Vista Del Agua
Water Supply Assessment

FINAL

City of Coachella

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ACF	Annual Consumption Factor
AF	Acre Feet
AFY	Acre Feet per Year
APA	Administrative Procedure Act
BDCP	Bay Delta Conservation Plan
BIOps	Biological Opinions
BOR	Bureau of Reclamation
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CIP	Capital Improvement Plan
CR	Colorado River
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
CVAG	Coachella Valley Association of Governments
CVP	Central Valley Project
CVRWMG	Coachella Valley Regional Water Management Group
CVSC	Coachella Valley Stormwater Channel
CVWD	Coachella Valley Water District
CVWMP	Coachella Valley Water Management Plan
CWA	Coachella Water Authority
CWC	California Water Code
DFW	Department of Fish and Wildlife
DMM	Demand Management Measures
DWR	Department of Water Resources
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FWS	Fish and Wildlife Service
GPCD	Gallons per Capita per Day
GPD	Gallons per Day
GPM	Gallons per Minute
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HDR	High Density Residential
ID	Improvement District
IID	Imperial Irrigation District
IRWMP	Integrated Regional Water Management Plan
IWA	Indio Water Authority
LAFCO	Local Agency Formation Commission
LDR	Low Density Residential
MCL	Maximum Contaminant Limit
MDR	Medium Density Residential
MG	Million Gallons
MGD	Million Gallons per Day

MOU	Memorandum of Understanding
MU	Mixed Use
MVP	Mid-Valley Pipeline
MWD	Metropolitan Water District
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
PEIR	Programmatic Environmental Impact Report
PPR	Present Perfected Rights
PVID	Palo Verde Irrigation District
PWS	Public Water System
QSA	Quantification Settlement Agreement
RAC	Replenishment Assessment Charge
RCTLMA	Riverside County Transportation and Land Management Agency
RO	Reverse Osmosis
RPA	Reasonable and Prudent Alternative
RUWMP	Regional Urban Water Management Plan
RV	Recreational Vehicle
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SCAG	Southern California Association of Governments
SCH	State Clearinghouse
SDCWA	San Diego County Water Authority
SGMA	Sustainable Groundwater Management Act
SOI	Sphere of Influence
SPEIR	Subsequent Programmatic Environment Impact Report
SWP	State Water Project
SWRCB	State Water Resources Control Board
UWMP	Urban Water Management Plan
VLDR	Very Low Density Residential
VSD	Valley Sanitary District
WRP	Water Reclamation Plant
WSA	Water Supply Assessment
YCWA	Yuba County Water Agency

SECTION 1
INTRODUCTION

1.1 Introduction

In 2002, California Water Code (CWC) Sections 10910 through 10915 were amended by the enactment of Senate Bill 610 (SB 610) to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 provides that when a city or county determines that a "project" as defined in CWC Section 10912 is subject to review under the California Environmental Quality Act (CEQA), the city or county must identify the water supply agency that will provide retail water service to the project and request that water supplier to prepare a Water Supply Assessment (WSA).[1] The proposed Vista Del Agua development project (referred to herein as the "Project" or "Vista Del Agua") includes 1,640 dwelling units (mixture of single and multi-family residential units), 16.8 acres of mixed-use development with up to 281,400 square feet of retail/commercial floor area, 8.3 acres of neighborhood commercial, 13.8 acres of park land, and 9.5 acres of open trails; and thus qualifies as a "project" under SB 610. Generally, a WSA must evaluate whether the total projected water supplies available to the water supplier during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the water supplier's existing and planned future uses, including agricultural and manufacturing uses.

This WSA has been prepared in accordance with the requirements of SB 610. Accordingly, the information, analyses, and conclusions contained herein utilize and rely upon, in part, the information, analyses and conclusions set forth in other water supply planning documents that have been prepared and duly adopted by agencies such as the City of Coachella (City), the Coachella Valley Water District (CVWD), and the California Department of Water Resources (DWR). Those documents include, without limitation, the City's 2015 Urban Water Management Plan (City 2015 UWMP), CVWD's 2015 Urban Water Management Plan (CVWD 2015 UWMP), CVWD's 2010 Coachella Valley Water Management Plan Update (2010 CVWMP), the 2011 Subsequent Programmatic Environmental Impact Report for the 2010 CVWMP (2011 SPEIR), the 2014 Water Management Plan Status Report for

[1]For purposes of CWC Section 10912(a), a "project" includes any of the following: (1) a proposed residential development of more than 500 dwelling units; (2) a proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space; (3) a proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space; (4) a proposed hotel or motel, or both, having more than 500 rooms; (5) a proposed industrial, manufacturing, or processing plan, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area (provided; however, that until January 1, 2017, a photovoltaic or wind energy generation facility is not a "project" that requires a WSA if the facility would demand no more than 75 acre-feet of water annually); (6) a mixed-use project that includes one or more of the above-specified projects; or (7) a project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

the 2010 CVWMP (2014 Status Report), and the 2014 Coachella Valley Integrated Regional Water Management Plan (2014 IRWMP). Moreover, in relation to the exchange agreements (see **Section 4** below), the ability of the Metropolitan Water District of Southern California (MWD) to carry out its role is supported by MWD's water supply planning documents, including its 2015 Regional Urban Water Management Plan (MWD 2015 RUWMP) and 2015 Integrated Resources Plan.[2] The environmental review document being prepared pursuant to CEQA for the Vista Del Agua Project is a Programmatic Environmental Impact Report. The water supply analysis provided in this document pursuant to the WSA statute is intended to support that CEQA review.

1.2 Water Supplier

The City of Coachella Water Authority (CWA) was established in 1957 and is administered and managed by the Utilities General Manager under direct supervision of the City Manager. The City is responsible for providing water service to its residents, and will be the water supplier for the Vista Del Agua Project.

As a public water supplier in the Coachella Valley, the City and CWA maintain a close and cooperative relationship with CVWD. CVWD was formed in 1918 to protect and conserve local water sources. Since then, the district has grown into a multi-faceted agency that delivers irrigation and domestic water (including drinking water), collects and recycles wastewater, provides regional storm water protection, replenishes the groundwater basin, and promotes water conservation. CVWD is a special district established by the state legislature and governed by a five-member Board of Directors. While a large part of CVWD's history is in agricultural irrigation, today it meets the water-related needs of more than 107,000 homes and businesses across 1,000 square miles in various areas of service, including: domestic water; groundwater replenishment and imported water; wastewater treatment; recycled water; stormwater protection and flood control; agricultural irrigation and drainage, and water conservation. (Additional information regarding CVWD is provided in **Sections 1.4.2** through **1.4.4** below.)

In September 2009, CVWD and the City signed a Memorandum of Understanding (2009 MOU) to assist in ensuring a sufficient and reliable water supply for development projects within the City and its sphere of influence (SOI) in a manner consistent with CVWD's CVWMP as amended from time to time.[3] Under the terms of the 2009 MOU, various means are identified by which the City can provide for the supply of supplemental water to offset the demands associated with development projects approved by the City. For instance, under the 2009 MOU the City can participate in funding CVWD's acquisition of supplemental water supplies to offset demands associated with newly approved projects within the City's SOI.[4] In February 2013, CVWD and the City signed a Memorandum of Understanding (2013

[2]Copies of these documents are made part of the record in support of this WSA and are incorporated and included herein as Appendix A.
[3]A copy of the 2009 MOU between the City and CVWD is incorporated and included herein as Appendix B.
[4] See, e.g., CVWD 2010 CVWMP, p. 3-3.

MOU) regarding implementation of the 2009 MOU.[5] Among other things, the 2013 MOU further specifies the mechanism by which the City can finance and acquire supplemental water supplies from CVWD to meet the projected demands of new development projects, and establishes a process for preparing and adopting Water Supply Assessments and Written Verifications for such projects. As further set forth below, the 2013 MOU applies to the Vista Del Agua Project, and the supplemental water supplies referred to in the 2013 MOU have been considered by CVWD as part of the 2010 CVWMP Update and related 2011 SPEIR.

1.3 Purpose of Document

As mentioned above, this WSA is required under SB 610 because, among other features, the Project includes more than 500 residential dwelling units. Moreover, in accordance with SB 610 and applicable provisions of CEQA, the WSA will be included as part of the CEQA documentation being prepared for the Project. In the following sections, this WSA will evaluate whether the total projected water supplies available to the City during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with Vista Del Agua, in addition to the City's existing and planned future uses, including agricultural and manufacturing uses. Notably, the water demands associated with the Vista Del Agua Project have been accounted for and are part of the projected growth analyzed by CVWD in its recent 2015 UWMP and 2011 SPEIR analyses, which are further discussed below.

1.4 Existing Water Management Plans

In accordance with Water Code Section 19010(c)(1), the City has reviewed whether the projected water demand associated with the Project was included as part of the City's most recently adopted 2015 Urban Water Management Plan. The City's 2015 UWMP did not specifically reflect the demands associated with Vista Del Agua; however, the demand projections do account for growth for new development projects such as Vista Del Agua. In addition, the demands associated with the Project have been accounted for as part of CVWD's regional water supply planning efforts, which specifically include population projections within the City and the City's SOI through the year 2045 in accordance with the Riverside County Center for Demographic Research RCP 06 planning process.[6] Therefore, and as set forth herein, the projected water demands of Vista Del Agua have already been considered in preparing and adopting the City's 2015 UWMP and CVWD's 2010 CVWMP and 2011 SPEIR. These and other documents are described in more detail in the following sections.

1.4.1 City of Coachella 2015 Urban Water Management Plan

As indicated above, the City has completed its 2015 UWMP and the City's next UWMP is scheduled for mid-2021. Water Code Section 10910(c)(2) provides that if

[5]A copy of the 2013 MOU between the City and CVWD is incorporated and included herein as Appendix C.

[6] See 2010 CVWMP, pp. 3-4 to 3-5

demand associated with a proposed project is accounted for in the most recently adopted UWMP, the water supplier may incorporate information from the UWMP in preparing certain elements of a WSA for the project. The City's 2015 UWMP did not specifically reflect the demands associated with Vista Del Agua; however, the demand projections do account for growth for new development projects such as Vista Del Agua.

The two primary calculations required by SBx7-7 are (1) the Base Daily Per Capita Water Use Calculation (average gpcd used in past years), and (2) Compliance Water Use Targets (targets for gpcd in 2015 and 2020). The Base Daily Per Capita Water Use Calculation is based on gross water use by an agency in each year and can be based on a ten-year average ending no earlier than 2004 and no later than 2010, or a 15-year average if ten percent of 2008 demand was met by recycled water. An urban retail water supplier must then set a 2020 water use target and a 2015 interim water use target in terms of gpcd. SBx7-7 establishes four alternative methods for water agencies to use in calculating their Compliance Water Use Targets, as follows: (1) 80% of Base Daily Per Capita Use; (2) adherence to specified performance standards; (3) 95% of the applicable state hydrologic region target as set forth in the State's 20x2020 Water Conservation Plan; or (4) the provisional target method and procedures developed by DWR pursuant to SBx7-7.

In accordance with SBx7-7, the City will strictly manage its per capita water use throughout the year 2020 and beyond, and those management activities will substantially enhance the City's ability to ensure sufficient and reliable water supplies and accommodate long-term growth. As set forth in Section 3 below, the City's base daily per capita water use for purposes of SBx7-7 was calculated as 210 gpcd, and its 2015 and 2020 targets were established as 204 gpcd and 200 gpcd respectively. In addition to SBx7-7, the 2009 Comprehensive Water Package also included new laws that require increased monitoring of groundwater basins, the development of agricultural water management plans, and a stricter reporting regime for water diversions and uses in the Delta.

The City's 2015 actual per capita water use was 142 gallons per capita per day (GPCD), which exceeds both the 2015 Interim Water Use Target of 204 GPCD and the 2020 Water Use Target of 200 GPCD, as established in its 2010 UWMP. As such, the City has met the CWC requirements to be eligible for DWR administered water grants or loans.

The City's 2015 UWMP includes various water supply planning data, future projects, and basin management activities that are geared toward meeting the per capita water consumption reductions under SBx7-7. For example, the City is participating in a recycled water feasibility study spearheaded by the CVRWMG as part of the Coachella Valley IRWM Plan in plans to develop a recycled water system in the future. In addition, the City continues to evaluate the use of Canal Water as a source of substitution for drinking water supplies obtained from groundwater. Per CVWD Ordinance No. 1428, the City has the opportunity to receive canal water for additional potable water supply when available. The City also participates in groundwater recharge activities with CVWD through replenishment assessments,

and has implemented a variety of water use efficiency programs, including demand management measures and a Water Shortage Contingency Plan that can be executed by the City Council 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. The four stage approach to reducing demand ranges from a voluntary 10 percent reduction in water use to a mandatory 50 percent reduction.

The City of Coachella universally acknowledges and embraces the importance of water issues, and as such is managing 12 cost-effective demand management measures (DMMs). These DMMs include technologies and methodologies that have been sufficiently documented in multiple demonstration projects and result in more efficient water use and conservation (e.g., residential plumbing retrofits, system water audits, leak detection, and repair, large landscape conservation programs and incentives, and public information and school education programs).

The City of Coachella adopted a landscape ordinance for single family and multi - family residences and large landscape areas. The new ordinance encourages limited use of turn 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 rehabilitation landscaped sites. Further, the City continues its adoption and implementation of the Regional Landscape Water Conservation Ordinance as a response to the Water Conservation in Landscaping Act of 2006. The Regional Landscape Water Conservation 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. Additionally, the CWA offers three water conservation programs to its residents. These include the Turf Removal Rebate Program, the Smart Controller Rebate Program, and the Toilet Rebate Program.

As further discussed below, the City and CWA have recently implemented additional requirements to achieve extraordinary water conservation in response to (1) the Governor's Executive Order concerning statewide drought conditions and (2) the emergency water conservation regulations promulgated by the State Water Resources Control Board.

Further, the City understands the need to investigate future water projects to meet demands associated with projected growth. As indicated above and as further discussed in this analysis, the City is evaluating and will continue to evaluate various source substitution projects to reduce overall demands on native groundwater supplies, such as the use of treated canal water for municipal purposes. The City's Water Master Plan and Capital Improvement Program (CIP) will continue to be updated to identify and implement future projects as they become needed to serve new demands within the City.

1.4.2 Coachella Valley Water District 2015 Urban Water Management Plan

CVWD has also completed its 2015 UWMP in accordance with the UWMP Act. CVWD's next UWMP is scheduled for mid-2021. The 2015 UWMP shows that CVWD has instituted various planning efforts regarding water supply and infrastructure opportunities. As discussed throughout this analysis, a key component of CVWD's water management strategy is the acquisition of additional imported water supplies to augment existing resources. As further set forth in CVWD's 2015 CVWMP Update, CVWD may seek to acquire up to 50,000 acre-feet per year (AFY) of additional water supplies through either long-term leases or entitlement purchases from willing parties. CVWD may also pursue water transfers and exchanges, and has identified possible ways to develop new sources of water. CVWD also anticipates the future use of local desalinated water as part of its water supply portfolio, whereby CVWD could use treated agricultural drainage water for irrigation purposes. Such projects would either make additional potable supplies available for municipal purposes or help offset groundwater pumping in the basin.[7]

CVWD's 2015 UWMP identifies recycled water as another significant local resource that can be used to supplement the water supply of the Coachella Valley. Wastewater that is highly treated and disinfected can be reused for a variety of landscape irrigation and other purposes. Recycled water has been used for irrigation of golf courses and municipal landscaping in the Coachella Valley since 1968. It is expected that golf course irrigation will remain the largest use of recycled water in the future. Current and projected future uses of recycled water include irrigation of urban landscape and golf course lands. Recycled water use is limited by the lack of urban development in the east valley. As urbanization occurs in the future, a recycled water distribution system will be developed to serve recycled water for urban golf course irrigation and municipal irrigation.[8]

Further, CVWD and DWA operate groundwater recharge programs in the upper Whitewater River and Mission Creek subbasins. As part of the CVWMP, CVWD intends to significantly expand its groundwater recharge program in the Whitewater River subbasin. CVWD completed construction the Thomas E. Levy (Levy) Groundwater Replenishment Facility in the East Whitewater River Subbasin with a capacity to 40,000 AFY. CVWD is also conducting pilot recharge tests in the East Whitewater River subbasin at the Martinez Canyon Pilot Recharge Facility. CVWD is presently recharging approximately 32,500 AFY at this facility. CVWD completed construction of a pilot recharge facility and several monitoring wells in the Martinez Canyon alluvial fan in March 2005. This facility is designed to recharge approximately 3,000 AFY. According to the 2010 CVWMP (see further discussion below), CVWD plans to construct a full-scale facility at Martinez Canyon to recharge 20,000 AFY by 2025.[9]

As set forth throughout CVWD's planning documents, water demands in the Coachella Valley will continue to be met in a sustainable manner by using the

[7] CVWD 2015 UWMP, p.6-27.
[8] CVWD 2015 UWMP, p.6-26.
[9] CVWD 2015 UWMP, p. 3-4.

groundwater basin as a conjunctive use resource. In practice, that involves the use of groundwater wells to produce amounts that are continually supplemented and recharged with Colorado River, State Water Project, and local water supplies. As an overall water supply system, CVWD's service area (including the City and the Vista Del Agua Project) is uniquely insulated from drought conditions and is capable of ensuring sufficient and reliable water supplies to meet demand because of the large storage volume of the basin (about 25 million AF). As noted herein, CVWD is also planning ways to deliver treated Colorado River water directly to the urban distribution system, and untreated Colorado River water directly for landscape irrigation and other non-potable uses, both of which will further reduce the need to rely on the groundwater basin.[10]

As with the City, CVWD's water conservation efforts are a critical component of its water management strategy. CVWD has had a water conservation program since the 1960s and recognizes the importance of conserving water to reduce demand on the groundwater supply and decrease reliance on imported supplies. With the enactment of SBx7-7, CVWD's demand management measures (DMMs) have become even more comprehensive. As noted above, SBx7-7 establishes the goal of achieving a 20 percent reduction in statewide urban per capita water use by the year 2020. The interim goal of achieving a 10 percent reduction by 2015 has already been met. As a retail water supplier, CVWD complies with SBx7-7 by establishing and implementing per capita water use reduction targets, and by identifying present and future measures, programs, and policies to help achieve the water use reductions required by SBx7-7. Among various other actions, CVWD carries out the following DMMs:

- Water survey program for single-family and multi-family residential customers;
- Metering with commodity rates for all new connections and retrofit of existing connections program;
- Large landscape conservation programs and incentives program
- Public information program;
- School education program;
- Conservation pricing program;
- Water conservation program coordination and staffing support;
- Rebate programs such as landscape conversion, ultra-low-toilet replacement and high-efficiency washing machine rebate programs

While the City of Coachella and the Vista Del Agua Project are not within CVWD's retail service area, the foregoing discussion of CVWD's 2015 UWMP and the information below regarding the 2015 CVWMP are provided to illustrate the extraordinary water supply planning and demand management efforts that are undertaken by CVWD in its role as an urban water supplier.

1.4.3 2010 Coachella Valley Water Management Plan

[10] CVWD 2015 UWMP, p.6-1.

The 2010 CVWMP serves as a 35-year blueprint for wise water management and the basis for all CVWD's efforts to preserve the valley's groundwater resources. The basic goal of the CVWMP remains similar to that of previous WMPs: "to reliably meet current and future water demands in a cost-effective and sustainable manner." New factors 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 potential adverse environmental impacts.

The 2010 CVWMP calls for a multifaceted approach to water management and water conservation, including:

- Increased water conservation by all types of water users;
- Increased imported water supply from the Coachella Canal and State Water Project;
- Increased use of the imported supply and recycled water, instead of groundwater, for irrigation; and
- Expanded groundwater replenishment efforts, especially in the East Valley.

The 2010 CVWMP Update identifies several water conservation measures with the goal to reduce overall water consumption by 20 percent by 2020, and the goal to maintain this level of reduction through 2045. These measures include water efficient landscaping and irrigation controls, water efficient plumbing, tiered or seasonal water pricing, public information and education programs, alternative water supplies, water restrictive municipal development policies, appointing a CVWD conservation coordinator, and refining the maximum water allowance budgets for landscaped and recreational areas. The 2010 CVWMP Update shows reduced reliance on groundwater sources over the long term by utilizing more Colorado River water, SWP water and recycled water, by expanding source substitution, and through increased water conservation.[11]

The 2010 CVWMP Update emphasizes cooperation with municipalities, local water agencies, and tribes in regional planning and implementation. The following are among some of the recommended activities outlined in the update for the board of directors to consider over the next 35 years:[12]

[11]2010 CVWMP, pp. 6-3 to 6-13.
[12]Coachella Valley Water District, *2010 Coachella Valley Water Management Plan Update* (January 2012).

- Provide incentives and support to agricultural customers to conserve water, such as through converting from flood/sprinkler irrigation to more efficient micro-sprinkler/drip systems;
- Encourage existing golf courses to convert landscaping to meet the 2007 Landscape Ordinance, requiring no more than 4 acres of grass per hole and 10 acres of grass per practice area;
- Expand landscape conversion rebates for domestic customers to encourage less grass and more desert appropriate landscaping;
- Complete construction on subsequent phases of the Mid-Valley Pipeline system to provide a blend of recycled and Colorado River water to up to 50 golf courses in lieu of groundwater;
- Turn the pilot Martinez Canyon replenishment facility into a full-scale facility with a capacity of up to 40,000 acre-feet of replenishment annually;
- Implement East Valley source substitution projects such as expansion of the Canal water distribution system in the Oasis area to serve agricultural operations that are not currently served with Canal water, this system is expected to deliver about 27,000 AFY of Canal water to offset groundwater pumping.

The 2010 CVWMP Update shows that CVWD has many current and future programs that are designed to maximize the water resources available to the region, such as recharge of its Colorado River and SWP supplies, expanded use of recycled water, desalinated agricultural drain water, conversion of groundwater uses to Canal water and water conservation measures, including tiered water rates, landscaping ordinance, outreach and education. The 2010 CVWMP Update and CVWD's Replenishment Assessment Programs establish a comprehensive and managed effort to eliminate overuse of local groundwater while ensuring a sufficient and sustainable water supply to meet projected demands. These programs allow CVWD to maintain the groundwater basin as its primary urban water supply and to recharge the groundwater basin as its other supplies are available.

