Upper San Gabriel Valley Municipal Water District

2026 Integrated Resources Plan Update

STETSON ENGINEERS INC.

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Northern California • Southern California • Arizona • Oregon

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PREFACE

MESSAGE FROM GENERAL MANAGER

Unlike the steady precipitation patterns seen east of the Rockies, the Southwest is defined by dramatic "swings" between extreme wet and dry years. While the northern U.S. sees more frequent, predictable rain, our region is seeing storms become less frequent but much more intense and variable.

To ensure a reliable faucet in this "feast or famine" climate, water agencies must store multiple years of supply. However, the geography of storage matters. While the Metropolitan Water District (MWD) currently holds record amounts of water, most are stored on the Colorado River system and are not readily accessible to us. The San Gabriel region depends on the State Water Project, which has less storage and is highly vulnerable to extended droughts.

For us, local storage is essential.

We are fortunate to overlie the Main San Gabriel Basin, a massive natural reservoir with over 800,000 acre-feet of capacity. Yet even this resource is vulnerable; just a few years ago, groundwater levels hit historic lows. Today, those levels have risen an incredible 95 feet in just three years.

This recovery wasn't just luck—it was the result of two innovative new management tools:

- MWD Cyclic Storage Agreement: This acts as a regional "savings account." It allows us to "pre-deliver" and store excess imported water when it is abundant, even if we don't need it immediately.

- Watermaster Resource Development Assessment (RDA): This provides the dedicated financial framework to fund the purchase of that supplemental water, ensuring we have the capital to buy water when it’s available.

By combining these tools, we delivered and stored a record 150,000 acre-feet of imported water in 2025 alone. Using the Cyclic Storage agreement to receive water now and the RDA to pay over time, we have successfully recharged our basin alongside two years of strong local runoff.

We now have the capability to capture and store multiple years of supply. This proactive strategy is exactly what is required to provide water security in our new climate reality.

1.0 PURPOSE OF INTEGRATED RESOURCES PLAN

Upper San Gabriel Valley Municipal Water District (Upper Water) initially prepared and distributed an Integrated Resources Plan (IRP) in 2013. As a result of changes to projected population, water supply and hydrology (drought) conditions, the IRP was updated in 2016. Since the 2016 IRP Update, there have been substantive changes regarding planning for water supplies including efforts regarding the Delta Conveyance Project; further development of the Regional Recycled Water Project, now called Pure Water Southern California, and an update of a Main San Gabriel Basin (Basin) management planning tool, the Resource Development Assessment (RDA). Upper Water has prepared this 2026 IRP Update to address both demand-side and supply-side options, address multiple goals, and incorporate risk and uncertainty.

Upper Water's 2026 IRP Update explores various water supply options in terms of potential supply yield, costs, technology, water quality, and reliability. These options were evaluated and presented in this IRP. As noted in prior IRPs, the key to the success of an IRP is an adaptive management approach, whereby water supply projects can be phased in over time when needed and adapt to changing future conditions. The IRP is not a capital improvement plan, nor does it make definitive recommendations on specific projects. Rather it is a long-term road map that provides Upper Water with a framework for making sound decisions. The IRP is not intended to be a static report, but more a "living" document that will be updated as future conditions unfold and become clearer.

2.0 INTRODUCTION

2.1 BACKGROUND

Upper Water is a wholesale water agency and was incorporated on January 7, 1960, under the Municipal Water District Act. With respect to water supply, the Municipal Water District Act allows such a district to "…acquire, control, distribute, store, spread, sink, treat, purify, reclaim, recapture, and salvage any water, including sewage and storm waters, for the beneficial use or users of the District, its inhabitants, or the owners of rights to water in the District." Upper Water is located within San Gabriel Valley in Los Angeles County and overlies the Main San Gabriel Basin (Main Basin). The boundaries of Upper Water are shown on Figure 1.

Upper Water is governed by five elected Directors, elected to serve 4-year terms, representing five geographic divisions within Upper Water's service area which are shown on Figure 1. Below are the five Directors and the Division they represent.

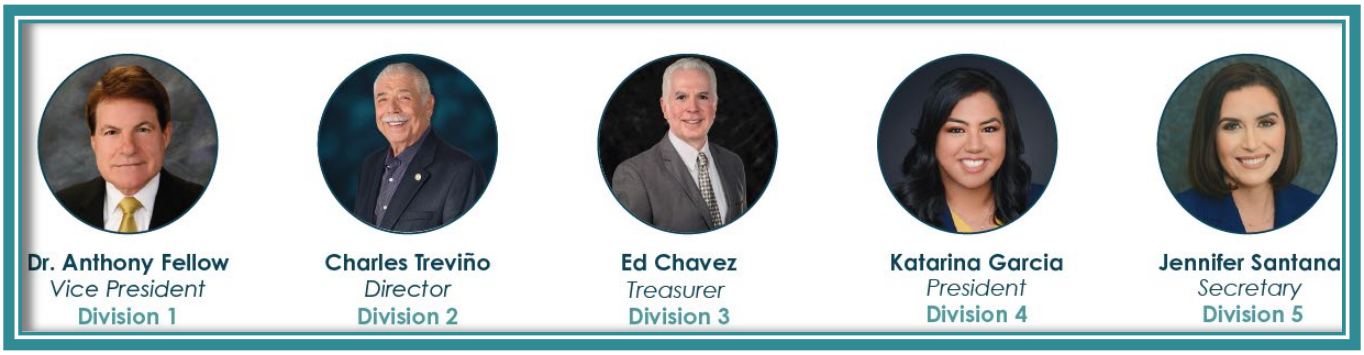
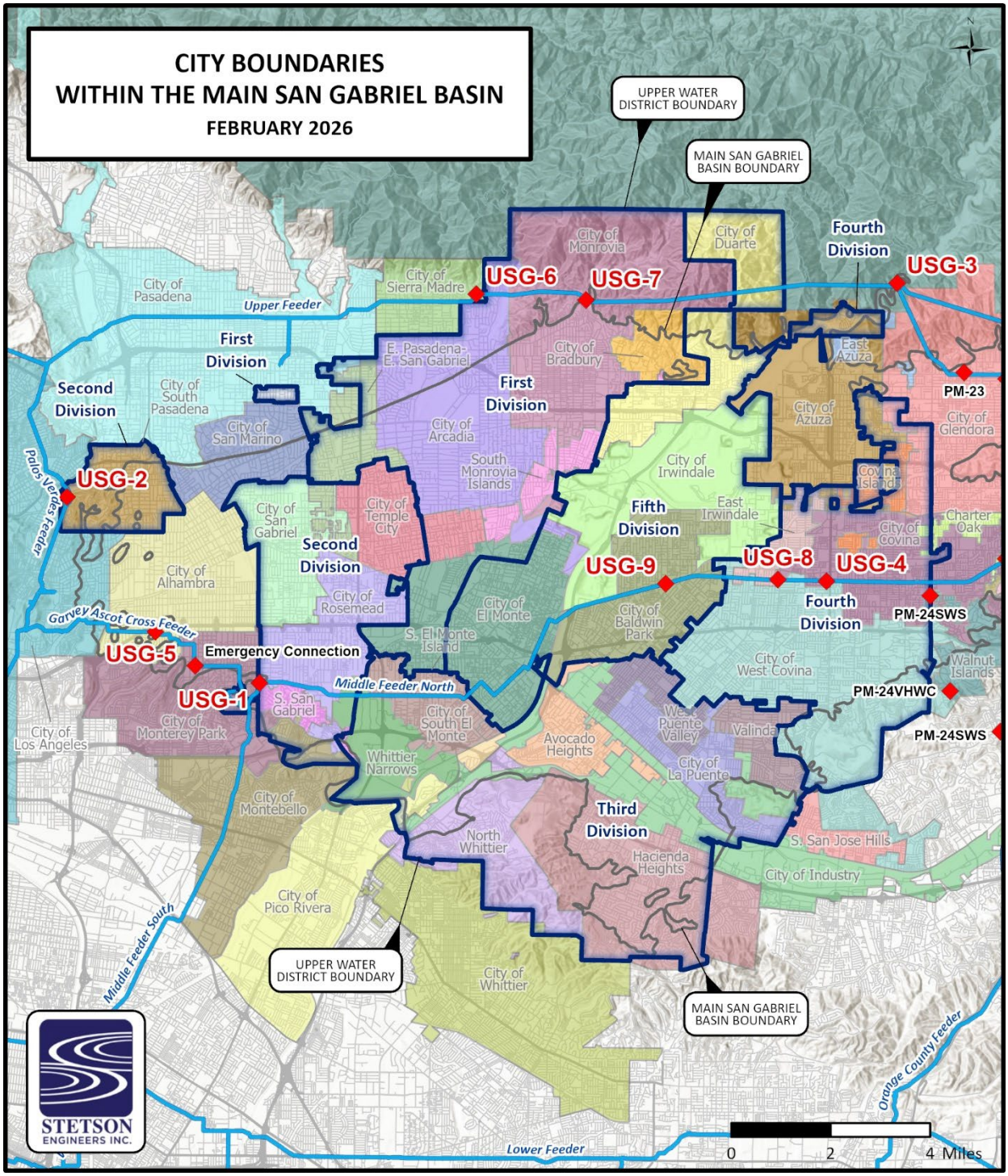


Figure 1 – Upper Water Boundary, Divisions, Connections and Cities



Upper Water is a member agency of the Metropolitan Water District of Southern California (MWD).

As a wholesaler, Upper Water supplies supplemental imported water, from MWD, along with recycled water, to the water systems within its boundaries, and to help address the provisions of legal judgments, as noted below. Upper Water is a defendant in the Long Beach Judgment (see Section 2.3.1) and is responsible for delivery of untreated imported water, when accounting requires such delivery. In addition, Upper Water is named as a "Responsible Agency" as part of the management of the Main San Gabriel Basin (Main Basin) (see Section 2.3.2). Upper Water also provides wholesale deliveries of recycled water for non-potable uses.

Included in Upper Water's service area are 25 member agencies (Producers) which deliver municipal water supplies to about 860,000 residents within Upper Water's boundaries. In addition, a portion of the water produced is exported out of the San Gabriel Valley. These member agencies include:

- Amarillo Mutual Water Company
- Arcadia, City of
- Azusa Light and Water, City of
- California American Water Company
- California Domestic Water Company (Wholesale)
- Covina, City of
- Covina Valley Water Company (Wholesale)
- Del Rio Mutual Water Company
- El Monte, City of
- Glendora, City of
- Golden State Water Company
- Hemlock Mutual Water Company
- Industry Public Works
- La Puente Valley County Water District
- Monrovia, City of

- San Gabriel County Water District
- San Gabriel Valley Water Company
- South Pasadena, City of
- Sterling Mutual Water Company
- Suburban Water Systems
- Sunny Slope Water Company
- Valley County Water District
- Valley View Mutual Water Company
- Whittier, City of
- West Covina, City of

2.2 SERVICE AREA

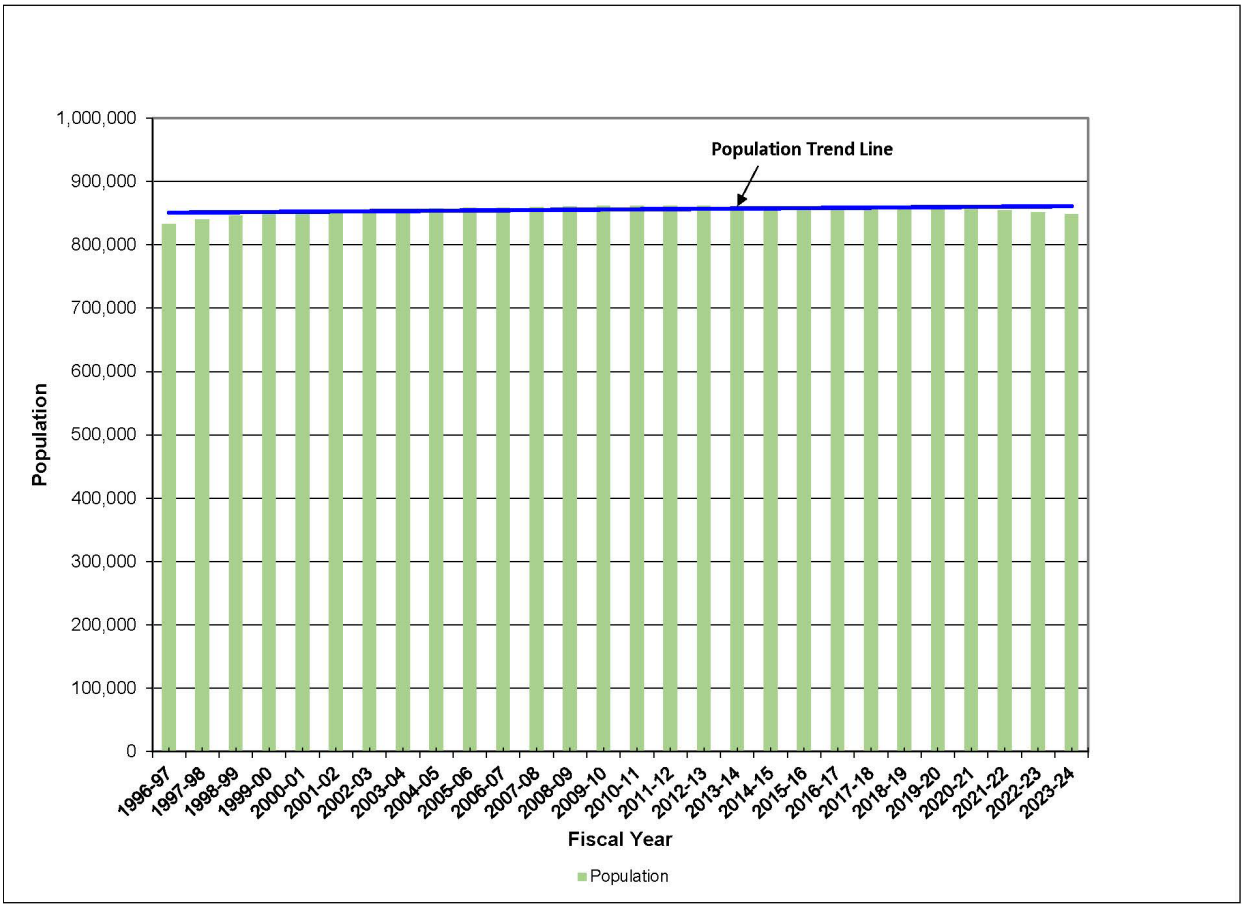
Upper Water's service area is located in the San Gabriel Valley in Los Angeles County, and the majority overlies the Main Basin and a portion of the Raymond Basin. Historically, the San Gabriel Valley was primarily agricultural prior to World War II, but experienced rapid urbanization following the war. The San Gabriel Valley's population tripled from 1950 to 1995; however, as communities in the San Gabriel Valley became built-out in the 2000's, population growth slowed to just under one percent per year. Growth in the San Gabriel Valley over the last ten years has reduced to less than half a percent per year. The historical population trend from 1996 to 2024 is shown on Figure 2.

Upper Water's service area is approximately 144 square miles and includes all or portions of the Cities of Arcadia, Azusa, Baldwin Park, Bradbury, Covina, Duarte, El Monte, Glendora, Industry, Irwindale, La Puente, Monrovia, Rosemead, San Gabriel, South El Monte, South Pasadena, Temple City, and West Covina, and portions of unincorporated Los Angeles County. The service area is now largely urbanized, consisting of mainly residential, commercial, and light industry land uses.

The climate of the San Gabriel Valley is considered to be Mediterranean, with hot/dry summers and wet/cooler winters. Average yearly rainfall is about 18 inches but can vary

substantially from a low of about 5 inches to a high of over 40 inches. Rainfall occurs almost entirely between the months of October through March. Summertime average temperatures are in the low 80's but can exceed the 90's on very hot days. Winter temperatures average in the mid 60's. In terms of soil type, most of the service area lies on soils that are conducive to groundwater recharge- meaning that rainfall can percolate deeply into the basin. However, as the region urbanized, roads, buildings and parking lots reduced this source of natural groundwater recharge. To address this, large, centralized storm water capture facilities have been constructed by the County of Los Angeles Flood Control District over the past 80 years to facilitate groundwater recharge for native storm water and untreated imported water, both of which are integral to management of the Main Basin.

Figure 2 – Historical Population



2.3 BASIN MANAGEMENT HISTORY

2.3.1 LONG BEACH JUDGMENT

On May 12, 1959, the Board of Water Commissioners of the City of Long Beach, the Central Basin Municipal Water District (CBMWD), and the City of Compton, as plaintiffs, filed an action against San Gabriel Valley Water Company and 24 other producers of groundwater from the San Gabriel Valley as defendants. This action sought a determination of the rights of the defendants in and to the waters of the San Gabriel River system and to restrain the defendants from an alleged interference with the rights of plaintiffs and persons represented by the CBMWD in such waters. After six years of study and negotiation a Stipulation for Judgment was filed on February 10, 1965, and the Judgment (Long Beach Judgment)[1] was entered on September 24, 1965. Under the terms of the Long Beach Judgment, the area downstream from Whittier Narrows (Lower Area) and the plaintiffs and those they represent are to receive a quantity of usable water annually from the San Gabriel River system (comprised of usable surface flow, subsurface flow at Whittier Narrows, and water exported to the Lower Area). This annual entitlement is guaranteed by the area upstream of Whittier Narrows (Upper Area) and the defendants. Provisions are made for the supply of Make-up Water by the Upper Area for years in which the guaranteed entitlement is not received by the Lower Area.

Make-up Water is untreated imported water purchased by the Main Basin Watermaster from Upper Water and delivered to the Lower Area to satisfy obligations under the Long Beach Judgment. Upper Water was last requested to make a Make-up Water delivery during fiscal year 1989-90. The Upper Area accounting credit was 480,584 acre-feet as

1 Board of Water Commissioners of the City of Long Beach, et al., v. San Gabriel Valley Water Company, et al., Los Angeles County Case No. 722647, Judgment entered September 24, 1965.

of September 30, 2024, and a Make-up Water requirement is not anticipated in the foreseeable future.

2.3.2 MAIN BASIN JUDGMENT

Following implementation of the Long Beach Judgment, the Upper Area (including Upper Water) addressed the task of developing a water resources management plan to optimize the conservation of the natural water supplies of the Main Basin. Studies were made of various methods of management of the Main Basin as an adjudicated area and a report thereon was prepared for the Upper San Gabriel Valley Water Association, an association of water producers in the Main Basin. After due consideration by the Association, Upper Water was requested to file as plaintiff, and did file an action on January 2, 1968, seeking an adjudication of the water rights of the Main Basin and its Relevant Watershed. After several years of study (including verification of annual water production) and negotiations, a stipulation for entry of Judgment was approved by a majority of the parties, by both the number of parties and the quantity of rights to be adjudicated. Trial was held in late 1972 and the Judgment (Main Basin Judgment)[2] was entered on January 4, 1973.

The Main Basin Judgment does not restrict the quantity of water which parties may extract from the Main Basin. Rather, it provides a means for replacing all annual extractions in excess of a Party's annual right to extract water with Supplemental Water. The Main Basin Watermaster annually establishes an Operating Safe Yield for the Main Basin which is then used to allocate to each Party its portion of the Operating Safe Yield which can be produced free of a Replacement Water Assessment. If a Producer extracts water in excess of its water right under the annual Operating Safe Yield, it must pay a

2 Upper San Gabriel Valley Municipal Water District v. City of Alhambra, et al., Los Angeles County Case No. 924128, Judgment entered January 4, 1973.

Replacement Water assessment to the Main Basin Watermaster, which is sufficient to purchase one acre-foot of Supplemental Water to be spread in the Main Basin for each acre-foot of excess production. The Main Basin Watermaster provides separate requests to each of the three Responsible Agencies (including Upper Water) to provide Supplemental Water on behalf of their respective Producers.

Upper Water overlies approximately 80% of the Main Basin. In addition, Upper Water's producers account for approximately 81% of pumping, including overproduction, in the Main Basin. Consequently, 81% of the Supplemental Water delivered to the Main Basin is through Upper Water. Local supply within Upper Water is mostly groundwater production from the Main Basin. Upper Water's producers rely heavily on groundwater from the Main Basin as a source of water supply.

2.4 WATER SUPPLY CHALLENGES

2.4.1 SAN GABRIEL VALLEY

The San Gabriel Valley experienced a prolonged and unprecedented 11-year drought during fiscal year 2011-12 through 2021-22. Groundwater levels in the Main Basin declined significantly during the recent 11-year drought period. The Main Basin Watermaster has addressed the decreasing groundwater levels through development and implementation of the Water Resource Development Assessment (RDA), which will be reviewed in this IRP. In addition, Upper Water, Main Basin Watermaster and MWD entered into a Pre-Delivery Agreement to allow delivery of large amounts of imported replenishment water (up to 200,000 acre-feet) into MWD's Cyclic Storage account and allow 10 years for Upper Water to purchase the water from Cyclic Storage using funds

collected by Main San Gabriel from the RDA and Replacement Water Assessments, which will also be reviewed in this IRP.

Following the 11-year drought, the San Gabriel Valley had two years with above average rainfall and runoff for replenishment (fiscal years 2022-23 and 2023-24), which allowed the water levels in the Main Basin to recover from the prolonged drought. This IRP is intended to prepare and plan ahead for the next prolonged drought.

