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Technical Memorandum

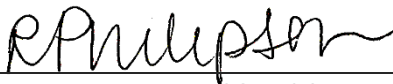
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Technical Memorandum

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Date: February 14, 2020
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Limitations:

This document was prepared solely for the City of Antioch in accordance with professional standards at the time the services were performed and in accordance with the contract between the City of Antioch and Brown and Caldwell dated August 13, 2019. This document is governed by the specific scope of work authorized by the City of Antioch; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by the City of Antioch and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

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List of Abbreviations

ABAG	Association of Bay Area Governments
ADD	average day demand
AFY	acre-feet per year
BC	Brown and Caldwell
CCWD	Contra Costa Water District
City	City of Antioch
DD	Delta Diablo (formerly Delta Diablo Sanitation District)
du	dwelling unit
gpd	gallon(s) per day
MDD	maximum day demand
mgd	million gallons per day
TM	Technical Memorandum
UWMP	Urban Water Management Plan
UWDF	unit water demand factor
WSMP	Water System Master Plan



Introduction

The development of projected water demands is a high priority for the City of Antioch (City). For this reason, Brown and Caldwell (BC) prioritized results of the Water System Master Plan (WSMP) Update water demand analysis and projected demands in a separate document from the 2020 WSMP. This technical memorandum (TM) presents estimates of future water use based on existing and historical water use and land-use projections for future developments and infill. The WSMP Update will use projected water requirements presented in this TM for average day demand (ADD), maximum day demand (MDD), and peak-hour demand as design requirements for planning the City's future water facilities and distribution system needs.

Section 1: Existing Water Demands

The following sections summarize the City's historical water use and water demand by land use type and pressure zone.

1.1 Historical Water Use

Table 1 summarizes the City's historic water use trends and MDD to average ADD ratios. Figure 1 provides a graphical representation of the data and indicates several peaks in demand since 1975.

Table 1. Historical Water Production				
Year	ADD		MDD	MDD/ADD Ratio
	mgd	AFY	mgd	
1975	6.87	7,695	13.74	2.00
1976	5.98	6,698	12.43	2.08
1977	3.07	3,439	6.18	2.01
1978	4.93	5,522	9.13	1.85
1979	5.68	6,362	10.22	1.80
1980	5.86	6,564	10.44	1.78
1981	7.23	8,099	12.71	1.76
1982	6.64	7,438	11.62	1.75
1983	6.98	7,819	12.8	1.83
1984	8	8,961	14.02	1.75
1985	8.43	9,443	14.68	1.74
1986	9.05	10,137	15.01	1.66
1987	9.85	11,033	16.26	1.65
1988 ^a	9.95	11,145	16.5	1.66
1989 ^a	10.12	11,336	17.98	1.78
1990 ^a	11.6	12,994	19.16	1.65
1991 ^a	9.32	10,440	14.39	1.54
1992 ^a	10.75	12,042	16.98	1.58
1993 ^a	11.58	12,971	19.17	1.66



Table 1. Historical Water Production				
Year	ADD		MDD	MDD/ADD Ratio
	mgd	AFY	mgd	
1994 ^a	12.81	14,349	21.48	1.68
1995 ^a	12.93	14,483	22.24	1.72
1996 ^a	14.27	15,984	24.29	1.70
1997 ^a	15.11	16,925	25.32	1.68
1998 ^a	13.64	15,279	25.94	1.90 ^a
1999 ^a	15.81	17,709	27.4	1.73
2000 ^a	16.15	18,090	26.24	1.62
2001 ^a	17.41	19,502	28.27	1.62
2002 ^a	17.92	20,073	29.63	1.65
2003 ^a	17.52	19,625	29.39	1.68
2004 ^a	18.56	20,790	28.35	1.53
2005 ^a	18.25	20,443	30.71	1.68
2006 ^a	17.5	19,603	32.47	1.86
2007 ^a	19.08	21,372	31.14	1.63
2008 ^a	18.12	20,297	28.86	1.50
2009 ^a	16.19	18,135	27.01	1.67
2010 ^a	15.35	17,194	26.5	1.73
2011 ^a	15.5	17,362	25.88	1.67
2012 ^a	15.98	17,900	26.13	1.64
2013 ^b	16.60	18,595	27.01	1.63
2014 ^b	14.53	16,279	23.02	1.58
2015 ^b	12.03	13,474	17.97	1.49
2016 ^b	12.18	13,639	19.82	1.63
2017 ^b	12.93	14,486	21.09	1.63
2018 ^b	13.19	14,779	24.89	1.89
2019 ^{b, c}	12.03	13,478	19.57	1.63

a. Data is from Table 3-1 of the 2013 WSMP.

b. BC received water production data from City Staff in October 2019.

c. 2019 totals include data from January to July.

AFY = acre-feet per year

mgd = million gallons per day



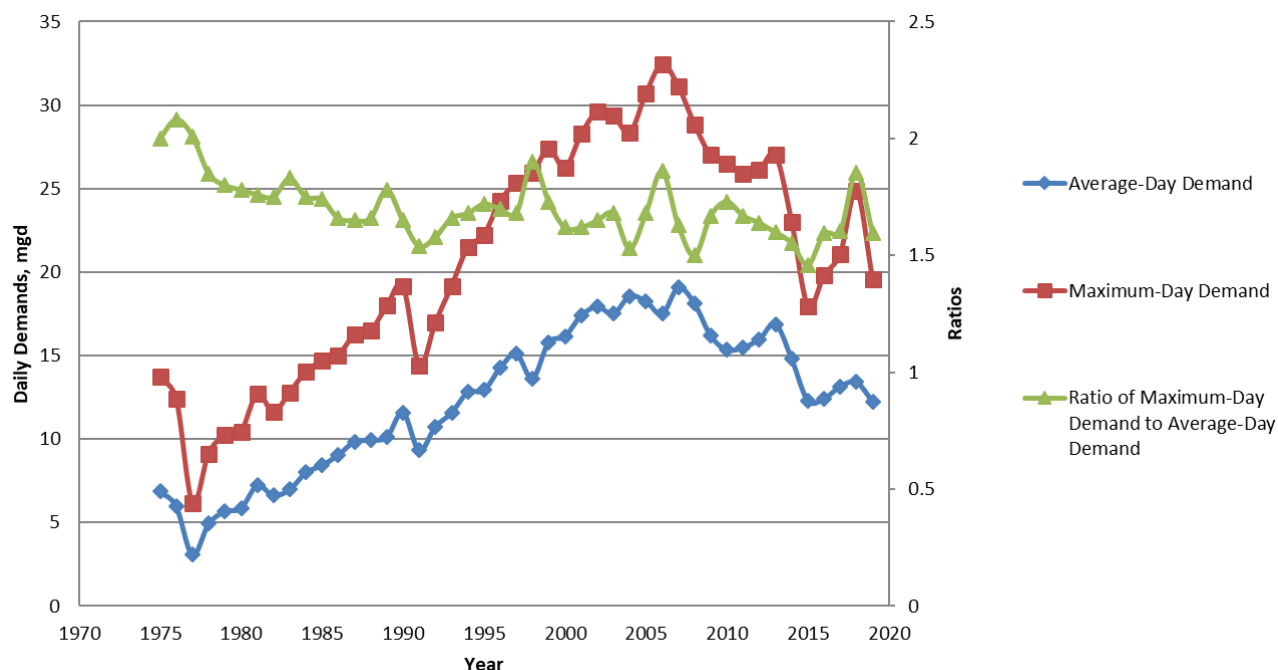


Figure 1. Historic water production

In general, average day use steadily increased after the severe drought of 1976 to 1977. With several exceptions, demands declined in the early 1990s due to a drought, in 1998 likely due to the heavy El Niño rainfall, from 2008 to 2012 potentially due to reduced spending during the economic recession, and from 2013 to 2016 due to voluntary water conservation during the drought period.

Although economic conditions and drought conditions have improved since the 2014 WSMP, water use has not returned to pre-drought levels. Water conservation during drought periods has resulted in some permanent changes in customer's water usage patterns.