The 2010 CVWMP Update presented a number of recommended programs and features to enhance water supply development and reduce groundwater overdraft. The continuation and expansion of existing projects and programs is summarized below.[13]

- An agricultural conservation program including elements such as: training, system upgrades and retrofits, economic incentives, and regulatory programs that can achieve up to a 14 percent reduction in consumptive use by 2020.
- An urban conservation program including elements such as: installing automated meters, extending landscape ordinances, implementing water budget-based tiered water rates, and various rebate programs, all of which are aimed at achieving the State's requirement for a 20 percent reduction in per capita use by 2020.

[13] 2010 CVWMP Section 8.

- Continue and expand the golf course conservation program that is expected to achieve a savings of 11,600 AFY by 2045.
- Additional water supply development programs such as: acquisition of additional imported supplies, increased recycled water use, and development of desalinated drain water. Groundwater recharge will increase over time at the existing Whitewater and Thomas E. Levy Groundwater Replenishment Facilities, and the construction of the proposed Martinez Canyon Recharge Facility.
- Source substitution will continue to be an important element for offsetting groundwater use. Examples of new projects and programs include: using canal water for urban irrigation, implementing groundwater recharge in the Indio area, investigating groundwater storage opportunities with IID, pursuing additional groundwater treatment for arsenic, developing a salt/nutrient management plan, improved brine disposal, mitigation of canal water losses, maintaining and developing improved drainage control, increasing stormwater capture and recharge, and developing local groundwater supplies for non-potable use.

As further set forth below, the 2010 CVWMP serves as a blueprint for ensuring a sufficient and sustainable water supply to meet the needs of projected growth throughout the Coachella Valley, including the City and the City's sphere of influence, for the next 30 years and beyond.

In 2014, CVWD performed a review of the 2010 CVWMP to evaluate changes in the planning environment that impact water demand projections, review the effectiveness of the 2010 CVWMP Update, and evaluate implementation progress of the 2010 CVWMP Update programs and recommend new implementation targets. The 2014 Water Management Plan Status Report (2014 Status Report) concluded that the 2010 CVWMP Update is working and with continued implementation, overdraft will be eliminated by 2021 with increased groundwater levels in the Palm Springs area and the East Valley. In addition, the 2014 Status Report found that population increase is lower than the projections used in the 2010 CVWMP. Therefore, new population projections, through 2045, were used and reflect an 18 percent reduction in overall growth. This also resulted in a reduction of 2045 total water demand by 14 percent. Of note, this is not an elimination of demand, but a deferral of demand to later years.

1.4.4 2011 Coachella Valley Water Management Plan Subsequent Program Environmental Impact Report and 2012 Final Subsequent Program Environmental Impact Report

As noted above, CVWD first adopted the Coachella Valley Water Management Plan and the related Program Environmental Impact Report (PEIR) in September 2002. The CVWMP is a multi-faceted plan to allow CVWD to meet its responsibilities for securing and protecting Coachella Valley water supplies into the future. The CVWD Board of Directors recognizes the need to update the Plan periodically to respond to changing external and internal conditions. The 2010 CVWMP Update has been prepared to meet that need. The 2010 CVWMP defines how the project goals will be

met given changing conditions and new factors affecting water supply reliability, water demands and evolving federal and state regulations. The planning time horizon for the 2010 CVWMP Update is 35 years, from 2010 to 2045. As with the 2002 CVWMP, CVWD analyzed the potential environmental impacts associated with implementing the 2010 CVWMP pursuant to the California Environmental Quality Act (CEQA). That document is the 2011 Subsequent Program EIR (2011 SPEIR) (State Clearinghouse (SCH) No. 1999041032, SCH No. 2000031027).[14]

As shown in Table 1-2 of the 2011 SPEIR, it has been determined that, overall, the 2010 CVWMP will have less than significant environmental impacts, and in certain key respects will have beneficial effects. For example, in addressing regional groundwater overdraft issues, the 2010 CVWMP will result in decreasing annual overdraft conditions in the West and East Valley areas, and water levels will change at a slower rate than under current condition and will increase in some areas.[15]

The goal of the 2010 CVWMP is to allow CVWD and other water agencies in the Valley to reliably meet current and future water demands within their service areas in a cost effective and sustainable manner for the period 2010 to 2045. As noted above, the programs and projects identified in the 2010 CVWMP fulfill this goal by meeting the following objectives: meet current and future water demands with a 10 percent supply buffer; reduce/eliminate long-term groundwater overdraft; manage and protect water quality; comply with state and federal laws and regulations; manage future costs; and minimize adverse environmental impacts. The 2010 CVWMP differs from the 2002 CVWMP in that a 10 percent supply buffer is applied to the projected water demands while eliminating overdraft. This buffer compensates for potential uncertainties such as demands higher than forecast or supplies that cannot be implemented or do not deliver as much water as planned. The supply buffer would be established through a combination of additional supplies and water conservation measures.[16]

The 2011 SPEIR identifies various external factors that have affected or may affect water supplies available to the Coachella Valley. Key factors include: annual fluctuation in imported State Water Project (SWP) supplies due to drought and environmental needs in the Sacramento-San Joaquin Delta (Delta); recent environmental rulings to protect sensitive fish species in the Delta that restrict the State's ability to move water through the Delta to the SWP; preparation of the Bay-Delta Conservation Plan, which is intended to restore the Delta's ecosystem and improve water supply reliability; the Quantification Settlement Agreement (QSA), signed in 2003 to allocate California's allotment of Colorado River water and meet its contractual limitation; litigation concerning the QSA; and effects of climate change on the long term availability and reliability of SWP and Colorado River water supplies.[17] These factors are fully addressed in the 2011 SPEIR and are further described in this WSA.

[14]2011 SPEIR, pp. 1-1 and 2-1.
[15]2011 SPEIR, p. 1-25.
[16]2011 SPEIR, pp. 1-2 and 2-12.
[17]2011 SPEIR, p. 1-2.

The 2010 CVWMP Update identifies approaches for meeting future water needs in the study area in light of changing environmental conditions and other water supply factors. To meet revised future needs, the CVWMP includes new features in the areas of water conservation, source substitution, new supplies and groundwater recharge.[18] The 2010 CVWMP incorporates both a "bookends" approach and "building block" approach to deal with potential uncertainties in future demands and supplies. The Plan also incorporates enhanced cooperation and implementation among cites, local water agencies, and tribes in the Coachella Valley.[19] For example, the 2010 CVWMP Update includes an aggressive program of water conservation for urban, golf course and agricultural water users. However, there are limits in terms of cost, effectiveness and acceptability of water conservation activities. As those limits are reached, other Plan elements for meeting future needs also can be adjusted. One source of supply is desalination of drain water, the most expensive alternative for providing new supplies. This approach only will be implemented as other sources of supplies reach practical limits. Therefore, the Plan includes a range of 55,000 to 80,000 acre-feet per year (AFY) for desalination of drain water. The actual amount of water from this source will depend upon how much can be obtained first from other, lower cost sources.[20]

The 2010 CVWMP Update has the same five major elements as the 2002 CVWMP, but with a building block approach of implementing elements to better respond to changes in the planning environment. As indicated above, a key element is water conservation (urban, agricultural and golf, but at higher rates than in the 2002 Plan). Urban measures are water efficient plumbing and landscape water use audit programs. For golf, measures are scientific irrigation scheduling, water audits and monitoring of maximum water allowance compliance, turf limitations for new course as well as water audits. Agricultural water conservation methods include scientific irrigation scheduling, salinity management, salinity field mapping, conversion to micro-irrigation, distribution uniformity evaluations, grower training and engineering evaluations of irrigation efficiency. Another element is additional water sources, including increasing surface supplies for the Valley from outside sources (Colorado River and SWP transfers and leases), exchanges, dry-year purchases, water development projects, stormwater capture, and desalination. A third element is source substitution of surface water supplies for groundwater. This may involve providing recycled water or Canal water or other sources to additional urban, golf and agricultural users to reduce groundwater pumping. Source substitution can also involve additional use of the Mid-Valley Pipeline Project, Phase I of which was completed in 2009. The fourth element is groundwater recharge, including: constructing and operating recharge basins to augment stored groundwater; continued and increased recharge at the Whitewater Recharge Facility; construction and operation of a new facility at Martinez Canyon; increased recharge at the Levy facility; and a possible new City of Indio recharge facility at Posse Park. The fifth element is monitoring and data management, which includes monitoring and

[18] 2011 SPEIR, p. 1-7.
[19] 2011 SPEIR, p. 1-7.
[20] 2011 SPEIR, p. 1-8.

evaluation of subsidence and groundwater levels and quality to provide the information needed to manage the Valley's groundwater resources.[21]

In developing the 2010 CVWMP, CVWD utilized the latest population projections developed by Riverside County and adopted by the Southern California Association of Governments (SCAG) in 2008. CVWD does not develop population growth projections for use in water management planning. The 2008 SCAG projections could not have taken into account the recent recession, which had slowed growth and continued to have negative effects on growth in the near term. Over the long term, growth will continue; however, population projections will need to be adjusted in terms of the timing of growth. These realities necessitate adjustment of Plan implementation to meet actual near term needs and continued updates of the CVWMP in the future to reflect revised population projections.[22]

Riverside County embarked on major revisions to the County's General Plan and General Plan EIR (Riverside County, 2009). In the absence of these completed documents, CVWD has been required to make assumptions in the 2010 CVWMP Update regarding the effects of projected growth on land use, particularly the conversion of agricultural land to urban use in the East Valley. Consequently, the 2010 CVWMP Update projects a reduction in agricultural water demand combined with a significant increase in urban water demand. Increased urbanization also increases domestic wastewater generation in the East Valley. Expansion of the CVWMP planning area to include land annexed or within the spheres of influence of the cities of Coachella and Indio also adds to the potential for growth in the Valley. Although the 2007 Riverside County/CVAG growth forecasts did not anticipate significant growth in this area, the potential for development could result in additional population growth and water demand during the 2010 CVWMP Update planning period. While there had been an economic slowdown in the late 2000's and early 2010's, these projected population and land use changes are anticipated to be fulfilled in the long term, but at a slower pace.[23]

Agricultural water demands are projected to decrease, while urban demands will increase in response to anticipated population growth. Factoring potential variations in future land use and growth forecasts into these demand projections, water demands in 2045 could range from 793,600 acre-feet per year (AFY) to 971,500 AFY with a mid-range planning value of 885,400 AFY. These projections incorporate reduced outdoor water use for new development as required by the CVWD-CVAG water efficient Landscape Ordinance. In the absence of this ordinance and other on-going conservation measures, water demands in the Valley would be nearly 1,040,000 AFY by 2045.[24]

Implementation of the 2010 CVWMP Update has been divided into near-term elements and long-term elements. Even with the recent recession and lack of

[21]2011 SPEIR, p. 1-8.
[22]2011 SPEIR, pp. 1-8 to 1-9; see also Table 1-1, Summary of the 2010 Water Management Plan Update and Implementation Plan, pp. 1-9 to 1-13.
[23]2011 SPEIR, p. 3-2.
[24]2011 SPEIR, pp. 3-3 to 3-4.

growth, continuation of existing elements and some new elements are needed to reduce overdraft and its adverse effects. Ongoing elements that will continue are: recharge at Whitewater Recharge Facility with SWP Exchange water and SWP purchases; implementation of the QSA; levy facility recharge at current levels of 32,000 AFY; Martinez Canyon recharge at current Pilot Facility Level of 3,000 AFY; water conservation programs at current levels, including implementation of the Landscape Ordinance; effluent recycling in the West Valley; increased use of Canal water by golf courses with existing Canal water connections to reduce groundwater pumping; conversion of East Valley agriculture to Canal water, as opportunities arise, to reduce groundwater pumping; groundwater level/quality monitoring; and subsidence monitoring.[25]

Assuming that the Coachella Valley study area growth rate remains relatively low, during the next five years CVWD will focus on three new or expanded activities to preserve and protect groundwater resources, such as: increased use of the Mid-Valley Pipeline project to reduce overdraft in the West Valley by connecting golf courses and reducing groundwater pumping by those courses; implementation of additional water conservation measures, including the Landscape Ordinance, to meet the State's requirement of 20 percent conservation by 2020; and preparation of a salt/nutrient management plan for the Valley by 2014 to meet SWRCB Recycled Water Policy requirements to improve implementation of wastewater effluent recycling. Of these three elements, only the increased use of the Mid-Valley Pipeline would have a second tier CEQA document. Implementation of Proposed Project elements, such as a desalination plant or additional water transfers, which would trigger second tier CEQA documents, are anticipated after 2015.[26]

Due to potential variability associated with imported water supplies from the Colorado River and the SWP, which are further discussed below in this WSA, the 2010 CVWMP Update evaluates an array of water supply scenarios to determine a likely range of future supply needs. These scenarios assume different combinations of a Delta conveyance solution and QSA validity to determine the future amount of imported water available to the Valley.[27] Based upon the scenarios, additional water supplies and conservation would be required to meet projected demands in 2045 while providing 10 percent supply buffer, eliminating groundwater overdraft and improving the salt balance of the basin.[28] The 2010 CVWMP Update evaluates a wide range of water conservation and supply options based on potential yield, reliability, cost, water quality and other feasibility factors. Based on this evaluation, a range of water supply mixes was established for each planning scenario. Each scenario maximizes the use of local sources and recycled water. Water conservation and drain water desalination are variable, based on the availability of existing and future imported water supplies including potential water transfers and acquisitions.[29]

[25]2011 SPEIR, p. 1-14.
[26]2011 SPEIR, p. 1-14.
[27]2011 SPEIR, p. 3-7.
[28]2011 SPEIR, p. 3-7.
[29]2011 SPEIR, pp. 3-8 to 3-9.

Water conservation is a major component of water management in the Coachella Valley. As a desert community heavily reliant upon imported water supplies, the Coachella Valley must use its water resources as efficiently as possible to meet California Water Code requirements and State legislation such as "20x2020" (requiring 20 percent per capita water use reduction by the year 2020), as well as to maintain eligibility for State funding opportunities through compliance with Assembly Bill (AB) 1420 demand management measures (DMMs) required in Urban Water Management Plans.[30] According to the 2010 CVWMP, agricultural water conservation remains the most cost-effective approach for extending the existing water supplies of the Valley. Under the 2010 CVWMP, an agricultural conservation program will be implemented that achieves up to a 14 percent reduction in consumptive use by 2020. The savings would be achieved using a staged approach. Initially, low cost, voluntary programs would be initiated followed by increasingly more expensive and mandatory programs.[31]

The following building blocks have been identified for implementation: grower education and training (grower meetings and training programs combined with confidential grower audits funded by the District); District-provided services (including scientific irrigation scheduling, scientific salinity management, moisture monitoring and farm water distribution evaluations funded by the District); irrigation system upgrades/retrofits (partial or full funding and/or financial support of growers that convert from flood/sprinkler to micro-sprinkler/drip irrigation systems); economic incentives (such as tiered pricing, water budget pricing, or seasonal pricing); and regulatory programs (regulations that support and provide for agriculture conservation, including farm management plans, mandatory drip/micro-spray systems for new permanent crops, and conversion of existing crops over time).[32]

These program features will be incrementally expanded until the target reduction is achieved. To achieve the maximum return on investment from conservation activities, initial emphasis will be placed on those agricultural operations with the lowest irrigation efficiency. The agricultural conservation program is anticipated to save about 39,500 AFY of water by 2020. The savings are projected to decrease to approximately 23,300 AFY by 2045 as agricultural land transitions to urban uses. CVWD is developing methods for tracking the effectiveness of agricultural water conservation. These methods will include determining average water use per acre of farmed land and average irrigation efficiency. The methods will reflect variations in annual/seasonal evapotranspiration and cropping patterns. Progress toward meeting agricultural conservation goals will be evaluated and reported annually.[33]

Urban conservation is also critical. Under the 2010 CVWMP, the urban water conservation program will be expanded and enhanced to meet the State's requirement of a 20 percent reduction in per capita use by 2020 (SBx7-7). The baseline for this reduction is the 10-year average per capita usage for the period of

[30] 2011 SPEIR, p. 3-9.
[31] 2011 SPEIR, pp. 3-9 to 3-10.
[32] 2011 SPEIR, pp. 3-9 to 3-10.
[33] 2011 SPEIR, p. 3-10.

1995 through 2004. This will be accomplished by: continued public education and outreach programs promoting water conservation; improved landscape irrigation scheduling and efficiency; implementation of irrigation system retrofit rebates; implementation of appropriate water rate structures that provide the economic incentives needed to encourage efficient water use; coordinated regional water conservation programs involving Valley water purveyors, cities and Riverside County; continued implementation of the CVWD Valley-wide Landscape Ordinance (Ordinance 1302-1; revised Ordinance 1374); installation of automated or "smart" water meters; extension of the Landscape Ordinance to include all landscaping regardless of size (current limit is 5,000 square feet or larger for homeowner furnished landscaping); further decreases in the water allocations for landscape irrigation consistent with good irrigation practices and desert landscaping; landscape retrofit rebates (i.e., economic incentives for replacing high water use landscaping, also known as "cash for grass"); restrictions on the total amount of turf allowed; audits of new development to assure continued compliance with the Landscape Ordinance; plumbing retrofits for existing properties including mandatory retrofit (ultra low flush toilets, showerhead replacement, etc.) prior to sale of property; conservation rebates for high-efficiency clothes washers; compliance with California Green Building Code Standards (California Code of Regulations Title 24, Part 11, 2010); and water distribution system audits and loss reduction programs.[34]

Once the conservation targets are achieved, continued implementation of those measures will result in even greater savings per capita as new growth occurs. Projections indicate that continued implementation of these measures in conjunction with the State's 2010 CALGREEN Building Code requirements will result in per capita water use reduction of nearly 40 percent compared to the baseline per capita use defined in SBx7-7. This could potentially result in additional water savings of 55,000 AFY by 2045 if growth occurs as projected. To provide the water supply buffer, this target is increased to 73,500 AFY by 2045. Additional water conservation beyond this amount will be implemented if needed to offset unanticipated reductions in other water supplies during the planning period. Pursuant to SBx7-7, Valley water agencies will track the effectiveness of urban water conservation. Progress toward achieving the urban water conservation goals will be evaluated annually and reported in UWMPs prepared on five-year intervals. If progress shows that additional conservation is being achieved, then the water supply needs will be reassessed.[35]

The 2011 SPEIR identifies golf course conservation as another key component of the management plan. Under the 2010 CVWMP, Valley water agencies are expected to do the following: implement a water conservation program to achieve a 10 percent reduction in water use by existing golf courses (built prior to 2007) by 2020 (this would be accomplished through golf course irrigation system audits and soil moisture monitoring services); encourage existing golf courses to reduce water use by reducing their acreage of turf; implement the 2009 CVWD/CVAG Landscape

[34]2011 SPEIR, p. 3-10 to 3-11.
[35]2011 SPEIR, p. 3-11.

Ordinance objectives for all new golf courses (built in 2007 and later); conduct landscaping and irrigation system plan checks to verify compliance; and develop and implement methods to evaluate the effectiveness of golf course water conservation such as measuring water use per irrigated acre. These measures are expected to achieve a savings of 11,600 AFY by 2045. Conservation by future courses has been incorporated into the water demand projections. Progress toward meeting golf course conservation goals will be evaluated and reported annually.[36]

The 2010 CVWMP Update strategy for water supply development consists of a balanced portfolio that retains flexibility to adapt to future changes in supply reliability. Sufficient water supplies are planned to provide a 10 percent buffer on an average basis to meet unanticipated reductions in existing supplies or difficulties in developing new supplies. The additional supplies needed to provide the buffer would be implemented when required based on an on-going analysis of projected demands and supplies.[37] A summary of the water supply development efforts of the 2010 CVWMP is set forth below.

Acquisition of Additional Imported Supplies

Additional imported water supplies will be used to replenish and manage the groundwater basins and meet the future demands of the Valley. The 2002 CVWMP established an average water supply target of 140,000 AFY from the SWP, of which about 103,000 AFY would be used for recharge at Whitewater and 35,000 AFY would supply the Mid-Valley Pipeline (MVP) project. CVWD and DWA have made significant progress since 2002 toward achieving these targets with the acquisition of SWP Table A entitlement water from Metropolitan (100,000 AFY), Tulare Lake Basin Water Storage District (16,900 AFY) and Berrenda Mesa Water District (16,000 AFY).

This has increased the Valley's SWP Table A Amounts from 61,200 AFY to 194,100 AFY. In addition, periodic one-time purchases of water totaling 50,200 AF have been made after 2002. As described in the 2011 SPEIR, given recent factors affecting the California water supply picture, the average amount of additional imported supply required is in the range of 45,000 to 80,000 AFY. The higher value assumes successful implementation of the BDCP and Delta conveyance facilities while the lower value is based on reduced future SWP reliability (to 50 percent).[38]

Additional supplies will be obtained through the following actions: acquire additional imported water supplies through long-term lease or purchase where cost effective; continue to purchase SWP Turnback Pool and SWP Article 21 (Interruptible) waters; continue to purchase supplemental SWP water under the Yuba River Accord Dry Year Water Purchase Program as available; work with Metropolitan to define the frequency and magnitude for SWP Table A call-back under the 2003 Water Transfer Agreement, and continue to play an active role with U.S. Bureau of Reclamation

[36]2011 SPEIR, pp. 3-11 to 3-12.
[37]2011 SPEIR, p. 3-12.
[38]2011 SPEIR, p. 3-12.

