Green Day Village Development
Water Supply Assessment and Verification

FINAL REPORT

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Prepared For:

Mission Springs Water District
66575 2nd Street
Desert Hot Springs, CA 92240

Prepared By:

TKE Engineering, Inc.
2305 Chicago Avenue
Riverside, CA 92507

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SECTION 1
INTRODUCTION

1.1 Regulatory Requirements

In 2002, California Water Code (CWC) Sections 10910 through 10915 were amended by the enactment of Senate Bill 610 (SB 610) to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 provides that when a city or county determines that a "project" as defined in CWC Section 10912 is subject to review under the California Environmental Quality Act (CEQA), the city or county must identify the water supply agency that will provide retail water service to the project and request that water supplier to prepare a Water Supply Assessment (WSA).[1] The proposed Green Day Village Development (referred to herein as the "Project" or "Green Day Village") is a mixed use development which includes 355, 494 square feet of residential space, comprised of 612 dwelling units and 78,691 square feet of commercial use; and thus qualifies as a "project" under SB 610. Generally, a WSA must evaluate whether the total projected water supplies available to the water supplier during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the water supplier's existing and planned future uses, including agricultural and manufacturing uses.

This WSA has been prepared in accordance with the requirements of SB 610. Accordingly, the information, analyses and conclusions contained herein utilize and rely upon, in part, the information, analyses and conclusions set forth in other water supply planning documents that have been prepared and duly adopted by agencies such as the City of Desert Hot Springs (City), the Mission Springs Water District (MSWD or District), and the California Department of Water Resources (DWR). Those documents include, without limitation, the 2020 Coachella Valley Regional Urban Water Management Plan (RUWMP), the 2020 Mission Creek Subbasin Alternative Plan Update (2020 MC Alternative Plan), the 2018 Coachella Valley Integrated Regional

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

Water Management and Stormwater Resource Plan (2018 IRWM/SWRP), and DWR's 2021 State Water Project Final Delivery Capability Report (DWR 2021 Report).

1.2 Water Supplier

Mission Springs Water District (MSWD or District) is the public water supplier for the area in which the Green Day Village Development is located. The District was established in 1953 and was formerly known as Desert Hot Springs County Water District. The District's water service area consists of 135 square miles including the City of Desert Hot Springs, a portion of the City of Palm Springs, and 10 smaller communities in Riverside County. The District's water supply source is 100 percent groundwater produced from District-owned and operated wells which provide water service to approximately 43,000 people in their water service area. The District also provides sewer service to approximately 26,000 people in Desert Hot Springs and surrounding communities.

MSWD currently receives 100 percent of its water supply from groundwater produced from subbasins within the Coachella Valley Groundwater Basin, which underlies the District's water service area. MSWD primarily produces groundwater from the Mission Creek Subbasin via eight (8) active wells. To a lesser extent, the District also produces groundwater from the Indio Subbasin via two (2) active wells, the Garnet Hill Subbasin via one (1) active well, and the San Gorgonio Pass Subbasin via two (2) active wells.

1.3 Purpose of Document

As mentioned above, this WSA is required under SB 610 if a development is proposed with over 500 dwelling units, and the Project has a proposed residential development of 612 dwelling units and 78,691 square feet of commercial use. Moreover, in accordance with SB 610 and applicable provisions of CEQA, the WSA will be included as part of the CEQA documentation being prepared for the Project. In the following sections, this WSA will evaluate whether the total projected water supplies available to the District during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the Green Day Village, in addition to the District's existing and planned future uses, including agricultural and manufacturing uses. Notably, the water demands associated with the Green Day Village Development have not been specifically accounted for but are a part of the projected growth analyzed by District in its recent 2020 Coachella Valley RUWMP.

1.3.1 Water Supply Verification

SB 221 was enacted in January 2002 and amends Section 11010 of the Business and Professional Code, and Sections 66455.3, 66473.7 and 65867.6 of the Government Code. SB 221 establishes the relationship between the WSA prepared for a residential project and its approval under the Subdivision Map Act. Pursuant to California Government Code Section 66473.7, the District, the public water supplier for the Project, a majority of which is proposed as residential, must provide a written verification of sufficient water supply prior to the approval of a new subdivision.

A WSV is required prior to the approval of a tentative subdivision map, or a parcel map for which a tentative map was not required, or 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, having more than 650,000 square feet of floor area, or introducing more than 500 dwelling units. The purpose of the WSV is to provide the city or county or redevelopment agency with written verification from the public water purveyor that a sufficient water supply is available, or will be available, prior to completion of the project. The Project includes a proposal for more than 500 dwelling units and 78,691 square feet of commercial use, thus requiring a WSV as defined by the Government Code, once a tentative map, parcel map, or subdivision map is established.

1.3.2 Validity of the Document

This WSA/WSV must be reviewed every 5-years, or in the event that water planning assumptions have changed, or until the Project begins construction. The Project applicant shall notify MSWD in any of the above scenarios. Subsequent review will ensure that the information included in the WSA/WSV remains accurate and no significant changes to either the Project or MSWD's water supply have occurred. If neither the Project applicant nor the lead agency (City of Desert Hot Springs) contacts MSWD within 5-years of approval of this WSA/WSV, it will be assumed that the Project no longer exists, and the WSA/WSV provided by this document will become invalid.

1.4 Existing Water Management Plans

In accordance with Water Code Section 19010(c)(1), the District has reviewed whether the projected water demand associated with the Project was included as part of the District's most recently adopted 2020 Coachella Valley Regional Urban Water Management Plan (RUWMP). The 2020 RUWMP did not specifically reflect the demands associated with the Green Day Village Development. However, the demands associated with the Project have been accounted for as part of the 2020

Coachella Valley RUWMP, which specifically include population projections (and associated growth) within MSWD's service areas through the year 2045 in accordance with the Southern California Association of Government (SCAG).[2] In addition, the demands associated with the Project have also been accounted for in MSWD's, DWA's, and CVWD's regional water supply planning efforts, which specifically include population projections within MSWD's and CVWD's service areas in the Mission Creek and Garnet Hill subbasins through the year 2045 in accordance with the SCAG regional growth forecast contained in the 2020 Regional Transportation Plan and Sustainable Communities Strategy.[3] Therefore, and as set forth herein, the projected water demands of Green Day Village Development have already been considered in preparing and adopting both the 2020 Coachella Valley RUWMP and the 2020 MC Alternative Plan. These documents are described in more detail in the following sections.

1.4.1 2020 Coachella Valley Regional Urban Water Management Plan

As indicated above, the District has participated in the 2020 Coachella Valley RUWMP. Water Code Section 10910(c)(2) provides that if demand associated with a proposed project is accounted for in the most recently adopted RUWMP, the water supplier may incorporate information from the RUWMP in preparing certain elements of a WSA for the project.

Water conservation efforts are allowing water agencies to plan for growth in new and improved ways, where State law now requires water agencies to do more with less. SBx7-7 (sometimes referred to as the new "20 percent by 2020" law) is one of four policy bills enacted as part of the November 2009 Comprehensive Water Package (see California Water Code section 10608 et seq.). Among other things, SBx7-7 established the goal of achieving a 20 percent reduction in statewide urban per capita water use by the year 2020, and the interim goal of achieving a 10 percent reduction by 2015. In an effort to achieve those goals, SBx7-7 requires each urban retail water supplier to determine technical information, such as existing baseline water consumption, to establish future water use reduction targets (in gallons per capita per day (gpcd)), and to report that and other information in their UWMPs. SBx7-7 also requires each urban wholesale water supplier to include in its UWMP, an assessment of its present and proposed future measures, programs, and policies to help achieve the water use reductions required by SBx7-7.

The two primary calculations required by SBx7-7 are (1) the Base Daily Per Capita Water Use Calculation (average gpcd used in past years), and (2) Compliance Water

[2] See 2020 Coachella Valley RUWMP, pp. 8-6
[3] See 2020 Mission Creek Subbasin Alternative Plan Update, Section 2.3

Use Targets (targets for gpcd in 2015 and 2020). The Base Daily Per Capita Water Use Calculation is based on gross water use by an agency in each year and can be based on a 10-year average ending no earlier than 2004 and no later than 2010, or a 15-year average if 10 percent of 2008 demand was met by recycled water. The District does not currently produce or receive recycled water supply, and therefore, a 10-year baseline period is used as opposed to a 15-year baseline period. As indicated above, an urban retail water supplier must then set a 2020 water use target and a 2015 interim water use target in terms of gpcd. SBx7-7 establishes four alternative methods for water agencies to use in calculating their Compliance Water Use Targets, as follows: (1) 80 percent of Base Daily Per Capita Use; (2) adherence to specified performance standards; (3) 95 percent of the applicable state hydrologic region target as set forth in the State's 20x2020 Water Conservation Plan; or (4) the provisional target method and procedures developed by DWR pursuant to SBx7-7.

In accordance with SBx7-7, the District will strictly manage its per capita water use throughout the year 2020 and beyond. As set forth in Section 8.5 of the RUWMP, the District's actual baseline daily per capita water use was calculated as 189 gpcd. The 2020 target was established at 234.9 gpcd, which confirms that the District achieved its targeted reduction by the year 2020.

There are several water supply planning ideas, future projects and management activities detailed in the 2020 Coachella Valley RUWMP that will help maintain the 20 percent reduction in per capita water consumption under SBx7-7; see Section 8.9. For example, the District has begun construction of the Regional Water Reclamation Facility (RWRF), that will include tertiary treatment facilities in the future. The RWRF is scheduled to be in operation in late 2023. It is estimated that the future first phase of tertiary treatment will accommodate a recycled water demand of 1.0 mgd (1,210 AFY). The District plans to expand the recycled water system demand to 5,000 AFY by 2045 by expanding the plant. In order to help put the recycled water system into practice, the District prepared a Recycled Water Program Development Feasibility Study in March 2018 in which treatment and distribution alternatives and recycled water demands were identified. The study determined that the recycled water infrastructure could feasibly be implemented to supply existing and future irrigation demands and offset a portion of potable water demands. Recycled water can also be used for groundwater aquifer replenishment.

The District universally acknowledges and embraces the importance of water issues, and as such is managing several cost-effective demand management measures (DMMs). These DMMs include technologies and methodologies that have been sufficiently documented in multiple demonstration projects and result in more efficient water use and conservation (e.g., water use surveys/audits, rebates or giveaways of plumbing fixtures, rebate programs that include turf conversion, smart

timer rebates and high efficiency toilet rebates, leak detection and monitoring program, rebates for landscape irrigation efficiency, and public information and school education programs).

The District has adopted a landscape irrigation policy as part of the District's "Landscape Guidelines". The guidelines establish effective water efficient landscape requirements for newly installed and rehabilitated landscapes, as well as promote water conservation through climate appropriate plant material and efficient irrigation practices. In addition, the guidelines also require an irrigation design plan, which includes the installation of separate landscape water meters for all projects except for single-family homes or any project with a landscaped area of less than 2,500 square feet. Automatic control systems are required for each system and mechanical irrigation controllers are prohibited.

Furthermore, the District understands the need to investigate future water projects to meet demands associated with projected growth. As indicated above and as further discussed in this analysis, the District is evaluating and will continue to evaluate various source substitution projects to reduce overall demands on native groundwater.

1.4.2 2020 Mission Creek Subbasin Alternative Plan Update

The Coachella Valley Water District (CVWD), the Desert Water Agency (DWA), and the Mission Springs Water District (MSWD) (collectively the Agencies) form the Management Committee within the Mission Creek Subbasin (MCSB) and Garnet Hill Subarea (GHSA) of the Indio Subbasin (ISB) in the northern part of the Coachella Valley Groundwater Basin. The MCSB and GHSA are important to the local communities as groundwater resource areas, and the Agencies are committed to reliably meeting local demands and protecting water quality in a sustainable and cost-effective manner. The 2020 MC Alternative Plan Update was prepared to meet specific requirements of the Sustainable Groundwater Management Act (SGMA) as it applies to the MCSB. CVWD and DWA are the Groundwater Sustainability Agencies for the MCSB under SGMA. The 2020 MC Alternative Plan Update is also intended to support water management planning for both the MCSB and the GHSA. SGMA requirements for the GHSA, however, are addressed in the Water Management Plan Update for the Indio Subbasin.

The foundation for this Alternative Plan Update is the 2013 Mission Creek/Garnet Hill Water Management Plan (MWH, 2013 [2013 MC/GH WMP]) and Bridge Document (Stantec, 2016 [2016 Bridge Document]). Together, those documents met the requirements to be considered an alternative to a groundwater sustainability plan (GSP) (Alternative Plan) under the SGMA. In 2019, the California Department of

Water Resources (CDWR) approved the Alternative Plan, finding it functionally equivalent to a GSP. The MCSB is distinctive in that only nine subbasins throughout the State have an approved Alternative Plan.

The Agencies have prepared this Alternative Plan Update to:

- Ensure that the most current projections for population growth, land use, imported water supply, and other future conditions are incorporated into water management planning for the region.
- Update the groundwater model for the Planning Area for use as a tool in evaluating potential groundwater management actions.
- Review historical information along with current and projected future environmental and demographic conditions to define undesirable results and develop objectives and thresholds to maintain groundwater sustainability.
- Provide an analysis of future projected groundwater demand-based population growth and other factors and estimate future projected supplies for groundwater replenishment to use in forecasting future groundwater production and supplies.
- Develop scenarios for forecasting groundwater levels based on future demands and supplies assuming future hydrologic conditions are similar to historical long-term average conditions and assuming future hydrologic conditions are drier than the long-term historical average (climate change assumptions) and compare these forecasted water level conditions to groundwater sustainability criteria.
- Address specific actions recommended in the CDWR's 2019 SGMA Alternative Assessment Staff Report and Statement of Findings.[4]

Groundwater levels in the MCSB began to decline prior to the 1970s with increasing groundwater production. In the 1990s, the Agencies recognized that continued lowering of groundwater levels in the MCSB was not sustainable and, if continued, could have undesirable results ranging from increased energy costs for groundwater pumping to the need to deepen existing private and public wells. As a result, DWA and CVWD developed and implemented plans to recharge imported water into the MCSB. Groundwater levels in the MCSB began to increase after an imported water recharge program began in 2002 at the MC Groundwater Recharge Facility.[5]

The Alternative Plan Update incorporated SGMA Sustainable Management Criteria to guide water resources management in the main MCSB. Sustainable Management Criteria for the MCSB were developed based on available information developed for

[4] 2020 MC Alternative Plan, pp. ES-1 to ES-2
[5] 2020 MC Alternative Plan, p. ES-9

the Hydrogeologic Conceptual Model, the characterization of groundwater conditions, the groundwater balance, discussion with the Agencies, and feedback solicited from the public. Four Sustainability Indicators relevant to the MCSB based on historical or current conditions include: chronic lowering of groundwater levels, reduction of groundwater storage, degraded water quality, and land subsidence.[6]

Each of the Sustainability Indicators are evaluated based on its relevancy to the MCSB, significant and unreasonable conditions for the Sustainability Indicator, Minimum Thresholds developed for the Sustainability Indicator, Measurable Objectives established for the Sustainability Indicator, and the definition of Undesirable Results for the Sustainability Indicator. For example, for the chronic lowering of groundwater levels, the Minimum Threshold was set to one standard deviation of water levels in the wells between 2002 and 2019 below the known or estimated 2009 water level of the wells. This will be measured through nine Key Wells spatially distributed throughout the main MCSB with the Measurable Objective set to 2009 groundwater elevations. Undesirable results within MCSB are expected to occur if four Key Wells (~45%) each exceed their Minimum Threshold for 3 consecutive years.[7]

The 2020 MC Alternative Plan Update provides a review of the current groundwater conditions in the MCSB and confirms that the Agencies are already managing the subbasin in a sustainable manner. Based on predicted future water demands, the Alternative Plan Update identified that additional groundwater production will be needed through the planning period of 2045. The Agencies have identified options for obtaining additional imported water supplies and increasing water supply reliability through the planning period. The additional imported water supplies will address potential future conditions that are outside of the Agencies' control, including climate change and regulatory changes.