The ratio of MDD to ADD has decreased and generally has remained between 1.5 and 2.0, with an average of 1.7 since the mid-1980s. Post-drought and post-recession, peaking factors have decreased, with an average of 1.6. Data review for this TM indicates that this peaking factor is representative of current system conditions; therefore, BC has used it for hydraulic analyses and facility sizing completed as part of the 2020 WSMP.

1.2 Current System Consumption

The City water system currently serves approximately 35,000 customers (connections). The system is responsible for delivering treated water to residential, commercial, senior housing, and other land uses. Table 2 summarizes billing data for the existing (2018) system by land use type. As evident in Table 2, the City's predominant land use and water users are residential customers.

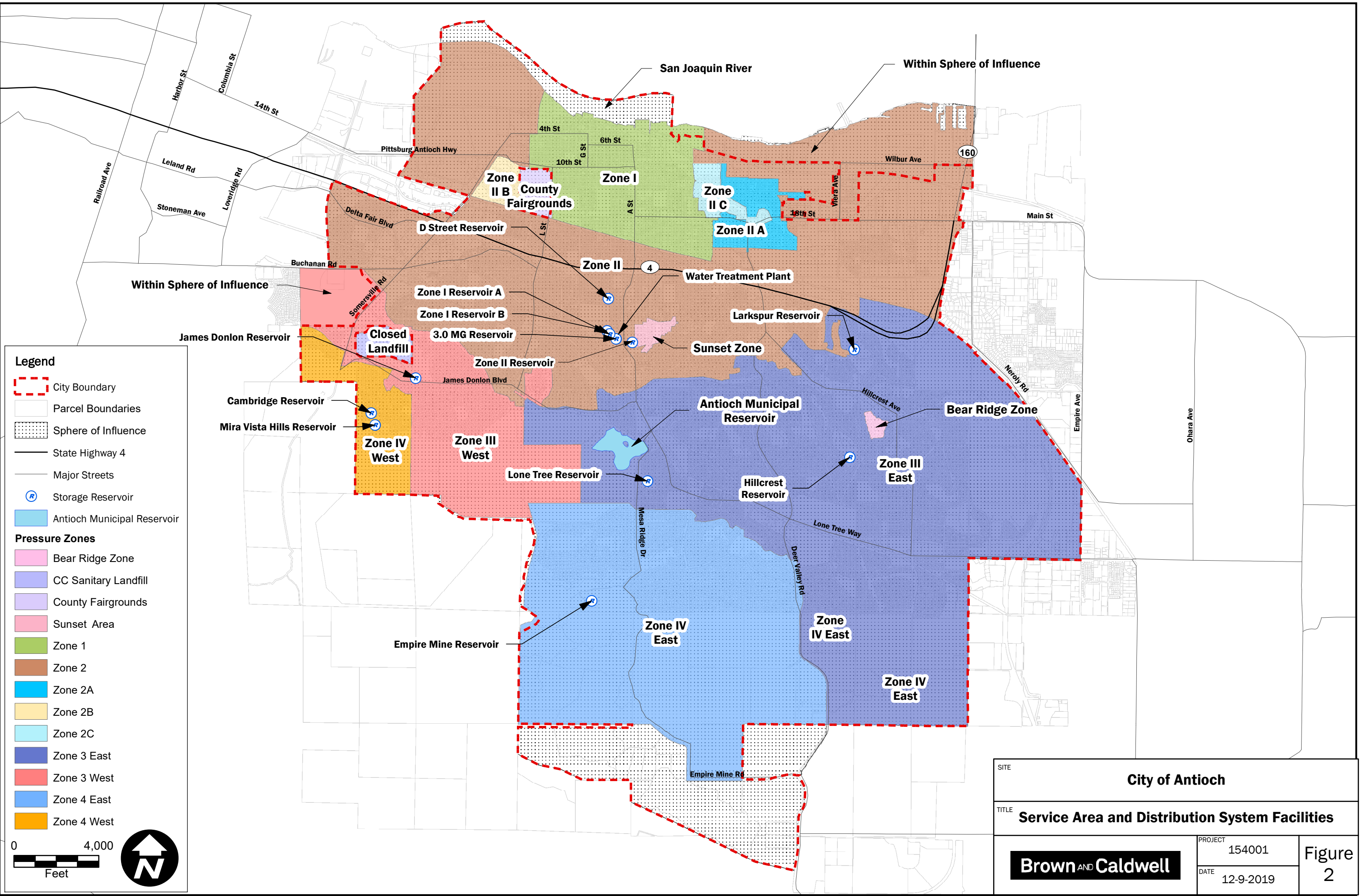
Table 2. Existing Water Consumption by Land Use		
Land Use Type	2018 Consumption^a	
	mgd	AFY
Single-Family Residential	8.00	8,958
Multi-Family Residential	1.22	1,367
Senior	0.16	176
Commercial	0.81	903
Institutional	0.16	179
Industrial	0.23	254
Auxiliary Building	0.0004	0
Total	10.57	11,838

a. Water consumption billing data received from City staff in October 2019.

b. This table does not include water losses.

Figure 2 presents a schematic representation of the six major pressure zones and five smaller pressure zones within the City. The City established these pressure zones based on the water storage tanks locations, water service elevations, and booster pump station capacities and head. Different booster pump stations and water storage tanks serve each pressure zone. Zones I, II, III East and IV East have the largest demands and account for approximately 90 percent of system demands. The 2020 WSMP report will include a detailed overview of the pressure zone boundaries and the service elevations.

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SITE City of Antioch		
TITLE Service Area and Distribution System Facilities		
Brown AND Caldwell	PROJECT 154001	Figure 2
	DATE 12-9-2019	

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1.3 System Water Losses

The difference between the volume of treated water produced and metered water consumption is called water loss, also known as non-revenue water and historically known as “unaccounted for water.” Such apparent losses are always present in a water system due to pipe leaks, unauthorized connections or use, faulty meters, unmetered services such as fire protection and training, and system and street flushing. Table 3 summarizes water system losses from fiscal years 2017 through 2019 (July 2016 through June 2019) as provided by City staff. The average system loss in the last three years was 4 percent. This percentage is very low compared to other California utilities that typically have 5 percent to more than 20 percent system losses or unaccounted for water. This lower percentage likely reflects water meter addition for parks, medians, and school sites; regular meter maintenance; the relatively large portion of the system served by more modern facilities with stringent construction standards applied to new facilities; and ongoing replacement of deteriorated older pipes.

The water loss data provided by the City includes significantly less water loss than the calculated values determined from the difference in treated water production and billing consumption data. Based on discussions with the City, the production meters had not been recently calibrated, and were not accurately reporting production data. The City provided water loss data presented in Table 3 are more accurate than the calculated water loss values based on treated water production data and water metered consumption data and will be used for demand projection development.

Table 3. Historical System Losses			
Fiscal Year	Water Loss ^a mgd	Total Production mgd	System Losses, Percent of Annual Water Production
2017	1.1	12.57	9%
2018	0.43	13.09	3%
2019 (January to July)	0.17	12.90	1%
Average	0.6	12.85	4%

a. Water loss data from City staff provided in October and November 2019. City staff reported that the production meters are not calibrated, resulting in errors with water loss estimates calculated from billing data.

The City’s maintenance staff actively pursues and repairs leaks. The year-to-year differences may be due in part to a difference in time periods between production data and meter readings. The City measures water production daily and measures and bills water use monthly through meter readings, e.g., water consumed in December is billed in January.

1.4 Existing Water Demands

Table 4 presents a summary of the existing ADD demand by pressure zone. This table includes a 2 percent estimated water loss for 2018. As the City determines water loss on a fiscal year basis, 2018 calendar data was unavailable. 2018 calendar year water loss is estimated to be the average water loss from fiscal years 2018 and 2019, shown in Table 3.

