4.18 WATER SUPPLY

This section evaluates the water supply impacts of the proposed Plan.

4.18.1 Existing Conditions

This section describes the general water supply conditions of both potable water and groundwater supply in the San Diego region, including local water supplies, imported water supply, desalination, and water recycling efforts. The existing conditions discussion provided below is primarily summarized from the urban water management plans (UWMPs) prepared by the applicable water supply agencies including the San Diego County Water Authority (SDCWA) and the Metropolitan Water District of Southern California (MWD) (SDCWA 2021a; MWD 2021). UWMPs have a 25-year planning horizon. The existing water supply conditions are based on the most recent available data for the San Diego region. Hydrological conditions and surface and groundwater water quality are addressed in Section 4.10, "Hydrology and Water Quality."

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

The following information about MWD is summarized from the MWD 2020 UWMP, dated June 2021 (MWD 2021), unless noted otherwise. MWD is a public agency that was formed in 1928 for the purpose of developing, storing, and distributing water to the residents of Southern California. MWD's mission is to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way. The total area served by MWD is approximately 5,200 square miles, and it includes portions of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties. MWD imports water from two sources: (1) Colorado River water via the Colorado River Aqueduct and (2) the State Water Project (SWP) via the California Aqueduct from the San Francisco Bay/Sacramento–San Joaquin Delta area (Bay/Delta) in Northern California. The Colorado River Aqueduct is more than 240 miles long, beginning at Lake Havasu on the Arizona-California border and ending at Lake Mathews in Riverside County. The aqueduct has the capacity to deliver up to 1.25 million acre-feet (af) of water per year. The SWP is owned by the State of California and operated by the Department of Water Resources (DWR). The SWP stretches from Lake Oroville in the north to Lake Perris in the south and comprises 32 storage facilities, 662 miles of aqueduct, and 25 power and pumping plants. Water is stored at Lake Oroville and released when needed into the Feather River, which flows into the Sacramento River and to the Delta. The Delta is the largest estuary on the United States' west coast and is used for multiple purposes, including agriculture, recreation, and fishing, and provides the means by which to deliver water from Northern California to the south. Water from the Delta is either pumped to water users in the San Francisco Bay area or transported through the California Aqueduct to water users in Central and Southern California. SWP facilities provide drinking water to 27 million Californians and irrigation water for 750,000 acres of farmland (SDCWA 2021a).

MWD serves approximately 19 million residents and is composed of 26 voluntary member agencies, including 14 cities, 11 municipal water districts, and one county water authority, the SDCWA. MWD member agencies serve residents in 152 cities and 89 unincorporated communities. Average daily delivery (5-year average as of December 31, 2023) is 4,100 af (MWD 2024). An acre-foot is approximately 325,900 U.S. gallons, or roughly enough to supply 2.5 average families of four for a year (SDCWA 2020). MWD is a water wholesaler with no retail customers. To aid in planning future water needs, member agencies advise MWD of how much water they anticipate needing during the next 5 years. In addition, MWD works with its member agencies to forecast future water demand and develop emergency supply strategies to ensure a secure, long-term water supply.

SAN DIEGO COUNTY WATER AUTHORITY

The following information is summarized from the SDCWA 2020 UWMP, dated May 2021 (SDCWA 2021a), unless noted otherwise. SDCWA was formed in 1944. Because of a strong military presence in the region, the federal government arranged for supplemental supplies from the Colorado River in the 1940s. In 1947, water began to be

imported from the Colorado River via a single pipeline that connected to the MWD Colorado River Aqueduct in Riverside County. To meet the water demands of a growing population and economy, SDCWA constructed four additional pipelines between the 1950s and early 1980s that are all connected to the MWD distribution system and deliver water to San Diego County. SDCWA's mission is to provide a safe and reliable supply of water to its member agencies serving the San Diego region. SDCWA has 22 member agencies: six cities, five water districts, three irrigation districts, seven municipal water districts and one federal military agency. SDCWA member agencies include Carlsbad, Helix, Lakeside, Olivenhain, Otay, Padre Dam, Ramona, Rincon del Diablo, San Dieguito, Santa Fe, South Bay, Vallecitos, Valley Center, Vista, and Yuima water districts; Camp Pendleton Marine Corps Base; and the cities of Del Mar, Escondido, National City, Oceanside, Poway, and San Diego. Although the cities of Coronado and Imperial Beach are not within the SDCWA service area, they obtain their water from the City of San Diego, and their water consumption is included in regional water use (SDCWA 2021a). The supply of these two cities originates primarily from water imported by SDCWA and provided to the City of San Diego, and secondarily from water captured in City of San Diego reservoirs.

SDCWA classifies water demand within its service area into two categories: municipal and industrial (M&I), and agricultural. The M&I demand classification includes residential demand and water used for commercial, industrial, and institutional purposes. M&I use amounts to 92% of water demand (SDCWA 2021a). SDCWA utilizes an econometric model to develop its long-range M&I demand forecasts, which is based on the U.S. Army Corps of Engineers Municipal and Industrial Needs model and the SANDAG official growth forecasts. Agricultural demand projections are based on coordination between SDCWA, its member agencies, SANDAG, County of San Diego Agricultural Weights and Measures, and the California Avocado Commission.

As an urban water supplier, SDCWA is required to submit a complete version of its UWMP to DWR every 5 years. SDCWA prepared the most recent UWMP, the 2020 UWMP, in accordance with the Urban Water Management Planning Act (UWMPA). In addition to the 2020 UWMP, SDCWA also prepares annual water supply reports that provide updated information on the development of local and imported water supplies. The 2024 Water Facilities Master Plan (2024 Master Plan) serves as a comprehensive evaluation of infrastructure requirements needed to ensure water supply for the SDCWA service area (SDCWA 2025a). The capital improvement projects included in the Master Plan are designed to meet the projected water supply and delivery needs of the member agencies through 2035. These supporting documents provide the most relevant source of baseline information for understanding existing SDCWA water supply conditions. Table 4.18-1 shows annual regional water use (excluding recycled water) in the SDCWA service area from 2014 through 2023. Total potable water use for 2023 decreased approximately 10% compared to the prior year.

Table 4.18-1 SDCWA Service Area Regional Water Use Trends (acre-feet)

Year	Total Potable Water Use	Potable M&I Water Use
2014	574,343	526,218
2015	512,344	471,144
2016	432,145	440,455
2017	453,345	422,475
2018	491,280	455,708
2019	440,681	415,984
2020	440,346	416,975
2021	475,619	446,814
2022	467,310	442,794
2023	420,118	402,804

Notes: SDCWA = San Diego County Water Authority; M&I = municipal and industrial.

[1] Data reflects a snapshot in time and is subject to changes.

[2] Total potable water use excludes reclaimed water.

Source: SDCWA 2024a.

SDCWA Water Supply Sources

SDCWA supplies imported water to the San Diego region for wholesale distribution to its member agencies and is now the predominant water provider in the county, supplying 75–95% of the San Diego region's water. Historically, SDCWA has relied predominantly on imported water supplies purchased from MWD to meet the needs of its member agencies. SDCWA is MWD's largest member agency, purchasing up to 30% of MWD's supplies annually. Overall, imported water supplies consist of water purchases from MWD, core water transfers from the Imperial Irrigation District (IID), the All-American Canal and Coachella Canal Lining Projects, and as-needed spot water transfers to offset reduced supplies (shortages) from MWD. These imported water supplies are delivered to SDCWA member agencies through a system of large-diameter pipelines, pumping stations, and reservoirs. In addition to imported water supplies, SDCWA began delivering regional water supplies consisting of desalinated seawater from the Carlsbad Desalination Plant in December 2015. Each of the primary sources of the SDCWA water supply is detailed further below.

Metropolitan Water District of Southern California Purchases

As noted, SDCWA has relied predominantly on imported water supplies purchased from MWD. MWD legally entitles each member agency to a preferential right to purchase a certain percentage of MWD's supplies. The percentage is based on the member's past payments toward MWD's capital and operating costs, excluding payments for water purchases. Preferential rights are updated annually. As of June 30, 2020, SDCWA has preferential right to 25.83% of MWD's water supplies (SDCWA 2021a). In fiscal year 2023, SDCWA purchased about 7.3% of the water MWD sold (SDCWA 2024b).

SDCWA-IID Water Conservation and Transfer Agreement

On April 29, 1998, SDCWA entered into a water conservation and transfer agreement with IID for the long-term transfer of conserved Colorado River water to the San Diego region. The Water Authority–IID Water Conservation and Transfer Agreement (Transfer Agreement) is the largest agriculture-to-urban water transfer in U.S. history. Colorado River water is conserved by Imperial Valley farmers who voluntarily participate in the program by fallowing (leaving land unseeded) and implementing on-farm conservation projects that conserve water, which is then transferred to SDCWA for use in the San Diego region. In addition, the IID is developing distribution system efficiency improvements to conserve water, which are planned to increase over time as the transfer volume also increases. In October 2003, SDCWA and IID executed an amendment to the original 1998 Transfer Agreement, which modified, among other things, certain aspects of the agreement to lessen the environmental impacts of transferring conserved water. Water deliveries via the transfer began in 2003 with an initial transfer of 10,000 af. In 2019, SDCWA received 192,500 af. The quantities were scheduled to be 205,000 af in 2021 and 202,500 af in 2022; the quantities would then remain fixed at 200,000 af for the duration of the Transfer Agreement. The initial term of the Transfer Agreement is 45 years, with a provision that allows either agency to extend it for an additional 30 years. Table 4.18-2 summarizes the existing and projected water supplies based on the current Transfer Agreement (SDCWA 2021a).

Table 4.18-2 Existing and Projected SDCWA-IID Transfer Supplies – Normal Year (acre-feet/year)

2020	2025	2030	2035	2040	2045
192,500	200,000	200,000	200,000	200,000	200,000

Note: SDCWA-IID = San Diego County Water Authority–Imperial Irrigation District.

Source: SDCWA 2021a: Table 4-1.

All-American and Coachella Canals Projects

SDCWA also has a separate, 110-year agreement to receive water conserved by lining parts of the Coachella and All-American Canals in Imperial Valley. As part of the Quantification Settlement Agreement and related contracts, SDCWA receives the rights to 77,700 acre-feet per year (afy) of conserved water from these two canal lining projects. SDCWA helped fund the construction of a 35-mile lining project along the Coachella Canal and a 23-mile lining project along the All-American Canal. The concrete-lined sections replaced earthen sections and conserve water previously lost to seepage (SDCWA 2021a). The Coachella Canal Lining Project involved construction of the concrete-

lined canal parallel and adjacent to the existing earthen Coachella Canal. Construction of the Coachella Canal Lining Project was completed in 2006, and deliveries of conserved water to SDCWA began in 2007. The All-American Canal Lining Project, involving construction of a 23-mile concrete-lined canal parallel to the existing earthen All-American Canal, was completed in 2010 when the deliveries of conserved water to SDCWA began (SDCWA 2021a).

The All-American Canal Lining Project makes 67,700 af of Colorado River water per year available for allocation to SDCWA and San Luis Rey Indian water rights settlement parties. The Coachella Canal Lining Project makes 26,000 af of Colorado River water available each year for allocation. The 2003 Allocation Agreement provides for 16,000 afy of conserved canal lining water to be allocated to the San Luis Rey Indian water rights settlement parties. The remaining amount (i.e.,77,700 afy) is to be available to SDCWA each year. SDCWA will also receive any remaining portion of an available 4,850 afy that is not needed for designated environmental purposes associated with the Coachella Canal Lining Project. Under the existing agreements, annual canal lining supplies are delivered in equal monthly installments (SDCWA 2021a).

These two canal lining projects help SDCWA achieve its goals of water supply diversification and improved water supply reliability. Over the 110-year term of the agreement, 8.5 million af of conserved water are anticipated to flow to the San Diego region. Table 4.18-3 summarizes the projected supply from the two lining projects from 2020 to 2045.

Table 4.18-3 Projected Supply from Canal Lining Projects – Normal Year (acre-feet/year)

	2020	2025	2030	2035	2040	2045
Coachella Canal Lining Project	21,500	22,500	22,500	22,500	22,500	22,500
All-American Canal Lining Project	56,200	56,200	56,200	56,200	56,200	56,200
Total	**77,700**	**78,700**	**78,700**	**78,700**	**78,700**	**78,700**

Source: SDCWA 2021a: Table 4-2.

Carlsbad Desalination Plant

Desalinated seawater is a new source of water supply in the San Diego region. Development of seawater desalination in the San Diego region creates a reliable source of water by diversifying the region's water resources, which in turn reduces the region's dependence on imported water supplies. In addition, desalinated seawater is a drought-proof, locally treated water supply. In 2012, SDCWA entered into a formal water purchase agreement with Poseidon Water for the purchase of desalinated ocean water produced at the Claude "Bud" Lewis Carlsbad Desalination Plant (Carlsbad Desalination Plant) and delivered to the SDCWA regional aqueduct system. The Carlsbad Desalination Plant, located at the Encina Power Station in Carlsbad, became operational in December 2015 and provides an average of 50 million gallons per day (mgd) and up to 56,000 afy of high-quality drinking water for the region. Of this total, 6,000 af is considered water supply directly for SDCWA member agencies (SDCWA 2021a). A 10-mile-long pipeline delivers water from the plant to the SDCWA Second Aqueduct. The Second Aqueduct conveys desalinated water to the SDCWA Twin Oaks Valley Water Treatment Plant (WTP), where it is integrated with existing drinking water supplies for regional distribution. Table 4.18-4 details the projected water supply deliveries to SDCWA from the Carlsbad Desalination Plant.

Table 4.18-4 Projected Supply from Carlsbad Desalination Plant – Normal Year (acre-feet/year)

2025	2030	2035	2040	2045
50,000	50,000	50,000	50,000	50,000

Source: SDCWA 2021a: Table 4-4.

Dry Year Water Supplies and Carryover Storage

In addition to normal year water supplies, SDCWA has a carryover storage supply program to maintain water supply reliability during dry and multiple dry years. This program includes both in-region surface water storage at San Vicente Reservoir, secured as part of the San Vicente Dam project, and out-of-region groundwater storage in California's Central Valley. Because of these storage capabilities, SDCWA can store water during wet periods for use during water supply shortages.

The San Vicente Dam Raise Carryover Storage project, located in the San Vicente Reservoir, was completed in 2014 and provides approximately 100,000 af of local storage capacity that can be made available during water supply shortages. In addition, SDCWA's out-of-region groundwater program consists of 70,000 af of permanent groundwater storage allocation in the Semitropic-Rosamond Water Bank Authority and the Semitropic Water Bank (40,000 af and 30,000 af, respectively) in Kern County (SDCWA 2021a).

In accordance with the SDCWA Water Shortage Contingency Plan (WSCP), which guides SDCWA's water supply shortage management, use of carryover storage supplies can occur in level 1 (voluntary cutbacks) and levels 2–6 (mandatory cutbacks) (SDCWA 2021b). The WSCP is discussed below.

SDCWA Member Agency Supplies

Local resources developed and managed by the 22 SDCWA member agencies are critical to securing a diverse and reliable water supply for the region. Water projects implemented at the local level help reduce the demand for imported water and ensure a drought-resilient supply for member agencies. Member agency water supplies consist predominantly of surface water stored in reservoirs, whereas a small but increasing amount comes from recycled water, groundwater recovery projects, potable reuse, and desalinated seawater. A description of each of these supplies follows.

Surface Water Supply

Surface water refers to water accumulated in local streams, rivers, and lakes from precipitation in various watersheds throughout the San Diego region. Collection and storage of local water supplies are supported by the 24 surface reservoirs located in seven of the nine coastal watersheds in the San Diego region (see Figure 4.18-1). The surface reservoirs have a combined capacity of 722,793 af (SDCWA 2021a). The water is placed into storage in the winter months when demand is low and pipeline capacity is available and withdrawn by the member agencies in the summer months when demand increases and pipeline capacity is restricted due to increased demand.

Surface water supplies can represent the largest single local resource for SDCWA member agencies. However, annual surface water yields can vary substantially due to fluctuating hydrologic cycles. Annual surface water yields have ranged from a low of 4,100 af in fiscal year 2015 to a high of 140,300 af in fiscal year 1984. SDCWA member agencies project average annual surface water use to increase slightly, from 43,957 af in 2025 to 44,659 af in 2045 (SDCWA 2021a). Table 4.18-5 shows the estimated average surface water supply of SDCWA member agencies from 2020 to 2045.

Table 4.18-5 SDCWA Member Agency Projected Surface Water Supply – Normal Year

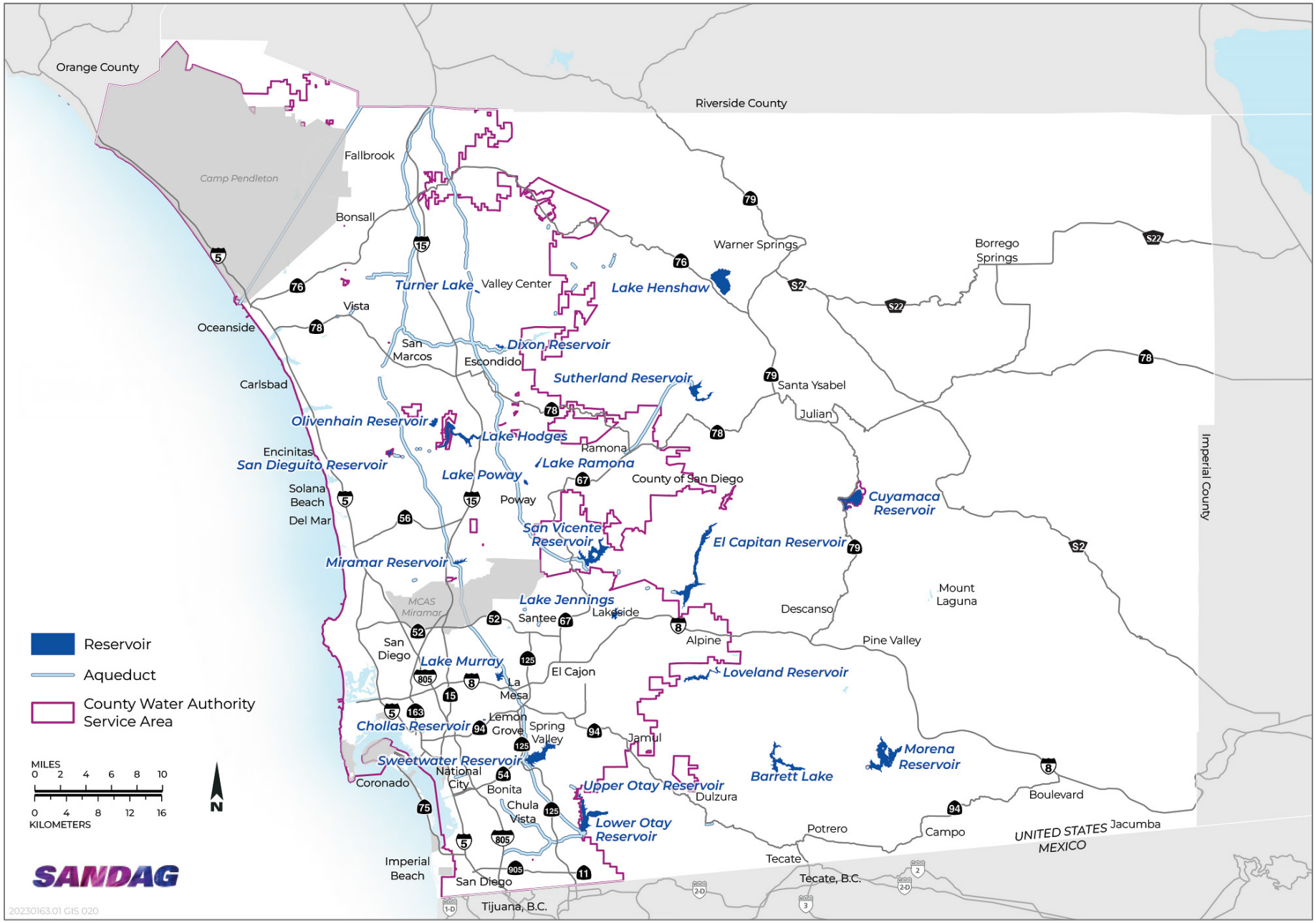
Year	Water Supply (acre-feet/year)
2020	44,237
2025	43,957
2030	43,957
2035	44,659
2040	44,659
2045	44,659

Note: SDCWA = San Diego County Water Authority.

