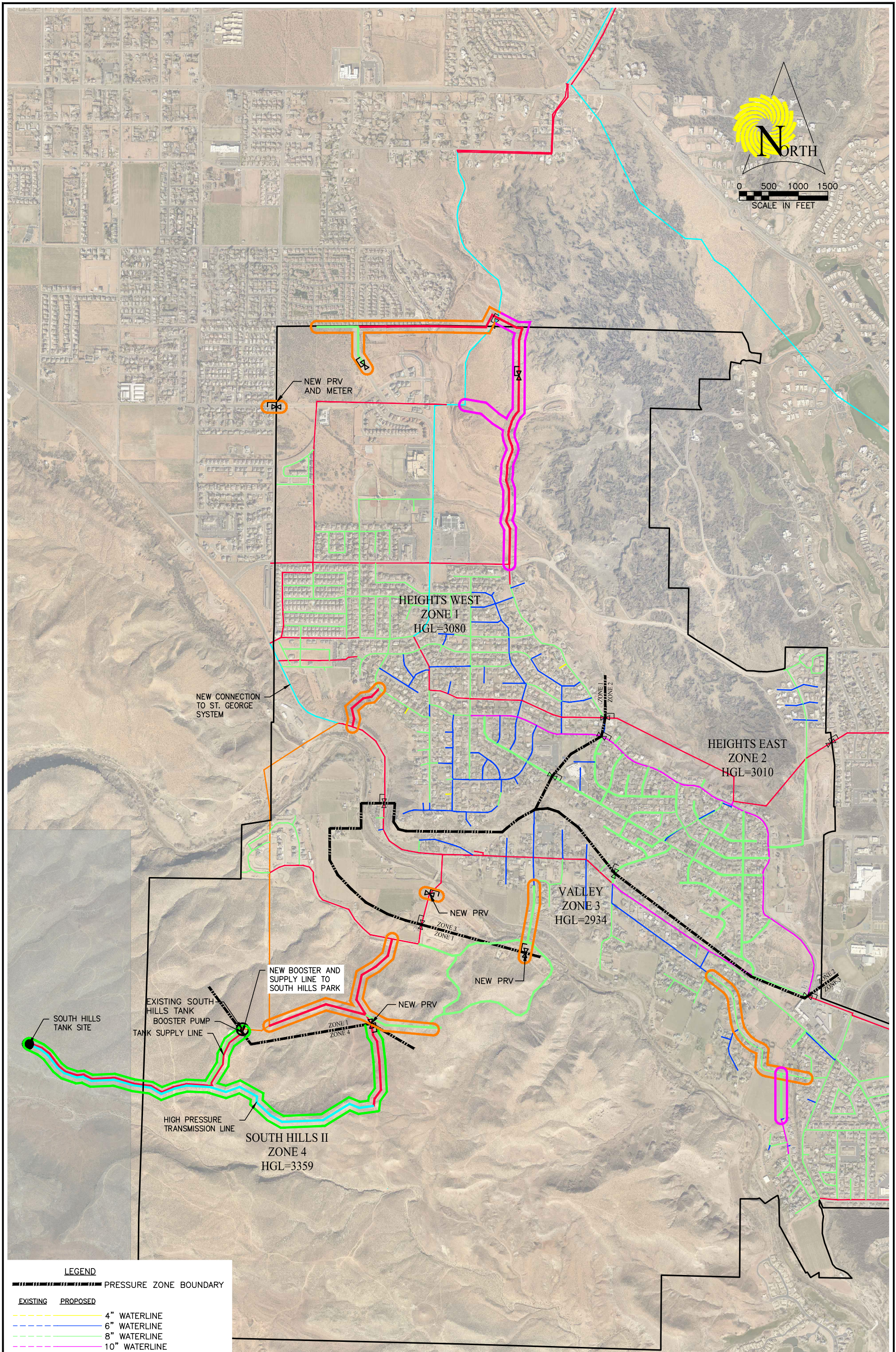


Exhibit VII.C-1  
Recommended System Improvements



11 NORTH 300 WEST  
WASHINGTON, UT 84780  
TEL 435.652.8450 • FAX 435.652.8416  
www.sunrise-eng.com



## SECTION VIII RECOMMENDED SYSTEM IMPROVEMENTS

### A. RECOMMENDED IMPROVEMENTS

Based on the findings from Sections III - VII, which show immediate system needs, as well as requirements for growth projected over the next 20 years and considering build-out, it is recommended that the City proceed with a construction project to implement improvements as soon as feasible. After modeling the system for projected flows over the next 20 years and considering build-out, the overall improvements have been detailed. Table VIII.B-1 summarizes the improvements recommended in this analysis and the phase in which they should be included. Exhibit VII.C.1 identifies the location of the proposed phases.

### B. PRELIMINARY ENGINEERS ESTIMATE

A Preliminary Engineer's Estimate for the recommended Culinary Water Improvements Project is provided in Appendix C. The project is divided into several phases.

Included in the Preliminary Engineer's Estimate for each phase are all anticipated construction costs, a contingency budget, and a budget for all other normal project costs such as administration, engineering, legal services, etc.

**TABLE VIII.B-1  
PROJECT COSTS SUMMARY**

<b>Project Description</b>	<b>Total Cost</b>	<b>Impact Fee Eligible (%)</b>	<b>Impact Fee Eligible Cost</b>
Connection to Ivins' System, New PRV near Gates Ln	\$ 236,400	53%	\$ 124,800
New 8" Line and Booster Station for South Hills Park	\$ 158,650	100%	\$ 158,650
New 8" Line and PRV on Chapel St and Across Bridge	\$ 237,500	100%	\$ 237,500
Santa Clara South Hills from Existing Line (New 12" Phase I)	\$ 233,000	100%	\$ 233,000
Replacing 6" line with 8" line Vineyard Dr.	\$ 336,700	0%	\$ -
Jacob Hamlin Trail - Heights to SC Drive Connection 12" Line	\$ 154,730	100%	\$ 154,730
Red Mountain Drive by Developer 8" to 12" Enlargement	\$ 244,050	100%	\$ 244,050
Santa Clara South Hills from Existing Line (New 12" Phase II)	\$ 166,700	100%	\$ 166,700
North Boundary towards Entrada 8" to 12" Enlargement and PRV	\$ 159,200	61%	\$ 96,556
North Boundary Project - Distribution Line	\$ 527,100	100%	\$ 527,100
<b>TOTAL PROJECT COSTS (without South Hills)</b>	<b>\$ 2,454,030</b>	<b>79%</b>	<b>\$1,943,086</b>
Santa Clara South Hills (Future Tank and 16" and 12")	\$ 3,172,300	100%	\$3,172,300
<b>TOTAL PROJECT COSTS (w/ South Hills)</b>	<b>\$ 5,626,330</b>	<b>91%</b>	<b>\$5,115,386</b>

# SECTION IX FINANCIAL ANALYSIS

## A. GENERAL

Generally water rates are a combination of base rates and overage rates. Typically, a base amount of water is provided for the base rate charge. The base rate is charged to all connections in the system whether or not water is used. Overage rates are normally set to cover the variable costs and encourage water conservation. In February 2017, in response to WCWCD increases in wholesale water charges, Santa Clara City established the following user fee rate structure for their culinary water system:

Table IX.A-1

Current Overage Rates			Monthly Base Charge	
5001-9000	-	0.50	Meter Size	\$/month
9001-16000	1.03	7.21	5/8 x 3/4" &	32.00
16001-23000	1.28	8.96	1"	57.60
23001-30000	1.72	12.04	1-1/2"	128.00
30001-45000	2.16	15.12	2"	224.00
45001-60000	2.72	19.04	3"	512.00
60001+	3.35	23.45	4"	928.00
			6"	2,048.00

## B. AVERAGE RATE DETERMINATION FOR FY2018/2019

Table IX.B-1 shows an example of a probable financing plan. The financing plan was used to provide an average water rate per ERU. This rate should be divided between all system customers. As described in Section II, an ERU is defined as a residential connection or a commercial connection using 572 gallons per day. If a commercial connection uses 1,144 gallons per day it would then consist of two ERU's and so on.

Table IX.B-2 shows a similar financing plan as Table IX.B-1; however, the financing plan in Table IX.B-2 shows the South Hills scenario resulting higher impact fee revenue and higher impact fee debt.

Tables IX.B-1 and IX.B-2 use data from the Cash Flow Projection in Appendix B for FY 2018/2019. Please note that expenses to the system grow at an inflation rate of 3.0% plus half the average growth rate.

Annual revenues must be sufficient to cover the expenses incurred by construction, maintenance, and administration of the water system. These expenses include debt service, salaries and wages, supplies and operating costs, payroll taxes and employee benefits, office and

departmental supplies, professional services, insurance and surety bonds, billing and administration, and other miscellaneous items. It is strongly recommended that the water department maintain a funded depreciation account to provide the dollars necessary for replacement and repair of water department facilities and pipelines. This is reflected in the expense section on each of the tables and the Cash Flow Projection in Appendix A.

The total estimated annual expenses for the culinary water system in FY2018/2019 is right around \$1.5M which includes annual operation and maintenance and debt service that is not eligible to be paid by impact fees. Table IX.B-1 lists each of the expected expenses for the City. This amount is then divided by the estimated total number of ERUs in the system that year, and again by 12 months.

The results of these calculations under the South Hills scenario and without the South Hills are both right around \$40 per ERU per month, which is the average total cost per month that each residential connection in the system will need to pay including the Washington County Water Conservancy District \$1.75 surcharge.

At present, the average water rate paid per residential connection or one ERU is roughly \$46.00/ERU. This number represents the amount of revenue from user fees divided by the number of ERUs for the current year.

The cash flow projections also include an impact fee revenue generated by the growth rate established in previous chapters. The possibility exists that the impact fee revenue will not meet the projections. It is understood that Santa Clara City has a reserve of impact fee funds which can be used to buffer the years where revenue does not meet the projections (current impact fee laws require funds to be spent within 6 years of collection). If this fund is depleted, the City may need to raise rates to provide the funds necessary to fulfill their operations, obligations, and debt service obligations.

### **C. IMPACT FEE**

An impact fee that is charged by a community may be used to pay for the debt service associated with surplus capacity built into the system. The surplus capacity in the water system has been designed for growth, and for this reason, impact fees should pay for that portion of the debt service associated with the system surplus capacity. The impact fee should also be used to pay for the cost of improvements to the system that are required to support new growth as new connections are added to the system. An impact fee analysis was completed as directed by the City without including the BLM portion of the South Hills area.

The Impact Fee calculations are shown in Table IX.D-1 on the following pages. The **FY2018/2019** allowable impact fee that the City may charge for new connections to the water system is **\$1,973** not incorporating the South Hills in the IFFP. As mentioned above, this impact fee analysis includes the impact fee eligible debt service from past projects that were completed with extra

capacity for growth. The percentages for each of the projects were determined by previous master plans and impact fee studies. The past analyses were calculated using the same basic criteria for impact fees; only capital improvements built for growth were considered as impact fee eligible. In order to stay consistent with other past plans it is reasonable that the same percentages are assumed to remain steady regardless of any variances in growth or impact fees collected.

The future improvements have been shown and justified by previous sections of this report. The ratio of impact fee eligible expenses was calculated by considering the current level of service and providing improvements to maintain that into the future as the number of connections increase. Most of these eligible costs were related to increased distribution requirements to allow for the increased demands and still provide fire protection throughout.

In summary these fees are charged as a result of the City having to install the necessary infrastructure to provide water for new growth. Included in Table IX.D-1 is a possible fee structure for those non-residential connections which will demand more water than a residential connection. The fee increase is obtained by multiplying the base impact fee by the percentage increase of the cross sectional area of the pipe.

New connections will also pay an additional WCWCD fee, currently over \$8,000.

#### **D. SUMMARY**

The recommended rates and fees in this section meet the financial requirements of the system. The Cash Flow Projection in Appendix B incorporates the recommended rates. Expenses, shown on the Cash Flow Projections grow at ½ the projected growth rate plus an estimated 3% inflation rate. Impact Fee Facility Plans should be updated every 5 years, water rates and fees should be reviewed by the City Council periodically to ensure that they remain consistent with actual inflation rates and costs.

