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# 1 Introduction

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This analysis of water supply feasibility has been completed for SPEC Services, Inc (SPEC) by D. Edwards, Inc. (DEI) with the assistance of Rincon Consultants, Inc. (Rincon), in support of the Proposed Southern California Gas Company (SoCalGas) Hydrogen (H<sub>2</sub>) System (“proposed project”). Five potential hydrogen production areas are being considered under the proposed project. The analysis provided herein is specific to the Whitewater (System 3) and Blythe (System 4) proposed production areas; other proposed production areas are assessed for water supply feasibility in respective reports, similar to the scope and content of this report.

## 1.1 Purpose

The purpose of this study is to identify and characterize existing water supply sources in the Whitewater and Blythe areas of Southern California, and assess the potential feasibility of existing sources to meet the water demands of the proposed project at the Whitewater and Blythe production sites.

## 1.2 Approach

The approach for analysis of water supply feasibility for the Whitewater and Blythe sites uses a combined study area for these two sites, as defined below in Section 1.2.1; [REDACTED]

[REDACTED] using this combined study area approach, Section 2, *Water Supply Background*, first characterizes the water supply setting currently applicable to the study area. Section 3, *Water Demands and Comparison*, then considers the proposed project’s potential water demand scenarios (Low, Medium, and High) against the water supply background discussion from Section 2. Reasonable assumptions have been developed where necessary to address a lack of data; the assumptions are identified in the analysis.

### 1.2.1 Study Area/Scope of Analysis

The geographic scope of this analysis was determined based upon the water supply sources available to the proposed production sites in Whitewater and Blythe, as outlined below and detailed in Section 2, *Water Supply Background*.

- 1) State Water Project (SWP) Low Desert Region. The Low Desert Region of the SWP System is included in the study area for this analysis to quantify the total amount of SWP water imported to this area and potentially available to the Whitewater and Blythe production areas. This scope of analysis does not include the High Desert Region of the SWP System, which is located to the north and west of the Low Desert Region, and includes the proposed project’s Whitewater production site.
- 2) Coachella Valley Regional Urban Water Management Plan (RUWMP) Agencies and Groundwater. The area addressed by the Coachella Valley RUWMP includes the service areas of all six participating agencies, as listed below and shown on Figure 2:
  - Coachella Valley Water District (CVWD)

- Coachella Water Authority & Sanitary District (CWA&SD)
- Desert Water Agency (DWA)
- Indio Water Authority (IWA)
- Mission Springs Water District (MSWD)
- Myoma Dunes Mutual Water Company (MDMWC)

The Coachella Valley RUWMP addresses urban water uses associated with the potable and recycled water distribution systems operated by each of the six participating agencies. Groundwater in the Coachella Valley RUWMP area consists of the Coachella Valley Groundwater Basin, which is managed on the subbasin-level for compliance with the Sustainable Groundwater Management Act (SGMA). Due to extensive groundwater management activities that were already ongoing when SGMA was passed in 2014, there were existing planning and management documents in place, which were submitted to and approved by the DWR for use as SGMA Alternative Plans, in place of a Groundwater Sustainability Plan (GSP) that would otherwise be required for SGMA compliance. CVWD and DWA are both part of the Groundwater Sustainability Agency (GSA) for the Mission Springs Subbasin, and the GSA Management Committee for the Indio (Whitewater) Subbasin, for SGMA compliance. The SGMA Alternative Plan Updates address all water uses within the Mission Creek and Indio Subbasins, respectively, including uses of groundwater, imported water, and local surface water by agriculture, golf courses, and other private pumpers, and [REDACTED]

- 3) Palo Verde Irrigation District (PVID) and Groundwater. The City of Blythe is located within the PVID service area, along the southern-most extent of the Colorado River in California. Water supply sources in Blythe are limited to the Colorado River or tributaries to the Colorado River, and locally managed groundwater. [REDACTED]

[REDACTED] Specifically, the study area for this analysis includes the PVID service area, to capture all surface waters including from the Colorado River, and the underlying groundwater resources as shown on Figure 6. [REDACTED]

The figures below provide an overview of the geographic areas comprising this scope of analysis, including: the SWP Low Desert Region (Figure 1); the service area boundaries of all six agencies participating in the Coachella Valley RUWMP (Figure 2); the boundaries of the subbasins comprising the Coachella Valley Groundwater Basin which underlies Whitewater (Figure 3); the service area boundaries of the PVID (Figure 4); and the overall boundaries of the Upper Basin and Lower Basin of the Colorado River watershed (Figure 5).

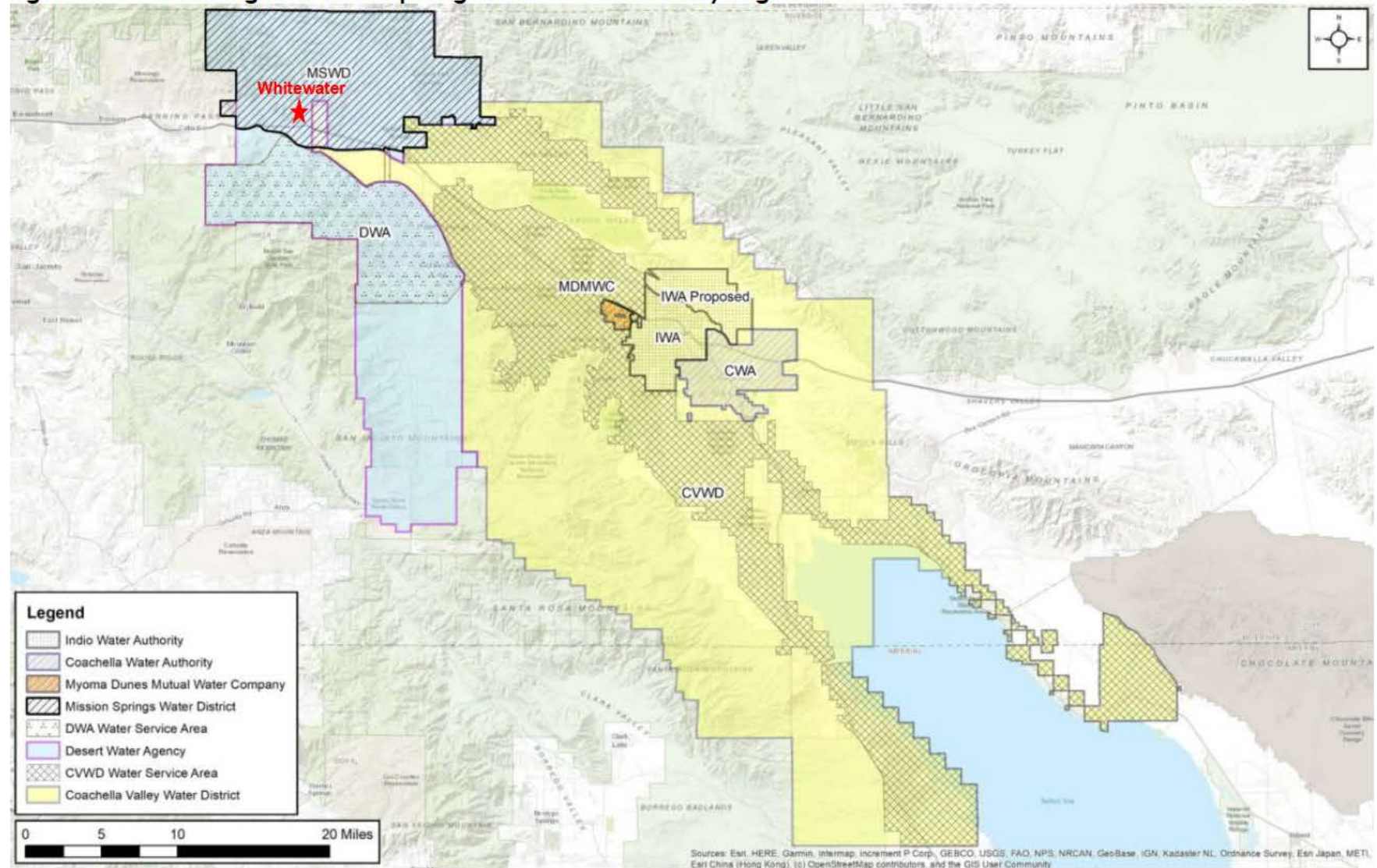
**Figure 1 Desert Regions of the State Water Project System**

Source: SWC 2021

As shown in Figure 1, Whitewater is located within the SWP Low Desert Region, while Blythe is located to the east, not within an existing SWP Region. However, either location may receive imported SWP water for consumptive use, if the water is purchased from a SWP wholesale agency. CVWD and DWA are both SWP wholesale agencies in the Low Desert Region.