To evaluate future conditions, the groundwater model for the MCSB was updated and used to evaluate a range of water management and hydrologic scenarios. The results of these forecast scenarios were compared with the Sustainable Management Criteria for water levels. The water management forecast modeling shows that the Agencies can maintain sustainable groundwater levels in the MCSB under assumed drier climate change conditions through the planning period by continuing the ongoing Projects and Management Actions and implementing the planned Near-Term and Future Projects. In fact, the Near-Term Projects are the only projects required to maintain sustainability, but Future Projects may address additional demands past 2045. Because groundwater levels in the MCSB also drive sustainability criteria for

[6] 2020 MC Alternative Plan, p. ES-13
[7] 2020 MC Alternative Plan, Table ES-1, p. ES-14

change in groundwater storage and subsidence, these two Sustainability Indicators also indicate sustainability through the planning period and model forecast period.

Groundwater quality will be evaluated on an ongoing basis. The Agencies continue to support the efforts to update the Coachella Valley Salt and Nutrient Management Plan (CV-SNMP) by implementing the CV-SNMP Development Workplan which includes development of recommended numeric objectives for TDS concentration in groundwater that are both protective of beneficial uses while also providing maximum benefit of groundwater. The Alternative Plan Update also demonstrates that there is no substantial increase in inflow of elevated TDS groundwater from the Desert Hot Springs Subbasin (DHSSB) into the MCSB across the Mission Creek Fault due to lower groundwater levels in the MCSB.

As the Agencies continue to follow an adaptive management approach, MCSB conditions will be evaluated using the monitoring data and the sustainability objectives and thresholds, Sustainable Management Criteria, and through development and submittal of SGMA Annual Reports and 5-Year Updates to the Alternative Plan. Together, these actions will support water management to meet projected demands and maintain groundwater sustainability.[8]

[8] 2020 MC Alternative Plan, pp. ES-22 and ES-23

SECTION 2
GREEN DAY VILLAGE DEVELOPMENT

2.1 Project Description

The proposed Green Day Village Development will accommodate a residential-high and mixed-use corridor with a combination of residential buildings, with landscaping, hardscape, and community space as well as neighborhood commercial space, basins, landscaping, parking and roadways on approximately 38.43 acres. This includes 355,018 square feet for 612 residential dwelling units, 78,691 square feet of commercial spaces consisting of; 10,752 square feet restaurant/food service uses, 45,365 square feet retail uses, a two-story 21,854 square feet medical office building, and two recycling centers totaling 720 square feet, together with basins, community gathering spaces, landscaping, parking lots and onsite roadways for a total of 1,674,101 square feet or 38.5 acres. The District will serve as the public water system for this development. **Figure 2-1** shows the general project location within MSWD's service area and sphere of influence.

2.2 Project Land Use Summary

The Green Day Village Development is intended to be a mixed-use development that will accommodate a combination of residential dwelling units, retails, restaurant, fast-food drive-thru restaurant, convenience store, and office spaces within the City of Desert Hot Springs. The project land currently has a split land use designation of Mixed-Use Corridor (MU-C) and Residential-High (R-H) per the City of Desert Hot Springs General Plan Land Use and Zoning Designations. Based on the County of Riverside's 2019 General Plan Land Use Designations, **Table 2-1** details the proposed land use designations for the Green Day Village Development.

Table 2-1
Proposed Green Day Village Development Land Use Designation

Facilities	Land Use Designation	Area (square feet)	Area (acres)
Residential Dwelling Units	Residential-High (R-H)	355,494	8.2
Commercial	Light Industrial (LI)	78,691	1.8
Landscaping	-	505,700	11.6
Parking Lots / Onsite Roadways / Hardscape	-	734,216	16.9
	Total	**1,674,101**	**38.5**

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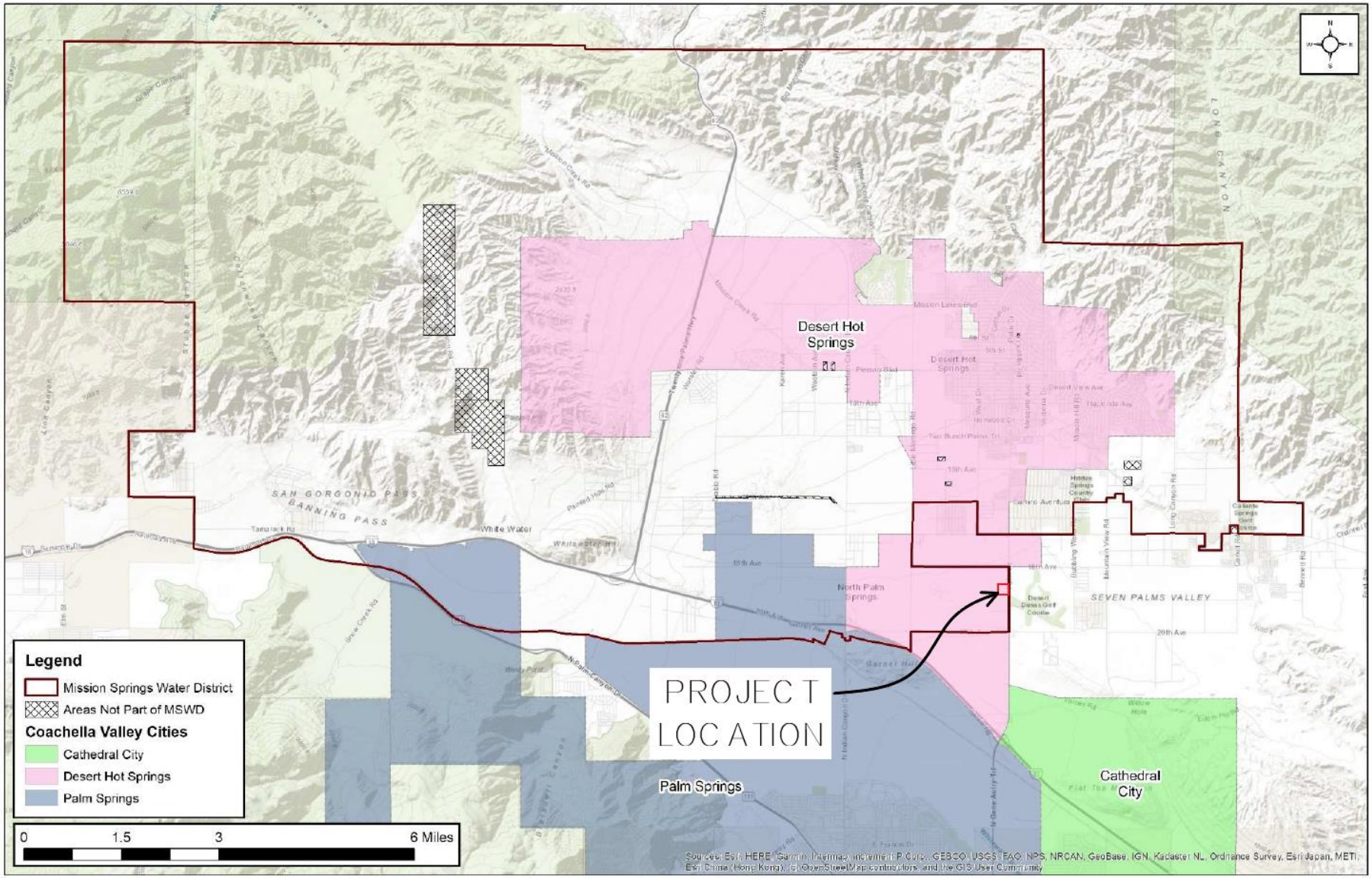
Figure 2-1
General Project Location



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2.3 Project Water Demand

As described, the Green Day Village Development is a combination of these water demand facilities: residential, retails, restaurant, fast-food drive-thru restaurant, convenience store, and office spaces, and landscaping. The water demands were separated and calculated into three separate categories: residential-high, commercial areas and landscaping areas.

The residential areas include 612 residences. Of which, 60 will be one bedroom loft apartments in a two-story structure and the remaining 552 residences will be distributed among 92 two-story residential buildings. Each of the residential buildings, to be constructed employing modular techniques, will comprise six residences, one of which will be an accessory dwelling unit (ADU).

The commercial areas include the retail, restaurant, fast-food drive-thru restaurant, convenience store, and office spaces.

Additionally, landscape consumption factors were developed using MSWD's Water Efficient Landscaping Guidelines. The guidelines set forth the Maximum Annual Applied Water Allowance (MAAWA) for landscaping. Using a combination of the total landscaped area, reference evapotranspiration in the area, and an evapotranspiration adjustment factor, the landscape consumption was determined. The following **Table 2-2** summarizes the light industrial area water demands and **Table 2-3** summarizes the landscape water demands for the Green Day Village Development, using the methods described above.

Table 2-2
Green Day Village Development Water Demands

Facilities	Land Use Designation	Units or Area		Demand Factor	Water Demand	
		Units or Square Feet	Acres	gal/day per du or Acre	gpd	AFY
Residential	Residential-High (R-H)	612	8.2	707.7	433.112	485.2
Mixed Use Corridor	Commercial (C)	78,691	1.8	2,000	3,581	4.0
Total		**--**	**10.0**	**--**	**436,694**	**489.2**

Table 2-3
Green Day Village Development Landscape Water Demands

Facility	Area (acres)	Eto (in/yr)	ET Adjustment Factor	Landscaped Area (sq ft)	Conversion Factor (to gallons per sq ft)	MAAWA (gal/yr)	MAAWA (AFY)
Landscape	11.6	75.7	0.5	505,700	0.62	11,857,781	**36.39**

The Green Day Village Development has an expected total water demand of approximately 525 AFY. In 2009 the Senate Bill x7-7 was enacted requiring all water suppliers to increase water use efficiency. MSWD has developed consumption factors based on the 2020 Coachella Valley RUWMP, after the enactment of SBx7-7. The demands included herein are consistent with MSWD and other Coachella Valley consumption factors that reflect the statewide goal to achieve and maintain a 20 percent reduction of per capita water use by the year 2020.

2.4 Water Conservation Measures

New developments are required to follow and implement the water conservation measures and efficient water use goals outlined in several of MSWD and County of Riverside planning documents.

In 2007, the County of Riverside adopted Ordinance 859.2, The Water Efficient Landscape Requirements. This Ordinance is an effort to implement, manage and maintain water efficient landscapes without a decline in landscape quality or quantity to all new and rehabilitated landscapes associated with residential uses. Furthermore, this Ordinance was adopted to implement the requirements of the California Water Conservation in Landscaping Act 2006 and the California Code of Regulations Title 23, Division 2, Chapter 2.7. The project is required to follow both County and local water conservation and planting measures. In addition, the following are some of the requirements applicable to the Green Day Village Development:

- All planting areas shall receive three inches (3”) of shredded bark mulch and one and a half inches (1-1/2”) on ground cover from flats.
- Turf areas shall be used in response to functional needs and in compliance with the water budget.
- Where available, recycled water shall be used as the source for irrigation and decorative water features.
- Stabilizing mulching products shall be used on slopes. Irrigation systems shall be designed, maintained and managed to meet or exceed an average irrigation efficiency of 0.71.

- All irrigation systems shall be designed to prevent runoff, overspray, low head drainage and other similar conditions where water flows off-site on to adjacent property, non-irrigated areas, walk, roadways, or structures.
- All irrigation systems shall be equipped with a small irrigation controller, a rain sensing device, anti-drain check valves, a manual shut off valve, a pressure regulator, backflow prevention device, and riser protection components.
- Water systems for common open space areas shall use non-potable water, if approved facilities are made available by the water purveyor.

According to the Green Day Village Specific Plan, the planning for the Project emphasizes sustainability, community, and conservation. The Project will implement the following water conservation and planting related measures:

- The inclusion of drought tolerant plant materials and retention basin designs facilitating groundwater recharge to promote water conservation;
- The inclusion of community farming areas within walking distance of most residents thus reducing vehicle trips and associated air emissions and assisting in fostering a sense of community;
- The incorporation of edible landscaping which reduces reliance on edibles produced elsewhere thus also reducing vehicle trips and associated air emissions;
- Establish design guidelines, development regulations, land use standards and procedures to control future project improvements;
- The irrigation design and equipment are designed to comply with City of Desert Hot Springs Municipal Code Section 17.56.130, Water Efficient Landscaping. The system utilizes water efficient practices to reduce runoff and irrigate landscape efficiently. The System will be designed with "smart" automatic controllers that maximize water efficiency with the capability of making real-time adjustments to the irrigation schedule corresponding with hourly weather updates. The irrigation system is designed and sized to accommodate planting material based on species, water use, density, sun exposure, and other microclimate factors.

SECTION 3
WATER DEMANDS

3.1 General Water System Information

3.1.1 Service Area Description

The District, established in 1953, consists of approximately 135 square miles, including the City of Desert Hot Springs, a portion of the City of Palm Springs, and 10 smaller communities in Riverside County. The District provides water service to approximately 43,000 people and sewer service to approximately 26,000 people in their service area. MSWD offices are located in Desert Hot Springs, California.[9]

The District has three different water supply and distributions systems, the Desert Hot Springs System, the Palm Springs Crest System, and the West Palm Springs Village System. The Desert Hot Springs System is the largest of the three and is where the proposed Green Day Village Development is located. The Palm Springs Crest System and the West Palm Springs Village Systems are located approximately five miles west of the Desert Hot Springs system and abutting the Morongo Indian Hill Reservation.[10]

MSWD currently receives 100 percent of its water supply from groundwater wells supplied by the several subbasins within the Coachella Valley Groundwater Basin. The District mainly produces water from the Mission Creek Subbasin (MCSB) and the Garnet Hill Subarea (GHSA) of the Indio Subbasin (ISB).

3.1.2 Facilities

The District, inclusive of all three distribution systems, has approximately 300 miles of pipelines of distribution pipeline ranging in sizes.

As previously mentioned, 100 percent of the water produced is supplied by the Coachella Valley Groundwater Basin. The Desert Hot Springs System has 13 active wells, Well Nos. 22, 24, 25, 25A, 26, 26A, 27, 29, 31, 32, 33, 34 and 37 and two inactive wells, Well Nos. 28 and 30. The 13 active wells and the two inactive wells produce water from the MCSB, GHSA, ISB, and San Gorgonio Pass Subbasin (SGPSB). The 13 active wells have a production capacity of 13,175 gpm. Well No. 34 has wellhead uranium treatment facilities.

[9] 2020 Coachella Valley RUWMP, p. 8-3.
[10] 2020 Coachella Valley RUWMP, p. 8-3.

3.1.3 Climate

The District's climate is a desert climate with a large range of high and low temperatures. The area has low rainfall and humidity and has an average of 3.8 inches of rainfall per year. The average high month temperature is 106 degrees Fahrenheit occurring in July and August and the average low month temperature of 39 degrees Fahrenheit occurring in December. **Table 3.1** shows the historic average monthly evapotranspiration (Eto), rainfall and temperatures for the District.

Table 3-1
Historical District Climate Characteristics

Month	Standard Average Eto (inches)	Average Rainfall (inches)	Daily Max Temperature (degrees F)	Daily Min Temperature (degrees F)
January	2.7	0.5	72	42
February	3.6	0.6	75	45
March	6.0	0.7	82	52
April	7.7	0.3	87	58
May	9.2	0.1	93	63
June	9.8	0.1	103	70
July	9.7	0.2	106	76
August	9.1	0.1	106	75
September	7.2	0.1	101	69
October	5.2	0.4	90	59
November	3.3	0.2	80	49
December	2.3	0.7	65	39
Annual (Total or Average):	**75.7**	**3.8**	**88**	**58**

3.1.4 Service Area Population

The majority of the District's service area population resides in the City of Desert Hot Springs. The City of Desert Hot Springs makes up approximately 17 percent of the District's water service area, 23 square miles. Population current and future estimates were gathered from the 2020 Coachella Valley RUWMP. The 2020 Coachella Valley RUWMP utilized the DWR Population Tool to estimate the 2020 population based on water service connections. A 2020 District water service area population of 38,962 was estimated. With an estimated City of Desert Hot Springs population of 32,510, the City makes up approximately 83.4 percent of MSWD's total water service area population. However, the 2025 population estimate is 49,081.