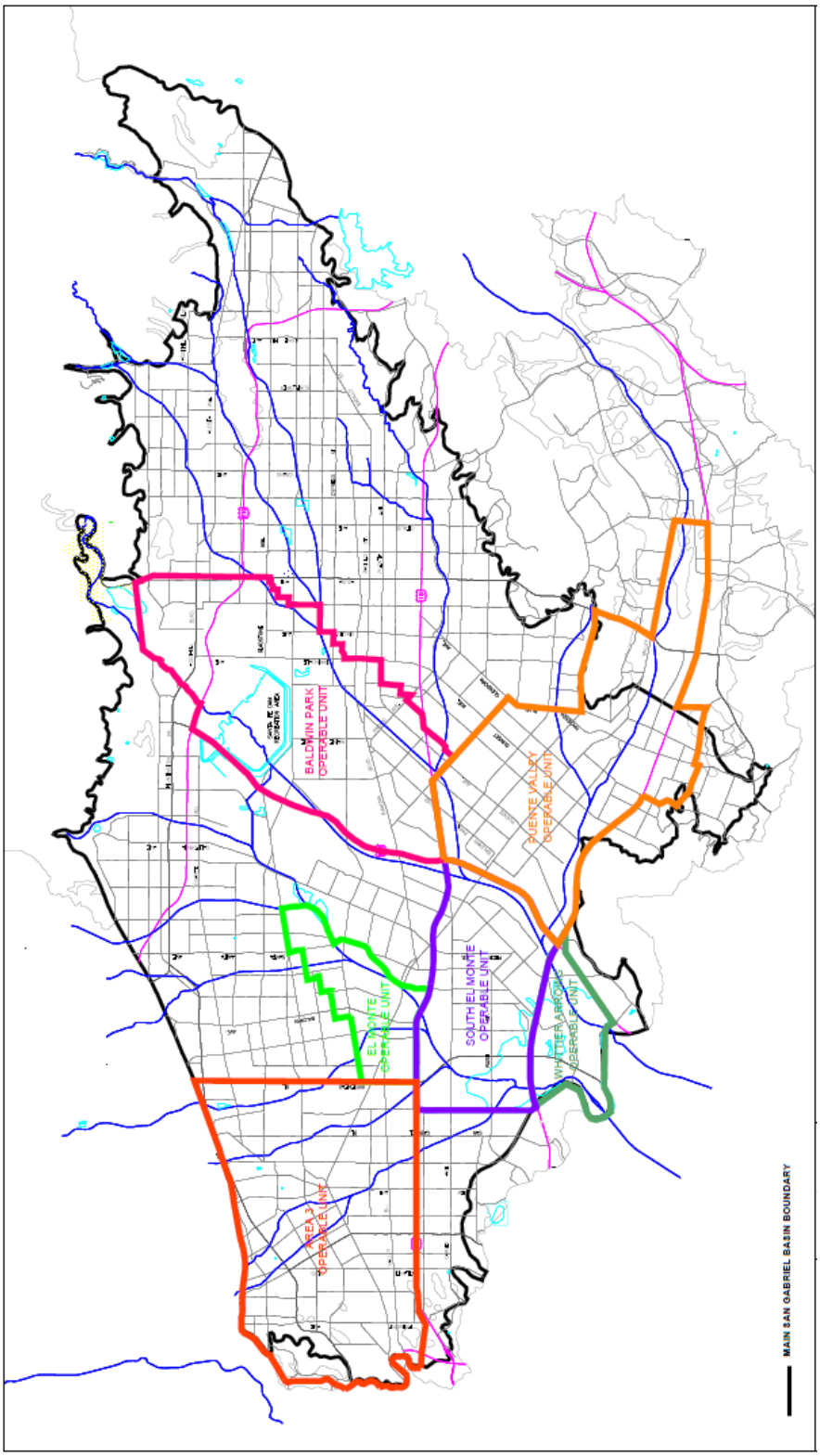
Groundwater contamination in the Main Basin poses a challenge to the use of groundwater for potable water supply. Contaminants of concern in the Main Basin include:

- Volatile organic compounds (VOCs) which come from industrial solvents
- 1,4-dioxane, a stabilizer for chlorinated solvents
- Nitrate from use of fertilizer when the lands overlying the Basin was used for agriculture, as well as from livestock (dairies)
- Perchlorate, a solid rock fuel ingredient
- NDMA, a liquid rocket fuel ingredient
- MTBE, a gasoline additive
- Per- and Polyfluoroalkyl Substances (PFAS)

These contaminants are found in isolated plumes within six EPA Superfund operable units throughout the Main Basin (Figure 3). PFAS is an emerging new contaminant. The ability for Upper Water's retail agencies to pump sufficient quantities of groundwater from the Main Basin to meet water demands could be impacted without treatment. Water quality issues could also limit those strategies that rely on the Main Basin for the storage and conveyance of water, such as indirect potable reuse, storm water capture or imported

water replenishment. Substantial efforts are in place, led by both the Main Basin Watermaster and the San Gabriel Basin Water Quality Authority to operate, maintain, and upgrade treatment facilities to remove these contaminants. These efforts have allowed for continued groundwater production and led to less dependence on increasingly expensive imported supplies.

Figure 3 – Operable Units in Main Basin



2.4.2 STATEWIDE

In addition to the localized prolonged drought, record dry conditions Statewide have also strained Southern California's water supplies. Water years 2020, 2021 and 2022 are the driest three-year sequence on record for precipitation in the State. On March 18, 2022, the California Department of Water Resources (DWR) lowered the State Water Project (SWP) 2022 Allocation to five (5) percent with a Human Health and Safety (HH&S) allocation to allow SWP contractors to meet these minimum demands after all other supply sources are exhausted. Before the extended drought period, the average SWP Allocation from 1996 to 2011 was 75.6 percent, and the average SWP Allocation during the recent 11-year drought period (2012 to 2022) was 37.3 percent. The average SWP from 1996 to 2025 was 60.3 percent. The SWP's annual Allocation to its SWP contractors has been highly variable, and this trend is expected to continue. Under the Main Basin Judgment, the Physical Solution allows/anticipates over production to meet demands, and consequently, depends on reliable untreated imported water to replace over production. Upper Water delivers SWP water as Supplemental Water into the Main Basin in order to replace over production. Without a reliable SWP Allocation, Main Basin groundwater levels are heavily impacted during prolonged drought periods. In October 2024 the Golden Mussel, an invasive species, was discovered near the Port of Stockton in the Sacramento Delta and the mussel is now in the State Water Project. The presence of the invasive mussels in both imported water supplies complicates, but does not prohibit, deliveries to the basin.

MWD can also deliver Colorado River water through Upper Water's treated connections. In the past, Colorado River was delivered to the Main Basin as Supplemental Water for replenishment. However, this now requires special approval by the Watermaster Board, due to the higher salinity of Colorado River water, and the presence of Quagga Mussels in Colorado River water complicates delivery to the Main Basin. Also, negotiations between the Colorado River Basin States and the Federal government on how to manage

the projected reduced Colorado River water supply could lead to a reduction in Colorado River water deliveries in the future.

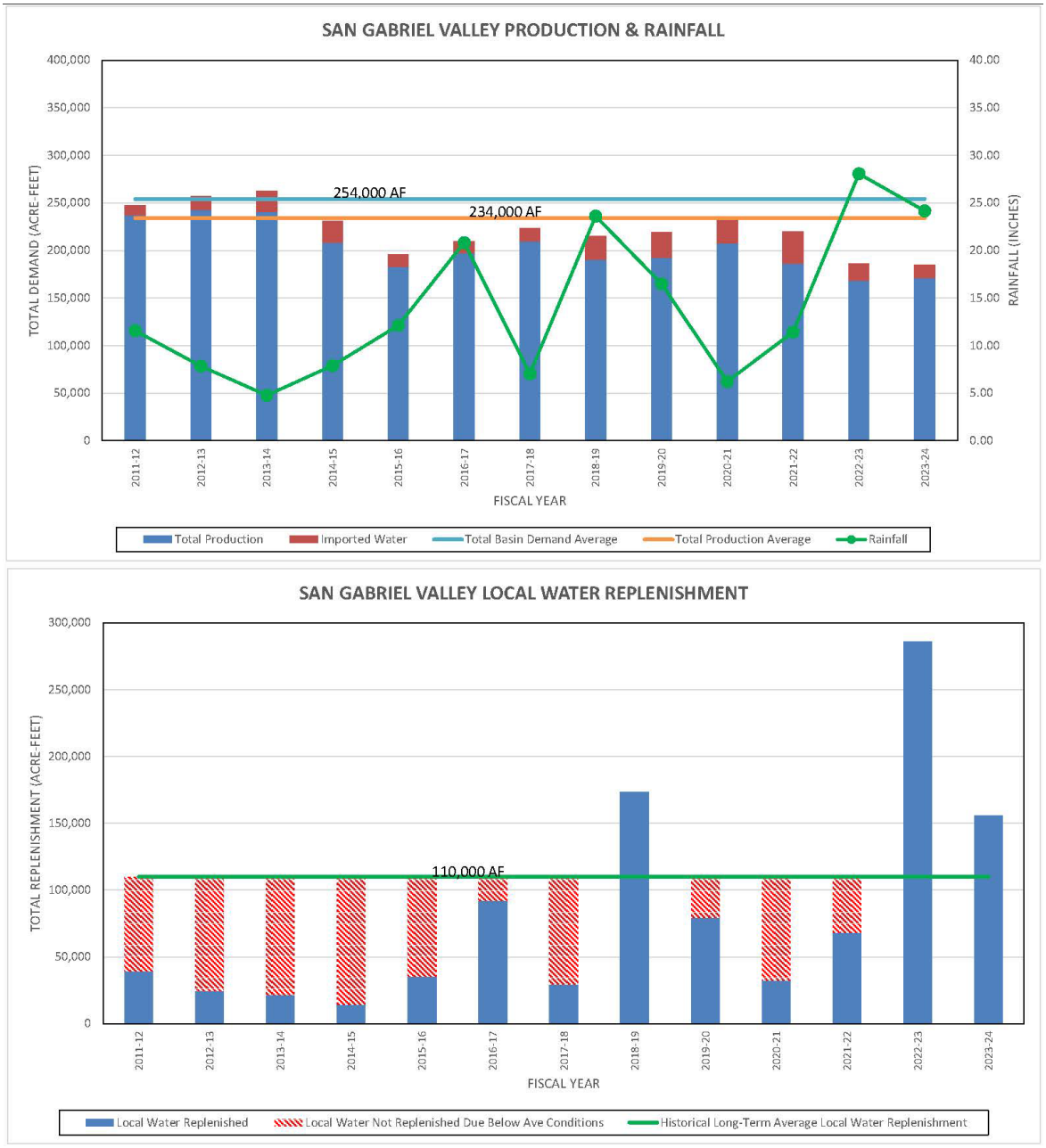
2.5 RECENT HISTORICAL LOWS, LOW LOCAL WATER REPLENISHMENT, AND OPERATING SAFE YIELD

Total water demand in the Basin is met by local water production and direct treated imported water deliveries. The long-term average (about 50 years) historical Basin water demand is estimated at about 254,000 acre-feet, which includes about 234,000 acre-feet of local water production and about 20,000 acre-feet of direct treated imported water deliveries. The long-term annual average (about 90 years) rainfall in the San Gabriel Valley was 18.52 inches.

During the drought period between fiscal years 2011-12 and 2021-2022 (about 11 years), rainfall in the San Gabriel Valley averaged about 11.85 inches, which is significantly below the pre-drought long-term annual average of about 18.5 inches for the San Gabriel Valley (about 64%). In addition, as shown in Figure 4, during the drought period between fiscal years 2011-12 and 2021-2022, the average Basin water demand was estimated at 228,000 acre-feet with Basin production at about 209,000 acre-feet. Total annual production during the drought period was about 25,000 (234,000 – 209,000) acre-feet below the average annual total water production. The Basin annual average water demand (which includes direct delivery of imported water) during the drought period was about 26,000 acre-feet (254,000 – 228,000) below the long term average annual total water demand.

Prior to the recent drought, the historical long-term annual average Basin replenishment from "local" water supplies was about 110,000 acre-feet per year. From fiscal year 2011-12 to fiscal year 2021-22, the average annual "local" water Basin replenishment was reduced to about 56,000 acre-feet per year. This represents a shortage of about 600,000 acre-feet of water supply to the Basin for this 11-year period. Two consecutive years (fiscal years 2022-23 and 2023-24) of above average rainfall brought about 290,000 acre-feet of local water in 2022-23 and about 175,000 acre-feet of local water for fiscal year 2023-24, a total of about 465,000 acre-feet. However, this combined rainfall water supply Basin replenishment was still not enough to replace 600,000 acre-feet of shortage during the drought, as shown in Figure 4. The purchase of a significant amount of imported water for replenishment using funds from the RDA has helped the Basin to recover storage.

Figure 4 – San Gabriel Valley During Drought Period (FY 2011-12 through 2021-22)



During fiscal years 2022-23 and 2023-24, the Basin and the State experienced two consecutive above-normal snowfall and rainfall years. In addition, due to an unprecedented long-term drought since 2011, there was strong conservation messaging throughout the Basin to reduce water use and help the Basin water levels from declining further, along with these local wet conditions. The conservation messaging and wet conditions resulted in the Basin experiencing production of 168,000 acre-feet in fiscal year 2022-23, which is a historical low since the adjudication. Production was about 171,000 acre-feet the following year, fiscal year 2023-24.

Direct treated imported water sales for fiscal year 2023-24 were about 14,000 acre-feet. Total water demand during fiscal year 2023-24 was about 185,000 acre-feet (171,000 + 14,000) which was about 40,000 acre-feet below the 12-year average total water demand of 225,000 acre-feet. Untreated imported water deliveries as Supplemental Water to the Basin during fiscal year 2023-24 was about 64,000 acre-feet.

Due to the recent long-term drought period, the Watermaster reduced and then held the Operating Safe Yield (OSY) at 150,000 acre-feet for the last ten (10) consecutive years, which is unprecedented. Prior to holding the OSY at 150,000 acre-feet, the long-term annual average OSY was about 200,000 acre-feet and the OSY ranged from 140,000 acre-feet to 240,000 acre-feet. The OSY for fiscal years 2024-2025 and 2025-2026 increased to 160,000 acre-feet.

Keeping the OSY at 160,000 acre-feet helps the Basin to recover, compared to setting a high OSY during above average rainfall years. This also provides funding to purchase more Replacement Water for Basin replenishment.

2.6 IMPORTED WATER AND DEMAND/SUPPLY

Imported water (both treated and untreated) from MWD has been essential for much of Southern California and particularly Upper Water. As discussed in Section 2.4.2, the presence of invasive mussels in both the Colorado River and SWP water supplies complicates delivery to the Main Basin.

Prior to the recent drought, MWD imported water deliveries to Upper Water had averaged 43,000 acre-feet per year as shown on the table below. During the recent drought, imported water deliveries from MWD averaged about 40,000 acre-feet per year. In addition, as shown in the table below, there was a shift from treated imported water prior to the drought to groundwater pumping during the recent drought. This is due to the increased short-term reliance on treated, imported water to offset the loss of groundwater from wells that were shut down due to increasing levels of contaminants in the Main Basin. Once treatment facilities were online, Upper Water member agencies relied less on treated, imported water to meet demands. During fiscal year 2024-25, MWD total deliveries to Upper Water were about 35,000 acre-feet, which is about 5,000 acre-feet less than the average during the recent drought. After the recent drought, Upper Water and its member agencies continued conservation measures and programs, which decreased demands.

Historical MWD Imported Water Demands from Upper Water (acre-feet per year)		
	Prior to Drought (FY 2003-2011)	Recent Drought (FY 2011-2022)
Treated	12,000	5,000
Untreated	31,000	35,000
Total	43,000	40,000

In 2008, MWD's Board of Directors approved the Water Supply Allocation Plan (WSAP) to manage the limited imported water supplies. The WSAP has 10 different shortage levels and associated actions and is based on a formula to calculate each member agencies' WSAP Allocation. In 2008 and 2009, interruptible untreated imported water delivery for replenishment was curtailed for the first time since 1991. MWD's formula for the WSAP Allocation for Upper Water originally did not include past interruptible replenishment deliveries. Upper Water advocated to include the past interruptible replenishment deliveries into the WSAP formula. MWD agreed and changed the WSAP Allocation formula to also include those replenishment deliveries. Consequently, Upper Water's imported allocation was approximately 29,000 acre-feet per year (AFY) for those years and is used in this IRP's gap analysis. The WSAP has not been adopted since fiscal year 2015-16.

In response to a very low SWP allocation in 2022, MWD Board of Directors adopted a resolution on April 26, 2022, that, in part, adopted the framework of an Emergency Water Conservation Program (EWCP). The Program allows affected Member Agencies to achieve compliance by meeting an agency-specific volumetric delivery of SWP water. Upper Water's total SWP volumetric limit was about 14,700 acre-feet. MWD has been working on near- and long-term projects and programs to help alleviate impacts on MWD member agencies from drought impacts on the SWP system. Since MWD had sufficient storage and supplies on the Colorado River, an allocation under WSAP was not necessary on the entire MWD service area. This EWCP is referenced as the "SWP restriction" in this IRP. The SWP restriction has been used for the gap analysis for a dry scenario. Upper Water is one of these SWP dependent areas because untreated imported water delivery as Supplemental Water to the Main Basin can only be SWP water (Colorado River water can be delivered but as emergency only and requires approval from the Watermaster Board). Upper Water's SWP restriction was about 14,700 acre-feet. It is unlikely MWD will have the SWP restriction of 14,700 acre-feet in the future due to MWD proactively improving water supply storage and preparing for future droughts.

Cyclic Storage Agreements

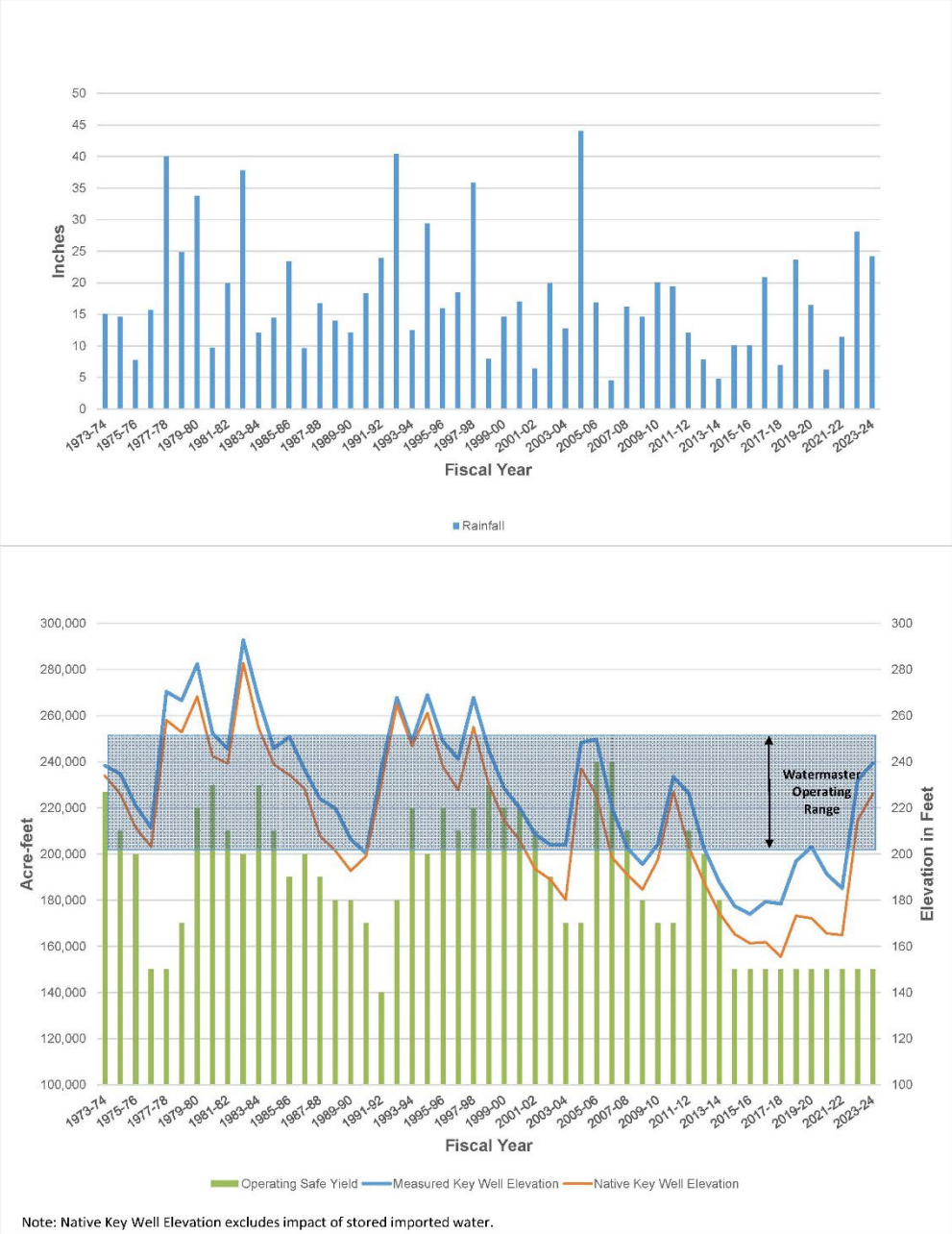
Upper Water, in cooperation with the Main Basin Watermaster negotiated an agreement with MWD to store a significant amount of imported water in the Main Basin for payment over the subsequent five or ten years, commencing with calendar year 2017. Similar agreements were negotiated for delivery of additional imported water supplies during calendar years 2019, 2023, 2024 and 2025. These agreements are made available when MWD determines the supply/demand balance indicates a surplus, typically when the SWP Allocation is above 30%. Consequently, management of imported water supplies, when available, for use during future years is a significant aspect of this IRP Update.