Source: SDCWA 2021a: Table 5-2.

Water Conservation

Conservation is an important resource strategy for ensuring a cost-effective reliable supply of water for the San Diego region. For the 2020 SDCWA UWMP, future water conservation savings were developed for each member agency using the Alliance for Water Efficiency Water Conservation Tracking Tool, which was included in the DWR 2020 UWMP Guidebook (DWR 2021), as an application to assist water purveyors in developing savings estimates (SDCWA 2021a). Future active conservation savings are set at the 2020 level of conservation program activity moving forward, absent the recent large-scale turf replacement program and state-mandated water-use reduction (SDCWA 2021a).



Source: Data downloaded from SanGIS in 2025; adapted by Ascent in 2025.

Figure 4.18-1 Regional Water Supply Infrastructure

Potable Reuse Water Supply

Recycled water can be further treated for potable reuse through the use of multibarrier advanced purification treatment processes, which may include technologies such as reverse osmosis and advanced oxidation. The advanced-treated water may be passed through a natural barrier, such as a groundwater basin or surface water reservoir, and provided with additional treatment to render wastewater suitable for potable purposes. Projects that include a natural barrier are considered indirect potable reuse. Projects that deliver advanced treated water directly to a raw or treated water pipeline are considered direct potable reuse. SDCWA worked closely with its member agencies to determine the projected yield from existing and planned potable water reuse projects. Table 4.18-6 shows the estimated verifiable annual yield from the projects in 5-year increments based on the implementation schedules provided by the member agencies and the likelihood of development.

Table 4.18-6 Projected Potable Reuse Water Use – Normal Year (acre-feet/year)

2025	2030	2035	2040	2045
33,042	53,202	112,562	112,562	112,562

Source: SDCWA 2021a: Table 5-8.

Several SDCWA member agencies are completing studies pertaining to potable reuse in the San Diego region through groundwater recharge or reservoir augmentation. Two agencies, the City of San Diego and the Padre Dam Municipal Water District, have implemented pilot projects to determine potable reuse project viability. The City is currently developing the Pure Water Program, which is a phased, multiyear program that would provide nearly half of San Diego's water supply (approximately 83 million gallons of purified water per day) locally by the end of 2035 (City of San Diego 2025, n.d.). Phase 1 of the Pure Water Program is currently under construction. The Pure Water Program will use proven water purification technology to produce safe, high-quality drinking water from treated recycled water.

Recycled Water Supply

Recycled water has been a growing water resource in San Diego County for decades, providing a local, drought-resilient supply that reduces the region's dependence on imported water. Every gallon of recycled water used within the region reduces the need to import or develop other water supplies. Sixteen of the member agencies have developed recycled water supplies for their retail customers. Member agencies are continuing to expand their recycled water treatment and distribution systems, and it is predicted that member agencies will produce approximately 45,900 afy recycled water by 2045 (SDCWA 2021a). Table 4.18-7 shows the estimated annual yield from the projects in 5-year increments (from 2020 to 2045) based on the implementation schedules provided by the member agencies and the likelihood of development.

Table 4.18-7 Projected Recycled Water Use – Normal Year (acre-feet/year)

2020	2025	2030	2035	2040	2045
35,753	41,963	45,513	45,628	45,749	45,854

Source: SDCWA 2021a: Table 5-7.

The increase in projected recycled water use in 2020 and beyond is primarily from the expansion of existing water recycling facilities throughout the San Diego region. Recycled water development helps relieve pressure on the region's potable water supplies by providing a drought-proof, locally controlled water supply source.

The California Department of Transportation (Caltrans) is one of the largest users of recycled water in the San Diego region. Caltrans set a goal of 50% reduction of potable water consumption by using recycled water and reducing water use to meet the water conservation requirements of an Executive Order issued by Governor Brown in 2015. Caltrans explored alternative means of connecting to and serving recycled water to existing landscaped freeways throughout San Diego County. Parallel encroachment restrictions have prevented many segments of Caltrans freeways from accessing recycled water. Caltrans has eased these restrictions by allowing recycled water purveyors longitudinal encroachment within their right-of-way. Caltrans uses recycled water from the City of San

Diego's North City Water Reclamation Plant along Interstate 5 (I-5) north to Sorrento Valley; along State Route (SR) 52; and along SR 56, I-805, and SR 163 between Black Mountain Road (except for a gap on the north side between Del Sur and Carmel Mountain Road overpass) and Friars Road. Caltrans anticipates the extension of recycled water use east along I-8 between SR 163 and I-15 (City of San Diego 2020).

Groundwater Supplies

The San Diego region overlies three general categories of aquifers: alluvial and sedimentary aquifers, fractured-rock aquifers, and desert basin aquifers (County of San Diego 2010a). The distribution and hydrology of groundwater basins in San Diego County is discussed in detail in Section 4.10, "Hydrology and Water Quality."

SDCWA does not currently hold groundwater basin rights, nor does it own or operate groundwater facilities in the San Diego region. However, groundwater provides an additional source of water supplies for SDCWA member agencies. Although opportunities are limited, groundwater is currently used to meet a portion of the municipal water demands throughout the SDCWA service area from Marine Corps Base Camp Pendleton in the north to National City in the south. There are several factors that limit the amount of groundwater production in the SDCWA service area, including the limited distribution of sand and gravel (alluvial) aquifers and their relatively shallow nature, lack of rainfall and associated groundwater recharge, and degraded water quality from human activities. Shallow and narrow river valleys filled with alluvial sand and gravel deposits are characteristic of the more productive groundwater basins in the San Diego region. Outside of these more productive aquifers, groundwater is developed from fractured crystalline bedrock and semi-consolidated sedimentary deposits that occur throughout the region. However, these aquifers have limited yield and storage and are best suited for meeting domestic water needs that do not require higher flow rates (SDCWA 2021a).

From 2015 to 2020 (the timeframe between UWMP updates), water supply agencies in the SDCWA service area produced an annual average of approximately 22,300 afy of potable water supplies from groundwater (SDCWA 2021a). This total includes production from both brackish groundwater desalination facilities and municipal groundwater wells. However, it does not include groundwater production from privately owned water wells used for irrigation and domestic purposes or groundwater produced annually from the Warner Basin by the Vista Irrigation District. Rather, this groundwater is discharged into Lake Henshaw and reported as local surface water supply by the City of Escondido and Vista Irrigation District.

In addition to providing a local supply to water agencies, groundwater is also both a primary and a supplemental source of water supply for numerous private well owners, who draw on groundwater to help meet their domestic and agricultural water needs. These domestic supplies help offset demand for imported water from SDCWA and its member agencies. However, it is difficult to accurately quantify and estimate the amount of groundwater pumped by private wells within the entire SDCWA service area (SDCWA 2021a).

While groundwater is less abundant in the San Diego region compared to other parts of the state, several water supply agencies in the SDCWA service area have identified potential projects that may provide several thousand acre-feet of additional future groundwater production. SDCWA works closely with its member agencies to develop groundwater yield projections. To be conservative, projections account for existing (verifiable) groundwater projects, which include any planned expansions to existing projects. Table 4.18-8 shows the projected annual groundwater yield from verifiable groundwater projects in 5-year increments from 2020 to 2045.

Table 4.18-8 Projected Groundwater Supply – Normal Year (acre-feet/year)

2020	2025	2030	2035	2040	2045
25,950	30,300	31,500	31,500	28,800	28,000

Source: SDCWA 2021a: Table 5-3.

As discussed below, the Sustainable Groundwater Management Act (SGMA) requires basins to be sustainably managed by local public agencies (e.g., counties, cities, and water agencies) that become groundwater sustainability agencies (GSAs). The main goals of the SGMA are to (1) achieve sustainable groundwater basins, (2) enhance local management of the groundwater, and (3) establish standards for effective and continuous

management of groundwater. The primary purpose of the GSAs is to develop and implement groundwater sustainability plans (GSPs) to achieve long-term groundwater sustainability.

In the San Diego region, the state has designated three of the region's basins as medium or high priority and subject to SGMA, requiring preparation of a GSP: Borrego Valley (Borrego Springs Subbasin), San Luis Rey Valley (Upper San Luis Rey Valley Subbasin), and San Pasqual Valley (County of San Diego n.d.-a). The San Luis Rey Valley Basin extends from the confluence of the San Luis Rey River and Paradise Creek, continuing downstream through four valleys (Pauma, Pala, Bonsall, and Mission) and ending at the Pacific Ocean in the City of Oceanside. Only Pala and Pauma Valleys, known as Upper San Luis Rey Valley Groundwater Subbasin, are subject to the requirements of SGMA (County of San Diego n.d.-b). The San Pasqual Valley Basin underlies San Pasqual Valley and Cloverdale, Rockwood, and Bandy Canyons in central San Diego County. Santa Ysabel, Guejito, and Santa Maria Creeks drain the valley and converge to form the San Dieguito River, which flows into Lake Hodges (County of San Diego n.d.-c). The Borrego Springs Groundwater Subbasin of the Borrego Valley Groundwater Basin was designated as high priority by the state due to a "critical overdraft" condition (BVGSA 2019) and is discussed in additional detail below under "Water Supplies Outside of the SDCWA Service Area."

The Pauma Valley GSA (composed of Pauma Municipal Water District, Pauma Valley Community Services District, San Luis Rey Municipal Water District, Yuima Municipal Water District, and Upper San Luis Rey Resource Conservation District) developed the Upper San Luis Rey GSP, which was approved by DWR in 2024 (DWR 2024). The San Pasqual Valley GSA (composed of City of San Diego and County of San Diego) prepared a San Pasqual Valley Groundwater Basin GSP, which was approved by DWR in 2023 (DWR 2023a).

SDCWA Water Supply Infrastructure and Delivery System

There are 24 surface reservoirs within the SDCWA service area, located in seven of the nine coastal watersheds in the San Diego region. Runoff in these watersheds occurs at the crest of the region's Peninsular Range and drains into the Pacific Ocean. Table 4.18-9 lists the 24 reservoirs, their operating agency, and their storage capacity. Olivenhain Reservoir, completed in 2003, is the region's newest reservoir. It is part of the SDCWA Emergency Storage Project (ESP) and has a storage capacity of 24,774 af. The ESP adds 90,100 af of storage capacity and is designed to protect the region from disruptions in the water delivery system (SDCWA 2021a).

In addition, the 2002 Regional Water Facilities Master Plan identified an opportunity to augment the ESP with a carryover storage component (CSP) at San Vicente. SDCWA completed the ESP and CSP portion of the San Vicente Dam Raise in mid-2014, which provides an additional 157,100 af of water storage capacity (SDCWA 2021a).

Table 4.18-9 Reservoirs in the San Diego Region

Agency (Owner)	Reservoir	Capacity (acre-feet)
Carlsbad Municipal Water District	Maerkle	600
City of Escondido	Dixon	2,606
City of Escondido	Wohlford[1]	2,783
Fallbrook Public Utility District[2]	Red Mountain	1,335
Helix Water District	Cuyamaca	8,195
Helix Water District	Jennings	9,790
City of Poway	Poway	3,432
Rainbow Municipal Water District[2]	Morro Hill	465
Rainbow Municipal Water District[2]	Ramona	12,000
City of San Diego	Barrett	34,806
City of San Diego	El Capitan	112,807
City of San Diego	Hodges[3]	13,401
City of San Diego	Lower Otay	47,067
City of San Diego	Miramar	6,682

Agency (Owner)	Reservoir	Capacity (acre-feet)
City of San Diego	Morena	50,694
City of San Diego	Murray	4,684
City of San Diego	San Vicente[4]	249,358
City of San Diego	Sutherland	29,508
San Dieguito Water District/Santa Fe Irrigation District	San Dieguito	883
San Diego County Water Authority	Olivenhain	24,774
Sweetwater Authority	Loveland	25,400
Sweetwater Authority	Sweetwater	28,079
Valley Center Municipal Water District	Turner	1,612
Vista Irrigation District	Henshaw	51,832
	Total Capacity	**722,793**

[1] The capacity volume accounts for the lowered reservoir level at Lake Wohlford due to DWR Division of Safety of Dams safety issues.

[2] Since approval of the 2020 UWMP, Fallbrook Public Utility District and Rainbow Municipal Water District have detached from SDCWA and annexed into Eastern Municipal Water District.

[3] The capacity volume accounts for lowered reservoir level at Lake Hodges due to DWR Division of Safety of Dams safety issues and is in accordance with the 1998 Emergency Storage Project Agreement for the Joint Use of Lake Hodges Dam and Reservoir.

[4] SDCWA has storage rights to 157,100 af of capacity in San Vicente Reservoir (105,000 af is designated as carryover storage; 52,100 af is designated as emergency storage).

Source: SDCWA 2021a: Table 5-1.

SDCWA Water Treatment Facilities

SDCWA receives both treated and untreated water from MWD. Treated water provided by MWD is filtered at the Robert A. Skinner Treatment Plant in Hemet (Riverside County) and transported to the San Diego region for use via the First and Second San Diego Aqueducts operated by SDCWA. Untreated water received by SDCWA is treated prior to use by the public at one of the 12 water treatment facilities owned and operated by SDCWA or one of its member agencies. SDCWA owns the 100 mgd Twin Oaks Valley WTP and has agreements with the Helix Water District securing 36 mgd of treatment capacity from the R.M. Levy WTP (SDCWA 2021a). Water from the Levy WTP supplements treated water service to the eastern portion of the San Diego region. The balance of treated water supplies comes from WTPs owned and operated by member agencies. These water treatment facilities are listed in Table 4.18-10.

Table 4.18-10 Water Treatment Facilities in the SDCWA Service Area

Water Treatment Plant (WTP)	Operator	Capacity (million gallons per day)
Escondido/Vista WTP	City of Escondido/Vista Irrigation District	75
R.M. Levy WTP	Helix Water District	106
David C. McCollom WTP	Olivenhain Municipal Water District	34
Robert A. Weese Filtration Plant	City of Oceanside	25
Lester J. Berglund WTP	City of Poway	24
Alvarado WTP	City of San Diego	150
Miramar WTP	City of San Diego	140
Otay WTP	City of San Diego	34
Twin Oaks Valley WTP	SDCWA	100
R.E. Badger Filtration Plants	San Dieguito Water District/Santa Fe Irrigation District	40
Robert A. Perdue WTP	Sweetwater Authority	30

Note: SDCWA = San Diego Water Authority.

Source: SDCWA 2021a: Table 1-3.

WATER SUPPLIES OUTSIDE THE SDCWA SERVICE AREA

The SDCWA service area encompasses the western third of San Diego County while the proposed Plan area is coterminous with the County. The rural, eastern portion of the San Diego region is outside the SDCWA service area and completely dependent on local groundwater for water supply. Geographically, the majority of the unincorporated area (65%) located roughly within and east of the Palomar and Cuyamaca mountains is reliant upon either separate groundwater-dependent districts or private wells that are unaffiliated with SDCWA. Groundwater is derived from onsite private wells, small community water systems, or private water companies. According to GIS overlay analysis of SANDAG's Master Geographic Reference Area 15 (MGRA 15) and SDCWA service area boundaries, as of 2022, there were approximately 111,770 residents outside of the SDCWA service area (SANDAG 2025; County of San Diego 2024). Regardless of the responsible provider, all of these areas are entirely reliant on groundwater and, as such, the water supply in these areas is subject to groundwater availability. Table 4.18-11 provides a list of water supply providers outside the SDCWA service area.

Several of these districts are not required to prepare UWMPs because they either do not serve more than 3,000 customers or do not distribute more than 3,000 af of water annually (County of San Diego 2011).

The County of San Diego conducted a groundwater study as part of the 2011 General Plan Update (County of San Diego 2010a). The study area encompassed approximately 1,885 square miles of land, which is entirely groundwater dependent. The study area is bounded by Riverside County to the north, the international boundary with Mexico to the south, San Diego County unincorporated and incorporated land served by the SDCWA member agencies to the west, and desert basin aquifers and Imperial County to the east. It consists of nine hydrologic units within the San Diego Hydrologic Region and three hydrologic units within the Colorado Hydrologic Region.

The study identified the following areas as having the potential for localized groundwater problems (especially at the height of extended drought periods) from pumping large amounts of groundwater: (1) Ballena Valley, located east of Ramona; (2) Guatay, located in the Cuyamaca Mountains; (3) Julian Town Center; and (4) Morena Village, located northwest of Campo. Thirteen basins were identified as having a potentially significant impact on groundwater resources at maximum build-out of the 2011 General Plan Update. The study also determined that the Borrego Springs Park Community Services District and Borrego Water District would have inadequate water supply to serve their service area (County of San Diego 2010a).

Table 4.18-11 Water Supply Agencies Outside the SDCWA Service Area

Water Supply Provider	Community Served	Source
Borrego Water District	Anza Borrego and Borrego Springs	Local groundwater supply and sole source aquifer[1]
Borrego Springs Park Community Service District*	Borrego Springs	Local groundwater supply
Campo Water Maintenance District*	Campo	Local groundwater supply
Canebrake County Water District	Anza Borrego, seasonal visitors and part-time residents	Local groundwater supply
Cuyamaca Water District*	Cuyamaca	Local groundwater supply
Descanso Community Service District*	Descanso	Local groundwater supply
Jacumba Community Services District*	Jacumba	Local groundwater supply
Julian Community Service District *	Julian	Local groundwater supply
Live Oak Springs Water Company	Boulevard	Local groundwater supply
Majestic Pines Community Service District*	Julian	Local groundwater supply
Mootamai Municipal Water District*	Pala-Pauma	Local groundwater supply
Pauma Municipal Water District*	Pala-Pauma	Local groundwater supply
Pine Hills Mutual Water Company*	Julian/Pine Hills	Local groundwater supply

Water Supply Provider	Community Served	Source
Pine Valley Mutual Water Company*	Pine Valley	Local groundwater supply
Questhaven Municipal Water District*	San Dieguito	Local groundwater supply
Rancho Pauma Mutual Water Company*	Pala-Pauma	Local groundwater supply
San Luis Rey Municipal Water District*	Fallbrook, Valley Center, Pala-Pauma	Local groundwater supply
Wynola Water District*	Julian/Wynola	Local groundwater supply

Note: SDCWA = San Diego County Water Authority.

[1] A sole source aquifer is an underground water supply designated by the U.S. Environmental Protection Agency as the "sole" or "principal" source of drinking water for an area.

* Denotes water supply providers that either do not serve more than 3,000 customers or do not distribute more than 3,000 af of water annually and are therefore not required to have a UWMP.

Sources: County of San Diego 2011, n.d.-d; PHMWC n.d.; PVMWC n.d.; RPMWC n.d.

Borrego Valley Groundwater Subbasin

Desert basins account for approximately 14% of the unincorporated area of the San Diego region and are located in its easternmost portions. These basins are characterized by extremely limited groundwater recharge but large storage capacity. When groundwater extraction exceeds recharge, the result is an overdraft condition that is not sustainable (County of San Diego 2010a). The Borrego Valley Groundwater Basin has a well-documented groundwater overdraft condition. The Borrego Valley Groundwater Basin is divided into two separate subbasins, the Borrego Springs Groundwater Subbasin and the Ocotillo Wells Groundwater Subbasin (DWR 2016). The Borrego Springs Groundwater Subbasin covers an area of approximately 98 square miles, and the Ocotillo Wells Groundwater Subbasin covers an area of approximately 141 square miles (of which approximately 44% is located in San Diego County; the remainder of the Ocotillo Wells Groundwater Subbasin is located in Imperial County).