Future population growth was developed using the regional growth forecast prepared by the Southern California Association of Governments (SCAG). **Table 3-2** shows the current (2020) and projected water service area population for the City of Desert Hot Springs and population outside the City.

Table 3-2
Current and Projected Population

Service Area Population	2020	2025	2030	2035	2040	2045	Increase
MSWD	38,962	49,081	54,414	59,747	66,064	72,380	185.7%

3.2 Water Demands

3.2.1 District Past and Current Water Use

The District experienced steady service area population growth since 2005. As a result, the District as also had a steady growth in metered connections. As previously mentioned, the District's service area population will continue to increase over time, and it is expected that the number of metered accounts will also increase. It should be noted that water deliveries and the number of metered accounts does not directly reflect the District's service area population. The main factor in the growth of water deliveries and in the number of metered accounts are the types of developments that were built and will be built. **Table 3-3** details the historical water service connections by customer sector.

Table 3-3
Historical Water Service Connections

Customer Sector	2016	2017	2018	2019	2020
Single Family	3,803	3,977	4,071	3,430	4,496
Multi Family	1,148	1,189	1,148	959	1,248
Commercial	334	323	379	341	435
Industrial	150	237	192	163	282
Institutional/Governmental	197	205	161	125	170
Landscape	871	982	999	795	933
Other (i.e., Non-Revenue water, which includes losses)	720	899	925	1,879	705
Total:	**7,223**	**7,812**	**7,875**	**7,692**	**8,269**

3.2.2 District Water Demand Projections

MSWD currently does not have any recycled water use within its service area. However, according to the 2020 Coachella Valley RUWMP, there are plans to use recycled water for the irrigation of golf courses, parks, medians and greenbelts, and groundwater aquifer recharge in the future. In addition, the District is constructing the Regional Water Reclamation Facility and plans to have the plant running in late 2023. The proposed treatment plant has been designed to accommodate tertiary treatment in a subsequent phase. It is estimated that the future initial recycled water demand will be 1.0 mgd (1,210 AFY).

The demand for potable water is expected to increase as the service area population increase within time. **Table 3-4** and **Table 3-5** list the projected demands for potable, recycled and total water demands for the future years. Both recycled and potable projected demands were obtained from the 2020 Coachella Valley RUWM.

Table 3-4
Projected Demands for Potable Water

Use Type	2025	2030	2035	2040	2045
Single Family	4,743	5,143	5,543	6,066	6,588
Multi Family	1,316	1,427	1,538	1,683	1,828
Commercial	459	498	537	587	638
Industrial	298	323	348	381	413
Institutional/Governmental	179	194	209	229	249
Landscape	984	1,067	1,150	1,258	1,366
Other (i.e., Non-Revenue water, which includes losses)	1,1017	1,102	1,188	1,300	1,412
Total:	**8,996**	**9,754**	**10,513**	**11,504**	**12,494**

Table 3-5
Total Water Demands

Type	2020	2025	2030	2035	2040	2045
Potable Water Demand	8,269	8,996	9,754	10,513	11,504	12,495
Recycled Water Demand	0	0	1,210	2,200	3,600	5,000
Total:	**8,269**	**8,996**	**10,874**	**12,713**	**15,104**	**17,495**

Of note, total per-capita water use is estimated to decrease from 189 gpcd in 2020 to 154 gpcd in 2045 due to on-going conservation efforts.

3.3 Water Use Reduction Plan

The District has made the State-mandated DMMs a key element in the overall water resource management strategy. The District is dedicated to implementing water conservation measures as demonstrated in adopting a Water Conservation Master Plan in 2004 (2004 WCMP). A series of sensible water conservation activities that complement the unique water resource characteristics of the District's service area are outlines in the 2004 WCMP. The Plan represents a qualitative effort at identifying and screening potential conservation initiatives appropriate for implementation in the District's service area. The data will assist the District in determining which initiatives should be continued to meet long-term conservation objectives.[11]

As part of the 2004 WCMP, the District identified factors affecting water conservation within the District. Significant factors are impacting water use within the District and include the following:

- Limited availability of water as a resource in Coachella Valley;
- the District's 100 percent dependency on groundwater as a water source;
- lack of other potable water sources and limited emergency interconnections;
- assessments to DWA for future imported water supply; lack of sufficient reservoir storage for water shortages and emergencies;
- continued new residential development in the City of Desert Hot Springs;
- risk of future degradation of groundwater supplies from septic systems, and commercial and industrial development; and
- the need to implement costly new sources of water (reclamation/ conjunctive use, etc.).[12]

The water conservation principles identified in the District's Water Conservation Master Plan were outlined and include detailed tasks. Overall, the District aims to employ the following principles:

- Clarify and summarize the District's conservation programs, reflecting conservation commitments made through the UWMP and other programs.
- Ensure that the conservation measures adopted by the District treat all customers fairly and equitably.
- Do not create undue pressure on revenue stability resulting in water costs exceeding local socio-economic conditions.
- Identify and establish measurable conservation targets to be accomplished by the District within a reasonable period of time.

[11] 2020 Coachella Valley RUWMP, p. 8-28.
[12] 2020 Coachella Valley RUWMP, p. 8-28.

- Develop sensible approaches for practical, cost-effective and efficient conservation programs which anticipate and serve the long-term needs of District customers.
- Facilitate the District's ability to provide a dependable, reliable supply of water.[13]

The District also developed a conceptual framework for the proposed conservation planning process throughout the service area. Four phases are envisioned as part of the process, including the formulation of conservation principles, program refinement, program implementation and program evaluation. The Plan's Conservation Action Plan seeks to implement the conceptual framework in a "dual approach," whereby regulatory and management practices are jointly utilized. In the Conservation Action Plan, the process for establishing measurable conservation targets is discussed. Three distinct components for the process are identified as the following:

- establishment of measurable targets,
- identifying worthwhile conservation measures, and
- evaluating the effects of conservation activities and attainment of goals[14]

For additional information on the District's implementation of the demand management and water conservation measures, see the 2020 Coachella Valley RUWMP, Chapter 8, Sub-Chapter 9.

[13] 2020 Coachella Valley RUWMP, p. 8-28.
[14] 2020 Coachella Valley RUWMP, pp. 8-28 to 8-29.

SECTION 4
WATER SUPPLY ASSESSMENT

4.1 General

The Coachella Valley relies on a combination of local groundwater, Colorado River (CR) water, State Water Project (SWP) water, surface water, and recycled water to meet demand. MSWD produces all of its water supplies from the Upper Coachella Valley Groundwater Basin; more specifically, the Mission Creek, Indio (including the Garnet Hill Subarea), and, and San Gorgonio Pass Subbasins. According to the 2020 Coachella Valley RUWMP, CVWD and DWA are remediating the overdraft condition of the groundwater basin by artificial replenishment with imported Colorado River and State Water Project (SWP) Exchange Water in the Mission Creek Subbasin (MCSB) and Indio Subbasin (ISB).

The following section identifies and describes the water supply sources that will serve the Green Day Village Development Project. Additionally, in accordance with State Water Code Section 10910(d), this section will identify existing water supply amounts, water rights, or water service contracts relevant to the identified water supply for the proposed Project. As previously described, the 2020 Coachella Valley RUWMP and the 2020 MC Alternative Plan apply to the Green Day Village Development Project. According to the 2020 Coachella Valley RUWMP, the groundwater supply is reliable for a five-year dry period as the volume in storage can be drawn down during a dry period.[15]

4.2 Identification of Water Sources

4.2.1 Primary Water Sources

As described above, MSWD currently receives 100 percent of its municipal water supply from groundwater produced from subbasins within the Coachella Valley Groundwater Basin, which underlies the District's water service area. The Coachella Valley Groundwater Basin is not adjudicated. As such, there are no legal agreements that limit MSWD from producing groundwater from any of the subbasins. However, both the MCSB and ISB have been designated as "medium-priority" based on the State of California Department of Water Resources (CDWR), and are therefore subject to the requirements of the Sustainable Groundwater Management Act (SGMA).[16] As indicated herein, substantial regional efforts are ongoing, led by CVWD and DWA, supported by MSWD, to manage and recharge the MCSB and ISB with imported water

[15] 2020 Coachella Valley RUWMP, pp. 8-25
[16] 2020 MC Alternative Plan, pp. 1-1

and other supplies to ensure adequate water supplies are sustained and protected in the future. Those efforts are made possible in large part because CVWD and DWA are Metropolitan Water District of Southern California (MWD) State Water Project (SWP) contractors. Therefore, the Green Day Village Development will rely on groundwater as its primary water supply source, more specifically the MCSB.

4.2.2 Additional Water Sources

While groundwater from the MCSB will be the primary source of water for the project, additional water sources related to the project include the Garnet Hill Subarea (GHSA) of the ISB, surface water that naturally replenished the groundwater basin, return flows from applied water that returns to the water cycle as recharge to groundwater after it has been used for its intended purpose (i.e., municipal, agricultural, industrial, and golf course), and imported water to recharge groundwater supplies.

4.3 Analysis of Water Supply

4.3.1 Groundwater

As described above, MSWD currently receives 100 percent of its water supply from groundwater produced from subbasins within the Coachella Valley Groundwater Basin, which underlies the District's water service area. MSWD primarily produces groundwater from the MCSB through eight (8) active groundwater wells. In addition, MSWD also produces groundwater from the ISB via two (2) active wells, the GHSA of the ISB through one (1) active well, and the San Gorgonio Pass Subbasin (SGPSB) through two (2) active wells.

The Coachella Valley Groundwater Basin is bounded 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.[17]

While groundwater flows throughout the groundwater basin, several features (i.e., fault lines, constrictions in the basin profile, and changed soil conditions) limit and control its movement. As such, several subareas and subbasins have been identified

[17] 2020 Coachella Valley RUWMP, p. 3-1

and defined by CDWR in 1964 and the United States Geological Survey (USGS) in 1971.[18]

The Coachella Valley subbasins are the: Mission Creek, Desert Hot Springs, San Gorgonio Pass, and Indio (including the GHSA) subbasins. The ISB is sometimes referred to as the Whitewater subbasin. The subbasins all have varying water quality and quantity and serve as groundwater storage reservoirs. Municipal and Private wells are used to produce water from the natural reservoirs. MSWD's water service area and underlying subbasins are shown in **Figure 4-1**. MSWD produces groundwater from the MCSB, GHSA of the ISB, ISB, and SGPSB; described in greater detail in the following sections.

Of note, the Coachella Valley Groundwater Basin is not adjudicated and there are no legal agreements that limit MSWD from producing groundwater from any of the subbasins. CVWD and DWA continually recharge the MCSB and ISB with imported water and other supplies. Both agencies are SWP contractors.

Starting in 1973, the ISB has been replenished using SWP Exchange Water for groundwater recharge. CVWD and DWA have an agreement with MWD to exchange (on an acre-foot-for-acre-foot basis) a percentage of their SWP Table A water rights for an equal amount of MWD's Colorado River water for the purpose of recharging the Coachella Valley Groundwater Basin. A replenishment program using SWP Exchange Water was also established for the MCSB with recharge commencing in 2003.[19]

4.3.1.1 Mission Creek Subbasin

MSWD primarily produces groundwater from the MCSB through eight (8) active groundwater wells. The MCSB is located in the Upper Coachella Valley in the north central portion of Riverside County, California. The Mission Creek Fault and the Banning Fault bound the northeastern and southern edges of the subbasin, respectively, and are the major groundwater controls. Both act to limit groundwater movement as these faults have folded sedimentary deposits, displaced water-bearing deposits, and caused once permeable sediments to become impermeable (DWR, 1964).[20]

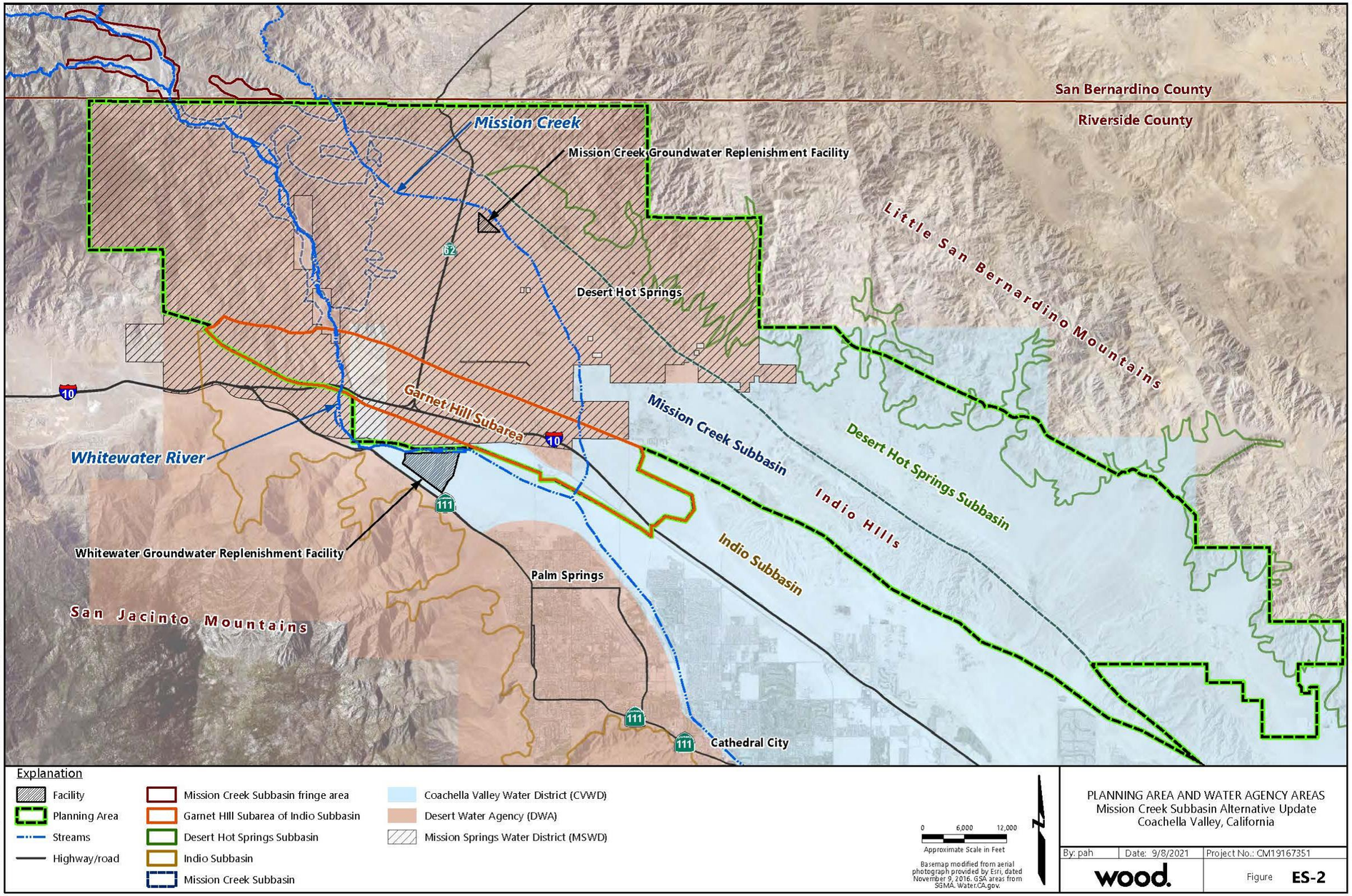
To the west, the subbasin is bounded by the San Bernardino Mountains and to the east by the Indio Hills and the Mission Creek Fault. Artesian conditions have historically been present near a narrow strip along the northwest portion of the Seven

[18] 2020 Coachella Valley RUWMP, p. 3-2
[19] 2020 Coachella Valley RUWMP, pp. 3-4 to 3-5
[20] 2020 Coachella Valley RUWMP, p. 3-5

Palms Ridge (DWR, 1964), allowing for the development of a unique Willow-Mesquite biological community that includes phreatophytes. Depth to groundwater in other parts of the Subbasin averages 300 feet below ground surface. Major surface water features in the area are the Whitewater River, Mission Creek, San Gorgonio River, Little and Big Morongo Washes, and Long Canyon.[21]

[21] 2020 Coachella Valley RUWMP, p. 3-5

Figure 4-1
Groundwater Basins[22]



[22] 2020 MC Alternative Plan Update, Figure ES-2

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The MCSB is filled with Holocene and late Pleistocene unconsolidated sediments eroded from the San Bernardino and Little San Bernardino Mountains. There are three significant water-bearing sedimentary deposits recognized in the subbasin: Pleistocene Cabazon Fanglomerate and Pleistocene to Holocene Older alluvium and alluvial deposits. These deposits are generally coarse sand and gravel, poorly sorted alluvial fan and pediment deposits that coalesce with one another.[23]

The MCSB is considered an unconfined aquifer with a saturated thickness of 1,200 feet or more and an estimated total storage capacity on the order of 2.6 million acre-feet (MAF). The subbasin is naturally recharged by surface and subsurface flow from the Mission Creek, Dry, and Big Morongo Washes, the Painted Hills, and surrounding mountain drainages. Irrigation return flow and discharges from municipal and individual subsurface wastewater disposal systems also contribute to recharge.[24]

Natural inflow has been supplemented with artificial recharge of imported water since 2003. In Water Year (WY) 2021-2022 total inflow to the MCSB is estimated at 11,590 (afy) and includes 5,700 AFY from infiltration or natural runoff, 1,150 of subsurface inflows from adjacent basins and 0 AF of artificial recharge.[25] Additionally, non-consumptive return flow (1,585 AF of infiltration of applied irrigation water, 2,306 AFY of wastewater percolation, 849 AF of septic tank percolation) is estimated at 4,740 AF or approximately 41 percent of the total inflow budget.[26]

The primary outflow from the MCSB is through groundwater production for domestic, agricultural and commercial use. Total groundwater production by MSWD, CVWD, and other privately-owned wells together averaged approximately 2,000 AFY in the 1970s; increased to over 17,000 AFY in 2006; and has since decreased to 14,234 AFY in WY 2021-2022.[27] Additionally, natural outflow includes underflow to the Garnet Hill Subbasin and to semi-water-bearing rocks in southeastern portion of basin of 2,350 AF, evapotranspiration of 950 AF, and evaporative losses of 69 AF for a total of 3,369 AF.