3.0 EXISTING WATER SUPPLIES

3.1 INTRODUCTION

The major source of water supply in Upper Water's service area is groundwater pumped from the Main Basin by the Producers. As noted in Section 2, the Main Basin is a court-adjudicated basin and is managed by the Main Basin Watermaster. Based on a variety of factors, including groundwater levels, local hydrology, and the amount of runoff in the San Gabriel River watershed, the Main Basin Watermaster annually establishes the Operating Safe Yield (discussed briefly in Section 2) which provides Producers with an annual amount of water rights which can be produced without incurring a Replacement Water assessment. Figure 5 shows the relationship between rainfall, groundwater levels and the Operating Safe Yield. This consistent management action, as shown in Figure 5, demonstrates that as below average rainfall conditions persist, and the groundwater elevations begin to decrease, the Main Basin Watermaster responds by lowering the Operating Safe Yield. This action of lowering the OSY encourages retail water conservation and enables the Main Basin Watermaster to generate funds to purchase untreated imported water to replenish the Main Basin and manage groundwater elevations. In addition to the Producers' (within Upper Water) portion of the Main Basin Operating Safe Yield, several Producers have surface runoff diversion rights from the San Gabriel River watershed. These local sources of water are prioritized in meeting existing water demands. Water demands in excess of local supplies are met by imported water sources, including recycled water for direct non-potable use, and imported water for direct potable use and for groundwater replenishment of the Main Basin. Existing water supplies include:

Figure 5 - Historical Rainfall, Operating Safe Yield, and Key Well Elevations in Main Basin



- Local Supplies: Local supplies used by Producers within Upper Water consist of groundwater (produced from both the Main Basin and Raymond Basin) and surface runoff. The Operating Safe Yield is the quantity of groundwater that can be produced without the need for delivery of untreated imported water to replenish the basin; however, there is no limitation on the quantity of groundwater which may be produced each year. In addition, several Producers have surface diversion water rights on the San Gabriel River watershed and have facilities to divert and treat surface runoff for direct delivery.
- Imported Water: Imported water sources are used for either spreading of untreated imported water (delivered through USG-3) for replacement of groundwater basin production in excess of Operating Safe Yield or for direct delivery of treated imported water to retail agencies supplied through connections to MWD (USG 1, USG 2, USG 4, USG 5, USG 6, USG 7, USG 8, and USG-9), as shown in Figure 1.
- Recycled Water: Recycled water distributed to several Upper Water customer agencies, through local distribution networks for direct non-potable use from two water reclamation plants; Whittier Narrows and San Jose Creek. Direct use of recycled water reduces groundwater production, and consequently, the need for an equivalent amount of imported water in many cases.

3.2 LOCAL WATER SUPPLIES

3.2.1 GROUNDWATER

3.2.1.1 MAIN BASIN

The Main Basin is a large groundwater basin replenished by stream runoff from the adjacent mountains and hills, by rainfall directly on the surface of the valley floor, by return flow from water applied for overlying uses, and subsurface inflow from Raymond Basin and Puente Basin. Additionally, the Main Basin is replenished with imported water. The Main Basin serves as a natural storage reservoir, transmission system and filtering medium for the subsequent production of groundwater.

Upper Water is one of three municipal wholesale water districts overlying or partially overlying the Main Basin. The three districts are Upper Water, San Gabriel Valley Municipal Water District (San Gabriel District), and Three Valleys Municipal Water District (Three Valleys District). The boundaries of these water districts are shown on Figure 6. Historical water demand, met from groundwater production, treated local surface water, treated imported water, and recycled water, for the Producers within each of the three municipal water districts from FY 1996-1997 through FY 2023-2024 is shown on Figure 7 and shows the majority of the demand occurs within Upper Water.

Figure 6 – Municipal Water District Boundaries

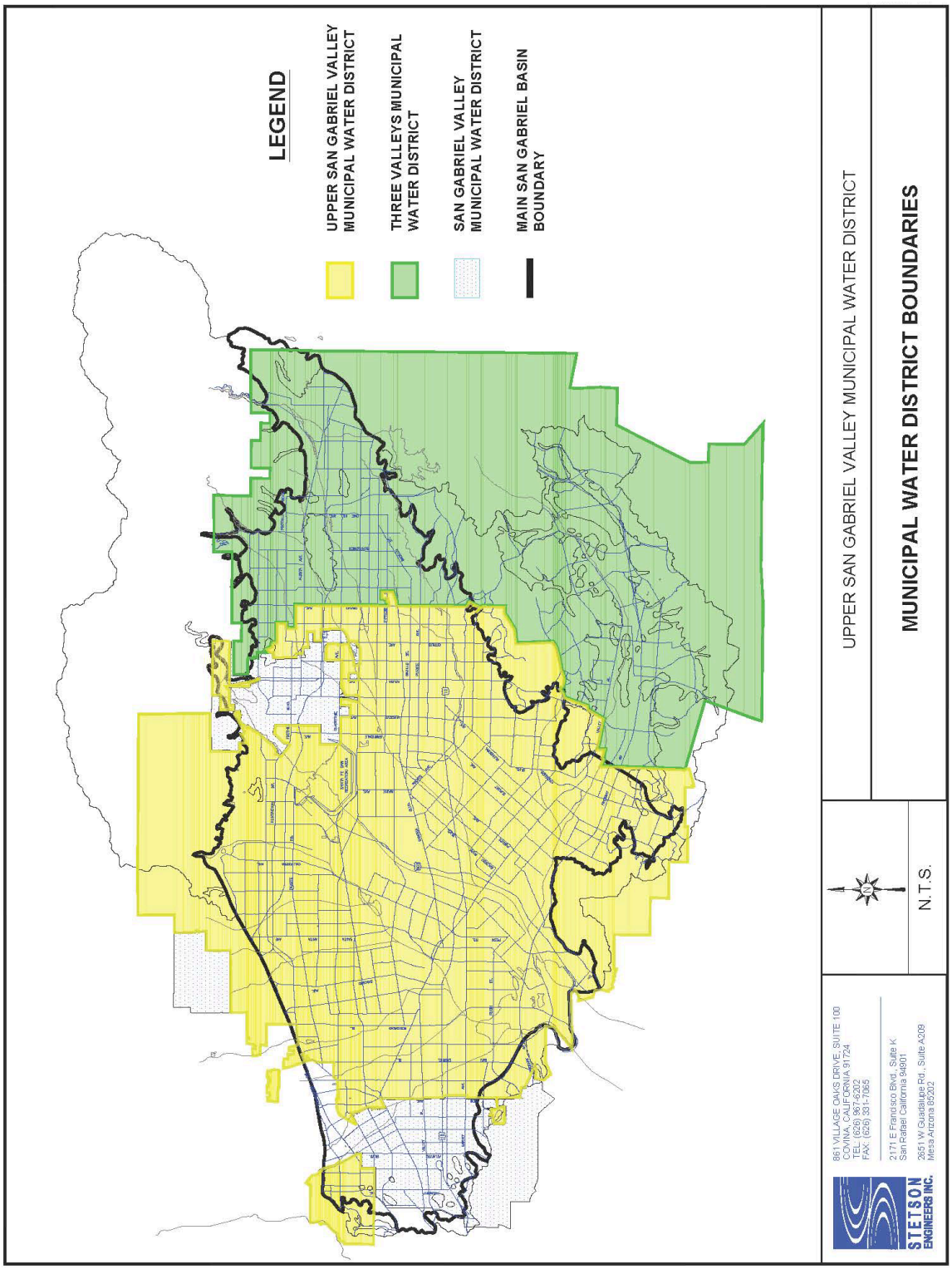
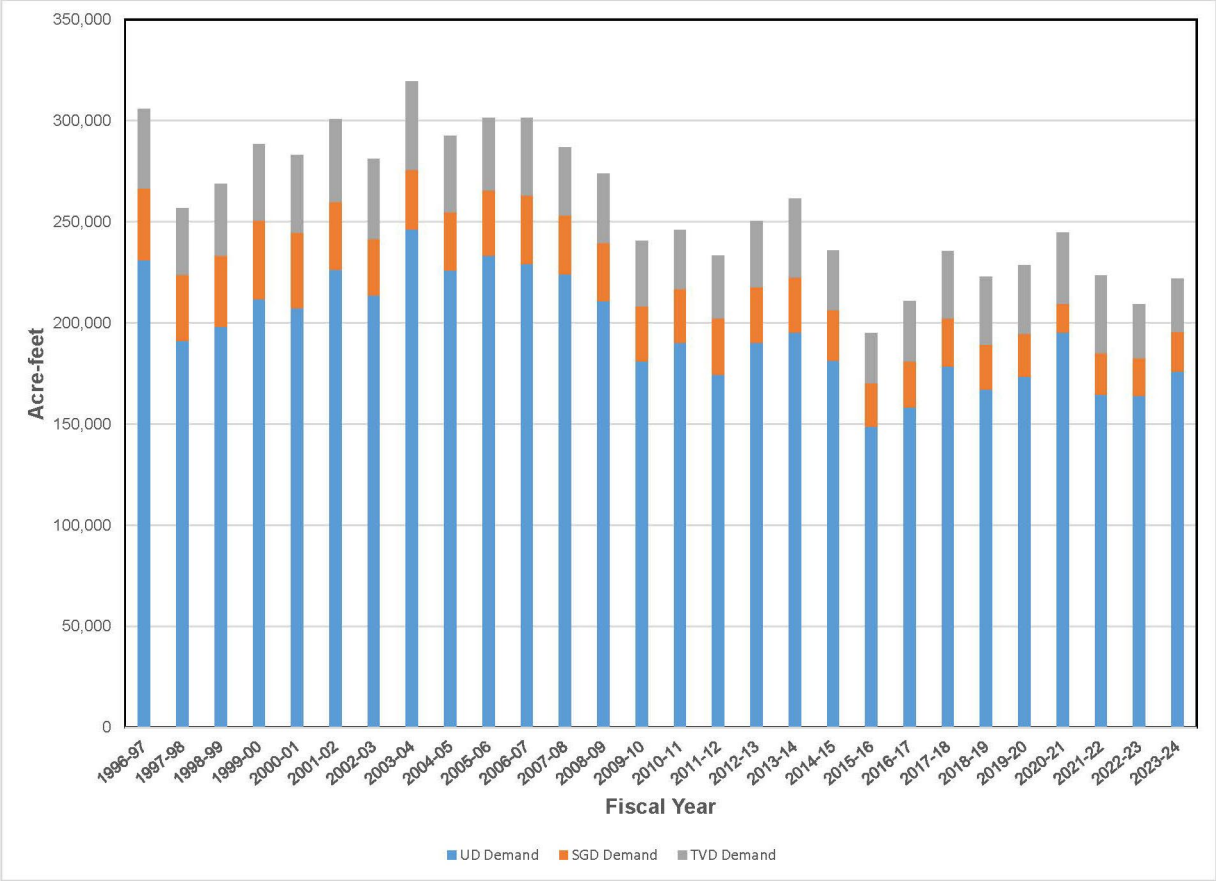
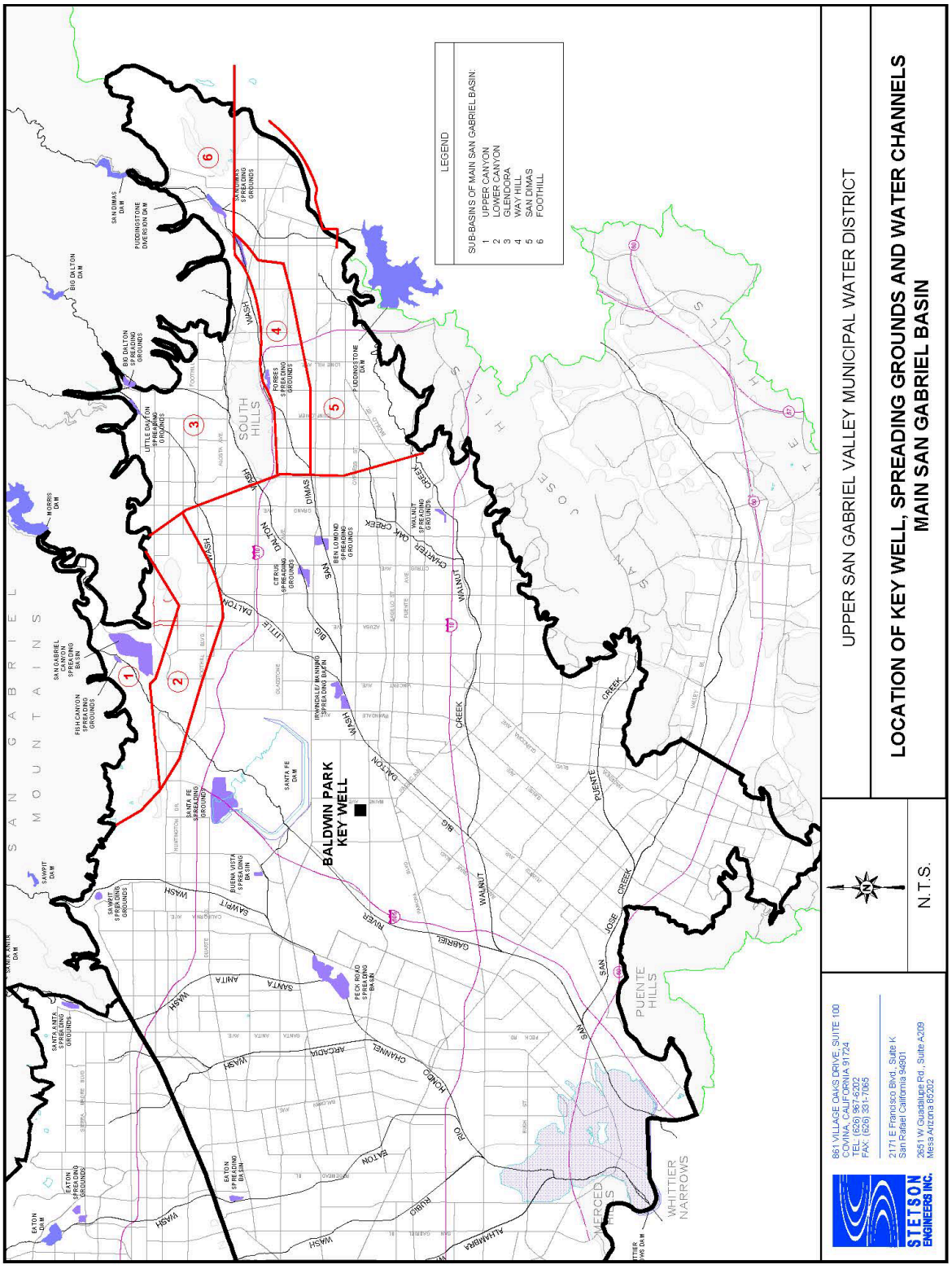


Figure 7 - Total Demand in the Main San Gabriel Basin



The total fresh water storage capacity of the Main Basin is estimated to be about 9.5 million acre-feet. Of that, about 1.1 million acre-feet have been used historically in Main Basin operations. Groundwater elevation at the Baldwin Park Key Well (Key Well) represents the water storage in the Main Basin One foot of elevation change at the Key Well is roughly the equivalent of about 8,000 acre-feet of water storage. The operating range of the Key Well has historically been between 200 feet above mean sea level (amsl) and 250 feet amsl. The 2012 amended Judgment removed the 250 feet amsl limit so that recharge of imported water is spread to maintain water levels at the Key Well above 250 feet amsl. The location of the Key Well is shown on Figure 8 and the hydrograph for the Key Well is shown on Figure 5. The historical high groundwater elevation was recorded at over 329.1 feet above mean sea level (amsl) in April 1916, at which time Main Basin storage was estimated to be about 8.7 million acre-feet. The Judgment (Exhibit H) notes groundwater in storage was about 7.7 million acre-feet when the elevation at the Key Well was 209 feet amsl. However, the useable amount of groundwater storage is about 800,000 acre-feet. The historical low was recorded in November 2018 at about 169 feet amsl. During that time of historical low levels, many wells were impacted from the low water levels in the Main Basin due to the well depth. Consequently, continued pumping of all the total Basin water storage and allowing water levels to continue declining beyond the historic low will impact all wells' ability to pump due to well depth and subsidence risk. The Key Well hydrograph shown on Figure 5 illustrates the cyclic nature of basin replenishment and depletion. The hydrograph also illustrates the dramatic replenishment capability of the Main Basin during wet periods. It should be noted that a portion of the groundwater pumped by Producers within Upper Water is exported out of the Main Basin.

Figure 8 – Main San Gabriel Basin Map



3.2.1.2 RAYMOND BASIN

A few Producers within Upper Water also produce groundwater from the Raymond Basin which is generally located within the San Gabriel Valley between the San Gabriel Mountains and Huntington Drive (the geologic and institutional boundary is the Raymond Fault). These producers are City of Arcadia, San Gabriel County Water District and Sunny Slope Water Company. The groundwater levels within the Raymond Basin have decreased over the past 20 years resulting in groundwater production restrictions and in some cases resulting in Producers shifting a portion of their production to the Main Basin.

3.2.2 SURFACE WATER

Several of Upper Water's member agencies (California American Water Company -- Duarte, Covina Irrigating Company, Monrovia Nursery, and Azusa Valley Water Company) have surface water diversion rights from the San Gabriel River watershed upstream of Whittier Narrows and have facilities to divert (and treat as required) surface runoff for direct delivery.

3.2.3 RECYCLED WATER

Upper Water's direct non-potable use recycled water program, along with other recycled water users, collectively are part of Upper Water's effort to reduce reliance on local and imported water supplies and provide an economic benefit. Recycled water is available from two water reclamation plants in the Basin; the Whittier Narrows and San Jose Creek Water Reclamation Plants (WRPs). Both of these plants are owned and operated by the LACSD.

Upper Water's existing recycled water program includes pipelines and a recycled water reservoir to provide tertiary treated recycled water to customers in Upper Water's service area. Upper Water's existing recycled water program is divided into the following systems: Phase I, Phase IIA – Whittier Narrows Project, Phase IIA – Rosemead Extension, Phase IIB – Industry Project, South El Monte Recycled Water Project, and the La Puente Valley County Water District Recycled Water Project. In addition, Table 1 includes recycled water use data from the Los Angeles County Sanitation Districts (LACSD) projects within Upper Water's service area. Total recycled water use within Upper Water's service area was fairly consistent from 2015 to 2018, however recycled water use decreased by 2,500 acre-feet in 2019, which could be due to decreased water demands from LACSD projects.

3.3 IMPORTED WATER SUPPLIES

As discussed previously, the Main Basin Watermaster purchases untreated imported water supplies from MWD (including SWP water, stored water, and water transfers) through Upper Water. Further discussions of imported water supplies from MWD are provided in Sections 3.3.1 and 3.3.2.

3.3.1 SWP WATER

MWD contracts with the State of California, through the SWP, for the delivery of water through the California Aqueduct. The SWP is a water storage and delivery system maintained and operated by DWR. The SWP is a statewide water conveyance system that diverts and stores water in Northern and Central California and conveys water (including through the Sacramento-San Joaquin Delta region) to 29 water agencies

throughout the State. The SWP has delivered water since the 1960's through a network of aqueducts, pumping stations and power plants. In order for the SWP to deliver the maximum contractual commitments for water, the SWP must expand its water conveyance facilities to divert greater flows from north of the Bay-Delta area into the California Aqueduct. The SWP's original total contractual commitment called for a capacity of 4.2 million acre-feet per year. MWD has a maximum annual entitlement of 2,011,500 acre-feet.

The Sacramento - San Joaquin River Delta area (Bay-Delta) is a part of the SWP water delivery system. The reliability of the Bay-Delta to deliver water may be impacted by potential risks associated with endangered species, earthquakes, levee failure, and climate change. Executive Order N-10-19 was signed in April 2019, which included the consideration of a single tunnel conveyance alternative. DWR approved the Delta Conveyance Project and certified the EIR on December 21, 2023. The Delta Conveyance Project is important to keep a higher SWP Allocation. Without the Delta Conveyance Project, the SWP Allocation could be 20% less.

