

# DOMESTIC WATER STORAGE AND RESERVOIR SITING STUDY

February 2021 Update



Prepared for:  
**TRABUCO CANYON WATER DISTRICT**  
32003 Dove Canyon Drive  
Trabuco, CA 92679



Prepared by:  
**PSOMAS**  
5 Hutton Centre Drive, Suite 300  
Santa Ana, CA 92707

Project No. 2TRA132701

## Water Storage System Overview

Trabuco Canyon Water District's (TCWD or District) water storage system is described in detail in TCWD's 1999 Master Plan (Master Plan). The Master Plan also discusses emergency storage and the reliability of water supply from TCWD's wholesale water importer, the Metropolitan Water District of Southern California (Metropolitan). The Master Plan notes Metropolitan requires that retailers provide for up to seven average days of demand through emergency storage or other sources of supply.

South Orange County relies heavily on water from Metropolitan, which supplies imported water through the State Water Project and the Colorado River Aqueduct. These imported water supplies are further managed by the Municipal Water District of Orange County (MWDOC) of which TCWD is a member agency. Unlike the northern areas of Orange County, where there are large groundwater aquifers from which water can be extracted during an emergency, South Orange County has very little to no available sources of groundwater and groundwater storage.

In 2010, through a Proposition 218 process, TCWD adopted the Water Reliability and Emergency Storage Fee (WRES) to finance the following three major capital projects: 1) 2 cubic feet per second (cfs) capacity in the Baker Water Treatment Plant, a regional water treatment facility in Orange County with access to stored water in Irvine Lake, 2) Trabuco Creek Wells Facility, a water treatment plant for treatment of local groundwater in Trabuco Creek, and 3) a 2.0 million gallon (MG) water storage reservoir and distribution improvements for increasing emergency storage supplies.

The purpose of this Domestic Water Storage and Reservoir Siting Study Update (Study) is to update the Study of the same title conducted in 2016 to reflect current overall District demands, development projections and storage conditions as of the end of 2020.

TCWD's Master Plan identifies the following three components of domestic water storage in a public water system:

- Operational Storage
- Fire Protection Storage
- Emergency Storage

Storage is required in a water system to balance variations in demand above and below normal supply settings (operational storage), to provide water for fighting fires (fire storage), and to provide water when normal supplies are reduced or unavailable due to unusual circumstances (emergency storage). TCWD has requirements for each of these in order to ensure system functionality and reliability. TCWD's Master Plan and subsequent individual Sub Area Master Plans (SAMPs) prepared for new developments discuss and determine these storage components.

## Current Storage Condition

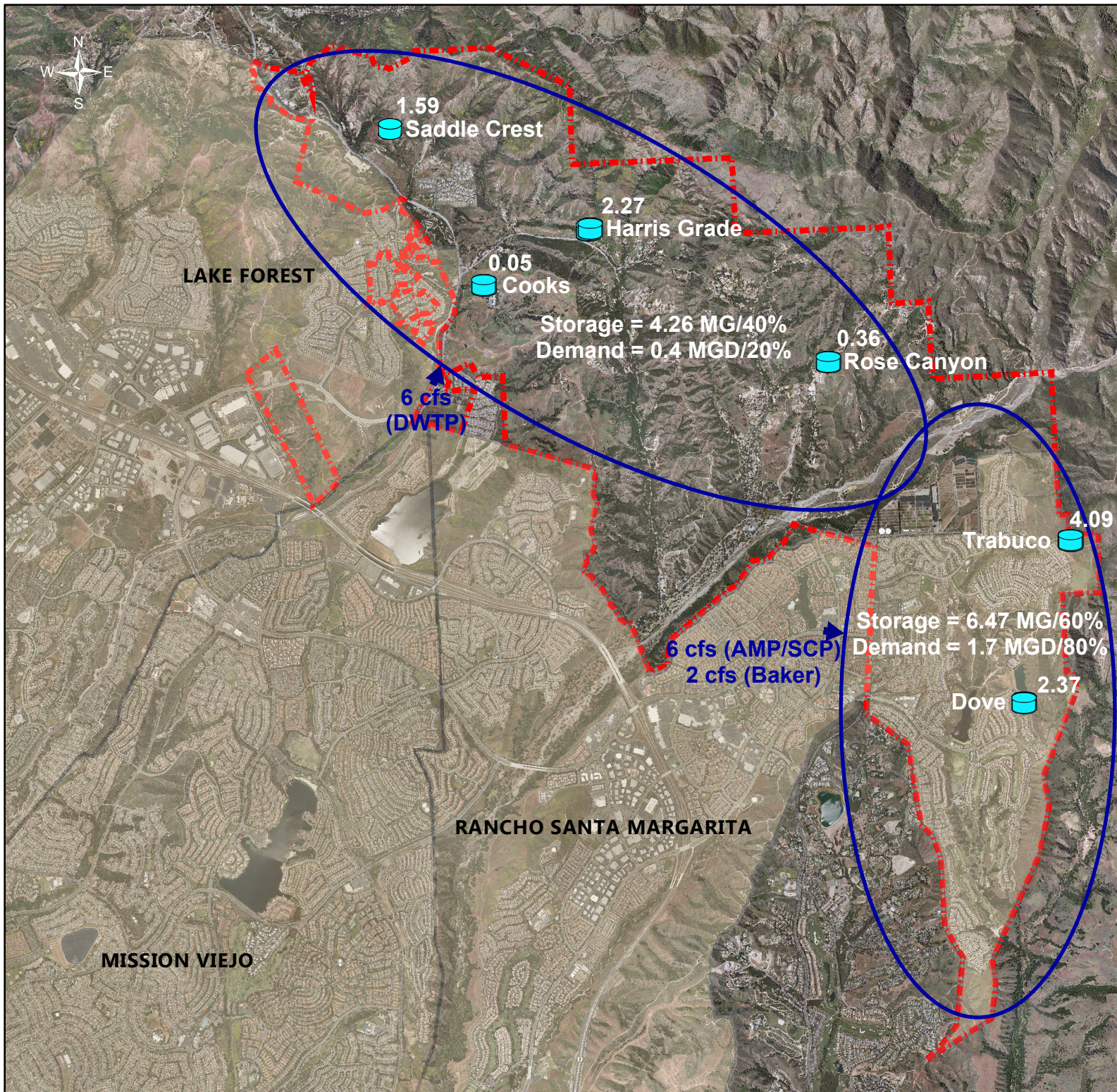
Table 1 shows TCWD’s existing domestic water storage reservoirs and their characteristics and Figure 1 shows their respective locations. It should be noted that the Total Effective Storage available is reduced over Total Volume to account for normal operating conditions such as allowing for adequate “freeboard” to prevent overflowing the tank and wasting water and other operational factors. In early 2021 the Saddle Crest Reservoir will be brought on-line. This reservoir was constructed by the Saddle Crest developer but the reservoir was funded jointly by the developer and TCWD with the District paying for 0.62 million gallons (MG) of total storage volume.

