2010 URBAN WATER MANAGEMENT PLAN

City of Coachella

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TABLE OF CONTENTS

Section **Page**

APPENDICES

TABLES

FIGURES

ACRONYMS and ABBREVIATIONS

AB	Assembly Bill
ADD	Average Annual Demand
AF	Acre Feet
AFY	Acre Feet per Year
Basin	Coachella Valley Groundwater Basin, Indio Sub-Basin, Basin Number 7-21.01, also Whitewater Sub-Basin
Baseline	Base Daily per Capita Water Use
BMP	Best Management Practices
cf	Cubic Feet
cfs	Cubic Feet per Second
CII	Commercial, Industrial and Institutional
CIP	Capital Improvement Plan
City	City of Coachella
Canal	Coachella Branch of the All-American Canal – Coachella Canal
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
CVRA	Coachella Valley Resource Agency
CVWD	Coachella Valley Water District
DHS	Department of Health Services
DMM	Demand Management Measure
DWA	Desert Water Agency
DWCV	Desert Water Agency/Coachella Valley Water District
DWR	Department of Water Resources
EOC	Emergency Operations Center
EOM	Emergency Operations Manual
EPA	Environmental Protection Agency
ETo	Evapotranspiration
GPM	Gallons Per Minute
ID	Improvement District
IID	Imperial Irrigation District
IRP	Integrated Resources Plan
IRWM	Integrated Regional Water Management
IWA	Indio Water Authority
LAFCO	Local Agency Formation Commission
LRP	Local Resources Program
MAF	Million Acre Feet
MCL	Maximum Contaminant Level
MGD	Million Gallons Per Day
Mg/L	Milligrams Per Liter
MWD	Metropolitan Water District of Southern California
SOI	Sphere of Influence
SWP	State Water Project
TDS	Total Dissolved Solids
UBC	Uniform Building Code
ULFT	Ultra Low Flush Toilet
UWMP	Urban Water Management Plan
WMP	Water Master Plan

SECTION 1
URBAN WATER MANAGEMENT PLAN PREPARATION

> *Section 10617*
> *"Urban Water Supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of division 104 of the health and Safety Code.*

1.1 Purpose and UWMP Summary

An Urban Water Management Plan (UWMP or Plan) is prepared by a water purveyor to ensure the appropriate level of reliability in water service sufficient to meet the needs of its various categories of customers during normal, dry, or multiple dry years.

The Urban Water Management Planning Act of 1983 was established by Assembly Bill 797 (AB 797) on September 21, 1983. The law requires water suppliers in California, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 AFY of water, to prepare and adopt an UMWP every five years in the years ending in zero and five.

The legislature declared that the waters of the state are a limited and renewable resource subject to ever increasing demands; that the conservation and efficient use of urban water supplies are of statewide concern; that successful implementation of plans is best accomplished at the local level; that conservation and efficient use of water shall be actively pursued to protect both the people of the state and their water resources; that conservation and efficient use of urban water supplies shall be a guiding criterion in public decisions; and that urban water suppliers shall be required to develop water management plans to achieve conservation and efficient use.

To comply with state requirements, the City of Coachella 2010 UWMP has been prepared in compliance with the requirements of the Urban Water Management Planning Act, as amended to 2010[1], and the Water Conservation Bill of 2009.

1.2 History

The City of Coachella (City) was incorporated on November 26, 1946, with John W. Westerfield as the first mayor. Shortly after incorporation, in the summer of 1951, low water pressure in the area prevented local businesses from operating efficiently, thereby causing the formation of the City's Water Department. In 1954, the City passed a bond to purchase and consolidate three private water companies: Abdelnous Water Company,

[1]California Water Code, Division 6, Part 2.6; §10610, et. seq. Established by Assembly Bill 797 (1983).

Coachella Water Works, and Highway Water Company. The City Water Department was established in 1957, and is administered and managed by the Utilities General Manager under direct supervision of the City Manager. While the City is responsible for the water supply for its residents, the Coachella Valley Water District (CVWD) has assumed responsibility for ensuring a reliable supply of water to the entire Coachella Valley.

1.3 Agency Coordination and Public Participation

Section 10620

(a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

(c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers without the consent of those suppliers or public agencies.

(d) (1) An urban water supplier may satisfy the requirements of this part by participation in area wide, regional, watershed, or basin wide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

(2) Each urban supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

(e) The urban water supplier may prepare the plan with its own staff by contract, or in cooperation with other governmental agencies.

In accordance with Water Code Sections 10642 and 10620(d)(2), during preparation of the 2010 UWMP, the City Utilities Department coordinated the development of the Plan within the City. Interagency activities included the exchange of data and incorporation of the agencies' comments to the City's Draft UWMP, as appropriate. The intent of this Plan is to focus on specific issues unique to Coachella's water service area. Appendix A lists the numerous references used during the development of this Plan. Table 1.3-1 lists the entities that the City coordinated with in the development of the City's 2010 UWMP.

Table 1.3-1
Coordination and Public Involvement in UWMP Development

Entities	Coordination and Public Involvement Actions						
	Participated in UWMP Development	Commented on Draft UWMP	Attended Public Meetings	Contacted for Assistance	Received Copy of the Draft UWMP	Sent Notice of Intention to Adopt	Not Involved/No Information
City of Coachella Utilities Dept.	X					X	
City of Coachella Engineering	X					X	
City of Coachella Development Services Dept.					X	X	
CVWD		X			X	X	
DWA					X	X	
MWD						X	
City of Indio						X	
IWA					X	X	
Mission Springs Water District					X	X	
County of Riverside					X	X	
Riverside County Planning TLMA						X	
Torres Martinez Desert Cahuilla Indians						X	
Agustine Band of Cahuilla Indians						X	
Twenty Nine Palms Band of Mission Indians						X	

1.4 Urban Water Management Plan Update Preparation

Section 10621
(a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.

The City's 2010 UWMP updates the 2005 UWMP and incorporates changes enacted by legislation, including, but not limited to: California Water Plan, Senate Bill (SB) X7-7 Water Conservation Bill of 2009, SB 610 Water Supply Assessments, SB 221 Written Verifications of Water Supply, and Assembly Bill (AB) 1420 Demand Management Measure Implementation Compliance.

The sections in this Plan correspond to the outline of the Act, specifically Article 2, Contents of Plans, Sections 10631, 10632, and 10633. The organization used for the required information, however, follows the 2010 UWMP Guidebook provided by Department of Water Resources (DWR). The DWR *UWMP Checklist* has been completed and included in Section 8. Additionally, the DWR *Review for Completeness Form* and *Review for DMM (Demand Management Measures) Completeness Form* will be included as Appendix B and Appendix C, respectively, once completed by the DWR.

1.5 Urban Water Management Plan Adoption, Submittal, and Implementation

Section 10621

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

A public notice regarding an update to the UWMP and upcoming public hearing was sent through the mail and posted on the City's website on April 21, 2011. Draft copies of the UWMP were made available for review and comment, through email and on the City's website on June 15, 2011. A public hearing was noticed in *The Desert Sun* on June 18, 2011 and June 25, 2011. The 2010 UWMP was adopted by resolution of the Coachella City Council on July 13, 2011, following a public hearing on July 13, 2011. The adopted UWMP was submitted to the California DWR within 30 days of Council approval. Copies of the Notice of Public Hearing and the Resolution of Plan Adoption are included in Appendix D. Within 30 days following submittal to DWR, copies of the adopted UWMP were submitted to the California State Library and to each city or county within or containing the water supplier's boundary. Additionally, copies of the adopted UWMP are also available for public review at the City's Utilities and Public Facility located at 53-462 Enterprise Way, Coachella, during normal business hours.

SECTION 2
SYSTEM DESCRIPTION

Section 10631

(a) Describe the service area of the supplier; including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years of as far as data is a available.

2.1 Service Area Description

The City, incorporated in 1946, encompasses approximately 32 square miles in Riverside County. The area is known as the Lower or East Coachella Valley. Existing land uses within the City consists primarily of single and multi-family homes. There is a commercial/light industrial zone along the freeway corridor, agricultural zone east of Highway 86/111, and a heavier industrial zone in the southern part of the City. The population of the small, stable community has a young median age. While development carried a rapid pace in the Coachella Valley since 2000, it has slowed significantly since the economy began to decline. Total water demand had increased by over 50 percent up to 2007, but has since been on the decline. The City has several planned development projects; however those are expected to stay in the planning stages until local economies begin to show recovery. Based on recent trends, development is expected to be minimal over the next five years, until economic recovery gains momentum and development picks up, see Section 2.2.3 for further discussion. Full buildout of the City's sphere of influence (SOI), for a total service area of approximately 53 square miles, is not anticipated until sometime after 2050. The City's water supply service area is shown in Figure 2-1, which includes the service area outside the city limits, but within the SOI. The April 2006 Local Area Formation Commission (LAFCO) meeting significantly increased the City's SOI. In addition to increasing the City's SOI, some areas currently served by the City will be served by the City of Indio in the future. The existing infrastructure in this area presents an opportunity to create intertie connections between each city to facilitate exchange and sharing agreements, which is discussed further in Section 4.5.

2.1.1 Facilities

Water is currently supplied for the City of Coachella entirely by the Coachella Valley Groundwater Basin, Indio Subbasin; Basin Number 7-21.01. The City presently uses approximately three to five percent of the total volume of water withdrawn from the groundwater basin each year. The City supplies 100 percent of its potable water from City owned and operated wells. Well water is provided by the Coachella Valley Groundwater Basin, which is not adjudicated. The City presently operates eight (8) active

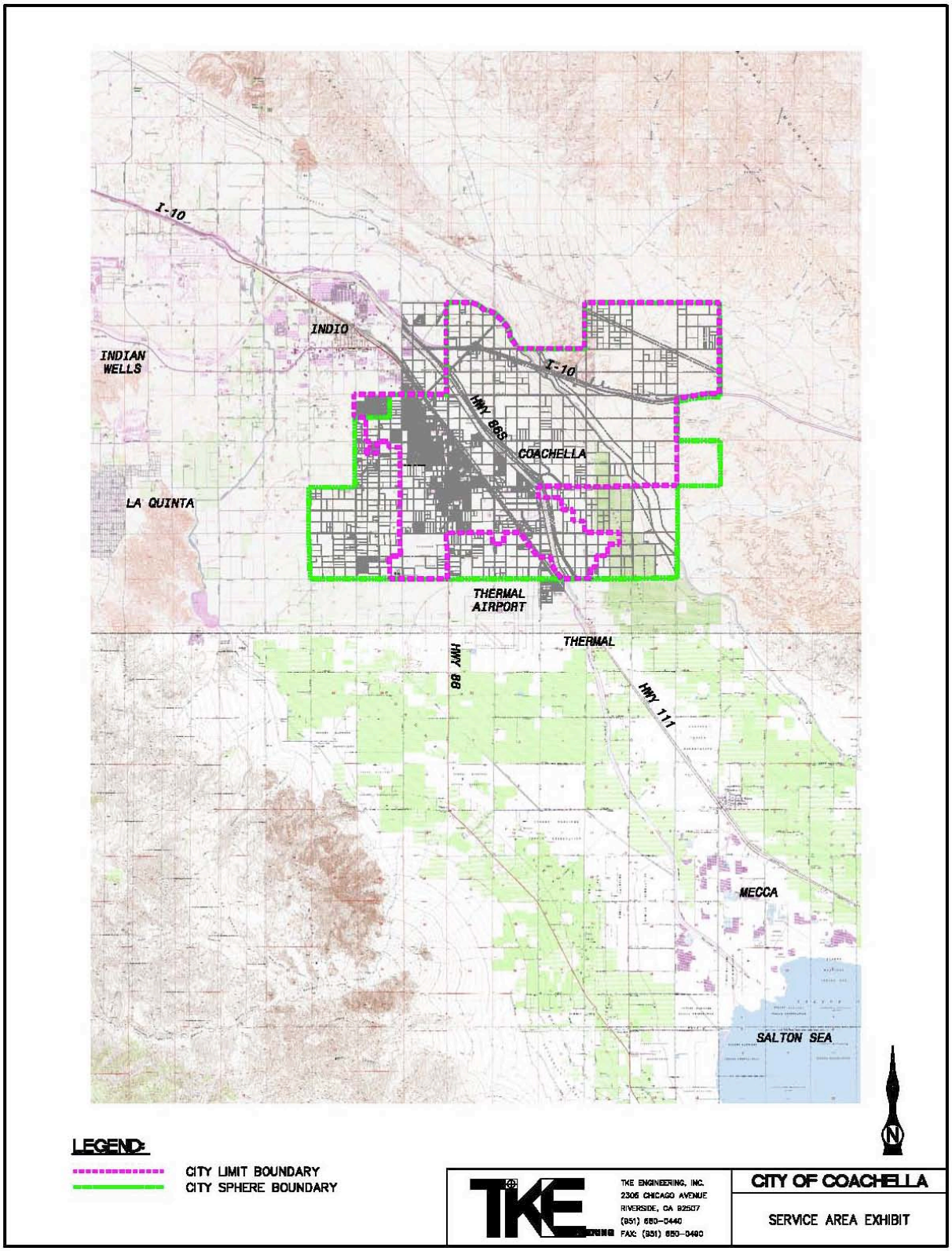

Figure 2-1 City of Coachella Water Service Area

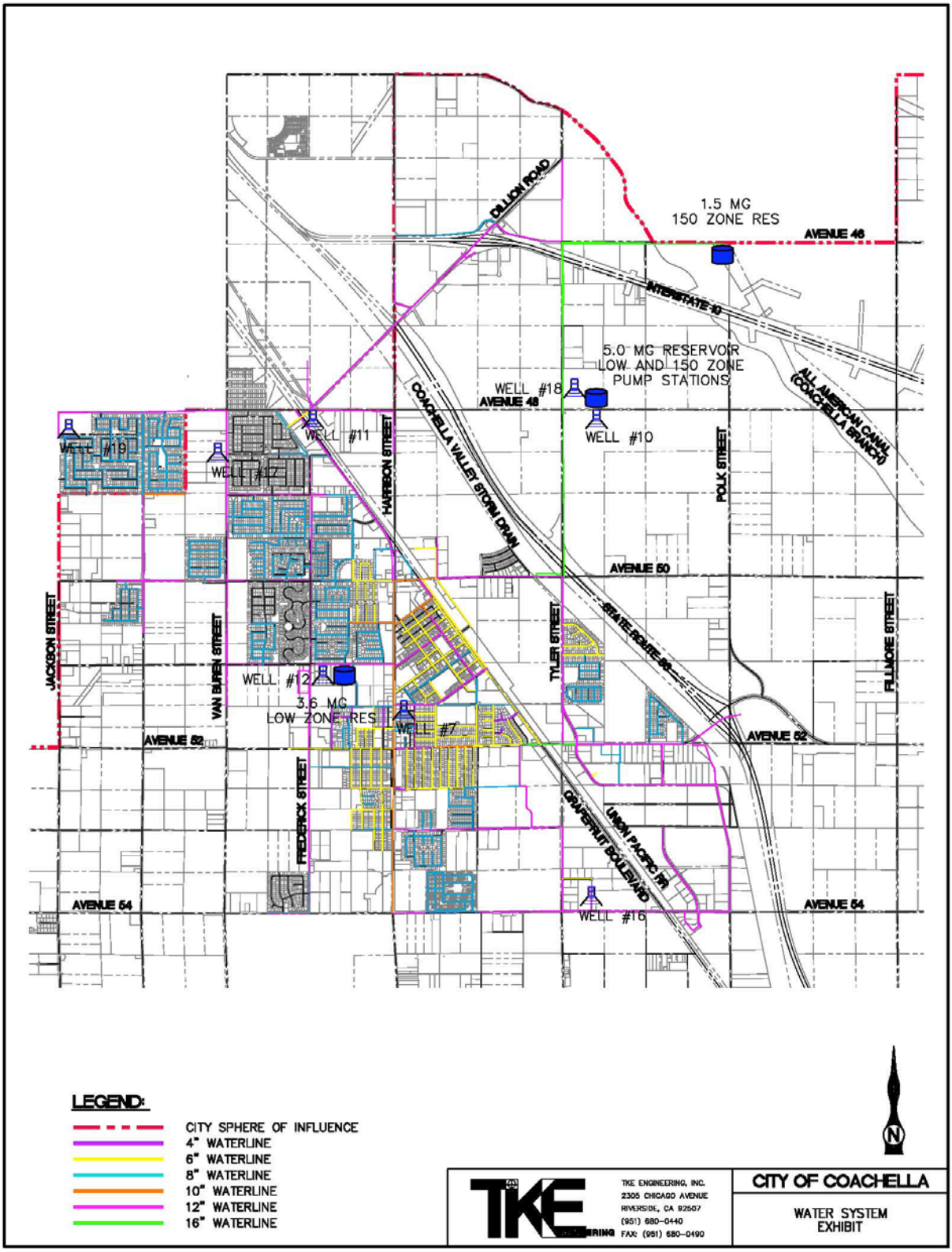

Figure 2-2 Existing Water System

groundwater wells, Well Nos. 11, 12, 16, 17, 18, and 19, with a total production capacity of approximately 12,500 gallons per minute (gpm) or 18 million gallons per day (MDG). In 2010, annual production was approximately 2,700 million gallons or 8,200 acre-feet. Well Nos. 11, 12, 16, 17, 18, and 19, have a pumping capacity estimated to be between 1,000 and 2,200 gpm each. Water provided by these wells is of excellent quality and requires no treatment to maintain quality requirements of the Regional Water Quality Control Board. Figure 2-2 shows the existing distribution system and the wells currently producing drinking water.

The City is intersected by the Coachella Branch of the All-American Canal (Coachella Canal) and the Colorado River Aqueduct. The Coachella Canal is owned by the United State Bureau of Reclamation and is operated and maintained by the Coachella Valley Water District (CVWD). The Colorado River Aqueduct is owned, operated and maintained by the Metropolitan Water District (MWD). The Coachella Canal bisects the City starting in the south and moving in a northwesterly direction. The Colorado River Aqueduct passes through the northeastern portion of the City's service area through a closed conduit to prevent losses during conveyance. These waters are used for irrigation and groundwater recharge, respectively. Effluent from the wastewater treatment facility is conveyed to the Salton Sea via the storm water channel.

2.1.2 Climate

The City is located in the Coachella Valley. The climate is arid with the majority of precipitation occurring as rainfall in the winter months between November and March. The average rainfall for the Coachella area is approximately 4 inches per year. The only known measurable snowfall occurred on January 31, 1979.

Winter temperatures are generally between the low 40's and the mid 70's. Summer temperatures are generally between mid-70's and the low 100's. Table 2.1.2-1 shows the average monthly ETo, rainfall, and temperature for the City of Coachella area.

Table 2.1.2-1
City of Coachella Area Climate

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total or Average
Monthly Average ETo[1]		1.59	2.54	4.03	5.67	7.81	8.74	9.28	8.42	6.26	4.39	2.36	1.59	62.68
Average Temperature (Fahrenheit)[2]	Max	71	76	80	86	94	102	107	106	101	92	80	72	88.9
	Min	40	45	50	57	64	71	77	77	70	60	47	38	58.0
Average Rainfall (inches)[3]		0.60	0.50	0.40	0.10	0.10	0.00	0.30	0.50	0.40	0.30	0.40	0.40	4.00

[1] California Irrigation Management Information System, Department of Water Resources, Office of Water Use Efficiency, Monthly Average ETo Report for Station 200, Indio 2, Imperial/Coachella Valley – all other nearby stations are inactive or too new; [on-line] http://www.cimis.water.ca.gov/cimis/frontMonthlyEToReport.do

[2] [3] [on-line] http://countrystudies.us/united-states/weather/California/indio.htm (closest to Coachella and similar to CIMIS Station 200 Indio 2 report)

2.2 Service Area Population

The City of Coachella population is expected to increase substantially in the future. Based on the California Department of Finance, the City's population grew from 30,879 to 42,591 between 2005 and 2010. This equates to an average annual growth rate of approximately 8.2 percent. The City limits extend beyond its current distribution service area. Therefore, the City's population is larger than the actual population served by its water system. To accurately estimate the City's distribution service area population, Census Block Maps for years 2000 and 2010 were used. These maps show the boundaries and numbers for all census blocks within an entity. The City's distribution service area was overlaid onto the Census Block Maps and a population count was taken for each census block within the distribution service area. Based on the Census Block Data, the City's distribution service area population grew from 22,210 to 39,948 between 2000 and 2010. This equates to an average annual growth rate in the City's distribution service area of approximately 6.7 percent.

The City Development Services Department has plans for several proposed development projects, ranging in size from 10 residential units to mixed-use developments with over 8,000 residential units. The total number of proposed residential units associated with these projects is documented as 30,142 in the City of Coachella 2006 Water Master Plan Update. These units are included in the City's SOI, which is not anticipated for full build out until after 2050. Therefore, population projections remain in the City's current service area through the year 2030, which is consistent with the location of water demand through 2030. However, since development has slowed significantly since 2007, development plans are expected to stay in the planning stages until local economies begin to show recovery, see Section 2.2.3 for further discussion.

Table 2.2-1 shows the City's service area population since 2005 and projects the population through the year 2035 in five-year increments based on the assumed buildout

of the proposed projects by the year 2027 (the midpoint of the 15 to 30 year buildout range projected in the Water Master Plan).

Table 2.2-1
City of Coachella
Population Projections

	2005	2010	2015	2020	2025	2030	2035
Service Area Population	31,079	39,948	56,989	71,790	84,529	98,206	111,975

Sources: U.S. Census Bureau, http://www.census.gov/; California Department of Finance, http://www.dof.ca.gov/; Riverside County Center for Demographic Research, http://www.rctlma.org/default.aspx

2.2.1 Demographics

The City of Coachella experienced a substantial increase in both housing units and employment from 2005 through 2010 with an increase of 50% and 41%, respectively. Table 2.2.1-1 shows housing units and employment since 2005 and projects these demographics through the year 2035 in five-year increments.

Table 2.2.1-1
City of Coachella
Housing and Employment Projections

	2005	2010	2015	2020	2025	2030	2035
Housing Units	6,624	9,903	14,132	17,632	21,132	24,632	28,132
Employment	6,971	9,800	10,920	12,878	14,831	16,793	19,014

Sources: California Department of Finance, http://www.dof.ca.gov/; Riverside County Center for Demographic Research, http://www.rctlma.org/default.aspx

2.2.2 Recession Affects

Population and demographic projections above are all based on 2000 US Census data and California Department of Finance data that was published before the economic recession hit the Coachella Valley region. The City of Coachella has experienced moderate growth since late 2007. As such, declines in population, employment, and housing are not reflected in the projections.

According to a 2010 Economic Forecast authored by Beacon Economics, the unemployment rate in Riverside and San Bernardino Counties was higher than Statewide and it is expected to fall faster than that of California as a whole. It is expected that the housing market will get worse before it gets better, as the housing market continues to bring uncertainty to the local economy, limiting growth in the short term. Beacon

Economics projected that substantial job growth won't occur until sometime in the second half of 2011 and the unemployment rate in Riverside and San Bernardino counties will remain above 8 percent through 2015.

It should be noted that the US Census and California Department of Finance demographic data is considered to be accurate and applicable to this report. As such, subsequent UWMP reports will better address economic changes into the near future.

SECTION 3
SYSTEM DEMANDS

3.1 Water Demands

3.1.1 Past and Current Water Use

Section 10631

(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:

- *(A) Single-family residential*
- *(B) Multifamily*
- *(C) Commercial*
- *(D) Industrial*
- *(E) Institutional and governmental*
- *(F) Landscape*
- *(G) Sales to other agencies*
- *(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof*
- *(I) Agricultural*

The City of Coachella population, including the distribution service area population, is expected to increase substantially in the future. Based on the Census Block Data, the City's distribution service area population grew by 22 percent between 2005 and 2010. This equates to an average annual growth rate of approximately 4.3 percent. The City Development Services Department has plans for several proposed development projects which would result in approximately 30,000 new residential units.[2] However, since development has slowed significantly since 2007, construction is not expected in the near future.

Table 3.1.1-1 and Table 3.1.1-2 shows the past and current water use for the City's water service area shown by water use sectors.

