WaterSMART: Title XVI WIIN Water Reclamation and Reuse Projects (NOFO No. R22AS00115)

East County Advanced Water Purification Program – Phase 2 Project Grant Application

Submitted by:
Padre Dam Municipal Water District
9300 Fanita Parkway
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March 15, 2022

Title Page

Title of Project: East County Advanced Water Purification Program – Phase 2

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1.1 Executive Summary

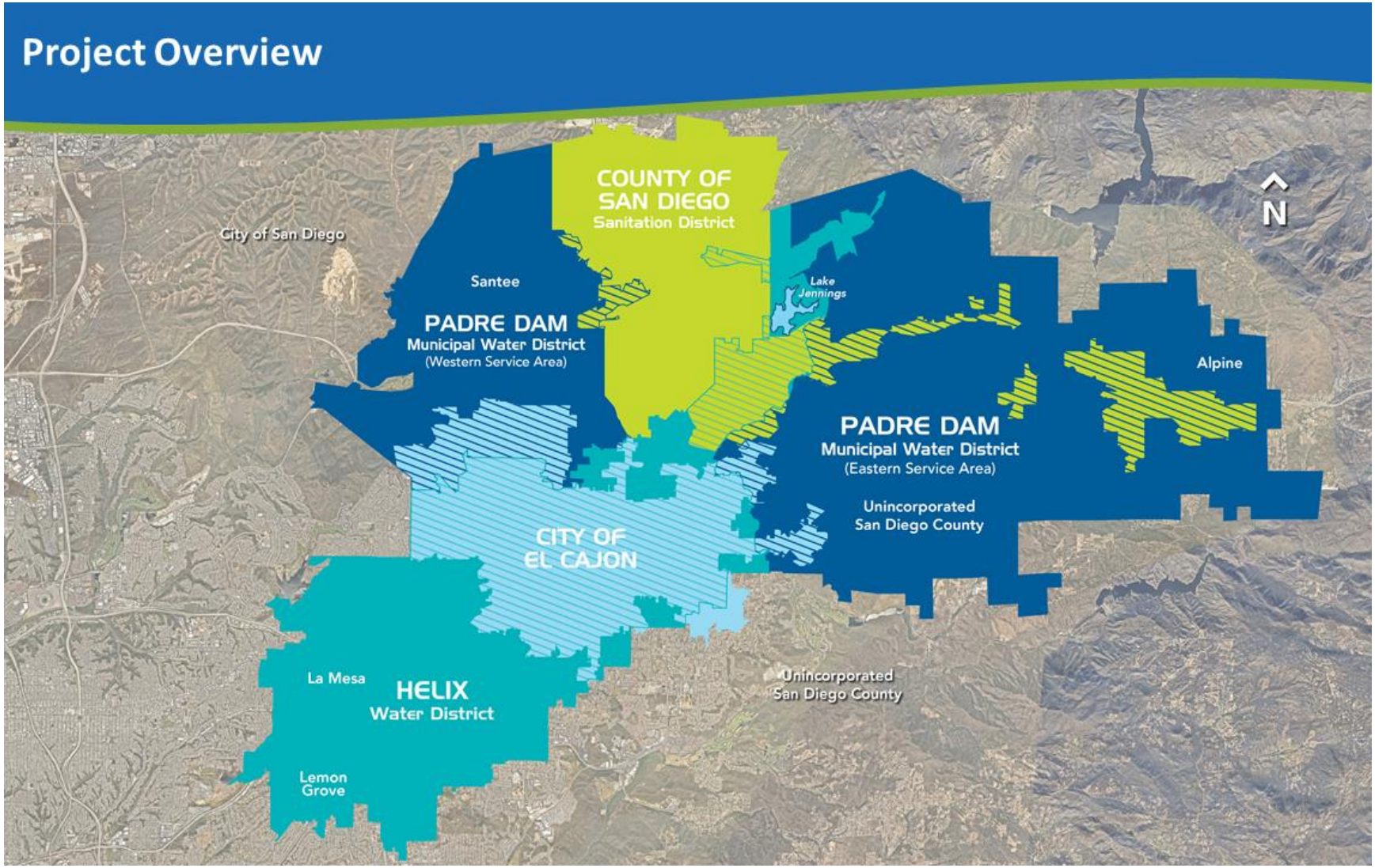
Padre Dam Municipal Water District (Padre Dam) is applying to the WaterSMART: Title XVI WIIN Water Reclamation and Reuse Projects grant for a total of $30 million for the East County Advanced Water Purification (ECAWP) Program – Phase 2 Project ("Phase 2 Project") on behalf of the ECAWP Joint Powers Authority (JPA). The Phase 2 Project will expand the recycled water production capacity and implement the second phase of a potable reuse project implemented within eastern San Diego County. A Title XVI Feasibility Study ("ECAWP Program Phase 2 Project Feasibility Study") was prepared for the Phase 2 Project and was found by the U.S. Bureau of Reclamation (Reclamation) to meet the requirements of a feasibility study as defined under Section 1604 of Public Law 102-575, as amended. Reclamation approved the ECAWP Program Phase 2 Project Feasibility Study in January 2020, rendering the Phase 2 Project eligible for funding under the Title XVI WIIN Water Reclamation and Reuse Program. The Project will expand the Ray Stoyer Water Recycling Facility (WRF), expand the existing Advanced Water Purification (AWP) facility, expand the solids handling facility, retrofit an existing lift station, construct a new force main to bring additional wastewater flows to the expanded WRF for treatment, and construct a Residuals bypass system to prevent recirculating brine back to the Ray Stoyer WRF. The Phase 2 Project will create 8,960 AFY (or 8 million gallons per day [MGD]) of advanced treated recycled water from the AWP ("purified water"), allowing an offset of an equal amount of imported water. Increasing local water supplies helps to increase supply reliability, reduce energy demands for water supply, improve surface water quality, and protect against the effects of droughts. In addition to the benefits realized through offsetting imported water demands, the Phase 2 Project will divert wastewater flows that would otherwise be sent to the City of San Diego's Metropolitan Sewerage System (Metro System) for treatment at the Point Loma Wastewater Treatment Plant (Point Loma WWTP) and final discharge to the Pacific Ocean.

Date: March 15, 2022
Applicant: Padre Dam Municipal Water District
City: Santee
County: San Diego
State: California

1.2 Technical Project Description

Padre Dam is a leading member of the ECAWP Program, a partnership of four water and wastewater agencies in eastern San Diego County: Padre Dam, Helix Water District (Helix), El Cajon, and County of San Diego (County) each of which are summarized in **Table 1-1**. The goal of the ECAWP Program is to explore and implement development of potable reuse and to increase the production and use of recycled water, both potable and non-potable, in eastern San Diego County. The project area is shown in **Figure 1-1**.

Figure 1-1: Project Area



Padre Dam prepared a Title XVI Feasibility Study, the *ECAWP Program Phase 2 Project Feasibility Study*, for the Phase 2 Project to gain eligibility for funding under Reclamation Projects Authorization and Adjustment Act of 1992 – Title XVI Reclamation Wastewater and Groundwater Study and Facilities Act, section 1604 (Feasibility Studies) (Pub. L. 102-575; 43 USC 390h et seq.), as amended and the Water Infrastructure Improvements for the Nation Act of 2016 – Title I Water Resources Development, section 4009 (Pub. L. 114-322). Reclamation approved the Title XVI Feasibility Study in January 2020. Following the receipt of WIIN grant eligibility, the Phase 2 Project applied for and secured $1.7 million from Reclamation's Title XVI WIIN FY 2021 solicitation. Padre Dam is requesting $28.3 million through this solicitation to secure a total of $30 million in WIIN funding for the Project.

The Phase 2 Project will create an additional 8,960 AFY of purified water, and equally reduce demand for imported water. It will also offset wastewater flows to the regional wastewater treatment facility, Point Loma Wastewater Treatment Plant (WWTP), which is anticipated to require substantial upgrades in the near future to provide appropriate environmental protections when discharging to the Pacific Ocean. The East County JPA partner agencies' potable water supply is almost entirely met with water purchased from the San Diego County Water Authority (CWA), which is primarily imported water from the State Water Project (SWP) and Colorado River. East County JPA is currently implementing Phase 1 of the ECAWP Program, which includes expanding the existing Ray Stoyer WRF treatment capacity from 2 MGD to 6 MGD with a new solids handling facility, construction of a 3.5 MGD production capacity AWP facility and other facilities to implement potable reuse with surface water augmentation (SWA). The Phase 2 Project will increase the Ray Stoyer WRF primary, secondary, and tertiary treatment capacity from 6 MGD to 15 MGD, and will expand the AWP facility by 8 MGD, from 3.5 MGD to 11.5 MGD (including microfiltration, reverse osmosis, ultraviolet/oxidation, brine minimization process, free chlorination, and post stabilization). The Phase 2 Project will also include expansion to the solids handling facility to process solids from the expanded WRF, retrofits to an existing pump station and a new force main to convey additional wastewater flows to the expanded WRF, and a new Residuals bypass system. The Phase 2 Project will create a new, drought-proof, local supply to improve water supply reliability, offset demands for imported water from the Sacramento-San Joaquin Bay-Delta and Colorado River systems, and reduce both wastewater treatment and water supply costs for the East County JPA agencies and their customers.

Table 1-1: Summary of East County JPA Partnership Agencies

Agency	Water / Wastewater Services	Areas Served	Water Supply	Wastewater and Recycled Water
Padre Dam	Water, wastewater, and recycled water	Santee, El Cajon, Lakeside, Flinn Springs, Harbison Canyon, Blossom Valley, Alpine, Dehesa, and Crest	100% imported treated	40% recycled 60% discharged to the Metro System
Helix	Water	La Mesa, El Cajon, Lemon Grove, Spring Valley, and various unincorporated areas near El Cajon	80% imported raw 20% local	N/A
County	Wastewater collection	Unincorporated County areas (Alpine, Lakeside, and Winter Gardens)	Provided by Helix	100% discharged to the Metro System
El Cajon	Wastewater collection	City of El Cajon	Provided by Helix	100% discharged to the Metro System

1.2.1 Project Needs and Objectives

Padre Dam and Helix are the two Program agencies providing potable water services in East County while Padre Dam, El Cajon and the County provide wastewater services. Both Padre Dam and Helix rely heavily on imported water purchased from the San Diego County Water Authority (CWA) to meet their current drinking water demands. Padre Dam purchases all its drinking water from the CWA while Helix purchases about 80% of its demand from CWA, offsetting the remaining 20% with local supplies. CWA purchases imported water from Metropolitan Water District of Southern California (MWD), receives imported water through agreements with other agencies, and supplies desalinated seawater via the Carlsbad Desalination Project. Approximately 90% of CWA's supplies are imported from the SWP and Colorado River. These imported supplies are increasingly unreliable during droughts and have become significantly more expensive; for example, Padre Dam's water supply costs rose 153% between 2011 and 2020.

Throughout San Diego County, there is an effort to increase supply reliability through the development of local, drought-proof, sustainable supplies, such as CWA's use of desalinated water from the Carlsbad Desalination Project, which began deliveries in December 2015.

Currently, approximately 14 MGD of wastewater is collected in East County. 2 MGD of that flow is recycled at Padre Dam's Ray Stoyer WRF while the remaining 12 MGD is conveyed to the City of San Diego's Metro System to be treated at the Point Loma WWTP and then

disposed of into the Pacific Ocean. The treatment costs associated with Metro System are projected to increase significantly in the near future due to the planned system upgrades under the City of San Diego's Pure Water Program. This will in turn increase the cost for the East County agencies that discharge wastewater to Metro.

Increasing purified water use in the East County through implementation of the ECAWP Program is therefore advantageous because it reduces reliance on imported water, mitigates increases in wastewater treatment costs for East County residents and offloads flows to the regional wastewater collection and treatment system and eventually to the ocean.

Given the need for a more reliable and diversified water supply, Padre Dam, along with other partnering agencies, has been exploring the potential for non-potable and potable reuse for years, including the evaluation and planning of the ECAWP Program. The goal of the Program is to explore and implement development of potable reuse and to increase the production and use of recycled water, both potable and non-potable, in East San Diego County. The Program is the result of many years of strategic, long-term planning efforts undertaken by the partnering agencies and has a capacity of producing 30% of the drinking water demand in East County.

The Phase 2 Project will build on the Phase 1 Project, which is in the implementation phase.

1.2.2 Phase 2 Project Area

The Phase 2 Project is located in East San Diego County, California and includes the services areas of Padre Dam, Helix, the County, and El Cajon. Padre Dam provides potable water, recycled water, and wastewater treatment services to approximately 100,000 customers in eastern San Diego County (Padre Dam, 2021). Padre Dam imports 100% of its potable water supply from CWA. Padre Dam's service area is divided into two separate areas termed the Eastern Service Area (ESA) and Western Service Area (WSA), approximately 60 square miles and 20 square miles, respectively. The ESA includes the unincorporated communities of Alpine, Blossom Valley, Crest, Dehesa, Flinn Springs, and Harbison Canyon. The WSA includes the City of Santee, a portion of the El Cajon, and a portion of the unincorporated community of Lakeside. Padre Dam provides drinking water services to both the ESA and the WSA while providing wastewater services to only the WSA. Padre Dam's existing average wastewater flow is approximately 3.5 MGD and the 2050 wastewater flow is projected to be approximately 5.0 MGD. An average of 2.0 MGD wastewater is treated at the Ray Stoyer WRF, owned and operated by Padre Dam, to produce Title 22 tertiary recycled water, and the remaining wastewater flow is conveyed to the City of San Diego's Metro System. The Metro System conveys wastewater from the City of San Diego and 13 participating agencies, including Padre Dam, El Cajon, and the County, to Point Loma WWTP for treatment prior to final disposal to the Pacific Ocean.