The WY 2021-2022 water balance in MCSB is shown in **Table 4-1**. The annual water balance is the total inflow less the total outflow, which is estimated at a decrease of 6,013 AF of water storage (approximately 0.23 percent of storage capacity) in the subbasin in WY 2021-2022.

[23] 2020 Coachella Valley RUWMP, p. 3-5
[24] 2020 Coachella Valley RUWMP, p. 3-5
[25] MCSB Annual Report for Water Year 2021-2022, p. 7-6, Table 7-3.
[26] MCSB Annual Report for Water Year 2021-2022, p. 7-3.
[27] MCSB Annual Report for Water Year 2021-2022, p. 7-6, Table 7-3.

Table 4-1
WY 2021-2022 Water Balance in Mission Creek Subbasin

Basin Inflow and Outflow Component	Flow (AFY)
Inflow	
Subsurface Inflows From Adjacent Basins	1,150
Non-Consumptive Return	4,740
Infiltration of Natural Runoff	5,700
Artificial Recharge	0
Total Inflow	**11,590**
Outflow	
2019 Groundwater Pumping	14,234
Natural Outflow	3,369
Total Outflow	**17,603**
Annual Balance	**-6,013**

Through SGMA planning efforts, the basins are being managed for long-term sustainability. Based on the annual reports prepared for Water Year 2021-2022, the basin is not in a state of overdraft.[28]

Due to continuing overdraft conditions in the MCSB, CVWD and DWA began constructing facilities to replenish the MCSB in October 2001. Facilities were completed in June 2002 and in December 2002, DWA and CVWD began recharge activities in the MCSB. The current replenishment program is effectively increasing water levels throughout most of the subbasin.[29]

As of the beginning of 2022, the SGMA Portal Monitoring Network Module (MNM) replaced the California Statewide Groundwater Elevation Monitoring (CASGEM) program as the database for SGMA groundwater well data and water level data. Data upload to CASGEM is no longer required for subbasins reporting to the SGMA Portal MNM.[30]

MSWD, DWA, and CVWD now jointly manage the MCSB under the terms of the Mission Creek Settlement Agreement (December 2004). This agreement and the 2014 Mission Creek Groundwater Replenishment Agreement between CVWD and DWA specify that the available SWP water will be allocated between the MCSB and ISB in proportion to the amount of water produced or diverted from each Subbasin during the preceding year. In 2021, production from the MCSB was about 8.9 percent of the combined production from these two Subbasins.[31]

[28] MCSB Annual Report for Water Year 2021-2022, p. 9-20
[29] 2020 Coachella Valley RUWMP, p. 3-5
[30] MCSB Annual Report for Water Year 2021-2022, p. 3-1
[31] CVWD Engineer's Report on Water Supply and Replenishment Assessment 2022-2023, Tables 3-1 and 4-1

Since there is no physical connection to SWP facilities in the Coachella Valley, in the 1970s, CVWD and DWA signed a water Exchange Agreement with the MWD to deliver an equivalent amount of Colorado River water from MWD's Colorado River Aqueduct (CRA) in exchange for CVWD's and DWA's SWP water; referred to herein as SWP Exchange Water.

Deliveries of SWP Exchange Water from the CRA to the Mission Creek Groundwater Replenishment Facility began in 2003. Final SWP allocations between 2002 and 2021 have ranged from a high of 100% in 2006, to a low of 5% in 2014 and 2021. The reliability of SWP deliveries has declined since 2007 when Judge Wanger overturned the Biological Opinion about Delta export pumping operations (2007 Wanger Decision). This decision significantly impacted CDWR's ability to convey SWP supplies across the Delta for export. Since the 2007 Wanger decision, SWP final allocations have averaged 45% annually. This period has also been marked by six critically dry years.[32] A portion of the recharge represents advanced delivery of SWP Exchange Water, further discussed in **Section 4.3.2.2**. **Table 4-2** summarizes the total volume of water delivered for artificial recharge in the MCSB.

The historical annual change in storage for the MCSB is presented on **Figure 4-2**. It is observed that groundwater storage declined from 1936 until imported water recharge activities were started in the MCSB in 2003. Increasing values are reflective of additions to total groundwater storage (due to higher recharge than pumping), and declining values are reflective of decreases in total groundwater storage (pumping greater than recharge). The effect of imported water recharge is clearly seen for the MCSB since 2003. During periods of relatively high recharge (2005-2006 and 2010-2011), groundwater storage increased whereas in periods of lower recharge (2003-2004 and 2007-2009), groundwater storage declined. The MCSB is currently more than 6,000 AF above groundwater storage levels in 2009 due to groundwater replenishment efforts.[33]

[32] 2020 MC Alternative Plan Update, p. 4-12
[33] 2020 MC Alternative Plan Update, p. 7-9

Table 4-2
Deliveries for Direct Replenishment
at the
Mission Creek Groundwater Replenishment Facility

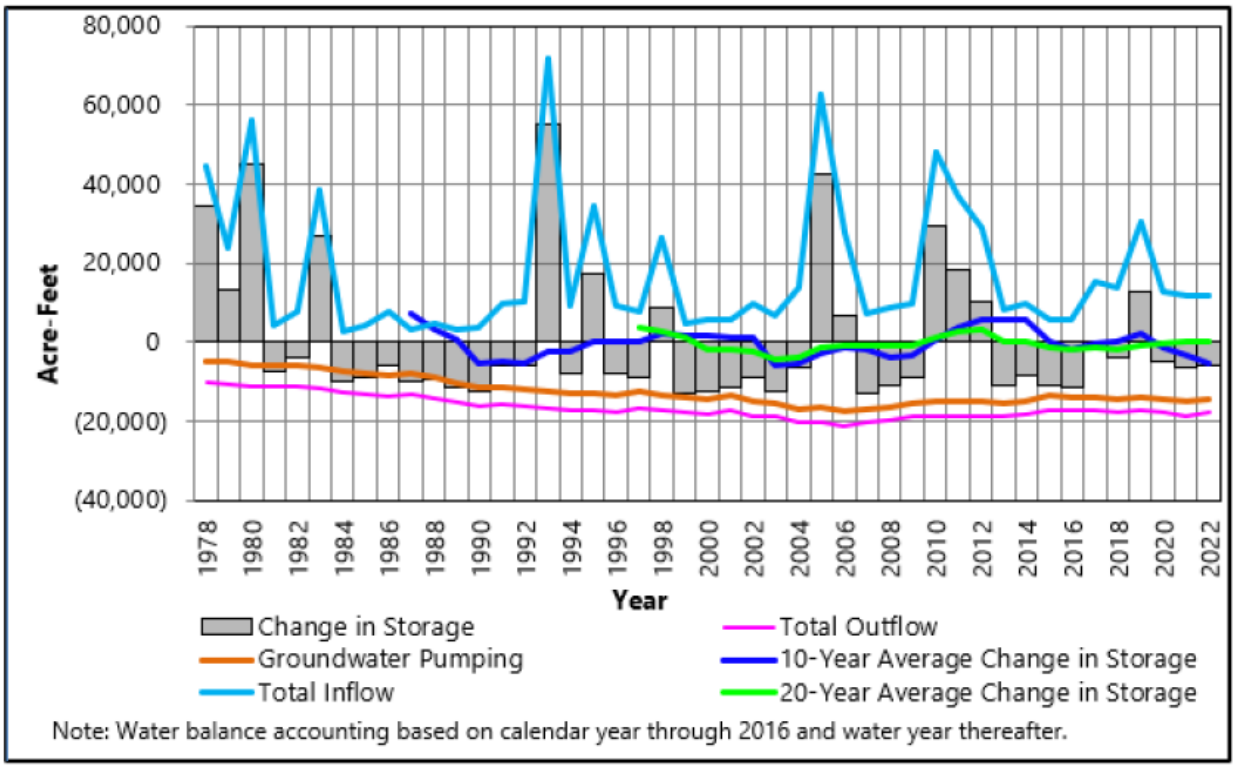
Year	Delivered to Mission Creek Groundwater Replenishment Facility (AFY)
2002	4,733
2003	59
2004	5,564
2005	24,723
2006	19,901
2007	1,011
2008[a]	503
2009[a]	4,090
2010[a]	33,210
2011[a]	26,238
2012	23,406
2013	2,379
2014	4,325
2015	171
2016	0
2017	9,248
2018	2,027
2019[b]	3,688
2020	1,768
2021	0
TOTAL:	**167,044**

(a) Includes deliveries of DWA's non-SWP supplemental water purchased from entities in Kern County for the CPV Sentinel Energy Power Plant.

(b) The volume of water recharged to the Mission Creek GRF in CY 2019 reported in the 2020-2021 Engineer's Report was provisional. The provisional value of 3,498 AF was updated herein to 3,688 AF.

Source: CVWD Engineer's Report on Water Supply and Replenishment Assessment 2022-2023, Tables 3-2

Figure 4-2
Historical Annual in Groundwater Storage – Mission Creek Subbasin
1978 - 2022[34]



4.3.1.2 Garnet Hill Subarea

MSWD produces groundwater from the Garnet Hill Subarea (GHSA) of the Indio Subbasin through one (1) active well. While the Project will, in part, rely on the GHSA to meet demand, as the MCSB and GHSA of the ISB are intertied, as described herein.

The Garnet Hill Subbasin which lies immediately south of the MCSB, underlies approximately 20 square miles and is subordinate to the ISB (DWR, 2003). The basin is bounded on the north by the Banning fault, on the south by the Garnet Hill fault, and on the east and west by non-water to semi-water bearing rocks.[35]

The area between the Garnet Hill fault and the Banning fault, named the Garnet Hill Subarea by DWR (2003), was considered a distinct Subbasin by the USGS because of the effectiveness of the Banning and Garnet Hill faults as barriers to groundwater movement.[36]

[34] MCSB Annual Report for Water Year 2021-2022
[35] 2020 Coachella Valley RUWMP, p. 3-5
[36] 2020 Coachella Valley RUWMP, p. 3-5.

The GHSA is considered an unconfined aquifer with a saturated thickness of 1,000 feet or more and an estimated total storage capacity on the order of 1.0 million AF (DWR, 1964). The GHSA is naturally recharged by subsurface flow from the MCSB and runoff from the Whitewater River watershed on the west. Irrigation return flow and discharges from municipal and individual subsurface wastewater disposal systems also contribute to recharge but are considered minimal.[37]

4.3.1.3 Desert Hot Springs Subbasin

The Desert Hot Springs subbasin is bounded on the north by the Little San Bernardino Mountains and to the south by the Mission Creek and San Andreas faults. The San Andreas fault separates the Desert Hot Springs Subbasin from the ISB and serves as an effective barrier to groundwater flow. Due to poor quality and low groundwater yields, all potable water demand overlying the subbasin is supplied by wells in the MCSB. However, wells in the Miracle Hill area produce geothermally heated groundwater that supplies spa resorts in Desert Hot Springs. Private wells in the Fargo Canyon Subarea have historically been used for agricultural irrigation.[38]

4.3.1.4 Indio Subbasin

The ISB, part of what was once referred to as the Whitewater Subbasin, comprises the major portion of the floor of the Coachella Valley and encompasses approximately 400 square miles. Beginning approximately one mile west of the junction of State Highway 111 and Interstate 10, the ISB extends southeast approximately 70 miles to the Salton Sea.[39]

MSWD currently produces groundwater from the ISB, as defined herein, through two (2) active wells; however, the Project will not rely on the ISB to meet demand. Of note, DWR considers the GHSA as part of the ISB; however, they are considered separate basins at the regional/local level and herein.

4.3.1.5 Cabazon Storage Unit of the San Gorgonio Pass Subbasin

MSWD produces groundwater from the San Gorgonio Pass Subbasin (SGPSB) through two (2) active wells. However, the Project will not rely on the SGPSB to meet demand.

[37] 2020 MC Alternative Plan Update, p. 2-5
[38] 2020 Coachella valley RUWMP, p. 3-5
[39] 2020 Coachella Valley RUWMP, p. 3-4

The main water bearing deposits in the SGPSB are Holocene and Pleistocene age alluvium and Pliocene to Pleistocene age San Timoteo Formation. Holocene alluvium is mostly gravel and sand and, where saturated, would yield water readily to wells. Within the Subbasin, these deposits lie largely above the water table and contribute little water to wells. Holocene alluvium is found in the tributaries of the Subbasin and allows runoff to infiltrate and recharge the Subbasin. Older, Pleistocene-age alluvium contains sand and gravel, but also large amounts of clay and silt. These deposits yield moderate amounts of water to wells.[40]

The SGPSB is subdivided into a series of storage units that include: the Banning Bench, Banning, Beaumont, and Cabazon storage units. The Cabazon storage unit within the San Gorgonio Basin is recharged naturally with runoff from the adjacent San Jacinto and San Bernardino Mountains.[41]

The Cabazon storage unit encompasses approximately 11 square miles. The Cabazon storage unit is located near the western boundary of the MSWD boundary. MSWD operates two (2) wells in the Cabazon storage unit. Other groundwater users in the Cabazon storage unit include Desert Hills Premium Outlets, Morongo Band of Mission Indians, and Cabazon Water District.[42]

4.3.1.6 District Groundwater Production

A summary of groundwater pumped by the District by subbasin from 2016 through 2020 is shown in **Table 4-3**.

Table 4-3
Groundwater Volume Pumped (AFY)[43]

Groundwater Type	Basin Name	2016	2017	2018	2019	2020
Alluvial Basin	MCSB	6,792	7,207	7,568	7,273	7,833
Alluvial Basin	GHSA	285	449	154	266	270
Alluvial Basin	ISB / SGPSB	145	156	153	153	165
	Total:	**7,222**	**7,812**	**7,875**	**7,692**	**8,268**

[40] 2020 Coachella Valley RUWMP, pp. 3-5 to 3-6
[41] 2020 Coachella Valley RUWMP, p. 3-6
[42] 2020 Coachella Valley RUWMP, p. 3-6
[43] 2020 Coachella Valley RUWMP, Table 8-12

4.3.2 Imported Water

Both CVWD and DWA are State Water Contractors. However, there is no conveyance system in place to deliver State Water Project (SWP) water to the Coachella Valley. Conversely, imported water from the Colorado River is delivered to Southern California agencies through the Colorado River Aqueduct (CRA) that traverses through the Coachella Valley. As such, both DWA and CVWD have entered into separate agreements with MWD to receive Colorado River water in exchange for State Water Project (SWP) water on an acre-foot-for-acre-foot basis (SWP Exchange Water).