**Table 1  
TCWD Water Storage Reservoirs**

Reservoir <sup>1</sup>	As-Built Diameter (i.d.-feet)	Top of Shell Height (feet)	Height of Overflow <sup>2</sup> (feet)	Operating Height <sup>3</sup> (feet)	Effective Volume (MG)	Year Built	HGL Max. <sup>4</sup>
Cooks	21.5	24	22.5	20	0.05	1963	1,165
Harris Grade No. 1	104	32	31	30	1.91	1980	1,504
Harris Grade No. 2	55	24	23	20	0.36	1965	1,496
Rose Canyon	55	24	23	20	0.36	1979	1,357
Trabuco No. 1	99	24	26	23.5	1.35	1984	1,686
Trabuco No. 2	141	24	26	23.5	2.74	1986	1,686
Dove	116	32	33	30	2.37	1988	1,418
Saddle Crest	95	32	31.5	30	1.59	2020	1,508
<b>Total Effective Storage (2021)</b>					<b>10.73</b>		

1. Storage reservoirs are all steel, welded or bolted, and above grade
2. Height of Overflow; met design criteria for freeboard at time of design. Trabuco and Dove Tanks overflow is set above top of shell
3. Maximum height at which reservoir is operated
4. Hydraulic Grade Line Elevation in feet above mean sea level

Figure 1 also shows the effective volume of each reservoir as well as the storage volume east and west of Trabuco Creek compared to the average day demand for those areas. What is taken from this analysis is the fact that 40% of the District’s storage volume lies in the west where there is only 20% of the demand. And conversely, 60% of the storage is in the east where 80% of the demand is found. While this is somewhat out of balance and could be an issue if the pipeline crossing Trabuco Creek is lost temporarily, the supply source locations and amounts are also shown on this figure illustrating geographic supply redundancy. And since normal operating conditions utilize the Dimension Water Treatment Plant (DWTP) supply as the primary feed it is operationally important to have a sufficient amount of storage near that source, in the western portion of the District.



**Figure 1**

**Existing Reservoir Locations & Storage, Demand and Supply Distribution**

Eff. Vol. (MG)  
Reservoirs

Service Area  
Boundary

**East vs. West Breakdown**  
Storage = Vol./% of Total  
Demand = ADD/% of Total

**Supply Sources**  
▶ Peak Capacity (Source)

**Abbreviations/Notes**

DWTP: Dimension Water Treatment Plant  
AMP: Allen McCulloch Pipeline  
SCP: South County Pipeline  
Baker: Baker Water Treatment Plant

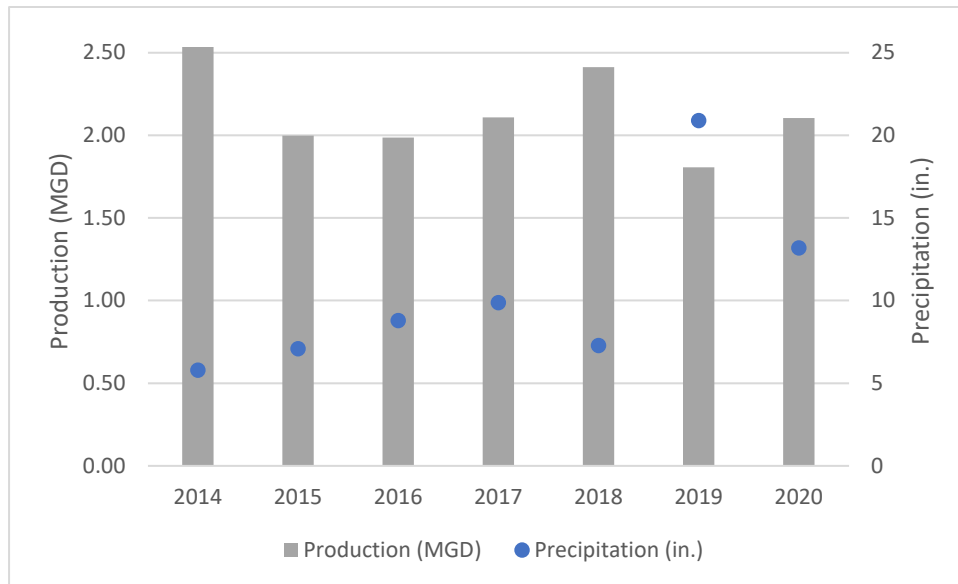
Note: Well supply not shown due to intermittent status

TCWD monitors its available storage on a daily basis taking into account that water levels fluctuate hourly based on system water demands and production rate. The number of available days of storage is calculated based on total storage and water demands or production. Over the past seven calendar years domestic water production has averaged 3.28 cfs, which is 6.55 acre-feet per day or 2.14 million gallons per day (MGD) as shown in Table 2 along with precipitation figures from the California Irrigation Management Information System (CIMIS) Station 75 in Irvine (Great Park). Figure 2 is a plot of this information, which shows the relationship between demand and precipitation. Although there has been some growth within the District over this period, demands are trending slightly downward, most likely due to continued conservation. It should be noted that the closest year to the average demand over this period occurred in 2017, which was also the closest year to the average rainfall over the seven-year period.

**Table 2**  
**Average Domestic Water Production and Rainfall**

	2014	2015	2016	2017	2018	2019	2020	AVERAGE
<b>cfs</b>	3.92	3.09	3.05	3.26	3.66	2.77	3.22	3.28
<b>Acre-Feet/Day</b>	7.78	6.13	6.10	6.47	7.40	5.54	6.46	6.55
<b>Production (MGD)</b>	2.53	2.00	1.99	2.11	2.41	1.81	2.11	2.14
<b>Precipitation (in.)</b>	5.8	7.1	8.8	9.9	7.3	20.9	13.2	10.43

**Figure 2**  
**Average Domestic Water Production and Rainfall**



Assuming average production of 2.14 MGD from Table 2 and existing effective storage of 10.73 MG from Table 1, the District has just over 5 days of storage ( $10.73/2.14$ ). Using average production from 2019 of 1.81 MGD, would increase that to just under 6 days of

storage. If, during an emergency, existing customers were to reduce water use to water demands of about 2.0 cfs or 1.29 MGD, then 8.3 days of storage would be available. Reducing demands to 2.0 cfs or even below that amount for a period of one or two weeks should be completely achievable as the total monthly production has been at or below this amount for the five full months shown in Table 3 during the past two winters. In fact, average production of about 1.35 cfs was recorded over the two-month period of February and March of 2019. Therefore, indoor-only water demands should be below 1.5 cfs, which should be attainable with effective communication to all District customers requesting they eliminate all non-essential irrigation during such an emergency condition.

**Table 3**  
**Total Monthly Production (cfs)**

March 2020	2.0
December 2019	1.8
March 2019	1.4
February 2019	1.3
January 2019	2.0

Metropolitan indicated in its *2018 Evaluation of Metropolitan’s Emergency Storage Objective* report that “a retail water demand cutback of 25 to 35 percent appears reasonable based on levels of conservation achieved during the recent drought”. Using that rationale, and TCWD’s average demand over the past seven years of 3.28 cfs, a 25 to 35 percent cutback would result in demands of 2.46 to 2.13 cfs, respectively. The total effective storage volume of 10.73 MG puts the District in the “reasonable” range of demand cutbacks assumed by Metropolitan as achievable, which would equate to a 28.2 percent cutback to maintain seven days of storage. As Saddle Crest and other proposed developments come online, a higher percentage would be required but additional conservation is also likely to occur and moving towards a 35 percent reduction would provide more days of storage.

Projections for new developments and their anticipated additional average day demands are detailed on Table 4 in five-year increments to Year 2035 (next pages). Taking the cumulative total demand projections from Table 4 and adding them to the average demand from the past seven years from Table 2, which is assumed as the existing demand, yields the demand projections shown in the first row of Table 5. These projections are believed to be conservative as they assume no additional conservation from the seven-year average assumed as the current demand.