Helix provides water service to a highly urbanized area of nearly 50 square miles including the cities of La Mesa, Lemon Grove, El Cajon, and various unincorporated communities of the

County including portions of Lakeside and Spring Valley. Helix imports approximately 80% of its potable water from CWA and is discussed in further detail in Section 2.2 and 2.3. Its remaining water supply, primarily from local runoff, is stored at Lake Cuyamaca, El Capitan Reservoir, and Lake Jennings. The R.M. Levy WTP is used to treat Helix's raw water supply and has been upgraded twice since its original construction in 1965. The R.M. Levy WTP has a permitted capacity of 106 MGD, but typically operates between 27 and 50 MGD with an average flow of 40 MGD. Helix maintains 15 interconnections with neighboring water agencies (eight with Otay Water District, three with Padre Dam, two with Lakeside Water District, and two with the City of San Diego) that are used for emergency situations and planned maintenance operations. Helix owns, operates, and maintains Lake Jennings which has a storage capacity of 9,790 AF and is used primarily to store raw imported water from CWA (approximately 95% of the volume) and local runoff.

El Cajon provides wastewater service for residents of the city. In addition, wastewater flow from the community of Winter Gardens, an unincorporated area of the County, drains to El Cajon's sewer system. The combined area of El Cajon and Winter Gardens' wastewater systems covers approximately 19 square miles. El Cajon's sewer system is operated entirely by gravity, with the majority of the flow conveyed to the Metro System. El Cajon's existing average flow is approximately 6.5 MGD and is projected to be 7.8 MGD in 2050.

There are three unincorporated areas of the County included in the study area: Alpine, Lakeside, and Winter Gardens. Alpine and Lakeside are located east of Padre Dam's service area and Winter Gardens is located east of El Cajon. The service areas for Alpine and Winter Gardens are 3.3 and 1.6 square miles, respectively. Lakeside's service area is 20 square miles. All wastewater flow from Alpine and Lakeside discharges to the Metro System at the Mission Gorge Interceptor via the Lakeside Interceptor. Flow from Winter Gardens is discharged to El Cajon's wastewater system, where it is subsequently conveyed to the Metro System. The total combined existing average wastewater flow for the three County areas is approximately 3.9 MGD and is projected to be 5.6 MGD in 2050.

1.2.3 East County Advanced Water Purification Program Background

Potable reuse as pursued with the ECAWP Program (both Phase 1 and Phase 2) will be implemented as indirect potable reuse (IPR), which uses advanced treatment to produce purified water suitable for potable reuse when coupled with an environmental buffer. Following time spent traveling through an environmental buffer and blending with other raw supplies, the purified water is extracted and treated at a water treatment plant before being distributed to customers for potable use. SWA at Lake Jennings was selected as the environmental buffer. Padre Dam completed hydrodynamic modeling of Lake Jennings that demonstrated its suitability as an environmental buffer and received a Conceptual Project Approval from the California State Water Resources Control Board's Division of Drinking Water (DDW) in 2017. Lake Jennings has sufficient capacity to provide the required residence time and dilution criteria set forth in the State's SWA Regulations for the entire volume of

water recycled by the expanded Ray Stoyer WRF in both Phase 1 and Phase 2. Thus, all additional purified water produced by the ECAWP Program would be advanced treated for IPR using SWA at Lake Jennings as the environmental buffer.

1.2.4 Existing Infrastructure - Phase 1 Project

Padre Dam began the ECAWP Program with the Phase 1 Project, which is currently in the implementation phase. Because the Phase 2 Project builds on the Phase 1 Project, the Phase 1 facilities are described here to provide a complete overview of the system. While implementation of the Phase 1 Project is not yet complete, for the purposes of describing the Phase 2 Project, it is considered "existing" since the Project has already moved into the design stage with a design-build contractor. The Phase 1 Project will expand the Ray Stoyer WRF from the existing 2 MGD to 6 MGD treatment capacity and construct a new solids handling facility along with a new AWP facility to produce 3.5 MGD (3,920 AFY) of purified water for SWA at Lake Jennings. The purified water pipeline from the AWP facility to Lake Jennings will also be constructed under Phase 1. Specific infrastructure elements included in the Phase 1 Project include:

- A 6.0 MGD Ray Stoyer WRF to produce 5.7 MGD Title 22 tertiary water for recycled water use and advanced treatment. As part of the expansion, an existing holding pond (Pond A) will be dewatered and filled in and new facilities will be constructed. This upgrade will require construction of additional treatment processes including headworks, primary clarification, equalization tank, bioreactors, secondary clarifiers, tertiary filters, odor control system, and a maintenance building.
- An expanded influent pump station (IPS) to accommodate the additional flows to the Ray Stoyer WRF.
- An AWP facility with a production capacity of 3.5 MGD for potable reuse. As part of the expansion, an existing holding pond (Pond B) will be dewatered and filled in and new facilities will be constructed. The AWP facility will provide additional treatment to the recycled water from the Ray Stoyer WRF using microfiltration, reverse osmosis, ultraviolet disinfection/advanced oxidation process (e.g., ultraviolet treatment with free chlorine), free chlorine disinfection, and post stabilization. The resulting purified water will be used for SWA at Lake Jennings. The brine will be conveyed to the Metro System.
- A new biosolids digestion facility located at the Ray Stoyer WRF for the waste sludge from the expanded 6 MGD capacity Ray Stoyer WRF. The solids handling facility will include sludge thickening, anaerobic digestion, dewatering, and truck load-out facility.
- A 10-mile long, 24-inch diameter pipeline and 600 hp capacity pump station located at the AWP facility to convey purified water from the AWP facility to Lake Jennings. The purified water will mix with the native water sources in the lake before being pulled out for treatment at the existing R.M. Levy WTP for potable consumption.

1.2.5 Phase 2 Project Description

The Phase 1 Project was sized to treat all of Padre Dam's future wastewater and avoid sending any to Metro. However, the Phase 1 Project does not accept wastewater flows generated within the entire East County service area including El Cajon's and the County's service areas. El Cajon and the County generated approximately 6.1 MGD and 3.9 MGD (total of 10 MGD) of wastewater, respectively, in 2018 and are projected to generate 7.8 MGD and 5.6 MGD (total of 13.4 MGD), respectively, by 2050. That is more than twice as much wastewater generated within Padre Dam's service area.

The Phase 2 Project is sized to expand the Phase 1 Project to provide wastewater services to El Cajon and the County in addition to Padre Dam service areas. In addition to expanding wastewater services, the Phase 2 Project will expand on purified water production to create additional local water supply. The Phase 2 Project includes six major components as described below.

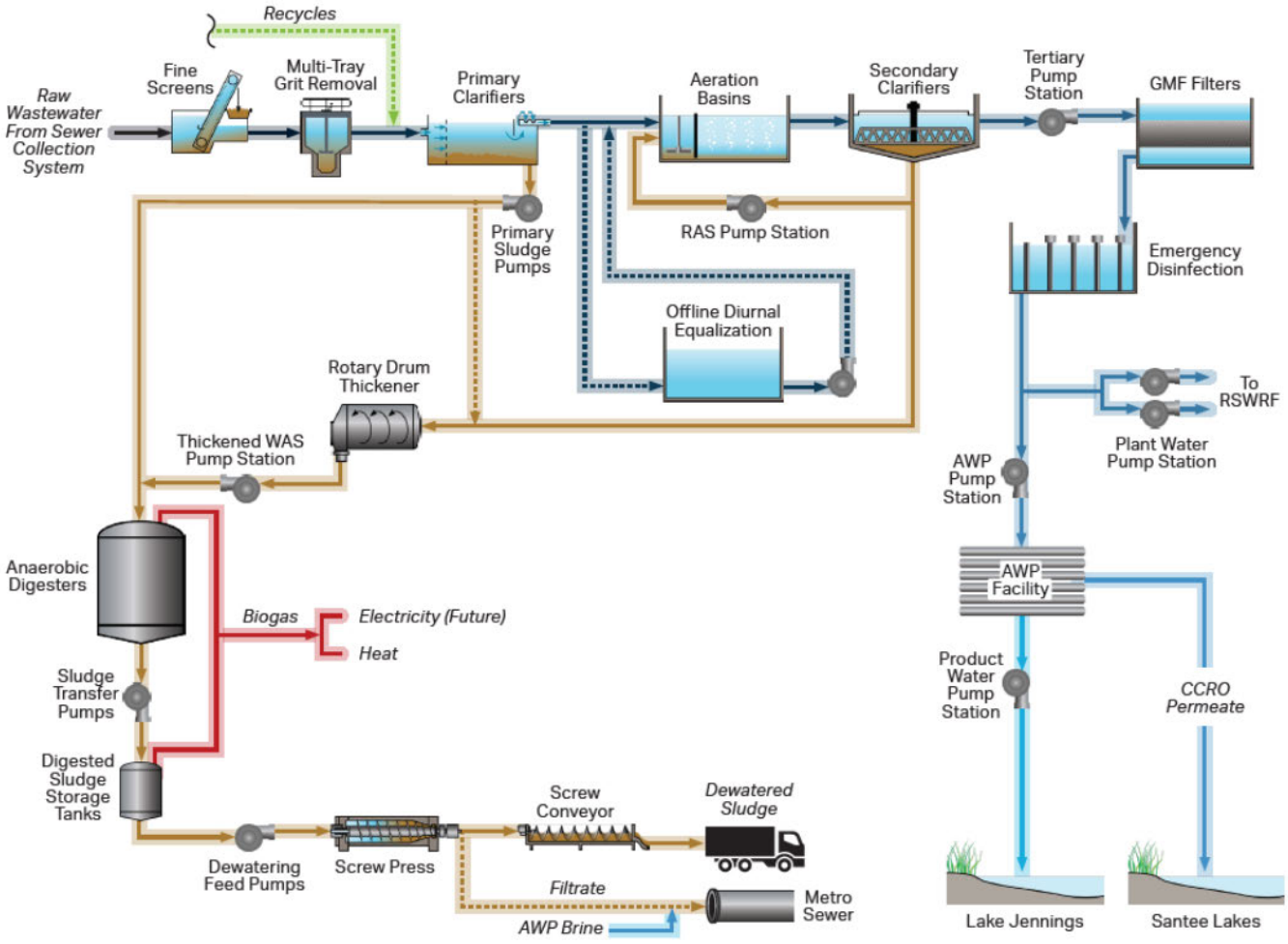
Ray Stoyer WRF Expansion

The primary, secondary, and tertiary treatment capacity of the Ray Stoyer WRF will be expanded from 6 MGD to 15 MGD. The major improvements to the Ray Stoyer WRF will be completed within the limits of the existing Ray Stoyer WRF by expanding the Phase 1 facilities including headworks, primary clarifiers, equalization basin, bioreactors, secondary clarifiers, tertiary filters, odor control system, and maintenance building. The process flow diagram is shown in **Figure 1-2**.

Headworks

A new headworks with fine screening and grit removal located above ground is planned. Mechanically cleaned screens with ¼-inch openings will be provided. Screenings will be collected in a flume trough and conveyed using plant water to a washing/compacting system. Headcell-type multi-tray grit removal units will be provided. Captured grit slurry will be pumped by hard metal recessed impeller pumps to two new cone washer/classifiers. The washer and cleaned grit will be discharged to the common dumpster with washed and dewatered screenings for offsite disposal. The grit classifier and screenings compactor room will be vented to odor control together with the headspaces under the covered channels and grit units.

Figure 1-2: Process Flow Diagram for the Treatment Processes



Primary Treatment

Screened and de-gritted wastewater will flow by gravity to the new primary clarifiers. A total of three rectangular clarifiers will be constructed as part of Phase 2. Each new tank will be 20 feet wide and will be 140 feet long. A chain and flight sludge scraper will be included for solids collection. Accumulated solids or sludge will periodically be removed by the primary sludge pumps. Features at the effluent end of each clarifier will include effluent weirs and launders plus a surface scum removal system. The primary clarifier will be covered and the headspace under the cover will be vented to odor control.

Diurnal Flow Equalization

A total equalization (EQ) volume of 1.15 MG will be constructed as part of Phase 2 to account for equalization of recycle streams. The EQ tank will be equipped with bubble mixing to maintain solids in suspension. The EQ tank will be covered and the headspace under the cover will be vented to odor control process.

Secondary Treatment

The secondary treatment process includes building new anoxic/aeration basins with sufficient aeration capacity in four-stage Bardenpho configuration, adding new secondary clarifiers, high efficiency blowers, and return sludge pumping stations. A total of four aeration basins, each with 1.75 MG volume, will be constructed as part of Phase 2. Each aeration tank will include two anoxic zones, three aerobic zones, one additional anoxic and an effluent re-aeration zone. A total of two circular secondary clarifiers will be constructed each with a diameter of 97 feet and a sidewater depth of at least 15 feet. A spiral rake type rapid sludge removal and scum collection and management systems will be included.

Tertiary Treatment

Tertiary treatment will consist of deep bed downflow granular media filtration (GMF) and will serve to further remove total suspended solids downstream of the secondary clarifiers. Ferric chloride will also be added upstream of the GMF to provide additional phosphorus removal. GMF will be designed to meet Title 22 reuse requirements. The Tertiary Pumping Station will collect secondary effluent from the secondary clarifiers and lift the secondary effluent to the Tertiary Filtration System thru a 30-inch force main. The Phase 2 Project will add four deep-bed monomedia filters.

Disinfection

While not used in normal operation, a chlorine contact tank (CCT) was envisioned to be used to discharge MF filtered effluent to Santee Lakes should a power failure or off-spec water production occur in the AWP facility.

There is also an existing CCT at the current Ray Stoyer WRF that will remain in operation for disinfection of the Title 22 flow to irrigation users. The only new work included in the Phase 2 Project is construction of a pump station to convey a portion of the tertiary treated effluent to the existing CCT for disinfection.

Solids Handling Facility

The Phase 2 Project will expand the solids handling facility to handle the solids generated from the expanded 15 MGD capacity WRF. The solids handling facility expansion will include adding additional sludge thickening, anaerobic digestion, dewatering, and truck load-out capacity.

Sludge Thickening

The solids handling facility will receive and process the primary and waste activated sludge from the Ray Stoyer WRF. The sludge will be thickened to reduce total volume before being fed to anaerobic digesters for solids stabilization and production of biosolids. Rotary drum thickeners (RTD) will be used for thickening. The WAS thickening system will also include an emulsion polymer feed system. Thickened sludge from the RDT will be pumped to the anaerobic digesters.