Table 4. Existing Water Demand by Pressure Zone		
Pressure Zone	2018 Demand^a	
	mgd	AFY
Zone I	1.30	1,461
Zone II	3.38	3,782
Zone IIA	0.20	221
Zone IIB	0.06	71
Zone IIC	0.08	94
Zone III East	3.64	4,073
Zone III West	0.45	501
Zone IV East	1.14	1,282
Zone IV West	0.24	271
Zone Bear Ridge	0.02	23
Zone Sunset	0.03	29
Zone County Fairgrounds	0.03	30
Subtotal	10.57	11,838
Water loss^b	0.21	237
Total	10.78	12,074

a. Water billing data received from City staff in October 2019.

b. Water loss is 2% of the total 2018 water demand. As the City determines water loss on a fiscal year basis, 2018 calendar data was unavailable. 2018 calendar year water loss is estimated to be the average water loss from fiscal years 2018 and 2019, shown in Table 4.

Section 2: Future Demand Development

The following sections present the evaluation of the City's future demand projections. Future planned developments and water conservation efforts combined with unit water demand factors (UWDF) form the basis for estimating future demands.

2.1 Future Planned Developments

The City has provided data on future planned developments, including land use type and the number of proposed residential units. The proposed developments include commercial and industrial development; inclusion of these projects in demand projections will result in more accurate future demands. City staff to identified planned projects and their implementation timeframes. Documents were reviewed that summarize the approved and pending future development projects. These documents were used to determine future land use quantities. Attachment A includes these documents for reference. For purposes of this 2020 WSMP, it is assumed that all developments will occur by 2040, and that development growth will occur linearly. Table 5 summarizes proposed developments and respective land use quantities estimated to be developed by 2040. Figure 3 presents the locations of the proposed developments.

Table 5. Projected Land Use Quantities by Proposed Developments

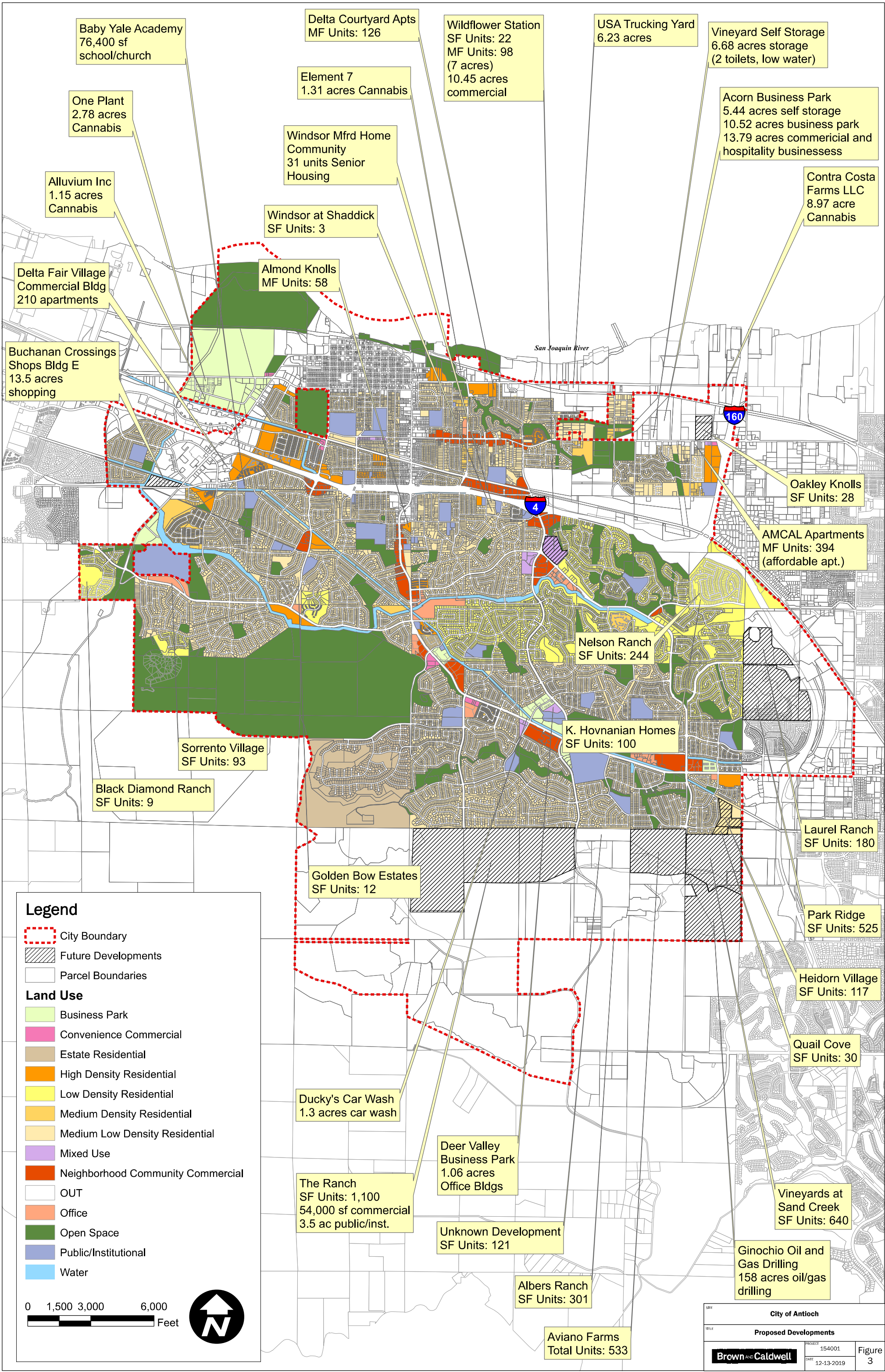
Development/Land Use	Pressure Zone	Single-family DU	Multi-family DU	Senior Housing DU	Storage acre	Business Park acre	Commercial acre	School/Church acre	Cannabis acre	Public/Institutional acre	Oil/Gas Drilling acre
Element 7	1								1.13		
Acorn Business Park	2				5.44	10.52	13.79				
Vineyard Self Storage	2				6.68						
One Plant	2								2.78		
Alluvium, Inc.	2								1.15		
Delta Fair Village Commercial Building	2						210				
Buchanan Crossings Shops Building E	2						13.50				
Baby Yale Academy (School/church)	2							1.75			
Almond Knolls	2		58								
Windsor Manufactured Home Community	2			31							
USA Trucking Yard	2						6.23				
Wildflower Station	2	22	98								
Contra Costa Farms, LLC	2								8.97		
Oakley Knolls	2	28									
AMCAL Apartments (affordable apartments)	2		394								
Golden Bow Estates	2	12									
Windsor at Shaddick	2	3									
Delta Courtyard Apartments	2C		126								
Deer Valley Business Park (office buildings)	3 East					1.06					
Nelson Ranch	3 East	244									
Laurel Ranch	3 East	180									
Park Ridge	3 East	525									
Ducky's Car Wash	3 East						1.30				
Albers Ranch	3 East	301									

Table 5. Projected Land Use Quantities by Proposed Developments

Development/Land Use	Pressure Zone	Single-family DU	Multi-family DU	Senior Housing DU	Storage acre	Business Park acre	Commercial acre	School/Church acre	Cannabis acre	Public/Institutional acre	Oil/Gas Drilling acre
Quail Cove	3 East	30									
Heidorn Village	3 East	117									
Vineyards at Sand Creek	3 East	640									
Ginochio Oil and Gas Drilling ^a	3 East										158
Aviano Farms	3 East	533									
K. Hovnanian Homes	3 East	100									
Acorn Business Park	3 East	121									
Sorrento Village	3 West	93									
The Ranch	4 East	1,100					1.24			3.5	
Black Diamond Ranch	4 West	9									
Totals		4,058	676	31	12.12	11.58	246.06	1.75	14.03	3.5	158

a. Per the County Department of Conservation and Development, County Zoning Administrator for Ginochio 3 Oil and Gas Wells, the proposed wells have no potential for increasing the water demand at the site.

DU = dwelling unit



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2.2 Water Demand Factors

Future water demands are estimated using UWDF corresponding to land use designations. UWDFs represent quantities of water demand associated with each newly developed DU or acre. UWDFs are determined by using billing data for existing water users provided by City staff, where enough data exist to develop these factors. Data for each water meter account have an associated land use type: single-family residential, multi-family residential, commercial, senior housing, or other. The City was unable to provide billing data for all proposed land uses estimated to be developed in the next 20 years. For instance, as cannabis is a somewhat new industry for the City, water meter accounts currently are not identified clearly in a way for billing data to determine UWDF. For these land uses, industry standard UWDFs are used.