(Reclamation), DWR, the State Water Contractors and other agencies in developing the BDCP and Delta Habitat Conservation and Conveyance Program.[39]

Increased Recycled Water Use

The 2002 CVWMP had a recycled water use target of 30,000 AFY for the West Valley and 8,000AFY for the East Valley in 2035. Essentially all available recycled water in the West Valley is currently being put to beneficial use either through direct non-potable uses like urban and golf course irrigation or through percolation. As urban growth occurs, the following activities will be implemented under the 2010 CVWMP Update: in the West Valley, implement a joint agency goal to increase recycling of all generated wastewater for non-potable irrigation from 60 percent to at least 90 percent where feasible; in the East Valley, maximize the use of recycled water generated by future growth for irrigation as development occurs and customers become available by constructing tertiary treatment and distribution facilities at the CVWD Water Reclamation Plant No. 4 (WRP-4),City of Coachella and Valley Sanitary District (VSD) facilities; evaluate the feasibility of delivering recycled water in the existing Coachella Canal water distribution system while avoiding potential conflicts with future urban water treatment and use of Canal water; determine the minimum amount of recycled and other water flow that must be maintained in the CVSC to support riparian and wetland habitat; and fully utilize all wastewater generated by development east of the San Andreas Fault for irrigation uses to meet demands in that area and reduce the need for additional imported water supplies.[40]

Based on these recommendations, up to 34,500 AFY of recycled water would be used in the West Valley, up to 33,000 AFY of recycled water would be used in the East Valley and up to 10,800 AFY of recycled water would be used in the area east of the San Andreas fault for direct non potable uses by 2045, for a total of 78,300 AFY.[41]

Develop Desalinated Drain Water

The 2002 CVWMP had a planning target of 11,000 AFY of desalinated drain water usage by 2035. Measures will include: developing a program to recover, treat and distribute desalinated drain water and shallow (semi-perched) groundwater for non-potable and potable uses in the East Valley; developing a disposal system to dispose of brine generated by the desalination process; and constructing a demonstration facility to gain operational experience in drain water desalination and brine disposal. Under the 2010 CVWMP Update, the amount of water recovered through drain water desalination may range from 55,000 to 85,000 AFY by 2045, depending on the effectiveness of water conservation measures and the availability of other supplies. The lower end of the range reflects the successful implementation of the BDCP and Delta conveyance facilities. The high end of the range is close to the maximum amount of drain water expected to be generated in the Valley and

[39]2011 SPEIR, p. 3-13.
[40]2011 SPEIR, p. 3-13.
[41]2011 SPEIR, p. 3-14.

would be implemented if SWP Exchange water reliability remains low. The desalination program will be phased so that it can be expanded in response to future water supply conditions and needs of the Valley.[42]

Groundwater Recharge Programs

The 2002 CVWMP had a planning target of 103,000 AFY of SWP water at the Whitewater Recharge Facility and 80,000 AFY of Canal water recharge at East Valley recharge facilities by 2035. Whitewater recharge varies annually, but the SWP Exchange supply can currently provide about 77,700 for recharge. Canal water recharge is currently 32,000 AFY at the Levy Facility and 3,000 AFY at the Martinez Canyon Pilot facility. Groundwater recharge continues to be a significant component of water management in the Coachella Valley. Existing and proposed recharge activities identified in the 2002 CVWMP will continue with the modifications identified below.[43]

Whitewater Recharge Facility

The Whitewater Recharge Facility is a series of earthen recharge basins and distribution channels fed by the Whitewater River, into which CVWD and DWA recharge SWP Exchange water (see discussion below). The 2010 CVWMP Update includes the following elements regarding the Whitewater Recharge Facility: continued operation of the Whitewater Recharge Facility to recharge SWP Exchange water, at least 100,000 AFY over a long-term (20-year) average; transfer and exchange any unused desalinated drain water and SWP water obtained through the QSA for CRA water delivered to Whitewater for recharge; and use of additional acquired water transfers or leases to supplement the existing SWP Exchange water.[44]

Thomas E. Levy Groundwater Replenishment Facility

CVWD operated a pilot recharge facility at Dike 4 near Avenue 62 and Madison in the City of La Quinta beginning in 1997. Construction of the 180-acre, full scale Levy facility was completed in mid-2009 and has an estimated average recharge capacity of 40,000 AFY. Currently the capacity is limited by hydraulic and water delivery constraints within the Canal water distribution system to a long-term average of about 32,000 AFY. Consequently, construction of an additional pipeline and pumping station from Lake Cahuilla may be required in the future. The 2010 CVWMP Update includes the following elements regarding the Levy Replenishment Facility: continued operation of the Levy Facility and recharge 40,000 AFY on a long-term basis as system conveyance capacity allows; monitoring groundwater levels in shallow and deep aquifers for signs of rising shallow groundwater; develop operating criteria to minimize chances for shallow groundwater mounding; and if the existing conveyance system is not capable of sustaining 40,000 AFY of

[42] 2011 SPEIR, p. 3-14.
[43] 2011 SPEIR, p. 3-14.
[44] 2011 SPEIR, p. 3-15.

deliveries for recharge at the Levy facility, constructing a second pumping station and pipeline from Lake Cahuilla to provide a supplemental supply.[45]

Martinez Canyon Recharge

The Martinez Canyon recharge facility is a pilot project underway since 2005. Upon completion of a full-scale facility, estimated to be 240 acres in area, this project is expected to recharge 20,000 to 40,000 AFY on average. The recharge facility would be located adjacent to the pilot facility west of the community of Valerie Jean in the East Valley, at the Martinez Canyon alluvial fan between Avenues 74 and 76.[46]

The 2010 CVWMP Update includes the following elements regarding the Martinez Canyon Recharge Facility: conducting sitting and environmental studies, land acquisition and design for the full-scale Martinez Canyon facility with a design capacity of up to 40,000 AFY; completing construction of the Martinez Canyon facilities in phases such that the facility can be initially operated at 20,000 AFY, with potential future expansion to as much as 40,000 AFY based on groundwater overdraft conditions and implementation of East Valley source substitution projects; and coordinating pipeline and pumping station construction with expansion of the Canal distribution system in the Oasis area.[47]

Source Substitution Programs

Source substitution also continues to be an important means to reducing groundwater overdraft. Due to the expected changes in water use patterns in the Valley as a result of continued development, source substitution will receive increased emphasis in the future. The following source substitution actions are proposed in the 2010 CVWMP Update.[48]

Mid-Valley Pipeline

The MVP is a pipeline distribution system to deliver Canal water to the Mid-Valley area for use with CVWD's recycled water for golf courses and open space irrigation in lieu of groundwater pumping for these uses. Construction of the first phase of the MVP from the Coachella Canal in Indio to WRP-10 (6.6 miles in length) was completed in 2009. MVP Canal water is blended with WRP-10 recycled water for golf course irrigation. Implementation of later phases will expand the MVP to serve approximately 50 golf courses in the Rancho Mirage/Palm Desert/Indian Wells area that currently use groundwater as their primary source of supply with a mixture of Colorado River water and recycled water as anticipated in the 2002 CVWMP.[49]

The 2010 CVWMP Update continues to include the MVP project, which will serve about 37,000 AFY of imported water and 15,000 AFY of WRP-10 recycled water on

[45]2011 SPEIR, p. 3-15.
[46]2011 SPEIR, p. 3-15.
[47]2011 SPEIR, p. 3-16.
[48]2011 SPEIR, p. 3-16.
[49]2011 SPEIR, p. 3-16.

average by 2045. The MVP will meet approximately 72 percent of the West Valley golf course demand by 2045. Under the 2010 CVWMP Update, it is proposed to: prepare a MVP system master plan to lay out the future pipeline systems; implement near-term (next five years) project expansions to connect 14 golf courses along the MVP alignment and extensions of the existing non-potable distribution system; and complete the construction of the remaining phases of the MVP system to provide up to 37,000 AFY of Canal water and 15,000 AFY of WRP-10 recycled water on average to West Valley golf courses.[50]

Conversion of Agricultural and Golf Course Uses to Canal Water

The 2010 CVWMP Update includes the following elements regarding conversion of agricultural and golf course uses to Canal water: working with existing East Valley golf courses to increase Canal water use to 90 percent of demand; connecting new East and West Valley golf courses having access to Canal water and meet 80 to 90 percent of demand; working with large agricultural groundwater pumpers to provide access to Canal water and encourage them to reduce their groundwater pumping; revising and update the Oasis distribution system feasibility study, considering possible future conversion to urban use; and upon completion of cost-effectiveness feasibility analyses, designing and constructing the Oasis distribution system to deliver up to 27,000 AFY of Canal and desalinated drain water by 2020. These projects will deliver up to 71,000 AFY of additional Canal water to reduce groundwater pumping.[51]

Treatment of Colorado River Water for Urban Use

The Plan includes treatment of Canal water for urban uses: CVWD, the City of Coachella and Indio Water Authority (IWA) will develop coordinated plans to treat Canal water for urban use in the East Valley; conduct a feasibility study to determine the economic tradeoffs between large-scale centralized treatment facilities and small scale satellite treatment facilities including potential delivery from the MVP system; evaluate opportunities for regional water treatment projects among CVWD, the City of Coachella and IWA to capture economies of scale, and determine the amount of Canal water desalination needed to minimize taste, odor and corrosion. These projects will deliver up to 90,000 AFY of treated Canal water for urban use by 2045 to reduce existing and future groundwater pumping.[52]

New Projects and Programs

In addition to those programs identified in the 2002 CVWMP that will continue or be expanded, the following projects and programs are elements of the 2010 CVWMP: Canal water use for urban irrigation; groundwater recharge in the Indio area; investigation of groundwater storage opportunities with IID; additional groundwater treatment for arsenic; development of a salt/nutrient management plan; desalination brine disposal; evaluation of Canal water loss reduction; drainage

[50]2011 SPEIR, pp. 3-16 to 3-17.
[51]2011 SPEIR, p. 3-17.
[52]2011 SPEIR, pp. 3-17 to 3-18.

control; evaluation of stormwater capture feasibility; and development of local groundwater supplies for non-potable use.[53]

Canal Water Use for Urban Irrigation

As development proceeds in the East Valley, CVWD and the other Valley water purveyors will require new development to install dual piping systems for distribution of non-potable water (Canal or recycled water) for landscape irrigation. This program will offset the reduced Canal water use by agriculture as land use transitions to urban development. It will also reduce groundwater pumping for urban use. From at least two-thirds to as much as 80 percent of the landscape demand of new development will be connected to non-potable water delivery systems. This will result in the utilization of 91,000 to 108,000 AFY of non-potable water by 2045. This program is essential to continued full use of the Valley's Colorado River water supplies as agricultural land use declines.[54]

Groundwater Recharge in the Indio Area

The City of Indio is evaluating the feasibility of constructing a groundwater recharge project within its service area. Pursuant to the Indio-CVWD settlement agreement (2009), CVWD will work with the City of Indio to evaluate the feasibility of developing a groundwater recharge project that reduces groundwater overdraft in the Indio area. Indio has no water rights, so the supply will be Canal water, either purchased from CVWD or purchased from another rights holder and exchanged for Canal water. The 2010 CVWMP Update assumes that an Indio area groundwater recharge project could offset pumping by 10,000 AFY. The actual amount will depend on the feasibility study results.[55]

Investigation of Groundwater Storage Opportunities with IID

As part of the QSA, CVWD and IID signed an agreement that allows IID to store surplus Colorado River water in the Coachella Valley groundwater basin. Under the agreement, CVWD will store water for IID, subject to available storage space, delivery and recharge capacity and the prior storage rights of CVWD, DWA and Metropolitan. Stored water would incur a 5 percent recharge loss and a 5 percent per year storage loss. IID may also request CVWD to investigate and construct additional locations for direct or in-lieu recharge facilities and possible water extraction facilities. IID is currently investigating several sites in the East Valley near the Coachella Canal. Because of the uncertain nature of the facilities, the potential impacts of this water storage program are not evaluated in the 2010 CVWMP and SPEIR but would be considered in a separate, project-level document if a storage program is determined to be feasible.[56]

Additional Groundwater Treatment for Arsenic

[53] 2011 SPEIR, p. 3-18.
[54] 2011 SPEIR, p. 3-18.
[55] 2011 SPEIR, pp. 3-18 to 3-19.
[56] 2011 SPEIR, p. 3-19.

The quality of Coachella Valley groundwater generally is high and most of the groundwater delivered to urban customers receives only disinfection. Currently, the only other groundwater treatment is for arsenic removal in a portion of the East Valley. Naturally-occurring arsenic is found in the eastern Coachella Valley groundwater from Mecca to Oasis and appears to be associated with local faults and geothermal activity. CVWD identified six of its domestic water wells with arsenic levels above the revised federal maximum contaminant limit (MCL) of 0.01 mg/L. In early 2006, CVWD completed construction of three groundwater treatment facilities that use an ion-exchange process with a brine minimization and treatment process to remove arsenic. The facilities can be expanded to treat additional wells in the future. In response to elevated arsenic levels in private wells (chiefly serving mobile home and recreational vehicle (RV) parks and certain tribal wells), CVWD is pursuing federal grants to fund a portion of the cost to extend the potable water system to serve these affected communities. CVWD is also assisting the communities in connecting to the potable water system to the extent feasible. CVWD is evaluating the feasibility of treating Colorado River water (Coachella Canal water) for delivery to urban water users. To the extent Canal water is used for urban indoor use, additional arsenic removal will not be needed for those areas. However, as required to meet future demands and provide adequate redundancy, CVWD may need to expand its existing arsenic treatment facilities or construct new facilities to treat water from additional wells.[57]

Development of Salt/Nutrient Management Plan

The State Water Resources Control Board (SWRCB) Recycled Water Policy (adopted February 11, 2009) requires every region in the State to develop a salt/nutrient management plan by 2014. The goal of the plans is to responsibly increase the use of recycled water. The salt/nutrient management plans are intended for management of all sources contributing salt/nutrients on a basin-wide basis to ensure that ground and surface water quality objectives are achieved. The Coachella Valley plan will assess the salt contributions of imported water, including that used for groundwater recharge and evaluate the feasibility of reducing salt in recharge water. The Coachella Valley Regional Water Management Group (CVRWMG), of which the City of Coachella and CVWD are a member, will take the lead in developing a salt/nutrient management plan with participation from interested Tribes and other parties that meets the SWRCB requirements to increase cost-effective recycling of municipal wastewater in the Valley.[58] However, CVWD, Coachella Water Authority (CWA), Desert Water Agency, and Indio Water Authority are working collaboratively on completion of a salt/nutrient management plan for the Coachella Valley via a transparent stakeholder process separate from the CVRWMG.

Brine Disposal

[57] 2011 SPEIR, p. 3-19.
[58] 2011 SPEIR, pp. 3-19 to 3-20.

The 2010 CVWMP Update proposes desalination of agricultural drain water from the CVSC for use in the East Valley. Desalination of Canal water may also be required for East Valley potable water delivery. Treatment to potable levels would produce large volumes of brine, which would need to be disposed of in a cost-effective and environmentally sound manner and in compliance with State and Federal regulations. At the same time, groundwater treatment for arsenic and for nitrate removal, if pursued, requires a salt brine to regenerate the treatment resins, a potential use for the desalination brine. In addition, creation of salt or brackish water wetlands near the Salton Sea may also use the brine on a pass-through basis. Consequently, a brine disposal system is required to safely convey salts to an acceptable point of disposal. Concepts for brine conveyance and disposal and their feasibility will be evaluated in conjunction with the salt/nutrient management plan described above.[59]

Canal Water Loss Reduction

Allocated losses and unaccounted-for water in the All-American Canal, the Coachella Canal and the distribution system are due to seepage, leakage and evaporation and may be as high as 31,000AFY. Under the 2010 CVWMP Update, to increase the amount of water delivered to the Coachella Valley, CVWD will conduct a study to determine the amount of water lost to leakage in the first 49 miles of the Coachella Canal and evaluate the feasibility of corrective actions to capture the lost water. This may require the installation of additional flow metering locations along the Canal. If feasible, CVWD will implement the recommendations of this study and work with IID to develop a transparent system for allocating losses along the All-American Canal.[60]

Drainage Control

Both basin management (shallow groundwater level control and salt export) and the prevention of adverse impacts to shallow groundwater require that CVWD's existing agricultural drainage system be maintained in some form or replaced as urban development proceeds to prevent water logging of clayey soils. Funding will be needed to replace, expand, enhance and maintain the drainage system for urban development in the future. CVWD is evaluating alternative methods for funding the drainage system and will undertake a study of the improvements needed to continue system operation in the future.[61]

Stormwater Capture

Stormwater capture has been identified in the 2010 CVWMP Update as a viable method for increasing the amount of local water available for either groundwater recharge or direct use. The amount of additional stormwater that could be captured and used has not been documented. Based on this, CVWD will undertake the

[59]2011 SPEIR, p. 3-20.
[60]2011 SPEIR, p. 3-20.
[61]2011 SPEIR, p. 3-20.

following measures: conduct a feasibility study to investigate the potential for additional stormwater capture in the East Valley; and if cost effective, implement stormwater capture projects in conjunction with flood control facilities as development occurs in the East Valley.

Proposals to capture stormwater will only be considered to offset groundwater pumping or provide replenishment if they can clearly demonstrate that the water captured is "new water" that otherwise would have been lost to the Salton Sea or evapotranspiration, rather than water already considered in the Valley water balance.[62]

Development of Local Groundwater Supplies for Non-Potable Use

An investigation of groundwater development in the Fargo Canyon Subarea of the Desert Hot Springs Subbasin will be conducted to determine the available supply and suitability for use in meeting non-potable demands of future development east of the San Andreas Fault. CVWD will propose that a study be performed jointly with the cities of Coachella and Indio. Preliminary estimates prepared for the 2010 CVWMP Update indicate that up to 10,000 AFY of local groundwater supply, which includes returns (excess) from irrigation use, might be developed, depending upon the ultimate level of development in this area.[63]

Potential Future CVWMP Elements

Several programs and projects have been identified for possible inclusion in future updates to the CVWMP, pending the results of feasibility studies and environmental compliance documents. These include: SWP Extension (Construction of a pipeline to convey SWP water directly to the Coachella Valley); Desalination of Recharge Water (Construction of desalination facilities to reduce the salt load of imported water used for groundwater recharge); Nitrate Treatment (Pumping and treatment of high nitrate groundwater to reduce the potential for basin contamination); and Seawater Desalination (Participation in a future coastal seawater desalination project and delivery of water to the Coachella Valley through water exchanges or transfers.) Although feasibility studies of some of these projects are underway, none of the projects have advanced sufficiently through the implementation process to be included in the 2010 CVWMP Update. Consequently, they were not specifically evaluated in the SPEIR.[64]

Other Programs

Other water management programs in the Coachella Valley are monitoring and data management activities, well management programs, and stakeholder input. These are presented in CVWD's 2010 CVWMP for information purposes, but were not subject to CEQA review.[65]

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[62] 2011 SPEIR, pp. 3-20 to 3-21.
[63] 2011 SPEIR, p. 3-21.
[64] 2011 SPEIR, p. 3-21.
[65] 2011 SPEIR, p. 3-22.

Monitoring and Data Management

According to the 2010 CVWMP, the following new programs/projects should be implemented to improve monitoring and data management in the Valley: develop water resources database to facilitate data sharing among participating agencies and Tribes; construct additional monitoring wells in conjunction with new recharge facilities; develop a water quality assessment that identifies on-going monitoring activities in the basin; update and recalibrate Coachella Valley groundwater model based on current data and conduct a peer review of updated model; develop a new planning interface and database that can be linked with land use plans and agricultural activities to better distribute pumping and return flows to the model; develop and calibrate a water quality model capable of simulating the changes in salinity and possibly other conservative water quality parameters in conjunction with the salt/nutrient management plan; and develop a coordinated approach among the water purveyors and CVAG for calculating urban per capita water usage.[66]

Implementation Plan

The implementation strategy for the 2010 CVWMP is a function of water needs and the feasibility of specific programs. CVWD, in conjunction with the Tribes and the other Valley water districts as appropriate, will implement new Plan elements on an established schedule.[67]

In developing the 2010 CVWMP, CVWD relies on the latest population projections developed by Riverside County. The 2008 SCAG projections, generated in 2007, did not account for the recent and/or current recession, which had slowed growth and continued to have downward effects on growth in the near term. Over the long term, growth will continue; however, population projections will need to be adjusted in terms of the timing of growth. These factors will require adjustment of Plan implementation to reflect revised population projections.[68]

Near Term Projects to Meet Water Management Needs

Even with recessionary forces and slowed growth, existing and planned CVWMP projects will continue to be implemented. Ongoing actions that will continue include: Whitewater recharge with SWP Exchange water and SWP purchases; implementation of the QSA; Levy Facility recharge at current levels of 32,000 AFY; Martinez Canyon recharge at current pilot level of 3,000 AFY; water conservation programs at current levels, including implementation of the adopted Landscape Ordinance and recycling in the West Valley; increased use of Canal water by golf courses with Canal water connections; conversion of East Valley agriculture to

[66]2011 SPEIR, pp. 3-22 to 3-23.
[67]2011 SPEIR, p. 3-23.
[68]2011 SPEIR, p. 3-23.

Canal water as opportunities arise; groundwater level/quality monitoring; and subsidence monitoring.[69]

[69]2011 SPEIR, p. 3-23.

SECTION 2
VISTA DEL AGUA DEVELOPMENT

2.1 Project Description

The proposed Vista Del Agua Project includes 1,640 dwelling units on approximately 275 acres of vacant land located within the northern section of the City of Coachella, adjacent to the Interstate 10 and west of Tyler Street. The Project is located within the City limits and sphere of influence. The CWA, which is part of the City's Utilities Department, will serve as the public water system for the Project. **Figure 2-1** shows the general Project location within the Coachella Valley region.

2.2 Project Land Use Summary

The Project includes a mixture of single family residential uses (with densities ranging from 4.5 to 6.5 units per acre), multi-family residential uses (with densities of 12.0 and 20.0 units per acre), commercial uses, parks, open space, and backbone streets (right-of-way). **Table 2-1** outlines the land uses proposed for the Project. Additionally, **Figure 2-2** illustrates the land uses proposed for the Project. Of note, once the Project is fully entitled and project features (e.g. local roads, open space, trails, etc.) are incorporated into each Plan Area, the density will be slightly lower than those presented herein, and thus are anticipated to have a lower water use.

