WATER SUPPLY ASSESSMENT REPORT

University Community Plan Update
IO # 21004253
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Section 1. PURPOSE

On January 1, 2002, Senate Bill 610 (SB 610) and Senate Bill 221 (SB 221) took effect. The intent of SB 610 and SB 221 was to improve the link between information on water supply availability and certain land-use decisions made by cities and counties. Under SB 610 (codified in the Water Code beginning at Section 10910), a water supply assessment (WSA) must be furnished to cities and counties for inclusion in any environmental documentation of projects (defined in the Water Code) that propose to construct 500 or more residential units, or that will use an amount of water equivalent to what would be used by 500 residential units, and are subject to the California Environmental Quality Act (CEQA). Under SB 221, approval by a city or county of certain residential subdivisions requires an affirmative written verification of sufficient water supply or water supply verification (WSV).

Not every project that is subject to the requirements of SB 610 is also subject to the mandatory water verification of SB 221 (e.g., if subdivision map approval is not required). Conversely, not every project that is subject to the requirements of SB 221 must also obtain an SB 610 water supply assessment.

A foundational document for compliance for both SB 610 and SB 221 is the Urban Water Management Plan (UWMP) of the relevant water agency. Both statutes repeatedly identify the UWMP as a planning document that can be used by a water supplier to meet the standards set forth in both statutes. Thorough and complete UWMPs will allow water suppliers to use UWMPs as a foundation to fulfill the specific requirements of the two statutes. Cities, counties, water districts, property owners and developers utilize this document when planning for and proposing new projects. It is crucial that cities, counties, and water suppliers work closely when developing and updating these planning documents. The City of San Diego's 2020 UWMP, which is used as the basis for this report (WSA), was adopted by the San Diego City Council in June 2021.

In developing forecast data for the 2020 UWMP, the Public Utilities Department (PUD) utilized a hybrid approach that combined data including but not limited to current metered water use by billing code, projected variables based on the SANDAG Series 14 Growth Forecast, and geospatial analysis of developable and re-developable land areas. This new approach was a direct result of improvements in geospatial data matching metered water use to parcels, along with land use and demographic/socioeconomic data at the individual pressure zone level for the service area. This robust methodology provided the PUD with a water demand forecast to utilize for internal processes such as facility analysis and planning.

The City Planning Department requested the PUD prepare this WSA as part of the environmental review for the University Community Plan Update (CPU). A more detailed description of the CPU is provided in Section 2. This WSA evaluates water supplies that are or will be available during normal, single-dry, and multiple-dry water years during a 20-year projection to meet the projected demands of the CPU, in addition to existing and planned future water demands of PUD. The analysis is based on community-level information and not project-specific details at this stage of planning. This WSA provides an assessment of the availability of sufficient water supplies for the CPU only and does not constitute approval of the CPU.

This WSA also includes identification of existing water supply entitlements, water rights, water service contracts, or agreements relevant to the identified water supply for the CPU and quantities of water received in prior years pursuant to those entitlements, rights, contracts, and agreements.

This report has been prepared in compliance with the requirements under SB 610 by PUD in coordination with the City's Planning Department and in conjunction with the San Diego County Water Authority's (Water Authority's) 2020 UWMP.

Section 2. COMMUNITY PLAN DESCRIPTION

The University community encompasses approximately 8,676 acres of the City of San Diego. It is generally bounded by State Route 52 (SR-52) to the south, Interstate 805 (I-805) to the east, and Interstate 5 (I-5) and the Pacific Ocean to the west. The University community is bordered by several other community plan areas including Clairemont Mesa to the south; Marine Corps Air Station Miramar, Mira Mesa, and Torrey Pines to the east; and La Jolla to the west.

Located about 13 miles north of downtown San Diego, the University community developed as the region's "edge city" with a concentration of business, shopping, and entertainment venues. This area includes large employers and visitor destinations, such as the University Towne Center (UTC) shopping center. Today, the Blue Line trolley provides a one seat ride from UTC to the US-Mexican border through downtown San Diego; connecting residents throughout the city.

The community plan site map is shown on **Figure 2-1**.

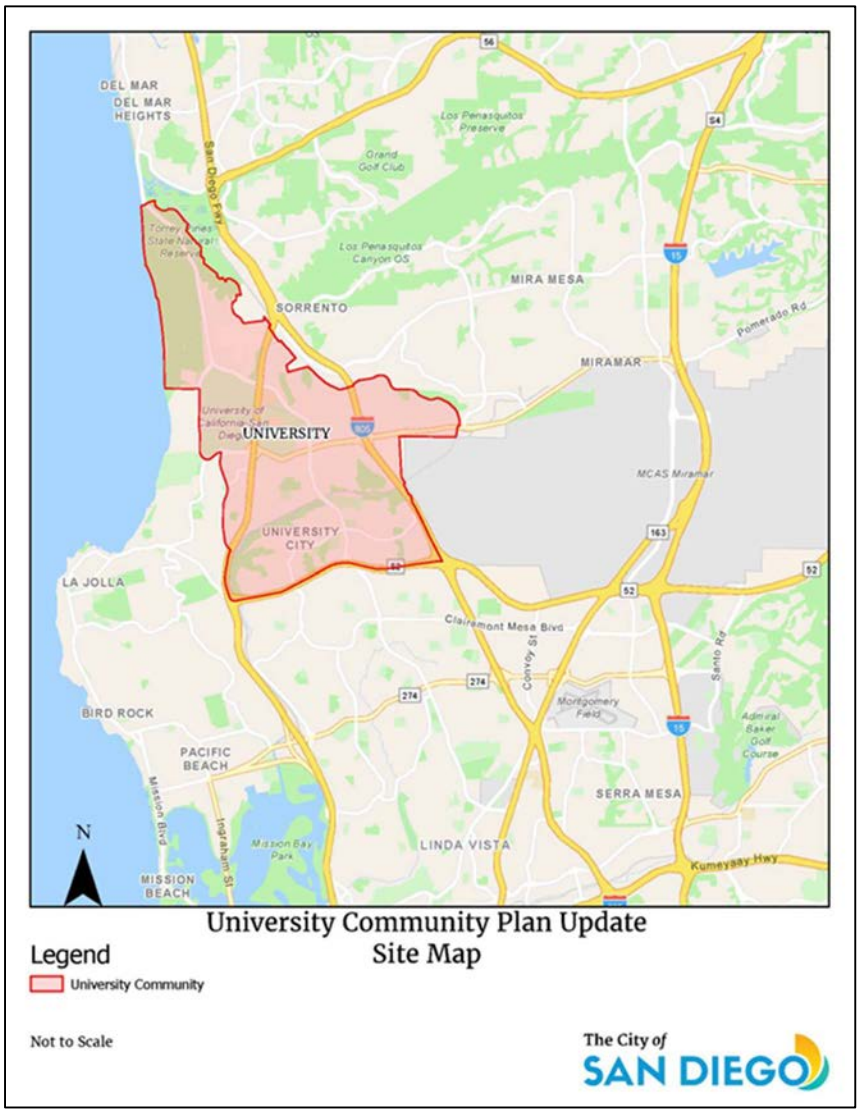

Figure 2-1 Community Plan Site Map

The University CPU includes policies to create a network of parks and pedestrian and bicycle pathways that connect villages and destinations in the community, establish additional villages and neighborhood centers promoting a mix of employment and housing options, and provide housing and employment opportunities near transit. The village areas will provide additional housing, public spaces, multi-modal circulation improvements, and parks. The proposed land uses will support mixed-use, transit-oriented, and pedestrian-friendly development. The University CPU provides long-range options and opportunities for new housing and employment.