Table 6 summarizes UWDFs for the existing land uses and for the future developments presented in Table 6. Growth UWDFs are a 5 percent reduction of existing water demands to recognize increased water conservation associated with factors such as equipment upgrades and reduced water use as vegetation becomes more established or more homeowners convert to drought-tolerant landscaping.

Table 6. Water Demand Factors				
Land Use	UWDF			
	Existing		Growth ^a	
	gpd/acre	gpd/DU	gpd/acre	gpd/DU
Single-family	-	250	-	240
Multi-family	-	150	-	145
Storage	-	200	-	190
Business Park	1,500	-	1,425	-
Commercial	1,000	-	950	-
School/Church	1,500	-	1,425	-
Senior Housing	4,800	-	4,800	-
Cannabis	1,500	-	1,425	-
Public/Institutional	250	-	240	-

a. Growth UWDFs are a 5 percent reduction of existing water demands due to assumed increased water conservation in the future.

gpd = gallon(s) per day

2.3 Future Development Water Demands

UWDFs presented in Table 6 are used to estimate water demands for future developments by multiplying by the estimated land use quantities from Table 5. Table 7 presents the estimated water demand for each planned development.

Table 7. Projected New Growth Water Demands

Development/Land Use	Estimated Growth gpd
Element 7	5,424
Acorn Business Park	29,397
Vineyard Self Storage	1,603
One Plant	13,344
Alluvium, Inc.	5,520
Delta Fair Village Commercial Building	199,500
Buchanan Crossings Shops Building E	12,825
Baby Yale Academy (School/church)	2,499
Almond Knolls	8,410
Windsor Manufactured Home Community	5,890
USA Trucking Yard	5,919
Wildflower Station	19,490
Contra Costa Farms, LLC	43,056
Oakley Knolls	6,720
AMCAL Apartments (affordable apartments)	57,130
Golden Bow Estates	2,880
Windsor at Shaddick	720
Delta Courtyard Apartments	18,270
Deer Valley Business Park (office buildings)	1,511
Nelson Ranch	58,560
Laurel Ranch	43,200
Park Ridge	126,000
Ducky's Car Wash	1,235
Albers Ranch	72,240
Quail Cove	7,200
Heidorn Village	28,080
Vineyards at Sand Creek	153,600
Ginocchio Oil and Gas Drilling ^a	-
Aviano Farms	127,920
K. Hovnanian Homes	24,000
Acorn Business Park	29,040
Sorrento Village	22,320
The Ranch	264,000
Black Diamond Ranch	2,160
Total	1,399,663 (1.40 mgd)

a. Per the County Department of Conservation and Development, County Zoning Administrator for Ginocchio #3 Oil and Gas Wells, the proposed wells have no potential for increasing the water demand at the site.



Section 3: Demand Projections

While it is expected that some growth that will lead to increased water demands, water use is not expected to revert to pre-drought and recession patterns. This difference reflects many factors, including replacement of lawns with drought-friendly plants, conversion to low-flow plumbing fixtures, and changes in customer water use habits. California residents are more aware of increasing drought intensity and have made permanent behavioral changes (such as taking shorter showers). This section summarized estimated demand projections for the City, recommends peaking factors, and compares projected water demands in Section 2 to Urban Water Management Plan (UWMP) demand targets.

Table 8 presents an aggregate of 2040 demand increases per pressure zone. Figure 4 displays how the 2040 projected demand is based on a 5 percent reduction of existing demands due to conservation, plus the addition of new growth demands associated with future development.

Table 8. Projected Water Demands by Pressure Zone			
Pressure Zone	New Growth Demand mgd	Existing Demand mgd	2040 Demand ^a mgd
Zone I	0.01	1.30	1.24
Zone II	0.62	3.38	3.83
Zone II	0	0.20	0.19
Zone IIB	0	0.06	0.06
Zone IIC	0.03	0.08	0.11
Zone III East	0.67	3.64	4.13
Zone III West	0.02	0.45	0.45
Zone IV East	0.26	1.14	1.35
Zone IV West	0.00	0.24	0.23
Zone Bear Ridge	0	0.02	0.02
Zone Sunset	0	0.03	0.02
Zone County Fairgrounds	0	0.03	0.03
Subtotal	1.40	10.57	11.44
Water Loss	0.03	0.21	0.24
Total	1.43	10.78	11.68

a. 2040 demands include a 5% reduction of existing demands due to increased water conservation plus new growth demand for future developments included in Table 8.

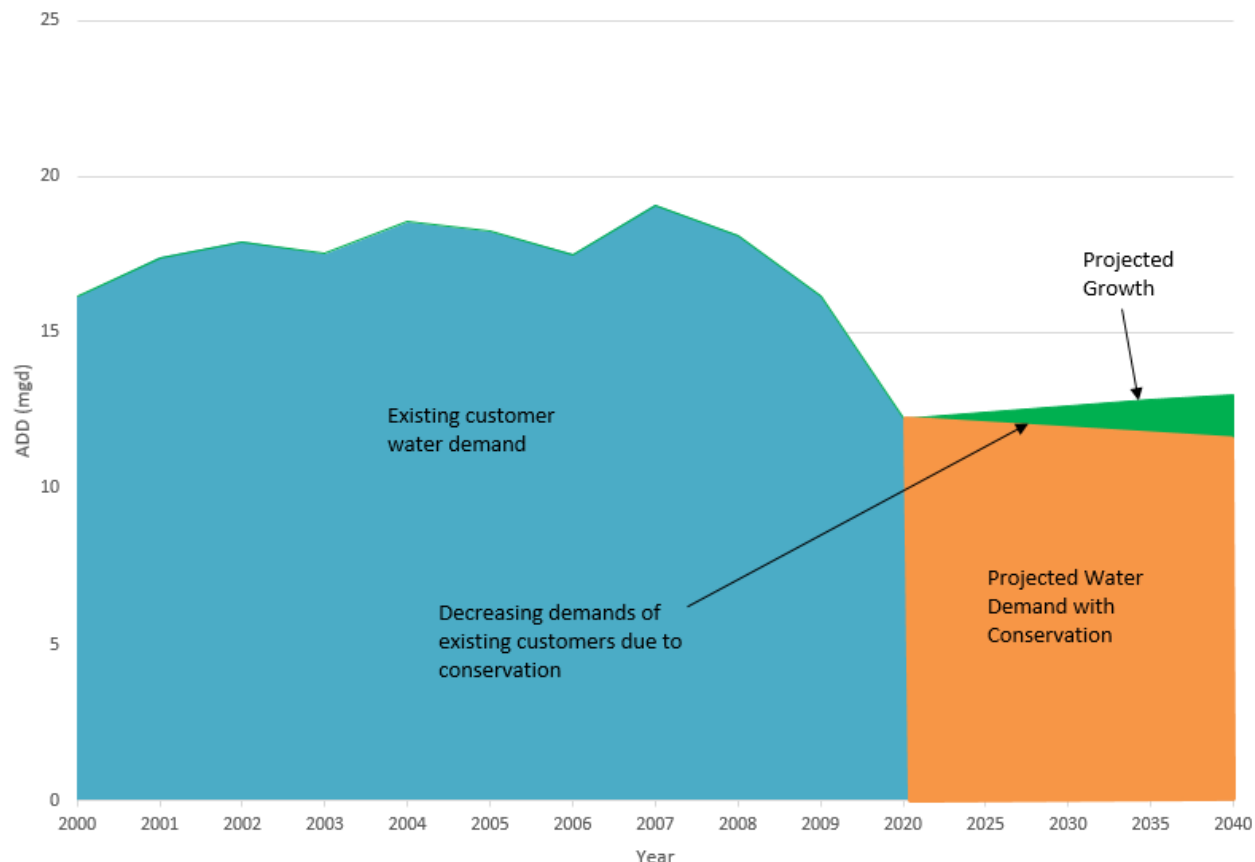


Figure 4. Projected water use

3.1 Peaking Factors

As mentioned in Section 1, the 2020 WSMP will use a MDD/ADD peaking factor of 1.6 per historical data included in Table 1. The City did not provide data on hourly production. A peak hour factor of 1.5 is assumed for the 2020 WSMP based on industry standards.

