



**WATER SUPPLY ASSESSMENT
for the
Alvarado Specific Plan Project
RMB20071**

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**Prepared for
Helix Water District**

August 2020

Helix Water District Water Supply Assessment August 2020

Alvarado Specific Plan Project, RMB20071

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List of Definitions

AAC – All-American Canal
AB – Assembly Bill
AFG – Accelerated Forecasted Growth
AFY – Acre-Feet Per Year
BiOps – Biological Opinions
CC – Coachella Canal
CEQA – California Environmental Quality Act
CESA – California Endangered Species Act
CII – Commercial, Industrial, and Institutional
CIP – Capital Improvement Program
CVP – Central Valley Project
CVWP – Coachella Valley Water District
DMP – Drought Management Plan
DU – Dwelling Units
DWR – Division of Water Rights
ECRTWIP – East County Regional Treated Water Improvement Program
EIS – Environmental Impact Statement
ESA – Endangered Species Act
ESP – Emergency Storage Project
ET – Evapotranspiration
ETo – Evapotranspiration
ETWU – Estimated Total Water Use
FY – Fiscal Year
GPD – Gallons Per Day
GW – Groundwater
HA – Hydrozone Area
IE – Irrigation Efficiency
IID – Imperial Irrigation District
IRP – Integrated Water Resource Plan
MGD – Million Gallons Per Day
MOA – Memorandum of Agreement
MWD – Metropolitan Water District of Southern California
NEPA – National Environmental Policy Act
NMFS – National Marine Fisheries Service
PF – Plant Factor
QSA – Quantification Settlement Agreement
SANDAG – San Diego Association of Governments
SB – Senate Bill
SCADA – Supervisory Control and Data Acquisition
SF – Square Feet
SGMA – Sustainable Groundwater Management Act

SLA – Special landscape areas

SWP – State Water Project

SWRCB – State Water Resource Control Board

USFWS – U.S. Fish and Wildlife Service

UWMP – Urban Water Management Plan

WSA – Water Supply Assessment

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Executive Summary

Fusco Engineering Inc. prepared this Water Supply Assessment (WSA) on behalf of Helix Water District for the Alvarado Specific Plan Project (Project). This WSA is prepared pursuant to the requirements of Senate Bill 610 (SB 610; Costa; Chap. 643, Stats. 2001),¹ which, along with a companion measure Senate Bill 221 (SB 221), seeks to improve the link between information on water supply availability and certain land use decisions made by a city or county.²

Once a city or county determines that a project, as defined by California Water Code section 10912, is subject to the California Environmental Quality Act (CEQA), and that the project meets qualifying criteria, SB 610 requires the city or county to identify a public water system that may supply water for the project, and request that the water supplier prepare a water supply assessment to be included in an environmental document prepared for the project. (Water Code, §§ 10910(b), 10910(c)(l).) A “public water system” is defined to mean “a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections.” (Water Code, § 10912(c).)

The City of La Mesa (City) is the lead agency for the Project, which is subject to CEQA, and has determined that this is a project under the WSA statute, has identified Helix Water District (District or Helix) as the public water system to serve the Project, and has requested that Helix prepare this WSA. The District serves piped water to the public within its current service area.

¹ SB 610 amended Public Resources Code, § 21151.9, amended Water Code, §§ 10631, 10656, 10910, 19811, 19812, and 19815, repealed Water Code, § 10913, and added and amended Water Code, § 10657.

² California Department of Water Resources, Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001 (October 8, 2003), p. iii.

As of 2019, the District's service area included approximately 56,300 water service connections in the cities of La Mesa, Lemon Grove, and El Cajon, as well as various unincorporated communities throughout San Diego County. Helix is the public water system for purposes of this WSA and will provide water service to the Project.

A WSA is required for any project that is subject to CEQA (Pub. Resources Code, § 21080) and that proposes, among other things, a residential development of more than 500 dwelling units, a shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space, a commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space, or an industrial plant or park. (Water Code, § 10912(a)(1).) The Project requires a WSA under this definition.

Alvarado Specific Plan Project Overview and Water Use

The Project proposes a master development plan for a phased transit-oriented development and associated public improvements on 12 acres within the City planning area located in San Diego County. The Alvarado Specific Plan Amendment Project description is provided in Section 3 of this WSA. The Project is located along Alvarado Road, generally between 70th Street on the west and Guava Avenue on the east within the City.

The City will consider land use entitlement actions associated with the proposed Alvarado Specific Plan and its corresponding Environmental Impact Report.

The Project's total water demand at build-out is estimated at 179,949 gallons per day or 201.5 acre-feet per year (AFY). This represents an increase of approximately 147 AFY as compared to existing water demands at the current Project location. See Table ES-1 below for a summary of the projected increase in water demand for the Project.

Table ES-1
Alvarado Specific Plan Project Projected Increase in Potable
Water Annual Average Demands

Land Use Type	Project DU or Acreage	Potable Water Factor	Daily Water Usage (gpd)	Average Demand (AFY)
Residential-Multi-family	950 DU	180 gpd/DU ¹	171,000	191.5
Landscape Areas	122,000 sf	ETWU Method ²	8,949	10.0
Total Proposed Demands			179,949	201.5
Total Existing Demands			48,537	54.4
Increase in Demands (Proposed – Existing)			+131,412	+147.1

Notes:

¹City of La Mesa Sewer System Master Plan – Multi-family Residential Generation Rate (Updated August 2019).

²ETWU method assumes annual reference evapotranspiration of 51.1 inches (Santee), plant factor of 0.6 and low irrigation efficiency of 0.71. These factors, along with the square footage of irrigated area are implemented into the following equation: $ETWU = (ET)(0.62) * (PFHA/IE + SLA)$.

For purposes of estimating future water demand, Helix used land use data from the SANDAG Series 13 Regional Growth Forecast, which projects land use, population, and economic growth through the year 2050. This forecast is based in part on the individual planning documents (e.g., general plans) produced by the various municipal and regional agencies in San Diego County, and is widely accepted as the planning document for the region.

Another important planning document is the Urban Water Management Plan (UWMP). The California Urban Water Management Planning Act, codified in the California Water Code Sections 10610-10656 and 10608, requires all urban water suppliers to prepare an UWMP and update it every five years. The purpose and importance of the UWMP have evolved over the past 25 years. State agencies and the public frequently use the document to determine if agencies are planning adequately to reliably meet future water demand. As such, UWMPs serve as an important water supply availability planning document when land use agencies review large land use development applications. Agencies must also have an UWMP prepared, pursuant to the UWMP Act, in order to be eligible for state funding and drought assistance.

Helix Water District's 2015 UWMP incorporated the City's general plan to estimate future demand projections. For the Alvarado Specific Plan area, the general plan land use designation is Regional Serving Commercial. The Regional Serving Commercial land use designation allows for retail shopping centers, large office complexes and other uses providing services to the traveling public such as restaurants, service stations, hotels, and motels. In addition, mixed-use or high density

residential developments would be permitted. Therefore, water demands similar to what is proposed for the Alvarado Specific Plan were incorporated into the District's 2015 UWMP.

Additionally, projected water supplies for the 147 AFY increase in demand for this Project are accounted for through the accelerated forecasted growth (AFG) demand increment of the San Diego County Water Authority's (Water Authority) 2015 UWMP. The AFG is an estimate of water demand separate from projections based on the then-identified projects, and used to accommodate uncertainties on a regional basis associated with future land use approvals. As documented in the Water Authority's 2015 UWMP, the Water Authority is planning to meet future and existing demand, including water demand estimated under the AFG. The Water Authority has confirmed that a portion of the AFG demand increment in its 2015 UWMP will be made available to serve the Project. (See attached correspondence from Water Authority, Appendix C.) In addition, the Water Authority's 2020 UWMP will include a water demand forecast based on the SANDAG updated forecast, which will include the Project. Therefore, based on the Helix Water District's 2015 UWMP and the Water Authority's 2015 UWMP and AFG confirmation, the District's total projected water supplies available during normal, single dry, and multiple dry years during a 20-year projection are sufficient to meet the project water demand associated with the Project, in addition to the District's existing and planned future uses, including agricultural and manufacturing uses.

Planned Imported Water Supplies from the San Diego County Water Authority and Metropolitan Water District of Southern California (MWD)

The Water Authority and MWD have an established planning process that ensures supplies are adequate to meet future growth. Any annexations and revisions to land use plans are captured in the SANDAG updated forecasts for land use planning, demographics and economic forecasting purposes. SANDAG serves as the regional, intergovernmental planning agency that develops and provides such forecasts. The Water Authority and MWD update their demand and supply forecasts based on the most recent SANDAG forecast approximately every five years to coincide with preparation of their UWMPs. Prior to the next update, local agencies with land use authority may require water supply assessment and/or verification reports for any proposed land developments not within the Helix, San Diego County Water Authority, or MWD jurisdictions (i.e., pending or proposed annexations) or revised land use plans with either lower or higher development intensities than reflected in the existing growth forecasts. Pending or proposed annexations, or revised land use plans, typically result in higher water demand and supply requirements than previously anticipated. The District, Water Authority, and MWD planning documents would then incorporate the changes in demand and needed supply as a result of such annexations or revised land use planning decisions.

As noted above, UWMPs represent valuable tools for long term water supply and demand planning. MWD's 2015 UWMP states that MWD has supply capabilities that would be

sufficient to meet expected demands from 2020 through 2040. MWD has plans for supply implementation and continued development of a diversified resource mix including programs in the Colorado River Aqueduct, State Water Project, Central Valley Transfers, local resource projects and in-region storage that enables the region to meet its water supply goals. MWD's 2015 UWMP identifies potential reserve supplies in the supply capability analysis (Tables 2-4, 2-5, and 2-6), which could be available to meet the unanticipated demands such as those related to the Project.

The County Water Authority Act, Section 5 subdivision 11, 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."

Water supply agencies throughout California continue to face climate, environmental, legal, and other challenges that impact water source supply conditions, such as the court rulings regarding the Sacramento-San Joaquin Delta issues and the current ongoing drought impacting the western states. Even with these ever-present challenges, the Water Authority and MWD, along with Helix, fully intend to have sufficient, reliable water supplies to meet existing and future demands.

Conclusion

The WSA identifies water supply necessary to meet the demand associated with the proposed Project. These supply and demand projections are anticipated to be included in the updated 2020 water supply planning documents of the District, Water Authority, and MWD.

This WSA includes, among other information, an identification of existing water supply, including water right entitlements, water service contracts, water supply projects, and water supply agreements that would help meet the needs for the proposed Project. The WSA demonstrates and documents that sufficient water supplies are planned for and are intended to be available over a 20-year planning horizon, under normal conditions and in single and multiple dry years to meet the projected demand of the proposed Project, in addition to the District's existing and planned future uses, including agricultural and manufacturing uses.

Section 1 - Purpose

The purpose of the WSA is to comply with the requirements of SB 610, Water Code sections 10910-10915, with respect to the water demand of a proposed project and to answer the following basic question:

Will the public water system's total projected water supplies available during normal, single-dry, and multiple-dry water years during a 20-year projection meet the projected water demand of the proposed Project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses (Water Code, § 10910(c)(3))?

Based on the analysis provided in this WSA, the District finds that the total water supplies projected to be available to the District during average/normal, single-dry, and multiple-dry years over a 20-year projection are sufficient to meet the projected demand associated with the Project, in addition to existing and planned future uses, including agricultural and manufacturing uses, within the District service area in which the Project is situated.

This WSA for the Project has been prepared by Fuscoe Engineering Inc. in consultation with Helix, the Water Authority, and the City pursuant to Public Resources Code Section 21151.9 and California Water Code Sections 10631, 10656, 10910, 10911, 10912, and 10915 referred to as Senate Bill 610 and Business and Professions Code Section 11010.

This WSA evaluates water supplies that are planned to be available during normal, single dry year, and multiple dry water years during a 20-year planning horizon to meet existing demands, expected demands of the Project, and reasonably foreseeable planned future water demands to be served by Helix. Once approved by the Helix Board of Directors, the WSA will be used by the City in its evaluation of the Project under CEQA approval requirements.

Section 2 - Project Water Demand Determination

RV Communities submitted an entitlement application to the City of La Mesa for the development of the 12-acre parcel encompassing the Project. The District prepared this WSA at the request of the City for the Project.

The Project is located within the jurisdictions of Helix, Water Authority and MWD. To obtain permanent imported water supply service, land areas are required to be within the jurisdictions of Helix, the Water Authority and MWD to utilize imported water supply.

The expected potable water demand for the Project is 179,949 gallons per day or about 201.5 AFY. This is approximately 147 AFY higher than the existing water demands at the Project site.

The District's 2015 UWMP utilized the City general plan to estimate future demand projections. For the Alvarado Specific Plan area, the general plan land use designation is Regional Serving Commercial. The Regional Serving Commercial land use designation allows for retail shopping centers, large office complexes and uses providing services to the traveling public such as restaurants, service stations, hotels, and motels. In addition, mixed-use or high

density residential developments would also be permitted. Therefore, it is anticipated that similar water demands to what is proposed with the Alvarado Specific Plan were incorporated into the District's 2015 UWMP.

The 147 AFY increase in demand is accounted for through the accelerated forecasted growth (AFG) demand increment of the Water Authority's 2015 UWMP. The accelerated forecasted growth is an estimate of water demand above current projections, and used to accommodate uncertainties associated with future land use approvals on a regional basis. As documented in the Water Authority's 2015 UWMP, the Water Authority is planning to meet future and existing demands, which include the water demand associated with the accelerated forecasted growth. The Water Authority will assist its member agencies in tracking the environmental documents provided by the agencies that include water supply assessments and verifications reports that utilize the accelerated forecasted growth demand increment to demonstrate supplies for the development. In addition, the next update of the demand forecast for the Water Authority's 2020 UWMP will be based on the SANDAG most recently updated forecast, which will include the Project. The Water Authority has confirmed that a portion of the AFG component of its 2015 UWMP is available to serve the Project. (See attached letter dated March 10, 2020 from Water Authority, Appendix C). Therefore, based on the District's 2015 UWMP and the Water Authority's 2015 UWMP, The District can meet the demands associated with the Project.

The Water Authority's 2015 UWMP and its upcoming Draft 2020 UWMP Update provide for a comprehensive planning analysis at a regional level and includes water use associated with accelerated forecasted growth in development as part of its municipal and industrial sector demand projections. These housing and commercial units were identified by the SANDAG in the course of its regional housing needs assessment, but are not yet included in existing general land use plans of local jurisdictions. The demand associated with accelerated forecasted growth in residential development is intended to account for SANDAG's land use development currently projected to occur between 2035 and 2050, but has the likely potential to occur on an accelerated schedule. SANDAG estimates that this accelerated forecasted growth in residential and commercial development could occur within the planning horizon (2015 to 2035) of the Water Authority's 2015 UWMP. This land use is not included in local jurisdictions' general plans, so their projected demands are incorporated at a regional level. When necessary, this additional demand increment, termed accelerated forecasted growth, can be used by member agencies to meet the demands of development projects not identified in the general land use plans.