A comparison of the existing and proposed residential development within the CPU boundary is tabulated in **Table 2-1**. For non-residential development, **Table 2-2** summarizes the comparison for the proposed CPU.

Table 2-1 Existing and Proposed Residential Development

Development Type	Existing CPU 2045 [1] (Dwelling units (DUs))	Proposed CPU 2045 [2] (DUs)	Proposed Difference (DUs)
Single Family	5,492	5,000	-492
Multifamily	23,154	43,000	19,846
Total Housing Units	**28,646**	**48,000**	**19,354**

[1] Source: City of San Diego's 2020 UWMP.
[2] Source: City Planning Department, *Request for the Preparation of a Water Supply Assessment for the University Community Plan Update (IO # 21004253)*, July 14, 2023.

Table 2-2 Existing and Proposed Non-Residential Development

Non-Residential Development Type	Existing CPU 2045 [1] (sf)	Proposed CPU 2045 [2] (sf)	Proposed Difference (sf)
Education	633,000	633,000	0
Industrial Park / R&D	14,050,000	14,663,000	613,000
Institutional	602,000	602,000	0
Institutional - Higher Education	27,800,000	27,800,000	0
Institutional – Medical	2,730,000	2,730,000	0
Light Industry / Warehouse	2,929,000	429,000	-2,500,000
Office Commercial	10,361,000	16,875,000	6,514,000
Recreation	108,000	108,000	0
Retail Commercial	2,259,000	4,282,000	2,023,000
Visitor Commercial	1,595,000	1,364,000	-231,000
Total	**63,067,000**	**69,486,000**	**6,419,000**

[1] Source: City of San Diego's 2020 UWMP.
[2] Using information in Attachment 2 from Source below, PUD assumed the categories/water use factors in Table 3 from the City of San Diego's 2020 Water Demand Forecast Report as follows: Industrial Park/ R&D equivalent to Industrial Regular; Light Industry/Warehouse equivalent to Industrial Light; and Visitor Commercial equivalent to Retail Commercial.
Source: City Planning Department, *Request for the Preparation of a Water Supply Assessment for the University Community Plan Update (IO # 21004253*), July 14, 2023.

The City's 2020 UWMP bases the projected demand for water on the SANDAG Series 14 - Housing, Population and Employment Forecast for the year 2045. Using the currently adopted University Community Plan, the SANDAG Forecast indicates that the University Community could have 28,646 homes by the year 2045, as shown in Table 2-1, which is the same number of homes that SANDAG is forecasting for the year 2050 with no change.

Also, for the currently adopted University Community Plan, SANDAG estimated the University Community had 27,994 existing homes in the year 2020, which leaves a capacity of 652 homes to reach 2050. This shows that the current community plan has very limited remaining capacity to reach planned residential build-out. For the proposed University CPU, there is an increase in planned residential capacity, averaging, approximately 800 homes per year from 2020 to 2045. By 2045, the total number of dwelling units is projected to reach 48,000. The proposed University CPU also forecasts modifications in the non-residential growth forecasted in the planning area as outlined in Table 2-2.

Section 3. WSA FINDINGS

This WSA finds that the proposed water demand projections for the CPU are included in the regional water resource planning documents of the City and the Water Authority. Current and future water supplies, as well as actions necessary to develop future water supplies, have been identified. This WSA demonstrates that there will be sufficient water supplies available during normal, single-dry, and multiple-dry water years over a 20-year projection to meet the demands of the CPU.

As demonstrated in **Tables 3-1, 3-2, and 3-3** of this WSA, prepared by PUD in compliance with the requirements of SB 610, using the City's 2020 UWMP based upon SANDAG Series 14 Forecast land use, there is sufficient water planned to supply the CPU's estimated annual average usage. The projected water demand of the CPU is 3,424,425 gallons per day (GPD), or 3,835 acre-feet per year (AFY) (**Table 3-3**). Water demands for the CPU assume all mandatory water efficiency standards are met and result in more water efficient buildings and landscapes as compared to older developments. The 2020 UWMP establishes that the five Pressure Zones: La Jolla Gardens, North City 2, North City 3, Northwest Mesa, and Torrey Pines serve the University Community Planning Area have a planned net capacity of 10,201 AFY in 2050. Therefore, the City has adequate capacity to serve the projected water demand of the University CPU with the combined planned pressure zone capacity.

The City's 2020 UWMP demonstrates there will be sufficient water supplies available to meet demands for existing and planned future developments that are projected to occur by 2045. Based on a normal water supply year, the estimated water supply projected in five-year increments for a 20-year projection will meet the City's projected water demand of 202,865 acre-feet (AF) in 2025 to 228,865 AF in 2045 (**Table 6-2**) for existing and planned future developments. Similarly, based on a single-dry year forecast (**Table 6-6**), the estimated water supply will meet the projected water demand of 236,274 AF (2045). Based on a multiple-dry year forecast (**Table 6-7**), the estimated water supply will meet the projected demands of 233,538 AF (Dry Year 5 for 2045). Therefore, based on the findings from the City's 2020 UWMP, this CPU will result in no unanticipated demands.

In summary, these findings substantiate that there is sufficient water supply planned to serve this CPU's future water demands within the PUD service area in normal, single-dry, and multiple-dry water year forecasts.

Table 3-1 Planned Residential Water Demands for the CPU

Residential	Existing CPU 2045 (DUs)	Proposed CPU 2045 (DUs)	Proposed Additonal DUs [1]	Water Demand Factor [2]	Water Use, gpd	Water Use, AFY
Single Family	5,492	5,000	-492	161	-79,212	-89
Multifamily	23,154	43,000	19,846	161	3,195,206	3,579
Total Housing Units	**28,646**	**48,000**	**19,354**	**161**	**3,115,994**	**3,490**

[1] Reference Table 2-1 of this WSA.
[2] For residential demands, PUD is using demands factors from the 2020 UWMP, which equal 60 gallons per capita per day times 2.68 persons per household = 161 gallons per day per DU. This is an average for single family and multifamily residential. These demand factors include landscaping water demands.

Table 3-2 Planned Non-Residential Water Demands for the CPU

Development Type	Land Use Category	Proposed Additions [1] (sf)	Water Demand Factor [2]	Water Use, gpd	Water Use, AFY
Education	n/a	0	n/a	0	0.0
Industrial Park / R&D [3]	Industrial/ Regular	613,000	0.017	10,421	12
Institutional	n/a	0	n/a	-	0
Institutional – Higher Education	n/a	0	n/a	0	0
Institutional – Medical	n/a	0	n/a	0	0
Light Industry / Warehouse [3]	Industrial/ Light	-2,500,000	0.015	-37,500	-42
Office Commercial	Office	6,514,000	0.035	227,990	255
Recreation	n/a	0	n/a	0	0
Retail Commercial	Retail	2,023,000	0.06	121,380	136
Visitor Commercial [3]	Retail	-231,000	0.06	-13,860	-16
	Total	**6,419,000**		**308,431**	**345**

[1] Reference Table 2-2.
[2] For non-residential demands, PUD is using demands factors from Table 3 of the City of San Diego's 2020 Water Demand Forecast Report. These demand factors include landscaping water demands.
[3] Assumed from information provided by Planning Department. See Table 2-2.

Table 3-3 Planned Water Demands for the CPU

Demand Type	Proposed Water Use, gpd	Proposed Water Use, AFY
Residential	3,115,994	3,490
Non-Residential	308,431	345
Net WSA Demand	**3,424,425**	**3,835**
Source: Tables 3-1 and 3-2.		

