5.16.1 WATER SERVICE AND SUPPLY

This section of the Draft Environmental Impact Report (Draft EIR) evaluates the potential impact of the proposed Section 31 Specific Plan Project ("Specific Plan Project" or "Project") on water services within the Coachella Valley, the City of Rancho Mirage (City), and surrounding communities. More specifically, this section evaluates impacts associated with the Project that may potentially affect the regional and local water supply and water service system. Various federal, State of California (State), regional, and local programs and regulations related to anticipated water supply and demand impacts are also discussed in this section. Information from the following study of the Project is incorporated into this section:

- *Water Supply Assessment and Water Supply Verification for the Proposed Section 31 Specific Plan*, Coachella Valley Water District (CVWD), prepared by MSA Consulting, Inc., July 2019.

A complete copy of this study is included in the Appendices to this Draft EIR as **Appendix K: Water Supply Assessment and Water Supply Verification.** Please see **Section 9.0** for a glossary of terms, definitions, and acronyms used in this Draft EIR.

A. ENVIRONMENTAL SETTING

1. Existing Conditions

Public Water Supply

Coachella Valley Water District (CVWD) is the Public Water System (PWS) for the area in which the Project is located. CVWD provides service for domestic water, irrigation water, sanitation sewer collection, wastewater reclamation and recycling, imported water, stormwater management, agricultural drainage and flood control and water conservation. Some of the services provided by CVWD include the following:

- CVWD provides domestic water for approximately 107,000 homes and business in the Coachella Valley. The distribution system includes 60 reservoirs, 1,993 miles of pipelines and 96 active wells.
- CVWD began recharging the groundwater basin in the Upper Valley in 1919, first with local water and later with imported water.
- Sanitation Services were provided by CVWD in 1968, when it acquired the Palm Desert Country Club Water Reclamation Plant and domestic water system. Currently there are five water reclamation plants (WRP) providing wastewater treatment as well as recycled water supply in the CVWD service area.

The Coachella Valley is dependent on groundwater as a source of supply. The demand for groundwater has historically exceeded the natural recharge of the groundwater basin. Therefore, imported water is used to recharge the acquirer and reduce groundwater overdraft.

Historical Context

The formation of CVWD in 1918 was a direct result of the concern of residents regarding a plan to export water from the Whitewater River to Imperial County. Valley residents also recognized that action was needed to stem the decline of the water table, which was occurring as a result of local pumping in the eastern valley. As a result, CVWD entered into an agreement for the construction of the Coachella Branch of the All-American Canal in order to bring Colorado River water to the Coachella Valley. Since 1949, the Coachella Branch Canal has been providing water for irrigation use in the area that generally encompasses Indio and La Quinta southerly to the Salton Sea. Colorado River water is delivered by an underground irrigation distribution piping system from the approximately 120-mile canal to farms and a growing number of golf courses in the Coachella Valley. In recent years, CVWD has begun a program of recharging the Aquifer in the Lower Valley with this source.

The need for additional water supplies was recognized due to the onset of development in the western Coachella Valley. As a result, in 1963 CVWD and the Desert Water Agency (DWA), entered into separate contracts with the State of California to ensure that SWP water would be available. DWA serves the Palm Springs area, a portion of Cathedral City and imports water for these areas and the Desert Hot Springs area. Because a direct pipeline from the SWP system to the Coachella Valley does not exist, CVWD and DWA entered into an exchange agreement with the Metropolitan Water District of Southern California (MWD) to receive water from the MWD Colorado River Aqueduct, which crosses the upper portion of the Coachella Valley near Whitewater. In exchange, CVWD and DWA have their SWP water allotment delivered to MWD. Since 1973, in exchange for their SWP water, CVWD and DWA have been receiving Colorado River water from MWD's Colorado River Aqueduct turnout located at Whitewater Canyon to replenish groundwater in the Coachella Valley.

In addition, CVWD has recognized the need to provide other sources of water to replenish the Coachella Valley groundwater basin. CVWD has been recycling reclaimed wastewater since 1967 and operates six water reclamation plants, three of which currently recycle water. Recycled water is currently used for golf course and greenbelt irrigation in the cities of Palm Desert, Indian Wells, and Indio, thereby reducing demand on groundwater in the basin.

Primary Water Source

The primary source of water supply in the Valley, and for this project is the Coachella Valley Groundwater Basin. The groundwater basin is recharged by other sources of water, such as Colorado River Water, reclaimed water, SWP supplies, and potentially desalinated brackish groundwater/agricultural drain water. Colorado River water is also available for potential domestic use if treated. Colorado River water via the Coachella Branch of the All-American Canal supplies water for irrigation of the eastern valley. The

proposed project is located in the western portion of the Coachella Valley which does not currently have access to this water. The Mid-Valley Pipeline Project, when completed, will deliver recycled water and Colorado River Water via the Coachella Canal irrigation in the Whitewater River (Indio) Subbasin.

Groundwater

Since the early part of the 20th century, the Coachella Valley has been dependent primarily on groundwater as a source of domestic water supply. Groundwater is also used to supply water for crop irrigation, fish farms, duck clubs, golf courses, greenhouses, and industrial uses in the Coachella Valley. California Water Code Section 10910 requires that cities and counties conduct a WSA for projects that are subject to CEQA. If the water supply for the proposed project includes groundwater, the WSA is required to include additional information such as a description of the basin, the rights of the 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.

Description of the Aquifer

Groundwater is the principal source of municipal water supply in the Coachella Valley. CVWD serves domestic water to most of the developed portions of the Coachella Valley and along both sides of the Salton Sea in Imperial Valley. CVWD obtains water from both the upper and lower Whitewater River subbasins and the Mission Creek subbasin. A common groundwater source, the Whitewater River subbasin, is shared by CVWD, Desert Water Agency, the cities of Indio and Coachella, Myoma Dunes Water Company and numerous private groundwater users.

The Coachella Valley Groundwater Basin, as described by the California Department of Water Resources (DWR) is bound on the north and east by non-water bearing crystalline rocks of the San Bernardino and Little San Bernardino Mountains, and on the south and west by the crystalline rocks of the Santa Rosa and San Jacinto Mountains. At the west end of the San Gorgonio Pass, between Beaumont and Banning, the basin boundary is defined by a surface drainage divide separating the Coachella Valley Groundwater Basin from the Beaumont Groundwater Basin of the Upper Santa Ana drainage area.

The Coachella Valley Groundwater Basin can be described as a giant tilted bathtub full of sand, with the high end at the northwest edge of the Coachella Valley near the community of Whitewater and the low end at the Salton Sea. The Aquifer underlies the cities of Palm Springs, Cathedral City, Rancho Mirage, Palm Desert, Indian Wells, La Quinta, Indio, and Coachella, and the unincorporated communities of Thousand Palms, Thermal, Bermuda Dunes, Oasis, and Mecca. The Subbasins present in the Valley are Mission Creek, Desert Hot Springs, and Whitewater River (also known as Indio). The Whitewater Subbasin includes five subareas: Palm Springs, Garnet Hill, Thermal, Thousand Palms and Oasis. The Palm Springs

subarea is in the forebay or main area of recharge to the subbasin, and the Thermal Subarea comprises the pressure or confined area within the basin. The other three subareas are peripheral areas having unconfined groundwater conditions. The subbasins with their groundwater storage reservoirs are defined without regard to water quantity or quality. They delineate areas underlain by formations, which readily yield the stored water through water wells and offer natural reservoirs for the regulation of water supplies.

The Whitewater River Subbasin comprises the major portion of the floor of the Coachella Valley and encompasses approximately 400 square miles. The historical fluctuations of water levels within the Whitewater River (Indio) Subbasin indicate a steady decline in the levels throughout the subbasin prior to 1949. After 1949, levels in the lower Thermal Subarea (south of Point Happy) where imported Colorado River water is used for irrigation rose sharply, although water levels continued to decline elsewhere in the subbasin. With the use of Colorado River water from the Coachella Canal, the demand on the groundwater basin declined in the lower Valley (generally east and south of Washington Street below Point Happy). Water levels in the deeper aquifers rose from 1950 to 1980. However, water levels in this area declined due to increasing urbanization and groundwater usage from 1980-2010. Recharge in the lower valley has resulted in water levels rising in the past few years.

The Whitewater Subbasin is located northwest of the Salton Sea and receives low precipitation, averaging about 6 inches per year, and a wide range of temperatures. The Banning fault bounds the subbasin on the north and the semi-permeable rocks of the Indio Hills mark the northeast boundary. Impermeable rocks of the San Jacinto and Santa Rosa Mountains bound the subbasin on the south. A bedrock constriction separates the Indio subbasin from the San Gorgonio Pass subbasin on the northwest. The Salton Sea is the eastern boundary and the subbasin's primary discharge area. A low drainage divide forms a short boundary with the West Salton Sea Groundwater Basin in the southeast. In the upper part of the Whitewater Subbasin, groundwater is unconfined, whereas to the south and southeast groundwater is mostly confined except on the edges of the subbasin where unconfined conditions are found. Depth to groundwater varies widely in the southeast part of the subbasin and some wells historically delivered artesian flow.

From a management perspective, the Whitewater River Subbasin is commonly divided into west and east Areas of Benefit (AOBs), with the dividing line extending from Point Happy in La Quinta to the northeast and terminating at the San Andreas Fault and the Indio Hills at Jefferson Street. The West Whitewater River Subbasin AOB is defined generally as that portion of the Thermal Subarea west of this line and includes the Palm Springs and Thousand Palms Subareas. The Whitewater River Subbasin is recharged naturally with runoff from the San Jacinto, Santa Rosa, and San Bernardino Mountains. Since the 1950s, groundwater extractions in the Whitewater River Subbasin have exceeded the long-term natural recharge, placing the subbasin in a state of overdraft and resulting in declining groundwater levels.

Groundwater Storage

As shown in **Table 5.16.1-1: Groundwater Storage Capacity of the Coachella Valley Groundwater Basin**, DWR estimated in 1964 that the Coachella Valley Groundwater Basin contained a total of approximately 39.2 million acre-feet (AF) of water in the first 1,000 feet below the ground surface, much of which originated from runoff from adjacent mountains. However, the amount of water in the Aquifer has decreased over the years due to the groundwater pumping to serve urban, rural, and agricultural development in the Coachella Valley, which has withdrawn water from the Aquifer at a rate faster than its natural rate of recharge. DWR has calculated the storage capacity of the Whitewater River Subbasin to be 29.8 million AF.

Table 5.16.1-1
Groundwater Storage Capacity of the Coachella Valley Groundwater Basin

Area	Storage (acre-feet)
San Gorgonio Pass Subbasin	2,700,000
Mission Creek Subbasin	2,600,000
Desert Hot Springs Subbasin	4,100,000
Subtotal	**10,400,000**
Whitewater River Subbasin	
Palm Springs Subarea	4,600,000
Thousand Palms Subarea	1,800,000
Oasis Subarea	3,000,000
Garnet Hill Subbasin	1,000,000
Thermal Subarea	19,400,000
Subtotal Whitewater River Subbasin	**29,800,000**
Total of all Subbasins	**39,200,000**

*Source: **Appendix K**, Water Supply Assessment and Water Supply Verification.*

Groundwater Levels

The rate of groundwater level decline has increased since the early 1980s due to increased urbanization and increased groundwater use by domestic water purveyors, farmers, golf courses and public parks. Although water levels have been declining throughout most of the subbasins since 1945, water levels in the southeastern portion of the Coachella Valley had risen until the early 1980s because of the use of imported water from the Coachella Branch of the All-American Canal and the resulting decreased pumping in that area. The rate of groundwater level decline increased from the early 1980s until about 2010 due to increased urbanization and increased domestic water purveyors, local farmers, golf courses, and fish

farms. Since 2010, groundwater levels in the southeastern portion of the Coachella Valley have risen as a result of reduced pumping in the eastern Coachella Valley combined with recharge of Colorado River water at the Thomas E. Levy Groundwater Replenishment Facility.