[2] City of Coachella 2006 Water Master Plan Update

Table 3.1.1-1
2005 Water Deliveries

Water Use Sectors	2005				
	Metered		Not Metered		Total
	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	5,502	946	0	0	946
Multi-family	244	222	0	0	222
Commercial/Institutional	923	179	0	0	179
Industrial	25	137	0	0	137
Landscape Irrigation	129	139	7	0	139
Agriculture Irrigation	0	0	0	0	0
Other	0	692	0	0	692
Total	6,823	2,315	7	0	2,315

Units: million gallons per year

Table 3.1.1-2
2010 Water Deliveries

Water Use Sectors	2010				
	Metered		Not Metered		Total
	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	6,919	1,426	0	0	1,426
Multi-family	349	307	0	0	307
Commercial/Institutional	336	376	0	0	376
Industrial	3	43	0	0	43
Landscape Irrigation	158	312	0	0	312
Agriculture Irrigation	0	0	0	0	0
Other	127	227	0	0	227
Total	7,892	2,691	0	0	2,691

Units: million gallons per year

Over the past five years the City has been able to get all service connections metered. However, "non-revenue" water[3] is unable to be determined. Non-revenue water is the

[3] http://www.awwa.org/WaterWiser/waterloss/Docs/02Apparent_Real_Loss.cfm Recent research has found that the practices of calculating "unaccounted-for" water varied so widely in utilities around the world that the term has no consistent meaning. AWWA's Water Loss Control Committee published a committee report in the August 2003 edition of *Journal AWWA* entitled "Applying Worldwide Best Management Practices in Water Loss Control." A fundamental concept of this method is that all drinking water can be accounted-for, via metering or estimation, as either a form of consumption or a loss. Hence no water is "unaccounted-for". The Water Loss Control Committee recommends against the continued use of the imprecise term "unaccounted-for" water, referring instead to the specifically defined Non-revenue water, included in the International Water Association (IWA)/AWWA Water Audit Method.

difference between water production and water consumption or total billed water, which represents water losses within a water system. Non-revenue water may be attributed to "apparent losses" or "real losses." Apparent losses are paper losses that occur in utility operations due to customer meter inaccuracies, billing system data errors and unauthorized consumption. In other words, this is water that is consumed but is not properly measured, accounted or paid for. Real losses are the physical losses of water from the distribution system, including leakage and storage overflows. These losses inflate the water utility's production costs and stress water resources since they represent water that is extracted and treated, yet never reaches beneficial use. Real losses also include other events causing water to be withdrawn from the system and not measured, such as hydrant testing and flushing, street cleaning, new construction line draining and/or filling and draining and flushing, and firefighting.

Since many proposed new developments will be constructed in previously undisturbed areas, new infrastructure will be installed that will assist in lowering the overall non-revenue or unaccounted-for water loss percentage in the system.

3.1.2 Water Demand Projections

Section 10631
(e) (1) See Section 3.1 Above.
(2) The water use projections shall be in the same five-year increments described in subdivision (a).

Section 10631
(k) Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

Section 10631.1
(a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

The projected (next 25 years) water use for the City of Coachella is expected to increase at a reduced rate compared to the projected increase in the City's SOI population. Demographic data for the City indicated that there are approximately 4.802 persons per household.[4] Therefore, the rate of increase of metered accounts is one for every 4.802

[4] California State Department of Finance, http://www.dof.ca.gov/

persons. As previously mentioned, full buildout of the City's SOI, for a total service area of approximately 53 square miles, is not anticipated until sometime after 2050.

Water demand projections were created using past years DWR Public Water System Statistic sheets and following reduced population projection trends, as shown in Table 2.2-1. The projected water demand is expected to increase at a rate of 1.39 percent per year till 2015, 1.08 percent per year till 2020, 0.74 percent per year till 2025, 0.67 percent per year till 2030, and 0.58 percent per year till 2035. Projected water use for years 2015 through 2035 is shown on Tables 3.1.2-1 through 3.1.2-3.

Table 3.1.2-1
Projected 2015 Water Deliveries

Water use sectors	2015				
	Metered		Not metered		Total
	# of accounts	Volume	# of accounts	Volume	Volume
Single family	7,413	1,527	0	0	1,527
Multi-family	374	329	0	0	329
Commercial/Institutional	360	403	0	0	403
Industrial	3	47	0	0	47
Landscape Irrigation	169	334	0	0	334
Agriculture Irrigation	0	0	0	0	0
Other	136	244	0	0	244
Total	8,455	2,884	0	0	2,884

Units: million gallons per year

Table 3.1.2-2
Projected 2020 Water Deliveries

Water use sectors	2020				
	Metered		Not metered		Total
	# of accounts	Volume	# of accounts	Volume	Volume
Single family	7,822	1,612	0	0	1,612
Multi-family	395	347	0	0	347
Commercial/Institutional	380	426	0	0	426
Industrial	3	49	0	0	49
Landscape Irrigation	179	352	0	0	352
Agriculture Irrigation	0	0	0	0	0
Other	144	257	0	0	257
Total	8,923	3,043	0	0	3,043

Units: million gallons per year

Table 3.1.2-3
Projected 2025, 2030, and 2035 Water Deliveries

Water use sectors	2025		2030		2035	
	Metered		Metered		Metered	
	# of accounts	Volume	# of accounts	Volume	# of accounts	Volume
Single family	8,116	1,672	8,392	1,729	8,638	1,780
Multi-family	409	360	423	373	436	383
Commercial/ Institutional	394	442	408	457	419	470
Industrial	4	51	4	53	4	54
Landscape Irrigation	185	366	192	378	197	389
Agriculture Irrigation	0	0	0	0	0	0
Other	149	267	154	276	159	284
Total	9,257	3,158	9,573	3,266	9,853	3,360

Units: million gallons per year

As required by SB 1087, the projected lower income household water demands are presented in Table 3.1.2-4. Lower income households are those with less that 80 percent of the median income, adjusted for family size. The projected lower income household water demands were developed based on the projected number of lower income households in proportion to the total number of households. Based on the City's General Plan, in 2013, residents that fall under the lower income household category make up approximately 46 percent of the City's total housing numbers. Using demand data from Tables 3.1.2-1 through 3.1.2-3, the projected low income water demand was determined by multiplying the projected water demand for both single-family residents (SFR) and multi-family residents (MFR) by the percent that are considered low income households. The City's demand projections presented in this section are consistent with the City's target demands.

Table 3.1.2-4
Low-Income Projected Water Demands

Low Income Water Demands	2015	2020	2025	2030	2035
Single-Family Residential	715	754	782	809	833
Multi-Family Residential	154	162	168	175	179
Total	869	917	951	984	1,012

Units: million gallons per year

3.1.3 Residential Sector

Residential is the largest customer class (sector) in the City's water service area and is the primary water user. The residential sector consists largely of single-family and multi-family residences.

The City currently has approximately 6,900 total dwellings with an average of a little under five people per dwelling, see Table 2.2.2-1. As new developments are constructed, it is expected that the number of people per dwelling will decrease due to the type, style, and size of the planned developments.

Pursuant to Government Code Section 65589.7 as chaptered from SB 1087 (2005), the City of Coachella will grant a priority to proposed developments seeking water or sewer service that includes housing units affordable to lower income households. To further this policy, the City has adopted a written policy (Resolution 346) with specific objective standards for provision of services and has considered each of the following:

1. Regulations and restrictions adopted relating to water shortage emergencies.
2. The availability of water supplies as determined by the City pursuant to its adopted urban water management plan.
3. Other plans, documents, and information relied upon by the City that provides a reasonable basis for making service determinations.

The City of Coachella will not deny or condition the approval of an application for services to or reduce the amount of service for a proposed development that includes housing units affordable to lower income households unless the City makes a specific written finding that the denial, condition, or reduction is necessary due to the existence of one or more of the following:

1. The City does not have "sufficient water supply" as defined in paragraph (2) of subdivision (a) of Section 66473.7, or is operating under a water shortage emergency as defined in Section 350 of the Water Code, or does not have sufficient water treatment or distribution capacity to serve the needs of the proposed development, as demonstrated by a written engineering analysis and report.
2. The City is subject to a compliance order issued by the State Department of Health Services that prohibits new water connections.
3. The City does not have sufficient collection treatment, or reclamation capacity, as demonstrated by a written engineering analysis and report on the condition of the collection treatment, or reclamation works, to serve the needs of the proposed development if it seeks sewer service.

4. The City is under an order issued by a regional water quality control board that prohibits new sewer connections, if the proposed development seeks sewer service.
5. The applicant failed to agree to reasonable terms and conditions relating to the provision of service generally applicable to development projects seeking service from the City, including but not limited to the requirements of local, state, or federal laws, and regulations or payment of a fee or charge.

For the purposes of the section above, the following definitions apply:

1. "Proposed developments that include housing units affordable to lower income households" means that dwelling units will be sold or rented to lower income households, as defined in Section 50079.5 of the Health and Safety Code, at an affordable housing cost, as defined in Section 50052.5 of the Health and Safety Code, or an affordable rent, as defined in Section 50053 of the Health and Safety Code.
2. "Water or sewer services" means supplying service through a pipe or other constructed conveyance for a residential purpose, and does not include the sale of water for human consumption by a water supply to another water supplier for resale. As used in this section, "water service" provided by a public agency applies only to water supplied from public water systems subjected to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

3.1.4 Non-Residential Sector

The City currently has a small number of non-residential enterprises. Non-residential users include commercial, industrial, construction, fire flow, and public parks. As the City continues to grow, it is anticipated that non-residential users will also grow to provide services to an increasing population.

3.1.5 Landscape

Landscape demand is expected to increase as new development occurs. Throughout the Coachella Valley, many developments have incorporated golf courses to draw in prospective residents. It is expected that some future developments may include golf courses. To minimize the impact of large landscapes, the City has enacted an ordinance requiring all golf courses to provide irrigation using canal water or non-potable groundwater. The quality of canal water and non-potable groundwater is such that irrigation use does not require treatment except to reduce TDS and Boron. To minimize irrigation equipment maintenance each user may choose to provide filtration to prevent sprinkler head clogging due to particulate matter. Recycled water use to supplement non-potable supply is discussed in Section 4-7.

3.1.6 Agriculture

Agriculture is another major source of water demand in the City. Many farmers switched to drip irrigation system in the recent past to conserve water. Those farmers previously utilizing canal water for irrigation encountered problems due to clogging upon retrofit to drip system. The clogging forced many to revert from canal to well water to alleviate clogging problems. Since, many Coachella Valley farmers have successfully converted from groundwater to canal water by installing on-farm filtration systems.

3.2 Baselines and Targets

Section 10608.20

(e) An urban retail water supplier shall include in its urban water management plan required pursuant to Part 2.6 (commencing with Section 10610) due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

The Water Conservation Bill of 2009 (SBX7-7) set forth requirements for each water supplier to include baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use in the 2010 UWMP. The goal of SBX7-7 is to achieve a 20 percent reduction in water use per capita, statewide, by 2020. DWR provided technical methodologies to aid in the determination of baseline and target per capita water uses.

The City currently has no recycled water deliveries, so a continuous 10 year period was used in determining base daily per capita water use. The City's distribution system population was determined from Census Block Data, as previously describe, and gross water use was determined from the City's annual production and storage records. Tables 3.2-1 through Table 3.2-3 present base period ranges, gross water use, and per capita water use information for the City. The City's 10 year base daily per capita water use is 208 gallons per capita per day (GPCD) and the City's 5 year base daily per capita water use is 210 GPCD.

After evaluating the four methodologies for determining per capita water use target, the City determined Method 3 would be best fit. Using Method 3, the per capita water use target is based on 95 percent of the applicable state hydraulic region target. The City is located in the Colorado River hydraulic region, as shown on Figure 3-1. The 2020 target for the Colorado River region is 211 GPCD. Following Method 3, 95 percent of the regional target results in a per capita water use target of 200 GPCD. Additionally, since 95 percent of the 5 year base daily per capita water use, 210 GPCD, is equal to the regional target, 200 GPCD, the per capita water use target was set at 200 GPCD.

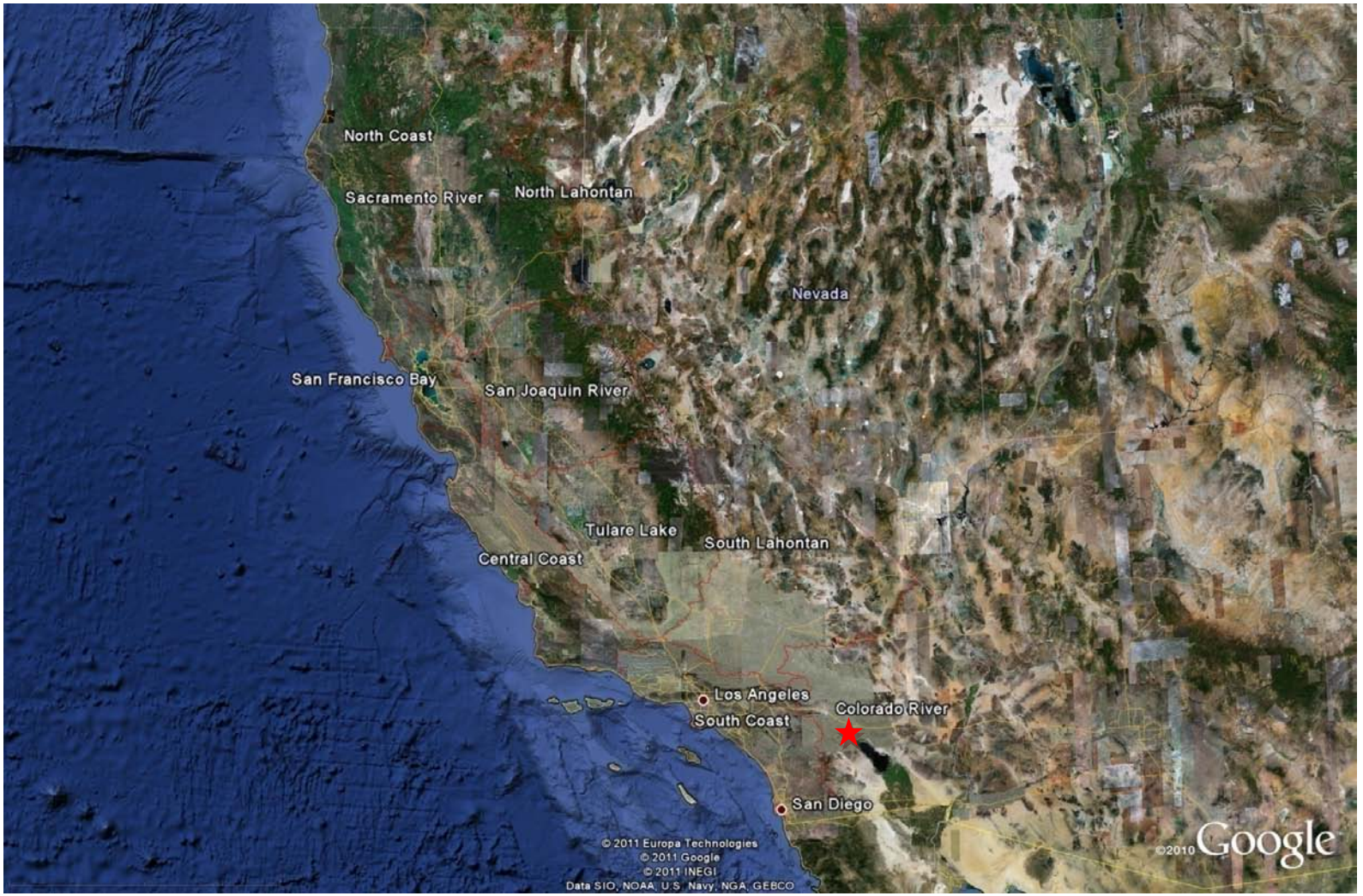

Figure 3-1 DWR Hydraulic Regions

Table 3.2-1
Base Period Ranges

Base	Parameter	Value	Units
10 to 15 Year Base Period	2008 Total Water Deliveries	2,728	see below
	2008 Total Volume of Delivered Recycled Water	0	see below
	2008 Recycled Water as a Percent of Total Deliveries	0%	percent
	Number of Years in Base Period	10	years
	Year Beginning Base Period Range	2001	
	Year Ending Base Period Range	2010	
5 Year Base Period	Number of Years in Base Period	5	years
	Year Beginning Base Period Range	2006	
	Year Ending Base Period Range	2010	

Units: million gallons per year

Table 3.2-2
Base Daily per Capita Water Use - 10 to 15 Year Range

Base Period Year		Distribution System Population	Daily System Gross Water Use (mgd)	Annual Daily per Capita Water Use (gpcd)
Sequence Year	Calendar Year			
Year 1	2001	23,984	5.16	215
Year 2	2002	25,758	5.21	202
Year 3	2003	27,531	5.79	210
Year 4	2004	29,305	5.94	203
Year 5	2005	31,079	6.34	204
Year 6	2006	32,853	7.93	241
Year 7	2007	34,627	7.75	224
Year 8	2008	36,400	7.47	205
Year 9	2009	38,174	7.44	195
Year 10	2010	39,948	7.37	185
Base Daily Per Capita Water Use[1]				**208**

[1] The Base Daily Per Capita Water Use is taken as the 10 Year Average.

Table 3.2-3
Base Daily per Capita Water Use - 5 Year Range

Base Period Year		Distribution System Population	Daily System Gross Water Use (mgd)	Annual Daily per Capita Water Use (gpcd)
Sequence Year	Calendar Year			
Year 1	2006	32,853	7.93	241
Year 2	2007	34,627	7.75	224
Year 3	2008	36,400	7.47	205
Year 4	2009	38,174	7.44	195
Year 5	2010	39,948	7.37	185
			Base Daily Per Capita Water Use[1]	**210**

[1] The Base Daily Per Capita Water Use is taken as the 5 Year Average.

Once both the 5 year base daily per capita water use, 210 GPCD, and the per capita water use target, 200 GPCD, were determined, the City established the interim base daily per capita water use goal for 2015. The interim per capita water use of 195 GPCD will be used by the City as the target conservation goal to reach by 2015.

3.3 Water Use Reduction Plan

Section 10608.36
Urban wholesale water suppliers shall include in the urban water management plans required pursuant to Part 2.6 (commencing with Section 10610) an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part.

CWC §10608.20
Urban retail water suppliers are to prepare a plan for implementing the Water Conservation Bill of 2009 requirements and conduct a public meeting which includes consideration of economic impacts.

The City of Coachella recognizes that water is a limited resource and that water conservation and use efficiency should be actively pursued. The City's water conservation efforts are anticipated to reduce overall water demand to meet State mandates. On November 2, 2000, the City of Coachella became signatory to the Urban Water Conservation MOU with the California Urban Water Conservation Council (CUWCC). The City's has a tiered water rate schedule that is conducive to voluntary conservation. The City currently implements the following water conservation programs: residential water audits (in partnership with Coachella Valley Resources Agency), residential plumbing retrofits, large landscape conservation incentives, outreach and education, and a model landscape ordinance. The City also promotes water conservation and other resources in coordination with CVWD, Imperial Irrigation District (IID), and other energy utilities. The City distributes public information through bill inserts,

brochures, and community events.[5] See Section 6 for details on the City's water use reduction programs.

[5] Coachella Valley Integrated Regional Water Management Plan, December 2010

SECTION 4
SYSTEM SUPPLIES

4.1 Existing Water Supplies

Section 10631
(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).

The City's existing source of potable water is currently supplied only by groundwater. To supplement groundwater supplies, the City is in the planning phase to construct a water treatment plant for Coachella Canal water or other water sources that may be negotiated. Treated Coachella Canal water could be used to offset groundwater extraction during wet years. Because of other agreements defining where Coachella Canal water can be used and who receives it, the City is focusing on source substitution during wet years. Minimizing groundwater extraction during wet years, reserves groundwater for extraction during dry years when previously negotiated agreements dictate rights to Coachella Canal water. The following sections describe the current condition of the groundwater supply and planned expansion of these supplies.

4.2 Groundwater

Section 10631 (b)
If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:
(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.
(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.
(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

Groundwater is the principal source of municipal water supply in the Coachella Valley. The main groundwater source is the Coachella Valley Groundwater Basin, Indio Sub-basin, Basin Number 7-21-01, also known as the Whitewater River Sub-basin, as shown in Figure 4-1. The Whitewater River Subbasin is shared by CVWD, Desert Water Agency (DWA), the cities of Indio and Coachella, and numerous private groundwater producers. The basin is divided into the upper and lower subbasins, with an estimated total storage of 30 million acre feet (MAF) of water. The cities of Indio and Coachella

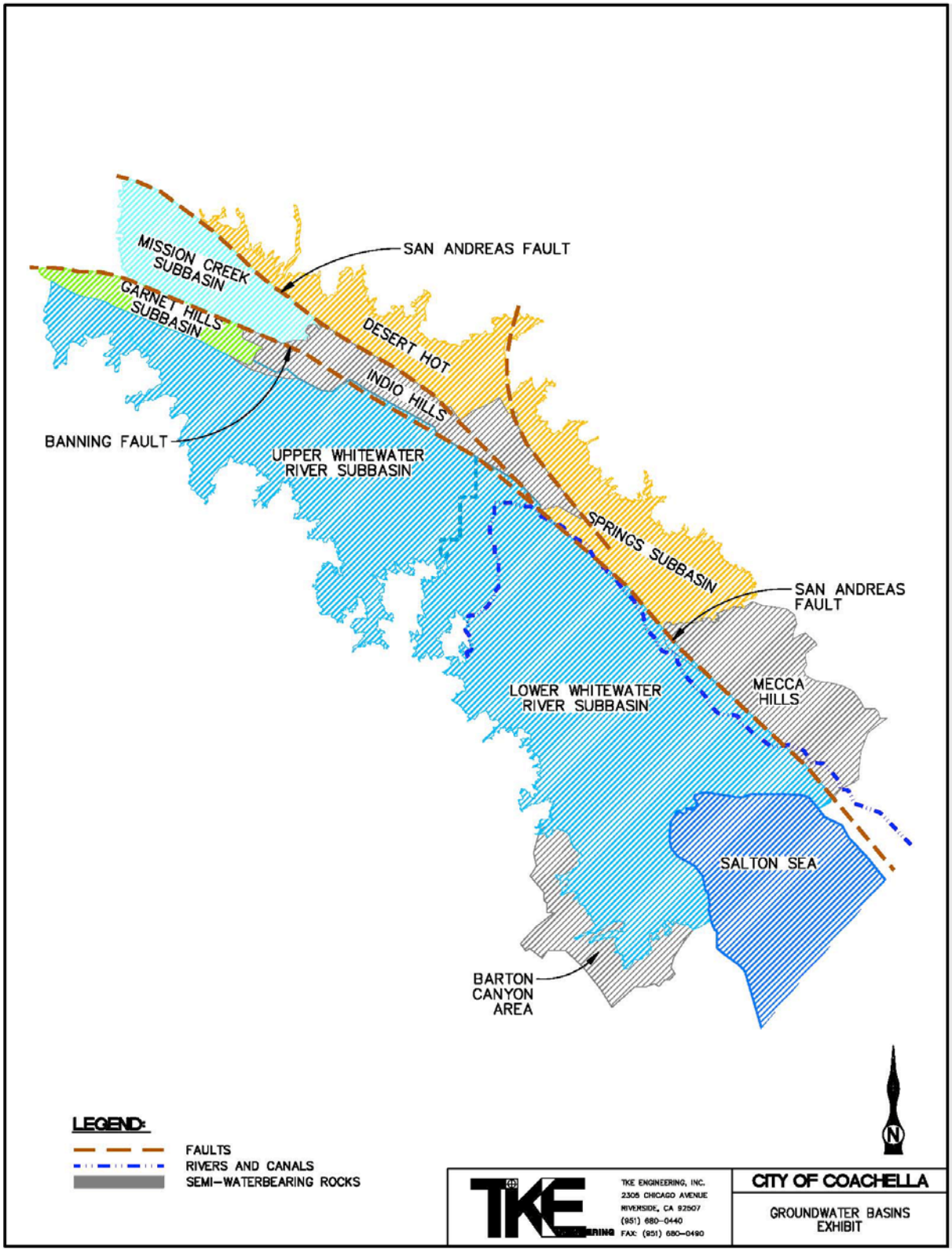

Figure 4-1 Groundwater Basins

obtain water from the lower Whitewater River Subbasin. The water in this basin originates from mountain front recharge and from recharge efforts made in the region

The Basin is not an adjudicated basin and, as such, there are no deeded rights to withdraw water. However, the City does pay a replenishment assessment charge (RAC) to CVWD, the retail water agency responsible for basin management in the region. The current RAC is $24 per acre-foot of groundwater pumped. In 2010, the City produced approximately 8,340 acre-feet of groundwater and paid approximately $200,000 in RAC. Overall management of water resources for the Coachella Valley has historically been the responsibility of CVWD and DWA. In December 2010, the Coachella Valley Integrated Regional Water Management Plan (IRWMP) was developed to promote a regional approach for addressing water management issues. The IRWMP was created by the Coachella Valley Regional Water Management Group (CVRWMG), which is a partnership of the following five Coachella Valley water purveyors: Coachella Water Authority, CVWD, DWA, Indio Water Authority, and the Mission Springs Water District. The plan describes the groundwater basin in detail, documents historical groundwater levels, estimates existing and future groundwater production rates, and identifies regional management goals and objectives.