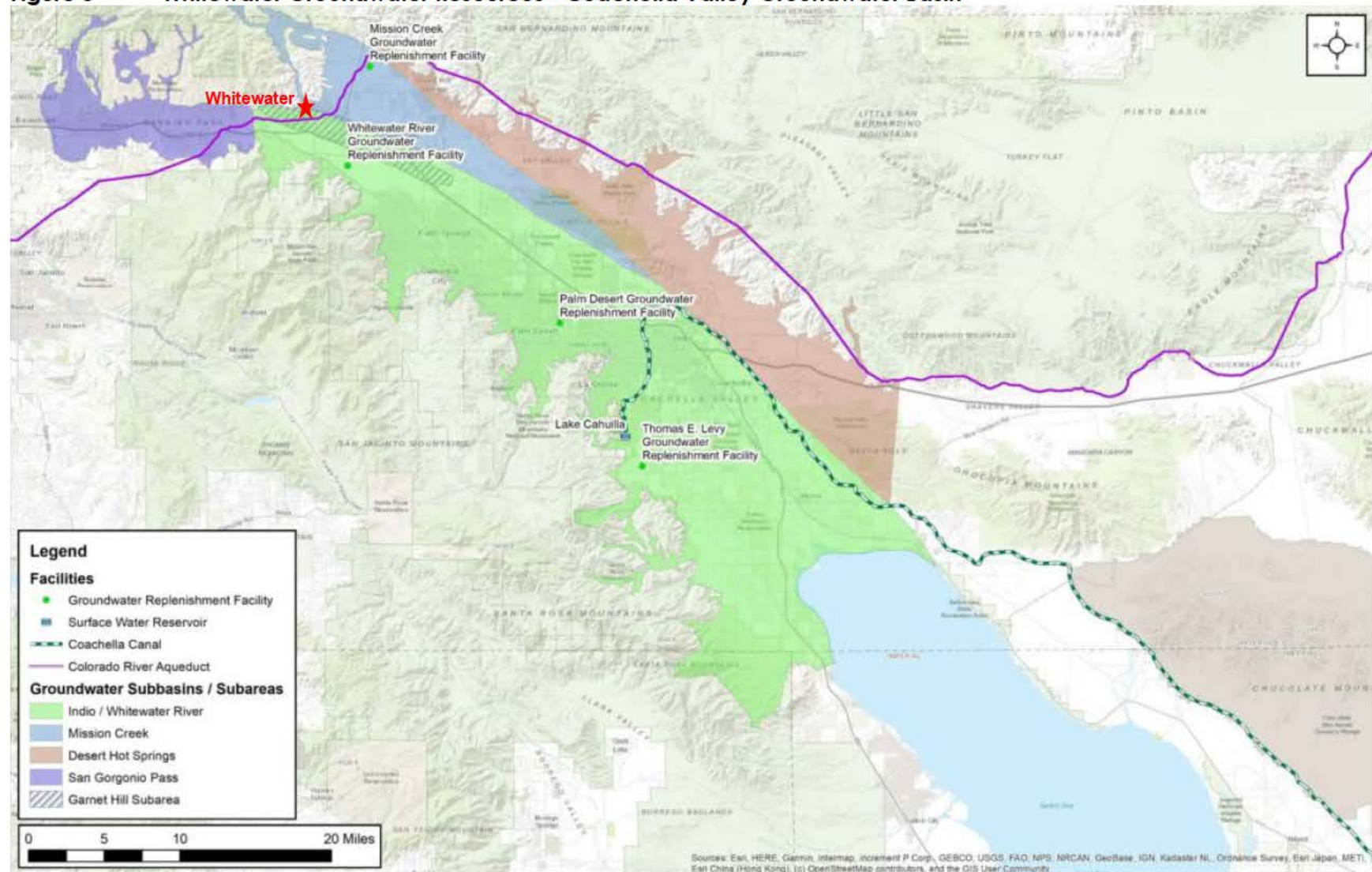
Figure 2 provides the service area boundaries of the six water agencies participating in the Coachella Valley RUWMP, while Figure 3 provides the boundaries of the subbasins comprising the Coachella Valley Groundwater Basin, which underlies the Whitewater area.

**Figure 2 Water Agencies Participating in the Coachella Valley Regional UWMP**



Source: CVWD 2021a

**Figure 3      Whitewater Groundwater Resources - Coachella Valley Groundwater Basin**



Source: CVWD 2021a

Comparison of the three areas shown on the figures above indicates that all three cover approximately the same geographic scope, including the SWP Low Desert Region, the Coachella Valley RUWMP participating agencies, and the Coachella Valley Groundwater Basin. The study area for this analysis also includes PVID, shown in Figure 4.

**Figure 4 Palo Verde Irrigation District (PVID) Service Area**



Source: Metropolitan 2018

Figure 4 indicates that Colorado River water in Blythe is diverted from the main stem of the river (not from the Colorado Aqueduct, which is owned and operated by Metropolitan). Also, as shown in Figure 4, the Colorado River forms the boundary between the states of California and Arizona, with Blythe and PVID located on the California side of the river. Figure 5 provides an overview of the Colorado River watershed, including the Lower Basin and the Upper Basin.

The Lower Basin states (of the Colorado River watershed), have a guaranteed base allocation of 7.5 million acre-feet per year (MAFY) of Colorado River water; of this total, 4.4 MAFY (59 percent) is allocated to California, 2.8 MAFY (37 percent) is allocated to Arizona, and 300,000 AFY (four percent) is allocated to Nevada, with the states dividing any surplus water among them (CRS 2021). The geographic scope of this analysis does not include Arizona water supply, as discussed following Figure 5.

**Figure 5 Colorado River Watershed**

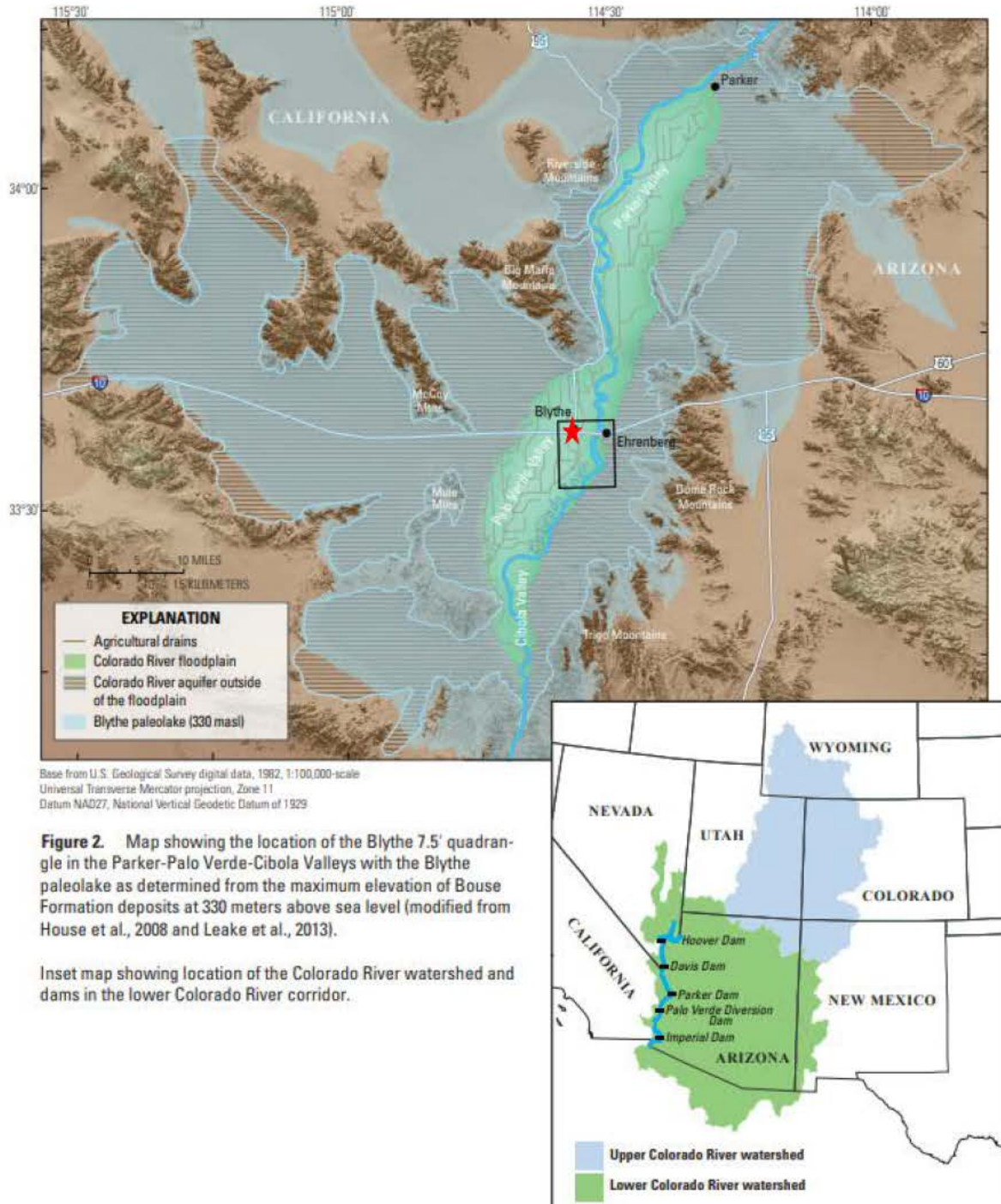


Source: CRS 2021

As shown above, nearly the entire state of Arizona is contained within the Colorado River watershed; therefore, surface water and groundwater resources within the state are generally

considered to be hydrologically connected to the Colorado River, and not available for consumptive use in California unless done so in accordance with Colorado River water allocations, as discussed further below Figure 6, which outlines the boundaries of Colorado River water present as groundwater outside the primary floodplain of the Colorado River.

**Figure 6 Colorado River Aquifer Outside the Colorado River Floodplain in Blythe**



Source: AZGS 2019

As shown above, groundwater underlying Blythe is managed as hydrologically connected to the Colorado River, in accordance with allocations of Colorado River water as provided by the federal Colorado River Compact of 1922 and the *Law of the River*. The *Law of the River* includes the suite of laws, regulations, and court decisions that define how Colorado River water is allocated and prioritized among the basin states (CRS 2021). Colorado River water is managed by the U.S. Bureau of Reclamation (USBR). For the purposes of the study area as defined for this analysis, Colorado River water is assessed as follows:

- [REDACTED]
- [REDACTED]

As detailed in Section 2, Colorado River water supplies have historically been over-used, which has led to extensive conflicts over water rights that have increased as the effects of climate change have decreased water supply availability and reliability. [REDACTED]

[REDACTED]

### 1.2.2 Potential Demand Scenarios

In order to characterize the feasibility of water supply for the potential production sites in Whitewater and Blythe, the scale of the project's potential water demands must be considered. At this stage of analysis, water demands of the project are based upon general assumptions. The estimates below provide an overview of the scale of the project's water demands, estimated as a factor of the total amount of hydrogen produced, and identified for three potential production scenarios (Low, Medium, High). [REDACTED]

[REDACTED] the potential scale of these demands is summarized in Table 1 for the three potential production scenarios.

**Table 1 Potential Water Demand Scenarios**

| Production Scenario | Daily Demand<br>(acre-feet/day) <sup>1</sup> | Daily Demand<br>(million gallons/day [MGD]) | Annual Demand<br>(AFY) |
|---------------------|----------------------------------------------|---------------------------------------------|------------------------|
| Low                 | [REDACTED]                                   |                                             |                        |
| Medium              |                                              |                                             |                        |
| High                |                                              |                                             |                        |
| <sup>1</sup>        | [REDACTED]                                   |                                             |                        |

The overview of scale provided above does not account for cooling water requirements, water quality treatment requirements, or system flow rates which will be quantified as project design details progress. It is possible that the water quality treatment system (most likely a combined reverse osmosis [RO] and deionization [DI] system) could require between [REDACTED]

## 2 Water Supply Background

This section provides an overview of the water supply projects, systems, and managing agencies that produce and convey water supply throughout Southern California, specifically with respect to the proposed Whitewater and Blythe production sites. The purpose of this section is to provide sufficient information to characterize the water supply scenario that defines water supply availability and reliability in the Whitewater and Blythe areas. Specifically, this section provides an overview of the major water supply projects and systems summarized in Table 2 below. The following sections expand upon the projects identified below, including discussion of water rights entitlements or allocations, where relevant to the discussion of water supply availability. However, the information and discussion provided below does not constitute analysis of water rights availability, or support procurement of water rights for the proposed project.