Section 4. CITY OF SAN DIEGO PUBLIC UTILITIES DEPARTMENT

The City purchased its initial water system in 1901 from the privately-owned San Diego Water & Telephone Company. Since then, continual expansion of the water system has been required to meet the demands of the growing population of the City. To meet the demand, the PUD purchased several reservoirs between 1913 and 1935 to supplement local water supplies. Despite low annual precipitation in the area (approximately 10 inches per year), these reservoirs supplied the City's growing demands until the year of 1940.

The need to import water emerged with the increased demand generated by the presence of the United States Navy prior to and during World War II, and the ensuing population growth. As a result, the PUD and other local retail water distributors formed the Water Authority in 1944 for the purpose of purchasing Colorado River water from Metropolitan Water District of Southern California (MWD). The PUD and other local retail water distributors began receiving imported water from the Colorado River in 1947.

Purchased water from the Water Authority is the largest portion of the City's overall water supply. In 2015, a significant drought year, Water Authority water accounted for 97 percent of the City's total water supply as the availability of local surface water was lower than in normal hydrologic years. Imported water from the Water Authority accounted for about 89 percent on average from 2016 to 2020.

Today, the PUD treats and delivers a current average of 175,000 AFY of water to approximately 1.4 million residents. The water system extends over 400 square miles, including 340 square miles in the City. The PUD potable water system serves the City and certain surrounding areas, including both retail and wholesale customers. The University Community is located within the PUD's water service area.

In addition to delivering potable water, the City has a recycled water program. Its objectives are to optimize the use of local water supplies, lessen reliance on imported water, and free up capacity in the potable water system. Recycled water provides the City a dependable, year-round, locally produced, and controlled water resource.

4.1 Overview of Potable System Facilities

The City's current and approved future water supplies consist of: (1) water purchased from the Water Authority, either directly delivered to treatment plants or stored in various reservoirs; (2) local supplies including groundwater, capture of local runoff from rainfall primarily within its surface reservoirs, and Pure Water which is approved and in progress; and (3) recycled water for non-potable water use.

The City's water system is made up of nine reservoirs that capture runoff from rainfall within local watersheds, three water treatment plants (WTPs), and a small portion from local groundwater. To offset potable (drinking) water demands, the City owns and operates two water reclamation plants and a recycled water distribution system that delivers recycled water for non-potable water uses.

The City's nine local surface water reservoirs have a combined capacity of 566,239 AF. The native water captured in these reservoirs provides approximately 13% of the City's total supply (based on average data from 2016 to 2020). These reservoirs not only capture local supply, but many of them store imported water and are connected to the regional Water Authority's system, providing the City with reliability and redundancy during seismic and other system emergencies. **Table 4-1** provides the storage capacity for the City's reservoirs and current storage levels (July 2023).

Table 4-1 City Reservoirs

Reservoir	Storage Capacity (AF) [1]	Current Storage (AF) [2]
Barrett	34,806	33,547
El Capitan	112,807 [50,732]	46,643
Hodges	30,633 [13,401]	4,650
Miramar	6,682	5,599
Morena	50,694 [16,742]	12,302
Murray	4,684	3,105
Lower Otay	47,067	44,490
San Vicente	249,358	170,491
Sutherland	29,508	19,768
Barrett	34,806	33,547
Total Capacity	**566,239**	**340,594**

[1] Total potential capacity shown at dam spillway crest. El Capitan, Hodges, and Morena reservoirs operating with water level restrictions per Division of Safety of Dams. [] = Capacity at level restriction.
[2] Storage as of July 24, 2023.
Source: City of San Diego - Public Utilities Department, Water Production Division (2023).

The three WTPs The Lower Otay, Barrett and Morena Reservoirs service the Otay Water Treatment Plant (Otay WTP) in south San Diego; El Capitan, San Vicente, Sutherland, and Lake Murray Reservoirs service the Alvarado Water Treatment Plant (Alvarado WTP) in central San Diego; and the Miramar Reservoir services the Miramar Water Treatment Plant (Miramar WTP) in north San Diego. Hodges Reservoir is connected to the Olivenhain Reservoir, which is owned by the Water Authority. Olivenhain Reservoir is connected to the Water Authority's second aqueduct, as detailed in Section 5.2. Through this connection, Hodges Reservoir water can be delivered to all City WTPs and can be delivered to San Vicente Reservoir for storage.

The City's three WTPs – Alvarado, Miramar and Otay – provide safe and reliable drinking water and have a combined permitted total rated capacity of 378 million gallons per day (mgd). **Table 4-2** summarizes the water treatment plant capacities in the City.

Table 4-2 Water Treatment Plant Current Permitted Capacities

Water Treatment Plant	Original Construction	Current Capacity (mgd)	Geographic Area Served
Miramar WTP	1962	144	North of the San Diego River
Alvarado WTP	1951	200	Central San Diego
Otay WTP	1914	34	South San Diego
Source: City of San Diego 2020 UWMP.			

The three WTPs are located in such a way that there is flexibility in providing supplies to the City's geographic areas; some areas of the City can be supplied by more than one of the treatment plants. To distribute potable water produced at these WTPs, the PUD maintains and operates numerous water pump stations within over 130 pressure zones (within the City's retail service area), and numerous treated water storage facilities with more than 200 million gallons of potable water capacity.

The PUD also maintains several emergency connections to and from neighboring water agencies, including the Santa Fe Irrigation District (connected to Miramar WTP), the City of Poway (connected to Miramar WTP), Olivenhain Municipal Water District (connected to Miramar WTP), the Cal-American Water Company (connected to Alvarado and Otay WTPs), Sweetwater Authority (connected to Otay WTP), and the Otay Water District (connected to Otay WTP).

4.2 Overview of Recycled System Facilities

Recycled water is produced at the City's North City Water Reclamation Plant (North City WRP) and South Bay Water Reclamation Plant (South Bay WRP) and is used for non-potable use, such as landscape irrigation.

The City's recycled water system has a combined total wastewater treatment capacity of 50,406 AFY (45.0 mgd), three (3) recycled water storage facilities with over 12 million gallons of storage capacity, and approximately 100 miles of recycled water pipelines.

The North City WRP, with an ultimate capacity of 30.0 mgd, was the first large-scale water reclamation plant in San Diego; its operations commenced at the facility in 1997. The WRP, located in the Miramar area, serves the northern San Diego region, including the cities of Del Mar and Poway, as well as City neighborhoods of Mira Mesa, Rancho Peñasquitos, Scripps Ranch, Carmel Valley, Sorrento Valley, and southern Rancho Bernardo.

The South Bay WRP has an ultimate capacity of 15.0 mgd and began operation in 2002. Located at the end of Dairy Mart Road near the International Border with Mexico, the majority of the South Bay WRP recycled water is sold to the Otay Water District.

4.3 Pure Water Program

The Pure Water San Diego Program will provide a safe, secure and sustainable local drinking water supply for San Diego. It will use advanced water purification technology to produce potable water from recycled water. For more details on the Pure Water San Diego Program, see Section 5.

Section 5. EXISTING AND PROJECTED SUPPLIES

The PUD relies on purchased water from the Water Authority as a water supply source. The City is a Water Authority member agency, and the Water Authority is a member agency of the MWD. The statutory relationships between the Water Authority, the MWD and its member agencies, respectively, establish the scope of the City's entitlements to water from these two agencies. Due to the City's reliance on these two agencies, this WSA relies upon and includes information on the existing and projected supplies, supply programs, and related projects of the Water Authority and the MWD.