The historic declining water table in the lower portion of the Whitewater River Subbasin led to the determination that a management program is required to stabilize water levels and prevent other adverse effects such as water quality degradation and land subsidence. CVWD's Lower Whitewater River Subbasin Groundwater Replenishment program is reducing declining water levels in this subbasin. Groundwater Recharge in the Lower Whitewater River Subbasin began in 1997, and the benefits of recharge can be seen in recent groundwater level measurements.

As presented in the 2010 CVWMP Update, groundwater production within the West Whitewater River Subbasin Area of Benefit was estimated to be 208,439 AF during 1999. The reported production for 2014 was 174,187 AF, and for 2015 was 147,459 AF. Groundwater production within the East Whitewater/Indio Subbasin Area of Benefit was estimated to be 168,300 AF during 1999. The reported production for 2014 was 123,465 AF and 113,706 AF for 2015.

Water surface elevations in the western area of the Coachella Valley are highest at the northwest end of the subbasin, illustrating the regional groundwater flow is from the northwest to the southeast in the center of the Coachella Valley.

Groundwater Production

CVWD's total groundwater production from each of the two groundwater basins, as shown in **Table 5.16.1-2: Estimated Groundwater Production within the West Whitewater River Subbasin Area of Benefit**, total groundwater production within the West Whitewater River AOB was estimated to be 155, 543 AF in 2017. Annual water production within the West Whitewater River Subbasin AOB (groundwater extractions plus surface water diversions) for all producers, has averaged 165,222 AFY for the past 6 years (2012-2017), down from the 197,219 AFY average from the previous 5-year period (2007-2011). Based on production records, approximately 22 to 25 percent of annual water production within the Whitewater River Subbasin is allocable to DWA, and the remaining 75 to 78 percent is allocable to CVWD.

Table 5.16.1-2

Estimated Groundwater Production within the West Whitewater River Subbasin

Year	Acre-Feet
2003	204,275
2004	212,700
2005	204,341
2006	213,850
2007	211,014
2008	210,693
2009	199,149
2010	182,823
2011	182,823
2012	183,108
2013	181,994
2014	174,187
2015	147,459
2016	148,395
2017	155,543

Source: Supply and Replenishment Assessment, West Whitewater River Subbasin Area of Benefit 2018-2019 *(April* 2018). Table VI-1.

Groundwater Inflows and Outflows

CVWD divides the subbasins within its service area into Areas of Benefit (AOBs). Total inflows and outflows to the west of the Whitewater River Subbasin AOB for the year 2017 are summarized in **Table 5.16.1-3 Annual Water Balance in the West Whitewater River Subbasin Area of Benefit**. The natural inflow of 52,058 AF includes natural recharge and flow across subbasin boundaries. The non-consumptive return of applied water is estimated at 51,220 AF, which is 10.5 percent of the reported production of 489,272 AF. The total inflow includes the natural inflow, the non-consumptive return, and the 385,994 AF of actual water replenished. Total outflow is the reported 156,123 AF groundwater production estimates, the 7,935 AF of evaporative losses, and the 22,622 AF of natural outflow. The annual balance is the total inflow less the total outflow, for a net increase of approximately 302,680 AF of water in storage to the subbasin.

In 2017, the change in groundwater in storage in the West Whitewater River Subbasin AOB was positive, imported water may offset annual changes in the groundwater in storage in a particular year. However, on

a long-term basis, water requirements are likely to continue to place demands on groundwater storage. Without artificial replenishment, the annual reduction in stored groundwater within the West Whitewater River Subbasin AOB in 2017 would have resulted in a net loss of approximately 83,402 AF, compared to the annual balance of approximately 305, 592 AF.

Table 5.16.1-3
Annual Water Balance in the West Whitewater River Subbasin Area of Benefit

Item		Annual Calculation (AF)
Inflows		
Infiltration of Natural Runoff		40,823
Surface Water Diverted		1,996
Subsurface Inflows from Adjacent Basins		11,235
Infiltration of Applied Irrigation Water		38,481
Wastewater Percolation		7,169
Septic Tank Percolation		3,574
Artificial Replenishment[a]		385,994
	Total Inflows	**489,272**
Outflows		
Metered Groundwater Pumping and Surface Water Diversions[b]		155,623
Assumed Approximate Production by Unmetered Minimal Pumpers		500
Evaporative Losses[c]		7,935
Subsurface Outflow to Adjacent Basins		22,622
	Total Outflows	**186,680**
	Change in Storage	**302,592**

*Source: **Appendix K**, Water Supply Assessment and Water Supply Verification.*
Note: AF = Acre-Fee
[a] Water delivered to the Whitewater River Groundwater Replenishment Facility
[b] Total surface water diversions, assessable groundwater production, and metered groundwater production from minimal pumpers
[c] Estimated losses from spreading basins and percolation ponds.

Surface runoff, surface inflow, and artificial replenishment are significant sources of recharge to the Whitewater River Subbasin. Annual deliveries of Colorado River Water through the Coachella Canal of approximately 300,000 AF are a significant component of southeastern Coachella Valley hydrology. Direct groundwater replenishment within the West Whitewater River Subbasin AOB, which began in 1973, has so far replenished the western portion of the Whitewater River Subbasin with a cumulative total of

approximately 3,318,182 AF of imported water. Imported water in the amount of 385,994 AF was delivered to the Whitewater River Groundwater Replenishment Facility (GRF) during 2017.

Status of the Aquifer

Groundwater overdraft is manifested not only as a prolonged decline in groundwater storage but also through secondary adverse effects, including decreased well yields, increased energy costs, water quality degradation, and land subsidence. Continued groundwater replenishment will be necessary to eliminate or reduce overdraft in the future. The Coachella Valley Groundwater Basin (and its subbasins) has been historically in a state of overdraft condition. With maximum Table A allocations, recharge in the Whitewater River Subbasin would offset the current annual overdraft, although overdraft in future years is virtually unpredictable, due to the difficulty of projecting long-term growth and the reliability of SWP supplies.

Direct groundwater replenishment within the West Whitewater River Subbasin AOB began in 1973 and has so far replenished the Western portion of the Whitewater River Subbasin with a cumulative total of 3,318,182 AF of imported water. Imported water in the amount of 385,994 AF was delivered to the Whitewater River GRF during 2017.

CVWD and DWA request their full amount of Table A amounts each year, for a combined total of 194,100 AF, and continue to exchange their SWP for Colorado River Water. Given that water demand and groundwater extraction are expected to increase in the future, the current groundwater replenishment program will need to be continued and increased in the future to eliminate overdraft. Cumulative replenishment water deliveries between the Mission Creek Subbasin and Whitewater River Subbasin AOBs will be balances as determined by CVWD, DWA, and MSWD Management Committee, but no later than 20 years from December 7, 2004.

Over the past 10 years, the basin has been balanced; however, during the past 20 years, about 45,000 AFY of storage has been lost to overdraft. Projected water requirements through 2040 for the Whitewater River Subbasin are based in the water balance model utilized in the 2010 CVWMP Update and the 2016 Status Report for the 2010 CVWMP Update. The project requirements are largely offset by potable supplies; however, on a long-term basis, water requirements are likely to continue to place demands on groundwater storage. Implementation of the programs recommended in the 2010 CVWMP update is expected to result in elimination of storage losses by about 2022, assuming average hydrologic conditions.

Overdraft Mitigation Efforts

In addition to the requirements for the 2015 UWMP, CVWD maintains water management policies within its 2010 CVWMP Update to comprehensively protect and augment the groundwater supply. As defined in

the 2010 CVWMP Update, CVWD is reducing reliance on groundwater sources by utilizing more Colorado River water, SWP water and recycled water. Per this plan, CVWD also implements source substitution and conservation measures to reduce demands on the aquifer. The goal is to reduce the overall water demand by 20 percent by 2020 pursuant to SB7-7. The District anticipates this water use reduction level will be maintained through the remainder of the planning period.

CVWD Landscape Ordinance

CVWD Landscape Ordinance 1302.1 required a series of reduction methods, including requirements that new developments install weather-based irrigation controllers that automatically adjust water allocation. Additional requirements included setbacks of spray emitters from impervious surfaces, as well as use of porous rock and gravel buffers between grass and curbs to eliminate run-off onto streets. With the exception of turf, all landscaping, including groundcover and shrubbery, must be irrigated with a drip system. Also, the maximum water allowance for landscaped areas through the CVWD service area has been reduced. This new reduction goal requires that developers maximize the use of native and other drought-tolerant landscape materials and minimize use of more water-intensive landscape features, including turf and fountains.

Source Substitution

Source substitution is the delivery of an alternate source of water to users currently pumping groundwater. The substitution of an alternate water source reduces groundwater extraction and allows the groundwater to remain in storage, thus reducing overdraft. Alternative sources of water include municipal recycled water from Water Reclamation Plant (WRP)-7, WRP-9, WRP 10, and the City of Palm Springs Wastewater Treatment Plant; Colorado River water, desalinated agricultural drain water and re-use of aquaculture water. Source substitution projects include:

- Conversion of existing and future golf courses in the Lower Valley from groundwater to Colorado River Water
- Conversion of existing and future golf courses in the Upper Valley from groundwater to recycled water and/or Colorado River water via SWP Exchange water
- Conversion of existing and future golf courses in the Lower Valley from groundwater to Colorado River water via the Mid-Valley Pipeline
- Conversion of agricultural irrigation from groundwater to Colorado River water, in both the Oasis and Mecca area
- Conversion of some municipal use from groundwater to treated Colorado River water

Examples of effective alternative source substitute efforts include the following:

- CVWD has a non-potable water system that treats recycled water from three water reclamation plants, blends in with canal water and delivers to golf courses, schools, and open spaces for irrigation. Approximately 13,400 ac-ft of recycled water was delivered in 2012.
- CVWD has completed construction of a 54-inch diameter pipeline to deliver Colorado River water to the Mid-Valley area for use with CVWD's recycled water for golf course and open space irrigation. This will reduce pumping from the groundwater basin for these uses.
- CVWD has secured rights to the Colorado River and participated in the construction of the All-American Canal and the Coachella Branch of the All-American Canal. Beginning in the late 1940's, CVWD worked with the U.S. Bureau of Reclamation (USBR) and constructed a distribution system to deliver Colorado River water to the farms in the Lower Valley. This system delivered 245,894 acre-feet of Colorado River water in 2006, and increased deliveries to approximately 317,000 acre-feet in 2012.
- CVWD has recharged the Lower Valley with Colorado River water and is planning the construction of a second major recharge facility that will expand the recharge program. The largest recharge program is operated at the Whitewater River Recharge Facility. The Thomas E. Levy Groundwater Replenishment Facility (TEL facility) will recharge up to 40,000 AFY.
- CVWD has secured rights to SWP water and negotiated exchange and advanced delivery agreements with the Metropolitan Water District of Southern California (MWD) to exchange CVWD's SWP water for MWD's Colorado River water source. The SWP exchange water is used to recharge the Aquifer in the Upper Valley. This recharge program was started in 1973 and has replenished the Aquifer with over two million acre-feet of water.
- CVWD plans to utilize treated agricultural drainage water for irrigation purposes. A desalination pilot study was completed in 2007.
- CVWD has worked with an aquaculture farm and developed water efficiency programs that include water treatment and reuse.
- CVWD intends to implement expansion of the Oasis area irrigation system. This project will reduce groundwater pumping by extending Colorado River water delivery to the Oasis Slope. The Oasis system would deliver Canal and desalinated drain water to serve urban non-potable water uses such as irrigation.