**TABLE IX.D-1**  
**IMPACT FEE ANALYSIS FY2018/2019**  
**CULINARY WATER MASTER PLAN**  
**SANTA CLARA CITY**  
**WITHOUT SOUTH HILLS**

1-Jun-18

<u>EXISTING DEBT SERVICE</u>		<u>P&amp;I</u>	<u>% Eligible</u>	<u>% Water Dept.</u>	<u>Eligible</u>
Regional Waterline		\$ 625,260	100%		\$ 625,260
2005 Water Bond	3.92%	\$ 238,167	94%		\$ 223,877
2006B Water Bond	4.00%	\$ 1,426,673	100%		\$ 1,426,673
2012 Water Bond	CIB	\$ 6,145,925	26%		\$ 1,597,941
Water Facilities at Town Hall		\$ 4,540,758	64%	21.6%	\$ 628,343

**Existing/Past Projects Impact Fee Eligible Costs: \$ 4,502,094**

**PROPOSED IMPROVEMENT PROJECTS**

Total Estimated New Project Cost					\$ 2,454,030
% Of New Projects Cost Due to New Growth			79%		\$ 1,943,086
Eligible Interest From New Debt Service			79%		\$ 710,657
Impact Fee Eligible Cost					\$ 2,653,743
No. of ERUs (2017/2018)					3,115
20-Year Projected ERUs		(Essentially Buildout w/o South Hills)			6,741
No. of New ERUs Due to Growth					3,626

Total Impact Fee Eligible Cost \$ 7,155,837

Maximum Culinary Water Impact Fee = Total Eligible Cost / New ERU's \$ 1,973.33 /ERU.  
Proposed Culinary Water Impact Fee for Santa Clara (2018/2019) = \$ 1,973 /ERU.

WCWCD Impact Fee (2018) \$ 8,417 /ERU.

Total Potential Culinary Water Impact Fee (2018) \$ 10,390 /ERU.

Meter Size	X-Sectional Area (in <sup>2</sup> )	% Area Increase	Impact Fee
3/4"	0.44	0%	\$ 1,973
1"	0.79	80%	\$ 3,542
1 1/2"	1.77	302%	\$ 7,937
2"	3.14	614%	\$ 14,080
3"	7.07	1507%	\$ 31,703
4"	12.57	2757%	\$ 56,365
6"	28.27	6325%	\$ 126,765

P:\Santa Clara City\Wtr\Culinary Water IFFP and Master Plan 2018\Admin & Eng\Design\[Final 2018 - Financial.xlsx]CashFlow with SH



**TABLE IX.D-2**  
**IMPACT FEE ANALYSIS FY2018/2019**  
**CULINARY WATER MASTER PLAN**  
**SANTA CLARA CITY**  
**WITH SOUTH HILLS**

1-Jun-18

EXISTING DEBT SERVICE		P&I	% Eligible	% Water Dept.	Eligible
Regional Waterline		\$ 625,260	100%		\$ 625,260
2005 Water Bond	3.92%	\$ 238,167	94%		\$ 223,877
2006B Water Bond	4.00%	\$ 1,426,673	100%		\$ 1,426,673
2012 Water Bond	CIB	\$ 6,145,925	26%		\$ 1,597,941
Water Facilities at Town Hall		\$ 4,540,758	64%	21.6%	\$ 628,343

Existing Impact Fee Eligible Cost: \$ 4,502,094

**PROPOSED IMPROVEMENT PROJECTS**

Total Estimated New Project Cost		\$ 5,626,330
% Of New Project Cost Due to New Growth	91%	\$ 5,115,386
Interest From New Debt Service	91%	\$ 1,990,535
Impact Fee Eligible Cost		\$ 7,105,921
No. of ERUs (2017/2018)		3,115
20-Year Projected ERUs		8,518
No. of New ERU's Due to Growth		5,403

Total Impact Fee Eligible Cost \$ 11,608,014

Maximum Culinary Water Impact Fee = Total Eligible Cost / New ERU's \$ 2,148.34 /ERU.  
Proposed Culinary Water Impact Fee for Santa Clara (2018/2019) = \$ 2,148 /ERU.

WCWCD Impact Fee (2018) \$ 8,417 /ERU.  
Total Potential Culinary Water Impact Fee (2018) \$ 10,565 /ERU.

Meter Size	Cross-Sectional Area (in <sup>2</sup> )	% Area Increase	Impact Fee
3/4"	0.44	0%	\$ 2,148
1"	0.79	80%	\$ 3,857
1 1/2"	1.77	302%	\$ 8,641
2"	3.14	614%	\$ 15,329
3"	7.07	1507%	\$ 34,514
4"	12.57	2757%	\$ 61,364
6"	28.27	6325%	\$ 138,009

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# **APPENDIX A**

## **CASH FLOW PROJECTIONS**

CASHFLOW PROJECTIONS

CULINARY WATER MASTER PLAN  
CITY OF SANTA CLARA

1	Annual Population Growth Rate			8.00%	7.75%	7.50%	7.25%	7.00%	6.75%	6.50%	6.25%	6.00%	5.75%	5.50%	5.25%	5.00%	
2	Annual Rate Increase			1.25%													
3	Annual Inflation Rate			3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	
4		Actual	Actual	Budget	Projected Budget												
5	Fiscal Year Beginning July	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
6		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
7																	
8	Average Rate ERU	\$45.28	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99
9	Connection Fee	\$205	\$216	\$215	\$215	\$221	\$228	\$235	\$242	\$249	\$257	\$264	\$272	\$281	\$289	\$298	\$307
10	Impact fee	\$2,598	\$2,598	\$2,598	\$2,148	\$2,148	\$2,148	\$2,148	\$2,148	\$2,148	\$2,148	\$2,148	\$2,148	\$2,148	\$2,148	\$2,148	\$2,148
11	WCWCD Surcharge Rate/ERU	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75
1	System Users:																
2	Total Existing ERU's	2,525	2,666	2,884	3,115	3,356	3,608	3,869	4,140	4,420	4,707	5,001	5,301	5,606	5,914	6,225	6,536
3	New ERU's:	142	218	231	241	252	262	271	279	287	294	300	305	308	311	311	310
4																	
5	REVENUES:																
6	User Fees	1,371,813	1,503,274	1,572,281	1,568,400	1,963,371	2,108,081	2,258,190	2,413,345	2,573,130	2,737,066	2,904,608	3,075,148	3,248,017	3,422,490	3,597,783	3,773,065
7	Other Operating Revenues	39,316	124,023	73,000	73,000	75,190	77,446	79,769	82,162	84,627	87,166	89,781	92,474	95,248	98,106	101,049	104,081
8	Connection Fees	29,043	47,187	27,700	27,700	55,805	59,760	63,668	67,514	71,533	75,476	79,327	83,068	86,402	89,861	92,557	95,027
9	Impact Fees	194,390	395,250	259,800	518,507	540,669	561,846	581,801	600,294	617,080	631,913	644,552	654,757	662,301	666,967	668,555	666,884
10	Interest Income	5,123	15,290	6,000	6,000	0	3,770	22,112	42,057	68,851	98,601	131,094	165,953	202,705	240,855	282,908	313,952
11	Gain on Disposal	5,381	1,070	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	WCWCD Surcharge																
13	TOTAL REVENUE:	\$1,645,066	\$2,086,094	\$1,938,781	\$2,193,607	\$2,635,036	\$2,810,903	\$3,005,539	\$3,205,371	\$3,415,221	\$3,630,223	\$3,849,361	\$4,071,400	\$4,294,674	\$4,518,279	\$4,742,852	\$4,953,008
14																	
15	EXPENSES: (Inc. O&M & Debt Serv.)		3.00%		7.00%	6.88%	6.75%	6.63%	6.50%	6.38%	6.25%	6.13%	6.00%	5.88%	5.75%	5.63%	5.50%
16	Salaries, Wages, & Benefits (100's)	442,314	487,905	528,891	556,363	594,613	635,493	679,183	725,877	775,781	829,116	886,117	947,038	1,012,147	1,081,732	1,156,101	1,235,583
17	Materials & Supplies (200's)	301,533	289,304	333,970	333,970	343,989	354,309	364,938	375,886	387,163	398,778	410,741	423,063	435,755	448,828	462,293	476,161
18	Connection Fees Expenses	29,043	47,187	27,700	27,700	55,805	59,760	63,668	67,514	71,533	75,476	79,327	83,068	86,402	89,861	92,557	95,027
19	Professional & Technical Services (300's)	23,211	29,149	45,700	45,700	47,071	48,483	49,938	51,436	52,979	54,568	56,205	57,891	59,628	61,417	63,259	65,157
20	Special Dept. Materials & Supplies (400's)	54,275	81,507	71,728	81,728	84,180	86,705	89,306	91,986	94,745	97,588	100,515	103,531	106,637	109,836	113,131	116,525
21	Other Charges (500's)	31,349	33,165	36,000	36,000	37,080	38,192	39,338	40,518	41,734	42,986	44,275	45,604	46,972	48,381	49,832	51,327
22	Capital Expenses (700's)	1,487	9,519	51,500	51,500	53,045	54,636	56,275	57,964	59,703	61,494	63,339	65,239	67,196	69,212	71,288	73,427
23	Debt Services (825-840)	4,291	7,960	13,025	13,025	13,416	13,818	14,233	14,660	15,100	15,553	16,019	16,500	16,995	17,505	18,030	18,571
24	Others (900's)	80,550	50,250	48,202	81,750	84,203	86,729	89,330	92,010	94,771	97,614	100,542	103,558	106,665	109,865	113,161	116,556
25	Regional Waterline	63,671	62,526	62,526	62,526	62,526	62,526	62,526	62,526	62,526	62,526	62,526	62,526	62,526	62,526	62,526	62,526
26	WCWCD Surcharge																
27	WCWCD/Compact Wholesale Fee	3,872	8,303	17,839	29,343	39,085	69,092	106,810	150,138	204,083	264,205	332,152	410,785	497,107	586,923	677,329	775,152
28	Sub-Total Operation & Maintenance	\$1,035,596	\$1,106,775	\$1,237,081	\$1,319,606	\$1,415,013	\$1,509,744	\$1,615,545	\$1,730,514	\$1,860,116	\$1,999,902	\$2,151,759	\$2,318,803	\$2,498,029	\$2,623,558	\$2,816,981	\$3,023,486
29																	
30	EXISTING DEBT SERVICE (810-820)																
31	2005 Water Bond	48,316	49,283	49,212	48,128	49,019	48,873	92,147									
32	2006A Water Bond	164,659	161,497	243,458													
33	2006B Water Bond	130,728	131,726	130,615	130,413	131,082	130,624	131,037	130,322	130,479	130,490	130,354	130,072	130,625	121,178		
34	2012 CIB Water Bond	50,000	50,000	213,000	212,850	212,675	212,475	212,250	213,000	212,700	212,375	213,025	212,625	212,200	212,750	212,250	212,725
35	Sub-Total Existing Debt Service	\$393,703	\$392,507	\$636,285	\$391,391	\$392,777	\$391,971	\$435,433	\$343,322	\$343,179	\$342,865	\$343,379	\$342,697	\$342,825	\$333,928	\$212,250	\$212,725
36																	
37	NEW DEBT SERVICE (810-820)																
38	Water Revenue Bond				378,284	378,284	378,284	378,284	378,284	378,284	378,284	378,284	378,284	378,284	378,284	378,284	378,284
39	Revenue Bond Reserves 10%	0	0	0	37,828	37,828	37,828	37,828	37,828	37,828	37,828	37,828	37,828	37,828	37,828	37,828	37,828
40	Sub-Total New Debt Service	\$0	\$0	\$0	\$416,113	\$416,113	\$416,113	\$416,113	\$416,113	\$416,113	\$416,113	\$416,113	\$416,113	\$416,113	\$378,284	\$378,284	\$378,284
41	Total Debt Service	\$393,703	\$392,507	\$636,285	\$807,504	\$808,890	\$808,084	\$851,546	\$759,435	\$759,292	\$758,977	\$759,492	\$758,809	\$758,937	\$712,212	\$590,534	\$591,009
42																	
43	Renewal and Replacement Fund (590)	582,587	579,642	0	0	67,624	72,361	77,651	83,399	89,880	96,869	104,462	112,814	121,775	131,178	140,849	151,174
44	TOTAL EXPENSES:	\$2,011,886	\$2,078,924	\$1,873,366	\$2,127,110	\$2,291,527	\$2,390,190	\$2,544,742	\$2,573,348	\$2,709,287	\$2,855,749	\$3,015,712	\$3,190,426	\$3,378,742	\$3,466,948	\$3,548,365	\$3,765,669
45																	
46	Net Cashflow	(\$366,820)	\$7,170	\$65,415	\$66,498	\$343,509	\$420,714	\$460,797	\$632,023	\$705,934	\$774,474	\$833,649	\$880,974	\$915,932	\$1,051,330	\$1,194,488	\$1,187,339
47	Project Self Participation				\$250,000												
48																	
49	CASH ON HAND																
50	*Fund Balance	254,113	246,942	181,527	365,029	21,520	399,193	859,990	1,492,013								