Anaerobic Digestion

Two 1.3 MG capacity anaerobic digesters will be added as part of the Phase 2 Project to provide solids stabilization, reduce mass and volume, and generate biogas that can be beneficially used to generate heat and possibly electricity. The digesters are sized to allow 15 days of solids retention time at maximum month conditions with one digester out of service to meet EPA Class B requirements. A portion of the generated biogas will be used in the boilers for heating the digesters, with the excess biogas being flared on-site within a metal cylindrical enclosure.

Sludge Dewatering

The stabilized solids will then be dewatered for further reduction in volume and discharged to biosolids trucks for hauling offsite. The Phase 2 Project will add two new sludge dewatering units to the sludge dewatering facility. Screw press or centrifuges are currently being evaluated. A new sludge thickening and dewatering building will be constructed to accommodate both the new RDT thickeners and new dewatering units.

Sludge Cake Loadout

The dewatered biosolids will ultimately be loaded into trucks and transported offsite. The truck load out will consist of cake hoppers to store the dewatered solids and truck loading stations.

AWP Facility Expansion

The Phase 2 Project will expand the Phase 1 AWP facility, including expansions to the microfiltration, reverse osmosis, ultraviolet/oxidation, brine minimization process, free chlorination, and post stabilization. The AWP facility expansion will increase the purified water production capacity from 3.5 MGD to 11.5 MGD (an 8.0 MGD increase). An operation building including a visitor center and a new laboratory will also be included.

Membrane Filtration

The MF system will be comprised of individual membrane racks, each containing membrane modules, piping, valves, instrumentation, panels, and a steel frame. The racks will operate in parallel to each other and are connected via common influent, filtrate, and backwash header. Six total racks, each containing 120 modules, will be in service at normal operating condition after implementation of the Phase 2 Project (4 racks being added in Phase 2).

Reverse Osmosis

The RO system will consist of a primary RO system and a secondary RO system to facilitate higher recoveries and provide operational flexibility. The primary RO system will be a conventional two-stage system designed for 75% recovery. The concentrate from the primary RO system will then be further treated by the secondary RO system to target an overall RO system recovery of 95%. The Phase 2 Project will add four trains to the primary RO system equipment, each containing 66 pressure vessels. The trains will be connected to common feed, permeate, concentrate, flush feed, flush waste, and cleaning system headers. Product water

from each train will be combined and piped to the UV/AOP system. Concentrate from the trains will be combined and sent to the secondary RO system. A Closed Circuit Reverse Osmosis (CCRO) system will be employed for the secondary RO system. Each secondary RO train will include a transfer pump, cartridge filter, feed pump, pressure vessels, and recirculation pump. Each train will contain 60 pressure vessels.

UV Disinfection with Advanced Oxidation

The remaining organic compounds in the combined (primary and secondary) RO permeate will be removed via an Ultraviolet / Advanced Oxidation Process (UV/AOP). The UV system will be based on low-pressure high output mercury lamps with quartz sleeves mounted in a stainless-steel reactor. The oxidation agent will be free chlorine (injected as sodium hypochlorite). Water will be pumped through the UV reactor using the residual pressure from combined primary RO and secondary RO effluent. The Phase 2 Project will add two reactors (each sized to treat 50% of the flow, two in operation plus one standby).

Post-Treatment Stabilization

Downstream of the UV/AOP, chemicals will be added to stabilize the water to meet the pH, alkalinity, and Langelier Saturation Index (LSI) goals. Stabilization will be achieved through the sequential addition of carbon dioxide (CO_2) followed by hydrated lime. CO_2 will be stored on-site as a liquid in a horizontal, insulated, refrigerated storage tanks. The lime storage system consists of a lime storage silo, designed to hold dry hydrated lime. The solid lime is dosed to a batch preparation tank by a heavy-duty gravimetric (low-density system), or volumetric (high-density system) feeder.

Product Water Pump Station (PWPS)

The PWPS will collect the treated water downstream of UV/AOP, stabilization, and residual disinfectant addition for conveyance to Lake Jennings. The PWPS capacity will be expanded in Phase 2 by adding additional pump to increase the total pumping capacity from 3.5 mgd to 11.5 mgd of flow.

EMG Pump Station Modifications

The EMG pump station is an existing City of San Diego facility that currently conveys wastewater from East San Diego County to the North Mission Valley Interceptor, which ultimately flows to the Point Loma WWTP. The Phase 2 Project includes retrofits to the existing EMG pump station, such as replacing mechanical and electrical components, to repurpose the EMG pump station to pump up to 22 MGD of sewer flow to the Ray Stoyer WRF. Construction will include removal of miscellaneous unused equipment and equipment replacement from within the interior of the EMG pump station. A new diversion structure will be constructed to facilitate wastewater flow from the collection system to the wet well. Four existing 500 horsepower (hp) wastewater pumps will be removed and replaced with four new 600 hp (estimated) pumps. Existing bar screens will be removed and replaced. Construction will also include electrical lighting upgrades, electrical equipment removal and replacement

(pump variable frequency drives), control system removal and replacement, emergency generator installation and construction of associated pads and electrical work, odor control system modifications, surge protection system modifications, chemical metering pump removal and replacement, piping modifications, and valve and appurtenance removal and replacement.

EMG Force Main

The new force main from the EMG pump station will be 30 inches in diameter and approximately 18,200 feet long and will convey wastewater flows to the expanded Ray Stoyer WRF. Construction methods would be trenchless, such as horizontal directional drilling or similar methods, from the EMG to the paved road to the west side of Lake 1 of Santee Lakes. Conventional open-cut construction methods would be used for the remaining proposed alignment from west of Lake 1 to the Ray Stoyer WRF.

Residuals Bypass System

The proposed Residuals bypass system would discharge brine from the AWP facility and centrate from the solids handling facility (collectively referred to as residuals) directly to Metro facilities downstream from the EMG pump station. The Residuals bypass system pipeline will include sliplining of approximately 8,800 feet of the existing 24-inch sludge line in Sycamore Canyon Road, new construction of approximately 3,100 feet of 16-inch diameter gravity pipeline (to be constructed using conventional open-cut), and new construction of approximately 3,500 feet of 12-inch diameter force main (to be constructed using trenchless methods such as horizontal directional drilling). Areas where existing manholes are located in Sycamore Canyon Road would be utilized as sliplining access pits, with one additional new manhole proposed between Lake 3 and Lake 4. A new 1.7 MGD capacity lift station will be constructed to convey the residuals to the Metro system via a new proposed Regional Brine Pipeline that is not covered by the Phase 2 Project scope.

1.2.6 Phase 2 Project Status

Planning, permitting, and environmental documentation for the Phase 2 Project has begun. All Phase 2 Project elements are currently in the design phase. East County JPA is implementing the Phase 2 Project using a progressive design-build method. The Phase 2 Project work are covered under two separate bid packages – one for the WRF, AWP facility and solid handling facilities expansion (named Package 1) and one for the EMG pump station improvements, the new EMG force main and a residuals bypass system (named Package 3). Note that Package 2 covers the AWP pipeline to Lake Jennings and is part of the Phase 1 Project. Design-builders have been secured for all construction packages, and design work is ongoing. Construction of the Phase 2 Project is anticipated to begin in summer 2022 and continue through summer 2025, with commissioning completed in spring 2026. Following construction completion, the treatment facilities will be started up in two steps and the AWP treatment process will be subject to further on-site testing, regulatory review and approval before discharging the product water to Lake Jennings since it is a potable reuse facility. These

factors extended the timeline for start-up and commissioning activities. The schedule has also been extended slightly compared to the FY 2021 WIIN application for the Phase 2 Project; in addition to the longer commissioning process, delays of approximately 6-12 months are being experienced due to COVID-19-related supply chain issues and market conditions for construction projects. The status of environmental compliance and permitting are described in Section 2, *Environmental and Cultural Resources Compliance*, and Section 3, *Required Permits or Approvals*.

Table 1-2: Phase 2 Project Status

Component	Design Status	Estimated Completion of Final Design	Construction Start Date	Construction End Date	Commissioning End Date
AWP Facility, Ray Stoyer WRF Expansion, Solids Handling Facility	Draft 60% design completed	May 2023	July 2022	June 2025	March 2026
EMG Force Main and Residuals Bypass System	Draft 60% design completed	March 2023	July 2022	June 2024	March 2026
EMG Pump Station	Draft 60% design completed	March 2023	July 2022	June 2024	March 2026

1.3 Evaluation Criteria

1.3.1 Evaluation Criterion 1: Water Supply

The Phase 2 Project will create an additional 8,960 AFY of potable water through the use of purified water for Padre Dam and Helix. Padre Dam's 100,000 gpd capacity AWP Demonstration Facility has been constructed and under operation since April 2015, demonstrating that the AWP facility will meet or exceed all DDW standards for potable reuse water, while the Lake Jennings hydrodynamic modeling results showed it was suitable for SWA. With this proof of concept, Phase 1 of the ECAWP Program is being implemented. The Phase 2 Project will further expand the Program's capability to produce purified water for use in SWA creating a new water supply within East San Diego County. Purified water produced by the Phase 2 Project will be used to offset a portion of the potable water demands currently met with imported water sourced from the SWP and the Colorado River.

1.3.1.1 *Subcriterion No. 1a - Stretching Water Supplies*

1. ***How many acre-feet of water are expected to be made available each year upon completion of the Project? What percentage of the present and/or future annual demand in the project sponsor's service area will the Project's reclaimed water provide upon Project completion? The percentage should be based on the total service area demand, not just recycled water demand. Use the total capacity of the entire Project***

upon completion, not just the water that will be produced by the activities that will be completed over the next two years.

Once completed, the Phase 2 Project will produce a total of 8,960 AFY of potable water from local, drought-proof, sustainable supplies offsetting an equal amount of imported water. Deliveries of potable water are expected to begin in mid-2026, immediately following completion of construction and commissioning of the Phase 2 Project in early 2026. The first full year of operation will be 2027.

All potable water created by the Phase 2 Project will provide potable water to Padre Dam and Helix customers. Padre Dam and Helix's potable supplies would increase by 8,960 AFY. As shown in **Table 1-3**, the Phase 2 Project supply of 8,960 AFY (8 MGD) equates to 20% of Padre Dam and Helix's total water demands in 2030 and 18% of their total demands in 2040. The Phase 2 Project will offset approximately 20% of the imported water demand in 2030 and 19% of the imported water demand in 2040. The Phase 1 and Phase 2 Projects together will account for between 27-29% of Padre Dam's and Helix's combined imported water demand.

Table 1-3: Percentage of Padre Dam and Helix Potable Water Demands Provided by Phase 2 Project

Service Area	2030	2035	2040
Total Water Demand			
Padre Dam Potable Water Demand (AFY)	13,586	14,623	15,473
Helix Potable Water Demand (AFY)	31,964	32,674	33,114
Total Potable Water Demand	45,550	47,297	48,587
Phase 2 Project Potable Water Supply (AFY)	**8,960**	**8,960**	**8,960**
% of Demand	**20%**	**19%**	**18%**
Phase 1 and Phase 2 Potable Water Supply (AFY)	12,880	12,880	12,880
% of Demand	28%	27%	27%
Imported Water Demand Only			
Padre Dam Imported Water Demand (AFY) if ECAWP was not implemented	13,586	14,623	15,473
Helix Imported Water Demand (AFY) if ECAWP was not implemented	30,322	31,032	31,472
Total Imported Water Demand (AFY) if ECAWP was not implemented	43,908	45,655	46,945
Phase 2 Project Imported Water Offset (AFY)	**8,960**	**8,960**	**8,960**
% of Demand	**20%**	**20%**	**19%**
Phase 1 and Phase 2 Imported Water Offset (AFY)	12,880	12,880	12,880
% of Demand	29%	28%	27%

Source: Padre Dam 2021, Helix 2021, CWA 2021

2. ***Will the Project reduce, postpone, or eliminate the development of new or expanded non-recycled water supplies? Explain.***

With the exception of SWA from the Phase 1 Project, Padre Dam's entire drinking water supply consists of water purchased from CWA and is primarily imported water from the SWP and Colorado River, with some local desalinated seawater from the Carlsbad Desalination Project. Helix's water supply is also primarily imported from the SWP and Colorado River via CWA with a small portion of local surface supply. As a result of local policies to reduce reliance on imported water supplies, all water produced by the Phase 2 Project (8,960 AFY) would be used to offset imported water, rather than offsetting both imported water and local desalinated water. Offsetting this source of water would reduce or postpone the need to develop future additional imported water supplies and associated infrastructure. Padre Dam's source opportunities are limited to water purchased from CWA, locally-produced recycled water, and minimal groundwater used to supplement the recycled water supply (Padre Dam, 2021). Helix is also fully reliant on CWA imported water with the exception of Well 101 and local runoff, which is a very small percent of Helix's supply. Without expansion of the Ray Stoyer WRF, any increase in demand as Padre Dam and Helix's population grows and the region experiences other factors that increase demand (including but not limited to economic growth, changes in precipitation regime and drought, or natural disaster) would need to be met by increased imported water purchases.

Existing groundwater in the Santee Basin is unlikely to be developed as a supply due to groundwater rights-related challenges and the City of San Diego's longstanding Pueblo rights to the shared basin. Surface water flows from the San Diego River also present limited supply opportunities for similar reasons. Purified water is a local, drought-proof, sustainable supply, and creates a new source of potable water for Padre Dam and Helix's customers that would reduce, postpone, or could eliminate the need for new or expanded non-recycled supplies for the future.

3. ***Will the Project alleviate pressure on existing water supplies and/or facilities? If so, please describe the existing water supplies and/or facilities that will be impacted and explain how they will be impacted by the Project, including quantifications where applicable.***

The Phase 2 Project would alleviate pressure on imported water systems (SWP and the Colorado River) by offsetting Padre Dam and Helix demands for imported water. As noted above, Padre Dam's entire potable water supplies and the majority of Helix's supplies are sourced from water purchased from CWA. These supplies comprise desalinated seawater (Carlsbad Desalination Project) and imported water (SWP and Colorado River water). Given the cost of imported water and the region's goal to reduce reliance on imported water, any water that offsets purchases from CWA would be used to offset demands on imported water (as opposed to desalinated seawater). Thus, the 8,960 AFY of purified water generated by the Project will directly offset an equal amount of imported water.