**Table 4 - Estimated Dwelling Units, Demand Factors and Demands for New Developments<sup>(a)</sup>**

ID	Potential New Development	APN	Housing Density Assumed	Op+Em Storage (Gallons/D U) <sup>(d)</sup>	Per Unit Demand Factor (gpd)	Acres	FTSP/Master Plan	2025		2030		2035	
								2025 Connect	2025 Demand (gpd)	2030 Connect	2030 Cum'l Demand (gpd)	2035 Connect	2035 Cum'l Demand (gpd)
1	Zadeh	866-081-12 +	Low	7978	1850	41.88	20 (4 Existing)	6	11,100	5	20,350	5	29,600
2	Saddle Crest <sup>(b)</sup>	858-011-09 +	Low	7978	1850	114.04	218 (SAMP lowered #)	25	46,250	40	120,250		120,250
3	Saddleback Meadows <sup>(c)</sup>	856-081-01 +	Medium	7978	650		299 (SAMP lowered #)	20	13,000	100	78,000	61	117,650
4	Nurseries	842-071-180+	Medium	3795	880	198.09	600 both nurseries			150	132,000	300	396,000
5	Varshney	105-202-58 +	Low	7978	1850	22.58	25 (cut back per Zadeh)			7	12,950	7	25,900
6	Geraci/Joley (Randazzo)	866-031-13	Low	7978	1850	6				1	1,850		1,850
7	Mills (Shimomura)	858-011-10 +	Low	7978	1850	75.2				15	27,750	14	53,650
8	Vawser	858-021-22	X			7.48	(1 existing DU)						
9	Matthews	858-021-13	Low	7978	1850	4.4	4	2	3,700		3,700		3,700
10	County of Orange (Adams)	866-032-12	X			5.3	3 (Now open space)						
11	Reilly	858-021-21	X			14.96	(1 existing DU)						
12	Oaks at Trabuco	856-171-01+	Low	7978	1850	32.03	9 (3 Existing meter)	3	5,550	3	11,100		11,100
13	Richardson (Haefele)	606-021-07	Low	7978	1850	1.1		1	1,850		1,850		1,850
14	Live Oak Ltd	856-011-22	X			23.4	21 (Now open space)						
15	Live Oak-A (Ramirez)	856-013-04	Low	7978	1850	1		1	1,850		1,850		1,850
16	Live Oak-B (various owners)	856-021-20+	Medium	3795	880	2.24		4	3,520		3,520		3,520
17	McCarthy (Serrano)	606-021-05+	Medium	3795	880	5		3	2,640		2,640		2,640
18	StanPac-Sky Ridge <sup>(e)</sup>	856-061-06+	X			16.6							
19	Shah (Tittle)	856-012-06	Low	7978	1850	17.7	Commercial	4	7,400		7,400		7,400
20	Rutter (Waston/Haskell)	858-021-11+	Low	7978	1850	98.3		24	44,400	24	88,800		88,800
21	Bach	856-042-15	Low	7978	1850	148.44				14	25,900	14	51,800
22	Beardslee	842-081-17	Low	7978	1850	40.3				8	14,800		14,800
23	Saddle Club LLC (Bishop of Orange)	125-035-34	Low	7978	1850	30.96				3	5,550		5,550
24	Lin (Federal S&L Insurance Corp)	856-052-14	Low	7978	1850	90.2				14	25,900	13	49,950
25	Felch	856-052-10	Low	7978	1850	5.3				1	1,850		1,850
26	Various owners (Ferber)	842-051-13	Low	7978	1850	155.9	OCTA portion should be 0			8	14,800		14,800
27	Their (Fossil Resources)	842-011-01+	Low	7978	1850	78.7						6	11,100
28	Politski (Grier)	856-041-05	Low	7978	1850	27.7				5	9,250		9,250
29	Trabuco Canyon Water District (Porter)	842-061-07+	Medium	3795	880	119.4							
30	Live Oak (various owners)	856-031-01+	Low	7978	1850	47.54	Combined C,D,E,F			10	18,500	10	37,000

SEE FOOTNOTES ON NEXT PAGE - FOR LOCATION OF DEVELOPMENTS SEE FIGURE 2-1 FROM 2016 REPORT INCLUDED IN APPENDIX

**Table 4 - Estimated Dwelling Units, Demand Factors and Demands for New Developments<sup>(a)</sup>**

ID	Potential New Development	APN	Housing Density Assumed	Op+Em Storage (Gallons/D U) <sup>(d)</sup>	Per Unit Demand Factor (gpd)	Acres	FTSP/Master Plan	2025		2030		2035	
								2025 Connect	2025 Demand (gpd)	2030 Connect	2030 Cum'l Demand (gpd)	2035 Connect	2035 Cum'l Demand (gpd)
31	OC Transportation Authority (Lucarelli)	125-035-33	X			116.07	(Now open space)						
32	Laval (Mithcell-East)	842-061-04	Low	7978	1850	39.8				3	5,550		5,550
33	Laval (Mitchell-West)	842-081-12	Low	7978	1850	101.7				7	12,950	8	27,750
34	Moutain View Road	842-091-36+	Low	7978	1850		47 (26 existing)			8	14,800	8	29,600
35	Newell (various owners)	856-052-12+	Low	7978	1850	54.81				5	9,250	6	20,350
36	Wm. Lyon	833-011-25	Medium	3795	880	2.8				5	4,400	4	7,920
37	Keeler (Racki)	856-052-03	Low	7978	1850	39.3				8	14,800	7	27,750
38	Rose Canyon (various owners)	842-122-11+	Low	7978	1850	25.11	20 (8 existing)			5	9,250	4	16,650
39	McKittrick (Schwendeman-West)	842-081-20	Low	7978	1850	4.8				2	3,700		3,700
40	McKittrick (Schwendeman-East)	842-061-02	Low	7978	1850	40.9				3	5,550	3	11,100
41	Wm. Lyon Plano <sup>(f)</sup>	833-731-01	High	1164	270	1.83					-		
42	Trabuco PWT Corporation	842-061-01	Low	7978	1850	118.3				9	16,650	9	33,300
43	Uysugi	856-042-08	Low	7978	1850	13.4		3	5,550		5,550		5,550
44	Trabuco Ranches (various owners)	842-121-11+	Low	7978	1850	50.72	24 (13 existing)			4	7,400	4	14,800
45	Baywood Development (Saddleback Canyon)	858-044-24+	Low	7978	1850	8.93							
46	Various owners (Ferber)	842-041-05+	Low	7978	1850	285.91	50 (lower portion now OS)					11	20,350
47	Joplin Boys' Ranch (built out)	842-011-06+	X			311.2							
	Total DU Connections							96		462		494	
	Total Average Demand								146,810		740,410		1,286,230

(a) Average Water Demands for High, Medium, and Low Density Developments, with 75% development of plan (FTSP) levels in Canyon Areas (Unincorporated OC).

(b) Saddle Crest constructed storage at development site. Total requirement is per SAMP (0.88 MG) and phased requirement is prorated by dwelling units.

(c) Storage location for Saddleback Meadows still under investigation. Saddleback Meadows demand per draft SAMP for residential and HOA use and 181 dwelling units.

(d) Includes Emergency Storage per Master Plan.

(e) Sky Ridge Development receives supply and storage from TCWD purchased capacity in the SMWD system.

(f) Average domestic water demand based on high density development with recycled water for common areas.

FOR LOCATION OF DEVELOPMENTS SEE FIGURE 2-1 FROM 2016 REPORT INCLUDED IN APPENDIX



**Table 5  
Demand Projections and Storage Situation**

	2020	2025	2030	2035
Average Demand (MGD)	2.14	2.28	2.88	3.42
35% Reduction in Demand (MGD)	1.39	1.48	1.87	2.22
7 Days Reduced Demand (MG)	9.72	10.39	13.08	15.57
2021 Effective Storage (MG)	10.73	10.73	10.73	10.73
Surplus (Deficiency) (MG) <sup>1</sup>	1.01	0.34	(2.35)	(4.84)
Demand Reduction Required <sup>2</sup>	28.2%	32.8%		

1) Existing Effective Storage minus 7 days of 35% reduced demand

2) Demand reduction required to yield exactly 7 days of storage

The second and third rows in Table 5 show an assumed 35 percent reduction in demand in MGD and seven days of that reduced demand in MG. The next two rows show the existing effective storage volume from Table 1 and the surplus or deficiency in storage volume if you subtract the seven days of reduced demand from the existing Effective Storage.

As illustrated in Table 5, the current storage volume would be adequate with these assumptions until around 2026. The last row of Table 5 shows the demand reduction required to yield exactly seven days of storage, which also shows that the District should be within the “reasonably achievable cutback” range used by Metropolitan in their study of 25 to 35 percent until around 2026.