CASHFLOW PROJECTIONS

CULINARY WATER MASTER PLAN  
CITY OF SANTA CLARA

1	Annual Population Growth Rate	4.75%	4.50%	4.25%	4.00%	3.75%	3.50%	3.25%	3.00%	3.00%	3.00%	3.00%
2	Annual Rate Increase											
3	Annual Inflation Rate	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	
4												
5	Fiscal Year Beginning July	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
6		2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
7												
8	Average Rate ERU	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99
9	Connection Fee	\$316	\$325	\$335	\$345	\$355	\$366	\$377	\$388	\$400	\$412	\$424
10	Impact fee	\$2,148	\$2,148	\$2,148	\$2,148	\$2,148	\$2,148	\$2,148	\$2,148	\$2,148	\$2,148	\$2,148
11	WCWCD Surcharge Rate/ERU	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75
1	System Users:											
2	Total Existing ERU's	6,847	7,155	7,459	7,757	8,048	8,330	8,600	8,858	9,124	9,398	9,607
3	New ERU's:	308	304	298	291	282	271	258	266	274	209	0
4												
5	REVENUES:											
6	User Fees	3,947,460	4,120,053	4,289,898	4,456,026	4,617,454	4,773,194	4,922,261	5,069,929	5,222,027	5,358,143	5,417,087
7	Other Operating Revenues	107,203	110,419	113,732	117,144	120,658	124,278	128,006	131,846	135,802	139,876	139,876
8	Connection Fees	97,246	98,863	99,819	100,398	100,212	99,192	97,267	103,292	109,590	86,100	0
9	Impact Fees	661,795	653,154	640,860	624,838	605,052	581,498	554,212	570,839	587,964	449,079	0
10	Interest Income	361,445	408,666	455,076	500,033	542,569	581,807	631,981	677,646	719,882	758,112	784,601
11	Gain on Disposal	0	0	0	0	0	0	0	0	0	0	0
12	WCWCD Surcharge											
13	TOTAL REVENUE:	\$5,175,149	\$5,391,155	\$5,599,384	\$5,798,439	\$5,985,945	\$6,159,969	\$6,333,728	\$6,553,551	\$6,775,264	\$6,791,310	\$6,341,563
14												
15	EXPENSES: (Inc. O&M & Debt Serv.)	5.38%	5.25%	5.13%	5.00%	4.88%	4.75%	4.63%	4.50%			
16	Salaries, Wages, & Benefits (100's)	1,320,529	1,411,316	1,508,344	1,612,042	1,722,870	1,841,318	1,967,908	2,103,202	2,247,797	2,402,333	2,567,493
17	Materials & Supplies (200's)	490,446	505,160	520,314	535,924	552,002	568,562	585,618	603,187	621,283	639,921	659,119
18	Connection Fees Expenses	97,246	98,863	99,819	100,398	100,212	99,192	97,267	103,292	109,590	86,100	0
19	Professional & Technical Services (300's)	67,112	69,125	71,199	73,335	75,535	77,801	80,135	82,539	85,015	87,566	90,193
20	Special Dept. Materials & Supplies (400's)	120,020	123,621	127,330	131,149	135,084	139,136	143,311	147,610	152,038	156,599	161,297
21	Other Charges (500's)	52,867	54,453	56,087	57,769	59,503	61,288	63,126	65,020	66,971	68,980	71,049
22	Capital Expenses (700's)	75,629	77,898	80,235	82,642	85,122	87,675	90,306	93,015	95,805	98,679	101,640
23	Debt Services (825-840)	19,128	19,701	20,293	20,901	21,528	22,174	22,839	23,525	24,230	24,957	25,706
24	Others (900's)	120,053	123,654	127,364	131,185	135,120	139,174	143,349	147,650	152,079	156,641	161,341
25	Regional Waterline											
26	WCWCD Surcharge											
27	WCWCD/Compact Wholesale Fee	879,071	982,929	1,088,334	1,201,848	1,317,052	1,433,122	1,549,228	1,664,916	1,786,541	1,914,384	2,021,540
28	Sub-Total Operation & Maintenance	\$3,242,102	\$3,466,721	\$3,699,318	\$3,947,195	\$4,204,028	\$4,469,442	\$4,743,088	\$5,033,954	\$5,341,350	\$5,636,161	\$5,859,378
29												
30	EXISTING DEBT SERVICE (810-820)											
31	2005 Water Bond											
32	2006A Water Bond											
33	2006B Water Bond											
34	2012 CIB Water Bond	212,150	212,550	212,900	212,200	212,475	212,700	211,875	212,000	211,075	211,125	211,125
35	Sub-Total Existing Debt Service	\$212,150	\$212,550	\$212,900	\$212,200	\$212,475	\$212,700	\$211,875	\$212,000	\$211,075	\$211,125	\$211,125
36												
37	NEW DEBT SERVICE (810-820)											
38	Water Revenue Bond	378,284	378,284	378,284	378,284	378,284						
39	Revenue Bond Reserves 10%											
40	Sub-Total New Debt Service	\$378,284	\$378,284	\$378,284	\$378,284	\$378,284	\$0	\$0	\$0	\$0	\$0	\$0
41	Total Debt Service	\$590,434	\$590,834	\$591,184	\$590,484	\$590,759	\$212,700	\$211,875	\$212,000	\$211,075	\$211,125	\$211,125
42												
43	Renewal and Replacement Fund (590)	162,105	173,336	184,966	197,360	210,201	223,472	237,154	251,698	267,067	281,808	292,969
44	TOTAL EXPENSES:	\$3,994,642	\$4,230,891	\$4,475,468	\$4,735,039	\$5,004,989	\$4,905,614	\$5,192,117	\$5,497,652	\$5,819,492	\$6,129,094	\$6,363,472
45												
46	Net Cashflow	\$1,180,507	\$1,160,263	\$1,123,916	\$1,063,400	\$980,956	\$1,254,355	\$1,141,611	\$1,055,899	\$955,772	\$662,216	(\$21,908)
47	Project Self Participation											
48												
49	CASH ON HAND											
50	*Fund Balance	10,216,640	11,376,903	12,500,819	13,564,219	14,545,175	15,799,530	16,941,141	17,997,040	18,952,811	19,615,027	19,593,119
51	Renewal and Replacement Account Balance:	2,734,640	2,907,976	3,092,942	3,290,301	3,500,503	3,723,975	3,961,129	4,212,827	4,479,895	4,761,703	5,054,671
52	New Bond Reserves	0	0	0	0	0	0	0	0	0	0	0
53	Total	\$12,951,280	\$14,284,879	\$15,593,760	\$16,854,520	\$18,045,678	\$19,523,505	\$20,902,270	\$22,209,867	\$23,432,706	\$24,376,730	\$24,647,790
54	*Fund Balance is obtained by adding the previous year's											
55	balance to the net cash flow, minus any self-funded portion											
56	of future projects											



CASHFLOW PROJECTIONS

CULINARY WATER MASTER PLAN  
CITY OF SANTA CLARA

1	Annual Population Growth Rate			8.00%	7.75%	7.50%	7.25%	7.00%	6.75%	6.50%	6.25%	6.00%	5.75%	5.50%	5.25%	5.00%	
2	Annual Rate Increase			1.25%													
3	Annual Inflation Rate			3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	
4		Actual	Actual	Budget	Projected Budget												
5	Fiscal Year Beginning July	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
6		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
7																	
8	Average Rate ERU	\$45.28	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99
9	Connection Fee	\$205	\$216	\$215	\$215	\$221	\$228	\$235	\$242	\$249	\$257	\$264	\$272	\$281	\$289	\$298	\$307
10	Impact fee	\$2,598	\$2,598	\$2,598	\$1,973	\$1,973	\$1,973	\$1,973	\$1,973	\$1,973	\$1,973	\$1,973	\$1,973	\$1,973	\$1,973	\$1,973	\$1,973
11	WCWCD Surcharge Rate/ERU	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75
12																	
13	System Users:																
14	Total Existing ERU's	2,525	2,666	2,884	3,115	3,356	3,608	3,869	4,140	4,420	4,707	5,001	5,301	5,606	5,914	6,225	6,536
15	New ERU's:	142	218	231	241	252	262	271	279	287	294	300	305	308	311	311	205
16																	
17	REVENUES:																
18	User Fees	1,371,813	1,503,274	1,572,281	1,568,400	1,963,371	2,108,081	2,258,190	2,413,345	2,573,130	2,737,066	2,904,608	3,075,148	3,248,017	3,422,490	3,597,783	3,743,286
19	Other Operating Revenues	39,316	124,023	73,000	73,000	75,190	77,446	79,769	82,162	84,627	87,166	89,781	92,474	95,248	98,106	101,049	104,081
20	Connection Fees	29,043	47,187	27,700	27,700	55,805	59,760	63,668	67,514	71,533	75,476	79,327	83,068	86,402	89,861	92,557	62,840
21	Impact Fees	194,390	395,250	259,800	476,264	496,620	516,071	534,401	551,387	566,806	580,431	592,039	601,413	608,343	612,629	614,087	404,158
22	Interest Income	5,123	15,290	6,000	6,000	0	18,175	44,190	72,051	107,016	145,211	186,436	230,337	276,459	324,329	376,476	426,940
23	Gain on Disposal	5,381	1,070	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	WCWCD Surcharge																
25	TOTAL REVENUE:	\$1,645,066	\$2,086,094	\$1,938,781	\$2,151,364	\$2,590,987	\$2,779,534	\$2,980,218	\$3,186,458	\$3,403,112	\$3,625,350	\$3,852,191	\$4,082,440	\$4,314,469	\$4,547,414	\$4,781,952	\$4,741,306
26																	
27	EXPENSES: (Inc. O&M & Debt Serv.)		3.00%		7.00%	6.88%	6.75%	6.63%	6.50%	6.38%	6.25%	6.13%	6.00%	5.88%	5.75%	5.63%	5.50%
28	Salaries, Wages, & Benefits (100's)	442,314	487,905	528,891	556,363	594,613	635,493	679,183	725,877	775,781	829,116	886,117	947,038	1,012,147	1,081,732	1,156,101	1,235,583
29	Materials & Supplies (200's)	301,533	289,304	333,970	333,970	343,989	354,309	364,938	375,886	387,163	398,778	410,741	423,063	435,755	448,828	462,293	476,161
30	Connection Fees Expenses	29,043	47,187	27,700	27,700	55,805	59,760	63,668	67,514	71,533	75,476	79,327	83,068	86,402	89,861	92,557	62,840
31	Professional & Technical Services (300's)	23,211	29,149	45,700	45,700	47,071	48,483	49,938	51,436	52,979	54,568	56,205	57,891	59,628	61,417	63,259	65,157
32	Special Dept. Materials & Supplies (400's)	54,275	81,507	71,728	81,728	84,180	86,705	89,306	91,986	94,745	97,588	100,515	103,531	106,637	109,836	113,131	116,525
33	Other Charges (500's)	31,349	33,165	36,000	36,000	37,080	38,192	39,338	40,518	41,734	42,986	44,275	45,604	46,972	48,381	49,832	51,327
34	Capital Expenses (700's)	1,487	9,519	51,500	51,500	53,045	54,636	56,275	57,964	59,703	61,494	63,339	65,239	67,196	69,212	71,288	73,427
35	Debt Services (825-840)	4,291	7,960	13,025	13,025	13,416	13,818	14,233	14,660	15,100	15,553	16,019	16,500	16,995	17,505	18,030	18,571
36	Others (900's)	80,550	50,250	48,202	81,750	84,203	86,729	89,330	92,010	94,771	97,614	100,542	103,558	106,665	109,865	113,161	116,556
37	Regional Waterline	63,671	62,526	62,526	62,526	62,526	62,526	62,526	62,526	62,526	62,526	62,526	62,526	62,526	62,526	62,526	62,526
38	WCWCD Surcharge																
39	WCWCD/Compact Wholesale Fee	3,872	8,303	17,839	29,343	39,085	69,092	106,810	150,138	204,083	264,205	332,152	410,785	497,107	586,923	677,329	775,152
40	Sub-Total Operation & Maintenance	\$1,035,596	\$1,106,775	\$1,237,081	\$1,319,606	\$1,415,013	\$1,509,744	\$1,615,545	\$1,730,514	\$1,860,116	\$1,999,902	\$2,151,759	\$2,318,803	\$2,498,029	\$2,623,558	\$2,816,981	\$2,991,299
41																	
42	EXISTING DEBT SERVICE (810-820)																
43	2005 Water Bond	48,316	49,283	49,212	48,128	49,019	48,873	92,147									
44	2006A Water Bond	164,659	161,497	243,458													
45	2006B Water Bond	130,728	131,726	130,615	130,413	131,082	130,624	131,037	130,322	130,479	130,490	130,354	130,072	130,625	121,178		
46	2012 CIB Water Bond	50,000	50,000	213,000	212,850	212,675	212,475	212,250	213,000	212,700	212,375	213,025	212,625	212,200	212,750	212,250	212,725
47	Sub-Total Existing Debt Service	\$393,703	\$392,507	\$636,285	\$391,391	\$392,777	\$391,971	\$435,433	\$343,322	\$343,179	\$342,865	\$343,379	\$342,697	\$342,825	\$333,928	\$212,250	\$212,725
48																	
49	NEW DEBT SERVICE (810-820)																
50	Water Revenue Bond				155,078	155,078	155,078	155,078	155,078	155,078	155,078	155,078	155,078	155,078	155,078	155,078	155,078
51	Revenue Bond Reserves 10%	0	0	0	15,508	15,508	15,508	15,508	15,508	15,508	15,508	15,508	15,508	15,508	15,508	15,508	15,508
52	Sub-Total New Debt Service	\$0	\$0	\$0	\$170,586	\$170,586	\$170,586	\$170,586	\$170,586	\$170,586	\$170,586	\$170,586	\$170,586	\$170,586	\$155,078	\$155,078	\$155,078
53	Total Debt Service	\$393,703	\$392,507	\$636,285	\$561,977	\$563,362	\$562,557	\$606,019	\$513,908	\$513,765	\$513,450	\$513,964	\$513,282	\$513,410	\$489,006	\$367,328	\$367,803
54																	
55	Renewal and Replacement Fund (590)	582,587	579,642	0	0	67,624	72,361	77,651	83,399	89,880	96,869	104,462	112,814	121,775	131,178	140,849	149,565
56	TOTAL EXPENSES:	\$2,011,886	\$2,078,924	\$1,873,366	\$1,881,582	\$2,046,000	\$2,144,662	\$2,299,215	\$2,327,821	\$2,463,760	\$2,610,222	\$2,770,185	\$2,944,899	\$3,133,215	\$3,243,742	\$3,325,158	\$3,508,667
57																	
58	Net Cashflow	(\$366,820)	\$7,170	\$65,415	\$269,782	\$544,987	\$634,871	\$681,002	\$858,637	\$939,352	\$1,015,128	\$1,082,006	\$1,137,541	\$1,181,254	\$1,303,672	\$1,456,794	\$1,232,639
59	Project Self Participation				\$250,000												
60																	
61	CASH ON HAND																
62	*Fund Balance	254,113	246,942	181,527	161,746	383,242											