The Phase 2 Project will offset demands for imported water, which means that diversions from natural watercourses will also be reduced by the Phase 2 Project. As stated above, the Phase

2 Project will offset 8,960 AFY of imported water that is currently diverted from the Colorado River and the Sacramento-San Joaquin Bay-Delta (via the SWP), allowing these volumes to remain in the rivers instead.

Additionally, the Phase 2 Project would also alleviate pressure on the regional wastewater conveyance and treatment system, and specifically on Point Loma WWTP, by diverting wastewater flows that would otherwise be sent to the Metro System. Instead, the Phase 2 Project will treat an additional 9 MGD wastewater flows at the expanded Ray Stoyer WRF.

Point Loma WWTP is 20 miles away from Padre Dam, the County, and El Cajon service areas and several large lift stations are used for conveyance. By reducing the volume of wastewater sent to the Point Loma WWTP, the Phase 2 Project would reduce the need for future expansion of the wastewater infrastructure.

4. ***What performance measures will be used to quantify actual benefits upon completion of the Project?***

The Phase 2 Project will provide multiple benefits. Of these, the primary benefit will be the creation of a new local water supply for Padre Dam and Helix, with secondary benefits including offsetting wastewater flows to Point Loma WWTP, reducing the need for future expansion of water and wastewater infrastructure to accommodate continued and/or increased demand for imported water and increased capacity and treatment capabilities at Point Loma WWTP, reduced pollutant discharges to local surface waters, and improved water supply reliability. These secondary benefits all stem from the primary benefit of creation of new water. **Table 1-4** briefly describes how the project's quantifiable physical benefits will be measured and what quantified benefit is expected.

Table 1-4: Project Performance Measures for Phase 2 Project

Physical Benefits	Measurement Tools and Methods	Targets
Augmented Potable Water Supply	Padre Dam will record annual purified water production volume that is delivered to Lake Jennings to determine how much potable water is used to augment the lake from the Phase 2 Project.	8 MGD (8,960 AFY)
Imported Water Offset	Padre Dam and Helix will measure offset imported water as equivalent to the total water delivered by the Phase 2 Project.	8,960 AFY
Offloading from Point Loma WWTP	The volume of wastewater flows sent to Point Loma WWTP that are offloaded as a result of the Phase 2 Project is equivalent to the increased volume of wastewater diverted to the Ray Stoyer WRF (9 MGD), less brine and centrate from solids treatment facility discharged to the Metro System.	9 MGD
Water Quality Improvement	Padre Dam will provide flow monitoring data for wastewater effluent sent to the Metro System along with	60 mg/L reduction

Physical Benefits	Measurement Tools and Methods	Targets
	water supplied to customers by the expanded Ray Stoyer WRF to determine the total offloading from Point Loma WWTP. In addition, Padre Dam will provide effluent water quality (TSS) data for ocean discharges from Point Loma WWTP to determine the reduction in TSS concentration discharged to the Pacific Ocean attributable to this Project. Padre Dam will provide flow monitoring data for purified water sent to Lake Jennings, along with water quality data for water supplied from Lake Jennings to the water treatment plant to determine improvements in the total dissolved solids (TDS) at Lake Jennings associated with the Project.	in TSS[1] <50 mg/L TDS for purified water delivered to Lake Jennings

[1] Effluent discharge TSS concentration limitation of the Point Loma WWTP is 60 mg/L based on Order No. R9-2017-0007, NPDES No CA0107409, Waste Discharge Requirements and National Pollutant Discharge Elimination System (NPDES) Permit for the City of San Diego E.W. Blom Point Loma Metropolitan Wastewater Treatment Plant Discharge to the Pacific Ocean Through the Point Loma Ocean Outfall. TSS concentration may fluctuate based on Point Loma WWTP treatment performance.

1.3.1.2 *Subcriterion No.1b - Contributions to Water Supply Sustainability*

1. ***Will the Project make water available to address a specific concern? Consider the number of acre-feet of water and/or the percentage of overall water supply to be made available by the Project. Explain the specific concern and its severity. Also explain the role of the Project in addressing that concern and the extent to which the Project will address it.***

Yes, the Phase 2 Project makes water available to address the following specific concerns: water supply shortages, reduced water supply reliability, limited availability of alternative supplies, heightened competition for water supplies; natural disasters that may impact water supply infrastructure; the increasing cost of imported water; and the water quality of Lake Jennings. These specific concerns, their severity, and the Phase 2 Project's role in addressing the concerns are summarized in **Table 1-5** and discussed in detail below.

Table 1-5: Specific Concerns Addressed by Phase 2 Project

Concern	Severity	How Phase 2 Project Addresses Concern
Water supply shortages, reduced water supply reliability, limited availability of alternative supplies, heightened competition for water supplies	Severe	Provides 8,960 AFY of new drought-proof water supply
Natural disasters that may impact water supply infrastructure	Severe	Provides 8,960 AFY of local water supply that does not rely on SWP or Colorado River aqueducts

Increasing cost of imported water	Severe	Offsets 8,960 AFY of imported water
Water quality in Lake Jennings	N/A	Water quality in Lake Jennings is good, and the Phase 2 Project may have potential to further improve the water quality.

Water Supply Shortages, Reduced Water Supply Reliability, Limited Availability of Alternative Supplies, Heightened Competition for Water Supplies

The Phase 2 Project addresses the interrelated concerns of water supply shortages, reduced water supply reliability, limited availability of alternative supplies, and heightened competition for water supplies. Each of these concerns falls under the umbrella of water supply reliability. Padre Dam and Helix, along with numerous other water supply agencies in the San Diego region, rely heavily on imported water supply. Water purveyors in the San Diego region are working to improve water supply reliability by diversifying the water portfolio and seeking to develop sustainable local supplies. This is a key objective in the San Diego Integrated Regional Water Management (IRWM) Plan (SDRWMG, 2019), in whose program Padre Dam, Helix, the El Cajon, and the County are active participants. A ten-year average from 2007-2016 found that imported water comprised 85% of the IRWM region's water supply (includes local supplies from CWA member agencies). Surface water represented 9% of supply, while groundwater and recycled water provided 3% and 5%, respectively (SDRWMG, 2019). This demonstrates the region's significant reliance on imported water, which carries concerns related to reliability, shortages, and increased competition.

Imported water reliability is threatened by increasing challenges to the use of the SWP and Colorado River. The recent and ongoing drought led to restrictions on SWP allocations, which can lead to trickle-down restrictions on deliveries from Metropolitan to CWA, and from CWA to Padre Dam and other member agencies. Over the last eight years, SWP allocations have been highly variable, but always below full allocations. In 2014, SWP deliveries were limited to 5% of allocations; then in 2015, SWP deliveries were cut to 20% of allocations (DWR, 2022). California experienced a few storms that allowed allocations to be as high as 60% in 2016 and 85% in 2017, though water restrictions remained in place (DWR, 2022). However, 2018 allocations were set at only 35% as a result of another dry year, and while 2019 allocations were 75%, 2020 saw an allocation of 20% as a result of below average winter precipitation (DWR, 2022). Allocations in 2021 were limited to 5% (DWR, 2022). 2022 began with an allocation of 0%, which was raised to 15% as of January 20, 2022 (DWR, 2022). In years with restricted allocation, competition for imported supplies increases. As demonstrated by the range of allocations from 2014 to 2022, they can be highly variable, difficult to predict, and compound the lack of reliability.

In order to address these concerns, agencies are increasingly pursuing local sources of supply. Local supplies are available to varying degrees to agencies in the San Diego region, and include surface water, groundwater, recycled water, and desalinated seawater. Rainfall in the region averages ten inches per year, and each of the eleven watersheds in San Diego County has a short enough residence time for all surface water flows to meet the criteria for flash flooding (less than 6 hours from headwaters to coast). This short residence time, coupled with limited rainfall and virtually no snowmelt, limits surface water availability and capture opportunities. During the 2021 Water Year (October 1, 2020 to September 30, 2021), San Diego received just 3.25 inches of rain (CIMIS, 2022).

Regionally, groundwater is limited by relatively small groundwater basins that are generally not suited for long-term storage and/or face water quality issues. The California Statewide Groundwater Elevation Monitoring (CASGEM) program has designated all groundwater basins in the region as very low priority. While local agencies and CWA are working towards improving their use and collection of surface and groundwater supplies, recycled water and desalination represent the greatest opportunities for local supply development.

The Phase 2 Project will produce a total of 8,960 AFY of new purified water. Purified water is a drought-proof, sustainable, local supply, meaning that reliability of the water produced by the Phase 2 Project is very high compared to other water supplies. This water will offset approximately 20% of Padre Dam and Helix's imported water purchases (see **Table 1-3**, above). The Phase 2 Project will provide a consistent source of supply, thereby reducing the impact of water supply shortages from other sources. The Phase 2 Project also addresses limited availability of alternative supplies by developing potable reuse, which is one of the few options for new, reliable water supply in the San Diego region. Lastly, by offsetting demand for imported water with a drought-proof local supply, the Phase 2 Project directly addresses heightened competition for water supplies.

Natural Disasters That May Impact Water Supply Infrastructure

Currently, Padre Dam and Helix rely heavily on imported water, which is conveyed hundreds of miles via the Colorado River Aqueduct and California Aqueduct. Increased risk of supply disruption is inherent with transporting resources over a large distance, making these systems vulnerable to natural disasters such as earthquakes. Purified water supply is extremely reliable so long as the infrastructure is functioning. The risks to the Phase 2 Project infrastructure are minimal compared to risks to imported water infrastructure due to the smaller size and limited area covered by Padre Dam and Helix's water infrastructure. In this way, the Phase 2 Project helps to buffer against the impacts of potential natural disasters that may impact water infrastructure should such a disaster affect the long-distance imported water infrastructure.

Increasing Cost of Imported Water

As noted in *Section 1.2.1*, above, the majority of Padre Dam and Helix's potable supply is purchased from CWA, 90% of which is imported water. Supply projections show CWA's supply

mix as 12% desalinated seawater and 87% imported water in 2020, with imported water projected to be 86% of CWA supplies by 2040, assuming all planned local supply projects in the region are implemented. CWA supply is becoming increasingly more expensive, and Padre Dam's water costs rose 153% between 2011 and 2020. The increased expenses also contribute to reliability concerns of imported water. CWA water rates are projected to continue to increase, as addressed in *Evaluation Criterion 3*, below. The Phase 2 Project was developed to make an additional 8,960 AFY potable water available, which will reduce dependence on expensive CWA supplies. By implementing a lower cost supply solution, the Phase 2 Project addresses increasing cost of water supplies and provides a means for local cost control on potable water for the East County residents.

Water Quality Issues

While the water quality in Lake Jennings is considered good as a majority of the content is imported water, Lake Jennings also receives local runoff from El Capitan Reservoir when excess water is available for Helix. Historically, treatment of this water source has been challenging at the water treatment plant due to poor water quality and presence of algae. The Phase 2 Project may have the potential to further improve the water quality in Lake Jennings by providing a reliable source of water for blending. There are also concerns regarding the salinity of imported water and the quality of wastewater effluent that is discharged from the Point Loma WWTP to the Pacific Ocean. The Phase 2 Project will improve surface water quality in Lake Jennings through delivery of purified water for blending with other supplies for the reservoir, as well as improve potable water quality by reducing salinity in the potable water source; as a result, groundwater salinity will eventually be improved as lower salinity water is used in the region. The Phase 2 Project will also improve surface water quality through reduction of wastewater flows to Point Loma WWTP (and ultimately discharge to the Pacific Ocean). More information is provided in Section 1.3.2.

2. ***Will the project address climate change? E.O. 14008:* Tackling the Climate Crisis at Home and Abroad *focuses on increasing resilience to climate change and supporting climate resilient development. E.O. 14008 emphasizes the need to prioritize and take robust actions to reduce climate pollution; increase resilience to the impacts of climate change; protect public health; and conserve our lands, waters, oceans, and biodiversity. Please describe how the project will address climate change.***

Climate change is expected to impact the San Diego region in numerous ways, such as temperature increases, precipitation regime changes, sea level rise, increased wildfire risk, and other impacts (SDRWMG, 2019). Together, climate impacts have the potential to dramatically impact water supply, water quality, hydrology, and infrastructure. Critically, climate change is expected to produce more extreme precipitation scenarios, including longer and more severe droughts, as well as more severe storm events. These events are also expected to occur on more variable timelines, making it challenging to plan for these scenarios (SDRWMG, 2019). Thus, resilience to climate change impacts is of utmost

importance. Imported water supplies from the Colorado River and SWP, which are heavily relied upon in the San Diego area, are vulnerable to climate change since they depend upon precipitation and snow melt. Thus, the water supply reliability concerns discussed under Subcriterion 1b, above, are highly interrelated with climate change impacts. The Phase 2 Project will provide a drought-proof, local source of water to Padre Dam and Helix, significantly reducing their exposure to climate risks embedded in the imported water supply.

The water supply provided by the Phase 2 Project will protect public health by ensuring a reliable source of water for health and safety purposes in the event of extended drought or other extreme climate change impacts to imported water supplies.

The Phase 2 Project will also offset SWP supplies which are currently pumped through the San Francisco-San Joaquin Bay Delta (discussed further in Section 1.3.2), thus improving habitat conditions for numerous species in that area. The Phase 2 Project will also reduce the volume of wastewater sent to the Point Loma WWTP, thereby reducing certain constituents discharged through Point Loma WWTP's ocean outfall into the Pacific Ocean (discussed further in Section 1.3.2). The Phase 2 Project may also improve surface water quality in Lake Jennings, as described above in Section 1.3.1.2 above. Thus, the Phase 2 Project will contribute to improved water quality in both surface and coastal waters, which improves the health of these ecosystems and improves their ability to adapt to climate change impacts.