The Water Authority and MWD have an established process that ensures supplies are being planned to meet future growth. Any annexations and revisions to established land use plans are captured in the SANDAG updated forecasts for land use planning, demographics and economic projections. SANDAG serves as the regional, intergovernmental planning agency

that develops and provides forecast information. The Water Authority and MWD update their demand forecasts and supply needs based on the most recent SANDAG forecast approximately every five years to coincide with preparation of their urban water management plans. Prior to the next forecast update, local jurisdictions may require water supply assessment reports for proposed land developments that are not within the Helix, Water Authority or MWD jurisdictions (i.e., pending or proposed annexations) or that have revised land use plans with lower or higher land use intensities than reflected in the existing growth forecasts. Proposed land areas with pending or proposed annexations, or revised land use plans, typically result in creating higher demand and supply requirements than anticipated. The Helix, Water Authority, and MWD next demand forecast and supply requirements and associated planning documents would then capture any increase or decrease in demands and required supplies as a result of annexations or revised land use planning decisions.

The Water Authority and MWD document the water supplies necessary to serve the demands of the Project, along with existing and other projected future users, as well as the actions necessary to develop any required water supplies utilize this process. Through this process the necessary demand and supply information is thus assured to be identified and incorporated within the water supply planning documents of the Water Authority and MWD.

This WSA includes, among other information, an identification of existing water supply entitlements, water rights, water service contracts, proposed water supply projects, and agreements relevant to the identified water supply needs for the proposed Alvarado Specific Plan Project. This WSA incorporates by reference the current UWMPs and other water resources planning documents of Helix, the Water Authority and MWD. Helix prepared this WSA to assess and document that sufficient water supplies are planned for and are intended to be acquired to meet projected water demands of the Alvarado Specific Plan Project within the District for a 20-year planning horizon, in normal supply years and in single dry and multiple dry years.

The Helix 2015 UWMP includes a water conservation component to comply with Senate Bill 7 of the Seventh Extraordinary Session (SBX 7-7), which became effective February 3, 2010. This law was the water conservation component to the Delta legislation package, and seeks to achieve a 20 percent statewide reduction in baseline urban per capita water use in California by December 31, 2020. Specifically, SBX 7-7 requires each urban retail water supplier to develop urban water use targets to help meet the 20 percent per capita reduction goal by 2020 (20x2020), and an interim water reduction target by 2015.

Helix adopted Method 1 to set its 2015 and 2020 water use targets. Method 1 requires setting the 2020 water use target to 80 percent of baseline per capita water use target as provided in the state's 20x2020 Water Conservation Plan.

Assembly Bill 1668 (AB 1668) and Senate Bill 606 (SB 606) were signed into law on May 31, 2018, took effect on January 1, 2019, and together set permanent overall conservation targets for water consumption, with particular focus on indoor uses of water. AB 1668 requires the establishment of specific long-term standards for per-capita daily indoor residential water use, annual irrigation and water loss objectives, plus performance measures for commercial, industrial, and institutional water use. The bill requires DWR and State Water Board to study urban indoor water-use standards and make recommendations for those standards to the Legislature by January 1, 2021. Final standards for urban indoor water-use will be adopted by the Legislature for incorporation into section 10609.4 of the Water Code. AB 1668 contains provisional standards for indoor residential water use rates as follows:

- Until January 1, 2025: 55 gallons per capita per day;
- Beginning January 1, 2025: The greater of 52.5 gallons per capita per day or a standard recommended by DWR and the State Water Board;
- Beginning January 1, 2030: The greater of 50 gallons per capita per day or a standard recommended by DWR and the State Water Board.

AB 1668 defines performance measures for commercial, industrial, and institutional (CII) water use as consisting of actions taken by urban retail water suppliers that result in increased water use efficiency for water uses other than process water (which is defined in section 10608.12(p) of the Water Code). The bill amends section 10608.12(n) of the Water Code to state that performance measures may include educating CII water users on best management practices, conducting water use audits, and preparing water management plans. AB 1668 requires the State Water Board to adopt long-term performance measures for CII water uses by June 30, 2022.

While AB 1668 identifies specific standards for indoor water uses of urban water, it also revises Water Code section 10608.20(b)(2)(B) to require that landscapes irrigated through dedicated or residential meters or connections meet the state's standards for irrigated landscape design.

SB 606 requires an urban retail water supplier to calculate an urban water use objective no later than November 1, 2023 and by November 1 of each year thereafter. SB 606 also revises certain provisions in the Urban Water Management Planning Act, including requiring that urban water suppliers include in their UWMP a drought risk assessment that examines water shortage risks for a 5-year-long drought. In a case where an urban water supplier has not submitted its UWMP to DWR, SB 606 deems the supplier to be ineligible for any water grant or loan, whereas prior law had limited this ineligibility to just certain types of water grants and loans. SB 606 also requires urban water suppliers to prepare, adopt, and periodically review a water shortage contingency plan, conduct an annual supply and demand assessment, and submit an annual water shortage assessment report to DWR.

In August 2018, DWR issued a public-review draft version of a detailed 2018 Primer discussing these two bills (AB 1668 and SB 606) and their implementation (DWR 2018). The 2018 Primer is a reference document for implementing the complex 2018 water conservation and drought planning legislation, and it is designed to improve water conservation and drought planning to help prepare California for longer, more intense droughts intensified by climate change. It also outlines the key authorities, requirements, timeline, roles, and responsibilities of State agencies, water suppliers, and others during implementation of action described in the 2018 legislation.

For further information on the 2018 legislation and the Primer, please see DWR, “Making Conservation a Way of Life,” <https://water.ca.gov/Programs/Water-Use-And-Efficiency/Making-Conservation-a-California-Way-of-Life>. As noted on page 7 of the 2018 Primer, the State Water Board’s actions for adopting and implementing water use efficiency standards have been deemed by the Legislature to be Class 8 actions for protecting the environment and hence are exempt from the requirements of CEQA. The Primer goes on to note that the new authorities and requirements for urban water use objectives (1) are enforceable after 2022, (2) do not modify the current statewide goal of a 20 percent reduction in urban per-capita water use by 2020, and (3) should result in urban water conservation that exceeds the 2020 targets.

Based on a normal water supply year, the five-year increments for a 20-year projection indicate projected potable supply is being planned for and is intended to be acquired to meet the estimated water demand targets of Helix (31,274 acre-feet (AF) in 2020 to 33,316 AF in 2040) per the Helix 2015 UWMP. Based on dry year forecasts, the estimated water supply is also being planned for and is intended to be acquired to meet the projected water demand, during single dry and multiple dry year scenarios. On average, the dry year demands are about 6.4 percent higher than the normal year demands.

Together, this WSA and its supporting documents assess, demonstrate and document that the District’s total projected water supplies available during normal, single dry, and multiple dry water years during the 20-year projections will meet the projected water demand associated with the Project, in addition to the District’s existing and planned future uses, including agricultural and manufacturing uses.

Section 3 - Project Description

The Alvarado Specific Plan Project is located along Alvarado Road generally between 70th Street on the west and Guava Avenue on the east within the City of La Mesa. Refer to Appendix A for a vicinity map of the proposed Project. The Project is proposed to be located on approximately 12 acres within the Alvarado Specific Plan of the City of La Mesa General

Plan. Although the proposed development is located within the municipal boundaries of the City of La Mesa and subject to the City's land use jurisdiction, the District will be the water supplier for the project.

The Project proposes to include four parcels, with four primary development sites that include multi-family residential units as well as proposed student housing. Under existing conditions, the Project site is an RV Park with approximately 180 sites featuring full hookups, with a community pool and clubhouse/office building. The existing land use is proposed to change for this project. The Project proposes up to 950 multi-family dwelling units as the primary land use and 122,000 square feet of landscaping. For the purpose of this report, the maximum buildout of 950 multi-family dwelling units will be used to quantify proposed demands. Under this scenario, Parcel 1 will feature 60 multi-family dwelling units, Parcel 2 will feature 280 multi-family dwelling units, and Parcels 3 and 4 will each feature 305 multi-family dwelling units. Refer to Appendix B for the proposed development plan of the Project.

The City has discretionary authority on land use decisions for the Project and can establish actions and/or permit approval requirements. The projected potable water demands associated with the Project have considered the anticipated City discretionary actions and/or permit approvals and are incorporated into and used in this Water Supply Assessment. The water demands for the proposed Project are included in the projected water demand estimates provided in Section 5 – Historical and Projected Water Demands.

Section 4 - Helix Water District

In accordance with Water Code Section 10912(c), Helix is the public water system identified to supply water to Alvarado Specific Plan Project.

Helix's history dates back to 1885 when the San Diego Flume Company built Cuyamaca Dam, a diverting dam on the upper reaches of Boulder Creek (a tributary of the San Diego River), and 34 miles of wooden flume to deliver water to the people of San Diego. Subsequently, the San Diego Flume Company was sold to the Cuyamaca Water Company. In 1913 the La Mesa, Lemon Grove and Spring Valley Irrigation District was organized. In 1926, the District purchased the Cuyamaca Water Company and became an operating public water agency. The eventual growth of the District's current boundaries was a result of various annexations of surrounding areas that are now a part of the district. Subsequent district name changes included the renaming to Helix Irrigation District in 1956 through board action, and the renaming to the current Helix Water District in 1973 through an act of the California Legislature, which also allowed for the district's continued operation under Irrigation District Law. Helix is a member agency of the Water Authority. The Water Authority is the wholesale

water provider to 24 water agencies in San Diego County. The Water Authority is a member agency to MWD.

Helix currently meets the majority of its potable demands by purchasing imported raw water from the Water Authority and treating it through their R.M. Water Treatment Plant. Helix also utilizes local supplies as available to meet demands. These local supplies have averaged approximately 17% of demands since water importation began. The Water Authority is the agency responsible for the supply of imported water into San Diego County through its membership in MWD. The Water Authority currently obtains about half of its imported supply from MWD, but is in the process of further diversifying its available supplies with reliable local sources.

Helix provides water service to residential, commercial, industrial, and agricultural customers, and for environmental and fire protection uses. Helix also owns and operates the R.M. Levy Water Treatment Plant, which has an effective capacity of 106 million gallons per day to produce potable water.

The District's jurisdictional area is generally located within the inland region of the eastern San Diego County and includes approximately 50 square miles. Helix serves portions of the unincorporated communities of the County of San Diego, City of La Mesa, City of El Cajon, and City of Lemon Grove. Helix's jurisdiction boundaries are roughly bounded on the northeast and northwest by the Padre Dam Municipal Water District, on the southwest by the Otay Water District, and on the west by the City of San Diego.

The City of La Mesa, City of El Cajon, City of Lemon Grove, and County of San Diego are the four land use planning agencies within the Helix jurisdiction. Data on forecasts for land use planning, demographics, economic projections, population, and the future rate of growth within the district were obtained from the San Diego Association of Governments. SANDAG serves as the regional, intergovernmental planning agency that develops and provides forecast information through the year 2050. In summary, the forecast entails a population gain of approximately 48,000 people over the next 25 years, resulting in an overall growth of 18 percent within that time frame. Land use information used to develop water demand projections are based on City of La Mesa, City of El Cajon, City of Lemon Grove and County of San Diego General Plans. The growth rate has significantly slowed due to the current economic conditions and it is expected to slow as the inventory of developable land is diminished.

Climatic conditions within the Helix service area are warm and arid as is characteristic for inland areas of the County, although temperature fluctuations can vary within the district because of the diverse topographic ranging in elevation between 280 to 1270 feet (mean sea level). Average temperature within the district ranges from an average annual minimum of

52.4 degrees Fahrenheit to an average annual maximum of 77.9 degrees Fahrenheit, and average annual precipitation is 12.4 inches, as measured by National Oceanic and Atmospheric Administration's El Cajon, CA Station (Station No. 042706). Roughly, 82 percent of the rainfall occurs between the months of November through March.

Evapotranspiration (ET_o) data was obtained from California Irrigation Management Information System, which maintains measuring stations throughout the state of California. The closest and most representative station maintained by CIMIS is the Miramar No. 150 station, which is approximately 10 miles from Helix. This station recorded an average monthly evapotranspiration of 46.4 inches, based on data that spans between April 1999 to the present.

Urban Water Management Plan

In accordance with the California Urban Water Management Planning Act and recent legislation, the Helix Board of Directors adopted an UWMP in 2016 and subsequently submitted the plan to the California Department of Water Resources. As required by law, the Helix 2015 UWMP includes projected water supplies required to meet future demands through 2040. In accordance with Water Code Section 10910(c)(2) and Government Code Section 66473.7(c)(3), information from the Helix 2015 UWMP has been utilized to prepare this WSA and are incorporated herein by reference.

The state Legislature passed Senate Bill 7 as part of the Seventh Extraordinary Session (SBX 7-7) on November 10, 2009, which became effective February 3, 2010. This new law was the water conservation component to the Delta legislation package and seeks to achieve a 20 percent statewide reduction in urban per capita water use in California by December 31, 2020. Specifically, SBX 7-7 from this Extraordinary Session requires each urban retail water supplier to develop urban water use targets to help meet the 20 percent reduction goal by 2020 (20x2020), and an interim water reduction target by 2015.

The SBX 7-7 target setting process includes the following: (1) baseline daily per capita water use; (2) urban water use target; (3) interim water use target; (4) compliance daily per capita water use, including technical bases and supporting data for those determinations. In order for an agency to meet its 2020 water use target, each agency can increase its use of recycled water to offset potable water use and also step up its water conservation measures. The required water use targets for 2020 and an interim target for 2015 are determined using one of four target methods – each method has numerous methodologies.

In 2015, urban retail water suppliers were required to report interim compliance followed by actual compliance in 2020. Interim compliance is halfway between the baseline water use

and 2020 target. Baseline, target, and compliance-year water use estimates are required to be reported in gallons per capita per day.

Failure to meet adopted targets will result in the ineligibility of a water supplier to receive grants or loans administered by the state unless one of two exceptions is met. Exception one states a water supplier may be eligible if they have submitted a schedule, financing plan, and budget to DWR for approval to achieve the per capita water use reductions. Exception two states a water supplier may be eligible if an entire water service area qualifies as a disadvantaged community.

Helix adopted Method 1 to set its 2015 interim and 2020 water use targets. Method 1 requires setting the 2020 water use target to 80 percent of baseline per capita water use (114 gallons per capita per day) target as provided in the state's 20x2020 Water Conservation Plan.

Helix's recent per capita water use has been declining to the point where current water use already meets the 2020 target for Method 1. This recent decline in per capita water use is largely due to drought water use restrictions, increased water costs and poor economic conditions. However, Helix's effective water use awareness campaign and enhanced conservation mentality of its customers will likely result in some long-term carryover of these reduced consumption rates beyond the current drought period.