The City relies on the long-term water resources planning documents of the Water Authority and the MWD to support the work on this WSA. These documents are available at the following websites:

San Diego County Water Authority

https://www.sdcwa.org/wp-content/uploads/2021/08/2020-UWMP_Final-Print-Version-July-2021-1.pdf

Metropolitan Water District of Southern California

https://www.mwdh2o.com/media/21641/2020-urban-water-management-plan-june-2021.pdf

A brief overview of the Water Authority and the MWD, including the City's relationship to these agencies, is included below.

A description of local surface, local groundwater and local recycled water supplies available to the City can be found in Section 5.3.1 of this WSA.

This information is current at the time this document was prepared.

5.1 Metropolitan Water District of Southern California

The Metropolitan Water District (MWD) was created in 1928, under the authority of the Metropolitan Water District Act (California Statutes 1927, Chapter 429, as reenacted in 1969 as Chapter 209, as amended) (the "MWD Act"). The MWD's primary purpose is to provide a supplemental supply of wholesale water for domestic and municipal uses to its constituent agencies. The MWD service area comprises approximately 5,200 square miles and includes portions of the six counties of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura.

There are 26 member agencies of the MWD, including 14 cities, 11 municipal water districts and the Water Authority. A Board of Directors, currently numbering 38 members, governs the MWD. Each constituent agency has at least one representative on the MWD Board.

The MWD's existing water supplies have been historically sufficient to meet demands within its service area during years of normal precipitation. Although the MWD plans and manages reserve supplies to account for normal occurrences of drought conditions, regulatory actions, including but not limited to restrictions under the Federal and California Endangered Species Acts, have at times placed limitations on the MWD's ability to provide water to its member agencies. In the future, population growth, regulatory restrictions, increased competition for low-cost water supplies, and other factors such as climate change could impact the MWD's ability to supply its member agencies.

The MWD's two major sources of water are the Colorado River and the State Water Project (SWP).

Colorado River Water: The Colorado River was the MWD's original source of water after its establishment in 1928. The MWD owns and operates the Colorado River Aqueduct (CRA), which is 242 miles long, starting at Lake Havasu and terminating at Lake Mathews in Riverside County.

In 2003, a Quantification Settlement Agreement (QSA) was completed to ensure that California stays within its 4.4 million acre-feet (MAF) annual apportionment of Colorado River water. The QSA provides the means to implement water transfers and supply programs between water agencies that use Colorado River water in California. Of the 4.4 MAF annual apportionment of Colorado River water, the MWD has a 550,000 AFY apportionment. Additionally, the MWD has developed several water transfers, irrigation conservation measures and storage programs with irrigation water districts that have more senior water rights to Colorado River water within California. Through these and other programs, MWD's goal is to keep its CRA nearly full at its capacity of 1.2 MAF.

The existing conditions of the Colorado River is that it has been in a decade-long, severe drought. Despite some recent improvements to snowpack in the Upper Colorado River Basin, the Lake Mead water surface elevation has only recently recovered from the long drought between 2014 and 2019. The Lower Basin States, including California, recognized that Lake Mead levels could quickly fall to 1,000 feet and trigger a formal shortage declaration. In April 2019, the U.S. Congress passed a finalized Drought Contingency Plan (DCP) agreed upon and produced by the U.S.'s three Lower Basin States (Arizona, California and Nevada) and Mexico. As defined in the DCP, California takes shortages beginning at a Lake Mead trigger elevation of 1045 feet; those shortages increase as the lake's water elevation decrease. Within California, Palo Verde Irrigation District and Coachella Valley Water District take 8 percent and 7 percent of the California DCP shortage, respectively.

In dry, below-normal conditions, the MWD has increased the supplies received from the California Aqueduct by developing flexible Central Valley/SWP storage and transfer programs. Over the years, under the pumping restrictions of the SWP, the MWD has collaborated with the other contractors to develop numerous voluntary Central Valley/SWP storage and transfer programs. The goal of these storage/transfer programs is to develop additional dry-year supplies that can be conveyed through the California Aqueduct during dry hydrologic conditions and regulatory restrictions.

State Water Project: As the largest of 29 contractors for water from the SWP, the MWD holds a contract for a maximum of 1,911 thousand acre-feet (TAF) per year, or 46 percent of the total SWP contract. The maximum amount of the contract is rarely met because the California Department of Water Resources (DWR) determines annual allocations of SWP contract amounts based on hydrologic and regulatory conditions.

The SWP is owned by the State of California and operated by the DWR. The MWD receives water pumped from the Harvey O. Banks Pumping Plant in the southern portion of the Sacramento-San Joaquin River Delta, via the 444-mile-long California Aqueduct, to four delivery points near the northern and eastern boundaries of the MWD. Water supply from the SWP has also been significantly reduced because of the most recent California drought and environmental regulations protecting the Delta. Political and environmental concerns may also limit imported water supplies from Northern California. In 2007, the SWP pumps were shut down to protect the Delta smelt population.

As discussed above, the quantity of SWP water available for delivery each year is controlled by hydrology, environmental and operational considerations. The original State Water Contract called for an ultimate delivery capacity of 4.2 MAF, with 1,911 TAF allocated to the MWD pursuant to its participation in the SWP. For decades, the Bay-Delta has experienced water quality and supply reliability challenges and conflicts due to variable hydrology and environmental standards that limit pumping operations. SWP deliveries in the most recent critically dry years lagged these projections and were 5 percent of contractual amounts in 2014 and 20 percent of contractual amounts in 2015. Dry conditions in 2020 also supported a supply allocation of only 20 percent. Consequently, MWD's key concern is the continual deterioration of water supply reliability.

To augment its imported water from the Colorado River and Delta, the MWD has developed water banking programs, agricultural efficiency and land fallowing programs, and water transfers. These supplemental supplies are used mainly during dry years and droughts, and are located in Riverside County, Imperial County, and the Central Valley region. Additionally, the MWD has developed groundwater storage programs with water agencies in its service area and provides financial incentives for local water agencies in its service area to implement projects for recycled water, groundwater recovery and seawater desalination.

5.2 San Diego County Water Authority

The Water Authority is the countywide water wholesaler comprised of 24 public member agencies and governed by a 36-member Board of Directors. It owns and operates five large-diameter pipelines to deliver imported water to its member agencies. The City, with a population of 1.4 million served, is the Water Authority's largest member agency and customer. The Water Authority's service area is a semi-arid region where the natural occurrence of water from rainfall and groundwater provides a firm water supply for only a small portion of the water demands of the current population. Since 1990, the Water Authority has provided an average of 85 percent of

the water supply within its service area. As a wholesaling entity, the Water Authority has no retail customers, and only serves its member agencies.

Historically, the principal source of supply for the Water Authority's service area has been water purchased from the MWD for sale to the Water Authority's member agencies. However, drought conditions and population growth in the Water Authority's service area have highlighted the need for diversification of the region's water supplies. The Water Authority has actively pursued a strategy of supply diversification that includes the acquisition and importation of additional water supplies, the development of additional local water supply projects and augmentation of its water supply via local and regional water storage capacity. In fiscal year 2020, total local water sources provided 28% of the water used in the Water Authority's service area.

The Water Authority receives most of its water supplies from transfers with high-priority Colorado River contractors. In 2020, the Water Authority received 144,000 AF (31 percent of total water supplies) from a conservation and transfer agreement with the Imperial Irrigation District (IID) and 86,000 AF (19 percent of its water supplies) from the All-American Canal and Coachella Canal Lining Projects. By 2040, almost 8 percent of the Water Authority supply portfolio will be potable reuse, and 9 percent will be seawater desalination, which are drought-proof supplies.