CASHFLOW PROJECTIONS

CULINARY WATER MASTER PLAN  
CITY OF SANTA CLARA

1	Annual Population Growth Rate	4.75%	4.50%	4.25%	4.00%	3.75%	3.50%	3.25%	3.00%	3.00%	3.00%
2	Annual Rate Increase										
3	Annual Inflation Rate	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%		
4											
5	Fiscal Year Beginning July	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
6		2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
7											
8	Average Rate ERU	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99	\$46.99
9	Connection Fee	\$316	\$325	\$335	\$345	\$355	\$366	\$377	\$388	\$400	\$412
10	Impact fee	\$1,973	\$1,973	\$1,973	\$1,973	\$1,973	\$1,973	\$1,973	\$1,973	\$1,973	\$1,973
11	WCWCD Surcharge Rate/ERU	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75
1	System Users:										
2	Total Existing ERU's	6,741	6,741	6,741	6,741	6,741	6,741	6,741	6,741	6,741	6,741
3	New ERU's:	0	0	0	0	0	0	0	0	0	0
4											
5	REVENUES:										
6	User Fees	3,801,039	3,801,039	3,801,039	3,801,039	3,801,039	3,801,039	3,801,039	3,801,039	3,801,039	3,801,039
7	Other Operating Revenues	107,203	110,419	113,732	117,144	120,658	124,278	128,006	131,846	131,846	131,846
8	Connection Fees	0	0	0	0	0	0	0	0	0	0
9	Impact Fees	0	0	0	0	0	0	0	0	0	0
10	Interest Income	476,246	506,171	531,867	552,867	568,701	578,784	588,727	591,977	587,817	575,397
11	Gain on Disposal	0	0	0	0	0	0	0	0	0	0
12	WCWCD Surcharge										
13	TOTAL REVENUE:	\$4,384,488	\$4,417,629	\$4,446,638	\$4,471,049	\$4,490,398	\$4,504,101	\$4,517,772	\$4,524,862	\$4,520,702	\$4,508,282
14											
15	EXPENSES: (Inc. O&M & Debt Serv.)	5.38%	5.25%	5.13%	5.00%	4.88%	4.75%	4.63%	4.50%		
16	Salaries, Wages, & Benefits (100's)	1,320,529	1,411,316	1,508,344	1,612,042	1,722,870	1,841,318	1,967,908	2,103,202	2,247,797	2,402,333
17	Materials & Supplies (200's)	490,446	505,160	520,314	535,924	552,002	568,562	585,618	603,187	621,283	639,921
18	Connection Fees Expenses	0	0	0	0	0	0	0	0	0	0
19	Professional & Technical Services (300's)	67,112	69,125	71,199	73,335	75,535	77,801	80,135	82,539	85,015	87,566
20	Special Dept. Materials & Supplies (400's)	120,020	123,621	127,330	131,149	135,084	139,136	143,311	147,610	152,038	156,599
21	Other Charges (500's)	52,867	54,453	56,087	57,769	59,503	61,288	63,126	65,020	66,971	68,980
22	Capital Expenses (700's)	75,629	77,898	80,235	82,642	85,122	87,675	90,306	93,015	95,805	98,679
23	Debt Services (825-840)	19,128	19,701	20,293	20,901	21,528	22,174	22,839	23,525	24,230	24,957
24	Others (900's)	120,053	123,654	127,364	131,185	135,120	139,174	143,349	147,650	152,079	156,641
25	Regional Waterline										
26	WCWCD Surcharge										
27	WCWCD/Compact Wholesale Fee	847,673	860,388	873,294	886,393	899,689	913,184	926,882	940,785	954,897	969,221
28	Sub-Total Operation & Maintenance	\$3,113,458	\$3,245,317	\$3,384,459	\$3,531,342	\$3,686,453	\$3,850,312	\$4,023,475	\$4,206,532	\$4,400,116	\$4,604,898
29											
30	EXISTING DEBT SERVICE (810-820)										
31	2005 Water Bond										
32	2006A Water Bond										
33	2006B Water Bond										
34	2012 CIB Water Bond	212,150	212,550	212,900	212,200	212,475	212,700	211,875	212,000	211,075	211,125
35	Sub-Total Existing Debt Service	\$212,150	\$212,550	\$212,900	\$212,200	\$212,475	\$212,700	\$211,875	\$212,000	\$211,075	\$211,125
36											
37	NEW DEBT SERVICE (810-820)										
38	Water Revenue Bond	155,078	155,078	155,078	155,078	155,078					
39	Revenue Bond Reserves 10%										
40	Sub-Total New Debt Service	\$155,078	\$155,078	\$155,078	\$155,078	\$155,078	\$0	\$0	\$0	\$0	\$0
41	Total Debt Service	\$367,228	\$367,628	\$367,978	\$367,278	\$367,553	\$212,700	\$211,875	\$212,000	\$211,075	\$211,125
42											
43	Renewal and Replacement Fund (590)	155,673	162,266	169,223	176,567	184,323	192,516	201,174	210,327	220,006	230,245
44	TOTAL EXPENSES:	\$3,636,359	\$3,775,211	\$3,921,660	\$4,075,187	\$4,238,328	\$4,255,528	\$4,436,524	\$4,628,859	\$4,831,196	\$5,046,268
45											
46	Net Cashflow	\$748,129	\$642,418	\$524,978	\$395,862	\$252,070	\$248,573	\$81,248	(\$103,997)	(\$310,494)	(\$537,985)
47	Project Self Participation										
48											
49	CASH ON HAND										
50	*Fund Balance	12,654,268	13,296,687	13,821,665	14,217,527	14,469,597	14,718,170	14,799,418	14,695,421	14,384,927	13,846,941
51	Renewal and Replacement Account Balance:	2,726,598	2,888,864	3,058,087	3,234,654	3,418,977	3,611,492	3,812,666	4,022,993	4,242,998	4,473,243
52	New Bond Reserves	0	0	0	0	0	0	0	0	0	0
53	Total	\$15,380,867	\$16,185,551	\$16,879,752	\$17,452,181	\$17,888,574	\$18,329,662	\$18,612,084	\$18,718,414	\$18,627,925	\$18,320,185
54	*Fund Balance is obtained by adding the previous year's										
55	balance to the net cash flow, minus any self-funded portion										
56	of future projects										

**APPENDIX B**

**ENGINEER'S OPINIONS  
OF PROBABLE COSTS**

SUNRISE ENGINEERING INC.							
11 North 300 West, Washington, Utah 84780 Tel: (435) 652-8450 Engineer's Opinion of Probable Cost							
SANTA CLARA CITY WATER FACILITY PLAN PROJECTS							
						MJW/JHJ	5/30/2018
NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
Connection to Ivins' System, Peak Metering Projects (PRV and meter)							
Phase I (5 Years)							
1	Mobilization	1	LS	\$ 9,600	\$ 9,600	30%	\$ 2,900
2	Meter and PRV Station w/ Appurtenances	1	Each	\$ 65,000	\$ 65,000	45%	\$ 29,300
3	Snow Canyon Tank Metering System w/SCADA	1	Each	\$ 15,000	\$ 15,000	0%	\$ -
3	South Hills Tank Two-way Metering System w/SCADA	1	Each	\$ 15,000	\$ 15,000	0%	\$ -
4	Little League Drive Metering System upgrades	1	Each	\$ 4,500	\$ 4,500	0%	\$ -
5	2.5" Bituminous Patch w/ Base	200	SF	\$ 4.50	\$ 900	45%	\$ 500
Moving/New PRV near Gates Ln							
6	Mobilization	1	LS	\$ 2,600	\$ 2,600	100%	\$ 2,600
7	PRV Station w/ Appurtenances	1	Each	\$ 50,000	\$ 50,000	100%	\$ 50,000
8	2.5" Bituminous Patch w/ Base	200	SF	\$ 4.50	\$ 900	100%	\$ 900
9	SUBTOTAL				\$ 163,500	53%	\$ 86,200
10	CONTINGENCY				20%	53%	\$ 17,400.00
11	CONSTRUCTION TOTAL				\$ 196,500		\$ 103,600
12	INCIDENTALS						
13	Administration		LS	1%	\$ 2,000	53%	\$ 1,100
14	Engineering Design		LS	11.2%	\$ 22,100	53%	\$ 11,700
15	Engineering Construction Services		HOURLY	8%	\$ 15,800	53%	\$ 8,400
							\$ -
TOTAL PROJECT COST					\$ 236,400		\$124,800