In order to ensure an adequate water supply for all domestic users in the Coachella Valley, it is necessary for the City to work with CVRWMG. In summary, the Coachella Valley IRWMP states that the demand for groundwater in the Basin has annually exceeded the limited natural recharge of the groundwater basin. This overdraft condition has caused groundwater levels to decrease in portions of the Lower Valley and has raised concerns about water quality degradation and irreversible land subsidence. The direct effect of the overdraft condition will result in increased groundwater pumping costs and continued decline of groundwater levels could result in degradation of water quality in the Basin. Because of the difficult nature of quantifying overdraft, CVWD has based the "overdraft" condition on the change in freshwater storage. In 2009, the water balance in the lower portion of the Whitewater River Subbasin experienced a loss of 23,912 AF of water storage.[6]

CVWD and DWA are both responsible for recharging the Basin, therefore, CVWD and DWA obtain imported water supplies from the State Water Project (SWP). CVWD and DWA are two of 29 agencies holding long-term water supply contracts with the State of California for SWP water. However, CVWD and DWA do not directly receive SWP water. Instead, their SWP water is delivered from MWD pursuant to the Exchange Agreement. MWD, in turn, delivers an equal amount of Colorado River water to CVWD and DWA at the Whitewater River via the MWD Colorado River Aqueduct.

[6] CVWD Engineers Report on Water Supply and Replenishment Assessment, Lower Whitewater River Subbasin Area of Benefit, 2010-2011

4.2.1 City Production

Section 10631 (b)

(2) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use record.

The City of Coachella has six active groundwater wells, Well Nos. 11, 12, 16, 17, 18, and 19, with a total production capacity of approximately 12,500 gallons per minute (gpm) or 18 million gallons per day (MDG) to meet peak summer demands. Table 4.2-1 summarizes the City's wells. In 2005, the City pumped approximately 7,100 AF of groundwater, which is equivalent to an average day demand (ADD) of approximately 6.3 MGD. In 2010, the total amount of groundwater pumped was 8,300 AF, which is equivalent to an ADD of approximately 7.4 MGD. The City presently uses approximately three to five percent of the total volume of water withdrawn from the groundwater basin each year. Table 4.2-2 shows estimated total groundwater production in the Lower Whitewater River Subbasin over the past ten years. The operating conditions and controls for the wells vary, with some wells operating either year-round and some turned on only seasonally.

The groundwater wells are very deep, and test wells are typically not economical to construct. It is therefore assumed that the construction of future groundwater wells will be limited to areas that have a history of high water quality.

Table 4.2-1
City of Coachella Active and Planned Wells

Well No.	Average Capacity (gpm)	Discharge Location
11	1,100-1,200	Low Zone/High Zone
12	2,000	Low Zone Reservoir
16	1,500-2,000	Low Zone (south end)
17	2,200	Low Zone
18	2,000	Avenue 48 & Tyler Reservoir
19	1,000-2,000	Low Zone

Source: 2006 Coachella WMP Update

Production capacities are slightly less during the summer, when groundwater levels are lower. The system is now controlled by a Supervisory Control and Data Acquisition

(SCADA) system. The SCADA system will ensure maximum efficiency of groundwater resources.

Table 4.2-2
Estimated Groundwater Production
Lower Whitewater River Subbasin

Year	Acre-feet
1999[1]	168,300
2002[2]	166,700
2003	199,800
2004	172,300
2005	172,000
2006	172,000
2007	172,000
2008	172,000
2009	160,000[3]

[1] From the CVWMP, Table 3-2 Summary of Historical Water Supplies in 1936 and 1999.

[2] 2002 through 2008 base on Table 2, Engineer's Report on Water Supply and Replenishment Assessment, Lower Whitewater River Subbasin Area of Benefit 2009-2010

[3] Assessable groundwater production estimated from reported and projected unreported groundwater production.

4.2.2 Groundwater Quality

> *Section 10634*
> *The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.*

As required by the California Safe Drinking Water Act, which was reauthorized in 1996, the City of Coachella provides annual Water Quality Reports to its customers; also known as Consumer Confidence Reports. This mandate is governed by the Environmental Protection Agency (EPA) and the California Department of Public Health (DPH) to inform customers of their drinking water quality.

The Water Quality Control Plan for the Colorado River Basin Region 7 (Basin Plan) sets water quality objectives for the Coachella Valley. The Basin Plan is intended to protect surface and groundwater quality throughout the Colorado River Basin, which includes the Whitewater River watershed.[7] Under the Safe Drinking Water Act, the U.S. Environmental Protection Agency (USEPA) establishes maximum containment levels (MCLs) or the water quality standard. MCLs are the maximum allowable concentration of contaminants in surface or groundwater to be used for drinking water supply. Further,

[7] Coachella Valley Integrated Regional Water Management Plan, December 2010

the California EPA sets a Public Health Goal (PHG) at which there are no known or expected risks to health.

Water from the Lower Coachella Groundwater Basin is generally of excellent quality and does not require any type of treatment. While disinfection is not required, it is generally provided as a precautionary measure before distribution for potable uses. For the 2008 Coachella Water Quality Report, the City monitored its groundwater for more than 100 contaminants, including: arsenic, chromium, fluoride, methylene blue active substances (MBAS), nitrates, asbestos, manganese, trihalomethanes (THHM), alpha activity gross, uranium, color, foaming agents, odor, turbidity, total dissolved solids (TDS), specific conductance, chlorine, and sulfate. Test detected 18 elements present in the water, all with levels well below state mandated levels, and none at levels to warrant a violation.[8] Groundwater sources most vulnerable to the following activities were not associated with any detected contaminants: gas stations, low density septic systems, machine shops, cement/concrete plants, highways and railroads.

4.3 State Water Project (SWP)

CVWD and DWA are SWP contractors for the Whitewater River Basin Aquifer, but they have no direct physical connection to SWP water. The SWP includes 660 miles of aqueduct and conveyance facilities extending from Lake Oroville in the north to Lake Perris in the south. The SWP has contracts to deliver between 1.4 million ac-ft/yr of water in dry years and 4.0 million ac-ft/yr of water in wet years to 29 contracting agencies. CVWD's original SWP water right (Table A Allotment) was 23,100 ac-ft/yr and DWA's original SWP Table A allotment was 38,100 ac-ft/yr for a combined Table A allotment of 61,200 ac-ft/yr.

In 2004, CVWD purchased an additional 9,900 acre-feet per year of SWP water from the Tulare Lake Basin Water Storage District, which brought CVWD's SWP allotment to 33,000 ac-ft/yr. In addition, CVWD and DWA have also negotiated an exchange agreement with MWD for 100,000 ac-ft/yr of SWP Table A allotments. MWD has permanently transferred 88,100 ac-ft/yr and 11,900 ac-ft/yr of its SWP Table A allotments to CVWD and DWA, respectively. This exchange agreement increases the total SWP Table A allotments for CVWD and DWA to 178,100 ac-ft/yr, with CVWD's portion equal to 126,350 ac-ft/yr. This agreement provides that CVWD and DWA generally receive this water from the SWP during wet years, which allows the two agencies to recharge the groundwater basin and operate a conjunctive use program, storing water in wet years and pumping the groundwater basin in dry years.

In 2007, CVWD and DWA made a second purchase of SWP water from the Tulare Lake Basin Water Storage District. CVWD purchased 5,250 ac-ft/yr and DWA purchased 1,750 ac-ft/yr. This water has recently become available. Also in 2007, CVWD and DWA completed the transfer of 12,000 ac-ft/yr and 4,000 ac-ft/yr, respectively, from the Berrenda Mesa Water District for a total Table A allotment of 16,000 acft/yr, which has

[8] 2008 Coachella Water Quality Report

also recently become available. Therefore, the total SWP Table A allotments for CVWD and DWA is 194,100 ac-ft/yr, with CVWD's portion equal to 138,350 ac-ft/yr. Table 4.3-1 summarizes CVWD and DWA total allocations of Table A SWP water to be delivered when available.

Table 4.3-1
State Water Project Water Sources

	Original SWP Table A	Tulare Lake Basin Transfer #1	Tulare Lake Basin Transfer #2	MWD Transfer	Berrenda Mesa Transfer	Total
CVWD	23,100	9,900	5,250	88,100	12,000	138,350
DWA	38,100		1,750	11,900	4,000	55,750
Total	61,200	9,900	7,000	100,000	16,000	194,100

Units: Acre-Feet per Year (AFY)
Source: Coachella Valley Integrated Regional Water Management Plan, November 2010

Table 4.3-2
Department of Water Resources
Table A Water Allocations, 1991-2011

Year	Initial Allocation	Final Allocation
1991	85%	30%
1992	20%	45%
1993	10%	100%
1994	50%	50%
1995	40%	100%
1996	40%	100%
1997	70%	100%
1998	40%	100%
1999	55%	100%
2000	50%	90%
2001	40%	39%
2002	20%	70%
2003	20%	90%
2004	35%	65%
2005	40%	90%
2006	55%	100%
2007	60%	60%
2008	25%	35%
2009	15%	40%
2010	5%	50%
2011	25%	80%
AVERAGE:	**38%**	**73%**

Source: State of California Department of Water Resources, Water Contract Branch within the State Water Project Analysis Office, Notices to State Water Contractors, 1991 – 2011.

Water purveyors make annual requests to the DWR for water allocations and DWR makes an initial SWP Table A allocation for planning purposes, typically in the last month before the next water delivery year. Throughout the year, as additional information regarding water availability becomes available to DWR, its allocation/delivery estimates are updated. Table 4.3-2, shown above, outlines the historic reliability of SWP deliveries, including their initial and final allocations for the past 20 years (1991 through 2011).

As noted previously, CVWD and DWA do not directly receive SWP water. Rather, CVWD and DWA have entered into an exchange agreement with MWD that allows MWD to take delivery of CVWD and DWA SWP Table A water. In exchange, MWD provides an equal amount of Colorado River water that MWD transports through its Colorado River Aqueduct, which crosses the Coachella Valley near Whitewater. The exchange agreement allows for advanced delivery and storage of water, thereby

providing better and more efficient water management. As a result, water is not recharged in every year, but when SWP and exchange waters are available. The large storage capacity of the Aquifer and the large volume of water in storage allow CVWD and DWA to pump from the Aquifer for a number of years without recharging and to recharge large amounts of water to refill the Aquifer when the water is available.

4.4 Coachella Canal Water

The Coachella Branch of the All-American Canal conveys imported water from the Colorado River and flows south to north through the City's Sphere of Influence. The Coachella Canal originates 20 miles west of Yuma, Arizona at "Drop 1" of the All American Canal and conveys Colorado River water 123 miles northwest along the western boundary of the Coachella Valley IRWM region to a man-made storage reservoir, Lake Cahuilla. The service area for Colorado River water delivery under CVWD contract with the U.S. Bureau of Reclamation is defined as Improvement District No. 1 (ID-1). A large portion of the City of Coachella lies within the ID-1 boundary. Under the 1931 California Seven Party Agreement, CVWD has water rights to the Colorado River water as part of the first 3.85 million acre feet allocated to California, see Table 4.4-1. CVWD is in the third priority position along with the Imperial Irrigation District. This priority is ahead of the 550,000 acre feet allocation to MWD, which has the lowest priority of the California Seven parties. In 2006, approximately 14,500 AF of canal water was delivered to 66 agricultural meters within the City limits, although not within the City's water service area. In October 2009, CVWD completed the Thomas E. Levy Groundwater Replenishment Facility (Levy Facility) on the west side of the valley in La Quinta. The Levy facility has a current recharge capacity of 32,000 AFY, upgradable to 40,000 AFY, using Coachella Canal water pumped from Lake Cahuilla.

As previously mentioned, to limit the future increase in required groundwater supplies and provide the City with a second source of water supply, the City is in the planning phase to construct a water treatment plant for Coachella Canal water or other water sources that may be negotiated. A water treatment plant would aid in meeting future development demands. The treatment plant would need to be located near the Coachella Canal to treat water from the Colorado River, which should become available with the conversion of City agricultural lands within CVWD ID-1 to residential areas. Future development areas in the Low and High (150) Zones are assumed to be supplied from new groundwater wells, and a water treatment plant is assumed to supply the higher elevation areas within the City SOI that are east of the canal. Future agreement talks may also include exchange options with State Water Project Water.

Table 4.4-1
Priorities and Water Delivery Contracts
California Seven Party Agreement of 1931

Priority	Description	Acre-ft/year
1	Palo Verde Irrigation District gross area of 104,500 acres of Coachella Valley lands	3,850,000
2	Yuma Project (Reservation Division) not exceeding a gross area of 25,000 acres within California	
3(a)	IID, CVWD and lands in Imperial and Coachella Valley's to be served by the All American Canal	
3(b)	Palo Verde Irrigation District – 16,000 acres of mesa lands	
4	Metropolitan Water District of Southern California for use on coastal plain	550,000
	Subtotal – California Basic Apportionment	4,400,000
5(a)	Metropolitan Water District of Southern California for use on coastal plain	550,000
5(b)	Metropolitan Water District of Southern California for use on coastal plain	112,000
6(a)	IID and lands in the Imperial and Coachella Valley's to be served by the All American Canal	300,000
6(b)	Palo Verde Irrigation District – 16,000 acres of mesa lands	
	Total	**5,362,000**

Source: United States Bureau of Reclamation, http://www.usbr.gov

4.4.1 Coachella Canal Water Quality

The Coachella Canal is a continuously flowing system with high dissolved oxygen concentrations; however, the water turbidity and temperature vary greatly throughout the year. The Canal water is typically clear in the winter when flow is low and murky in the summer as the water velocity increases enough to scour the silt from the bottom of the Canal. The last reach of the Coachella Canal has been lined with concrete which has reduced silt scouring. The principal chemical constituents in Canal water that are of concern are Total Dissolved Solids, perchlorate, and selenium. Canal water is not suitable for domestic use without treatment. Water quality monitoring is not done by the City as the City does not directly receive water from the Coachella Canal.

4.5 Transfer and Exchange Opportunities

Section 10631
(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

CVWD currently has transfer agreements with MWD. In addition to participating in CVWD's recharge program by RAC payments, the City is exploring opportunities to exchange non-potable groundwater for canal water for irrigation and non-potable

purposes. At present, only properties within ID-1 are allowed access. The City has proposed utilization of canal water for large landscape irrigation. The Lower Coachella Valley groundwater in proximity to an earthquake fault has higher dissolved solids and elevated levels of fluoride and is not suitable for drinking. However, this lower quality water may be suitable for irrigation. Table 4.5-1 lists transfer and exchange opportunities.

Table 4.5-1
Transfer and Exchange Opportunities (AFY)

Source Transfer Agency	Transfer or Exchange	Short Term	Proposed Quantities	Long Term	Proposed Quantities
Canal Water	Transfer			X	TBD
SWP through CVWD	Transfer			X	TBD
City of Indio	Transfer	X	TBD	X	TBD

Cooperative Agreements with Other Agencies

CVWD, DWA, and MWD historically worked together on programs, which are mutually beneficial to all three agencies. The exchange program at the Whitewater Spreading Facility and the advance delivery program are two such examples. Several other programs, which would provide benefits to both the Coachella Valley and to MWD, are currently being studied. These programs are designed to provide the Coachella Valley with a firm long-term water supply and to provide MWD with the dry-year supplies needed to serve its member agencies.

CVWD and DWA obtained additional Table A water allocation through the 2003 Exchange Agreement with MWD. By virtue of the 2003 Exchange Agreement, MWD assigned 11,900 AF of its annual Table A allocation to DWA and 88,100 AF of its annual Table A allocation to CVWD; however, MWD retained the option to call-back or recall the assigned annual Table A water allocations, in accordance with specific conditions, in any year. In implementing the 2003 Exchange Agreement, MWD advised CVWD and DWA that it would probably recall the 100,000 AF assigned to the two Coachella Valley agencies during 2005 and 2006. In effect, maximum SWP water allocations will remain at 71,100 AF each during 2005 and 2006.

CVWD and MWD previously studied the potential of implementing a conjunctive use program in the Coachella Valley, which resulted in the development of the Mid-Valley Pipeline program to help the district reduce demand on the groundwater supply. The pipeline program will deliver water from the Coachella Canal to CVWD's Wastewater Reclamation Plant (WRP) in Palm Desert.

4.6 Desalinated Water Opportunities

Section 10631

(h) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

According to the Coachella Valley IRWMP, desalination processes are being developed for reuse of agricultural drainage flows in Coachella Valley. The Coachella Valley has a large network of drains and open channels that transport irrigation drainage flows and stormwater. In East Valley areas of agriculture, a high groundwater table and concentration of salts in irrigated soils makes this system a requirement. CVWD operates and maintains the drainage system consisting of 166 miles of buried pipe and 21 miles of open channels. On-farm drainage lines are the primary supply source to the system which is mainly conveyed through the Coachella Valley Stormwater Channel (CVSC) to the Salton Sea; which serves as a drainage reservoir. While the supply is not suitable for potable uses, since the CVSC contains water of wastewater origin, the water will most likely be delivered downstream where the demand is for agricultural irrigation.

The City of Coachella does not anticipate the future use of desalinated water to be a likely water supply option. At the City's relatively small scale of projected desalinated water use, the backbone facilities and infrastructure needed to begin water desalination are not economically feasible. However, the City does believe that desalinated water does make sense as a regional level. With a regional approach, desalination of local agricultural drain water could become viable and economical alternative to potable water and Coachella canal water.

Department of Water Resources Desalination Task Force

In 2002, Assembly Bill 2717 called for DWR to establish a Desalination Task Force to evaluate the following: 1) Potential opportunities for desalination of seawater and brackish water in California, 2) Impediments to using desalination technology, and 3) the role of the State in furthering the use of desalination.[9] The task force was comprised of 27 organizations and in October 2003 provided a list of recommendations related to the following issues: general, energy, environment, planning, and permitting. The list of findings and recommendations can be found on DWR's website.[10]

Metropolitan Water District's Seawater Desalination Program

In August 2001, MWD launched its Seawater Desalination Program. The program objectives were to provide financial and technical support for the development of cost-effective seawater desalination projects that will contribute to greater water supply reliability. MWD's Integrated Resource Plan 2010 Update includes a target of 150,000 AFY for seawater desalination projects to meet future demands. A call for proposals under the Seawater Desalination Program produced five projects by member agencies

[9] California Water Plan Update 2009, Resource Management Strategies, Volume 2, Chapter 9
[10] http://www.water.ca.gov/desalination/

including the Los Angeles Department of Water and Power, Long Beach Water Department, MWDOC, San Diego County Water Authority, and West Basin Municipal Water District. Collectively, the projects could produce approximately 142,000 AFY. This additional source of water supply would provide greater water reliability for Southern California.

MWD has also provided funding to five member agencies to research specific aspects of seawater desalination. The agencies are reviewing and assessing treatment technologies, pretreatment alternatives, brine disposal, permitting, and regulatory approvals associated with delivery of desalinated sweater to the local distribution system.[11] MWD continues to work with its member agencies to develop local projects, inform decision makers about the role of desalinated seawater on future supplies, and secure funding from various state and federal programs.

Department of Water Resources Proposition 84 Funding

In November 2006, California voters pass Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act, which provides $1,000,000,000 for Integrated Regional Water Management (IRWM) Planning and Implementation.

For Proposition 84, in Chapter 2, Section 75029, $130 million shall be available to the Department for grants to implement Delta water quality improvement projects that protect drinking water supplies. Eligible projects include:

- Projects that reduce or eliminate discharges of salt, dissolved organic carbon, pesticides, pathogens and other pollutants to the San Joaquin River;
- Projects that reduce or eliminate discharges of bromide, dissolved organic carbon, salt, pesticides and pathogens from discharges to the Sacramento River;
- Projects at Franks Tract and other locations in the Delta that will reduce salinity or other pollutants at agricultural and drinking water intakes; and
- Projects identified in the June 2005 Delta Region Drinking Water Quality Management Plan, with a priority for design and construction of the relocation of drinking water intake facilities for in-delta water users.

Currently, funding for this program has become available for Group I – Delta Region Projects, those projects outlined in Public Resources Code (PRC) 75029 subsection (d). However, funding is currently not available for projects outlined in PRC 75029 subsections (a) through (c).

[11] Metropolitan Water District of Southern California, 2005 Regional Urban Water Management Plan

4.7 Recycled Water Opportunities

Section 10633
The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

4.7.1 Introduction

Water recycling, also known as reclamation or reuse, is an umbrella term encompassing the process of treating wastewater, storing, distributing, and using the recycled water. Recycled water is defined in the California Water Code to mean "water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur."

Treated wastewater is considered a reliable and drought-proof water source and could greatly reduce the southern California region's reliance on imported water. As technological improvements continue to reduce treatment costs, and as public perception and acceptance continue to improve, numerous reuse opportunities are developing. Recycled water is a critical part of the California water picture because of the region's high likelihood of drought. As treatment technology continues to improve, demand for recycled water will also increase.

Californians have used recycled water since the late 1800s and public health protections have been in effect since the early part of the 1900s. Recycled water use has dramatically increased in the past several decades as water agencies needed to supplement their water supplies. In 2002, California's water agencies recycled between 450,000 and 580,000 acre-feet of wastewater, almost three times more than in 1970.[12] The California Water Plan also estimates the potential of about 1.85 to 2.25 million acre-feet of water supply could be realized annually through water recycling by the year 2030.

4.7.2 Wastewater Generation, Collection, and Treatment

The City operates a secondary-treatment wastewater facility. In 2008, the City upgraded the capacity of the Coachella Water Reclamation Facility to 4.5 MGD and current average daily discharge is 2.7 mgd. The plant remains a full secondary treatment facility with oxidation ditches for denitrification. Waste activated sludge is sent to drying beds for dewatering and then hauled away to landfill for alternate daily cover material. The

[12] California Water Plan Update 2009, Resource Management Strategies, Volume 2

City will be updating its Wastewater Facilities Master Plan and begin discussing options for recycled water.

4.7.3 Recycled Water Benefits and Uses

Section 10633

(c) A description of the recycled water currently being used on the supplier's service area, including, but not limited to, the type, place, and quantity of use.

In addition to supplementing the City's water supply, investment in recycled water could provide the following benefits:

1. Provide more reliable local sources of water, nutrients, and organic matter for agricultural soil conditioning and reduction in fertilizer use.
2. Reduce the discharge of pollutants to water bodies, beyond levels prescribed by regulations, and allow more natural treatment by land application.
3. Provide a more secure water supply during drought periods.
4. Provide economic benefits resulting from a more reliable water supply.
5. Improve groundwater and surface water quality and contribute to wetland and march enhancement.
6. Provide energy savings; the use of recycled water as a local source offsets the need for energy-intensive water pumping.

4.7.4 Recycled Water Currently Planned Uses

The City does not have infrastructure in place to recycle water. The City plans to conduct a sewer master plan update in the near future, of which a feasibility study will be included. If the treatment system upgrade feasibility study produces a favorable result and tertiary treatment is added to the facility, potential City uses are described in the following section. Non-potable water systems were required with approval of many of the larger developments. These non-potable water systems were constructed using "purple pipe" to facilitate connections to a future City-wide recycled water system without significant system modification costs.

4.7.5 Potential Uses of Recycled Water

Section 10633

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, ground water recharge, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected to this subdivision.

Potential recycled water opportunities identified for the City include large landscape irrigation, groundwater recharge, water exchange, agricultural irrigation, industrial reuse, and habitat revitalization. All of these potential uses require the recycled water to undergo certain treatment processes to meet the water quality standards. Listed below are descriptions of potential recycled water options for the City.

- **Large Landscape Irrigation** – Recycled water would best be used for irrigating golf courses as was pioneered in the Valley in the 1960's. Upgrading treatment and providing minimal infrastructure would provide an excellent opportunity to implement recycled water use throughout the City. Other uses include cemeteries, parks, playgrounds, schoolyards, and residential landscaping.
- **Groundwater Recharge** – Recycled water used for the purpose of sustaining groundwater levels. Depending on the recycled water quality, this could be accomplished, through an agreement, using percolation basins owned by CVWD.
- **Water Exchange** – Groundwater and canal water currently used for irrigation purposes could be supplemented with recycled water, or exchanged to outside agencies (Section 4.5).
- **Agricultural Irrigation** – Recycled water could be used for fodder and fiber crops, seed crops, orchards, vineyards, and nursery stock. Although this is a viable solution, it may not be the best use of recycled water as many of the crops grown in the Valley do not meet criteria for irrigation with recycled water.
- **Industrial Reuse** – Recycled water used for various processes and cooling purposes. Although an excellent use for recycled water, there are a limited number of industrial users in the Valley.
- **Habitat Revitalization** – Recycled water could continue to be conveyed to the Salton Sea providing improved water quality.

The City will need to determine how to best implement a recycled water program and market users to allow the biggest return on the required investment.