5.3 Public Utilities Department

The City currently purchases approximately 85 to 90 percent of its water from the Water Authority, which supplies the water (raw and treated) through two aqueducts consisting of five pipelines. While the City imports a majority of its water, it uses local supply sources to meet some of its demand. Additionally, non-potable recycled water is used to offset potable demand.

The availability of sufficient imported and regional water supplies to serve existing and planned uses within the PUD service area is demonstrated in the prior discussion on the water supply reliability of the MWD and the Water Authority. The City has been receiving water from the Water Authority since 1947, and during the last 20 years purchased between 139,000 and 235,500 AFY. For FY2021, water purchases totaled approximately 144,708 AF. Depending upon demands, growth, and the success of local water supply initiatives, the imported supply demand will decrease with the construction of Pure Water San Diego Phases 1 and 2 and most likely be a maximum of 149,778 AFY in 2025 (as shown in **Table 6-2**) during normal years and decreases through 2035. Once both phases of the Pure Water Program are installed, from 2035 to 2045, the imported supply demand will increase again for the City.

For the purpose of this analysis the maximum is used.

5.3.1 Demonstrating the Availability of Sufficient Supplies

Water Supply from Water Authority (Purchased Water): Section 5, subdivision 11 of the County Water Authority Act states that the Water Authority "as far as practicable, shall provide each of its member agencies with adequate supplies of water to meet their expanding and increasing needs." Depending on local weather and supply conditions, the Water Authority provides between 75 to 95 percent of the total supplies used by its 24-member agencies. As mentioned in Section 4, the PUD and other local retail water distributors formed the Water Authority in 1944 for the purpose of purchasing Colorado River water from the MWD.

Local Surface Water Supplies: The City maintains and operates nine local surface raw water storage reservoirs which are connected directly or indirectly to water treatment operations. In the San Diego region, local precipitation produces surface runoff to streams that supply PUD reservoirs. A portion of this runoff is used for the municipal water supply, while the remainder

evaporates during reservoir storage. In very wet years, the runoff remainder may spill over the reservoir dams and return to the Pacific Ocean. Average rainfall produces less than half of the average runoff in San Diego. The local climate requires about average rainfall to saturate the soil sufficiently for significant surface runoff to occur. Therefore, most of the runoff to reservoirs is produced in years with much greater than average rainfall. Some flooding may occur during average or below average rainfall years if the annual rainfall is concentrated in a few intense storms.

Seven of the City's nine reservoirs, as listed in **Table 5-1**, provide a local water supply to the City, while the other two reservoirs are for emergency storage only. The median of historical reservoir supply from 1948 to 2020 was used as the projection for years 2025 to 2045 as shown in **Table 5-1** and is assumed to remain constant over the forecasted period.

Table 5-1 Current and Projected Local Surface Water

	Water Supply (AFY)					
Reservoirs Providing Local Supply	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**
Barrett, El Capitan, Hodges, Lower Otay, Morena, San Vicente, Sutherland	19,286	22,015	22,015	22,015	22,015	22,015
City-Lake Cuyamaca Interagency Agreement	400.2	400	400	400	400	400
Total Local Reservoir Supply	**19,686**	**22,415**	**22,415**	**22,415**	**22,415**	**22,415**
Source: City of San Diego 2020 UWMP.						

The use of local water is affected by availability and water resource management policies. The City's policy is to use local water first to reduce imported water purchases and costs. The City also operates emergency and seasonal storage programs in conjunction with its policy.

The purpose of emergency storage is to increase the reliability of the imported water aqueduct system. This is accomplished by maintaining an accessible amount of stored water that could provide an uninterrupted supply of water to the City's water treatment facilities, should an interruption to the supply of imported water occur. The management of reservoirs is guided by Council Policy 400-04, which outlines the City's Emergency Water Storage Program. The policy mandates that the Department store sufficient water in active, available storage to meet six-tenths of the normal annual (7.2 months) City water demand requirements (conservation is not included). Active, available storage is that portion of the water that is above the lowest usable outlet of each reservoir.

The monthly emergency storage requirement changes from month-to-month and is based on the upcoming seven months' water demand. This results in a seasonally fluctuating emergency storage requirement, generally peaking in April and reaching its minimum in October. This seasonally fluctuating requirement makes a portion of the required emergency storage capacity available for impounding or seasonal storage.

Local Groundwater Supplies: The City has rights, jurisdiction, and municipal water supply development interests in four groundwater basins in the San Diego region: The San Pasqual Valley, Mission Valley, San Diego River Valley, and Coastal Plain of San Diego Groundwater Basins. None of the groundwater basins are adjudicated, meaning managed by the courts to ensure that water rights are protected, and safe yields are adhered to. The California Supreme

Court decreed in 1930 that the City has Pueblo water rights to all the water (surface and underground) of the San Diego River. The City is committed to protecting its groundwater resources and preserving its established Pueblo water rights. This right includes the use of all surface water and groundwater of the streams that flowed through the original pueblo, including their tributaries, from their source to the mouth.

The San Diego River Valley Basin (also known as the Santee/El Monte Basin) is primarily located outside the City's municipal boundary but within San Diego County. It is situated in the eastern portion of the San Diego River watershed near the cities of Santee, La Mesa, and El Cajon, and the unincorporated community of Lakeside. In accordance with requirements from the Sustainable Groundwater Management Act (SGMA), the basin is designated a very low priority basin and has an estimated capacity that ranges from 24,000 to 97,000 AF.

The City has two production wells in the San Diego River Valley Basin that deliver water to the potable supply. The first well is the San Vicente production well installed in 2004 with a maximum capacity estimated at 600 gallons per minute (gpm), or approximately 1,000 AFY. Due to issues with pump operations, the average annual production from this well is approximately 50 AFY. In March 2010, the City drilled the second production well, about a quarter mile downstream of its El Capitan Reservoir. Currently the groundwater available for beneficial use is approximately 50 AFY from the existing El Capitan production well. **Table 5-2** and **Table 5-3** detail historical and projected supplies (respectively) from the San Diego River Valley (Santee/El Monte) Basin. The water produced from both of these wells is sent to the Alvarado WTP for distribution.

Table 5-2 Historical Groundwater Supply to City from 2016-2020

Groundwater Well	Groundwater Supply (AFY)				
	2016	2017	2018	2019	2020
Santee/El Monte: San Vicente GW Production Well	0.0	0.0	0.0	0.0	0.0
Santee/El Monte: El Capitan GW Production Well	0.0	18.8	38.0	25.8	51.6
Source: City of San Diego 2020 UWMP.					

Table 5-3 Projected Groundwater Supply to City

Groundwater Well	Groundwater Supply (AFY)				
	2025	2030	2035	2040	2045
Santee/El Monte: San Vicente GW Production Well	50	50	50	50	50
Santee/El Monte: El Capitan GW Production Well	50	50	50	50	50
Source: City of San Diego 2020 UWMP.					

The San Pasqual Valley, the Mission Valley, and the Coastal Plain of San Diego Groundwater Basins do not currently contribute to the City's potable water supply and the PUD has no current plans to pursue any groundwater from them for contribution to the potable water supply.

Recycled Water Supplies: The City provides recycled water service to more than 700 recycled water retail customers and three wholesale customers, including the City of Poway, Olivenhain Municipal Water District and Otay Water District. The 2017 top ten retail customers included the City of San Diego Biosolids Center, the Torrey Pines Golf Course, Marine Corps Air Station-Miramar, the Santaluz Golf Course, El Camino Memorial Park, Qualcomm, Village Nurseries, the Verrezzano HOA, and the San Diego Community College District.