Current groundwater use in the Borrego Springs Groundwater Subbasin greatly exceeds groundwater recharge, and the Subbasin is designated by DWR as high priority and critically overdrafted (BVGSA 2019). The Coyote Creek, Upper San Felipe Creek, and the Borrego Valley–Borrego Sink Wash watersheds drain to the Borrego Springs Subbasin and provide the majority of recharge for the subbasin. Due to its arid climate, the Borrego Springs Subbasin receives limited precipitation and is remote for potential sources of imported water. The Borrego Springs Groundwater Subbasin holds a large amount of groundwater in storage, estimated in 2016 to be approximately 1.5 million af of usable groundwater (BVGSA 2019). Water levels have been declining for decades because of the overdraft condition, and groundwater production at current rates is not sustainable. Since the early 1950s, pumping for irrigated agriculture, golf courses, and residential and commercial uses has required more groundwater than is available through natural recharge. Groundwater-level declines during 1945–2010 were as much as 2 feet per year in wells in the northern part of the valley, where groundwater is intensively pumped for irrigated agriculture (USGS 2017). Over the past 65 years, groundwater levels have declined as much as 126 feet in the northern portion and by approximately 87 feet in the west-central portion of the subbasin. Less groundwater has been pumped in the southeastern part of the subbasin, and groundwater levels have remained relatively stable in this portion of the subbasin. While the majority of residences and commercial entities in Borrego Valley receive their water from the Borrego Water District (BWD), some private property owners within the BWD service area use private wells that rely on groundwater extracted from the Borrego Springs Groundwater Subbasin. The vast majority of the water supplied to agricultural users within Borrego Valley comes from privately owned wells within the BWD service area (County of San Diego 2010b).

In order to comply with the SGMA (see the "Regulatory Setting" section below), efforts began in 2017 to prepare a GSP for the Borrego Springs Groundwater Subbasin. A public input process was conducted, and a draft GSP prepared and circulated. The final draft GSP was completed in 2019. Ultimately, BWD filed a lawsuit seeking a comprehensive adjudication of groundwater rights in the subbasin in 2021. The adjudication of groundwater pumping rights in the Borrego Springs Groundwater Subbasin was approved by the Superior Court of California on April 8, 2021 (Case No. 37-2020-00005776) (2021 Judgment). The 2021 Judgment provided for holders of

groundwater rights in Borrego Springs to work together alongside the county and BWD to manage the Borrego Springs Groundwater Subbasin through a court-approved process. To accomplish this, the 2021 Judgment established the Borrego Springs Watermaster (Watermaster) as the entity responsible for managing groundwater resources in the Borrego Springs Groundwater Subbasin. On June 25, 2021, the Watermaster submitted the 2021 Judgment to DWR that included a groundwater management plan (GMP), constituting a "physical solution" for DWR review and approval to serve as an alternative to a GSP for the subbasin in compliance with the SGMA. The 2021 Judgment established an initial sustainable yield (i.e., the amount of water that may be produced), as well as Watermaster rules and regulations.

The Watermaster updated baseline pumping allocations on October 1, 2024. The pumping allocations provide specific quantities available to specific landowners (Borrego Springs Watermaster 2024). The most recent annual report for the Borrego Springs Groundwater Subbasin was published in March 2024 and addressed water year 2023. This report, prepared to satisfy requirements of the 2021 Judgment, described above, provides a summary of Watermaster activities, water right accounting, hydrologic conditions, and the status of the progress associated with the implementation of the groundwater monitoring plan (West Yost 2024). All users will be required to ratchet down the amount of water they take from the aquifer by 5% each year. By 2030, all will have halved their baseline amounts and will reach a sustainable yield by 2040. (See *Borrego Water District v. All Persons who Claim a Right to Extract Groundwater in the Borrego Valley Groundwater Subbasin No. 7.024-01 Whether Based on Appropriation, Overlying Right, or Other Basis Of Right, and/or Who Claim a Right to use of Storage Space in the Subbasin*.)

ANTICIPATED EFFECTS OF CLIMATE CHANGE

The San Diego region is likely to experience a variety of climate change impacts including longer and more intense droughts, sea-level rise of up to 1.3 feet by 2050 and up to 6.7 feet by 2100, fewer rainy days, more rainfall during the biggest rainstorms by 2050, and a decrease in runoff and streamflow due to less snowpack and more evaporation (CEP and SDF 2015; Kalansky et al. 2018; OPC 2024; Jennings et al. 2018). Climate change is likely to have an impact on both imported and local water supplies for the San Diego region. Imported supply could be reduced by changes in snowpack melt (affecting the timing of water availability), less precipitation, increased evaporation from higher temperatures, and saltwater intrusion due to sea-level rise. Meanwhile, demand for water could increase due to evapotranspiration and droughts. Reduced snowpack and precipitation, as well as more precipitation falling as rain rather than snow in the mountains, can decrease water supplies coming from the mountain ranges. These effects reduce the amount of runoff and streamflow from melted snow, decreasing this source of water. Such changes have already affected the Colorado River, which has seen a decline in streamflow by 19 percent since 2000 due to decreased precipitation (Hogan and Lunquist 2024).

A shift in the timing of melting snowpack can also affect streamflow timing and volumes, water storage, conveyance infrastructure, and ultimately availability of regional water supply. Snowpack usually melts in the spring and summer, releasing water when it is most needed; however, snow has melted earlier in recent years, reducing the amount of water available later in the year (Hale et al. 2023). Between 1981 and 2020, March snow water equivalent has declined by 10 to 20 percent per decade across southwestern USA (Gottlieb and Mankin 2024).

The City of San Diego imports up to 90 percent of its water from Northern California (Sierra Nevada meltwater) and the Colorado River (City of San Diego 2025). 72 percent of the region's water comes from the Colorado River (Elmer 2023). Other impacts of climate change, such as reduced precipitation, increased evaporation, and increased drought, can also make water sources drier. SDCWA anticipates an increase in regional demand of less than one percent per year through 2045 (SDCWA 2021c).

Sea-level rise could result in saltwater intrusion along coastline water sources. Saltwater intrusion degrades freshwater supply, decreasing the amount of drinking water available to the San Diego region. Saltwater intrusion would affect the Sacramento-San Joaquin Bay-Delta, which the San Diego region receives imported water from via the State Water Project (DWR 2025; SDCWA 2025c), as well as groundwater wells (County of San Diego 2023).

SDCWA has diversified its portfolio to include local sources of water such as seawater desalination, ground water, water recycling, water purification, and surface water (SDWCA 2025d) with a goal of recycled water being one-

third of the City's water supply by 2035 (EPA 2025). This new reliance on local sources of water may result in permanent reduction in the availability of groundwater supply (Reidmiller et al. 2018) and increased use of energy. Consumption of large amounts of energy to power desalination plants and import recycled water for purification process (which can be offset by transitioning to a renewable energy or a cleaner energy provider), a resource that may also be compromised by climate change (Kelley 2011).

Drought and evapotranspiration may increase agricultural water demand due to increased irrigation from imported water sources and groundwater to make up for lack of rainfall and to adjust to higher temperatures. Use of groundwater (regulated by the Sustainable Groundwater Management Act) to keep crops irrigated, especially in drought conditions, can lead to dry wells, infrastructure damage from land subsidence (i.e., sinking lands), increased rates of seawater intrusion, and reduced groundwater quality. (Cole et al. 2024).

As climate change and development in the region progress, demand for water is expected to increase while the water supply from traditional sources (e.g., snowpack and streamflow) is expected to decrease.

4.18.2 Regulatory Setting

FEDERAL LAWS, REGULATIONS, PLANS, AND POLICIES

Safe Drinking Water Act

The Safe Drinking Water Act (42 U.S. Code Section 300[f] et seq.) gives the U.S. Environmental Protection Agency (EPA) the authority to set drinking water standards (40 Code of Federal Regulations [CFR] 141.1 et seq.). Drinking water standards apply to public water systems—systems that provide water for human consumption through at least 15 service connections or regularly serve at least 25 individuals. There are two categories of drinking water standards, the National Primary Drinking Water Regulations (NPDWR) and the National Secondary Drinking Water Regulations (NSDWR). The NPDWR are legally enforceable standards that apply to public water systems. NPDWR standards protect drinking water quality by establishing maximum contaminant levels for specific drinking water contaminants that present a risk to human health. The NSDWR set nonmandatory water quality standards for 15 contaminants that are not considered to present a human health risk.

STATE LAWS, REGULATIONS, PLANS, AND POLICIES

California Water Plan Update 2023

The California Water Plan (CWP), updated every 5 years, is "the state's strategic plan for sustainably and equitably managing and developing water resources for current and future generations" (DWR 2023b). The California Water Plan Update 2023 (Update 2023) focuses on the innovation and investments in California's watersheds, water systems, and communities needed for a resilient and equitable future. The update builds on existing water policies, laws and regulations, and initiatives and investments in the Governor Newsom administration's *Water Resilience Portfolio* (CNRA 2020), Water Supply Strategy (CNRA 2022), and recent legislation. These state initiatives establish cornerstone policies, investments, targets, and actions as significant systemic and institutional challenges that are increasing risks to public safety, frontline communities, ecosystems, and the state's economy. The vision for the Update 2023 is for all Californians to benefit from water resources that are sustainable, resilient to climate change, and managed to achieve shared values and connections to our communities and the environment.

California Water Resilience Portfolio

The California Water Resilience Portfolio was developed in response to Governor Newsom's Executive Order N-10-19, which directed state agencies to develop recommendations to meet water needs throughout the 21st century and enable water security for all Californians (CNRA 2020). State agencies developed the California Water Resilience Portfolio to improve California's capacity to prepare for disruptions, withstand and recover from climate-related shocks, and adapt to the future. The portfolio embraces a broad, diversified approach, with four

categories of goals and actions: (1) maintaining and diversifying water supplies; (2) protecting and enhancing natural ecosystems; (3) improving physical infrastructure to store, move, and share water more flexibly and integrate water management; and (4) preparing for new threats. The portfolio recognizes that water resilience will be achieved with local, regional, and tribal leadership, on a region-by-region basis, considering the unique challenges and opportunities in each area. The portfolio includes more than 100 detailed actions to ensure California water systems work for the communities, economy, and environment, which will be implemented based on priority and availability of resources.

Executive Orders B-37-16 and B-40-17

On May 9, 2016, Governor Jerry Brown issued Executive Order B-37-16, calling for the State Water Resources Control Board (SWRCB) to adjust emergency water conservation regulations through the end of January 2017 in recognition of the differing water supply conditions across the state. Executive Order B-40-17 builds on actions taken in Executive Order B-37-16, which remains in effect, to continue making water conservation a way of life in California. The long-term conservation framework includes recommendations to establish permanent water conservation standards and improved agricultural and urban water management planning to better prepare for more frequent and severe droughts due to climate change.

Regulations Related to Recycled Water

Under California Code of Regulations Title 22, the State Department of Public Health established statewide effluent bacteriological and treatment reliability standards for recycled water uses. (On July 1, 2014, the state's Drinking Water Program was transferred to SWRCB.) The standards are based on the potential for human contact with recycled water. Each of California's nine regional water quality control boards (RWQCBs) has established and enforces requirements for the application and use of recycled water. Permits are required from the RWQCB for any recycling operation. Applicants for a permit are required to demonstrate that the proposed recycled water operation is in compliance with Title 22 and will not exceed the groundwater and surface water quality objectives in the regional basin plan. In the San Diego region, the basin plan is the Water Quality Control Plan for the San Diego Basin (9), prepared and administered by the Region 9 San Diego RWQCB (San Diego RWQCB 2021).

The Water Conservation Act of 2009

The Water Conservation Act of 2009 (Senate Bill [SB] x7-7 of 2009) sets water conservation targets and efficiency improvements for urban and agricultural water suppliers. The legislation established a statewide target to reduce urban per capita water use by 20% by 2020. Urban retail water suppliers were required, individually or on a regional basis, to develop an urban water use target by December 31, 2010, to meet their target by 2020, and to meet an interim target (half of their 2020 target) by 2015. Urban water suppliers cannot impose conservation requirements on process water (water used in production of a product) and are required to employ two critical efficient water management practices—water measurement and pricing. Urban retail water suppliers were required to include information, such as the baseline daily per capita water use, water use target, interim water use target, and compliance daily per capita water use in the water management plan. Urban retail water suppliers who did not meet the water conservation requirements established by this bill were not eligible for state water grants or loans as of 2016.

2018 Water Conservation and Drought Planning Legislation

SB 606 and AB 1668 of 2018 (Chapters 14 and 15, Statutes of 2018) modify several provisions of the Water Conservation Act of 2009. These bills call for the creation of new urban efficiency standards for indoor use, outdoor use, and water loss to leaks, as well as any appropriate variances for unique local conditions. SWRCB was required to adopt these standards by regulation no later than June 30, 2022. The indoor water use standard is required to be 55 gallons per capita per day through December 31, 2024, decreasing to 47 gallons per capita per day from January 1 2025 through December 31, 2029, and decreasing to 42 gallons per capita per day beginning January 1, 2030 (Chapter 679, Statutes of 2022). Each urban retail water agency is required annually, beginning November 2023, to calculate its own water use objective, using SWRCB standards and based on the water needed in its service area, for efficient indoor residential water use; outdoor residential water use; commercial, industrial,

and institutional irrigation; and other uses. In addition, AB 1668 creates additional requirements for agricultural water management plans originally required by the Water Conservation Act of 2009.

California Urban Water Management Planning Act

The California UWMPA (Water Code Part 2.6) states that each urban water supplier that provides water to 3,000 or more customers, or that provides more than 3,000 af of water annually, should make every effort to ensure the appropriate level of reliability in its water service is sufficient to meet the needs of its various categories of customers during a normal year, a dry year, and multiple dry years by preparing a UWMP and updating it every 5 years. The last required UWMP updates were completed in 2021. The UWMPA describes the contents of UWMPs and requires each agency's UWMP to assess the reliability of the agency's water resources over a 20-year planning horizon.

SB 606 of 2018 created additional requirements for UWMPs, including preparation of a drought risk assessment and a water shortage contingency plan. It also requires urban water suppliers conduct an annual water supply and demand assessment and submit an annual water shortage assessment report to DWR.

Water Supply Planning

SB 610 (Chapter 643, Statutes of 2001) and SB 221 (Chapter 642, Statutes of 2001) improve the link between information about water supply availability and certain land use decisions made by cities and counties. SB 610 requires local public water providers with more than 3,000 service connections to prepare a water supply assessment (WSA) for any project that is subject to the California Environmental Quality Act (CEQA) and meets specified minimum size criteria.

For qualified projects, the WSA must document sources of water supply, quantify water demands, and compare future water supply and demand to show that sufficient water will be available to serve the project. Water supply must be assessed for a normal year, a single dry year, and multiple dry years during a 20-year forecast. If supplies are found to be insufficient to serve the project, the WSA must include plans for acquiring sufficient supplies. The WSA must be included in the CEQA document for the project.

SB 221 (Chapter 642, Statutes of 2001) applies to subdivisions of more than 500 dwelling units. Like SB 610, it is intended to ensure an adequate water supply for new development is available. The SB 221 tentative map approval process requires verification of adequate water supply for the subdivision. Government Code Section 66473.7(k) contains special provisions for SB 221 compliance in the San Diego region.

California Groundwater Management Act

The Groundwater Management Act (Water Code Section 10750 et seq.) provides guidance for applicable local agencies to develop voluntary GMPs in state-designated groundwater basins. GMPs can allow agencies to raise revenue to pay for measures influencing the management of the basin, including extraction, recharge, conveyance, facility maintenance, and water quality. SGMA (see below) requires preparation of GSPs for the high- and medium-priority basins instead of GMPs. New GMPs shall not be adopted, and an existing GMP shall not be renewed for high- and medium-priority basins pursuant to SGMA as of January 1, 2015.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (Chapters 346, 347, and 348, Statutes of 2014) encompasses three bills: Assembly Bill (AB) 1739, SB 1168, and SB 1319 of 2014. The act focuses on the importance of local action in order to achieve groundwater sustainability and allow local agencies to tailor sustainable groundwater plans to their own economic and environmental needs. The act created a timeline for its implementation: by 2017, local groundwater management agencies were identified; by January 31, 2020, groundwater sustainability plans must be adopted for basins designated as high or medium priority currently being overdrafted; by January 31, 2022, groundwater sustainability plans must be adopted for all other high- and medium-priority basins; and by 2040, all high- and medium-priority groundwater basins must achieve sustainability. SWRCB has the authority to intervene in sustainability plan preparation if deadlines are not met by local agencies.

The formation of groundwater management agencies results in the monitoring of well water pumping from the managed aquifer along with the calculation of a sustainable yield. Once a sustainable yield has been determined, a basis exists for a groundwater trading program that allows users to purchase or lease the rights of other users while staying within the overall withdrawal limits set by the groundwater sustainability plan.

SGMA is meant to stop the overdrafting of groundwater supplies and to reduce the potential for groundwater contamination by saltwater infiltration. It aims to supply California with a reliable water source for the future. Making Conservation a California Way of Life Regulation

The Making Conservation a California Way of Life regulation was approved by SWRCB in 2024 and became effective on January 1, 2025. The intention of the regulation is to achieve long-term water use efficiency with the purpose of adapting to climate changes and more intense droughts in California. Under the regulation, each urban retail water supplier in California is required to establish individualized and quantifiable urban water use objectives. Each supplier is required to calculate their objective annually, which is the sum of efficiency budgets for a subset of urban water uses, including residential indoor and outdoor water uses, real water loss and commercial, industrial and institutional landscapes with dedicated irrigation meters. Urban retail water suppliers are also required to comply with performance measures established for CII (commercial, industrial, and institutional) water users. Each urban retail water supplier is required to submit an annual report that includes their urban water use objective and a description of progress made towards meeting their urban water use objective to SWQCB and DWR by January 1 every year.

Assembly Bill 1572

AB 1572 was signed into law by Governor Newsom in October 2023. The bill restricts the use of potable water for irrigating non-functional turf on commercial, industrial, institutional, and multifamily residential properties, other than a cemetery, and on properties of homeowners' associations, common interest developments, and community service organizations or similar entities.

Caltrans' Statewide Stormwater Management Plan

In the state of California, methods of accommodating storm water in new transportation improvements financed entirely or in part with state or federal funds are governed by Caltrans design standards outlined in the Caltrans' Statewide Stormwater Management Plan. Caltrans standards also typically serve as the basis for municipal designs because the municipalities operate under similar NPDES permit requirements. Caltrans transportation improvements related to storm water management include the following design principles (Caltrans 2016):

- Conserve natural areas to the extent feasible, including existing trees, stream buffer areas, vegetation, and soils.
- Minimize the impervious footprint of the project.
- Minimize disturbances to natural drainages.
- Design pervious areas to effectively receive runoff from impervious areas, taking into consideration the pervious areas' soil conditions, slope, and other pertinent factors.
- Incorporate landscape and soil-based BMPs [best management practices].
- Use climate appropriate landscaping that minimizes irrigation and runoff, promotes surface infiltration, and minimizes the use of pesticides and fertilizers.
- Design landscapes to comply with the California Department of Water Resources Model Water Efficient Landscape Ordinance.[1] This includes any new (or rehabilitated) planting area provided with permanent irrigation (greater than 2,500 square feet) except for mitigation planting and erosion control projects with temporary irrigation systems.

[1] Any landscape design that consists of new or rehabilitated landscape irrigation in the project limits (greater than 2,500 square feet per AB 1881) will comply with the California Department of Water Resources Model Water Ordinance by estimating water needs using the following guidance resources: WULCOLS III (Water Use Classifications of Landscape Species), MAWA (Maximum Allowable Water Allowance), and ETWU (Estimated Total Water Use).

- Where the California Department of Water Resources Model Water Efficient Landscape Ordinance conflicts with a local water conservation ordinance, Caltrans will comply with the local ordinance.

REGIONAL AND LOCAL LAWS, REGULATIONS, PLANS, AND POLICIES

Both MWD and SDCWA have developed plans that address long-term water supply and demand, as well as catastrophic supply interruption and emergency storage. These plans, as they relate to the issues in this Environmental Impact Report (EIR), are described below.