4.7.6 Encouraging Recycled Water Use

Section 10633

(f) A description of actions, including incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

A reclamation plant would be instrumental for future negotiations and water exchanges with outside water agencies. Financial incentives will be included in the feasibility study to determine when adding tertiary treatment to the wastewater facility would be beneficial. Industrial users will receive usage priority, if the system is constructed.

4.7.7 Recycled Water Optimization Plan

Section 10633

(g) A plan for optimizing the use of recycled water in the supplier's area, including actions to facilitate the installation of dual distribution systems, to promote recalculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

Since the City does not currently utilize recycled water, an optimization or phasing plan should be part of the feasibility study. Requiring new developments to include a "non-potable" water distribution system could help offset much of the costs associated with delivering recycled water system-wide. Construction costs can be borne by developers, but at a reduced price, if the infrastructure were installed simultaneously with water and sewer infrastructure. Using common trench construction techniques generally only increase construction costs for materials and slightly for labor since other services are already necessary.

4.8 Future Water Projects

Section 10631

(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

The City understands the need to look to other sources to meet demand due to projected growth. The City may evaluate the use of canal water as source substitution for drinking water supplies obtained from groundwater. Once these agreements are finalized and the infrastructure is completed, the City anticipates it may derive approximately 15 percent of its drinking water from the canal. To implement source substitution, the City will consider investigating the feasibility of constructing a water treatment plant to treat canal water to drinking water standards. Currently, there are six water projects identified in the City's Five Year Capital Improvement Program (CIP). Planned Projects include replacing approximately 3,000 LF of leaking water lines, drilling three new wells and one well rehab, constructing three reservoirs of 3.5 MG, 2.0MG, and 7.5 MG capacity, constructing a treatment plant along the Coachella Canal, installing approximately 28,000 LF of new waterlines, and a water master plan update.

SECTION 5
WATER SUPPLY RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING

5.1 Water Supply Reliability

Section 10635

(a) Every urban water supplier shall include, as part of its urban management plan, an assessment of the reliability of its water service it its customer during normal, dry, and multiple dry years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry year water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

Reliability is a measure of water service systems expected success in managing water shortages. In addition to climate, other factors that can cause water supply shortages are natural disaster, such as earthquakes, chemical spills, energy outages and water quality issues.

The City of Coachella and all southern California communities and water agencies are facing increasing challenges and opportunities in their role as stewards of water resources in the region. The region faces a growing gap between its water requirements and its firm water supplies. Increased environmental regulations and the collaborative competition for water from outside the region have curtailed supplies of imported water. Continued population and economic growth increase water demand within the region, putting an even larger burden on local supplies.

The reliability of the groundwater supply is dependent on reliable sources to replenish water extracted from the groundwater basin. To ensure a safe and reliable supply, the City participates in the basin-wide recharge plan with CVWD through RAC. In addition to recharging the groundwater basin, the City is also exploring exchange and transfer opportunities to minimize non-potable uses for water withdrawn from the groundwater basin.

Table 5.1-1 provides an estimate of the water supply for a normal water year, a single dry water year, and multiple dry water years. This table shows system reliability for a single dry year in 2011 and ensuing dry years in 2012 through 2014. The projected available supply to the City for this period provides adequate drinking for the anticipated population. These numbers assume that the groundwater yield developed in Section 4.2 is not reduced due to water quality issues. These numbers are also misleading because they are based on historical population projections and water usage, described in previous sections. The City at built-out condition will have a large population of second homes. Many of these people will be in the City for the wetter portion of the year and leave the

area during the hotter-summer months when water demand is higher. Although the water demand was based on year-round residents, a significant portion of the expanded population may be part-time residents. The part-time nature of many of the future residents provides more reliability to the water supply that will be further increased with source substitution of canal water. The projected demands could be assumed to be the worst-case scenario.

Table 5.1-1
Supply Reliability during the Next Three Years (AFY)

Normal Water Year (2010)	Single Dry Water Year (2011)	Multiple Dry Water Year 1 (2012)	Multiple Dry Water Year 2 (2013)	Multiple Dry Water Year 3 (2014)
2,692	2,729	2,767	2,806	2,845
Percent of Normal	100%	100%	100%	100%

Multiple factors affect the City's ability to provide a reliable supply of water to the community. At present, the City water is supplied almost exclusively by groundwater. There is potential for overdraft of the groundwater basin that could eventually lead to diminished quality of the supply. One potential path decreasing groundwater quality includes saltwater intrusion from the Salton Sea (MWH, 2002). Table 5.1-2 lists the factors resulting in supply inconsistency.

Table 5.1-2
Supply Inconsistency Factors (AFY)

Name of Supply	Legal	Environmental	Water Quality	Climatic
Groundwater		X		X
Canal Water	X		X	X

5.2 Plans to Assure a Reliable Water Supply

The reliability of the City's water supply is currently dependent on the reliability of the groundwater supply which is interlinked with the CVWD and regional water suppliers. As discussed in Section 4.4, the City is in the planning phase to construct a water treatment plant for Coachella Canal water or other water sources that may be negotiated. The addition would allow the City to acquire a portion of its water supply from canal water and diversify its water supply. The following sections will discuss existing and future water supplies throughout the region, different agency roles in water supply

reliability, and the near and long-term efforts they are involved with to ensure future reliability of water supplies to the City and the region as a whole.

5.2.1 City of Coachella Projects and Programs

The City most recent master plan is its 2006 Water Master Plan Update (WMP) and has also prepared a draft Water Treatment Plant Feasibility Study. The WMP has identified two primary sources for meeting its future water needs: continuing to extract groundwater with additional wells, and surface water from the Coachella Branch of the All American Canal (the Canal).

To ensure a long-term adequate supply of high quality groundwater, the City is participating in groundwater recharge activities with CVWD through RAC. Since groundwater has been the primary source of water for the City and the 2010 Coachella Valley IRWMP continues to identify the basin is in an "overdraft" condition, the negative effects of continued overdraft to the City are the increased costs associated with having to pump water from a greater depth. In addition to increased operating costs attributed to pumping, water obtained from the basin may decline in quality.

5.2.2 Coachella Valley Water District Projects and Programs

5.2.2.1 State Water Project (SWP)

As was previously discussed in Section 4.3, CVWD is one of 29 State Water Contractors. This SWP water is delivered to MWD pursuant to the exchange agreement. MWD in turn delivers an equal amount of Colorado River water to CVWD at the Whitewater River.

DWR issues the State Water Project Delivery Reliability Report every two years, with the 2009 final version currently available for public review. This updated report accounts for reduced amounts from the operational restrictions of the biological opinions issued by the United States Fish and Wildlife Service in December 2008 and the National Marine Fisheries Service in June 2009 governing the SWP and Central Valley Project operations. Also incorporated in the report are the impacts from potential climate change. Based on information from the DWR Reliability Report, the long-term average reliability of SWP Table A deliveries through 2029 is projected to be 60 percent.[13] This percentage of allocations is based on computer modeling of the state's watersheds, past hydrology adjusted for climate change, recent federal litigation, and the condition on the river and reservoir systems.

As shown on Table 5.2.2.1-1 below, DWR estimates the current average reliability of the SWP to be 60 percent of Table A Amounts. However, the 2010 Draft Coachella Valley Water Management Plan Update assumes future SWP Table A deliveries to the Coachella Valley to be 50 percent of Table A Amounts to account for the potential water reductions

[13] "The State Water Project Delivery Reliability Report 2009," prepared by the California Department of Water Resources, Bay-Delta Office, August 2010.

associated with the current and future risks affecting Delta water exports in the absence of programs to balance Delta environmental concerns and water supply needs. This 50 percent average reliability factor is considered reasonable for the 2010 Draft Coachella Valley Water Management Plan Update considering recent and pending water litigation, risks associated with levee failure in the Delta, as well as potential variability associated with climate change through 2045.

Table 5.2.2.1-1
SWP Availability for the Coachella Valley

SWP Components	Existing (2010) Ac-Ft/yr	Future (2030) Ac-Ft/yr
Table A Amount (Existing)	194,100	194,100
Assumed SWP Reliability[1]	60%	50%
Average SWP Delivery	116,460	97,050
Less MWD Call-Back[2]	(32,856)	(24,847)
Average Net SWP Supply[3]	83,604	72,203
Upper Whitewater Share		
Percent of Total Production[4]	93%	85%
Allocated to Upper Whitewater	77,752	61,372
Mission Creek Share		
Percent of Total Production[4]	7%	15%
Allocated to Mission Creek	5,852	10,830

[1] Based on California DWR's 2009 SWP Reliability Report and adjusted based on the combined CVWD-DWA Table A Amounts and assumed future reliability amounts.

[2] Average callback in 4 wet years during a 10 year period.

[3] Net supply is calculated by deducting the MWD callback from the Table A Amount with SWP Reliability.

[4] Estimated percent of total production is the percent of production in each subbasin to the combined total production.

Source: 2010 Draft Coachella Valley Water Management Plan Update, Table 4-5

5.2.2.2 Colorado River Water Quantification Settlement Agreement

On October 10, 2003, a landmark agreement known as the Quantification Settlement Agreement (QSA) was signed between CVWD, IID, San Diego County Water Authority, MWD, the State of California and the U.S. Department of the Interior to quantify water distribution allotments of Colorado River water in California. The QSA quantifies the Colorado River water allocations of California's agricultural water contractors for the next 75 years and provides for the transfer of water between agencies. The agreement further provides additional Colorado River water to CVWD from shares of IID and MWD. The total ultimately available to CVWD would be up to 459, 000 acre-ft/yr during the lifetime of the agreement known as QSA.

Table 5.2.2.2-1
CVWD Deliveries under the QSA

Component	2010 Amount (AFY)	2045 Amount (AFY)
Base Allotment	330,000	330,000
1988 MWD/IID Approval Agreement	20,000	20,000
Coachella Canal Lining (to SDCWA)	-26,000	-26,000
To Miscellaneous/Indian PPRs	-3,000	-3,000
IID/CVWD First Transfer	12,000	50,000
IID/CVWD Second Transfer	0	53,000
MWD/SWP Transfer	35,000	35,000
Total Diversion at Imperial Dam	**368,000**	**459,000**
Less Conveyance Losses[1]	-31,000	-31,000
Total Deliveries to CVWD	**337,000**	**428,000**

[1] Assumed losses after completion of canal lining projects.

Source: Coachella Valley Water Management Plan Update, December 2010, Table 4-2

As of 2010, CVWD receives 368,000 AFY of Colorado River water deliveries under the QSA. CVWD's allocation will increase to 459,000 AFY of Colorado River water by 2026 and remain at that level for the 75 year term of the QSA. After deducting conveyance and distribution losses, approximately 428,000 AFY will be available for CVWD use.[14]

According to the 2010 Draft Coachella Valley Water Management Plan Update, the Valley's Colorado River supply faces problems that could impact long-term reliability. The Colorado River supply is affected by issues such as the extended Colorado River Basin drought, Colorado River shortage sharing agreement, endangered species and habitat protection, climate change and lawsuits challenging the validity of the QSA. California and CVWD both carry high priority positions regarding Colorado River

[14] Coachella Valley Water Management Plan Update, December 2010

allocations, as such; their supply is expected to be relatively reliable. However, in January 2010, the QSA was rendered invalid in a state court decision along with eleven related agreements (Superior Court of California, 2010). CVWD and the other parties have appealed the judgment. On March 9, 2010, the California Court of Appeal, Third Appellate District, issued a temporary stay of the judgment pending further briefing and order of the court regarding appellants' request for a stay during the pendency of the appeal. An appellate decision is expected in early 2011.[15]

5.2.2.3 Coachella Valley Water Management Plan 2010

The 2010 CVWMP goals and objectives have been refined to reflect the significant changes in projected water demands and water supplies that have occurred in recent years. The basic goal of the CVWMP remains similar to that of previous WMP's: "to reliably meet current and future water demands in a cost-effective and sustainable manner." Uncertainties facing water resources managers throughout California have led to refined objectives. The programs and projects identified in the 2010 CVWMP Update are based on the following objectives:

- Meet current and future water demands with a 10 percent supply buffer,
- Eliminate long-term groundwater overdraft,
- Manage water quality,
- Comply with state and federal regulations,
- Manage future costs, and
- Minimize adverse environmental impacts.[16]

5.2.3 Regional Water Quality Control Board – Region 7

The Regional Water Quality Control Board – Region 7 (Regional Board) has the responsibility for preparing policies addressing region wide water quality concerns. The Regional Board prepares a periodic Water Quality Control Plan (Basin Plan) for its region and the various Planning Areas and subareas within its jurisdiction. The City is within the Regional Board's Coachella Valley Planning Area; and specifically, the Indio Subarea.

The Basin Plan establishes specific water quality goals and objectives for the various surface waters and groundwaters. Surface water for the Coachella Valley Planning area is principally Colorado River Water supplied via the All American Canal, Coachella Branch. Water quality objectives are established for waters of the basin are for aesthetic qualities, toxicity, temperature, pH, dissolved oxygen, suspended solids and settleable solids, total dissolved solids (TDS), bacteria, biostimulatory substances, sediment,

[15] Coachella Valley Water Management Plan Update, December 2010
[16] Coachella Valley Water Management Plan Update, December 2010

turbidity, radioactivity, chemical constituents (inorganic and organic), and pesticide wastes.

The Basin Plan specifically identifies the Indio Subarea as an area impacted by groundwater overdraft and subject to possible increase in mineral content of the groundwater. Consequently, the Regional Board plans to conduct investigative studies to develop groundwater objectives and implementation plans for the area underlying the City.

The Basin Plan encourages the further use of recycled water along with the current primary use in golf course irrigation. However, the recycled water must meet the water quality standards set by the Regional Board; as well as all state, federal, and local standards.

5.3 Water Shortage Contingency Planning

Section 10632
The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier:

(a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

(b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

(c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

(d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of portable water for street cleaning.

(e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to 50 percent reduction in water supply.

(f) Penalties or charges for excessive use, where applicable.

(g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

(h) A draft water shortage contingency resolution or ordinance.

(i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

5.3.1 Introduction

California's extensive water supply infrastructure system helps to mitigate the effect of short-term dry periods. Defining when a drought begins is a function of impacts to water users. Although droughts are sometimes characterized as emergencies, they differ from

typical emergency events, occurring slowly over a multiyear period. Drought impacts increase with the length of a drought as supplies in reservoirs are depleted and water levels in groundwater basins decline.

To safeguard the region from a loss of water supply due to natural or man-made disasters, Southern California agencies have made and are continuing to make substantial investments in emergency storage and interconnections with adjacent water purveyors.

The City has the ability to meet its demands, during less than catastrophic shortages, through increased groundwater pumping and/or implementation of water use efficiency programs, including Water Shortage Plan implementation. Increased groundwater pumping is the most significant factor in the City's water shortage plan.

5.3.2 Stages of Action

During a water shortage period[17], the City has the ability to meet its demands through increased groundwater pumping and implementation of water use efficiency programs, including implementation of Water Shortage Plan Stages. Increased groundwater pumping would serve as a critical component of the shortage strategy through groundwater supplied from Basin.

The Utilities General Manager would recommend to the City Manager which Water Shortage Plan Stage is necessary to implement based on the severity of the water shortage. However, the City Council has the authority to withdraw from the plan and may implement another plan at any time during the water shortage.

The specific stages of action were developed to help the City prepare for a catastrophic interruption in water supply. In the past, most municipalities prepared such a plan to ensure a continuation in services due to natural disasters. Recent history has shown us to prepare for man-made catastrophes as well.

To determine the validity of the plan, the City will begin conducting tri-annual vulnerability assessments of the potable water delivery system. Part of the vulnerability assessment includes site inspection of all storage tanks and delivery systems. A contingency plan includes emergency procurement of temporary power generating equipment to power pumping equipment. In addition to preparing for a local service interruption, the City also coordinates with other localities, as well as regional agencies.

Water Reduction Stages and Goals

Table 5.3.2-1 shows water shortage stages and the reduction objectives. The responsibility for declaring each stage falls to the City Manager who is closely supported by the Utilities General Manager. Once a shortage has been declared then the Water

[17] Water Shortage is defined as a condition in which the existing or projected water supply available to the City is not anticipated to meet the ordinary requirements of the Water Department.

Department will be responsible for performing field audits to ensure residents comply with the reduction goals shown below.

Table 5.3.2-1
Water Shortage Stages and Reduction Objectives

Stage	Description	Customer Reduction Goal	Type of Rationing
I	Minor or Anticipated Shortage	10%	Voluntary
II	Minor to Moderate Shortage	10%	Mandatory
III	Moderate to Severe	20%	Mandatory
IV	Severe Shortage or Catastrophic Incident	50%	Mandatory

5.3.3 Expected Minimum Water Supply

The Supply Reliability Analysis for the City was presented in Section 5.1. It showed that although there may be a localized shortage, the City will continue to be able to deliver an adequate supply of water. Because of the future population growth expected within the City, it is anticipated that the ability to continue to provide adequate services will require a more extensive plan to complement this document.

Through the ability to pump additional groundwater and the reduction in canal water, local supplies are projected to exceed demand through various drought scenarios.

5.3.4 Actions During a Catastrophic Interruption

A water shortage emergency could be the result of a catastrophic event such as result of drought, failures of transmission facilities, a regional power outage, earthquake, flooding, supply contamination from chemical spills, or other adverse conditions.

The City's Emergency Response Plan (ERP) addresses the planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies affecting the City's facilities and service area. The goals of the Emergency Response and Recovery Plan are to rapidly restore service after an emergency; ensure adequate water service for fire suppression; minimize water or electrical system damage; minimize impact and loss to customers; and provide emergency public information concerning customer service.

In the ERP, a series of flowcharts and tables provide direction in a simplified format conducive to use during an emergency. These documents provide contact names and

numbers for emergency personnel. To facilitate inter-city and inter-agency cooperation, contacts for other agencies have been included.

For catastrophic water supply interruptions, the City's ERP outlines the water shortage emergency response responsibilities. The plan provides a step by step procedure for responding to different types of emergencies and also provides detailed contact information for adjoining cities, special districts, and regulatory agencies. The plan is updated on a scheduled basis. In general, actions taken during a major emergency or catastrophe include the following:

- Activate the appropriate level of the emergency plan
- Mobilize emergency response personnel, as needed
- Activate the Emergency Operations Center, if necessary
- Notify other agencies such as regulatory agencies (local and state health, etc.)
- Begin damage inspections
- Evaluate safety of facilities
- Begin documentation process
- Activate emergency communications systems, as needed
- Activate emergency mutual assistance agreements, if necessary
- Activate contracts for emergency supplies (including water) and equipment
- Interface with the media
- Coordinate inter-agency resources, including water supplies
- Develop repair and restoration plans
- Provide public and employee information announcements, including water quality advisories

Emergency services available include the State of California Master Mutual Aid Agreement, California Water Agencies Response Network (WARN) and Plan Bulldozer. The Master Mutual Aid Agreement includes all public agencies that have signed the agreement and is planned out of the California Office of Emergency Services. WARN includes all public agencies that have signed the agreement to WARN and provides mutual aid assistance. It is managed by a State Steering Committee. Plan Bulldozer provides mutual aid for construction equipment to any public agency for the initial time of disaster when danger to life and property exists. Additionally, an Emergency Water Quality Notification Plan, approved by DHS, is annually reviewed and updated.

5.3.5 Prohibitions, Consumption Reduction Methods, and Penalties

Mandatory Prohibitions on Water Wasting

Once the Utilities General Manager declares a particular water shortage stage, a series of requested consumer actions is announced to the community. To prepare the community for a potential incident, these actions are distributed as part of the public education demand management measure (DMM) defined in Section 6. Most are voluntary, but if a later stage is declared then they become mandatory. Once a Stage II to IV shortage is declared then department personnel will begin performing audits. Table 5.3.5-1 summarizes the City's Requested Consumer Actions listed by water shortage stage. Stage IV (the most restrictive stage) includes the requested consumer actions that have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

Table 5.3.5-1
Requested Consumer Actions after a
Particular Water Shortage Stage is Declared

Stage	Customer Actions
I	Outdoor water use prohibited from Dawn to Dusk Car washing prohibited except at commercial car-wash facilities Water wash down of pavement prohibited Leaks isolated or repaired within 24-hours of identification Restaurants are encouraged to provide water only upon request
II	Outdoor water use prohibited from Dawn to Dusk: A rotation schedule for watering will be developed and implemented throughout the City Landscape watering is prohibited except where drip irrigation system are utilized Car washing prohibited except at commercial car-wash facilities Water wash down of pavement prohibited Leaks isolated or repaired within 24-hours of identification Restaurants prohibited from serving water, unless requested No initial filling of swimming pools or landscaping ponds No ornamental water feature utilization, except for maintenance
III	Outdoor water use prohibited from Dawn to Dusk: A rotation schedule for watering will be developed and implemented throughout the City Landscape watering is prohibited except trees and shrubs via drip irrigation systems Car washing prohibited except at commercial car-wash facilities Water wash down of pavement prohibited Leaks isolated or repaired within 24-hours of identification Restaurants prohibited from serving water, unless requested No initial filling of swimming pools or landscaping ponds No ornamental water feature utilization, except for maintenance Implementation of City-wide water use audits to ensure compliance with directives

Stage	Customer Actions
IV	Outdoor water use prohibited from Dawn to Dusk: A rotation schedule for watering will be developed and implemented throughout the City Landscape watering is prohibited except trees and shrubs via drip irrigation systems Car washing prohibited except at commercial car-wash facilities Water wash down of pavement prohibited Leaks repaired within 24-hours of identification Restaurants prohibited from serving water, unless requested No filling of swimming pools or landscaping ponds except for maintenance No ornamental water feature utilization, except for maintenance Implementation of City-wide water use audits to ensure compliance with directives New landscaping moratorium New connection moratorium

Excessive Use Penalties

During a declared water shortage stage, penalties for excess water use exist in the form of administrative fees, or fines. These fines are assessed based on the number of violations a particular customer accumulates during a particular stage. The first violation, for all three stages, consists of a warning only, requiring no fine. However, a fine is issued for a second violation, and increasingly expensive fines are issued for any consecutive violations thereafter (penalties are assessed for violations occurring within 12 months of the first violation). Once a Stage IV shortage is declared, no warning will be issued and penalties will be assessed upon the first violation. Table 5.3.5-2 below summarizes the penalties for excessive water use.

Table 5.3.5-2
Stage Wise Penalties for Excessive Water Use

Stage	Penalty
I	Written warning upon first violation $15 Administrative fee for second violation $ 50 Administrative fee for third violation $100 Administrative fee for each subsequent violation
II	Written warning upon first violation $100 Administrative fee for second violation $150 Administrative fee for third violation $300 Administrative fee for each subsequent violation
III	$150 Administrative fee for first violation $300 Administrative fee for second violation $500 Administrative fee for each subsequent violation
IV	$300 Administrative fee for first violation $500 Administrative fee for a second violation $500 Administrative fee for each subsequent violation

5.3.6 Revenue and Expenditure Impacts and Measures to Overcome Impact

It is important to identify potential impacts on the water fund resulting from lower revenues due to reduced water sales during each of the four water reduction stages. Customer sales data from 2010 are used as an example of a normal revenue pattern. Table 5.3.6-1 shows the normal water use sales and the expected revenue impact with each stage (assuming a given stage is in effect for the entire year). These numbers indicate that a breakeven point for reduced sales occurs at approximately a 20% reduction in sales. This is in part because approximately one-third of operational costs are attributed to energy. When less water is delivered then less energy is needed, thereby reducing operating costs and offsetting losses in revenue.

Funding for water shortages will come through a temporary rate increase and/or fund reserves. Other potential funding sources and/or shortage management options include close monitoring and managing the short-term water reduction plan, and initiating a water contingency fund or temporary deferral of CIP projects. There may be additional outside funding sources made available to water agencies under a water emergency situation (Stage IV).

Table 5.3.6-1
Example Water Sales by Stage

	2010[1]	Stage I (10% Reduction in Sales)[2]	Stage II (10% Reduction in Sales)	Stage III (20% Reduction in Sales)	Stage IV (50% Reduction in Sales)
Revenue					
Residential	$2,812,764	$2,672,126	$2,531,488	$2,250,211	$1,406,382
Non-Residential	$681,581	$681,581	$681,581	$681,581	$681,581
Landscape	$506,072	$480,768	$455,465	$404,858	$253,036
Total Revenue	$4,000,417	$3,834,475	$3,668,533	$3,336,650	$2,340,999
Operating Expenses	$4,924,478	$4,678,254	$4,432,030	$3,939,582	$2,462,239
Differential	($924,061)	($843,779)	($763,497)	($602,933)	($121,240)

[1] 2010 operating expenses were taken from City budget documents. Revenue is based on demand quantities and the City's water rate of $1.16/100 cubic feet
[2] Stage Reductions assumes that only residential customers and landscaping will reduce use. Additionally, since Stage I is voluntary, it is assumed that only half, or 5 percent, will participate.