## Recommendations

It is recommended that the District continue planning studies on development of a recommended storage site for constructing the next reservoir providing an additional volume of approximately 2.25 MG, including storage needs for the proposed Saddleback Meadows development (less, if excluded). These recent studies have evaluated the District’s Harris Grade Reservoir and the Porter Ranch sites in more detail. In the meantime, water production volumes (demand minus non-revenue water) should continue to be monitored and the tables above updated annually. When it appears production at a 35 percent reduction will not last seven days at some point within an upcoming two-year period, design should commence on the then recommended best alternative site. That will allow ample time for design, permitting, and construction.

In order to ensure funding is in place for that alternative, it is recommended an analysis of existing funding sources versus best available reservoir site alternatives be conducted. For one thing, the District’s current Water Storage Fee does not even appear to cover the construction cost of an above-ground welded steel tank alone, not including the cost of land purchase, grading, site work, yard piping, inlet/outlet piping, access roads, etc., or any design and other technical services required.

The draft studies performed for the Harris Grade and Porter Ranch reservoir studies used a cost of between \$0.73 and \$1.00 per gallon for steel tank construction only. Looking at actual costs for the Saddle Crest Reservoir, the tank and appurtenant reservoir related items such as piping, valving, etc. (excluding grading and land costs) equated to about \$1.13 per gallon. The District's current Water Storage Fee is set at \$2,050 per equivalent dwelling unit (EDU) with one EDU being equal to 459 gallons per day (gpd) of average day demand. Using the District's storage requirements for new developments and the current Water Storage Fee, a typical new development of 200 EDUs would generate \$410,000 in Water Storage Fees or be required to construct 717,413 gallons of storage, which equates to \$0.57 per gallon ( $\$410,000/717,413$ ). Therefore, if new developments are only generating on the order of \$0.60 per gallon to contribute to the District's Water Storage Fee Fund, that amount is not covering the cost of constructing reservoirs based on recent cost estimates for reservoir site construction options currently available to the District.

**Table A-1 TCWD Water Production Reports for 2014-2020**

**TABLE A-1**  
**TCWD Water Production Reports for 2014-2020**

<i><b>DIMENSION WTP</b></i>	<b>2014</b>												<b>TOTAL</b>
	<b>JAN</b>	<b>FEB</b>	<b>MAR</b>	<b>APR</b>	<b>MAY</b>	<b>JUN</b>	<b>JUL</b>	<b>AUG</b>	<b>SEP</b>	<b>OCT</b>	<b>NOV</b>	<b>DEC</b>	
SAC METER AC/FT	251	196	*	*	271	279	309	306	275	214	227	135	2,463
BACKWASH AC/FT	5	4	5	5	5	5	3	4	4	4	7	5	54
FLUSHWATER AC/FT	10	8	11	12	8	11	9	9	8	10	14	9	118
WTP EFFLUENT AC/FT	249	193	182	210	269	277	310	306	273	211	225	133	2,838
<b>WELLS</b>													
TRABUCO CREEK GWTF	0	0	0	0	0	0	0	0	0	0	0	0	0
US WELL AC/FT	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>AMP WATER</b>													
SMWD AC/FT	0	0	0	0	11	17	45	12	9	46	0	0	139
IRWD AC/FT	0	0	0	0	0	0	0	0	3	28	0	0	31
<b>TOTAL SUPPLY</b>													
AC/FT	244	189	177	205	275	289	352	315	281	281	217	128	2,952
CFS DAILY AVERAGE	4.0	3.1	2.9	3.3	4.5	4.7	5.7	5.1	4.5	4.6	3.5	2.1	4
AC/FT PER DAY	7.9	6.1	5.7	6.7	8.9	9.3	11.3	10.2	9.0	9.1	7.0	4.0	8
<b>OPERATIONS in GAL.</b>													
WTP DOMESTIC	27,696	22,664	33,286	32,388	34,258	29,322	20,794	21,842	17,877	21,019	28,642	24,684	314,472
WWTP DOM	1,330	900	1,380	2,360	3,110	2,990	1,480	1,340	2,140	2,860	4,520	5,110	29,520
<b>OPERATIONS (AF)</b>													
SUPPLEMENT TO RW	14	31	0	0	0	5	34	15	0	18	5	0	120
<b>LOSSES in GAL.</b>													
FLUSHING (gal.)	0	0	0	0	0	0	0	0	0	0	0	0	0
SEWER CLEANING (gal.)	0	0	10,000	10,000	10,000	0	10,000	10,000	10,000	10,000	10,000	10,000	90,000
LINE BREAKS (gal.)	36,000	0	0	0	43,000	0	0	0	0	0	0	12,000	91,000
<b>SYSTEM DEMAND **</b>													
CFS DAILY AVERAGE	3.8	3.0	2.8	3.4	4.5	4.8	5.2	4.9	4.9	4.3	3.6	2.1	3.92
AC/FT PER DAY	7.5	5.9	5.6	6.8	8.9	9.5	10.3	9.6	9.6	8.5	7.1	4.1	7.78
<b>RESERVOIR STORAGE</b>													
MONTHLY AVG (MG)	8.0	8.2	8.0	8.2	7.9	7.9	8.2	8.0	8.2	8.4	8.2	8.2	8
DAYS OF STORAGE	3	4	4	4	3	3	2	3	3	3	4	6	3
<b>ZONES (AF)</b>													
RIDGELINE PS	219	195	182	195	262	253	281	291	271	231	222	115	2,717
EL TORO P.S.	26	4	2	18	16	30	25	27	16	40	4	18	226
TOPANGA	1	1	2	4	6	4	3	3	4	4	3	1	35
FALCON	0.9	0.4	0.6	0.8	1.0	1.1	1.1	0.9	0.8	1.0	0.7	0.1	9
ROSE PRV/ OAKS	8	7	8	10	15	11	12	15	13	11	10	7	127
CANYON CREEK	0.4	0.3	0.3	0.3	0.4	0.5	0.5	0.4	0.5	0.4	0.3	0.2	4
ROSE P.S.	1.3	0.4	0.7	0.7	1.1	1.2	1.5	2.5	1.6	1.6	1.2	0.9	15
ROBINSON RANCH	64	51	45	59	84	102	151	146	107	103	65	26	1,003
DOVE CANYON	83	69	85	83	95	93	81	66	75	82	74	50	935
PORTOLA HILLS	14	11	10	15	13	15	20	15	15	18	13	10	171