The PUD, in cooperation with the Park & Recreation Department, has aggressively pursued the retrofitting of City parkland, street landscaping and open space to use recycled water for irrigation; sites fronting recycled water distribution pipelines were targeted. In 2007 only 23 recycled water meters were serving City sites and expanded to 96-meter connections by December of 2014.

Conservation: The City has a robust water conservation program which achieves year-round water savings by creating a water conservation ethic adopting programs, policies and ordinances designed to promote water conservation practices, and implementing comprehensive public information and education campaigns. Examples of the programs and policies include turf replacement, water use efficient device rebates, commercial and residential water surveys and year-round permanent water use restrictions.

Over the past 30 years, the City has achieved substantial water savings by:

- Developing innovative, customer-oriented water conservation programs
- Creating policies and ordinances designed to promote and mandate water conservation
- Implementing comprehensive public information and education campaigns that foster behavior change and a shared water conservation ethic.

5.3.2 Plans for Acquiring Additional Supplies

Pure Water Program: The Pure Water Program is a 20-year (2015-2035) multi-phased water and wastewater Capital Improvement Program to create 83 mgd of locally controlled water upon full implementation in 2035. The Pure Water Program will divert treated water from the Point Loma Wastewater Treatment Plant (WWTP) ocean outfall and recycle a valuable and limited resource that is currently discharged to the ocean. Phase 1 is expected to be online in Calendar Year (CY) 2025. Production is expected to be a staged ramp-up in flow with 30 mgd produced by the end of CY 2027. This will allow the City to reduce the amount of water it purchases in Fiscal Year (FY) 2027 and beyond.

The Pure Water Program is designed to reduce discharge into the ocean from Point Loma WWTP while providing a new local source of potable water for the City. It is anticipated that continuation of the Pure Water Program will be reflected in future permits that will eliminate the need for the City to make over $1.8 billion in upgrades to the Point Loma WWTP, which would otherwise be necessary.

The City continues to work with the State Water Resources Control Board Division of Drinking Water (DDW) on updating and reissuing the City's Water Supply Permit, which encompasses all the City's water sources, its three drinking water treatment plants and the entire drinking water distribution system. For purified water to be used as a water source, it must be approved in the Water Supply Permit. In 2021, several inspections of drinking water facilities were conducted by DDW and the City continues to support its efforts to prepare the new permit prior to purified water being released to Miramar Reservoir.

In accordance with the Mitigation, Monitoring and Reporting Program adopted as part of the Final Environmental Impact Report/Environmental Impact Statement for Phase 1 North City, biological, archaeological and paleontological monitoring were conducted for all active North City construction packages. By 2035, Pure Water's Phase 2 will expand repurified water production from 30 to 83 mgd. The City has initiated early planning studies and plans, which include constructing a new pilot plant at the Harbor Drive site by 2025 in Central San Diego. This pilot plant could send the purified water to either Lake Murray Reservoir or San Vicente Reservoir. Additionally, an advanced water treatment facility could be constructed at the South Bay WRP in the South Bay and send purified water to Otay Lakes.

5.3.3 Summary of Supplies

Historic purchased water deliveries from the Water Authority to the PUD and local surface water, groundwater and recycled water deliveries are shown in **Table 5-4.**

Table 5-4 PUD Historic Purchased, Local Surface, Groundwater and Recycled Water Demands (AFY)

Fiscal Year	Water Authority Purchased Water	Local Surface Water	Local Groundwater	Recycled Water [1]	Total
2000	207,874	39,098	--	3,250	**250,222**
2005	204,144	26,584	--	4,294	**235,022**
2010	188,337	13,117	500	7,951	**209,905**
2015	173,754	6,779	500	8,195	**199,527** [2]
2020	150,577	19,686	52	10,393	**180,708**

[1] Only includes "In-City" Recycled Water use and no sales to other agencies.
[2] Includes 10,229 AF of surface water deliveries to Cal Am that are not included in the Surface Water or the Water Authority Purchased Water reported here.
Source: City of San Diego 2015 and 2020 UWMPs.

Section 6. PROJECTED DEMANDS

The City completes an updated UWMP and Water Demand Forecast for the PUD service area every five years. A computer model is used to forecast future water use based on SANDAG regional growth forecasts as well as per-capita demand factors and empirical water use trends. The result is a detailed demand forecast by water use sector (residential, commercial, industrial, irrigation, institutional, etc.) and by hydraulic pressure zone. The demand forecast is provided in five-year increments through the end of the UWMP horizon that can be applied by sector, by hydraulic pressure zone or on a Citywide basis.

The City's 2020 UWMP compares future water demands and water supplies under multiple hydrologic conditions. It is based on historical runoff in the State with data ranging from 1901 to 2020.

In addition to the PUD, the Water Authority and the MWD use regional growth forecasts to calculate projected water demands within their respective service areas. This provides for consistency between the retail and wholesale agencies projected water demands, thereby ensuring that adequate supplies are being planned for the PUD's existing and future water users. The SANDAG forecasts are based on adopted community plan land use, but not citywide zoning. SANDAG forecasts the number of residents, dwelling units, and employees in an area, but not square footage, hotel rooms, or visitors (non-residents or non-employees). For urban areas the smallest forecast geography is typically at the block level, but the forecast geography can be larger for suburban and less developed areas. SANDAG typically updates the regional growth forecast every three (3) to four (4) years.

The City's water demand projections, based on the SANDAG Series 14 Forecast land use, were incorporated in the City's 2020 UWMP. The 2020 UWMP was completed and adopted in June 2021.

The projections with the City's 2020 UWMP were forwarded to the Water Authority for use in the preparation of the Water Authority's UWMP, which is subsequently incorporated into the MWD's UWMP to calculate the ultimate water demands of the region.

The demands from the 2020 UWMP are used throughout this WSA. The historical and projected water demands for a normal year are shown in **Table 6-1**.

Future non-potable recycled water is assumed to remain constant, as the City shifts its recycled water strategy to development of its Pure Water Program.

Table 6-1 Past, Current, And Projected Water Deliveries

Sector	Type of Use	Treatment Level	2015		2020	
			Meters	Use (AFY)	Meters	Use (AFY)
Single-Family Residential	Indoor and outdoor uses	Drinking Water	224,162	60,573	249,761	54,228
Multifamily Residential	Indoor and outdoor uses	Drinking Water	30,471	37,799	32,215	35,370
CII	Indoor and outdoor uses	Drinking Water	17,064	46,072	18,501	38,615
Irrigation	Landscape irrigation	Drinking Water	7,679	22,668	8,127	17,175
Other	Dust mitigation, cleaning	Drinking Water	464	0	0	0
Sub-Total (Retail Area)			**279,840**	**167,112**	**308,604**	**145,388**

Sector	Projected Water Use (AFY)				
	2025	2030	2035	2040	2045
Single-family Residential	54,814	54,360	53,794	54,197	55,159
Multifamily Residential	40,623	45,491	49,607	52,854	54,464
CII	47,401	50,089	52,784	55,239	56,873
Large Irrigation	17,718	17,606	17,375	17,133	16,991
Sub-Total (Retail Area)	**160,556**	**167,547**	**173,560**	**179,423**	**183,488**

Source: City of San Diego 2020 UWMP.

The analysis in **Table 6-2** compares the projected normal water supply and customer demands from 2025 to 2045, in five-year increments.

