Supplemental Water Supply Program and Fee Study

City of Coachella

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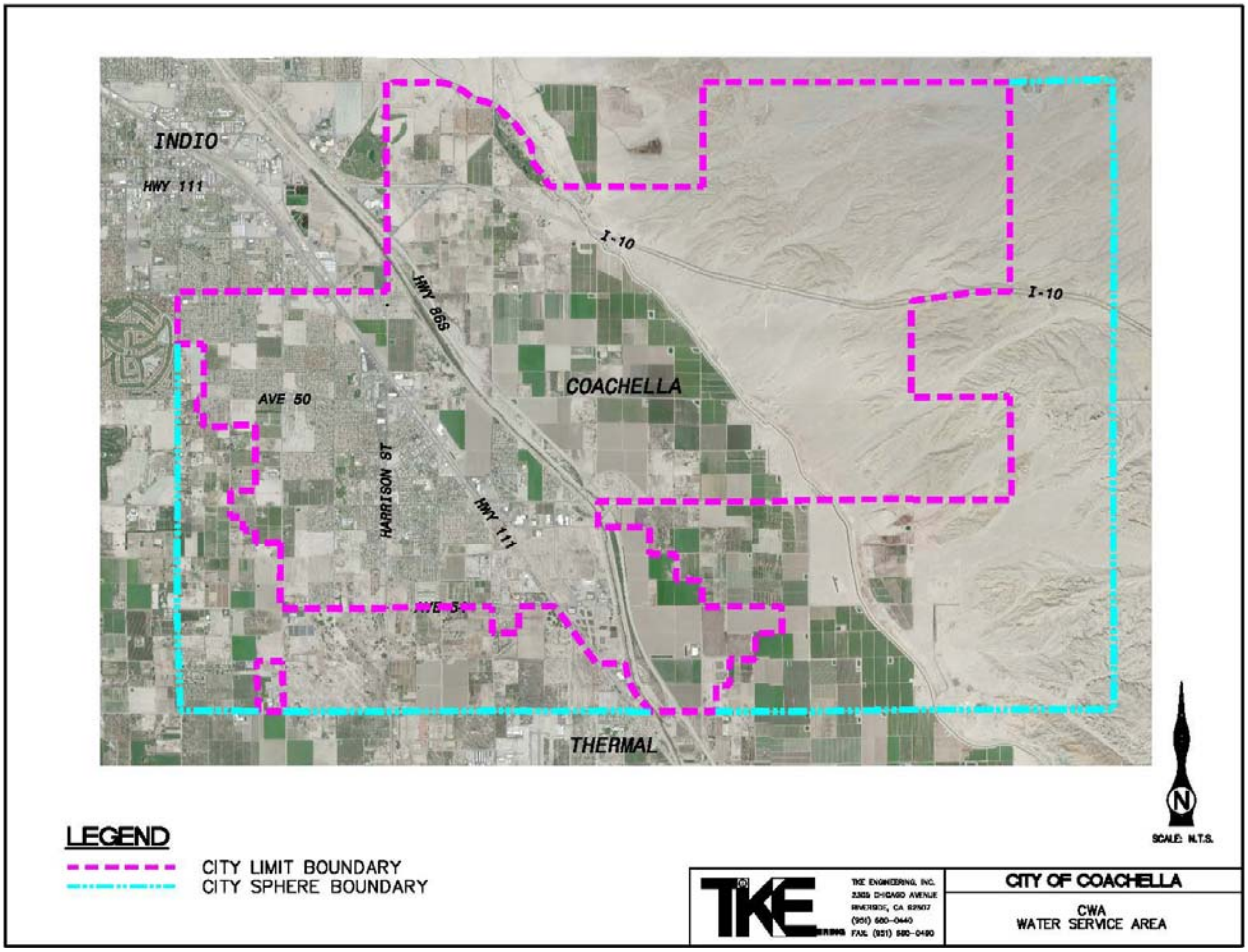
TABLE OF CONTENTS

Appendices

1.0 Coachella Water Authority

The City of Coachella (City) is located in Riverside County, California in the arid desert of the Coachella Valley. The City, incorporated in 1946, encompasses a sphere of influence of approximately 33,319 acres or 52 square miles.[1] The City's water and wastewater systems are owned and operated by the Coachella Water Authority (CWA) which is also governed by the City Council. CWA's service area, which matches City boundaries, is shown on **Figure 1.0: CWA Service Area** below.