\* Usage estimated new meter installed

**TABLE A-1**  
**TCWD Water Production Reports for 2014-2020**

<i><b>DIMENSION WTP</b></i>	<b>2015</b>												<b>TOTAL</b>
	<b>JAN</b>	<b>FEB</b>	<b>MAR</b>	<b>APR</b>	<b>MAY</b>	<b>JUN</b>	<b>JUL</b>	<b>AUG</b>	<b>SEP</b>	<b>OCT</b>	<b>NOV</b>	<b>DEC</b>	
SAC METER AC/FT	172	173	210	107	201	211	185	235	195	187	182	155	2,213
BACKWASH AC/FT	5	6	6	3	4	5	4	6	6	5	6	6	62
FLUSHWATER AC/FT	11	10	12	6	9	9	10	13	11	11	11	11	125
WTP EFFLUENT AC/FT	165	171	210	106	200	211	182	234	194	186	181	154	2,194
<b>WELLS</b>													
TRABUCO CREEK GWTF	0	0	0	0	0	0	0	0	0	0	0	0	0
US WELL AC/FT	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>AMP WATER</b>													
SMWD AC/FT	0	0	0	73	0	0	19	0	7	0	0	0	99
IRWD AC/FT	0	0	0	59	0	0	0	0	0	0	0	0	59
<b>TOTAL SUPPLY</b>													
AC/FT	160	166	203	235	195	205	197	228	195	181	175	148	2,289
CFS DAILY AVERAGE	2.6	2.7	3.3	3.8	3.2	3.3	3.2	3.7	3.2	3.0	2.8	2.4	3
AC/FT PER DAY	5.2	5.4	6.6	7.6	6.3	6.6	6.4	7.4	6.3	5.9	5.6	4.5	6
<b>OPERATIONS in GAL.</b>													
WTP DOMESTIC	0.08	0.07	0.10	0.08	0.06	0.08	0.06	0.09	0.07	0.06	0.07	0.07	0.9
WWTP DOM	1.16	0.97	1.02	1.14	1.28	0.43	0.50	0.29	0.24	0.17	0.18	0.23	7.61
<b>OPERATIONS (AF)</b>													
SUPPLEMENT TO RW	0	0	0	20	0	0	0	0	0	0	0	0	20
<b>LOSSES in GAL.</b>													
FLUSHING (gal.)	0	0	0	0	0	0	0	0	0	0	0	0	0
SEWER CLEANING (gal.)	10,000	10,000	10,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	75,000
LINE BREAKS (gal.)	0	0	6,000	414,000	0	0	50,000	0	0	0	0	30,000	500,000
<b>SYSTEM DEMAND **</b>													
CFS DAILY AVERAGE	2.6	2.7	3.3	3.5	3.1	3.5	3.3	3.7	3.3	3.0	2.9	2.4	3.09
AC/FT PER DAY	5.2	5.3	6.6	6.9	6.2	6.9	6.4	7.3	6.5	5.9	5.8	4.7	6.13
<b>RESERVOIR STORAGE</b>													
MONTHLY AVG (MG)	8.2	8.2	8.2	8.2	8.4	8.3	8.3	8.1	8.2	8.1	7.8	7.9	8
DAYS OF STORAGE	5	5	4	4	4	4	4	3	4	4	4	5	4
<b>ZONES (AF)</b>													
RIDGELINE PS	166	156	196	165	184	210	179	237	183	177	181	137	2,170
EL TORO P.S.	3	5	11	24	31	2	7	0	12	10	0	10	116
TOPANGA	1	2	2	3	2	3	2	2	2	1	1	1	21
FALCON	0.4	0.5	0.7	0.6	0.4	0.3	0.5	0.5	0.4	0.4	0.5	0.2	5
ROSE PRV/ OAKS	7	7	10	10	10	11	10	14	12	10	4	3	107
CANYON CREEK	0.2	0.2	0.4	0.4	0.3	0.4	0.4	0.5	0.3	0.3	0.3	0.3	4
ROSE P.S.	1.0	0.9	1.1	0.9	1.0	1.3	0.8	0.8	0.6	0.6	0.5	0.5	10
ROBINSON RANCH	38	42	61	62	68	55	56	63	49	45	47	35	620
DOVE CANYON	59	59	82	87	81	69	53	79	66	64	61	53	815
PORTOLA HILLS	12	10	10	15	12	11	15	10	14	10	6	12	137

\* Usage estimated new meter installed

**TABLE A-1**  
**TCWD Water Production Reports for 2014-2020**

<i>DIMENSION WTP</i>	2016												TOTAL
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
SAC METER AC/FT	130	92	133	152	170	160	257	307	250	168	71	145	2,035
BACKWASH AC/FT	6	3	4	5	6	4	5	5	5	5	2	6	56
FLUSHWATER AC/FT	3	6	8	8	9	8	10	10	10	3	5	11	91
WTP EFFLUENT AC/FT	127	91	130	146	174	158	253	308	262	167	69	146	2,031
<b>WELLS</b>													
TRABUCO CREEK GWTF	0	0	0	0	0	0	0	0	0	0	0	0	0
US WELL AC/FT	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>AMP WATER</b>													
SMWD AC/FT	0	14	0	0	0	21	0	7	0	41	62	0	145
IRWD AC/FT	0	32	0	0	0	27	0	0	0	25	64	0	148
<b>TOTAL SUPPLY</b>													
AC/FT	122	133	126	141	170	206	257	314	250	233	195	146	2,293
CFS DAILY AVERAGE	2.0	2.3	2.1	2.6	2.8	3.4	4.2	5.0	4.0	3.7	3.1	2.3	3
AC/FT PER DAY	3.9	4.6	4.1	5.1	5.5	6.9	8.3	9.9	8.1	7.5	6.3	4.7	6
<b>OPERATIONS in GAL.</b>													
WTP DOMESTIC	0.07	0.04	0.26	0.21	0.05	0.05	0.07	0.08	0.08	0.09	0.07	0.12	1.2
WWTP DOM	0.25	0.23	0.27	0.22	0.18	0.15	0.25	0.29	0.23	0.23	0.33	0.35	2.98
<b>OPERATIONS (AF)</b>													
SUPPLEMENT TO RW	0	0	0	0	0	0	6	29	35	34	15	0	119
<b>LOSSES in GAL.</b>													
FLUSHING (gal.)	0	0	0	0	0	0	0	0	0	0	0	0	0
SEWER CLEANING (gal.)	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	60,000
LINE BREAKS (gal.)	0	215,000	0	0	10,000	120,000	10,000	0	2,000	0	90,000	0	447,000
<b>SYSTEM DEMAND **</b>													
CFS DAILY AVERAGE	2.0	2.3	2.1	2.6	2.7	3.2	4.1	4.9	4.3	2.8	3.2	2.4	3.05
AC/FT PER DAY	4.0	4.6	4.1	5.1	5.3	6.5	8.3	10.0	8.5	5.6	6.5	4.7	6.10
<b>RESERVOIR STORAGE</b>													
MONTHLY AVG (MG)	8.1	8.2	8.0	8.0	8.4	8.3	8.3	8.2	8.1	8.0	7.8	7.9	8
DAYS OF STORAGE	6	5	6	5	5	4	3	3	3	4	4	5	4
<b>ZONES (AF)</b>													
RIDGELINE PS	118	113	113	138	145	184	252	281	252	187	134	129	2,046
EL TORO P.S.	13	25	16	16	16	27	6	21	8	25	64	12	250
TOPANGA	1	1	1	1	1	2	2	2	2	1	2	1	17
FALCON	0.1	0.3	0.3	0.4	0.5	0.6	0.6	0.6	0.7	0.6	0.4	0.2	5
ROSE PRV/ OAKS	3	3	4	4	9	5	6	7	6	4	4	2	57
CANYON CREEK	0.2	0.2	0.2	0.3	0.3	0.5	0.5	0.4	0.5	0.4	0.4	0.2	4
ROSE P.S.	0.4	0.4	0.6	0.5	0.6	0.4	0.6	1.0	0.8	0.6	0.5	0.5	7
ROBINSON RANCH	29	35	34	45	54	56	87	161	129	86	63	31	810
DOVE CANYON	46	54	53	57	67	92	87	23	65	77	56	52	729
PORTOLA HILLS	8	9	10	9	10	15	12	12	16	12	14	10	137