In 1997, DWA worked with MWD to get a 48-inch turnout constructed along the CRA system just south of Indian Avenue and west of Worsley Road. In addition, DWA acquired property, approximately 190 acres, near the turnout to construct spreading basins (the Mission Creek Groundwater Recharge Facility or MCGRF) to hold the Colorado River water as it percolates downward into the MCSB. In 2002, DWA completed construction of the MCGRF with a series of 13 recharge basins and a combined surface area of 57 acres. Replenishments efforts began in 2003 and, to date, a cumulative total of approximately 167,044 AF of supplemental water has been recharged into the MCSB.[44]

The ISB has been replenished using SWP Exchange Water since 1973. Administered by CVWD, Colorado River water is recharged in two separate Whitewater River Groundwater Replenishment Facility. To date, approximately 3,825,000 AF of supplemental water has been recharged into the ISB.[45]

The spreading of MWD's SWP in the MCSB benefits the City of Desert Hot Springs and MSWD. MSWD pays DWA's replenish assessment for every AF of supplemental water extracted from the MCSB.

4.3.2.1 Colorado River Water

Colorado River water has been a significant water supply source for the Indio Subbasin since the Coachella Canal was completed in 1949. CVWD is the only agency in the Indio Subbasin that receives Colorado River water allocations.

The Colorado River is managed and operated in accordance with the *Law of the River*, a collection of interstate compacts, federal and state legislation, various agreements and contracts, an international treaty, a U.S. Supreme Court decree, and federal

[44] CVWD Engineer's Report on Water Supply and Replenishment Assessment 2022-2023, Tables 3-2
[45] CVWD Engineer's Report on Water Supply and Replenishment Assessment 2022-2023, Table 4-2.

administrative actions that govern the rights to use Colorado River water within the seven Colorado River Basin states. The *1922 Colorado River Compact* apportioned the waters of the Colorado River Basin between the Upper Colorado River Basin (i.e., Colorado, Wyoming, Utah, and New Mexico) and the Lower Basin (i.e., Nevada, Arizona, and California) (USBR, 1922). The *1922 Colorado River Compact* allocates 15 million AFY of Colorado River water as follows: 7.5 million AFY to the Upper Basin and 7.5 million AFY to the Lower Basin, plus up to 1 million AFY of surplus supplies. The Lower Basin's water was further apportioned among the three Lower Basin states by the *1928 Boulder Canyon Project Act* (USBR, 1928) and the *1931 Boulder Canyon Project Agreement* (USBR, 1931), typically called the *1931 Seven Party Agreement*, which allocates California's apportionment of Colorado River water among Palo Verde Irrigation District (PVID), Imperial Irrigation District (IID), Coachella Valley Water District (CVWD), Metropolitan Water District of Southern California (MWD), City of Los Angeles, City of San Diego, and County of San Diego. The 1964 U.S. Supreme Court decree in *Arizona v. California* established Arizona's basic annual apportionment at 2.8 million AFY, California's at 4.4 million AFY, and Nevada's at 0.3 million AFY. Mexico is entitled to 1.5 million AFY of the Colorado River under the *1944 United States-Mexico Treaty for Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande* (U.S. Government Printing Office, 1946). However, this treaty did not specify a required quality for water entering Mexico. In 1973, the United States and Mexico signed *Minute No. 242* of the International Boundary and Water Commission (IBWC) requiring certain water quality standards for water entering Mexico (IBWC, 1973).[46]

California's Colorado River supply is protected by the *1968 Colorado River Basin Project Act* (USBR, 1968), which provides that in years of insufficient supply on the main stem of the Colorado River, supplies to the Central Arizona Project shall be reduced to zero before California will be reduced below 4.4 million AF in any year. This assures full supplies to the Coachella Valley, except in periods of extreme drought.[47]

The Coachella Canal is a branch of the All-American Canal that brings Colorado River water into the Imperial and Coachella Valleys. Under the *1931 Seven Party Agreement* (USBR, 1931), CVWD receives 330,000 AFY of Priority 3A Colorado River water diverted from the All-American Canal at the Imperial Dam. The Coachella Canal originates at Drop 1 on the All-American Canal and extends approximately 123 miles, terminating in CVWD's Lake Cahuilla. The service area for Colorado River water delivery under CVWD's contract with the U.S. Department of the Interior Bureau of Reclamation (USBR) is defined as Improvement District No. 1 (ID-1), which

[46] 2022 ISB Water Management Plan Update, p. 6-7
[47] 2022 ISB Water Management Plan Update, p. 6-8

encompasses 136,400 acres covering most of the East Valley and a portion of the West Valley north of Interstate 10. Under the *1931 Seven Party Agreement*, CVWD has water rights to Colorado River water as part of the first 3.85 million AFY allocated to California. CVWD is in the third priority position along with IID.[48]

2003 Quantification Settlement Agreement

In 2003, CVWD, IID, and MWD successfully negotiated the *2003 Quantification Settlement Agreement* (*2003 QSA*) (CVWD, 2003), which quantifies Colorado River allocations through 2077 and supports the transfer of water between agencies. Under the *2003 QSA*, CVWD has a base entitlement of 330,000 AFY. CVWD negotiated water transfer agreements with MWD and IID that increased CVWD supplies by an additional 123,000 AFY. CVWD's net QSA supply will increase to 424,000 AFY by 2026 and remain at that level until 2047, decreasing to 421,000 AFY until 2077, when the agreement terminates (Secretary of the Interior, 2003). CVWD's available Colorado River diversions through 2045, the ISB Alternative Plan Update horizon, are shown on **Table 4-4**.[49]

As of 2020, CVWD's available Colorado River water diversions at Imperial Dam under the QSA were 394,000 AFY. This includes the base entitlement of 330,000 AFY, the MWD/IID Transfer of 20,000 AFY, IID/CVWD First Transfer of 50,000 AFY, and IID/CVWD Second Transfer of 23,000 AFY. CVWD's QSA diversions also deducts the -26,000 AFY transferred to San Diego County Water Authority (SDCWA) as part of the Coachella Canal Lining Project and the -3,000 AFY transfer to Indian Present Perfected Rights.[50]

Additionally, under the 2003 QSA, MWD transferred 35,000 AFY of its SWP Table A Amount to CVWD. This SWP water is exchanged for Colorado River water and can be delivered at Imperial Dam for delivery via the Coachella Canal to the eastern portion of the Indio Subbasin or at Lake Havasu for delivery via the Colorado River Aqueduct to the western portion of the Indio Subbasin at the Whitewater River Groundwater Recharge Facility (WWR-GRF). The 2019 Second Amendment (CVWD, 2019b) guaranteed delivery of 35,000 AFY from 2019 to 2026, for a total of 280,000 AFY of water to the WWR-GRF during that timeframe. MWD can deliver the water through CVWD's Whitewater Service Connections (for recharge at WWR-GRF) or via the Advance Delivery account.[51]

[48] 2022 ISB Water Management Plan Update, p. 6-8
[49] 2022 ISB Water Management Plan Update, p. 6-8
[50] 2022 ISB Water Management Plan Update, p. 6-8
[51] 2022 ISB Water Management Plan Update, p. 6-9

The MWD/IID Transfer originated in a 1989 agreement with MWD to receive 20,000 AF of its Colorado River supply. The *2019 Amended and Restated Agreement for Exchange and Advance Delivery of Water* (CVWD, 2019a) defined the exchange and delivery terms between MWD, CVWD, and DWA. The *2019 Second Amendment to Delivery and Exchange Agreement* (CVWD, 2019b) reduced CVWD's annual delivery of the MWD/IID Transfer to 15,000 AFY, for a total of 105,000 AF, if taken at the Whitewater Service Connections (for recharge at WWR-GRF) between 2020 and 2026. For those seven years, MWD keeps the remaining 5,000 AFY, after which CVWD's allocation increases back up to 20,000 AFY. In the ISB Alternative Plan Update, both the 15,000 AFY MWD/IID Transfer and the 35,000 AF QSA MWD SWP Transfer are assumed to be delivered to WWR-GRF through 2026. CVWD's total allocations under the QSA, including MWD's transfer of 35,000 AFY and the MWD/IID Transfer, will increase from 424,000 AFY in 2020 to 459,000 AFY by 2026 and remain at that level for the remainder of the 75-year term of the QSA.[52]

Table 4-4
Colorado River Water Entitlements (AFY)[53]

Diversion	2020	2025	2030	2035	2040	2045
Base Entitlement	330,000	330,000	330,000	330,000	330,000	330,000
1988 MWD/IID Approval Agreement	20,000	20,000	20,000	20,000	20,000	20,000
IID/CVWD First Transfer	50,000	50,000	50,000	50,000	50,000	50,000
IID/CVWD Second Transfer	23,000	48,000	53,000	53,000	53,000	53,000
Coachella Canal Lining	-26,000	-26,000	-26,000	-26,000	-26,000	-26,000
Indian Present Perfected Rights Transfer	-3,000	-3,000	-3,000	-3,000	-3,000	-3,000
QSA Diversions	**394,000**	**419,000**	**424,000**	**424,000**	**424,000**	**424,000**
MWD SWP Transfer	35,000	35,000	35,000	35,000	35,000	35,000
Total Diversions	**429,000**	**454,000**	**459,000**	**459,000**	**459,000**	**464,000**
Assumed Conveyance Losses (5%)	-21,200	-22,700	-22,950	-22,950	-22,950	-22,950
MWD/IID Approval Agreement Transfer[1]	-5,000	-5,000	0	0	0	0
Total Available Deliveries	**402,800**	**426,300**	**436,050**	**436,050**	**436,050**	**436,050**

[1] Accounts for -5,000 AFY reduction in MWD/IID Approval Agreement deliveries from 2020–2026 per the 2019 Amendments with MWD.

Source: *Colorado River Water Delivery Agreement (https://www.usbr.gov/lc/region/g4000/crwda/crwda.pdf, Exhibit B)*

[52] 2022 ISB Water Management Plan Update, p. 6-9
[53] 2022 ISB Water Management Plan Update, Table 6-3

Colorado River Water Consumptive Use

Each year, CVWD submits its water order to USBR for its total QSA entitlement. USBR provides an annual Colorado River Accounting and Water Use Report that provides diversions, return flows, and consumptive use of water diverted from the mainstream of the Colorado River below Lee's Ferry (USBR, 2020). For the eight years between 2013 and 2020, CVWD consumed less than its QSA allotment by an average of 25,574 AFY. CVWD can transfer up to 20,000 AF of the *1989 Approval Agreement* water to MWD, to help mitigate the lower consumption. Despite minor annual variability, CVWD anticipates full consumptive use of its QSA entitlement by 2030. Payback for the over consumption that occurred in years 2001 and 2002 has been completed; no additional payback is assumed during the planning horizon.[54]

Assumptions regarding Colorado River (Canal water) supplies available for use are based on CVWD's delivery schedule from the QSA, minus estimated Canal conveyance losses (see discussion below). Table 6-3 and Figure 6-2 provides CVWD's contracted Colorado River water entitlement through 2045. Note that due to the IID/CVWD Second Transfer, CVWD's Colorado River supplies continue to increase by 5,000 AFY per year through 2027 before reaching a total volume of 424,000 AFY. **Table 4-5** lists total Colorado River entitlements under existing agreements. However, the ISB Alternative Plan Update does not assume full QSA ramp up volumes will be available due to ongoing drought and forecasted climate change on the Colorado River system.[55]

Colorado River Supply Reliability

Colorado River supplies face several challenges to long-term reliability including the extended Colorado River Basin drought and shortage sharing agreements, endangered species and habitat protection, and climate change. Due to both California's and CVWD's high-priority position regarding Colorado River allocations, CVWD's Colorado River supply is expected to be reliable.

QSA Litigation

The *2010 CV Water Management Plan Update* cautioned against the reliability of CVWD's Colorado River supplies because of ongoing QSA litigation at the time. However, the QSA has held up to scrutiny under several unsuccessful legal challenges in state and federal court. Immediately following passage of the QSA, in November 2003, IID filed a complaint in Imperial County Superior Court to confirm the validity

[54] 2022 ISB Water Management Plan Update, p. 6-9
[55] 2022 ISB Water Management Plan Update, p. 6-9

of the QSA and 12 of the 34 QSA-related agreements. The case was coordinated for trial with other lawsuits challenging QSA environmental and regulatory approvals in the Sacramento County Superior Court. CVWD, IID, MWD, SDCWA, and the State defended these suits, which sought validation of the contracts. In February 2010, a California Superior Court judge ruled that the QSA and 11 related agreements were invalid because the QSA-JPA Agreement created an unconditional obligation for the State to pay for excess environmental mitigation costs, in violation of California's constitution. The court declined, for jurisdictional reasons, to validate the thirteenth agreement, the IID-CVWD Salton Sea Flooding Settlement Agreement.[56]

The QSA parties appealed this decision. In March 2011, the California Court of Appeal, Third Appellate District issued a temporary stay of the trial court judgment. In December 2011, the California Court of Appeal reversed the lower court ruling and remanded the case back to trial court for decision on the environmental challenges to the QSA Program EIR. In July 2013, a Sacramento Superior Court entered a final judgment validating the QSA and rejecting all of the remaining legal challenges. In May 2015, the California Court of Appeal issued a ruling that dismissed all remaining appeals.[57]

Colorado River Interim Guidelines

Since 2000, drought conditions in the Colorado River basin have led to significant fluctuations and decreases in water elevations at key Colorado River reservoirs. Each year, the Secretary of the Interior is required to declare the Colorado River water supply availability conditions for the Lower Basin States in terms of normal, surplus, or shortage. In 2007, USBR adopted *Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead* (*2007 Interim Guidelines*).[58]

These *2007 Interim Guidelines* will remain in effect for determinations to be made through December 2025 regarding water supply and reservoir operating decisions through 2026 and provide guidance for development of the Annual Operating Plan (AOP) for Colorado River reservoirs (USBR, 2007).

The purposes of the *2007 Interim Guidelines* are to:

- Improve USBR's management of the Colorado River by considering trade-offs between the frequency and magnitude of reductions of water deliveries and considering the effects on water storage in Lake Powell and Lake Mead. USBR

[56] 2022 ISB Water Management Plan Update, p. 6-12
[57] 2022 ISB Water Management Plan Update, p. 6-12
[58] 2022 ISB Water Management Plan Update, p. 6-12

will also consider the effects on water supply, power production, recreation, and other environmental resources;

- Provide mainstream U.S. users of Colorado River water, particularly those in the Lower Basin states, a greater degree of predictability with respect to the amount of annual water deliveries in future years, particularly under drought and low reservoir conditions; and
- Provide additional mechanisms for the storage and delivery of water supplies in Lake Mead to increase the flexibility of meeting water use needs from Lake Mead, particularly under drought and low reservoir conditions (USBR 2007).