Figure 1.0: CWA Service Area



While Coachella has been a small town since its inception, its population has grown quickly. Between 2005 and 2010, the City's population increased by nearly one-third, jumping from 30,879 to 40,704. And, the City's population is expected to continue to grow at a high rate for the foreseeable future. The Southern California Association of Governments (SCAG) 2012 Regional Transportation Plan estimates that Coachella could grow to 70,200 by 2020 and to 128,700 by 2035.[2] The 2015 Coachella General Plan Update (CGPU) includes its own set of population projections that are tailored to specific policies included in the CGPU update. Slow growth due to the economic downturn does not mirror the "substantial"

[1] 2015 City of Coachella General Plan Update, Section 01 Introductions, p. 01-3
[2] City of Coachella General Plan Update, Section 03 Existing Conditions, p. 03-2

projections provided by SCAG. Development projects that have been on hold are slowly returning and growth is beginning to trend positively. **Table 1.0: Population Projections** shows the projected service area population increase through the year 2035 in 5 years increments based on the population data supplied in the CGPU. Full buildout of the City's sphere of influence (SOI) is not anticipated until sometime after 2050.

Table 1.0: Population Projections

Year	Population	Percent Change
2010	40,704	-
2015	51,287	26%
2020	71,802	40%
2025	92,624	29%
2030	113,928	23%
2035	134,890	18%

Population increases will continue to place additional demands on water resources and supplies. In order to meet these additional demands, growth will be required to provide additional water resources as discussed in greater detail below.

2.0 Historic Water Use / Consumption Factors

Table 2.0: Historical Production and Deliveries shows CWA's historical water production and metered water deliveries (consumption) between 2000 and 2015.

Table 2.0: Historical Production and Deliveries[3]

Year	Water Production (ac-ft)	Metered Water Deliveries (ac-ft)
2000	5,483	3,622
2001	5,777	2,894
2002	5,835	3,606
2003	6,481	5,067
2004	6,656	5,837
2005	7,104	4,981
2006	8,886	7,265
2007	8,679	8,453
2008	8,373	7,893
2009	8,334	8,170
2010	8,261	7,564
2011	7,765	6,795
2012	7,993	7,132
2013	7,939	7,091
2014	7,716	7,099
2015	6,530	5,911
Average:	**7,363**	**6,211**

Customer classifications for water use, also known as land use, are shown below:

- Single-Family Residential (SFR)
- Multi-Family Residential (MFR)
- Commercial
- Schools/Institutional
- Industrial
- Landscape Irrigation

Using billing records, land uses, and historical production, water consumption amounts are distributed among land use categories and Annual Consumption Factors (ACF), expressed as acre-feet per acre, for each category are determined. Data is presented on **Table 2.1: Historical Annual Consumption Factors**.

[3] Public Water System Statistics, Department of Water Resources (2000-2015).

Table 2.1: Historical Annual Consumption Factors

Land Use	FY 12/13 ACF (ac-ft/ac/yr)	FY 13/14 ACF (ac-ft/ac/yr)	FY 14/15 ACF (ac-ft/ac/yr)	Average ACF (ac-ft/ac/yr)
Single Family Residential	2.94	2.86	2.73	2.84
Multi-Family Residential	3.99	4.10	3.77	3.95
Commercial	1.54	2.29	2.63	2.15
Schools / Institutional	2.33	2.24	2.26	2.28
Industrial	0.92	1.01	0.97	0.97
Landscape Irrigation	2.46	2.50	2.80	2.59

3.0 Water Resources

The Coachella Valley relies on a combination of local groundwater, Colorado River (CR) water, State Water Project (SWP) exchanged water, surface water, and recycled water to meet demand.[4] Groundwater is the principal source of municipal water supplies in the Coachella Valley. The main groundwater source for the entire valley is the Coachella Valley Groundwater Basin, Indio Subbasin, Basin Number 7-21.01 in California Department of Water Resources (CDWR) Bulleting 118, also known as the Whitewater River Subbasin.