\* Usage estimated new meter installed

**TABLE A-1**  
**TCWD Water Production Reports for 2014-2020**

<i>DIMENSION WTP</i>	2017												TOTAL
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
SAC METER AC/FT	84	93	25	66	114	170	247	168	245	253	161	222	1,848
BACKWASH AC/FT	5	5	1	3	4	5	5	3	5	5	4	5	50
FLUSHWATER AC/FT	8	11	3	7	7	9	10	7	10	10	7	7	96
WTP EFFLUENT AC/FT	84	89	28	64	114	168	248	172	247	257	162	225	1,858
<b>WELLS</b>													
TRABUCO CREEK GWTF	0	0	102	119	87	39	0	0	0	0	0	0	347
US WELL AC/FT	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>AMP WATER</b>													
SMWD AC/FT	22	4	7	5	0	0	4	57	7	3	18	4	131
IRWD AC/FT	0	0	0	0	0	0	1.4	42.5	0	0	25.25	0	69
<b>TOTAL SUPPLY</b>													
AC/FT	106	93	137	188	201	207	253	271	254	260	205	229	2,404
CFS DAILY AVERAGE	1.7	2.8	2.2	3.2	3.3	3.5	4.2	4.4	4.3	4.2	3.4	3.7	3
AC/FT PER DAY	3.4	3.1	4.4	6.4	6.5	6.9	8.2	8.7	8.5	8.4	6.8	7.4	7
<b>OPERATIONS in GAL.</b>													
WTP DOMESTIC	22,739	28,125	10,696	27,975	28,125	37,400	43,758	27,900	36,420	39,644	19,822	30,070	352,674
WWTP DOM	1,050	1,060	1,100	970	1,070	1,020	2,341	2,847	2,775	2,992	3,378	3,257	23,860
<b>OPERATIONS (AF)</b>													
SUPPLEMENT TO RW	0	0	0	0	0	0	0	17	9	13	0	6	45
<b>LOSSES in GAL.</b>													
FLUSHING (gal.)	0	0	0	0	0	0	10,000	0	0	0	0	0	10,000
SEWER CLEANING (gal.)	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	60,000
LINE BREAKS (gal.)	4,000	4,000	0	0	1,000	1,000	0	45,000	0	1,000	0	0	56,000
<b>SYSTEM DEMAND **</b>													
CFS DAILY AVERAGE	1.6	1.5	2.1	3.1	3.2	3.5	4.3	4.4	4.4	4.2	3.3	3.6	3.26
AC/FT PER DAY	3.2	2.9	4.0	6.2	6.4	6.9	8.1	8.7	8.6	8.4	6.8	7.4	6.47
<b>RESERVOIR STORAGE</b>													
MONTHLY AVG (MG)	8.0	7.8	8.0	8.2	8.1	8.3	8.1	8.2	8.0	8.1	8.0	7.9	8
DAYS OF STORAGE	8	8	6	4	4	4	3	3	3	3	4	3	4
<b>ZONES (AF)</b>													
RIDGELINE PS	34	62	19	11	101	173	254	173	247	246	141	184	1,645
EL TORO P.S.	44	20	9	53	11	0	2	39	0	14	46	41	279
TOPANGA	1	1	1	1	1	3	3	3	2	3	2	3	23
FALCON	0.1	0.1	0.4	0.6	0.6	0.6	0.6	0.8	0.6	0.6	0.5	0.5	5.9
ROSE PRV/ OAKS	2	8	3	4	5	8	7	9	11	13	9	7	86
CANYON CREEK	0.1	0.1	0.2	0.5	0.3	0.4	0.5	0.5	0.3	0.4	0.3	0.4	4.1
ROSE P.S.	0.6	1.8	0.7	0.6	0.8	0.7	0.7	1.0	1.3	1.1	0.8	1.4	11.5
ROBINSON RANCH	16	18	29	53	56	65	83	74	76	75	57	67	669
DOVE CANYON	47	36	61	78	86	91	96	108	94	98	69	78	942
PORTOLA HILLS	8	10	8	10	8	14	13	17	14	13	15	13	143

\* Usage estimated new meter installed

**TABLE A-1**  
**TCWD Water Production Reports for 2014-2020**

<i>DIMENSION WTP</i>	2018												TOTAL
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
SAC METER AC/FT	166	114	143	218	219	236	250	289	255	220	194	136	2,440
BACKWASH AC/FT	4	3	5	5	5	5	5	6	5	5	5	4	57
FLUSHWATER AC/FT	6	6	9	9	9	10	11	14	9	9	7	7	106
WTP EFFLUENT AC/FT	167	113	143	220	220	239	250	289	262	217	194	135	2,449
<b>WELLS</b>													
TRABUCO CREEK GWTF	0	0	0	0	0	0	0	0	0	0	0	0	0
US WELL AC/FT	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>AMP WATER</b>													
SMWD AC/FT	9	28	0	0	0	29	60	44	33	6	6	0	215
IRWD AC/FT	12.1	44	0	0	0	0	0	0	0	6	19	12	93
<b>TOTAL SUPPLY</b>													
AC/FT	188	185	143	220	220	268	310	333	295	223	213	147	2,745
CFS DAILY AVERAGE	3.1	3.3	2.4	3.7	3.6	4.5	5.0	5.4	4.0	3.6	3.5	2.2	44
AC/FT PER DAY	6.1	6.6	4.6	7.3	7.1	8.9	10.0	10.7	9.8	7.2	7.1	4.4	90
<b>OPERATIONS in GAL.</b>													
WTP DOMESTIC	32,987	15,035	23,412	27,826	28,723	30,219	30,818	31,865	31,715	40,616	28,274	25,357	346,847
WWTP DOM	19,060	18,700	12,400	14,180	13,176	14,180	15,280	18,246	16,284	17,274	18,246	16,284	193,310
<b>OPERATIONS (AF)</b>													
SUPPLEMENT TO RW	0	0	0	21	30	30	32	33	4	0	0	0	151
<b>LOSSES in GAL.</b>													
FLUSHING (gal.)	0	0	0	0	0	0	0	0	0	0	0	0	0
SEWER CLEANING (gal.)	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	60,000
LINE BREAKS (gal.)	977,574	0	30,000	3,000	1,000	1,000	2000	5,000	1,000	815,000	0	0	1,835,574
<b>SYSTEM DEMAND **</b>													
CFS DAILY AVERAGE	3.0	3.2	2.5	3.7	3.7	4.4	5.0	5.3	4.1	3.5	3.4	2.1	3.66
AC/FT PER DAY	6.1	6.6	4.5	7.3	7.2	8.9	9.9	10.5	9.9	7.0	6.8	4.1	7.40
<b>RESERVOIR STORAGE</b>													
MONTHLY AVG (MG)	8.1	8.0	7.9	8.2	8.1	8.0	8.2	8.1	7.9	7.8	8.0	8.4	8
DAYS OF STORAGE	4	4	5	3	3	3	3	2	3	3	4	6	4
<b>ZONES (AF)</b>													
RIDGELINE PS	156	146	134	224	221	243	254	263	264	214	213	136	2,468
EL TORO P.S.	11	43	9	0	0	0	0	26	0	3	19	13	124
TOPANGA	2	2	1	2	2	3	3	3	3	3	4	2	30
FALCON	0.4	0.4	0.2	0.5	0.4	0.4	0.1	0.3	Inop.	Inop.	Inop.	0.1	3
ROSE PRV/ OAKS	4	6	6	5	4	4	6	5	4	4	2	3	53
CANYON CREEK	0.2	0.2	0.2	0.3	0.3	1.1	1.0	0.6	0.4	0.3	0.4	0.2	5
ROSE P.S.	0.5	0.8	1.2	0.7	0.7	0.5	0.8	0.9	1.3	1.4	1.3	1.5	12
ROBINSON RANCH	49	49	37	60	58	75	96	115	87	62	61	33	782
DOVE CANYON	68	57	52	92	101	106	119	105	85	78	46	50	959
PORTOLA HILLS	9	13	9	8	14	11	14	17	16	11	13	15	150