Table 2-1
Proposed Vista Del Agua Land Use Summary[1]

Plan Area	Land Use	Area (Acres)	Units
6	Single Family Residential (6.5 DU/ac)	71.65	466
5 / 7	Single Family Residential (5.5 DU/ac)	89.84	494
8	Single Family Residential (4.5 DU/ac)	14.78	67
2 / 3	Multi-Family Residential (20 DU/ac)	17.44	349
4	Multi-Family Residential (12 DU/ac)	22.05	265
1	General Commercial	16.80	-
10	Neighborhood Commercial[2]	8.27	-
-	Schools/Institutional	-	-
-	Industrial	-	-
9	Landscape Irrigation (Parks)	13.82	-
1	Open Space	0.81	-
-	Backbone Streets[3]	19.92	-
	Total:	**275.38**	**1,640**

[1] Based on the Vista Del Agua Specific Plan, January 2017.
[2] Certificate of Occupancy the developer will have the option to exercise the residential overlay and develop Planning Area 10 under the same guidelines that regulate Planning Area 8.
[3] Right of Way dedications for Avenue 48, Avenue 47, Street A and Polk Street.

Vista Del Agua

City of Coachella & Project Site

Figure 1-3

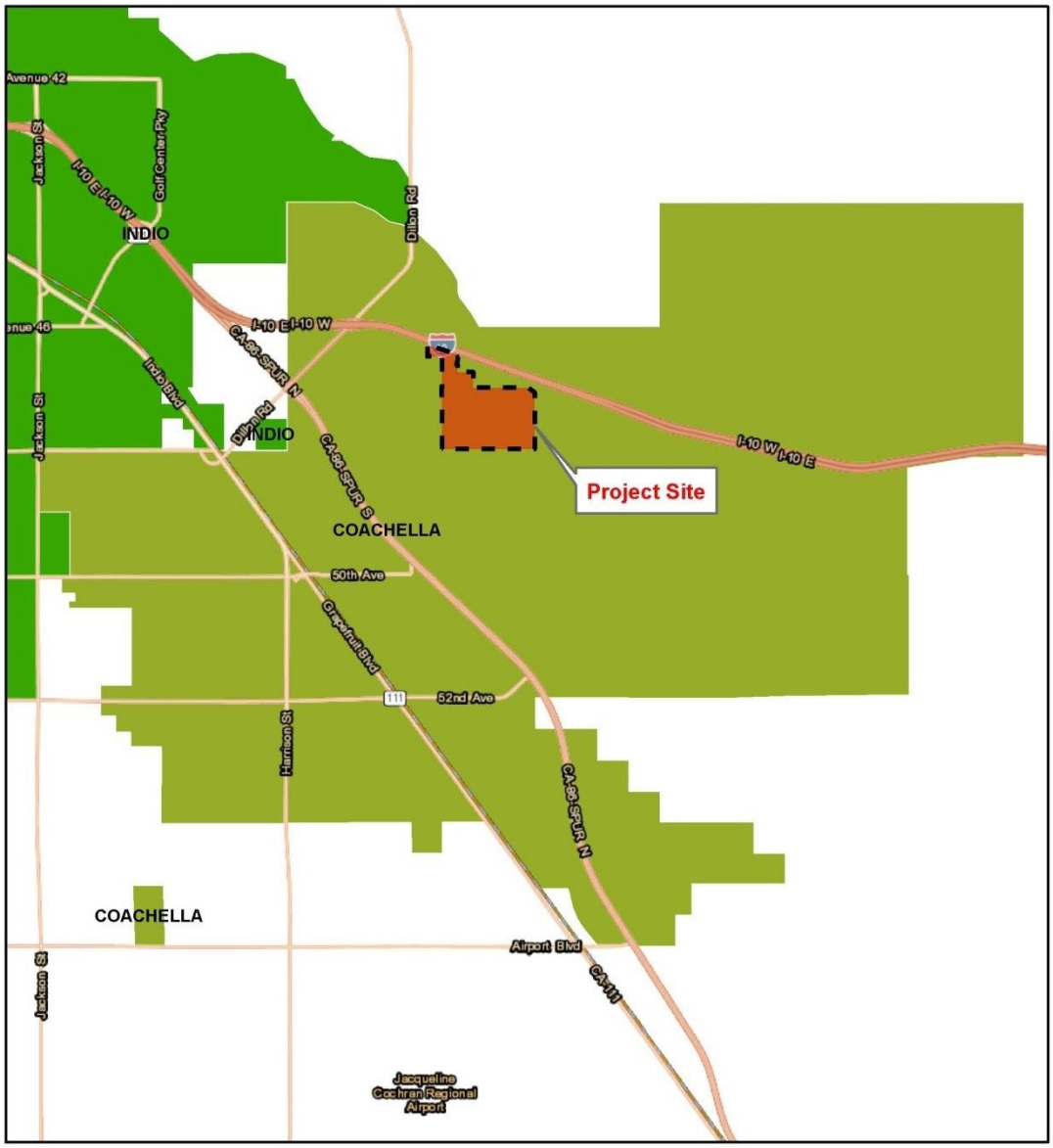

Figure 2-1 Vista Del Agua Location Map

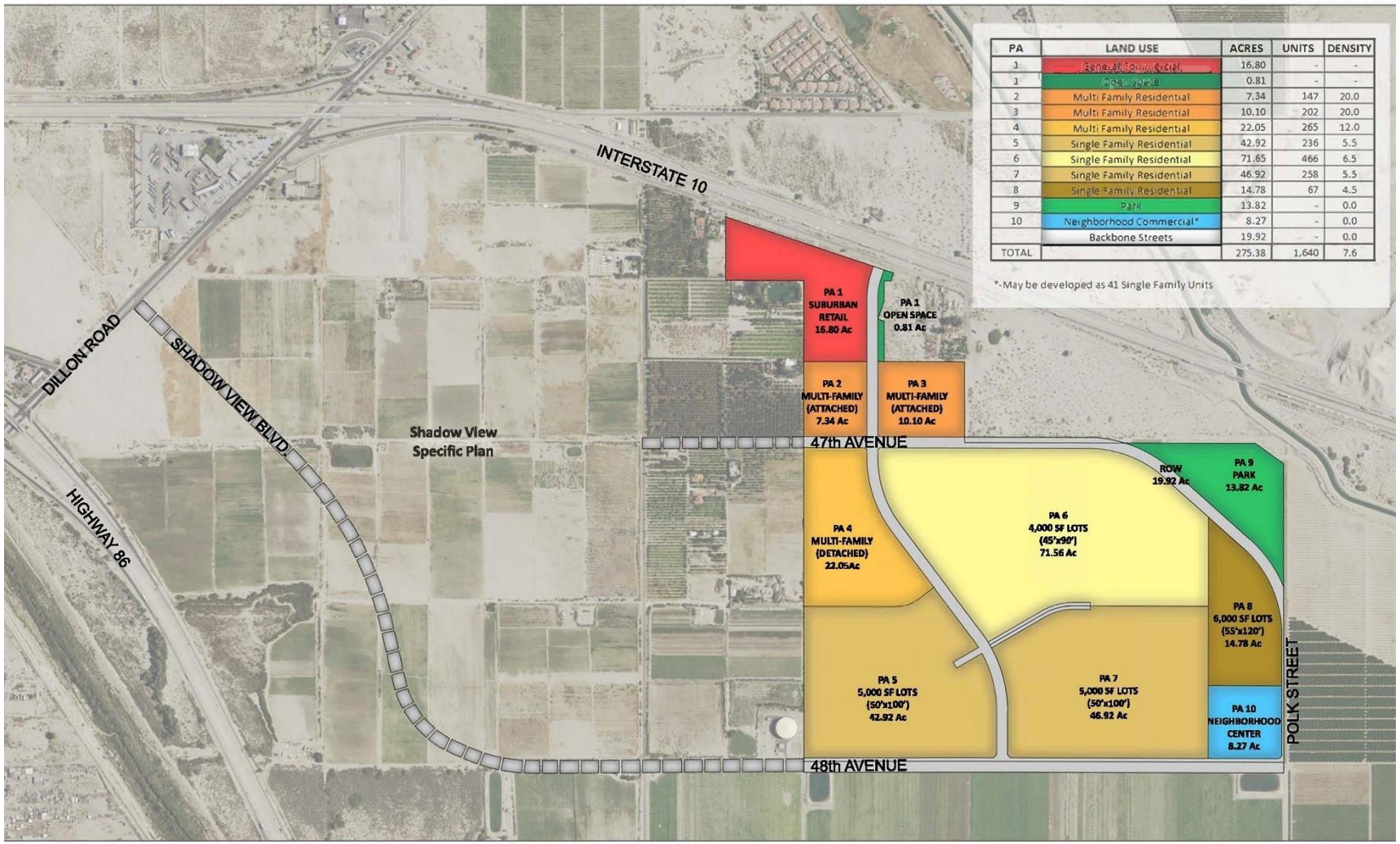

Figure 2-2 Vista Del Agua Land Use Plan

2.3 Project Water Demand

As indicated in **Table 2-1** above, the Vista Del Agua Project includes a mixture of single family residential uses, multi-family residential uses, commercial uses, parks, open space, and backbone streets (right-of-way). With the enactment of SBx7-7 and the requirements of that law to achieve a statewide reduction in per capita water use of 20 percent by the year 2020, the City's overall water use had declined approximately 28 percent over the last 5 years. As such, the City's existing water use factors, developed prior to these water conservation efforts, were outdated. Additionally, the 2009 and 2013 MOUs between the City and CVWD illustrate that projects relying on CVWD's Supplemental Water Supply program, such as this one, must strive to achieve consistency with the conservation programs identified in CVWD's 2010 CVWMP and the water use factors developed by CVWD for the use of supplemental water. In response, the City recently completed a Supplemental Water Supply Program and Fee Study (SWS Study).

The SWS Study provides an analysis and update to the City's annual water consumption factors (ACF), by land use. The ACFs were calculated using actual historical consumption by customers in each land use classification. After which, the most representative customers for future growth were selected for each land use classification. These selections considered future land use densities and water conservation measures (e.g. limited use of turf areas, desert-friendly landscaping, high efficiency irrigation system, water efficient household fixtures, etc.). Further, the ACFs developed in the SWS Study are consistent with the per capita water use reduction goals of SBx7-7, ongoing conservation efforts, and water use factors developed by CVWD for the use of supplemental water.[70] These ACF's are used to estimate total water demands for a project according to its land uses and size (in acres). **Table 2-2** below summarizes anticipated the total water demands of the Project based on these ACF's. The following ACF's were applied to this project:

- Single Family Residential ACF of 2.85 acre-feet per acre per year
- Multi-Family Residential ACF of 2.69 acre-feet per acre per year
- Commercial ACF of 1.78 acre-feet per acre per year
- Landscape Irrigation ACF of 1.80 acre-feet per acre per year

The Vista Del Agua Specific Plan states that the design and layout of the land plan, infrastructure, development standards, and design guidelines will emphasize the integration of the City's Vision Plan with complementary land uses; and it was prepared in accordance with the City's General Plan. Therefore, the City has determined that these ACF's can be applied to the Project. Furthermore, and as further illustrated in **Section 2.4** below, the project applicant has committed to ensuring that buildout of the Vista Del Agua Project will occur in a manner consistent with CVWD's efficient landscape ordinance.

[70] See City of Coachella Supplemental Water Supply Program and Fee Study, November 2016

Table 2-2
Vista Del Agua Average Water Demands

Land Use	Units	Area (Acres)	City Consumption Factor (ac-ft/ac/yr)	Demand w/ City Factors (gpd)	Demand w/ City Factors (AFY)
Single Family Residential (6.5 DU/ac)	466	71.65	2.85	182,288	204.2
Single Family Residential (5.5 DU/ac)	494	89.84	2.85	228,566	256.0
Single Family Residential (4.5 DU/ac)	67	14.78	2.85	37,602	42.1
Multi-Family Residential (20 DU/ac)	349	17.44	2.69	41,879	46.9
Multi-Family Residential (12 DU/ac)	265	22.05	2.69	52,949	59.3
General Commercial	-	16.80	1.78	26,695	29.9
Neighborhood Commercial	-	8.27	1.78	13,141	14.7
Schools/Institutional	-	-	1.32	-	-
Industrial	-	-	0.96	-	-
Landscape Irrigation (Parks)	-	13.82	1.80	22,206	24.9
Open Space	-	0.81	0.00	-	-
Backbone Streets	-	19.92	0.00	-	-
Total:	**1,640**	**275.38**	**-**	**605,326**	**678.1**

As shown in **Tables 2-2**, the anticipated water demand for the Project is 678 AFY, which is dependent on conservation measures implemented by the project, as discussed in the following section. Additionally, as described, once the Project is fully entitled and project features are incorporated into each Plan Area, the land use density will be slightly lower and are anticipated to have a lower water use.

2.4 Project-Specific Water Conservation and Groundwater Reduction Measures

As a general matter, new development projects within the City are required to implement water conservation measures to ensure the efficient use of water resources and to meet and maintain the goals of the 2010 CVWMP. The Project applicant has committed to ensuring that buildout of the Vista Del Agua Project will occur in a manner consistent with the following efficient landscape ordinance:

1. To the greatest extent practicable, native plant materials and other drought-tolerant plants will be used in all non-turf areas of Project landscaping. Large expanses of lawn and other water-intensive landscaped areas shall be kept to the minimum necessary and consistent with the functional and aesthetic needs of the Project, while providing soil stability to resist erosion;

2. Potential use of the Coachella Canal for construction water and Project landscaping may further reduce Project demand for potable water. This will be reviewed for feasibility and subject to agreements between the City and CVWD since the Project lies outside of the ID-1 boundary;
3. In the event recycled water becomes available to the Project, the potential use of tertiary treated water will be reviewed to determine feasibility of its use for on-site landscaped areas to reduce the use of groundwater for irrigation;
4. The installation and maintenance of efficient on-site irrigation systems will minimize runoff and evaporation, and maximize effective watering of plant roots. Drip irrigation and moisture detectors will be used to the greatest extent practicable to increase irrigation efficiency;
5. The use of low-flush toilets and water-conserving showerheads and faucets shall be required in conformance with Section 17921.3 of the Health and Safety Code, Title 20, California Code of Regulations Section 1601(b), and applicable sections of Title 24 of the State Code.

Consistent with these general requirements, the Project applicant has demonstrated its commitment to meeting and maintaining the water conservation goals of the 2010 CVWMP, as further provided below and in the Vista Del Agua Specific Plan.

The Vista Del Agua Specific Plan proposes an all-around approach to water efficiency. The proposed land use plan identifies trail corridors (paseos) that are intended to accommodate stormwater conveyance facilities that link to water quality treatment facilities designed to improve water quality on-site and limit downstream water quality impairments from the proposed development. Additionally, the Vista Del Agua Specific Plan proposes the efficient use of potable water through mandated building and site design requirements. Vista Del Agua design strategies for water efficiency include:

- Reduce potable water demand through landscaping, non-potable reclaimed, well or canal water for irrigation purposes (when available), and high efficiency plumbing fixtures and appliances;
- Utilize high efficiency plumbing and fixtures;
- Utilize efficient irrigation controls to reduce water;
- Reduce the amount of irrigated turf in parks;
- Minimum of 75% of all front yard landscaping shall be limited to desert-scape or xeriscape materials;
- Implement an integrated stormwater collection and conveyance system designed to treat and convey development-related runoff; provide 100-year flood protection to flood prone areas; increase groundwater recharge (where practical) through on-site retention basins, and improve water quality on-site and downstream through on-site water quality basins;
- Support the development of reclaimed water supplies in the City of Coachella and the Vista Del Agua Specific Plan.

Landscaping within Vista Del Agua Specific Plan will complement the existing desert setting as well as provide parks and paseos for outdoor enjoyment and activity. The

plant palette proposed in the Specific Plan contains drought tolerant plants approved for use by the City of Coachella. This palette serves as a guide and varieties may be substituted within each species if they are more appropriate for the Coachella Valley climate and/or Project design. Vista Del Agua landscape design strategies include:

- Utilize native plant choices to the greatest extent possible;
- Develop a plant palette that focuses on shading of pedestrian activity areas will promote use of non-motorized transportation and reduce the urban heat island effect;
- Promote the development of tree-lined streets to encourage walking, biking, and transit use, and reduce urban heat island effects;
- Minimum of 75% of all front yard landscaping shall be limited to desert-scape or xeriscape materials.
- Incorporate natural site elements (significant rock outcroppings, drainage corridors, bio-swales) as design features;
- Use Low Impact Development (LID) techniques to control stormwater flows on-site;
- Incorporate stormwater and/or water quality facilities close to the source within each planning area, protecting site and regional water quality by reducing sediment and nutrient loads to water bodies on-site and downstream; and
- Mimic the predevelopment site hydrology by using site design techniques that store, infiltrate, evaporate, and retain runoff to reduce off-site runoff and facilitate groundwater recharge.

The following guiding principles set the general direction for design of the landscaped places if the Vista Del Agua community:

- Implementation of landscape concepts that use drought tolerant plant pallets that are low-water use and well adapted to the desert climates;
- Incorporate eco-friendly designs, such as optimizing building orientation, reducing potable water use for irrigation and implementing shade strategies;
- Alley-loaded design concepts, which maximize streetscapes with emphasis on pedestrians by providing shade, amenities and connectivity throughout the project site;
- Incorporate the latest design principles of environmental sensitivity, conservation, and sustainability into the landscape planning and design;
- Promote design concepts that create lots fronting to open space areas, creating community-gathering places for local residents;
- Provide structures, pedestrian friendly streets, bicycle lanes, sidewalks and public gathering places that facilitate local, non-vehicular transportation;
- Planting areas and medians will be irrigated with high efficiency automatic irrigation system;
- Collection and treatment of urban runoff using multiple water quality basins throughout the project;
- Utilize high-efficiency plumbing fixtures that meet or exceed the CALGREEN code.

SECTION 3
WATER DEMANDS

3.1 General

The City of Coachella is a desert community of approximately 44,000 people located at the eastern end of the Coachella Valley, in Riverside County, California. The City is located southeast of the San Gorgonio Pass, east of the San Jacinto and Santa Rosa Mountains, north of the Salton Sea 68 feet below sea level.[71]The current City limits encompass over 20,000 acres and the sphere of influence encompasses approximately 13,000 additional acres around the City. The City's regional setting and water service area are described in detail below.

3.1.1 Service Area Description

The City, incorporated in 1946, encompasses approximately 30 square miles in Riverside County. The area is known as the 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. Full build-out 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 3-1**, which includes the service area outside the City limits, but within the SOI.

3.1.2 Facilities

Water is currently supplied for the City of Coachella entirely by the Coachella Valley Groundwater Basin, Indio Subbasin; Basin Number 7-21.01 (also referred to as the Whitewater River Subbasin). As discussed throughout this WSA, the Basin includes native supplies, and recycled water and imported supplies that are recharged to the Basin to replenish native supplies. The Basin is not adjudicated. The City supplies 100 percent of its potable water from City owned and operated wells. The City presently operates six (6) active groundwater wells, Well Nos. 11, 12, 16, 17, 18, and 19, with a total production capacity of approximately 11,400 gallons per minute (gpm) or 16.5 million gallons per day (MDG). In 2015, annual production was approximately 2,128 million gallons or 6,530 acre-feet. Water provided by these wells is of excellent quality and requires no treatment, other than chlorination, to maintain quality requirements of the California Department of Public Health.

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 States Bureau of Reclamation and is operated and maintained by the Coachella Valley Water District (CVWD). The Colorado River Aqueduct is owned,

[71] Coachella General Plan Update, 2015, p. 01-3

operated and maintained by the Metropolitan Water District of Southern California (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.

The City operates a secondary-treatment wastewater facility with a 4.5 MGD capacity and currently processes approximately 2.7 MGD of wastewater. Wastewater effluent is conveyed to the Salton Sea via the storm water channel. The existing treatment plant can be upgraded to a tertiary treatment plant in the future which would permit recycled water to be used for non-potable purposes, further discussed in **Section 4.8** below.

3.1.3 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 3-1** shows the average monthly ETo, rainfall, and temperature for the City of Coachella area.