Within the Whitewater River Subbasin is the East Whitewater River Subbasin Area of Benefit (AOB) (formerly known as the Lower White Water River Subbasin). It is shared by Coachella Valley Water District (CVWD), Indio Water Authority (IWA), and Coachella Water Authority (CWA), together with numerous private groundwater producers, as shown in **Figure 3.0**: **Groundwater Subbasin Areas of Benefit.**

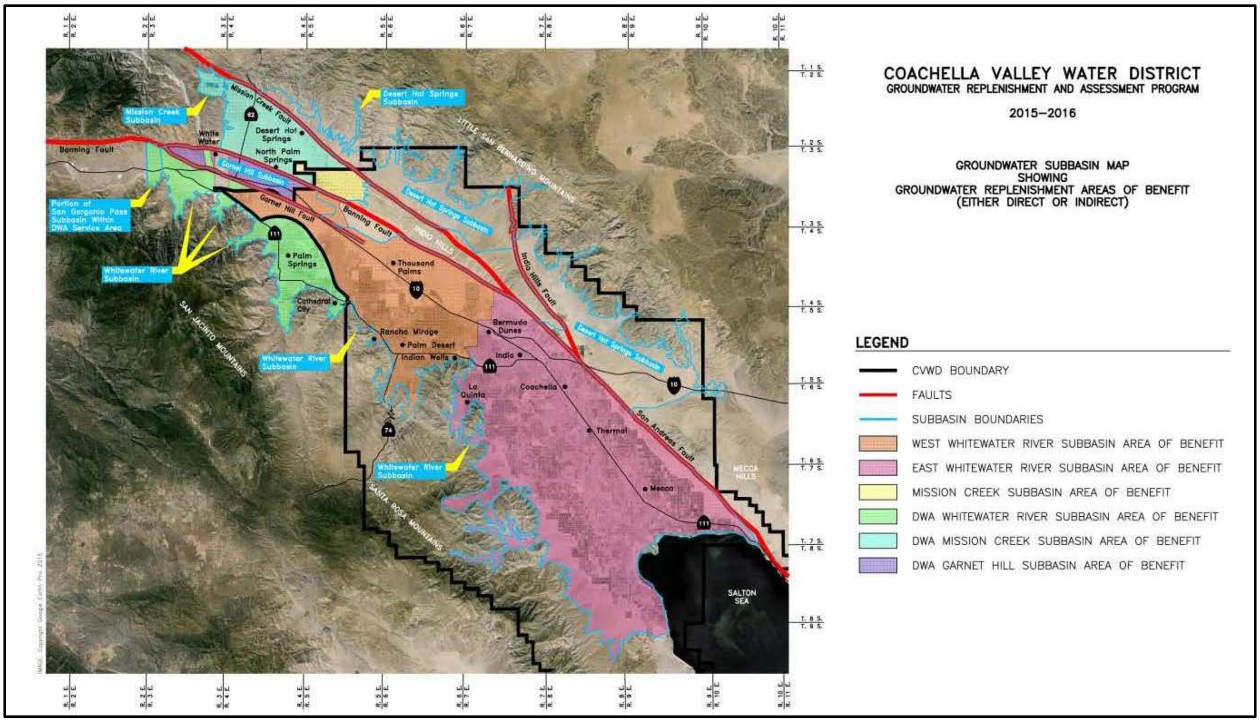
The groundwater budget for the East Whitewater River Subbasin is presented below:[5]

Inflows: Mountain-front runoff, precipitation, subsurface inflow from adjacent basins, return flows from use, deep percolations of applied water (e.g.: return flows from irrigation, treated wastewater percolations, septic tank infiltration), and artificial recharge with imported water.

Outflows: Groundwater pumping, drain flows, flow to surface water (rising groundwater), subsurface flows from basin, and evapotranspiration.