In October 2020, USBR released a *Review of the Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead* (*7D Review*; USBR 2020a). The *7D Review* acknowledged the operational stability provided by the *2007 Interim Guidelines* and the cooperation of participating agencies in providing information to inform the post-2026 operations of Lake Powell and Lake Mead. Negotiations began in 2021 for the *2027 Interim Guidelines* that may affect available supplies of Colorado River water.[59]

Lower Basin Drought Contingency Plan

In May 2019, CVWD entered into the *Lower Basin Drought Contingency Plan Agreement* (USBR, 2019) to provide an additional mechanism to prevent Lake Mead from reaching critically low elevations by establishing that certain Colorado River users in the Lower Basin make Drought Contingency Plan (DCP) contributions if Lake Mead reaches certain elevations. The *Implementation Agreement* (CVWD 2019c) explains that the *Lower Basin Drought Contingency Plan (Lower Basin DCP*) provides that USBR's annual 24-month study's projection of Lake Mead's January 1 elevation will determine the amount of California DCP contributions for the subsequent year, if any. CVWD's portion of California DCP contributions under the *Lower Basin DCP* is seven percent (which is approximately 14,000 to 24,500 AFY). CVWD will implement its portion of the *Lower Basin DCP* contributions by storing water in MWD's Lake Mead DCP Intentionally Created Surplus (ICS) account and/or by CVWD reducing its call for the 35,000 AFY MWD SWP Transfer (refer to description above). MWD will then reduce its USBR water order by an equivalent amount in that year to cover CVWD's contribution. The *Lower Basin DCP* is a short-term plan that will end when the 2027 Interim Guidelines are implemented.[60]

[59] 2022 ISB Water Management Plan Update, pp. 6-12 to 6-13
[60] 2022 ISB Water Management Plan Update, p. 6-13

Use of Colorado River Water

The 2020 ISB Alternative Plan Update considers the QSA ramp up to ensure that all available supply is used. This requires balancing direct uses and replenishment deliveries against the available Colorado River supply (less conveyance and regulatory water losses). This *Alternative Plan Update* considers two Colorado River delivery scenarios:

1. **Historical hydrology conditions** – Full ramp up of the *2003 QSA* entitlement, along with transfers where there are agreements in place. These assumptions are used only in the baseline scenario in Chapter 7, *Numerical Model and Plan Scenarios*.
2. **Climate change conditions** – Full ramp up of the *2003 QSA* entitlement and transfers, minus CVWD's portion of California's *Lower Basin DCP* contribution increasing from 14,500 AFY to 24,500 AFY. These assumptions are used in all future project scenarios in Chapter 7, *Numerical Model and Plan Scenarios*.

To fully utilize the Colorado River water entitlement, the GSAs propose several source substitutions (replacing existing groundwater pumping with Canal water deliveries) and replenishment projects that can be found in Chapter 11 of the 2020 ISB Alternative Plan Update.[61]

4.3.2.2 State Water Project Exchange Water

The SWP is managed by the California Department of Water Resources (DWR) and includes 705 miles of aqueduct and conveyance facilities extending from Lake Oroville in Northern California to Lake Perris in Southern California. The SWP has contracts to deliver 4.172 million AFY to the State Water Contractors. The State Water Contractors consist of 29 public entities with long-term contracts with DWR for all, or a portion of, their water supply needs. In 1962 and 1963, DWA and CVWD, respectively, entered contracts with the State of California for a total of 61,200 AFY of SWP water.[62]

SWP water has been an important component of the region's water supply mix since CVWD and DWA began receiving and recharging SWP exchange water at the WWR-GRF. Starting in 1973, CVWD and DWA began exchanging their SWP water with MWD for Colorado River water delivered via MWD's Colorado River Aqueduct. Because CVWD and DWA do not have a physical connection to SWP conveyance facilities, MWD takes delivery of CVWD's and DWA's SWP water, and in exchange, delivers an equal amount of Colorado River water to the Whitewater Service Connections (for recharge

[61] 2022 ISB Water Management Plan Update, p. 6-13
[62] 2022 ISB Water Management Plan Update, p. 6-13

at WWR-GRF and MC-GRF). The exchange agreement was most recently re-established in the 2019 *Amended and Restated Agreement for Exchange and Advance Delivery of Water* (CVWD, 2019a).[63]

SWP Table A Amounts

Each SWP contract contains a "Table A" exhibit that defines the maximum annual amount of water each contractor can receive excluding certain interruptible deliveries. DWR uses Table A amounts to allocate available SWP supplies and some SWP project costs among the contractors. Each year, DWR determines the amount of water available for delivery to SWP contractors based on hydrology, reservoir storage, the requirements of water rights licenses and permits, water quality, and environmental requirements for protected species in the Sacramento-San Joaquin River Delta (Delta). The available supply is then allocated according to each SWP contractor's Table A amount.[64]

CVWD's and DWA's collective increments of Table A water are listed in **Table 4-5**. Original Table A SWP water allocations for CVWD and DWA were 23,100 AFY and 38,100 AFY, respectively, for a combined amount of 61,200 AFY. CVWD and DWA obtained a combined 100,000 AFY transfer from MWD under the 2003 Exchange Agreement. In 2004, CVWD purchased an additional 9,900 AFY of SWP Table A water from the Tulare Lake Basin Water Storage District (Tulare Lake Basin) in Kings County (DWR, 2004). In 2007, CVWD and DWA made a second purchase of Table A SWP water from Tulare Lake Basin totaling 7,000 AFY (DWR, 2007a and 2007b). In 2007, CVWD and DWA also completed the transfer of 16,000 AFY of Table A Amounts from the Berrenda Mesa Water District in Kern County (DWR, 2007c and 2007d). These latter two transfers became effective in January 2010. With these additional transfers, the total SWP Table A Amount for CVWD and DWA is 194,100 AFY.[65]

Previously, the 100,000 AFY MWD Transfer obtained under the *2003 Exchange Agreement* included a "Call Back" component that allowed MWD to call-back the 100,000 AFY and assume the entire cost of delivery if it needed the water. In 2019, the *Amended and Restated Agreement for Exchange and Advance Delivery of Water* (CVWD, 2019a) ended MWD's right to call back that 100,000 AFY of Table A water.[66]

[63] 2022 ISB Water Management Plan Update, p. 6-14
[64] 2022 ISB Water Management Plan Update, p. 6-14
[65] 2022 ISB Water Management Plan Update, p. 6-14
[66] 2022 ISB Water Management Plan Update, p. 6-14

Table 4-5
State Water Project Table A Amounts (AFY)[67]

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

In some years, DWA and CVWD carry over SWP water to the following year by storing it in San Luis Reservoir. This carryover water is SWP water that is allocated to a State Water Contractor and approved for delivery in a given year but was not able to be delivered to the Contractor by the end of that year. This water is exported from the Delta, but instead of being delivered to the Contractor, it is stored in the SWP's share of San Luis Reservoir south of the Delta, when space is available, for the Contractor to use in the following year. This variability is reflected in the historical delivery values but does not affect supply projections.[68]

Other SWP Water Types

There are other types of SWP water that can be purchased, such as individual water purchase opportunities and transfers/exchanges. These may be conveyed to CVWD and DWA as available, but no commitments exist.[69]

Yuba Accord

In 2008, CVWD and DWA entered into separate agreements with DWR for the purchase and conveyance of supplemental SWP water under the Yuba River Accord Dry Year Water Purchase Program (Yuba Accord). This program provides dry year supplies through a water purchase agreement between DWR and Yuba County Water Agency, which settled long-standing operational and environmental issues over instream flow requirements for the lower Yuba River. The amount of water available for purchase varies annually and is allocated among participating SWP contractors based on their Table A amounts. CVWD and DWA may purchase up to 1.72 percent and 0.69 percent, respectively, of available Yuba Accord water, in years it is made available.[70]

[67] 2022 ISB Water Management Plan Update, Table 6-4
[68] 2022 ISB Water Management Plan Update, p. 6-15
[69] 2022 ISB Water Management Plan Update, p. 6-15
[70] 2022 ISB Water Management Plan Update, p. 6-15

Yuba Accord deliveries have varied from zero in multiple years to a total of 2,664 AFY to CVWD and DWA in 2013. Over the 10-year period from 2010-2019, the average annual amount of Yuba Accord water purchased by the GSAs was 651 AFY. This *Alternative Plan Update* assumes the same 10-year average of Yuba Accord deliveries annually through 2045.[71]

Article 21

Article 21 water (described in Article 21 of the SWP water contracts), "Interruptible Water", is water that State Water Contractors may receive on a short-term basis in addition to their Table A water if they request it in years when it is available. Article 21 water is used by many Contractors to help meet demands in low allocation years. Article 21 water is not available every year, amounts vary when it is available, and is proportionately allocated among participating Contractors. The availability and delivery of Article 21 water cannot interfere with normal SWP operations and cannot be carried over for delivery in a subsequent year.[72]

The State Water Contractors believe that as reliability increases over time with the operation of the Delta Conveyance Facility (see description below), that Article 21 water will become more available to Contractors for purchase. The 2020 ISB Alternative Plan Update assumes that once the Delta Conveyance Facility is constructed, approximately 10,600 AFY in Article 21 will be made available to DWA and CVWD annually.[73]

<u>Advance Deliveries</u>

The 1984 *Advance Delivery* A*greement* (amended in 2019 by the *Amended and Restated Agreement for Exchange and Advance Delivery of Water* [CVWD 2019a]) allows MWD to deliver up to 800,000 AFY of Colorado River water to be credited against its future SWP exchange water obligations. Advance deliveries of exchange water are highly variable and concentrated in wet years, with the ISB providing the majority of storage. The Advance Delivery Account balance for 2003 – 2019 ranged from 44,601 acre-feet (AF) in 2009 to 391,155 AF in 2019. As of January 2020, there was 353,946 AF stored in MWD's Advance Delivery account in the Indio Subbasin.[74]

[71] 2022 ISB Water Management Plan Update, p. 6-15
[72] 2022 ISB Water Management Plan Update, p. 6-15
[73] 2022 ISB Water Management Plan Update, p. 6-16
[74] 2022 ISB Water Management Plan Update, p. 6-16

Supply Reliability

SWP supplies vary annually due to weather and runoff variations in Northern California and regulatory limitations on exports from the Delta.

Delta Exports

The SWP's and Central Valley Project's (CVP; managed by USBR) exports from the Delta have decreased since 2005 due to several key environmental decisions. While the SWP primarily serves the State's population and economic growth, the CVP serves the State's agricultural industry. In 2005, the U.S. Fish and Wildlife Service (USFWS) released a Biological Opinion that Delta export (combined SWP and CVP) pumping operations would not jeopardize the continued existence of the Delta smelt, a small, endangered fish endemic to the Delta. Environmental groups challenged the action and in May 2007, federal Judge Oliver Wanger ruled that the Biological Opinion was faulty in its assumptions and needed to be performed again. In 2008, the USFWS and National Marine Fisheries Service (NMFS) released a new Biological Opinion that addressed Delta fisheries, restricting operations of the SWP and CVP diversion pumps. In 2009, Wanger struck down the USBR acceptance of the new Biological Opinion, saying USBR failed to comply with the National Environmental Policy Act (NEPA) related to cutbacks in water exports for Central Valley farmers.[75]

In 2009, the Sacramento-San Joaquin Delta Reform Act of 2009 (Delta Reform Act) established the Delta Stewardship Council to create a comprehensive, long-term, legally enforceable plan to guide management of the Delta's water and environmental resources. The Delta Plan (Delta Stewardship Council, 2013) includes policies and recommendations to achieve the "coequal goals," which means the two goals of providing more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. In 2016, USBR and DWR developed the California WaterFix, a twin-tunnels alternative for conveying flows across the natural channels of the Delta, focused on conveyance and ecosystem improvements to significantly reduce reverse flows and fish species impacts associated with the existing south Delta intakes. In 2019, USFWS and NMFS issued revised Biological Opinions (USFWS, 2020) to address California WaterFix. Concurrently, USBR issued the 2018 Addendum (USBR, 2018) to the 1986 Coordinated Operations Agreement (USBR, 1986) with accompanying SWP and CVP operations changes which reduced SWP exports and increased CVP exports, along with more conservative operation of Lake Oroville. Most recently, in 2019, Governor Newsom directed state agencies to proceed with

[75] 2022 ISB Water Management Plan Update, p. 6-17

modernizing Delta conveyance with a single tunnel project (see DCF description below).[76]

SWP Reliability

State Water Contractors are required to submit annual delivery schedules to the DWR for a suite of potential water allocations; for example, 15 percent, 30 percent, 50 percent, 60 percent, and 100 percent were provided for calendar year 2021. DWR makes an initial SWP Table A allocation for planning purposes, typically in December, prior to the start of each calendar year. Throughout the year, as additional information regarding water availability becomes available and DWR performs hydrologic analyses, the SWP allocation and delivery estimates are updated. Typically, the final SWP allocation for the year is derived by June, and although not typical, can still be updated into the Fall. **Table 4-6** presents the historical draft and final Table A allocations over the past 20 years (i.e., 2002 to 2021). Note that CVWD's and DWA's contracted Table A amounts increased substantially in 2005 and again in 2010.[77]

Final SWP allocations between 2002 and 2021 have ranged from a high of 100 percent in 2006 to a low of five percent in 2014 and again in 2021. The reliability of SWP deliveries has declined since 2007 when Judge Wanger overturned the Biological Opinion regarding Delta export pumping operations. This decision significantly impacted DWR's ability to convey SWP supplies across the Delta for export. Since the 2007 Wanger decision, SWP final allocations have averaged 45 percent annually. This period has also been marked by six critically dry years.[78]

DWR's *Final SWP Delivery Capability Report 2019* (DWR, 2020a) was released in August 2020. The delivery reliability of water from the SWP system is an important component for the SWP Contractors' water supply planning. SWP delivery amounts were modeled for the *2019 SWP Delivery Capability Report* using the CalSim II simulation model that incorporates the historical range of hydrologic conditions from Water Years 1922 through 2003. DWR's analysis determined that long-term average SWP deliveries across all water years through 2015 was 2,414,000 AF, or 58 percent of the maximum of the 4,133,000 AFY available for export from the Delta.[79] By using this 82-year historical flow record, the delivery estimates modeled for existing

[76] 2022 ISB Water Management Plan Update, p. 6-17
[77] 2022 ISB Water Management Plan Update, p. 6-17
[78] 2022 ISB Water Management Plan Update, pp. 6-17 to 6-18
[79] While 4,173,000 AFY is the current combined maximum Table A mount, 4,133,000 AFY is the SWP's maximum Table A water available for export from the Delta excluding Butte County and Yuba City (DWR, 2020a).

conditions reflect a reasonable range of potential hydrologic conditions from wet years to critically dry years.[80]

Table 4-6
Historical SWP Table A Allocations, CVWD and DWA (2002-2021)

Year	100% Table A Volume Max Contract (AFY)[1]	Water Year Type	SWP Initial Allocation (%)	SWP Final Allocation (%)
2002	61,200	Dry	20%	70%
2003	61,200	Above Normal	20%	90%
2004	71,100	Below Normal	35%	65%
2005	171,100	Above Normal	40%	90%
2006	171,100	Wet	55%	100%
2007	171,100	Dry	60%	60%
2008	171,100	Critically Dry	25%	35%
2009	171,100	Dry	15%	40%
2010	194,100	Below Normal	5%	50%
2011	194,100	Wet	25%	80%
2012	194,100	Above Normal	60%	65%
2013	194,100	Critically Dry	30%	35%
2014	194,100	Critically Dry	5%	5%
2015	194,100	Critically Dry	10%	20%
2016	194,100	Above Normal	10%	60%
2017	194,100	Above Normal	20%	85%
2018	194,100	Critically Dry	15%	35%
2019	194,100	Above Normal	10%	75%
2020	194,100	Below Normal	10%	20%
2021	194,100	Critically Dry	5%	5%
20-Year Average:			**24%**	**54%**
14-Year Average Since Wanger:			**20%**	**45%**

[1] Source: DWR 2018, Bulletin 132-18, Appendix B Table B-4
[2] Source: DWR 2018, Bulletin 132-18, Appendix B Table B-5B

DWR's analysis further showed a decreasing trend seen in the future long-term average. The *Technical Addendum to the 2019 SWP Delivery Capability Report* (DWR, 2020b) provides a "Future Conditions with Climate Change and 45 cm Sea Level Rise Scenario" which projects a further decrease in SWP delivery over time. Although the *2019 SWP Delivery Capability Report* estimates delivery reliability of 58 percent based on the long-term average, this *Alternative Plan Update* recognizes the

[80] 2022 ISB Water Management Plan Update, pp. 6-19

significant reduction in reliability associated with climate change and Delta export litigation and instead assumes 45 percent reliability through the planning horizon.[81]

Delta Conveyance Facility

The Delta Conveyance Facility (DCF) is a DWR project that would improve SWP reliability and result in increased deliveries in the future. The existing SWP water conveyance facilities in the Delta, which include Clifton Court Forebay and the Banks Pumping Plant, enable DWR to divert water to the California Aqueduct. The DCF project includes the construction and operation of new conveyance facilities in the Delta, primarily a new tunnel to bypass existing natural channels used for conveyance. New intake facilities would be located in the north Delta along the Sacramento River between Freeport, California, and the confluence with Sutter Slough. A new tunnel would convey water from the new intakes to the existing Banks Pumping Plant and potentially the federal Jones Pumping Plant, both in Byron, California, in the south Delta. The new facilities would provide an alternate location for diversion of water from the Delta and would be operated in coordination with the existing south Delta pumping facilities.[82]

Construction of the DCF will improve water supply reliability for State Water Contractors by addressing in-Delta conveyance, with its myriad of constraints. Because the SWP currently relies on the Delta's natural channels to convey water, it is vulnerable to earthquakes, climate change, and pumping restrictions established to protect in-stream species and habitats. Certain pumping restrictions in the south Delta can prevent the SWP from reliably capturing water when it is available, especially in wet weather. The DCF would add new diversions in the north Delta to promote a more resilient and flexible SWP in the face of unstable future conditions. Combined with the current through-Delta method, the addition of DCF is referred to as the "dual conveyance" system.[83]

CVWD and DWA have approved a 2-year agreement to advance their share of funding for DCF planning and design costs. The *Agreement in Principle for the Delta Conveyance Facility* was approved in November 2020, as outlined in **Table 4-7** below. A preliminary estimate of the DCF benefits is 500,000 AFY. DWA and CVWD approved their participation levels of 1.52 percent and 3.78 percent, respectively. This restores 26,500 AFY in SWP deliveries to CVWD and DWA over and above current conditions, allocated between 60 percent to Table A and 40 percent to Article 21.