Section 5 - Historical and Projected Water Demands

The projected demands for Helix are based on the City of La Mesa, City of El Cajon, City of Lemon Grove, and County of San Diego General Plans and approved Specific Plans. This land use information is also used by San Diego Association of Governments as the basis for its most recent forecast data. This land use information was utilized for the preparation of the Helix 2015 UWMP to develop the forecasted water demand and supply.

In 1994, the Water Authority selected the Institute for Water Resources-Municipal and Industrial Needs computer model to forecast municipal and industrial water use for the San Diego region. The MAIN model uses demographic and economic data to project sector-level water demands (i.e., residential and non-residential demands). This econometric model has over a quarter of a century of practical application and is used by many cities and water agencies throughout the United States. The Water Authority's version of the MAIN model was modified to reflect the San Diego region's unique parameters and is known as CWA-MAIN.

The foundation of the water demand forecast is the underlying demographic and economic projections. This was a primary reason why, in 1992, the Water Authority and SANDAG entered into a Memorandum of Agreement (MOA) in which the Water Authority agreed to

use the SANDAG current regional growth forecast for water supply planning purposes. In addition, the MOA recognizes that water supply reliability must be a component of San Diego County's regional growth management strategy required by Proposition C, as passed by the San Diego County voters in 1988. The MOA ensures a strong linkage between local general plan land use forecasts and water demand projections and resulting supply needs for the San Diego region.

Consistent with the previous Water Authority/Institute for Water Resources-Municipal and Industrial Needs modeling efforts, on October 15, 2013, the SANDAG Board of Directors accepted the Series 12: 2050 Regional Growth Forecast. The 2050 Regional Growth Forecast will be used by SANDAG as the foundation for the next regional comprehensive plan update. Local governments for planning, including the Water Authority 2015 UWMP used SANDAG forecasts.

The municipal and industrial forecast also included an updated accounting of projected conservation savings based on projected regional implementation of the California Urban Water Conservation Council Best Management Practices and SANDAG demographic information for the period 2015 through 2040. These savings estimates were then factored into the baseline municipal and industrial demand forecast.

A separate agricultural model, also used in prior modeling efforts, was used to forecast agricultural water demands within the Water Authority service area. This model estimates agricultural demand to be met by the Water Authority's member agencies based on agricultural acreage projections provided by SANDAG, crop distribution data derived from the Department of Water Resources and the California Avocado Commission, and average crop-type watering requirements based on California Irrigation Management Information System data.

The Water Authority and MWD update their water demand and supply projections within their service areas utilizing SANDAG's most recent growth forecast to project future water demands. This provides for the important strong link between demand and supply projections to the land use plans of the cities and the county. This provides for consistency between the retail and wholesale agencies' water demand projections, thereby ensuring that adequate supplies are and will be planned for Helix's existing and future water users. Existing land use plans, any revisions to land use plans and annexations are captured in the SANDAG updated forecasts. The Water Authority and MWD update their demand forecasts based on the SANDAG most recent forecast approximately every five years to coincide with preparation of their urban water management plans. Prior to the next forecast update, local jurisdictions may require water supply assessment and/or verification reports consistent with Senate Bills 610 and 221 for proposed land use developments that either have pending or proposed annexations into Helix, Water Authority, and MWD or that have revised land use plans than

originally anticipated. The Water Authority and MWD's next forecasts and supply planning documents would then capture any increase or decrease in demands caused by annexations or revised land use plans.

MWD's 2015 UWMP identified potential reserve supplies in the supply capability analysis (Tables 2-4, 2-5 and 2-6), which could be available to meet any unanticipated demands. The Water Authority and MWD's next forecasts and supply planning documents would capture any increase in necessary supply resources resulting from any new water supply resources.

Helix Water District Projected Demand

Projected water demands for the intervening years were determined using growth rate projections consistent with data obtained from SANDAG and the experience of the District. The current and projected potable water demands for Helix are shown in Table 1.

Table 1
Current and Projected Potable Water Fiscal Year Demands (acre-feet)

Water Use Sectors	2015	2020	2025	2030	2035	2040
Single-Family Residential	15,100	12,927	13,415	13,453	13,615	13,771
Multi-Family Residential	9,564	11,193	11,615	11,648	11,788	11,923
Commercial	3,772	3,037	3,152	3,161	3,199	3,235
Landscape	1,681	2,121	2,201	2,207	2,234	2,260
Public	764	642	667	669	677	684
Agricultural/Irrigation	7	1	1	1	1	1
Unmetered	251	1,353	1,404	1,408	1,425	1,441
Totals	31,139	31,274	32,454	32,546	32,938	33,316

Source: Helix Water District 2015 Urban Water Management Plan.

Notes:

1. Medical water use is included in Commercial category.
2. Public includes public use facilities such as schools, libraries and government/municipal offices.
3. Unmetered use includes fire protection, maintenance/flushing, pipe breaks and system leakage.
4. The projected water demands include estimated water conservation savings from codes, standards and ordinances applicable to the district.

Alvarado Specific Plan Project Existing and Projected Water Demand

Using the land use demand projection noted above, existing estimated potable water demands for the site is shown in Table 2 and the projected potable water demand for the proposed Alvarado Specific Plan Project is shown in Table 3. The projected potable water

demand is 179,949 gallons per day, or about 201.5 AF per year (AFY). The proposed potable demand is approximately 147 AFY more than the estimated existing water demands of 54.4 AFY.

Table 2
Alvarado Specific Plan Project Site Existing Potable
Water Annual Average Demands

Land Use Type	Project DU or Acreage	Potable Water Factor	Daily Water Usage (gpd)	Average Demand (AFY)
RV Park	180 RV Units	180 gpd/DU ¹	32,400	36.3
Landscape Areas	220,000 sf	ETWU Method ²	16,137	18.1
Total			48,537	54.4

Notes:

¹City of La Mesa Sewer System Master Plan – Multi-family Residential Generation Rate (Updated August 2019).

²ETWU method assumes annual reference evapotranspiration of 51.1 inches (Santee), plant factor or 0.6 and low irrigation efficiency of 0.71. These factors, along with the square footage of irrigated area are implemented into the following equation: $ETWU = (ET)(0.62) * (PFHA/IE + SLA)$.

Table 3
Alvarado Specific Plan Project Projected Potable
Water Annual Average Demands

Land Use Type	Project DU or Acreage	Potable Water Factor	Daily Water Usage (gpd)	Average Demand (AFY)
Residential-Multi-family	950 DU	180 gpd/DU ¹	171,000	191.5
Landscape Areas	122,000 sf	ETWU Method ²	8,949	10.0
Total			179,949	201.5

Notes:

¹City of La Mesa Sewer System Master Plan – Multi-family Residential Generation Rate (Updated August 2019).

²ETWU method assumes annual reference evapotranspiration of 51.1 inches (Santee), plant factor or 0.6 and low irrigation efficiency of 0.71. These factors, along with the square footage of irrigated area are implemented into the following equation: $ETWU = (ET)(0.62) * (PFHA/IE + SLA)$.

5.1 Demand Management (Water Conservation)

Demand management, or water conservation is a critical part of the Helix 2015 UWMP and its long-term strategy for meeting water supply needs of the Helix customers. Water

conservation is frequently the lowest cost resource available to any water agency. The goals of the Helix water conservation programs are to:

- Reduce the demand for more expensive, imported water.
- Demonstrate continued commitment to the Best Management Practices.
- Ensure a reliable water supply.

Helix is signatory to the Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California, which created the California Urban Water Conservation Council in 1991 in an effort to reduce California's long-term water demands. Water conservation programs are developed and implemented on the premise that water conservation increases the water supply by reducing the demand on available supply, which is vital to the optimal utilization of a region's water supply resources. Helix participates in many water conservation programs designed and typically operated on a shared cost participation program basis among the San Diego County Water Authority, MWD and their member agencies. The demands shown in Tables 1 and 3 take into account implementation of water conservation measures within Helix.

As one of the signatories to the MOU Regarding Urban Water Conservation in California, Helix has made BMP implementation for water conservation the cornerstone of its conservation programs and a key element in its water resource management strategy. As a member of the Water Authority, Helix also benefits from regional programs performed on behalf of the Water Authority's member agencies. The Best Management Practices programs implemented by Helix and regional BMP programs implemented by the Water Authority that benefit its member agencies are addressed in the Helix 2015 UWMP. In partnership with the Water Authority, the County of San Diego, City of La Mesa, City of El Cajon, City of Lemon Grove, and developers, the Helix water conservation efforts are expected to grow and expand. The resulting savings directly relate to additional available water in the San Diego County region for beneficial use within the Water Authority service area, including Helix.

Additional conservation or water use efficiency measures or programs practiced by Helix include the following:

Supervisory Control and Data Acquisition System

Helix implemented and has operated for many years a supervisory control and data acquisition system to control, monitor and collect data regarding the operation of the water system. The major facilities that have SCADA capabilities are the water flow control supply sources, transmission network, pumping stations and water storage reservoirs. The SCADA system allows for many and varied useful functions. Some of these functions provide for operating personnel to monitor the water supply source flow rates, reservoir levels, turn on or off pumping units, etc. The SCADA system aids in the prevention of water reservoir overflow events and increases energy efficiency.

Water Conservation Ordinance

California Water Code Sections 375 et seq. permit public entities which supply water at retail to adopt and enforce a water conservation program to reduce the quantity of water used by the people therein for the purpose of conserving water supplies of such public entity. Helix's Board of Directors established a comprehensive water conservation program pursuant to California Water Code Sections 375 et seq., based upon the need to conserve water supplies and to avoid or minimize the effects of any future shortage. A water shortage could exist based upon the occurrence of one or more of the following conditions:

1. A general water supply shortage due to increased demand, limited supplies, and/or regulatory restrictions;
2. Distribution or storage facilities of the Water Authority or other agencies become inadequate; or
3. A major failure of the supply, storage, and distribution facilities of the MWD, the Water Authority, and/or Helix.

Article 10, Section 2 of the California Constitution declare that waters of the state be put to beneficial use, that waste, unreasonable use, or unreasonable method of use of water be prevented and that water be conserved for the public welfare.

Helix continues to promote water conservation at a variety of events, including those involving developers in its service area. For decades, Helix has used a combination of water metering, water waste prevention ordinances, public education and outreach, rebates for water conservation devices and free water efficiency surveys for residents and businesses to help manage and reduce water demand within its service area.

Helix is currently engaged in a number of conservation and water use efficiency activities. Listed below are the current programs that are either ongoing or were recently concluded:

- Residential Rebates Programs – Smart leak detectors, turf replacement, rotating sprinkler nozzles, weather-based irrigation controllers, soil moisture sensor systems, rain barrels, rain cisterns, premium high-efficiency toilets and high-efficiency clothes washer.
- Commercial Rebate Programs – Premium high-efficiency toilets, ultra-low and zero water urinals, plumbing flow control valves, turf removal, irrigation controllers, rotating nozzle for pop-up spray heads, large rotary nozzles, in-stem flow regulators, soil moisture sensor systems, cooling tower conductivity controllers, cooling tower pH controllers, connectionless food streamers, air cooled ice machines, dry vacuum pumps and laminar flow restrictors.
- Surveys – Residential, multi-family and large landscape.
- Public Outreach – The district promotes its conservation programs through outreach events, bill inserts, articles in Helix’s bimonthly Helix Highlights newsletter, direct mailings to customers, the Helix website and social media accounts, and through San Diego County Water Authority’s regional marketing efforts.
- School Education Programs – The district funds school tours of its R.M. Levy Water Treatment Plant, funds Ms. Smarty-Plants school assemblies on water conservation and sustainability, funds mini-grants for water-related education projects and programs, co-funds Splash Labs, provides classroom presentations on rivers and dams for third-graders, and runs both a school poster contest and a water themed photo contest.
- Model Water Efficient Landscape Ordinance – Establishes minimum water efficiency standards for all new developments and redevelopments within the district.
- Water Waste Prevention Ordinance – Prohibits water waste within the district.

Helix provides water supply and demand projects, along with demand management measures, in its Urban Water Use Plans, which are submitted to the state every five years.

Section 6 - Existing and Projected Supplies

The key substantive requirement of an SB 610 WSA is the identification and description of the existing water supply sources available to the public water system that will serve the proposed Project. Water Code section 10910(b) requires the WSA to identify any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the Project and describe the quantities of water received in prior years by the public water system. The identification of existing water supply entitlements, water rights, or water service contracts held by the public water system must be demonstrated by providing information related to the following:

1. Written contracts or other proof of entitlement to an identified water supply;

2. Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system;
3. Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply; and
4. Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

As required by SB 610 (Water Code, § 10910(d)), Section 2 of the 2015 UWMP and several other purchase agreements between Helix, City of San Diego, and the East County Water Purification Water Joint Powers Authority summarize the total quantity of water used by each of the water purveyors in the City to meet water demand. In addition, Section 6.4, herein, contains a list of documents with information related to the identification of the existing water supply entitlements, water rights, or water service contracts relevant to meeting the Project's water demand, in addition to the existing and projected water supplies reported in the 2015 UWMP in addition to the supply agreements identified in Section 6.4.

Water used in Helix's service area comes from various sources. These sources are a combination of imported and locally produced water. Imported water is from the Colorado River and the State Water Project (SWP). The Water Authority delivers the imported water; either purchased from, or wheeled by MWD, and is then purchased by Helix, and it constitutes the primary source of water for Helix, which has comprised about 83 percent of Helix's normal supply, on average, since the importation of water began. From year to year, a significant amount of variability in the mix of imported to local water can be observed, as these fluctuations are sensitive to seasonal climate changes. The Water Authority is a public agency member of MWD. The statutory relationships between the Water Authority and its member agencies, and MWD and its member agencies, respectively, establish the scope of the Helix entitlement to water from these two agencies.

The Water Authority currently purchases the majority of its water from MWD. Due to Helix's reliance on these two agencies, this WSA includes referenced documents that contain information on the existing and projected supplies, supply programs, and related projects of the Water Authority and MWD. Helix, Water Authority, and MWD are actively pursuing programs and projects to further diversify their water supply resources.

Helix owns and operates two raw water storage reservoirs known as Lake Jennings and Lake Cuyamaca, which were constructed in 1962 and 1887 respectively. Lake Jennings has an approximate storage capacity of 9,790 AF, and Lake Cuyamaca's capacity (dependent totally on local run off) is 8,195 AF, for a combined capacity of 17,985 AF. Helix also has storage

capacity in El Capitan Reservoir, a City of San Diego reservoir, which Helix has storage rights to 10,000 AF.

Helix's normal local water supply has a historical median runoff value of 3,644 AFY based on the recorded data beginning in 1938. The median runoff value corresponds to the level recorded in 1975. The average runoff recorded over the same period is 6,165 AFY. For the purposes of this report, the median runoff value of 3,644 AFY, representing a 50 percent exceedance probability, represents a normal water year. Evaporation loss of local surface waters based on cumulative monthly percentage of evaporation from total storage is estimated to be 10.6 percent, resulting in a net median runoff value of 3,258 AFY. Historic and projected local water deliveries are shown in Table 4.