[4] CVWD Coachella Valley Water Management Plan Update(2012), p. 4-1.
[5] CVWD Coachella Valley Water Management Plan Update(2012), p. 4-10.

Figure 3.0: Groundwater Subbasin Areas of Benefit[6]

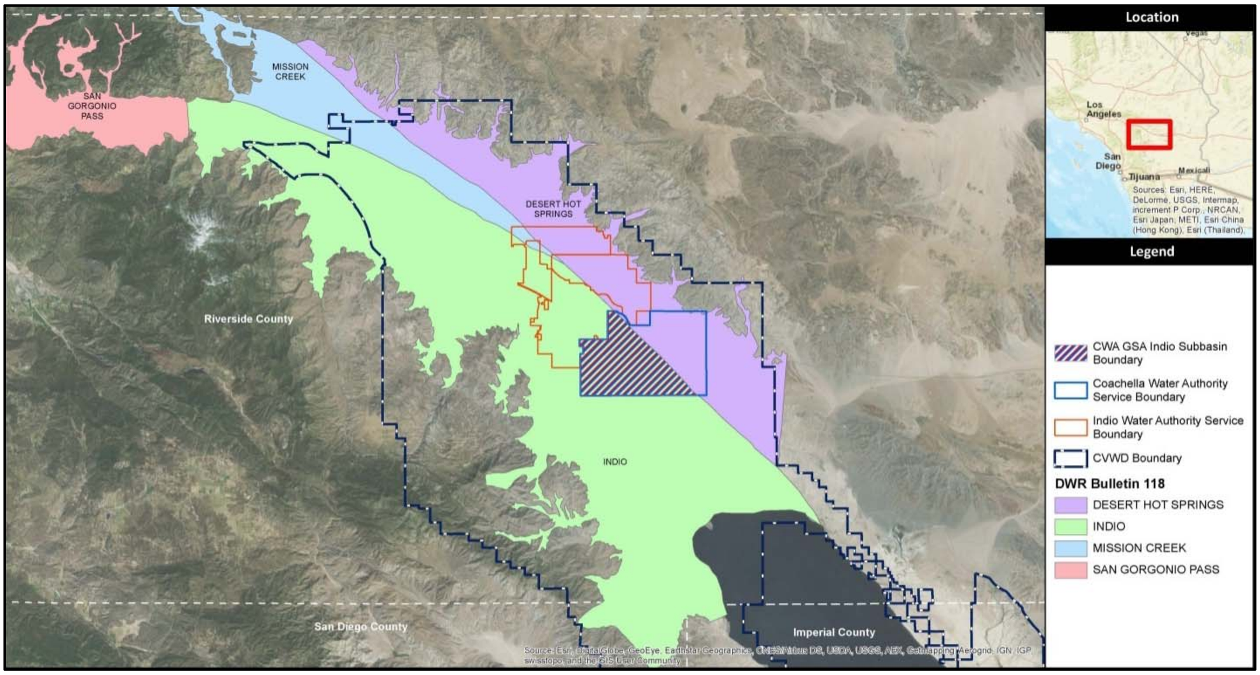


Based on long-term local hydrology and imported water deliveries during the 2000-2009 period average net outflows (overdraft) from the basin were 70,000 AFY. Overdraft caused groundwater levels to decrease in significant portions of the Valley and continued overdraft would have eventually stifled growth in the Valley, as it would not be possible to demonstrate that adequate water supplies exist to support growth.[7]

In 2016, CWAelected to serve as a Groundwater Sustainability Agency (GSA) for portions of the Indio Subbasin which lie within CWA's service boundary and as shown on **Figure 3.1: CWA Groundwater Sustainability Agency Service Boundary**. As a result CWA is responsible for managing the groundwater within the boundary shown. However, CVWD has statutory authority to replenish local groundwater supplies and collect assessments necessary to support groundwater management within the entire East Whitewater River Subbasin.

[6]CVWD Engineer's Report of Water Supply and Replenishment Assessment for the East Whitewater River Subbasin Area of Benefit 2015/2016 (April 2015), III-3.
[7] CVWD Coachella Valley Water Management Plan Update (2012), p. 4-8.