3.2 5-Year Projections

For this analysis it is assumed that incremental development growth will occur linearly. Table 9 presents water demand projections for the City in 5-year increments.

Table 9. Projected Total Water Demand Requirements by Pressure Zone

Pressure Zone	2020 ^a			2025 ^a			2030 ^a			2035 ^a			2040 ^b		
	ADD		MDD	ADD		MDD	ADD		MDD	ADD		MDD	ADD		MDD
	mgd	AFY	mgd	mgd	AFY	mgd	mgd	AFY	mgd	mgd	AFY	mgd	mgd	AFY	mgd
Zone I	1.30	1,458	2.08	1.29	1,442	2.06	1.27	1,426	2.04	1.26	1,410	2.01	1.24	1,394	1.99
Zone II	3.39	3,795	5.42	3.45	3,860	5.51	3.50	3,926	5.61	3.56	3,992	5.70	3.83	4,057	5.80
Zone IIA	0.20	220	0.31	0.19	218	0.31	0.19	215	0.31	0.19	212	0.30	0.19	210	0.30
Zone IIB	0.06	71	0.10	0.06	70	0.10	0.06	70	0.10	0.06	69	0.10	0.06	68	0.10
Zone IIC	0.08	95	0.14	0.09	98	0.14	0.09	102	0.15	0.09	106	0.15	0.11	110	0.16
Zone III East	3.66	4,099	5.86	3.78	4,230	6.04	3.89	4,361	6.23	4.01	4,492	6.42	4.13	4,623	6.60
Zone III West	0.45	501	0.72	0.45	501	0.72	0.45	501	0.72	0.45	501	0.72	0.45	501	0.72
Zone IV East	1.15	1,293	1.85	1.20	1,348	1.93	1.25	1,403	2.00	1.30	1,459	2.08	1.35	1,514	2.16
Zone IV West	0.24	271	0.39	0.24	268	0.38	0.24	265	0.38	0.23	263	0.38	0.23	260	0.37
Zone Bear Ridge ^c	0.02	23	0.03	0.02	22	0.03	0.02	22	0.03	0.02	22	0.03	0.02	21	0.03
Zone Sunset ^c	0.03	29	0.04	0.03	28	0.04	0.03	28	0.04	0.02	28	0.04	0.02	27	0.04
Zone County Fairgrounds ^c	0.03	30	0.04	0.03	29	0.04	0.03	29	0.04	0.03	29	0.04	0.03	28	0.04
Subtotal	10.61	11,884	16.98	10.82	12,116	17.31	11.02	12,349	17.64	11.23	12,581	17.97	11.44	12,814	18.30
Water Loss	0.21	238	0.34	0.22	242	0.35	0.22	247	0.35	0.22	252	0.36	0.24	256	0.37
Total	10.82	12,122	17.31	11.03	12,359	17.65	11.24	12,596	17.99	11.46	12,833	18.33	11.68	13,070	18.67

a. 2020-2035 are interpolated as exact construction dates are unknown.

b. 2040 includes all proposed developments in the next 20 years.

c. These zones are completely developed. Water demands will not increase in the future.

Figure 5 presents the historic and projected average and maximum water day demands.

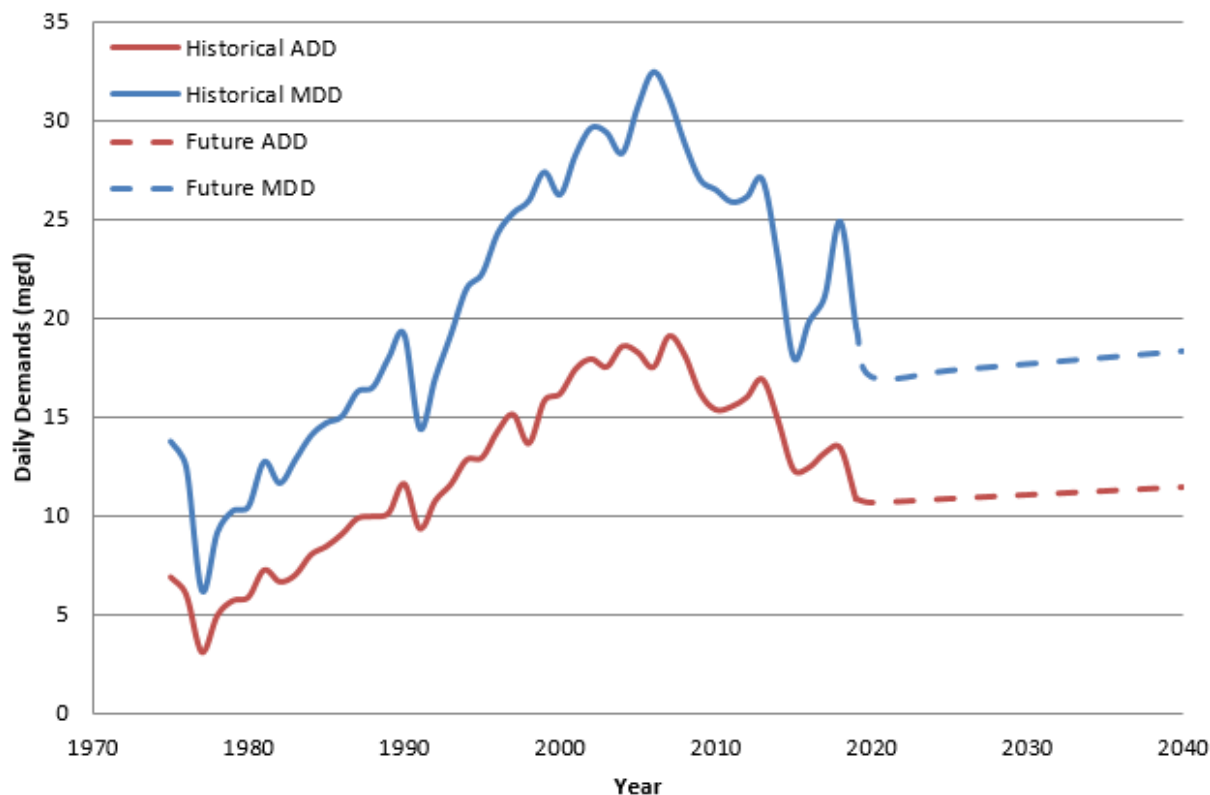


Figure 5. Historical and projected water use

3.3 Comparison to 2015 UWMP Target for 2020

As discussed in Section 2, used land use quantities and UWDFs are used to estimate future water demands for the 2020 WSMP. This section compared the demand projections in this analysis with the water demand targets set in the 2015 UWMP. The 2015 UWMP set a 2020 water demand target of 165 gallons per capita per day (GPCD) for the City. Figure 6 presents the historical and projected demands against the 2020 UWMP target. As shown in the figure, the historical demands of 179 and 183 GPCD in 2000 and 2005 exceeded the 2020 UWMP target. However, Starting in 2010, the city has exceeded their goals by a large margin. The 2010 demand of 150 GPCD was under the target by 9%. The 2015 demand of 111 GPCD was under the target by 37%.

Per the Association of Bay Area Governments (ABAG) website, the population of the City will be approximately 103,600 in 2020, and the City is projected to have a 1.3 percent average annual growth rate through 2040. Table 10 summarizes population projections within the City's limits in 5-year increments from 2020 to 2040. Using the estimated population projections, the City's 2020 demand target is 17.09 mgd (19,147 AFY). The data shown in Table 10 indicates that the City is expected to meet its 2020 target with an estimated ADD of 13.29 mgd (14,865 AFY). The City has been able to meet this target due to changes in customer water use patterns since the recent drought period that ended in 2017.