3. ***Will the project help create additional flexibility to address drought? Will water made available by this Project continue to be available during periods of drought? To what extent is the water made available by this Project more drought resistant than alternative water supply options? Explain.***

Purified water produced by the Phase 2 Project is a drought-proof supply. The source for purified water in the Phase 2 Project area is wastewater and any other flows entering the Padre Dam, El Cajon, and County sanitary sewer systems. Wastewater flows decrease by 10% to 20% during drought as people reduce water use by shortening showers, reducing toilet flushes, turning off taps, and other conservation measures; however, majority of the wastewater flow is still produced and could be treated to produce purified water.

The purified water produced by the Phase 2 Project is significantly more drought resistant than alternative water supply options. Alternative water supply options available to Padre Dam and Helix are limited primarily to additional imported water supplies from CWA. As stated above, imported water currently used by Padre Dam and Helix customers is subject to potential restrictions during drought. As shown in **Table 1-3**, utilizing the purified water provided by the Phase 2 Project will reduce the use of imported supplies by approximately 20% for Padre Dam and Helix through the creation of drought-proof local supplies, so the Project will create additional flexibility to Padre Dam and Helix in terms of water system operation and supply portfolio during times of drought.

4. ***Has the area served by the Project been identified by the United States Drought Monitor as experiencing severe, extreme, or exceptional drought at any time in the last four years?***

The U.S. Drought Monitor map showed San Diego County as being in Severe Drought, from mid-May 2018 to the end of December 2018. Beginning in mid-September 2020, portions of San Diego County were classified as experiencing Moderate Drought; from May 2021 through November 2021, portions of San Diego County were classified as experiencing severe drought conditions (U.S. Drought Monitor, 2022).

5. ***Has the area served by the Project been designated as a drought disaster area by the State in the last four years?***

The governor of California declared a drought state of emergency for the State in October 2021 (State of California, 2021). Further, the U.S. Department of Agriculture declared San Diego County a drought disaster area in 2019 and again in 2021 (USDA, 2022).

1.3.2 Evaluation Criterion 2: Environment and Water Quality

1. ***Will the Project improve the quality of surface water or groundwater? If so, how?***

The Phase 2 Project will improve surface water quality in Lake Jennings through delivery of purified water for blending with other supplies for the reservoir, as well as improve potable water quality by reducing salinity in the potable water source; as a result, groundwater salinity will eventually be improved as lower salinity water is used in the region. The Phase 2 Project will also improve surface water quality through reduction of wastewater flows to the Point Loma WWTP (and ultimately discharge to the Pacific Ocean).

Salt management has been a key water quality consideration for Southern California. Reclamation, Metropolitan, and Southern California Salinity Coalition (SCSC) completed the 1999 Salinity Management Study which presented the findings and recommendations of an investigation of the impacts of total dissolved solids (TDS) – or salinity – in Southern California water supplies. The three entities engaged in a joint effort to update the findings of the 1999 Salinity Management Study in 2012. The imported water supply, particularly Colorado River water, has high TDS levels (630 mg/L on average). Metropolitan's Board of Directors adopted the Salinity Management Policy to focus on long-term salinity control (e.g., 500-mg/L annual TDS goal) (SCSC, 2012).

The Phase 2 Project will produce water low in TDS, which will improve water quality in areas with impacted water supplies – a major issue for Southern California due to the high salinity of imported water sources. Purified water from the Phase 2 Project will be highly purified, with anticipated TDS concentrations less than 50 mg/L after advanced treatment (Padre Dam, 2015b). As this high-quality purified water is added to Lake Jennings, it mixes with the existing water in the reservoir, primarily imported water known to be high in TDS (500 mg/L or higher depending on the imported water source). This mixed water is then treated for potable use. As a result, purified water from the Phase 2 Project would not only reduce salinity levels in the

reservoir to benefit the aquatic life but also reduce salinity in the potable water. It is estimated that local potable reuse projects in the San Diego area could produce water with salinity levels 20 times lower than non-potable recycled water and up to 10 times lower than the drinking water currently delivered to residents (City of San Diego, 2012; Padre Dam, 2020). Potable water with lower salinity level would result in lower salinity in the wastewater and therefore less salinity in the recycled water which is mainly used for irrigation and for Santee Lakes Preserve in the Padre Dam service area in East County. As a result, salinity of surface water and groundwater within the watershed would improve over time. In addition, there is a benefit to water customers, because water heaters, clothes washers, dishwashers, and fixtures will also last longer with lower salinity levels.

2. ***Will the Project improve effluent quality beyond levels necessary to meet State or Federal discharge requirements?***

The Phase 2 Project will improve wastewater effluent discharge quality by reducing the volume of wastewater sent to the Point Loma WWTP and thereby reducing the TSS discharged through Point Loma WWTP's ocean outfall into Pacific Ocean. Currently, the majority of wastewater collected within the Phase 2 Project area flows to the City of San Diego's Metro System, where it is treated at the Point Loma WWTP and ultimately discharged through the ocean outfall. As required by Point Loma WWTP's NPDES permit (Order No. R9-2017-0007) the facility must achieve a 75% removal of TSS, or reduce TSS to an average of 60 mg/L, whichever is greater. On an annual basis, the Point Loma WWTP must limit discharges of TSS to 12,000 metric tons per year (mt/year). This project, by diverting 8,960 AFY of water from the Point Loma WWTP, will reduce the TSS discharged through the ocean outfall by approximately 663 mt/year, which is approximately 5% of the annual mass emission limit.

$$60\frac{mg}{L}\times\frac{1{,}233{,}482\ L}{AF}\times\frac{8{,}960\ AF}{Year}\times\frac{1\ kg}{1{,}000{,}000\ mg}\times\frac{1\ metric\ ton}{1000\ kg}=663\ mt/year$$

3. ***Will the Project improve flow conditions in a natural stream channel? If so, how?***

The Phase 2 Project will decrease demand for imported water supplies from the SWP and Colorado River, drawn from the Sacramento-San Joaquin Bay-Delta (Bay-Delta) and the Colorado River, respectively. Reducing demand by a total of 8,960 AFY will improve flow conditions in the natural stream channels (i.e., the Bay-Delta and Colorado River). Each of these supply sources support a variety of fish and wildlife species that could benefit from the increased flows that are the direct result of reduced exports. By decreasing the importation of water from these supply sources, the Phase 2 Project could increase flows within those systems and enhance the habitat for the associated species.

4. ***Will the Project restore or enhance habitat for non-listed species? If so, how?***

The Bay-Delta encompasses 1,600 square miles and provides habitat for more than 500 species of fish and wildlife. The 2013 Bay Delta Conservation Plan identified over 30 non-listed species potentially impacted by withdrawals from that system through the SWP (Reclamation

and DWR, 2013). Impacts occur due to the change of river flow by pumping, capture within pumping equipment, and increased saltwater intrusion due to pumping. A decrease in water imported through the SWP could help to alleviate these pressures on the Bay-Delta ecosystem and could help restore habitat for non-listed species.

The Lower Colorado River supports several hundred species of wildlife. Water is diverted from the Colorado River primarily at Lake Havasu and transported to Southern California via the Colorado River Aqueduct. The result of this and other diversions is a decrease in flows to support the Lower Colorado River ecosystem. The 2004 Lower Colorado River Multi-Species Conservation Program covers 17 species that are not federally listed (LCRMSCP, 2004). The plan estimates that flow reductions could reach 1,574,000 AFY by 2051, resulting in lower water levels and higher concentrations of contaminants from agricultural runoff. Water, in sufficient quantity and quality, is fundamental to the health of the Colorado River and to the local survival of those 17 non-listed species. By decreasing their reliance on imported water supplies, the Phase 2 Project could increase the quality and quantity of water in the Colorado River thereby supporting the health of the River and restoring and enhancing the habitat for all those species dependent upon it.

5. ***Will the Project provide water or habitat for federally listed threatened or endangered species? If so, how?***

As described above, the Phase 2 Project would produce purified water supplies that would directly offset imported water. In the Bay-Delta system, this could mean increased outflow through the San Francisco Bay helping to reduce salinity and improve habitat for fish and other species. In addition to the non-listed species mentioned above, there are 21 federally listed threatened and endangered species in the Bay-Delta that would benefit from the reduction in imported water required by Padre Dam and Helix.

The Lower Colorado River is home to six federally listed endangered or threatened species. As described above, decreasing the importation of water from the Colorado River could improve both the quality and quantity of water there and lead to improved habitat for the federally listed species.

1.3.3 Evaluation Criterion 3: Economic Benefits

1.3.3.1 Subcriterion No.3a – Cost Effectiveness

The Phase 2 Project cost and its benefits have been determined based on engineering cost estimates. Phase 2 Project costs are presented in 2019 dollars for consistency with the ECAWP Program Phase 2 Project Feasibility Study.

1. ***Reclamation will calculate the cost per acre-foot of water produced by the Project using information provided by Project sponsors. Please provide the following information for this calculation:***

(a) The total estimated construction costs, by year, for the Project (include all previous and planned work).

Construction costs by year for the Phase 2 Project are listed in **Table 1-6** below, and are based on cost estimates provided in the ECAWP Program Phase 2 Project Feasibility Study (Padre Dam, 2019). The total construction cost for the Phase 2 Project is $184,870,000, all of which is anticipated to be spent between 2022 and 2026. No previous construction work has been completed for the Phase 2 Project. The Phase 2 Project includes construction of six project components: Ray Stoyer WRF expansion, the AWP facility expansion, solids handling facility, EMG pump station modifications, EMG force main, and residuals bypass system, described in *Section 1.2.5, Phase 2 Project Description*.

Construction will begin during the second quarter of 2022 and will be completed during the first quarter of 2026. Water deliveries will begin immediately following completion of construction, with the first full year of deliveries in 2027.

Table 1-6: Total Construction Costs by Year for Phase 2 Project

Calendar Year	Construction Activity	Cost
2022	WRF, AWP Facility, Solids Handling Facility expansion, EMG Pump Station, EMG Force Main, Residuals Bypass System	$25,484,810
2023	WRF, AWP Facility, Solids Handling Facility Expansion, EMG Pump Station, EMG Force Main, Residuals Bypass System	$58,070,600
2024	WRF, AWP Facility, Solids Handling Facility Expansion, EMG Pump Station, EMG Force Main, Residuals Bypass System	$58,076,691
2025	WRF, AWP Facility, Solids Handling Facility Expansion	$34,364,400
2026	WRF, AWP Facility, Solids Handling Facility Expansion	$8,873,498
	Total	**$184,870,000**

(b) The total estimated or actual costs to plan and design the Project. Note: This should not include the cost to complete a feasibility study that meets the requirements of Reclamation's Directives and Standards WTR 11-01, Title XVI Water Reclamation and Reuse Program Feasibility Study Review Process.

The total planning and design costs for the Phase 2 Project is approximately $71 million as summarized in **Table 1-7** and estimated based on the construction cost of the project and typical factors used for planning level budget estimating. Factoring planning and design costs based on the project construction cost is a common way of determining the overall capital cost of a project early on in the planning and budgeting phases of a project. For Phase 2 project planning and design cost items are classified as design, environmental and permitting, legal and administration, project management, and construction management related services.

Table 1-7: Phase 2 Project Planning and Design Costs

Category	Factors for Basis of Estimate	Cost
Padre Dam Staff Time	Estimated level of effort x hourly rates	$4,644,009
Design	10% of construction cost	$18,520,000
Environmental/Permitting	3% of construction cost	$5,590,000
Legal/Admin	3% of construction cost	$5,590,000
Project Management	10% of construction cost	$18,520,000
Construction Management	10% of construction cost	$18,520,000
Total Planning & Design Cost		**$71,384,009**

(c) ***The average annual operation and maintenance costs for the life of the Project. Please do not include the periodic replacement costs in the operation and maintenance costs. Periodic replacement costs should be provided separately in response to (f) below. Note: this is an annual cost – not total cost.***

Based on estimates used in the ECAWP Program Phase 2 Project Feasibility Study, the average annual O&M costs for the Phase 2 Project are approximately $11.9 million (**Table 1-8**). O&M costs include general O&M costs, labor costs, chemical costs, and electrical costs.

Table 1-8: Phase 2 Project Annual O&M Costs

Program Facility	O&M Cost ($/year)	Service
East Mission Gorge Pump Station	$1,202,000	Wastewater Treatment
Residuals Bypass LS & Pipeline	$82,000	Wastewater Treatment and Water Production
WRF through Secondary Facilities	$1,494,000	Wastewater Treatment
WRF Tertiary Facilities	$374,000	Water Production
Solids Handling Facilities	$317,000	Wastewater Treatment
Class B Biosolids Disposal and Hauling	$855,000	Wastewater Treatment
Wet Weather Flows Disposal to Metro	$405,000	Wastewater Treatment
Brine Disposal to Metro	$407,000	Water Production
Centrate Disposal to Metro	$685,000	Wastewater Treatment
Wastewater Labor	$1,477,000	Wastewater Treatment
Clean Water Labor	$514,000	Water Production
WRF Laboratory expenses	$27,000	Wastewater Treatment
AWP Laboratory expenses	$27,000	Water Production
AWP Facility	$3,916,000	Water Production
UV Bulbs	$94,000	Water Production
TOTAL	**$11,876,000**	

(d) The year the Project will begin to deliver reclaimed water.

The Phase 2 Project will begin deliveries of purified water at the beginning of 2026, with the first full year of deliveries anticipated in 2027.

(e) The projected life (in years) that the Project is expected to last. Note: this should be measured from the time the Project starts delivering water.

The Phase 2 Project's projected life is expected to be 60 years, from the first full year of deliveries in 2027 to 2086. Full project delivery of 8,960 AFY from the Phase 2 Project is expected to extend throughout the project lifetime.

(f) All estimated replacement costs by year as shown in Table 5 [of the FOA]. If there are multiple replacement costs in one year, or at the same interval, please total them and put them on one line with the year or interval.

The Phase 2 Project achieves two goals: water production to offset imported water demands and wastewater treatment that offsets flows to the Metro System. Costs for these two services, both included in the Phase 2 Project, are presented for each service, as well as an overall Phase 2 Project cost. A summary of the timing of the replacement costs are provided in **Table 1-9**, and total replacement costs by year are presented in **Table 1-10**.