Section 3, *Water Demands and Comparison*, includes analysis of the project's water demands in comparison to anticipated water supply availability.

**Table 2 Overview of Water Supply Projects in the Whitewater and Blythe Areas**

| Water Supply Project   | Infrastructure          | Management                                                   | Source Water                                                             | Key Summary Data                                                                                                                                                                                                                                                                                                                           |
|------------------------|-------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| State Water Project    | California Aqueduct     | State – DWR                                                  | Sacramento-San Joaquin Delta (surface runoff)                            | <b>131,678 AFY</b><br>= 2021 SWP allocations (5% of Table A amounts) to be conveyed in the California Aqueduct to all Southern California SWP contractors<br><b>9,708 AFY</b><br>= 2021 SWP allocations to CVWD and DWA (Low Desert Region)                                                                                                |
| Colorado River Project | Colorado River Aqueduct | Federal – USBR; State – Multiple; Local – PVID, Metropolitan | Colorado River Lower Basin (surface runoff & conjunctive use management) | <b>330,000 AFY</b><br>= total authorized diversions from Colorado River Lower Basin to CVWD via the Coachella Canal for municipal demands<br><b>33,000 – 133,000 AFY</b><br>= diversions from PVID to Metropolitan provided by fallowing irrigated agriculture (and not consuming that water such that it can be consumed by Metropolitan) |

**Notes:**

AFY = acre-feet per year; CVP = Central Valley Project; DWR = Department of Water Resources; ; Metropolitan = Metropolitan Water District of Southern California; SWP = State Water Project; USBR = U.S. Bureau of Reclamation

Multiple agencies are involved in water supply management, including rights allocations and supply entitlements. Table 3 provides an overview of the key agencies and their primary responsibilities as related to water supply throughout Southern California, including the Whitewater and Blythe areas.

**Table 3 Agencies Involved in California Water Supply Management**

| <b>Federal</b>                                    | <b>Responsibility</b>                                                                                                                        |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| U.S. Department of the Interior (DOI)             | Watermaster for the Colorado River                                                                                                           |
| U.S. Bureau of Reclamation (USBR)                 | Administers the Central Valley Project and Colorado River Project (among others)                                                             |
| U.S. Fish and Wildlife Service (USFWS)            | Administers the federal Endangered Species Act (ESA) for inland fish species                                                                 |
| National Marine Fisheries Service (NMFS)          | Administers federal ESA for salmon, steelhead trout, and other species that spend at least part of their lives in the ocean                  |
| U.S. Environmental Protection Agency (USEPA)      | Regulates water quality through the Clean Water Act, Safe Drinking Water Act, Resource Conservation and Recovery Act, and other federal laws |
| U.S. Army Corps of Engineers (USACE)              | Builds and oversees flood control systems and flood operations of most reservoirs                                                            |
| Federal Emergency Management Agency (FEMA)        | Operates the National Flood Insurance Program                                                                                                |
| Federal Energy Regulatory Commission (FERC)       | Licenses and regulates dams that produce hydropower                                                                                          |
| <b>State</b>                                      | <b>Responsibility</b>                                                                                                                        |
| State Water Resources Control Board (SWRCB)       | Permits and administers state surface water rights and regulates water quality                                                               |
| California Department of Water Resources (DWR)    | Administers the State Water Project and oversees state water planning and state flood control operations                                     |
| California Department of Fish and Wildlife (CDFW) | Implements California fish protection laws and the state Endangered Species Act                                                              |
| California Department of Public Health            | Regulates drinking water quality (utilities, devices)                                                                                        |
| Central Valley Flood Protection Board             | Permits construction and modification of levees within the Central Valley                                                                    |
| California Public Utilities Commission            | Regulates water rate structures for private water utilities (20 percent of urban customers)                                                  |

In addition to the federal and state agencies involved in California water supply management, as listed in Table 2 above, there are also local and regional agencies involved in water supply management.

Multiple other SWP contractors exist in Southern California, including the Metropolitan Water District of Southern California (MWD or “Metropolitan”). Metropolitan also owns and operates the Colorado River Aqueduct, which conveys Colorado River water from the Lower Basin (of the Colorado River watershed) for more than 200 miles to the west, to Metropolitan’s service area.

## 2.1 State Water Project (SWP) Low Desert Region

The California Aqueduct is a primary feature of the SWP, and conveys SWP water from the Sacramento-San Joaquin Bay-Delta (“Delta”) in Northern California to SWP contractors in Southern California. The SWP is a multi-purpose water storage and delivery system comprised of canals, pipelines, reservoirs, and power facilities throughout California. The SWP is managed and operated by the California DWR, which holds SWP contracts with 29 SWP contractors for annual delivery of specific allocations of SWP water. Each SWP contractor has a set “Table A” allocation, which is an initial allocation of SWP water that is assigned to each SWP contractor, based upon storage and releases anticipated to be made in the SWP system throughout the year; the actual amount of SWP water available for delivery varies each year, depending on factors including drought conditions, and environmental demands on the Delta. This is discussed below in Section 2.1.1, *SWP Allocations*.

The SWP was designed to deliver up to 4.2 million acre-feet per year (MAFY) of water throughout the system. Between 1988 and 2017, agricultural water use in the San Joaquin Valley exceeded sustainable supplies by nearly 2 MAFY. During this same period, Southern California SWP contractors received an average of approximately 1.3 MAFY of SWP water via the California Aqueduct (PPIC 2020). On average, Southern California deliveries of SWP water increased by roughly 400,000 AFY, primarily due to Southern California’s increased ability to take and store water it had rights to under long-standing SWP contracts, thanks to investments in surface storage (e.g., construction of Diamond Valley Lake) and underground storage (PPIC 2020).

SWP supplies have become an increasingly important portion of Southern California’s water supply portfolio starting in the early 2000s, as the region was required to reduce its reliance on Colorado River flows (PPIC 2020). Colorado River water supplies available in the Whitewater area are discussed in Section 2.2.2, *Colorado River Water via Coachella Canal*, and Colorado River water supplies available in Blythe are detailed in Section 2.3, *PVID and Colorado River Water*.

### 2.1.1 2021 SWP Allocations

Southern California is the largest urban user of Delta exports, where “Delta exports” refers to the total amount of water exported from the pumps at the south of the Sacramento–San Joaquin Delta to the Bay Area, the San Joaquin Valley, the Central Coast, and Southern California (PPIC 2020). Once this water reaches southern California, it is referred to as “Delta imports”. All agencies that receive SWP water directly from the SWP system, i.e., diverting SWP water from the California Aqueduct, are SWP contractors that hold a SWP contract with the DWR for the delivery of a specific amount of SWP water each year (“Table A”). There are 29 SWP contractors throughout the state; these are wholesale water agencies that in turn, hold contracts with their own member agencies for delivery of a portion of the wholesale agency’s (SWP contractor) allocation of SWP water. However, the actual amount of each SWP contractor’s allocation of SWP water that is delivered each year varies, largely depending on environmental conditions.

The California DWR operates and manages the overall SWP system. Since 1996, the DWR has issued a Notice to Contractors (NTC) to all SWP contractors at least once per year, and more frequently depending upon real-time water availability issues, to notify all SWP contractors of their approved allocation of SWP water as of the date of the NTC, where the approved allocation represents a

percentage of the original Table A allocation. Records of historical SWP allocations approved as a percentage of original Table A allocations for water years 1996 through 2020 indicate that SWP deliveries have ranged from zero to 100 percent of each SWP contractor's Table A amounts, depending on the year (DWR 2021a).

The March 2021 NTC notified SWP contractors that **five percent of the original Table A allocations** are available for delivery in 2021 (DWR 2021b). Table 5 identifies the reduced allocations authorized to SWP Low Desert Region contractors in 2021, followed by Table 5, which details approved allocations for all SWP contractors.

**Table 4 Summary of 2021 SWP Low Desert Region Allocations**

| SWP Contractor                     | Service Area Size                         | 2021 SWP Allocation |
|------------------------------------|-------------------------------------------|---------------------|
| Coachella Valley Water District    | 1,000 square miles (640,000 acres)        | 6,918 AFY           |
| Desert Water Agency                | 325 square miles (208,000 acres)          | 2,788 AFY           |
| <b>Total for Low Desert Region</b> | <b>1,325 square miles (848,000 acres)</b> | <b>9,708 AFY</b>    |

As shown above, based on the March 2021 NTC from DWR, the cumulative total of approved SWP allocations to contractors in the Low Desert Region of the SWP System was **9,708 AFY** as of March 2021, which represents five percent of the contracted Table A allocations. This 95-percent difference between the original Table A allocations and the approved allocation amounts demonstrates the issue of “paper water”, which is an amount of water that a party is legally entitled to use (i.e., the original Table A allocation for each SWP contractor as defined in the respective SWP Water Supply Contracts), which is not the same as the amount of water that is physically available for use during any given year. The DWR addresses the difference between paper water and physical water by issuing NTCs which specify the total amount of water that is physically available to SWP contractors based on current SWP conditions. As shown below, for 2021, the DWR has determined that only five percent of the “paper water” Table A allocations is physically available for delivery to SWP contractors. This cutback to five percent is a further restriction on the 2020 SWP cutbacks, under which SWP contractors received up to 15 percent of their Table A allocations (DWR 2021b).

Table 5, on the following page, indicates that in 2021, the total amount of SWP water allocated for delivery to all Southern California SWP contractors is **131,678 acre-feet**. This total will be distributed amongst the 13 Southern California SWP contractors throughout the year, and conveyed to each of the contractors via the California Aqueduct. Figure 1 identifies those SWP contractors located in the SWP High Desert Region and Low Desert Region, respectively; as described above, the Whitewater area is within the SWP Low Desert Region, where the SWP wholesale agencies include CVWD and DWA, both of which are adjacent to the south of the MSWD within which Whitewater is located.

As mentioned above and shown in Table 5, the Whitewater area is located within the service area of the MSWD, adjacent to the service areas of CVWD and DWA, both of which are SWP wholesalers. Table 4 identifies the 2021 SWP allocations for all 29 SWP contractors, including CVWD and DWA, which are the only SWP wholesalers in the Low Desert Region.