Conservation Programs

CVWD continues to work with the cities in its service area to limit the amount of water that is used for outdoor landscaping. As a result of the adoption of statewide indoor water conservation measures requiring low flush toilets, shower and faucet flow restrictors and other devices, the amount of water used inside homes has been significantly reduced. With the large number of new homes constructed, these conservation programs have reduced impacts of new development on the Aquifer. Also, in 2016 CVWD adopted Water Budget based tiered rates to discourage excessive water use. The Section 31 Specific Plan will be required to implement CVWD conservation measures to assure the most efficient use of water

resources and to meet and maintain the 2020 water conservation goals throughout the life of the Project. In addition, the Project will strictly adhere to CVWD's landscape ordinance.

Aquifer Adjudication

The groundwater basin has not been adjudicated. From a management perspective, CVWD divides the portion of the Subbasin within its service area into two AOBs designated as the West Whitewater River Subbasin AOB and the East Whitewater River Subbasin AOB. The dividing line between these two areas is an irregular line trending northeast to southwest between the Indio Hills north of the City of Indio and Point Happy in La Quinta. The West Whitewater River Subbasin is jointly managed by CVWD and DWA under the terms of the 2014 Whitewater Management Agreement. The East Whitewater River Subbasin AOB is managed by CVWD.

Groundwater Sufficiency

The 2015 UWMP reports CVWD's actual service area urban water demand at 92,974 AF in 2015. Projected urban water demand in the 2015 UWMP for the year 2040 is anticipated to be 194,300 AF. Total buildout water demand of the Project is estimated to be approximately 1530.66 AFY, which represents approximately 0.78 percent of the total anticipated urban demand of 194,300 in CVWD's urban water system projected for 2040. With almost 30 million acre-feet of combined storage followed by groundwater management planning adopted in the 2015 UWMP and 2010 CVWMP Update, the aquifer has sufficient available water to supply the Section 31 Specific Plan project and other present and anticipated needs for the normal year, as well as one or more multiple dry years, over the next 20 years.

Additional Water Sources

Groundwater provides the main water supply for the Coachella Valley. Additional water sources are considered as a supplement to groundwater in that they are used to recharge the Aquifer, serve as a source substitution for groundwater, or are used for irrigation in other locations in the subbasin. If it becomes available to the project site, the Section 31 Specific Plan Project will utilize recycled water on site to meet non-potable water demands.

Colorado River Water

The Coachella Canal is a branch of the All-American Canal, which brings Colorado River water into the Imperial and Coachella Valleys. The service area for Colorado River water delivery under CVWD contract with the USBR is defined as Improvement District No. 1 (ID-1). Under the 1931 California Seven Party Agreement, CVWD has high priority water rights to Colorado River water as part of the first 3.85 million acre-feet of the 4.4 million acre-feet-allocated to California.

California's Colorado River supply is protected by the 1968 Colorado River Basin Project Act, which provides that the Colorado River supplies to Arizona and Nevada projects constructed after 1968 shall be reduced to zero before California will be reduced below 4.4 million acre-feet in any year. This provision assures full supplies to the Coachella Valley except in periods of extreme drought.

Historically, CVWD has received approximately 330,000 AFY of Priority 3A Colorado River water delivered via the Coachella Canal. **Table 5.16.1-4: Annual CVWD Colorado River Diversions at Imperial Dam 1964-2015 (after measured returns).** The 2003 Quantification Settlement Agreement (QSA) among some of the California Colorado River contactors provides contractual obligation for the supply to CVWD. A number of lawsuits have unsuccessfully challenged the QSA agreements and transfers in state and federal court.

Table 5.16.1-4
Annual CVWD Colorado River Diversions at Imperial Dam 1964-2015 (after measured returns)

Year	Diversion Volume (AF)	Year	Diversion Volume (AF)	Year	Diversion Volume (AF)	Year	Diversion Volume (AF)
1964	526,417	**1979**	530,733	**1993**	318,990	**2008**	299,064
1965	524,686	**1980**	531,791	**1994**	326,102	**2009**	322,730
1966	489,429	**1981**	452,260	**1995**	326,697	**2010**	251,249
1967	465,053	**1982**	424,868	**1996**	331,473	**2011**	265,270
1968	478,583	**1983**	362,266	**1997**	338,466	**2012**	329,576
1969	495,082	**1984**	355,789	**1998**	337,466	**2013**	331,137
1970	449,263	**1985**	337,002	**1999**	333,810	**2014**	349,372
1971	470,683	**1986**	339,702	**2000**	342,871	**2015**	342,074
1972	511,476	**1987**	322,625	**2001**	325,097		
1973	522,356	**1988**	331,821	**2002**	331,107		
1974	558,864	**1989**	359,419	**2003**	296,808		
1975	570,987	**1990**	369,685	**2004**	318,616		
1976	524,800	**1991**	317,563	**2005**	304,769		
1977	508,635	**1992**	309,367	**2006**	329,322		
1978	509,491	**1992**	318,990	**2007**	311,971		

*Source: **Appendix K**, Water Supply Assessment and Water Supply Verification.*

The QSA was entered into and between CVWD, Imperial Irrigation District (IID), Metropolitan Water District (MWD) and the San Diego County Water Authority (SDCWA). The QSA quantifies distribution allotments of Colorado River water rights in California, including CVWD's Colorado River Rights, for the next 75 years. The agreements provide for additional transfer of Colorado River allocations to CVWD from the IID and MWD. As shown in **Table 5.16.1-5: Colorado River Deliveries to CVWD under the Quantification Settlement Agreement**, as of 2015, CVWD receives 378,000 AFY of Colorado River Water. CVWD's allocation of Colorado River Water will increase to 419,000 AFY in 2018, and 459,000 AFY in 2026, then reduce to 456,000 AFY in 2048 and remain at the level for the remaining 75-year term of the QSA.

Table 5.16.1-5
Colorado River Deliveries to CVWD under the Quantification Settlement Agreement

Component	2015 Amount (AFY)	2026-2047 Amount (AFY)	2048-2077 Amount (AFY)
Base Entitlement	330,000	330,000	330,000
Less Coachella Canal Lining (to SDCWA)	-26,000	-26,000	-26,000
Less Miscellaneous/Indian PPRs	-3,000	-3,000	-3,000
1988 MWD/IID Approval Agreement	20,000	20,000	20,000
First IID/CVWD Transfer	36,000	50,000	50,000
Second IID/CVWD Transfer	0	53,000	0
MWD/CVWD Replacement Water[a]	0	0	50,000
MWD/CVWD SWP Transfer[b]	35,000	35,000	35,000
Total Allocation	**392,000**	**459,000**	**456,000**
Less Conveyance Losses and Regulatory Water[c]	-14,000	-14,000	-14,000
Total Deliveries to CVWD	**378,000**	**445,000**	**442,000**

*Source: **Appendix K**, Water Supply Assessment and Water Supply Verification.*
Note: AFY = Acre-Feet per year; IID = Imperial Irrigation District; CVWD = Coachella Valley Water District; San Diego County Water Authority; MWD = Metropolitan Water District
[a] MWD assumes the obligation to provide 50,000 AFY of replacement water after 2048.
[b] The 35,000 AFY may be delivered at either Imperial Dam or Whitewater River and is not subject to SWP or Colorado River reliability.
[c] Conveyance losses and regulatory water based on 2009-2014 averages.

Water from the Coachella Canal provides a significant supply source for the Lower Valley. In 1999, the Coachella Canal supplied over 60 percent of the water used in the Lower Valley but provided less than one percent of the water supply to the Upper Valley. Most of the canal water was used for crop irrigation in the Lower Valley. In 1995, CVWD began operating the Dike No. 4 pilot recharge facility in La Quinta. As discussed previously in Source Substitution, this facility has successfully demonstrated that adequacy of this site to recharge the aquifer. This facility was expanded in 1998. This site known as the Thomas E. Levy

Groundwater Replenishment (Levy) Facility at the Dike 4 site was expanded in 2009 and put into full operation.

Future development and associated increases in water demand, as well as quality concerns, are expected to increase use of Colorado River water for domestic purposes. Determining the best way to treat this water in order to substitute for and decrease the area's dependency on groundwater is an important objective of the 2010 CVWMP Update and 2010 UWMP. The 2010 CVWMP Update calls for the treatment and distribution of as much as 62,000 ac-ft of Colorado River water for domestic use annually.

State Water Project

CVWD and DWA are SWP contractors for the Whitewater River basin Aquifer. The SWP includes 660 miles of aqueduct and conveyance facilities extending from Lake Oroville in the north to Lake Perris in the south. The SWP has contracts to deliver 4.1 million AFY to 29 contracting agencies. CVWD's original SWP water right (Table A amount) was 23,100 AFY and DWA's original SWP Table A amount was 38,100 AFY for a combined Table A amount of 61,200 AFY. In 2004, CVWD purchased additional 9,900 AFY of SWP water from the Tulare Lake Basin Water Storage District, which brought CVWD's SWP allotment to 33,000 AFY.

In addition, CVWD and DWA have also negotiated an exchange agreement with MWD for 100,000 AFY of SWP Table A amount. MWD has permanently transferred 88,100 AFY and 11,900 AFY of its SWP Table A amounts to CVWD and DWA, respectively. This exchange agreement increases the total SWP Table A amount for CVWD and DWA to 178,100 AFY, with CVWD's portion equal to 126,350 AFY. This agreement provides that CVWD and DWA generally receive this water from the SWP during wet years, which allows the two agencies to recharge the groundwater basin and operate a conjunctive use program, storing water in wet years and pumping the groundwater basin in dry years.

In 2007, CVWD and DWA made a second purchase of SWP water from the Tulare Lake Basin Water Storage District. CVWD purchased 5,250 AFY and DWA purchased 1,750 AFY. In 2007, CVWD and DWA completed the transfer of 12,000 AFY and 4,000 AFY, respectively, from the Berrenda Mesa Water District for a total Table A amount of 16,000 AFY. Therefore, the total SWP Table A amount for CVWD and DWA is 194,100 AFY, with CVWD's portion equal to 138,350 AFY. **Table 5.16.1-6: State Water Project Sources (AFY)**, summarizes CVWD and DWA total allocations of Table A SWP water to be delivered when available.

SWP contractors make annual requests to the DWR for water allocations and DWR makes an initial SWP Table A allocation for planning purposes, typically in the last month before the next water delivery year. Throughout the year, as additional information regarding water availability becomes available to DWR, its allocation/delivery estimates are updated. **Table 5.16.1-7: Department of Water Resources Table A Water Allocations**, outlines the historic reliability of SWP deliveries, including their initial and final allocations.

Table 5.16.1-6
State Water Project Sources (AFY)

	Original SWP Table A	Tulare Lake Basin 2004 Transfer	Metropolitan 2003 Transfer	Tulare Lake Basin 2007 Transfer	Berrenda Mesa 2007 Transfer	Total
CVWD	23,100	9,900	88,100	5,250	12,000	138,350
DWA	38,100	--	11,900	1,750	4,000	55,750
Total	61,200	9,900	100,000	7,000	16,000	194,100

*Source: **Appendix K**, Water Supply Assessment and Water Supply Verification.*

Table 5.16.1-7
Department of Water Resources Table A Water Allocations

Year	Initial Allocation	Final Allocation
2003	20%	90%
2004	35%	65%
2005	40%	90%
2006	55%	100%
2007	60%	60%
2008	25%	35%
2009	15%	40%
2010	5%	50%
2011	25%	80%
2012	60%	65%
2013	30%	35%
2014	5%	5%
2015	10%	20%
Average	43%	70%

*Source: **Appendix K**, Water Supply Assessment and Water Supply Verification.*

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

The exchange agreement allows for advanced delivery and storage of water, thereby providing better and more efficient water management. Water is only recharged when SWP and exchange waters are available. The large storage capacity of the Coachella Valley Aquifer and the large volume of water in storage allows CVWD and DWA to pump from the Aquifer for a number of years without recharging. Large amounts of water can be recharged into the Aquifer when the water is available.