Table 1-9: Replacement Cost Timing

Description of Replacement Requirement	Replacement Frequency	Cost	Service
Generator Overhaul	Every 5 years	$75,000	Wastewater Treatment and Water Production
RO Membranes	Every 5 years	$620,000	Water Production
Total (5-Year Interval)	**Every 5 years**	**$695,000**	
Chemical Feed Pumps at Ray Stoyer WRF	Every 10 years	$60,000	Water Production
MF Membranes	Every 10 years	$1,600,000	Water Production
UV Ballast	Every 10 years	$123,000	Water Production
Primary Clarifier Sludge Pumps	Every 10 years	$1,157,000	Wastewater Treatment
Primary Clarifier Sump Pumps	Every 10 years	$18,000	Wastewater Treatment
Aeration Basin Internal Recycle Pumps	Every 10 years	$168,000	Wastewater Treatment
Secondary Clarifier Sump Pumps	Every 10 years	$24,000	Wastewater Treatment
Secondary Clarifier RAS Pumps	Every 10 years	$108,000	Wastewater Treatment
Equalization Basin Pumps	Every 10 years	$99,000	Wastewater Treatment

Description of Replacement Requirement	Replacement Frequency	Cost	Service
Odor Control System Overhaul	Every 10 years	$113,000	Wastewater Treatment
Rotary Drum Thickeners	Every 10 years	$200,000	Wastewater Treatment
Digester Mixers and Heat Exchangers	Every 10 years	$550,000	Wastewater Treatment
Centrifuge	Every 10 years	$300,000	Wastewater Treatment
Total (10-Year Interval)	**Every 10 years**	**$4,520,000**	
Aeration Basin Blowers	Every 15 years	$675,000	Wastewater Treatment
Product Water Pump Station	Every 15 years	$672,000	Water Production
Tertiary Filter Pumps	Every 15 years	$45,000	Water Production
EMG Pump Station Pumps	Every 15 years	$660,000	Wastewater Treatment
EMG Pump Station Screens	Every 15 years	$576,400	Wastewater Treatment
Residuals Bypass Pumps	Every 15 years	$40,000	Wastewater Treatment and Water Production
Total (15-Year Interval)	**Every 15 years**	**$2,668,400**	

Table 1-10: Estimated Replacement Costs by Year

Year	Cost	Year	Cost	Year	Cost
2031	$695,000	2051	$695,000	2071	$3,363,400
2036	$5,215,000	2056	$7,883,400	2076	$5,215,000
2041	$3,363,400	2061	$695,000	2081	$695,000
2046	$5,215,000	2066	$5,215,000	2086	$7,883,400

(g) The maximum volume of water (in acre-feet) that will be produced upon completion of the Project.

The Phase 2 Project will begin producing water in early 2026, with full deliveries of 8,960 AFY starting in 2027, and continue to produce that quantity for the expected lifespan of the project, 60 years, until 2086.

2. ***Reclamation will calculate the cost per acre-foot for the Title XVI Project using the information requested in question No. 1 and compare it to the non-reclaimed water alternative, and other water supply options identified by the applicant to evaluate the cost effectiveness of the Project. Please provide the following information for this comparison:***

(a) A description of the conditions that exist in the area and projections of the future with, and without, the Project.

As previously described, Padre Dam purchases the entirety of its potable supplies from CWA and Helix purchases the majority of its supply from CWA. The bulk of these supplies are imported from the Colorado River and the SWP. Padre Dam and Helix's opportunities for expanding local supplies are limited, and as a result they have developed the ECAWP Program, including the Phase 2 Project, to create new potable water through potable reuse of purified water. Without the Phase 2 Project, Padre Dam and Helix would continue to purchase water from CWA to meet potable demands and would be subject to substantial projected cost increases associated with continued reliance on imported water.

Padre Dam, El Cajon and the County currently rely solely on the Metro System to convey wastewater to be treated at the Point Loma WWTP. The Phase 1 Project will be capable of treating all of Padre Dam's wastewater, except in wet weather flow scenarios. Disposal of wastewater through the Metro System is anticipated to become increasingly expensive due to future environmental improvements required at Point Loma WWTP and the implementation of the City of San Diego's Pure Water San Diego Program. The Phase 2 Project would allow El Cajon and the County to convey a majority of their wastewater flows to the WRF and AWP facility for treatment, rather than to the Metro System, thereby reducing future costs by minimizing their reliance on the Metro System.

(b) Provide the cost per acre-foot of other water supply alternatives that could be implemented by the non-Federal Project sponsor in lieu of the Project. This must include, but is not limited to, one non-reclaimed water alterative that would satisfy the same demand as the Project. Other water supply alternatives beyond one non-reclaimed water alternative are not required, but may be provided where available to demonstrate the cost effectiveness of the Project.

The Phase 2 Project has a single water supply alternative, to continue purchasing potable water from CWA. This non-reclaimed water alternative also results in the need to continue to send wastewater flows to the Metro System for treatment. Therefore, the Phase 2 Project's wastewater treatment service is compared to the alternative of sending wastewater to the Metro System, while the Phase 2 Project's water production service is compared to the cost of purchasing imported water to meet demands when considering the non-reclaimed water alternative. The cost per acre-foot of water produced by the Phase 2 Project is calculated on an annual basis by summing annual O&M costs, replacement costs, and debt service costs, and dividing by the annual volume of wastewater treated or water produced. Debt service will repay an anticipated 30-year term SRF loan with an estimated 0.8% interest rate, and an anticipated 30-year term WIFIA loan with an estimated 1.95% interest rate.

Wastewater Treatment Services Costs

Following completion of the Phase 2 Project, the Ray Stoyer WRF will have increased its treatment capacity by approximately 9 MGD, or 3,285 MG per year. Wastewater treatment services costs, to be borne by the Project, include the costs associated with treating wastewater through secondary, which is a higher level of treatment than that provided by the

alternative of treating wastewater at Point Loma WWTP included in the Metro System. Costs for the Phase 2 Project's wastewater treatment services are presented in **Table 1-11**. Debt service for the wastewater treatment services includes repayment of a 30-year SRF loan with a 0.8% interest rate ($91 million of the total SRF loan principal is attributable to wastewater components) and a WIFIA loan with an assumed 30-year term and assumed 1.95% interest rate ($61 million of the total WIFIA loan principal is attributable to wastewater components). This is based on the capital costs for the wastewater treatment components of the project, less the presumed Title XVI WIIN grant funds that would be awarded by Reclamation (across FY 2021 and FY 2022). Total capital costs for the components providing wastewater treatment services are $172 million, with $15 million assumed in grant funds (attributing one-half of the FY 2021 and FY 2022 requested WIIN grant amount to wastewater components). O&M costs for the wastewater components have been identified as the replacement costs presented in **Table 1-9**, above, and annual costs including operation, maintenance, chemicals, and labor. On average, annual wastewater treatment costs include $3.1 million debt services and $7.3 million O&M costs (including replacement costs). Note that for the purposes of this analysis, replacement costs incurred on an annual basis (i.e., miscellaneous instrumentation, electrical, and mechanical) are considered part of normal O&M and are not included in the replacement costs.

The alternative to treating wastewater at the expanded Ray Stoyer WRF is to continue to send wastewater flows to the City of San Diego Metro System for conveyance and treatment at Point Loma WWTP. The Metro System's treatment costs are projected to increase significantly over the next few years due to planned system upgrades under the City of San Diego's Pure Water Program. The Pure Water Program is a potable reuse program similar to the ECAWP Program. In order to generate potable reuse water, the City of San Diego is planning to construct approximately 108 MGD capacity (38 MGD in Phase 1 and 70 MGD in Phase 2) new wastewater treatment facilities and pump stations upstream of Point Loma WWTP to generate tertiary treated recycled water to feed AWP facilities. These wastewater related improvements are driving the unit wastewater treatment cost up for the participating agencies to the Metro System, which Padre Dam, El Cajon, and the County are part of. Phase 1 of the Pure Water Program (with potable reuse production capacity of 30 MGD) is expected to be online by 2025 and is expected to increase the wastewater treatment costs to approximately $5,500/MG until the implementation of Phase 2 of Pure Water Program (with additional potable reuse production capacity of 53 MGD) in 2035, after which the Metro System treatment cost is projected to exceed $10,000/MG (in 2035 dollars, equivalent to $9,323 in 2019 dollars). Costs to send wastewater to the Metro System are anticipated to average $10,574/MG wastewater during the course of the Phase 2 Project's life. This cost projection is based on 5-year Metro System cost projections provided by the City of San Diego for Phase 1 and the initial financial modeling results developed by Padre Dam for Phase 2 of Pure Water Program impacts. Given the source data did not extend through the full 60-year

project life, a conservative approach was taken where projected Metro System disposal costs were not escalated for the years 2040-2086.

Table 1-11 provides an estimate of annual costs for the Phase 2 Project's wastewater treatment services compared to the costs of continuing to send wastewater flows to the Metro System. The final column provides discounted value, using a discount rate of 2.875%, per the U.S. Federal Register's Fiscal Year 2019 (U.S. Federal Register, 2018). Over the 60-year project life, the Phase 2 Project will provide an average savings of $2,508/MG ($817/AF) wastewater treated in net present value (2019 dollars).

Table 1-11: Wastewater Treatment Services Costs

Year(s)	Annual Wastewater Treated (MG)[1]	Annual O&M	Replacement Costs	Debt Service[2]	Total Annual Cost	Phase 2 Project WW Treatment Annual Cost ($/MG)	Average Annual Cost for WW Treatment at Metro System ($/MG)[3]	Annual Savings From Phase 2 Project ($/MG)	Average Discounted Savings ($/MG)[3,4]
2027-2030	3,285	$6,878,569	$-	$6,112,488	$12,991,058	$3,955	$5,875	$1,921	$1,465
2031	3,285	$6,878,569	$37,500	$6,112,488	$13,028,558	$3,966	$6,471	$2,505	$1,783
2032-2035	3,285	$6,878,569	$-	$6,112,488	$12,991,058	$3,955	$7,792	$3,837	$2,537
2036	3,285	$6,878,569	$2,774,500	$6,112,488	$15,765,558	$4,799	$10,018	$5,219	$3,223
2037-2040	3,285	$6,878,569	$-	$6,112,488	$12,991,058	$3,955	$10,808	$6,853	$3,939
2041	3,285	$6,878,569	$1,968,900	$6,112,488	$14,959,958	$4,554	$11,305	$6,751	$3,619
2042-2045	3,285	$6,878,569	$-	$6,112,488	$12,991,058	$3,955	$11,305	$7,351	$3,672
2046	3,285	$6,878,569	$2,774,500	$6,112,488	$15,765,558	$4,799	$11,305	$6,506	$3,027
2047-2050	3,285	$6,878,569	$-	$6,112,488	$12,991,058	$3,955	$11,305	$7,351	$3,187
2051	3,285	$6,878,569	$37,500	$6,112,488	$13,028,558	$3,966	$11,305	$7,339	$2,963
2052-2055	3,285	$6,878,569	$-	$6,112,488	$12,991,058	$3,955	$11,305	$7,351	$2,766
2056	3,285	$6,878,569	$4,705,900	$6,112,488	$17,696,958	$5,387	$11,305	$5,918	$2,074
2057-2060	3,285	$6,878,569	$-	$-	$6,878,569	$2,094	$11,305	$9,211	$3,008
2061	3,285	$6,878,569	$37,500	$-	$6,916,069	$2,105	$11,305	$9,200	$2,798
2062-2065	3,285	$6,878,569	$-	$-	$6,878,569	$2,094	$11,305	$9,211	$2,611
2066	3,285	$6,878,569	$2,774,500	$-	$9,653,069	$2,939	$11,305	$8,367	$2,208
2067-2070	3,285	$6,878,569	$-	$-	$6,878,569	$2,094	$11,305	$9,211	$2,266
2071	3,285	$6,878,569	$1,968,900	$-	$8,847,469	$2,693	$11,305	$8,612	$1,972
2072-2075	3,285	$6,878,569	$-	$-	$6,878,569	$2,094	$11,305	$9,211	$1,966
2076	3,285	$6,878,569	$2,774,500	$-	$9,653,069	$2,939	$11,305	$8,367	$1,663
2077-2080	3,285	$6,878,569	$-	$-	$6,878,569	$2,094	$11,305	$9,211	$1,706
2081	3,285	$6,878,569	$37,500	$-	$6,916,069	$2,105	$11,305	$9,200	$1,587
2082-2085	3,285	$6,878,569	$-	$-	$6,878,569	$2,094	$11,305	$9,211	$1,481
2086	3,285	$6,878,569	$4,705,900	$-	$11,584,469	$3,526	$11,305	$7,779	$1,165
					Average	**$3,149**	**$10,574**	**$7,425**	**$2,508**

[1] Assumes 9 MGD of wastewater flows.

[2] Assumes SRF interest rate of 0.8% and 30-year term.

[3] An average was used for the years indicated as ranges.

[4] Discount rate of 2.875% was used, per the U.S. Federal Register's Fiscal Year 2019 (U.S. Federal Register, 2018).

Water Production Services Costs

The Phase 2 Project will provide water production services by treating secondary flows produced by the wastewater treatment services components to tertiary recycled water and purified water. This water will have beneficial reuse as potable supplies and will offset Padre Dam and Helix's demands for imported water purchased from CWA.

Costs for purified water production are those costs to treat from secondary through tertiary and advanced purification. As noted in *Section 1.2 Technical Project Description*, the Phase 2 Project will produce 8,960 AFY of purified water. Costs include debt services, O&M, and replacement costs. As with the debt service for the wastewater treatment components, debt service for water production is based on the total capital costs for the water production components ($84.5 million), less assumed grant funding of $15 million (attributing one-half of the total requested FY 2021 and FY 2022 WIIN grant amount to wastewater components). The remaining capital costs will be funded through a 30-year SRF loan, with an estimated 0.8% interest rate ($44.8 million of the total SRF loan principal is attributable to water production) and a WIFIA loan with an assumed 30-year term and assumed 1.95% interest rate ($29.8 million of the total WIFIA loan principal is attributable to water production). Replacement costs include those identified in **Table 1-9**, above, while O&M costs include operations, maintenance, supplies, labor, chemicals, cost to send brine to the Metro System, and annual replacement costs.