DWR's "State Water Project Final Delivery Capability Report 2023" (2023 Report), dated July 2024, indicates that there is a 61 percent likelihood (70 percent in the 2021 State Water Project Final Delivery Capability Report) that more than 2,000,000 acre-feet per year of Table A water will be delivered under current conditions. The 2023 Report incorporated future impacts on water deliveries as a result of climate change and potential limited pumping of the SWP to protect salmon, smelt, and other species in the Sacramento-San Joaquin Delta and Central Valley areas, including operational restrictions of the biological opinions issued by the U.S. Fish and Wildlife Service (USFWS) in December 2008 and the National Marine Fisheries Service (NMFS) in June 2009 governing the SWP and Central Valley Project (a Federal water storage and conveyance facility) operations. Subsequently, a U.S. District Court Judge remanded the

biological opinions to the USFWS and NMFS for further review and analysis. Based on data suggesting declining fish populations for several species, the USFWS and NMFS released their biological opinions in October 2019. The United States Bureau of Reclamation (USBR) released an environmental impact statement in December 2019, and a finalized environmental review was approved in February 2020. USBR adopted a new operating plan for the SWP and Central Valley Project in early 2020. The long term impact of these issues cannot be fully quantified at this time. DWR plans to develop additional water supply facilities for the SWP to deliver contracted water beyond historical delivery quantities.

3.3.2 COLORADO RIVER WATER

In addition to obtaining water from the SWP, MWD obtains water from the Colorado River. MWD owns and operates the Colorado River Aqueduct which conveys water from Lake Havasu on the Colorado River to water transmission pipelines and to Lake Matthews for storage. MWD's Colorado River water right includes a fourth and fifth priority under the 1931 Seven Party Agreement relating to California's share in the Colorado River water supply. In 1964 a United States Supreme Court decree (Arizona v. California) limited California to 4.4 million AF per year from the Colorado River plus any available surplus water. An amount of 550,000 AF was allotted to California under the fourth priority right and an amount of 662,000 AF was allotted to California under the fifth priority right. MWD can receive water under the fifth priority right when the United States Secretary of the Interior determines that there is a surplus of water or if Arizona or Nevada do not use all of their allocated water.

3.4 CLIMATE CHANGE

Uncertainties in water supply planning may increase due to climate change impacts. As previously mentioned, Upper Water purchases treated and untreated imported water from MWD and would be impacted if water supply availability to MWD is impacted by climate change. MWD planning documents that consider the impacts of climate change and available local and statewide climate change information were reviewed for this IRP.

MWD adopted its 2020 IRP- Regional Needs Assessment in 2022. In MWD's 2020 IRP, potential impacts to water supply reliability due to climate change and other factors were identified and an adaptive management strategy was established. The following are key findings identified in MWD's 2020 IRP:

- Shortages on the Colorado River will limit the reliability of Colorado River Aqueduct deliveries as a core supply in the future.
- Variability and capacity in SWP supplies provide opportunities to store water during wet periods for use in dry years, including Colorado River storage.
- Improvements to MWD's ability to distribute or store SWP supplies when they materialize will enhance the region's reliability.
- Preliminary Shortage Assessment and reliability projections (Scenarios C and D).
- Maintaining existing and developing new local supplies is critical in helping manage demands on MWD.
- It is important to track the progress of local supply development.

MWD's approach identified the tools necessary to successfully adapt to multiple future conditions and developed a unified approach to problem-solving using available solutions. As discussed in Section 2.6, MWD has been working on near- and long-term projects and programs to help alleviate the drought and impact on the SWP system. MWD's IRP included preliminary shortage assessment and reliability projections. This IRP used

MWD's Scenarios C and D. Scenario C assumes low demand and reduced imports. Without new storage, 350 thousand acre-feet (TAF) of new core supply is needed by 2045. Scenario D assumes high demand and reduced imports. Without new storage, 950 TAF of new core supply is needed by 2045. Based on the projections of Scenarios C and D, Scenario C appears to be more likely to occur in the Main Basin. However, for this IRP, Scenarios C and D are used in this IRP to project what the Main San Gabriel Basin water levels would be, which is discussed in Section 6.2.4 and shown in Figure 10. In addition, MWD did an analysis on future stormwater capture. MWD estimated that the reduction in stormwater capture by 2050 due to climate change would be 36,000 AFY across its service area. The Main San Gabriel Basin represents about 25% of that.

In 2013, Los Angeles County Flood Control District (LACFCD) applied for and was selected for a two-year Basin Study to evaluate impacts from climate change within the Los Angeles Basin and identify what strategies may support a more sustainable water supply in the future. In 2016, the Los Angeles Basin Study (Bureau of Reclamation, LA County Public Works 2016) was completed. This study analyzed effects of climate change on subareas of the Los Angeles region, including mountains, valleys, and coastal plains. This study analyzed data using the World Climate Research Programme (WCRP) Coupled Model Intercomparison Project (CMIP) to evaluate future climate change impacts. This study also used the LACFCD Watershed Management Modeling System (WMMS) to perform hydrologic modeling over the Los Angeles Basin, using the data from the CMIP model. The study concluded that there would be large variability in future precipitation across the LA Basin. Additionally, the study predicted that storm event intensity would increase, with a large variability in precipitation frequency, magnitude, volume, and cycle of wet/dry spells. The study predicted that there will be increased stormwater runoff and recharge in the LA Basin of approximately 13% as well as increased peak flow rates of approximately 28%, however, the results from the LA Basin study are too broad and do not provide quantitative guidelines for use in this IRP, as they are averages for the entire LA Basin and cannot be directly applied to the Main Basin.

An additional reference for predicted climate change analysis is the Cal-Adapt model created by the California Energy Commission, Governor's Office of Planning & Research, and the California Strategic Growth Council (updated in 2024). Similar to the LA Basin Study, the Cal-Adapt model uses the CMIP model from World Climate Research Programme (WCRP). Precipitation data is output as inches of rainfall per year. In the San Gabriel Valley, a normal year is considered to be between 17-20 inches of rainfall, a dry year is considered 17 inches of rainfall or less, and a wet year is considered 21 or more inches of rainfall. The Cal-Adapt projected precipitation data was classified for future years as normal, wet, or dry years. Data produced by the Cal-Adapt model varied widely and multiple consecutive wet years were projected to occur in both the cool/wet scenario and the warm/dry scenario, which has not occurred historically and seems unlikely to occur in the near future.

The climate change information discussed above was either too general to apply specifically to the Main Basin or varied so greatly from historical conditions that it is not reasonable to use for the planning horizon for this IRP. A more reasonable, and conservative approach based on recent historical data which includes the recent prolonged dry period has been used to project future water needs and is discussed in Section 4.3.

4.0 WATER DEMANDS

4.1 BACKGROUND

An important aspect of this 2026 IRP Update is to quantify historical demands, by category, so that a comparison may be made to projected demands as a sensitivity review. The following summarizes the components of the water demands of the Producers within Upper Water, along with the methodology for projected water demands.

4.2 HISTORICAL WATER DEMANDS

Historical demands by Producers within Upper Water have been categorized as 1) municipal demands within Upper Water's boundaries based on production (both groundwater and local surface water) from Main Basin and Raymond Basin, 2) municipal demands exported outside of Upper Water's boundaries, 3) treated imported water, and 4) recycled water. These historical demands between fiscal years 1996-97 and 2022-23 are shown on Figure 9. In addition, Figure 10 is similar to Figure 9 but without exports to Central Basin.

Figure 9 - Total Historical Producer Demand Within Upper Water (Includes Export)

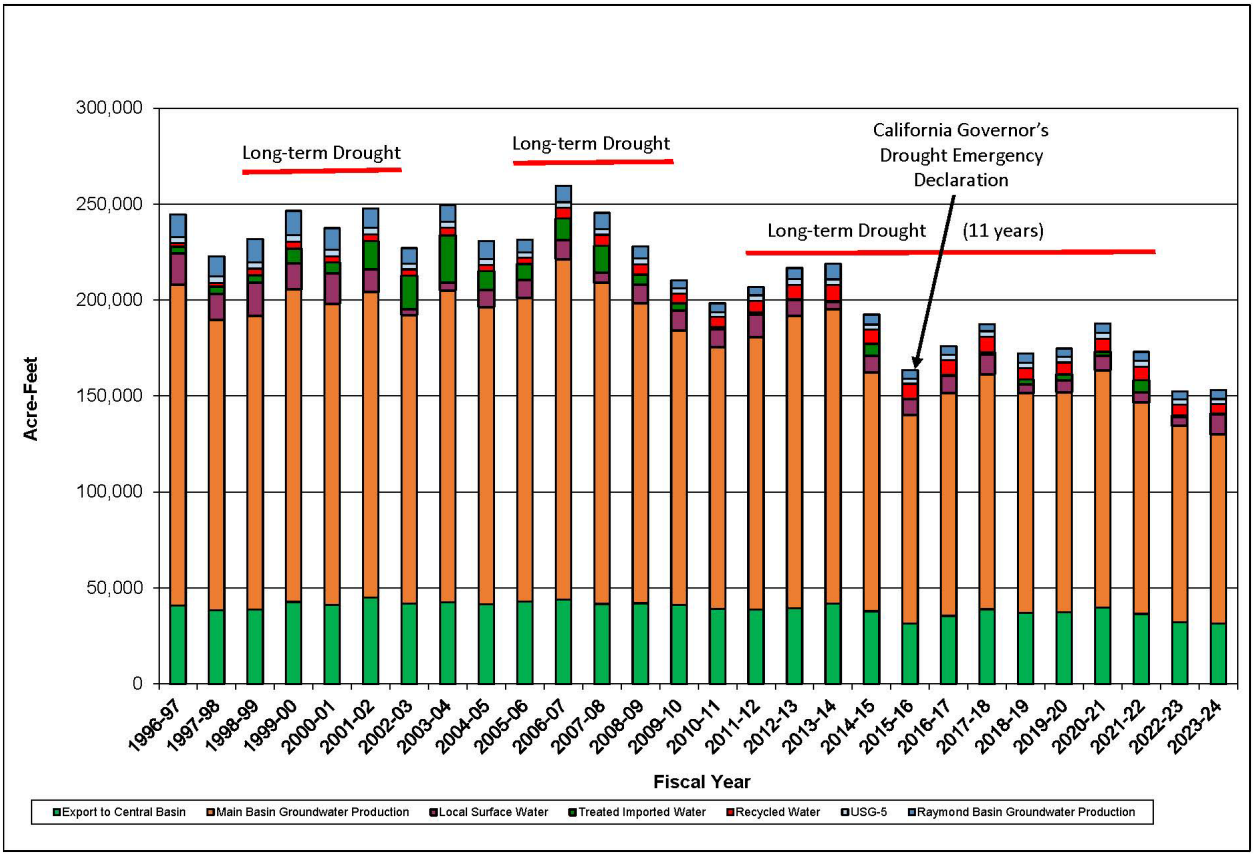
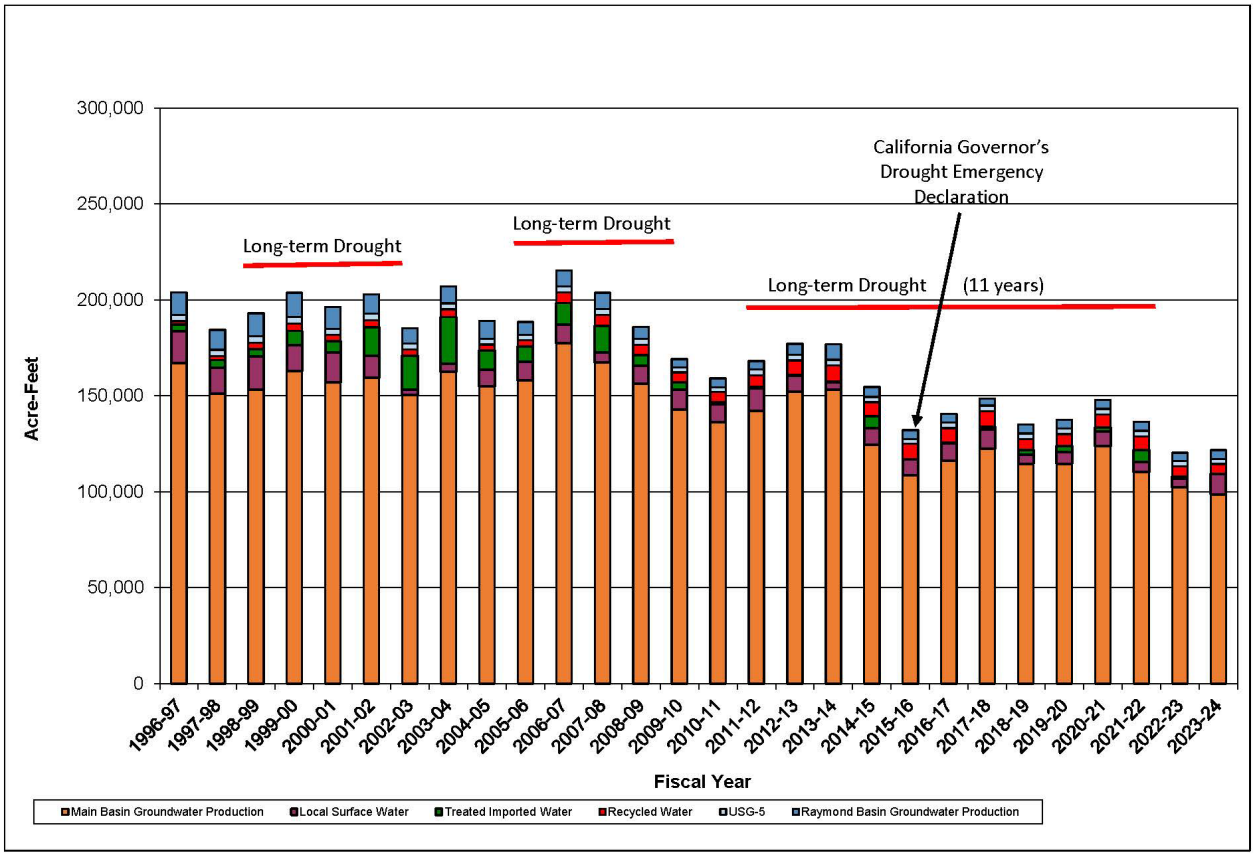


Figure 10 - Total Historical Producer Demand Within Upper Water (Excludes Export)



4.2.1 MUNICIPAL DEMANDS (LOCAL SUPPLIES)

The historical annual municipal demands within Upper Water's service area are summarized in Table 1 and range from 117,564 acre-feet per year to 212,412 acre-feet per year with an average of 167,915 acre-feet per year. The expanded use of recycled water within Upper Water's service area has contributed to a significant decrease of local water demands.

4.2.2 MUNICIPAL DEMANDS (EXPORT)

The historical annual municipal demands that have been produced within Upper Water but exported range from 31,323 acre-feet per year to 44,831 acre-feet per year with an average of 39,269 acre-feet per year. Although these demands are not associated with the populace within Upper Water's boundaries, the demands result in requests to Upper Water from the Main Basin Watermaster for delivery of untreated imported water for groundwater replenishment for Main Basin management purposes.

4.2.3 TREATED IMPORTED WATER

Upper Water supplies treated imported water from MWD through the following service connections:

- USG-1: Golden State Water Company
- USG-2: City of South Pasadena
- USG-4: Suburban Water Systems
- USG-5: City of Alhambra*
- USG-6: City of Arcadia
- USG-7: City of Monrovia
- USG-8: Azusa Light and Water
- USG-9: Valley County Water District

*Note: The City of Alhambra is not an Upper Water member agency. Upper Water delivers water to the City of Alhambra under the Cooperative Water Exchange Agreement, which addresses historical overproduction of groundwater in the western portion of the Main Basin.

Historically Producers within Upper Water have relied on local water supplies and, if needed, overproduced groundwater and paid a Replacement Water assessment to fund the purchase of untreated imported water for groundwater recharge, rather than purchasing treated imported water. USG-5 is an Upper Water treated imported water

connection, which delivers water to the City of Alhambra. In exchange, the City of Alhambra reduces its groundwater demand from the western portion of the Main Basin. The City of Alhambra is not an Upper Water member agency but can receive the treated imported water under the 1975 Cooperative Water Exchange Agreement (CWEA). CWEA is a cooperative effort to help address historical overproduction of groundwater and drawdown concerns in the western portion of the Main Basin. Deliveries through USG-5 have been consistently about 3,000 acre-feet per year, but deliveries through the balance of the connections were minimal. However, during the early 2000's groundwater contamination significantly impacted the ability to produce groundwater and, as a result, there was a temporary increase in treated imported water purchases. Currently, treated imported water deliveries have returned to historical trends with minimal deliveries other than USG-5.

4.2.4 RECYCLED WATER

The historical annual recycled water use within Upper Water from fiscal year 1996-97 to fiscal year 2023-24 is summarized in Table 1. Recycled water use ranged from 1,671 acre-feet per year to 8,227 acre-feet per year with an average of 5,219 acre-feet per year.

4.3 PROJECTED WATER DEMANDS

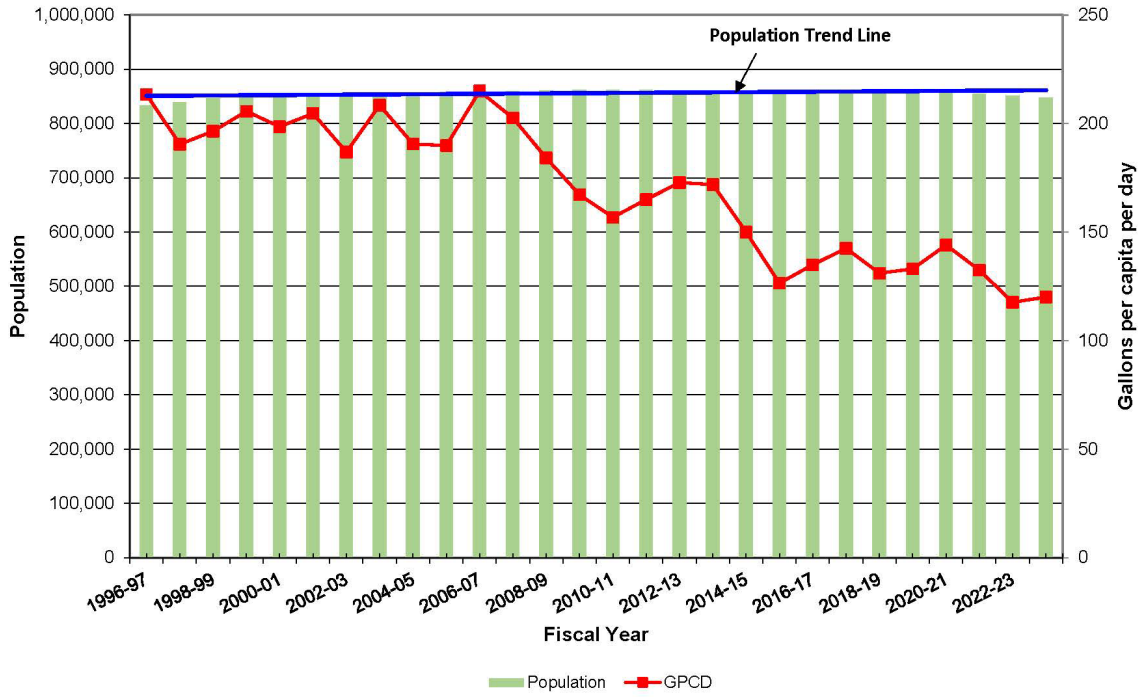
As discussed in Section 3.4, recent historical precipitation data, which includes a prolonged dry period, is used to project future water demands. Historical data since FY 1973-74 was reviewed and FY 2011-12 through 2021-22 (11 years) was identified as a period when the Basin experienced significant and prolonged drought conditions. Rainfall in the Basin was about 64 percent of long-term average annual rainfall (11.85 inches) during this 11-year period and the average annual local water that was conserved was

about 51 percent of the long-term average annual local water conservation (56,000 acre-feet). Consequently, using FY 2011-12 through 2021-22 data will be a conservate approach to project future water demands, which should accommodate changes in future hydrologic conditions due to climate change. The average annual water demand (municipal, untreated imported water, industrial and USG-5) within Upper Water's service area was determined for the 11-year drought period and applied to FY 2024-25 through 2044-45. The projected demands by Producers within Upper Water consist of municipal demands, untreated imported water demand, and projected commercial/industrial demand not associated with municipal use. These categories of projected water use are described below.

4.3.1 MUNICIPAL DEMAND BASED ON HISTORICAL DROUGHT CONDTIONS

The projected municipal water demand includes retail demand within the Main Basin, retail demand in the Raymond Basin that is met with water supplies within Upper Water , exported water, and treated imported water (M&I). When communities in the San Gabriel Valley became built-out in the 2000's, the population growth slowed to just under one percent per year. Growth in the San Gabriel Valley over the last ten years has reduced to less than half a percent per year. Any future growth is likely multi-family densification. The historical population trend from 1996 to 2023 is shown on Figure 11. The average annual historical municipal water demand over the 11-year drought period (fiscal year 2011-12 through 2021-22) was about 133,500 acre-feet per year and ranged from about 115,900 acre-feet per year to about 160,100 acre-feet per year. Due to more dense population, more multi-family development, drought conditions and water conservation efforts in the San Gabriel Valley, the water use per capita has significantly decreased, as shown in Figure 11. For the purposes of this IRP, municipal water demand over the next 20 years is assumed to be about 133,500 acre-feet, as shown on Table 2, and is expected to remain stable.

Figure 11: Upper Water Historical Water Use and Population



4.3.2 UNTREATED IMPORTED WATER DEMAND

The average annual historical untreated imported water demand over the 11-year drought period (fiscal year 2011-12 through 2021-22) was about 30,000 acre-feet per year and ranged from about 10,500 acre-feet per year to about 52,000 acre-feet per year. For the purposes of this IRP, untreated imported water demand over the next 20 years is assumed to be about 30,000 acre-feet per year, as shown on Table 2.