Table 3-1
City of Coachella Area Climate

Month	Monthly Average ETo[a] (inches)	Average Temperature[b] (degrees F)		Average Rainfall[b] (inches)
		Max	Min	
January	2.98	70.6	39.2	0.64
February	3.53	74.9	44.3	0.51
March	6.28	80.0	50.4	0.31
April	8.39	87.0	57.4	0.11
May	10.55	93.7	64.4	0.05
June	10.95	102.3	71.9	0.01
July	10.78	106.9	77.8	0.012
August	9.66	105.7	76.9	0.25
September	8.25	101.5	70.3	0.31
October	5.85	91.9	59.4	0.20
November	3.63	80.2	46.7	0.26
December	2.62	71.7	39.4	0.54
Average:	**6.96**	**88.9**	**58.2**	**0.27**

NOTES:
[a] 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://wwwcimis.water.ca.gov/UserControls/Reports/MonthlyEtoReportViewer.aspx
[b] Western Regional Climate Center (WRCC), Desert Research Institute, Reno, Nevada [on-line] http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca4259 (WRCC program administered by the National Oceanic and Atmospheric Administration (NOAA); data extracted from monitoring Station 044259 at Palm Springs, CA, Average 3/01/1894 through 06/10/16)

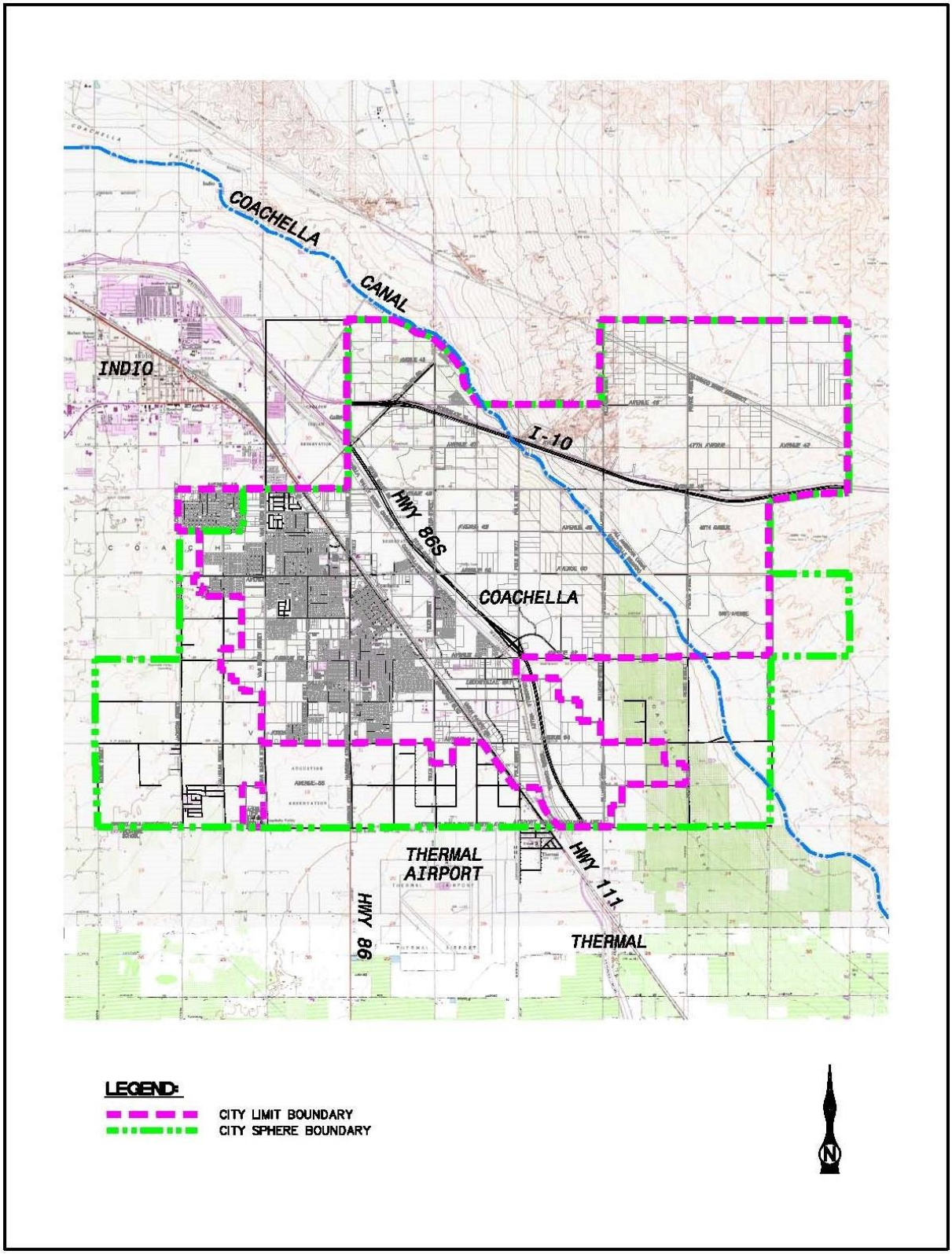

Figure 3-1 City of Coachella Water Service Area

3.1.4 Service Area Population

The population of the small, stable community has a young median age. While development carried a rapid pace in the Coachella Valley in the early to mid-2000s, it has slowed significantly since the beginning of the economic recession. Total water demand had increased by over 50 percent up to 2007, but has since generally 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.

The City's water service area population is expected to increase substantially in the future. Currently, the WSA lies within the City's boundaries, serving the more densely populated areas to the west and commercial/resort areas to the north. The water service area covers approximately 32 percent of the City Limits with a total of area of 6,057 acres or 9.5 square miles. In order to calculate the current water service area population, the DWR population tool was used by uploading electronic maps that reflected the boundaries for the 2010 census year, the total number of past and current service connections, and SBx7-7 baseline information. With this information, the DWR population tool calculated the 2015 water service area population as 40,208.

To calculate the projected water service area population, the percent changes across given time periods from the City's 2015 General Plan Update were used. According to the City's 2015 General Plan Update, the 2010 population was 40,704 and is expected to grow to an estimated 70,200 by 2020 and 128,700 by 2035. Using these projected population estimates, the percent change was calculated as 7.25 percent between 2010 and 2020 and 5.56 percent between 2020 and 2035. These percent changes in growth were then applied to project future populations up to 2035, see **Table 3-2** below.

Table 3-2
City of Coachella Population Projections

	2015	2020	2025	2030	2035
Service Area Population	40,947	55,783	71,278	91,078	116,377

3.2 Water Demands

3.2.1 City Past and Current Water Use

The City tracks the following water use sectors: single family, multi-family, commercial/institutional, industrial, and landscape irrigation. As previously stated, the City of Coachella service area population growth was trending upward. However, between 2010 and 2015, the increase was only 1.8 percent, likely a result of the recent economic downturn.

The City's historic water uses by sector, are shown in **Table 3-3**. Overall, water use has declined from 7,105 AFY in 2005 to 6,531 AFY in 2015 or by 8.1 percent. A more significant reduction in water use occurred from 2010 to 2015, decreasing water use by 21 percent overall; attributable to continued implementation of Demand Management Measures (DMMs) and State water reduction mandates. In 2015, single family water use accounts for 57.3 percent of total water use and commercial/institutional water use accounts for 13.9 percent of total water use.

Table 3-3
Past and Current Water Use

Use Type	2005	2010	% Change from 2005 to 2010	2015	% Change from 2010 to 2015	% Change from 2005 to 2015
Single family	2,904	4,375	50.7%	3,744	-14.4%	29.0%
Multi-family	681	943	38.4%	640	-32.1%	-5.9%
Commercial/Institutional	549	1,155	110.4%	907	-21.5%	65.2%
Industrial	421	133	-68.3%	10	-92.6%	-97.7%
Landscape Irrigation	426	957	124.4%	546	-42.9%	28.1%
Other	0	0	-	63	-	-
Losses	2,124	697	-67.2%	620	-11.0%	-70.8%
Total:	**7,105**	**8,260**	**16.3%**	**6,531**	**-20.9%**	**-8.1%**

NOTES: Units are Acre-Feet per Year (AFY)

3.2.2 City Water Demand Projections

The projected (next 20 years) water use for the City of Coachella is generally expected to increase at a similar rate to that of the projected population increase within the City and its SOI; provided, however, that per capita water use reductions achieved pursuant to SBx7-7 (see Chapter 1 above) may be expected to affect the relationship between increased population and increases in total water use. The City Development Services Department show active processing for several proposed and recently approved development projects, ranging in size from 10 residential units to mixed-use developments with over 7,800 residential units. The total number of proposed residential units associated with these entitlement applications is approximately 20,000, including Vista Del Agua. These units are included in the City's SOI, which is not anticipated for full build out until after 2050. Thus, many of these development projects are either in the preliminary planning stages or may have been put on hold by applicants for various reasons. Projected water use for

2015 through 2035 in five-year increments is provided in **Table 3-4**. These demand projections are based on projected population and per capita water use, as shown in **Table 3-5**. The population projections are based on CGPU data as presented in the previous section. Per capita water use was calculated in the City's 2010 UWMP. As presented in the City's 2010 UWMP, the water use is currently 210 gallons per capita per day (gpcd), with a reduction to 205 gpcd by 2015 and 200 gpcd by 2020 and beyond.

Table 3-4
Future per Capita Water Use

Year	Total Service Area Population	Per Capita Water Use (GPCD)[a]	Total Water Use per Day (MGD)	Total Annual Water Use (AFY)	% Increase
2010[b]	40,208	210	8.55	9,575	-
2015[b]	40,947	205	8.39	9,403	-2%
2020	55,783	200	11.16	12,498	33%
2025	71,278	200	14.26	15,969	28%
2030	91,078	200	18.22	20,405	28%
2035	116,377	200	23.28	26,074	28%

NOTES:
[a] As presented in the City's 2010 UWMP, Table 3.2-3, and in Sections 5-6 and 5-7 herein, the base daily per capita water use 5-year average is 210 gpcd.
[b] Note that both 2010 and 2015 Total Annual Water Use are planning number based on a 5-year average per capita water use baselines and targets and vary from actual metered sales presented in Table 4-1B, providing a more conservative outlook.

As indicated above, Riverside County was hit particularly hard by the recent economic downturn. The County experienced some of the highest rates of foreclosures and unemployment in the country. Due to this economic downturn, growth in the County had significantly decreased for several years around the late 2000's. The slowdown in the housing market was one of the primary components of the recession. The timing and extent of this reduced growth rate cannot be accurately predicted. Because the planning period for the City's 2015 UWMP is through 2035, it is expected that the effect of the recent recession on growth in the Valley will attenuate over the long term. Additionally, as shown in **Table 3-4**, actual water demand has declined significantly since 2010 and the City's current GPCD water use is 40.8 percent lower than the SBx7-7 2015 interim target (2015 Interim Target = 204 GPCD v. 2015 Actual Water Use = 142 GPCD). These factors result in a particularly conservative analysis in the City's 2015 UWMP because the actual growth and the actual increases in water demand associated with growth are

likely to be much lower than the forecasts that have been used for long term water supply planning purposes.

Table 3-5
Projected 2020, 2025, 2030, and 2035 Water Demands

Use Type	Projected Water Use			
	2020	**2025**	**2030**	**2035**
Single Family	7,166	9,156	11,700	14,949
Multi-Family	1,226	1,566	2,001	2,557
Commercial	1,735	2,217	2,833	3,620
Industrial	19	24	31	39
Landscape	1,046	1,336	1,707	2,181
Other	121	155	198	253
Losses	1,185	1,515	1,935	2,473
Total:	**12,498**	**15,969**	**20,405**	**26,074**

NOTES: Units are Acre-Feet per Year (AFY)

Certain other aspects of the water demand projections above and water supply reliability discussion in **Section 4** below are noteworthy for purposes of this WSA. First, the City's 2015 UWMP, CVWD's 2015 UWMP, and CVWD's 2010 CVWMP demonstrate that the total projected water supplies available to CVWD and the City are sufficient to meet the water demands of Vista Del Agua and other demands throughout the City and CVWD service areas during normal, single-dry and multiple-dry periods throughout the year 2035 and beyond. More importantly, those conclusions are made in the context of water demands associated with *projected population growth* in the City and CVWD service areas for the next 20 years – the standard established under the UWMP Act. Yet the UWMP Act standard is much more inclusive than the standards set forth by SB 610 and CEQA. Indeed, the water supply sufficiency standard established under SB 610 and CEQA is whether the total projected water supplies available to the City and CVWD over the next 20-year period is sufficient to meet the projected demand associated with the Project in addition to existing and planned future uses.[72] Future water demands associated with the Project and "planned future uses" within the City and CVWD are considerably less than future water demands associated with projected population growth within the City and CVWD, and neither SB 610 nor CEQA requires a WSA to determine water supply sufficiency in the context of projected population growth. Accordingly, this WSA provides an ultra-conservative approach to water supply sufficiency.

Several sources of authority are instructive in this regard. Under the UWMP Act, an UWMP must quantify historic, existing, and projected demand of various water users over 5-year increments for the ensuing 20-year period or as far as data is

[72] Water Code §§ 10910(c)(3); 10911(c); Pub. Res. Code § 21151.9; 14 Cal. Code Regs. § 15155.

available.[73] Notably, the Act expressly requires such water demand forecasts associated with projected population increases to be based upon data produced by state, regional, or local service agency population projections.[74] The Act further instructs that demand should account for particular land use sectors, including but not limited to, single-family residential, multifamily, commercial, industrial, institutional and government, landscape, sales to other agencies, conjunctive use, groundwater recharge, seawater intrusion barriers, and agriculture.[75]

The standard for assessing demand under SB 610, however, is conspicuously different. Again, the general standard for evaluating demand in a WSA is expressed as "the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses."[76] The DWR Guidebook supports the idea that demand calculations for purposes of preparing a WSA are much more tailored and limited than the demand analyzed in an UWMP. The DWR Guidebook states: "Planned future uses – the lead agency, as the land-use agency, has information on planned development. Regular communication between the water supplier and lead agency will be essential to ensuring an accurate determination of sufficiency of water supply for future demand. Planned future uses may include: projects that are expected to be completed during the same time frame as the proposed project. These include all new demands ranging from all individual single-family homes to large-scale developments. Proposed developments that have a reserved (or entitlement to) future water supply and are considered to be moving towards construction. Proposed projects that are included in a general or specific plan need not be included if the agency determines that they are not likely to begin construction during the period under consideration. … [I]t would be a reasonable interpretation that planned future uses are those that would be undertaken within the same time frame as the project under consideration."[77]

Thus, a WSA arguably should not be required to consider water demands associated with all development that might conceivably occur over the 20-year planning horizon, such as development or projected water demands associated with forecasted population increases in a general plan or UWMP. Rather, a WSA should only be required to contemplate development that is planned and reasonably likely to occur. This approach is consistent with project review conducted under CEQA. In general, CEQA requires some degree of forecasting of future events. For instance, CEQA Guidelines section 15144 provides: "While forecasting the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can."[78] In this regard, even a cumulative impacts analysis under CEQA is only required to encompass "past, present, and reasonably anticipated future projects."[79]

[73] Water Code § 10631(a), (e)(1).
[74] Water Code § 10631(a).
[75] Water Code § 10631(e).
[76] See Water Code §§ 10910(c); 10911(c).
[77] DWR Guidebook, p. 23.
[78] Cal. Code Regs, tit. 14, § 15144.
[79] Pub. Res. Code § 21083(b); Cal. Code Regs, tit. 14, § 15130(b)(1)(A).

In *Laurel Heights Improvement Association of San Francisco v. The Regents of the University of California* (1988) 47 Cal. 3d 376, the California Supreme Court endorsed this view, explaining that "an EIR must address the impacts of 'reasonably foreseeable' future activities related to the proposed project." (*Id.* at 398-399; see also *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal. 4th 412, 428.) In *Laurel Heights*, the lead agency had detailed information about potential future uses for a property (details that had been published in a newsletter, for example), but did not address those future uses in its EIR because they had not yet been officially proposed. Though the Court did not require detailed analysis of every possible future use, it found that at least a general analysis of probable future uses was required. In explaining what may fall within the scope of such probable future uses, the Court held that an EIR does not require discussion of possible future action "that is merely contemplated or a gleam in a planner's eye."[80] Pursuant to this CEQA standard, it is reasonable for a WSA's evaluation of projected water demand associated with the "planned future uses" in the water provider's service area to be tied to the more limited set of projects that are "reasonably foreseeable probable future projects."

Not only is this approach reasonable and consistent with CEQA, in most cases it would produce a lower total forecasted water demand figure which a WSA then compares to total projected supplies. In the case of Vista Del Agua, for instance, "planned future uses" within the City and CVWD over the next 20-year period have decreased due to economic slowdown and related market factors. Thus, the water demand associated with those uses is much less than the forecasted demand associated with projected population increases as set forth in CGPU, CVWD's 2010 planning documents, and in regional and county forecasts. Nevertheless, this WSA provides the most conservative analysis of water supply sufficiency by comparing the City and CVWD's total projected water supplies to possible water demands associated with State and SCAG-based growth projections. The result of this conservative analysis is that the WSA has evaluated potential water supply impacts of the Project against a greater long-term water demand than is required by SB 610 and CEQA. Yet even according to this extra-conservative approach, the record evidence and analyses herein demonstrate that the total projected water supplies available to the City and CVWD over the next 20-year period (and beyond) during normal, single-dry and multiple-dry year periods are sufficient to serve the projected water demand associated with Vista Del Agua in addition to existing and future demands, and that the potential impacts of supplying water to the Project are less than significant on both a project-level and cumulative basis.

3.3 Water Use Reduction Plan

The City and CVWD recognize that water is a limited resource and that water conservation and water use efficiency should be actively pursued throughout the Coachella Valley. Both the City and CVWD have implemented and will continue to expand and implement water conservation programs to achieve the goal of realizing

[80] *Laurel Heights*, *supra*, 47 Cal.3d at 398.

a 20 percent reduction in per capita water use by the year 2020. The interim goal of realizing a 10 percent per capita reduction by 2015, pursuant to SBx7-7, has already been met.

The California Urban Water Conservation Council (CUWCC) Memorandum of Understanding (MOU) regarding Urban Water Conservation in California sets guidelines to achieve a baseline level of water conservation in given water service areas (CUWCC, 2004). Signers of the MOU agree to set goals to meet the standards outlined in the MOU. On November 2, 2000, the City of Coachella became a signatory to the MOU, and the City has remained committed to demand management throughout its service area. For example, the City applies a tiered water rate schedule that is conducive to voluntary conservation, water conservation rebate programs such as the turf removal rebate program, and the City adopting the latest version of the Uniform Building Code (UBC), which requires the installation of water efficient fixtures. The City has also adopted a model landscape irrigation policy as part of the City's "Landscape Guidelines" that address all landscaping for public parkways, median islands, and common area landscaping improvements for residential and commercial developments in the City. The City worked with the Coachella Valley Association of Governments and adopted the Coachella Valley "Model Landscape Ordinance" as a policy document. The guidelines used by the City encourage minimal turf areas, use of native plant materials reminiscent of the "desert wash" plant palette which are used in all of the newer residential common areas including retention basins, parkways and perimeter landscaped planters.

Additionally, the City has implemented a model of sustainability in landscaping its largest public parks with smart irrigation systems and permeable pavers. The recently constructed Rancho Las Flores Park, the expanded Bagdouma Park, and the re-designed De Oro Park all incorporate a blend of native and drought-tolerant plants, trees and ground covers into an attractive, low-maintenance, water-saving resource for the community. Further, the CWA offers three water conservation programs to its residents. These include the Turf Removal Rebate Program, the Indoor/Outdoor Water Fixture Kits, and the Toilet Rebate Program. 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.[81] CVWD is not a signatory to the MOU; however, as presented in **Section 1**, CVWD participates in a number of demand management programs similar to those provided by the CUWCC.

3.4 Statewide Drought Conditions

On April 1, 2015, Governor Brown issued Executive Order B-29-15 calling for a 25 percent reduction in consumer water use in response to the historically dry conditions throughout California. The Executive Order also included mandatory actions aimed at reducing water demands, with a particular focus on outdoor water

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

use. In addition to requiring urban water use reductions, the Executive Order called for the following:

- remove and replace turf with drought tolerant landscape options,
- support rebate program for water efficient devices,
- restrict water use on commercial, industrial, and institutional properties in order to achieve 25 percent reduction in potable water use,
- prohibit irrigation of ornamental turf on street medians with potable water supplies,
- prohibit irrigation of new construction with potable water unless drip or micro spray systems are used, and
- direct water supplies to develop rate structures and pricing mechanisms to maximize water conservation consistent with statewide restrictions.

3.4.1 State Board Emergency Water Conservation Regulations

In May 2015, pursuant to the Governor's Executive Order, the State Water Resources Control Board adopted emergency regulations designed to achieve an overall 25 percent reduction in potable urban water use across the state. The regulations were in response to the four-year drought and marked the first time in the State's history for such action. Under the regulations, the State's urban water suppliers (i.e., those serving more than 3,000 customers or delivering more than 3,000 AF of water per year, but not including suppliers functioning solely in a wholesale capacity) were required to achieve assigned water-saving targets that collectively would result in a 25 percent reduction in potable urban water production across the state. The original and extended regulations were effective through May 2016. During that time, the City reduced water use by 24 percent compared to 2013 water use.

On May 9, 2016, Governor Brown issued Executive Order B-37-16 calling on the State Board to adjust emergency water conservation regulations through the end of January 2017 in recognition of differing water supply conditions across the state. On May 18, 2016, the State Board adopted a new emergency conservation regulation to allow urban water providers to calculate an alternative water conservation standard based on a "stress test" approach that assumes three additional dry years. These standards require local water agencies to ensure a three-year supply assuming three more dry years like the ones the state experienced from 2012 to 2015. Water agencies that would face shortages under three additional dry years are required to meet a conservation standard equal to the amount of shortage. As directed by Governor Brown in Executive Order B-37-16, the Board will separately take action to make some of the requirements of the regulation permanent. Of note, the emergency regulations do not impede the City's ability to grow and approve new developments. Rather, it guides water use in a conservative direction while eliminating gross water waste, as shown in the City's water use activity restrictions.

On April 7, 2017, Governor Brown ended the drought emergency in most of California through Executive Order B-40-17, while maintaining water reporting

requirements and prohibitions against wasteful practices such as watering during or right after rainfall. The Order also rescinded two emergency proclamations from January and April 2014 and four drought-related Executive Orders issued in 2014 and 2015. Executive Order B-40-17 builds on actions taken in Executive Order B-37–16, which remains in effect, to continue making water conservation a way of life in California. The Board will separately take action to make reporting and wasteful water practices permanent.

The City reports its monthly water use and progress in meeting the mandated water use reduction to the State through its online monthly monitoring report system. Additionally, the City and CWA will continue to work with the Department of Water Resources and the State Board to develop a long-term framework to "Make Water Conservation a California Way of Life." This framework will help to improve the resiliency of California supplies in times of drought.

SECTION 4
WATER SUPPLY ASSESSMENT

4.1 Existing Water Supplies

As explained herein, CWA produces all of its water supplies from the Coachella Valley Groundwater Basin, specifically, the East Whitewater River Subbasin, which is continuously replenished at the local and regional level pursuant to a variety of water supply projects and programs.

The Coachella Valley relies on a combination of local groundwater, Colorado River (CR) water, surface water, and recycled water to meet demand. As explained throughout this WSA, the City produces all of its water supplies from the Coachella Valley Groundwater Basin, specifically, the East Whitewater River Subbasin, which is continuously replenished at the local and regional level pursuant to a variety of water supply projects and programs. The East Whitewater River Subbasin is regionally managed by CVWD, CWA, and IWA. CVWD has statutory authority to replenish local groundwater supplies and collect assessments necessary to support a groundwater replenishment program as provided in the County Water District Law. As indicated in CVWD's 2015 UWMP and various other Coachella Valley water supply planning documents (e.g. CVWD 2010 Coachella Valley WMP and CVWD 2011 Subsequent Program Environmental Impact Report (SPEIR)), the Coachella Valley groundwater basin area serves as an expansive conjunctive use resource that is capable of ensuring a sufficient and sustainable water supply to serve existing uses and projected growth during normal, single-dry and multiple-dry years over an extended planning horizon, currently established as the year 2045. Not only does the basin contain vast reserves of local groundwater (approximately 30 million AF at 1,000 foot depth), it has substantial available storage space that has been utilized and will continue to be utilized to store millions of acre-feet of supplemental supplies that become available during normal and above-normal years. Those surplus supplies are recharged to the basin for later use during dry periods.