Factors Potentially Impacting SWP Delivery Reliability

DWR issues the State Water Project Delivery Reliability Report every two years. The Final State Water Project Availability Report, 2017 (Final 2017 SWP Report), accounts for impacts to water delivery reliability associated with climate change and recent federal litigation (see Appendix B). This allocation percentage is based on computer modeling of the state's watersheds, and past hydrology adjusted for factors that affect reliability. In considering future water supply needs in the CVWMP Update, CVWD considered an even lower SWP delivery reliability to allow for the uncertainty of future court decisions, Water Resources Control Board actions, federal and State Endangered Species Acts and other restrictions, modeling error, levee failure and relaxation in the biological opinions (BO) as the result of better science.

There are three significant factors contributing to uncertainty in the delivery reliability of the SWP: 1) possible effect from climate change and sea level rise; 2) the vulnerability of the Delta levees to failure, and 3) greater operation restrictions imposed by the USFS and NMFS in response to decreasing population of endangered fish species. Each of these uncertainties is discussed in Appendix B. CVWD considers purchases of additional Table A Amounts from SWP contractors as they become available.

Surface Water

CVWD does not currently use or intend to use any local surface water (non-imported surface water) as part of its urban water supply. Local runoff is captured and used for groundwater recharge.

Surface Water supplied come from several local rivers and streams including the Whitewater River, Snow Creek, Falls Creek and Chino Creek, as well as a number of smaller creeks and washes. In 1999, surface water supplied approximately three percent of the total water supply to the Upper Valley to meet municipal demand, and none to the lower valley. Because surface water supplies are affected by variations in annual precipitation, the annual supply is highly variable. Since 1936, the estimated historical supply has ranged from approximately 4,000 AFY to 9,000 AFY.

Wastewater and Recycled Water

Wastewater that has been highly treated and disinfected can be reused for landscape irrigation and other purposes; however, treated wastewater is not suitable for direct potable use. Recycled wastewater has historically been used for irrigation of golf courses and municipal landscaping in the Coachella Valley

since the 1960s. As growth occurs in the East Valley, the supply of recycled water is expected to increase, creating an additional opportunity to maximize local water supply.

CVWD operates five water reclamation plants (WRPs), two of them (WRP-7 and WRP-10) generate recycled water for irrigation of golf courses and large landscaped areas. WRP-4 became operational in 1986 and serves the communities from La Quinta to Mecca. WRP-4 effluent is not currently recycled; however, it will be in the future when the demand for recycled water develops and tertiary treatment is constructed. The other two WRPs serve isolated communities near the Salton Sea. A sixth WRP (WRP-9) was decommissioned in July 2015.

Desalinated Drain Water

The 2015 CVWD UWMP identifies CVWD's plan to use treated agricultural drainage water for irrigation purposes. It is planned that agricultural drain water from the CVWC will be desalted to a quality equivalent to Canal water for irrigation use with an initial rate of 4,000 AFY by 2013, increasing to 11,000 AFY capacity by 2023. 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. According to the 2010 CVWMP Update the amount of water recovered through drain water desalination will range from 55,000 AFY to 85,000 AFY by 2045.

Product water would be delivered to the Canal distribution system for non-potable use. This supply would offset groundwater pumping in the basin. Treated drain water could be delivered to the Canal water distribution system and used as a non- potable supply for agricultural, golf course, and landscape irrigation and potentially for potable water supply. Since the desalinated drain water is local water, it could be used anywhere within the CVWD service area.

A brackish groundwater treatment pilot study and feasibility study was completed in 2008 (Malcolm-Pirnie, 2008a and 2008b). The 2008 study recommended a combined source water strategy involving wells and direct connection to the open drain outfalls. Such a combined approach will provide additional flexibility and reliability to this new water supply. This study concluded that agricultural drainage water can effectively be treated for reuse as non-potable water and potentially as new potable water.

Purchases, Exchanges or Transfers

To further help meet its long-term supply needs, CVWD purchases Table A Amounts from SWP contractors as they have become available and meet CVWD's needs. Additional purchases from the SWP and from others with water rights, mainly in the Central Valley of California, will be evaluated as they become available to determine whether they meet CVWD's needs. If they do, CVWD may purchase additional SWP water rights.

Summary of Primary and Additional Water Sources

Table 5.16.1-8: Existing CVWD Water Supply Table A Amounts shows CVWD's existing and water supply entitlements, rights and service contracts as discussed above.

Table 5.16.1-8
Existing CVWD Water Supply Table A Amounts

Supply	Existing Supplies (afy)	Entitlement	Right	Contract	Other	Ever Utilized?
Groundwater	Unspecified[a]				X	Yes
Coachella Canal	459,000[b]			X		Yes
SWP Exchange Water[c]	138,350[d]	X	Yes			
Recycled Water	14,000				X	Yes

*Source: **Appendix K**, Water Supply Assessment and Water Supply Verification.*

a. CVWD shares a common groundwater source that has not been adjudicated

b. As quantified in the Quantification Settlement Agreement between IID, MWD, and DVWD, October, 2003.

c. Imported SWP Exchange Water is not used as a direct water supply source, but rather is used to recharge groundwater supplies in the Coachella Valley.

d. Includes Original Table A Amount, Tulare Agreement, Berrenda Mesa Agreement, and MWD Agreement.

Water Supply and Demand

The Coachella Valley has been primarily dependent on groundwater as a source of domestic water supply since the early part of the 20th century. The 2010 CVWMP Update and the CVWD 2015 UWMP review the historical use of water in the Coachella Valley. In 1936, groundwater use was 92,400 AFY; usage increased steadily to about 376,000 AFY in 1999. The groundwater demand in 2009 dropped to 358,700 AFY due to a combination of water conservation efforts, source substitution projects, and effects of the ongoing economic recession.

The current demand, as of 2012, is at approximately 376,247 AFY annually. Deliveries of Colorado River water and MWD SWP transfer water help offset groundwater demand. The Colorado River water deliveries have averaged approximately 285,000 AFY over the past five years with MWD deliveries to the Coachella Valley expected to average 50,000 AFY.

The 2010 CVWMP Update is a 35-year plan to reliably meet current and future water demands in a cost effective and sustainable manner. The planning areas for the 2010 CVWMP Update is the Whitewater River Subbasin including Salton City and areas north of the Banning Fault that are within the service areas in Indio and Coachella. The 2010 CVWMP Update evaluates all of the water demand and supplies in the planning area through 2045, for all water users including urban, agricultural and golf and provides a preferred alternative water supply plan for meeting demands. The 2010 CVWMP Update evaluates long-

term risks to water supplies such as reduced SWP reliability and reduced Colorado River supplies and provides contingencies for addressing these risks. The elements of the preferred alternative are imported water supplies, recharge, source substitution and conservation. The preferred alternative identifies projects and programs that implement these plan elements.

The 2010 CVWMP Update relies on the Riverside County Population Projections 2006 (RCP-06). The 2014 Status Report updated the Population Projections based on the Riverside County Population Projections 2010 which are lower. The updated projections are relied upon in the 2015 UWMP.

In 2005, Riverside County was experiencing rapid growth. Recognizing the need for more accurate growth forecasts the Riverside County Center for Demographic Research (RCCDR) was established under the joint efforts of the County of Riverside, the Western Riverside Council Governments, the Coachella Valley Association of Governments, and the University of California Riverside for the development of demographic data and related support products to serve all of Riverside County. The RCCDR was tasked with developing the RCP-2006 growth forecast to provide agencies with a consistent and standard set of population, housing, and employment forecasts. The RCP-2006 was adopted by Southern California Association of Governments for use in their regional growth forecasts.

Although the growth forecast indicated significant future growth for the Coachella Valley, these forecasts were based on potential development that had not yet been approved by the Cities and County. Prior to 2008, there was substantial development pressure to transition from agricultural to urban land uses. As agricultural land converts to urban uses, the characteristic of its water demands and infrastructure will change. The 2010 CVWMP Update reflects these changes in its water demand projections and the ways that water is used in this area. As urban development occurs, land that currently is irrigated with untreated Coachella Canal water could begin using groundwater replenished with the canal water or use treated canal water for indoor use and untreated canal water for outdoor use.

Tribal land in the Coachella Valley makes up over 49,000 acres. While much tribal land in the West Valley has been developed to varying degrees, a substantial amount of tribal land in the East Valley is undeveloped. An understanding of the timing and degree of development on tribal lands is important. All of the Coachella Valley tribes have developed one or more casinos, which have provided them important economic opportunities. As development continues in the Valley, it is expected that additional growth will occur on the remaining tribal lands. In other portions of the Valley, development of tribal land is closely coordinated with the Coachella Valley cities where they are located.

As shown in **Table 5.16.1-9: Projected Average Urban Water Supply (AFY)**, the 2015 UWMP projects that the percentage of water from each of the current water supply sources will change significantly by 2040, relative to 2015 conditions.

Table 5.16.1-9
Projected Average Urban Water Supply (AFY)

Water Supply	Additional Detail on Water Supply	Projected Water Supply (AF) 2020	2025	2030	2035	2040 (opt)
Groundwater	Potable urban use	113,400	102,100	112,700	106,600	101,000
Purchased or Imported Water	Treated Canal water for potable urban use in East Valley[a]	0	18,000	18,000	31,000	40,000
Urban Potable Subtotal		**113,400**	**120,100**	**130,700**	**137,600**	**141,000**
Purchased or Imported Water	Untreated Canal water for non-potable urban use in East Valley[a]	1,200	11,000	17,000	26,300	33,300
Desalinated Water	Desalinated drain water for non-potable urban use	0	5,000	10,000	15,000	20,000
Urban Non-Potable Subtotal		**1,200**	**16,000**	**27,000**	**41,300**	**53,300**
Recycled Water	WRP-7[b]	3,400	3,700	4,000	4,300	4,600
Recycled Water	WRP-10[b]	10,900	11,300	11,700	12,100	12,500
Recycled Water	WRP-4[b,c]	0	12,700	15,100	17,500	19,200
Recycled Water Subtotal		**14,300**	**27,700**	**30,800**	**33,900**	**36,300**
Total Retail Supply		**128,900**	**163,800**	**188,500**	**212,800**	**230,600**
Purchased or Imported Water	Sale of Canal water to IWA for potable use	5,000	10,000	20,000	20,000	20,000
Total Wholesale Supply		**5,000**	**10,000**	**20,000**	**20,000**	**20,000**

*Source: **Appendix K**, Water Supply Assessment and Water Supply Verification.*
Note: IWA = Indio Water Authority
[a] Total Colorado River allotment will increase from 397,000 AF in 2016 to 459,000 AF in 2026. Colorado River water supply does not sum in total right because of nonurban supply not shown on this table and projected wholesale to other agencies.
[b] Recycled water safe yield is based on total projected flows at each WWTP; surface discharge and percolated wastewater effluent is not included in the reasonably available supply estimates.
[c] Assumes tertiary treatment is not available until after 2020 at WRP-4.

Effects of the 2008-2011 Recession

Riverside County was hit particularly hard by the economic downturn that started in 2008. The recession resulted in a lower than projected growth rate for the Valley and, because the planning period for the 2010 CVWMP Update is through 2045, the effects of the recession on growth in the Valley have begun and will continue to attenuate over the long term. The 2010 CVWMP Update incorporates these factors as it is assumed that development within the Valley will continue and that the Riverside County Planning growth forecast is applicable in the long term.