4.3.3 INDUSTRIAL DEMAND

There are some industrial demands within Upper Water (e.g. sand and gravel operations) that are not accounted for in the municipal water use projections. These uses were relatively constant over the 11-year drought period (fiscal year 2011-12 through 2021-22) and are not anticipated to increase. For the purposes of this IRP, industrial demand over the next 20 years is assumed to be 6,200 acre-feet per year, as shown on Table 2.

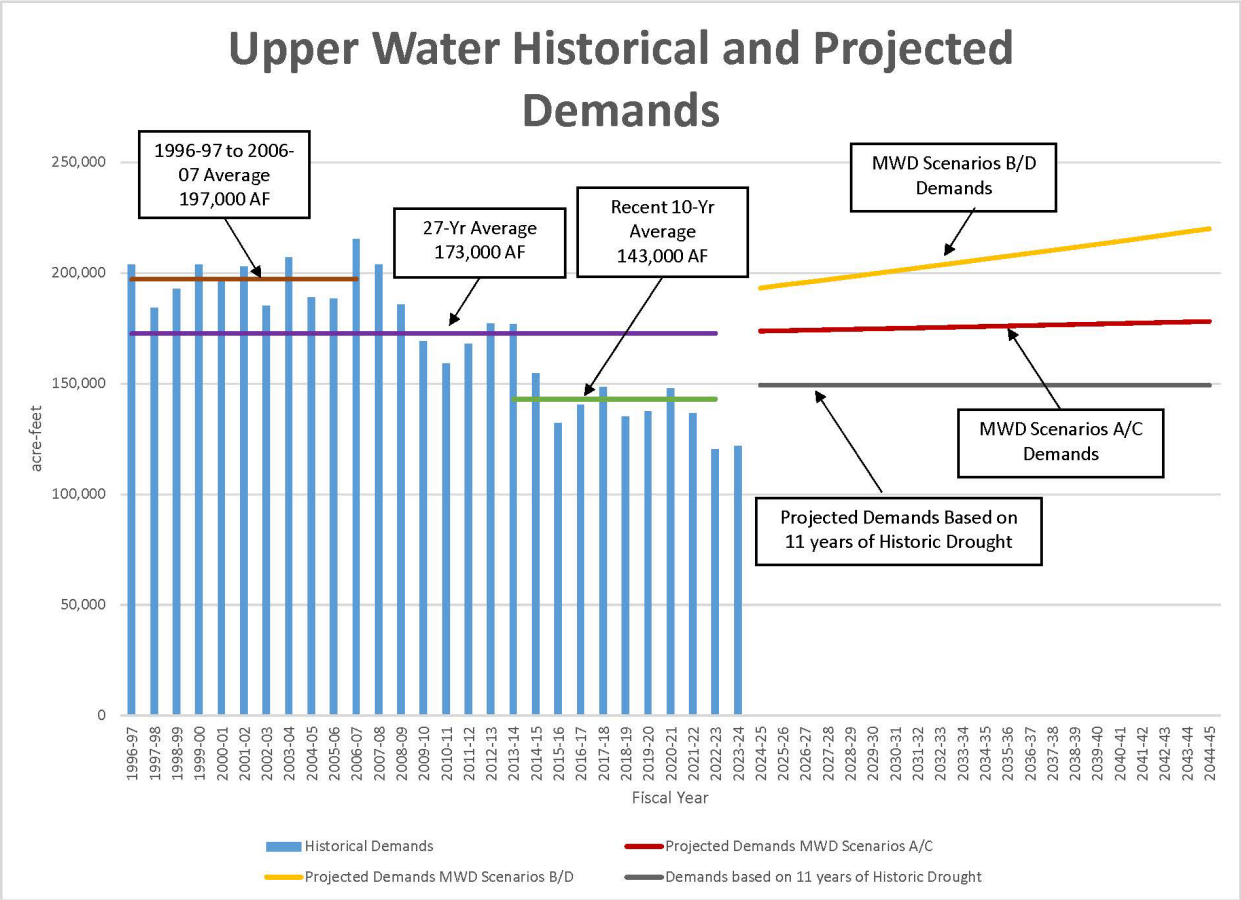
4.3.4 USG-5 WATER DEMAND

As discussed in Section 4.2.3, deliveries through USG-5 have been consistently about 3,000 acre-feet per year. These deliveries were also relatively consistent over the 11-year drought period (fiscal year 2011-12 through 2021-22) averaging about 2,800 acre-feet. For the purposes of this IRP, USG-5 water demand over the next 20 years is assumed to be 2,800 acre-feet per year, as shown on Table 2.

4.3.5 TOTAL

Total projected annual demand over the next 20 years is about 172,500 acre-feet per year, which includes 133,500 acre-feet per year of municipal demand, 30,000 acre-feet per year of untreated imported water demand, 6,200 acre-feet per year of industrial demand, and 2,800 acre-feet per year of USG-5 demand, as shown in Table 2 and graphically shown on Figure 12. Figure 12 shows the historical and projected demands.

Figure 12: Upper Water Historical and Projected Demands



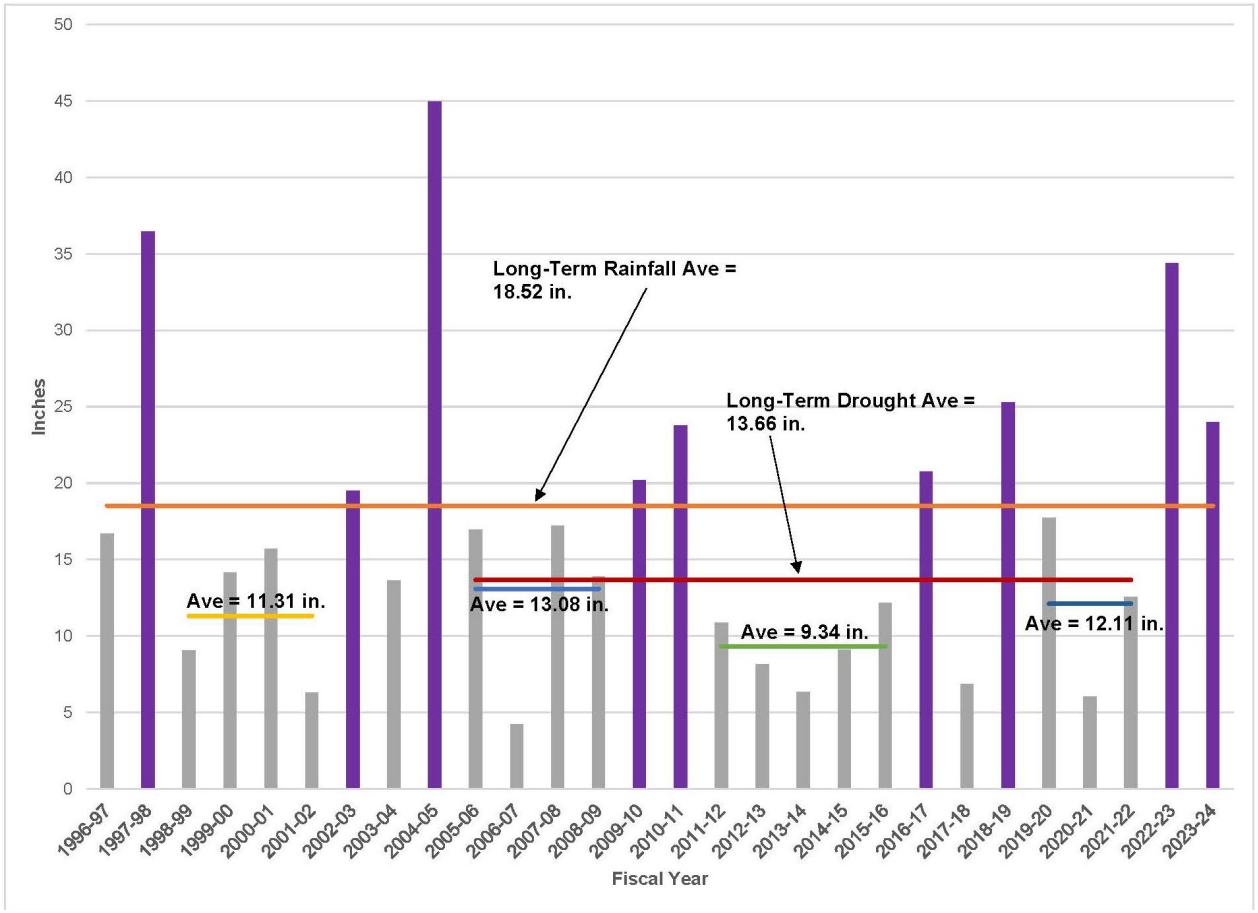
4.4 CONSERVATION – DIMINISHING RETURNS

The San Gabriel Valley is a closed system. When there are reduced urban runoff and sewer flow, local groundwater replenishment and recycled water supplies are also reduced. Analyzing water demand patterns from historical multi-year drought periods helps provide an understanding of current and future water demand patterns of residential customers and consequently provides direction for this IRP on how to project future water demands within Upper Water.

Four long-term multi-year drought periods are shown in Figure 13. Figures 10 and 12 demonstrate historical water demand patterns during the four long-term multi-year drought periods. The initial drought period from fiscal year 1998-99 through 2001-02 (four-year drought average was 11.31 inches, 61% of average) appears to indicate that residential customers increased water demands during this period in response to the diminished rainfall. However, at the time of the next drought period between 2005-06 and 2008-09 (four-year drought average was 13.08 inches, 71% of average) it appears retail customers initially increased demands before it was apparent the region was in a drought, then significantly decreased retail demand thereafter in response to public education efforts, as shown in Figures 10 and 12. Demands at the end of the second drought period were lower than the end of the first period. By the time of the third drought period between 2011-12 and 2015-16 (five-year drought average was 9.34 inches, 50% of average), the retail response to public education efforts was overwhelming compared to historical demand, and although fiscal year 2017-18 had below average rainfall, as shown in Figure 13, retail demand remained low, as shown in Figures 10 and 12. During the fourth drought period between 2019-20 and 2021-22 (three-year drought average was 12.11 inches, 65 percent of average), retail demand decreased in response to ongoing public education efforts. In general, during these droughts water demands initially increased due to decreased rainfall, but the increases were typically followed by decreased demands,

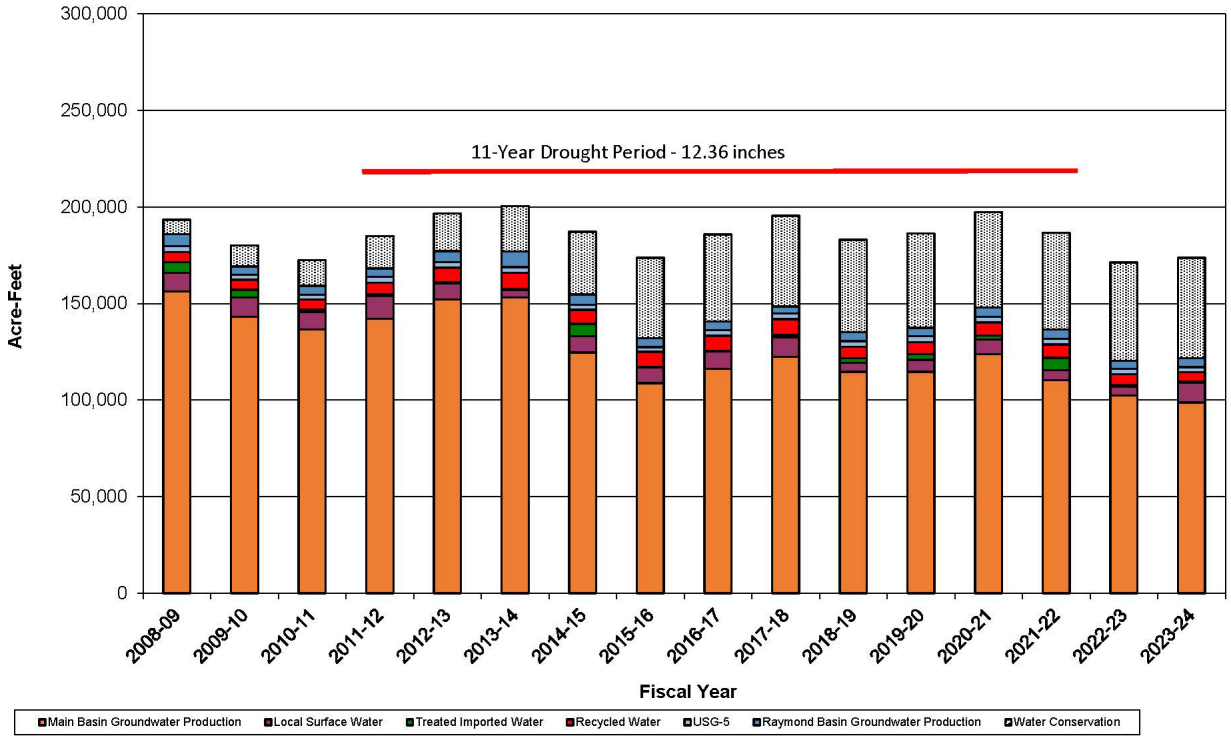
largely due to retail water conservation efforts encouraged and/or required by local agencies (including Upper Water) and the State.

Figure 13 – Historical Rainfall in San Gabriel Valley



As noted previously, Upper Water has taken a leadership role in the San Gabriel Valley to promote the use of recycled water (instead of groundwater supplies) and retail water conservation activities and messaging. Figure 14 shows historical demands along with the benefits of recycled water and conservation measures over the past 14 years. The majority of the demand reduction is due to Upper Water's recycled water, conservation measures and education outreach, as shown in Figure 14. Without recycled water use, conservation measures, overall demands would have averaged approximately 175,000 acre-feet per year. However, with the use of recycled water and conservation measures, overall demands have trended down and have consistently been below 150,000 acre-feet per year since fiscal year 2014-15.

Figure 14 – Total Historical Producer Demand Within Upper Water Considering Water Conservation (Excludes Export)



It appears water demands from residential customers have continued to remain low since the long-term multi-year drought period (fiscal year 2011-12 through 2021-22), due to retail water conservation efforts encouraged and/or required by local agencies (including Upper Water) and the State, and consequently water conservation appears to have now become more of a way of life. This is evident in Figures 10 through 13. Even with two above average years rainfall occurring in fiscal years 2022-23 and 2023-24 (shown in Figure 13), water demands have remained low (shown in Figures 9 and 10).

5.0 GAP ANALYSIS

The Gap Analysis compares the projected water demands described in Section 4.3 above to projected water supplies to identify the circumstances and magnitude of the difference (gap). Projected water supplies consist of local water supplies (groundwater and surface water) which can be produced within an Operating Safe Yield and do not require delivery of imported water, and imported water supplies which are likely to be available to Upper Water on a typical basis and as part of a WSAP. This IRP does not attempt to identify the timeframe over which additional imported water supplies may be required, but rather the magnitude of the need.

5.1 LOCAL WATER SUPPLIES

Local water supplies are assumed (for the purpose of this IRP) to be represented by the Operating Safe Yield. Based on responses from Upper Water Producers, the reliable local water supplies may be bracketed by an Operating Safe Yield of 150,000 acre-feet to represent drought conditions and are indicative of historical Main Basin operations. An Operating Safe Yield of 180,000 acre-feet was selected to represent average water supply conditions. In addition, surface water rights total about 10,500 acre-feet and are added to the Operating Safe Yield. Based on historical trends, Upper Water Producers' proportional share of these water rights is 80 percent. In addition, there is some local water supply available from water rights and production within the Raymond Basin.

5.2 IMPORTED WATER SUPPLIES

MWD's adopted fiscal year 2024-25 and fiscal year 2025-26 Biennial Budget eliminated the Tier 2 rate in the proposed rates and charges for calendar years 2025 and 2026. Therefore, there is only a single supply rate, Tier 1, and the previous Tier 1 allocation (quantity of water purchased at the lower Tier 1 rate) has been eliminated. This IRP will

assume a single supply rate, which is available during non-WSAP years. At times when MWD instates a restriction (allocation) to its member agencies as the result of insufficient water supplies, Upper Water's imported water supplies could be significantly impacted for the period the allocation is in place. In 2022 MWD imposed severe allocations on the SWP dependent agencies due to historically low SWP allocations. Upper water received an allocation of about 14,700 acre-feet under the restrictions imposed in 2022. This SWP restriction is likely not to occur again in the future due to MWD's actions, planning and programs to have more water supply available and in storage. In the event of supply restrictions or low SWP allocation, a MWD wide allocation under the Water Supply Demand Management Plan (WSDM) can be instated. An allocation of 25,000 acre-feet from previous WSAP allocation will be used in the gap analysis.

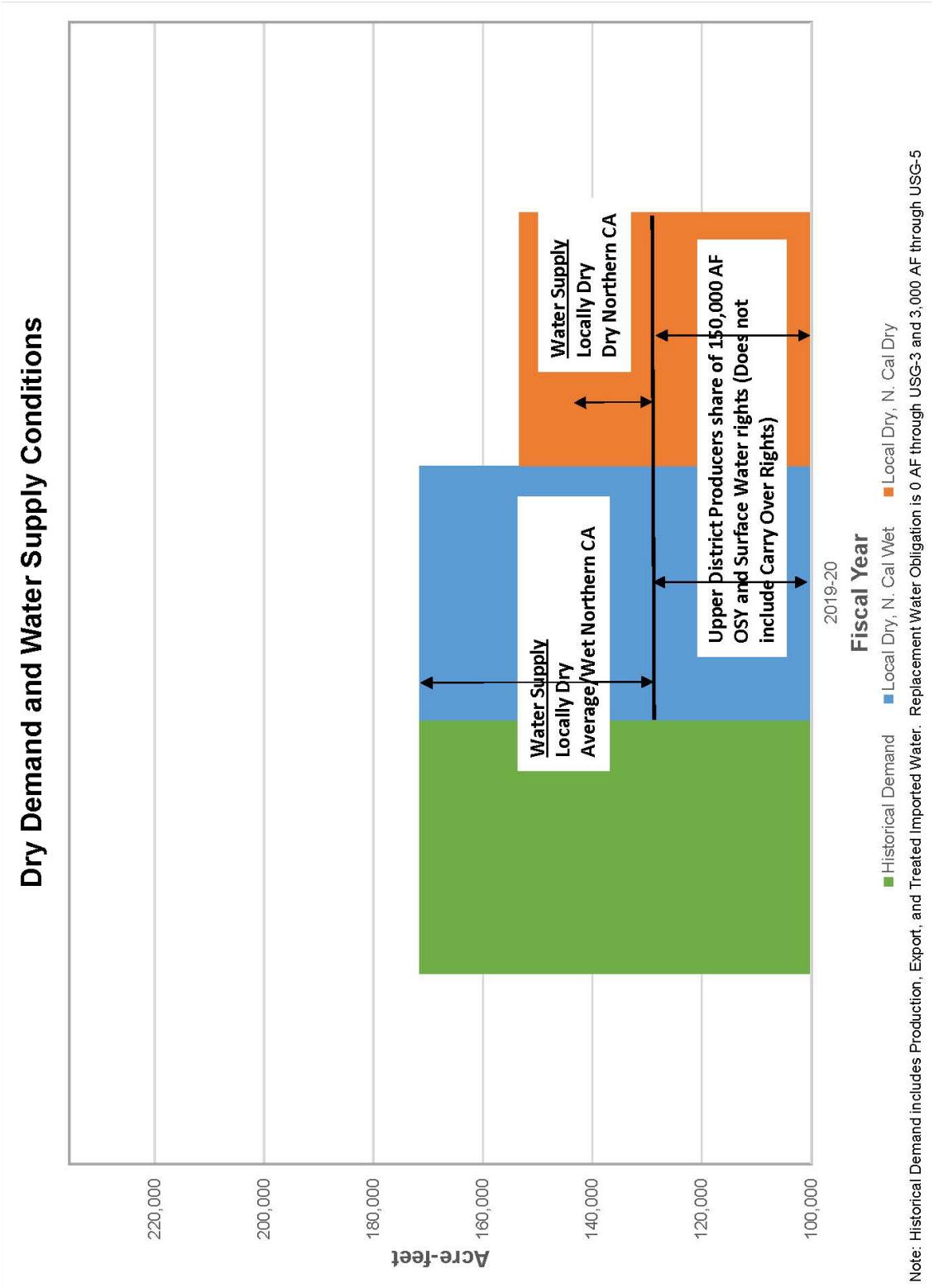
In addition, MWD's Pre-Delivery Agreement is included in the gap analysis . As previously discussed, MWD could deliver imported replenishment water (up to 200,000 acre-feet) into MWD's Cyclic Storage account and Upper Water and Watermaster would purchase the water over ten years. The amount purchased will be included in this gap analysis.