Table 4
Historic and Normal Water Year Projected Helix Local Supplies
(acre-feet per year)

Year	Total Local Supply	Local Supply	
		Reservoirs	Well 101
2005	14,556	14,429	127
2010	9,612	9,478	134
2015	227	134	93
2020	3,388	3,258	130
2025	3,388	3,258	130
2030	3,388	3,258	130
2035	3,388	3,258	130
2040	3,388	3,258	130

Helix does not produce or distribute recycled water. The City of San Diego, Padre Dam Municipal Water District, and Otay Water District are the largest water recycling agencies adjacent to Helix. The use of normal recycled water has not been considered in the preparation of this Water Supply Assessment.

6.1 MWD 2015 Urban Water Management Plan

MWD prepared its 2015 UWMP which was adopted on May 9, 2016. The 2015 UWMP provides MWD's member agencies, retail water utilities, cities, and counties within its service area with, among other things, a detailed evaluation of the supplies necessary to meet future demands, and an evaluation of reasonable and practical efficient water uses, recycling and conservation activities. During the preparation of the 2015 UWMP, MWD utilized the previous SANDAG regional growth forecast in calculating regional water demands for the San Diego County Water Authority service area.

6.1.1 Availability of Sufficient Supplies and Plans for Acquiring Additional Supplies

MWD is a wholesale supplier of water to its member public agencies and obtains its supplies from two primary sources: the Colorado River, via the Colorado River Aqueduct, which it owns and operates, and Northern California, via the SWP. The 2015 UWMP documents the availability of these existing supplies and additional supplies necessary to meet future demands.

State and federal resource agencies and various environmental and water user entities are currently engaged in developing a plan to modernize Delta conveyance (formerly known as California WaterFix, EcoRestore, the Bay Delta Conservation Plan), aimed at addressing Delta ecosystem restoration, water supply conveyance, and flood control protection and storage development. As directed by Governor Newsom in 2019 and building on work already conducted, DWR rescinded the twin tunnel WaterFix program and is pursuing a new environmental review and planning process for a single tunnel solution to modernize Delta conveyance. This approach is consistent with the Governor's April 2019 Executive Order N-10-19 directing state agencies to develop a portfolio of statewide water actions and investments. Modernizing Delta conveyance paired with complementary projects that improve water recycling, recharge depleted groundwater reserves, strengthen existing levee protections and improve Delta water quality would help ensure a more resilient water supply. The proposed project is still in its early planning stages and it is likely that if it proceeds there will be considerable opposition and litigation from environmental groups and Delta interests.

MWD's Integrated Resources Plan identifies a mix of resources (imported and local) that, when implemented, will provide 100 percent reliability for full-service demands through the attainment of regional targets set for conservation, local supplies, SWP supplies, Colorado River supplies, groundwater banking and water transfers. The 2015 update to the IRP describes an adaptive management strategy to protect the region from future supply shortages. This adaptive management strategy has five components: achieve additional conservation savings, develop additional local water supplies, maintain Colorado River Aqueduct supplies, stabilize SWP supplies, and maximize the effectiveness of storage and transfer. MWD's 2015 IRP Update has a plan for identifying and implementing additional resources that expand the ability for MWD to meet future changes and challenges as necessary to ensure future reliability of supplies. The proper management of these resources help to ensure that the southern California region, including San Diego County, will have adequate water supplies to meet long-term future demands.

In May 2016, MWD adopted its 2015 Urban Water Management Plan in accordance with state law. The resource targets included in the preceding 2015 IRP Update serve as the foundation

for the planning assumptions used in the 2015 UWMP. MWD's 2015 UWMP contains a water supply reliability assessment that includes a detailed evaluation of the supplies necessary to meet demands over a 20-year period in average, single dry year, and multiple dry year periods. As part of this process, MWD also uses the current San Diego Association of Governments regional growth forecast in calculating regional water demands for the San Diego County Water Authority's service area.

On October 21, 2019, the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) each issued Biological Opinions (BiOps) for the long-term coordinated operation of the federal Central Valley Project (CVP) and the SWP, pursuant to section 7 of the federal Endangered Species Act (ESA). The 2019 BiOps replace a 2008 USFWS BiOp and a 2009 NMFS BiOp. On December 19, 2019, the Bureau of Reclamation (Reclamation) issued its final Environmental Impact Statement (EIS) proposing to adopt the 2019 BiOps, over the objections of environmental groups, the California Attorney General, the California Natural Resources Agency, and other agencies. In February 2020, Reclamation issued its final Record of Decision on the coordinated long-term operation of the CVP and SWP, adopting the 2019 BiOps.

In general, a significant feature of the new 2019 BiOps is the linking of restrictions on CVP and SWP water delivery operations more closely to real-time presence of ESA-listed fish species (e.g., Delta smelt) near CVP and SWP water delivery facilities, instead of relying on general calendar periods when such fish historically have been proximate to CVP and SWP facilities. Such an approach may enhance SWP water supply availability to SWP contractors such as MWD compared to operations under the existing 2008 and 2009 BiOps. while also providing more effective protection for species

On November 21, 2019, DWR issued a Draft Environmental Impact Report for Long-Term Operation of the California SWP that, similar to the federal biological opinions, allows for greater flexibility in managing the SWP based on real-time management. In December 2019, several environmental groups filed a complaint for declaratory and injunctive relief in the United States District Court for the Northern District of California, challenging the 2019 BiOps under the Administrative Procedure Act. Plaintiffs are requesting that the 2019 BiOps be withdrawn and that USFWS and NMFS be enjoined from taking any other actions in reliance on the 2019 BiOps until they comply with CESA.

In February 2020, the California Natural Resources Agency, the California Environmental Protection Agency, and the California Attorney General filed suit in the United States District Court for the Northern District of California, also challenging the 2019 BiOps under the Administrative Procedure Act. The complaint alleges claims for violation of the Federal ESA and NEPA. The complaint requests that the 2019 BiOps, the Final EIS, and the Record of Decision be set aside until such time as Reclamation has complied with the Federal ESA and NEPA.

In addition, the CDFW has not issued a concurrent determination for CESA compliance with regard to the 2019 BiOps and is expected to issue its own CESA take permit imposing different fish protection requirements on SWP operations and potentially on CVP operations.

The litigation and pending CESA take permit create some uncertainty regarding future SWP water availability, but that uncertainty is only speculative at this time. One remedy currently sought by litigants is to fall back to the 2008 and 2009 BiOps that govern SWP-CVP operations. If that outcome were to arise through the CESA permitting process or through the above pending federal court proceedings, the SWP operational rules specified in the 2008 and 2009 BiOps are the same used by the DWR when analyzing the SWP delivery capability in 2017.

As stated in MWD's 2015 UWMP, the plan may be used as a source document for meeting the requirements of Senate Bill 610 and SB 221 until the next scheduled update is completed in five years (2020). The 2015 UWMP includes a Justifications for Supply Projections in Appendix A.3, that provides detailed documentation of the planning, legal, financial and regulatory basis for including each source of supply in the plan.

The UWMP updates for both MWD and the Water Authority will include the increase in demand projections included in SANDAG Series 13 Update.

Water supply agencies throughout California continue to face climate, environmental, legal, and other challenges that impact water source supply conditions, such as the court rulings regarding the Sacramento-San Joaquin Delta and the current western states drought conditions. Challenges such as these essentially always will be present. The regional water supply agencies, the Water Authority and MWD, along with Helix nevertheless fully intend to have sufficient, reliable supplies to serve demands.

6.1.2 MWD Capital Investment Plan

MWD prepares a capital investment plan as part of its annual budget approval process. The cost, purpose, justification, status, progress, etc. of MWD's infrastructure projects to deliver existing and future supplies are documented in the capital investment plan. The financing of these projects is addressed as part of the annual budget approval process.

MWD's Capital Investment Plan includes a series of projects identified from MWD studies of projected water needs, which, when considered along with operational demands on aging facilities and new water quality regulations, identify the capital projects needed to maintain infrastructure reliability and water quality standards, improve efficiency, and provide future cost savings. All projects within the capital investment plan are evaluated against an objective set of criteria to ensure they are aligned with the MWD's goals of supply reliability and quality.

6.2 San Diego County Water Authority Regional Water Supplies

The Water Authority was organized on June 9, 1944 under the County Water Authority Act for the sole purpose of importing Colorado River water into San Diego County. The imported water, now a combination of Colorado River water and State Project water (and other sources such as local groundwater and surface water, potable reuse, seawater desalination and recycled water), is sold wholesale to the 24 member agencies of the Water Authority. The member agencies are autonomous and their city councils or board of directors set local policies and pricing structures.

Imported water delivered by the Water Authority is either purchased from or wheeled by MWD from MWD facilities and other providers (e.g., Imperial Irrigation District), located just south of the San Diego/Riverside county line. MWD is a public agency organized in 1928 by a vote of the electorates of 13 Southern California cities. Since its formation, MWD has grown to include 27 member agencies of which the Water Authority is the largest. MWD was formed for the purpose of developing, storing, and distributing water to the residents of Southern California.

The Water Authority has adopted plans and is taking specific actions to develop adequate water supplies to help meet existing and future water demands within the San Diego region. This section contains details on the supplies being developed by the Water Authority. A summary of recent actions pertaining to development of these supplies includes:

- In accordance with the Urban Water Management Planning Act, the Water Authority adopted their 2015 Urban Water Management Plan in 2016. The updated Water Authority 2015 UWMP identifies a diverse mix of local and imported water supplies to meet future demands.
- As part of the October 2003 Quantification Settlement Agreement, the San Diego County Water Authority was assigned MWD's rights to 77,700 AFY of conserved water from the All-American Canal and Coachella Canal lining projects. Deliveries of this conserved water from the CC reached the region in 2007 and deliveries from the AAC reached the region in 2010. Expected supplies from the canal lining projects are considered verifiable Water Authority supplies.
- Deliveries of conserved agricultural water from the Imperial Irrigation District to San Diego County have increased annually since 2003. The quantities will increase annually to 200,000 AFY by 2021, and then remain fixed for the duration of the transfer agreement.

- Development of seawater desalination in San Diego County assists the region in diversifying its water resources; reduces dependence on imported supplies; and provides a new drought-proof, locally treated water supply. The Carlsbad Desalination Project is a fully operational seawater desalination plant and conveyance pipeline developed by Poseidon, a private investor-owned company that develops water and wastewater infrastructure. The Carlsbad Desalination Project, located at the Encina Power Station in Carlsbad, began commercial operation on December 23, 2015, and was approved to provide a highly reliable local supply of up to 56,000 AFY for the region, with a recent expansion to 67,000 AFY. Of the total Carlsbad Desalination Plant production, 6,000 AF is considered a member agency local supply.

Through implementation of the Water Authority and member agency planned supply projects, along with reliable imported water supplies from MWD, the region anticipates having adequate supplies to meet existing and future water demands.

To ensure sufficient supplies to meet projected growth in the San Diego region, the Water Authority uses the San Diego Association of Government's most recent regional growth forecast in calculating regional water demands. The SANDAG regional growth forecast is based on the plans and policies of the land use agencies with San Diego County. The existing and future demands of the member agencies are included in the Water Authority's projections.

6.2.1 Availability of Sufficient Supplies and Plans for Acquiring Additional Supplies

The Water Authority currently obtains imported supplies from MWD, conserved water from the All-American Canal and Coachella Canal lining projects, an increasing amount of conserved agricultural water from Imperial Irrigation District, and desalinated seawater from the Carlsbad desalination plant. Of the 26 member agencies that purchase water supplies from MWD, the Water Authority is MWD's largest customer.

Section 135 of MWD's Act defines the preferential right to water for each of its member agencies. Currently, the Water Authority pays about 22 percent of MWD's total revenue, but has preferential rights to only 18.27 percent of MWD's water supply. Under preferential rights, MWD could allocate water without regard to historic water purchases or dependence on MWD. The Water Authority and its member agencies are taking measures to reduce dependence on MWD through development of additional supplies and a water supply portfolio that would not be jeopardized by a preferential rights allocation. MWD has stated, consistent with Section 4202 of its Administrative Code that it is prepared to provide the Water Authority's service area with adequate supplies of water to meet expanding and increasing needs in the years ahead. When and as additional water resources are required to

meet increasing needs, MWD stated it will be prepared to deliver such supplies. In Section ES-5 of their 2015 Urban Water Management Plan, MWD states that MWD has supply capacities that would be sufficient to meet expected demands from 2020 through 2040. MWD has plans for supply implementation and continued development of a diversified resource mix including programs in the Colorado River Aqueduct, SWP, Central Valley Transfers, local resource projects, and in-region storage that enables the region to meet its water supply needs.

The Water Authority has made large investments in MWD's facilities and will continue to include imported supplies from MWD in the future resource mix. As discussed in the Water Authority's 2010 UWMP, the Water Authority and its member agencies are planning to diversify the San Diego region's supply portfolio and reduce purchases from MWD.

As part of the Water Authority's diversification efforts, the Water Authority is now taking delivery of conserved agricultural water from IID, water saved from the AAC and CC lining projects and desalinated seawater from the Carlsbad desalination plant. Table 5 summarizes the Water Authority's supply sources with detailed information included in the sections to follow. Deliveries from MWD are also included in Table 5, which is further discussed in Section 6.1 above. The Water Authority's member agencies provided the verifiable local supply targets for groundwater, recycled water, potable reuse and surface water, which are discussed in more detail in Section 5 of the Water Authority's 2015 UWMP.

Table 5
Projected Verifiable Water Supplies – Water Authority Service Area
Normal Year (acre feet)¹

Water Supply Sources	2020	2025	2030	2035	2040
Water Authority Supplies					
MWD Supplies	130,897	164,855	183,578	202,042	226,713
Water Authority/IID Transfer	190,000	200,000	200,000	200,000	200,000
AAC and CC Lining Projects	80,200	80,200	80,200	80,200	80,200
Regional Seawater Desalination	50,000	50,000	50,000	50,000	50,000
Member Agency Supplies					
Surface Water	51,580	51,480	51,380	51,280	51,180
Water Recycling	41,166	44,381	46,465	46,825	47,565
Seawater Desalination	6,000	6,000	6,000	6,000	6,000
Brackish GW Recovery	12,100	12,507	12,507	12,507	12,507
Groundwater	17,940	19,130	20,170	20,170	20,170
Potable Reuse	3,300	3,300	3,300	3,300	3,300
Total Projected Supplies	583,183	631,853	653,600	672,324	697,635

Source: Water Authority 2015 Urban Water Management Plan – Table 9-1.

¹Normal water year demands based on 1960-2013 hydrology.

Section 5.6.1 of the Water Authority's 2015 UWMP also includes a discussion on the local supply target for seawater desalination. Seawater desalination supplies represent a significant local resource in the Water Authority's service area.