Table 5 State Water Project 2021 Allocations Approved for Delivery (acre-feet)

| SWP CONTRACTORS                   | TABLE A          | INITIAL REQUEST  | APPROVED ALLOCATION | PERCENT INITIAL REQUEST APPROVED<br>(3)/(2) |
|-----------------------------------|------------------|------------------|---------------------|---------------------------------------------|
|                                   | (1)              | (2)              | (3)                 | (4)                                         |
| <b><u>FEATHER RIVER</u></b>       |                  |                  |                     |                                             |
| County of Butte                   | 27,500           | 27,500           | 3,000               | 11%                                         |
| Plumas County FC&WCD              | 2,700            | 2,700            | 135                 | 5%                                          |
| City of Yuba City                 | 9,600            | 9,600            | 480                 | 5%                                          |
| <b>Subtotal</b>                   | <b>39,800</b>    | <b>39,800</b>    | <b>3,615</b>        |                                             |
| <b><u>NORTH BAY</u></b>           |                  |                  |                     |                                             |
| Napa County FC&WCD                | 29,025           | 29,025           | 1,451               | 5%                                          |
| Solano County WA                  | 47,756           | 47,756           | 2,388               | 5%                                          |
| <b>Subtotal</b>                   | <b>76,781</b>    | <b>76,781</b>    | <b>3,839</b>        |                                             |
| <b><u>SOUTH BAY</u></b>           |                  |                  |                     |                                             |
| Alameda County FC&WCD, Zone 7     | 80,619           | 80,619           | 4,031               | 5%                                          |
| Alameda County WD                 | 42,000           | 42,000           | 2,100               | 5%                                          |
| Santa Clara Valley WD             | 100,000          | 100,000          | 5,000               | 5%                                          |
| <b>Subtotal</b>                   | <b>222,619</b>   | <b>222,619</b>   | <b>11,131</b>       |                                             |
| <b><u>SAN JOAQUIN VALLEY</u></b>  |                  |                  |                     |                                             |
| Oak Flat WD                       | 5,700            | 5,700            | 285                 | 5%                                          |
| County of Kings                   | 9,305            | 9,305            | 465                 | 5%                                          |
| Dudley Ridge WD                   | 41,350           | 41,350           | 2,068               | 5%                                          |
| Empire West Side ID               | 3,000            | 3,000            | 150                 | 5%                                          |
| Kern County WA                    | 982,730          | 982,730          | 49,137              | 5%                                          |
| Tulare Lake Basin WSD             | 87,471           | 87,471           | 4,374               | 5%                                          |
| <b>Subtotal</b>                   | <b>1,129,556</b> | <b>1,129,556</b> | <b>56,479</b>       |                                             |
| <b><u>CENTRAL COASTAL</u></b>     |                  |                  |                     |                                             |
| San Luis Obispo County FC&WCD     | 25,000           | 25,000           | 1,250               | 5%                                          |
| Santa Barbara County FC&WCD       | 45,486           | 45,486           | 2,274               | 5%                                          |
| <b>Subtotal</b>                   | <b>70,486</b>    | <b>70,486</b>    | <b>3,524</b>        |                                             |
| <b><u>SOUTHERN CALIFORNIA</u></b> |                  |                  |                     |                                             |
| Antelope Valley-East Kern WA      | 144,844          | 144,844          | 7,242               | 5%                                          |
| Santa Clarita Valley WA           | 95,200           | 95,200           | 4,760               | 5%                                          |
| Coachella Valley WD               | 138,350          | 138,350          | 6,918               | 5%                                          |
| Crestline-Lake Arrowhead WA       | 5,800            | 5,800            | 290                 | 5%                                          |
| Desert WA                         | 55,750           | 55,750           | 2,788               | 5%                                          |
| Little Rock Creek ID              | 2,300            | 2,300            | 115                 | 5%                                          |
| Metropolitan WDSC                 | 1,911,500        | 1,911,500        | 95,575              | 5%                                          |
| Mojave WA                         | 89,800           | 89,800           | 4,490               | 5%                                          |
| Palmdale WD                       | 21,300           | 21,300           | 1,065               | 5%                                          |
| San Bernardino Valley MWD         | 102,600          | 102,600          | 5,130               | 5%                                          |
| San Gabriel Valley MWD            | 28,800           | 28,800           | 1,440               | 5%                                          |
| San Geronio Pass WA               | 17,300           | 17,300           | 865                 | 5%                                          |
| Ventura County WPD                | 20,000           | 20,000           | 1,000               | 5%                                          |
| <b>Subtotal</b>                   | <b>2,633,544</b> | <b>2,633,544</b> | <b>131,678</b>      |                                             |
| <b>TOTAL</b>                      | <b>4,172,786</b> | <b>4,172,786</b> | <b>210,266</b>      |                                             |

Source: DWR 2021b

Notes:

- (1) "Table A" refers to a fixed amount of SWP water that is allocated to each SWP contractor in its original Water Supply Contract with the DWR. Each of the 29 SWP contractors have a separate Table A allocation that remains constant each year. However, the amount of water that is physically available in the SWP system changes every year, depending on factors including environmental (drought) conditions, and other uses of water in the SWP system. This Table A column identifies the original, annual allocation of SWP water for each SWP contractor.

- (2) “Initial Request” refers to an annual request submitted by SWP contractors to the DWR, which requests all or a portion of each respective contractor’s allocation of SWP water (Table A allocation). As mentioned above, Table A allocation amounts are fixed, but the actual amount of water that is physically available for delivery varies every year. SWP contractors who have signed the *Monterey Amendment* [to SWP Water Supply Contracts] may sell water from their annual Table A allocation to other SWP contractors, in accordance with the *Turn-Back Water Pool Program*, which is an annual program offered by the DWR in compliance with Article 56 of the SWP Water Supply Contracts. The *Monterey Amendment* of 1994 allows for excess flows (of SWP water allocated to SWP contractors) during wet years to be stored in groundwater banks and surface storage reservoirs, for use at a later time, or for environmental benefit on the Delta (WEF 2021a). A SWP contractor may choose to sell portions of its Table A allocation that it will not use, provided that the SWP contractor meets the following criteria: (a) the contractor has not elected to store project water outside of its service area in 2021, and (b) the contractor has not elected to carry over Table A water from 2020 pursuant to Article 12(e) or Article 56 of its Water Supply Contract. This Initial Request column is the amount of each SWP contractor’s Table A allocation the contractor is requesting the DWR to provide. If a SWP contractor were to participate in the *Turn-Back Water Pool Program*, the Initial Request column would indicate an amount lower than the Table A column, i.e., the contractor would be requesting less water than it is allocated because it intends to sell the portion of its allocation that it doesn’t need to other SWP contractor(s) for their beneficial use. As shown above, in 2021, all SWP contractors requested their full Table A allocation from the DWR.
- (3) “Approved Allocation” refers to the actual physical amount of water that the DWR will deliver to each SWP contractor for the respective year. Sales and purchases of SWP water that may occur under the *Turn-Back Water Pool Program* do not affect the 2021 allocation of Table A water to any SWP contractors. As shown above, in 2021 the cumulative total amount of SWP water that DWR will provide to all 29 SWP contractors is 210,266 acre-feet, of which 131,678 acre-feet will be provided to Southern California SWP contractors.
- (4) “Percent Initial Request Approved” refers to the percentage of each SWP contractor’s original Table A allocation that is physically available for delivery to the respective contractors for the current year. The table above shows that for 2021, with the exception of Butte County, which will receive 11 percent of its original Table A allocation, the remaining 28 SWP contractors will each receive 5 percent of their Table A allocation.

## 2.1.2 Historic SWP Allocations

To demonstrate the variability in the actual amount of Table A allocations that are delivered to SWP contractors each year, Table 6, below, provides an overview of the approved Table A allocation amounts over the past 20 years, where the “approved amount” is a percentage of the original Table A allocations, and represents the amount of water that is physically available for delivery at the date the notice of allocation reduction was provided (shown in the middle column below). The last column in Error! Reference source not found. uses shading to indicate the following:

- red = SWP allocations were 0-25% of original Table A allocations
- orange = SWP allocations were 26-50% of original Table A allocations
- yellow = SWP allocations were 51-75% of original Table A allocations
- green = SWP allocations were 76-100% of original Table A allocations

In the categories listed above and shown below, the SWP allocations representing a percentage of the total original Table A allocation (last column) is the amount of water that was physically available for delivery to SWP contractors at the date of the notice of the respective change in allocation amount (center column).

**Table 6 State Water Project Historical Table A Allocations**

| Year | Date of NTC to SWP Contractors <sup>1</sup> | Percentage of Original Table A Allocation Approved for Delivery |
|------|---------------------------------------------|-----------------------------------------------------------------|
| 2021 | March 23                                    | 5                                                               |
|      | December 1                                  | 10                                                              |
| 2020 | May 22                                      | 20                                                              |
|      | January 24                                  | 15                                                              |

Southern California Gas Company  
**Proposed SoCalGas H2 System**  
**Water Supply Analysis**

| Year | Date of NTC to SWP Contractors <sup>1</sup> | Percentage of Original Table A Allocation<br>Approved for Delivery |
|------|---------------------------------------------|--------------------------------------------------------------------|
| 2019 | December 2                                  | 10                                                                 |
|      | June 19                                     | 75                                                                 |
|      | March 20                                    | 70                                                                 |
|      | February 20                                 | 35                                                                 |
|      | January 25                                  | 15                                                                 |
| 2018 | November 30                                 | 10                                                                 |
|      | May 21                                      | 35                                                                 |
|      | April 24                                    | 30                                                                 |
|      | January 29                                  | 20                                                                 |
| 2017 | November 29                                 | 15                                                                 |
|      | April 14                                    | 85                                                                 |
|      | January 18                                  | 60                                                                 |
| 2016 | December 21                                 | 45                                                                 |
|      | November 28                                 | 20                                                                 |
|      | April 21                                    | 60                                                                 |
|      | March 17                                    | 45                                                                 |
|      | February 24                                 | 30                                                                 |
|      | January 26                                  | 15                                                                 |
|      | December 1                                  | 10                                                                 |
| 2015 | March 2                                     | 20                                                                 |
|      | January 15                                  | 15                                                                 |
|      | December 1                                  | 10                                                                 |
| 2014 | April 18                                    | 5                                                                  |
|      | January 31                                  | 0                                                                  |
|      | November 19                                 | 5                                                                  |
| 2013 | March 22                                    | 35                                                                 |
|      | December 21                                 | 40                                                                 |
|      | November 29                                 | 30                                                                 |
| 2012 | May 23                                      | 65                                                                 |
|      | April 16                                    | 60                                                                 |
|      | February 21                                 | 50                                                                 |
|      | November 18                                 | 60                                                                 |
|      | April 20                                    | 80                                                                 |
| 2011 | March 15                                    | 70                                                                 |
|      | January 20                                  | 60                                                                 |
|      | December 20                                 | 60                                                                 |
|      | November 22                                 | 25                                                                 |
|      | June 22                                     | 50                                                                 |
| 2010 | May 20                                      | 45                                                                 |