[81] 2022 ISB Water Management Plan Update, p. 6-20
[82] 2022 ISB Water Management Plan Update, p. 6-20
[83] 2022 ISB Water Management Plan Update, p. 6-21

With DCF construction, SWP reliability is anticipated to increase to 59 percent as an annual average. DCF deliveries are assumed to begin in year 2040.[84]

Table 4-7
DCF Supply Amounts[85]

Description	CVWD	DWA	Total
DCF Additional Supply (%)	3.78%	1.52%	5.30%
Annual Estimate (AFY)	**18,900**	**7,600**	**26,500**
Table A Supply (AFY)	11,340	4,560	15,900
Article 21 Supply (AFY)	7,560	3,040	10,600

Lake Perris Dam Seepage Recovery Project

In 2017, MWD and DWR began preliminary planning for recovery of seepage below the Lake Perris Dam and delivery of the recovered water to MWD in addition to its current allocated Table A water. The project is composed of installing a series of five pumps placed down-gradient from the face of the Lake Perris Dam that will pump water that has seeped from the lake into the groundwater. The recovered water will be pumped into a collection pipeline that discharges directly into MWD's Colorado River Aqueduct south of Lake Perris.[86]

CVWD and DWA were invited to partner in the project with MWD, and the parties signed an agreement with DWR in 2021 for funding of environmental analysis, planning, and preliminary design. An additional agreement (or amendment to the existing *Exchange Agreement*) will be needed to exchange a proportional share of the recovered seepage water, as outlined in **Table 4-8** below, for Colorado River water delivered by MWD to WWR-GRF and MC-GRF (MWD, 2020) through MWD's Colorado River Aqueduct. The project is estimated to recover approximately 7,500 AFY, with 2,752 AFY for delivery to CVWD and DWA, and is anticipated to begin delivery in 2023.[87]

[84] 2022 ISB Water Management Plan Update, pp. 6-21 to 6-22
[85] 2022 ISB Water Management Plan Update, Table 6-7
[86] 2022 ISB Water Management Plan Update, p. 6-22
[87] 2022 ISB Water Management Plan Update, p. 6-22

Table 4-8
Lake Perris Seepage Recovery Amounts[88]

Description	MWD	CVWD	DWA	Total
Percent of Lake Perris Dam Seepage Recovery (%)	63.30%	32.3%	4.4%	100%
Annual Estimate (AFY)	4,747	2,425	328	7,500

Sites Reservoir Project

The Sites Reservoir Project would capture, and store stormwater flows from the Sacramento River for release in dry years. Sites Reservoir would be situated on the west side of the Sacramento Valley, approximately 10 miles west of Maxwell, CA. When operated in coordination with other Northern California reservoirs such as Shasta, Oroville, and Folsom, which function as the backbone to both the SWP and the Central Valley Project, Sites Reservoir would increase flexibility and reliability of statewide water supplies in drier periods.[89]

In 2019, CVWD and DWA both entered into an agreement with the Sites Project Authority for the next phase of planning for the Sites Reservoir (Sites Project Authority, 2019; 2020). The Sites Project Authority's goals are to make water supply and storage capacity available to water purveyors within the Sacramento River watershed, and in other areas of California, who are willing to purchase water supply from the Sites Reservoir Project. CVWD and DWA are participating members at 10,000 AFY and 6,500 AFY levels, respectively, as shown in **Table 4-9**. The 2020 ISB Alternative Plan Update assumes approximately 30 percent conveyance losses, for total delivery of 11,550 AFY to CVWD and DWA beginning in 2035.[90]

Table 4-9
Sites Reservoir Supply Amounts[91]

Description	CVWD	DWA	Total
Percent of Sites Reservoir Supply (%)	5.2%	3.4%	8.6%
Annual Estimate (AFY)	10,000	6,500	16,500

[88] 2022 ISB Water Management Plan Update, Table 6-8
[89] 2022 ISB Water Management Plan Update, p. 6-22
[90] 2022 ISB Water Management Plan Update, pp. 6-22 to 6-23
[91] 2022 ISB Water Management Plan Update, Table 6-9

SWP Delivery to Subbasins

All SWP Exchange water delivered to DWA and CVWD is recharged at WWR-GRF in the ISB and at MC-GRF in the MCSB. According to the *2014 Mission Creek Water Management Agreement* (CVWD and DWA, 2014), this includes any water that is paid for or planned to be paid for by the SWP tax or split between the RAC paid by groundwater producers in the West Whitewater River Subbasin Management Area (which includes CVWD's West Whitewater River Subbasin Area of Benefit [AOB] and DWA's West Whitewater River Subbasin AOB) and the Mission Creek Subbasin Management Area (which includes CVWD's Mission Creek Subbasin AOB and DWA's Mission Creek Subbasin AOB). As such, this includes Table A, Article 21, and Yuba Accord water, in addition to any future increase in Table A reliability (i.e., DCF), Lake Perris Seepage, and Sites Reservoir. Available SWP Exchange water allocated to MC-GRF and WWR-GRF is based on proportional assessable production between the Mission Creek Subbasin Management Area and the West Whitewater River Subbasin Management Area, to be balanced over a 20-year period beginning December 2004. In 2020, total assessable production in the Mission Creek Subbasin Management Area (inclusive of CVWD's Mission Creek AOB and DWA's Mission Creek AOB) was 14,244 AF, while total assessable production in the West Whitewater River Subbasin Management Area (again inclusive of CVWD's West AOB and DWA's West AOB) was 153,979 AF (CVWD 2020). Based on a cumulative total of 168,223 AF in assessable production between the two management areas, this resulted in an 8 percent/92 percent split between the Mission Creek and West Whitewater River management areas in 2020. As shown in **Table 4-10**, the projected allotment of SWP exchange water to the two management areas was calculated as 8 to 10 percent to MC-GRF and 90 to 92 percent to WWR-GRF. Urban growth and associated water demand in the Mission Creek Subbasin will result in slightly more SWP Exchange water being delivered to that Subbasin over time. The 2020 ISB Alternative Plan Update is coordinated with the 2020 MC Alternative Plan Update to establish production estimates and associated SWP delivery estimates for the two management areas through 2045 planning horizon.[92]

[92] 2022 ISB Water Management Plan Update, p. 6-23

Table 4-10
Forecast Split of SWP Delivery to WWR-GRF and MC-GRF
Based on Production[93]

Assessable Production	2020	2025	2030	2035	2040	2045
West WWR Management Area (AFY)	150,336	155,338	160,640	165,955	170,754	175,202
% West WWR Management Area	92%	92%	91%	91%	91%	90%
Mission Creek Management Area (AFY)	13,281	14,369	15,455	16,543	17,717	18,892
% Mission Creek Management Area	8%	8%	9%	9%	9%	10%
Total West WWR + Mission Creek (AFY)	**163,617**	**169,707**	**176,095**	**182,498**	**188,471**	**194,093**

Use of SWP Exchange Water

The 2020 ISB Alternative Plan Update accounts for all anticipated SWP Exchange water to be recharged at WWR-GRF and MC-GRF (as described above) to ensure that all available supply is used. In order to fully use available SWP exchange supplies, the GSAs will continue to replenish groundwater at maximum delivery levels and pursue additional SWP supplies as they become available. The 2020 ISB Alternative Plan Update considers two SWP Exchange delivery scenarios:

1) **Historical hydrology conditions** – Table A deliveries at 45 percent through 2045 based on average SWP reliability since the 2007 Wanger decision and uncertainty about the future of Delta exports. These assumptions are used only in the baseline scenario in Chapter 7, *Numerical Model and Plan Scenarios*.
2) **Climate change conditions** – Table A deliveries at 45 percent in 2020 based on the 2007 Wanger decision, then reduced by -1.5 percent through straight line projection from 2020 to 2045 due to forecast climate changes. These assumptions are used in all future project scenarios in Chapter 7, *Numerical Model and Plan Scenarios*.

Scenario modeling described in Chapter 7 of the 2020 ISB Alternative Plan Update assumes annual variability of Table A deliveries associated with different projected climate years. However, Yuba Accord, Lake Perris Seepage, Sites Reservoir, and DCF supplies are assumed at their full anticipated amounts each year. The projected estimates for all potential SWP Exchange supplies are shown in **Table 4-11**.

[93] 2022 ISB Water Management Plan Update, Table 6-10

Table 4-11
Forecast of SWP Table A Supplies to WWR-GRF and MC-GRF[94]

Existing SWP Supplies	2020	2025	2030	2035	2040	2045
Table A Amount	194,100	194,100	194,100	194,100	194,100	194,100
Assumed SWP Reliability	45%	45%	45%	45%	45%	45%
Average Table A Deliveries w/ Assumed SWP Reliability	**87,345**	**87,345**	**87,345**	**87,345**	**87,345**	**87,345**
Yuba Accord	651	651	651	651	651	651
Sum of Existing SWP Supplies	**87,996**	**87,996**	**87,996**	**87,996**	**87,996**	**87,996**
Estimated Replenishment (AFY)a						
WWR-GRF Replenishment	80,853	80,546	80,273	80,019	79,724	79,431
MC-GRF Replenishment	7,143	7,450	7,723	7,977	8,272	8,565
Future SWP Supplies						
Lake Perris Seepage	0	2,752	2,752	2,752	2,752	2,752
Sites Reservoir	0	0	0	11,550	11,550	11,550
Delta Conveyance Facility (Additional SWP Table A / Article 21)	0	0	0	0	0	26,500
Sum of Existing + Future SWP Supplies	**88,647**	**91,399**	**91,399**	**102,949**	**102,949**	**129,449**
Estimated Replenishment (AFY)a						
WWR-GRF Replenishment	81,451	83,660	83,377	93,617	93,272	116,849
MC-GRF Replenishment	7,196	7,739	8,022	9,332	9,677	12,600

Additional 35,000 AFY MWD/SWP Transfer under the QSA is accounted for under Colorado River water above (see Table 6-3) and though replenished at WWR-GRF, that supply is not accounted for in replenishment volumes in this table.

4.3.2.3 Surface Water

Surface water in the MCSB, GHSA, and DHSSB includes streamflow in addition to runoff from several drainage areas. The precipitation that occurs within the tributary watersheds of the Planning Area either evaporates, is consumed by native vegetation, percolates directly into underlying alluvium and fractured rock, or becomes runoff. A portion of the flow percolating into the soil and bedrock of the mountain watersheds surrounding the MCSB, GHSA, and DHSSB eventually becomes subsurface inflow to these groundwater bodies.[95]

[94] 2022 ISB Water Management Plan Update, Table 6-11
[95] 2020 MC Alternative Plan Update, p. 4-2

Natural recharge in the MCSB, GHSA, and DHSSB occurs as infiltrated surface water flows and subsurface inflows. Due to the relatively high evapotranspiration rates compared to precipitation, recharge from direct precipitation on the valley floor and in the low-lying hills at the northwest part of the MCSB (east of Whitewater River) is considered to be negligible. Surface water flow in the MCSB, GHSA, and DHSSB consists of temporary or intermittent streams that originate in the San Bernardino and Little San Bernardino mountains.[96] The District does not use, or plan to use, self-supplied surface water as part of its water supply.

4.3.2.4 Recycled Water

MSWD operates two wastewater treatment plants. The Horton Wastewater Treatment Plant (Horton WWTP) with a capacity of 2.3 million gallons per day (MGD) and the average daily flow metered to the plant in 2020 was 2.0 MGD. The Horton WWTP uses an extended aeration process for treatment and disposes of secondary wastewater, which is not disinfected, in adjacent percolation/evaporation ponds. The Desert Crest Wastewater Treatment Plant with a capacity of 0.18 MGD and the average daily flow to the plant in 2020 was metered at 0.05 MGD. The facility operates similarly to the Horton WWTP using an aeration basin for treatment and disposes of the secondary wastewater, which is not disinfected, by way of percolation/evaporation ponds.[97]

The District prepared a Recycled Water Program Development Feasibility Study in 2018 in which treatment and distribution alternatives and recycled water demands were identified. It was determined that recycled water infrastructure could feasibly be implemented for groundwater recharge, and, subsequently, to supply existing and future irrigation demands and offset a portion of potable water demands. Recycled water can be used for groundwater basin replenishment and favorably impacts water balance calculations.[98]

Due to the success of its septic to sewer program, the District is constructing the MSWD Regional Water Reclamation Facility (RWRF) to meet increasing wastewater demands. In its initial phase, the RWRF will use a sequence batch reactor process for treatment and disposal of the secondary wastewater, which is not disinfected, in adjacent percolation/evaporation ponds located within the plant over the GHSA. The District plans to produce recycled water meeting Title 22 standards with tertiary treatment facilities in the subsequent phase. The primary recycled water demands are foreseen to be replenishment of the MCSB and public green areas, golf courses

[96] 2020 MC Alternative Plan Update, p. 4-5
[97] 2020 Coachella Valley RUWMP, p. 8-15
[98] 2020 Coachella Valley RUWMP, p. 8-17

and playing fields that were identified as part of the 2018 study. Consistent with recycled water demands that have been identified and estimated system wastewater flows, it is envisioned that the recycled water system including the RWRF will be expanded to accommodate a system recycled water system demand of 5,000 AFY by 2045.[99]

4.3.2.5 Desalinated Water

Desalination has been identified as a potential solution for increasing water supplies and reducing groundwater overdraft for the Coachella Valley region. However, desalination requires complicated technologies and is a high energy consuming technology. Desalination offers many potential benefits including increases water supply and reliability during drought periods, reduced dependency on imported supplies by developing a local supply source, protection of public health, and facilitates more recycling and reuse, given the lower salinity of the source. MSWD does not anticipate the future use of desalinated water within its service area, as the backbone facilities and infrastructure needed for desalination are not economically feasible.[100]

4.3.2.6 Water Exchanges and Transfers

The District has not entered into any agreements for the transfer or exchange of water. However, the District cooperates with DWA and MWD for the Desert Water Agency/Coachella Valley Water District (DWCV) SWP Table A Transfer and the DWCV Advance Delivery Program.[101]

4.3.3 Summary of Water Supply Sources

MSWD currently receives 100 percent of its water supply from groundwater production and does not purchase imported water from a water wholesaler. However, CVWD and DWA are remediating the overdraft condition of the groundwater in the Upper Coachella Valley by replenishment with Colorado River and SWP Exchange Water from MWD. District groundwater meets all Federal and State primary and secondary water quality standards without treatment (other than chlorination for disinfection), with the exceptions that groundwater from Well Nos. 26A and 34 is treated at each well site to meet the primary water quality standard for uranium. Construction of the RWRF is in progress and expected to be operational in late 2023, with tertiary treatment facilities for recycled water to be included in a subsequent

[99] 2020 Coachella Valley RUWMP, p. 8-17
[100] 2020 Coachella Valley RUWMP, p. 8-19
[101] 2020 Coachella Valley RUWMP, p. 8-19

phase and anticipated to accommodate a recycled water demand of 1,210 AFY. Projected District water supplies through 2045 are shown in **Table 4-12**.[102]

Table 4-12
Current and Projected Water Supplies

Water Supply Source	Additional Detail	Projected Water Supply				
		2025	2030	2035	2040	2045
Groundwater (not desalinated)	All Subbasins	8,996	9,754	10,513	11,504	12,495
Recycled Water		0	1,210	2,200	3,600	5,000
Total:		**8,996**	**10,964**	**12,713**	**15,104**	**17,495**

4.4 Analysis of Water Supply and Demand

As noted herein, the supply and demand analyses for the Green Day Village Development are based in large part on the 2020 Coachella Valley RUWMP and the 2020 MC Alternative Plan Update. The 2020 Coachella Valley RUWMP was prepared in accordance with the Urban Water Management Planning Act, as most recently amended by SBx7-7. Among other analyses, the 2020 Coachella Valley RUWMP and the 2020 MC Alternative Plan Update identified total projected water demands and demonstrate that total projected water supplies will be sufficient to meet those demands through 2045 and beyond. Also discussed above, the 2020 MC Alternative Plan Update found that by continuing the ongoing projects and management actions (PMAs) and implementing the planned Near-term and Future PMAs the MCSB can maintain sustainable groundwater levels through the planning period (2045). In fact, the Near-term Projects are the only PMAs required to maintain sustainability, but Future Projects may address additional demands past 2045.[103]

As outlined in the Sections above, water conservation is a major component of future water management in the Coachella Valley. As presented above, MSWD is committed to reducing their per capita urban water demand in accordance with SBx7-7. In addition, MSWD's 2009 Water Efficient Landscape Guidelines establish effective water efficient landscape requirements for newly installed and rehabilitated landscapes and reduce demands.