5.3.7 Water Shortage Contingency Ordinance/Resolution

The City intends to draft a Water Shortage Plan that may be executed during water shortages. The purpose of the Plan is to provide procedures with voluntary and mandatory provisions to minimize the effect of a water shortage to the City's service area. A Draft Resolution to be enacted by City Council during times of shortage is included in Appendix G.

Prior to and during implementation of the Ordinance and Resolution, the City would likely meet water shortage demands by increasing groundwater pumping and implementing water use efficiency programs. In addition, the responsibility for monitoring and evaluating the projected supply and customer water demand is held by the City.

5.3.8 Mechanism to Determine Reduction in Water Use

Each well that pumps water into the distribution system has a flow monitoring device installed. Daily readings will allow monitoring to determine if reduction measures are effective. If it is determined that no measurable impact is achieved by these measures then additional field audits will be scheduled. The additional field audits will be coupled with public information pamphlets and educational programs to provide measurable results.

5.4 Drought Planning

Section 10631

(c) (1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(A) An average water year.

(B) A single dry water year.

(C) Multiple dry water years.

(2) For any water sources that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climate factors, described plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

The effects of a local drought are not immediately recognized since the City relies on groundwater for its drinking water. Even though localized drought conditions should not affect supply, demand management measures (Section 6) and the water shortage contingency plan (Section 5.3) will be in effect as appropriate and will reduce the demand during drought years.

Table 5.4-1 compares the projected normal water supply and customer demands from 2010 to 2035, in five-year increments.

Table 5.4-1
Supply and Demand Comparison - Normal Year

	2015	2020	2025	2030	2035
Supply Totals	2,884	3,043	3,158	3,265	3,361
Demand Totals	2,884	3,043	3,158	3,265	3,361
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

Units: million gallons per year

Table 5.4-2 provides a comparison of a single dry year water supply with projected total water use over the next 25 years, in five-year increments. The City's demands in single dry years are projected to be similar to normal year demands since supply is driven by demand. The City's local water supplies (groundwater) in single dry years would be as shown in Table 5.2-2.

Table 5.4-2
Supply and Demand Comparison - Single Dry Year

	2015	2020	2025	2030	2035
Supply totals	2,884	3,043	3,158	3,265	3,361
Demand totals	2,884	3,043	3,158	3,265	3,361
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

Units: million gallons per year

Table 5.4-3 provides a comparison of a multiple dry year water supply with projected total water use over the next 25 years, in five-year increments. The City's demands in multiple dry years are projected to be similar to normal year demands since supply is driven by demand. The City's local water supplies (groundwater) in multiple dry years would be as shown in Table 5.4-3. Projected demands during multiple dry years have been based on reduced demand percentage estimates for the City's retail service area, assuming a Stage I alert in the second dry year and a Stage II alert in the third dry year, are in effect.

Table 5.4-3
Supply and demand comparison — multiple dry-year events

		2015	2020	2025	2030	2035
Multiple-Dry Year First Year Supply[1]	**Supply totals**	2,884	3,043	3,158	3,265	3,361
	Demand totals	2,884	3,043	3,158	3,265	3,361
	Difference	0	0	0	0	0
	Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
	Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%
Multiple-Dry Year Second Year Supply[2]	**Supply totals**	2,740	2,891	3,000	3,102	3,193
	Demand totals	2,740	2,891	3,000	3,102	3,193
	Difference	0	0	0	0	0
	Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
	Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%
Multiple-Dry Year Third Year Supply[3]	**Supply totals**	2,451	2,587	2,684	2,775	2,857
	Demand totals	2,451	2,587	2,684	2,775	2,857
	Difference	0	0	0	0	0
	Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
	Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

Units are in acre-feet per year.

[1] No demand reductions are expected during a single dry year.

[2] Based on an assumed 5% reduction in demand based on Stage I Water Alert.

[3] Based on an assumed 15% reduction in demand based on Stage II Water Alert.

SECTION 6
DEMAND MANAGEMENT MEASURES

6.1 Introduction

Section 10631

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

(A) Water survey programs for single-family residential and multi-family customers.
(B) Residential plumbing retrofit.
(C) System water audits, leak detection, and repair.
(D) Metering with commodity rebates for all new connections and retrofit of existing connections.
(E) Large landscape conservation programs and incentives.
(F) High-efficiency washing machine rebate programs.
(G) Public information programs.
(H) School education programs.
(I) Conservation programs for commercial, industrial, and institutional accounts.
(J) Wholesale agency programs.
(K) Conservation pricing.
(L) Water conservation coordinator.
(M) Waster waste prohibition.
(N) Residential ultra-low flush toilet replacement programs

(2) A schedule of implementation for all water demand management measures proposed or described in the plan.

(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

(4) An estimate, if available, of existing conservation savings on water use within the supplier's ability to further reduce demand.

(j) For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivisions (f) and (g) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.

The City of Coachella recognizes water use efficiency as an integral component of its current and future water strategy for the service area. Demand management measures (DMM) refer to policies, programs, rules, regulation and ordinances, and the use of devices, equipment and facilities that, over the long term, have been generally justified and accepted by the industry as providing a "reliable" reduction in water demand. This means providing education, tools, and incentives to help the homeowner, apartment owner and business owner reduce the amount of water used on their property. Demand

management is as important to insuring water supply reliability as is providing a new water supply. The City of Coachella has aggressively pursued conservation in an effort to reduce demand.

DMMs are equivalent to the 14 Best Management Practices (BMP) as established by the California Urban Water Conservation Council (CUWCC). On November 2, 2000, the City of Coachella elected to become Signatory to the Memorandum of Understanding (MOU) regarding BMPs for Urban Water Conservation with the CUWCC. While being signatory to the MOU requires submission of annual reports on progress to implement the BMPs, the City has not prepared and/or submitted any of the required BMP reports to date. Nevertheless, the City has and continue to, in good faith, work toward implementation of the urban water conservation BMPs.

Implementation means achieving and maintaining the staffing, funding, and in general, the priority levels necessary to achieve the level of activity called for in each BMP definition, and to satisfy the commitment by the signatories to use good faith efforts to optimize savings from implementing BMPs as described in the MOU. A BMP is defined in the MOU is a "practice for which sufficient data are available from existing water conservation practices to indicate that significant conservation or conservation-related benefits can be achieved; that the practice is technically and economically reasonable and not environmentally or socially unacceptable; and that the practice is not otherwise unreasonable for most water agencies to carry out."

The 14 BMPs (or DMMs) include technologies and methodologies that have been sufficiently documented in multiple demonstration projects that result in more efficient water use and conservation. BMPs are defined in the following sections.

6.2 Determination of Demand Management Measures Implementation

The City of Coachella acknowledges the importance of water issues. In doing so, the City has agreed to participate and will continue to work towards implementing the 14 cost-effective DMMs. These 14 DMMs include technologies and methodologies that have been sufficiently documented in multiple demonstration projects that result in more efficient water use and conservation. Table 6.2-1 shows the City's current implementation status for each of the 14 DMMs.

Table 6.2-1
Demand Management Measures

DMM No.	Demand Management Measures	Status
1	Residential Surveys	Ongoing
2	Plumbing Fixture Retrofits	Ongoing/New Construction
3	Distribution System Audits	Ongoing
4	Metering	Ongoing
5	Large Landscape Conservation Programs	Ongoing
6	Clothes Washers	Not Implemented
7	Public Information	Ongoing
8	School Education	Ongoing
9	Commercial, Industrial and Institutional	Ongoing
10	Wholesaler Assistance	CVWD programs in region
11	Conservation Pricing	Ongoing
12	Conservation Coordinator	Ongoing
13	Waste Water Prohibitions	Not Implemented
14	Ultra-Low-Flush Toilets	New Construction

6.3 Demand Management Measures

The City is committed to conservation as a means to provide a sustainable supply of water to its service area, and plans to continue its conservation program during the next five years. The City's DMM implementation efforts are described in the following DMM sections and contained in Appendix C, 2010 Urban Water Management Plan "*Review of DMM Completeness*" Form.

DMM 1 Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers

The Coachella Valley Resource Agency (CVRA) provides water audits for all water agencies throughout the Coachella Valley. The City is collaborating with CVRA to conduct water audits at the request of City residents. The City will continue to provide notices with water bills at least three times per year. At least one notice will be in the summer months during highest water usage. The City is considering the development of

an incentive program that will correspond with the water audits and a measurable reduction in water usage.

The City is planning to identify its largest water users and work with these users in hopes of developing a site specific water conservation program. The City believes that identifying and reducing water uses of their largest water consumers provides the largest benefit to the City.

DMM 2 Residential Plumbing Retrofit

The City has adopted the latest version of the Uniform Building Code (UBC), which requires the installation of water efficient fixtures. The City, through the Redevelopment Agency, provides assistance for low-income families to retrofit older houses with newer water efficient fixtures. Measuring reductions in water usage from implementation of the UBC is not achievable.

DMM 3 System Water Audits, Leak Detection, and Repair

The City generally performs system water audits on an as-needed basis. Although leak and/or line break repairs are performed expediently (within 24 hours) by the City, no records of these activities, including system audits or leak detection program data are available.

The City does monitor the difference between the water pumped into the distribution system compared to the amount billed annually, which is considered "non-revenue" water.

As discussed in Section 3.1.1, non-revenue water may be attributed to "apparent losses" or "real losses." Apparent losses are paper losses that occur in utility operations due to customer meter inaccuracies, billing system data errors and unauthorized consumption. In other words, this is water that is consumed but is not properly measured, accounted or paid for. Real losses are the physical losses of water from the distribution system, including leakage. These losses inflate production costs and stress water resources since they represent water that is extracted and treated, yet never reaches beneficial use. Real losses also include other events causing water to be withdrawn from the system and not measured, such as hydrant testing and flushing, street cleaning, new construction line draining and/or filling and draining and flushing, and firefighting.

The effectiveness of the DMM 3 accounts for 100 percent of water pumped into the system.

DMM 4 Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections

The City bills its customers according to meter consumption. In addition, the City encourages the installation of dedicated landscape meters, which allows the City to recommend the appropriate irrigation schedules through future landscape programs.

Meter calibration and periodic replacement insures that customers are paying for all of the water they consume, and therefore encourages conservation. The City replaced all existing meters prior to 2000 to upgrade the older meters to obtain an accurate measure of water usage. Metering allows the City to conserve a total of 20-30 percent of the water demand overall, and up to 40 percent savings during peak demand periods, as estimated by the CUWCC's BMP Costs and Savings Study (December 2003). The City has recently completed the process of metering its past unmetered accounts including parks and other accounts, which has further enhanced the effectiveness of measuring consumption.

The measure of effectiveness will include a comparison of water use before and after meter calibration.

The City's water rates and rate design are established to receive the full cost of delivering the water. The amount of the customer's bill is based on a monthly service charge and a commodity charge based on the quantity of water used. Sections 3.1.1 and 3.1.2 and Tables 3.1.1-1, 3.1.1-2, and 3.1.2-1 through 3.1.2-3, includes the number of service connections per sector, and reflects the number of meters for the past, present, and future.

DMM 5 Large Landscape Conservation Programs and Incentives

Typically, the large landscape areas such as golf courses and large common areas are required to provide landscape irrigation with non-potable water such as Canal water, non-potable groundwater, or recycled water and will not be allowed to connect to the City's domestic water system, unless no other water source is available. In addition to negotiating agreements for additional Canal water to serve large landscapes, the City negotiated additional rights to Canal water supplies that may be treated to drinking water standards with the implementation of a new treatment facility. However, as described in Section 4.7, the City does not currently operate a tertiary-treatment plant and does not have infrastructure in place to deliver recycled water. The City plans to complete a sewer master plan update, including a recycled water feasibility study. If the study produces favorable result for tertiary treatment and distribution system upgrades, the City will implement a recycled water program.

All new development common areas, such as road medians, parks, ball fields, open space, shall use non-potable water. Individual residential landscape areas will not be required to have a non-potable water hook-up.

In 2000, the City adopted a landscape ordinance for single family and multi-family residences and large landscape areas. The new ordinance encourages limited use of turf areas and reduces landscape irrigation consumption by mandating high efficiency irrigation systems and low water use landscaping. The City conducts plan checking for compliance with the landscape ordinance prior to the construction of new and/or rehabilitated landscape sites.

Further, in response to the Water Conservation in Landscaping Act of 2006 (Assembly Bill 1881, Laird), requiring cities and counties to adopt water conservation ordinances by January 1, 2010, CVWD worked with the Coachella Valley Association of Governments (CVAG), Coachella Valley cities, Riverside County, other water agencies, and the Building Industry Association to develop a Regional Landscape Water Conservation Ordinance; a copy is provided in Appendix F. The Regional Landscape Ordinance not only meets the state requirements, but also is tailored specifically to the unique climate and water conservation needs of the Coachella Valley, including the City of Coachella. The City has adopted the model landscape ordinance by CVAG.

In addition, the City of Coachella Utilities Department offers a turf removal rebate program for residents who want to reduce outdoor water use by converting their front lawn to desert-friendly landscaping. Using less water outdoors is the best way to conserve water and lower your water bill. The program aims to provide examples of water wise planting alternatives to turf in parkways and front yards. Residents who chose to replace their grass with beautiful, desert-friendly landscaping can get up to a $750 rebate. Participation in the program will also help residents save on maintenance costs over time. The City offers the rebates on a first-come, first-served basis. Resident's choosing to participate in the program must take the following steps:

1. Read all the terms and conditions of the program and think about how you want to convert your landscaping.
2. Develop your landscape design.
3. Complete and submit the application form.
4. Wait to hear back from the City before beginning any work. The City will mail out a Rebate Reservation Confirmation that will include: a reservation number, a start date, an expiration date, and the estimated rebate amount.
5. Call Dig-Alert! at 811 to get clearance before you start your project.
6. Transform your yard to a desert-friendly oasis!
7. Finish your project within 120 days (4 months) from the date on your Rebate Reservation Confirmation.
8. Complete and submit the rebate request.
9. The City will contact the resident to set up a post-conversion visit to examine the work completed.
10. Receive your rebate. It may take several weeks to process.

The City also offers other programs that have the potential to save irrigation and domestic water demand.

Smart Controller Rebate Program: The program is designed to financially assist large water users in reducing landscape irrigation water consumption by purchasing an advanced irrigation controller capable of synchronizing their landscape irrigation schedules with seasonal variations in Coachella Valley reference evapotranspiration (ETo) rates. These "smart" irrigation clocks reprogram themselves according to periodic variations in ETo after the initial calibrating program has been professionally installed. The City will perform installation and follow-up work for residential customers at a reduced rate of $50.00.

DMM 6 High-Efficiency Washing Machine Rebate Program

High-efficiency washing machines (HEWMs) utilize technological advances to deliver excellent washing performance while saving both water and energy, using anywhere from 35 percent to 50 percent less water. In turn, the reduced water use means less energy needed to heat the water during the wash cycle. While the City promotes HEWMs through consumer education, they do not currently have a rebate program.

Exhibit 3 of the CUWCC MOU guidelines provides principles to guide the performance of BMP cost effectiveness (CUWCC, 2011). CVWD preformed a cost-benefit analysis for a HEWM program utilizing CUWCC's draft cost-effectiveness spreadsheet. CVWD has a good understanding on undertaking such a program in the Coachella Valley region. A summary of the results of this analysis is provided in Table 6.3-1.[18] Although there is a positive cost-benefit ratio, the City will focus its efforts on existing rebate programs described herein to ensure their continued success.

[18] Coachella Valley Water District, Urban Water Management Plan, July 2011

Table 6.3-1
High-Efficiency Washing Machine Cost-Benefit Analysis

	Program Present Value Cost	Agency Perspective	Society Perspective
1	Total Rebates Distributed	100	100
2	Total Water Savings (AF)	19.1	19.1
3	Agency Program Cost	$16,500	$16,500
4	Customer Program Cost	N/A	$30,000
5	Cost Share	$0	N/A
6	Net Program Cost	$16,500	$46,500
	Program Present Value Benefits		
7	Agency Supply and Wastewater Benefits	$30,866	$30,866
8	Environmental Benefits	$0	$0
9	Customer Program Benefit	N/A	$43,784
10	Other Utility Benefits	N/A	$0
11	Total Benefits	$30,866	$74,649
12	Net Present Value (Line 11 – Line 6)	$14,366	$28,149
13	Benefit Cost Ratio (Line 11 / Line 6)	1.87	1.61
14	Simple Unit Supply Cost ($/AF) (Line 6 / Line 2)	$863	$2,431
15	Discounted Unit Supply Cost ($/AF) (Line 6 / Discounted Water Savings)	$1,216	$3,428

Notes:
1.) Agency and Social Discount Rate = 5 percent

DMM 7 Public Information Programs

The City recognizes the continued need for a public information program to maintain and increase the public's awareness of water and the need to use it wisely. The City promotes water conservation and other resources.

The City distributes public information through bill inserts, brochures, and community events. The City also has the opportunity to provide public information on conservation measures through television advertising on public access channel in conjunction with the City Council meeting broadcasts. The City also maintains a web page, http://www.conservecoachella.com, which provides water conservation information,

ideas, and frequently asked questions. The City will continue to work on providing public information and materials to remind the public about water and other resource issues, and will track commentary regarding the information provided.

There is no reliable method to quantify the savings of this management measure; however, the City will monitor the number of public announcements, television advertisements, brochures and bill inserts distributed throughout the service area. An increase in distribution of materials will indicate heightened public water conservation awareness and may correlate with decrease water demand.

DMM 8 School Education Programs

The City supports school education programs provided to the schools within the City. The education programs include water safety on the All-American Canal and water conservation, water quality and pollution prevention.

The program has provided educational programs predominately for elementary age children throughout the service area. School education helps future water users realize that water in the State is a precious commodity that cannot be taken for granted. The program educates school children about where water comes from, how it is used, that it is a precious resource, and ways to conserve water. The children are also taught about the importance of recycled water, where it comes from, and how it is used.

DMM 9 Conservation Programs for Commercial, Industrial, and Institutional Accounts

The amount of water used in commercial, industrial and institutional (CII) within the City is a small percentage of the overall water usage. In 2010, CII user demand made up approximately 15 percent of the City's total water deliveries, see Table 3.1.1-2. The City does, however, incorporate into its planning review process, a review of water uses for a specific development and how it has incorporated water conservation measures. This is an ongoing procedure as part of the development approval process. A majority of existing passive conservation by CII customers is due to current plumbing codes.

DMM 10 Wholesale Agency Assistance Program

The City depends on groundwater for its water supply and does not look toward a wholesale water agency for assistance. However, CVWD together with DWA are responsible for the overall management of water resources for the Coachella Valley. As part of this management, CVWD develops and implements regional water conservation programs, as described in the CVWD 2010 UWMP. The City benefits from the regional programs implemented by CVWD in the Coachella Valley.

The City will continue to work cooperatively with CVWD to participate in regional BMP programs, informational groups and projects, determination of the most cost-effective BMPs, and tailoring programs specific to the City.

DMM 11 Tiered Rates

Tiered rates are defined as "rates designed to recover the cost of providing service." The City's water rates include a variable commodity charge (monthly charge based on the amount of water used or consumed by the customer in hundreds of cubic feet (HCF)) and a fixed metered account charge (basic monthly rate by meter size). The rates have been designed to recover the full cost of water service in the commodity charge, while discouraging wasteful water use, and will continue to be implemented into the future. Tiered rates are designed to incentivize customers to be proactive in reducing water use. The charges were developed through a rate study by MuniFinancial and are not calculated or developed on the basis of any parcel map, but are based upon reasonable estimates of demand placed upon the City in its role as a provider of the water services. Tiered water rates went into effect for residential customers in mid-2010. Table 6.3-1 presents the City's tiered rates for consumption charge.

Table 6.3-2
Rates for Consumption Charge

Tiers	Effective Date					
	5/1/2010	1/1/2011	1/1/2012	1/1/2013	1/1/2014	1/1/2015
Block 1 Rate (per HCF) 0 to 41 HCF	$1.05	$1.16	$1.30	$1.36	$1.43	$1.50
Block 2 Rate (per HCF) Over 41 HCF	$1.21	$1.31	$1.45	$1.51	$1.58	$1.65

It should be noted that the majority of the residents within the City are in the lower income brackets; therefore, it is important that the pricing of water services be maintained as low as possible.

DMM 12 Water Conservation Coordinator

The City's Utilities General Manager serves the City as its water conservation coordinator along with the staff Environmental/Regulatory Program Manager. They work closely with agencies in the region, particularly CVWD, to implement and provide successful execution of water conservation programs in the City. The City continues to investigate Federal, State, and local funding to develop new programs throughout its service area.

DMM 13 Waste Water Prohibitions

The City has a prohibition for wasting water in Municipal Code Section 13.03.044 which states it is unlawful for any person to willfully or neglectfully waste water in any manner whatsoever. In addition, the City has adopted CVAG's Landscape Ordinance which has specific penalties for water waste. The provisions are provided below:

Section 0.00.040, Part C

1. *Water Waste Prevention. Water waste resulting from inefficient landscape irrigation including run-off, low-head drainage, overspray, or other similar conditions where water flows onto adjacent property, nonirrigated areas, walks, roadways, or structures is prohibited. All broken heads and pipes must be repaired within 72 hours of notification. Penalties for violation of these prohibitions are established in Section 0.00.070.*

2. *Water service to customers who cause water waste may have their service discontinued.*

3. *Customers who appear to be exceeding the Maximum Applied Water Allowance (MAWA) may be interviewed by the District Water Management Department to verify customer water usage to ensure compliance.*

The measurement of success for this program is a reduction in water waste violations in the future. Additionally, as discussed in Section 5.3, the City has mandatory prohibitions on water wasting that they enforce during a water shortage. These prohibitions include voluntary and mandatory provisions, audits, and fines than can be imposed.

DMM 14 Residential ULFT Replacement Programs

The City has adopted the Uniform Building Code that requires ultra-low flush toilets (ULFT) (1.6 gallons per flush) be used in all new construction. Most of the population is projected into the future with developments. These developments will be required to install ULFT toilets under current Building Code provisions. For existing houses, the City of Coachella is offering its single-family residence and multi-family residence the opportunity to receive a rebate of up to $100 for exchanging a non-efficient toilet that uses 3.5 gallons per flush (GPF) for an ULFT that uses less than 1.6 GPF and is a qualifying WaterSense model. Currently toilets using 3.5 GPF or more account for roughly 26% of a home's indoor water use. The use of these WaterSense ULFT will not only conserve water but they also have the potential to reduce customer water and electric bill. If Coachella residents chose to participate in the ULFT replacement rebate program they must:

1. Be within the Coachella water service area and served by an open active Coachella potable water service account in good standing.

2. Be replacing a working toilet flushing 3.5 GPF or higher.
3. Schedule a required pre-installation inspection with the Coachella Water Conservation Program.
4. Purchase a qualifying WaterSense ULFT.
5. Complete an application and attach original purchase receipt (Only one rebate per single-family residence or per multi-family unit).
6. Install the new ULFT and submit an application to the city within 90 days of purchase.

To date, the city has successfully replaced over 25 non-efficient toilets with the program. The city plans to continue the program into the foreseeable future.

SECTION 7
CLIMATE CHANGE

7.1 Climate Change

According to DWR, if a water supplier is a member of an IRWM Group, it may reference climate change objectives outlined in the IRWMP in its UWMP. The City of Coachella (Coachella Water Authority) is a member of the Coachella Valley Regional Water Management Group. As such, additional information regarding climate change can be found in the 2010 Coachella Valley IRWMP, more specifically Section 2.8.

SECTION 8
UWMP CHECKLIST

8.1 UWMP Checklist

The City of Coachella has completed the DWR Urban Water Management Plan Checklist, DWR Table I-2, and included the checklist in Appendix G.