SUNRISE ENGINEERING INC.							
11 North 300 West, Washington, Utah 84780 Tel: (435) 652-8450 Engineer's Opinion of Probable Cost							
SANTA CLARA CITY WATER FACILITY PLAN PROJECTS							
						MJW/JHJ	5/30/2018
NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
New 8" Line and Booster Station for South Hills Park							
Phase I (5 years)							
1	Mobilization	1	LS	\$ 5,800	\$ 5,800	100%	\$ 5,800
2	8" PVC Line, Fittings, Bedding, Backfill & Tracer Wire (C900, Class 150, SDR 18: or C909 PC150)	1,000	LN FT.	\$ 30	\$ 30,000	100%	\$ 30,000
3	8" Gate Valve Assembly	4	Each	\$ 2,400	\$ 9,600	100%	\$ 9,600
4	Meter, Meter Setter W/ Backflow Prevention	3	Each	\$ 450	\$ 1,350	100%	\$ 1,350
5	Saddle W/ Corp Stop	3	Each	\$ 350	\$ 1,050	100%	\$ 1,050
6	Service Lateral Pipe	90	LN FT.	\$ 15	\$ 1,350	100%	\$ 1,350
7	Fire Hydrant Assembly	1	Each	\$ 3,500	\$ 3,500	100%	\$ 3,500
8	2.5" Bituminous Patch w/ Base	0	SF	\$ 4.50	\$ -	100%	\$ -
9	Booster pump w/ Appurtenances	1	Each	\$ 45,000	\$ 45,000	100%	\$ 45,000
10	SUBTOTAL				\$ 97,650	100%	\$ 97,650
11	CONTINGENCY				20%	100%	\$ 20,000.00
12	CONSTRUCTION TOTAL				\$ 117,650		\$ 117,650
13	INCIDENTALS						
14	Administration		LS	1%	\$ 2,000	100%	\$ 2,000
15	Engineering Design		LS	11.3%	\$ 22,200	100%	\$ 22,200
16	Engineering Construction Services		HOURLY	8%	\$ 15,800	100%	\$ 15,800
17	GIS Mapping	1	EST.		\$ 1,000	100%	\$ 1,000
TOTAL PROJECT COST					\$ 158,650	100%	\$158,650



SUNRISE ENGINEERING INC.							
11 North 300 West, Washington, Utah 84780							
Tel: (435) 652-8450							
Engineer's Opinion of Probable Cost							
SANTA CLARA CITY WATER FACILITY PLAN PROJECTS							
						MJW/JHJ	5/30/2018
NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
New 8" Line and PRV on Chapel St and Across Bridge							
Phase I (5 years)							
1	Mobilization	1	LS	\$ 9,700	\$ 9,700	100%	\$ 9,700
2	8" PVC Line, Fittings, Bedding, Backfill & Tracer Wire (C900, Class 150, SDR 18: or C909 PC150)	2,000	LN FT.	\$ 30	\$ 60,000	100%	\$ 60,000
3	8" Gate Valve Assembly	10	Each	\$ 2,400	\$ 24,000	100%	\$ 24,000
4	2.5" Bituminous Patch w/ Base	4,400	SF	\$ 4.50	\$ 19,800	100%	\$ 19,800
5	PRV Station w/ Appurtenances	1	Each	\$ 50,000	\$ 50,000	100%	\$ 50,000
6					\$ 163,500	100%	\$ 163,500
7					\$ 33,000	100%	\$ 33,000.00
8					\$ 196,500		\$ 196,500
9	INCIDENTALS						
10	Administration		LS	1%	\$ 2,000	100%	\$ 2,000
11	Engineering Design		LS	11.3%	\$ 22,200	100%	\$ 22,200
12	Engineering Construction Services		HOURLY	8%	\$ 15,800	100%	\$ 15,800
13	GIS Mapping	1	EST.		\$ 1,000	100%	\$ 1,000
						100%	
					\$ 237,500	100%	\$237,500

SUNRISE ENGINEERING INC.							
11 North 300 West, Washington, Utah 84780							
Tel: (435) 652-8450							
Engineer's Opinion of Probable Cost							
SANTA CLARA CITY WATER FACILITY PLAN PROJECTS							
						MJW/JHJ	5/30/2018
NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
Santa Clara South Hills from Existing Line (New 12" Phase I)							
Phase I (5 years)							
1	Mobilization	1	LS	\$ 9,400	\$ 9,400	100%	\$ 9,400
2	12" PVC Line, Fittings, Bedding, Backfill & Tracer Wire (C900, Class 150, SDR 18: or C909 PC150)	2,800	LN FT.	\$ 38.00	\$ 106,400	100%	\$ 106,400
18	12" Gate Valve Assembly	12	Each	\$ 3,500.00	\$ 42,000	100%	\$ 42,000
					\$ 157,800	100%	\$157,800
					\$ 32,000	100%	\$ 32,000.00
					\$ 189,800		\$ 189,800
	INCIDENTALS						
19	Administration		LS	1%	\$ 2,000	100%	\$ 2,000
20	Engineering Design		LS	12.5%	\$ 24,600	100%	\$ 24,600
21	Engineering Construction Services		HOURLY	8%	\$ 15,800	100%	\$ 15,800
22	Legal & Fiscal/Interim Financing	1	EST.			100%	\$ -
23	Miscellaneous	1	EST.			100%	\$ -
24	GIS Mapping	1	EST.		\$ 800	100%	\$ 800
						100%	
					\$ 233,000	100%	\$233,000

SUNRISE ENGINEERING INC.							
11 North 300 West, Washington, Utah 84780							
Tel: (435) 652-8450							
Engineer's Opinion of Probable Cost							
SANTA CLARA CITY WATER FACILITY PLAN PROJECTS							
						MJW/JHJ	5/30/2018
NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
Replacing 6" line with 8" line Vineyard Dr.							
Phase I (5 years)							
25	Mobilization	1	LS	\$ 14,800	\$ 14,800	0%	\$ -
26	8" PVC Line, Fittings, Bedding, Backfill & Tracer Wire (C900, Class 150, SDR 18: or C909 PC150)	2,900	LN FT.	\$ 30	\$ 87,000	0%	\$ -
27	8" Gate Valve Assembly	12	Each	\$ 2,400	\$ 28,800	0%	\$ -
28	Meter, Meter Setter W/ Backflow Prevention	40	Each	\$ 450	\$ 18,000	0%	\$ -
29	Saddle W/ Corp Stop	40	Each	\$ 350	\$ 14,000	0%	\$ -
30	Service Lateral Pipe	1,000	LN FT.	\$ 15	\$ 15,000	0%	\$ -
31	Fire Hydrant Assembly	4	Each	\$ 3,500	\$ 14,000	0%	\$ -
32	2.5" Bituminous Patch w/ Base	12,800	SF	\$ 4.50	\$ 57,600	0%	\$ -
		SUBTOTAL			\$ 249,200	0%	\$ -
		CONTINGENCY		20%	\$ 50,000	0%	\$ -
		CONSTRUCTION TOTAL			\$ 299,200		\$ -
	INCIDENTALS						\$ -
33	Administration		LS	1%	\$ 2,000	0%	\$ -
34	Engineering Design		LS	9.5%	\$ 18,700	0%	\$ -
35	Engineering Construction Services		HOURLY	8%	\$ 15,800	0%	\$ -
36	GIS Mapping	1	EST.		\$ 1,000	0%	\$ -
						0%	
		TOTAL PROJECT COST			\$ 336,700	0%	\$0

SUNRISE ENGINEERING INC.							
11 North 300 West, Washington, Utah 84780							
Tel: (435) 652-8450							
Engineer's Opinion of Probable Cost							
SANTA CLARA CITY WATER FACILITY PLAN PROJECTS							
						MJW/JHJ	5/30/2018
NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
Jacob Hamlin Trail - Heights to SC Drive Connection 12" Line							
Phase II (10 years)							
37	Mobilization	1	LS	\$ 4,300	\$ 4,300	100%	\$ 4,300
38	12" PVC Line, Fittings, Bedding, Backfill & Tracer Wire (C900, Class 150, SDR 18: or C909 PC150)	910	LN FT.	\$ 38	\$ 34,580	100%	\$ 34,580
39	12" Gate Valve Assembly	4	Each	\$ 3,500	\$ 14,000	100%	\$ 14,000
40	2.5" Bituminous Patch w/ Base	4,100	SF	\$ 4.50	\$ 18,450	100%	\$ 18,450
		SUBTOTAL			\$ 71,330	100%	\$ 71,330
		CONTINGENCY		20%	\$ 15,000	100%	\$ 15,000.00
		CONSTRUCTION TOTAL			\$ 86,330		\$ 86,330
	INCIDENTALS						
41	Administration		LS	1%	\$ 2,000	100%	\$ 2,000
42	Engineering Design		LS	12.5%	\$ 24,600	100%	\$ 24,600
43	Engineering Construction Services		HOURLY	8%	\$ 15,800	100%	\$ 15,800
44	Legal & Fiscal/ROW	1	EST.		\$ 20,000	100%	\$ 20,000
45	Miscellaneous	1	EST.		\$ 5,000	100%	\$ 5,000
46	GIS Mapping	1	EST.		\$ 1,000	100%	\$ 1,000
							\$ -
		TOTAL PROJECT COST			\$ 154,730	100%	\$154,730

SUNRISE ENGINEERING INC.							
11 North 300 West, Washington, Utah 84780 Tel: (435) 652-8450 Engineer's Opinion of Probable Cost							
SANTA CLARA CITY WATER FACILITY PLAN PROJECTS						MJW/JHJ	5/30/2018
NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
Red Mountain Drive by Developer 8" to 12" Enlargement Phase I (5 years)							
47	Mobilization	1	LS	\$ 6,600	\$ 6,600	100%	\$ 6,600
48	12" PVC Line, Fittings, Bedding, Backfill & Tracer Wire (C900, Class 150, SDR 18: or C909 PC150)	5,100	LN FT.	\$ 8	\$ 40,800	100%	\$ 40,800
49	12" Gate Valve Assembly	20	Each	\$ 1,100	\$ 22,000	100%	\$ 22,000
50	2.5" Bituminous Patch w/ Base	22,500	SF	\$ 4.50	\$ 101,250	100%	\$ 101,250
		SUBTOTAL			\$ 170,650	100%	\$ 170,650
		CONTINGENCY		20%	\$ 35,000	100%	\$ 35,000.00
		CONSTRUCTION TOTAL			\$ 205,650		\$ 205,650
	INCIDENTALS						
51	Administration		LS	1%	\$ 2,000	100%	\$ 2,000
52	Engineering Design		LS	9.7%	\$ 19,100	100%	\$ 19,100
53	Engineering Construction Services		HOURLY	8%	\$ 15,800	100%	\$ 15,800
54	GIS Mapping	1	EST.		\$ 1,500	100%	\$ 1,500
							\$ -
		TOTAL PROJECT COST			\$ 244,050	100%	\$244,050

SUNRISE ENGINEERING INC.							
11 North 300 West, Washington, Utah 84780 Tel: (435) 652-8450 Engineer's Opinion of Probable Cost							
SANTA CLARA CITY WATER FACILITY PLAN PROJECTS						MJW/JHJ	5/30/2018
NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
Santa Clara South Hills from Existing Line (New 12" Phase II) Phase II (10 years)							
55	Mobilization	1	LS	\$ 6,100	\$ 6,100	100%	\$ 6,100
56	12" PVC Line, Fittings, Bedding, Backfill & Tracer Wire (C900, Class 150, SDR 18: or C909 PC150)	1,800	LN FT.	\$ 38	\$ 68,400	100%	\$ 68,400
57	12" Gate Valve Assembly	8	Each	\$ 3,500	\$ 28,000	100%	\$ 28,000
		SUBTOTAL			\$ 102,500	100%	\$102,500
		CONTINGENCY		20%	\$ 21,000	100%	\$ 21,000.00
		CONSTRUCTION TOTAL			\$ 123,500		\$ 123,500
	INCIDENTALS						
58	Administration		LS	1%	\$ 2,000	100%	\$ 2,000
59	Engineering Design		LS	12.5%	\$ 24,600	100%	\$ 24,600
60	Engineering Construction Services		HOURLY	8%	\$ 15,800	100%	\$ 15,800
61	Legal & Fiscal/Interim Financing	1	EST.			100%	\$ -
62	Miscellaneous	1	EST.			100%	\$ -
63	GIS Mapping	1	EST.		\$ 800	100%	\$ 800
						100%	
		TOTAL PROJECT COST			\$ 166,700	100%	\$166,700