Figure 3.1: CWA Groundwater Sustainability Agency Service Boundary[8]



In 2002, CVWD prepared a Water Management Plan (CVWMP) to provide a road map for managing water resources throughout the Coachella Valley (excluding the Mission Creek and Garnet Hill Subbasins). It included recommendations for water consumption, additional imported supplies, source substitution, and groundwater recharge elements. CVWD successfully implemented an urban water conservation program, acquired additional SWP supplies, constructed the initial phase of the Mid-Valley Pipeline, and constructed the Thomas E. Levy Groundwater Replenishment Facility. CVWD updated the CVWMP in 2012 and the new plan recommends greater conservation (agricultural conservation, additional urban conservation, and golf course conservation), supply development (acquisition of additional imported water supplies, recycled water use, and desalinated drain water), groundwater recharge program enhancements, and source substitution programs. A number of new projects and programs are recommended for implementation.[9]

The Coachella Valley groundwater basin area serves as an expansive conjunctive use resource that is capable of ensuring a sufficient and sustainable water supply to serve existing uses and projected growth during normal, single-dry and multiple-dry years over an extended planning horizon. Not only does the basin contain vast reserves of local groundwater (approximately 28.8 million ac-ft)[10], it has substantial available storage space that has been utilized and will continue to be utilized to store millions of acre-feet of supplemental supplies that become available during normal and above-normal wet years. Those surplus supplies are recharged to the basin for later use during dry periods.[11]

[8] City Of Coachella Notice of Election to become a Groundwater Sustainability Agency, March 16, 2016
[9] City of Coachella General Plan 2035 Environmental Impact Report, p. 4.16-44
[10] CVWD Engineer's Report of Water Supply and Replenishment Assessment for the East Whitewater River Subbasin Area of Benefit 2015/2016 (April 2015), Table III-1.
[11] City of Coachella General Plan 2035 Environmental Impact Report, p. 4.16-44

Recently, as a result of these conservation and recharge efforts, the East Whitewater River Subbasin Area of Benefit has seen a change from overdraft to a net positive water balance. The East Whitewater River Subbasin Management Area experienced a gain of 26,900 AF of water storage during 2015. Without artificial replenishment, however, the stored groundwater would have decreased by approximately 10,400 AF. This demonstrates that continued groundwater replenishment is necessary in order to prevent future overdraft conditions.[12]

4.0 Memorandums of Understanding

In September 2009, CVWD and the City signed a Memorandum of Understanding (2009 MOU) to assist in ensuring a sufficient and reliable water supply for development projects within the City and a major portion of its sphere of influence (SOI) in a manner consistent with CVWD's 2012 CVWMP Update, and as amended from time to time. Under the terms of the 2009 MOU, various means are identified, as seen below, by which the City can mitigate impacts associated with development projects.

- Water Conservation criteria in excess of the goals of the CWWMP. For example, by adopting low water use landscaping requirements which reduce water use in excess of the current CVWMP water conservation goals.
- Source Substitution not identified in the current CVWMP. For example, using recycled wastewater effluent of the City's Wastewater Treatment Plant for landscape irrigation instead of using groundwater.
- Acquire supplemental water supplies sufficient to offset the impacts of new water demands within the City or supplied by the City's water system.
- Participate in funding CVWD's acquisition of supplemental water supplies sufficient to offset the impacts of new water demands approved by the City or supplied by the City's water system. The amount paid for supplemental water supplies shall not exceed CVWD's Supplemental Water Supply Charge for similar development types and water requirements in effect at the time paid.

In February 2013, CVWD and the City executed an additional Memorandum of Understanding (2013 MOU) regarding implementation of the 2009 MOU.

5.0 Future Water Demands/Consumption Factors

Future ACF's were determined by careful analysis of the land use classifications as defined within this document. The ACF's were calculated using actual historical consumption by customers in each land use classification. After which, the most representative customers for future growth were selected for each land use classification. These selections considered future land use densities and water conservation measures (e.g. limited use of turf areas, desert-friendly landscaping, high efficiency irrigation system, water efficient household fixtures, etc.). The selected customers are shown on **Table 5.0 Future Growth Customer Consumption Factors** and are the average consumption by those customers.