| Year | Date of NTC to SWP Contractors <sup>1</sup> | Percentage of Original Table A Allocation<br>Approved for Delivery |
|------|---------------------------------------------|--------------------------------------------------------------------|
|      | May 3                                       | 40                                                                 |
|      | April 22                                    | 30                                                                 |
|      | March 30                                    | 20                                                                 |
|      | February 23                                 | 15                                                                 |
| 2009 | November 30                                 | 5                                                                  |
|      | May 20                                      | 40                                                                 |
|      | April 15                                    | 30                                                                 |
|      | March 18                                    | 20                                                                 |
| 2008 | October 29                                  | 15                                                                 |
|      | February 1                                  | 35                                                                 |
| 2007 | November 21                                 | 25                                                                 |
| 2006 | November 30                                 | 60                                                                 |
|      | April 18                                    | 100                                                                |
|      | March 23                                    | 80                                                                 |
|      | January 17                                  | 70                                                                 |
| 2005 | December 14                                 | 65                                                                 |
|      | November 22                                 | 55                                                                 |
|      | May 27                                      | 90                                                                 |
|      | April 21                                    | 80                                                                 |
|      | April 1                                     | 70                                                                 |
|      | January 14                                  | 60                                                                 |
| 2004 | December 1                                  | 40                                                                 |
|      | March 1                                     | 65                                                                 |
|      | January 15                                  | 50                                                                 |
| 2003 | December 1                                  | 35                                                                 |
|      | May 16                                      | 90                                                                 |
|      | April 24                                    | 70                                                                 |
|      | March 26                                    | 50                                                                 |
|      | January 16                                  | 45                                                                 |
| 2002 | December 3                                  | 20                                                                 |
|      | August 23                                   | 70                                                                 |
|      | May 14                                      | 65                                                                 |
|      | March 28                                    | 60                                                                 |
|      | March 22                                    | 55                                                                 |
|      | January 11                                  | 45                                                                 |
| 2001 | November 30                                 | 20                                                                 |
|      | August 16                                   | 39                                                                 |
|      | May 17                                      | 35                                                                 |
|      | May 4                                       | 33                                                                 |
|      | March 15                                    | 30                                                                 |

| Year | Date of NTC to SWP Contractors <sup>1</sup> | Percentage of Original Table A Allocation Approved for Delivery |
|------|---------------------------------------------|-----------------------------------------------------------------|
|      | March 6                                     | 25                                                              |
|      | January 31                                  | 20                                                              |

Source: DWR 2021a; DWR 2021b

Notes:

- (1) NTC = Notice to Contractors; Since 1996, the DWR has provided NTCs to all SWP contractors to notify them of the physical amount of water available to the SWP system, which contractors may expect to receive in their respective systems. NTCs are provided at a minimum once per year, and are issued more frequently as determined necessary based upon known and projected water supply conditions. DWR may issue an NTC at any time, depending on conditions influencing water supply availability.

The following conclusions are derived from the historical data in Table 6, reflecting changes in approved allocations (actual delivery amounts), as represented by a percentage of the original Table A allocations, over the last 20 years:

- **66% of all allocation changes over the past 20 years result in delivery of 50% or less of the original Table A allocations, including 33% of allocation changes resulting in SWP deliveries equivalent to 25% or less of original Table A allocations, and 33% of allocation changes resulting in SWP deliveries equivalent to 26-50% of original Table A allocations.**
- **34% of all allocation changes over the past 20 years result in delivery of 51% or more of the original Table A allocations, including 21% of allocation changes resulting in SWP deliveries equivalent to 51-75% of original Table A allocations, and 9% of all allocation changes resulting in SWP deliveries equivalent to 76% or more of original Table A allocations.**

Over the past 20 years of SWP operations, there was only one recorded occurrence of SWP allocations consisting of the full (100%) amount of Table A allocations (April 2006), while there were four occurrences of 5% allocations (including the current March 2021 rate), and there was one occurrence of 0% allocations (January 2014), under which no deliveries of SWP water occurred.

[REDACTED]

As mentioned above, all SWP water received by SWP contractors in the Low Desert Region is conveyed to the Low Desert Region via the California Aqueduct; once SWP water is diverted from the California Aqueduct by SWP contractors, each respective SWP contractor then conveys SWP water to its own contract holders, including agricultural, municipal, and industrial users.

## 2.2 Coachella Valley RUWMP and Groundwater

The Coachella Valley (RUWMP addresses water supply provided for urban uses by the six participating agencies, via the existing potable and recycled water distribution systems owned and operated by the participating agencies. To characterize the scale of existing water uses in this area, Table 7 provides an overview of predicted non-municipal water uses by Coachella Valley RUWMP participating agencies, between 2020 and 2045. As shown, total water uses for non-urban (non-residential/municipal), non-potable purposes are projected to be approximately 414,505 AFY in 2020, decreasing progressively to approximately 403,449 AFY in 2045. This represents a decrease in non-urban, non-potable water demand of approximately 2.67 percent over 25 years. The water supplies used to meet these demands include locally produced groundwater, as well as water

supplies imported or exchanged through the California SWP or the federal Colorado River system, as detailed below.

Table 7 Non-Municipal Water Use by Coachella Valley RUWMP Agencies

|                                       | 2020    | 2025    | 2030    | 2035    | 2040    | 2045    |
|---------------------------------------|---------|---------|---------|---------|---------|---------|
| Agricultural Irrigation (AFY)         | 290,312 | 287,092 | 283,873 | 280,654 | 277,442 | 274,231 |
| Golf Irrigation (AFY)                 | 105,300 | 106,075 | 106,850 | 107,625 | 107,625 | 107,625 |
| Other Non-Urban Non-Potable Use (AFY) | 18,893  | 21,593  | 21,593  | 21,593  | 21,593  | 21,593  |
| Total Non-Urban Non-Potable Use (AFY) | 414,505 | 414,760 | 412,316 | 409,872 | 406,660 | 403,449 |

**Notes:**

These estimates are from the draft Indio Subbasin Alternative Plan Update and draft Mission Creek Subbasin Alternative Plan Update, which will be submitted to DWR by January 1, 2022.

Source: CVWD 2021a [Table 3-4, Non-Municipal Water Use]

The RUWMP does not address groundwater resources; however, for the purposes of this analysis, groundwater resources underlying the RUWMP participating agencies' service areas are addressed, to provide a thorough characterization of water supply sources in the study area, including:

- Groundwater in the Coachella Valley Groundwater Basin, specifically in the Indio Subbasin and Mission Creek Subbasin;
- Colorado River water imported to CVWD via the Coachella Canal, by the USBR which owns and operates Parker Dam, the Coachella Canal, and the All-American Canal;
- SWP water exchanged for Colorado River water through Metropolitan via the Coachella Canal (from the Colorado River Aqueduct); and
- Recycled water, which is currently produced to replenish groundwater pumped by users including golf courses and residential developments (CVWD 2021a).

## 2.2.1 Groundwater

Groundwater is the principal source of municipal water supply in the Coachella Valley, and is obtained from the Indio and Mission Creek Subbasins of the Coachella Valley Groundwater Basin. The Indio Subbasin groundwater supply is shared by CVWD, DWA, MDMWC, the cities of Indio and Coachella, and numerous private groundwater producers. Mission Creek Subbasin is also a common water supply, utilized by CVWD, MSWD, and private producers (CVWD 2021a). CVWD's total groundwater production from the Indio and Mission Creek Subbasins is presented in Table 8.

Table 8 Coachella Valley Groundwater Produced (AFY) 2016 - 2020

| Groundwater Type | Location or Basin Name | 2016          | 2017          | 2018          | 2019          | 2020          |
|------------------|------------------------|---------------|---------------|---------------|---------------|---------------|
| Alluvial Basin   | Indio Subbasin         | 89,421        | 93,798        | 96,176        | 93,130        | 96,661        |
| Alluvial Basin   | Mission Creek Subbasin | 2,667         | 2,917         | 2,786         | 2,642         | 3,182         |
| <b>Total</b>     |                        | <b>92,088</b> | <b>96,715</b> | <b>98,962</b> | <b>95,772</b> | <b>99,843</b> |

Source: CVWD 2021a

In response to growth, CVWD will gradually increase groundwater production to meet demands. In addition, to manage groundwater overdraft, CVWD is working to convert the larger producers of local groundwater from reliance on groundwater to non-potable water imported via the Coachella Canal, or locally developed recycled water, as feasible (CVWD 2021a).

In addition, the Agua Caliente Band of Cahuilla Indians sued CVWD and DWA in 2013 in the U.S. District Court, Central District of California, alleging that the Tribe has federal reserved rights and aboriginal rights to groundwater for its reservation, and seeking declaratory relief as well as injunctive relief to prevent CVWD and DWA from overdrafting the groundwater and from recharging the groundwater basin with imported water of a lesser quality than the native groundwater (Indio Subbasin GSA 2016; Mission Creek Subbasin GSA 2016). Trial proceedings are ongoing to address unresolved issues related to CVWD and DWA use of Coachella Valley Groundwater Basin water.

## 2.2.2 Colorado River Water via Coachella Canal

California's supply of Colorado River water is defined and protected by the 1968 Colorado River Basin Project Act, which authorized construction of the Central Arizona Project (CAP), and requires that in years of insufficient supply on the main stem of the Colorado River, supplies to the CAP shall be reduced to zero before California will be reduced below 4.4 million acre-feet during any year (CVWD 2021a). As discussed in Section 2.3, *PVID and Colorado River Water*, 4.4 MAFY is California's allocation of the Lower Basin states' 7.5-MAFY shared allocation of Colorado River water (CRS 2021). CVWD has a base (guaranteed) allotment of 330,000 AFY of Colorado River water, as detailed in Table 9.