The Carlsbad Desalination Project is a fully permitted seawater desalination plant and conveyance pipeline designed to provide a highly reliable local supply of up to 50,000 AFY for the region. In 2020, the project would account for approximately 8 percent of the total projected regional supply and 30 percent of all locally generated water in San Diego County. The project became operational in late 2015 and it more than doubles the amount of local supplies developed in the region since 1991. The desalination plant itself was fully financed, built, and is being operated by Poseidon Resources. The Water Authority purchases water from the plant under a water purchase agreement. The new pipeline connecting the desalination plant with the Water Authority's Second Aqueduct is owned and operated by the Water Authority, but Poseidon had the responsibility for design and construction through a separate design-build agreement. The Water Authority was responsible for aqueduct improvements, including the relining and rehabilitation of Pipeline 3 to accept desalinated water under higher operating pressures, modifications to the San Marcos Vent that allows the flow of water between Pipelines 3 and 4, and improvements at the Twin Oaks Valley Water Treatment Plant necessary to integrate desalinated water into the Water Authority's system for optimal distribution to member agencies. As of May 2019, the Carlsbad Desalination Plant received approval to increase the production of potable water from desalination from 50 mgd to 60 mgd (67,000 AFY). This source was not accounted for in Water Authority's 2015 UWMP, which projected supply from the Carlsbad Desalination Plant at 50,000 AFY through 2040. This potential increased capacity could be placed into service prior to 2025. Water Authority's 30-year 2012 Water Purchase Agreement provides that Water Authority will purchase the entire output from the Carlsbad Desalination Plant.

The Water Authority's existing and planned supplies from the Imperial Irrigation District transfer, canal lining, and desalination projects are considered drought-proof supplies and should be available at the yields shown in Table 6 in normal water year supply and demand assessment. Single dry year and multiple dry year scenarios are discussed in more detail in Section 9 of the Water Authority's 2015 UWMP.

As part of preparation of a written water supply assessment and/or verification report, an agency's shortage contingency analysis should be considered in determining sufficiency of supply. Section 11 of the Water Authority's 2015 UWMP contains a detailed shortage contingency analysis that addresses a regional catastrophic shortage situation and drought management. The analysis demonstrates that the Water Authority and its member agencies, through the Emergency Response Plan, Emergency Storage Project, and Drought Management Plan (DMP) are taking actions to prepare for and appropriately handle an interruption of water supplies. The DMP, adopted in May 2006, provides the Water Authority

and its member agencies with a series of potential actions to take when faced with a shortage of imported water supplies from MWD due to prolonged drought or other supply shortfall conditions. The actions will help the region avoid or minimize the impacts of shortages and ensure an equitable allocation of supplies throughout the San Diego region.

6.2.1.1 Water Authority-Imperial Irrigation District Water Conservation and Transfer Agreement

The Quantification Settlement Agreement (QSA) was signed in October 2003, and resolves long-standing disputes between the Water Authority, IID and several other entities regarding priority and use of Colorado River water and creates a baseline for implementing water transfers. With approval of the QSA, the Water Authority and IID were able to implement their Water Conservation and Transfer Agreement.

On April 29, 1998, the Water Authority signed a historic agreement with IID for the long-term transfer of conserved Colorado River water to San Diego County. The Water Authority-IID Water Conservation and Transfer Agreement is the largest agriculture-to-urban water transfer in United States history. Colorado River water will be conserved by Imperial Valley farmers who voluntarily participate in the program and then transferred to the Water Authority for use in San Diego County.

Implementation Status

On October 10, 2003, the Water Authority and Imperial Irrigation District executed an amendment to the original 1998 Transfer Agreement. This amendment modified certain aspects of the Transfer Agreement to be consistent with the terms and conditions of the Quantification Settlement Agreement and related agreements. It also modified other aspects of the agreement to lessen the environmental impacts of the transfer of conserved water. The amendment was expressly contingent on the approval and implementation of the QSA, which was also executed on October 10, 2003. Section 6.2.1, Colorado River, contains details on the QSA.

Expected Supply

Deliveries into San Diego County from the transfer began in 2003 with an initial transfer of 10,000 AFY. The Water Authority received increasing amounts of transfer water each year, according to a water delivery schedule contained in the transfer agreement. In 2012, the Water Authority will receive 90,000 AFY. The quantities will increase annually to 200,000 AFY by 2021 then remain fixed for the duration of the transfer agreement. The initial term of the Transfer Agreement is

45 years, with a provision that either agency may extend the agreement for an additional 30-year term.

During dry years, when water availability is low, the conserved water will be transferred under IID's Colorado River rights, which are among the most senior in the Lower Colorado River Basin. Without the protection of these rights, the Water Authority could suffer delivery cutbacks. In recognition for the value of such reliability, the 1998 contract required the Water Authority to pay a premium on transfer water under defined regional shortage circumstances. The shortage premium period duration is the period of consecutive days during which any of the following exist: 1) a Water Authority shortage; 2) a shortage condition for the Lower Colorado River as declared by the Secretary of State; and 3) a critical year. Under terms of the October 2003 amendment, the shortage premium will not be included in the cost formula until agreement year 16.

Transportation

The Water Authority entered into a water exchange agreement with MWD on October 10, 2003, to transport the Water Authority–Imperial Irrigation District transfer water from the Colorado River to San Diego County. Under the exchange agreement, MWD takes delivery of the transfer water through its Colorado River Aqueduct. In exchange, MWD delivers to the Water Authority a like quantity and quality of water. The Water Authority pays MWD's applicable wheeling rate for each acre-feet of exchange water delivered. Under the terms of the water exchange agreement, MWD will make delivery of the transfer water for 35 years, unless the Water Authority and MWD elect to extend the agreement another 10 years for a total of 45 years.

Cost/Financing

The costs associated with the transfer are financed through the Water Authority's rates and charges. In the agreement between the Water Authority and IID, the price for the transfer water started at \$258 per acre-feet and increased by a set amount for the first seven years. In December 2009, the Water Authority and IID executed a fifth amendment to the water transfer agreement that sets the price per ac-ft. for transfer water for calendar years 2010 through 2015, beginning at \$405 per acre-feet in 2010 and increasing to \$624 per acre-feet in 2015. For calendar years 2016 through 2034, the unit price will be adjusted using an agreed-upon index. The amendment also required the Water Authority to pay IID \$6 million at the end of calendar year 2009 and another \$50 million on or before October 1, 2010, provided that a transfer stoppage is not in effect as a result of a court order in the Quantification Settlement Agreement coordinated cases. Beginning in 2035, either the Water Authority or IID can, if certain criteria are met, elect a market rate price through a formula described in the water transfer agreement.

The October 2003 exchange agreement between MWD and the Water Authority set the initial cost to transport the conserved water at \$253 per acre-feet. Thereafter, the price is set to be equal to the charge or charges set by MWD's Board of Directors pursuant to applicable laws and regulation, and generally applicable to the conveyance of water by MWD on behalf of its member agencies. The transportation charge in 2010 was \$314 per acre-feet.

The Water Authority is providing \$10 million to help offset potential socioeconomic impacts associated with temporary land fallowing. IID will credit the Water Authority for these funds during years 16 through 45. In 2007, the Water Authority prepaid Imperial Irrigation District an additional \$10 million for future deliveries of water. IID will credit the Water Authority for this up-front payment during years 16 through 30.

As part of implementation of the Quantification Settlement Agreement and water transfer, the Water Authority also entered into an environmental cost sharing agreement. Under this agreement the Water Authority is contributing a total of \$64 million to fund environmental mitigation projects and the Salton Sea Restoration Fund.

Written Contracts or Other Proof

The supply and costs associated with the transfer are based primarily on the following documents:

Agreement for Transfer of Conserved Water by and between IID and the Water Authority (April 29, 1998). This agreement provides for a market-based transaction in which the Water Authority would pay IID a unit price for agricultural water conserved by IID and transferred to the Water Authority.

Revised Fourth Amendment to Agreement between IID and the Water Authority for Transfer of Conserved Water (October 10, 2003). Consistent with the executed Quantification Settlement Agreement and related agreements, the amendments restructure the agreement and modify it to minimize the environmental impacts of the transfer of conserved water to the Water Authority.

Amended and Restated Agreement between MWD and Water Authority for the Exchange of Water (October 10, 2003). This agreement was executed pursuant to the QSA and provides for delivery of the transfer water to the Water Authority.

Environmental Cost Sharing, Funding, and Habitat Conservation Plan Development Agreement among IID, Coachella Valley Water District, and Water Authority (October 10, 2003). This agreement provides for the specified allocation of QSA-related environmental review, mitigation, and litigation costs for the term of the QSA, and for development of a Habitat Conservation Plan.

Quantification Settlement Agreement Joint Powers Authority Creation and Funding Agreement (October 10, 2003). The purpose of this agreement is to create and fund the QSA Joint Powers Authority and to establish the limits of the funding obligation of CVWD, IID, and Water Authority for environmental mitigation and Salton Sea restoration pursuant to Senate Bill 654 (Machado).

Fifth Amendment to Agreement between Imperial Irrigation District and San Diego County Water Authority for Transfer of Conserved Water (December 21, 2009). This agreement implements a settlement between the Water Authority and IID regarding the base contract price of transferred water.

Federal, State and Local Permits/Approvals

Federal Endangered Species Act Permit. The U.S. Fish and Wildlife Service issued a Biological Opinion on January 12, 2001, that provides incidental take authorization and certain measures required to offset species impacts on the Colorado River regarding such actions.

State Water Resources Control Board Petition. SWRCB adopted Water Rights Order 2002-0016 concerning IID and Water Authority's amended joint petition for approval of a long-term transfer of conserved water from IID to the Water Authority and to change the point of diversion, place of use and purpose of use under Permit 7643.

Environmental Impact Report for Conservation and Transfer Agreement. As lead agency, IID certified the Final EIR for the Conservation and Transfer Agreement on June 28, 2002.

U.S. Fish and Wildlife Service Draft Biological Opinion and Incidental Take Statement on the Bureau of Reclamation's Voluntary Fish and Wildlife Conservation Measures and Associated Conservation Agreements with the California Water Agencies (December 18, 2002). The U.S. Fish and Wildlife Service issued the biological opinion/incidental take statement for water transfer activities involving the Bureau of Reclamation and associated with IID/other California water agencies' actions on listed species in the Imperial Valley and Salton Sea (per the June 28, 2002 EIR).

Addendum to EIR for Conservation and Transfer Agreement. IID as lead agency and Water Authority as responsible agency approved addendum to EIR in October 2003.

Environmental Impact Statement for Conservation and Transfer Agreement. Bureau of Reclamation issued a Record of Decision on the EIS in October 2003.

California Department of Fish and Game California Endangered Species Act Incidental Take Permit No. 2081-2003-024-006). The California Department of Fish and Game issued this permit

(October 22, 2004) for potential take effects on state-listed/fully protected species associated with IID/other California water agencies' actions on listed species in the Imperial Valley and Salton Sea (per the June 28, 2002 EIR).

California Endangered Species Act Permit. A CESA permit was issued by California Department of Fish and Game on April 4, 2005, providing incidental take authorization for potential species impacts on the Colorado River.

6.2.1.2 All-American Canal and Coachella Canal Lining Projects

As part of the Quantification Settlement Agreement and related contracts, the Water Authority was assigned MWD's rights to 77,700 AFY of conserved water from projects that will line the All-American Canal and Coachella Canal. The projects will reduce the loss of water that currently occurs through seepage, and the conserved water will be delivered to the Water Authority. This conserved water will provide the San Diego region with an additional 8.5 million AF over the 110-year life of the agreement.

Implementation Status

The CC lining project began in November 2004 and was completed in 2006. Deliveries of conserved water to the Water Authority began in 2007. The project constructed a 37-mile parallel canal adjacent to the CC. The AAC lining project was begun in 2005 and was completed in 2010. The lining project constructed a concrete-lined canal parallel to 24 miles of the existing AAC from Pilot Knob to Drop 3.

In July 2005, a lawsuit (*CDEM v United States*, Case No. CV-S-05-0870-KJD-PAL) was filed in the U.S. District Court for the District of Nevada on behalf of U.S. and Mexican groups challenging the lining of the AAC. The lawsuit, which named the Secretary of the Interior as a defendant, claimed that seepage water from the canal belongs to water users in Mexico. California water agencies noted that the seepage water was actually part of California's Colorado River allocation and not part of Mexico's allocation. The plaintiffs also alleged a failure by the United States to comply with environmental laws. The case was dismissed in 2006, and an appeal was returned by the Ninth Circuit in 2007 upholding the recommendation for dismissal.

Expected Supply

The AAC lining project makes 67,700 AF of Colorado River water per year available for allocation to the Water Authority and San Luis Rey Indian water rights settlement parties. The CC lining project makes 26,000 AF of Colorado River water each year available 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,

77,700 AFY, is to be available to the Water Authority, with up to an additional 4,850 AFY available to the Water Authority depending on environmental requirements from the CC lining project. For planning purposes, the Water Authority assumes that 2,500 AF of the 4,850 AF will be available each year for delivery, for 80,200 AFY of that supply. According to the Allocation Agreement, Imperial Irrigation District has call rights to a portion (5,000 AFY) of the conserved water upon termination of the Quantification Settlement Agreement for the remainder of the 110 years of the Allocation Agreement and upon satisfying certain conditions. The term of the QSA is for up to 75 years.

Transportation

The October 2003 Exchange Agreement between the San Diego County Water Authority and MWD provides for the delivery of the conserved water from the canal lining projects. The Water Authority pays MWD's applicable wheeling rate for each acre-foot of exchange water delivered. In the agreement, MWD will deliver the canal lining water for the term of the Allocation Agreement (110 years).

Cost/Financing

Under California Water Code Section 12560 et seq., the Water Authority received \$200 million in state funds for construction of the canal lining projects. In addition, \$20 million was made available from Proposition 50 and \$36 million from Proposition 84. The Water Authority was responsible for additional expenses above the funds provided by the state.

The rate to be paid to transport the canal lining water will be equal to the charge or charges set by MWD's Board of Directors pursuant to applicable law and regulation and generally applicable to the conveyance of water by MWD on behalf of its member agencies.

In accordance with the Allocation Agreement, the Water Authority is responsible for a portion of the net additional Operation, Maintenance and Repair costs for the lined canals. Any costs associated with the lining projects as proposed are to be financed through the Water Authority's rates and charges.

Written Contracts or Other Proof

The expected supply and costs associated with the lining projects are based primarily on the following documents:

U.S. Public Law 100-675 (1988). Authorized the Department of the Interior to reduce seepage from the existing earthen All-American and Coachella Canal. The law provides that conserved

water will be made available to specified California contracting water agencies according to established priorities.

California Department of Water Resources – MWD’s Funding Agreement (2001). Reimburse MWD for project work necessary to construct the lining of the Coachella Canal in an amount not to exceed \$74 million. Modified by First Amendment (2004) to replace MWD with the San Diego County Water Authority. Modified by Second Amendment (2004) to increase funding amount to \$83.65 million, with addition of funds from Proposition 50.