Table 6-2 Normal Year Demand vs. Supply for the City

Demands/Supplies	Demand and Supplies (AFY)				
	2025	2030	2035	2040	2045
Water Demand (with wholesale and conservation) [1]	202,865	210,547	217,156	223,598	228,065
Local Water Supplies					
Recycled Water (City service area only, non-potable)	13,773	13,773	13,773	13,773	13,773
Pure Water Phase 1	16,800 [2]	33,600	33,600	33,600	33,600
Pure Water Phase 2			59,360	59,360	59,360
Local Surface Supply	22,015	22,015	22,015	22,015	22,015
City-Lake Cuyamaca Interagency Agreement	400	400	400	400	400
Groundwater	100	100	100	100	100
Sub-total Local Supplies	**53,088**	**69,888**	**129,248**	**129,248**	**129,248**
Water Supply from Water Authority (purchased water)	149,778	140,660	87,907	94,350	98,816
Total City Water Supplies	**202,865**	**210,547**	**217,156**	**223,598**	**228,065**
Estimated Water Shortages	0	0	0	0	0

[1] Includes consumptive use (retail and wholesale), non-revenue water, conservation, and non-potable recycled water demands.
[2] The exact amount of production expected to be available at the end of CY 2025 is only estimated at this time. The total 33,600 AFY (30 mgd) is expected to be online by the end of CY 2027.
Source: City of San Diego 2020 UWMP.

6.1 Water Sales to Other Agencies

6.1.1 Potable Water

The PUD, through past agreements, sells treated water to the California American Water Company (Cal-Am), which provides water service to the cities of Coronado, Imperial Beach, and the Naval Air Station North Island. The population of the Naval Air Station North Island is located within the City of Coronado, whereas the other military bases that the City serves are within the City.

Per the agreement between the City and Cal-Am, only local surface water is sold to Cal-Am to provide water to supply Cal-Am customers. A portion of City residents in the South Bay area are also served by Cal-Am and can be served by imported water as well. Per the agreement between the City and the City of Del Mar, the City takes deliveries of water which the City of Del Mar purchases from the Water Authority through the Second Aqueduct Connection at Miramar. This water is then treated at the City's Miramar WTP and transported to the City of Del Mar through several interconnections. **Table 6-3** presents the water sales to other agencies.

The City has agreements to provide surplus treated water to Otay Water District and untreated exchange water to the Ramona Municipal Water District. These water deliveries occur infrequently and for short periods of time and are therefore not shown in **Table 6-3**.

Table 6-3 Sales to Other Agencies-Potable

Sector	Water Use (AFY)				
	2025	2030	2035	2040	2045
Wholesale Water Sales	11,518	11,518	11,518	11,518	11,518

Source: City of San Diego 2020 UWMP.

6.1.2 Recycled and Non-Revenue Water

The City has three (3) separate agreements to sell recycled water. The Olivenhain Municipal Water District and the City of Poway are provided recycled water from the City's North City WRP while Otay Water District receives recycled water from the City's South Bay WRP.

Non-Revenue Water (NRW) is the difference between the potable water supplied to the system (also known as potable water production) and the potable water sold to customers (also known as metered water deliveries). NRW typically includes legitimate uses that are not metered, such as street cleaning, line flushing and fire suppression as well as unaccounted for water. Unaccounted for water can be attributed to unauthorized consumption, meter inaccuracies, data errors, leakage on mains, leakage and overflow at storage and leakage at service connections. Typically, NRW is presented as a percentage of total potable water production. Beginning in 2013, the City has estimated non-revenue water utilizing the American Water Works Association's (AWWA) Water Audit software. An estimate of 9 percent is used in the Water Demand Forecast for 2020 and beyond. Using these values, the City's forecast of these additional water uses and losses to 2045 is presented in **Table 6-4**.

Table 6-4: Additional Water Uses and Losses

Use	Water Use (AFY)				
	2025	2030	2035	2040	2045
Non-Revenue Water	17,018	17,710	18,304	18,884	19,286
Recycled Water [1]	13,773	13,773	13,773	13,773	13,773

[1] Excludes wholesale recycled water that the City provides outside of its service area.
Source: City of San Diego 2020 UWMP.

6.2 Total Water Use

The City's total water demand forecast represents retail potable water consumption, wholesale water sales, non-revenue water, and non-potable recycled water. These demand categories, aggregated from the previous tables, are summarized in **Table 6-5**.

Table 6-5 PUD's Projected Total Water Use

Use	Water Demand (AFY)				
	2025	2030	2035	2040	2045
Retail Potable Water Consumption (Table 6-1)	160,556	167,547	173,560	179,423	183,488
Wholesale Potable Water Sales (Table 6-3)	11,518	11,518	11,518	11,518	11,518
Non-Revenue Water (Table 6-4)	17,018	17,710	18,304	18,884	19,286
Total Potable Water Production	**189,092**	**196,774**	**203,383**	**209,825**	**214,292**
Non-Potable Recycled Water (Table 6-4)	13,773	13,773	13,773	13,773	13,773
Total Water Demand Forecast	**202,865**	**210,547**	**217,156**	**223,598**	**228,065**
Source: City of San Diego 2020 UWMP.					

6.3 Projected Single-Dry Year Water Supply and Demand

As part of the requirement for complying with SB 610, **Table 6-6,** and **Table 6-7**, show the single-dry year and consecutive multiple-dry year demands. All tables in this section are based on data from the City's 2020 UWMP.

Table 6-6 provides a comparison of a single-dry year water supply with projected total water demand in five-year increments through 2045. The City's demands in single-dry years are projected to be higher, similar in proportion to the increase in regional water demands projected in the Water Authority's 2020 UWMP. An increase in demand for landscape irrigation accounts for most of the increase in demands. It is assumed that recycled water demands would not increase in single-dry years.

The wholesale water supplies from the Water Authority are assumed to decrease overall during this 20-year projection due to the completion of the City's Pure Water Phase 1 and 2 installation. This will offset the City's increased water demands and increase local water supplies.

Table 6-6 Single-Dry Year Demand vs. Supply for the City

Demands/Supplies	Demand and Supplies (AFY)				
	2025	2030	2035	2040	2045
Water Demand (with wholesale and conservation) [1]	210,169	218,128	224,973	231,648	236,274
Local Water Supplies					
Recycled Water (City service area only, non-potable)	13,773	13,773	13,773	13,773	13,773
Pure Water Phase 1	16,800 [2]	33,600	33,600	33,600	33,600
Pure Water Phase 2			59,360	59,360	59,360
Local Surface Supply	23,858	23,858	23,858	23,858	23,858
City-Lake Cuyamaca Interagency Agreement	400	400	400	400	400
Groundwater	100	100	100	100	100
Sub-total Local Supplies	**54,931**	**71,731**	**131,091**	**131,091**	**131,091**
Water Supply from Water Authority (purchased water)	155,238	146,397	93,882	100,557	105,183
Total City Water Supplies	**210,169**	**218,128**	**224,973**	**231,648**	**236,274**
Estimated Water Shortages	0	0	0	0	0

[1] Includes consumptive use (retail and wholesale), NRW, conservation, and non-potable recycled water demands.
[2] The exact amount of production expected to be available at the end of CY 2025 is only estimated at this time. The total 33,600 AFY (30 mgd) is expected to be online by the end of CY 2027.
Source: City of San Diego 2020 UWMP.

6.4 Projected Multiple-Dry Year Water Supply and Demand

Table 6-7 presents the sequential five-year dry year hydrology comparison of demands and supplies at five-year increments through 2045. The City's demands in multiple-dry years are projected to be higher, similar in proportion to the increase in regional water demands projected in the Water Authority's 2020 UWMP. It is presumed that recycled water demands would not increase in multiple-dry years.