MWD Integrated Water Resources Plan

The MWD 2020 Integrated Water Resources Plan (IRP) was organized into a regional needs assessment (phase 1) and an implementation plan (phase 2). The needs assessment was adopted by the MWD Board of Directors in 2022, established a tool for ensuring regional water reliability through 2045, and incorporated scenario planning to address wide-ranging uncertainties (MWD 2023). Building upon the foundation of the IRP needs assessment, phase 2 of the IRP will be coordinated through the Climate Adaptation Master Plan for Water that was approved in April 2025 and considers climate scenarios for water resource development and management (MWD 2025).

MWD Urban Water Management Plan

MWD prepared the 2020 UWMP in compliance with Water Code Sections 10608.36 and 10610–10656 of the UWMPA. Information in MWD's 2020 UWMP may be used by local water suppliers in preparation of their own UWMP and represents current planning projections of supply capability and demand. The UWMP describes MWD's planning activities and explains how the agency will manage the region's water resources to ensure a reliable water supply for the region. The UWMP also addresses the issue of water quality and steps taken to deliver high-quality water to the MWD service area (MWD 2021).

SDCWA Urban Water Management Plan and Water Use Efficiency Programs

The SDCWA 2020 UWMP presents strategies designed to enhance water supply reliability through diversification of water sources, compliance with the Water Conservation Act of 2009 conservation targets, and improvement of supply and delivery infrastructure, including improvements identified in the SDCWA 2015 UWMP (SDCWA 2016). Some of the more prominent strategies are the All-American Canal and Coachella Canal Lining Projects, development of a regional seawater desalination plant located in Carlsbad, construction of the San Vicente Dam Raise and Carryover Storage Project, and support of the development of additional local supplies. The UWMP describes SDCWA's outreach efforts to raise public awareness of growing water supply and water rate challenges and increased long-term residential, commercial, and public sector water use efficiency. The 2020 UWMP is based on SANDAG's Series 14 Regional Growth Projections.

In addition, SDCWA's Water Use Efficiency Policy Principles include how SDCWA may implement and administer regional water use efficiency projects and programs where economies of scale, geography considerations, or other member agency circumstances make a regional program more efficient or cost-effective. The principles also provide additional direction to staff regarding efficiency projects or programs affecting SDCWA, its member agencies, and regional water management and use. The principles include policies pertaining to member agency support, funding and resources, program performance, outreach and education, and regulation and legislation.

SDCWA Water Shortage Contingency Plan

The 2020 Water Shortage Contingency Plan (WSCP) provides an overview of SDCWA's actions to increase the region's water supply reliability and to outline the response to drought or other water shortage emergencies (SDCWA 2021b). It builds upon previous planning documents, as well as the experience gained in two previously declared droughts in this century. The WSCP provides a review of historical drought periods along with SDCWA's actions and lessons learned during those periods. The WSCP summarizes the annual water supply and demand assessment. Six regional water shortage response actions and levels are presented, including actions required at each level and the water supply conditions that trigger the response levels. The WSCP identifies extraordinary demand reduction measures, which include a list of potential consumer water use restrictions and extraordinary

measures to reduce demand during shortage events. A detailed methodology for allocation of supplies to member agencies in a water supply shortage is presented. A description of how SDCWA would manage catastrophic water shortages caused by an event such as an earthquake is outlined.

San Diego Integrated Regional Water Management Plan

The 2019 San Diego Integrated Regional Water Management Plan (IRWMP) presents an integrated approach for addressing water management issues in the San Diego region. The 2019 San Diego IRWMP focuses on five goals (IRWM 2018):

- Improve the reliability and sustainability of regional water supplies.
- Protect and enhance water quality.
- Protect and enhance our watersheds and natural resources.
- Enhance the resiliency to climate change for local water resources.
- Promote and support sustainable integrated water resource management.

ISDCWA Water Facilities Master Plan

The SDCWA 2024 Water Facilities Master Plan (2024 Master Plan) is a comprehensive evaluation of infrastructure requirements needed to meet SDCWA's mission of providing a safe and reliable water supply to its member agencies. It is based on projections for future water demands and water supplies from the 2020 UWMP (SDCWA 2025a). The 2024 Master Plan identifies infrastructure improvement projects needed to ensure reliability and ability to serve projected water demands to 2045. Projects include water facilities seismic improvements, upgraded pump stations, and pipeline relining.

Local Urban Water Management Plans and Water Use Efficiency Programs

The California UWMPA (Water Code Part 2.6) requires each of the 22 SDCWA member agencies to prepare a UWMP to support long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. SDCWA member agencies' UWMPs reflect and are coordinated with the SDCWA UWMP. Local agencies with a UWMP include the City of Carlsbad, the City of Escondido, the Fallbrook Public Utility District, Helix Water District, Lakeside Water District, the City of Oceanside, Otay Water District, Rainbow Municipal Water District, Rincon Del Diablo Municipal Water District, Ramona Municipal Water District, the City of San Diego, San Dieguito Water District, Santa Fe Irrigation District, Sweetwater Authority, Valley Center Municipal Water District, Vallecitos Water District, Vista Irrigation District, the City of Poway, Olivenhain Municipal Water District, and Padre Dam Municipal Water District.[2]

SDCWA also runs a water conservation program known as WaterSmart, which is implemented by SDCWA member agencies. The program offers various water conservation resources, programs, and incentives for residences, businesses, homeowner associations, and agricultural use management programs (SDCWA n.d.).

San Diego County Groundwater Ordinance

The San Diego County Groundwater Ordinance is contained in Section 67.701 et seq. of the Regulatory Code. This ordinance contains regulations for the protection, preservation, and maintenance of groundwater resources. It provides standards for implementation and review of groundwater studies, as well as countywide studies, assessments, and monitoring of groundwater resources in the county. The purpose of this ordinance is not to limit or restrict agricultural activities but to ensure that development will not occur in groundwater-dependent areas of the county unless adequate groundwater supplies are available to serve both the existing uses and the proposed uses in the affected groundwater basin. The economic, social, and environmental benefits of maintaining viable agriculture in San Diego County are expressly recognized in the adoption of this ordinance. Also, the Groundwater Ordinance does not apply to by-right agricultural uses or operations. This ordinance does not limit the number of

[2] Since approval of the 2020 UWMP, Fallbrook Public Utility District and Rainbow Municipal Water District have detached from SDCWA and annexed into Eastern Municipal Water District.

wells or the amount of groundwater extraction from existing landowners. However, the ordinance does identify specific measures to mitigate potential groundwater impacts of projects requiring specified discretionary permits.

Groundwater Sustainability Plan for the Borrego Springs Groundwater Subbasin

The final draft GSP for the Borrego Springs Groundwater Subbasin was completed in 2019. The GSP establishes criteria that will maintain or achieve sustainable groundwater management of the Borrego Springs Groundwater Subbasin. The GSP contains a summary of the Borrego Springs Groundwater Subbasin setting and overdraft conditions; establishes sustainability indicators, minimum thresholds, and measurable objectives for the subbasin; and establishes project and management actions to reduce water demand within the subbasin and maintain water quality suitable for current and future beneficial uses. The Borrego Springs Groundwater Subbasin GSP establishes a sustainability goal to halt the overdraft condition in the subbasin by bringing the groundwater demand in line with a sustainable yield of 5,700 afy by 2040, while stabilizing or improving groundwater levels (BVGSA 2019).

As discussed above in the "Borrego Valley Groundwater Subbasin" section, a settlement agreement to adjudicate groundwater rights was approved on April 8, 2021, and established the Borrego Springs Watermaster as the entity responsible for managing groundwater use in the Borrego Springs Groundwater Subbasin. Under the terms of the settlement agreement, all parcels within the BWD service area will be metered to measure water use. All users will be required to ratchet down by 5% each year the amounts of water they take from the aquifer. By 2030, all users will have halved their baseline amounts and will reach a sustainable yield by 2040. (See *Borrego Water District v. All Persons Who Claim a Right to Extract Groundwater in the Borrego Valley Groundwater Subbasin No. 7.024-01 Whether Based on Appropriation, Overlying Right, or Other Basis Of Right, and/or Who Claim a Right to use of Storage Space in the Subbasin.*)

Recycled Water Regulations

The County Department of Environmental Health and Quality regulates the use of recycled water through a delegation agreement with the State of California. The purpose is to protect the public from health risks associated with cross-connections of recycled water and drinking water supplies, as well as to prevent health risks from body contact with recycled water. The department's Land and Water Quality Division reviews recycled water use plans and conducts site inspections to ensure drinking water supplies are not contaminated with recycled water. Spray irrigation sites are monitored to ensure the recycled water irrigation does not present a risk to the public. Recycled water sites must also pass a cross-connection control shutdown test when installed and every 4 years after installation (County of San Diego n.d.-e).

The City of San Diego maintains the policy that recycled water be used for any purpose approved for recycled water use when it is economically, financially, and technically feasible, as mandated by Ordinance 0-17327. The policies regarding recycled water use are documented in the Rules and Regulations for Recycled Water Systems, which lists the following goals (City of San Diego 2022):

- Prevent direct human contact of recycled water through adherence to all applicable rules and regulations and laws.
- Prevent cross-connection between recycled and potable water systems, which include a strict cross-connection/backflow prevention program.

In addition to the county regulations, the City of Escondido's Recycled Water Master Plan summarizes the City's recycled water service rules and regulations for recycled water use (City of Escondido 2011). The San Dieguito Water District Administrative Code Article 21, Section 21.6, "Rules and Regulations," govern the requirements for recycled and nonpotable water use within the district's jurisdiction (City of Encinitas 2024). Olivenhain Municipal Water District's Rules and Regulations Governing the Use of Recycled Water describes the facility requirements, recycled water services, and operational requirements in the jurisdiction (OMWD 2015). Recycled water use in the Rincon del Diablo Municipal Water District is governed by Rincon Administrative Code Section 4500, "Recycled Water Service" (RDDMWD 2017).

4.18.3 Significance Criteria

Appendix G of the CEQA Guidelines provides criteria for evaluating the significance of a project's environmental impacts on water supply, in the form of initial study checklist questions. Unless otherwise noted, the significance criteria specifically developed for this EIR are based on the checklist questions in CEQA Guidelines Appendix G. In some cases, SANDAG has combined checklist questions, edited their wording, or changed their location in the document in an effort to develop significance criteria that reflect the programmatic level of analysis in this EIR and the unique nature of the proposed Plan.

Checklist questions for water supply are included in Sections X (b and e) and XIX (a and b) of Appendix G. Because of the importance of water supply issues in the San Diego region and throughout California, this EIR addresses the water supply impacts of the proposed Plan in a stand-alone section. For the purposes of this EIR, the Appendix G questions have been combined and modified. Specifically, Appendix G Section XIX (b), regarding sufficient water supplies, is addressed in criterion WS-1. Section X questions (b) and (e), regarding groundwater supplies and sustainable groundwater management plans, are addressed in criterion WS-2. Section XIX question (a), regarding the relocation or construction of new or expanded water facilities, is addressed in criterion WS-3. For the purposes of this EIR, the proposed Plan would have a significant water supply impact if it would:

WS-1 Not have sufficient water supplies available to serve the projected regional demand during normal, dry, and multiple dry years.

WS-2 Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the proposed Plan would impede sustainable management of groundwater basins or obstruct implementation of a sustainable groundwater management plan.

WS-3 Require or result in the relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects.

4.18.4 Environmental Impacts and Mitigation Measures

WS-1 NOT HAVE SUFFICIENT WATER SUPPLIES AVAILABLE TO SERVE THE PROJECTED REGIONAL DEMAND DURING NORMAL, DRY, AND MULTIPLE DRY YEARS.

Analysis Methodology

The analysis of the 2035 and 2050 impacts of forecasted regional growth and land use change in the SDCWA service area estimates the water demand resulting from forecasted growth under the proposed Plan and compares it to the projected water demand and projected available supplies through 2035, as identified in the SDCWA 2020 UWMP. The UWMPA requires all urban water suppliers in California to prepare UWMPs that present the water suppliers' water reliability assessments. The assessments must compare projected water supply and demands over the ensuing 20 years. The SDCWA 2020 UWMP's water reliability assessment covers 20 years, from 2025 to 2045. The assessment must include projected water supply and demand in 5-year increments under normal, single dry, and multiple dry years. The regional growth projections used in the SDCWA 2020 UWMP were based on the SANDAG Series 14 Regional Growth Forecast. As explained in Chapter 2, "Project Description," the proposed Plan's growth projections were based on the Series 15 Regional Growth Forecast, which projects a slower population growth rate compared to the previous forecasts based on the Series 14 model. As such, the forecasted regional growth under the proposed Plan would be more conservative than the forecasted growth used in the SDCWA 2020 UWMP for water reliability assessments. The water demand resulting from the proposed Plan would be within the demand forecasted in the SDCWA 2020 UWMP. Therefore, the UWMP is suitable for answering Impact WS-1. Information in this section is derived from the SDCWA 2020 UWMP unless otherwise indicated.

The analysis of regional water demands below is based on projections of both normal year and dry-year annual demands from the 2020 UWMP. Normal-, dry-, and multiple-dry-years annual demands were consistent with those in the 2020 UWMP for each member agency. Projected water supply for a normal water year is based on forecasts provided by the 2020 UWMP in the SDCWA service area in a normal water year and single dry water year through 2045.

For the 2050 analysis of regional growth and land use change, the water demand was estimated by multiplying the projected per capita usage in gallons per day by forecasted future population. Most urban areas in the region depend upon a combination of surface water, recycled water, and water conservation to provide sufficient water supplies for their existing and planned residents and businesses. Table 4.18-12 shows the 2020 UWMP normal water year assessment, summarizing the total water demands in the SDCWA service area through the year 2045.

A 2050 population of 3,400,250 is forecasted under the proposed Plan. Of this total, approximately 109,841 people are projected to reside outside the SDCWA service area based in GIS overlay analysis of SANDAG's MGRA 15 and SDCWA service area boundaries (SANDAG 2025; County of San Diego 2024). For a conservative approach, this analysis assumes that the forecasted 2050 population of 3,400,250 people would be served by SDCWA. Water demand in 2050 was estimated using the 2020 UWMP assumptions for population and water demand in 2045 for normal year conditions. These assumptions were used to develop per capita rates for each scenario (i.e., af per person during a normal year, a single dry year, multiple dry years). These per capita rates were then applied to the forecasted 2050 population to calculate the following 2050 water demands under the proposed Plan. The estimated water demand for 2050 is 578,043 af.

The construction of new transportation network improvements, including roadways, bicycle and pedestrian facilities, and transit facilities, and the operation and maintenance of new facilities could increase the demand for water for construction activities, such as concrete mixing and dust control, and for operations activities and services, such as restrooms and drinking fountains. These water demands are evaluated qualitatively to determine whether they could contribute to a situation where regional demand exceeds water supply.

Table 4.18-12 2020 UWMP Normal Water Year Supply and Demand Assessment (acre-feet/year)[1]

	2025	2030	2035	2040	2045
Water authority supplies					
Imperial Irrigation District water transfer	200,000	200,000	200,000	200,000	200,000
All-American Canal and Coachella Canal Lining Projects	78,700	78,700	78,700	78,700	78,700
Carlsbad Desalination Plant	50,000	50,000	50,000	50,000	50,000
Subtotal	*328,700*	*328,700*	*328,700*	*328,700*	*328,700*
Member agency supplies					
Surface water	43,957	43,957	44,659	44,659	44,659
Water recycling	41,963	45,513	45628	45,749	45,854
Seawater desalination	6,000	6,000	6,000	6,000	6,000
Potable reuse	33,042	53,202	112,562	112,562	112,562
Brackish groundwater recovery	8,400	8,400	8,400	8,400	8,400
Groundwater	21,900	23,100	23,100	19,600	19,600
San Luis Rey water transfers	15,800	15,800	15,800	15,800	15,800
Subtotal	*171,062*	*195,972*	*256,149*	*252,770*	*252,875*
Metropolitan Water District supplies	55,996	53,572	13,625	32,765	49,196
Total projected supplies	**555,758**	**578,244**	**598,474**	**614,235**	**630,771**
Total long-range demand forecast with conservation[2]	**555,758**	**578,244**	**598,474**	**614,235**	**630,771**

Notes: UWMP = urban water management plan; SDCWA = San Diego County Water Authority; MWD = Metropolitan Water District of Southern California.

[1] Normal water year demands are based on 1960–2018 hydrology.

[2] Supply and demand are identical because the residual shortfall after accounting for SDCWA and member agency supplies is offset by purchases from MWD.

Source: SDCWA 2021a: Table 9-1.

A significant impact would occur if the projected available regional water supplies and water delivery infrastructure are not able to meet regional demand during normal year, dry year, and multiple dry year scenarios. The analysis is done for 2035 and 2050.

Transportation network improvements have the potential to affect groundwater supplies through storm water runoff. Storm water is defined by EPA as the runoff generated when precipitation from rain and snowmelt events flows over land or impervious surfaces without percolating into the ground (SWRCB n.d.). Storm water is often considered a nuisance because it mobilizes pollutants, such as motor oil and trash. Storm water discharges in California are regulated through National Pollutant Discharge Elimination System (NPDES) permits. Transportation network improvements made in already urbanized areas, such as the Central County Subregion, create less impact because they do not represent a substantial increase in impervious surfaces. Water quality aspects of storm water originating from transportation network improvements are analyzed in Section 4.10, "Hydrology and Water Quality." At issue are the effects of storm water originating from network transportation improvements on the water supplies of underlying aquifers. As noted by SWRCB, storm water may act as a resource and recharge to groundwater when properly managed (SWRCB n.d.).

A qualitative analysis is included for water required for the production of concrete and dust suppression and for the operation and maintenance water demands (e.g., landscape irrigation) of transportation network improvements. A significant impact would occur if existing and future water supplies in the San Diego region would not be sufficient to meet regional water demands associated with transportation network improvements.

Impact Analysis

2035

Regional Growth and Land Use Change

As shown in Table 2-1, in Section 2.0, "Project Description," of this Draft EIR, from 2022 to 2035, the region is forecasted have an increase of 117,056 people (4%), 137,242 housing units (11%), and 67,297 jobs (4%). The 2035 regional SCS land use pattern is shown in Figure 2-4. Approximately 93.3% of the forecasted regional population increases between 2022 and 2035 are in the cities of San Diego (51.3%), Chula Vista (26.1%), and San Marcos (15.8%). Those same three jurisdictions would accommodate approximately 71.4% of new housing units in the region between 2022 and 2035, while the cities of San Diego, San Marcos, and Oceanside would accommodate more than 69.5% of new jobs in the region between 2022 and 2035. Table 4.18-12 indicates that SDCWA projects adequate water supply to meet the 2035 demand of regional growth and land use change. Total water demand for 2035 is projected to be 598,474 af. Sources include the following SDCWA supplies, which total 328,700 af:

- Imperial Irrigation District water transfer
- All-American Canal and Coachella Canal Lining Projects
- Carlsbad Desalination Plant

The water derived from the Imperial Irrigation District and the canal lining projects is stored by MWD in Lake Mead and becomes part of the MWD water supply. Under an agreement between MWD and SDCWA, MWD agrees to provide a like amount of water from its overall supply (MWD 2021).

Member agency supplies that contribute to the regional water supply from the following sources total 256,149 af:

- surface water
- water recycling
- seawater desalination
- potable reuse
- brackish groundwater recovery
- San Luis Rey water transfers

In addition to the above supplies, SDCWA would purchase 13,625 af from MWD. MWD projects that the total retail water demand for San Diego County with conservation would be approximately 604,000 af in 2035 (MWD 2021).

Therefore, the estimated SDCWA water demand (13,625 af) from MWD in 2035 would be within the water demand projected (approximately 604,000 af) by MWD in its 2020 UWMP. MWD would have sufficient water supply to meet the water demand from SDCWA in 2035.