California Department of Water Resources – Imperial Irrigation District Funding Agreement (2001). Reimburse IID for project work necessary to construct a lined All-American Canal in an amount not to exceed \$126 million.

MWD – Coachella Valley Water District Assignment and Delegation of Design Obligations Agreement (2002). Assigns design of the CC lining project to CVWD.

MWD - CVWD Financial Arrangements Agreement for Design Obligations (2002). Obligates MWD to advance funds to CVWD to cover costs for CC lining project design and CVWD to invoice MWD to permit the Department of Water Resources to be billed for work completed.

Allocation Agreement among the United States of America, The MWD, Coachella Valley Water District, Imperial Irrigation District, San Diego County Water Authority, the La Jolla, Pala, Pauma, Rincon, and San Pasqual Bands of Mission Indians, the San Luis Rey River Indian Water Authority, the City of Escondido, and Vista Irrigation District (October 10, 2003). This agreement includes assignment of MWD’s rights and interest in delivery of 77,700 AF of Colorado River water previously intended to be delivered to MWD to the Water Authority. Allocates water from the AAC and CC lining projects for at least 110 years to the Water Authority, the San Luis Rey Indian Water Rights Settlement Parties, and IID, if it exercises its call rights.

Amended and Restated Agreement between MWD and Water Authority for the Exchange of Water (October 10, 2003). This agreement was executed pursuant to the Quantification Settlement Agreement and provides for delivery of the conserved canal lining water to the Water Authority.

Agreement between MWD and Water Authority regarding Assignment of Agreements related to the AAC and CC Lining Projects. This agreement was executed in April 2004 and assigns MWD’s rights to the Water Authority for agreements that had been executed to facilitate funding and construction of the AAC and CC lining projects:

Assignment and Delegation of Construction Obligations for the Coachella Canal Lining Project under the Department of Water Resources Funding Agreement No. 4600001474 from the San Diego County Water Authority to the Coachella Valley Water District, dated September 8, 2004.

Agreement Regarding the Financial Arrangements between the San Diego County Water Authority and Coachella Valley Water District for the Construction Obligations for the Coachella Canal Lining Project, dated September 8, 2004.

Agreement No. 04-XX-30-W0429 Among the United States Bureau of Reclamation, the Coachella Valley Water District, and the San Diego County Water Authority for the Construction of the Coachella Canal Lining Project Pursuant to Title II of Public Law 100-675, dated October 19, 2004.

California Water Code Section 12560 et seq. This water code section provides for \$200 million to be appropriated to the Department of Water Resources to help fund the canal lining projects in furtherance of implementing California's Colorado River Water Use Plan.

California Water Code Section 79567. This water code section identifies \$20 million as available for appropriation by the California Legislature from the Water Security, Clean Drinking Water, Coastal, and Beach Protection Fund of 2002 (Proposition 50) to DWR for grants for canal lining and related projects necessary to reduce Colorado River water use. According to the Allocation Agreement, it is the intention of the agencies that those funds will be available for use by the Water Authority, Imperial Irrigation District, or CVWD for the All-American Canal and CC lining projects.

California Public Resources Code Section 75050(b)(1). This section identifies up to \$36 million as available for water conservation projects that implement the Allocation Agreement as defined in the Quantification Settlement Agreement.

Federal, State, and Local Permits/Approvals

AAC Lining Project Final Environmental Impact Statement/Environmental Impact Report (March 1994). A final EIS/EIR analyzing the potential impacts of lining the AAC was completed by the Bureau of Reclamation in March 1994. A Record of Decision was signed by the Bureau of Reclamation in July 1994, implementing the preferred alternative for lining the AAC. A re-examination and analysis of these environmental compliance documents by the Bureau of Reclamation in November 1999 determined that these documents continued to meet the requirements of the National Environmental Policy Act and the California Environmental Quality Act and would be valid in the future.

CC Lining Project Final EIS/EIR (April 2001). The final EIS/EIR for the CC lining project was completed in 2001. Reclamation signed the Record of Decision in April 2002. An amended Record of Decision has also been signed to take into account revisions to the project description.

Mitigation, Monitoring and Reporting Program for Coachella Canal Lining Project, SCH No. 1990020408; prepared by Coachella Valley Water District, May 16, 2001.

Environmental Commitment Plan for the Coachella Canal Lining Project, approved by the U.S. Bureau of Reclamation (Boulder City, NV) on March 4, 2003.

Environmental Commitment Plan and Addendum to the All-American Canal Lining Project EIS/EIR California State Clearinghouse Number SCH 90010472 (June 2004, prepared by Imperial Irrigation District).

Addendum to Final Environmental Impact Statement/Environmental Impact Report and Amendment to Environmental Commitment Plan for the All-American Canal Lining Project (approved June 27, 2006, by IID Board of Directors).

6.2.1.3 Carlsbad Seawater Desalination Project

Development of seawater desalination in San Diego County will assist the region in diversifying its water resources, reduce dependence on imported supplies, and provide a new drought-proof, locally treated water supply. The Carlsbad Desalination Project is a fully-permitted seawater desalination plant and conveyance pipeline developed by Poseidon Resources, a private investor-owned company that develops water and wastewater infrastructure. The project, located at the Encina Power Station in Carlsbad, has been in development since 1998 and was incorporated into the Water Authority's 2003 Water Facilities Master Plan and the 2015 UWMP. The Carlsbad Desalination Project has obtained all required permits and environmental clearances and starting in late 2015 provides a highly reliable local supply of 48,000 to 56,000 AFY for the region, and was approved to increase supplies up to 67,000 AFY, as of May 2019.

Implementation Status

The project has obtained all required permits and environmental clearances, including the following:

- National Pollutant Discharge Elimination System Discharge Permit (Regional Water Quality Control Board)
- Conditional Drinking Water Permit (California Department of Health Services)
- State Lands Commission Lease (State Lands Commission)

- Coastal Development Permit (California Coastal Commission)

IDE Technologies, a worldwide leader in the design, construction and operation of desalination plants, was selected by Poseidon to be the desalination process contractor for the project.

On July 22, 2010, the Water Authority's board approved a Term Sheet between the Water Authority and Poseidon Resources that outlined the key terms and conditions that would be detailed and incorporated in a comprehensive Water Purchase Agreement. Beginning in October 2011 and under the direction of the board's Carlsbad Desalination Project Advisory Group, staff began developing and negotiating with Poseidon Resources a Water Purchase Agreement consistent with the July 22, 2010 board approved Term Sheet. The July 2010 Term Sheet also identified specific conditions precedent to board consideration of the Water Purchase Agreement.

On November 29, 2012, the Water Authority board adopted a resolution approving the Design-Build Agreement between the Water Authority and Poseidon. The Design-Build Agreement established the commercial and technical terms for implementation of the desalination product pipeline improvements. These improvements consisted of an approximate 10-mile long, 54-inch diameter conveyance pipeline connecting the desalination plant to the Water Authority's Second Aqueduct. The pipeline was generally constructed within improved streets in commercial and industrial areas in the cities of Carlsbad, Vista and San Marcos. The Water Authority owns the project water pipeline improvements and has assumed operational control of all pipeline improvements.

Expected Supply

The project provides a highly reliable local supply of 48,000 to 56,000 AFY of supply for the region, available in both normal and dry hydrologic conditions, and has been approved to increase its capacity to 67,000 AFY, anticipated by 2025. As of 2020 production, the Project can account for approximately 8 percent of the total projected regional supply and 30 percent of all locally generated water in San Diego County. The project more than doubles the amount of local supplies developed in the region since 1991, with greater future production anticipated.

Transportation

On November 29, 2012, the Water Authority board adopted a resolution approving the Design-Build Agreement between the Water Authority and Poseidon. The Design-Build Agreement establishes the commercial and technical terms for implementation of the desalination product pipeline improvements. These improvements consisted of an approximate 10-mile long, 54-inch diameter conveyance pipeline connecting the desalination

plant to the Water Authority's Second Aqueduct. The pipeline was generally constructed within improved streets in commercial and industrial areas in the cities of Carlsbad, Vista and San Marcos. The Water Authority owns the project water pipeline improvements and has assumed operational control of all pipeline improvements.

The Water Authority was responsible for aqueduct improvements, including the relining and rehabilitation of Pipeline 3 to accept desalinated water under higher operating pressures, modifications to the San Marcos Vent that allows the flow of water between Pipelines 3 and 4, and improvements at the Twin Oaks Valley Water Treatment Plant necessary to integrate desalinated water into the Water Authority's system for optimal distribution to member agencies.

Cost/Financing

The plant and the offsite pipeline is being financed through tax exempt government bonds issued for the Water Authority by the California Pollution Control Financing Authority. On November 29, 2012, the Water Authority board adopted a resolution approving agreements to accomplish tax exempt project financing through the CPCFA.

A preliminary September 2012 unit cost estimate was \$2,300 acre-feet. The Water Authority's water purchase costs would be financed through Water Authority rates and charges. Poseidon Resources is financing the capital cost of the project with a combination of private equity and tax-exempt private activity bonds.

Written Contracts or Other Proof

The expected supply and costs associated with the Carlsbad Desalination Project are based primarily on the following documents:

Development Agreement between City of Carlsbad and Poseidon (October 2009). A Development Agreement between Carlsbad and Poseidon was executed on October 5, 2009

Agreement of Term Sheet between the Water Authority and Poseidon Resources (July 2010). The Water Authority approved the Term Sheet at its July 2010 board meeting. The Term Sheet outlines the terms, conditions of a future Water Purchase Agreement with Poseidon, and allocates the resources to prepare the draft Water Purchase Agreement. *Federal, State, and Local Permits/Approvals*

Carlsbad Desalination Project Final Environment Impact Report

The City of Carlsbad, acting as lead agency for Carlsbad Seawater Desalination Plant and appurtenant facilities proposed by Poseidon prepared an Environmental Impact Report for

the project in compliance with the California Environmental Quality Act, which the City of Carlsbad certified on June 13, 2006.

<http://www.sdcwa.org/rwfmp-peir>

Regional Water Facilities Master Plan EIR

On November 20, 2003, the Water Authority Board of Directors adopted Resolution No. 2003-34 certifying the Final Program Environmental Impact Report (State Clearinghouse No. 2003021052) for the Water Authority's Regional Water Facilities Master Plan Project, which evaluated, among other things, potential growth inducing impacts associated with new water supplies to the region including, but not limited to, up to 150 million gallons per day of new supplies from seawater desalination. This certification included a 50 MGD plant located in the City of Carlsbad.

The environmental documents and permits are found at the following links:

<http://www.sdcwa.org/rwfmp-peir>

Subregional Natural Community Conservation Plan/Habitat Conservation Plan

On December 8, 2010, the San Diego County Water Authority board adopted Resolution No. 2010-18 certifying a Final Environmental Impact Report/Environmental Impact Statement for the San Diego County Water Authority Sub-regional Natural Community Conservation Plan/Habitat Conservation Plan (State Clearinghouse No. 2003121012), which plan was implemented on December 2011.

The environmental documents and permits are found at the following links:

<http://www.sdcwa.org/nccp-hcp>

Twin Oaks Valley Water Treatment Plant EIR

On September 8, 2005, the Water Authority board adopted Resolution No. 2005-31 certifying a Final Environmental Impact Report for the Twin Oaks Valley Water Treatment Plant Project (State Clearinghouse No. 20040071034), which project was constructed as a 100 MGD submerged membrane water treatment facility, including treated water holding tanks and distribution pipelines and other facilities, consistent with the conditions and mitigation measures included in the Twin Oaks EIR.

<http://www.sdcwa.org/twin-oaks-valley-treatment-plant-final-eir>

Drinking Water Permit (October 2006). The California Department of Health Services approved the Conditional Drinking Water Permit on October 19, 2006.

6.2.2 Water Authority Capital Improvement Program and Financial Information

The Water Authority's Capital Improvement Program can trace its beginnings to a report approved by their board in 1989 entitled, The Water Distribution Plan, and a Capital

Improvement Program through the Year 2010. The Water Distribution Plan included 10 projects designed to increase the capacity of the aqueduct system, increase the yield from existing water treatment plants, obtain additional supplies from MWD, and increase the reliability and flexibility of the aqueduct system. Since that time the Water Authority has made numerous additions to the list of projects included in its CIP as the region's infrastructure needs and water supply outlook have changed.

The current list of projects included in the CIP is based on the results of planning studies, including the 2015 UWMP and the 2013 Regional Water Facilities Master Plan. These Capital Improvement Program projects, which are most recently described in the San Diego County Water Authority's adopted multi-year budget, include projects valued at \$3.50 billion. These CIP projects are designed to meet projected water supply and delivery needs of the member agencies through 2040. The projects include a mix of new facilities that will add capacity to existing conveyance, storage, and treatment facilities, as well as repair and replace aging infrastructure:

- Asset Management – The primary components of the asset management projects include relining and replacing existing pipelines and updating and replacing metering facilities.
- New Facilities – These projects will expand the capacity of the aqueduct system, complete the projects required under the Quantification Settlement Agreement, and evaluate new supply opportunities.
- Emergency Storage Project – Projects remaining to be completed under the ongoing ESP include the San Vicente Dam Raise, the Lake Hodges projects, and a new pump station to extend ESP supplies to the northern reaches of the Water Authority service area.
- Other Projects – This category includes out-of-region groundwater storage, increased local water treatment plant capacity and projects that mitigate environmental impacts of the CIP.

The Water Authority Board of Directors is provided a semi-annual and annual report on the status of development of the CIP projects. As described in the Water Authority's biennial budget, a combination of long- and short-term debt and cash (pay-as-you-go) will provide funding for capital improvements. Additional information is included in the Water Authority's biennial budget, which also contains selected financial information and summarizes the Water Authority's investment policy.

6.3 Helix Water District

The Helix 2015 UWMP contains comparisons of projected supply and demands through the year 2040. Projected potable water resources to meet planned demands as documented were planned to be supplied entirely with imported water received from the Water Authority.

The development and/or acquisition of potential groundwater, recycled water market expansion, and seawater desalination supplies by Helix have evolved and are planned to occur in response to the regional water supply issues. These water supply projects are in addition to those identified as sustainable supplies in the current Water Authority and MWD UWMP, Integrated Resources Plan, Master Plans and other planning documents. These new additional water supply projects are not currently developed and are in various stages of the planning process. These local and regional water supply projects will allow for less reliance upon imported water and are considered a new water supply resource for the Helix Water District.

The supply forecasts contained within this Water Supply Assessment do consider development and/or acquisition of potential groundwater, recycled water market expansion and seawater desalination supplies by Helix.

6.3.1 Availability of Sufficient Supplies and Plans for Acquiring Additional Supplies

The availability of sufficient potable water supplies and plans for acquiring additional potable water supplies to serve existing and future demands of Helix is founded upon the preceding discussions regarding MWD's and the Water Authority's water supply resources and water supplies to be acquired by Helix. Historic and projected imported water deliveries from the Water Authority to Helix are shown in Table 4.