In CVWD's 2014 CVWMP Status Report the RCP 2010 population projections were considered and future water demands were re-evaluated. Using RCP 2010 results in an estimated 22 percent lower urban water demand in 2035 and a 13 percent higher agricultural water demand. Overall demand would be about 14 percent lower in 2045. It is important to note that this is not an elimination of demand but a deferral of demand to later years. Growth will continue but at a slightly slower rate.

Water conservation is a major component of future water management. CVWD is committed to reducing its urban water use by 20 percent by 2020. Therefore, CVWD has been conservative in the calculation of 2015 and 2020 urban conservation targets. 2010 U.S. Census Data was not available to be used in the preparation of the 2015 UWMP. CVWD used 2000 census data. Water Code Section 10608.2 allowed urban water suppliers to update 2020 urban targets in the 2015 UWMP based on the availability of 2010 Census Data. Because CVWD's recalculated urban conservation targets were higher than those committed to in the 2010 UWMP, CVWD retained its 2010 per capita targets of 540 gpcd by 2015 and 473 gpcd by 2020 which will result in greater water savings. CVWD's actual 2015 water use was 383 gpcd. Drought restrictions played a significant role in achieving this reduction.

The golf industry represents a significant water demand sector in the Coachella Valley and is expected to remain so in the future. CVWD, working in cooperation with the Southern California Golf Association and the local golf community, has established a Golf and Water Task force to reduce overall golf course water use by ten percent.

The 2010 CVWMP Update assumes that the fish farm and duck club growth will be much lower than projected in the 2002 CVWMP. Some of the large fish farms have moved from the traditional fish farming business. The replacement use at these farms is suspected to significantly reduce the water demand. Based on the available information at this time, future fish farm demand of 8,500 AFY and duck club demand of 2,000 AFY was assumed.

It was also assumed that the growth occurring on tribal land will be similar to other areas in the Coachella Valley, and land uses will be proportional to the growth that occurs on non-tribal land in the East Coachella Valley. Corresponding water demands are calculated based on this growth assumption.

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 2020. Urban water use, CVWD's Landscape Ordinance 1302.2, updated in 2016 will govern the irrigation demands of new golf courses as well as reduce the demands of existing golf courses by 10 percent.

The 2010 CVWMP Update water demand projections for the Whitewater Subbasin for the period 2010 to 2030 in five-year intervals increases from 678,000 AFY in 2010 to 783,300 AFY in 2030, or 15 percent.

During this same period, using RCP 2006, the population in the Coachella Valley is estimated to increase by over 100 percent, or about four percent per year. In the 2014 Status Report, RCP 2010 projections were used, and the Whitewater Subbasin water demand was revised to 691,500 in 2030, a 12 percent reduction.

Groundwater and Groundwater Storage

As supply and demand changes, the amount of groundwater in storage changes to make up the difference between the demand and the supply. Other than Canal water, recycled wastewater and desalinated agricultural drain water, all water delivered to the end users is obtained from the groundwater basin. The groundwater basin has the capacity of approximately 29.8 million AF. It acts as a very large reservoir. It is capable of meeting the water demands of the Coachella Valley for extended periods.

As discussed in the 2010 CVWMP Update, CVWD has many programs to maximize the water resources available to it including recharge of its Colorado River and SWP supplies, recycled wastewater, desalinated agricultural drain water, conversion of groundwater uses to Canal water and conservation including tiered water rates, a landscaping ordinance, outreach and education. The 2010 CVWMP Update and CVWD replenishment assessment programs establish a comprehensive and managed effort to eliminate the overdraft.

The 2014 CVWMP Status Report evaluated progress to date on eliminating overdraft. The report illustrates the effectiveness of the CVWMP programs and shows that overdraft did not occur in the ten years from 2003 and 2013. The report also shows that with continued implementation of CVWMP programs, overdraft will be eliminated in 2021. The effectiveness of the District's programs is clear and shows that there will be a steady increase in water in storage with limited disruption to this pattern through 2045.

In response to these activities, multifaceted litigation began in 2013 when the Agua Caliente Band of Cahuilla Indians (ACBCI) sought rights to groundwater and to prevent CVWD and the Desert Water Agency, another Coachella Valley water agency, from importing Colorado River water for recharge due to water quality concerns. The first issue was resolved in March 2017 when the United States Court of Appeals for the Ninth Circuit ruled in *Agua Caliente Band v. Coachella Valley Water District* that the ACBCI has a legal right to the groundwater below its reservation to meet its needs. In November 2017, the U.S. Supreme Court declined to hear an appeal, letting the appellate court decision stand. However, the ACBCI's legal case to prevent the water agencies from importing Colorado River water for groundwater replenishment was dismissed by a federal judge in early 2019 when the court determined that the ACBCI did not have legal standing to pursue litigation, and that the agencies' recharge operations are free to continue providing water supply.

Long-Term Average SWP Deliveries

The amount of SWP supply that is available to CVWD for its own use was considered as the long-term average SWP supply. The published capability of the SWP water has decreased over time. The factors that could affect the SWP capability considered in the 2015 UWMP and the 2010 CVWMP update are:

- Uncertainty in modeling restrictions associated with biological opinions,
- Risk of levee failure in the Delta,
- Additional pumping restrictions resulting from biological opinions on new species or revisions to existing biological opinions,
- Impacts associated with litigations such as the California Endangered Species Act (ESA) lawsuit, and
- Climate Change impacts.

Due to these factors and the need to plan for higher contingency, the planning assumption in the 2010 CVWMP Update and the 2015 UWMP is that the long-term future annual average SWP capability will be at 50 percent until successful completion of the Bay-Delta conservation Plan and Delta conveyance facilities.

Groundwater basin recharge through direct and in-lieu (indirect) recharge is a major element of CVWD's water management activities. CVWD has spent over $43.5 million on the construction of the TEL Replenishment Facility in the East Coachella Valley and over $42 million on the construction of the Mid-Valley Pipeline to move canal water into the Northern Coachella Valley for source substitution of groundwater. The protection of the Aquifer storage will be addressed through additional water supply purchases, water conservation, and source substitution similar to the ones described in the 2010 CVWMP Update.

Tables 5.16.1-10 through **5.16-14** below provide CVWD's projected water supplies and demands in a normal year, single dry year, and multiple dry years. These tables combine retail and wholesale numbers to simplify the presentation. It should be noted that the retail supplies and demands presented in the tables below include recycled water delivered to CVWD's non-urban customers based on DWR's standardized tables and the 2015 UWMP Guidebook. However, as discussed in the 2015 CVWD UWMP, recycled water is not considered an urban water supply and is not delivered to CVWD's urban water customers. Instead, recycled water is used to offset the groundwater pumping of private well owners (mainly golf courses) to eliminate overdraft. The wholesale demand and supply listed is the anticipated sale of raw Colorado River water to the Indio Water Authority. These tables indicate that CVWD will be able to meet current and future urban water demand needs through groundwater pumping, recharge with

Colorado River water, and distribution of treated Colorado River water during normal, single dry, and multiple dry years over at least the next 20 years.

DWR, requires the supply reliability tables to include both potable and recycled water; this is summarized below in **Table 5.16.1-10: Supply and Demand Comparison – Normal Year (AFY)** (adapted from DWR Table 7-2 R and DWR Table 7-2 W), for the average year.

Table 5.16.1-10
Supply and Demand Comparison – Normal Year (AFY)

		2020	2025	2030	2035	2040 (opt)
Retail	Supply (AF)	128,900	163,800	188,500	212,800	230,600
	Demand Totals (AF)	128,900	163,800	188,500	212,800	230,600
	Difference (AF)	0	0	0	0	0
Wholesale	Supply (AF)	5,000	10,000	20,000	20,000	20,000
	Demand Totals (AF)	5,000	10,000	20,000	20,000	20,000
	Difference (AF)	0	0	0	0	0

*Source: **Appendix K**, Water Supply Assessment and Water Supply Verification.*
Note: AF = Acre-Feet

CVWD does not use recycled water in its urban water supply; therefore, a version of this table without recycled water is presented in **Table 5.16.1-11: Normal Year Supply and Demand Comparison – Urban Supply Only**, which more accurately represents CVWD's urban water supply reliability.

Table 5.16.1-11
Normal Year Supply and Demand Comparison – Urban Supply Only

		2020	2025	2030	2035	2040 (opt)
Retail	Supply (AF)	114,600	136,100	157,700	178,900	194,300
	Demand Totals (AF)	114,600	136,100	157,700	178,900	194,300
	Difference (AF)	0	0	0	0	0
Wholesale	Supply (AF)	5,000	10,000	20,000	20,000	20,000
	Demand Totals (AF)	5,000	10,000	20,000	20,000	20,000
	Difference (AF)	0	0	0	0	0

*Source: **Appendix K**, Water Supply Assessment and Water Supply Verification.*
Note: AF = Acre-Feet

Urban water supplies during the single dry year are 100 percent reliable. Thus, the supply and demand comparison for the single dry year, shown in **Table 5.16.1-12: Supply and Demand Comparison – Single Dry Year (AFY)** (adapted from DWR Table 7-3 R and DWR Table 7-3 W) is the same as the average year.

Table 5.16.1-12
Supply and Demand Comparison – Single Dry Year (AFY)

		2020	2025	2030	2035	2040 (opt)
Retail	Supply (AF)	128,900	163,800	188,500	212,800	230,600
	Demand Totals (AF)	128,900	163,800	188,500	212,800	230,600
	Difference (AF)	0	0	0	0	0
Wholesale	Supply (AF)	5,000	10,000	20,000	20,000	20,000
	Demand Totals (AF)	5,000	10,000	20,000	20,000	20,000
	Difference (AF)	0	0	0	0	0

*Source: **Appendix K**, Water Supply Assessment and Water Supply Verification.*
Note: AF = Acre-Feet

Table 5.16.1-13: Supply and Demand Comparison Urban Use Only – Single Dry Year (AFY), presents the urban supply and demand comparison without recycled water.

Table 5.16.1-13
Supply and Demand Comparison Urban Use Only – Single Dry Year (AFY)

		2020	2025	2030	2035	2040 (opt)
Retail	Supply (AF)	114,600	136,100	157,700	178,900	194,300
	Demand Totals (AF)	114,600	136,100	157,700	178,900	194,300
	Difference (AF)	0	0	0	0	0
Wholesale	Supply (AF)	5,000	10,000	20,000	20,000	20,000
	Demand Totals (AF)	5,000	10,000	20,000	20,000	20,000
	Difference (AF)	0	0	0	0	0

*Source: **Appendix K**, Water Supply Assessment and Water Supply Verification.*
Note: AF = Acre-Feet

Similar to the single dry year, the multiple dry year urban water supply reliability is 100 percent. **Table 5.16.1-14: Supply and Demand Comparison - Multiple Dry Years (AFY)** (adapted from DWR Table 7-4 R and DWR Table 7-4 W), summarizes the multiple dry year supply and demand comparison.