SUNRISE ENGINEERING INC.							
11 North 300 West, Washington, Utah 84780 Tel: (435) 652-8450 Engineer's Opinion of Probable Cost							
SANTA CLARA CITY WATER FACILITY PLAN PROJECTS						MJW/JHJ	5/30/2018
NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
North Boundary towards Entrada 8" to 12" Enlargement and PRV Phase III (20 years)							
64	Mobilization	1	LS	\$ 5,700	\$ 5,700	100%	\$ 5,700
65	12" PVC Line, Fittings, Bedding, Backfill & Tracer Wire (C900, Class 150, SDR 18: or C909 PC150)	3,850	LN FT.	\$ 6.00	\$ 23,100	100%	\$ 23,100
66	12" Gate Valve Assembly	15	Each	\$ 1,100	\$ 16,500	100%	\$ 16,500
67	PRV Station w/ Appurtenances	1	Each	\$ 50,000	\$ 50,000	25%	\$ 12,500
		SUBTOTAL			\$ 95,300	61%	\$ 57,800
		CONTINGENCY		20%	\$ 20,000	61%	\$ 12,200
		CONSTRUCTION TOTAL			\$ 115,300		\$ 70,000
	INCIDENTALS						
67	Administration		LS	1%	\$ 2,000	61%	\$ 1,213
68	Engineering Design		LS	12.5%	\$ 24,600	61%	\$ 14,920
69	Engineering Construction Services		HOURLY	8%	\$ 15,800	61%	\$ 9,583
70	GIS Mapping	1	EST.		\$ 1,500	61%	\$ 910
							\$ -
		TOTAL PROJECT COST			\$ 159,200	61%	\$96,556

SUNRISE ENGINEERING INC.							
11 North 300 West, Washington, Utah 84780 Tel: (435) 652-8450 Engineer's Opinion of Probable Cost							
SANTA CLARA CITY WATER FACILITY PLAN PROJECTS						MJW/JHJ	5/30/2018
NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
North Boundary Project - Distribution Line Including Casing and Carrier Pipe under future North Western Corridor Phase II (10 years)							
71	Mobilization	1	LS	\$ 21,000	\$ 21,000	100%	\$ 21,000
72	8" PVC Line, Fittings, Bedding, Backfill & Tracer Wire (C900, Class 150, SDR 18: or C909 PC150)	1,925	LN FT.	\$ 30	\$ 57,750	100%	\$ 57,750
73	8" Gate Valve Assembly	8	Each	\$ 2,400	\$ 19,200	100%	\$ 19,200
74	24" Casing under future Roadway Footprint	200	LN FT.	\$ 250	\$ 50,000	100%	\$ 50,000
75	12" PVC Line, Fittings, Bedding, Backfill & Tracer Wire (C900, Class 150, SDR 18: or C909 PC150)	2,300	LN FT.	\$ 36	\$ 82,800	100%	\$ 82,800
76	12" Gate Valve Assembly	9	Each	\$ 3,500	\$ 31,500	100%	\$ 31,500
77	PRV Station w/ Appurtenances	1	Each	\$ 50,000	\$ 50,000	100%	\$ 50,000
78	2.5" Bituminous Patch w/ Base	9,300	SF	\$ 4.50	\$ 41,850	100%	\$ 41,850
		SUBTOTAL			\$ 354,100	100%	\$ 354,100
		CONTINGENCY		20%	\$ 71,000	100%	\$ 71,000
		CONSTRUCTION TOTAL			\$ 425,100		\$ 425,100
	INCIDENTALS						
79	Administration		LS	1%	\$ 2,000	100%	\$ 2,000
80	Engineering Design		LS	9.0%	\$ 17,700	100%	\$ 17,700
81	Engineering Construction Services		HOURLY	8%	\$ 15,800	100%	\$ 15,800
82	Legal & Fiscal/Environmental	1	EST.		\$ 50,000	100%	\$ 50,000
83	Miscellaneous	1	EST.		\$ 15,000	100%	\$ 15,000
84	GIS Mapping	1	EST.		\$ 1,500	100%	\$ 1,500
							\$ -
		TOTAL PROJECT COST			\$ 527,100		\$527,100

SUNRISE ENGINEERING INC.							
11 North 300 West, Washington, Utah 84780							
Tel: (435) 652-8450							
Engineer's Opinion of Probable Cost							
SANTA CLARA CITY WATER FACILITY PLAN PROJECTS							
						MJW/JHJ	5/30/2018
NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
Santa Clara South Hills (Future Tank and 16" and 12")							
Phase III (20 years)							
85	Mobilization	1	LS	\$ 152,300	\$ 152,300	100%	\$ 152,300
86	12" PVC Line, Fittings, Bedding, Backfill & Tracer Wire (C900, Class 150, SDR 18: or C909 PC150)	4,750	LN FT.	\$ 38	\$ 180,500	100%	\$ 180,500
87	12" Gate Valve Assembly	19	Each	\$ 3,500.00	\$ 66,500	100%	\$ 66,500
88	16" PVC Line, Fittings, Bedding, Backfill & Tracer Wire (C900, Class 150, SDR 18: or C909 PC150)	8,200	Each	\$ 45	\$ 369,000	100%	\$ 369,000
89	16" Butterfly Valve Assembly	33	Each	\$ 4,500	\$ 148,500	100%	\$ 148,500
90	Booster Pump Station	1	Each	\$ 250,000	\$ 250,000	100%	\$ 250,000
91	1.5 Million Gallon Storage Tank	1	LS	\$ 1,215,000	\$ 1,215,000	100%	\$ 1,215,000
92	1.5 Million Gallon Storage Appurtanences	1	LS	\$ 95,000	\$ 95,000	100%	\$ 95,000
93	Tank Cl2 Management System	1	LS	\$ 85,000	\$ 85,000	100%	\$ 85,000
		SUBTOTAL			\$ 2,561,800	100%	\$ 2,561,800
		CONTINGENCY		20%	\$ 513,000	100%	\$ 513,000
		CONSTRUCTION TOTAL			\$ 3,074,800		\$ 3,074,800
	INCIDENTALS						
94	Administration		LS	1%	\$ 2,000	100%	\$ 2,000
95	Engineering Design		LS	6.7%	\$ 13,200	100%	\$ 13,200
96	Engineering Construction Services		HOURLY	8%	\$ 15,800	100%	\$ 15,800
97	Legal & Fiscal/Environmental	1	EST.		\$ 50,000	100%	\$ 50,000
98	Miscellaneous	1	EST.		\$ 15,000	100%	\$ 15,000
99	GIS Mapping	1	EST.		\$ 1,500	100%	\$ 1,500
						100%	\$ -
	TOTAL PROJECT COST				\$ 3,172,300	100%	\$3,172,300

# **APPENDIX C**

## **IMPACT FEE CERTIFICATION**

## **CERTIFICATION OF IMPACT FEE ANALYSIS BY CONSULTANT**

In accordance with Utah Code Annotated, § 11-36a-306 Marvin J Wilson, P.E., on behalf of Sunrise Engineering, Inc., makes the following certification:

I certify that the attached Impact Fee Facilities Plan and Impact Fee Analysis:

1. Includes only the costs for qualifying public facilities that are:
  - a. Allowed under the Impact Fees Act; and
  - b. Actually incurred; or
  - c. Projected to be incurred or encumbered within six years after each impact fee is paid;
2. Does not include:
  - a. costs of operation and maintenance of public facilities;
  - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents; or
  - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and that methodological standards set forth by the Federal Office of Management and Budget for federal grant reimbursement; and
3. Offsets costs with grants or other alternate sources of payment (if grants or other sources of payment have been applied for and received and such information was made available when the Impact Fee Analysis was prepared); and
4. Complies in each and every relevant respect with the Impact Fees Act.

Marvin J Wilson, P.E. makes this certification with the following qualifications:

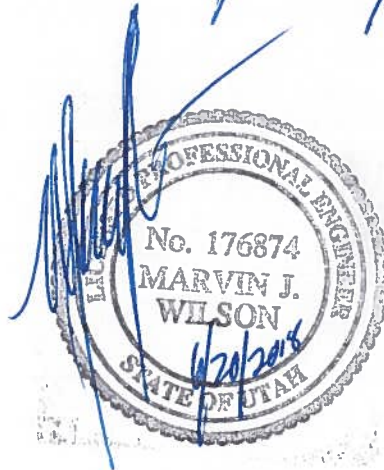
1. All of the recommendations for implementations of the Impact Fee Facilities Plan ("IFFP") made in the IFFP documents or in the Impact Fee Analysis documents are followed in their entirety by the Santa Clara City, Utah, staff, and elected officials.
2. If all or a portion of the IFFP's or Impact Fee Analyses are modified or amended, this certification is no longer valid.

3. All information provided to Sunrise Engineering, Inc., its contractors or suppliers, is assumed to be correct, complete and accurate. This includes information provided by the Santa Clara City, Utah, and outside sources.
4. The undersigned is trained and licensed as a professional engineer and has not been trained or licensed as a lawyer. Nothing in the foregoing certification shall be deemed an opinion of law or an opinion of compliance with law which under applicable professional licensing laws or regulations or other laws or regulations must be rendered by a lawyer licensed in the State of Utah.
5. The foregoing Certification is an expression of professional opinion based on the undersigned's best knowledge, information and belief and shall not be construed as a warranty or guaranty of any fact or circumstance.
6. The foregoing certification is made only to the Santa Clara City, Utah, and may not be used or relied upon by any other person or entity without the expressed written authorization of the undersigned.

Sunrise Engineering, Inc.

By: \_\_\_\_\_

Dated: \_\_\_\_\_





## **APPENDIX D**

### **IMPACT FEE RESOLUTION**

**CITY OF SANTA CLARA  
ORDINANCE 2018-13**

**ADOPTING A WATER IMPACT FEE FACILITIES PLAN & IMPACT FEE ANALYSIS DATED JUNE 2018; IMPOSING WATER SYSTEM IMPACT FEES; PROVIDING FOR THE CALCULATION AND COLLECTION OF SUCH FEES; PROVIDING FOR THE APPEAL, ACCOUNTING AND SEVERABILITY OF THE SAME; AND OTHER RELATED MATERS.**

**WHEREAS**, the City Council of the City of Santa Clara met in regular session on June 20, 2018 to consider, among other things, adopting a Water Impact Fee Facilities Plan, Impact Fee Analysis document dated June 2018 and imposing Water System Impact Fees, providing for the calculation and collection of such fees, and providing for appeal, accounting and severability of the same, and other related matters; and

**WHEREAS**, The City of Santa Clara is a political subdivision of the State of Utah, authorized and organized under the provisions of Utah law and is authorized pursuant to the Impact Fee Act, Utah Code Ann. § 11-36-101 *et seq.* to adopt impact fees; and

**WHEREAS**, on June 20, 2018, the City of Santa Clara reviewed the findings, conclusions, and recommendations of a water system master plan prepared by Sunrise Engineering, (the "*Consultant*"), a copy of which is attached hereto as exhibit "A" (the "*Impact Fee Facilities Plan*"); and

**WHEREAS** the City of Santa Clara has caused a water system impact fee analysis to be prepared by Consultant, a copy of which is attached hereto as exhibit "B" (the "*Impact fee Analysis*"); and

**WHEREAS**, on June 7, 2018, the City of Santa Clara posted notice of public hearing with respect to the Impact Fee Analysis in at least three public places within the City of Santa Clara and published a notice of a Public Hearing in the Spectrum in respect to the Impact Fee on June 10, 2018, and

**WHEREAS**, on June 20, 2018, the City Council held a public hearing regarding the Impact Fee Analysis and Impact Fee Enactment; and

**WHEREAS**, after careful consideration and review of the comments at the public hearings, the City Council has determined that it is in the best interest of the health, safety and welfare of the inhabitants of the City of Santa Clara to adopt the findings and recommendations of the Studies to address the impacts of development upon the city of Santa Clara, to adopt the Capital Facilities Plan as proposed, to approve the Impact fee Analysis as proposed, to adopt culinary water impact fees, to provide for the calculation and collection of such fees, and to provide for appeal, accounting and severability of the same.