Table 9 CVWD Colorado River Water Budget under the QSA

| Component                                                                                                                                                                                                                                                                                                                                                                                                            | 2020 Amount (AFY) | 2027 – 2045 Amount (AFY) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------|
| Base Entitlement                                                                                                                                                                                                                                                                                                                                                                                                     | 330,000           | 330,000                  |
| 1988 MWD/IID Approval Agreement                                                                                                                                                                                                                                                                                                                                                                                      | 20,000            | 20,000                   |
| First IID/CVWD Transfer                                                                                                                                                                                                                                                                                                                                                                                              | 50,000            | 50,000                   |
| Second IID/CVWD Transfer <sup>1</sup>                                                                                                                                                                                                                                                                                                                                                                                | 23,000            | 53,000                   |
| Less Coachella Canal Lining (to SDCWA)                                                                                                                                                                                                                                                                                                                                                                               | -26,000           | -26,000                  |
| Less Miscellaneous/Indian Present Perfected Rights                                                                                                                                                                                                                                                                                                                                                                   | -3,000            | -3,000                   |
| QSA Diversions                                                                                                                                                                                                                                                                                                                                                                                                       | 394,000           | 424,000                  |
| MWD/CVWD SWP Transfer <sup>2</sup>                                                                                                                                                                                                                                                                                                                                                                                   | 35,000            | 35,000                   |
| Total Allocations                                                                                                                                                                                                                                                                                                                                                                                                    | 429,000           | 459,000                  |
| Less Conveyance Losses and Regulatory Water <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                             | -26,200           | -22,950                  |
| Total Deliveries to CVWD                                                                                                                                                                                                                                                                                                                                                                                             | 402,800           | 436,050                  |
| <b>Notes:</b><br>1. The Second IID/CVWD Transfer began in 2018 with 13,000 AF of water. This amount increases annually by 5,000 AFY for a total of 53,000 AFY in 2026.<br>2. The 35,000 AFY MWD/CVWD SWP Transfer may be delivered at either Imperial Dam or Whitewater River and is not subject to SWP or Colorado River reliability.<br>3. Conveyance losses (5%) and regulatory water based on historic averages. |                   |                          |

Source: CVWD 2021a

The 330,000-AFY base allocation of Colorado River water provided to CVWD, as detailed above, is directed by the 2003 *Federal Quantification Settlement Agreement* (QSA) between USBR and the State of California, which was also jointly entered into by Metropolitan, San Diego County Water Authority (SDCWA), CVWD, and Imperial Irrigation District (IID) (USBR 2021). The service area for Colorado River water delivery to CVWD under the USBR contract includes most of the East Valley and a portion of the West Valley north of Interstate 10. In addition, under the 1931 California Seven Party Agreement, CVWD has water rights to Colorado River water as part of the first 3.85 MAFY allocated to California; this means that CVWD is in the third-priority position for Colorado River water, a ranking it shares with IID.

The 2003 QSA requires most Colorado River water to be delivered to CVWD at Imperial Dam, via the All-American Canal to the Coachella Canal. The 35,000 AFY Metropolitan-CVWD SWP Transfer noted in Table 9 can also be delivered to the Whitewater Turnout on the Colorado River Aqueduct, where deliveries are subject to a supplemental energy charge for pumping (SWP-Colorado River Exchange via Metropolitan is discussed below in Section 2.2.3). The 35,000 AFY supply is not subject to SWP delivery reliability, rather it is a fixed annual delivery; Metropolitan or CVWD may request a reduction or elimination of delivery in a given year subject to mutual consent, however, no QSA water may be used in the Mission Creek Subbasin (CVWD 2021a).

### 2.2.3 SWP-Colorado River Exchange via Metropolitan

CVWD and DWA use imported SWP water exchanged for imported Colorado River water via Metropolitan to replenish local groundwater supplies in the Indio and Mission Creek Subbasins. Recharge activities with SWP Exchange water commenced in 1973 at the Whitewater River Groundwater Replenishment Facility (WWR-GRF), north of Palm Springs. Recharge activities at this location have varied with the availability of SWP Exchange water. In 2009, CVWD also implemented recharge activities in the East Valley at the Thomas E. Levy Groundwater Replenishment Facility (TEL-GRF) using SWP-Colorado River Exchange supplies. Conservation and source substitution with Coachella Canal water and recycled water are also ongoing strategies to manage groundwater levels throughout the Indio Subbasin. Table 10, below, provides an overview of projected water supplies anticipated to be available in the Indio and Mission Creek Subbasins as a result of the groundwater replenishment activities conducted with SWP-Colorado River Exchange water; this table also describes recycled water supplies, which are further discussed in Section 2.2.4, *Recycled Water*.

Table 10 Projected Water Supply from SWP-Colorado River Exchange

| Water Supply                  | Additional Detail on Water Supply | Projected Water Supply (AFY) |                             |                             |                             |                             |
|-------------------------------|-----------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
|                               |                                   | 2025                         | 2030                        | 2035                        | 2040                        | 2045                        |
|                               |                                   | Reasonably Available Volume  | Reasonably Available Volume | Reasonably Available Volume | Reasonably Available Volume | Reasonably Available Volume |
| Groundwater (not desalinated) | Indio and Mission Creek Subbasins | 123,461                      | 130,582                     | 137,629                     | 143,081                     | 148,166                     |
| Recycled Water                |                                   | 13,600                       | 14,400                      | 15,100                      | 15,900                      | 16,800                      |
| Total                         |                                   | 137,061                      | 144,982                     | 152,729                     | 158,981                     | 164,966                     |

Source: CVWD 2021a

As shown above, between 2025 and 2045, it is anticipated that the amount of water acquired through SWP-Colorado River exchange with Metropolitan for replenishment of the local subbasins

will increase from 123,461 AFY in 2025 to 148,166 AFY in 2045, which represents an increase of approximately 20 percent over 20 years. This Exchange water is specifically used to replenish local groundwater resources, and avoid or minimize adverse effects from over-pumping.

## 2.2.4 Recycled Water

Recycled water is not currently distributed to Coachella Valley municipal customers; rather, it is used to replenish local groundwater resources pumped by golf courses and agricultural users. As shown in Table 10, recycled water supplies available for replenishing groundwater resources in the Coachella Valley are anticipated to increase from 13,600 AFY in 2025 to 16,800 AFY in 2045, an increase of approximately 23.5 percent over 20 years.

Table 11, below, identifies the rate of wastewater (effluent) inflow to each of CVWD’s five active water reclamation plant (WRP) facilities, including WRP-1, WRP-2, WRP-4, WRP-7, and WRP-10, as well as the amount of treated wastewater discharged from each WRP, and the amount of inflow that was recycled for additional use in the area.

**Table 11 Wastewater Treatment and Recycled Water Discharge in 2020**

| Facility     | Wastewater Inflow (AFY) | Discharge of Treated Wastewater (AFY) | Recycled within Service Area (AFY) |
|--------------|-------------------------|---------------------------------------|------------------------------------|
| WRP-1        | 18                      | 18                                    | 0                                  |
| WRP-2        | 13                      | 13                                    | 0                                  |
| WRP-4        | 6,353                   | 5,908                                 | 0                                  |
| WRP-7        | 3,236                   | 1,300                                 | 1,936                              |
| WRP-10       | 9,238                   | 1,716                                 | 7,532                              |
| <b>Total</b> | <b>18,858</b>           | <b>8,955</b>                          | <b>9,457</b>                       |

Source: CVWD 2021a

Table 11 shows that in 2020, the rate of recycled water production from existing WRPs was 9,457 AFY, which is approximately 30 percent less than the projected rate for 2025. However, Table 11 also shows that in 2020 approximately 8,955 AFY (47.5 percent) of inflow to the WRPs was discharged as treated wastewater, and was not treated to the level of recycled water standards for reuse as groundwater replenishment.

In addition, Table 12 on the following page quantifies water supply availability for potable water sources (managed/banked groundwater) and recycled water sources (produced from existing plants using population-based inflow) under varying climatic (drought) scenarios through 2045,

**Table 12 Multiple Dry Years Supply and Demand Comparison**

|                    |                              | 2025     | 2030     | 2035     | 2040     | 2045     |
|--------------------|------------------------------|----------|----------|----------|----------|----------|
| <b>First Year</b>  | <b>Supply Totals (AFY)</b>   | 137,061  | 144,982  | 152,729  | 158,981  | 164,966  |
|                    | <i>Groundwater</i>           | 123,461  | 130,582  | 137,629  | 143,081  | 148,166  |
|                    | <i>Recycled Water</i>        | 13,600   | 14,400   | 15,100   | 15,900   | 16,800   |
|                    | <b>Demand Totals (AFY)</b>   | 137,061  | 144,982  | 152,729  | 158,981  | 164,966  |
|                    | <i>Potable Water Demand</i>  | 123,461  | 130,582  | 137,629  | 143,081  | 148,166  |
|                    | <i>Recycled Water Demand</i> | 13,600   | 14,400   | 15,100   | 15,900   | 16,800   |
| <b>Difference</b>  |                              | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| <b>Second Year</b> | <b>Supply Totals (AFY)</b>   | 137,061  | 144,982  | 152,729  | 158,981  | 164,966  |
|                    | <i>Groundwater</i>           | 123,461  | 130,582  | 137,629  | 143,081  | 148,166  |
|                    | <i>Recycled Water</i>        | 13,600   | 14,400   | 15,100   | 15,900   | 16,800   |
|                    | <b>Demand Totals (AFY)</b>   | 137,061  | 144,982  | 152,729  | 158,981  | 164,966  |
|                    | <i>Potable Water Demand</i>  | 123,461  | 130,582  | 137,629  | 143,081  | 148,166  |
|                    | <i>Recycled Water Demand</i> | 13,600   | 14,400   | 15,100   | 15,900   | 16,800   |
| <b>Difference</b>  |                              | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| <b>Third Year</b>  | <b>Supply Totals (AFY)</b>   | 137,061  | 144,982  | 152,729  | 158,981  | 164,966  |
|                    | <i>Groundwater</i>           | 123,461  | 130,582  | 137,629  | 143,081  | 148,166  |
|                    | <i>Recycled Water</i>        | 13,600   | 14,400   | 15,100   | 15,900   | 16,800   |
|                    | <b>Demand Totals (AFY)</b>   | 137,061  | 144,982  | 152,729  | 158,981  | 164,966  |
|                    | <i>Potable Water Demand</i>  | 123,461  | 130,582  | 137,629  | 143,081  | 148,166  |
|                    | <i>Recycled Water Demand</i> | 13,600   | 14,400   | 15,100   | 15,900   | 16,800   |
| <b>Difference</b>  |                              | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| <b>Fourth Year</b> | <b>Supply Totals (AFY)</b>   | 137,061  | 144,982  | 152,729  | 158,981  | 164,966  |
|                    | <i>Groundwater</i>           | 123,461  | 130,582  | 137,629  | 143,081  | 148,166  |
|                    | <i>Recycled Water</i>        | 13,600   | 14,400   | 15,100   | 15,900   | 16,800   |
|                    | <b>Demand Totals (AFY)</b>   | 137,061  | 144,982  | 152,729  | 158,981  | 164,966  |
|                    | <i>Potable Water Demand</i>  | 123,461  | 130,582  | 137,629  | 143,081  | 148,166  |
|                    | <i>Recycled Water Demand</i> | 13,600   | 14,400   | 15,100   | 15,900   | 16,800   |
| <b>Difference</b>  |                              | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| <b>Fifth Year</b>  | <b>Supply Totals (AFY)</b>   | 137,061  | 144,982  | 152,729  | 158,981  | 164,966  |
|                    | <i>Groundwater</i>           | 123,461  | 130,582  | 137,629  | 143,081  | 148,166  |
|                    | <i>Recycled Water</i>        | 13,600   | 14,400   | 15,100   | 15,900   | 16,800   |
|                    | <b>Demand Totals (AFY)</b>   | 137,061  | 144,982  | 152,729  | 158,981  | 164,966  |
|                    | <i>Potable Water Demand</i>  | 123,461  | 130,582  | 137,629  | 143,081  | 148,166  |
|                    | <i>Recycled Water Demand</i> | 13,600   | 14,400   | 15,100   | 15,900   | 16,800   |
| <b>Difference</b>  |                              | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |

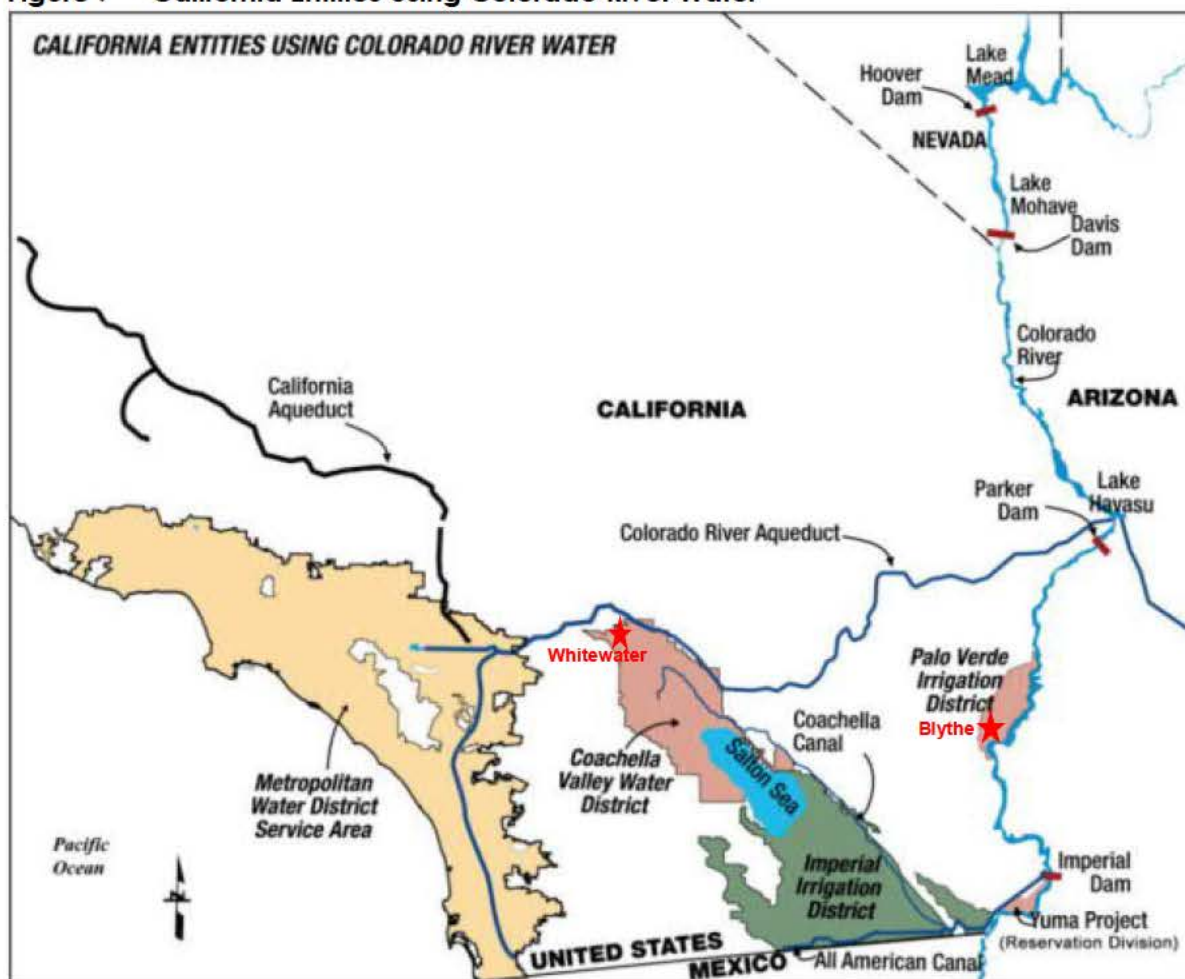
Source: CVWD 2021a

Notably, recycled water is only developed when there is an existing or projected demand for recycled water; as such, available capacity to develop recycled water may be substantially greater than the amount of recycled water actually being developed or projected for development.

## 2.3 PVID and Colorado River Water

Blythe is located in the PVID service area, in the Lower Basin of the Colorado River watershed, as shown on Figure 5 in Section 1.2.1. PVID provides surface water supplies from the Colorado River, and managed groundwater supplies that are hydrologically connected to the river, as shown on Figure 6 in Section 1.2.1. Figure 7, below, provides another overview of the PVID service area, and shows that PVID (and Blythe) are adjacent to the mainstem of the Colorado River. This location is downstream of Parker Dam, where Colorado River flows are diverted by the Colorado River Aqueduct, for conveyance to Metropolitan's service area to the west.

**Figure 7 California Entities Using Colorado River Water**



Source: Metropolitan 2021

In addition to the Colorado River Aqueduct, Figure 7 shows that two other aqueducts also convey Colorado River water into Southern California; these include the Coachella Canal, which diverts water from the Lower Basin to the CVWD service area (as discussed in Section 2.2.2, *Colorado River Water via Coachella Canal*), and the All-American Canal, which diverts water to the IID service area.

As mentioned previously, the 2003 QSA, also referred to as California's "Water Use Plan" [for the Colorado River], or the "4.4 Plan", is designed to save up to 800,000 AFY of water through

conservation and water transfers from agricultural to urban uses, as well as through canal seepage recovery, groundwater banking, conjunctive use, reoperation of Lake Mead (surplus determinations), and possibly desalination of drainage water. The Water Use Plan quantifies each California party's share of Colorado River water to facilitate water transfers among them, including a 35-year transfer (with potential extension to 75 years) of water from the IID to the SDCWA.

The ultimate goal of the Water Use Plan is to reduce California's demand on the Colorado River to its 4.4-MAFY entitlement, while also providing a restoration path forward for the environmentally sensitive Salton Sea (SDCWA 2020). Imperial County and others challenged the legality of the QSA in court but a Superior Court judge upheld the agreement in 2013.

[REDACTED]

- [REDACTED]
  - [REDACTED]
  - [REDACTED]
  - [REDACTED]

- [REDACTED]
- [REDACTED]

The transfers from PVID to Metropolitan, as noted above, are associated with agricultural water transfers resulting from the Palo Verde Valley Fallowing Program, under which farmers are paid to refrain from irrigating between seven and 28 percent of the valley's land at Metropolitan's request, making water available for the customers Metropolitan serves (Metropolitan 2018).

An accounting of all current Southern California entitlements to Colorado River water is provided in Table 13. The parties identified below are presented in order of priority ranking, where the federal Indian Reservations have top priority, followed by the Present Perfected Rates (PPRs), and parties to the Seven-Party Agreement, which helped settle long-standing disputes between municipal and agricultural water uses, and finally surplus water contracts. The diversion amounts allowed in the Water Use Plan as defined by the 2003 QSA are conservation measures, intended to reduce California's consumption of Colorado River water to within its entitlement of 4.4 MAFY.

**Table 13 Listing of Colorado River Water Entitlements in the State of California**

| Contractor or Decree Name                           | Diversion (AFY) |
|-----------------------------------------------------|-----------------|
| <b>Federal<sup>1</sup></b>                          |                 |
| Chemehuevi Indian Reservation                       | 11,340          |
| Fort Yuma Indian Reservation                        | 71,616          |
| Colorado River Indian Reservation (Nov 22, 1873)    | 10,745          |
| Colorado River Indian Reservation (Nov 16, 1874)    | 40,241          |
| Colorado River Indian Reservation (May 15, 1876)    | 5,860           |
| Fort Mojave Indian Reservation                      | 16,720          |
| <b>Present Perfected Rates (PPRs)<sup>2</sup></b>   |                 |
| Yuma Associates Ltd. and Winterhaven Water District | 262.8           |

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| Contractor or Decree Name           | Diversion<br>(AFY) |
|-------------------------------------|--------------------|
| Wavers                              | 517.2              |
| Stephenson (PPR No. 30)             | 240                |
| Campbell, Terry E. and Carol J.     | 0.71               |
| Maureen E. and Robert M. Bucati     | 2.11               |
| Bruncati Family Trust 12/19/02      | 1.90               |
| Sunrise Management LLC              | 2.81               |
| Gary J. George                      | 1.40               |
| Robert L. & Christine M.            | 0.91               |
| Lake enterprises of California, LLC | 120                |
| Gowan, Sonny ( <i>Grannis</i> )     | 180                |
| Morgan                              | 150                |
| Milpitas (PPR No. 34)               | 180                |
| Simons                              | 60                 |
| Colorado River Sportsmen's League   | 96                 |
| Milpitas (PPR No. 37)               | 69                 |
| Andrade (PPR No. 38)                | 66                 |
| Reynolds                            | 36                 |
| Cooper                              | 60                 |
| Chagnon                             | 120                |
| Lawrence                            | 120                |
| Needles, City of (PPR No. 43)       | 1,500              |
| Needles, City of (PPR No. 44)       | 1.260              |
| Conger                              | 1                  |
| G. Draper                           | 1                  |
| McDonough                           | 1                  |
| Faubion                             | 1                  |
| Dudley                              | 1                  |
| Douglas                             | 1                  |
| Beauchamp                           | 1                  |
| Clark                               | 1                  |
| Lawrence                            | 1                  |
| J. Graham                           | 1                  |
| Geiger                              | 1                  |
| Schneider                           | 1                  |
| Martinez                            | 1                  |
| Earle                               | 1                  |
| Diehl                               | 1                  |
| Reid                                | 1                  |
| Graham                              | 1                  |