Table 5.16.1-14
Supply and Demand Comparison - Multiple Dry Years (AFY)

			2020	2025	2030	2035	2040 (opt)
Retail	1st Year	Supply (AF)	128,900	163,800	188,500	212,800	230,600
		Demand Totals (AF)	128,900	163,800	188,500	212,800	230,600
		Difference (AF)	0	0	0	0	0
	2nd Year	Supply (AF)	128,900	163,800	188,500	212,800	230,600
		Demand Totals (AF)	128,900	163,800	188,500	212,800	230,600
		Difference (AF)	0	0	0	0	0
	3rd Year	Supply (AF)	128,900	163,800	188,500	212,800	230,600
		Demand Totals (AF)	128,900	163,800	188,500	212,800	230,600
		Difference (AF)	0	0	0	0	0
Wholesale	1st Year	Supply (AF)	5,000	10,000	20,000	20,000	20,000

			2020	2025	2030	2035	2040 (opt)
		Demand Totals (AF)	5,000	10,000	20,000	20,000	20,000
		Difference (AF)	0	0	0	0	0
	2nd Year	Supply (AF)	5,000	10,000	20,000	20,000	20,000
		Demand Totals (AF)	5,000	10,000	20,000	20,000	20,000
		Difference (AF)	0	0	0	0	0
	3rd Year	Supply (AF)	5,000	10,000	20,000	20,000	20,000
		Demand Totals (AF)	5,000	10,000	20,000	20,000	20,000
		Difference (AF)	0	0	0	0	0

*Source: **Appendix K**, Water Supply Assessment and Water Supply Verification.*
Note: AF = Acre-Feet

Water Quality

Basin wide groundwater quality is difficult to characterize because groundwater quality varies with such factors as depth (or the screened interval of a water supply well), proximity to faults, presence of surface contaminants, proximity to the recharge basin, and other hydro-geologic or cultural features. A complete discussion of water quality may be found in **Section 5.9: Hydrology and Water Quality** of this Draft EIR**.**

Project Site

The Project Site includes a total land area of approximately 618 acres in the City of Rancho Mirage, and is currently vacant and uninhabited, and is not being utilized for agriculture or any other purposes. As such, there is no existing water demand on the Project Site. An existing 18-inch water main runs along Gerald Ford Drive which forms the northern boundary of the site. The existing water main is within the Mission Hills Pressure Zone.

2. Regulatory Setting

Federal

Clean Water Act and Safe Drinking Water Act

In 1972, the Federal Water Pollution Control Act (Clean Water Act) was amended to prohibit the discharge of pollutants to waters of the United States unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The CWA focused on tracking point sources, primarily from

wastewater treatment plants and industrial waste dischargers, and required implementation of control measures to minimize pollutant discharges. Under the CWA, the United States Environmental Protection Agency (US EPA) has implemented pollution control programs such as setting wastewater standards for industry. US EPA has also developed national water quality criteria recommendations for pollutants in surface waters.

The Safe Drinking Water Act (SDWA) was established in 1974 to protect the quality of drinking water in the U.S. This law focuses on all waters actually or potentially designed for drinking use, whether from above ground or underground sources. The SDWA authorizes the EPA to establish minimum standards to protect water systems to comply with these primary (health related) standards. Under the Act, the US EPA also establishes minimum standards for state programs to protect underground sources of drinking water from endangerment by underground injection fluids.

State

California Water Boards

California's Water Boards consist of the State Water Resources Control Board (State Water Board) and the Regional Water Quality Control Boards (RWQCB). The mission of the Water Boards is to preserve, enhance, and restore the quality of California's water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure proper water resource allocation and efficient use for the benefit of present and future generations. Together they are authorized to implement the federal Clean Water Act in California. The Project Site is located in Region 7, the Colorado River Region.

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act established the principal State program for water quality control.[38] The Porter-Cologne Water Quality Control Act also authorized the SWRCB to implement the provisions of the federal Clean Water Act. The act divided the State into nine RWQCB areas. Each RWQCB implements and enforces provisions of the Porter-Cologne Act and the CWA subject to policy guidance and review by the SWRCB. The Porter-Cologne Act requires each RWQCB to develop a Basin

Plan for all areas within its region. The Basin Plan is the basis for each RWQCB's regulatory programs.

Urban Water Management Planning Act

The Urban Water Management Planning Act (UWMPA) requires urban water suppliers that provide water for municipal purposes to more than 3,000 customers, or more than 3,000 AFY of water, to prepare an UWMP. The intent of an UWMP is to assist water supply agencies in water resource planning given their existing and anticipated future demands. A UWMP must include a water supply and demand

assessment comparing total water supply available to the water supplier with the total projected water use over a 20-year period. It is also mandatory that the management plans be updated every five years.

In recognition of the State requirements, CVWD completed an update of the UWMP 2010 Update in July 2011. Much of the data used in the UWMP 2010 Update was based on information in the 2005 CVWMP. However, domestic water demand projections and SWP purchases and reliability were updated in the UWMP 2010 Update to reflect changes since 2005.

Water Supply Assessments

Requirements for the preparation of a WSA are set forth in Senate Bill 610 (SB 610), which was enacted in 2001 and became effective January 1, 2002. SB 610 amended Section 21151.9 of the Public Resources Code. It requires cities and counties and other CEQA lead agencies to request specific information on water supplies from the PWS that would serve any project that is subject to CEQA and is defined as a "Project" in Water Code Section 10912. This information is to be incorporated into the environmental review documents prepared pursuant to CEQA.

The Water Code requires a WSA be prepared for any project that consists of one or more of the following:

- A proposed residential development of more than 500 dwelling units
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space
- A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space
- A proposed hotel or motel, or both, having more than 500 rooms
- A proposed industrial, manufacturing, or processing plant, 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
- A mixed-use project that includes one or more of the projects specified above
- 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
- For public water systems with fewer than 5,000 service connections, a project that meets the following criteria: any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

The proposed development is a "Project" as defined by Water Code Section 10912 and requires a WSA because it proposes over 500 housing units. Effective January 1, 2017, SB 1262 amends Water Code Section 10910, the WSA statute, to require that SGMA-related information be included in a WSA if a water supply for a proposed project includes groundwater from a basin that in not adjudicated and is designated medium or high-priority. The Section 31 Specific Plan will use groundwater from the Whitewater/Indio Subbasin, which is designated medium priority by DWR and is not adjudicated.

Water Supply Verification

Senate Bill 221 (SB 221) was enacted in 2001 and became effective as of January 1, 2002. SB 221 amends Section 11010 of the Business and Professional Code, and Sections 66455.3 and 66473.7 and Section 65867.5 of the Government Code. SB 221 establishes the relationship between the WSA prepared for a project and the project approval under the Subdivision Map Act. Pursuant to California Government Code Section 65865.5 and 66473.7, the approval of a development agreement or tentative map that includes a subdivision for a project including more than 500 units shall be conditioned to obtain a WSV.

The purpose of the WSV is to provide the legislative body of a city, county or the designated advisory agency with written verification from the applicable public water purveyor that a sufficient water supply is available or, in addition, a specified finding is made by the local agency that sufficient water supplies are, or will be, available prior to completion of the project. Therefore, a WSV is required since this Project has over 500 housing units and is a "Subdivision" as defined by Government Code Section 66473.7.

Regional and Local

2010 Coachella Valley Water Management Plan Update

The 2010 Coachella Valley Water Management Plan (CVWMP) is an update to the 2002 CVWMP, which notes the changes in internal and external factors that mandate new activities and increased levels of current activities to eliminate overdraft and assure reliable long-term water supplies to the Valley. New features in the areas of water conservation, source substitution, new supplies, and groundwater recharge, are included in the 2010 CVWMP Update. In order to achieve their goal to reliably meet current and future water demands in a cost-effective and sustainable manner, the 2010 CVWMP Update provides five key elements within the Update. These elements include water conservation, increasing surface water supplies for the Valley from outside sources, substitution of surface water supplies for groundwater (source substitution), groundwater recharge, and monitoring and evaluation of subsidence and groundwater levels and quality to provide the information needed to manage the Valley's groundwater resources.

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 included 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 budget for landscaped and recreational areas. The 2010 CVWMP Update reduces reliance on groundwater sources by utilizing more Colorado River water, SWP water and recycled water over the long term.

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 CVWD Board of Directors to consider over the next 35 years.

- 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 most current 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 customer to encourage less grass and more desert appropriate landscaping.
- Complete construction of subsequent phases of the Mid-Valley Pipeline system to provide a blend of recycled and Colorado River water for up to 50 golf courses in lieu of groundwater.

The 2010 CVWMP Update recognizes that groundwater storage makes up the difference between demand and supply. Other than canal water for irrigation and groundwater recharge, and recycled water, all water delivered to the end users is obtained from the Coachella Valley groundwater basin. The Coachella Valley groundwater basin has a capacity of approximately 39. 2 million acre-feet. It is capable of meeting the water demands of the Coachella Valley for extended periods.

The 2010 CVWMP Update discusses many CVWD programs to maximize the water resources available including:

- Recharge of Colorado River and SWP supplies
- Recycled wastewater, desalinated agricultural drain water, conversion of groundwater uses to canal water; and
- Water conservation including tiered water rates, landscaping ordinance, outreach and education.

The 2010 CVWMP Update and CVWD's Replenishment Assessment Program establishes a comprehensive and managed effort to eliminate overdraft. These programs allow CVWD to maintain the groundwater basin as its primary water supply and to recharge the groundwater basin as other supplies become available.

CVWD prepared the 2014 and 2017 CVWMP Status Reports to evaluate the effectiveness of the 2010 CVWMP Update, including progress on eliminating overdraft. Both Status Reports demonstrated that the 2010 CVWMP Update is working and that continued implementation ensures that overdraft will be eliminated within 10 years as shown in Exhibit 7, Status of the Overdraft – Annual Change in Storage. The status of the Annual Change in Storage is updated annually in CVWD's Engineer's Report on Replenishment and Assessment. Over the ten-year period preceding 2014, there was no overdraft mainly as a result of increases in urban conservation and increases in imported water deliveries to the Coachella Valley. Between 2014 and 2017, imported water deliveries were significantly reduced as a result of the Statewide Drought, However, groundwater pumping was also significantly reduced due to the Governor's drought restrictions.

Groundwater levels have increased in the Palm Springs area and in the East Valley. However, water levels are still declining in the Mid-Valley areas near Rancho Mirage, Palm Desert and Indian Wells. Groundwater levels in this area will continue to decline until full implementation of Mid-Valley (between Eastern and Western Coachella Valley) programs that reduce pumping take effect. These Mid-Valley Programs include urban conservation; source substitution programs including non-potable water system expansion to golf courses; Colorado River water treatment for municipal use; and additional recharge. These programs continue to be pursued across the Coachella Valley, including the Mid-Valley areas, and efforts to prevent groundwater decline are ongoing. The 2014 and 2017 CVWMP Status Reports are publicly available at www.cvwd.org.

The 2010 CVWMP Update states that the average urban water in the Coachella Valley by CVWD customers was 1,173 gallons per day per connection (gpd/conn) for all customer categories during the period 1995 to 2004. The CVWD Landscape Ordinances required reduction in outdoor water use for new development. Future urban water use is further reduced with the implementation of following Landscape Ordinances to an average of 800 gpd/conn. Consequently, the water demand factor used to calculate urban demands within the Whitewater River Subbasin boundary associated with growth is estimated to be 800 gpd/conn, according to the 2010 CVWMP.

2015 Urban Water Management Plan

CVWD prepared the 2015 Urban Water Management Plan (UWMP) in 2015 in response to the requirements of the Urban Water Management Planning Act, California Water Codes Sections 10610

through 10656. The Urban Water Management Planning Act was established in 1983 and most recently updated by Senate Bill x7-7 (SBx7-7), which requires a 20 percent reduction in per-capita water use by 2020. This report has been prepared to comply with the requirements of the UWMP Act and is based on the recommended organization in the California Department of Water Resources (DWR). CVWD's 2015 UWMP supports long-term water resources planning and ensures adequate water supplies are available to meet existing and future urban water demands. The UWMP accomplishes water supply planning over a 25-year period in five-year increments, identifies and quantifies adequate water supplies, including recycled water, for existing and future demands, in normal, single-dry, and multiple-dry years, and implements conservation and efficient use of urban water supplies.

CVWD currently implements the following consumption reduction methods in each respective water shortage contingency stage. The primary method for implementing water use reduction is through the water budget-based tiered rates and structures and drought penalty charges for use in excess of the required reductions.