**NOW, THEREFORE, BE IT ORDAINED** by the City Council of the City of Santa Clara as follows:

**Section 1. Findings.** The City Council finds and determines as follows:

- 1.1 All required notices have been given and made and public hearings conducted as requested by the Impact Fee Act with respect to the Capital Facilities Plan, the Impact Fee Analysis.
- 1.2 Growth and development activities in the City of Santa Clara will create additional demands on its water system. The capital facility improvement requirements which are analyzed in the Capital Facilities Plan and the Impact Fee Analysis are the direct result of additional facility needs caused by future development activities. The persons responsible for growth and development activities should pay a proportionate share of the costs of the water system needed to serve the growth and development activity.
- 1.3 Impact Fees are necessary to achieve an equitable allocation to the costs borne in the past and to be borne in the future, in comparison with the benefits already received and yet to be received.
- 1.4 In approving the Impact Fee Analysis and this Ordinance, the City Council has taken into consideration, and in certain situations will consider on a case-by-case basis in the future, the future capital facilities and water needs of the city of Santa Clara, the capital financial needs of the City of Santa Clara which are the result of the City of Santa Clara's future facilities needs, the distribution of the burden of costs to different properties within the City of Santa Clara based on the use of water and water facilities of the City of Santa Clara by such properties, the financial contribution of those properties and other properties similarly situated in the City of Santa Clara at the time of computation of the required fee and prior to the enactment of this Ordinance, all revenue sources available to the City of Santa Clara, and the impact on future water facilities that will be required by growth and new development activities in the City of Santa Clara.
- 1.5 The provisions of this Ordinance shall be liberally construed in order to carry out the purpose and intent of the City Council in establishing the impact fee program.
- 1.6 Per the proposed Washington County Water District Pooling Agreement and upon signature by the City of Santa Clara, any developer subject to impact fees under this Ordinance shall also be subject to the current water impact fees as imposed by the Washington

County Water Conservancy District. The effective date shall be as provided in the WCWCD Agreement and related Ordinance.

**Section 2. Definitions.**

2.1 Except as provided below, words and phrases that are defined in the Impact Fee Act shall have the same meaning in this Ordinance.

2.2 “Service Area” shall mean all of the incorporated area of the City of Santa Clara, Utah.

2.3 “Project Improvements” does not mean system improvement and includes, but is not limited to, a minimum eight-inch culinary water line.

2.4 “System Improvement” shall mean those improvements outlined in the capital facilities plan, and shall except any portion that serves only the project to which the impact fee applies or are otherwise “project improvements”.

2.4 “Utah State Impact Fee Act” shall mean Title 11, Chapter 36, Utah Code Annotated or its successor state statute if that title and chapter is renumbered, recodified, or amended.

**Section 3. Adoption.**

The City Council hereby approves and adopts the Impact Fee Analysis attached as exhibit “B” and the analysis reflected therein. The Water Impact Fee Facilities Plan, Impact Fee Analysis, dated June 2018, are incorporated herein by reference as though fully set forth herein. Based on the City Council’s approval and adoption of the Water Impact Fee Facilities Plan and Impact Fee Analysis, the City Council imposes a requirement that developers install project improvements as a condition to connection to the City of Santa Clara’s current or future water system and delivery of water services from the City of Santa Clara. Based on its approval and adoption of the Water Impact Fee Facilities Plan, Impact Fee Analysis, the City Council hereby imposes the impact fees specified herein and enacts this Ordinance to require payment of the impact fees specified herein as a condition to connection to the City of Santa Clara’s current or future water system and delivery of water service from the City of Santa Clara.

**Section 4. Impact Fee Calculations.**

4.1 *Impact Fees.* The impact fees imposed by this Ordinance are facilities impact fees (generally consisting of storage, distribution and treatment), payable in cash, to fund future facilities and improvements. The impact fees shall be calculated as set forth below.

4.2 *Developer Credits / Developer Reimbursements.* A developer, including a school district or charter school, may be allowed a credit against or proportionate reimbursement of impact fees if the developer dedicates land for a system improvement, builds

and dedicates some or all of a system improvement, or dedicates a public facility that the City of Santa Clara and the developer agree will reduce the need for a system improvement. A credit against impact fees shall be granted for any dedication of land for, improvement to, or new construction of, any system improvements provided by the developer if the facilities are system improvements, or are dedicated to the public and offset the need for an identified system improvement.

4.3 Impact Fees Accounting. The City of Santa Clara shall establish a separate interest-bearing ledger account for the cash impact fees collected pursuant to this Ordinance. Interest earned on such account shall be allocated to that account. Impact fees collected prior to the effective date of this Ordinance need not meet the requirements of this section.

- (a) Reporting. At the end of each fiscal year, the City of Santa Clara shall prepare a report on such account generally showing the source and amount of all monies collected, earned and received by the fund or account and each expenditure from the fund or account. The report shall also identify impact fee funds by the year in which they were received, the project from which the funds were collected, the capital projects for which the funds were budgeted and the projected schedule for expenditure and be provided in a format approved by the State Auditor and certified by the City of Santa Clara City Manager.
- (b) Impact Fee Expenditures. The City of Santa Clara may expend cash impact fees covered by this Ordinance only for systems improvement that are (i) public facilities identified in the Capital Facilities Plan; and (ii) of the specific public facilities type for which the fee was collected.
- (c) Time of Expenditure. Cash impact fees collected pursuant to this Ordinance are to be expended, dedicated or encumbered for a permissible use within six (6) years of receipt by the City of Santa Clara, unless the City Council directs otherwise. For purposes of this calculation, the first funds received shall be deemed to be the first funds expended.
- (d) Extension of Time. The City of Santa Clara may hold previously dedicated or unencumbered fees for longer than six (6) years if it identifies in writing, before the expiration of the six year period, (i) an extraordinary and compelling reason why the fees should be held longer than six (6) years; and (ii) an absolute date by which the fees will be expended.

4.4 Refunds. The City of Santa Clara shall refund any impact fee paid by a developer, plus interest actually earned when (i) the developer does not proceed

with the building activity and files a written request for a refund; (ii) the fees have not been spent or encumbered; (iii) the developer has contributed in excess of its proportional costs; and (iv) no impact has resulted.

4.5 *Additional Fees and Costs.* The impact fees authorized hereby are separate from and in addition to user fees and other charges lawfully imposed by the City of Santa Clara, such as engineering and inspection fees, building permit fees, review fees and other fees and costs that may not be included as itemized component parts of the impact fee.

4.6 *Fees Effective at Time of Payment.* Unless the City of Santa Clara is otherwise bound by a contractual requirement, the impact fee shall be determined from the impact fee schedule in effect at the time of payment in accordance with the provision of Section 5 below.

## Section 5.      **Impact Fee Imposed.**

Impact fees are hereby imposed as a condition of the issuance of a building/development permit by the City of Santa Clara for any development activity which creates additional demand and need for public facilities or makes demands on the water supply in the City of Santa Clara's system. The fees imposed are as follows:

### 5.1 *Impact Fee By Meter Size*

Meter Size	X-Sectional Area (in <sup>2</sup> )	% Area Increase	Impact Fee
3/4"	0.44	0%	\$ 1,973
1"	0.79	80%	\$ 3,542
1 1/2"	1.77	302%	\$ 7,937
2"	3.14	614%	\$ 14,080
3"	7.07	1507%	\$ 31,703
4"	12.57	2757%	\$ 56,365
6"	28.27	6325%	\$ 126,765

## Section 6.      **Fee Exceptions and Adjustments.**

6.1 *Waiver for "Public Purpose".* The City Council may, on a project by project basis, authorize exceptions or adjustments to the then impact fee rate structure for those projects the City Council determines to be of such benefit to the community as a whole to justify the exception or adjustment. Such projects may include low income housing.

6.2 *Adjustments.* The City Council may adjust impact fees imposed pursuant to this Ordinance as necessary in order to respond to unusual circumstances in specific areas,



ensure that impact fees are imposed fairly, permit the adjustments of the amount of the impact fees based upon studies and data submitted by an applicant in order to ensure that the impact fee represents the proportionate share of the cost of providing such public facilities and water which are reasonably related to and necessary in order to provide the services in question to anticipate future growth and development activities. The City Council may also adjust impact fees to respond to a request for a prompt and individualized impact fee review for the development activity of an agency of the State of Utah, a school district, or charter school.

## Section 7.      **Appeal Procedures.**

7.1      *Application.* The appeal procedure applies both to challenges to the legality of impact fees, to similar and related fees of the City of Santa Clara and to the interpretation and/or application of those fees.

7.2      *Request for Information Concerning the Fee.* Any person or entity required to pay an impact fee under this Ordinance may file a written request for information concerning the fee with the City of Santa Clara. The City of Santa Clara will provide the person or entity with the City of Santa Clara's written impact fee analysis and other relevant information relating to the impact fee within fourteen (14) days after receipt of the request for information.

7.3      *Appeal to the City of Santa Clara before Payment of the Impact Fee.* Any affected or potentially affected person or entity who wishes to challenge an impact fee under this Ordinance prior to payment thereof may file a written request for information concerning the impact fee and proceed under the City of Santa Clara's appeal procedure.

7.4      *Appeal to the City of Santa Clara after Payment of the Impact Fee; Statute of Limitations for Failure to File.* Any person or entity that has paid an impact fee under this Ordinance and wishes to challenge the fee shall file a written request for information concerning the fee after having paid the fee and proceed under the City of Santa's appeal procedure. The deadlines for filing an appeal shall be as follows:

- (a) *Notice.* Within thirty (30) days after the person making the appeal pays the impact fee he or she may challenge whether the City of Santa Clara complied with the notice requirements of the Utah State Impact Fee Act with respect to the imposition of the impact fee; and
- (b) *Procedure.* Within 180 days after the person making the appeal pays the impact fee he or she may challenge whether the City of Santa Clara complied with other procedural requirements of the Utah State Impact Fee Act for imposing the impact fee; and
- (c) *Impact Fee.* Within one year after the person making the appeal pays the impact fee he or she may challenge the impact fee.

7.5 Appeals to the City of Santa Clara. Any developer, landowner or affected party desiring to challenge the legality of any impact fee or related fee or exaction under this Ordinance may appeal directly to the City Council of the City of Santa Clara by filing a written challenge with the City of Santa Clara before the deadlines provided in Section 7.4

- (a) Hearing. An informal hearing will be held not sooner than five (5) days nor more than twenty-five (25) days after the written appeal to the City of Santa Clara is filed.
- (b) Decision. After the conclusion of the informal hearing, the City Council shall affirm, reverse or take action with respect to the challenge or appeal as the City Council deems appropriate. The decision of the City Council will be issued within thirty (30) days after the date the written challenge was filed. In light of the statutorily mandated time restriction, the City of Santa Clara shall not be required to provide more than three (3) working days prior notice of the time, date and location of the informal hearing and the inconvenience of the hearing to the challenging party shall not serve as a basis of appeal of the City of Santa Clara's final determination.

7.6 Denial Due to Passage of Time. Should the City of Santa Clara, for any reason, fail to issue a final decision on a written challenge to an impact fee, its calculation or application, within thirty (30) days after the filing of that challenge with the City of Santa Clara, the challenge shall be deemed to have been denied.

7.7 Judicial Review Nothing in this Ordinance shall be interpreted to alter the statutory deadlines before which an action to challenge an impact fee must be initiated in the District Court. After having been served with a copy of the pleadings initiating a court review, the City of Santa Clara shall submit to the court the record of the proceedings before the City of Santa Clara, including minutes, and if available, a true and correct transcript of any proceedings.

Section 8. Severability. If any section subsection, paragraph, clause or phrase of this Ordinance shall be declared invalid for any reason, such decision shall not affect the remaining provisions of this Ordinance, which shall remain in full force and effect, and for this purpose, the provisions of this Ordinance are declared to be severable.

**Effective Date**

This Ordinance shall become effective ninety (90) days following its passage, approval, and publication, as provided by law, being September 25, 2018.