APPENDIX A

REFERENCES

CITY OF COACHELLA
REFERENCES

Assembly Bill 797, *California Water Code Division 6 Part 2.6 Urban Water Management Planning,* 1983, as amended to 2010

California Urban Water Conservation Council, *Memorandum of Understanding Regarding Urban Water Conservation in California (MOU),* September 1991

City of Coachella, *2006 Water Master Plan Update,* July 2007

City of Coachella, *2008 Water Quality Report*

Coachella Valley Integrated Regional Water Management Group, *Coachella Valley Integrated Regional Water Management Plan,* December 2010

Coachella Valley Water District, *Engineer's Report on Water Supply and Replenishment Assessment, Lower Whitewater River Subbasin Area of Benefit 2010-2011.*

Coachella Valley Water District, *Urban Water Management Plan – Draft Report,* MWH, May 2011

Department of Water Resources, *California Water Plan Update 2009, Volume 2,* August 2010

Metropolitan Water District of Southern California, *Regional Urban Water Management Plan,* 2005

APPENDIX B

DWR REVIEW FOR COMPLETENESS FORM

APPENDIX C

DWR REVIEW FOR DMM COMPLETENESS FORM

APPENDIX D

NOTICE OF PUBLIC HEARING AND RESOLUTION OF PLAN ADOPTION

. Sun
Gene Autry Trail
n Springs, CA 92262
760-778-4578 / Fax 760-778-4731

Certificate of Publication

State Of California ss:
County of Riverside

Advertiser:

CITY OF COACHELLA/LEGALS
1515 6TH ST
COACHELLA CA 922361

2000485552

I am over the age of 18 years old, a citizen of the United States and not a party to, or have interest in this matter. I hereby certify that the attached advertisement appeared in said newspaper (set in type not smaller than non pariel) in each and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

Newspaper: **.The Desert Sun**

10/29/2014 11/5/2014

I acknowledge that I am a principal clerk of the printer of The Desert Sun, printed and published weekly in the City of Palm Springs, County of Riverside, State of California. The Desert Sun was adjudicated a newspaper of general circulation on March 24, 1988 by the Superior Court of the County of Riverside, State of California Case No. 191236.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 5th day of November, 2014 in Palm Springs, California.

Declarant's Signature

No 1707

CITY OF COACHELLA
PUBLIC HEARING NOTICE
2010 URBAN WATER
MANAGEMENT PLAN (REVISED)

NOTICE IS HEREBY GIVEN that the City of Coachella proposes to adopt the REVISED Urban Water Management Plan 2010 Update (UWMP) pursuant to the Urban Water Management Act, California Water Code, Division 6, Part 2.6, Section 10610 through 10657

The City will hold a public hearing to receive public comments on Wednesday, November 12, 2014 at the City of Coachella Council Meeting at 1515 Sixth Street, Coachella, California 92236, at 6:00 p.m.

The Revised draft 2010 UWMP is available for public review and written comments will be accepted up to November 12, 2014. An electronic copy of the draft of the Draft 2010 UWMP is accessible at www.coachella.org

Questions regarding the public hearing or the Draft 2010 UWMP should be directed to the Utilities General Manager at (760) 501-8100.

Please send written comments by
November 12, 2014 to:
City of Coachella Utilities Department
Attn: Utilities General Manager
53-462 Enterprise Way
Coachella, CA 92236

Published: 10/29, 11/5/2014

RESOLUTION NO. 2014-46

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COACHELLA, CALIFORNIA TO ADOPT A REVISED 2010 URBAN WATER MANAGEMENT PLAN (UWMP)

WHEREAS, the California Legislature amended California Water Code 10610 (et. Seq.), known as the Urban Water Management Planning Act, which mandates that every urban supplier of water providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare and Urban Water Management Plan, the primary of objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, the City of Coachella is an urban water supplier providing water to over 7,892 connections; and

WHEREAS, the City of Coachella as directed by the Department of Water Resources, revised the previously submitted 2010 Urban Water Management Plan; and

WHEREAS, California Water Code 10610 (et seq.) required that the first plan be adopted by December 31, 1985, after public review and hearing, and files with the California Department of Water Resources within thirty days of adoption; and

WHEREAS, the City of Coachella had prepared an Urban Water Management Plan and circulated for public review and circulated a copy to all the urban water suppliers in the Coachella Valley; and

WHEREAS, a public hearing has been scheduled regarding the Urban Water Management Plan at the City Council meeting on November 12, 2014; and

WHEREAS, the City of Coachella is required to adopt a Water Conservation Goals pursuant to Senate Bill (SBX7-7) known as the "Water Conservation Bill of 2009" and establish an urban water use target to achieve a 20% reduction in water use per capita, statewide by the year 2020.

WHEREAS, the City will continue to review and implement Demand Management Measures as necessary and consider alternative sources of supply to meet future growth demands as may be necessary.

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of Coachella, California, does hereby resolve as follows:

Section1. The 2010 Urban Water Management Plan is hereby adopted.

Section 2. The Utilities General Manager is hereby authorized and directed to file the Plan with the California Department of Water Resources within 30 days of this date, in accordance with California Water Code 10610 (et seq.)

DULY PASSED, APPROVED AND ADOPTED, this 12th day of November, 2014 by the following roll call vote:

AYES: Councilmember Martinez, Councilmember Zepeda, Mayor Pro Tem Hernandez and Mayor Garcia.

NOES: None.

ABSENT: Councilmember Aviles.

ABSTAIN: None.

Eduardo Garcia, Mayor

ATTEST:

Beatrice Barajas, City Clerk

APPROVED AS TO FORM:

Carlos Campos, City Attorney

STATE OF CALIFORNIA)
COUNTY OF RIVERSIDE) ss
CITY OF COACHELLA)

I hereby certify that the foregoing is a true and correct copy of a resolution, being Resolution No. 2014-46, duly passed and adopted by the City Council of the City of Coachella, California, at a regular meeting held this 12th day of November, 2014.

Beatrice Barajas, City Clerk

APPENDIX E

WATER PROHIBITION RESOLUTION

Resolution No. XX-XXX

**RESOLUTION OF THE CITY COUNCIL
OF THE CITY OF COACHELLA
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA
ADOPTING AND AUTHORIZING IMPLEMENTATION OF
WATER SHORTAGE STAGE ___ OF THE WATER SHORTAGE CONTINGENCY PLAN**

WHEREAS, the City's Water Shortage Contingency Plan establishes Water Conservation Measures to be implemented when demand for water consumption threatens to exceed the City's available supply of water to the consumer, provided there are not immediate resources available to remedy the situation.

WHEREAS, the City's Water Shortage Contingency Plan establishes water conservation stages and penalties for violations of mandatory conservation measures to be enacted during a declared water shortage.

WHEREAS, the City Council of the City of Coachella is authorized to direct implementation of the applicable provisions of the Water Shortage Contingency Plan upon determination that such implementation is necessary to protect the public health, welfare and safety.

WHEREAS, the City Council of the City of Coachella hereby finds that a water shortage exists within the City's water service area.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF COACHELLA that for the reasons hearin above set forth, the foregoing Resolution No. XX-XXXX, implementing the Water Shortage Stage ___ of the Water Shortage Contingency Plan for the purpose of conserving water consumption within the City's water service area is approved and adopted by the City Council of the City of Coachella this ____ day of _____ 20__.

_____
MAYOR OF THE CITY OF COACHELLA

ATTEST:

_____
CITY CLERK OF THE CITY OF COACHELLA

APPENDIX F

CVAG's Regional Landscape Ordinance

DRAFT MODEL WATER EFFICIENT LANDSCAPE ORDINANCE
COACHELLA VALLEY WATER DISTRICT

ATTACHMENT A of ORDINANCE 1302.1

LANDSCAPE AND IRRIGATION SYSTEM DESIGN CRITERIA

Sections:

0.00.010 Purpose and Intent

A. The California State Legislature has found:

1. The waters of the state are of limited supply and are subject to ever increasing demands;
2. The continuation of California's economic prosperity is dependent on the availability of adequate supplies of water for future users;
3. It is the policy of the State to promote the conservation and efficient use of water and to prevent the waste of this valuable resource;
4. Landscapes are essential to the quality of life in California by providing areas for active and passive recreation and as an enhancement to the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development;
5. Landscape design, installation, maintenance and management can and shall be water efficient; and
6. Section 2 of Article X of the California Constitution specifies that the right to use water is limited to the amount reasonably required for the beneficial use to be served and the right does not and shall not extend to waste and unreasonable method of use.

B. Consistent with these legislative findings, the purpose of these criteria is to:

1. Promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible;
2. Establish a structure for planning, designing, installing, maintaining and managing water efficient landscapes in new construction and rehabilitated projects;
3. Establish provisions for water management practices and water waste prevention for existing landscapes;

4. Use water efficiently without waste by setting a Maximum Applied Water Allowance (MAWA) as an upper limit for water use and reduce water use to the lowest practical amount; and

5. Promote the benefits of consistent landscape criteria with neighboring local and regional agencies.

C. It is also the purpose of these criteria to implement the requirements of the California Code of Regulations Title 23. Waters Division 2. Department of Water Resources Chapter 2.7. Model Water Efficient Landscape Ordinance, and State of California Water Conservation in Landscaping Act. Authority cited: Section 65593, Government Code, Reference: Sections 65591, 65593, 65596 Government Code.

D. It is the intent of these criteria to promote water conservation through climate-appropriate plant material and efficient irrigation systems, and to create a "Lush and Efficient" landscape theme through enhancing and improving the physical and natural environment.

E. Applicability

1. These criteria shall apply to all of the following landscape projects:

   a. New construction and rehabilitated landscapes for public agency projects and private development projects requiring a building or landscape permit, plan check or design review;

   b. New construction and rehabilitated landscapes which are developer-installed in single-family and multi-family projects requiring a building or landscape permit, plan check or design review;

   c. New construction and rehabilitated landscapes which are homeowner-provided and/or homeowner-hired in single family and multi-family residential projects with a total project landscape area equal to or greater than 5,000 square feet requiring a building or landscape permit, plan check or design review; and

   d. Existing landscapes limited to section 0.00.040 (B).

2. These criteria do not apply to:

   a. Registered local, state or federal historical sites;

   b. Ecological restoration projects that do not require a permanent irrigation system;

   c. Mined-land reclamation projects that do not require a permanent irrigation system; or

   d. Plant collections, as part of botanical gardens and arboretums open to the public.

0.00.020 Definitions

The words used in this section have the meanings set forth below:

ANTIDRAIN VALVE or CHECK VALVE - A valve located under/in a sprinkler head to hold water in the system to eliminate drainage from the lower elevation sprinkler heads.

APPLICATION RATE - The depth of water applied to a given area, usually measured in inches per hour. Also known as precipitation rate (sprinklers) or emission rate (drippers/microsprayers) in gallons per hour.

APPLIED WATER - The portion of water supplied by the irrigation system to the landscape.

AUTOMATIC CONTROLLER - An electronic or solid-state timer capable of operating valve stations to set the days, time and length of time of a water application.

BACKFLOW PREVENTION DEVICE - A safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.

BENEFICIAL USE - Water used for landscape evapotranspiration.

BILLING UNITS - Units of water (100 cubic feet = 1 billing unit = 748 gallons = 1 CCF) for billing purposes. To convert gallons per year to 100 cubic feet per year, divide gallons per year by 748. (748 gallons = 100 cubic feet).

CONVERSION FACTOR (0.62) - A number that converts the Maximum Applied Water Allowance from acre-inches per acre to gallons per square foot. The conversion factor is calculated as follows:

(325,851 gallons/43,560 square feet)/12 inches	= (0.62)
325,851 gallons	= one acre-foot
43,560 square feet	= one acre
12 inches	= one foot

DESERT LANDSCAPE - A desert landscape using native plants spaced to look like a native habitat.

DISTRIBUTION UNIFORMITY - A measure of how evenly sprinklers apply water. The low-quarter measurement method (DULQ) utilized in the irrigation audit procedure is utilized for the purposes of these criteria. These criteria assume an attainable performance level of 75% DULQ for spray heads, 80% DULQ for rotor heads and 85% DULQ for recreational turf grass rotor heads.

DISTRICT – Coachella Valley Water District.

DRIP IRRIGATION - A method of irrigation where the water is applied slowly at the base of plants without watering the open space between plants.

ECOLOGICAL RESTORATION PROJECT - A project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.

EFFECTIVE PRECIPITATION or USABLE RAINFALL - The portion of total natural precipitation that is used by the plants, usually assumed to be three inches annually. Precipitation or rainfall is not considered a reliable source of water in the desert.

ELECTRONIC CONTROLLERS - Time clocks that have the capabilities of multiprogramming, water budgeting and multiple start times.

EMISSION UNIFORMITY - A measure of how evenly drip and microspray emitters apply water. The low-quarter measurement method (EULQ) utilized in the landscape irrigation evaluation procedure is utilized for the purposes of these criteria. These criteria assume 90% EULQ for drippers, microsprays and pressure compensating bubblers.

EMITTER - Drip irrigation fittings that deliver water slowly from the watering system to the soil.

ESTABLISHED LANDSCAPE - The point at which new plants in the landscape have developed roots into the soil adjacent to the root ball.

ESTABLISHMENT PERIOD - The first year after installing the plant in the landscape.

ESTIMATED TOTAL WATER USE (By hydrozone) - The portion of the estimated annual total applied water use that is derived from applied water to a specified hydrozone.

ESTIMATED ANNUAL TOTAL APPLIED WATER USE (Total of all hydrozones) - The annual total amount of water estimated to be needed by all hydrozones to keep the plants and water features in the landscaped area healthy and visually pleasing. It is based upon such factors as the local evapotranspiration rate, the size of the landscaped area, the size and type of water feature, the types of plants, and the efficiency of the irrigation system. The estimated annual total applied water use shall not exceed the Maximum Applied Water Allowance (MAWA).

EVAPOTRANSPIRATION or ET - The quantity of water evaporated from adjacent soil surfaces and transpired by plants expressed in inches during a specific time.

ET ADJUSTMENT FACTOR - A factor of 0.5 that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape. A

combined plant mix with a site-wide average 0.38 is the basis of the plant factor portion of this calculation. The irrigation efficiency for purposes of the ET adjustment factor is 0.75. Therefore, the ET adjustment factor (0.5) = (0.38/0.75).

FINISHED GRADE – Grade height after surface mulch covering has been installed.

FLOW RATE - The rate at which water flows through pipes, valves and meters (gallons per minute or cubic feet per second).

HARDSCAPE - Concrete or asphalt areas including streets, parking lots, sidewalks, driveways, patios and decks.

HEAD-TO-HEAD COVERAGE - One hundred percent sprinkler coverage of the area to be irrigated, with maximum practical uniformity.

HIGH FLOW CHECK VALVE - A valve located under/in a sprinkler head to stop the flow of water if the spray head is broken or missing.

HYDROZONE - A portion of the landscaped area having plants with similar water needs that are served by a valve or set of valves with the same schedule. A hydrozone may be irrigated or non-irrigated. For example, a naturalized area planted with native vegetation that will not need supplemental irrigation (once established) is a non-irrigated hydrozone.

INFILTRATION RATE - The rate of water entry into the soil expressed as a depth of water per unit of time (inches per hour).

IRRIGATION EFFICIENCY - The measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum irrigation efficiency for purposes of these regulations is 0.75 or 75 percent. Greater irrigation efficiency can be expected from well-designed and maintained systems.

LANDSCAPE IRRIGATION AUDIT - A process to perform site inspections, evaluate irrigation systems and develop efficient irrigation schedules.

LANDSCAPED AREA - The entire parcel less the building footprint, driveways, non-irrigated portions of the parking lots, hardscapes (such as decks and patios), and other nonporous areas. Water features are included in the calculation of a site's landscaped area.

LATERAL LINE - The water delivery pipeline that supplies water to the emitters sprinklers from a valve.

LOCAL AGENCY – A city, county, or water purveyor responsible for adopting and implementing the ordinance. The local agency is also responsible for

enforcement of the ordinance, including, but not limited to, approval of a design review, permit, plan check, or inspection of a project.

MAIN LINE - The pressurized pipeline that delivers water from the water source to a valve or outlet.

MAXIMUM APPLIED WATER ALLOWANCE (MAWA) - For design purposes, the upper limit of annual applied water for the established landscape area as specified in Division 2, Title 23, California Code of Regulations, Chapter 7, Section 702. It is based upon the area's reference evapotranspiration, ET adjustment factor, and the size of the landscaped area. The estimated applied water use shall not exceed the Maximum Applied Water Allowance (MAWA).

MICROIRRIGATION - See drip irrigation.

MULCH - Any organic material such as leaves, bark, straw or inorganic material such as pebbles, stones, gravel, decorative sand or decomposed granite left loose and applied to the soil surface to reduce evaporation.

NATIVE PLANTS - Native plants are low water using plants that are:
1) indigenous to the Coachella Valley and lower Colorado Desert region of California and Arizona, 2) native to the southwestern United States and northern Mexico or 3) native to other desert regions of the world, but adapted to the Coachella Valley.

NATURAL GRADE – Grade height of native soil before application of surface mulch.

OPERATING PRESSURE - The pressure at which an irrigation system’s sprinklers, bubblers, drippers or microsprays are designed to operate, usually indicated at the base of an irrigation head.

OVERHEAD SPRINKLER IRRIGATION STATIONS - Sprinklers with high flow rates (spray heads, impulse sprinklers, gear rotors, etc.) that are utilized to apply water through the air to large irrigated areas.

OVERSPRAY - The water which is delivered beyond the landscaped area onto pavements, walks, structures or other non-landscape areas. Also known as hardscape applications.

PLANT FACTOR - A factor that, when multiplied by reference evapotranspiration, estimates the amount of water used by plants. For purposes of these criteria, the average plant factor of very low water using plants ranges from 0.01 to 0.10, for low water using plants the range is 0.10 to 0.30, for moderate water using plants the range is 0.40 to 0.60, and for high water using plants, the range is 0.70 to 0.90. Reference: Water Use Classifications of Landscape Species III (WUCOLS III).

PRESSURE COMPENSATING (PC) BUBBLER – An emission device that allows the output of water to remain constant regardless of input pressure. Typical flow rates for this type of bubbler range between 0.25 gpm to 2.0 gpm.

PRESSURE COMPENSATING SCREENS/DEVICES - Small screens/devices inserted in place of standard screens/devices that are used in sprinkler heads for radius and high pressure control.

QUALIFIED PROFESSIONAL - A person who has been certified by their professional organization or a person who has demonstrated knowledge and is locally recognized as qualified among landscape architects due to longtime experience.

RAIN-SENSING DEVICE - A system which automatically shuts off the irrigation system when it rains.

RECYCLED WATER/RECLAIMED WATER - Treated or recycled wastewater of a quality suitable for nonpotable uses such as landscape irrigation. Recycled water is not for human consumption.

RECORD DRAWING or AS-BUILTS - A set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.

RECREATIONAL AREA - Areas of active play or recreation such as golf courses, sports fields, school yards, picnic grounds, or other areas with intense foot or vehicular traffic.

RECREATIONAL TURF GRASS - High traffic turf grass that serves as a playing surface for sports and recreational activities. Athletic fields, golf courses, parks and school playgrounds are all examples of areas having recreational turf grass.

RECREATIONAL TURF GRASS ET ADJUSTMENT FACTOR - A factor of 0.82 that, when applied to reference evapotranspiration, adjusts for the additional stress of high traffic on recreational turf grass and the higher irrigation efficiencies of long-range rotary sprinklers. These are the two major influences upon the amount of water that needs to be applied to a recreational landscape. A mixed cool/warm season turf grass with a seasonal average of 0.7 is the basis of the plant factor portion of this calculation. The irrigation efficiency of long-range sprinklers for purposes of the ET adjustment factor is 0.85. Therefore, the ET adjustment factor is 0.82 = 0.7/0.85.

REFERENCE EVAPOTRANSPIRATION or ETo - A standard measurement of the environmental parameters which affect the water use of plants, using cool season grass as a reference. ETo is expressed in inches per day, month or year and is an estimate of the evapotranspiration of a large field of cool-season grass that is well watered. Reference evapotranspiration is used as a basis of determining the Maximum Applied Water Allowances so that regional differences

in climate can be accommodated. For purposes of these criteria, CVWD Drawing No. 29523 will be used for ETo zones.

REHABILITATED LANDSCAPE - Any re-landscaping project in which the choice of new plant material and/or new irrigation system components is such that the calculation of the site's estimated water use will be significantly changed. The new estimated water use calculation must not exceed the Maximum Applied Water Allowance (MAWA) calculated for the site using a 0.5 ET adjustment factor.

RIPARIAN PLANTS - Riparian plants are high water using and water-loving plants that are found growing naturally along flowing rivers and lake shores. They may also be native to wet swampy areas with high water tables or poor drainage.

RUNOFF - Irrigation water which is not absorbed by the soil or landscape to which it is applied and which flows from the planted area.

SERVICE LINE - The pressurized pipeline that delivers water from the water source to the water meter.

SMART CONTROLLER – Weather-based or soil moisture-based irrigation controls that monitor and use information about environmental conditions for a specific location and landscape (such as soil moisture, rain, wind, the plants' evaporation and transpiration rates and, in some cases, plant type and more) to automatically control when to water and when not to, providing exactly the right amount of water to maintain lush, healthy growing conditions.

SOIL MOISTURE-SENSING DEVICE - A device that measures the amount of water in the soil.

SOIL TEXTURE - The classification of soil based on the percentage of sand, silt and clay in the soil.

SPRINKLER HEAD - A device which sprays water through a nozzle.

STATIC WATER PRESSURE - The pipeline or municipal water supply pressure when water is not flowing.

STATION - An area served by one valve or by a set of valves that operate simultaneously.

TURF - A surface of earth containing mowed grass with roots.

VALVE - A device used to control the flow of water in the irrigation system.

WATER FEATURE - Any water applied to the landscape for nonirrigation, decorative purposes. Fountains, streams, ponds and lakes are considered water

features. Water features use more water than efficiently irrigated turf grass and are assigned a plant factor of 1.1 for a stationary body of water and 1.2 for a moving body of water.

WATER SYSTEM - The network of piping, valves and irrigation heads.

WUCOLS III - Water Use Classifications of Landscape Species III

0.00.030 Provisions for new or rehabilitated landscapes

A. Submittal and Approval of a Landscape Documentation Package

1. Prior to construction, the project applicant shall:

   a. Submit two copies of a Landscape Documentation Package to the Coachella Valley Water District (District) that conform to this chapter. No water meter will be issued until the District reviews and approves the Landscape Documentation Package.

   b. Submit one copy of the Landscape Documentation Package to the local agency (city/county).

2. Upon receipt of the Landscape Documentation Package, the District shall:

   a. Review the Landscape Documentation Package.

   b. Approve or deny the Landscape Documentation Package.

3. Upon approval of the Landscape Documentation Package, the District will:

   a. Sign and date the approved plans and return them to the project applicant.

   b. Submit a copy of the project's Water Efficient Landscape Worksheet (Appendix B) to the local agency.

4. Upon approval of the Landscape Documentation Package by the local agency, the project applicant shall:

   a. Receive an approval of the landscape design review or plan check.

   b. Finalize the Certificate of Completion, including recording the date of the approval.

   c. File the Certificate of Completion with the District and the local agency, and provide a copy to the property owner or designee.

d. Submit a copy of the approved Landscape Documentation Package, along with the record drawings and any other information, to the property owner or designee.

5. Each Landscape Documentation Package shall include the following elements:

   a. A completed Landscape Documentation Package Checklist (Appendix A), which includes the date, project applicant, and project address information. This checklist serves to verify that the elements of the Landscape Documentation Package have been completed.

   b. Total landscaped area (square feet)

   c. Project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed, etc.)

   d. Water Efficient Landscape Worksheet (Appendix B), which may be imbedded in the plan sheets of the Landscape Documentation Package, and include the following:

      i. Hydrozone Information Table (reference Appendix C)

   e. Water Budget Calculations (reference Appendix D) that adhere to the following requirements:

      i. The plant factor used shall be from WUCOLS. The plant factors ranges from 0 to 0.3 for the low use plants, from 0.4 to 0.6 for the moderate use plants, from 0.7 to 1.0 for the high use plants and 1.1 to 1.2 for water features.

      ii. All water features shall be included in the 1.1 to 1.2 hydrozone and temporary irrigated areas shall be included in the low water use hydrozone.. For the calculation of the Maximum Applied Water Allowance (MAWA) and Estimated Total Water Use, a project applicant shall use ETo values from the Reference Evapotranspiration Table, Appendix C. For geographic areas not covered in Appendix C, use data from other cities located nearby in the same reference evapotranspiration zone.

   f. Landscape Design Plan

   g. Irrigation Design Plan

   h. Grading Design Plan (as required)

   i. Soil Management Report (as required)

   j All plans must contain a signature block for both the local agency and the District.

6. The Landscape Documentation Package shall be submitted by the following procedure:

   a. The applicant or applicant's representative may bring, send or ship copies of the Landscape Documentation Package to the District,

and the local agency, as applicable. Appropriate fees must accompany the Landscape Documentation Package.

b. The plans will normally be returned to the applicant or local agency with comments by the District (Water Management Department) within ten working days of receipt.

c. After noted corrections have been made, the applicant shall re-submit the Landscape Documentation Package to the District for approval and signing by the Water Management Department and Development Services Department for the District.

d. Signed plans will be held at the District's Palm Desert office for applicant pick up or sent by certified shipping at the applicant's request and expense.

e. For direct communication:

Telephone No.:	(760) 398-2651 Water Management Department
Mailing Address:	Coachella Valley Water District Attention: Water Management Department Post Office Box 1058 Coachella, California 92236
Hand Delivery or Shipping Address:	Coachella Valley Water District Attention: Water Management Department 85-995 Avenue 52 Coachella, California 92236
Hand Delivery or Shipping Address:	Coachella Valley Water District Attention: Water Management Department 75-525 Hovley Lane East Palm Desert, California 92211

f. The District will inspect the landscaped area(s) for conformance with the approved Landscape Documentation Package. Landscaping that does not conform to the approved Landscape Documentation Package is subject to penalties as provided in Section 0.00.070.