Landscape Water Conservation Ordinance No. 1302.4

On February 12, 2009, the Board of Directors of the CVWD passed and adopted Ordinance No. 1302.4 due to due to ongoing drought conditions, establishing updated landscape and irrigation system design criteria. In accordance with Ordinance 1302.4 and as codified in Title 3, Water, Chapter 3.15 Landscape and Irrigation System Design Criteria of the CVWD District Code, the provisions for new or rehabilitated landscapes apply to all new and rehabilitated landscaping for private, public, recreational, commercial and governmental development projects that require a permit and developer-installed landscaping in single-family tracts, five or more infill lots and multifamily projects.

The purpose of the landscape and irrigation system design criteria is to conserve water by establishing effective water efficient landscape requirements for newly installed and rehabilitated landscapes. It is also the intent of these criteria to implement the requirements of the State of California Water Conservation in Landscaping Act, Government Code Section 65591, et seq. It is the intent of CVWD to promote water conservation through climate appropriate plant material, efficient irrigation systems and to create a "Lush and Efficient" landscape theme through enhancing and improving the physical and natural environment.

As outlined in Ordinance 1302.4, project applicants are required to submit a landscape documentation package, which is required to include a water conservation concept statement; calculation of the maximum applied water allowance; calculation of the estimated applied water use; calculation of the estimated total water use; a landscape design plan; an irrigation design plan; and grading design plan.

City of Rancho Mirage

The City of Rancho Mirage has complied with AB 1881 and with CVWD Ordinance No. 1302.1 with its water-efficient Landscape Ordinance in Chapter 7.02 (Valley-wide Water-efficient Landscaping) of the City of Rancho Mirage's Municipal Code. This section of the City's Municipal Code requires project applicants to submit a landscape documentation package, which is required to include a water conservation concept statement, calculation of maximum allowed water allowance (MAWA), calculation of the estimated applied water use, calculation of the estimated total water use, a landscape design plan, an irrigation design plan, a grading design plan, and a soil analysis (optional).

B. ENVIRONMENTAL IMPACTS

1. Thresholds of Significance

In order to assist in determining whether a project would have a significant effect on the environment, the City finds a project may be deemed to have a significant impact to water services, if it would:

Threshold 5.16.1-1: **Require or result in the relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects.**

Threshold 5.16.1-2: **Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.**

2. Methodology

The available supplies and water demands for CVWD's service area were analyzed to assess the region's ability to satisfy demands during three scenarios: a normal water year, a single dry year, and multiple dry years. The service area for this analysis does not include the water provided by the Cities of Indio or Coachella, or the Myoma Dunes Water Company, Mission Springs Water District, or DWA.

The analysis of water resources and water supply is based upon the understanding of projected water supplies as developed by CVWD and used the WSA/WSV prepared for the Project (see **Appendix K**), including estimates of available groundwater, Colorado River water, and SWP sources.

The WSA/WSV relies on the water supply and demand planning considerations established in the 2010 CVWMP Update, the 2014 and 2016 CVWMP Status Report, and the CVWD 2015 UWMP. Because groundwater production is driven by demand, CVWD assumes that supplies are equal to demand. This supply is considered reliable and does not vary in dry or multiple dry water years. According to the 2015 UWMP, the aquifer and other sources of supply are adequate for a single dry year and also multiple dry

years, for a 20-year period. Without replenishment, the decline in storage would be fewer than 0.5 percent of the basin storage each year.

The 2014 Status Report recommended the population projections be reduced from 1,137,000 in 2045 as published in the 2010 CVWMP Update, to approximately 920,000, based on Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) 2012 projections. This 2016 CVWMP Status Report uses the same population projections as the 2014 CVWMP Status Report. Water demand projections for the 2016 CVWMP Status Report also remain the same as those prepared for the 2014 CVWMP Status Report.

In the last two years, water demand in the Coachella Valley has declined by about 5 percent, with most of the reduction in urban water use, primarily due to the mandatory conservation in response to the drought. The long-term impact of the drought on future water conservation is unknown. New development is expected to use much less water than existing development due to Coachella Valley Water District's (CVWD's) Landscape Ordinance and efficient plumbing fixtures. Consequently, future water management planning should consider reduced per capita water demands for both existing and future urban water use.

The available supplies and water demand for CVWD's service area were analyzed in the water supply conditions of the 2015 UWMP to assess the region's ability to satisfy current and future urban water demands, including those of the Project, under three scenarios: a normal water year, a single dry year, and multiple dry years. According to the 2015 UWMP, the urban water demands in the CVWD service area (retail supply totals) are estimated to grow from 114,600 AFY in 2020 to 194,300 AFY in 2040.

The analysis of Supplies and Demands for the Project is based on the 2015 UWMP and the 2010 CVWMP Update. In accordance with SBx7-7, CVWD's 2010 UWMP sets interim and final urban water use targets for complying with California's 2020 conservation program based on DWRs defined Target Method No. 1, which provides for an agency goal of 80 percent of baseline demands. The 2015 UWMP relies on and summarizes the water supplies and water supply program details in the 2010 CVWMP Update.

The Project's water supply analysis included in this Draft EIR is based upon the WSA/WSV, which is incorporated herein by reference and included as **Appendix K**. The WSA for the Project focuses on the adequacy of groundwater and other alternative water sources to supply amounts of water sufficient to meet the water demands of the Project. Additional water sources are considered as a supplement to groundwater in that they are used to recharge the aquifer, serve as a source substitution for groundwater, or are used for irrigation. Once available to the Project Site, the Project will utilize recycled water on site to supplement non-potable water demands.

3. Project Design Features

The following Project Design Features (PDFs) are incorporated into the Project and would reduce the potential water use impacts of the Project:

PDF 5.16.1-1: All connections of the Project water lines to the existing 18-inch water along Gerald Ford Drive shall be consistent with the CVWD Development Design Manual.

PDF 5.16.1-2: All proposed water wells to be constructed within the Project Site shall be consistent with the CVWD Development Design Manual.

PDF 5.16.1-3: Minimize use of turf except within active outdoor recreation uses.

PDF 5.16.1-4: Grey and recycled water infrastructure should be integrated in the landscape design so that grey water, recycled water and/or collected rainwater can be used wherever feasible for landscape irrigation.

PDF 5.16.1-5: Developers shall assemble an educational pamphlet highlighting the Section 31 Specific Plan Project's energy and water efficiency features to distribute in the on-site hotel rooms and public beach areas (see also **PDF 5.5-6**).

4. Project Impacts

Threshold 5.16.1-1: Would the project require or result in the relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects?

Development of the Project is expected to result in an increase demand for water services within CVWD's boundaries. As a result, additional water supplies would be required to accommodate the demand of the Project. Infrastructure improvements would be installed to support the development of the Project, including water and utility improvements.

The Project is designed with a network of 12-inch and 18-inch water mains within the interior private street system to convey domestic water throughout the site. Existing 18-inch water lines occur on the north side of Gerald Ford Drive, the paved roadway north of the Project Site. The Project would connect to the existing water line at three locations: the intersection of Bob Hope Drive and Gerald Ford Drive, the intersection of Gerald Ford Drive and Oasis Way, and the Gerald Ford Drive and Monterey Avenue intersection, as shown in **Figure 5.16.1-1: Conceptual Master Water Plan**. The existing off-site water line would connect with the proposed 18-inch Project water line to provide domestic water to the Project. **PDF 5.16.1-1** would ensure that the construction of potable water lines is consistent with CVWD design

standards. The Project also proposes the development of six well sites throughout the Project Site. At least one private well would provide water for the Grand Oasis lagoon and water usage would be offset by payment of groundwater replenishment fees. **PDF 5.16.1-2** would ensure that all future wells developed on site would be consistent with the CVWD Design Manual.

CVWD plans to extend a reclaimed water line past the intersection of Bob Hope Drive and Frank Sinatra Drive. When the line is extended and available, the Project would establish a connection to the line and on-site storage capability to provide for irrigation of common area landscaping with reuse water as permitted under local regulations.

Construction impacts associated with the installation of the on-site and off-site connections are expected to be confined to trenching and related construction activities would be temporary and limited. All improvements related to water service would be completed in accordance with City and CVWD standards which would preclude any interruptions in existing service of the surrounding properties. Therefore, impacts to City's available water supply and infrastructure would be less than significant.

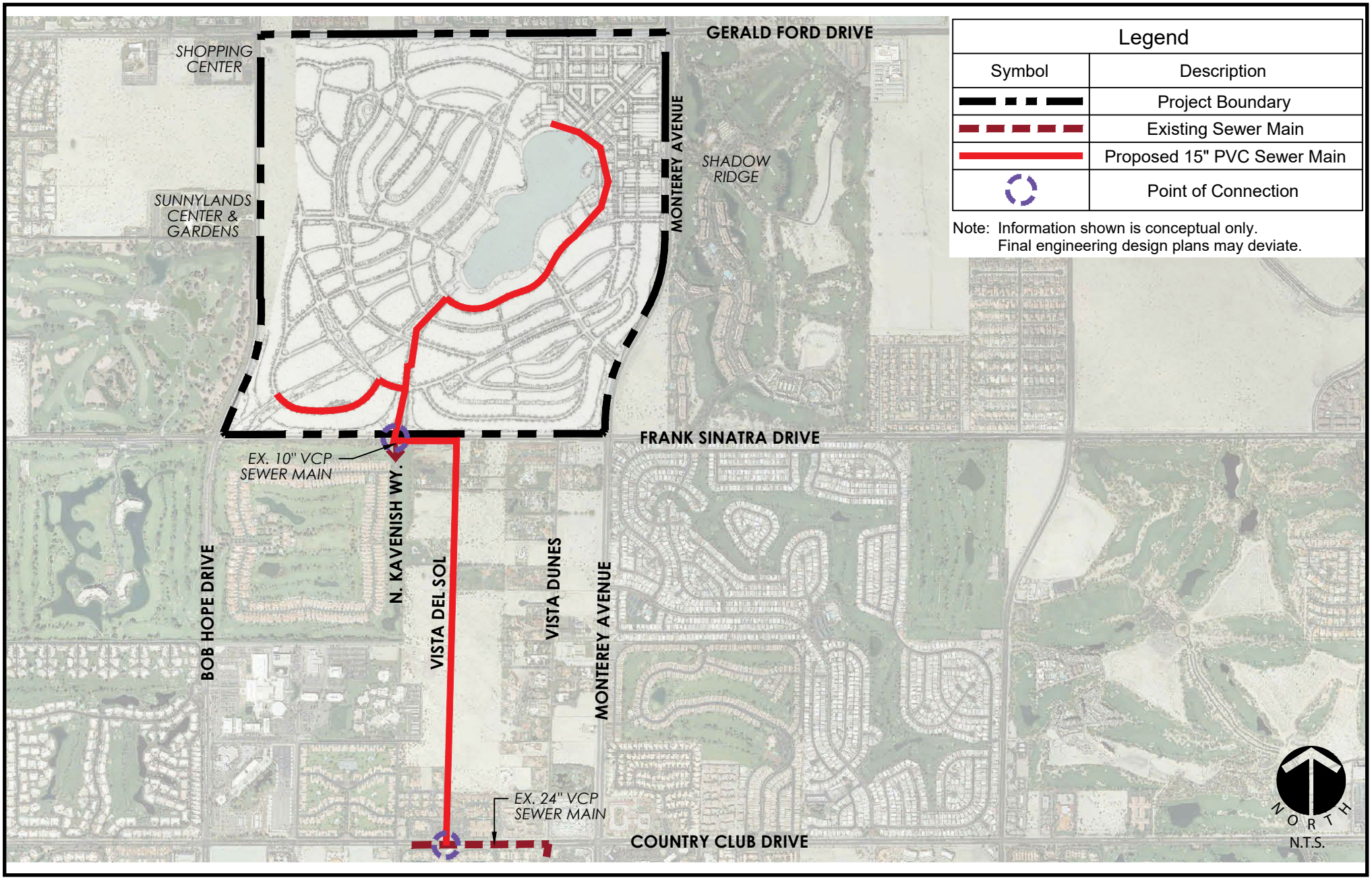
Threshold 5.16.1-2: Would the project result in insufficient water supplies available to serve and project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Development of the Project would result in an overall increase in water demand from the Project Site during operation. Waster consumed by the Project was estimated based on the projected residential dwelling units, of square footage of the mixed-use commercial Town Center, the Grand Oasis lagoon, and open space/landscape areas, as analyzed in the WSA prepared for the Project (see **Appendix K**). As shown in **Table 5.16.1-15: Estimated Project Water Service Demands for Residential, Commercial, and Other Uses,** the Project would have an increased water demand of 1,530.66 AFY.