The alternative to water production via the Phase 2 Project is to continue to purchase imported water from CWA. Imported water costs are calculated based on values from CWA that include the costs to transport, treat, and deliver imported water to member agencies, and are presented in **Table 1-12**. Padre Dam and Helix have completed an extensive analysis of CWA's projected costs based on CWA 2015 Long Range Financing Plan as the starting basis for the forecast and the May 2017 Member Agency Managers meeting presentation. Costs include a melded supply rate, transportation, storage, and customer service fees, and are escalated to reflect the increasing costs of imported water associated with supply limitations due to increased conservation regulations, rebound of sales from drought levels, and infrastructure improvements due to the California WaterFix project and other capital improvement projects, along with inflation. The projection also includes rate impacts from CWA member agencies that will opt-out as they are developing local water supply projects in the future (such as City of San Diego with its Pure Water Program) from the system. This analysis extended costs to 2045. Given the source data did not extend through the full 60-year project life, a conservative approach was taken where projected CWA costs were not escalated for the years 2046-2086.

Table 1-13 provides an estimate of annual costs for the Phase 2 Project's water production services compared to the costs of purchasing an equal volume of imported water. The final column provides discounted value, using a discount rate of 2.875%, per the U.S. Federal Register's Fiscal Year 2019 (U.S. Federal Register, 2018). Over the 60-year project life, the

Phase 2 Project will provide an average savings of $1,400/AF water produced in net present value ($4,022/AF without discounting).

Table 1-12: Cost per Acre-Foot of Imported Water

Year	Cost per AF	Year	Cost per AF	Year	Cost per AF	Year	Cost per AF
2027	$2,590	**2042**	$4,669	**2057**	$5,268	**2072**	$5,268
2028	$2,684	**2043**	$4,859	**2058**	$5,268	**2073**	$5,268
2029	$2,784	**2044**	$5,059	**2059**	$5,268	**2074**	$5,268
2030	$2,889	**2045**	$5,268	**2060**	$5,268	**2075**	$5,268
2031	$2,999	**2046**	$5,268	**2061**	$5,268	**2076**	$5,268
2032	$3,114	**2047**	$5,268	**2062**	$5,268	**2077**	$5,268
2033	$3,236	**2048**	$5,268	**2063**	$5,268	**2078**	$5,268
2034	$3,363	**2049**	$5,268	**2064**	$5,268	**2079**	$5,268
2035	$3,496	**2050**	$5,268	**2065**	$5,268	**2080**	$5,268
2036	$3,634	**2051**	$5,268	**2066**	$5,268	**2081**	$5,268
2037	$3,779	**2052**	$5,268	**2067**	$5,268	**2082**	$5,268
2038	$3,947	**2053**	$5,268	**2068**	$5,268	**2083**	$5,268
2039	$4,122	**2054**	$5,268	**2069**	$5,268	**2084**	$5,268
2040	$4,305	**2055**	$5,268	**2070**	$5,268	**2085**	$5,268
2041	4,483	**2056**	$5,268	**2071**	$5,268	**2086**	$5,268

Table 1-13: Water Production Services Cost for the Phase 2 Project

Year(s)	Annual Water Production (AF)	Annual O&M	Replacement Costs	Debt Service	Total Annual Cost	Annual Cost ($/AF)	Annual Cost Imported Water ($/AF)[1]	Annual Savings From Phase 2 Project ($/AF)	Discounted Savings ($/AF)[1,2]
2027-2030	8,960	$4,997,431	$-	$3,007,777	$8,005,207	$893	$2,737	$1,843	$1,406
2031	8,960	$4,997,431	$657,500	$3,007,777	$8,662,707	$967	$2,999	$2,032	$1,446
2032-2035	8,960	$4,997,431	$-	$3,007,777	$8,005,207	$893	$3,302	$2,409	$1,595
2036	8,960	$4,997,431	$2,440,500	$3,007,777	$10,445,707	$1,166	$3,634	$2,469	$1,525
2037-2040	8,960	$4,997,431	$-	$3,007,777	$8,005,207	$893	$4,038	$3,145	$1,807
2041	8,960	$4,997,431	$1,394,500	$3,007,777	$9,399,707	$1,049	$4,483	$3,434	$1,841
2042-2045	8,960	$4,997,431	$-	$3,007,777	$8,005,207	$893	$4,964	$4,070	$2,030
2046	8,960	$4,997,431	$2,440,500	$3,007,777	$10,445,707	$1,166	$5,268	$4,102	$1,908
2047-2050	8,960	$4,997,431	$-	$3,007,777	$8,005,207	$893	$5,268	$4,375	$1,897
2051	8,960	$4,997,431	$657,500	$3,007,777	$8,662,707	$967	$5,268	$4,301	$1,737
2052-2055	8,960	$4,997,431	$-	$3,007,777	$8,005,207	$893	$5,268	$4,375	$1,646
2056	8,960	$4,997,431	$3,177,500	$3,007,777	$11,182,707	$1,248	$5,268	$4,020	$1,408
2057-2060	8,960	$4,997,431	$-	$-	$4,997,431	$558	$5,268	$4,710	$1,538
2061	8,960	$4,997,431	$657,500	$-	$5,654,931	$631	$5,268	$4,637	$1,410
2062-2065	8,960	$4,997,431	$-	$-	$4,997,431	$558	$5,268	$4,710	$1,335
2066	8,960	$4,997,431	$2,440,500	$-	$7,437,931	$830	$5,268	$4,438	$1,171
2067-2070	8,960	$4,997,431	$-	$-	$4,997,431	$558	$5,268	$4,710	$1,159
2071	8,960	$4,997,431	$1,394,500	$-	$6,391,931	$713	$5,268	$4,555	$1,043
2072-2075	8,960	$4,997,431	$-	$-	$4,997,431	$558	$5,268	$4,710	$1,005
2076	8,960	$4,997,431	$2,440,500	$-	$7,437,931	$830	$5,268	$4,438	$882
2077-2080	8,960	$4,997,431	$-	$-	$4,997,431	$558	$5,268	$4,710	$873
2081	8,960	$4,997,431	$657,500	$-	$5,654,931	$631	$5,268	$4,637	$800
2082-2085	8,960	$4,997,431	$-	$-	$4,997,431	$558	$5,268	$4,710	$757
2086	8,960	$4,997,431	$3,177,500	$-	$8,174,931	$912	$5,268	$4,356	$652
				Average Costs ($/AF)		**$766**	**$4,788**	**$4,022**	**$1,400**

[1] An average was used for the years indicated as ranges.

[2] Discount rate of 2.875% was used, per the U.S. Federal Register's Fiscal Year 2019 (U.S. Federal Register, 2018).

Overall Phase 2 Project Costs

The average annual O&M (without replacement) costs for the Phase 2 Project is estimated to be $11.9 million. Applying this value over the 60-year project life, total O&M costs are anticipated to be $713 million. Replacement costs are anticipated to average approximately $768,893 per year over the course of the project life, or approximately $46.1 million total. Debt service will repay an anticipated 30-year SRF loan, with an estimated 0.8% interest rate and a WIFIA loan with an assumed 30-year term and estimated 1.95% interest rate. Annual debt service for the first 30 years of the Phase 2 Project life is anticipated to equal $9,120,265. Once the SRF and WIFIA loans are repaid, debt service will no longer apply to the Phase 2 project. Throughout the Phase 2 Project life, total volume of purified water produced will be 8,960 AFY. The average cost per AF of the Phase 2 Project over its entire life is $1,920/AF (not discounted). **Table 1-14** summarizes the annual cost per acre-foot, while **Table 1-15** breaks down annual costs by year to provide an average annual cost per AF. Both tables present a comparison of the Phase 2 Project's total costs with those of the non-reclaimed water alternative to send wastewater to the Metro System and continued purchases of imported water. The Phase 2 Project provides cost savings compared to the alternatives both immediately and over the long term, with an average of $2,162/AF savings over the life of the Project (present value, at a 2.875% discount rate) and a total cost savings of approximately $1.16 billion in present value.

Table 1-14: Annual Cost per AF of Water from Phase 2 Project

Year(s)	Annual Water Produced (AF)	Annual Wastewater Treatment Services Costs	Annual Water Production Costs	Total Annual Cost	Annual Cost ($/AF)	Alternative Costs (Wastewater Treatment at Metro System + Imported Water Purchases; ($/AF)	Annual Savings from Phase 2 Project ($/AF)	Discounted Annual Savings from Phase 2 Project ($/AF)
2027-2030	8,960	$12,991,058	$8,005,207	$20,996,265	$2,343	$4,651	$2,308	$1,760
2031	8,960	$13,028,558	$8,662,707	$21,691,265	$2,421	$5,107	$2,686	$1,912
2032-2035	8,960	$12,991,058	$8,005,207	$20,996,265	$2,343	$5,841	$3,498	$2,314
2036	8,960	$15,765,558	$10,445,707	$26,211,265	$2,925	$6,899	$3,974	$2,454
2037-2040	8,960	$12,991,058	$8,005,207	$20,996,265	$2,343	$7,560	$5,217	$2,997
2041	8,960	$14,959,958	$9,399,707	$24,359,665	$2,719	$8,167	$5,448	$2,920
2042-2045	8,960	$12,991,058	$8,005,207	$20,996,265	$2,343	$8,648	$6,304	$3,146
2046	8,960	$15,765,558	$10,445,707	$26,211,265	$2,925	$8,952	$6,027	$2,803
2047-2050	8,960	$12,991,058	$8,005,207	$20,996,265	$2,343	$8,952	$6,609	$2,865
2051	8,960	$13,028,558	$8,662,707	$21,691,265	$2,421	$8,952	$6,531	$2,637
2052-2055	8,960	$12,991,058	$8,005,207	$20,996,265	$2,343	$8,952	$6,609	$2,487
2056	8,960	$17,696,958	$11,182,707	$28,879,665	$3,223	$8,952	$5,729	$2,007
2057-2060	8,960	$6,878,569	$4,997,431	$11,876,000	$1,325	$8,952	$7,626	$2,491
2061	8,960	$6,916,069	$5,654,931	$12,571,000	$1,403	$8,952	$7,549	$2,295
2062-2065	8,960	$6,878,569	$4,997,431	$11,876,000	$1,325	$8,952	$7,626	$2,161
2066	8,960	$9,653,069	$7,437,931	$17,091,000	$1,907	$8,952	$7,044	$1,859
2067-2070	8,960	$6,878,569	$4,997,431	$11,876,000	$1,325	$8,952	$7,626	$1,876
2071	8,960	$8,847,469	$6,391,931	$15,239,400	$1,701	$8,952	$7,251	$1,661
2072-2075	8,960	$6,878,569	$4,997,431	$11,876,000	$1,325	$8,952	$7,626	$1,628
2076	8,960	$9,653,069	$7,437,931	$17,091,000	$1,907	$8,952	$7,044	$1,400
2077-2080	8,960	$6,878,569	$4,997,431	$11,876,000	$1,325	$8,952	$7,626	$1,413
2081	8,960	$6,916,069	$5,654,931	$12,571,000	$1,403	$8,952	$7,549	$1,302
2082-2085	8,960	$6,878,569	$4,997,431	$11,876,000	$1,325	$8,952	$7,626	$1,226
2086	8,960	$11,584,469	$8,174,931	$19,759,400	$2,205	$8,952	$6,747	$1,010
			Average Costs and Savings ($/AF)		**$1,920**	**$8,233**	**$6,313**	**$2,162**

Table 1-15: Annual Cost of Phase 2 Project

Year	Annual Water Produced (AF)	Annual O&M	Replacement Costs	Debt Service	Annual Cost ($/AF)	Alternative Costs (Wastewater Treatment + Imported Water Purchases; ($/AF)	Annual Savings from Project ($/AF)	Discounted Annual Savings from Project ($/AF)
2027	8,960	$11,876,000	$-	$9,120,265	$2,343	$4,467	$2,124	$1,693
2028	8,960	$11,876,000	$-	$9,120,265	$2,343	$4,556	$2,213	$1,714
2029	8,960	$11,876,000	$-	$9,120,265	$2,343	$4,725	$2,382	$1,794
2030	8,960	$11,876,000	$-	$9,120,265	$2,343	$4,856	$2,512	$1,839
2031	8,960	$11,876,000	$695,000	$9,120,265	$2,421	$5,107	$2,686	$1,912
2032	8,960	$11,876,000	$-	$9,120,265	$2,343	$5,422	$3,079	$2,130
2033	8,960	$11,876,000	$-	$9,120,265	$2,343	$5,768	$3,424	$2,303
2034	8,960	$11,876,000	$-	$9,120,265	$2,343	$6,005	$3,662	$2,394
2035	8,960	$11,876,000	$-	$9,120,265	$2,343	$6,170	$3,826	$2,431
2036	8,960	$11,876,000	$5,215,000	$9,120,265	$2,925	$6,899	$3,974	$2,454
2037	8,960	$11,876,000	$-	$9,120,265	$2,343	$7,143	$4,800	$2,882
2038	8,960	$11,876,000	$-	$9,120,265	$2,343	$7,413	$5,070	$2,959
2039	8,960	$11,876,000	$-	$9,120,265	$2,343	$7,695	$5,352	$3,036
2040	8,960	$11,876,000	$-	$9,120,265	$2,343	$7,988	$5,645	$3,113
2041	8,960	$11,876,000	$3,363,400	$9,120,265	$2,719	$8,167	$5,448	$2,920
2042	8,960	$11,876,000	$-	$9,120,265	$2,343	$8,353	$6,009	$3,131
2043	8,960	$11,876,000	$-	$9,120,265	$2,343	$8,543	$6,200	$3,140
2044	8,960	$11,876,000	$-	$9,120,265	$2,343	$8,742	$6,399	$3,150
2045	8,960	$11,876,000	$-	$9,120,265	$2,343	$8,952	$6,609	$3,163
2046	8,960	$11,876,000	$5,215,000	$9,120,265	$2,925	$8,952	$6,027	$2,803
2047	8,960	$11,876,000	$-	$9,120,265	$2,343	$8,952	$6,609	$2,988
2048	8,960	$11,876,000	$-	$9,120,265	$2,343	$8,952	$6,609	$2,905
2049	8,960	$11,876,000	$-	$9,120,265	$2,343	$8,952	$6,609	$2,824
2050	8,960	$11,876,000	$-	$9,120,265	$2,343	$8,952	$6,609	$2,745
2051	8,960	$11,876,000	$695,000	$9,120,265	$2,421	$8,952	$6,531	$2,637
2052	8,960	$11,876,000	$-	$9,120,265	$2,343	$8,952	$6,609	$2,593
2053	8,960	$11,876,000	$-	$9,120,265	$2,343	$8,952	$6,609	$2,521
2054	8,960	$11,876,000	$-	$9,120,265	$2,343	$8,952	$6,609	$2,451
2055	8,960	$11,876,000	$-	$9,120,265	$2,343	$8,952	$6,609	$2,382
2056	8,960	$11,876,000	$7,883,400	$9,120,265	$3,223	$8,952	$5,729	$2,007