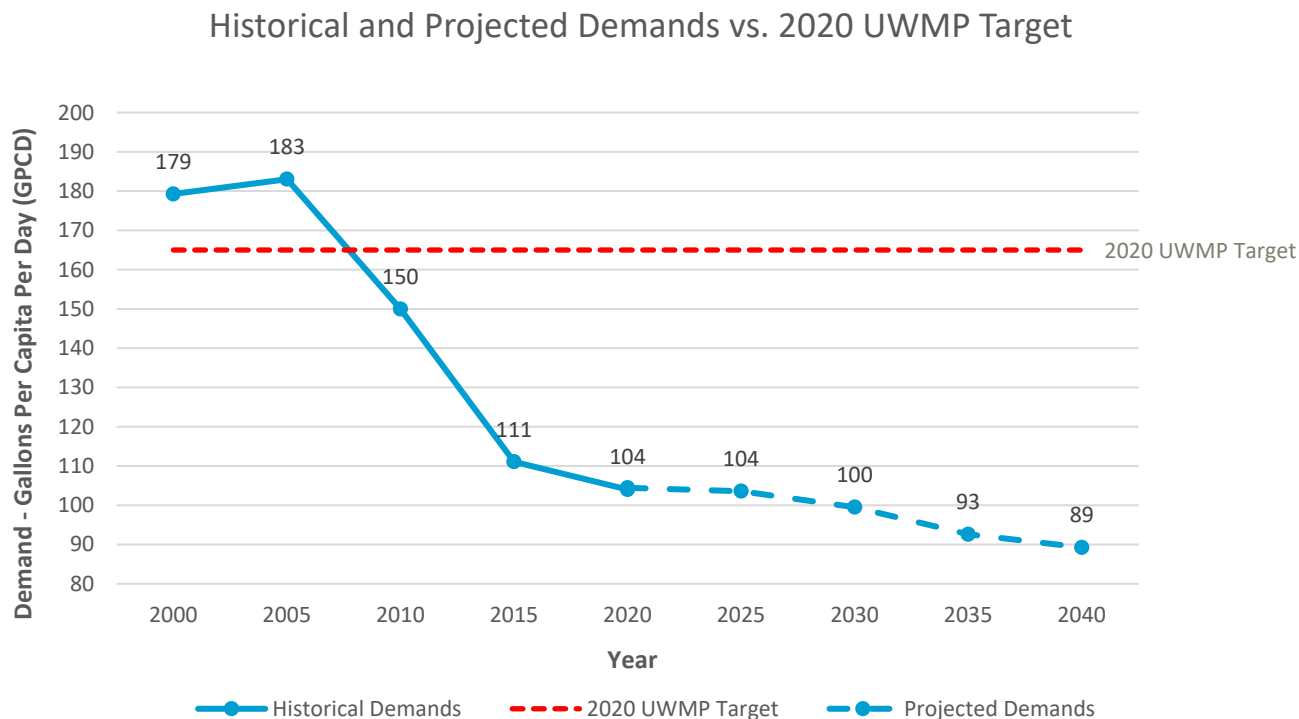


Figure 6. Historical and projected water demands vs. 2020 UWMP Target

Table 10. City Population Projections					
Year	2020	2025	2030	2035	2040
Total Population ^a	103,595	106,480	112,960	123,755	130,725

a. ABAG 2040 population projections downloaded from Open Data November 2019

Section 4: Recycled Water Use

Delta Diablo (DD), formerly Delta Diablo Sanitation District, is the agency responsible for treating and discharging wastewater for the cities of Antioch and Pittsburg and the unincorporated community of Bay Point. Currently, DD collects an estimated 14,100 AFY of wastewater. DD recycles approximately 50 percent of that wastewater to supply various uses. It disposes the remaining wastewater effluent through an outfall into the Delta at New York Slough. In the future, DD expects to increase recycled water use.

The City owns and maintains a collection system that delivers raw sewage to DD pumping stations. In 2001, DD began operating its recycled water system, primarily to provide recycled water for two Calpine power plants. In 2007 to 2008, DD expanded the system with the Pittsburg Recycled Water Project, and in 2011 it constructed a new pipeline to the City. DD has coordinated all recycled water projects successfully with Contra Costa Water District (CCWD), the region's primary water supplier, and plans to coordinate all proposed projects with CCWD per the CCWD/DD Sanitary District General Recycled Water Agreement.

Currently, the City uses recycled water to irrigate four City parks and the Lone Tree Golf Course. Table 11 summarizes 2017 and 2018 recycled water use in the City. Recycled water use currently offsets about 1 percent of the City's potable use.

Table 11. Recycled Water Use ^a		
Location	2018	
	mgd	AFY
Lone Tree Golf Course	0.06	65.04
Fairview Park	0.01	7.54
City Park Baseball Fields	0.01	15.98
Mountaire Park	0.01	13.80
Chichibu Park	0.01	12.61
Caltrans Highway 4 Landscape (G Street to Cavallo Road)	-	-
Hydrants at Aster Drive, Sunset Lane, and Longview	-	-
City Total	0.10	114.98

a. 2018 recycled water use for City from DD

References

Brown and Caldwell, *City of Antioch Water System Master Plan Update*, 2014.

RMC and HDR, Delta Diablo Sanitation District, *Recycled Water Master Plan Final Draft*, 2013.

West Yost Associates, *City of Antioch 2015 Urban Water Management Plan*, 2016.

Attachment A: Approved and Pending Developments



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CITY OF ANTIOCH CURRENT PROJECTS



Project Number(s) and Plans	Project	Applicant	Location	APN(s)	Project Description	Site Size	Status
RESIDENTIAL PROJECTS							
UNDER REVIEW							
GP-19-04, MDP-19-01	Albers Ranch	Mike Serpa Concentric Development Group PO Box 913 Diablo, CA 94528	East of Deer Valley Road	057-042-006, 057-050-021	Construct 301 units of single family homes for families and seniors. Optional assisted living facility within project.	91 acres	Under Review
PDP-19-01 PLANS	Sorrento Village	Brian Kesler Albert D. Seeno Construction Co. 4021 Port Chicago Highway Concord, CA 94520	North of James Donlon Blvd. East of Somersville Road	076-021-17 & 076-021-18	Preliminary development plan for 93 residential lots, bio retention basins, necessary roadway and utility improvements.	20.24 acres	Planning Commission on 9/4/19; City Council on 10/22
UP-18-20, AR-18-21, Z-18-09	Windsor Manufactured Home Community	Shawn Rowles 1730 Ninth St. Berkeley, CA 94710	2709 Windsor Drive	068-252-041, 042, 043 & 045	31 units of Senior Housing	2.5 acres	Under Review
GP-18-02, PD-18-03, UP-18-19, AR-18-20 PLANS	Delta Fair Village	Gabriel Chiu Chiu Family LLC 1767 Garmano Way Pleasanton, CA 94566	2710-3040 Delta Fair Blvd.	076-440-029, 030,031	Commercial building and 210 apartments		Under Review

CITY OF ANTIOCH CURRENT PROJECTS



Project Number(s) and Plans	Project	Applicant	Location	APN(s)	Project Description	Site Size	Status
AR-19-12	Aviano Phase 1 Design Review	Paul Manyisha DR Horton, Inc. 6683 Owens Drive Pleasanton, CA 94588	Hillcrest Avenue	057-050-022, 057-030-005	3 single story plans and 1 two story plan		Accepted
APPROVED, UNDER CONSTRUCTION							
AR-18-23 PLANS	Vineyards at Sand Creek Amenity Building and Landscape plan	Alicia Wilson Century Communities 6700 Koll Center Pkwy #240 Pleasanton, CA 94566	Sand Creek Road, Heidorn Road and Hillcrest Avenue	057-030-007	Amenity building and landscaping plan for 641 unit residential development	140.37 acres	Planning Commission approved 2/20/19
PDP-13-01 PD-14-02 UP-14-08 AR-14-03 PLANS	Heidorn Village	Douglas Krah 1917 Parkmont Drive Alamo, CA 94507	Heidorn Ranch Road @ Prewett Park Drive	056-130-013, 015, 017, 018	117 SFD	20.09	Planning Commission approved 11/4/15 City Council approved 1/12/16 Under construction
AR-14-07 UP-08-04 AR-05-05 Z-09-02 PLANS	Park Ridge	Steve Abbs Davidon Homes 1600 S. Main St, Suite 150 Walnut Creek, CA 94596	Parkridge Subdivision 8846 Canada Valley Road	053-060-023 053-072-016	Design Review 525 SFD	171 Acres	Phase 1 under construction
UP-18-06 PLANS	Vineyards at Sand Creek Use Permit Phases 1-3	Matthew Beinke GBN Partners LLC 3820 Blackhawk Road Danville, CA 94506	3052 Heidorn Ranch Road	057-030-003	Use permit for Phases 1-3=337 units	140.37 acres	Zoning Administrator approved on 5/24/18 Under construction
AR-18-17	Vineyards at Sand Creek Phases 1-3 Design Review	Talli Robinson Century Communities 99 Almaden Blvd, #400 San Jose, CA 95113	Sand Creek, Heidorn Ranch & Hillcrest Ave.	057-030-007	Master Plan Architecture for Village 1, 2 & 3.	66+ acres	Planning Commission approved on 10/3/18