7. Upon review and approval of the Landscape Documentation Package by the District, the project applicant shall:

   a. Submit a copy of the District-approved Landscape Documentation Package and Water Efficient Landscape Worksheet to the local agency.

   b. Provide the property owner or site manager a copy of the District-approved Landscape Documentation Package, in addition to the record drawings and any other information normally forwarded to the property owner or site manager.

8. Upon review and approval of the Landscape Documentation Package by the local agency, the project applicant shall:

   a. Record the date of the permit on the Certificate of Completion.

   b. Provide the property owner or designee a copy of the local-agency approved Landscape Documentation Package, in addition to the record drawings, and any other information normally forwarded to the property owner or designee.

B. Landscape Design Plan

A landscape design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation package. For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project.

1. Any plant may be selected for the landscape, providing the Estimated Total Water Use in the landscape area does not exceed the Maximum Applied Water Allowance (MAWA). To encourage the efficient use of water the following is highly recommended:
    a. Protection and preservation of native species and natural vegetation;
    b. Selection of water-conserving plant and turf species;
    c. Selection of trees based on applicable local tree ordinances or tree shading guidelines; and
    d. Selection of plants from local and regional landscape program plant lists.
2. Specifications for Landscape Design Plan
   The landscape design plan shall be drawn on 36-inch by 24-inch project base sheets at a scale that accurately and clearly identifies the following:
    a. Tract name, tract number or parcel map number on cover sheet.
    b. Proposed planting areas.
    c. Plant material location and size.
    d. Plant botanical and common names.
    e. Plant spacing, where applicable.
    f. Natural features including, but not limited to, rock outcroppings, and existing trees and shrubs that will remain incorporated into the new landscape.
    g. Vicinity map showing site location on top sheet or on cover sheet.
    h. Title block on each sheet with the name and address of the project, and the name and address of the professional design company with its signed professional stamp, if applicable.
    i. Reserve two 6-inch by 3-inch spaces for a) the local agency signature block and b) a District signature block in lower right corner of the cover sheet and on all of the landscape, irrigation design/detail/specification sheets.
    j. Show plan scale and north arrow on design sheets.
    k. Show graphic scale on all design sheets.
    l. Show all property lines and street names.
    m. Show all paved areas, such as driveways, walkways and streets.

n. Show all pools, ponds, lakes, fountains, water features, fences and retaining walls.

o. Show locations of all overhead and underground utilities within project area.

p. Provide an index map, as necessary, showing the overall project, including all 1/4 and 1/16 section lines and section numbers.

q. Show a note on each design sheet stating, "Trees, plants, walls, sidewalks and permanent structures of any kind shall not be planted, installed or built in CVWD, USBR and local agency easements or rights-of-way without first obtaining an encroachment permit from CVWD and the local agency."

r. Show Maximum Applied Water Allowance (MAWA) for the proposed project. (See formula in Appendix C and Sample MAWA, Appendix D.)

s. Show total landscaped area in square feet. Separate area square footages by hydrozone. Show the total percentage area of each hydrozone. Include total area of all water features as separate hydrozones of still or moving water. Show Estimated Total Water Use, for each major plant group hydrozone and water feature hydrozone expressed in either seasonal (turf grass) or annual (trees, shrubs, groundcovers and water features) billing units.

t. Show Total Estimated Total Water Use for each major plant group hydrozone and water feature hydrozone expressed in either seasonal (turf grass) or annual (trees, shrubs, groundcovers and water features) billing units.

u. Show Total Estimated Water Use for the entire project. (Formula in Appendix C and on Sample Calculation Estimated Water Use, Appendix D.) The Total Estimated Use shall not exceed the Maximum Applied Water Allowance (MAWA).

v. Designate recreational areas and recreational turf areas.

w. When model homes are included, show the Maximum Applied Water Allowance (MAWA) and Estimated Total Water Use (by hydrozone with totals) for each model unit.

3. Landscape Design Criteria

a. The landscape design must be carefully planned and take into account the intended function of the project.

b. Plants' appropriateness shall be selected based upon their adaptability to the climatic, geologic and topographical conditions of the site.

c. Selection of water-efficient and low-maintenance plant material is required.

d. All planted areas must be a minimum of one inch below adjacent hardscapes to eliminate runoff and overflow.

e. Long, narrow or irregularly shaped turf areas shall not be designed because of the difficulty in irrigating uniformly without overspray onto hardscaped areas, streets and sidewalks. Areas less than 8 feet in width shall not be designed with turf. Turf will be allowed in these areas only if irrigation design reflects the use of subsurface irrigation or a surface flow/wick irrigation system.

f. Turf areas irrigated with spray/rotor systems must be set back at least 24 inches from curbs, driveways, sidewalks or any other area that may result in runoff of water onto streets. An undulating landscape buffer area created by the setback shall be designed with rocks, cobble or decomposed granite and/or can be landscaped with drip irrigated shrubs/accents or covered with a suitable ground cover.

g. Plants having similar water use shall be grouped together in distinct hydrozones.

h. The use of a soil covering mulch or a mineral groundcover of a minimum two-inch depth to reduce soil surface evaporation is required around trees, shrubs and on nonirrigated areas. The use of boulders and cobble shall be considered to reduce the total vegetation area.

i. Annual color plantings shall be used only in areas of high visual impact close to where people can appreciate them. Otherwise, drip irrigated, perennial plantings should be the primary source of color.

j. Native desert plants shall be specified to be planted in a shallow, wide, rough hole two times the root ball width. The root ball will be set on either undisturbed native soil or a firmed native soil. The root ball top will be set even with the finished surface grade or above grade if the soil is poorly drained. The hole must be backfilled with native soil. Extra soil may be used to mound up around plants where the soil is poorly drained.

k. Landscaping must not obstruct or interfere with street signs, lights or road/walkway visibility. Screening may be provided by walls, berms or plantings.

l. Use locally approved plant materials lists in the selection of appropriate plants.

m. Planter islands in parking lots with canopy trees shall be sized to meet local land use agency requirements.

n. A landscape plan in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required per Public Resources Code Section 4291 (a) and (b). Avoid fire-prone plant material and highly flammable mulches.

o. The use of invasive and/or noxious plant species is prohibited.

p. The architectural guidelines of a common interest development, which includes community apartment projects, condominiums, planned developments and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group (California Civil Code, Section 1353.8).

D. Grading Design Plan

1. For efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff and water waste. A grading plan shall be submitted as part of the Landscape Documentation Package. A comprehensive grading plan prepared by a civil engineer for other local agency permits satisfies this requirement.

2. The project applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the landscape area including;

   a. Height of graded slopes;

   b. Drainage patterns;

   c. Pad elevations;

   d. Finish grade; and

   e. Stormwater retention improvements, if applicable.

3. To prevent excessive erosion and runoff, it is highly recommended, and per local agency requirements, that project applicants:

   a. Grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable hardscapes;

   b. Avoid disruption of natural drainage patterns and undisturbed soil; and

   c. Avoid soil compaction in landscape areas.

4. The grading design plan shall contain the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the grading plan."

5. Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).

6. Slopes greater than 25% shall not be irrigated with an irrigation system with a precipitation rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff must be confirmed during an irrigation audit.

7. All grading must retain normal stormwater runoff and provide for an area of containment. All irrigation water must be retained within

property lines and not allowed to flow into public streets or public rights-of-way. Where appropriate, a simulated dry creek bed may be used to convey storm drainage into retention areas. A drywell shall be installed if the retention basin is to be used as a recreational area.

8. Mounded or sloped planting areas that contribute to runoff onto hardscape are prohibited. Sloped planting areas above a hardscaped area shall be avoided unless there is a drainage swale at toe of slope to direct runoff away from hardscape.

9. Median islands must be graded to prevent stormwater and excess irrigation runoff.

E. Irrigation Design Plan

For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufactures recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance. An irrigation design plan meeting the following criteria shall be submitted as part of the Landscape Documentation Package.

Separate landscape water meters shall be installed for all projects except single family homes. When irrigation water is from a well, the well shall be metered. The irrigation design plan shall be drawn on project base sheets. It should be separate from, but use the same format as, the landscape design plan. The irrigation system specifications shall accurately and clearly identify the following:

1. Specifications for Irrigation Design.

   a. Control valves, manufacturer's model number, size and location.

   b. Irrigation head manufacturer's model number, radius, operating pressure, gallons per minute/gallons per hour (gpm/gph) and location.

   c. Piping type, size and location.

   d. Point of connection or source of water and static water pressure.

   e. Meter location and size (where applicable).

   f. Pump station location and pumping capacity (where applicable).

   g. Power supply/electrical access and location.

   h. Plan scale and north arrow on all sheets.

   i. Graphic scaling on all irrigation design sheets.

   j. Irrigation installation details and notes/specifications.

   k. The irrigation system shall be automatic, constructed to discourage vandalism and simple to maintain.

   l. All equipment shall be of proven design with local service available.

   m. Show location, station number, size, and design gpm of each valve on plan. Control valves shall be rated at 200 psi.

n. Visible sprinklers near hardscape shall be of pop-up design.

o. All heads should have a minimum number of wearing pieces with an extended life cycle.

p. Sprinklers, drippers, valves, etc., must be operated within manufacturer's specifications.

q. Manual shut-off valves shall be fully ported ball valves or butterfly valves. Manual shut-off valves are required upstream of automatic valve manifolds.

r. Master valves shall be metal, located as close to the point of connection as possible, and be metal piped between the master valve and the water meter.

s. High flow sensors that detect and report high flow conditions created by system damage or malfunction shall be specified for all projects excluding single family and multi-family dwellings.

t. The following statement "I have complied with the criteria of the ordinance and have applied them accordingly for the efficient use of water in the irrigation design plan;" and

u. The signature of a licensed landscape architect, certified irrigation designer, irrigation consultant, landscape contractor or any other person authorized to design an irrigation system.

2. Specifications for Irrigation Efficiency

The minimum irrigation efficiency shall be 0.75 (75%). Greater irrigation efficiencies are expected from well-designed and maintained systems. The following are required:

a. Design spray head and rotor head stations with consideration for worst wind conditions. Close spacing and low-angle nozzles are required in high and frequent wind areas (ETo Zone No. 5).

b. Spacing of sprinkler heads shall not exceed manufacturer's maximum recommendations for proper coverage. The plan design shall show a minimum of 0.75 (75%) distribution uniformity.

c. Only irrigation heads with matched precipitation rates shall be circuited on the same valve.

d. Valve circuiting shall be designed to be consistent with hydrozones.

e. Individual hydrozones that mix plants that are moderate and low water use may be allowed if:

(i) plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or

(ii) the plant factor of the higher water using plant is used for the calculations.

f. Individual hydrozones that mix high and low water use plants shall not be permitted.

g. On the landscape design plan and irrigation design plan, hydrozone areas shall be designated by number, letter, or other designation. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in the hydrozone information table. This table can assist with pre-inspection and final inspection of the irrigation system, and programming the controller.

3. Irrigation System Criteria

a. Reduced pressure backflow prevention devices shall be installed behind meter at curb by the District.

b. Show location, station number, size and design gpm of each valve on plan.

c. Smart Controllers shall be specified for all projects. This includes climate based or sensor based controllers, which can automatically adjust for local weather and/or site conditions.

d. High flow check valves shall be installed in or under all heads adjacent to street curbing, parking lots and where damage could occur to property due to flooding, unless controllers with flow sensor capabilities are specified that can automatically shut off individual control valves when excess flow is detected.

e. Pressure compensating screens/devices shall be specified on all spray heads to reduce radius as needed to prevent overthrow onto hardscape and/or to control high pressure misting.

f. All irrigation systems shall be designed to avoid runoff onto hardscape from low head drainage, overspray and other similar conditions where water flows onto adjacent property, nonirrigated areas, walks, roadways or structures.

g. Rotor type heads shall be set back a minimum of 4 feet from hardscape.

h. The use of drip, microirrigation or pressure compensating bubblers or other systems with efficiencies of 90 percent or greater is required for all shrubs and trees. Small, narrow (less than 8 feet), irregularly shaped or sloping areas shall be irrigated with drip, microspray or PC (pressure-compensating) bubbler heads.

i. Trees in turf areas shall be on a separate station to provide proper deep watering.

j. Street median irrigation

i. No overhead sprinkler irrigation system shall be installed in median strips or in islands.

ii. Median islands or strips shall be designed with either a drip emitter to each plant or subsurface irrigation. Bubblers used for trees must be fixed-flow pressure compensating type. Adjustable bubblers are prohibited

k. Meter sizing for landscape purposes shall be 33 gpm per planted acre. Maximum design meter flow rates are: 3/4" = 23 gpm, 1" = 37 gpm, 1-1/2" = 80 gpm, 2" = 120 gpm

l. Large projects located outside Improvement District No. 1 of the Coachella Valley Water District shall connect to or provide future connection to recycled water if such water is available. Large projects located inside Improvement District No. 1 may be required to connect to canal irrigation water or recycled water if such water is available. **(See attached boundary map.)**

4. Drip Irrigation System Criteria

a. The drip system must be sized for mature-size plants.

b. The irrigation system should complete all irrigation cycles during peak use in about 12 hours. Normally, each irrigation controller should not have more than four drip stations that operate simultaneously.

c. Field installed below ground pipe connections shall be threaded PVC or glued PVC. Surface laid hose and tubing is prohibited. Polyethylene tubing is allowed only in subsurface installations. Drip emitter installation shall be directly into polyethylene tubing on a ¼ inch thick-walled riser. Multi-port outlet devices and multi-port distribution is prohibited.

d. Proportion gallons per day per plant according to plant size. The following sizing chart is for peak water use. The low to high end of the range is according to the relative water requirements of the plants. The low end is for desert natives and the high end is for medium water use type plants.

Size of Plant	Gallons Per Day
Large trees (over 30-foot diameter)	58+ to 97+
Medium trees (about 18-foot diameter)	21 to 35
Small trees/large shrubs (9-foot diameter)	6 to 10
Medium shrubs (3.5-foot diameter)	.8 to 1.3
Small shrubs/groundcover	.5 or less

e. Plants with widely differing water requirements shall be valved separately. As an example, separate trees from small shrubs and cactus from other shrubs. Multiple emitter point sources of water for large shrubs and trees must provide continuous bands of moisture from the root ball out to the mature drip line plus

20 percent of the plant diameter. See Appendix C for more information on emitter spacing and wetted area.

f. Most plants require 50 percent or more of the soil volume within the drip line to be wetted by the irrigation system. See Appendix C for more information. For additional information on plant watering and plant relative water needs, see the plant list section of the "Lush and Efficient, Landscape Gardening in the Coachella Valley" or a list provided by the local agency.

5. Recycled Water Specifications

a. When a site has recycled water available or is in an area that will have recycled water available as irrigation water, the irrigation system shall be installed using the industry standard purple colored or marked “Recycled Water Do Not Drink” on pipes, valves and sprinkler heads.

b. The backup groundwater supply (well water or domestic water) shall be metered. Backup supply water is only for emergencies when recycled water is not available.

c. Recycled water users must comply with all county, state and federal health regulations. Cross connection control shall require a 6-inch air gap system or a reduced pressure backflow device. All retrofitted systems shall be dye tested before being put into service.

d. Where available, recycled water shall be used as a source for decorative water features.

e. Sites using recycled water are not exempted from the Maximum Applied Water Allowance (MAWA), prescribed water audits or the provisions of these criteria.

f. A Recycled Water Checklist (Appendix G) shall be submitted to the District upon submittal of the first plan check of the landscape design plan and the irrigation design plan.

6. Irrigation Water (Nonpotable) Specifications

a. When a site is using nonpotable irrigation water that is not recycled water (from an on-site well or canal water) all hose bibs shall be loose key type and quick coupler valves shall be of locking type with nonpotable markings to prevent possible accidental drinking of this water.

b. Sites using nonpotable irrigation water are not exempted from the Maximum Applied Water Allowance (MAWA), prescribed water audits or the provisions of these criteria.

7. Groundwater Water Specifications

a. Sites using groundwater irrigation water from wells are not exempted from the Maximum Applied Water Allowance

(MAWA), prescribed water audits, or the provisions of these criteria.

8. Golf Course Criteria

   a. For all new golf courses and additions or renovations to existing golf courses, the area of irrigated turf used for tees, fairways, greens and practice areas shall be limited. The total turf area of the golf course shall be limited to a maximum of four (4) irrigated acres average per golf hole. Practice areas such as driving ranges and short game areas shall not exceed ten (10) acres of turf. The golf course design shall reflect the natural topography and drainage ways of the site, minimize the clearing of vegetation and be flexible and water efficient in design.

   b. All nonturf areas such as ponds, lakes, artificial water courses, bunkers and irrigated landscapes within the golf course project area must not exceed the Maximum Applied Water Allowance (MAWA) calculations set forth within these criteria.

0.00.040 Other Provisions

A. Landscape Audit, Irrigation Survey, and Irrigation Water Use Analysis for New Construction and Rehabilitated Landscapes

1. This section shall apply to new construction and rehabilitated landscape projects installed after January 1, 2010 as described in Section 0.00.030.

2. All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

3. The project applicant shall submit an irrigation audit report with the Certificate of Completion to the local agency that may include, but not be limited to, inspection, system tune-up, system test with distribution uniformity, reporting overspray or run-off that causes overland flow, and preparation of an irrigation schedule;

4. The District will administer programs that may include, but not be limited to, irrigation water use analysis, irrigation audits and irrigation surveys for compliance with the Maximum Applied Water Allowance (MAWA).

5. The owner of the landscaped area shall bear the cost of the audit.

B. Irrigation Audit, Irrigation Survey and Irrigation Water Use Analysis for Existing Landscapes

1. This section shall apply to all existing landscapes that were installed before January 1, 2010 and are over one (1) acre in size.

2. The District will administer programs that may include, but not be limited to, irrigation water analysis, irrigation surveys and irrigation audits that verify landscape water use does not exceed the Maximum Applied Water Allowance (MAWA) for existing landscapes. The Maximum Applied Water Allowance (MAWA) for existing landscapes shall be calculated as:

MAWA = (.70) (ETo) (LA) (.62/748) unless landscape plans were submitted and approved under a more water conserving ordinance.

C. Water Waste Prevention

1. Water Waste Prevention. Water waste resulting from inefficient landscape irrigation including run-off, low-head drainage, overspray, or other similar conditions where water flows onto adjacent property, nonirrigated areas, walks, roadways, or structures is prohibited. All broken heads and pipes must be repaired within 72 hours of notification. Penalties for violation of these prohibitions are established in Section 0.00.070.

2. Water service to customers who cause water waste may have their service discontinued.

3. Customers who appear to be exceeding the Maximum Applied Water Allowance (MAWA) may be interviewed by the District Water Management Department to verify customer water usage to ensure compliance.

D. Soil Management Report

1. In order to reduce runoff and encourage healthy plant growth, a soil management report shall be completed by the project applicant or designee as follows:

a. Submit soil samples to a laboratory for analysis and recommendation.

b. Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.

c. The soil analysis may include:

i. Determination of soil texture, indicating the available water holding capacity.

ii. An approximate soil infiltration rate (either) measured or derived from soil texture/infiltration rate tables. A range of infiltration rates shall be noted where appropriate.

iii. Measure of pH, total soluble salts and percent organic matter.

d. The project applicant or designee shall comply with one of the following:

i. If significant mass grading is not planned, the soil analysis report shall be submitted to the local agency as part of the Landscape Documentation Package; or

ii. If significant mass grading is planned, the soil analysis report shall be submitted to the local agency as part of the Certificate of Completion.

e. The soil analysis report shall be made available, in a timely manner, to the professionals preparing the landscape design plans

and the irrigation plans to make any necessary adjustments to the design plans.

f. The project applicant or designee shall submit documentation verifying implementation of soil analysis report recommendations to the local agency with the Certificate of Completion.

E. Developer-Provided Documentation

1. The developer/applicant/designee shall provide an approved copy of the Landscape Documentation Package and the following information for the homeowner or irrigation system operator. The package/information shall include a set of drawings, a recommended monthly irrigation schedule, and a recommended irrigation system maintenance schedule as described in Section 0.00.040G.

2. Irrigation Schedules. For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water to maintain plant health. Irrigation schedules shall meet the following criteria:

a. An annual irrigation program with monthly irrigation schedules shall be required for the plant establishment period, for the established landscape, and for any temporarily irrigated areas. The irrigation schedule shall:

i. Include run time (in minutes per cycle), suggested number of cycles per day, and frequency of irrigation for each station.

ii. Provide the amount of applied water (in hundred cubic feet) recommended on a monthly and annual basis.

iii. Whenever possible, incorporate the use of evapotranspiration data, such as those from the California Irrigation Management Information System (CIMIS) weather stations, to apply the appropriate levels of water for different climates.

iv. Whenever possible, be scheduled between 8:00 p.m. and 10:00 a.m. to avoid irrigating during times of high wind or high temperature.

G. Maintenance Schedules

A regular maintenance schedule satisfying the following conditions shall be submitted as part of the Landscape Documentation Package:

1. Landscapes shall be maintained to ensure water efficiency. A regular maintenance schedule shall include but not be limited to checking, adjusting, cleaning and repairing equipment; resetting the automatic controller, aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning; and weeding in all landscaped areas.

2. Repair of irrigation equipment shall be done with the originally specified materials or their approved equal.

3. A project applicant is encouraged to implement sustainable or environmentally-friendly practices for the overall landscape maintenance.

H. Certificate of Completion

1. The Certificate of Completion (Appendix E) shall include the following:
   a. Submittal and Approval Dates of the Landscape Documentation Package and Submittal Date of the Water Efficient Landscape Worksheet
   b. Project Name
   c. Project Address and Location
   d. Applicant Name, Telephone and Mailing Address
   e. Property Owners Name, Telephone, and Mailing Address
2. Certification by either the signer of the landscape design plan, the signer of the irrigation design plan, or the licensed landscape contractor that the landscape project has been installed per the approved Landscape Documentation Package.
3. Irrigation scheduling parameters used to set the controller.
4. Landscape and irrigation maintenance schedule.
5. Irrigation audit report.
6. Soil analysis report and documentation verifying implementation of soil report recommendations.
7. The project applicant shall:
   a. Submit the signed Certificate of Completion to both the local agency and the District for review and approval.
   b. Ensure that copies of the Certificate of Completion with all approvals are submitted to the local agency, the District, and property owner or his or her designee.
8. The District and the local agency shall:
   a. Receive the signed Certificate of Completion from the project applicant.
   b. Approve or deny the Certificate of Completion. If the Certificate of Completion is denied, the local agency shall provide information to the project applicant regarding reapplication, appeal or other assistance.

I. Stormwater Management

1. Stormwater management practices minimize runoff and increase infiltration which recharges groundwater and improves water quality. Implementing stormwater best management practices into the landscape and grading design plans to minimize runoff and to increase on-site retention and infiltration are encouraged.

2. Project applicants shall refer to the District, the local agency, and/or Regional Water Quality Control Board for information on any applicable stormwater ordinances and stormwater management plans.

3. Rain gardens and other landscape features that increase rain water capture and infiltration are recommended.

J. Public Education

1. Public education is a critical component to promote the efficient use of water in landscapes. The use of appropriate principles of design, installation, management and maintenance that save water is encouraged in the community.

2. The District and the local agency shall provide information to owners of new, single family residential homes regarding the design, installation, management and maintenance of water efficient landscapes.

0.00.050 Review and Program Monitoring Fees

A. Review and Program Monitoring fees are deemed necessary to review Landscape Documentation Packages and monitor landscape irrigation audits and shall be imposed on the subject applicant, property owner or designee.

B. A Landscape Documentation Package review fee will be due at the time of initial project application submission to the District.

C. The Board of Directors, by resolution, shall establish the amount of the above fees in accordance with applicable law.

0.00.060 Appeals

A. Appeal to General Manager-Chief Engineer. An applicant, property owner or designee of any applicable project may appeal decisions made by the Water Management Department or Service Director other than imposition of penalties (see Sections 0.00.070 – 0.00.090 regarding imposition of penalties) to the General Manager-Chief Engineer, in writing, within fifteen (15) days of notification of decision. The General Manager-Chief Engineer's decision shall become final on the fifteenth (15^{th}) day following service of written notification of said decision unless a timely appeal is filed pursuant to 0.00.060 B.