[12]CVWD Engineer's Report of Water Supply and Replenishment Assessment for the East Whitewater River Subbasin Area of Benefit 2015/2016 (April 2015), p. VII-7.

Table 5.0: Future Growth Customer Consumption Factors

Land Use	**Sample Area**	**Annual Consumption Factor** (ac-ft/ac/yr)	**ACF w/ 35% Return Flows** (ac-ft/ac/yr)	**Average Annual Consumption Factor** (ac-ft/ac/yr)	**Average ACF w/ 35% Return Flows** (ac-ft/ac/yr)
Single Family Residential	La Colina	2.68	1.74	2.85	1.85
	Peacock Palms	3.00	1.95		
	Rancho Las Flores	2.86	1.86		
Multi-Family Residential	Cesar Chaves Apts	2.69	1.75	2.69	1.75
Commercial	Jackson Square	1.78	1.16	1.78	1.16
Schools/ Institutional	Bobby Duke Middle School	1.32	0.86	1.32	0.86
Industrial	Industrial	0.96	0.62	0.96	0.62
Landscape Irrigation	Dateland Park	2.18	1.42	1.80	1.17
	Rancho Las Flores Park	2.92	1.90		
	Veteran Park	0.60	0.39		
	Landscape District 2	1.50	0.98		
	Landscape District 17	1.80	1.17		

For each land use category, future ACF's have been determined as previously described and are presented in **Table 5.1: Future Annual Consumption Factors**. **Table 5.1** also shows ACF's with 35% return flows. Consistent with CVWD water system backup facilities charge analysis, consumption factors can be reduced by return flow amounts. Return flows are the amount of water applied for irrigation not utilized by plants to satisfy their evapotranspiration requirement and water returned to the groundwater basin through urban usage (domestic irrigation, septic tank flow and sewage flow).[13] Finally, similar ACF's for neighboring agencies are shown on **Table 5.1** as well.

[13] CVWD 2009 Water System Backup Facilities Charge Study

Table 5.1: Future Annual Consumption Factors

Land Use	CWA Annual Consumption Factor (ac-ft/ac/yr)	CWA Average ACF w/ 35% Return Flows (ac-ft/ac/yr)	CVWD Average ACF w/ 35% Return Flows (ac-ft/ac/yr)	IWA Average ACF w/ 35% Return Flows (ac-ft/ac/yr)
Single Family Residential	2.85	1.85	2.31	2.23
Multi-Family Residential	2.69	1.75	2.06	1.23
Commercial	1.78	1.16	1.92	0.65
Schools/Institutional	1.32	0.86	1.92	0.65
Industrial	0.96	0.62	0.51	0.93
Landscape Irrigation	1.80	1.17	2.46	1.45

6.0 Supplemental Water Supply Fee

It is anticipated that acquisition of water supplies would be the greatest cost to mitigate growth impacts from the list of water supply alternatives presented in Section 4.0. Therefore, imported water acquisition costs will be used to determine the Supplemental Water Supply Fee amounts for various land use categories. Based on CVWD's 2012 Water System Backup Facilities Charge Study calculates a unit cost for supplemental water supplies to be $3,225.33/acre-foot and further explains the State Water Project's reliability to be at 61%. Therefore, imported water rights are estimated to cost $5,289 ($3,225 * 1.64) per acre-foot.[14] In closing, the supplemental water supply charge shall be applied to all future developments and is summarized below in **Table 6.0: Supplemental Water Supply Fee by Land Use**.

[14]CVWD 2012 Water System Backup Facilities Charge Study

Table 6.0: Supplement Water Supply Fee by Land Use

Land Use	CWA Average ACF w/ 35% Return Flows (ac-ft/ac/yr)	Supplemental Water Supply Charge ($/acre)
Single Family Residential	1.85	$9,786.41
Multi-Family Residential	1.75	$9,247.82
Commercial	1.16	$6,119.37
Schools/Institutional	0.86	$4,537.96
Industrial	0.62	$3,300.34
Landscape Irrigation	1.17	$6,188.13