\* Usage estimated new meter installed



**TABLE A-1**  
**TCWD Water Production Reports for 2014-2020**

<i>DIMENSION WTP</i>	2019												TOTAL
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
SAC METER AC/FT	116	23	7	79	42	0	0	207	237	226	119		1,056
BACKWASH AC/FT	4	1	0.3	3	2	0	0	5	5	5	5	4	34
FLUSHWATER AC/FT	7	2	0.6	4	3	0	0	9	8	9	8	7	58
WTP EFFLUENT AC/FT	120	21	7	79	40	0	0	210	243	227	197	117	1,261
<b>WELLS</b>													
TRABUCO CREEK GWTF	0	51	84	93	96	92	70	35	0	0	0	0	521
US WELL AC/FT	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>AMP WATER</b>													
SMWD AC/FT	0	0	0	0	12	86	98	1	0	1	0	0	198
IRWD AC/FT	0	0	0	0	0	0	64	3	3	0	0	0	70
<b>TOTAL SUPPLY</b>													
AC/FT	120	72	91	172	148	178	232	249	246	228	197	117	2,050
CFS DAILY AVERAGE	2.0	1.3	1.4	2.9	2.4	3.1	3.8	4.0	3.9	3.7	3.3	1.8	34
AC/FT PER DAY	3.9	2.6	2.9	5.7	4.8	5.9	7.5	8.0	7.9	7.4	6.6	3.7	67
<b>OPERATIONS in GAL.</b>													
WTP DOMESTIC	21,916	5,460	2,917	13,464	8,901	0	0	67,395	37,325	67,021	31,266	25,133	280,798
WWTP DOM	16,479	12,285	14,998	16,490	16,410	17,421	15,400	15,900	11,800	14,300	18,260	16,060	185,803
<b>OPERATIONS (AF)</b>													
SUPPLEMENT TO RW	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>LOSSES in GAL.</b>													
FLUSHING (gal.)	0	0	0	0	0	0	70,000	50,000	60,000	0	60,000	0	240,000
SEWER CLEANING (gal.)	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	60,000
LINE BREAKS (gal.)	0	10,000	10,000	0	70,000	2,000	2000	0	50,000	1,000	1000	0	146,000
<b>SYSTEM DEMAND **</b>													
CFS DAILY AVERAGE	2.0	1.3	1.4	2.8	2.4	3.0	3.8	3.9	3.8	3.7	3.3	1.8	2.77
AC/FT PER DAY	3.9	2.6	2.9	5.6	4.8	5.8	7.3	8.0	7.9	7.4	6.6	3.7	5.54
<b>RESERVOIR STORAGE</b>													
MONTHLY AVG (MG)	8.9	9.0	8.8	8.9	8.8	8.7	8.6	8.5	8.6	8.5	8.3	8.9	9
DAYS OF STORAGE	4	4	4	4	4	4	4	4	4	4	4	4	4
<b>ZONES (AF)</b>													
RIDGELINE PS	99	6	1	62	28	0	0	216	241	216	88	0	957
EL TORO P.S.	21	15	7	17	12	0	64	0	0	11	109	117	373
TOPANGA	1	1	1	2	2	3	4	4	4	4	2	2	30
FALCON	0.2	0.1	0.2	0.5	0.3	0.8	0.6	0.6	0.6	0.6	0.4	0.1	5
ROSE PRV/ OAKS	2	1	2	2	2	2	2	4	5	5	4	3	34
CANYON CREEK	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.5	0.4	0.3	0.2	3
ROSE P.S.	1.5	1.0	0.5	0.7	0.7	1.1	0.4	0.2	0.1	0.2	0.2	0.2	7
ROBINSON RANCH	21	12	15	45	30	39	51	64	68	60	48	15	468
DOVE CANYON	147	34	47	73	71	80	92	97	88	83	73	43	928
PORTOLA HILLS	10	8	7	8	12	11	12	14	16	12	13	11	134

\* Usage estimated new meter installed

**TABLE A-1**  
**TCWD Water Production Reports for 2014-2020**

<i><b>DIMENSION WTP</b></i>	<b>2020</b>												<b>TOTAL</b>
	<b>JAN</b>	<b>FEB</b>	<b>MAR</b>	<b>APR</b>	<b>MAY</b>	<b>JUN</b>	<b>JUL</b>	<b>AUG</b>	<b>SEP</b>	<b>OCT</b>	<b>NOV</b>	<b>DEC</b>	
SAC METER AC/FT	152	166		68	147	13	Offline	199	264				1,009
BACKWASH AC/FT	5	4	4.0	3	5	1	0	3	5	5	5	5	45
FLUSHWATER AC/FT	9	9	9.0	5	9	2	0	9	10	8	8	6	84
WTP EFFLUENT AC/FT	153	168	128	68	151	10	0	199	268	252	195	212	1,804
<b>WELLS</b>													
TRABUCO CREEK GWTF	0	0	0	68	81	58	59	25	0	0	0	0	291
US WELL AC/FT	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>AMP WATER</b>													
SMWD AC/FT	0	0	0	0	0	36	10	4	0	0	0	0	50
IRWD AC/FT	0	0	0	0	0	111	122	24	0	0	0	0	257
<b>TOTAL SUPPLY</b>													
AC/FT	153	168	128	136	232	197	191	252	268	252	195	212	2,384
CFS DAILY AVERAGE	2.4	2.9	2.1	2.3	3.8	3.3	3.1	4.0	4.5	4.1	3.3	3.4	39
AC/FT PER DAY	4.9	5.8	4.1	4.5	7.5	6.6	6.2	8.1	8.9	8.1	6.5	6.8	78
<b>OPERATIONS in GAL.</b>													
WTP DOMESTIC	28,424	26,778	32,688	18,700	37,176	3,740	75	59,242	45,254	43,758	42,412	82,878	421,125
WWTP DOM	6,000	20,570	14,630	11,110	27,170	22,800	23,430	17,710	16,170	15,070	10,546	14,855	200,061
<b>OPERATIONS (AF)</b>													
SUPPLEMENT TO RW	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>LOSSES in GAL.</b>													
FLUSHING (gal.)	144,000	468,000	0	0	0	0	384,000	198,000	210,000	186,000	355,200	0	1,945,200
SEWER CLEANING (gal.)	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	60,000
LINE BREAKS (gal.)	1,000	350,000	350,000	30,000	5,000	1,000	0	1,000	350,000	0	0	0	1,088,000
<b>SYSTEM DEMAND **</b>													
CFS DAILY AVERAGE	2.4	2.9	2.0	2.2	3.7	3.3	3.1	4.0	4.5	4.1	3.2	3.4	3.2
AC/FT PER DAY	4.9	5.7	4.1	4.5	7.4	6.6	6.2	8.1	9.0	8.1	6.4	6.8	6.5
<b>RESERVOIR STORAGE</b>													
MONTHLY AVG (MG)	8.8	8.6	8.8	8.9	8.6	8.8	8.5	8.2	8.8	8.7	8.8	8.7	9
DAYS OF STORAGE	4	3	4	4	3	4	3	3	4	4	4	4	4
<b>ZONES (AF)</b>													
RIDGELINE PS	Offline	Offline	Offline	Offline	20	10	122	199	252	237	174	170	1,184
EL TORO P.S.	153	168	128	68	131	111	122	24	0	0	0	0	905
TOPANGA	3	2	2	1	3	3	4	4	4	3	3	3	35
FALCON	0.5	0.6	0.2	0.2	0.7	0.7	0.8	0.8	0.8	0.6	0.5	0.4	7
ROSE PRV/ OAKS	3	3	3	5	6	6	7	7	6	6	Inop.	Inop.	52
CANYON CREEK	0.2	0.3	0.2	0.2	0.3	0.4	0.4	0.6	0.6	0.4	0.2	0.2	4
ROSE P.S.	0.2	0.1	1.5	0.3	1.5	0.8	0.8	1.4	0.9	0.8	0.9	0.4	10
ROBINSON RANCH	26	30	19	24	49	47	56	73	81	72			477
DOVE CANYON	60	63	51	39	87	91	97	99	90	90			767
PORTOLA HILLS	8	11	9	8	11	13	16	15	16	15			122