6.3.1.1 Imported and Regional Supplies

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.” Helix is one of the 24 member agencies of the Water Authority. Member agency status entitles Helix WD to directly purchase water from the Water Authority on a wholesale basis. Although Helix originated as a retailer of purely local runoff, since the completion of the first imported water aqueduct by the Water Authority in 1948, Helix has relied primarily on this imported water source. One hundred percent of Helix's imported water is purchased from the Water Authority. Since 1962, imported supplies to Helix have averaged 83 percent of the total water supply, with the minimum and maximum imported water rates ranging from 52 percent in 1981 to 100 percent in 1965. The Water Authority is a member agency of MWD. The contractual relationships between the Water Authority and its member agencies, and MWD and its member agencies, respectively, establish the scope of Helix’s entitlements to water from these two agencies. Due to Helix’s reliance on these two agencies, this WSA relies and includes information on the existing and projected supplies, supply programs, and related projects of the Water Authority and MWD.

The availability of sufficient imported and regional potable water supplies to serve existing and planned uses within Helix is demonstrated in the above discussion on MWD and the Water Authority’s water supply reliability.

Potable Water System Facilities

The District continues to pursue diversification of its water supply resources to increase reliability and flexibility. Helix also continues to plan, design, and construct potable water system facilities to obtain these supplies and to distribute potable water to meet customer demands. Helix has successfully negotiated a water supply diversification agreement that enhance reliability and flexibility, which is briefly described as follows.

- Helix entered into an agreement with the San Diego County Water Authority, known as the East County Regional Treated Water Improvement Program (ECRTWIP). The ECRTWIP agreement provides for transmission of raw water to the Helix R.M. Levy Water Treatment Plant for treatment and the possibility for delivery to other water agencies. The supply system link to implement the ECRTWIP agreement is complete allowing access to the regions raw water supply system and the local water treatment plant. This supply link consists of the typical transmission, pumping, storage, flow control, and appurtenances to receive and transport the potable water from the R.M. Levy Water Treatment Plant.

Cost and Financing

The capital improvement costs associated with water supply and delivery are financed through the Helix water meter capacity fee and user rate structures. The Helix potable water sales revenue are used to pay for the wholesale cost of the treated water supply and the operating and maintenance expenses of the potable water system facilities.

Written Agreements, Contracts or Other Proof

The supply and cost associated with deliveries of raw water and treatment of water to and from the R.M. Levy Water Treatment Plant is based on the following document:

Agreement between the San Diego County Water Authority and Helix Water District Regarding Implementation of the East County Regional Treated Water Improvement Program.

6.3.1.2 Potential Groundwater Supplies

Helix produces groundwater from a well, referred to as Well 101, which draws groundwater from the San Diego River Valley Basin (Santee-El Monte Groundwater Basin, Basin, Basin 9-015). This groundwater supply constitutes less than 1 percent of Helix's water supply. Groundwater from Well 101 may be utilized as a portion of the Project's anticipated water supplies.

The Santee-El Monte Groundwater Basin is an alluvial aquifer underlying the San Diego River and its tributaries. The basin is approximately 15 miles long and varies in width from 500 feet to 5,000 feet. The basin spans approximately 10 square miles in exposed surface area and has a storage capacity of up to 70,000 AF. It is an alluvial aquifer with depths ranging from 100 to 200 feet and water quality as measured by Total Dissolved Solids ranges between 260 milligrams per liter to 2,870 milligrams per liter. The basin has multiple users, is not adjudicated and does not have a basin-wide management plan. The Helix 2015 UWMP notes that the City of San Diego maintains pueblo rights for the Santee-El Monte Groundwater Basin. Per the Sustainable Groundwater Management Act (SGMA) 2019 Basin Prioritization update, the Santee-El Monte Groundwater Basin is listed as a 'Very Low' priority basin. This indicates that the basin is at a low risk of overdraft and current management practices and trends in groundwater use are within the most sustainable category, per the SGMA basin prioritization scoring system.

Helix has operated only one well located on a property that Helix owns within the basin. This well is located within El Monte valley, which is within the eastern portion of the Santee-El Monte Basin. The eastern portion of the aquifer is referred to as the El Monte Basin in this

report. The first well, constructed in 1975, was named Well 100. That well collapsed in the 1990's and a second well, named Well 101 was constructed in 2001. The most production achieved from the original Well 100 was approximately 500 AFY in the late 1970's. Groundwater production out of Well 101 has never produced more than 1 percent of Helix's total water supply.

Usage of the groundwater by local water agencies within the Santee-El Monte basin includes Helix and Lakeside Water District. Current average annual or projected extraction rates by each agency, as well as by private well users are as follows (from the San Diego County Water Authority Groundwater Report, June 1997):

- Helix Water District 130 AFY
- Lakeside Water District 1,350 AFY
- Private Well Use 4,000 AFY

The total groundwater production out of the Santee-El Monte Basin by all producers is estimated to be within the aquifer's potential yield, which is the yield that can be expected with natural recharge and existing recharge operations (i.e., irrigation return, etc.). The Helix 2015 UWMP states that the Basin is not exhibiting signs of being overdrafted, such as declining water levels, land subsidence, water quality degradation, or an overall drop in the water table, and the Basin is listed as 'Very-Low' priority per SGMA basin prioritization. As noted in the referenced Water Authority report, greater yields can be attained through artificial recharge and management of the basin.

Per Helix's 2015 UWMP and as shown in Table 6 below, supplies provided by Well 101 are anticipated to remain constant at 130 AFY through 2040. Current usage is 93 AFY, as of 2015 data. Pumping by Helix is not anticipated to increase over the span of this assessment, indicating that supplies will not be overdrawn or decrease as a result of Helix water usage or implementation of the Project.

Table 6
Helix Water District Projected Water Supplies, 2020-2040
(acre-feet)

	FY 2020	FY 2025	FY 2030	FY 2035	FY 2040
Purchased or Imported Water	27,886	29,066	29,158	29,550	29,928
Groundwater (Well 101)	130	130	130	130	130
Surface Water	3,258	3,258	3,258	3,258	3,258
Total	31,274	32,454	32,546	32,938	33,316

The proposed increase in demands of 147 AFY under implementation of the Project corresponds to approximately 0.4 percent of Helix's projected 2040 total water demands, as identified in the 2015 UWMP. As groundwater from Well 101 currently makes up less than 1 percent of Helix's total water supplies, it is not anticipated that implementation of the Project will adversely impact groundwater supplies. The Basin has been shown to be sustainably managed, demonstrated by its designation as a 'Very-Low' priority basin.

6.3.2 Helix Water District Private Development Improvement Program

Helix plans, designs, constructs, and operates water system facilities to acquire sufficient supplies and to meet projected ultimate demands placed upon the potable water system. In addition, Helix forecasts needs and plans for water supply requirements to meet projected demands at ultimate build out. The necessary water facilities and water supply projects are implemented and constructed when development activities proceed and require service to achieve timely and adequate cost-effective water service.

As major development plans are formulated and proceed through the land use jurisdictional agency approval processes, Helix prepares water system requirements specifically for the proposed development project. These requirements document, define, and describe all the potable water system facilities to be constructed to provide an acceptable and adequate level of service to the proposed land uses, as well as the financial responsibility of the facilities required for service. The developer funds all required water system facilities to provide water service to their project including water meter capacity fees and user rates.

6.4 Additional Water Supply Contracts

The District has also engaged in a number of supply contracts aimed at creating reliable long-term supply sources for water users within the district. These supply agreements are as follows:

- **Capacity Agreement Between Water Authority and Helix Water District for Installation of Raw Water Transmission Pipeline, a Flow Control Facility, and Expansion of R.M Levy Water Treatment Plant (1997)**
 - Grants capacity rights to Helix of up to approximately 80 MGD of untreated water from the Water Authority
 - Amended in 2001, 2002, and 2006.
- **Agreement Governing the Diversion and Use of the San Diego River (1933)**
 - Agreement between Helix Water District and City of San Diego
 - Provides that Helix is allotted up to 100,000 AF of drafted water from the Boulder Creek/San Diego River Basin in a rolling 10-year average basis, dependent on water availability
- **East County Advanced Water Purification Product Water Purchase Agreement (2020)**

- o Agreement between Helix and East County Advanced Water Purification Joint Powers Authority
- o Provides that Helix has rights to purchase a minimum of 7,882 AF annually up to 9,654 AF of locally developed advanced purified water

Section 7 –Availability of Sufficient Supplies

The Project is currently located within the area served by Helix, San the Water Authority and MWD. To obtain permanent imported water supply service, land areas are required to be within the jurisdictions of Helix, Water Authority and MWD to utilize imported water supply.

The Water Authority and MWD have an established process that ensures supplies are being planned to meet future growth. Any annexations and revisions to established land use plans are captured in the San Diego Association of Governments updated forecasts for land use planning, demographics and economic projections. SANDAG serves as the regional, intergovernmental planning agency that develops and provides forecast information. The Water Authority and MWD update their demand forecasts and supply needs based on the most recent SANDAG forecast approximately every five years to coincide with preparation of their urban water management plans. Prior to the next forecast update, local jurisdictions with land use authority may require water supply assessment and/or verification reports for proposed land developments that are not within the Helix, Water Authority, or MWD jurisdictions (i.e., pending or proposed annexations) or that have revised land use plans with either lower or higher development intensities than reflected in the existing growth forecasts. Proposed land areas with pending or proposed annexations, or revised land use plans, typically result in creating higher demand and supply requirements than previously anticipated. The Helix, Water Authority and MWD next demand forecast and supply requirements and associated planning documents would then capture any increase or decrease in demands and required supplies as a result of annexations or revised land use planning decisions.

MWD's Integrated Resources Plan identifies a mix of resources (imported and local) that, when implemented, will provide 100 percent reliability for full-service demands through the attainment of regional targets set for conservation, local supplies, SWP supplies, Colorado River supplies, groundwater banking and water transfers. The 2015 IRP Update describes an adaptive management strategy to protect the region from future supply shortages. This adaptive management strategy has five components: achieve additional conservation savings, develop additional local water supplies, maintain Colorado River Aqueduct supplies, stabilize SWP supplies, and maximize the effectiveness of storage and transfer. MWD's 2015 IRP has a plan for identifying and implementing additional resources that expand the ability for MWD to meet future changes and challenges as necessary to ensure future reliability of supplies.

The proper management of these resources help to ensure that the southern California region, including San Diego County, will have adequate water supplies to meet long-term future demands.

MWD adopted its 2015 UWMP, in accordance with state law, on May 9, 2016. The resource targets included in the preceding 2015 Integrated Resources Plan Update serve as the foundation for the planning assumptions used in the 2015 UWMP. MWD's 2015 UWMP contains a water supply reliability assessment that includes a detailed evaluation of the supplies necessary to meet demands over a 20-year period in average, single dry year, and multiple dry year periods. As part of this process, MWD also uses the current San Diego Association of Government's regional growth forecast in calculating regional water demands for the San Diego County Water Authority's service area.

As stated in MWD's 2015 UWMP, the plan may be used as a source document for meeting the requirements of Senate Bill 610 and SB 221 until the next scheduled update is completed in five years (2020). The 2015 UWMP includes a Justifications for Supply Projections in Appendix A.3, that provides detailed documentation of the planning, legal, financial and regulatory basis for including each source of supply in the plan.

In the Findings Section of the Executive Summary (page ES-5) of their 2015 UWMP, MWD states that MWD has supply capacities that would be sufficient to meet expected demands from 2020 through 2040 under the single dry year and multiple dry year conditions. MWD has plans for supply implementation and continued development of a diversified resource mix including programs in the Colorado River Aqueduct, SWP, Central Valley Transfers, local resource projects, and in-region storage that enables the region to meet its water supply needs. MWD's 2015 UWMP identifies potential reserve supplies in the supply capability analysis (Tables 2-4, 2-5 and 2-6), which could be available to meet the unanticipated demands.

The County Water Authority Act, Section 5 subdivision 11, 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."

As part of preparation of a written water supply assessment, an agency's shortage contingency analysis should be considered in determining sufficiency of supply. Section 11 of the Water Authority's 2015 UWMP contains a detailed shortage contingency analysis that addresses a regional catastrophic shortage situation and drought management. The analysis demonstrates that the Water Authority and its member agencies, through the Emergency Response Plan, Emergency Storage Project, Carlsbad Desalination Project and Drought Management Plan are taking actions to prepare for and appropriately handle an interruption of water supplies. The Drought Management Plan, adopted in May 2006, provides the San

Diego County Water Authority and its member agencies with a series of potential actions to take when faced with a shortage of imported water supplies from MWD due to prolonged drought or other supply shortfall conditions. The actions will help the region avoid or minimize the impacts of shortages and ensure an equitable allocation of supplies.

This WSA identifies and describes the processes by which water demand projections for the proposed Project will be fully included in the water demand and supply forecasts of the UWMPs and other water resources planning documents of the Water Authority and MWD. Water supplies necessary to serve the demands of the proposed Project, along with existing and other projected future users, as well as the actions necessary and status to develop these supplies, have been identified in the Alvarado Specific Plan Project WSA and will be included in the future water supply planning documents of the Water Authority and MWD.

This WSA includes, among other information, an identification of existing water supply entitlements, water rights, water service contracts, water supply projects, or agreements relevant to the identified water supply needs for the proposed Project. This WSA assesses, demonstrates, and documents that sufficient water supplies are planned for and are intended to be available over a 20-year planning horizon, under normal conditions and in single and multiple dry years to meet the projected demand of the proposed Alvarado Specific Plan Project and the existing and other planned development projects to be served by the District.

Table 7 presents the forecasted balance of water demands and required supplies for the Helix service area under average or normal year conditions. The total actual demand for fiscal year 2015 was lower than the demand in FY 2010. The drop in demand is a result of the unit price of water, the conservation efforts of users as a result of the prolonged drought and the economy. The projected potable demand and supply requirements shown in Table 7 are from the Helix 2015 UWMP.

Table 7
Projected Balance of Water Demands and Supplies Normal Year Conditions (acre-feet)

Description	FY 2020	FY 2025	FY 2030	FY 2035	FY 2040
Demands					
Imported Water/Water Authority	31,274	32,454	32,546	32,938	33,316
Alvarado Specific Plan Project	147	147	147	147	147
Total Demand	31,421	32,601	32,693	33,085	33,463
Supplies					
Water Authority Supply	27,886	29,066	29,158	29,550	29,928
Water Authority AFG Increment	147	147	147	147	147
Groundwater Well 101	130	130	130	130	130
Surface Water	3,258	3,258	3,258	3,258	3,258
Total Supply	31,421	32,601	32,693	33,085	33,463
Supply Surplus/(Deficit)	0	0	0	0	0

As explained previously, imported supplies from the Water Authority are used to make up the balance of the Helix's normal supply. During dry water years that represent reduced local runoff supply, imported supply from the Water Authority is expected to increase in order to balance the District's supply. In its UWMP, the Water Authority has identified the sources of imported and local water that will be available to supply its member agencies during normal (average), single dry and multiple dry water years. Based on the availability of local water supplies provided by each member agency to the Authority, the Authority has identified in its UWMP the amount of imported water that will be available for its member agencies. These verified imported water supplies are consistent with the demand projections presented in the Helix 2015 UWMP.