Similar to the single-dry year water supply discussed in Section 6.3, the wholesale water supplies from the Water Authority are assumed to decrease overall during this 20-year projection due to the completion of the City's Pure Water Phase 1 and 2 installation. This will offset the City's increased water demands and increase local water supplies.

Table 6-7 Multiple Dry Year Demand vs Supply for City

Dry Year 1 (2013) Demands/Supplies	Demand and Supplies (AFY)				
	2025	2030	2035	2040	2045
Water Demand (with wholesale and conservation) [1]	202,865	210,547	217,156	223,598	228,065
Local Water Supplies					
Recycled Water (City service area only, non-potable)	13,773	13,773	13,773	13,773	13,773
Pure Water Phase 1	16,800 [2]	33,600	33,600	33,600	33,600
Pure Water Phase 2			59,360	59,360	59,360
Local Surface Supply	20,963	20,963	20,963	20,963	20,963
City-Lake Cuyamaca Interagency Agreement	400	400	400	400	400
Groundwater	100	100	100	100	100
Sub-Total Local Supplies	52,036	68,836	128,196	128,196	128,196
Water Supply from Water Authority (purchased water)	150,830	141,712	88,959	95,402	99,868
Total City Water Supplies	**202,865**	**210,547**	**217,156**	**223,598**	**228,065**
Estimated Water Shortages	0	0	0	0	0
Dry Year 2 (2014) Demands/Supplies	**Demand and Supplies (AFY)**				
	2025	**2030**	**2035**	**2040**	**2045**
Water Demand (with wholesale and conservation) [1]	210,169	218,128	224,973	231,648	236,274
Local Water Supplies					
Recycled Water (City service area only, non-potable)	13,773	13,773	13,773	13,773	13,773
Pure Water Phase 1	16,800 [2]	33,600	33,600	33,600	33,600
Pure Water Phase 2			59,360	59,360	59,360
Local Surface Supply	23,858	23,858	23,858	23,858	23,858
City-Lake Cuyamaca Interagency Agreement	400	400	400	400	400
Groundwater	100	100	100	100	100
Sub-Total Local Supplies	54,931	71,731	131,091	131,091	131,091
Water Supply from Water Authority (purchased water)	155,238	146,397	93,881	100,556	105,183
Total City Water Supplies	**210,169**	**218,128**	**224,973**	**231,648**	**236,274**
Estimated Water Shortages	0	0	0	0	0

Table 6-7 Multiple Dry Year Demand vs Supply for City

Dry Year 3 (2015) Demands/Supplies	Demand and Supplies (AFY)				
	2025	2030	2035	2040	2045
Water Demand (with wholesale and conservation) [1]	210,169	218,128	224,973	231,648	236,274
Local Water Supplies					
Recycled Water (City service area only, non-potable)	13,773	13,773	13,773	13,773	13,773
Pure Water Phase 1	16,800 [2]	33,600	33,600	33,600	33,600
Pure Water Phase 2			59,360	59,360	59,360
Local Surface Supply	6,280	6,280	6,280	6,280	6,280
City-Lake Cuyamaca Interagency Agreement	400	400	400	400	400
Groundwater	100	100	100	100	100
Sub-Total Local Supplies	37,353	54,153	113,513	113,513	113,513
Water Supply from Water Authority (purchased water)	172,817	163,975	111,460	118,135	122,762
Total City Water Supplies	**210,169**	**218,128**	**224,973**	**231,648**	**236,274**
Estimated Water Shortages	0	0	0	0	0
Dry Year 4 (2016) Demands/Supplies	**Demand and Supplies (AFY)**				
	2025	**2030**	**2035**	**2040**	**2045**
Water Demand (with wholesale and conservation) [1]	207,735	215,601	222,367	228,964	233,538
Local Water Supplies					
Recycled Water (City service area only, non-potable)	13,773	13,773	13,773	13,773	13,773
Pure Water Phase 1	16,800 [2]	33,600	33,600	33,600	33,600
Pure Water Phase 2			59,360	59,360	59,360
Local Surface Supply	16,464	16,464	16,464	16,464	16,464
City-Lake Cuyamaca Interagency Agreement	400	400	400	400	400
Groundwater	100	100	100	100	100
Sub-Total Local Supplies	47,537	64,337	123,697	123,697	123,697
Water Supply from Water Authority (purchased water)	160,198	151,264	98,670	105,267	109,840
Total City Water Supplies	**207,735**	**215,601**	**222,367**	**228,964**	**233,538**
Estimated Water Shortages	0	0	0	0	0

Table 6-7 Multiple Dry Year Demand vs Supply for City

Dry Year 5 (2017) Demands/Supplies	Demand and Supplies (AFY)				
	2025	2030	2035	2040	2045
Water Demand (with wholesale and conservation) [1]	207,735	215,601	222,367	228,964	233,538
Local Water Supplies					
Recycled Water (City service area only, non-potable)	13,773	13,773	13,773	13,773	13,773
Pure Water Phase 1	16,800 [2]	33,600	33,600	33,600	33,600
Pure Water Phase 2			59,360	59,360	59,360
Local Surface Supply	18,547	18,547	18,547	18,547	18,547
City-Lake Cuyamaca Interagency Agreement	400	400	400	400	400
Groundwater	100	100	100	100	100
Sub-Total Local Supplies	49,620	66,420	125,780	125,780	125,780
Water Supply from Water Authority (purchased water)	158,114	149,181	96,586	103,184	107,757
Total City Water Supplies	**207,735**	**215,601**	**222,367**	**228,964**	**233,538**
Estimated Water Shortages	0	0	0	0	0

[1] Includes consumptive use (retail and wholesale), NRW, conservation, and non-potable water demands.
[2] The exact amount of production expected to be available at the end of CY 2025 is only estimated at this time. The total 33,600 AFY is expected to be online by the end of CY 2027.
Source: City of San Diego 2020 UWMP

Section 7. CONCLUSION

The University CPU is consistent with water demand assumptions in the regional water resource planning documents of the City, the Water Authority, and the MWD. The MWD's 2020 UWMP and the Water Authority's 2020 UWMP include projects that meet long-term supply needs through securing water from the State Water Project, Colorado River, local water supply development, conservation, and water reuse.

In summary, this WSA demonstrates that there are sufficient water supplies over a 20-year planning horizon to meet the projected demands of the CPU, as well as the existing and other planned development projects within the PUD service area in normal, dry and multiple-dry year forecasts.

Section 8. REFERENCES

California Department of Water Resources, Guidebook for Implementation of Senate Bill 1610 and Senate Bill 221 of 2001 to assist water suppliers, cities, and counties in integrating water and land use planning (2003). California Agencies. Paper 95.

City of San Diego, 2020 Recycled Water Master Plan Update, June 2020.

City of San Diego Planning Department Memorandum - "Request for the Preparation of a Water Supply Assessment for the University Community Plan Update (IO # 21004253)", July 14, 2023.

City of San Diego Public Utilities Department, 2020 Urban Water Management Plan, June 2021.

City of San Diego Public Utilities Department, 2020 Water Demand Forecast Report, January 2021.

City of San Diego Public Utilities Department, 2015 Urban Water Management Plan, June 2016.

City of San Diego Pure Water San Diego, 2021 Annual Report: A Year in Review, 2022.

Metropolitan Water District of Southern California, 2020 Regional Urban Water Management Plan, June 2021.

San Diego County Water Authority, 2020 Urban Water Management Plan, May 2021.