In the single dry year assessment for 2035, SDCWA assumed the continuation of long-term water efficiencies, but conservatively did not include additional potential savings derived from extraordinary conservation occurring during droughts. The groundwater and surface water yields assumed in the 2035 single dry year scenario are based on the very low yields of 2015. Other SDCWA supplies and member agency supplies were considered drought resilient. Dry year assessments in 5-year increments are presented in Table 4.18-13.

Table 4.18-13 Single Dry Year Supply and Demand Assessment in 5-Year Increments (acre-feet/year)

	2025	2030	2035	2040	2045
Water authority supplies					
Imperial Irrigation District water transfer	200,000	200,000	200,000	200,000	200,000
All-American Canal and Coachella Canal Lining Projects	78,700	78,700	78,700	78,700	78,700
Regional Seawater Desalination	50,000	50,000	50,000	50,000	50,000
Subtotal	***328,700***	***328,700***	***328,700***	***328,700***	***328,700***
Member agency supplies[1]					
Surface water	6,004	6,004	6,004	6,004	6,004
Water recycling	41,963	45,513	45,628	45,749	45,854
Seawater desalination	6,000	6,000	6,000	6,000	6,000
Potable reuse	33,042	53,202	112,562	112,562	112,562
Brackish groundwater recovery	8,400	8,400	8,400	8,400	8,400
Groundwater	15,821	15,821	15,821	15,821	15,821
San Luis Rey water transfers	15,800	15,800	15,800	15,800	15,800
Subtotal	***126,490***	***150,200***	***209,675***	***209,796***	***209,901***
Other supplies					
Metropolitan Water District supplies	336,232	336,674	337,116	337,558	338,000
Total supplies	**791,422**	**815,574**	**875,491**	**876,054**	**876,601**
Use of carryover supplies	0	0	0	0	0
Total projected core supplies with use of carryover storage supplies	**791,422**	**815,574**	**875,491**	**876,054**	**876,601**
Total demands with water efficiency savings	**596,965**	**618,879**	**639,310**	**655,054**	**671,320**
Potential supply (shortage) or surplus (difference between supplies and demands)	**194,457**	**196,695**	**236,181**	**221,000**	**205,281**

Source: SDCWA 2021a: Table 9-2.

[1] Member agency local supplies include production from verifiable reliable sources, as well as dry year totals for actual 2015 surface water and groundwater supplies.

The SCDWA 2035 dry year assessment assumes a major increase in water purchase from MWD. Purchases from MWD would increase from 13,625 af under the 2035 normal year scenario to 337,116 af under the 2035 dry year scenario. The SCDWA 2020 UWMP states (SDCWA 2021a):

> For this single dry-year assessment, it was assumed that Metropolitan supplies are limited to 1.3 million AF [acre-feet] due to dry conditions and additional reduction in Metropolitan's deliveries from State Water Project (i.e., no Delta improvements) and Colorado River, and that the Water Authority received its preferential right based on Metropolitan's current method of calculating such rights.

MWD member agencies' ability to exercise preferential water rights was confirmed in a lawsuit filed by SDCWA in 2001. The court decision affirmed the preferential right of each member agency to MWD water. The calculation of each member agency's preferential rights was clarified in a 2010 lawsuit filed by SDCWA regarding payments to transport its independent Colorado River supplies through the MWD conveyance system (SDCWA 2021a). As of June 30, 2020, SDCWA has preferential right to 25.83% of MWD's water supplies (SDCWA 2021a). In fiscal year 2023, SDCWA purchased about 7.3% of the water MWD sold (SDCWA 2024b). The MWD UWMP single dry year water supply is projected to be 2,760,000 af in 2035 (MWD 2021). The SDCWA 2035 single dry year water demand from MWD (337,116 af) would represent approximately 12.2% of the MWD 2035 single dry year water supply. Although preferential rights are updated annually, the approximately 12.2% of the MWD 2035 single dry year water supply is less than the SDCWA 2020 preferential right to MWD's water supplies (25.83%). The MWD 2035 single dry year water supply projection suggests that MWD would have adequate water supply to meet SDCWA demand assuming exercise of preferential water right.

In a multiple dry years scenario ending in 2035 (see Table 4.18-14), member agency supplies were reduced, reflecting the decline in surface water and groundwater availability. SDCWA supplies derived from water transfers would be maintained at a static level. SDCWA would continue to exercise its preferential right to the MWD supply of water available for wholesale. The MWD UWMP multiple dry year water supply is projected to be 2,241,000 af in 2035 (MWD 2021). The SDCWA 2035 multiple dry year water demand from MWD (311,021 af) would represent approximately 13.8% of the MWD 2035 multiple dry year water supply. The MWD 2035 multiple dry year water supply projection suggests that MWD would have adequate water supply to meet SDCWA demand assuming exercise of the 2020 preferential water right of 25.83%.

Table 4.18-14 2031–2035 Multiple Dry Year Supply and Demand Assessment (acre-feet/year)

	2031	2032	2033	2034	2035
Member agency supplies[1]	215,128	210,674	191,034	167,747	209,675
Water authority supplies	328,700	328,700	328,700	328,700	328,700
Metropolitan allocation (preferential right)	336,762	310,939	311,021	311,102	311,184
Total estimated core supplies without storage takes	**880,590**	**850,313**	**830,755**	**807,549**	**849,559**
Total multiple dry year demands with water conservation savings	**625,067**	**631,318**	**637,631**	**644,008**	**650,448**
Potential supply (shortage) or surplus (difference between supplies and demands)	**255,523**	**218,995**	**193,124**	**163,541**	**199,111**
Use of carryover supplies	0	0	0	0	0
Total projected core supplies with use of carryover storage supplies	**880,590**	**850,313**	**830,755**	**807,549**	**849,559**
Remaining potential surplus supply, or (shortage) that will be addressed through management actions	255,523	218,995	193,124	163,541	199,111

Source: SDCWA 2021a: Table 9-5.

[1] Member agency local supplies include verifiable recycling and brackish groundwater recovery, potable reuse, San Luis Rey water transfer, seawater desalination, as well as dry year estimates for surface water and groundwater.

The SDCWA and MWD planning documents indicate that there would be sufficient water supplies to satisfy the requirements of regional growth and land development in 2035, including in the event of a single dry year or multiple dry years. Therefore, impacts regarding the availability of an adequate water supply to serve regional growth and land use change in 2035 would be less than significant.

Transportation Network Improvements and Programs

Major transportation network improvements by 2035 include new Managed Lanes and Managed Lane connectors on SR 15, SR 52, SR 78, SR 125, I-5, I-15, and I-805. The proposed Plan also includes ~~Reversible Managed Lane improvements on SR-75,~~ improvements to rural corridors on SR 67, SR 76, SR 79, SR 94, and I-8, as well as interchange and arterial operational improvements on SR 94 and SR 125. In addition, the proposed Plan includes increased roadway and transit connections to the United States–Mexico border, as well as tolling equipment and Regional Border Management System investments on SR 11. Upgrades at certain locations on the LOSSAN Rail Corridor would be implemented during this period. Other major network improvements include grade separations at certain locations on the SPRINTER, Green line, Blue Line, and Orange Line. Double-tracking is also proposed on the SPRINTER. See Tables 2-7 through 2-10 for a full list of proposed projects by subregion.

The construction of new transportation network improvements, including roadways, bicycle and pedestrian facilities, and transit facilities, and operation and maintenance of new facilities could increase the demand for water for construction activities, such as concrete mixing and dust control, and for operational activities such as landscape irrigation or services such as restrooms and drinking fountains. These increases in demand are anticipated to be small on an individual project basis. For example, a minimal amount of water may be required for dust control during construction and grading activities. Depending on conditions, water use for dust control could be obtained via existing on-site supplies or trucked from an alternative source. This minor, short-term use would be arranged between the contractors and water suppliers and would not contribute to an exceedance of available water supplies. Operational water use would be limited to as needed basis and would not result in substantial increase in demand for portable water. Water use associated with restrooms would occur only when handwashing and flushing toilets are needed. In addition, reclaimed water, of which there is a regional surplus, can be used for restrooms. Similarly, drinking water foundations will only be used when someone needs water.

The construction of new transportation facilities would also increase demand for water use to irrigate new landscaping installed along roadways. Reclaimed water is used for roadway landscaping irrigation in most areas. Landscaping for new Caltrans improvements would be irrigated with recycled water. Any landscaping installed in outlying areas would be composed of native species with minimal water requirements. Water demand for landscaping irrigation is anticipated to be met by reclaimed water and recycled water. The impact would be less than significant.

2035 Conclusion

Water supplies are adequate to serve regional growth and land use change and transportation network improvements and programs until the year 2035. The water supply is adequate to serve these needs even in the event of a dry year or multiple dry years. Therefore, this impact (WS-1) in the year 2035 is less than significant.

2050

Regional Growth and Land Use Change

As shown in Table 2-1 in Section 2.0 "Project Description," of this Draft EIR, from 2036 to 2050, the region is forecasted to decrease by 4,112 people (-0.1%), increase by 65,577 housing units (4.8%), and increase by 103,460 jobs (6.2%). The 2050 regional SCS land use pattern is shown in Figure 2-5. The majority of the forecasted regional population decrease between 2036 and 2050 is attributed to the unincorporated jurisdictions, the City of Carlsbad, and the City of El Cajon. Approximately 78.8% of new housing units would be developed in the City of San Diego (51.6%), City of Chula Vista (17.1%), and unincorporated jurisdictions. Similarly, these same three jurisdictions would accommodate approximately 70.3% of new jobs between 2036 and 2050.

Water demand in 2050 was estimated using the 2020 UWMP assumptions for population and water demand in 2045 for normal year conditions. The per capita rate was then applied to the forecasted 2050 population under the proposed Plan to calculate the 2050 water demand under the proposed Plan. The estimated water demand for 2050 is 578,043 af.

SDCWA and member agency normal year supplies are mostly constant for the 2035–2045 period. Using the 2045 SCWA and member agency normal year supplies for 2050 results in a total local water supply of 582,514 af. The water demand of 578,043 af during a normal year would be within the local water supply.

As shown above in Table 4.18-13, the single dry year assessments prepared for the SDCWA 2020 UWMP do not extend beyond 2045. The single dry year demand estimate in 2050 for the SDCWA service area is 602,372 af, which was derived from using the same methodology employed to estimate 2050 normal year water demand. SDCWA and member agency supplies are mostly uniform across both the 2040 and 2045 single dry year estimates of 538,601 af. Use of these water supply calculations in a 2050 single dry year scenario would result in a shortfall of 63,876 af of water supply in 2050. This quantity would only be available with the exercising of SDCWA's preferential rights to MWD supplies. Because projections of MWD supplies are not available for wholesale in 2050, the availability of this supply cannot be confirmed.

Multiple dry year assessments for the years 2036–2040 and 2041–2045 are presented in Tables 4.18-15 and 4.18-16. In both scenarios, SDCWA member agency supplies, consisting of groundwater and surface water, decline over time. SDCWA supplies derived from water transfers are constant. In all instances, the shortfall between supply and overall demand would be bridged via SDCWA exercising its preferential right and acquiring additional wholesale supplies from MWD.

Table 4.18-15 2036–2040 Multiple Dry Year Supply and Demand Assessment (acre-feet/year)

	2036	2037	2038	2039	2040
Member agency supplies[1]	274,604	328,700	250,513	227,227	209,796
Water authority supplies	328,700	328,700	328,700	328,700	328,700
Metropolitan allocation (preferential right)	337,204	311,347	311,429	311,510	311,592
Total estimated core supplies without storage takes	**940,508**	**910,199**	**890,642**	**867,437**	**850,088**
Total multiple dry year demands with water conservation savings	**645,703**	**652,160**	**658,681**	**665,268**	**671,921**
Potential supply (shortage) or surplus (difference between supplies and demands)	**294,805**	**258,039**	**231,961**	**231,961**	**178,167**
Use of carryover supplies	0	0	0	0	0
Total projected core supplies with use of carryover storage supplies	**940,508**	**910,199**	**890,642**	**867,437**	**850,088**
Remaining potential surplus supply, or (shortage) that will be addressed through management actions	294,805	258,039	231,961	202,169	178,167

Source: SDCWA 2021a: Table 9-6.

[1] Member agency local supplies include verifiable recycling and brackish groundwater recovery, potable reuse, San Luis Rey water transfer, seawater desalination, as well as dry year estimates for surface water and groundwater.

Table 4.18-16 2041–2045 Multiple Dry Year Supply and Demand Assessment (acre-feet/year)

	2041	2042	2043	2044	2045
Member agency supplies[1]	274,722	270,266	250,624	227,335	209,901
Water authority supplies	328,700	328,700	328,700	328,700	328,700
Metropolitan allocation (preferential right)	337,646	311,755	311,837	311,918	312,000
Total estimated core supplies without storage takes	**941,068**	**910,721**	**891,161**	**867,953**	**850,601**
Total multiple dry year demands with water conservation savings	**661,605**	**668,221**	**674,903**	**681,652**	**688,469**
Potential supply (shortage) or surplus (difference between supplies and demands)	**279,463**	**242,500**	**216,258**	**186,301**	**162,132**
Use of carryover supplies	0	0	0	0	0
Total projected core supplies with use of carryover storage supplies	**941,068**	**910,721**	**891,161**	**867,953**	**850,601**
Remaining potential surplus supply, or (shortage) that will be addressed through management actions	279,463	242,500	216,258	186,301	162,132

Source: SDCWA 2021a: Table 9-7.

[1] Member agency local supplies include verifiable recycling and brackish groundwater recovery, potable reuse, San Luis Rey water transfer, seawater desalination, as well as dry year estimates for surface water and groundwater.

As discussed above, there are no SDCWA dry year water demand projections after 2045. Because of the year-to-year variations in supply and demand factors in the 2036–2040 and 2041–2045 assessments, estimating for 2046–2050 is technologically infeasible without more detailed input from the water agencies. It is certain, however, that satisfying regional water demand in multiple dry years from 2046 to 2050 would require that SDCWA exercise its preferential rights and acquire well in excess of 300,000 afy. There is no MWD dry year water supply projection after 2045; therefore, it cannot be confirmed how much water SDCWA could acquire through preferential rights in 2050. Because the availability of this water supply cannot be confirmed the impact would be significant.

Transportation Network Improvements and Programs

Major transportation network improvements by 2050 include new Managed Lanes and Managed Lane Connectors on SR 52, SR 56, ~~SR 75,~~ SR 94, SR 125, SR 163, I-15, and I-805, several of which will be a continuation of improvements from 2035. In addition, the proposed Plan includes increased roadway and transit connections to the United States–Mexico border, as well as expansion of and improvements to existing port of entry facilities, which will continue during this period. Upgrades at certain locations on the LOSSAN Rail Corridor would continue during this period. Grade separations on the SPRINTER, Blue Line, Green Line, and Orange Line, as well as double-tracking on the SPRINTER would also continue during this period. See Tables 2-7 through 2-10 for a full list of proposed projects by subregion.

The construction of new transportation network improvements, including roadways, bicycle and pedestrian facilities, and transit facilities, and operation and maintenance of new facilities could increase the demand for water for construction activities, such as concrete mixing and dust control, and for operations activities and services, such as restrooms and drinking fountains. These increases in demand are anticipated to be small on a per-project basis. For example, a minimal amount of water may be required for dust control during construction and grading activities. Depending on conditions, water use for dust control could be obtained via existing on-site supplies or trucked from an alternative source. This minor, short-term use would be arranged between the contractors and water suppliers and would not contribute to an exceedance of available water supplies. Operational water use would be limited to as needed basis and would not result in substantial increase in demand for portable water. Water use associated with restrooms would occur only when handwashing and flushing toilets are needed. In addition, reclaimed water, of which there is a regional surplus, can be used for restrooms. Similarly, drinking water foundations will only be used when someone needs water.

The construction of new transportation facilities would also increase demand for water to irrigate new landscaping installed along roadways. This demand is anticipated to be met by using reclaimed water (also known as recycled water), of which there is a regional surplus and which is typically available for this purpose in most areas. Landscaping for new Caltrans improvements would be irrigated with recycled water. Any landscaping installed in outlying areas would be composed of native species with minimal water requirements. The impact would be less than significant.

2050 Conclusion

The impacts of regional growth and land use change in 2050 would be significant, the impacts of transportation network improvements would be less than significant, and the combined impacts of both would be significant. The UWMPs prepared by SDCWA and MWD indicate that there would be sufficient water supplies to provide for regional growth and land development through the year 2045. After this time, however, documentation regarding sufficient supplies is unavailable, creating uncertainty about regional water supplies in 2050. This uncertainty means that there may be insufficient regional water supplies to meet regional water demand in 2050 in the event of a dry year or multiple dry years. Therefore, this impact (WS-1) in the year 2050 is significant.

Impacts of the Proposed Plan with Future Climate Change

With future climate change, growth and land use change and transportation network improvements would result in reduced ability to have sufficient water supplies from traditional sources to serve projected regional demand beyond 2045. Climate change impacts multiple sources of water. Reduced precipitation and changes in timing of snowpack melt are likely to decrease the region's imported water supply, which comes from mountain ranges, such as the Sierra Nevada and the mountains that supply the Colorado River (Hogan and Lundquist 2024; Hale et al. 2023; Gottlieb and Mankin 2024; City of San Diego 2025). Increased evaporation and drought may also decrease surface water supplies and result in depletion of groundwater supply (CEP and SDF 2015; SDF 2008). Furthermore, sea-level rise could result in saltwater intrusion of coastal groundwater supplies, decreasing available drinking water (DWR 2025; SDCWA 2025c).

Climate change may also increase water demand. Increased drought and evapotranspiration may increase water demand for agriculture and landscaping irrigation due to lack of rainfall and higher temperatures (Cole et al. 2024). This can further strain water resources supporting the San Diego region.

The proposed Plan's impacts would be worsened by climate change. The proposed Plan's projected population growth would increase water demand, increasing the uncertainty whether the San Diego region will have sufficient water supplies beyond 2045 for projected demand during a normal dry year or multiple dry years.

MITIGATION MEASURES

WS-1 NOT HAVE SUFFICIENT WATER SUPPLIES AVAILABLE TO SERVE THE PROJECTED REGIONAL DEMAND DURING SINGLE DRY YEAR AND MULTIPLE DRY YEARS.

2050

WS-1a Implement Water Conservation Measures for Transportation Network Improvements.

SANDAG shall, and other transportation project sponsors can and should, implement feasible water conservation measures during planning, design, project-level CEQA review, construction, operations, and maintenance of transportation network improvements, consisting of, but not limited to, the following:

- Install drip or other water-conserving or weather-based irrigation systems for landscaping.
- Install native plant species and noninvasive drought-tolerant/low-water-use plants in landscaping, consistent with the most recent state, regional, and local government plans; laws; and policies.
- Incorporate the use of reclaimed water (also known as recycled water) during planning, design, project-level CEQA review, construction, operations, and maintenance of transportation network improvements to reduce the use of potable water.

WS-1b Implement Water Conservation Measures for Development Projects.
The County of San Diego, cities, and other local jurisdictions can and should implement feasible water conservation measures during planning, design, and project-level CEQA review of development projects, consisting of, but not limited to, the following:

- Install native plant species and noninvasive drought-tolerant/low-water-use plants in landscaping, consistent with the most recent state, regional, and local government plans; laws; and policies.
- Install low-flow plumbing fixtures.
- Install water-efficient appliances.
- Incorporate the use of reclaimed water. Measures to incorporate reclaimed water may consist of, but are not limited to, on site water recycling; the use of recycled water to fill lakes, ponds, and ornamental fountains; the use of recycled water for irrigation, to mix concrete, and to control dust at construction sites; the use of recycled water for certain industrial processes and for flushing toilets and urinals in nonresidential buildings; and the use of recycled water for street sweeping purposes.