Table 5.16.1-15
Estimated Project Water Service Demands for Residential, Commercial, and Other Uses

Land Use	Water Demand (AFY)
Residential	241.62
Non-Residential	147.28
Open Space	1,141.76
Total	**1,530.66**

*Source: **Appendix K**, Water Supply Assessment and Water Supply Verification.*
Note: AFY = Acre-Feet per year



SOURCE: Hart Howerton - 2019, MSA Consulting Inc. - 2019

FIGURE **5.16.1-1**

CITY OF RANCHO MIRAGE ©

Conceptual Master Sewer Plan

204-001-018

The Project would need approximately 1,530.66 AFY using the Project-specific demand factors. This estimation includes indoor and outdoor use for the residential and non-residential areas. This quantity is approximately 0.78-percent of the total water projected to be supplied by the CVWD in 2035 (194,000 AFY). The residential water demand is 241.62 AFY, the non-residential demand is 147.28 AFY, and outdoor water demand is estimated to be 1,141.76 AFY. Further, the Project may have 806 AFY of non-potable water which could help offset the total water demand.

Water loss through evaporation of water from large bodies of water typically will be reduced through the use of additives. Several technologies, including solvents, suspensions, and solid powders have been proven able to reduce evaporation loss at water bodies around the world by forming a very thin film on the surface of the water,[1] reducing the ability of the sun, wind, and weather to evaporate the water. One such product, Aquatain, consists of an anti-evaporation liquid film based on silicone. Aquatain is insoluble in water and degrades into carbon dioxide, inorganic silicate, and water. Similarly, WaterGuard is an improved technology produced from polymers which repel each other when they come in contact with water, forming a liquid "blanket" across the water's surface.[2] These various additives have been demonstrated to spread slowly and evenly across bodies of water, with the ability to reform on the water surface after disturbance by wind or human activity.

In this instance where the water must remain crystal clear, evaporation of the water in the Grand Oasis lagoon would be lessened through the utilization of Crystal Lagoons® technology. Similar to technologies employed elsewhere, this product applies an additive to the lagoons that creates a non-visible layer over the water surface, reducing evaporation by avoiding direct contact between the water surface and the surrounding air. The additive works for different water temperatures and is able to withstand wind conditions. Further, the additive is NSF International®-approved for drinking water. The additive has been successfully used in different lagoons around the world and achieved evaporation reductions of up to 30 to 50 percent. The WSA prepared by CVWD for the Project (see **Appendix K**) anticipated an evaporation reduction of 15 percent through the use of Crystal Lagoons® technology. This reduction factor was utilized for purposes of conservative analysis since, in addition to results reported by Crystal Lagoons®, studies of the ability of other additives to reduce evaporation from large water bodies have demonstrated greater levels of effectiveness, ranging from 20 to more than 50 percent.

The 2015 UWMP reports CVWD's actual service area urban water demand at 92,974 AF in 2015. Projected urban water demand in the 2015 UWMP for the year 2040 is anticipated to be 194,300 AF. As shown in

1 Prime, Emma, et. al., "New technology to reduce evaporation from large water storages," *Waterlines Report Series No. 80*, National Water Commission, Australian Government, June 2012.

2 Panjabi, Kishor, et. al., "Evaporation Retardation by Monomolecular Layers: An Experimental Study at the Aji Reservoir (India)," *Open Journal of Civil Engineering*, Scientific Research Publishing Inc., April 29, 2016.

Table 5.16.1-16: Impact of Project Demand on Groundwater Supply (AFY), total buildout water demand of the Project is estimated to be approximately 1,530.66 AFY, which represents approximately less than 1 percent of the total anticipated urban demand of 194,300 in CVWD's urban water system projected for 2040. With almost 30 million acre-feet of combined storage followed by groundwater management planning adopted in the 2015 UWMP and 2010 CVWMP Update, the aquifer has sufficient available water to supply the Project and other present and anticipated needs for normal year, as well as one or more multiple dry years, over the next 20 years.

Table 5.16.1-16
Impact of Project Demand on Groundwater Supply (AFY)

Section 31 Specific Plan	**2035**
Total Supply	194,000 AF
Project Demand	1,530.66 AF
Percent of Supply	**0.78 %**

Source: Total supply extrapolated from 2015 UWMP, Table 7-4. Project demand extrapolated from data Table 7 of this WSA, based on a 20-year build-out.
Note: 2030 is the projected final buildout year for the Section 31 Specific Plan and completion of the Project

As previously shown above, **Tables 5.16.1-10** through **5.16.1-14** provide CVWD's projected water supplies and demands in a normal year, single dry year, and multiple dry years. These tables combine retail and wholesale numbers to simplify the presentation. It should be noted that the retail supplies and demands presented in these tables include recycled water delivered to CVWD's non-urban customers based on DWR's standardized tables and the 2015 UWMP Guidebook. However, as discussed in the 2015 CVWD UWMP, recycled water is not considered an urban water supply and is not delivered to CVWD's urban water customers. Instead, recycled water is used to offset the groundwater pumping of private well owners (mainly golf courses) to eliminate overdraft. CVWD will be able to meet current and future urban water demand needs through groundwater pumping, recharge with Colorado River water, and distribution of treated Colorado River water during normal, single dry, and multiple dry years over at least the next 20 years.

As outlined in their 2015 Urban Water Management Plan (UWMP), and as previously shown above in **Tables 5.16.1-10** through **5.16.1-14**, CVWD anticipates that supply in their service area will be sufficient to meet current and future projected urban water demand needs. CVWD's 2015 UWMP considers new development in the service area and concludes that the water district has enough water to meet the predicted demand through the year 2035. CVWD is able to forecast future population growth within the

CVWD service area through 2040 in their 2015 UWMP by assessing U.S. census data, California Department of Finance data, and SCAG projections. CVWD's 2015 UWMP is then further evaluated by the corresponding groundwater basins. SCAG projections, in turn, take into account a combination of recent and past trends, technical assumptions, and local or regional growth policies. CVWD's 2015 UWMP utilized, in part, information from the 2012 SCAG Adopted Growth Forecast, which anticipated population growth based on land uses identified in the City's 2005 General Plan. The City's zoning/land use designation for the Project Site in the 2005 General Plan Land Use Plan remained unchanged in the City's 2017 General Plan Update, with approximately 175 acres of the Project Site designated for Resort Hotel (Rs-H) uses and approximately 443 acres designated for Very Low Density Residential (R-L-2) uses. While the Project proposes greater intensities of land uses and a higher number of residential dwelling units than that which is currently permitted by the existing zoning/land use designation (see **Section 5.10: Land Use and Planning** for further discussion), the WSA/WSV prepared for the Project concluded that there is substantial evidence to support a determination that there will be sufficient water supplies to meet the demands of the Project, as well as for future demands of the Project plus all forecasted demands in the next 20 years. This is based on the volume of water available in the aquifer, CVWD's Colorado River contract supply, SWP allocations, water rights and water supply contracts, and CVWD's commitment to eliminating overdraft and reducing per capita water use in CVWD's service area.

CVWD limits its calculated supply figures to match demand, because it will only extract the minimum required groundwater from the aquifer in any given year. However, as shown in **Table 5.16.1-5**, **Table 5.16.1-6**, and **Table 5.16.1-8**, CVWD's total water supplies far exceed the projected demands. Per the 2015 UWMP and the 2010 CVWMP Update, CVWD included water demand from new development that it assumed would occur within its service area. The projected demand for the Project would therefore account for only a small fraction of the projected demands.

Based on the information, analysis, and findings documented in the WSA for the Project, there is substantial evidence to support a determination that there will be sufficient water supplies to meet the demands of the Project, as well as for future demands of the Project plus all forecasted demands in the next 20 years. However, the Project would incorporate Mitigation Measures **MM 5.16.1-1** through **MM 5.16.1-4** in order to ensure water resources are conserved and maximized to the greatest extent feasible through low-flow, low-flush building water fixtures and conservation elements and water efficient landscaping for residential units, the mixed-use Town Center, and open space uses. Additionally, implementation of **MM 5.16.1-5** would ensure that the Project's overall water use would not exceed CVWD's 2017 Maximum Applied Water Allowance (MAWA). With adherence to federal, State, and local requirements related to water use, incorporation of Project Design Features, and implementation of **MM**

5.16.1-1 through **MM 5.16.1-5**, the Project would have less than significant impacts related to the water supply.

5. Cumulative Impacts

Regional development of residential, commercial, and industrial sites will result in an increased demand on the potable water supply. The entire Coachella Valley utilizes an underground aquifer for its water supply needs. Therefore, cooperation between regional communities and CVWD is required to prevent depletion of this water supply, as identified in the 2010 CVWMP Update.

The population of the CVWD service area is projected to increase up to 512,200 people by 2035. This population increase will result in a substantial increase in water deliveries. New development projects within the CVWD service area that reach certain thresholds will be required to complete Water Supply Assessments. These WSAs for new project would evaluate the quality and reliability of existing and projected water supplies, as well as alternative sources of water supply and measures to secure alternative sources if needed.

Furthermore, through CVWD's 2015 UWMP process, the City will meet all new demand for water due to projected population growth to the year 2040, through a combination of water conservation and recycling. Based on the above information and the analysis contained in this section, CVWD would be able to supply the water demand of the Project, as well as future growth associated with the buildout of the City's General Plan. Cumulative impacts on water supply would be less than significant.

C. MITIGATION MEASURES

In addition to the Project Design Features identified in *Chapter B.3* above, the following Mitigation Measures would reduce water service and supply impacts:

MM 5.16.1-1: Application of Low Impact Design (LID) standards shall be applied to all interior and exterior plumbing features, including low-flow toilets, low-gpm plumbing fixtures, and tankless water heaters.

MM 5.16.1-2: Utilization of xeriscape planting principles and use of native and/or drought-tolerant plant materials that require little or no irrigation. Plants with similar water requirements shall be grouped together, a technique known as hydro zoning. Distinctive water features are to be designed to minimize water consumption and evaporation.

MM 5.16.1-3: Automated, high-efficiency irrigation systems (such as bubbler irrigation and low-angle, low-flow spray heads) shall be installed to reduce water demand and use. Moisture

sensors and other similar irrigation technology shall be utilized to ensure that landscaping is watered only as needed.

MM 5.16.1-4: Compliance with CVWD Ordinance No. 1302.4, as codified in Title 3, Water, Chapter 3.15 Landscape and Irrigation System Design Criteria of the CVWD District Code.

MM 5.16.1-5: The Project shall not exceed CVWD's 2017 Maximum Applied Water Allowance (MAWA).

D. LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of existing regulations and standards identified above, along with the Project's Design Features and adherence to **MM 5.16.1-1** through **MM 5.16.1-5**, the Project's potential impacts associated with water service and supply would be reduced to a level that would be less than significant.