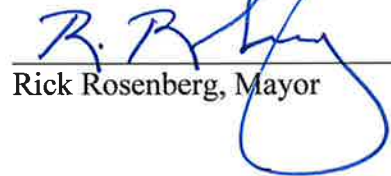
**PASSED, ADOPTED AND APPROVED** this 27th day of June, 2018.

ATTEST:

  
Chris Shelley, City Recorder



CITY OF SANTA CLARA

  
Rick Rosenberg, Mayor

**APPENDIX E**

**PROPOSED  
FINANCIAL PLAN**

**TABLE IX.B-1  
PROPOSED FINANCING PLAN**

<b>TOTAL PROJECT COST (WITH SOUTH HILLS)</b>			<b>\$ 5,626,330</b>
<b>FY 2018/2019 EXPENSES</b>			
<b>Proposed Funding:</b>	<b>Rate</b>	<b>Term in Yrs.</b>	<b>Principal</b>
Self Participation			250,000
Drinking Water/Open Market Bonds	3.50%	20	5,376,330
<b>TOTAL PROJECT FUNDING:</b>			<b>\$5,626,330</b>
<b>EXPENSES: (First Year of New Debt Serv. Pmt.)</b>			
Salaries, Wages, & Benefits (100's)			\$556,363
Materials & Supplies (200's)			\$333,970
Connection Fees Expenses			\$27,700
Professional & Technical Services (300's)			\$45,700
Special Dept. Materials & Supplies (400's)			\$81,728
Other Charges (500's)			\$36,000
Capital Expenses (700's)			\$51,500
Debt Services (825-840)			\$13,025
Others (900's)			\$81,750
Regional Waterline			\$62,526
WCWCD/Compact Wholesale Fee			\$29,343
<b>Subtotal Operations and Maintenance:</b>			<b>\$1,319,606</b>
<b>EXISTING DEBT SERVICE (NOT IMPACT FEE ELIGIBLE)</b>			
2005 Water Bond	6%		\$2,888
2006B Water Bond	0%		\$0
2012 CIB Water Bond	74%		\$157,509
<b>Subtotal Existing Annual Debt Service:</b>			<b>\$160,397</b>
<b>NEW DEBT SERVICE (NOT IMPACT FEE ELIGIBLE)</b>			
New Loan(s)	9%		\$34,353
Loan Reserve (Payment/10)			\$3,435
<b>Subtotal New Annual Debt Service:</b>			<b>\$37,788</b>
Renewal and Replacement Fund			\$0
<b>GRAND TOTAL EXPENSES:</b>			<b>\$1,517,791</b>
<b>ANNUAL INCOME</b>			
Other Operating Revenues			\$73,000
Interest Income			\$6,000
Total Number Of ERU's			3,115
Average Monthly Water User Rate/ERU (Without WCWCD Surcharge)			<b>\$38.65</b>
WCWCD Surcharge			<b>\$1.75</b>
Average Monthly Water User Rate/ERU (With WCWCD Surcharge)			<b>\$40.40</b>
<b>TOTAL ANNUAL INCOME:</b>			<b>\$1,517,791</b>

**TABLE IX.B-1**  
**PROPOSED FINANCING PLAN**

<b>TOTAL PROJECT COST (WITHOUT SOUTH HILLS)</b>		<b>\$ 2,454,030</b>
<b>FY 2018/2019 EXPENSES</b>		
<b>Proposed Funding:</b>	<b>Rate</b>	<b>Term in Yrs.</b>
Self Participation		250,000
Drinking Water	3.50%	20
<b>TOTAL PROJECT FUNDING:</b>		<b>\$2,454,030</b>
<b>EXPENSES: (First Year of New Debt Serv. Pmt.)</b>		
Salaries, Wages, & Benefits (100's)		\$556,363
Materials & Supplies (200's)		\$333,970
Connection Fees Expenses		\$27,700
Professional & Technical Services (300's)		\$45,700
Special Dept. Materials & Supplies (400's)		\$81,728
Other Charges (500's)		\$36,000
Capital Expenses (700's)		\$51,500
Debt Services (825-840)		\$13,025
Others (900's)		\$81,750
Regional Waterline		\$62,526
WCWCD/Compact Wholesale Fee		\$0
<b>Subtotal Operations and Maintenance:</b>		<b>\$1,290,262</b>
<b>EXISTING DEBT SERVICE (NOT IMPACT FEE ELIGIBLE)</b>		
2005 Water Bond	6%	\$2,888
2006B Water Bond	0%	\$0
2012 CIB Water Bond	74%	\$157,509
<b>Subtotal Existing Annual Debt Service:</b>		<b>\$160,397</b>
<b>NEW DEBT SERVICE (NOT IMPACT FEE ELIGIBLE)</b>		
New Loan(s)	21%	\$32,288
Loan Reserve (Payment/10)		\$3,229
<b>Subtotal New Annual Debt Service:</b>		<b>\$35,517</b>
Renewal and Replacement Fund		\$0
<b>GRAND TOTAL EXPENSES:</b>		<b>\$1,486,176</b>
<b>ANNUAL INCOME</b>		
Other Operating Revenues		\$73,000
Interest Income		\$6,000
Total Number Of ERU's		3,115
Average Monthly Water User Rate/ERU (Without WCWCD Surcharge)		<b>\$37.65</b>
WCWCD Surcharge		<b>\$1.75</b>
Average Monthly Water User Rate/ERU (With WCWCD Surcharge)		<b>\$39.40</b>
<b>TOTAL ANNUAL INCOME:</b>		<b>\$1,486,176</b>



**APPENDIX F**

**LAYPERSON SUMMARY OF  
CULINARY WATER IMPACT FEE  
ANALYSIS**

# LAYPERSON SUMMARY OF CULINARY WATER IMPACT FEE ANALYSIS

*Santa Clara City, Utah – June 2018*

A Culinary Water Impact Fee Analysis update has been prepared for Santa Clara City, Utah. This one-page layperson summary provides an outline of the Impact Fee Analysis.

A development impact fee is a one-time charge to new development for the purpose of paying for new or expanded public facilities necessitated by that development. The Impact Fee Analysis determines the proportionate share of costs to be borne by new growth in order to meet demands placed on the system due to that growth.

The existing number Equivalent Residential Units (ERU's) is estimated at 3,115. The Impact Fee Analysis takes into account a projected 20-year growth of ERU's for Santa Clara City water system to an approximate total of 6,741 ERU's not counting potential growth in the BLM portions of the South Hills and 8,518 considering the South Hills potential. The level of service (LOS) used for this plan is based on the State of Utah Administrative Code R309. Number of new ERU's is calculated as follows:

	Excluding South Hills
No. of ERUs (2017/2018)	3,115
20-Year Projected ERUs	6,741
No. of New ERUs Due to Growth	3,626

As allowed by the impact fee act, the proposed impact fee will include the principle and interest on past projects that were determined previously to be impact fee eligible because they provided excess capacity for growth. The past projects amounts are included in the analysis and total **\$4,502,094**.

The total 20-year planning horizon impact fee eligible costs due to the recommended projects for both scenarios of South Hills inclusion or exclusion is as follows:

	Excluding South Hills
Total Estimated New Project Cost	\$ 2,454,030
% Of New Projects Cost Due to New Growth	79%
	\$ 1,943,086
Eligible Interest From New Debt Service	\$ 710,657
Impact Fee Eligible Cost	<b>\$ 2,653,743</b>

The previous impact fee was determined in 2010 and was set at **\$2,598/ERU**. The total maximum impact fee amount is shown below. Santa Clara City may decide to adopt either amount depending on their own assumption of whether to incorporate the South Hills potential or not; they may also choose any lesser amount per ERU but may not charge a higher amount.

	Excluding South Hills
Total Impact Fee Eligible Cost	\$ 7,155,837
Maximum Culinary Water Impact Fee = Total Eligible Cost / New ERU's	<b>\$ 1,973</b>

**APPENDIX G**

**SANTA CLARA CITY AVERAGE  
USAGE PER RESIDENTIAL  
CONNECTION**

### Santa Clara City Average Usage Per Residential Connection

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>Residential</b>									
Usage (gallons)	417,299,000	411,080,236	422,079,000	390,463,000	442,191,000	419,411,000	452,591,000	502,088,000	467,018,000
Connections	1,377	1,418	1,525	1,541	1,620	1,777	1,848	1,921	1,936
Usage Per Connection (gal/year)	303,049	289,901	276,773	253,383	272,957	236,022	244,915	261,340	241,265
Daily Usage Per Connection (gal/day)	830	794	758	694	748	647	671	716	661
3-year Average Usage (gal/day/connection)			794	749	733	696	688	678	683
5-year Average Usage (gal/day/connection)					765	728	704	695	688
<b>Commercial</b>									
Usage (gallons)	5,324,000	6,912,000	6,355,000	7,376,000	11,769,000	16,703,000	13,827,000	23,241,000	17,509,000
Connections	50	54	50	54	53	24	27	30	31
Usage Per Connection (gal/year)	106,480	128,000	127,100	136,593	222,057	695,958	512,111	774,700	564,806
Daily Usage Per Connection (gal/day)	292	351	348	374	608	1,907	1,403	2,122	1,547
Equivalent Residential Unit	0.35	0.44	0.46	0.54	0.81	2.95	2.09	2.96	2.34
Non-Residential ERUs	18	24	23	29	43	71	56	89	73
<b>Other</b>									
Usage (gallons)	33,635,000	31,975,708	35,172,000	35,414,000	50,779,133	45,396,000	68,128,000	73,160,000	80,327,000
Connections	26	26	22	26	27	24	40	42	47
Usage Per Connection (gal/year)	1,293,654	1,229,835	1,598,727	1,362,077	1,880,709	1,891,500	1,703,200	1,741,905	1,709,085
Daily Usage Per Connection (gal/day)	3,544	3,369	4,380	3,732	5,153	5,182	4,666	4,772	4,682
Equivalent Residential Unit	4.27	4.24	5.78	5.38	6.89	8.01	6.95	6.67	7.08
Non-Residential ERUs	111	110	127	140	186	192	278	280	333
Total ERUs	1,506	1,552	1,675	1,710	1,849	2,040	2,182	2,290	2,342

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>Residential</b>									
Usage (gallons)	470,811,000	449,416,000	446,329,000	464,980,000	465,261,000	457,616,000	449,487,000	466,945,000	488,222,000
Connections	1,960	1,936	2,018	2,048	2,076	2,136	2,207	2,301	2,459
Usage Per Connection (gal/year)	240,170	232,140	221,190	227,030	224,110	214,255	203,670	202,940	198,560
Daily Usage Per Connection (gal/day)	658	636	606	622	614	587	558	556	544
3-year Average Usage (gal/day/connection)	678	652	633	621	614	608	586	567	553
5-year Average Usage (gal/day/connection)	671	668	655	637	627	613	597	587	572
<b>Commercial</b>									
Usage (gallons)	9,969,000	8,891,000	8,891,000	8,482,000	8,919,000	8,172,000	7,769,000	10,462,000	14,424,000
Connections	30	116	108	61	95	27	27	29	31
Usage Per Connection (gal/year)	332,300	76,647	82,324	139,049	93,884	302,667	287,741	360,759	465,290
Daily Usage Per Connection (gal/day)	910	210	226	381	257	829	788	988	1,275
Equivalent Residential Unit	1.38	0.33	0.37	0.61	0.42	1.41	1.41	1.78	2.34
Non-Residential ERUs	42	38	40	37	40	38	38	52	73
<b>Other</b>									
Usage (gallons)	57,363,000	50,652,000	43,491,000	51,829,000	63,766,000	51,379,000	49,809,000	41,766,000	47,903,000
Connections	42	31	13	30	14	40	43	46	43
Usage Per Connection (gal/year)	1,365,786	1,633,935	3,345,462	1,727,633	4,554,714	1,284,475	1,158,349	907,957	1,114,023
Daily Usage Per Connection (gal/day)	3,742	4,477	9,166	4,733	12,479	3,519	3,174	2,488	3,052
Equivalent Residential Unit	5.69	7.04	15.12	7.61	20.32	6.00	5.69	4.47	5.61
Non-Residential ERUs	239	218	197	228	285	240	245	206	241
Total ERUs	2,241	2,192	2,255	2,313	2,401	2,414	2,490	2,559	2,773