In 2002, CVWD prepared a Water Management Plan to provide a road map for meeting future water demands throughout the Lower Coachella Valley, including the City. It includes recommendations for water conservation, additional imported supplies, source substitution, and groundwater recharge elements. CVWD successfully implemented an urban water conservation program, acquired additional SWP supplies, constructed the initial phase of the Mid-Valley Pipeline, and constructed the Thomas E. Levy Groundwater Replenishment Facility. CVWD updated the Plan in 2010. The new 2010 CVWMP recommends greater conservation (agricultural conservation, additional urban conservation, and golf course conservation), supply development (acquisition of additional imported water supplies, recycled water use, and desalinated drain water), groundwater recharge program enhancements, and source substitution programs. A number of new projects and programs are recommended and presented in Section 8 of the 2010

CVWMP.[82] (See **Section 1** above for an overview discussion of the 2010 CVWMP and related 2011 SPEIR that has been adopted and certified pursuant to CEQA.)

4.2 Groundwater

Groundwater[83] is the principal source of municipal water supply in the Coachella Valley. The main groundwater source for the entire valley is the Coachella Valley Groundwater Basin, Indio Subbasin, Basin Number 7-21-01, also known as the Whitewater River Subbasin, as shown in **Figure 4-1**. The east portion of the Whitewater River Subbasin is shared by CVWD, Indio Water Authority, Coachella Water Authority (City), and numerous private groundwater producers.

Water Code Section 10910(f) requires additional information when a groundwater basin is included as a source of water supply for a proposed project. The additional information includes a description of the basin, the rights of the public water system (PWS) to use the basin, the overdraft status of the basin, any past or planned overdraft mitigation efforts, historical use of the basin by the PWS, projected use of the basin by the project, and a sufficiency analysis of the basin that is to be utilized to supply the project. In addition to the information and analyses provided in other sections of this WSA, each of the statutory elements of Section 10910(f) are discussed in the following paragraphs.

4.2.1 Basin Description

The Whitewater River Subbasin underlies a major portion of the valley floor and encompasses approximately 400 square miles. Beginning approximately one mile west of the junction of State Highway 111 and Interstate 10, the Subbasin extends southeast approximately 70 miles to the Salton Sea. It is bordered on the southwest by the Santa Rosa and San Jacinto Mountains and is separated from other basins by the Garnet Hill and San Andreas faults. The 2010 CVWMP provides a more comprehensive description and discussion of the Subbasin, which is incorporated herein.[84]

4.2.2 Public Water System Use Rights

As noted by DWR Bulletin 118, the basin is not adjudicated. As such, there are no specifically established limitations on the rights of the City to withdraw water. DWR Bulletin 118 notes that groundwater management in the basin is a local responsibility, and therefore decisions regarding basin conditions and controlled overdraft and groundwater management are the responsibility of local agencies. With specific regard to the Whitewater River Subbasin and surrounding areas, CVWD, one of the region's SWP contractors, developed the 2002 CVWMP and 2010 CVWMP Update for the long-term management of groundwater resources. As

[82]See also: CVWD 2010 CVWMP, Section 4, Existing Water Supplies.
[83]As indicated throughout this WSA, the term groundwater refers to local groundwater and imported, recycled and other supplies that are continuously recharged to the basin and extracted from groundwater wells.
[84]See 2010 CVWMP, Section 4.1.1, Whitewater River Subbasin.

detailed in those Plans and discussed in this WSA, CVWD has determined that the total projected water supplies available to the basin area, including the City and it's SOI, during normal, single-dry and multiple-dry periods throughout the year 2045 are sufficient to meet the needs of existing uses and projected growth.[85] Moreover, the potential environmental effects of implementing the projects and programs contained in the 2010 CVWMP have been analyzed in accordance with CEQA, and the determination has been made that implementation of the 2010 CVWMP will have a beneficial effect on groundwater resources.[86] CVWD, with assistance from other water agencies including the City's Coachella Water Authority, have been implementing water supply projects, programs and related management actions of the CVWMPs since 2002. A notable requirement under the CVWMP is that the City (and other agency producers) must pay a replenishment assessment charge (RAC) for each acre-foot of groundwater produced. The FY 2015 RAC was $52 per acre-foot (AF) of groundwater pumped, the FY 2016 RAC was $59 per AF, and beginning July 1, 2016 the FY 2017 RAS is $66/AF.[87] In 2015, CWA produced approximately 2,128 MG, or 6,531 AF, of groundwater and paid approximately $339,612 in RAC. In addition to the CVWMP process, in December 2010 the Coachella Valley Integrated Regional Water Management Plan (IRWMP) was developed to promote a regional approach for addressing water management issues and to enhance the region's eligibility for state funding opportunities for water resource projects. The IRWMP was created by the Coachella Valley Regional Water Management Group (CVRWMG), which is a partnership of CWA, CVWD, DWA, Indio Water Agency, and the Mission Springs Water District.

4.2.3 Status of Groundwater Basin

As noted above, the 2010 CVWMP Update and 2011 SPEIR conclude that the total projected water supplies available to the basin area, including the City and its SOI, during normal, single-dry and multiple-dry periods throughout the year 2045 are sufficient to meet the needs of existing uses and projected growth.[88] Along with those conclusions, the 2010 CVWMP states that the demand for groundwater in the Basin has annually exceeded the natural recharge of the groundwater basin and that condition has caused groundwater levels to decrease in portions of the East Valley and has raised concerns about water quality degradation and land subsidence. If left unaddressed and unmanaged, such groundwater conditions could result in increased groundwater pumping costs, continued decline of groundwater levels, and water quality degradation in the Basin. Because of the difficult nature of quantifying overdraft, CVWD has based its assessment of the issue on the change in freshwater storage in the Basin. For 2015, the latest report available, the annual water balance in storage was a gain of 26,900 AF, which is a positive change in the

[85] See, e.g., 2010 CVWMP, pp. 7-2 to 7-12; 2011 SPEIR, pp. 3-4 to 3-9.
[86] See, e.g., 2010 CVWMP, pp. 7-18 to 7-31; 2011 SPEIR, pp. 3-23 to 3-33.
[87] CVWD Engineer's Report on Water Supply and Replenishment Assessment 2016-2017 Mission Creek, West Whitewater River, and East Whitewater River Subbasin Areas of Benefit, Table VII-4, Appendix A.
[88] See, e.g., 2010 CVWMP, pp. 7-18 to 7-31; 2011 SPEIR, pp. 3-23 to 3-33.

loss trends of previous years.[89]Importantly, and as noted throughout this WSA and the water supply planning and CEQA documents that support its analysis, Basin conditions have been and will continue to be fully addressed and comprehensively managed. Consistent with the conclusions of CVWD's 2010 CVWMP Update and 2011 SPEIR, it is expected that continued implementation of CVWMP recommendations will improve overdraft conditions and have a beneficial effect on the groundwater basin.

4.2.4 Groundwater Management and Mitigation Efforts

As presented in **Section 1**, CVWD is successfully implementing an urban water conservation program, has acquired additional SWP supplies, and has constructed the Thomas E. Levy Groundwater Replenishment Facility, among a host of other water management programs and actions. The 2010 CVWMP Update recommends greater conservation (agricultural conservation, additional urban conservation, and golf course conservation), supply development (acquisition of additional imported water supplies, recycled water use, and desalinated drain water), groundwater recharge program enhancements, and source substitution programs as means of improving basin conditions while ensuring a sufficient and sustainable source of water supply for existing and projected uses throughout the region. In addition to the information and analyses presented in this WSA, other descriptions of the projects and programs within the City and CVWD service areas are set forth in the City 2015 UWMP, CVWD 2015 UWMP, CVWD 2010 CVWMP and 2011 SPEIR, which discussions are incorporated herein by reference.[90]

4.2.5 Historical Use of the Basin

The City of Coachella currently operates six (6) groundwater wells. In 2016, the City produced approximately 2,096 MG (6,434 AF) of groundwater. The operating conditions and controls for the wells vary, with some wells operating year-round and some turned on only seasonally. The system is controlled by a Supervisory Control and Data Acquisition (SCADA) system to ensure maximum efficiency of groundwater resources. The City presently uses approximately five percent of the total volume of water withdrawn from the East Whitewater River Subbasin each year. **Table 4-1** shows the City's annual groundwater production in the Subbasin over the past 5 years. **Table 4-2** shows Coachella Valley Water District's total groundwater production both the Whitewater River and the Mission Creek Subbasins over the past 5 years.

Table 4-1
Groundwater Volume Pumped

Groundwater Type	Location or Basin Name	2012	2013	2014	2015	2016

[89]CVWD Engineer's Report on Water Supply and Replenishment Assessment 2016-2017 Mission Creek, West Whitewater River, and East Whitewater River Subbasin Areas of Benefit, Table VII-3, Appendix A.

[90]See Chapter 1 above regarding management efforts to ensure water supply sufficiency and improved groundwater conditions.

Alluvial Basin	East Whitewater River Subbasin	7,993	7,939	7,716	6,531	6,434
	Total:	**7,993**	**7,393**	**7,716**	**6,531**	**6,434**
NOTES: Units are in Acre-Feet (AF)						

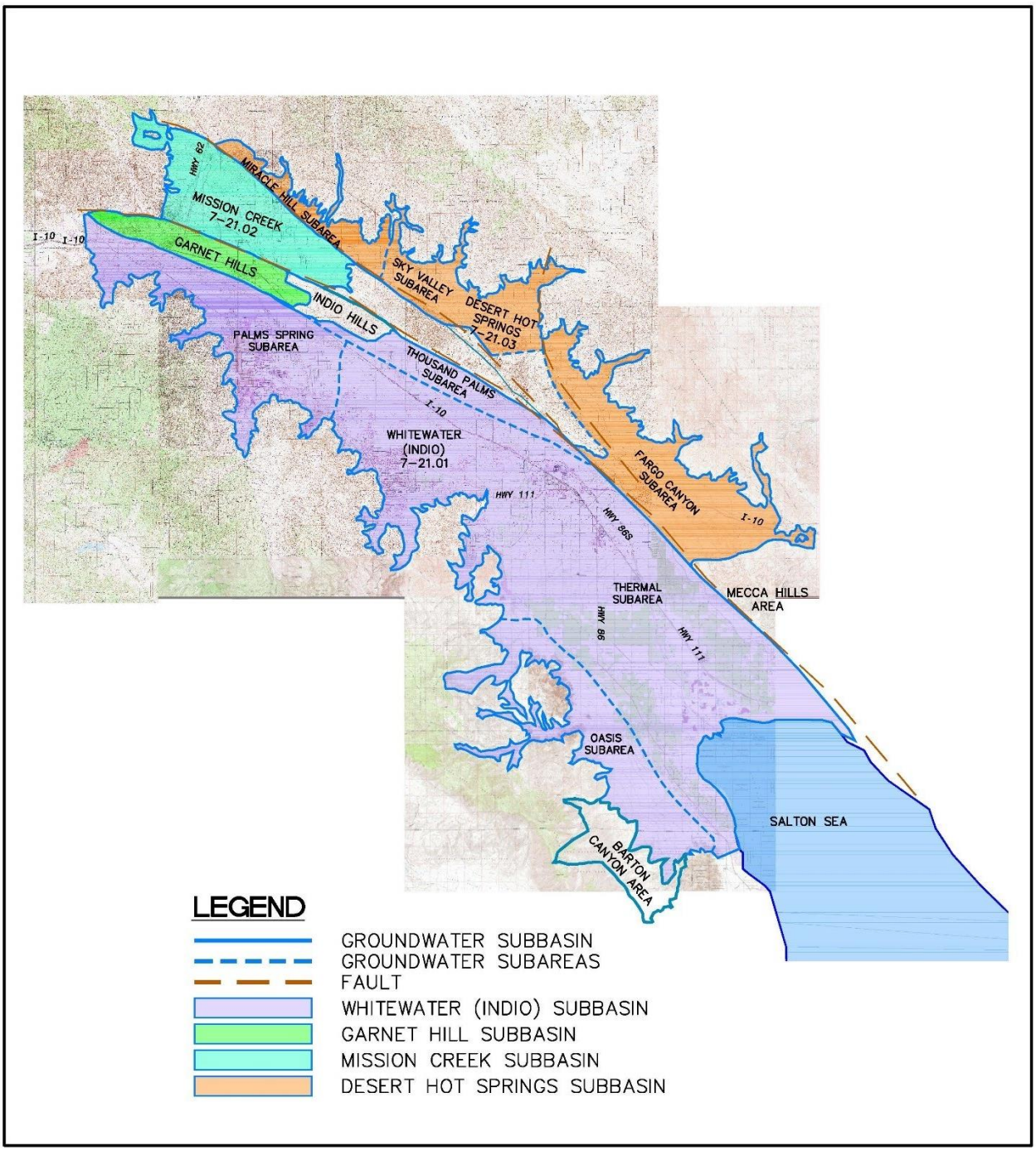

Figure 4-1 Groundwater Subbasins

Table 4-2
Retail Groundwater Volume Pumped

Groundwater Type	Location or Basin Name	Volume Pumped (AF)				
		2012	2013	2014	2015	2016
Alluvial Basin	West Whitewater River Subbasin	141,379	143,108	136,027	115,588	115,706
Alluvial Basin	East Whitewater River Subbasin	120,064	119,194	123,465	113,706	111,925
Alluvial Basin	Mission Creek Subbasin	4,582	4,415	4,154	4,090	4,175
Total:		**266,025**	**266,717**	**263,646**	**233,384**	**231,806**

As indicated herein, substantial regional efforts are ongoing, led by CVWD, to recharge the Whitewater River Subbasin with imported water and other supplies. Those efforts are made possible in large part because CVWD is a SWP contractor. Notably, however, the Coachella Valley does not have a direct physical connection to the SWP system. Therefore, CVWD has entered an agreement with the Metropolitan Water District of Southern California (MWD), whereby MWD delivers Colorado River supplies to CVWD in exchange for like amounts of CVWD's SWP supplies. The Colorado River deliveries are made through MWD's Colorado River Aqueduct, which crosses the Coachella Valley near Whitewater. Among other things, the exchange agreement allows for advanced delivery and storage of Colorado River water in the Coachella Basin, thereby providing flexible and efficient water management opportunities. The large storage capacity of the Basin and the large volume of water in storage allow CVWD and other local water providers, such as the City, to pump needed supplies from the Basin during dry years, where large amounts of water can be recharged in normal and above normal years.

4.2.6 Projected Groundwater Use

As presented in **Section 2** above, total projected water demand for the Vista Del Agua Project is estimated at approximately 678 acre-feet per year (AFY), using the City's recently developed demand factors. For additional information regarding estimated water use for the Project, please refer to **Section 3** above. A detailed description and analysis of the amount and location of groundwater and recharged groundwater that is projected to be produced by the City from the East Whitewater Subbasin of the Coachella Groundwater Basin are provided in **Sections 1, 3.2, 4.1** and **4.2** above. For purposes of this analysis, the facilities to be used by the City are described in **Section 3.1.2**.

4.2.7 Sufficiency of the Groundwater Basin

As detailed and analyzed throughout this WSA and in the City's 2015 UWMP, CVWD's 2015 CVWMP Update and CVWD's 2011 SPEIR, substantial evidence demonstrates that the groundwater and recharged groundwater supplies of the

Coachella Valley Groundwater Basin are and will continue to be sufficient during normal, single-dry and multiple dry years over the 20-year projection and beyond to meet the projected demand associated with the Vista Del Agua Project, in addition to other existing and planned future uses within the City and CVWD service areas.

4.2.8 Other Factors Related to the Groundwater Basin

On or about May 14, 2013, the Agua Caliente Band of Cahuilla Indians filed a federal court lawsuit against CVWD and DWA, requesting the court to "judicially recognize, declare, quantify and decree" the Tribe's right to sufficient water underlying the Coachella Valley as necessary to fulfill the purposes of the Tribe. The lawsuit contends that the development of groundwater by CVWD and DWA has adversely affected the quantity and quality of groundwater supplies underlying the Coachella Valley and the Agua Caliente Reservation, and thus has injured and infringes upon the rights of the Tribe and its members. Among other things, the lawsuit seeks the following: an injunction to prevent CVWD and DWA from withdrawing groundwater from the Upper Whitewater and Garnet Hill subbasins of the Coachella Valley Groundwater Basin underlying the Agua Caliente Reservation; an injunction to prevent CVWD and DWA from overdrafting the Upper Whitewater and Garnet Hill subbasins; an injunction to prevent CVWD and DWA from recharging the Upper Whitewater and Garnet Hill subbasins with imported water of lesser quality than pre-existing groundwater without first treating the imported water; and an injunction preventing CVWD and DWA from infringing on the Tribe's "ownership interest" in the storage space underlying the Reservation that is used to store the Tribe's water rights.

The potential for the Agua Caliente lawsuit to affect the water supplies available to the City of Coachella to serve the Vista Del Agua Project cannot be determined at this time and are too speculative to evaluate in relation to the Project and for purposes of this WSA. However, several factors suggest that the lawsuit will not affect the availability, reliability or overall sufficiency of water supplies available to the City to serve the Project. For example, the rights that the Tribe alleges to hold have not been quantified, defined, substantiated or proven from an engineering or legal standpoint, and thus the potential impacts to CVWD and DWA operations are very speculative at this preliminary stage of the lawsuit. Second, as noted above, the City is not a party to the lawsuit and no injunctions are sought against the City's water production or any other water related activities conducted by the City. Third, the lawsuit concerns groundwater production and storage activities in the Upper Whitewater and Garnet Hill subbasins, whereas the City and the Vista Del Agua Project are located in the East Whitewater subbasin, which is far south of the Agua Caliente Reservation and separate from the Upper Whitewater and Garnet Hill subbasins.[91] Fourth, assuming only for the sake of argument that the lawsuit was successful, it does not seek to prohibit the recharge of imported and supplemental water in the West Whitewater and Garnet subbasins (which, again, the Project does not utilize). Rather, the lawsuit demands that imported water of "inferior quality" be

[91] See Figure 4-1 above.

treated before it is recharged to the West Whitewater or Garnet Hill subbasins. For these and other reasons, it does not appear likely that the Agua Caliente lawsuit has the potential to affect the availability, reliability or overall sufficiency of water supplies available to the City of Coachella to serve the Project as set forth in this WSA.

On September 16, 2014, the Sustainable Groundwater Management Act (SGMA) was signed into law. SGMA declares that groundwater is a critical natural resource for the state and must be sustainably managed. SGMA defines "sustainable groundwater management" as the management and use of groundwater in a manner that can be maintained during a 50-year planning and implementation horizon without causing "undesirable results," such as "significant and unreasonable" lowering of water levels, reduction in storage capacity, seawater intrusion, degraded water quality, land subsidence, or depletions of interconnected surface water. SGMA also states that sustainable management best occurs at the local level, but provides authority for state management when local agencies are unwilling or unable to implement the new requirements. For purposes of SGMA, groundwater does not include subsurface water that flows in known and definite channels, which in large part is already subject to the permitting jurisdiction of the State Board.

SGMA required DWR to categorize each groundwater basin in the state, as identified and defined in DWR's Bulletin 118, as high, medium, low, or very low priority by January 31, 2015. All basins designated as high or medium priority and also designated in Bulletin 118 as being subject to critical conditions of overdraft must be managed under a groundwater sustainability plan (GSP) or plans (GSPs) in accordance with SGMA by January 31, 2020. All basins designated as high or medium priority but not also designated in Bulletin 118 as being subject to critical conditions of overdraft must be managed under SGMA by January 31, 2022. SGMA also permits alternative plans in lieu of GSPs if approved by DWR. Basins designated by DWR as low and very low priority are not subject to the requirements of SGMA, but are "encouraged" to be managed under GSPs.

Certain adjudicated areas, and local agencies that conform to the requirements of those adjudications, are expressly exempt from SGMA, subject to ongoing reporting requirements. To the extent authorized under federal or tribal law, SGMA applies to Indian tribes and the federal government, but SGMA provides that federally reserved water rights to groundwater "shall be respected in full." SGMA authorizes a groundwater sustainability agency (GSA) to regulate, limit or suspend groundwater extractions from individual wells, but it does not authorize such agencies to make a binding determination of the water rights of any person or entity. SGMA authorizes any local agency or a combination of local agencies overlying a basin to become a GSA for that basin. A local agency is defined as a public agency having water supply, water management or land use responsibilities within the basin. Where a combination of local agencies seeks to form a single GSA, it must be done pursuant to a joint powers agreement or other legal agreement. For some areas of the state, specific agencies that already have been created by statute to manage groundwater are deemed by SGMA to be the exclusive

groundwater sustainability agencies within their respective boundaries, although such agencies may opt out of that role by providing notice to DWR. In that case, any other local agency or agencies may notify DWR of an election to be the GSA in accordance with required procedures.

Any local agency or agencies electing to be a GSA must first hold a noticed public hearing in the county or counties overlying the basin, and must submit a notice of intent to DWR describing the proposed boundaries of the basin (or portion thereof) that the agency or combination of agencies intends to manage. Within 30 days of electing to be or forming a GSA, the agency must notify DWR, and provide a list of "interested persons" and an explanation of how their interests will be considered in the development and implementation of the agency's sustainability plan. Under SGMA, interested persons include: agricultural water users; domestic well owners; municipal well owners; public water systems; local land use planning agencies; environmental users of groundwater; users of surface water with a hydrologic connection to groundwater; federal agencies; affected California Native American Tribes; disadvantaged communities; and entities monitoring and reporting groundwater elevations under the CASGEM program.

SGMA expresses clear legislative intent that the entirety of each high and medium priority groundwater basin must be covered by one or more GSPs. In other words, there can be no unmanaged areas. In this regard, SGMA provides that a basin plan may be: (1) a single plan covering the entire basin developed and implemented by one GSA; (2) a single plan covering the entire basin developed and implemented by multiple groundwater sustainability agencies; or (3) multiple plans implemented by multiple groundwater sustainability agencies and coordinated pursuant to a single coordination agreement that covers the entire basin. If multiple coordinated plans are prepared to cover a basin, the groundwater sustainability agencies must ensure that the plans utilize the same data and methodologies for developing assumptions regarding groundwater elevations, groundwater extractions, surface water supplies, total water use, changes in groundwater storage, water budget, and sustainable yield.