CITY OF ANTIOCH CURRENT PROJECTS



Project Number(s) and Plans	Project	Applicant	Location	APN(s)	Project Description	Site Size	Status
GP-14-01 PLANS	Vineyards at Sand Creek	Matthew Beinke GBN Partners LLC 3820 Blackhawk Road Danville, CA 94506	Heidorn Ranch Road	057-030-003	641 unit residential subdivision	140.37 acres	City Council approved on 2/9/16
GP-16-03 Z-16-02 UP-16-19 AR-16-14 PLANS	Almond Knolls	The Grupe Company Kyle Masters 3255 West March Lane 4 th Floor Stockton, CA 95219	Worrell Road, East of Lone Tree Way	071-072-015-2	58 apartments, parcel map for condominium purposes	2.9+ acres	City Council approved 7/25/17 Under construction
AR-16-02 PD-14-01 UP-16-14 PLANS	Aviano	Mike Evans DeNova Homes 1500 Willow Pass Court Concord, CA 94520	Near Hillcrest Avenue & Sand Creek Road	057-030-005 057-050-022 057-050-014	533 single family detached homes	189 acres	City Council approved 9/8/15 Under construction
AR-19-03	Parkridge Phase II	Steve Abbs Davidon Homes 1600 S. Main St, Suite 150 Walnut Creek, CA 94596		053-060-034-5	Design Review for Phase 2 (58 Lots)		Zoning Administrator Approved 6/27/19
AR-18-10	Nelson Ranch Unit 3	K. Hovnanian Homes 3721 Douglas Blvd, Suite 150 Roseville, CA 95661	Goode St, Parkside		3 rd Phase Design Review		Planning Commission approved 2/6/19 Under Construction
APPROVED, AWAITING CONSTRUCTION							
Z-18-01, UP-18-04, AR-18-06 PLANS	AMCAL Apartments	Jay Ross, Darin Hansen AMCAL Multi-Housing 30141 Agoura Rd, Suite 100 Agoura Hills, CA 91301-4332	3530-3560 E. 18 th St.	051-200-025 & -026	Construct 394 Affordable Apartments.	14.7 acres	City Council approved 5/14/19 In Plan Check

CITY OF ANTIOCH CURRENT PROJECTS



Project Number(s) and Plans	Project	Applicant	Location	APN(s)	Project Description	Site Size	Status
PD-15-02 PLANS	Quail Cove	West Coast Home Builders, Inc. 4061 Port Chicago Hwy Concord, CA 94520	Prewett Ranch Dr. & Cochico Drive	056-130-012	Vesting Tentative Map for 32 units Single-Family	5.59 acres	City Council approved 10/9/18
PD-16-01	Black Diamond Ranch Unit 4	Discovery Builders, Inc. 4061 Port Chicago Hwy, #H Concord, CA 94520	Countryside Way; Torgensen Court	089-160-010	10 SFD	20.98 acres	Planning Commission approved 6/6/18
MDP-17-01 PLANS	The Ranch	Richland Communities Aaron Ross-Swain 3000 Lava Ridge Ct., Ste. 115 Roseville, CA 95661	West of Deer Valley Rd., East of Empire Mine Rd.	057-010-002 057-010-003 057-021-003	Approx. 1,100 SFD, 54,000 s.f. of commercial space, 3.5 acres of public/institutional uses	551.5	Initiative adopted by Council 7/24/18
PD-15-01 PLANS	Oakley Knolls	Discovery Builders, Inc. 4061 Port Chicago Hwy Concord, CA 94520	Oakley Road and Honeynut Street	051-430-001-018	Vesting Tentative Map for 31 units	5.56 acres	City Council approved 4/10/18
UP-15-16 AR-15-16 PLANS	Delta Courtyard Apts.	William R. Spann Pacific West Communities Inc. 26302 Table Meadow Rd. Auburn, CA 95602	701 & 810 Wilbur Ave.	065-110-006 & 007	Design Review, Use Permit and Lot Line Adjustment to develop 126 unit multi-family apt. complex	4.46 acres	Planning Commission approved 9/7/16
PD-15-03 PLANS	Laurel Ranch	Richland Communities Inc. 801 Ygnacio Valley Rd, Suite 110 Walnut Creek, CA 94596	West of Hwy 4 Bypass, North of future Laurel Road extension	053-060-031	Proposed residential Development for approx. 187 lots	54 acres	Planning Commission approved 7/20/16 City Council approved 9/13/16

CITY OF ANTIOCH CURRENT PROJECTS



Project Number(s) and Plans	Project	Applicant	Location	APN(s)	Project Description	Site Size	Status
COMMERCIAL AND MIXED USE PROJECTS							
UNDER REVIEW							
UP-18-22	Element 7	Robert M. Divito Jr. Element 7 LLC 7936 Hillside Avenue Los Angeles, CA 90046	729 Fulton Shipyard Road	065-040-030	Cannabis – Manufacturing, distribution, delivery and retail storefront dispensary		Under Review
PD-18-04	PG&E OPS – Office	Victor Ogu Pacific Gas & Electric Company 1850 Gateway Blvd, Suite 600 Concord, CA 94520	2111 Hillcrest Avenue	051-160-002	Service Center Upgrade		Under Review
UP-19-03	Contra Costa Sports Complex Bar	Josh Wells Marine & Industrial Services Inc. 2391 W. 10 th Street Antioch, CA 94509	1208 & 1210 Sunset Drive	068-253-010	UP to allow bar inside Indoor Sports Center		Accepted
UP-19-04	Mahogany Way Billboard	Mike McCoy Mesa Outdoor 696 San Ramon Valley Blvd, #192 Danville, CA 94526	2404 Mahogany Way	074-370-025	50' Digital Billboard	.67 acre	Planning Commission Approved on 8/7/19
Z-19-01	USA Trucking Yard	Robin Kaur USA Trucking Inc. 1900 Wilbur Avenue Antioch, CA 94509	1900 Wilbur Avenue	051-100-027-5 & 051-100-026-7	USA Trucking Yard	6.23 acre	Accepted

CITY OF ANTIOCH CURRENT PROJECTS



Project Number(s) and Plans	Project	Applicant	Location	APN(s)	Project Description	Site Size	Status
AR-19-10 PLANS	Deer Valley Business Park Office Buildings	Jim Babine Ware Malcomb 4683 Chabot Dr, #300 Pleasanton, CA 94588	Country Hills Drive & Deer Valley Road	055-740-014, 015, 016	Construct 2 new street fronting buildings over 3 lots on existing building pads	1.06 acre	Under Review
UP-19-07	Amerifleet Use Permit	Terri Stiffler Amerifleet Transportation, Inc. 1111 Alderman Dr, Suite 350 Alpharetta, GA 30005	1530 W. 10 th Street	074-130-025	Use Permit for Fleet Service	1.6 acres	Accepted
UP-19-08 AR-19-15	Ducky's Car Wash	Ducky's Car Wash Antioch Car Wash LLC 4850 Redwood Road Napa, CA 94558	Lone Tree Way & Country Hills Drive	055-071-115-4 & 055-071-114-7	Car Wash	1.3 acres	Accepted
UP-19-09	Baby Yale Academy, Inc.	Lita Reeves Baby Yale Academy, Inc. 5521 Lone Tree Way, Suite 900 Brentwood, CA 94513	2710 Delta Fair Blvd.	074-440-031	Daycare, preschool and Church	76,400 sf	Accepted
UP-19-10 Z-19-03	Ginocchio Oil and Gas Drilling	Bob Nunn Sunset Exploration 10500 Brentwood Blvd. Brentwood, CA 94513	Heidorn Ranch Road at Sand Creek Road	057-050-024	Oil and Gas Exploration and Drilling	158 acres	Accepted