B. Appeal to Board of Directors. An applicant, property owner or designee of any applicable project may appeal decisions made by the General Manager-Chief Engineer pursuant to Section 0.00.060 A. to the Board of Directors. Said appeal must be written and submitted to the Secretary of the Board of Directors within fifteen (15) days of the date of notification of the General Manager-Chief Engineer's decision. The Board of Directors' decision shall be final upon its adoption.

0.00.070 Penalties

A. Violation of any part of Ordinance No. 1302.1 may result in any or all of the following penalties:

1. Monetary. See Appendix F for schedule of monetary penalties.

2. Termination of Service.

B. Notice. The District shall issue a written notice of imposition of penalty. The notice shall set forth penalty imposed and the reason for imposition of it. The notice shall be served on the customer by registered or certified mail and shall advise that the customer may request review of the imposition of penalty by filing a written request for a hearing pursuant to the provision of Section 0.00.080.

0.00.080 Hearing Regarding Penalties

A. Request for Hearing. Customers who have received notice of imposition of penalty may make a written request for a hearing. The District must receive the request for hearing no later than fifteen (15) days from the date of the notice of imposition of penalty. The request for hearing shall set forth, in detail, all facts supporting the request. Upon District's receipt of a timely request for a hearing, imposition of penalty shall be stayed until the Statement of Decision after hearing becomes final, or, if the Statement of Decision is timely appealed, the Board of Directors' order on appeal is adopted.

B. Notice of Hearing. Within ten (10) days of the District's receipt of the request for hearing, the District shall provide written notice to the customer of the date, time and place of the hearing. The hearing date shall be within thirty (30) days of the mailing of the notice of hearing, unless the parties agree, in writing, to a later date.

C. Hearing. The General Manager-Chief Engineer, or his designee, shall act as the Hearing Officer. At the hearing, the customer shall have an opportunity to respond to the allegations set forth in the notice of imposition of penalty by producing written and/or oral evidence.

D. Statement of Decision. Within ten (10) days following the hearing, the Hearing Officer shall prepare a written Statement of Decision, which shall set forth the facts upon which the decision is based. The Statement of Decision shall be served by personal delivery or registered or certified mail on the customer. The Statement of Decision shall become final on the sixteenth (16^{th}) day after service on the customer unless a request for appeal is timely filed with the Board of Directors pursuant to Section 0.00.090.

0.00.090 Appeal of Penalties

A. Request for Appeal. A customer may appeal a Statement of Decision by filing a written request for appeal with the Board of Directors before the date the Statement of Decision becomes final, i.e., no later than the fifteenth (15^{th}) day following service of the Statement of Decision on the customer. The request for appeal shall set forth, in detail, all the issues in dispute and all facts supporting the request.

B. Notice of Appeal Hearing. No later than thirty (30) days after receipt of the request for appeal, the Board of Directors shall set the matter for a hearing. Written notice of said hearing of appeal shall be served on the appellant by personal delivery or registered or certified mail. The hearing date shall be a date within thirty (30) days of service of the notice of hearing of appeal, unless the parties agree, in writing, to a later date. If the Board of Directors does not hear the appeal within the required time due to acts or omissions of the appellant, the Statement of Decision shall become final on the thirty-first (31^{st}) day after service of notice of hearing of appeal on the customer.

C. Determination and Order on Appeal. After the hearing of appeal, the Board of Directors shall issue an order affirming, modifying or reversing the General Manager-Chief Engineer's decision. The Board of Directors shall set forth its Determination and Order, in writing, and shall serve the Determination and Order to the customer by personal delivery or registered or certified mail within thirty (30) days following the hearing. The Determination and Order of the Board of Directors shall be final upon its adoption.

APPENDIX A

Landscape Documentation Package Checklist

Project Site: _____ Tract or Parcel Number: _____

Project Assessor's Parcel Number (APN): _____

Project Location: _____

Landscape Architect/Irrigation Designer/Contractor and Name and Contact Information: _____

Included in this Landscape Documentation Package are: (Check to indicate completion)

____ 1. Water Efficient Landscape Worksheet (Appendix B)
WATER BUDGET CALCULATIONS (Appendix D)

____ 2. Maximum Applied Water Allowance (MAWA):

Conventional Landscape: _____ 100 cubic feet/year
+ Recreational Turf grass Landscape: _____ 100 cubic feet/year (if applicable)
Maximum Applied Water Allowance: _____ 100 cubic feet/year

____ 3. Estimated Total Water Use by Hydrozone:
Turf grass Hydrozones: _____ 100 cubic feet/year
Recreational Turf grass Hydrozones: _____ 100 cubic feet/year
Low Plant Hydrozones: _____ 100 cubic feet/year
Medium Plant Hydrozones: _____ 100 cubic feet/year
High Plant Hydrozones: _____ 100 cubic feet/year
Water Features: _____ 100 cubic feet/year
Other _____: _____ 100 cubic feet/year
Estimated Total Water Use: _____ 100 cubic feet/year

____ 4. ETWU < MAWA
PLAN SETS

____ 5. Landscape Design Plan

____ 6. Irrigation Design Plan

____ 7. Grading Design Plan

____ 8. Soil Management Report

I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package.

Date: _____ Applicant: _____

APPENDIX B

SAMPLE WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the project applicant and is a required element of the Landscape Documentation Package.

PROJECT INFORMATION

Project Name		
Name of Project Applicant	Telephone No.	
	Fax No.	
Title	Email Address	
Company	Street Address	
City	State	Zip Code

SECTION A. HYDROZONE INFORMATION TABLE

Please complete the hydrozone table(s) for each irrigation point of connection. Use as many tables as necessary to provide the square footage of landscape area per valve.

Irrigation Point of Connection (P.O.C.) No. _____					
Controller No.	**Valve Circuit No.**	**Plant Types(s)***	**Irrigation Method****	**Area (Sq. Ft.)**	**% of Landscape Area**
Total					**100%**

***Plant Type**
Cst = Cool Season Turf
WST = Warm Season Turf
HW = High Water Use Plants
MW = Moderate Water Use Plants
LW = Low Water Use Plants

****Irrigation Method**
MS = Microspray
S = Spray
R = Rotor
B = Bubbler
D = Drip
O = Other

APPENDIX C

ET PROFILE AND PLANT FACTORS

	Jan>	<Feb	Mar	Apr>	<May	Jun	Jul	Aug	Sep>	<Oct	Nov	Dec	Totals	Totals
Monthly ETo (inches)	.....												Inches	Feet
Zone No. 1-Coves	1.71	2.84	4.00	5.70	6.84	7.98	7.98	6.27	5.70	4.00	2.28	1.71	57.01	4.75
Zone No. 2-COD	2.00	3.36	4.68	6.68	8.02	9.35	9.35	7.35	6.68	4.68	2.67	2.00	66.82	5.57
Zone No. 3-EMC	2.25	3.75	5.25	7.50	9.00	10.50	10.50	8.25	7.50	5.25	3.00	2.25	75.00	6.25
Zone No. 4-TH	2.64	4.40	6.16	8.80	10.56	12.32	12.32	9.68	8.80	6.16	3.52	2.64	88.00	7.33
Zone No. 5-I10	2.82	4.68	6.57	9.39	11.27	13.15	13.15	10.33	9.39	6.57	3.76	2.82	93.90	7.83
% Annual ETo per Month	3	5	7	10	12	14	14	11	10	7	4	3		

Zone No. 1 = Most protected cove areas with minimum wind, longest mountain shadows, higher rainfall, Palm Can. to La Q. Cove

Zone No. 2 = Lower cove areas, light winds, long afternoon shadows from mountains, typ. Hwy 111 from Cathedral City to La Quinta

Zone No. 3, 4 = Moderate winds, minimum mountain shadows, some blowing sand and dust; 3) Upper valley predominate wind from northwest, 4) Lower valley has lower elevation and more summer southeast wind

Zone No.5 = Frequent strong northwest winds, heavy blowing sand and dust, typical of I-10 corridor to Washington Street

Maximum Applied Water Allowance (CCF) = ETo (in inches for season) X .50 X Area (in square feet) X .62 / 748

ET Adjustment Factor = .38 Plant Factor / .75 Irrigation System Efficiency = 0.50

.62 = gallons per square foot per inch deep

CCF = 100 cubic feet = 1 billing unit = 748 gallons

Estimated Total Water Use (CCF) = $\frac{\text{ETo (in inches for season) X Plant Factor X Area (in square feet) X 0.62 / 748}}{\text{Irrigation System Efficiency}}$

Target Irrigation Efficiency = .80 Turf Rotor

= .75 Sprayheads

= .90 Drip/Micro/PC Bubbler

Emitters per Plant Estimate = $\frac{\text{Area Of Plant In Square Feet X \% Of Area To Be Wet}}{\text{Square Feet Wet Per Emitter}}$

Soil Type	(inches water holding capacity per inch of depth)		Emitter Wetted Area Square Feet Each	Emitter Spacing
Very Coarse Sand	0.05	Typical of high on an alluvial fan	.75 to 1.75	10"
Blow Sand	0.07	Typical of mid valley ridge area	1.75 to 3	18"
Fine Sand	0.10	Typical of low on alluvial fans from Rancho Mirage to Indian Wells	3 to 5	3'
Very Fine Silty Sand	0.15	Typical of lowest alluvial fans from La Quinta, Indio, & Coachella	5 to 10	4'
Silt Loam	0.17	Typical of lower valley agricultural areas located below sea level	10 to 28	4.5'

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
Plant Factor (Kc)													
Cool Turf 100%**	1.00	1.00	1.00	NR	NR	NR	NR	NR	NR	1.00	1.00	1.00	1.00
Warm Turf 100%**	NR	NR	NR	0.80	0.80	0.80	0.80	0.80	0.80	NR	NR	NR	0.80
Cool Turf 80%*	0.80	0.80	0.80	0.70	NR	NR	NR	NR	NR	0.80	0.80	0.80	0.79
Warm Turf 60%*	NR	NR	NR	0.60	0.60	0.60	0.60	0.60	0.60	0.60	NR	NR	0.60
Combined TurfSav*	0.80	0.80	0.80	0.70	0.60	0.60	0.60	0.60	0.60	0.70	0.80	0.80	0.70
Tree/Shrub/GC L*	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Tree/Shrub/GC L**	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Tree/Shrub/GC M*	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Tree/Shrub/GC M**	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Tree/Shrub/GC H*	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Tree/Shrub/GC H**	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Open WaterFactor	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10

(Approx. Evaporation from a still water surface, higher factor (1.2) with falls and fountains.) Reference; WUCOLS III

CombinedTurfSav = Combination of cool and warm season turf according to normal management in the Coachella Valley

* = Normal irrigation level to maintain established planting

** = Normal irrigation level during plant establishment

GC = Groundcover

L = Low water use Kc .1 to .3

M = Moderate water use Kc .4 to .6

H = High water use Kc .7 to .9

NR = Not Recommended

APPENDIX D

SAMPLE CALCULATION/ESTIMATED TOTAL WATER USE (by Hydrozone)

Using the following formula from Appendix C:

ETWU = (ETo) x (PF) x (LA) x (.62)] / (748) / (IE)
ETWU = Estimated Water Use (hundred cubic feet)
ETo = Reference Evapotranspiration (inches) [for period of estimate]
PF = Plant Factor (Kc)
LA = Landscaped Area (in square feet)
.62 = Conversion Factor (to gallons per square foot)
748 = Conversion Factor (to hundred cubic feet)
IE = Irrigation System Efficiency

Project Site Example: Total landscaped area 60,000 square feet in Palm Desert near the intersection of Cook Street and Country Club Drive in Zone No. 3 (75.0" Annual ETo).

- 16,500 square feet of turf grass overseeded with rye grass in winter, irrigated with low angle rotor sprinklers.
- 28,200 square feet of "low" desert native plantings on drip irrigation.
- 15,300 square feet of "moderate" water using plantings on drip irrigation.

See Appendix C for formula factors. ETo is totaled for season. Turf grass plant factors are the average for the season and tree/shrub/groundcover plant factors are considered constant annually.

Plant Factors

Turf Grass	Low Native Plants	Moderate Shrubs
0.70	0.20	0.50

ETWU = [(ETo) x (PF) x (LA) x (.62) / (748)] / (IE) = CCF

Overseeded Turf Grass: Season = 75.0 x .7 x 16,500 x .62 / 748 /.80 = 897 CCF
Seasonal Turf ETWU = 897 CCF

"Low" Native Plants: Annual = 75.0 x .2 x 28,200 x .62 / 748 / .90 = 389 CCF
"Low" Native ETWU = 389 CCF

"Moderate" Shrubs and Ground Cover: Annual = 75.0 x .5 x 15,300 x .62 / 748 / .90 = 528 CCF
"Moderate" ETWU = 528 CCF
Project Total ETWU = 1,814 CCF

APPENDIX D

SAMPLE CALCULATION

Maximum Applied Water Allowance (MAWA)

Using the following formula:

MAWA = [(ETo) x (0.50) x (LA) x (0.62)] / (748)
MAWA = Maximum Applied Water Allowance (CCF or hundred cubic feet)
ETo = Reference Evapotranspiration (inches per year)
0.50 = ET adjustment factor = .38 PF / .75 IE
LA = Landscaped Area (square feet)
0.62 = Conversion Factor (to gallons per square foot)
748 = Conversion Factor (to hundred cubic feet)

Using the project for the Estimated Total Water Use example:

Landscaped area of 60,000 square feet in Palm Desert near the intersection of Cook Street and Country Club Drive in Zone No. 3 (75.0" Annual ETo).

MAWA = 75.0 (ETo) x (0.50) x (LA) x (0.62) / (748)
= [75.0(.50) (60,000) (0.62)] / (748)
MAWA = 1,864 CCF

ETWU total of 1,814 CCF is < the MAWA of 1,865 CCF

APPENDIX E

SAMPLE CERTIFICATE OF COMPLETION

Project Name:_____

Parcel Map or Tract No.:_____ APN:_____

Project Location:_____

Maximum Applied Water Allowance (MAWA):_____ (in hundred cubic feet)

Estimated Annual Total Applied Water Use:_____ (in hundred cubic feet)

Preliminary project documentation submitted (initials indicate submittal)

_____1. Grading design plan

_____2. Landscape design plan

_____3. Irrigation design plan

_____4. Irrigation schedules

Post Installation inspection (initials indicate completion)

_____1. Plants installed as specified

_____2. Irrigation System installed as designed

Comments:_____

_____

_____

A copy of this certification has been provided to the owner/developer, the local agency and to the District. I certify the work has been completed in accordance with District Ordinance 1302.1, Landscape and Irrigation System Design Criteria.

_____

Landscape Architect/Designee Signature License No. Date

1. Date the Landscape Documentation Package was submitted to the Local Agency: _____

2. Date the Landscape Documentation Package was approved by the Local Agency: _____

3. Date a copy of the Water Efficient Landscape Worksheet (including the Water Budget

Calculation) was submitted to the District: _____

APPENDIX F

SCHEDULE OF MONETARY PENALTIES

1. $250 upon receipt of first written Notice of Non-compliance.
2. An additional $250 (for a total of $500) upon receipt of the second Notice of Non-compliance issued thirty (30) days after the receipt of the first Notice of Non-compliance.

APPENDIX G

Recycled Water Checklist

1. Obtain coverage under the general waste discharge requirements for discharge of recycled water for golf course and landscape irrigation Order No. 97-700 or equivalent version of this permit from the California Regional Water Quality Control Board of the Colorado River Basin Region (Regional Board) by submitting a Notice of Intent to the Regional Board and paying application/annual fees.

2. Enter into an agreement with CVWD for receiving nonpotable water for golf course and landscape irrigation. The agreement between discharger and CVWD must be provided to the Regional Board within 90 days of receiving coverage under the permit referenced above in item #1.

3. Landscape and Irrigation system plans must meet regulatory requirements of Order 97-700 or equivalent version of this permit, the State Board's Recycled Water Policy, and California Department of Public Health (CDPH) Statutes and Regulations related to recycled water, such as the Health and Safety Code, the Water Code, Title 17 and Title 22 Code of Regulations. These requirements include but are not limited to the following:

    a. An air-gap separation, a vertically measured distance between supply pipe and receiving vessel must be present and meet the required distance for the size of the supply pipe.

    b. The appropriate type of backflow protection is to be installed for auxiliary water supplies and recycled water.

    c. The required separation distance between recycled water lines and impoundments and application area; and domestic wells and water lines is maintained and approved by CDPH.

    d. The design of the irrigation system shall not cause the occurrence of ponding anywhere in the reuse area, and overspray or mist around dwellings, outdoor eating areas and/or food handling facilities is eliminated. Irrigation runoff shall be confined to the recycled water use area unless authorized by CDPH.

    e. Drinking fountains will be protected from spray, mist or runoff by use of a drinking fountain cover or shelter approved for this purpose.

    f. Hose bibs are not allowed on portions of the recycled water systems accessible to the general public. Quick couplers that differ from those used on the potable water system are allowed.

g. Signs are posted in areas that the public has access to that are no less than 4 inches high by 8 inches wide and include "RECYCLED WATER—DO NOT DRINK" and the international do not drink symbol as indicated in CCR Title 22 Division 4 Chapter 3 Article 4 Section as figure 60310-A. The number and locations of these signs will be approved by CDPH.

h. The recycled water irrigation system is able to be operated during a time of day that will minimize contact with the public.

i. All pipes installed above or below ground on or after June 1, 1993 designed to carry recycled water are to be colored purple or wrapped in purple tape.

j. Golf course pump houses utilizing recycled water are appropriately tagged with warning signs with proper wording of sufficient size to warn the public that recycled water is not safe for drinking. All new and replacement at grade valve boxes shall be purple or appropriately tagged for water reuse purposes. All other appurtenances and equipment used for recycled water must be identified as used for recycled water distribution per the recommendations of CDPH.

4. Prior to construction, landscape and irrigation system plans must be submitted for approval to the following agencies (please allow for a 30 day comment period):
    a. Regional Board Water Quality Control Board,
    b. California Department of Public Health, and
    c. CVWD.

5. Upon approval from the Regional Board and CDPH, the discharger shall provide notification that recycled water will be used for irrigation to people who reside adjacent to the recycled water use area and to golf course patrons though a method approved by the Regional Board's Executive Officer and CDPH at least 30 days prior to use of recycled water.

6. A Use Site Supervisor must be designated and his or her name and contact information must be provided in writing to CVWD and the Regional Board 30 days prior to discharge of recycled water. This person will be available to be contacted and receive periodic education and training on the uses and restrictions of recycled water.

7. A cross-connection control test will be performed on the irrigation and domestic systems prior to the discharge of recycled water and at least once every four years thereafter. This test is to be conducted by an American Water Works Association (AWWA) certified cross-connection control program specialist or equivalent. The results of these tests are to be submitted to CVWD, CDPH, and the Regional Board within 30 days of test completion.

8. "As-Built" plans and specifications showing the domestic and irrigation systems, location of all potable and recycled water connections and location of all on-site and nearby wells to CDPH, as per the CDPH requested time frame.

APPENDIX G

UWMP CHECKLIST

Table I-2
Urban Water Management Plan Checklist, organized by Subject

No.	UWMP Requirement[1]	Calif. Water Code Reference	Additional Clarification	UWMP Location
PLAN PREPARATION				
4	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)		Section 1.3
6	Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Any city or county receiving the notice may be consulted and provide comments.	10621(b)		Section 1.5
7	Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq.	10621(c)		Section 1.5
54	Provide supporting documentation that the urban water management plan has been or will be provided to any city or county within which it provides water, no later than 60 days after the submission of this urban water management plan.	10635(b)		Section 1.5
55	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642		Section 1.3
56	Provide supporting documentation that the urban water supplier made the plan available for public inspection and held a public hearing about the plan. For public agencies, the hearing notice is to be provided pursuant to Section 6066 of the Government Code. The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. Privately-owned water suppliers shall provide an equivalent notice within its service area.	10642		Section 1.5
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642		Section 1.5, Appendix D
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		Section 1.5
59	Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to the California State Library and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. This also includes amendments or changes.	10644(a)		Section 1.5
60	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours.	10645		Section 1.5

Table I-2
Urban Water Management Plan Checklist, organized by Subject

No.	UWMP Requirement[1]	Calif. Water Code Reference	Additional Clarification	UWMP Location
SYSTEM DESCRIPTION				
8	Describe the water supplier service area.	10631(a)		Section 2.1
9	Describe the climate and other demographic factors of the service area of the supplier.	10631(a)		Section 2.1.2, Section 2.2.1
10	Indicate the current population of the service area.	10631(a)	Provide the most recent population data possible. Use the method described in "Baseline Daily Per Capita Water Use." See Section M.	Section 2.2
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections.	10631(a)	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	Section 2.2
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		Section 2.2.1
SYSTEM DEMANDS				
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)		Section 3.2
2	Wholesalers: Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. Retailers: Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	Retailers and wholesalers have slightly different requirements.	Section 3.3
3	Report progress in meeting urban water use targets using the standardized form.	10608.40		N/A
25	Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (A) single-family residential, (B) multifamily, (C) commercial, (D) industrial, (E) institutional and governmental, (F) landscape, (G) sales to other agencies, (H) saline water intrusion barriers, groundwater recharge, conjunctive use, and (I) agriculture.	10631(e)(1)	Consider 'past' to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	Section 3.1.1, Section 3.1.2
33	Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types.	10631(k)	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	Section 3.1.2
34	Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)		Section 3.1.2

Table I-2
Urban Water Management Plan Checklist, organized by Subject

No.	UWMP Requirement[1]	Calif. Water Code Reference	Additional Clarification	UWMP Location
SYSTEM SUPPLIES				
13	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.	10631(b)	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided.	Section 4.2
14	Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate "not applicable" in lines 15 through 21 under the UWMP location column.	10631(b)	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	Section 4.2
15	Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)		Section 4.2
16	Describe the groundwater basin.	10631(b)(2)		Section 4.2
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)		Section 4.2
18	Describe the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. If the basin is not adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		N/A
19	For groundwater basins that are not adjudicated, provide information as to whether DWR has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition. If the basin is adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		Section 4.2
20	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years.	10631(b)(3)		Section 4.2
21	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	10631(b)(4)	Provide projections for 2015, 2020, 2025, and 2030.	Section 3.1.2
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		Section 4.5
30	Include a detailed description of all water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project.	10631(h)		Section 4.8

Table I-2
Urban Water Management Plan Checklist, organized by Subject

No.	UWMP Requirement[1]	Calif. Water Code Reference	Additional Clarification	UWMP Location
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		Section 4.6
44	Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	10633		Section 4.7.1, Section 4.7.5
45	Describe the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	10633(a)		Section 4.7.2
46	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)		Section 4.7.2
47	Describe the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)		Section 4.7.3
48	Describe and quantify the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)		Section 4.7.5
49	The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	10633(e)		Section 4.7.5
50	Describe the actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)		Section 4.7.6
51	Provide a plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)		Section 4.7.7

Table I-2
Urban Water Management Plan Checklist, organized by Subject

No.	UWMP Requirement[1]	Calif. Water Code Reference	Additional Clarification	UWMP Location
WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING[2]				
5	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	10620(f)		Section
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years.	10631(c)(1)		Section 5.4
23	For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	10631(c)(2)		Section 5.4
35	Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50-percent water supply reduction, and an outline of specific water supply conditions at each stage.	10632(a)		Section 5.3.2
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	10632(b)		Section 5.1, Section 5.3.3
37	Identify actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.	10632(c)		Section 5.3.4
38	Identify additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)		Section 5.3.5
39	Specify consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.	10632(e)		Section 5.3.5
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		Section 5.3.5
41	Provide an analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.	10632(g)		Section 5.3.6
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		Section 5.3.7
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		Section 5.3.8
52	Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability.	10634	For years 2010, 2015, 2020, 2025, and 2030	Section 4.2.2
53	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)		Section 5.1, Section 5.4

Table I-2
Urban Water Management Plan Checklist, organized by Subject

No.	UWMP Requirement[1]	Calif. Water Code Reference	Additional Clarification	UWMP Location
DEMAND MANAGEMENT MEASURES				
26	Describe how each water demand management measures is being implemented or scheduled for implementation. Use the list provided.	10631(f)(1)	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	Section 6.3
27	Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.	10631(f)(3)		Section 6.2
28	Provide an estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the ability to further reduce demand.	10631(f)(4)		Section 6.3
29	Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work.	10631(g)	See 10631(g) for additional wording.	Section 6.3
32	Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	N/A, Section 6.3 describes each and City implementation

[1] The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact legislative wording prior to submitting its UWMP.

[2] The Subject classification is provided for clarification only. It is aligned with the organization presented in Part I of this guidebook. A water supplier is free to address the UWMP Requirement anywhere with its UWMP, but is urged to provide clarification to DWR to facilitate review.