SGMA mandates that by June 30, 2017, every portion of a high or medium priority basin must be covered by the boundaries of at least one GSA. If an area within a basin is not within the management area of a GSA, the county within which the unmanaged area lies is presumed to be the sustainability agency for that area, unless the county opts out of that role by notifying DWR. If an entire basin is not covered by one or more groundwater sustainable agencies by the June 30, 2017 deadline, groundwater extractions in that area become subject to specific reporting requirements, and the State Board may designate the basin as a "probationary basin" and step in to adopt an interim plan for the basin. GSPs must include the following components:

- The physical setting and characteristics of the aquifer system underlying the basin;

- Measurable objectives, and interim milestones in five-year increments to achieve the sustainability goal in the basin within 20 years of implementation;
- A planning and implementation horizon, defined by SGMA as a 50-year time period over which a GSA determines that plans and measures will be implemented in a basin to ensure it is operated within its sustainable yield;
- Components relating to the monitoring and management of groundwater levels; groundwater quality, inelastic land surface subsidence, and changes in surface flow and surface water quality that directly affect groundwater levels or quality or are caused by groundwater extraction in the basin; mitigation of overdraft; how recharge areas contribute to basin replenishment; and surface water supplies used or available for groundwater recharge or in lieu use;
- A summary of monitoring sites, type of measurements, and frequency of monitoring various factors;
- Monitoring protocols designed to detect changes in groundwater levels, groundwater quality, inelastic surface subsidence, and flow and quality of surface waters that directly affect groundwater levels or quality or are caused by groundwater extractions in the basin; and
- A description of how applicable county and city general plans have been considered and a description of the various adopted water resource-related plans and programs within the basin and an assessment of how the GSP may affect such other plans and programs.

In addition, GSPs must include basin-specific measures where appropriate, such as:

- Control of saline water intrusion;
- Wellhead protection and recharge areas;
- Migration of contaminated groundwater;
- Well construction, abandonment and destruction programs and policies;
- Activities and opportunities for conjunctive use;
- Measures addressing cleanup of groundwater contamination, groundwater recharge, diversions to storage, conservation, water recycling, conveyance, and extraction projects;
- Efficient water management practices;
- Efforts to develop relationships with state and federal regulatory agencies;
- Processes to review land use plans and efforts to coordinate with land use planning agencies to assess activities that potentially create risks to groundwater quality or quantity; and
- Impacts to groundwater dependent ecosystems.

Prior to initiating the development of a GSP, the sustainability agency or agencies must notify the public, DWR, and any city or county located within the area to be covered by the plan about how interested parties may participate in the plan's development and implementation. The sustainability agency must also encourage the active involvement of diverse social, cultural, and economic communities within the groundwater basin prior to and during the development and implementation of the plan. A GSP plan may only be adopted after a public hearing held at least 90

days after notice was provided to any city or county within the area affected by a GSP. Upon adoption of a plan, the GSA must submit the plan to DWR for review. DWR must post the plan on its website and provide a 60-day public comment period. In addition, DWR must evaluate and issue an assessment of the plan within two years of submission and may include corrective actions to any perceived deficiencies in the plan. SGMA also allows an adopting agency to file a validation action on its plan 180 days after the plan is adopted.

Groundwater sustainability agencies that adopt sustainability plans will have broad new powers under SGMA, includes the authority to:

- Adopt rules, regulations, ordinances, and resolutions;
- Conduct investigations to determine the need for groundwater management, including investigations of surface waters, groundwater, and surface and groundwater rights, and inspections of property or facilities by consent or through an inspection warrant;
- Propose, update, and impose fees, and levy groundwater charges;
- Require registration of and impose requirements on wells and other groundwater extraction facilities;
- Require water measuring devices (i.e., meters) on all groundwater wells within the agency's boundaries;
- Acquire, use, and dispose of real and personal property, such as land, rights-of-way, water rights, structures and infrastructure;
- Import surface and/or groundwater into the agency, conserve and store water within or outside the agency, and purchase, transfer, deliver or exchange water or water rights of any type with any person to carry out any purposes of SGMA;
- Transport, reclaim, purify, desalinate, treat, or otherwise manage and control polluted water, wastewater, or other waters for subsequent use;
- Control groundwater extractions by regulating, limiting, or suspending extractions from individual groundwater wells or wells in the aggregate;
- Authorize temporary and permanent transfers of groundwater extraction allocations within the agency boundaries; and
- Enforce violations of SGMA or agency rules, regulations, ordinances or resolutions, including the ability to impose civil penalties and bring legal actions.

SGMA also provides groundwater sustainability agencies with broad financial powers. For example, sustainable agencies will be authorized to impose a wide variety of fees covering matters such as: permitting; groundwater extractions; preparation, adoption, and amendment of GSPs; investigations; inspections; compliance; enforcement; program administration; reserves; acquisition of lands or other property, facilities or services; and water supply, production, treatment or distribution. While SGMA clearly acknowledges that sustainable groundwater management occurs best at the local level, if local agencies are either unwilling or unable to implement the new requirements of SGMA, the state may step in. To this end, SGMA provides the State Board with broad discretion to determine that a high or medium priority basin should be designated as a "probationary basin" and

thereby trigger State Board management authority. When state action is required, SGMA provides various mechanisms to return local control whenever feasible.

In mid-2016, CVWD, CWA, DWA, and IWA entered into a memorandum of understanding (MOU) to develop a common understanding regarding the governance structures applicable to implementation of SGMA for the Indio (Whitewater River) Subbasin. The MOU memorialized the intent of the four agencies to coordinate and cooperate regarding SGMA implementation within their respective jurisdictions to ensure that the sustainability goals of SGMA are met within the Indio Subbasin. Additionally, the MOU acknowledged that existing and approved water management plans (WMP) managing the Indio Sub-Basin have been prepared and adopted. The MOU set forth the parties' intent to submit the WMP as a potential alternative plan in lieu of a GSP or to prepare a new alternative GSP. In December 2016, CVWD, CWA, DWA, and IWA prepared the SGMA Alternative Groundwater Sustainability Plan Bridge Document for the Indio Subbasin (Bridge Document). The Bridge Document is intended to demonstrate that the 2010 CVWMP is functionally equivalent to the requirements for a GSP and to describes how the 2010 CVWMP meets the requirements of SGMA in lieu of adopting a GSP. The Bridge Document in included in Appendix A.

As of June 30, 2017, CVWD, CWA, DWA, Imperial County, IWA, and Mission Springs Water District (MSWD) have filed Notices of Election to form GSAs within their respective boundaries in the Indio Subbasin.

4.3 Colorado River Water

Colorado River supplies are important to the Coachella Valley for two primary reasons. First, and as further discussed below, a substantial portion of California's share of Colorado River water is allocated directly to CVWD. Second, much of the replenishment supplies used in the Valley come from MWD's allocation of Colorado River water, via the exchange agreement for SWP supplies as discussed above.

Colorado River water has been a major source of supply for the Coachella Valley since 1949 with the completion of the Coachella Canal.[92] The Colorado River is managed and operated in accordance with the *Law of the River,* the collection of interstate compacts, federal and state legislation, various agreements and contracts, an international treaty, a U.S. Supreme Court decree, and federal administrative actions that govern the rights to use of Colorado River water within the seven Colorado River Basin states. The *Colorado River Compact*, signed in 1922, apportioned the waters of the Colorado River Basin between the Upper Colorado River Basin (Colorado, Wyoming, Utah, and New Mexico) and the Lower Basin (Nevada, Arizona, and California). The Colorado River Compact allocates 15 million AFY of Colorado River water: 7.5 million AFY to the Upper Basin and 7.5 million AFY to the Lower Basin, plus up to 1 million AFY of surplus supplies. The Lower Basin's water was further apportioned among the three Lower Basin states by the *Boulder Canyon Project Act* in 1928 and the 1964 U.S. Supreme Court

[92] 2010 CVWMP, p. 4-13.

decree in *Arizona v. California*. Arizona's basic annual apportionment is 2.8 million AFY, California's is 4.4 million AFY, and Nevada's is 0.3 million AFY. California has been diverting up to 5.3 million AFY in recent years, using the unused portions of the Arizona and Nevada entitlements. Mexico is entitled to 1.5 million AFY of the Colorado River under the *1944 United States-Mexico Treaty for Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande*. However, this treaty did not specify a required quality for water entering Mexico. In 1973, the United States and Mexico signed Minute No. 242 of the International Boundary and Water Commission requiring certain water quality standards for water entering Mexico.[93]

California's apportionment of Colorado River water is allocated by the 1931 *Seven Party Agreement* among Palo Verde Irrigation District (PVID), Imperial Irrigation District (IID), CVWD and Metropolitan. The three remaining parties, the City and the County of San Diego and the City of Los Angeles, are now part of Metropolitan. The allocations defined in the *Seven Party Agreement* are shown in **Table 4-3** below. In its 1979 supplemental decree in the *Arizona v. California* case, the United States Supreme Court also assigned "present perfected rights" to the use of river water to a number of individuals, water districts, towns and Indian tribes along the river. These rights, which total approximately 2,875,000 AFY, are charged against California's 4.4 million AFY allocation and must be satisfied first in times of shortage. Under the 1970 *Criteria for Coordinated Long-Range Operation of the Colorado River Reservoirs* (Operating Criteria), the Secretary of the Interior determines how much water is to be allocated for use in Arizona, California and Nevada and whether a surplus, normal or shortage condition exists. The Secretary may allocate additional water if surplus conditions exist on the River (see additional discussion below).[94]

Table 4-3
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	112,000

[93]2010 CVWMP, p. 4-13.
[94]2010 CVWMP, p. 4-13.

	for use on coastal plain	
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**

Sources: United States Bureau of Reclamation, http://www.usbr.gov; Coachella Valley Water Management Plan Update, January 2012, p. 4-14, Table 4-2.

California's Colorado River supply is protected by the 1968 Colorado River Basin Project Act, which provides that in years of insufficient supply on the main stream of the Colorado River, supplies to the Central Arizona Project shall be reduced to zero before California will be reduced below 4.4 million AF in any year. This assures full supplies to the Coachella Valley except in periods of extreme drought. As further described below, delivery analyses performed for the Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lakes Powell and Mead indicated that that California would only experience shortages if the total shortage in the Lower Basin exceeds 1.7 million AFY.[95]

The Coachella Canal (Canal) is a branch of the All-American Canal that brings Colorado River water into the Imperial and Coachella Valleys. Historically, CVWD received approximately 330,000 AFY of Priority 3A Colorado River water delivered via the Coachella Canal. The Canal originates at Drop 1 on the All-American Canal and extends approximately 122 miles, terminating in CVWD's Lake Cahuilla. The service area for Colorado River water delivery under CVWD's contract with Reclamation is defined as Improvement District No. 1 (ID-1) which encompasses most of the East Valley and a portion of the West Valley north of Interstate 10. Under the 1931 California Seven Party Agreement, CVWD has water rights to Colorado River water as part of the first 3.85 million AFY allocated to California. CVWD is in the third priority position along with IID.[96]

4.3.1 Quantification Settlement Agreement

Although the rights and relative priorities to Colorado River supplies as discussed above remain established under the *Law of the River*, an additional framework applies in California. In 2003, CVWD, IID and Metropolitan successfully completed negotiation of the Quantification Settlement Agreement (QSA). 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.

Specific programs under the QSA include lining portions of the All-American and Coachella Canals, which conserve approximately 96,000 acre-feet annually. As a result, about 80,000 acre-feet of conserved water is delivered to the San Diego County Water Authority ("SDCWA") by exchange with Metropolitan. Metropolitan also takes delivery of 16,000 acre-feet annually that will be made available for the benefit of the La Jolla, Pala, Pauma, Rincon and San Pasqual Bands of Mission

[95] 2010 CVWMP, p. 4-14.
[96] 2010 CVWMP, p. 4-14.

Indians, the San Luis Rey River Indian Water Authority, the City of Escondido and the Vista Irrigation District, upon completion of a water rights settlement, expected in 2013. An amendment to the 1988 Conservation Agreement between Metropolitan and IID and an associated 1989 Approval Agreement among Metropolitan, IID, CVWD and PVID, extended the term of the 1988 Conservation Agreement and limited the single year amount of water used by CVWD to 20,000 acre-feet. Also included under the QSA is the Delivery and Exchange Agreement between Metropolitan and CVWD that provides for Metropolitan to deliver annually up to 35,000 acre-feet of Metropolitan's State Water Project contractual water to CVWD by exchange with Metropolitan's available Colorado River supplies. In calendar year 2011, under a supplemental agreement with CVWD, Metropolitan delivered 105,000 acre-feet, which consisted of the full 35,000 acre-feet for 2011 plus advance delivery of the full contractual amounts for 2012 and 2013.[97]

Under the QSA, CVWD has a base allotment of 330,000 AFY. In accordance with the QSA, CVWD has entered into water transfer agreements with Metropolitan and IID that increase CVWD supplies by an additional 129,000 AFY as shown in **Table 4-4** below.[98]

Table 4-4
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, January 2012, p. 4-15, Table 4-3

As of 2010, CVWD receives 368,000 AFY of Colorado River water deliveries under the QSA (See **Table 4-6** above). This includes the base entitlement of 330,000 AFY, Metropolitan/IID Approval of 20,000 AFY, 12,000 AFY of IID/CVWD First transfer, and 35,000 AFY of Metropolitan/SWP transfer. It also includes the 26,000 AFY transferred to San Diego County Water Authority (SDCWA) as part of the Coachella Canal lining project and the 3,000 AFY transfer to Indian Present

[97] MWDSC 2013 Preliminary Official Statement, Water Revenue Refunding Bonds, Appendix A, p. A-16.
[98] 2010 CVWMP, p. 4-15.

Perfected Rights (PPRs). CVWD's allocation will increase to 459,000 ac-ft/yr 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.[99] As further discussed below, legal challenges were filed against the QSA in 2003.

4.3.2 Factors Affecting Colorado River Supplies

Several important factors have the potential to affect the long-term availability and reliability of Colorado River supplies in the Coachella Valley. Among those factors are drought conditions in the Colorado River Basin; water requirements for endangered species and habitat protection; climate change; and lawsuits challenging the validity of the QSA. A detailed discussion of these factors is presented below.

4.3.2.1 Drought Conditions and Interim Guidelines

Drought conditions in the Colorado River Basin are well documented. The period from 2000 through 2007 was the driest eight-year period in the 100-year historical record of the Colorado River. This drought in the Colorado River Basin reduced Colorado River system storage, while demands for Colorado River water supplies continued to increase. From October 1, 1999 through September 30, 2007, storage in Colorado River reservoirs decreased from 55.8 million AF (approximately 94 percent of capacity) to 32.1 million AF (approximately 54 percent of capacity), and was as low as 29.7 million AF (approximately 52 percent of capacity) in 2004. In November 2010, Lake Powell and Lake Mead were at 62 percent and 38 percent of their storage capacities, respectively (Reclamation, 2010b). Although slightly above normal snowpack conditions existed in the Colorado River basin in 2008, the years 2009 and 2010 saw a return of below normal runoff conditions. Drought conditions continued from 2011 to 2015 but began to reverse course in early 2016 with an increase in northern pacific storms arriving into the northern and central part of the State. As of September 2017, Lake Powell and Lake Mead were at 60 percent and 39 percent of their respective storage capacities, with total system storage reported at 55 percent capacity.[100]

In January 2001, the Secretary of the Interior adopted guidelines (the "Interim Surplus Guidelines") for use through 2016 in determining if there is surplus Colorado River water available for use in California, Arizona and Nevada. The Interim Surplus Guidelines were amended in 2007, with the new Guidelines extending through 2026. The Interim Surplus Guidelines contain a series of benchmarks for reductions in agricultural use of Colorado River water within

[99] 2010 CVWMP, p. 4-15.
[100] Lower Colorado Region Available Reservoir Elevations and Contents. Available at: http://www.usbr.gov/lc/region/g4000/hourly/rivops.html"
http://www.usbr.gov/lc/region/g4000/hourly/rivops.html

California by set dates.[101] At the conclusion of the effective period of the interim guidelines, the operating criteria for Lake Powell and Lake Mead are assumed to revert to the operating criteria used to model baseline conditions in the Final Environmental Impact Statement for the Interim Surplus Guidelines dated December 2000 (i.e., modeling assumptions are based upon a Quantified Surplus Strategy for the period commencing January 1, 2026 (for preparation of the 2027 Annual Operating Plan for the Colorado System Reservoirs)).

The purposes of the Guidelines are to: (1) improve Reclamation's management of the Colorado River by considering trade-offs between the frequency and magnitude of reductions of water deliveries, and considering the effects on water storage in Lake Powell and Lake Mead, where Reclamation will also consider the effects on water supply, power production, recreation, and other environmental resources; (2) provide mainstream United States users of Colorado River water, particularly those in the Lower Division states, a greater degree of predictability with respect to the amount of annual water deliveries in future years, particularly under drought and low reservoir conditions; and (3) provide additional mechanisms for the storage and delivery of water supplies in Lake Mead to increase the flexibility of meeting water use needs from Lake Mead, particularly under drought and low reservoir conditions.[102]

As a result of the interim guidelines, recipients of Colorado River water, including CVWD, will receive deliveries with a higher degree of reliability. Information presented in the Bureau of Reclamation's (BOR) 2007 Final Environmental Impact Statement ("EIS") for the Interim Guidelines indicates that California would only experience shortages if the total shortage in the Lower Basin exceeds 1.7 million AF. Due to California's Colorado River priority system, all delivery shortages would be borne by MWD, which has a lower priority than CVWD. Consequently, no reduction in CVWD's Colorado River supplies is projected at this time. (2010 CVWMP, p. 4-26.). This is further supported with 2017 being the wettest year on record experienced for the State and coupled with a significant snowpack level received in the Rocky Mountains. Therefore, planned reductions in CVWD's Colorado River supply are not anticipated at any time in the near future.[103]

4.3.2.2 Protected Species and Other Environmental Issues

Federal and state environmental laws protecting fish species and other wildlife species have the potential to affect Colorado River operations. A number of species that are on either "endangered" or "threatened" lists under the ESAs are present in the area of the Lower Colorado River, including among others, the bonytail chub, razorback sucker, southwestern willow flycatcher and Yuma clapper rail. To address this issue, a broad-based state/federal/tribal/private regional partnership that includes water, hydroelectric power and wildlife management agencies in Arizona, California and Nevada have developed a multi-species conservation program for the main stem of the Lower Colorado River (the Lower Colorado River

[101] 2010 CVWMP, p. 4-28.
[102] 2010 CVWMP, p. 4-28.
[103] 2010 CVWMP, p. 4-28.

Multi-Species Conservation Program or "MSCP"). The MSCP allows Metropolitan to obtain federal and state permits for any incidental take of protected species resulting from current and future water and power operations of its Colorado River facilities and to minimize any uncertainty from additional listings of endangered species. The MSCP also covers operations of federal dams and power plants on the river that deliver water and hydroelectric power for use by Metropolitan and other agencies. The MSCP covers 27 species and habitat in the Lower Colorado River from Lake Mead to the Mexican border for a term of 50 years. Over the 50 year term of the program, the total cost to Metropolitan will be about $88.5 million (in 2003 dollars), and annual costs will range between $0.8 million and $4.7 million (in 2003 dollars).[104]

4.3.2.3 Potential Climate Change Impacts

Climate change has the potential to affect imported water supplies. Potential effects of global warming could also increase water demand within the Coachella Valley. Although precise estimates of potential future impacts of climate change on runoff throughout the Colorado River basin cannot be predicted with certainty, reports and data have been developed that address changes in climate and hydrology within that region. These impacts may include decrease in annual flow and increased variability, including more frequent and more severe droughts. Furthermore, even without precise knowledge of the effects, increasing temperatures alone would likely increase losses due to evaporation and sublimation, resulting in reduced runoff.[105]More specifically, the Bureau of Reclamation's 2011 SECURE Water Act Report identifies the following climate challenges in the Colorado River basin: (1) on average, Colorado River Basin temperature is projects to increase by 5 to 6 degrees Fahrenheit during the 21st century, with slightly larger increases projected in the upper Colorado Basin; (2) precipitation is projected to increase by 2.1 percent in the upper Basin while declining by 1.6 percent in the lower Basin by 2050; (3) mean annual runoff is projected to decrease by 8.5 percent by 2050; and (4) warmer conditions will likely transition snowfall to rainfall, producing more December through March runoff and less April through July runoff.[106]

The 2011 SECURE Water Act Report also discussed potential future impacts for water and environmental resources in the Colorado River Basin. The Report notes that spring and early summer runoff reductions could translate into a drop in water supply for meeting irrigation demands and adversely impacting hydropower operations at smaller reservoirs; increased winter runoff may require infrastructure modifications or flood control rule changes to preserve flood protection, which could further reduce warm season water supplies; warmer conditions might result in increased stress on fisheries, shifts in geographic ranges, increased water demands for instream ecosystems and thermoelectric power production, increased power demands for municipal uses, including cooling, and increased likelihood of invasive

[104] MWDSC 2015 Official Statement, Special Variable Rate Water Revenue Refunding Bonds, Appendix A, pp. A-23 to A-24.
[105] 2010 CVWMP, pp. 5-15 to 5-16.
[106]See, U.S. Department of the Interior, Bureau of Reclamation, Basin Report, Colorado River (http://www.usbr.gov/climate/SECURE/docs/coloradobasinfactsheet.pdf).

species infiltrations, where endangered species issues might also be exacerbated; and warming could also lead to significant reservoir evaporation, increased agricultural water demands and losses during water conveyance and irrigation. (Id.)