CITY OF ANTIOCH CURRENT PROJECTS



Project Number(s) and Plans	Project	Applicant	Location	APN(s)	Project Description	Site Size	Status
<i>APPROVED, UNDER CONSTRUCTION</i>							
PD-16-03 GP-16-01 UP-16-08 AR-16-04 PLANS	Wildflower Station	Mike Evans DeNova Homes 1500 Willow Pass Ct. Concord, CA 94520	North Section of the intersection @ Wildflower Dr & Davison Dr.	053-140-002	10.45 acres of commercial use, 7.00 acres of condominiums (98 condos), 4.5 acres of single family (22 lots)	23.03 acres	City Council Approved 2/13/18 Under Construction
UP-16-03 AR-16-07 V-16-05 PLANS	Delta Bowl Addition & Remodel	Kenneth Melton Melton Recreation Inc. 4745 Del Valle Pkwy Pleasanton, CA 94566	3300 Delta Fair Blvd.	074-122-049	Building expansion and exterior modernization/ parking variance	3.337 acres	Planning Commission approved 6/7/17 Under Construction
UP-16-18 AR-16-12 PLANS	Granite Expo	Jacky Li Granite Expo 1368 40th Street Emeryville, CA 94608	1888 Verne Roberts Circle	075-051-011	Commercial Remodel 389,000 sf	28.31 acres	Planning Commission approved 5/3/17 Under Construction
AR-19-01	Target Rebrand	Sophia Lai Kimley-Horn 100 West San Fernando St, Suite 250 San Jose, CA 95113	5769 Lone Tree Way	056-120-059-3	Rebrand		Approved Under Construction

CITY OF ANTIOCH CURRENT PROJECTS



Project Number(s) and Plans	Project	Applicant	Location	APN(s)	Project Description	Site Size	Status
AR-17-17	Kaiser Solar	Tyge Nason Ameresco, Inc. 2375 E. Camelback Rd, Suite 400 Phoenix, AZ 85016	4501 Sand Creek Rd.	057-022-021	New Steel Parking Canopies with Solar		Planning Commission Approved 4/18/18 Under Construction
PD-16-02 AR-16-03 UP-16-06	Vineyard Self Storage	Reid Hamilton American Recess 85 Keystone Ave, Suite E Reno, NV 89503	E. 18th & Vineyard	051-052-074	Storage Facility	6.68 acres	City Council approved 10/11/16 Under Construction
APPROVED, AWAITING CONSTRUCTION							
UP-19-02	Cell Site at Comfort Inn	Michelle Thompson Jacobs 6597 Goya Way El Dorado Hills, CA 95762	2436 Mahogany Way	074-370-033	Relocate Sprint antennas to rooftop of existing hotel.		Zoning Administrator Approved 6/13/19
UP-18-15 PLANS	One Plant	Sidney Dunmore 3941 Park Drive, Suite 20-626 El Dorado Hills, CA 95762	2701 West 10 th Street	074-051-029	Commercial Cannabis		City Council approved 4/23/19 In Plan Check
PD-18-02 PLANS	Acorn Business Park	JMI Properties Corporation 8117 Marsh Creek Rd. Clayton, CA 94517	NW corner of 18 th St. and Drive-in Way	051-052-112 051-052-113	Self storage (5.44 acres), business park (10.52 acres), commercial and hospitality businesses (13.79 acres)		City Council approved 5/28/19
UP-18-05 AR-18-07 PLANS	AT & T Monopine	Tom Swarner PEN for AT & T Mobility 2615 Camino Lenada Oakland, CA 94611	3215 Fairview Drive	074-123-009-8	Unmanned Wireless Antenna Facility	.01 acre	Planning Commission approved 11/7/18 In plan check

CITY OF ANTIOCH CURRENT PROJECTS



Project Number(s) and Plans	Project	Applicant	Location	APN(s)	Project Description	Site Size	Status
AR-17-16 PLANS	Revised Somersville Towne Center Out Parcels	Kevin Le Courtney + Le Architects 801 S. Myrtle Avenue Monrovia, CA 91016	Somersville & Fairview	074-450-033-1	Design Review to approve 2016 CUP modification of out parcel development. Phase I to be a 3000 sf drive-thru		Planning Commission approved 12/6/17
AR-15-14	Buchanan Crossings Shops Building E	Matt Nohr Buchanan Crossings LLC 10 Harris Court, Suite B1 Monterey, CA 93940	3140 Buchanan Road	074-080-013	Design Review for single story multi-tenant retail building	13.5 acres	City Council approved 10/27/15
AR-17-11 V-17-03 PLANS	Pinkys Klassy Kar Wash Solar	Richard Patterson Spectrum Solar Energy 1588 Ashwood Drive Oakley, CA 94561	300 E. 18 th Street		Solar Canopy Installation		Zoning Administrator approved 11/9/17
AR-17-10	Contra Loma Plaza Monument Sign	Richard Luchini Arrow Sign Co. 1051 46 th Avenue Oakland, CA 94601	3100 Contra Loma Blvd.		Monument Sign	49,048	Zoning Administrator approved 9/14/17 In plan check
AR-18-03 PLANS	All Star Rents	John Wooten All Star Rents 2525 Clay Bank Rd. Fairfield, CA 94533	1205 Sunset Drive	068-300-016	New Structures for equipment rental yard	1.281 acre	Zoning Administrator approved on 8/9/18 In Plan Check
UP-18-18 AR-18-18	Event Hall	Prince Nwosu 517 West 2 nd Street Antioch, CA 94509	509 W. 2 nd Street	066-053-009	Event Center		Planning Commission approved 2/20/19 In Plan Check

CITY OF ANTIOCH CURRENT PROJECTS



Project Number(s) and Plans	Project	Applicant	Location	APN(s)	Project Description	Site Size	Status
UP-18-13 PLANS	Delta Dispensary	Rick Hoke 1636 Lillian St. Brentwood, CA 94513	2101 W. 10 th St, Suite B	074-051-005-2	Cannabis Sales		City Council approved 6/25/19
AR-19-11	Villa Medanos Clubhouse	Ray Bertoldi Bertoldi Architects, Inc. 2726 Harrison Blvd. Ogden, UT 84310	2811 Cadiz Lane	076-580-119-6	Remodel existing clubhouse, electrical & 2 small additions for accessible restrooms & pool equipment	4.886 acres	Approved 6/27/19
UP-19-01 AR-19-02 V-19-02 PLANS	Jack in the Box	Greg Borchardt PM Design Group Inc. 6930 Destiny Dr, Suite 100 Rocklin, CA 95677	2505 A Street	068-142-022	Construct new 2,847 sf		Planning Commission approved on 7/17/19
UP-18-21 PLANS	Alluvium Inc.	Alluvium Inc. 2625 Crow Court Antioch, CA 94509	2625 Crow Court	074-052-022	Cannabis Retail/Delivery		Planning Commission approved 6/19/19 City Council Approved on 8/13/19 In Plan Check
UP-18-23	Contra Costa Farms LLC	Contra Costa Farms LLC 420 S. 2 nd Street Rio Vista, CA 94571	3400 Wilbur Avenue	051-051-021	Cannabis – Cultivation, manufacturing, distribution and retail		Planning Commission approved 8/21/19; City Council approved 9/10/19
UP-19-06 AR-19-09	Contra Loma P G & E Tower Cell Site	Maria Kim Complete Wireless Consulting GTE Mobilenet of California 2009 V Street Sacramento, CA 95818	3195 Contra Loma Blvd.	071-241-001-8	Addition of antennas on an existing PG & E transmission tower.	1.95 acres	ZA Approved 9/12/19

CITY OF ANTIOCH CURRENT PROJECTS



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