5.3 GAP ANALYSIS

As noted above, the reasonably available water supplies (both local and imported) were compared to projected demand. Figure 15 shows a dry demand (using fiscal year 2019-20 as an example dry year) and water supply condition. Under this dry condition, there are two dry condition scenarios for supply used:

A. Locally Dry in San Gabriel and Dry year in Northern California
    i. Dry year in Northern California and SWP restrictions apply
B. Locally Dry in San Gabriel and Average/Wet year in Northern California
    i. Average/Wet year in Northern California is not impacted by drought, and untreated imported water is available to meet demands

Figure 15 – Dry Demand and Water Supply Conditions

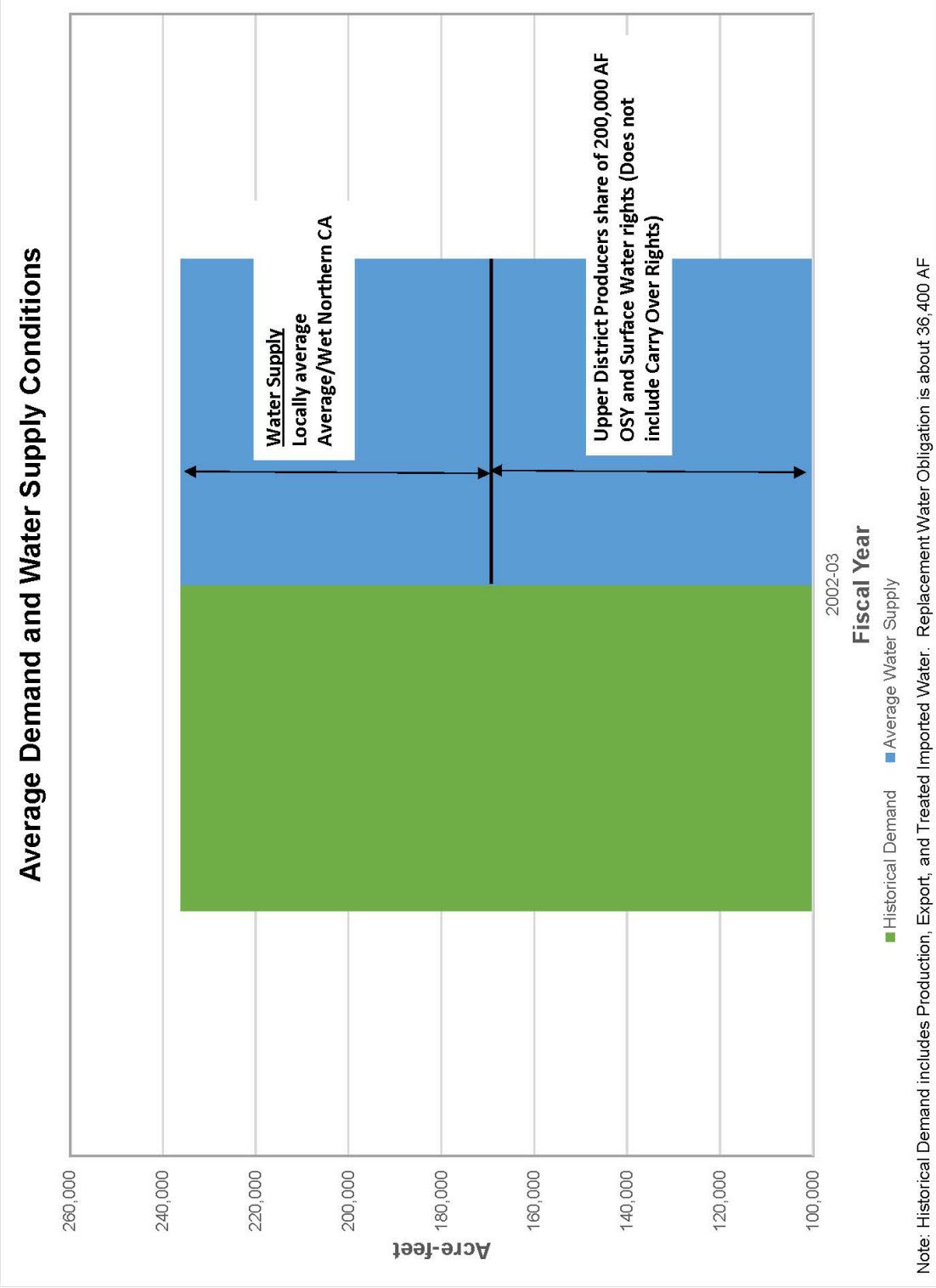


Under Dry Scenario Supply A, the potential gap during a drought condition assuming an Operating Safe Yield of 150,000 acre-feet (equivalent to about 128,400 acre-feet of local supply) and an estimated WSDM allocation of about 25,000 acre-feet, which is a total supply of about 153,400 acre-feet, as shown in Table 3. When compared to projected demands of about 189,400 acre-feet from Table 4A and using fiscal year 2019-20 (about 171,600 acre-feet) from Figure 15, the potential gap is about 36,000 acre-feet and about 18,000 acre-feet, respectively. As shown in Table 2, during the 11-year long-term drought period, the highest demand was about 193,600 acre-feet, which is a gap of about 40,200 acre-feet. For the purpose of planning, the gap of about 40,000 acre-feet will be used in this IRP.

Under Dry Scenario Supply B, the potential gap during a drought condition assuming an Operating Safe Yield of 150,000 acre-feet (equivalent to about 128,400 acre-feet of local supply) and available untreated imported water supply to meet demands (about 44,100 acre-feet), which is a total supply of about 172,500 acre-feet, as shown in Table 3. When compared to projected demands of about 189,400 acre-feet from Table 4B and using fiscal year 2019-20 (about 171,600 acre-feet) from Figure 15, there is a potential gap of about 17,000 acre-feet and no potential gap through fiscal year 2044-45, respectively.

Figure 16 shows an average water supply condition assuming an Operating Safe Yield of 200,000 acre-feet (equivalent to about 168,400 acre-feet of local supply) and available untreated imported water supply to meet demands (about 67,700 acre-feet), which is a total supply of about 236,100 acre-feet, as shown in Table 3. When compared to projected demands shown in Table 5 and Figure 16, there is no potential gap.

Figure 16 – Average Demand and Water Supply Conditions



6.0 WATER SUPPLY PROJECTS TO ADDRESS GAP

The potential gap of about 40,000 acre-feet, as discussed in Section 5, indicates the existing water supplies available to Upper Water during Dry Scenario Supply A, a total supply of about 153,400 acre-feet (Operating Safe Yield of 150,000 acre-feet (equivalent to about 128,400 acre-feet of local supply) and an estimated WSDM allocation of about 25,000 acre-feet), won't be enough to meet projected demands of about 189,400 acre-feet and actual fiscal year 2019-2020 demands of about 171,600 acre-feet. As discussed in Section 5, during the 11-year long-term drought period, the highest demand was about 193,600 acre-feet, which is a gap of about 40,200 acre-feet. Consequently, Upper Water will need to look at other water supply sources to help meet the potential gap of about 40,000 acre-feet.

6.1 RECYCLED WATER – PURE WATER PROJECT

As previously discussed, MWD is currently developing the Pure Water Project to provide up to 150 MGD (approximately 158,000 AFY) of full advanced treated (FAT) recycled water from LACSD's Warren Facility Plant[3]. Water could be delivered from the facility as early as 2038. However, at the time of this report, MWD has not approved implementation of the project. In 2026, the MWD Board certified the Environmental Impact Report and appropriated funds to continue planning and design on the project through 2028.

In September 2022, MWD announced it would be receiving $130 million in State funding for water supply projects, including $80 million for the Pure Water Southern California

3 https://www.mwdh2o.com/building-local-supplies/pure-water-southern-california/

project. The Pure Water Southern California project received about $100 million in federal funding in May 2024 to help advance design work and improvements to existing infrastructure needed for the project.

6.1.1 ESTIMATED PURE WATER PROGRAM YIELD

In July 2020, MWD signed a "Letter of Intent" with Upper Water and Three Valleys District. The Letter of Intent (Appendix A) allows for the following Pure Water Project water purchases/deliveries:

- Long-term minimum purchase of at least 35,000 AFY by Upper Water
- Long-term minimum purchase of at least 6,500 AFY by Three Valleys District
- Maximum deliveries of up to 60,000 to 80,000 AFY, collectively.

In June 2022, MWD signed a similar "Letter of Intent" with San Gabriel District. The Letter of Intent (Appendix B) allows for the following Pure Water Project water purchases/deliveries:

- Long-term minimum purchase of at least 6,000 AFY by San Gabriel District
- Maximum total deliveries of up to 60,000 to 80,000 AFY collectively into the Main Basin (including deliveries to San Gabriel District, Upper Water, and Three Valleys District)

Pursuant to an August 2022 presentation provided by MWD, the Pure Water Project could potentially deliver at least 65,000 AFY to the Main Basin beginning in 2035. The delivery of 65,000 AFY not only covers Upper Water's demand, but the demand of the other two Responsible Agencies (Three Valleys District and San Gabriel District) and Producer's

Cyclic Storage. These deliveries could be used as a source of replacement water, help restore water levels in the Main Basin, and reduce or replace the need for imported water from SWP water. This IRP analysis, however, only discusses Upper Water's portion of the Pure Water demand.

The Pure Water Project yield is enough water supply to meet Upper Water's potential gap of about 40,000 acre-feet. In addition, due to the uncertainty of the reliability of SWP water and the climate change impacts to the health of the Main Basin, delivering Pure Water in place of SWP water will help solve this issue and help maintain water levels in the Main Basin.

6.1.2 RELIABILITY

Pure Water will deliver highly treated recycled water from LACSD's Warren Facility Plant 24 hours, 7 days a week continuously (with an estimated 10% downtime for maintenance.) The water will be delivered during dry years, average years and wet years. Watermaster's 3D Model has been used to evaluate replenishing Basin with water from Pure Water and is projected to be able to be conserved in the Main Basin. The 3D Model analysis also includes the need for a new recharge facility during very wet years, which is proposed to be done in the near future. Consequently, Pure Water is expected to be a reliable source of water supply.

6.1.3 DROUGHT RESILIENCY

Due to the uncertainty of SWP water and Colorado River water to the MWD service area, Pure Water will be created in order to provide a drought-resistant water source that would produce up to 150 million gallons of water for 15 million people in Southern California. Pure Water will provide a new source of water to Southern California and enhance the

region's operational resilience, and reliability. MWD currently receives about 25 percent of its water supply from the Colorado River. Pure Water would reduce reliance on the Colorado River supply by up to 13 percent since approximately 62,000 AFY of the purified water from Pure Water will supplement the Colorado River supply. Pure Water will also reduce Southern California's reliance on the SWP by up to 12 percent; making MWD's regional storage portfolio more resilient. About 60 percent, or about 90 mgd of the 150 mgd full-scale Pure Water yield, will reduce demands on the SWP.

6.1.4 WATER QUALITY

Pure Water will be highly treated recycled water. Water quality testing from the Demonstration Plant showed that the recycled water produced by the proposed Pure Water treatment processes would meet current regulatory requirements and is not expected to generate concerns for water quality. Consequently, there are no other water quality issues with Pure Water.

6.1.5 OPERATION AND MANAGEMENT OF THE MAIN BASIN

The Main Basin Watermaster has managed the water supply of the Main Basin, and its Relevant Watershed, since the Judgment was entered in 1973. Part F of the Main Basin Judgment provides the "Physical Solution" for the operation and management of the Main Basin. Section 42 of the amended Main Basin Judgment, states, in part, "…Watermaster shall recharge Replacement Water in accordance with the Watermaster Operating Criteria, and, insofar as practicable, maintain the water level at the Key Well above elevation two hundred (200)….". The Physical Solution intends for the Watermaster to "manage" groundwater levels (and Basin storage) using the Operating Safe Yield and Replacement Water. In addition, the Physical Solution allows/anticipates over production

to meet demands, and consequently, depends on reliable untreated imported water to replace over production. Upper Water can deliver Pure Water as Supplemental Water into the Main Basin to replace over production and continue to allow Watermaster to manage the Basin storage without the curtailments in availability of MWD water during droughts.

In addition, Watermaster collects RDA funds and Replacement Water funds to purchase Supplemental Water. These funds are important to help purchase Pure Water in the future as Supplemental Water. Watermaster may review the following tools/actions to ensure funding for Pure Water: 1) increasing RDA assessments and/or 2) setting low OSY to purchase more Replacement Water.

6.2 GROUND WATER STORAGE

As previously discussed, the total fresh water storage capacity of the Main Basin is estimated to be about 9.5 million acre-feet. Of that, about 1,100,000 acre-feet have been used historically in Main Basin operations. The change in groundwater elevation at the Key Well is representative of changes in groundwater in storage in the Main Basin. One foot of elevation change at the Key Well is roughly the equivalent of about 8,000 acre-feet of water storage. Due to the large storage capacity of the Main Basin, untreated imported water can be stored in the Basin.

6.2.1 CYCLIC STORAGE

Cyclic Storage water is a pre-delivery of Replacement Water. Under the terms of Cyclic Storage agreements, individual Producers may make deliveries to Watermaster out of their Cyclic Storage accounts to satisfy Replacement Water requirements which are accounted for following June 30 of each year. The Responsible Agencies may make

deliveries to Watermaster out of their Cyclic Storage accounts to satisfy Replacement Water requirements as of June 30 of each year.

There are Cyclic Storage agreements between Watermaster and each of the Responsible Agencies which provide for the total storage of up to 300,000 acre-feet of Supplemental (Replacement) Water in the Basin. Water in Cyclic Storage is available to supply Replacement Water by transfer to Watermaster in-lieu of physically delivering Supplemental Water. This is typically done at the discretion of the storing party.

6.2.2 PRE-DELIVERY AGREEMENT

MWD, Upper Water and Watermaster entered into a Pre-Delivery Agreement, to coordinate large amounts of delivery (up to 200,000 acre-feet) into MWD's Cyclic Storage account. Upper Water and Watermaster have up to ten years to purchase that water. The purpose of the MWD Pre-Delivery Agreement is when water is available, MWD would like to deliver as much water as possible to prepare for the next drought, when MWD may not deliver Supplemental Water to the Basin. This potential MWD pre-delivery program is predicated on Watermaster managing the Basin so that, when the MWD replenishment supply interruption occurs, the pre-delivered water will be stored in the Basin and available for pumping. In order to fund these purchases every year, Watermaster uses funds from Replacement Water/Cyclic Storage orders and the RDA from Upper Water. As of April 2025, there was about 88,000 acre-feet in MWD's Cyclic Storage under the Pre-Delivery Agreement. To ensure funds are available each year, the OSY would need to be set to create a Replacement Water/Cyclic Storage requirement (i.e., setting a low OSY creates more Replacement Water/Cyclic Storage requirement). If there are not enough funds due to increasing the OSY, more RDA water would need to be purchased to make up the difference. This is accomplished by increasing the RDA assessment. This is how both OSY and RDA are used as "tools" to manage Basin water levels and Basin storage.

6.2.3 STORAGE AND EXPORT IN THE MAIN BASIN

MWD could enter into a Storage and Export Agreement with Watermaster, which would allow MWD to store about 200,000 to 400,000 acre-feet of Pure Water in the Basin, pump groundwater to recover the stored water, and deliver the water outside of the Basin. If MWD pumps/transfers water from storage, the agreement could include provisions on dry years, cost, recovery and performance.

6.2.4 USING THE KEY WELL FOR PROJECTIONS

As previously discussed, the change in groundwater elevation at the Key Well is representative of changes in groundwater in the Main Basin. One foot of elevation change at the Key Well is roughly the equivalent of about 8,000 acre-feet of water storage. The location of the Key Well is shown on Figure 8, and the hydrograph of the Key Well is shown on Figure 5. The Key Well hydrograph shown on Figure 5 illustrates the cyclic nature of basin replenishment and depletion. The hydrograph also illustrates the dramatic replenishment capability of the Main Basin during wet periods.

Projecting the water level at the Key Well can be used as a guide or planning tool to determine how much untreated imported water needs to be stored in the Basin to prevent the groundwater level dropping below 170 feet. If the groundwater level at the Key Well were to go below 170 feet, wells in the Basin might experience reduced pumping capacity due to the low water levels and some wells may not be able to pump the groundwater at all. Under a Base Case Scenario 1 assumes no imported water deliveries and FY 11-12 through 21-22 drought hydrology (11 years) is used for FY 25-26 through 35-36 to project a second long-term drought of 11 years. In addition, production of 190,000 acre-feet per year for FY 25-26 through 35-36.

Scenario 2 – Using MWD's Scenario C from its IRP

Figure 17 uses MWD's Scenario C from its IRP. As previously discussed, Scenario C assumes low demand and reduced imports. Without new storage under Scenario C, 350 TAF of new core supply is needed by 2045.

Scenario C uses the same assumptions as in Scenario 1, but deliveries are as follows: Three years of 100,000 AF, five years of 40,000 AF and two years of 20,000 AF. The projection shows that the Key Well elevation can be kept around 225 feet through June 30, 2036, as shown in Figure 17. Consequently, delivering three years of 100,000 AF, five years of 40,000 AF and two years of 20,000 AF will help the water levels at the Key Well stay around 225 feet during a projected second long-term drought.

Scenario 3 – Using MWD's Scenario D from its IRP

Figure 18 uses MWD's Scenario D from its IRP. As previously discussed, Scenario D assumes high demand and reduced imports. Without new storage under Scenario D, 950 TAF of new core supply is needed by 2045.

Scenario D uses the same assumptions as in Scenario 1, but deliveries are as follows: One year of 100,000 AF, five years of 40,000 AF and four years of 20,000 AF. The projection shows that the deliveries under Scenario D help keep the Key Well elevation above 200 feet through June 30, 2036, as shown in Figure 18. Consequently, delivering one years of 100,000 AF, five years of 40,000 AF and four years of 20,000 AF will help the water levels at the Key Well stay above 200 feet during a projected second long-term drought.

Scenario 4 – Pure Water

For comparison purposes, it is assumed Pure Water starts at the same time as in Scenarios 2 and 3, even though Pure Water will likely start in 2035. Figure 19 shows the projected Key Well groundwater elevations, assuming Pure Water deliveries of about 60,000 acre-feet per year starting in FY 25-26 and assuming the same long-term drought conditions (11 years) through FY 2035-36 as in Scenario 1. Figure 19 shows the Key Well elevation is steady and above 200 feet and by June 30, 2036, the Key Well elevation is around 225 feet. The projections show that Pure Water deliveries could help sustain the Main Basin even during a projected second long-term drought.