All water delivered to end users is obtained from the groundwater basin, which is continuously recharged with both natural and supplemental imported supplies as

[102] 2020 Coachella Valley RUWMP, p. 8-21
[103] 2020 MC Alternative Plan Update, p. 8-24

discussed above. As provided throughout this WSA, and in the 2020 MC Alternative Plan Update, the managed basin is capable of ensuring a sufficient and sustainable water supply to meet existing water demands and the demands associated with projected growth throughout the region (specifically including MSWD's service area and the proposed Green Day Village Development) during normal, single-dry and multiple-dry periods throughout the 20-year projection and beyond. In addition, CVWD, DWA and MSWD developed many PMAs to maximize the water resources available to them including recharge of its Colorado River and SWP supplies, recycled water, and various conservation measures, such as tiered water rates, a landscaping ordinance, outreach and education. The 2020 MC Alternative Plan Update and DWA/CVWD replenishment assessment programs, in which MSWD fully participates, establish a comprehensive and managed effort to eliminate the overuse of local groundwater supplies.

The analysis herein evaluates whether the total projected water supplies available to MSWD, by virtue of its membership and participation in the regional efforts as outlined in the 2020 MC Alternative Plan Update, are sufficient to meet the water demands of the Green Day Village Development in addition to other existing and planned future uses within MSWD's service area. The supply and demand assessment includes three scenarios over the 20-year projection as required by SB 610: normal water years, single-dry years, and multiple-dry years. As presented in **Section 3**, MSWD's water demands are projected to grow from 8,269 AFY in 2020 to 17,495 AFY in 2045. As shown in **Section 2**, the estimated Project demands are 525 AFY, representing approximately 5.7 percent of MSWD's projected growth. **Tables 4-13, 4-14, and 4-15** outline the water supply and demand scenarios for normal, single-dry and multiple-dry years respectively. As described in the 2020 Coachella Valley RUWMP, it is expected that conservation programs will prevent an increase in demands during single dry-year and multiple dry-year supply scenarios.

Table 4-13

Normal Water Year Supply and Demand Comparison (AFY)

	2025	2030	2035	2040	2045
Supply Totals	8,996	10,874	12,713	15,104	17,495
Demand Totals	8,996	10,874	12,713	15,104	17,495
Difference	0	0	0	0	0

Table 4-14
Single-Dry Year Supply and Demand Comparison (AFY)

	2025	2030	2035	2040	2045
Supply Totals	8,996	10,874	12,713	15,104	17,495
Demand Totals	8,996	10,874	12,713	15,104	17,495
Difference	0	0	0	0	0

Table 4-15
Multiple-Dry Year Supply and Demand Comparison (AFY)

		2025	2030	2035	2040	2045
Multiple-Dry Year First Year Supply	**Supply totals**	8,996	10,874	12,713	15,104	17,495
	Demand totals	8,996	10,874	12,713	15,104	17,495
	Difference	0	0	0	0	0
Multiple-Dry Year Second Year Supply	**Supply totals**	8,996	10,874	12,713	15,104	17,495
	Demand totals	8,996	10,874	12,713	15,104	17,495
	Difference	0	0	0	0	0
Multiple-Dry Year Third Year Supply	**Supply totals**	8,996	10,874	12,713	15,104	17,495
	Demand totals	8,996	10,874	12,713	15,104	17,495
	Difference	0	0	0	0	0
Multiple-Dry Year Fourth Year Supply	**Supply totals**	8,996	10,874	12,713	15,104	17,495
	Demand totals	8,996	10,874	12,713	15,104	17,495
	Difference	0	0	0	0	0
Multiple-Dry Year Fifth Year Supply[5]	**Supply totals**	8,996	10,874	12,713	15,104	17,495
	Demand totals	8,996	10,874	12,713	15,104	17,495
	Difference	0	0	0	0	0

Note: Recycled water used for groundwater recharge is presented as a supply and a demand for consistency with DWR reporting framework.

Note: The 2020 Coachella Valley RUWMP participating agencies collaborate on groundwater management plans for long-term sustainability. During a normal year, single-dry year, or five-dry year period, the agencies could produce additional groundwater if demands exceeded the estimates shown here.

4.5 Conclusions

The water supply for the proposed Green Day Village Development Project will be the MCSB and GHSA in the Coachella Valley with supplemental water supplies that are recharged to the Basin on an ongoing basis. Groundwater storage will be used in dry years to support potential differences between demands and supply. The groundwater basin has a capacity of approximately 2.6 million acre-feet and is estimated to contain about 1.4 million acre-feet, simulating the benefits of a very large conjunctive use reservoir. It is capable of meeting the water demands of the surrounding communities for extended periods during normal, single-dry and multiple-dry year conditions.

As discussed in the 2020 MC Alternative Plan Update, the 2020 Coachella Valley RUWMP, and this WSA; CVWD, DWA and MSWD have many programs to maximize the water resources available, including but not limited to recharge of the basin using Colorado River and SWP supplies, direct use and recharge of recycled water, and comprehensive water conservation practices such as tiered water rates, landscaping ordinances, outreach and education. The DWA/CVWD groundwater replenishment programs establish a comprehensive and managed effort to reduce and eliminate overuse of local groundwater resources. These programs allow MSWD, CVWD, and DWA to maintain the groundwater basin as its primary water supply and to recharge the groundwater basin as its other supplies are available and needed to meet existing and projected demands within its overall service areas.

Based on the information, analysis, and conclusions documented in this WSA, substantial evidence exists to support a determination that the total projected water supplies available to MSWD during normal, single dry, and multiple dry water years during a 20-year projection are sufficient to meet the projected water demand associated with the proposed Green Day Village Development Project, in addition to MSWD's existing and planned future uses, including commercial and industrial uses. This conclusion is based on the volume of water available in the regional aquifer, MSWD's current and planned local water management programs and projects, and DWA and CVWD's current and planned local and regional management programs and water supply projects to supplement and sustain regional groundwater supplies. Additionally, MSWD, CVWD, and DWA have committed sufficient resources to further implement the primary elements of the 2020 Coachella Valley RUWMP and the 2020 MC Alternative Plan Update, including source substitution, water conservation, and purchases of additional water supplies. Furthermore, as set forth in this WSA and the Green Day Village Development plans, the Project will incorporate various water conservation elements adopted by MSWD in accordance with SBx7-7. These include conservation elements for indoor and outdoor uses throughout the Project. These efforts may further reduce the ultimate water demands of the Project.

As provided by Water Code section 10914, nothing in this WSA is intended to create a right or entitlement to water service or any specific level of water service, and nothing herein is intended to impose, expand or limit any duty concerning MSWD's obligation to provide certain levels of service to existing or future potential customers.[104] MSWD retains the right, in its sole discretion, to evaluate from time to time, whether the projected demands associated with the Project continue to fall within MSWD's forecasted demand or planned future uses.

[104] Water Code § 10914(a)-(b).

SECTION 5
WATER SUPPLY VERIFICATION

5.1 General

The Green Day Village Development is proposing more than 500 dwelling units along with 78,691 square feet of commercial development and is therefore pursuant to the Subdivision Map Act as the requirements of Senate Bill 221. Further discussion can be found in **Section 1.1**.

5.2 Water Source

The Project's residential and commercial water demands are proposed to be provided by groundwater. The Water Supply Verification (WSV) addresses: (1) information included in the 2020 Coachella Valley RUWMP; (2) issues related to groundwater recharge of non-groundwater sources, namely Colorado River water and SWP Exchange Water; and (3) consideration of the litigation regarding the Quantification Settlement Agreement.

5.3 Supporting Documentation

The WSV relies on the 2020 Coachella valley RUWMP, as permitted by Government Code 66473.7(c).

5.4 Factors of Reliability

5.4.1 General

Government Code 66473.7(a) requires that when determining "sufficient water supply", the following factors be considered:

- The availability of water supply over a historical record of at least 20 years
- The applicability of MSWD's Water Shortage Contingency Analysis which includes actions to be undertaken by the public water system in response to water supply shortages.
- The reduction of water supply to a specific user by ordinance or resolution.
- The reasonable amount of groundwater supply that can be relied upon, considering its natural sources as well as the supporting recharge sources within agreements for Colorado River water and SWP Exchange Water.

5.4.2 Historical Availability of Supply

MSWD currently receives 100 percent of its water supply from the subbasins within the Coachella Valley Groundwater Basin, which underlies the District's water service area. While none of the groundwater basins in the Coachella Valley are adjudicated, both the Mission Creek Subbasin (MCSB) and Indio Subbasin (ISB) have been identified under the and the Sustainable Groundwater Management Act (SGMA) as medium-priority basins. Nevertheless, there are no legal agreements limiting MSWD's pumping from any of the subbasins. The District has been dependent upon groundwater as its only source of domestic water supply for several decades. The 2020 Coachella Valley RUWMP reviewed the historical use of water in the District. In 2020, MSWD total groundwater production was 8,268 acre-feet and current (2022) groundwater production is at approximately 7,969 acre-feet annually. Deliveries of Colorado River water and MWD SWP Exchange Water help offset the groundwater use. As of 2020, CVWD receives 402,800 AFY of Colorado River water deliveries under the QSA.[105] In addition, SWP deliveries were 39,471 AFY to the Coachella Valley in 2020.

5.4.3 Water Shortage Contingency

The MSWD has developed a Water Shortage Contingency Plan and is discussed in its 2020 Coachella Valley RUWMP. As detailed in the 2020 Coachella Valley RUWMP, during water shortages, the District has the ability to meet its demands by applying Water Conservation Stages. MSWD, and the other RUWMP participating agencies, have elected to use the six standard shortage levels included in guidance documents prepared by DWR. The six standard water shortage levels correspond to progressively increasing estimated shortage conditions (up to 10-, 20-, 30-, 40-, 50-percent, and greater than 50-percent shortage compared to the normal reliability condition). The Water Conservation Stages and action is summarized in **Table 5-1**.

[105] 2020 Coachella Valley RUWMP, p. 3-11

Table 5-1
Water Shortage Contingency Plan

Stage	Percent Supply Reduction	Description	Shortage Response Actions
1	Up to 10%	Normal water supplies	Mandatory prohibitions defined by the state, ongoing rebate programs
2	Up to 20%	Slightly limited water supplies	Outdoor water use restrictions on time of day, increased water waste patrols
3	Up to 30%	Moderately limited water supplies	Outdoor water use restrictions on days per week, restrictions on filling swimming pools
4	Up to 40%	Limited water supplies	Limits on new landscaping, expanded public information campaign
5	Up to 50%	Significantly limited water Supplies	Limits on watering of parks or school grounds
6	Greater than 50%	Severe shortage or catastrophic incident	No potable water use for outdoor purposes

The General Manager of the District shall monitor supply and demand for water on a daily basis and determine the level of the Water Conservation Stage needed. The Manager shall notify the Board of Directors of the implementation as well as the termination of the stages.

5.4.4 Reduction of Water Supply

There are no expected reductions in the water supply. This is based on, among other things, the volume of water available in the regional aquifer, MSWD's current and planned local water management programs and projects, and DWA and CVWD's current and planned local and regional management programs and water supply projects to supplement and sustain regional groundwater supplies. Additionally, MSWD, CVWD, and DWA have committed sufficient resources to further implement the primary elements of the 2020 Coachella Valley RUWMP and the 2020 MC Alternative Plan Update, including source substitution, water conservation, and purchases of additional water supplies.

5.4.5 SWP and Colorado River Water

The Coachella Valley Groundwater Basin has the capacity to meet the Project's needs and future demands presented in the 2020 Coachella Valley RUWMP and the 2020 MC Alternative Plan Update. If additional conservation and/or supply limitations are necessary, the Project would adhere to any and all limitations associated with this potential reduction in supply.

5.5 Impacts to Other Projects

The Green Day Village Development is within the projected water demands of the 2020 Coachella Valley RUWMP and should not have a significant impact on other potable and non-potable water user. In addition, the Project will not affect the water supply for future housing projects.

The Project will comply with MSWD's Water Efficient Landscaping Guidelines. Based on the findings of the WSV, it is expected that the impacts to the groundwater basin are fully mitigated.

5.6 Rights to Groundwater

While none of the groundwater basins in the Coachella Valley are adjudicated, both the MCSB and ISB have been identified under the Sustainable Groundwater Management Act (SGMA) as medium-priority basins. Nevertheless, there are no legal agreements limiting MSWD's pumping from any of the subbasins. The District has been dependent upon groundwater as its only source of domestic water supply for several decades and can continue to do so for needed supply of the Project.

5.7 Verification

This WSV provides verification that adequate water supply for the Project is available, as required by California Government Code Section 66473.7.

SECTION 6
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SECTION 7
ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
AF	Acre Feet
AFY	Acre Feet per Year
APA	Administrative Procedure Act
BDCP	Bay Delta Conservation Plan
BIOps	Biological Opinions
BOR	Bureau of Reclamation
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CIP	Capital Improvement Plan
CR	Colorado River
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
CVAG	Coachella Valley Association of Governments
CVP	Central Valley Project
CVRWMG	Coachella Valley Regional Water Management Group
CVSC	Coachella Valley Stormwater Channel
CVWD	Coachella Valley Water District
CVWMP	Coachella Valley Water Management Plan
CWA	Coachella Water Authority
CWC	California Water Code
DFW	Department of Fish and Wildlife
DHS	Desert Hot Springs
DHSSB	Desert Hot Springs Subbasin
DMM	Demand Management Measures
DWR	California Department of Water Resources
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FWS	Fish and Wildlife Service
GHSA	Garnet Hill Subarea
GPCD	Gallons per Capita per Day
GPD	Gallons per Day
GPM	Gallons per Minute
HDR	High Density Residential
ID	Improvement District
IID	Imperial Irrigation District
IRWMP	Integrated Regional Water Management Plan
ISB	Indio Subbasin
IWA	Indio Water Authority

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