WS-1c Ensure Adequate Water Supply for Development Projects.
During planning, design, and project-level CEQA review for development projects, the County of San Diego, cities, and other local jurisdictions can and should ensure that adequate water supply will be available to meet or satisfy projected water demands, consistent with applicable UWMPs, master plans, and general plan projections of water supply and demand. This can and should be documented in the form of an SB 610 Water Supply Assessment, an SB 221 Water Supply Verification, or other water supply analysis.

SIGNIFICANCE AFTER MITIGATION

2050

Adequate water supplies have not been identified beyond 2045. This uncertainty means that there may be insufficient regional water supplies to meet regional water demand, notwithstanding implementation of the above mitigation measures. Therefore, this impact (WS-1) is significant and unavoidable.

WS-2 SUBSTANTIALLY DECREASE GROUNDWATER SUPPLIES OR INTERFERE SUBSTANTIALLY WITH GROUNDWATER RECHARGE SUCH THAT THE PROPOSED PLAN WOULD IMPEDE SUSTAINABLE MANAGEMENT OF GROUNDWATER BASINS OR OBSTRUCT IMPLEMENTATION OF A SUSTAINABLE GROUNDWATER MANAGEMENT PLAN.

Analysis Methodology

The analysis addresses the impacts of forecasted regional growth and land use change and transportation network improvements on groundwater supplies both within and outside of the SDCWA service area and determines whether the proposed Plan would impede sustainable management of a groundwater basin or obstruct implementation of a GSP. As stated above, the Upper San Luis Rey Valley GSP was approved by DWR in 2024, and the San Pasqual Valley Groundwater Basin GSP was approved by DWR in 2023. The analysis focuses on whether the proposed Plan would impede sustainable management of a groundwater basin or impede or obstruct implementation of the Upper San Luis Rey Valley GSP and the San Pasqual Valley Groundwater Basin GSP. For the Borrego Springs Groundwater Subbasin GSP and adjudication, the analysis focuses on whether the proposed Plan would conflict with the project and management actions identified in the GSP to achieve the GSP's sustainability goal with Plan implementation.

In addition, the analysis addresses increased use of groundwater and changes to groundwater recharge under the proposed Plan relative to the existing conditions, as described in the GSPs. Groundwater use typically increases during dry years and decreases in wet years when surface water supplies are more available. Projected groundwater supply yield identified in the SDCWA 2020 UWMP ranges from a low of 25,950 af in 2020 to a high of 31,500 af in 2035. No groundwater availability projections are available for 2050. The analysis provides a

qualitative discussion on how forecasted regional growth and land use change could interfere with groundwater recharge by creating additional impervious surfaces. Forecasted regional growth and land use change would also create additional demands for water supplies from local water supply agencies, a portion of which may be provided by groundwater; the analysis addresses these impacts as well.

In the analysis below, general discussion is provided to describe the proximity of planned transportation network improvements to documented groundwater resources and to determine whether these improvements would impede sustainable groundwater management or conflict with or obstruct implementation of the Upper San Luis Rey Valley GSP, the San Pasqual Valley Groundwater Basin GSP, or the Borrego Springs Groundwater Subbasin GSP. Transportation may increase impervious surfaces but would have very limited demands for water supplies; therefore, their water demands would not substantially affect groundwater resources such that they would result create groundwater overdraft conditions. With regard to groundwater recharge, many of the proposed transportation network improvements are on or adjacent to existing highways, streets, and roads, in which most of the surfaces are already paved or impervious. The analysis nevertheless evaluates how the proposed Plan could result in the implementation of new r network improvements dispersed throughout the Plan area. These new impervious surfaces, while planned for by local implementing agencies, could contribute to limiting regional groundwater recharge if they would substantially decrease groundwater supplies or substantially limit recharge in the areas of new impervious surfaces.

Impact Analysis

2035

Regional Growth and Land Use Change

As shown in Table 2-1, in Section 2.0, "Project Description," of this Draft EIR, from 2022 to 2035, the region is forecasted have an increase of 117,056 people (4%), 137,242 housing units (11%), and 67,297 jobs (4%). The 2035 regional SCS land use pattern is shown in Figure 2-4. Approximately 93.3% of the forecasted regional population increases between 2022 and 2035 are in the cities of San Diego (51.3%), Chula Vista (26.1%), and San Marcos (15.8%). Those same three jurisdictions would accommodate approximately 71.4% of new housing units in the region between 2022 and 2035, while the cities of San Diego, San Marcos, and Oceanside would accommodate more than 69.5% of new jobs in the region between 2022 and 2035.

Groundwater basins in San Diego County occur both within the SDCWA service area and in the eastern two-thirds of the county that is entirely dependent on groundwater for all water uses. The population of the portion of the county outside of the SDCWA service area was approximately 111,770 in 2022. This population is forecasted to be approximately 112,558 in 2035 and 109,841 in 2050. The County of San Diego 2011 General Plan Update EIR Appendix D (County of San Diego 2010a) presented the groundwater impacts of forecasted growth and land use change within groundwater-dependent areas overlying fractured-rock aquifers in the unincorporated county. All fractured-rock aquifers and groundwater basins outside of the SDCWA service area were evaluated. Groundwater-level data from a preceding 34-year period was analyzed. The analysis used County of San Diego significance criteria and determined that a significant impact existed if, for at least 1 month during the period of analysis, the groundwater levels in the aquifers were reduced to or below 50% of the overall storage capacity of the groundwater basin or aquifer. The analysis found that 10 groundwater basins or aquifers had minimum storage levels below 50% under preexisting or existing conditions. These groundwater basins or aquifers were also below the 50% storage threshold under 2011 General Plan buildout conditions. When the 2011 General Plan land use buildout conditions were modelled across the eastern two-thirds of the county, an additional 13 groundwater basins or aquifers were found to fall below the 50% storage threshold. The county groundwater study also concluded that in several areas under both existing and future conditions, groundwater supply issues were caused by a concentration of wells in a limited area. Any regional growth occurring between 2022 and 2035 within the boundaries of the 10 identified groundwater basins or aquifers with existing insufficient groundwater storage or within the boundaries of the additional 13 groundwater basins or aquifers identified as having insufficient storage under 2011 General Plan buildout conditions would create a significant groundwater impact.

After the passage of the SGMA, DWR assessed the groundwater basins in the state. DWR classified the groundwater basins as high, medium, or low priority based on groundwater storage and overdraft conditions. The SGMA requires medium- and high-priority basins to form GSAs, develop GSPs, and manage groundwater for long-term sustainability. Two groundwater basins are designated as medium priority consistent with the SGMA in the Plan area: the San Pasqual Valley Groundwater Basin and the Upper San Luis Rey Valley Groundwater Subbasin. The San Pasqual Valley Groundwater Basin GSP was approved by DWR in 2023 (DWR 2023a). The Upper San Luis Rey Valley GSP was approved by DWR in 2024 (DWR 2024). An additional groundwater subbasin, the Borrego Springs Groundwater Subbasin (discussed below), was determined to be high priority due to "critical overdraft" conditions.

The San Pasqual Valley Groundwater Basin GSP indicates that groundwater use in the basin is currently sustainable and no projects or management actions are needed to achieve sustainability (Woodard & Curran 2021). The GSP sustainability goal is "to maintain a locally managed, economically viable, sustainable groundwater resource for existing and future beneficial use in the San Pasqual Valley Groundwater Basin by managing groundwater to avoid the occurrence of undesirable results" (Woodard & Curran 2021). The GSP requires the GSA to continue ongoing existing monitoring programs to assess groundwater levels and identify projects and management actions to be implemented if undesirable results occur.[3]

The sustainability goal for the Upper San Luis Rey Valley Groundwater Subbasin is "to manage and preserve its groundwater resource as a sustainable water supply" (Geoscience 2022). The sustainable yield for the Upper San Luis Rey Valley Subbasin was estimated based on the amount of groundwater pumping and groundwater storage. The estimated current (from 2016 to 2020) sustainable yield of the subbasin is 20,300 afy. The sustainable yield is estimated to be 13,600 afy from 2022 to 2081 if water use and land use pattern continues into the future. The sustainable yield would be refined as additional information about groundwater pumping and groundwater storage is collected during GSP implementation (Geoscience 2022). As discussed in the Upper San Luis Rey Valley GSP, the subbasin is generally operating sustainably within current water demand and water supply conditions. The GSP identifies projects and management actions that support the efficient use of groundwater resources and increase groundwater recharge to help the subbasin remain sustainable through normal and drought hydrologic conditions (Geoscience 2022).

The Borrego Springs Groundwater Subbasin is designated by DWR as high priority and critically overdrafted (BVGSA 2019). Groundwater use within the subbasin would be subject to Watermaster approval. Under the terms of the Settlement Agreement, all parcels within BWD will henceforth be metered by BWD to measure water use. All users will be required to reduce groundwater withdrawals by 5% each year. By 2030, all users will have halved their baseline amounts, and by 2040, groundwater and withdrawal will be reduced by 75%. From that time forward groundwater withdrawal will match basin recharge (see *Borrego Water District v. All Persons who Claim a Right to Extract Groundwater in the Borrego Valley Groundwater Subbasin etc.* groundwater adjudication). The adjudication of the Borrego Springs Groundwater Subbasin provides a regulatory framework for allowing some new development within the BWD service area. New development, and the Borrego Springs Groundwater Subbasin's portion of forecasted regional growth, would occur only after the proposed new development has purchased preexisting water rights. These purchased preexisting rights would be in sufficient quantity to provide for the required future reductions in allowed groundwater withdrawal.

Any forecasted regional growth that occurs within the boundaries of the San Pasqual Valley and Upper San Luis Rey Valley basins would be subject to the approved San Pasqual Valley Groundwater Basin GSP and Upper San Luis Rey Valley GSP, respectively. Portions of the Upper San Luis Rey Valley Groundwater Subbasin are outside the management of a GSA and are not subject to an alternative to GSP or other exemption from SGMA requirements(SWRCB 2025a). Forecasted growth that occurs within the Borrego Springs Groundwater Subbasin would be subject to the terms of the adjudication. Therefore, water used by the forecasted regional growth would be required to comply with the terms of the GSPs and the adjudication and would therefore not interfere with the

[3] Undesirable results are conditions under which each applicable sustainable indicator (e.g., chronic lowering of groundwater levers, significant and unreasonable reduction of groundwater storage, and significant and unreasonable seawater intrusion) would become significant and unreasonably negative to beneficial uses in the basin.

sustainable management of San Pasqual Valley Groundwater Basin, the Upper San Luis Rey Valley Groundwater Subbasin, and the Borrego Springs Groundwater Subbasin, or the implementation of the San Pasqual Valley Groundwater Basin GSP, the Upper San Luis Rey Valley GSP, or the Borrego Springs Groundwater Subbasin GSP, the terms of which were implemented via the adjudication. To ensure groundwater resources are sustainably managed, SGMA gives SWRCB authority to protect groundwater resources through a process called "state intervention" when local agencies are unable or unwilling to sustainably manage their groundwater basins. Anyone who extracts groundwater within the unmanaged areas of the Upper San Luis Rey Valley Groundwater Subbasin, except de minimis extractors (who pump two afy or less for domestic purposes only), must file a groundwater extraction report and associated fees with SWRCB each year. To end the SWRCB management of the unmanaged areas of the Upper San Luis Rey Valley Groundwater Subbasin, the Upper San Luis Rey Valley GSP will have to demonstrate their ability and willingness to manage groundwater sustainably and address the issues that caused state intervention to occur (SWRCB 2025b). Although portions of the Upper San Luis Rey Valley Groundwater Subbasin are outside the management of a GSA, these unmanaged areas are under state intervention to monitor groundwater extraction status of the basin.

Dewatering could occur in areas with high water tables during construction activities associated with future development. However, dewatering would be short term and temporary and would not substantially decrease groundwater supplies. Regional growth and land development would occur on land overlying groundwater basins and rural aquifers outside of the SDCWA service area that were identified by the County of San Diego (2010b) as currently having an insufficient level of aquifer storage to ensure sustainability or were projected to have unsustainable storage levels with the 2011 General Plan buildout. As discussed above, 23 groundwater basins or aquifers were found to have insufficient level of aquifer storage under existing and 2011 General Plan buildout conditions. Although future growth would not interfere with implementation of a GSP, growth would exacerbate current unsustainable conditions of the 23 basins identified in the 2011 General Plan EIR and would cause a significant groundwater impact.

Transportation Network Improvements and Programs

Major transportation network improvements by 2035 include new Managed Lanes and Managed Lane connectors on SR 15, SR 52, SR 78, SR 125, I-5, I-15, and I-805. The proposed Plan also includes ~~Reversible Managed Lane improvements on SR-75,~~ improvements to rural corridors on SR 67, SR 76, SR 79, SR 94, and I-8, as well as interchange and arterial operational improvements on SR 94 and SR 125. In addition, the proposed Plan includes increased roadway and transit connections to the United States–Mexico border, as well as tolling equipment and Regional Border Management System investments on SR 11. Upgrades at certain locations on the LOSSAN Rail Corridor would be implemented during this period. Other major network improvements include grade separations at certain locations on the SPRINTER, Green line, Blue Line, and Orange Line. Double-tracking is also proposed on the SPRINTER. See Tables 2-7 through 2-10 for a full list of proposed projects by subregion.

As discussed above, in the state of California, methods of accommodating storm water in new transportation improvements financed all or in part with state or federal funds are governed by Caltrans design standards outlined in the Caltrans' Statewide Stormwater Management Plan. Caltrans standards also typically serve as the basis for municipal designs because the municipalities operate under similar NPDES permit requirements. Caltrans storm water management design principles related to transportation improvements are discussed in additional detail above (Caltrans 2016).Temporary BMPs are deployed to retain storm water during project construction. Permanent BMPs encompassing the Caltrans design principles would be incorporated into the permanent design of new transportation improvements. For 1 acre or greater new impervious area, permanent storm water detention and treatment facilities are required by Caltrans' Statewide Stormwater Management Plan to be sized to accommodate 85% of the runoff from a typical 24-hour storm event, which is referred to as a "design event" (Caltrans 2016). In the San Diego region, the design event is determined based on subregional rainfall contour mapping (County of San Diego 2020). Permanent BMPs are typically earthen basins or swales that allow detained runoff to infiltrate the soil and ultimately the underlying groundwater basin. Construction activities associated with transportation network improvements may require dewatering during construction activities. However, dewatering would be short term and temporary and would not substantially decrease groundwater supplies.

When new transportation improvements are constructed, the 85% detention requirement is applicable to the entire facility. When the transportation improvement is a redevelopment or an expansion of an existing facility, the impervious area detention requirements vary dependent upon the area of the new improvement. For highway projects of less than 1 acre and nonhighway transportation projects of less than 5,000 square feet, only the redeveloped area and the hydraulically inseparable flow must be detained. For projects larger than these thresholds, the entire impervious surface within the project limits must be detained and treated (Caltrans 2016). Comply with these requirements would ensure that storm water runoff resulting from transportation network improvements would be detained, which would allow runoff to infiltrate into the ground for groundwater recharge. Therefore, implementation of the transportation network improvements would not interfere substantially with groundwater recharge or groundwater sustainable management.

Transportation network improvements constructed between 2022 and 2035 on land overlying groundwater basins would consist primarily of active transportation network and Complete Corridor improvements. Active transportation network improvements would primarily focus on bikeway development, as shown in Figure 2-7 in Chapter 2, "Project Description." These improvements would cross land overlying the Coastal Plain of San Diego, Mission Valley, San Diego River Valley, San Dieguito Creek, and Santa Maria Vally Groundwater Basins. Complete Corridor improvements, shown in Figure 2-10, would cross land overlying Coastal Plain of San Diego, Mission Valley, San Diego River Valley, San Dieguito Creek, Upper San Luis Rey Valley, San Marcos Area, Santa Maria Vally, Upper San Luis Rey Valley, El Cajon Valley, and Escondido Valley Groundwater Basins. In addition, rail line improvements would occur through 2035, as summarized in Chapter 2, "Project Description," Table 2-7 in Central County Subregion. Rail line improvements would occur on land overlaying Coastal Plain of San Diego, El Cajon Valley, Escondido Valley, Mission Valley, San Diego River Valley, San Dieguito Creek, and San Marcos Area Groundwater Basins. None of these groundwater basins were determined to be of medium or high priority by DWR due to overdraft conditions except the Upper San Luis Rey Valley Groundwater Subbasin (a medium-priority basin). Transportation network improvements would be required to comply with the requirement of the Upper San Luis Rey Valley GSP to ensure sustainable management of groundwater. Although the Escondido Valley Groundwater Basin is not a medium or high priority basin determined by DWR, it was determined to have inadequate storage capacity under 2011 General Plan buildout conditions. Transportation network improvements occur on land overlying the Escondido Valley Groundwater Basin would be required to comply with the detention requirements discussed above to retain and infiltrate stormwater so that groundwater recharge would not be interfered.

All new or expanded transportation network improvements developed between 2022 and 2035 would be required by Caltrans design standards outlined in Caltrans' Statewide Stormwater Management Plan described above to detain storm water runoff from newly created impervious surfaces. Specifically, storm water runoff equivalent to 85% of that generated by a design storm event would be detained in storm water detention and treatment facilities and allowed to infiltrate the subsoil. This storm water detention and infiltration would allow runoff infiltration to groundwater and increase the potential for groundwater recharge. Complying with the exiting requirements would prevent any significant impacts on underlying groundwater basins or on groundwater sustainability. The groundwater impact would be less than significant.

2035 Conclusion

Transportation network improvements would have sufficient storm water detention facilities to prevent significant impacts on groundwater supplies or groundwater basin sustainability. The impact associated with transportation network improvements would be less than significant. However, regional growth and land use change between 2022 and 2035 could occur on land overlying basins that were identified by the county (County of San Diego 2010a) as currently having an insufficient level of aquifer storage to ensure sustainability or were projected to have unsustainable storage levels with 2011 General Plan buildout. Regional growth and land use change would, therefore, result in significant impacts on the groundwater supplies in basins and on groundwater basin sustainability in the year 2035. Therefore, this impact (WS-2) in the year 2035 is significant.

2050

Regional Growth and Land Use Change

As shown in Table 2-1 in Section 2.0 "Project Description," of this Draft EIR, from 2036 to 2050, the region is forecasted to decrease by 4,112 people (-0.1%), increase by 65,577 housing units (4.8%), and increase by 103,460 jobs (6.2%). The 2050 regional SCS land use pattern is shown in Figure 2-5. While there is a decrease in population forecasted, there would be an increase in housing units that may occur within the boundaries of the San Pasqual Valley and Upper San Luis Rey Valley basins, which have been designated as medium-priority groundwater basins by DWR. Dewatering could occur in areas with high water tables during construction activities associated with future development. However, dewatering would be short term and temporary and would not substantially decrease groundwater supplies. Future development that crosses land overlaying these groundwater basins would be subject to the approved San Pasqual Valley Groundwater Basin GSP and Upper San Luis Rey Valley GSP to ensure sustainable use of groundwater. Growth that crosses land overlaying the Upper San Luis Rey Valley Groundwater Subbasin unmanaged areas would be required to file groundwater extraction reports and associated fees with SWRCB each year for groundwater level monitoring. Forecasted growth that occurs in the Borrego Springs Groundwater Subbasin would be subject to the terms of the adjudication. Therefore, the potential water usage increase in these groundwater basins would not contribute to a significant impact through compliance with the approved GSPs and the adjudication.

Regional growth and land use change between 2036 and 2050 would continue to occur on land overlying groundwater basins. Outside the SDCWA service area, growth would occur on land overlying rural groundwater aquifers identified by the county as currently having an insufficient level of storage to ensure sustainability or were projected to have unsustainable storage levels with 2011 General Plan buildout. As discussed above, 23 groundwater basins or aquifers were found to have insufficient level of aquifer storage under existing and 2011 General Plan buildout conditions, such as the Escondido Valley and Poway Valley Groundwater Basins (County of San Diego 2010a). Because the underlying aquifers for these basins are being used at an unsustainable level, growth would exacerbate the current unsustainable condition characterizing these aquifers and would cause a significant groundwater impact.