\* Usage estimated new meter installed

**TABLE A-1**  
**TCWD Water Production Reports for 2014-2020**

<b>DIMENSION WTP</b>	<b>AVG 2014-20</b>
SAC METER AC/FT	2,009
BACKWASH AC/FT	52
FLUSHWATER AC/FT	99
WTP EFFLUENT AC/FT	2,105
<b>WELLS</b>	
TRABUCO CREEK GWTF	145
US WELL AC/FT	0
<b>AMP WATER</b>	
SMWD AC/FT	154
IRWD AC/FT	78
<b>TOTAL SUPPLY</b>	
AC/FT	2,456
CFS DAILY AVERAGE	15
AC/FT PER DAY	31
<b>OPERATIONS in GAL.</b>	
WTP DOMESTIC	215,799
WWTP DOM	72,084
<b>OPERATIONS (AF)</b>	
SUPPLEMENT TO RW	76
<b>LOSSES in GAL.</b>	
FLUSHING (gal.)	41,667
SEWER CLEANING (gal.)	67,500
LINE BREAKS (gal.)	512,596
<b>SYSTEM DEMAND **</b>	
CFS DAILY AVERAGE	3.3
AC/FT PER DAY	6.6
<b>RESERVOIR STORAGE</b>	
MONTHLY AVG (MG)	8
DAYS OF STORAGE	4
<b>ZONES (AF)</b>	
RIDGELINE PS	2,000
EL TORO P.S.	228
TOPANGA	26
FALCON	6
ROSE PRV/ OAKS	77
CANYON CREEK	4
ROSE P.S.	10
ROBINSON RANCH	725
DOVE CANYON	885
PORTOLA HILLS	145
* Usage estimated new meter installed	

**Potential New Developments (Previous Owner)**

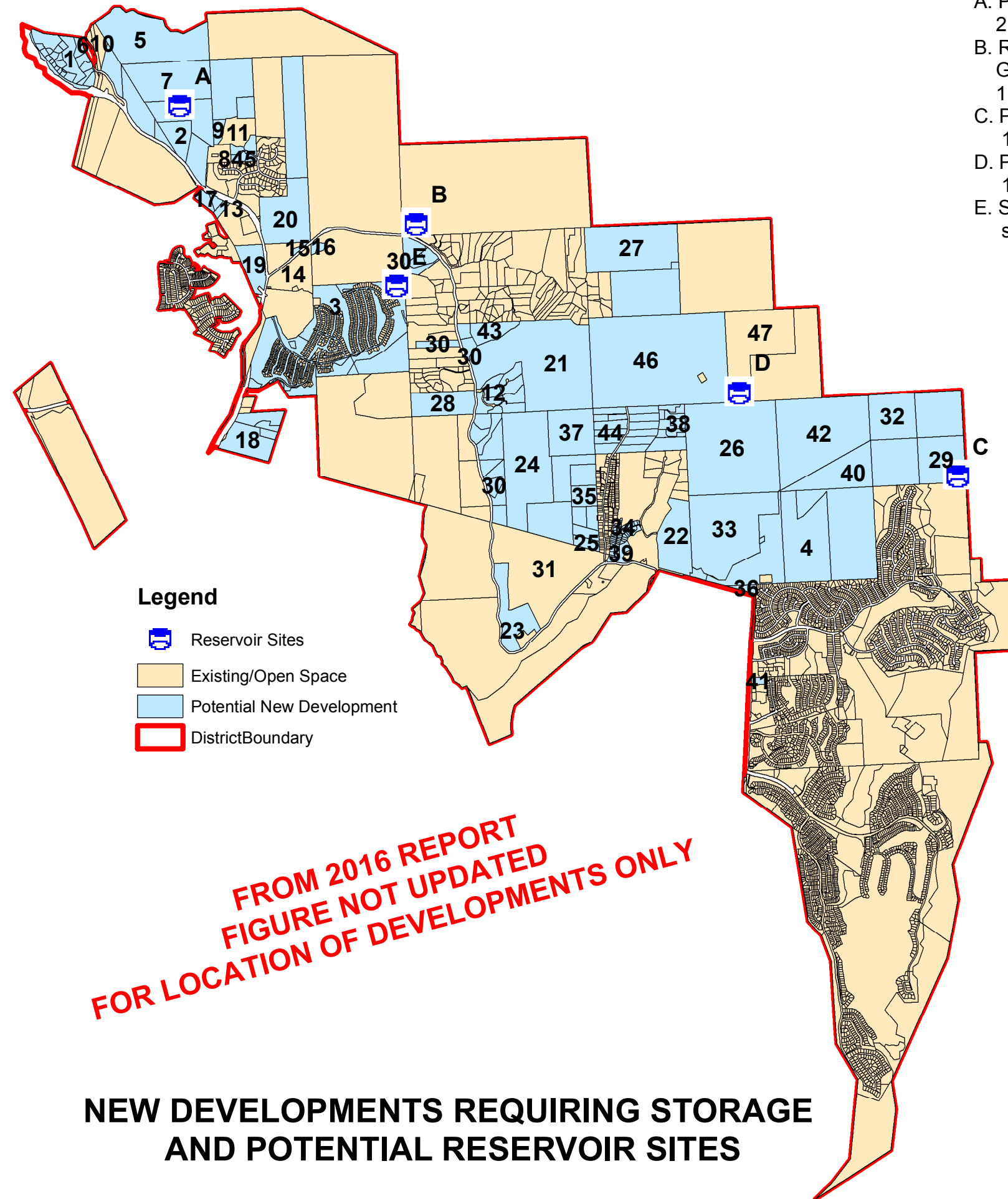
1. Zadeh
4. Nurseries
5. Varshney
6. Geraci/Joley (Randazzo)
7. Mills (Shimomura)
9. Matthews
12. Oaks at Trabuco
13. Ricahrdsn (Haefele)
15. Live Oak-A (Ramirez)
16. Live Oak -B (Various Owners)
17. McCarthy (Serrano)
19. Shah (Tittle)
20. Rutter (Watson/Haskell)
21. Bach
22. Beardslee
23. Saddle Club LLC (Bishop of Orange)
24. Lin (Federal S & L Insurance Corp)
25. Felch
26. Various Owners (Ferber)
27. Their (Fossil Resources)
28. Politski (Greir)
29. Trabuco Canyon Water District (Porter)
30. Live Oak (Various Owners)
32. Laval (Mitchell-East)
33. Laval (Mitchell-West)
34. Mountain View Road
35. Newell (Various Owners)
36. Wm. Lyon
37. Keeler (Racki)
38. Rose Canyon (Various Owners)
39. McKittrick (Schwendman-West)
40. McKittrick (Schwendman-East)
41. Wm. Lyon Plano
42. Trabuco PWT Corporation
43. Uysugi
44. Trabuco Ranches (Various Owners)
45. Baywood Development (Saddleback Canyon)
46. Various Owners (Ferber)

**Developments Not Needing Storage**

2. Saddle Crest : Storage on Site
3. Saddleback Meadow : Storage on Site
8. Vawser
10. County of Orange (Adams)
11. Reilly
14. Live Oak Ltd
18. StanPac-Sky Ridge
31. OC Transportation Authority (Lucarelli)
47. Joplin Boys' Ranch

**Potential Reservoir Sites**

- A. Proposed Saddle Crest Reservoir :  
2.0 MG, HWL ≈ 1508'
- B. Replace Existing 0.42 MG Harris  
Grade Reservoir with 2.0 MG Reservoir :  
1.58 MG, HWL ≈ 1504'
- C. Potential Porter Property Reservoirs :  
1.5 to 4.0 MG, HWL ≈ 1508'
- D. Potential Joplin Property Reservoirs :  
1.5 to 4.0 MG, HWL ≈ 1508'
- E. Saddleback Meadows Property Reservoir:  
sized for development, HWL ≈ 1600'



**Legend**

- Reservoir Sites
- Existing/Open Space
- Potential New Development
- DistrictBoundary

**FROM 2016 REPORT  
FIGURE NOT UPDATED  
FOR LOCATION OF DEVELOPMENTS ONLY**

**NEW DEVELOPMENTS REQUIRING STORAGE  
AND POTENTIAL RESERVOIR SITES**