| Contractor or Decree Name                                                                                                             | Diversion (AFY) |
|---------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Cate                                                                                                                                  | 1               |
| McGee                                                                                                                                 | 1               |
| Stallard (PCR No. 64)                                                                                                                 | 1               |
| Randolph                                                                                                                              | 1               |
| Stallard (PCR No. 66)                                                                                                                 | 1               |
| Keefe                                                                                                                                 | 1               |
| C. Ferguson                                                                                                                           | 1               |
| W.Ferguson                                                                                                                            | 1               |
| Vaulin                                                                                                                                | 1               |
| Salisbury                                                                                                                             | 1               |
| Hadlock                                                                                                                               | 1               |
| Streeter                                                                                                                              | 1               |
| J. Draper                                                                                                                             | 1               |
| Fitz                                                                                                                                  | 1               |
| Williams                                                                                                                              | 1               |
| Estrada                                                                                                                               | 1               |
| Whittle                                                                                                                               | 1               |
| Corrington                                                                                                                            | 1               |
| Tolliver                                                                                                                              | 1               |
| <b>Seven-Party Agreement<sup>3</sup></b>                                                                                              |                 |
| 1. Palo Verde Irrigation District (104,500 acres)                                                                                     |                 |
| 2. Yuma Project (25,000 acres)                                                                                                        |                 |
| 3(a). IID and lands in Imperial and Coachella Valleys to be served by the AAC <sup>4</sup>                                            | 3,850,000       |
| 3(b). Palo Verde Irrigation District (16,000 acres of mesa lands)                                                                     |                 |
| 4. Metropolitan and/or City of Los Angeles and/or others on coastal plain                                                             | 550,000         |
| 5. City and/or County of San Diego                                                                                                    | 112,000         |
| 6(a). IID and lands in Imperial and Coachella Valleys to be served by the AAC <sup>5</sup>                                            | 300,000         |
| 6(b). Palo Verde Irrigation District (16,000 acres of mesa lands)                                                                     |                 |
| 7. All remaining water available for use in California for agricultural uses                                                          | -               |
| <b>Surplus Water Contracts<sup>6</sup></b>                                                                                            |                 |
| Bureau of Land Management (BLM)                                                                                                       | 1,000           |
| BLM (in lieu of water pumped from Lower Colorado Water Supply Project [LCWSP] facilities or in the event the LCWSP is non-functional) | 1,150           |
| Coachella Valley Water District                                                                                                       | 100,000         |
| Department of the Navy                                                                                                                | 25              |
| Needles, City of                                                                                                                      | 10,000          |
| Metropolitan Water District of Southern California                                                                                    | 180,000         |

Source: USBR 2021; USDOT 2003

## Notes:

1. The Secretary agrees to deliver Colorado River water in the manner set forth in the 2003 QSA during the term of this Agreement (through 2037). The Secretary shall cease delivering water at the end of the term of the Agreement; provided, however, that the

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Secretary's delivery commitment to the San Luis Rey Indian Water Rights Settlement Parties (SLR) shall not terminate at the end of the term but shall instead continue, pursuant to Section 106 of Public Law 100-675, 102 Stat. 4000 et seq., as amended, subject to the terms and conditions of any applicable agreement to which the Secretary is a party concerning the allocation of water to be conserved from the lining of the All-American and Coachella Canals.

2. PPRs are the second most senior rights on the Colorado River, after federal and SLR entitlements. Article II(B)(3) of the 1964 Supreme Court Decree states that in any year where there is less than 7.5 million acre-feet available for use in California, Nevada, and Arizona, the Secretary of the Interior must first supply water to PPRs, in order of priority, regardless of state lines.
3. The Seven-Party Agreement (1931) helped settle the long-standing conflict between California agricultural and municipal interests over Colorado River water priorities. The seven principal claimants - Palo Verde Irrigation District, Yuma Project, Imperial Irrigation District, Coachella Valley Irrigation District, Metropolitan Water District, and the City and County of San Diego - reached consensus in the amounts of water to be allocated on an annual basis to each entity. During the term that the Colorado River Water Delivery Agreement (Federal QSA), dated October 10, 2003, remains in effect, the delivery of Colorado River water will be in accordance with the terms as set forth in that agreement and detailed in Exhibit B of the 2003 QSA (USDO I 2003).
4. IID = Imperial Irrigation District; AAC = All-American Canal; PPR No. 27 = 2,600,000 AF.

Except as otherwise determined under the *Inadvertent Overrun and Payback Policy* identified in 2003 QSA, the Secretary shall deliver Priority 3(a) Colorado River water to IID in an amount up to but not more than a consumptive use amount of 3.1 million AFY less the amount of water equal to that to be delivered by the Secretary for the benefit of CVWD, MWD, SDCWA, SLR (see note 1 above, SLR = *San Luis Rey Indian Water Rights Settlement Parties*), and Native American and miscellaneous PPRs as set forth in Exhibits A and B of the 2003 QSA. Colorado River water acquired by IID after the date of the QSA, and where necessary approved by the Secretary, shall not count against this cap.

Except as otherwise determined under the *Inadvertent Overrun and Payback Policy*, the Secretary shall deliver Priority 3(a) Colorado River water to CVWD in an amount up to but not more than a consumptive use amount of 330,000 AFY less the amount of water equal to that to be delivered by the Secretary for the benefit of IID, MWD, SDCWA, SLR, and Indian and miscellaneous PPRs as set forth in Exhibits A and B of the 2003 QSA. Colorado River water acquired by CVWD in any transaction to the extent agreed upon prior to or concurrent with the execution of this Agreement by IID and MWD and, where necessary approved by the Secretary, shall not count against this cap.

5. Subject to any rights that PVID may have, and except as otherwise provided under the Interim Surplus Guidelines, or under the agreements contemplated by those guidelines, the Secretary shall deliver Priority 6(a) water to MWD, IID and CVWD in the following order and consumptive use volumes: (i) 38,000 AFY to MWD; (ii) 63,000 AFY to IID and (iii) 119,000 AFY to CVWD, or as those parties may agree to occasionally forbear. Any water not used by MWD, IID, or CVWD as set forth above will be available to satisfy the next listed amount in Section 3(a) above. Any additional water available for Priority 6(a) shall be delivered by the Secretary in accordance with IID and CVWD's entitlements under their respective Section 5 Contracts in effect as of the date of the 2003 QSA.
  6. Surplus water contract will only be fulfilled if there is Colorado River water in excess of the 7.5-MAFY entitlement to the Lower Basin at large.
-

### 3 Water Demands and Comparison

This section provides an overview of known and projected water demands in the study area; as described in Section 1.2.1, *Study Area/Scope of Analysis*, the geographic extent of this analysis includes the following:

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

[Redacted] of the proposed project’s water demands for each production scenario (Low, Medium, High) to selected pieces of data, previously introduced in this analysis.

**Table 14 Comparison of Production Scenario Water Demands**

| Metric of Comparison     | Low | Medium | High |
|--------------------------|-----|--------|------|
| [Redacted Table Content] |     |        |      |

The metrics of comparison identified below were selected purely to demonstrate the scale of the proposed project’s water demands, and do not reflect water supply availability. In addition, two metrics of comparison are provided for each production scenario; again, this is purely to demonstrate scale of the project’s water demands.

## 4 Cost Analysis

This section identifies known or projected costs for water, as a basis for considering the potential scale of developing or purchasing water supply for the proposed project’s Whitewater and Blythe production sites. This section does not assess the actual cost to acquire water supply.

### 4.1 Industrial Water Rates

Due to the scale of the proposed project’s water demands under any production scenario, it is anticipated that multiple agencies would be involved in securing and providing sufficient water supply for the project. In addition, also due to the scale of the project’s water demands, the actual cost of water may be scaled or implemented differently than is done for normal water rates. The calculations below are provided purely to convey context and scale of the project’s water demands and potential costs. Table 15 characterizes two potential cost scenarios for each production scenario, informed by industrial water rates reported DWA, which serves the Whitewater area (DWA 2021), and the City of Blythe (Blythe, City of 2019).

**Table 15 Industrial Water Rates in Whitewater and Blythe**

| Industrial Water Rates                | Low | Medium | High |
|---------------------------------------|-----|--------|------|
| Whitewater (\$2.08/unit) <sup>1</sup> |     |        |      |
| Blythe (\$2.31/unit) <sup>2</sup>     |     |        |      |

Notes:

- 
- 

Source: DWA 2021; Blythe, City of 2019

As calculated based upon existing rates for industrial water uses reported in Whitewater and Blythe, the cost to purchase water for the project could range from roughly to per year in Whitewater, or roughly to in Blythe. The actual cost of water for the proposed project will be determined by the water provider(s).

### 4.2 Recycled Water Cost

Table 16 characterizes three potential cost scenarios, informed by recycled water rates reported by a variety of Southern California water agencies (NBS 2016). The actual cost of water for the proposed project will be determined by the water provider(s), and may include a surcharge, discussed below Table 16.

**Table 16 Potential Cost Scenarios for Recycled Water**

| Production Scenario<br>(water demand) | Low | Medium | High |
|---------------------------------------|-----|--------|------|
| \$100/AF                              |     |        |      |
| \$500/AF                              |     |        |      |
| \$1,000/AF                            |     |        |      |

As shown above, the cost of recycled water to meet water demands for a proposed project production site at Whitewater or Blythe could range from nearly [REDACTED] to [REDACTED] per year, based upon the assumptions discussed above.

Recycled water service to customers with larger demands are typically provided on a contractual basis whereby the agency and customer develop an agreement for factors including: the level of service; specified deliveries of recycled water; and payment of capital costs. This arrangement would likely include a surcharge for outside customers, which typically reflects the additional costs of serving customers farther from service centers, the lack of initial investment in capital facilities by outside customers, and the fact that outside customers do not carry the same liability and/or financial burden of debt service payments or other risks (NBS 2016). Surcharges may be determined on a case-by-case basis, depending upon the aforementioned variables associated with out-of-service-area customers, and can be as much as 50 percent of the total sale amount per year. With consideration to the ranges shown above, a surcharge on the project's water bill could range from [REDACTED] to [REDACTED]. As such, the total water bill could range from [REDACTED] to [REDACTED] per year.

[REDACTED]

### 4.3 Desalinated Water Potential

In addition to and separate from the recycled water data and analysis provided above, consideration should also be given to creating additional potable water and trading it for water needed in the project area. [REDACTED]

[REDACTED]. The proposed project medium production scenario requires approximately [REDACTED] gallons per day of treated water, or [REDACTED] of raw water. The Poseidon Carlsbad desalination plant and the proposed Huntington Beach desalination plant each are sized to produce 50 million gallons per day, [REDACTED] needed by the project's medium production scenario. Based on news articles only, the Carlsbad plant apparently provides water at \$2,250 per acre-foot, or \$0.0069 per gallon of water. [REDACTED]

[REDACTED] the California Aqueduct (see Section 2.1) passes south of Mojave, as well as water from the Colorado River (see Section 2.4) which is conveyed to the southern California coastal region, passing through potential green hydrogen production area.

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