Transportation Network Improvements and Programs

Major transportation network improvements by 2050 include new Managed Lanes and Managed Lane Connectors on SR 52, SR 56, ~~SR 75,~~ SR 94, SR 125, SR 163, I-15, and I-805, several of which will be a continuation of improvements from 2035. In addition, the proposed Plan includes increased roadway and transit connections to the United States–Mexico border, as well as expansion of and improvements to existing port of entry facilities, which will continue during this period. Upgrades at certain locations on the LOSSAN Rail Corridor would continue during this period. Grade separations on the SPRINTER, Blue Line, Green Line, and Orange Line, as well as double-tracking on the SPRINTER would also continue during this period. See Tables 2-7 through 2-10 for a full list of proposed projects by subregion.

Transportation network improvements constructed on land overlying groundwater basins between 2036 and 2050 would consist of active transportation, highway, and rail improvements. Active transportation improvements would consist of primarily bikeway development as shown in Figure 2-8 of Chapter 2, "Project Description," which would occur on land overlying the Coastal Plain of San Diego, Escondido Valley, Mission Valley, San Diego River Valley, San Dieguito Creek, Upper San Luis Rey Valley, San Mateo Valley, and San Onofre Valley Groundwater Basins. Complete Corridor improvements would occur along various highways (e.g., I-5, I-15, and SR 125), as shown in Figure 2-13. Complete Corridor improvements would occur on land overlaying Batiquitos Lagoon Valley, Coastal Plain of San Diego, El Cajon Valley, Escondido Valley, Mission Valley, San Diego River Valley, San Dieguito Creek, Upper San Luis Rey Valley, San Marcos Area, and Santa Maria Valley Groundwater Basins. Rail improvements would occur from 2035 to 2050, as summarized in Table 2-10 of Chapter 2, "Project Description." These improvements would occur on land overlying the Coastal Plain of San Diego, El Cajon Valley, Escondido Valley, Mission Valley, San Diego River Valley, San Dieguito Creek, Upper San Luis Rey Valley, and San Marcos Area Groundwater Basins. The Upper San Luis Rey River Groundwater Basin was determined to be of medium priority by DWR due to overdraft conditions. Implementation of transportation network improvements would be required

to comply with the requirement of the Upper San Luis Rey Valley GSP to ensure sustainable management of groundwater. Dewatering could occur in areas with high water tables during construction activities associated with transportation network improvements. However, dewatering would be short term and temporary and would not substantially decrease groundwater supplies. Although the Escondido Valley Groundwater Basin is not a medium or high priority basin determined by DWR, it was determined to have inadequate storage capacity under 2011 General Plan buildout conditions. Transportation network improvements occur on land overlying the Escondido Valley Groundwater Basin would be required to comply with the detention requirements discussed under the "2035" analysis to retain and infiltrate stormwater so that groundwater recharge would not be interfered.

All new or expanded transportation network improvements developed between 2036 and 2050 would be required to detain storm water runoff from newly created impervious services. Storm water runoff equivalent to 85% of that generated by a design storm event would be detained in earthen basins or swales and allowed to infiltrate the subsoil. This storm water detention and infiltration would be sufficient to prevent any significant impacts on underlying groundwater basins or on groundwater sustainability. The groundwater impact would be less than significant.

2050 Conclusion

Transportation network improvements would have sufficient storm water detention facilities to prevent significant impacts on groundwater supplies or groundwater basin sustainability. The impact associated with transportation network improvements would be less than significant. However, between 2036 and 2050, regional growth and land use change would have the potential to occur on land overlying 23 basins (e.g., the Escondido Valley and Poway Valley Groundwater Basins) that have been identified by the county as having inadequate storage and would have inadequate storage under the 2011 General Plan buildout conditions. Regional growth and land use change would therefore result in significant impacts on the groundwater supplies in basins and on groundwater basin sustainability in the year 2050. Therefore, this impact (WS-2) in the year 2050 is significant.

Impacts of the Proposed Plan with Future Climate Change

With future climate change, growth and land use change and transportation network improvements could decrease groundwater supplies or interfere with groundwater recharge, impeding sustainable groundwater management. Climate change could directly affect groundwater supplies through saltwater intrusion, which contaminates potable groundwater along the coast (DWR 2025; SDCWA 2025c; Cole et al. 2024). Decreases in imported water and surface water from climate change could also affect groundwater, as decreases in other supplies result more groundwater withdrawals (Cole et al. 2024).

The proposed Plan's impacts would be worsened by climate change. The proposed Plan would increase population in the San Diego region, further increasing demand for groundwater, which is expected to be increasingly scarce with climate change. Furthermore, development for the proposed Plan would increase the extent of impervious surfaces, which could impede groundwater recharge (Bedsworth et al. 2018), decreasing the potential for more groundwater supplies in the future.

MITIGATION MEASURES

WS-2 SUBSTANTIALLY DECREASE GROUNDWATER SUPPLIES OR INTERFERE SUBSTANTIALLY WITH GROUNDWATER RECHARGE SUCH THAT THE PROPOSED PLAN WOULD IMPEDE SUSTAINABLE MANAGEMENT OF GROUNDWATER BASINS OR OBSTRUCT IMPLEMENTATION OF A SUSTAINABLE GROUNDWATER MANAGEMENT PLAN

2035 and 2050

Implement WS-1a and WS-1b described above.

WS-2 Implement Groundwater Measures to Ensure Sustainable Yield for Development Projects.
The County of San Diego, cities, and other local jurisdictions can and should ensure sustainable yield of groundwater basins during planning, design, and project-level CEQA review of development projects, by taking measures consisting of, but not limited to, the following:

- Participate in a groundwater-trading program to enable permanent transfer and potentially long-term and short-term lease of baseline-pumping allocations to allow groundwater users or new development to purchase needed groundwater allocation from others.
- Ensure that projects requiring continual dewatering facilities implement monitoring systems and long-term administrative procedures to ensure proper water management that prevents degrading of surface water and minimize, to the greatest extent possible, adverse impacts on groundwater for the life of the project. Comply with appropriate building codes and standard practices including the Uniform Building Code.
- Maximize, where practical and feasible, permeable surface area in existing urbanized areas to protect water quality, reduce flooding, allow for groundwater recharge, and preserve wildlife habitat. Minimize new impervious surfaces to the greatest extent possible, including the use of in-lieu fees and off site mitigation.
- Avoid designs that require continual dewatering where feasible. Where feasible, do not site transportation facilities in groundwater recharge areas to prevent conversion of those areas to impervious surface.

SIGNIFICANCE AFTER MITIGATION

2035 and 2050

Implementation of the proposed Plan would have the potential for increased population in areas overlying rural groundwater basins that have or are anticipated to have insufficient storage based on existing and projected groundwater withdrawals. The increase of population would impede groundwater basin sustainability. Forecasted growth and land use change would result in population increases in areas overlying the San Pasqual Valley, Upper San Luis Rey Valley, and Borrego Springs Groundwater Basins. These groundwater basins have been designated as medium or high priority by DWR due to overdraft conditions. Future development in these groundwater basins would be required to comply with the San Pasqual Valley Groundwater Basin GSP, the Upper San Luis Rey Valley GSP, and the Borrego Springs Groundwater Subbasin GSP, the terms of which were implemented via the adjudication. Compliance with the approved GSPs would ensure the sustainable use of groundwater in the San Pasqual Valley, Upper San Luis Rey Valley, and Borrego Springs Groundwater Basins.

However, regional growth and land development would occur on land overlying 23 groundwater basins and rural aquifers that were identified by the County of San Diego (2010b) as having an insufficient level of storage and would have insufficient storage under the 2011 General Plan buildout conditions. Future development in the boundaries of these groundwater basins would impede groundwater basin sustainability. Because it cannot be guaranteed that all future project-level groundwater impacts can be mitigated to a less-than-significant level, this impact (WS-2) would remain significant and unavoidable.

WS-3 REQUIRE OR RESULT IN THE RELOCATION OR CONSTRUCTION OF NEW OR EXPANDED WATER FACILITIES, THE CONSTRUCTION OR RELOCATION OF WHICH COULD CAUSE SIGNIFICANT ENVIRONMENTAL EFFECTS.

Analysis Methodology

This analysis provides information on the adequacy of existing water facilities to serve forecasted regional growth and land use change and proposed transportation network improvements. Water facilities are defined to include conveyance (of raw water), storage, treatment, and distribution facilities. Major water conveyance systems serving the region include the California Aqueduct and Colorado River Aqueduct, and the system includes other conveyance pipelines and associated infrastructure. A significant impact would occur if forecasted regional growth

and land use change or transportation network improvements and programs required construction, expansion, or relocation of water facilities that would result in significant physical impacts.

To evaluate potential impacts, areas where growth and land use change or transportation network improvements and programs are expected to occur are compared to the existing capacity of water supply facilities identified in Section 4.18.1, "Existing Conditions," to determine whether implementation of the proposed Plan would require the construction of new or expanded water supply facilities in order to maintain water supply. Impacts of construction activities for new or expanded facilities are analyzed as well. Because the timeframe analyzed extends to 2050, precise impact assessment is difficult due to uncertainty associated with the timing, location, and project-specific information. SDCWA's in-region storage includes the Olivenhain Reservoir, the San Vicente Reservoir, and Lake Hodges. Water treatment for almost all retail water service within the Project area is provided by an SDCWA member agency WTP, Twin Oaks Valley WTP, or MWD's Skinner WTP. This regionally treated water capacity provides flexible and robust local water treatment options and supports member agencies' constructed facilities.

Water demands associated with the proposed Plan's regional growth and land use change or transportation network improvements are discussed and then compared to the existing capacity of water facilities. A shortfall in capacity compared to future water demands would result in the need to construct additional facilities, resulting in new impacts.

The potential short- and long-term physical impacts of constructing and operating such facilities are described. Several existing water infrastructure projects and expansions are identified in the SDCWA 2024 Master Plan to meet current and projected regional water demand. Specific major infrastructure plans and projects proposed by the local water supply agencies are described, along with a general assessment of potential impacts that would occur.

Impact Analysis

2035

Regional Growth and Land Use Change

As shown in Table 2-1, in Section 2.0, "Project Description," of this Draft EIR, from 2022 to 2035, the region is forecasted have an increase of 117,056 people (4%), 137,242 housing units (11%), and 67,297 jobs (4%). The 2035 regional SCS land use pattern is shown in Figure 2-4. Approximately 93.3% of the forecasted regional population increases between 2022 and 2035 are in the cities of San Diego (51.3%), Chula Vista (26.1%), and San Marcos (15.8%). Those same three jurisdictions would accommodate approximately 71.4% of new housing units in the region between 2022 and 2035, while the cities of San Diego, San Marcos, and Oceanside would accommodate more than 69.5% of new jobs in the region between 2022 and 2035.

Water usage within the SDCWA service area in 2020 was 463,128 af, and the forecasted demand for 2035 is 671,509 af (SDCWA 2021a). This represents an increase of 208,381 af. The SDCWA water supply infrastructure as identified in Table 4,18-9 would have sufficient capacity (722,793 af) to storage water to meet the forecasted water demand. However, the 2024 Master Plan indicates that delivery reliability is vulnerable during local seismic events (SDCWA 2025a). Infrastructure improvements and operational strategies associated with water delivery would be required to reduce risk and ensure system reliability 45.

The following projects have been identified in the 2024 Master Plan to be considered for implementation within the next 10 years through 2035 (SDCWA 2025a):

- **Pipeline 3/Pipeline 4 Conversion:** The project would involve relining of Pipeline 4 by enabling Pipeline 3 to operate as an alternative treated water transmission pipeline, allowing Pipeline 4 to be taken out of service during the rehabilitation process. The project would consist of the construction of interconnection facilities between Pipelines 3 and 4 that would allow either pipeline to convey treated or untreated water north of the Twin Oaks Valley WTP.

- **Additional Pump Drive and Transformer at the San Vicente Pump Station (SVPS):** The project would involve installation of an additional pump drive and transformer at SVPS to provide increased redundancy of pumps, eliminating the current vulnerability in the event of a mechanical failure of one or more station components.
- **Crossover Pipeline Rehabilitation Optimization:** The project would include rehabilitation of the Crossover Pipeline using structural lining technologies facilitated by the implementation of temporary provisions to provide alternative treated water supplies to member agencies impacted during the rehabilitation process, which would require extended shutdowns of the Crossover Pipeline. This project has been developed to mitigate risk and as a cost-saving alternative to the currently planned Crossover Pipeline Replacement project.
- **Aqueduct Isolation Facilities:** The project would consist of the construction of isolation facilities at pipeline locations at high risk of failure due to seismic or flooding events that would allow SDCWA to quickly reoperate the aqueduct system to provide continued deliveries during pipeline repair activities.
- **Rejection Tower Replacement:** The Second Aqueduct Rejection Tower serves as a critical hydraulic control facility, necessary to supply untreated water to the Twin Oaks Valley WTP and Crossover Pipelines. The aging facility is exhibiting corrosion that poses a risk of structural degradation. The project would replace the Rejection Tower with a new, seismically resistant structure.
- **Additional Power Source at SVPS:** The project would consist of installation of on-site backup power generation to provide redundancy at SVPS during commercial power outages.

Implementation of water facility improvements would result in short-term construction-related impacts. Construction-related impacts are typically controllable and can be mitigated below a level of significance through actions of the implementing agency, including adherence to existing regulations and BMPs. Additionally, the operation of new facilities may lead to long-term environmental impacts, such as those related to air quality and noise. Because details about the timing, location, and project-specific information for new water facilities are not known, there is no assurance the impacts from the construction or operation of new or expanded water facilities would be less than significant. Therefore, this impact is significant.

Transportation Network Improvements and Programs

Major transportation network improvements by 2035 include new Managed Lanes and Managed Lane connectors on SR 15, SR 52, SR 78, SR 125, I-5, I-15, and I-805. The proposed Plan also includes ~~Reversible Managed Lane improvements on SR-75,~~ improvements to rural corridors on SR 67, SR 76, SR 79, SR 94, and I-8, as well as interchange and arterial operational improvements on SR 94 and SR 125. In addition, the proposed Plan includes increased roadway and transit connections to the United States–Mexico border, as well as tolling equipment and Regional Border Management System investments on SR 11. Upgrades at certain locations on the LOSSAN Rail Corridor would be implemented during this period. Other major network improvements include grade separations at certain locations on the SPRINTER, Green line, Blue Line, and Orange Line. Double-tracking is also proposed on the SPRINTER. See Tables 2-7 through 2-10 for a full list of proposed projects by subregion.

Transportation network improvements and programs are developed to accommodate the projected growth and increases in population, housing, and employment. New treatment and storage facilities would not be required to provide water for irrigated landscaping on proposed Plan transportation projects because the water demands of these projects are relatively minor.

New transportation network improvements with landscaping areas would require irrigation. For areas that existing irrigation infrastructure does not exist, new or extended distribution pipelines would be needed to extend the recycled water service for irrigation. The construction of new roadways, bicycle and pedestrian facilities, and transit facilities, and operation and maintenance of new facilities would require the use of water for construction activities, such as concrete mixing and dust control, and for operations activities and services, such as restrooms and drinking fountains. Implementation of these projects in rural areas (e.g., in the eastern part of San Diego County), where existing water transmission infrastructure is not available, could require construction or expanded water distribution facilities.

Construction and operation of recycled water distribution facilities and new or expanded water distribution facilities would result in short-term construction-related impacts. Construction-related impacts are typically controllable and can be mitigated below a level of significance through actions of the implementing agency, including adherence to existing regulations and BMPs. Additionally, the operation of new facilities may lead to long-term environmental impacts such as those related to air quality, noise, and traffic. Because details about the timing, location, and project-specific information for new water facilities are not known, there is no assurance the impacts from the construction or operation of new or expanded water facilities would be less than significant. Therefore, the impact would be significant.

2035 Conclusion

Regional growth and land use change and transportation network improvements under the proposed Plan would result in the construction of new or expanded water facilities. The impact of constructing some of these facilities would be significant. Therefore, this impact (WS-3) in the year 2035 is significant.

2050

Regional Growth and Land Use Change

As shown in Table 2-1 in Section 2.0 "Project Description," of this Draft EIR, from 2036 to 2050, the region is forecasted to decrease by 4,112 people (-0.1%), increase by 65,577 housing units (4.8%), and increase by 103,460 jobs (6.2%). The 2050 regional SCS land use pattern is shown in Figure 2-5. The majority of the forecasted regional population decrease between 2036 and 2050 is attributed to the unincorporated jurisdictions, the City of Carlsbad, and the City of El Cajon. Approximately 78.8% of new housing units would be developed in the City of San Diego (51.6%), City of Chula Vista (17.1%), and unincorporated jurisdictions. Similarly, these same three jurisdictions would accommodate approximately 70.3% of new jobs between 2036 and 2050. As noted above, the forecasted normal year water demand in 2035 is 598,474 af (Table 4.18-12). The estimated normal year demand for 2050 is 578,043 af, a decrease of 20,431 af. Therefore, it is not anticipated that new facilities or expansion of existing water facilities would be needed to serve the projected growth. However, some uncertainty exists for 2050 water supplies during a single dry year and multiple dry years in the region as discussed in Impact WS-1. This uncertainty exists because the SDCWA's and MWD's UWMPs (SDCWA 2021a; MWD 2021) have a planning horizon of 2045, and the most recent SDCWA 2024 Master Plan (SDCWA 2025a). Because there may be insufficient regional water supplies to meet regional water demand in 2050 in the event of a dry year or multiple dry years, there would be potential for the construction and operation of new facilities, such as water storage and recycled water facilities, to meet the 2050 water demand. Construction-related impacts are typically controllable and can be mitigated below a level of significance through actions of the implementing agency, including adherence to existing regulations and BMPs. Additionally, the operation of new facilities may lead to long-term environmental impacts, such as those related to air quality, noise, and traffic. Because details about the timing, location, and project-specific information for new water facilities are not known, there is no assurance the impacts from the construction or operation of new or expanded water facilities would be less than significant. Therefore, the impact would be significant.

Transportation Network Improvements and Programs

Major transportation network improvements by 2050 include new Managed Lanes and Managed Lane Connectors on SR 52, SR 56, ~~SR 75,~~ SR 94, SR 125, SR 163, I-15, and I-805, several of which will be a continuation of improvements from 2035. In addition, the proposed Plan includes increased roadway and transit connections to the United States–Mexico border, as well as expansion of and improvements to existing port of entry facilities, which will continue during this period. Upgrades at certain locations on the LOSSAN Rail Corridor would continue during this period. Grade separations on the SPRINTER, Blue Line, Green Line, and Orange Line, as well as double-tracking on the SPRINTER would also continue during this period. See Tables 2-7 through 2-10 for a full list of proposed projects by subregion.

By 2050, most of the transportation network improvements and programs associated with the proposed Plan would be in place and operational. The availability of water facilities to serve the water demand in 2050 in the

event of a dry year or multiple dry years is uncertain. In some locations, new distribution pipelines would be needed to extend recycled water service to new projects where such service is not available, and their construction and operation would cause environmental impacts. Construction-related impacts are typically controllable and can be mitigated below a level of significance through actions of the implementing agency, including adherence to existing regulations and BMPs. Additionally, the operation of new facilities may lead to long-term environmental impacts such as those related to air quality and noise. Because details about the timing, location, and project-specific information for new water facilities are not known, there is no assurance the impacts from the construction or operation of new or expanded water facilities would always be less than significant. Therefore, the impact would be significant.

2050 Conclusion

Implementation of regional growth and land use change and transportation network improvements and programs would result in the construction of new or expanded water facilities. The impact of constructing some of these facilities would likely be significant. Therefore, this impact (WS-3) in the year 2050 is significant.

Impacts of the Proposed Plan with Future Climate Change

With future climate change, growth and land use change and transportation network improvements would result in potential relocation or construction of new or expanded water facilities. Climate change impacts that decrease water supplies, such as reduced precipitation, increased drought and evapotranspiration, and changes in snowpack melt timing (CEP and SDF 2015), may require construction of new water facilities in the future, such as reservoirs or treatment plants. Additionally, climate change impacts such as increased occurrence and unpredictability of wildfire and flooding could damage water facilities, requiring upgrades or new facilities to replace them. The proposed Plan's impacts would be worsened by climate change.