Figure 17 – Projected Key Well Elevations Using MWD's Scenario C

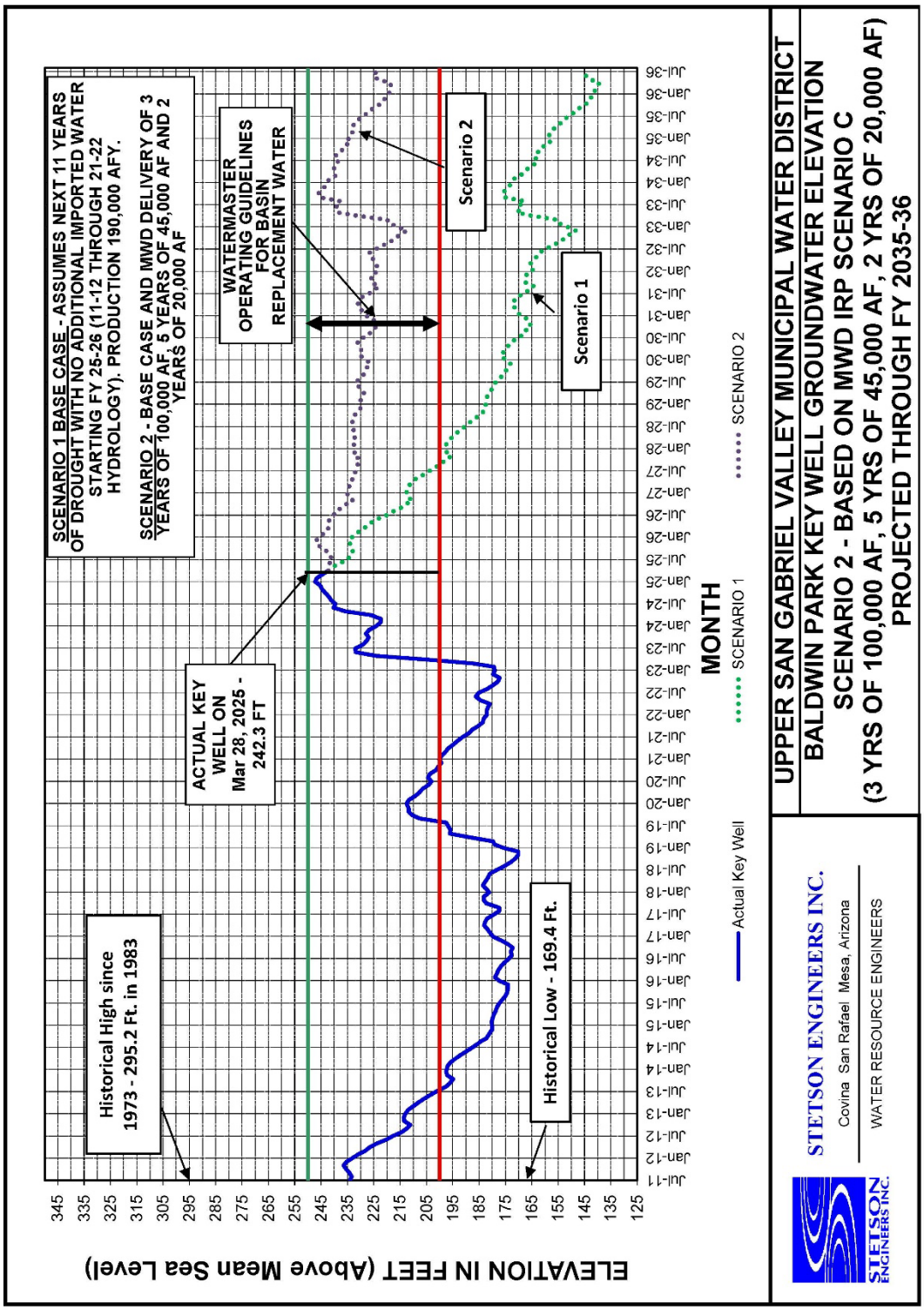


Figure 18 – Projected Key Well Elevations Using MWD's Scenario D

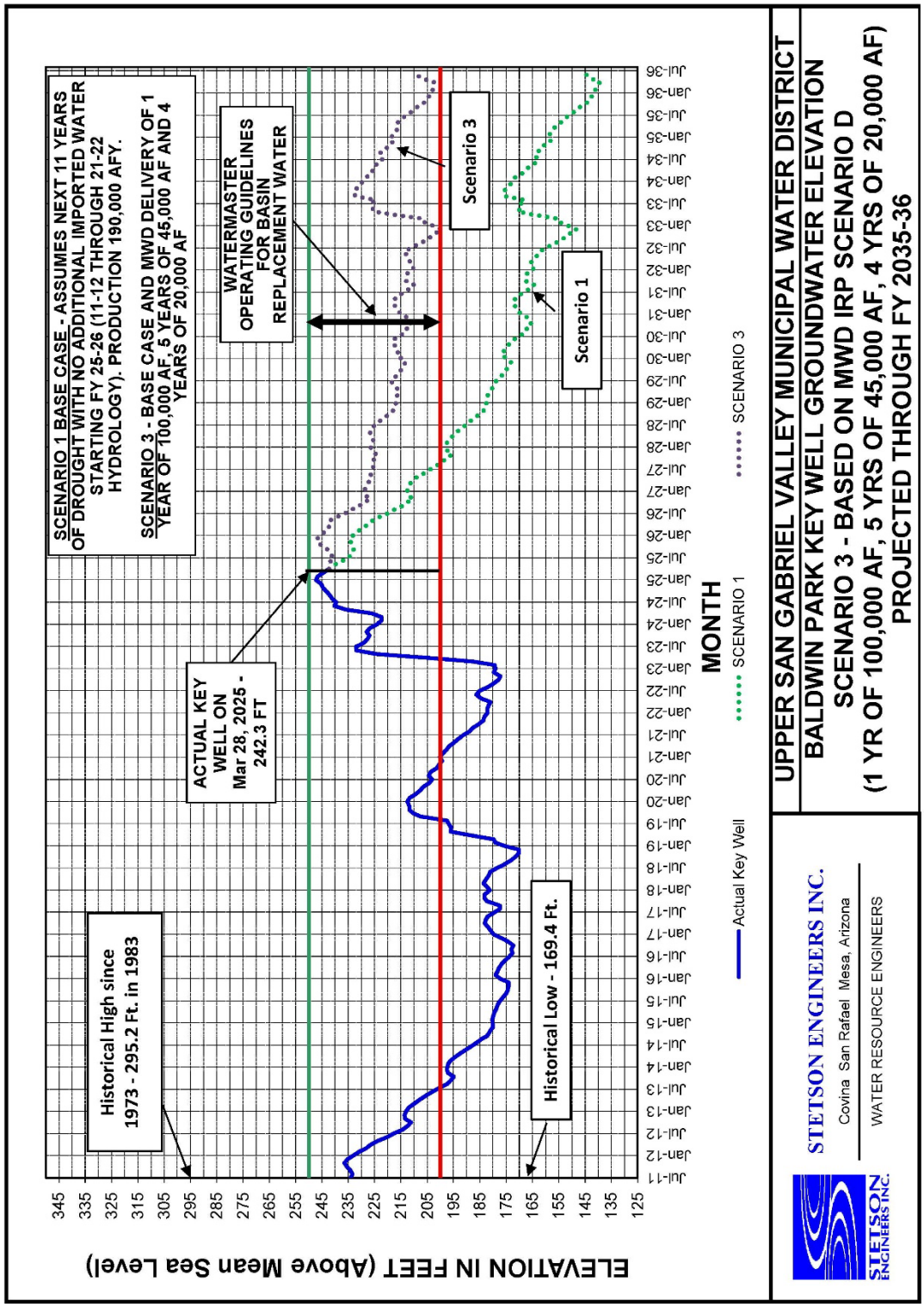
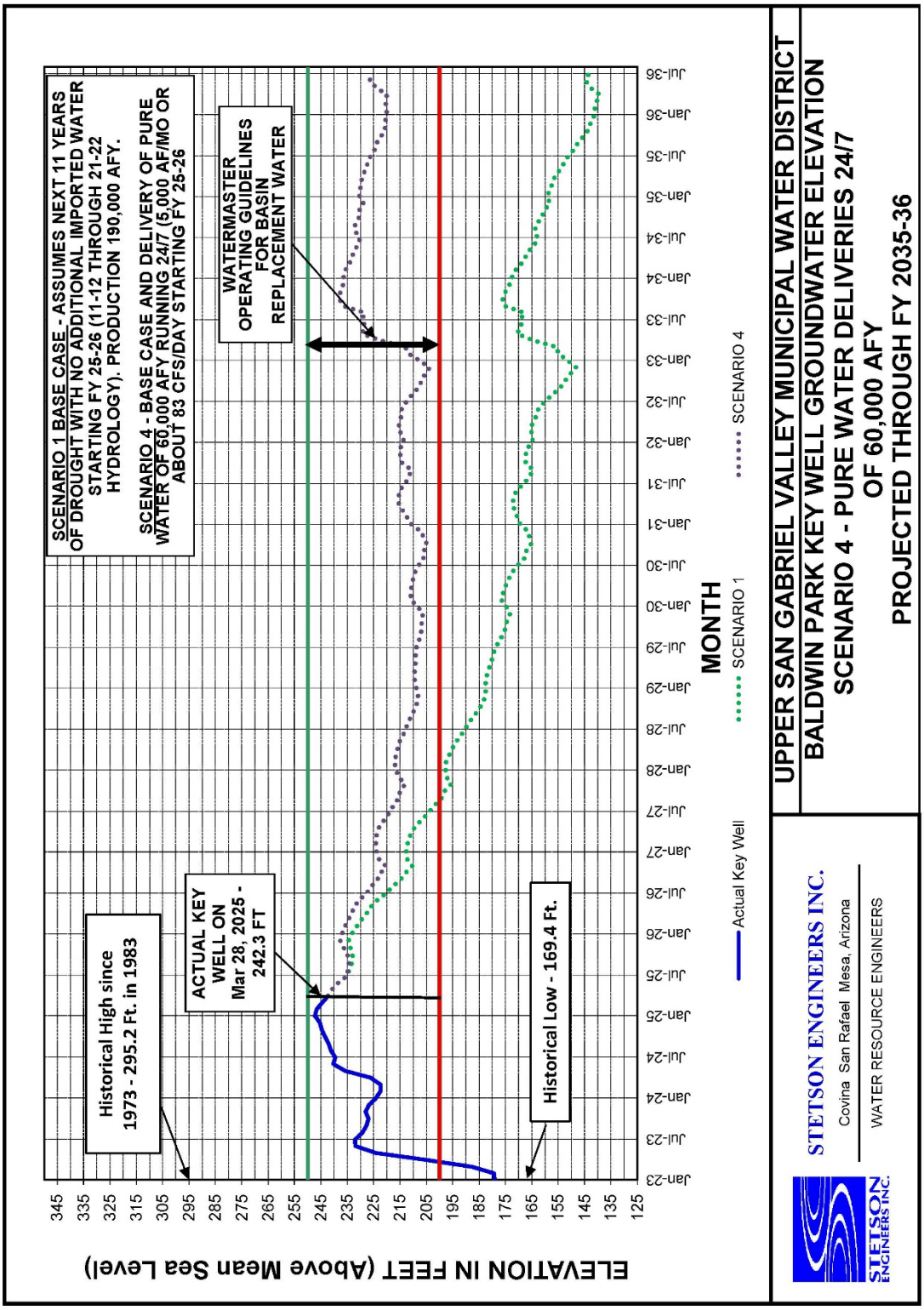


Figure 19 – Key Well Projection Assuming Pure Water Deliveries of 60,000 AFY



7.0 OTHER CONSIDERED ALTERNATIVE WATER SUPPLIES

Both the Delta Conveyance Project and the Pure Water Project would provide Upper Water with more reliable delivery of Supplemental Water to the Main Basin. The Pure Water Project provides a water supply that is more reliable, drought resilience, and better water quality to the Main Basin.

Other alternative water supplies discussed below were considered in this IRP but did not meet Upper Water's goals for a water supply to meet the gap in future water supply. In addition, these other alternative water supplies would require an exchange or conveyance agreement with MWD which could add unknown costs to the water and the terms of an agreement and the schedule to develop and execute such an agreement is unknown.

7.1 DESALINATION

It is assumed Upper Water would be a partner in desalination project in Southern California if it were to obtain water from this source.

7.1.1 LAS VIRGENES MUNICIPAL WATER DISTRICT (LVMWD) DESALINATION PROJECT

LVMWD has partnered with the Natural OceanWell Company (OceanWell) to further research and develop OceanWell's Blue Farm Water Farm Technology. These deep sea farms are comprised of pods. These pods are 40-foot-long devices anchored to the seafloor that take in saltwater and pump purified fresh water. The pods are said to be able to produce up to 1 million gallons of freshwater daily. The farms are said to have little to

no environmental impact. Grant funds have been provided by MWD and the USBR for prototype testing of the technology. A large portion of the cost of desalination is the for the energy requirements. The energy requirements for this technology, and therefore, the cost of the water, have yet to be determined.

Upper Water would not be able to take water from LVMWD's desalination plant directly. Instead, Upper Water would pay for some portion of the development, construction, and operation of LVMWD's future full scale desalination facility and receive a portion of the water produced. The water would be provided to MWD in exchange for SWP water delivered to Upper Water by MWD through USG-3. An exchange agreement would be needed with MWD. Until improvements in MWD's system are completed to address the impacts of low SWP allocations on SWP dependent areas, including Upper Water, this would not be a more reliable source of water for Upper Water. In addition, the cost of the water from a full scale facility is unknown.

7.1.2 CARLSBAD SEAWATER DESALINATION PROJECT

Poseidon Water built the Claude "Bud" Lewis Carlsbad Desalination Plant and a 10-mile conveyance pipeline to deliver desalinated seawater to the San Diego County Water Authority's (Water Authority's) aqueduct system. The Carlsbad Desalination Plant is capable of producing 50 million gallons per day (MGD) of potable water using reverse osmosis (RO) technology. The plant is located on a 4-acre site at the Encina Power Station in Carlsbad, California and serves as a supplemental and drought-resistant water source for the city and surrounding areas in northern San Diego County.

In November 2012, the Water Authority approved a 30-year Water Purchase Agreement with Poseidon Water for the purchase of up to 56,000 acre-feet of desalinated seawater per year, approximately 10 percent of the San Diego region's water demand. The General

Manager of the San Diego County Water Authority indicated in a recent presentation to the San Luis Rey Indian Water Authority that the cost of the water is $3,500 per acre foot.

Similar to the LVMWD desalination project, Upper Water would not be able to receive water from this facility directly. It would require an exchange agreement with MWD to receive SWP water through USG-3 and until improvements to MWD's system address the impacts of low SWP allocations on SWP dependent areas, it would not be a more reliable supply for Upper Water. In addition, the high cost of the water makes this option infeasible.

7.2 IMPORTED WATER

7.2.1 EXTERNAL WATER TRANSFER OR EXCHANGE

7.2.1.1 SAN DIEGO COUNTY WATER AUTHORITY

The Water Authority has acquired conserved Colorado River water from two sources: the Water Authority purchases water from the Imperial Irrigation District, and MWD assigned to the Water Authority water conserved by the lining of portions of the All-American and Coachella canals. This conserved Colorado River water totals up to 277,700 acre-feet a year. The conserved Colorado River water is provided to MWD at the Colorado River and, in exchange, MWD delivers the same quantity of its water to San Diego. In addition, the Water Authority will be able to offer those deliveries to other MWD member agencies or to sell the conserved Colorado River water to MWD.

If Upper Water purchased conserved Colorado River water from the County Water Authority, the cost of the water would be at least the untreated MWD water rate. In addition, Colorado River water does not meet the Main Basin standards for Supplemental

Water due to the high salinity , unless there is a dire emergency. Consequently, the Colorado River water Upper Water purchases would have to be provided to MWD in exchange for SWP water delivered through USG-3 and until improvements to MWD's system address the impacts of low SWP allocations on SWP dependent areas, it would not be a more reliable supply for Upper Water.

7.2.2 GROUNDWATER BANKING

7.2.2.1 ANTELOPE VALLEY – EAST KERN WATER AGENCY (AVEK)

The Antelope Valley – East Kern Water Agency (AVEK), a State Water Project Contractor, is developing groundwater banks in the Antelope Valley. Upper Water could engage in negotiations with LADWP and MWD regarding potential participation in an AVEK groundwater banking program outside of the Main Basin. Upper Water would have to make short term purchases of SWP water from State Water Contractors or enter into longer term leases of SWP entitlement to obtain SWP water to bank in the Antelope Valley. Similar to storage and export provisions discussed earlier, a potential agreement could include 1) a storage capacity of up to 200,000 acre-feet, 2) a fee to store water of about 100 dollars per acre-feet, and 3) a 10% leave behind of the water stored, which means 90% of the water stored could be recovered. The recovered water could either be pumped into the SWP aqueduct and delivered to MWD, or Upper Water can exchange the banked water with AVEK for a like amount of AVEK's SWP water delivered to MWD. It would require an exchange agreement with MWD for Upper Water to receive SWP water through USG-3 and until improvements to MWD's system address the impacts of low SWP allocations on SWP dependent areas, it would not be a more reliable supply for Upper Water. In addition, it is unclear if MWD could still apply WSAP or SWP restrictions during a drought.

8.0 SUMMARY AND RECOMMENDATION

Since the 2016 IRP Update, there have been substantive changes regarding planning for water supplies including efforts regarding the Delta Conveyance Project; further development of the Regional Recycled Water Project, now called Pure Water Southern California, and an update of a Main Basin management planning tool, the RDA. Upper Water has prepared this 2026 IRP Update to address both demand-side and supply-side options, address multiple goals, and incorporate risk and uncertainty.

As noted in prior IRPs, the key to the success of an IRP is an adaptive management approach, whereby water supply projects can be phased in over time when needed and adapt to changing future conditions. The IRP is not a capital improvement plan, nor does it make definitive recommendations on specific projects. Rather it is a long-term road map that provides Upper Water with a framework for making sound decisions. The IRP is not intended to be a static report, but more a "living" document that will be updated as future conditions unfold and become clearer.

Following the 11-year drought, the San Gabriel Valley had two above average rainfalls and runoff for replenishment (fiscal years 2022-23 and 2023-24), which allowed the water levels in the Main Basin recover from the prolonged drought. This IRP is intended to prepare and plan ahead for the next prolonged drought.

The tasks discussed in this IRP included an identification of the supply shortfall (gap) which is the difference between projected water demand and projected water supply. To determine any potential gaps, existing water supply sources, historical and projected demands using the recent 11-year drought period, and water supply reliability data was

collected for Upper Water, as discussed in Sections 3, 4 and 5. This information was used to conduct a gap analysis which compared projected demands to projected supplies, as discussed in Section 5. Upper Water is expected to meet projected demands with current supplies for the next 20 years during an average year and Scenario B - Locally Dry in San Gabriel and Average/Wet year in Northern California. However, Upper Water may not be able to meet demand during Scenario A - Locally Dry in the San Gabriel Valley and a Dry year in Northern California, which causes SWP restrictions to Upper Water and consequently, not enough supply is available to meet projected demands. The gap analysis is illustrated in Figures 15 and 16. The recommended action plan to close the gap includes the following:

1) Use the Main Basin's storage capacity to store as much water as possible during wet periods so that when SWP water is not available during drought periods, the water levels in the Main Basin can stay above 200 feet so that wells are not impacted. Watermaster has water storage programs such as Cyclic Storage, the Pre-Delivery Agreement with MWD and Upper Water, and Storage and Export agreements to allow storage of water.
2) Support the Pure Water Project to obtain a reliable, drought resilient, and better water quality source of Supplemental water supply, which can be delivered directly to the Main Basin. This will increase the water levels in the Main Basin, as shown in Figure 19, allow groundwater levels to be stabilized during long term droughts, and provide Upper Water's Producers with a reliable groundwater source to pump to the customers in the San Gabriel Valley. Without this reliable source replenishment water, water levels in the Main Basin can significantly decline in a worst case scenario (Scenario 1), as shown in Figure 19, and the ability of some wells in the Basin to produce groundwater could be impacted. In addition, Pure Water would reduce reliance on the Colorado River supply by up to 13 percent since approximately 62,000 AFY of the purified water from Pure Water will supplement the Colorado River supply. Pure Water will also reduce Southern California's reliance on the SWP by up to 12 percent; making MWD's regional

storage portfolio more resilient. About 60 percent, or about 90 mgd of the 150 mgd full-scale Pure Water yield, will reduce demands on the SWP.

3) Support the Delta Conveyance Project to help increase SWP Allocation. This allows for more Supplemental Water availability to Upper Water.

TABLES

Table 1 - Upper San Gabriel Valley Municipal Water District Total Demand (acre-feet)

Fiscal Year	Upper District Surface Water Diversions	Upper District Groundwater Production		Treated Imported Water	Recycled Water	Total Demand
		Main Basin	Raymond Basin			
1996-97	16,381	167,235	11,732	3,620	1,671	200,638
1997-98	13,384	151,323	10,344	4,011	1,912	180,974
1998-99	17,404	153,133	11,992	3,778	3,377	189,683
1999-00	13,507	162,810	12,670	7,643	3,613	200,243
2000-01	15,807	156,992	11,385	5,785	3,140	193,109
2001-02	11,672	159,374	10,046	14,907	3,430	199,429
2002-03	2,882	150,439	8,106	17,668	3,208	182,303
2003-04	4,125	162,506	8,798	24,616	3,921	203,966
2004-05	8,938	154,807	9,368	9,897	3,108	186,118
2005-06	9,695	157,933	6,663	8,166	3,251	185,709
2006-07	9,856	177,318	8,375	11,327	5,535	212,412
2007-08	5,374	167,336	8,421	13,931	5,651	200,713
2008-09	9,616	156,233	6,279	5,468	5,276	182,872
2009-10	10,156	143,012	4,322	3,945	5,139	166,575
2010-11	9,264	136,434	4,609	1,001	5,435	156,743
2011-12	11,846	142,036	4,317	975	5,915	165,090
2012-13	8,388	152,148	5,698	491	7,409	174,134
2013-14	3,942	153,194	8,159	506	8,227	174,029
2014-15	8,482	124,612	5,241	6,358	7,267	151,960
2015-16	8,317	108,733	4,722	138	7,750	129,659
2016-17	9,013	116,209	4,535	320	7,666	137,743
2017-18	10,126	122,474	3,569	1,217	8,101	145,487
2018-19	4,664	114,566	4,643	2,476	5,795	132,142
2019-20	6,152	114,647	4,339	3,043	6,246	134,427
2020-21	7,546	123,819	4,772	2,160	6,699	144,995
2021-22	5,249	110,197	4,805	6,443	6,880	133,574
2022-23	4,632	102,365	4,239	966	5,362	117,564
2023-24	10,449	98,668	4,757	252	5,139	119,266

Table 2 - Upper San Gabriel Valley Municipal Water District
Total Projected Demands - Based on Last 11 Years of Historical Drought
(acre-feet)

Year [1]	Retail Demand (MB, RB, M&I)	Untreated Imported Water Demand	Industrial Demand (AF) [2]	USG-5	Total UD Demand
2002-03	184,346	36,359	12,417	3,018	236,141
2011-12	153,599	10,493	6,484	2,712	173,287
2012-13	160,141	18,713	6,484	2,712	188,050
2013-14	159,359	26,549	5,256	2,487	193,651
2014-15	138,967	32,023	6,484	2,712	180,186
2015-16	115,891	21,453	5,256	2,487	145,087
2016-17	122,268	22,241	5,230	2,877	152,616
2017-18	128,055	33,746	5,877	2,987	170,666
2018-19	117,724	36,523	6,034	2,944	163,225
2019-20	120,375	40,455	7,806	2,983	171,619
2020-21	131,260	51,934	7,036	2,986	193,216
2021-22	120,619	32,675	6,076	2,992	162,362
Average	**133,478**	**29,710**	**6,184**	**2,807**	**172,179**
2024-25	140,152	40,000	6,200	3,000	189,352
2025-26	140,152	40,000	6,200	3,000	189,352
2026-27	140,152	40,000	6,200	3,000	189,352
2027-28	140,152	40,000	6,200	3,000	189,352
2028-29	140,152	40,000	6,200	3,000	189,352
2029-30	140,152	40,000	6,200	3,000	189,352
2030-31	140,152	40,000	6,200	3,000	189,352
2031-32	140,152	40,000	6,200	3,000	189,352
2032-33	140,152	40,000	6,200	3,000	189,352
2033-34	140,152	40,000	6,200	3,000	189,352
2034-35	140,152	40,000	6,200	3,000	189,352
2035-36	140,152	40,000	6,200	3,000	189,352
2036-37	140,152	40,000	6,200	3,000	189,352
2037-38	140,152	40,000	6,200	3,000	189,352
2038-39	140,152	40,000	6,200	3,000	189,352
2039-40	140,152	40,000	6,200	3,000	189,352
2040-41	140,152	40,000	6,200	3,000	189,352
2041-42	140,152	40,000	6,200	3,000	189,352
2042-43	140,152	40,000	6,200	3,000	189,352
2043-44	140,152	40,000	6,200	3,000	189,352
2044-45	140,152	40,000	6,200	3,000	189,352

Notes:

[1] Upper District water use based on Fiscal Year (e.g. FY 2020/21 = 2020).