In response to climate change issues, Reclamation is taking a lead role in assessing risks to Western U.S. water resources and is dedicated to mitigating risks to ensure long-term water resource sustainability. Where opportunities exist, Reclamation has begun adaptation actions in response to climate stresses as well as land use, population growth, invasive species and others. These activities include extending water supplies, water conservation, hydropower production, planning for future operations and supporting rural water development. For example, a 2010-2011 Pilot Run of the Yuma Desalting Plant increased water supplies in the lower Basin through conservation by an estimated 29,000 acre-feet, enough to supply as many as 150,000 people for one year. At Hoover Dam, new wide head range turbines are being installed that will allow more efficient power generation over a wider range of lake levels than existing turbines. Furthermore, the Department of the Interior High Priority Goal for Climate includes activities of the Landscape Conservation Cooperatives and Climate Science Centers, assessing vulnerabilities to the natural and cultural resources management by the Department and activities to adapt to the stresses of climate change. (Id.)[107]

According to DWR, increased air temperature will result in earlier snow melt runoff and a greater proportion of runoff due to rainfall. Because reservoir storage in the Colorado River basin is so large in comparison to annual basin runoff (roughly four times average runoff), a change in the timing of annual runoff would not be expected to significantly affect basin yield.[108]
Potential climate change impacts also were evaluated in the Environmental Impact Study (EIS) on the BOR interim surplus guidelines discussed above. The guidelines extend through 2026, providing the opportunity to gain valuable operating experience through the management of Lake Powell and Lake Mead, particularly for low flow reservoir conditions, and to improve the bases for making additional future operational decisions during the interim period and thereafter. The shortage sharing guidelines are crafted to include operational elements that would respond if potential impacts of climate change and increased hydrologic variability occur. The guidelines include coordinated operational elements that allow for adjustment of Lake Powell releases to respond to low average storage conditions in Lake Powell or Lake Mead. In addition, the guidelines enhance conservation opportunities in lower basin and retention of water in Lake Mead.[109]

While impacts from climate change cannot be quantified at this time, Coachella Valley water supplies are uniquely protected from potential impacts of climate change and corresponding shortages by (1) California's first priority for Colorado

[107]See also, United States Geological Survey, Effects of Climate Change and Land Use on Water Resources in the Upper Colorado Basin, Fact Sheet 2010-3123, January 2011.
[108] Progress on Incorporating Climate Change into Management of California's Water Resources, Technical Memorandum Report, California Department of Water Resources, October 2006.
[109] 2010 CVWMP, pp. 5-15 to 5-16.

River water supplies in the lower Colorado River basin, and (2) Coachella's high priority for Colorado River supplies among California users of Colorado River water.[110]

4.3.2.4 QSA Litigation

Shortly after the QSA was executed, a number of Imperial Valley parties including IID filed litigation related to the QSA, including a lawsuit to determine the validity of the agreements. In December 2011, California's Third District Court of Appeal reversed a lower court ruling that had invalidated the San Diego Water (SDCWA) Authority and IID water transfer and a number of other components of the QSA. The appeals court remanded several issues to the trial court, including questions about whether the QSA was properly processed under the California Environmental Quality Act (CEQA). In July 2013, a Sacramento Superior Court judge entered a final judgment validating the QSA and rejecting all of the remaining legal challenges. The judge affirmed all of the contested actions, including the adequacy of the environmental documents prepared by IID. In May 2015, the State Court of Appeal issued a ruling that dismissed all remaining appeals. Therefore, the QSA requires IID and Palo Verde Irrigation District (PVID) to provide deliveries to CVWD, MWD, and SDCWA.

4.3.2.5 Colorado River Basin Study

In December 2012, the Bureau of Reclamation (BOR) issued its Colorado River Basin Water Supply and Demand Study (2012 Study). According to BOR, the 2012 Study was prepared against the backdrop of challenges and complexities of ensuring a sustainable water supply and meeting future demand in the Colorado River system. Notably, the 2012 Study recognizes that because of the Colorado River system's ability to store approximately 60 million acre-feet of water (or nearly four years of average natural flow of the River), all requested deliveries have been met in the Lower Basin, despite recently experiencing the worst 11-year drought in the last century.[111] The 2012 Study concludes that, without additional future water management actions among the Upper and Lower Basin states, a wide range of future imbalances is plausible, primarily due to uncertainties inherent in future water supply.[112] Comparing the median long-term water supply projections against the median long-term water demand projections, and factoring in the myriad factors having the potential to affect the availability and reliability of River supplies and demands (such as climate change, species and other environmental issues, social trends, economic and legal forces, and technical capabilities), the 2012 Study shows that a long-term projected imbalance of 3.2 million acre-feet or more could occur by the year 2060. To address such potential long-term imbalances, the 2012 Study identifies and discusses a broad range of potential options to resolve the differences between water supply and demand. During the study period, over 150 options were received and organized into four groups: (1) those that increase Basin water supplies; (2) those that reduce Basin water demands; (3) those that focus on

[110] 2010 CVWMP, p. 5-16.
[111] 2012 Study, Executive Summary, p. ES-1.
[112] 2012 Study, Executive Summary, p. ES-6.

modifying operations; and (4) those that focus primarily on Basin governance.[113] Moreover, recognizing that no single option is likely sufficient to resolve potential water supply and demand imbalances, the 2012 Study developed groups and portfolios of options to reflect different adaptive strategies.[114] Importantly, the 2012 Study recognizes that *complete* elimination of Basin vulnerability is not likely obtainable, yet concludes that implementation of various adaptive management options results in a significant reduction in vulnerability (e.g., the percentage of future scenarios resulting in Lake Mead elevations being less than 1,000 feet msl is reduced from 19 percent to only 3 percent).[115] Indeed the 2012 Study states that implementation of management portfolios are projected to be successful in significantly improving the resiliency of Basin resources to vulnerable hydrologic conditions. Similar to the extraordinary conservation and management efforts being undertaking throughout the Coachella Valley, the 2012 Study concludes that supply augmentation, water reuse and conservation will be critical tools in managing potential supply and demand imbalances.

4.4 Surface Water

CWA does not use self-supplied surface water as part of its water supply. However, that could change in the future and will be further evaluated at that time.

4.5 Storm Water

CWA does not use, or plan to use, local stormwater runoff as part of its water supply. However, that could change in the future and will be further evaluated at that time.

4.6 Transfer and Exchange Opportunities

Water transfers involve the temporary or permanent sale or lease of a water right or contractual water supply between willing parties. Water can be made available for transfer from other parties through a variety of mechanisms.

4.6.1 City

The City is exploring opportunities to exchange non-potable groundwater for water from the Coachella Canal. Certain groundwater in the East Coachella Valley has higher levels of dissolved solids and fluoride, and thus is not suitable for potable purposes. However, that supply may be suitable for irrigation and other non-potable uses. In turn, Canal water that is currently used only for irrigation purposes could be treated or left untreated and used for potable or non-potable urban uses.[116]

4.6.2 CVWD

[113] 2012 Study, Executive Summary, p. ES-7.
[114] 2012 Study, Executive Summary, p. ES-11.
[115] 2012 Study, Executive Summary, p. ES-14.
[116] City 2010 UWMP, pp. 4-12 to 4-13.

CVWD, DWA and the City of Indio are considering the acquisition of additional imported water supplies to augment existing supplies. Under the 2010 CVWMP, CVWD plans to acquire up to 50,000 AFY of additional water supplies through either long-term leases or entitlement purchases from willing parties. Potential sources might include the Delta Wetlands Project which would store surplus water at two Delta islands for later delivery, Sacramento Valley irrigation water transfers, or purchase(s) of additional Table A water from other SWP contractors. Notably, developments within CVWD's retail service area are required to pay a supplemental water supply charge. These amounts can be used to acquire additional water supplies to serve the needs of specific development projects. Supplemental supplies can be transferred to the Coachella Valley and delivered via the SWP, Metropolitan's Colorado River Aqueduct or the Coachella Canal. Further analysis of transfer and exchange opportunities is provided in the 2010 CVWMP and CVWD 2010 UWMP.[117]

4.7 Desalinated Water Opportunities

As described in the Coachella Valley IRWMP, desalination processes are being developed for reuse of agricultural drainage flows in the Coachella Valley. The 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. Desalinated agricultural drain flows can be applied to any number of irrigation and domestic purposes, and thus can serve as an important component of the Valley's water supply portfolio.

4.7.1 City

The City of Coachella does not anticipate the future use of desalinated water within its service area, as the backbone facilities and infrastructure needed for desalination are not economically feasible. However, the City believes that desalinated water makes sense at the regional level. With a regional approach, desalination of local agricultural drain water could become a viable and economical alternative to potable water and Coachella Canal water.[118]

4.7.2 CVWD

CVWD plans to use treated agricultural drainage and other brackish water for irrigation purposes. A brackish water treatment pilot study and feasibility study was completed in 2008. A variety of treatment technologies, brine management approaches and source water supply combinations were compared and assessed over a range of treatment capacities. The treatment alternatives compared reverse osmosis (RO) with dew evaporation, and RO was the chosen technology. Source water supply options consist of the collection of agricultural drainage water at select outfall locations and the installation of a well field to extract groundwater in the

[117] 2010 CVWMP, pp. 8-4 to 8-7; CVWD 2010 UWMP, pp. 4-19 to 4-21.
[118] City 2010 UWMP, p. 4-14.

upper part of the aquifer influencing the agricultural runoff water. The amount of drain water that would be treated and recycled depends on supply availability (the amount of drain flow occurring), the overall supply mix (the amount of additional water needed), and the cost of treatment and brine disposal. CVWD's CVWMP considers up to 10,000 AFY of desalinated drain water by the year 2035 for urban use. Further analysis is provided in the 2010 CVWMP and CVWD 2015 UWMP.

In addition to drain water, the CVWMP also analyzes desalinated ocean water. Coastal communities in southern California are conducting feasibility studies and developing plans to desalinate ocean water as a water supply source. However, desalinating ocean water has relatively high costs due to the energy required to operate reverse osmosis facilities and potential environmental impacts associated with seawater intakes supplying the plant and disposal of brine. Since the Coachella Valley is located a significant distance from the ocean, desalinated ocean water would need to be exchanged with an imported water source (SWP or Colorado River water) for delivery to the Valley. The amount of water that could be developed through ocean water desalination and exchange is likely to be limited by economics of the physical capacity to deliver desalinated ocean water into the coastal water delivery systems and water quality. Further analysis is provided in the 2010 CVWMP and CVWD 2015 UWMP.[119]

4.8 Recycled Water Opportunities

Recycled water is a significant resource that can be used to help expand the local and regional water supply portfolio. Wastewater that has been highly treated and disinfected can be reused for landscape irrigation, certain agricultural applications, and a variety of other purposes. Recycled water has historically been used for irrigation of golf courses and urban landscaping in the Coachella Valley. City and CVWD recycled water opportunities are described below.

4.8.1 City

Currently, the City does not have infrastructure in place to recycle water. However, the City, along with Mission Springs Water District, Indio Water Agency, and Valley Sanitation District, are seeking grant funding through the Integrated Regional Water Management Round 2 for the preparation of a Coachella Valley Recycled Water Development Plan that would determine the feasibility on implementing recycled water throughput the Coachella Valley. If the planning study produces a favorable result and tertiary treatment is added to the City's wastewater treatment facility, potential uses of recycled water could be implemented, including non-potable water systems for larger developments, such as Vista Del Agua. In addition, the City has begun negotiations with Valley Sanitation District to acquire wastewater effluent from its treatment plant located north and uphill of the City. The investigation includes determining treatment plant improvements required to meet applicable recycled water quality standards.

[119] 2010 CVWMP, pp. 8-6 to 8-13; CVWD 2010 UWMP, pp. 4-21 to 4-23.

4.8.2 CVWD

Urban growth is expected to increase the amount of wastewater generated, and thus will make additional recycled water available for reuse, primarily in the East Valley. As discussed in the 2010 CVWMP, with water conservation measures, recycled water supplies in the East Valley are projected to total about 67,000 AFY by 2045.

In addition, growth is expected to occur in areas that are not currently served by wastewater treatment facilities. It is expected that the wastewater agency serving these areas will extend their wastewater collection systems as development occurs. For the areas within the cities of Coachella and Indio and their respective spheres of influence that are northeast of the San Andreas fault, it is expected that one or more satellite treatment facilities will be constructed to treat wastewater generated in these areas. That recycled water can be reused for outdoor use within those developments to reduce the need for additional local potable and imported water supplies. Based on estimates of water demands and wastewater flows, recycled water could meet as much as 12,000 AFY of non-potable demand in this area by 2045. Further analysis is provided in the 2010 CVWMP and CVWD 2015 UWMP.[120]

4.9 Future Water Projects

The City and CVWD continue efforts to meet water demand through development of future water projects. Each are discussed in the following paragraphs.

4.9.1 City

The City understands the need to develop additional sources of supply to meet demands associated with projected growth. The City will continue to evaluate the use of Canal water as a source substitution for drinking water supplies obtained from groundwater. Upon completion of necessary agreements, treatment facilities, and infrastructure, the City estimates that it could derive approximately 15 percent of its drinking water from the Canal. Per CVWD Ordinance No. 1428, the City has opportunity to receive canal water for additional potable water supply when available. As the water becomes available, the City will pursue those opportunities to supplement its water portfolio. As part of its water master plan process, the City will continue to design water system improvements to enhance conservation, identify additional water supplies and potential source substitutions, and enhance local groundwater recharge.

4.9.2 CVWD

CVWD will continue to implement recommendations provided in the 2010 CVWMP. As outlined in **Section 1** above, and as described throughout this WSA, CVWD water supply projects and programs include greater conservation (agricultural

[120] 2010 CVWMP, pp. 8-5 to 8-10; CVWD 2010 UWMP, pp. 4-23 to 4-31.

conservation, additional urban conservation, and golf course conservation), supply development (acquisition of additional imported water supplies, recycled water use, and desalinated drain water), groundwater recharge program enhancements, and source substitution programs. In addition to the information provided in this WSA, Section 8 of the 2010 CVWMP Update provides a detailed discussion of the many new projects and programs that are recommended for implementation.[121]

4.10 Analysis of Water Supply and Demand

As noted herein, the supply and demand analyses for the Vista Del Agua Project are based in large part on the City's 2015 UWMP, CVWD's 2015 UWMP and CVWD's 2010 CVWMP Update and 2011 SPEIR. The UWMPs were prepared in accordance with the Urban Water Management Planning Act, as most recently amended by SBx7-7. Among other analyses, the UWMPs and the CVWMP Update and 2011 SPEIR identify total projected water demands, and demonstrate that total projected water supplies will be sufficient to meet those demands through 2035 and beyond. Also discussed above, through the 2009 and 2013 MOUs the City and CVWD have identified ways to ensure that sufficient water supplies will be available to serve growth throughout the City's service area, including its sphere of influence. Indeed, the 2013 MOU applies to the Vista Del Agua project.

Although substantial growth has been forecasted for the Coachella Valley, the rate of growth had slowed in recent years due to widespread economic downturn. As the economy recovers and as development returns, other changes may occur in the region. For example, the area may continue to experience a transition from agricultural to urban land uses. As agricultural land converts to urban uses, the characteristics of water demands and infrastructure will also change. The 2010 CVWMP Update specifically accounts for these changes and the different ways that water will be used. The analyses show that as urban development occurs, Canal water that is currently used for irrigation could be used for groundwater replenishment to serve urban uses, could be treated for direct indoor use, or left untreated for urban non-potable use.

As outlined in the Sections above, water conservation is a major component of future water management in the Valley. As presented above, both the City and CVWD are committed to reducing their per capita urban water demand in accordance with SBx7-7. Agricultural conservation will also be a focus within CVWD. The 2010 CVWMP Update increases the water conservation requirement during the next 35 years. A 14 percent reduction in agricultural water use is targeted by the year 2020. CVWD's 2009 landscape ordinance will govern the irrigation demands of new golf courses within CVWD's service area, and reduce demands of existing golf courses by 10 percent.

Other than Canal water, recycled water and desalinated agricultural drain water, all water delivered to end users is obtained from the groundwater basin, which is continuously recharged with supplemental imported supplies as discussed above.

[121] 2010 CVWMP, pp. 8-13 to 8-15; CVWD 2010 UWMP, pp. 4-31 to 4-34.

Also noted above, the groundwater basin has a capacity of approximately 28.8 million acre-feet and currently contains about 25 million acre-feet and acts as a very large conjunctive use reservoir. As provided throughout this WSA, and in the 2010 CVWMP and 2011 SPEIR, the managed basin is capable of ensuring a sufficient and sustainable water supply to meet existing water demands and the demands associated with projected growth throughout the region (specifically including the City and the proposed Vista Del Agua Project) during normal, single-dry and multiple-dry periods throughout the 20-year projection and beyond. Moreover, it has been determined in accordance with CEQA that implementation of the 2010 CVWMP will have a beneficial effect on groundwater resources. CVWD has many programs to maximize the water resources available to it including recharge of its Colorado River and SWP supplies, recycled water, desalinated agricultural drain water, conversion of groundwater uses to Canal water and various conservation measures, such as tiered water rates, a landscaping ordinance, outreach and education. The 2010 CVWMP Update and CVWD replenishment assessment programs, in which the City fully participates, establish a comprehensive and managed effort to eliminate the overuse of local groundwater supplies.

The analysis herein evaluates whether the total projected water supplies available to the City, by virtue of its membership and participation in the regional efforts of the CVWD 2010 CVWMP, are sufficient to meet the water demands of the Vista Del Agua Project in addition to other existing and planned future uses within the City's service area. The supply and demand assessment includes three scenarios over the 20-year projection as required by SB 610: normal water years, single-dry years, and multiple-dry years. As presented in **Section 3**, the City's water demands are projected to grow from 6,531 AFY 2,128 MG) in 2015 to 26,074 AFY (8,496 MG) in 2035. As shown in **Section 2**, the estimated Project demands are 678 AFY, representing approximately 4 percent of the City's projected growth. **Tables 4-5, 4-6,** and **4-7** outline the water supply and demand scenarios for normal, single-dry and multiple-dry years respectively.

Table 4-5
Normal Water Years 2015-2035 (AFY)

	2015	2020	2025	2030	2035
Supply Totals	6,531	12,498	15,969	20,405	26,074
Demand Totals	6,531	12,498	15,969	20,405	26,074
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%

Table 4-6
Single-Dry Water Years 2015-2035 (AFY)

	2015	2020	2025	2030	2035

Supply Totals	6,531	12,498	15,969	20,405	26,074
Demand Totals	6,531	12,498	15,969	20,405	26,074
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%

Table 4-7
Multiple-Dry Water Years 2015-2035 (AFY)

		2015	2020	2025	2030	2035
Multiple-Dry Year First Year Supply[1]	**Supply totals**	6,531	12,498	15,969	20,405	26,074
	Demand totals	6,531	12,498	15,969	20,405	26,074
	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**	6,204	11,873	15,171	19,385	24,770
	Demand totals	6,204	11,873	15,171	19,385	24,770
	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**	5,551	10,623	13,574	17,345	22,163
	Demand totals	5,551	10,623	13,574	17,345	22,163
	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%

[1] No demand reductions are expected during a single dry year. Typically, there are no demand reduction measures during single dry years. It isn't until back to back dry years are recognized that demand reduction measures are implemented.
[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.

4.11 Conclusions

The water supply for the proposed Vista Del Agua Project will be the East Whitewater River Subbasin in the Coachella Valley with supplies that are recharged to the Basin on an ongoing basis. Groundwater storage will be used in dry years to support potential differences between demands and supply. The groundwater basin has a capacity of approximately 28.8 million acre-feet and currently contains about 25 million acre-feet, simulating the benefits of a very large conjunctive use reservoir. It is capable of meeting the water demands of the Coachella Valley for extended periods during normal, single-dry and multiple-dry year conditions, and the determination has been made in accordance with CEQA that the City's utilization of groundwater supplies in a manner that is consistent with the implementation of the CVWD 2010 CVWMP will not have significant environmental impacts on the groundwater basin, and instead will have a beneficial effect on groundwater resources.[122]

[122] See CVWD 2011 SPEIR.

As discussed in the 2010 CVWMP Update, the 2011 SPEIR, CVWD's 2015 UWMP, City's 2015 UWMP, and this WSA, the City and CVWD have many programs to maximize the water resources available to the City and CVWD, including but not limited to recharge of the basin using Colorado River and SWP supplies, direct use and recharge of recycled water, desalinated agricultural drain water, conversion of groundwater uses to Canal water and comprehensive water conservation practices such as tiered water rates, landscaping ordinances, outreach and education. The CVWD groundwater replenishment programs establish a comprehensive and managed effort to reduce and eliminate overuse of local groundwater resources. These programs allow CVWD to maintain the groundwater basin as its primary water supply and to recharge the groundwater basin as its other supplies are available and needed to meet existing and projected demands within its overall service area, including the City and the City's sphere of influence.

Based on the information, analysis, and conclusions documented in this WSA, substantial evidence exists to support a determination that the total projected water supplies available to the City during normal, single dry, and multiple dry water years during a 20-year projection are sufficient to meet the projected water demand associated with the proposed Vista Del Agua Project, in addition to the City's existing and planned future uses, including agricultural and manufacturing uses. This conclusion is based on, among other things, the volume of water available in the regional aquifer, the City's current and planned local water management programs and projects, and CVWD's current and planned local and regional management programs and water supply projects to supplement and sustain regional groundwater supplies. The analyses and conclusions set forth in this WSA are further supported by the City's 2009 MOU and 2013 MOU with CVWD regarding water supply for new developments (including Vista Del Agua), and the contractual availability of State Water Project and Colorado River supplies to the Coachella Valley. Additionally, the City and CVWD have committed sufficient resources to further implement the primary elements of the City's 2015 UWMP, the CVWD 2015 UWMP and the CVWD 2010 CVWMP, including source substitution, water conservation, and purchases of additional water supplies. Furthermore, as set forth in this WSA and the Vista Del Agua Specific Plan, the Project will incorporate various water conservation elements adopted by the City and/or CVWD in accordance with SBx7-7. These include conservation elements for indoor and outdoor uses throughout the Project. These efforts may further reduce the ultimate water demands of the Project.

As provided by Water Code section 10914, nothing in this WSA is intended to create a right or entitlement to water service or any specific level of water service, and nothing herein is intended to impose, expand or limit any duty concerning the City's obligation to provide certain levels of service to existing or future potential customers.[123] The City retains the right, in its sole discretion, to evaluate from time to time whether the projected demands associated with the Project continue to fall within the City's forecasted demand or planned future uses.

[123] Water Code § 10914(a)-(b).

APPENDIX A

Water Supply Planning Documents
(See Attached CD-ROM)

APPENDIX B

2009 City of Coachella and Coachella Valley Water District Memorandum of Understanding

APPENDIX C

2013 City of Coachella and Coachella Valley Water District Memorandum of Understanding