MITIGATION MEASURES

WS-3 REQUIRE OR RESULT IN THE RELOCATION OR CONSTRUCTION OF NEW OR EXPANDED WATER FACILITIES, THE CONSTRUCTION OR RELOCATION OF WHICH COULD CAUSE SIGNIFICANT ENVIRONMENTAL EFFECTS.

2035 and 2050

Implement Mitigation Measures WS-1a, WS-1b, WS-1c, and WS-2, described above.

WS-3 Implement Measures for New or Expanded Water Facilities.

During planning, design, and project-level CEQA review of development projects and water projects, MWD, SDCWA, the County of San Diego, cities, and other local jurisdictions can and should apply necessary mitigation measures to avoid or reduce significant environmental impacts associated with the construction or expansion of new or expanded water facilities. Mitigation measures should be implemented by the water management agencies directly responsible for the construction of new or expanded water facilities. Significant environmental impacts requiring mitigation may consist of but are not limited to air quality, noise, traffic, biological resources, cultural resources, paleontological resources, tribal cultural resources, energy, greenhouse gas emissions, hydrology and water quality, and water supply.

SIGNIFICANCE AFTER MITIGATION

2035 and 2050

Implementation of the proposed Plan through 2035 would result in significant impacts associated with the construction or expansion of water facilities. Mitigation Measures WS-1a, WS-1b, ~~WS-1c,~~ and WS-2, would reduce the impacts of project-specific construction or expansion of water facilities through reducing water demands, and through project-level planning, design, and CEQA mitigation measures. Mitigation Measure WS-3 would require project-specific mitigation to be implemented for new or expanded water facilities. Because the details about the

timing, location, and project-specific information for new and expanded water facilities are not known, it cannot be guaranteed that future project-level impacts can be mitigated to a less-than-significant level by Mitigation Measure WS-3.

Implementation of the proposed Plan from 2036 through 2050 would result in decreased water demand during normal years. However, the availability of water facilities to serve the water demand in 2050 in the event of a dry year or multiple dry years is uncertain. Implement of the proposed Plan from 2036 through 2050 may require construction of water storage and recycled water facility to meet the 2050 water demand. Construction activities would result in significant impacts. Implementation of Mitigation Measures WS-1a, WS-1b, ~~WS-1c,~~ WS-2, and WS-3 would reduce the impacts of project-specific construction or expansion of water facilities through project-level planning, design, and CEQA mitigation measures. However, it cannot be guaranteed that future project-level impacts can be mitigated to less-than-significant level due to uncertainty related to the timing, location, and project-specific information of the new or expanded water facilities.

As discussed above, this impact (WS-3) would remain significant and unavoidable.

4.18.5 Cumulative Impacts Analysis

C-WS-1 MAKE A CUMULATIVELY CONSIDERABLE CONTRIBUTION TO ADVERSE EFFECTS TO WATER SUPPLY

The geographic scope for the water supply cumulative analysis is the state of California, the Lower Colorado River Basin, and Northern Baja California. The large geographic scope is appropriate because growth in these areas would have the potential to increase water demand in the region in a manner that exceeds existing entitlements and recourse, which would influence water supply to meet the demand of the proposed Plan.

The projection approach is used in the cumulative analysis of water supply. A projection approach uses growth projections contained in other adopted plans and/or environmental documents in the cumulative geographic scope to determine if existing water supplies and facilities are adequate to meet projected regional demand or if general patterns of regional urbanization, growth, and land use changes and infrastructure development would result in the need for new or expanded water treatment and distribution facilities.

The plans and studies relied on and considered for the cumulative analysis include the SCAG 2024-2050 RTP/SCS and EIR (SCAG 2024a, 2024b); the SDCWA 2024 Master Plan (SDCWA 2025a); Water Supply for Baja California: Economic – Engineering Analysis for Agricultural, Environmental, and Urban Demands (Medellin-Azuara et al. 2009); California Water Action Plan (CNRA 2014); California Water Plan 2023 Update (DWR 2023b); SDCWA's 2020 Urban Water Management Plan (SDCWA 2021a); MWD's 2020 Urban Water Management Plan (MWD 2021); Municipal Water District of Orange County's (MWDOC) 2020 Urban Water Management Plan (MWDOC 2021); Imperial Irrigation District's 2012 Integrated Regional Water Management Plan (IID 2012); 2034 Tijuana, Tecate, and Playas de Rosarito Metropolitan Strategic Plan (IMPLAN 2013); Colorado River Basin Water Supply and Demand Study (Bureau of Reclamation 2012); and Lower Colorado River Interim Shortage Criteria and associated EIS (Bureau of Reclamation 2007). Although many of these documents do not have accompanying environmental analysis, they provide valuable information regarding the current and future status of water supply throughout the cumulative region.

Within the geographic scope of the analysis are two groundwater basins designated by DWR as medium priority and one basin designated as high priority consistent with the SGMA. The GSPs for the medium-priority basins to allow future maintenance of a sustainable yield from these basins and have been approved by DWR. A GSP has been prepared for the high-priority basin, the Borrego Springs Groundwater Subbasin, by BVGSA. The Borrego Springs Groundwater Subbasin GSP establishes a sustainability goal to halt the overdraft condition in the subbasin by bringing the groundwater demand in line with a sustainable yield of 5,700 afy by 2040 (BVGSA 2019). A settlement agreement to adjudicate groundwater rights in a manner consistent with the GSP was approved on April 8, 2021. (See *Borrego Water District v. All Persons who Claim a Right to Extract Groundwater in the Borrego Valley Groundwater Subbasin No. 7.024-01*) [Superior Court of the State of California, County of Orange 2021].)

In its most recent general plan update (County of San Diego 2011), the County of San Diego examined groundwater basins and fractured-rock aquifers across the county to determine which were being exploited in an unsustainable manner as evidenced by insufficient aquifer storage. The County of San Diego 2011 General Plan Update EIR Appendix D (County of San Diego 2010a) found that 23 groundwater basins or aquifers, had insufficient groundwater storage under preexisting or existing conditions and would have insufficient groundwater storage under 2011 General Plan buildout conditions.

Cumulative impacts on water supply are evaluated in two steps. First, the combined effects of the proposed Plan and adopted plans are considered to determine whether their impacts are collectively (i.e., cumulatively) significant. If the cumulative impact is significant, the proposed Plan's incremental contribution is then assessed to determine whether it is cumulatively considerable, which would be considered a significant cumulative impact associated with the Plan. Specifically, significant cumulative impacts related to water supply would occur if the Plan would result in a considerable contribution to a cumulatively significant.

Impacts of the Proposed Plan

Reasonably foreseeable existing and future regional water supplies would be adequate to meet regional water demands associated with growth and land use change and transportation network improvements in 2035. Beyond 2045, however, adequate water supplies to meet regional needs cannot be confirmed. This uncertainty means that there may be insufficient regional water supplies in 2050, resulting in a significant impact (Impact WS-1). Also, the Proposed Plan would result in localized significant impacts because of regional development and land use changes within the boundaries of groundwater basins that are currently being pumped at unsustainable levels. Impacts associated with groundwater supplies in 2035 and 2050 would be significant (Impact WS-2). Furthermore, forecasted growth and land use change and implementation of transportation network improvements in 2035 and 2050 would require construction of new water facilities or the expansion of existing facilities. The impacts associated with water facilities construction would be significant (Impact WS-3).

Impacts of Projections in Adopted Plans

Although a majority of the documents and plans available for cumulative analysis do not have an associated environmental analysis, they do provide anticipated water supply and demand for the region and consider the adequacy of existing supplies and plans for future supplies to meet future needs. These regional plans also offer resource management strategies and objectives for ensuring future water supply, such as reduce water demand, improve operational efficiencies, increase and diversify water supply, and provide resource stewardship. Due to recent drought conditions throughout the state of California, many water districts and other water suppliers have implemented a variety of drought responses that could influence the availability of water supplies and water deliveries as previously anticipated in local and regional plans.

The SCAG 2024-2050 RTP/SCS EIR (SCAG 2024b) found that the projected growth from the 2024-2050 RTP would contribute to increased water demand and associated water infrastructure. The EIR also identified the potential for the SCAG 2024-2050 RTP/SCS to contribute to cumulatively considerable demand on water resources and water infrastructure. Furthermore, the increased demand resulting from the 2024-2050 RTP's influence on growth could only be partially mitigated via measures beyond the purview of SCAG to implement, meaning that significant and unavoidable water supply impacts would result.

Agricultural operations and population growth in California and Northern Baja California have placed pressure on natural resources, particularly water supply. It is of significant concern to the California–Baja California border, where 50% of the entire United States–Mexico border population lives. The conditions of northern Baja region, consisting of an arid climate, prominent agriculture, fast-growing border cities, and water-sensitive ecosystems, indicate that future water supplies will be a problem (Medellin-Azuara et al. 2009).

The SDCWA 2020 UWMP reports that, for normal years through 2045, no water supply shortages would occur if supplies are developed as planned. Under the parameters assumed in the multiple dry year analysis, no shortages would be experienced. Diversified supplies, consisting of water transfer agreements, local surface water,

desalination, and entitlements to MWD supplies, assure adequate water even during drought cycles through 2045. After 2045, there are no projections (SDCWA 2021a).

The County of San Diego 2011 General Plan Update EIR determined that groundwater basins and fractured-rock aquifers in the county were currently being pumped at levels that resulted in insufficient water level recovery. Such use is unsustainable over time and would be a significant impact to the groundwater resources.

The 2024 SDCWA Master Plan identifies that the existing infrastructure and water supplies are anticipated to meet future demand and the Quantification Settlement storage is adequate. However, delivery reliability is vulnerable during local seismic events (SDCWA 2025a). The environmental document for the 2024 Master Plan (SDCWA 2025a) determined that the 2024 Master Plan projects may require small volumes of water to support construction-related activities, including dust suppression. Existing water supplies are adequate to support these limited project needs. Long-term operations of these facilities would maintain regional water supply and would not create any new water demands (SDCWA 2025b).

The MWD 2020 UWMP reports that MWD has supply capabilities that would be sufficient to meet projected demands from 2020 through 2045 under the single dry year and multiple dry year conditions (MWD 2021). There are no projections post-2045.

The MWDOC 2020 UWMP concludes that the MWDOC service area (the region served by MWDOC is in Orange County and includes 26 cities and water districts) will have sufficient existing and planned supplies to meet full service demands under every water year hydrologic scenario through 2045 by depending on MWD deliveries to compensate for any local shortfalls. The plan also discusses potential sources of water supply that are being investigated to diversify the region's water supply portfolio, such as water transfers and exchange and ocean water desalination (MWDOC 2021).

The Imperial Irrigation District 2012 Integrated Regional Water Management Plan states that the Imperial Region is faced with significant water resources challenges, most of which relate to the availability of imported water from the Colorado River. System and on-farm efficiency conservation measures have been formulated to enable IID to meet the reduction requirement of net annual consumptive use of Colorado River water of 408,000 af by 2026. These measures are designed to maintain historical levels of agricultural productivity and MCI water supplies; however, when forecasted renewable energy and other demands are added to the future demand, the historical amount would no longer be sufficient (IID 2012).

The 2034 Tijuana, Tecate, and Playas de Rosarito Metropolitan Strategic Plan lists the low water availability in the region as a critical environmental issue, which is a limiting factor for future development. The plan states that water demand in 2025 will be greater than 80% of the available water reserves. Strategies for improvements listed in the plan include promoting investment to ensure capacity of reuse and infiltration of treated water and installing sea water desalination plants (IMPLAN 2013).

The Colorado River Basin Water Supply and Demand Study found that the Colorado River Basin faces a range of potential future imbalances between supply and demand and states that addressing such imbalances will require diligent planning and cannot be resolved through any single approach or option. Instead, an approach that applies a wide variety of ideas at local, state, regional levels, and portfolio exploration demonstrated that implementation of a broad range of options can reduce the basin's resource vulnerability and improve the system's resiliency to dry hydrologic conditions while meeting increasing demands in the basin and adjacent areas receiving Colorado River water (Bureau of Reclamation 2012).

The Lower Colorado River Interim Shortage Criteria and associated EIS (Bureau of Reclamation 2007) represent a plan to share water supply shortages among Lower Colorado River water users, including SDCWA. The EIS prepared for the interim shortage criteria projects Lower Colorado River water supply and demand conditions through 2050. It also analyzes and considers trade-offs between the frequency and magnitude of shortages, and describes potential effects of water shortage in Lake Powell and Lake Mead, and on water supplies, power production, recreation, and other environmental resources. Ongoing drought conditions and the potential for water supply shortages prompted discussions and negotiations focused on how to conserve additional basin

water supplies. The federal government led multiple efforts to improve the basin's water supply outlook, resulting in collaborative agreements in 2003 and 2007 and in the 2019 drought contingency plans (DCPs) for the Upper and Lower Colorado River Basins. The Lower Basin DCP is designed to require Arizona, California, and Nevada to curtail deliveries and thereby contribute additional water to Lake Mead storage at predetermined "trigger" elevations. It is also designed to create additional flexibility to incentivize voluntary conservation of water to be stored in Lake Mead, thereby increasing lake levels (Congressional Research Service 2024).

As described in many of the plans above, often there is an expectation that future water supply could be met given certain parameters, such as proposed water supply projects being constructed and operational, entitlements being fully granted, and water use reduction measures being successful. These factors are highly uncertain and, in some cases, such as rainfall and drought conditions, are uncontrollable by the water agencies, districts, or suppliers.

Cumulative Impacts and Impact Conclusions

2035

A significant cumulative impact in the year 2035 would result if the proposed Plan's incremental effect would be cumulatively considerable when considered along with the effects from adopted plans within the state of California, the Lower Colorado River Basin, and Northern Baja California region.

As described above, significant water supply impacts were not identified for proposed Plan's growth and land use changes and transportation network improvements in 2035. However, the SCAG 2024-2050 RTP/SCS was found to contribute to cumulatively considerable demand on water resources. Although many of the regional water supply planning documents anticipate being able to adequately meet future water demand in the near term, their ability to do so is based on the planned water supply projects being constructed, implementation of conservation measures, and water entitlements being granted. Furthermore, a number of additional indeterminate factors could affect future water supply, including meteorological conditions, climate change, cost and use of energy, potential policy and permitting restrictions, endangered species protections, and demographic unknowns. The proposed plan, together with the regional and statewide plans, would have the potential to increase the demand for water in a manner that exceeds existing entitlements and resources. The combined impacts of these regional and statewide plans, and the proposed Plan's 2035 water supply impacts would be significant regarding increased demands on existing water supplies such that they could be inadequate to serve future demand, and new or expanded water supplies or entitlements would be needed by 2035.

Regional growth and land development would result in population increases on land overlying three groundwater basins (the San Pasqual Valley Groundwater Basin, the Upper San Luis Rey Valley Subbasin, and Borrego Springs Groundwater Subbasin), requiring preparation of GSPs due to their medium- or high-priority designation by DWR. Water agencies would be required to comply with the terms of the San Pasqual Valley Groundwater Basin GSP, the Upper San Luis Rey Valley GSP, and the Borrego Springs Groundwater Subbasin GSP, the terms of which were implemented via the adjudication. However, regional growth and land development would also occur on land overlying groundwater basins identified by the county as having insufficient storage (County of San Diego 2010b). Because groundwater impacts of regional growth and land use change would be significant in the year 2035, they would contribute to a significant cumulative groundwater impact.

Construction of new or expanded facilities would cause short-term construction impacts that are typically controllable through adherence to regulations and BMPs, as well as operations and maintenance impacts. There is no assurance the impact from new or expanded water facilities would be less than significant for all projects. The SCAG 2024-2050 RTP/SCS was also found to contribute to cumulatively considerable demand on associated water supply infrastructure. Thus, the cumulative impact related to construction of new or expanded water treatment or distribution facilities, when added to proposed Plan impacts, would be significant in 2035.

Because water supply impacts throughout the state of California, the Lower Colorado River Basin, and northern Baja region by 2035 would be significant, and because the proposed Plan's incremental water supply impacts are significant, cumulative water supply impacts are significant, and the proposed Plan's incremental water supply impacts are cumulatively considerable and therefore significant Impact C-WS-1).

2050

The cumulative analysis presented above for year 2035 would be applicable to year 2050. In addition, water planning documents prepared by water agencies in the region have no projections for water supplies after 2045. Significant water supply and facility impacts were identified for proposed Plan growth and land use changes, as well as for transportation network improvements in 2050. When considered along with the water supply impacts of regional and statewide plans, the incremental impacts from the proposed Plan would also result in significant cumulative impacts on water supplies in 2050.

Regional growth and land use change between 2036 and 2050 would continue to occur on land overlying three of the groundwater basins designated as medium and high priority by DWR and would be required to comply with the terms of the GSPs and adjudication, reducing potential impacts to groundwater supply. However, regional growth and land use change would also occur on land overlying groundwater basins and fractured-rock aquifers identified by the county as having an insufficient level of aquifer storage to ensure sustainability (County of San Diego 2010b). Forecasted regional growth between 2036 and 2050 would exacerbate the current unsustainable conditions characterizing these aquifers and would cause a significant cumulative groundwater impact.

Construction of new or expanded facilities would cause short-term construction impacts that are typically controllable through adherence to regulations and BMPs, as well as operations and maintenance impacts. There is no assurance the impact from new or expanded water facilities would be less than significant for all projects. The SCAG 2024-2050 RTP/SCS was also found to contribute to cumulatively considerable demand on associated water supply infrastructure. Thus, the cumulative impact related to construction of new or expanded water treatment or distribution facilities, when added to proposed Plan impacts, would be significant in 2050.

Because water supply impacts throughout the state of California, the Lower Colorado River Basin, and northern Baja region by 2050 would be significant, and because the proposed Plan's incremental water supply impacts are significant, cumulative water supply impacts are significant, and the proposed Plan's incremental water supply impacts are also cumulatively considerable and therefore significant. (Impact C-WS-1).

MITIGATION MEASURES

C-WS-1 MAKE A CUMULATIVELY CONSIDERABLE CONTRIBUTION TO ADVERSE EFFECTS TO WATER SUPPLY.

Mitigation Measure WS-1a requires implementation of water conservation measures for transportation projects. Mitigation Measure WS-1b requires implementation of water conservation measures as part of land development projects. Mitigation Measure WS-1c requires development projects to verify adequate water supply is available to satisfy projected water demands. Implementation of Mitigation Measures WS-1a, WS-1b, and WS-1c would not guarantee the reduction of proposed Plan impacts associated with the availability of water supplies to a less-than-significant level in year 2050. Therefore, the proposed Plan's incremental contributions to the cumulative water supply impacts in year 2050 would remain cumulatively considerable after mitigation is incorporated.

To reduce environmental impacts resulting from land use changes and transportation facility development on the sustainable yield of groundwater basins, Mitigation Measure WS-2 requires the County of San Diego, cities, and other local jurisdictions to ensure sustainable yield of groundwater basins during planning, design, and project-level CEQA review of development projects. However, it cannot be guaranteed that all future project-level impacts can be mitigated to a less-than-significant level. Therefore, the proposed Plan's incremental contributions to the cumulative impacts to groundwater resources in the years 2035 and 2050 would remain cumulatively considerable after mitigation is incorporated.

To reduce environmental impacts resulting from the construction of new or expanded water treatment of distribution facilities, Mitigation Measure WS-3 requires all jurisdictions and agencies with responsibility for the construction of new or expanded water treatment and conveyance facilities to apply mitigation measures to reduce significant environmental impacts associated with these facilities during the CEQA review process for individual facilities. However, it cannot be guaranteed that all future project-level impacts can be mitigated to a less-than-significant level. Therefore, the proposed Plan's incremental contributions to the cumulative impacts from new or expanded water facilities in the years 2035 and 2050 would remain cumulatively considerable after mitigation is incorporated.