[2] Based on average between fiscal years 2011-12 and 2021-22; assumed to remain constant

Table 3 - Upper San Gabriel Valley Municipal Water District
Total Projected Supplies within Upper Water
(acre-feet)

	Average Local Water Supply			Drought Local Water Supply Scenario A			Drought Local Water Supply Scenario B		
Fiscal Year	Average Local Supply [1]	Untreated Imported Water Supply	Total Average Supply	Drought Local Supply [2]	SWP Dependent Allocation [3]	Total Drought Supply	Drought Local Supply [2]	Untreated Imported Water Supply	Total Drought Supply
2024-25	168,418	67,700	236,118	128,418	25,000	153,418	128,418	44,100	172,518
2029-30	168,418	67,700	236,118	128,418	25,000	153,418	128,418	44,100	172,518
2034-35	168,418	67,700	236,118	128,418	25,000	153,418	128,418	44,100	172,518
2039-40	168,418	67,700	236,118	128,418	25,000	153,418	128,418	44,100	172,518
2044-45	168,418	67,700	236,118	128,418	25,000	153,418	128,418	44,100	172,518

Notes:

[1] Assumes OSY is 200,000 AF

[2] Assumes OSY is 150,000 AF

[3] The SWP Dependent Allocation was estimated to be 25,000 AF

Table 4A - Upper San Gabriel Valley Municipal Water District
Scenario A - Potential Gap During Local and Northern CA Drought Water Supply Conditions; Assuming SWP Dependent Allocation
(acre-feet)

		Projected Demand		Actual FY 19-20 Demand	
Fiscal Year	Total Drought Supply [1][2]	Total Demand [3]	Potential Gap	Total Demand [3]	Potential Gap
2024-25	153,418	189,352	35,934	171,619	18,201
2029-30	153,418	189,352	35,934	171,619	18,201
2034-35	153,418	189,352	35,934	171,619	18,201
2039-40	153,418	189,352	35,934	171,619	18,201
2044-45	153,418	189,352	35,934	171,619	18,201

Notes:

[1] Assumes OSY is 150,000 AF

[2] The SWP Dependent Allocation was estimated to be 14,700 AF

[3] See Table 2

Table 4B - Upper San Gabriel Valley Municipal Water District
Scenario B - Potential Gap During Only Local Drought Water Supply Conditions; Assuming Tier 1 Allocation Available
(acre-feet)

Fiscal Year	Total Drought Supply [1][2]	Projected Demand			Actual FY 19-20 Demand		
		Total Demand [3]	Potential Surplus	Potential Gap	Total Demand [3]	Potential Surplus	Potential Gap
2024-25	172,518	189,352	-16,834	16,834	171,619	899	-
2029-30	172,518	189,352	-16,834	16,834	171,619	899	-
2034-35	172,518	189,352	-16,834	16,834	171,619	899	-
2039-40	172,518	189,352	-16,834	16,834	171,619	899	-
2044-45	172,518	189,352	-16,834	16,834	171,619	899	-

Notes:

[1] Assumes OSY is 150,000 AF

[2] Tier 1 Allocation is 67,228 AF

[3] See Table 4

Table 5 - Upper San Gabriel Valley Municipal Water District
Potential Gap During Average Water Supply Conditions; Assuming Tier 1 Allocation
(acre-feet)

		Projected Demand		Actual FY 2002-03 Demand	
Fiscal Year	Total Average Supply [1][2]	Total Demand [3]	Potential Surplus	Total Demand [3]	Potential Surplus
2024-25	236,118	189,352	46,766	236,141	22
2029-30	236,118	189,352	46,766	236,141	22
2034-35	236,118	189,352	46,766	236,141	22
2039-40	236,118	189,352	46,766	236,141	22
2044-45	236,118	189,352	46,766	236,141	22

Notes:

[1] Assumes OSY is 200,000 AF

[2] Tier 1 Allocation is 67,228 AF

[3] See Table 4

APPENDIX A

LETTER OF INTENT TO COLLABORATE ON THE DEVELOPMENT OF FUTURE AGREEMENTS FOR THE PURCHASE AND DELIVERY OF ADVANCED TREATED WATER FOR REPLENISHMENT OF THE MAIN SAN GABRIEL GROUNDWATER BASIN

A. This LETTER OF INTENT (LOI) is made by and between THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA (Metropolitan), THREE VALLEYS MUNICIPAL WATER DISTRICT (Three Valleys), UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT (Upper District), and THE WATERMASTER FOR THE MAIN SAN GABRIEL GROUNDWATER BASIN (Watermaster), who may be referred to individually as "Party" or collectively as "Parties."

RECITALS

B. Metropolitan and County Sanitation No. 2 of Los Angeles County (Sanitation District) are working together to develop a Regional Recycled Water Program (Program). The objective of the Program is to produce up to 150 million gallons per day (MGD) of advanced treated water (AWT Water) from a new advanced water treatment (AWT) facility located at the Sanitation District's Joint Water Pollution Control Plant in Carson, California (Metropolitan AWT Facility). The Program's development may be phased, starting at lower levels of production with the potential to build up to 150 MGD of production as demands and conditions warrant.

C. If the Program is approved by Metropolitan's Board of Directors, it will also include plans for the development of a conveyance system consisting of approximately 60 miles of pipeline and a series of pump stations (AWT Conveyance System). The AWT Conveyance System could potentially deliver up to 150 MGD of AWT Water to the Central, West Coast, Orange County and Main San Gabriel Groundwater Basins for indirect potable reuse (IPR) through replenishment of those Basins. Delivery locations along the alignment will consist of either existing or new groundwater spreading basins or new or existing injection wells.

D. The AWT Conveyance System could also deliver some of the AWT Water to Member Agencies in the Los Angeles and Long Beach Harbor areas for delivery to industrial customers of those Member Agencies. Additionally, some of the AWT Water may be delivered through an extension of the AWT Conveyance System to certain Metropolitan treatment plants for direct potable reuse (DPR) through raw water augmentation.

E. Water rights have been adjudicated in the Main San Gabriel Basin (the "Basin") according to the Judgment in Los Angeles County Superior Court; Civil Action No. 924128 entitled "Upper San Gabriel Valley Municipal Water District vs. City of Alhambra, et al." (herein referred to as "the Judgment"). The Judgment also established the Watermaster as the agency responsible for managing the Basin and authorized Watermaster to purchase Supplemental Water, as defined in the Judgment, for replenishment of the Basin. Watermaster purchases Supplemental Water from three Responsible Agencies, as defined in the Judgment, which have a course of Supplemental Water to the Basin.

F. Three Valleys and Upper District are named as Responsible Agencies under the Judgment and sell water to the Watermaster for replenishment, and are member agencies of Metropolitan. Metropolitan is a party to the Judgment, which permits it to deliver water to Three Valleys and Upper District for replenishment of the Basin. The San Gabriel Valley Municipal Water District, as State Water Project Contractor and not a Metropolitan member agency, is also named as a Responsible Agency under the Judgment and sells water to Watermaster.

G. Metropolitan delivers water to service connections for Three Valleys and Upper District, at which point Metropolitan no longer controls or owns the water. The Watermaster has contracted with Los Angeles County Department of Public Works (LA County Public Works) for introduction of water into the Basin. LA County Public Works operates the spreading basins and related facilities that introduce water into the Basin, including Metropolitan water delivered to Three Valleys and Upper District for replenishment of the Basin. Introduction of AWT Water into the Basin may require additional facilities, separate from the existing facilities currently utilized by LA County Public Works to introduce Metropolitan potable water into the Basin.

H. At times, Metropolitan may not have sufficient quantities of imported water to meet the Watermaster's immediate Supplemental Water requirements to deliver into the Basin. To ensure additional consistency and reliability of Metropolitan deliveries, Three Valleys and Upper District are interested in purchasing and receiving AWT Water by Metropolitan via the AWT Conveyance System to meet the Watermaster's replenishment demands for the Basin.

I. Due to the size, complexity and anticipated capital investment required of Metropolitan for the Program, it will be beneficial for all Parties to coordinate and collaborate, as appropriate, during the developmental stages of the Program. Such coordination and collaboration will ensure that the system is planned, designed, constructed and operated in a manner consistent with the best interests of the Parties and to ensure delivery of AWT Water into the Basin is feasible. Coordination and collaboration between the Parties is also necessary to ensure the development of a commitment by Three Valleys and Upper District to purchase AWT Water from the Program.

TERMS

1. INTENT OF THE PARTIES:
   a. The Parties intend to develop a plan to ensure that deliveries of AWT Water from the Program can be introduced into the Basin. To that end, the Parties intend to:

      i. Collaborate to provide all information the Watermaster, LA County Public Works, or any regulatory agency, may need to approve introduction of AWT Water into the Basin;

      ii. Identify and examine potential water quality issues and specifications related to the Program that may affect the Watermaster's, or any regulatory agency's,

approval;

iii. Identify any related research, testing, and other technical work necessary to address any concerns raised by the Watermaster, or regulatory agency, in connection with approval of introduction of AWT Water into the Basin;

iv. Collaborate on regulatory developments related to introduction of AWT Water into the Basin;

v. Collaborate to develop an agreement with LA County Public Works for its operation of facilities necessary to introduce AWT Water into the Basin, including construction of new facilities that may be required for introduction of AWT Water into the Basin;

vi. Develop plans for any new infrastructure that may be necessary to introduce AWT Water into the Basin; Identify opportunities to expand scope of water deliveries to include other responsible agencies and adjacent groundwater basins; and

vii. Develop additional areas for collaboration and support, as identified by the Parties.

b. It is the intent of the Parties to collaborate in the development of a set of agreements between the Parties for:

i. the long-term purchase and receipt of at least 6,500AFY AWT Water by Three Valleys and at least 35,000 AFY AWT Water by Upper District, with a maximum range of 60,000 to 80,000 AFY AWT, collectively, for both parties, and Metropolitan's delivery of AWT Water to Three Valleys and Upper District;

ii. the Watermaster's approval of delivery of AWT water into the Basin, pursuant to a purchase agreement between Metropolitan and each of Three Valleys and Upper District; and

2. NON-BINDING INTENT

The provisions of this LOI represent a statement of the Parties' general intent only, and shall not be binding on either Party. No Party shall have any obligation to enter into any agreement listed in Section 1.b., or otherwise, and no course of conduct of the Parties shall evidence any binding obligations. Each Party fully understands that the terms and conditions of any agreements developed pursuant to Section 1.b. are subject to approval by the General Manager and the Board of Directors of Three Valleys, the General Manager and the Board of Directors of Upper District, the General Manager and the Board of Directors of Metropolitan, the Executive Officer and Board of the Watermaster. No Party shall have any legal obligations to the other unless and until all of the terms and conditions of each of the proposed agreements have been negotiated and agreed to by all Parties and set forth in the agreements, approved by the legislative bodies of all Parties, and signed and delivered by all Parties.

3. NOTICES AND CORRESPONDENCE

Any notice or correspondence under this LOI must be in writing and addressed as follows:

The Metropolitan Water District of Southern California
Post Office Box 54153
Los Angeles, CA 90054-0153
Attn: John Bednarski, Group Manager, Engineering Services
With a courtesy copy by email to: jbednarski@mwdh2o.com

Three Valleys Municipal Water District
1021 E. Miramar Avenue
Claremont, CA 91711
Attn: Matthew H. Litchfield, General Manager/Chief Engineer
With a courtesy copy by email to: mlitchfield@tvmwd.com

Upper San Gabriel Valley Municipal Water District
602 E. Huntington Drive, Suite B
Monrovia, CA 91016
Attn: Tom A. Love, General Manager
With a courtesy copy by email to: tom@usgvmwd.org

Main San Gabriel Basin Watermaster
725 North Azusa Avenue
Azusa, CA 91702
Attn: Anthony C. Zampiello, Executive Officer
With a courtesy copy by email to: tonyz@watermaster.org

A properly addressed notice will be effective on the day of delivery, if delivered directly by a Party or by a nationally recognized delivery service, or on the third day after mailing, if sent postage prepaid by U.S. Mail. The Parties shall transmit a courtesy copy of any notice to the other Party by email on the day the notice is sent.

Either Party may change the address listed in this section by providing five days' notice to the other Party.

4. COUNTERPARTS

This Agreement may be executed in counterparts, and signatures transmitted via facsimile or electronic mail shall be deemed to be originals.

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Jeffrey Kightlinger

By: _____
General Manager

Date: July 14, 2020

APPROVED AS TO FORM:

Marcia Scully

By: _____
General Counsel

THREE VALLEYS MUNICIPAL WATER DISTRICT

Matthew Litchfield P.E.

By: _____
General Manager

Date: June 16, 2020

APPROVED AS TO FORM & LEGALITY:

Steven M. Kennedy

By: _____
General Counsel

Date: June 16, 2020

UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT

Thomas A. Love

By: _____

General Manager

Date: May 26, 2020

APPROVED AS TO FORM & LEGALITY:

Steven O'Neill

By: _____

General Counsel

Date: May 26, 2020

MAIN SAN GABRIEL BASIN WATERMASTER

Anthony Zampiello

By: _____

Executive Officer

Date: _____

APPROVED AS TO FORM & LEGALITY:

By: _____

Legal Counsel

Date: _____

UPPER SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT

Tom A. Love

By: _____

General Manager

Date: _____

APPROVED AS TO FORM & LEGALITY:

By: _____

General Counsel

Date: _____

MAIN SAN GABRIEL BASIN WATERMASTER

Anthony Zampiello

By: _____

Executive Officer

Date: 6-5-2020

APPROVED AS TO FORM & LEGALITY:

Frederic Fudacz

By: _____

Legal Counsel

Date: 6-15-2020

APPENDIX B

LETTER OF INTENT TO COLLABORATE ON THE DEVELOPMENT OF FUTURE AGREEMENTS FOR THE PURCHASE AND DELIVERY OF ADVANCED TREATED WATER FOR REPLENISHMENT OF THE MAIN SAN GABRIEL GROUNDWATER BASIN

A. This LETTER OF INTENT (LOI) is made by and between THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA (Metropolitan), SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT (SGVMWD), and THE WATERMASTER FOR THE MAIN SAN GABRIEL GROUNDWATER BASIN (Watermaster), who may be referred to individually as "Party" or collectively as "Parties."

RECITALS

B. Metropolitan and County Sanitation No. 2 of Los Angeles County (Sanitation District) are working together to develop a Regional Recycled Water Program (Program). The objective of the Program is to produce up to 150 million gallons per day (MGD) of advanced treated water (AWT Water) from a new advanced water treatment (AWT) facility located at the Sanitation District's Joint Water Pollution Control Plant in Carson, California (Metropolitan AWT Facility). The Program's development may be phased, starting at lower levels of production with the potential to build up to 150 MGD of production as demands and conditions warrant.

C. If the Program is approved by Metropolitan's Board of Directors, it will also include plans for the development of a conveyance system consisting of approximately 60 miles of pipeline and a series of pump stations (AWT Conveyance System). The AWT Conveyance System could potentially deliver up to 150 MGD of AWT Water to the Central, West Coast, Orange County and Main San Gabriel Groundwater Basins for indirect potable reuse (IPR) through replenishment of those Basins. Delivery locations along the alignment will consist of either existing or new groundwater spreading basins or new or existing injections wells.

D. The AWT Conveyance System could also deliver some of the AWT Water to Member Agencies in the Los Angeles and Long Beach Harbor areas for delivery to industrial customers of those Member Agencies. Additionally, some of the AWT Water may be delivered through an extension of the AWT Conveyance System to certain Metropolitan treatment plants for direct potable reuse (DPR) through raw water augmentation.

E. Water rights have been adjudicated in the Main San Gabriel Basin (the "Basin") according to the Judgment in Los Angeles County Superior Court; Civil Action No. 924128 entitled "Upper San Gabriel Valley Municipal Water District vs. City of Alhambra, et al." (herein referred to as "the Judgement"). The Judgment also established the Watermaster as the agency responsible for managing the Basin and authorized Watermaster to purchase Supplemental Water, as defined in the Judgment, for replenishment of the Basin.
Watermaster purchases Supplemental Water from three Responsible Agencies, as defined in the Judgment, which have a course of Supplemental Water to the Basin.

F. The San Gabriel Valley Municipal Water District, as State Water Project Contractor and not a Metropolitan member agency, is also named as a Responsible Agency under the Judgment and sells water to Watermaster.

G. SGVMWD delivers water to the Main San Gabriel Basin at various locations. The Watermaster has contracted with Los Angeles County Department of Public Works (LA County Public Works) for introduction of water into the Basin. LA County Public Works operates the spreading basins and related facilities that introduce water into the Basin, including SGVMWD water delivered for replenishment of the Basin. Introduction of AWT Water into the Basin may require additional facilities, separate from the existing facilities currently utilized by LA County Public Works to introduce Metropolitan potable water into the Basin.

H. At times, SGVMWD may not have sufficient quantities of imported water to meet the Watermaster's immediate Supplemental Water requirements to deliver into the Basin. To ensure additional consistency and reliability of SGVMWD deliveries, SGVMWD is interested in purchasing and receiving AWT Water to be delivered by Metropolitan via the AWT Conveyance System to meet the Watermaster's replenishment demands for the Basin.

I. Due to the size, complexity and anticipated capital investment required of Metropolitan for the Program, it will be beneficial for all Parties to coordinate and collaborate, as appropriate, during the developmental stages of the Program. Such coordination and collaboration will ensure that the system is planned, designed, constructed, and operated in a manner consistent with the best interests of the Parties and to ensure delivery of AWT Water into the Basin is feasible. Coordination and collaboration between the Parties is also necessary to ensure the development of a commitment by Three Valleys and Upper San Gabriel Valley District to purchase AWT Water from the Program.

TERMS

1. INTENT OF THE PARTIES:
   a. The Parties intend to develop a plan to ensure that deliveries of AWT Water from the Program can be introduced into the Basin. To that end, the Parties intend to:

      i. Collaborate to provide all information to the Watermaster, LA County Public Works, or any regulatory agency, may need to approve introduction of AWT Water into the Basin;

      ii. identify and examine potential water quality issues and specifications related to the Program that may affect the Watermaster's, or any regulatory agency's approval;

      iii. Identify any related research, testing, and other technical work necessary to address any concerns raised by the Watermaster, or regulatory agency, in connection with approval of introduction of AWT Water into the Basin;

      iv. Collaborate on regulatory developments related to introduction of AWT Water into the Basin;

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b. It is the intent of the Parties to collaborate in the development of a set of agreements between the Parties for:

i. the long-term purchase and receipt of at least 6,000 AFY AWT Water by SGVMWD with a maximum range of 60,000 to 80,000 AFY AWT, collectively, for all parties, and Metropolitan's delivery of AWT Water to SGVMWD;

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Los Angeles, CA 90054-0153
Attn: John Bednarski, Group Manager, Engineering Services
With a courtesy copy by email to : jbednarski@mwdh2o.com

San Gabriel Valley Municipal Water District
Post Office Box 1299
Azusa, CA 91702
Attn: Darin Kasamoto, General Manager
With a courtesy copy by email to: dkasamoto@sgvmwd.com

Main San Gabriel Basin Watermaster
725 North Azusa Avenue
Azusa, CA 91702
Attn: Anthony C. Zampiello, Executive Officer
With a courtesy copy by email to: tonyz@watermaster.org

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Either Party may change the address listed in this section by providing five days' notice to the other Party.

4. COUNTERPARTS
This Agreement may be executed in counterparts, and signatures transmitted via facsimile or electronic mail shall be deemed to be originals.

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
Adel Hagekhalil

By: _____
General Manager

Date: 6/14/2022

APPROVED AS TO FORM:
Marcia Scully

By: _____
General Counsel

SAN GABRIEL VALLEY MUNICIPAL WATER DISTRICT
Darin J. Kasamoto

By: _____
General Manager

Date: 3/17/22

APPROVED AS TO FORM & LEGALITY:
James D. Ciampa

By: _____
General Counsel

Date: 3/14/2022

MAIN SAN GABRIEL BASIN WATERMASTER
Anthony Zampiello

By: _____
Executive Officer

Date: 5-12-2022

APPROVED AS TO FORM & LEGALITY:

By: _____
Legal Counsel

Date: May 11, 2022