Table 8 presents the forecasted balance of water demands and supplies for the Helix service area under single dry year conditions and under multiple dry year conditions for the three-year period ending in 2028. Tables 9 and 10 show forecasted water balances for single dry and multiple dry year scenarios, respectively, for 2020-2040 in five year increments. The projected potable demand and supply requirements shown in Tables 8-10 are from the Helix 2015 UWMP. 2040 values in Table 10 were extrapolated and provided separately by Helix staff (July 8, 2020).

Table 8
Projected Balance of Water Demands and Supplies
Single Dry and Multiple Dry Year Conditions
(acre-feet)

	Normal Year	Single Dry Year	Multiple Dry Years		
	FY 2025	FY 2025	FY 2026	FY 2027	FY 2028
Demands					
Imported/Water Authority	32,454	35,045	35,275	36,781	38,805
Alvarado Specific Plan Project	147	147	147	147	147
Total Demands	32,601	35,192	35,422	36,928	38,952
Supplies					
Water Authority Supply	29,066	34,915	35,145	36,651	38,675
Groundwater-Well 101	130	130	130	130	130
Surface Water	3,258	0	0	0	0
Water Authority AFG Increment	147	147	147	147	147
Total Supply	32,601	35,192	35,422	36,928	38,952
Supply Surplus/(Deficit)	0	0	0	0	0
District demand totals with Senate Bill X7-7 conservation target achievement plus single dry year increase as shown.					

Table 9
Helix Water District Projected Balance of Water Demands and Supplies
Single Dry Year Conditions, 2020-2040
(acre-feet)

	FY 2020	FY 2025	FY 2030	FY 2035	FY 2040
Supply Totals	33,643	35,035	35,246	35,811	36,908
Demand Totals	33,643	35,035	35,246	35,811	36,908
Difference	0	0	0	0	0

Table 10
Projected Balance of Water Demands and Supplies
Multiple Dry Year Conditions, 2020-2040
(acre-feet)

		FY 2020	FY 2025	FY 2030	FY 2035	FY 2040
First Year	Supply Totals	40,172	38,761	37,593	39,977	38,688
	Demand Totals	34,082	35,275	35,345	36,252	36,929
	Difference	6,089	3,486	2,158	3,725	1,759
Second Year	Supply Totals	38,985	37,548	37,024	37,916	36,945
	Demand Totals	35,864	36,781	37,024	37,916	38,493
	Difference	3,101	767	0	0	-1,548
Third Year	Supply Totals	38,110	38,805	37,498	36,908	36,602
	Demand Totals	38,110	38,805	38,867	40,093	40,475
	Difference	0	0	-1,369	-3,186	-3,874

As shown above, there are anticipated deficits in supply to meet projected demands as projected by Helix during multiple dry year conditions from 2030 through 2040. However, as described above, the Water Authority has confirmed that a portion of its AFG component will be capable of serving the Project's proposed increase in demands of 147 AFY. The AFG is an estimate of water demand above current projections, and used to accommodate uncertainties associated with future land use approvals on a regional basis. The Water Authority has confirmed that a portion of the AFG component of its 2015 UWMP is available to serve the Project (see attached correspondence from Water Authority, Appendix C). In addition, as described in Section 6.4, Helix has an existing contract with the East County Advanced Water Purification Joint Powers Authority that could provide up 9,654 AF annually. This existing water supply contract includes more than adequate additional water supplies available, if needed by Helix, to cover anticipated deficits (3,874 AF maximum) identified in Table 10. Further, as detailed in the District's 2015 UWMP in chapters 7 and 8, the District has a Drought Response Policy and Procedure to address shortage conditions, and Water Authority can address shortages through the use of carryover supplies, dry year transfers, and extraordinary savings by means of voluntary and mandatory water use restrictions detailed in the Water Authority's Water Shortage and Drought Response Plan. Water Authority has determined these projected shortages to be minor and can be addressed. (District's 2015 UWMP, Section 7.3.)

Section 8 –Conclusion

The District acknowledges the ever-present challenge of balancing water supply with demand and the inherent need to possess a flexible and adaptable water supply implementation strategy that can be relied upon during normal and dry weather conditions. The responsible

regional water supply agencies have and will continue to adapt their resource plans and strategies to meet climate, environmental and legal challenges so that they may continue to provide water supplies to their service areas. Existing condition water demands for the Project site are accounted for within the District's 2015 UWMP. The regional water suppliers along with Helix fully intend to maintain sufficient reliable supplies through the 20-year planning horizon under normal, single and multiple dry year conditions to meet projected demand of the Alvarado Specific Plan Project, along with existing and other planned development projects within the Helix service area. Anticipated Helix water supply deficits during multiple dry year conditions can be augmented by an existing water supply contract with the East County Advanced Water Purification Joint Powers Authority and/or through the implementation of conservation, water shortage contingency planning identified in the District's and Water Authority's 2015 UWMPs, and drought response plans. In addition, per a March 10 letter, SDCWA has confirmed that a portion of its AFG component will be capable of serving the Project's proposed increase in demands of 147 AFY. Finally, the effective water use awareness campaign and enhanced conservation mentality of Helix customers observed during the most recent multi-year drought will likely result in reduced consumption rates which will likely also carryover during dry periods in the future, further reducing multiple dry year demands.

This WSA assesses, demonstrates and documents that the District's total projected water supplies available during normal, single dry, and multiple dry water years during the 20-year projections will meet the projected water demand associated with the Project, in addition to the District's existing and planned future uses, including agricultural and manufacturing uses..

Source Documents

City of La Mesa, Alvarado Specific Plan Project Senate Bill 610 Compliance request letter received March 9, 2020

San Diego County Water Authority Accelerated Forecasted Growth letter received March 10, 2020

Helix Water District 2015 Urban Water Management Plan Update, 2016

Helix Water District 2010 Urban Water Management Plan Update

San Diego County Water Authority 2015 Urban Water Management Plan, 2016;
[http://www.sdcwa.org/sites/default/files/files/publications/2015%20UWMP%20-%20Public%20Review%20Draft%20\(4-29-2016\).pdf](http://www.sdcwa.org/sites/default/files/files/publications/2015%20UWMP%20-%20Public%20Review%20Draft%20(4-29-2016).pdf)

Metropolitan Water District of Southern California 2015 Urban Water Management Plan, June 2016; http://www.mwdh2o.com/PDF_About_Your_Water/2015_UWMP.pdf

2012 U.S. Bureau of Reclamation Colorado River Basin Water Supply and Demand Study

City of La Mesa – Water Conservation Website

City of La Mesa Design Guidelines for Water and Sewer Facilities, July 2019

City of La Mesa General Plan Land Use & Urban Design Element - Figure LD-7,
<http://www.cityoflamesa.com/DocumentCenter/View/6197/03LaMesaGPLandUseUrbanDesign-CD?bidId=>

Senate Bill 1262, CHAPTER 594

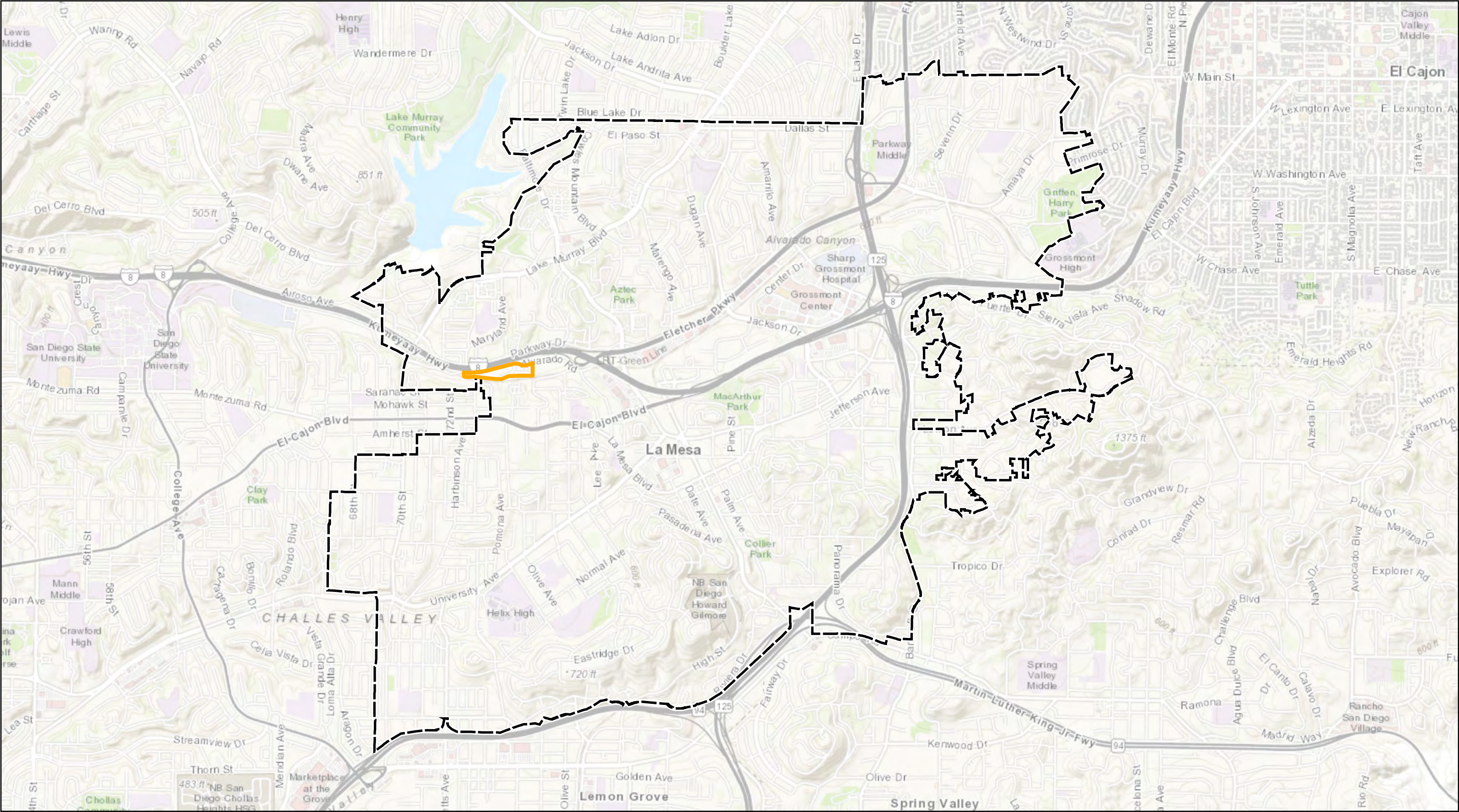
Sustainable Groundwater Management Act Groundwater Information Center Interactive Map Application

California State Water Resources Control Board Water Conservation Portal – Emergency Conservation Regulation, accessed on November 2019

Agreement between the San Diego County Water Authority and Helix Water District regarding Implementation of the East County Regional Treated Water Improvement Program

Appendix A
Alvarado Specific Plan Project Vicinity Map





Alvarado Specific Plan Water Supply Assessment

City of La Mesa



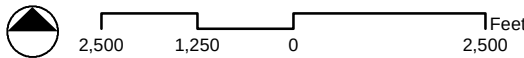
Legend

 Alvarado Site

 City of La Mesa Boundary

Figure 1

1/28/2020



Appendix B
Alvarado Specific Plan Project Development Plan





Alvarado Specific Plan Water Supply Assessment

City of La Mesa



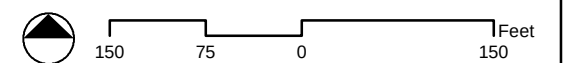
Legend

Alvarado Site

City of La Mesa Boundary

Figure 2

1/31/2020



LEGEND

- 1 Outdoor courtyard at podium level

2 Pedestrian promenade 20'-0" - 26'-0" / Emergency vehicular access (EVA)

3 Retaining wall at creek edge

4 Parcel Lines

5 Social node with shade element and turf area, Typ.

6 Proposed entry monument

7 16'-0" wide edestrian sidewalk / shared bikelane

8 Parallel parking

9 Pick up & drop off zone

10 Palm trees in 5x8 tree grates

11 Accent street trees

12 Existing power pole to remain

13 Prefabricated pedestrian bridge

14 Bio-filtration basin, Typ.

15 Rain event bio-filtration basin

16 Loading zone

17 Future resident parking

18 Vehicular gate

19 Existing creek

20 Existing billboards to remain

21 Public connection to MTS Trolley Station

22 Private connection to MTS Trolley Station

23 MTS Trolley Station

24 Building 3 private residential patios

25 Building 2 landscape corridor between buildings

◀ Parking structure entry points

* Primary Entry Points



Scale: 1" = 120'-0" 0 60 120 240

Landscape Schematic Site Plan - Figure 39

Appendix C
San Diego County Water Authority Accelerated Forecasted Growth Letter



Aneld Anub

From: Crutchfield, Jeremy <JCrutchfield@sdewa.org>
Sent: Tuesday, March 10, 2020 4:37 PM
To: Aneld Anub
Cc: Bista, Seevani; Bombardier, Tim
Subject: RE: Alvarado Specific Plan Project RMB20071 - Water Supply Assessment

Aneld,
Thank you for your letter regarding the water use figures for Helix WD's Alvarado Specific Plan Project. The following is the Water Authority's response to your request to use the Accelerated Forecasted Growth (AFG) component of the Water Authority's 2015 Urban Water Management Plan to meet the unanticipated water demands associated with the Alvarado Specific Plan Project. The purpose of the AFG component of the demand forecast is to estimate, on a regional basis, additional demand associated with proposed projects not yet included in local jurisdictions' general plans and to plan for sufficient regional supplies to reliably meet the water demand of those projects. The Alvarado Specific Plan Project identified in your February 24, 2020 letter meets the criteria for the AFG component of the Water Authority's 2015 UWMP, and we are planning to have water supplies to reliably meet the updated demand associated with the project.

Our accounting of the remaining AFG component will be adjusted to reflect the additional revised demand associated with the proposed Alvarado Specific Plan Project. In order to accurately account for utilization of the AFG, we request that Helix WD send the Water Authority notification of when this project, or any other project that utilized the AFG demand component, is approved and included in Helix WD's land-use plans provided to the San Diego Association of Governments for their long-term growth forecasting. Please let me know if you have any questions or wish to discuss this matter further.

Best Regards,
Jeremy

Jeremy Crutchfield, P.E.
Manager, Water Resources Department
Office: 858-522-6834
Cell: 858-344-3878