Year	Annual Water Produced (AF)	Annual O&M	Replacement Costs	Debt Service	Annual Cost ($/AF)	Alternative Costs (Wastewater Treatment + Imported Water Purchases; ($/AF)	Annual Savings from Project ($/AF)	Discounted Annual Savings from Project ($/AF)
2057	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$2,597
2058	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$2,525
2059	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$2,454
2060	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$2,386
2061	8,960	$11,876,000	$695,000	$-	$1,403	$8,952	$7,549	$2,295
2062	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$2,254
2063	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$2,191
2064	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$2,130
2065	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$2,070
2066	8,960	$11,876,000	$5,215,000	$-	$1,907	$8,952	$7,044	$1,859
2067	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$1,956
2068	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$1,902
2069	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$1,849
2070	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$1,797
2071	8,960	$11,876,000	$3,363,400	$-	$1,701	$8,952	$7,251	$1,661
2072	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$1,698
2073	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$1,650
2074	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$1,604
2075	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$1,559
2076	8,960	$11,876,000	$5,215,000	$-	$1,907	$8,952	$7,044	$1,400
2077	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$1,473
2078	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$1,432
2079	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$1,392
2080	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$1,353
2081	8,960	$11,876,000	$695,000	$-	$1,403	$8,952	$7,549	$1,302
2082	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$1,279
2083	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$1,243
2084	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$1,208
2085	8,960	$11,876,000	$-	$-	$1,325	$8,952	$7,626	$1,175
2086	8,960	$11,876,000	$7,883,400	$-	$2,205	$8,952	$6,747	$1,010
			Average Costs and Savings ($/AF)		**$1,920**	**$8,233**	**$6,313**	**$2,162**

(c) If available, provide the cost per acre-foot of one water supply project with similar characteristics to the Project. This information does not have to be provided if it is not available. It is intended to provide another possible comparison to demonstrate the cost effectiveness of the Project.

As stated previously the only alternative to the Phase 2 Project is the no-project alternative to continue purchasing water from CWA. The City of San Diego's Pure Water project is another potable reuse effort in the region and has a projected cost of between $1,700 to $1,900 per AF in 2016 based on the predesign work (City of San Diego, 2016). This corresponds to $1,794 to $2,006 per AF (in 2019 dollars). This estimated unit cost value is expected to increase due to recent design changes and 25% increase in construction cost estimate the City released in October 2018. Overall, the City's Pure Water project is able to take advantage of cost efficiencies related to scale, as it is designed to provide a total volume of 30 MGD when Phase 1 of that project is complete.

(d) Discussion of the degree to which the Project is cost-effective. Where applicable, include a discussion of why the Project may be cost effective even if the overall Project cost appears to be high.

As demonstrated in the evaluation of the project costs against the non-reclaimed water alternative to continue purchasing water from CWA, the Phase 2 Project is cost effective, with a projected savings of $2,162/AF in net present value. The average cost per AF of the Phase 2 Project over the 60-year Project life is $821/AF in net present value, compared to the average cost per AF of the no-project alternative of $2,983/AF in net present value (including cost of sending wastewater to the Metro System and the cost of water purchased from CWA), in 2019 dollars.

1.3.3.2 Subcriterion No.3b – Economic Analysis and Project Benefits

1. ***Summarize the economic analysis performed for the Project including information on the Project's estimated benefits and costs. Describe the methodologies used for the analysis that has been conducted. Points will be awarded based on a comparison of the benefits and costs of the Project. The information provided should include:***

(a) Quantified and monetized Project costs, including capital costs and operations and maintenance costs.

As previously described, the Phase 2 Project's costs were developed based on Phase 2 Project Feasibility Study. Total project costs are approximately $256.2 million in capital costs, $712.5 million in O&M, $46.1 million in replacement costs over the 60-year project life, and $47.4 million in debt interest for a total cost of $1.06 billion (not discounted) from planning through the end of the 60-year project life. Debt interest assumes an approximately $135.8 million SRF loan, with 0.8% interest, and an approximately $90.4 million WIFIA loan with 1.95% interest. These loans cover the capital costs of the project that was not paid for by grants. Grant funding, either already secured or anticipated to be secured, is used to reduce the project

costs. The benefit-cost ratio uses a cost that already takes into consideration receipt of grant dollars to reduce costs. Explanations for the basis of these costs were provided above. When discounting to net present value, the cost of the project over the 60-year project life is approximately $441.6 million.

(b) Quantified and monetized Project benefits. This includes benefits that can be quantified and expressed as a monetized benefit per acre-foot. These may include, but are not limited to, benefits related to water supply quantity and water supply reliability, recreational benefits, ecosystem benefits, water quality, energy efficiency, and environmental compliance and permitting. Benefits may also include the avoided cost of no action (i.e., costs that would be incurred if the Project were not implemented), and the willingness of users or customers to pay for a benefit or avoid a negative outcome (e.g., the willingness of households to pay for a water supply system that would reduce groundwater overdraft). If quantified and/or monetized information for these benefits is not available, they may be addressed in response to question two below.

Avoided Wastewater Treatment

The Phase 2 project would provide wastewater treatment locally instead of sending wastewater to the regional Metro System for 20-mile conveyance to Point Loma WWTP for treatment and final disposal to the ocean, which would have the benefit of avoiding costs associated with the projected treatment cost rate increases with the Metro System due to City of San Diego's Pure Water Program.

Based on the annual costs of treating wastewater at the Metro System and the annual expected treatment of the Phase 2 project, the average annual benefit (not discounted) of avoided wastewater treatment would be approximately $34.7 million. Over the 60-year lifetime of the project, the present value of avoided wastewater treatment costs would be around $763 million, using a discount rate of 2.875%.[1]

Avoided Imported Water

The Phase 2 project would produce a local source of purified water, which would have the benefit of avoiding costs associated with purchasing water from CWA.

Costs for purchasing water from CWA are calculated based on values from CWA that include the costs to transport, treat, and deliver water to member agencies. As described in Subcriterion No. 3a, Question 2(b), these costs were projected to 2045; the cost of imported water post-2045 was then assumed to be constant. This results in the calculations for comparing the cost of purified water produced by the Phase 2 Project and the cost of imported water being conservative.

[1] Present value calculated using the US Bureau of Reclamation Discount Rate for Water Resources Planning of 2.875% for Fiscal Year 2019, published in the Federal Register in December 2018.

Based on the Phase 2 project offsetting 8,960 AFY of CWA water supplies, and the cost per acre foot of water from CWA (e.g., $2,590/AF in 2027, the first full year of Project deliveries), the average annual value (not discounted) of avoided imported water would be approximately $42.9 million. Over the 60-year lifetime of the project, the present value of avoided imported water costs would be approximately $926 million, using a discount rate of 2.875%.

Increased Supply Reliability

Imported water supplies, in addition to being energy intensive and expensive, are also less reliable than local supplies. In 2014, allocations from the SWP dropped to just 5% due to ongoing drought conditions and increased concern for the Bay-Delta ecosystem. Although deliveries rebounded for a period of time - to 20% in 2015, 60% in 2016, and 85% in 2017, 35% in 2018, 70% in 2019 – they began to drop again – to 20% in 2020 and back down to just 5% in 2021. Based on the variability and generally low amounts of past allocations, it has become clear that deliveries through the SWP system are highly unreliable and may not be available in the future during times of drought when they are most needed.

A reliable supply is important to maintaining a vibrant local economy. An unreliable local water supply increases risks for businesses and could create economic instability for the community having deeper economic impacts than a rate hike.

Substituting local purified water supplies for imported water will increase the reliability of water supplies and may help provide a buffer from rate increases driven by the increased cost of imported water during times of scarcity.

Previous studies have estimated consumers' willingness to pay to avoid water service interruptions (i.e., water service reliability). Other previous studies have employed statistical models to estimate the welfare loss of a water shortage, or mathematical models to approximate customers' cost-minimizing behaviors. The dollar amount depends on the level of rationing, as well as the duration and frequency of the shortage event. According to a literature search, residential household willingness to pay ranges from around $85 to around $575 per year (Barakat and Chamberlin, Inc. 1994; Griffin and Mjelde, 2000; Lund, 1995; Buck et al., 2016).

Considering these ranges in the literature, which generally focused on California or the western United States, it was assumed that Padre Dam and Helix residential customers would be willing to pay approximately $282 per household per year (in 2019 dollars), for a reliable water supply (i.e., to avoid a shortage). This value was approximated by taking the median per household annual willingness to pay value in each of the studies reviewed, then averaging these median numbers.

To adjust for the partial improvement in reliability from the Phase 2 Project, it is assumed that household willingness to pay for improved reliability is directly proportional to the amount of purified water that will offset imported water, as a percentage of the total potable water

supply. This represents the percentage of total supply that has been improved by offsetting imported water demand with local sources.

The Phase 2 Project will offset 8,960 AFY of imported water; this planned supply has already been incorporated into Padre Dam, Helix, and CWA's UWMPs. Without the ECAWP, Padre Dam's total imported water demand in 2030 would be approximately 13,586 AF (9,586 AF imported demand plus 4,000 AFY to make up for the planned ECAWP supply if it were not implemented). Helix's anticipated 2030 imported water demand without the ECAWP would be 30,322 AF (21,440 AF of import, plus 8,882 AF to make up for planned ECAWP supply). Total imported water demand for Padre Dam and Helix without the ECAWP is projected to be 43,908 AF in 2030. The Phase 1 Project would provide 3,920 AFY and reduce this demand to 39,988 AFY. Therefore, in 2030, about 22.4% of total imported water demand would be replaced with deliveries from the Phase 2 Project. Thus, a conservative estimate of the value of improved reliability associated with this water, is about $63 per household per year ($282 multiplied by 22.4%). Applying this per household dollar value to the estimated 64,490 residential connections within the service areas results in $4.1 million of benefits per year (not discounted). This equates to a present value of approximately $95 million over the 60-year life of the project, using a discount rate of 2.875%.

Improved Salinity in Potable Water

The Phase 2 Project will improve water quality in Lake Jennings through delivery of purified water for blending with other supplies for the reservoir, as well as improve potable water quality by reducing salinity in the potable water source.

As described in Evaluation Criterion 2, Question 1, potable reuse projects produce water low in TDS, which will improve water quality in areas with impacted water supplies. As high-quality purified water is added to Lake Jennings, it mixes with the existing, high-TDS, water in the reservoir, prior to treatment for potable use. Local potable reuse projects could produce water with salinity levels 20 times lower than non-potable recycled water and 10 times lower than the drinking water currently delivered to residents (City of San Diego, 2012).

The 2012 Recycled Water Study completed by the City of San Diego estimated a salt credit to account for the benefits of salinity reduction in the watershed through potable reuse. The salt credit basis was from the 1999 Salinity Management Study (Metropolitan and Reclamation, 1999). The quantitative credit of $100/AF was estimated to account for the financial benefits of extending the life of the municipal water and wastewater treatment systems from having lower salinity levels in the water and wastewater flows. Lower TDS levels in the reservoirs would result in reductions in salinity levels in the downstream facilities including the drinking water treatment plant, wastewater conveyance and treatment processes, and recycled water facilities. Applying the $100/AF of savings to the annual potable water production of 8,960 AF equates to $896,000 of benefits per year (not discounted). This equates to a present value of $20.9M over the 60-year life of the project, using a discount rate of 2.875%.

Table 1-16 provides a summary of the monetized benefits of the Phase 2 Project.

Table 1-16: Summary of Economic Benefits

Benefit	Present Value
Avoided Wastewater Treatment	$762.8 M
Avoided Imported Water	$925.9 M
Reliable Water Supply	$95.0 M
Improved Salinity in Water Quality	$20.9 M
Total Monetized Benefit	**$1,804.6 M**

(c) A comparison of the Project's quantified and monetized benefits and costs.

As described above, the total monetized benefit of the Phase 2 Project is $1.8 billion in net present value. The total cost of the Project over its 60-year project life is $441.6 million, in net present value, as noted in Section 1.3.3.2. The benefit cost ratio of the Phase 2 Project is 4.09, with substantial benefits, even when using relatively conservative estimates for monetizable benefits.

2. ***Some project benefits may be difficult to quantify and/or monetize. Describe any economic benefits of the Project that are difficult to quantify and/or monetize. Provide a qualitative discussion of the economic impact of these benefits. Points will be awarded based on the potential economic impact of the Project-related benefits. Some examples of benefits may include, but are not limited to, acres of land or stream miles that may be benefitted or not harmed, benefits to habitat or species, flood risk mitigation, local impacts on residents and/or businesses, job creation, and regional impacts. This may also include benefits listed in question one, if they have not been monetized (e.g., water reliability, water quality, and recreation).***

The following benefits are difficult to quantity and/or monetize and are therefore described qualitatively here:

- Reduce the need for costly Pure Water Program improvements to reduce the necessary offload from the Point Loma WWTP.
- Support aquatic life and fish in the Santee Lakes to improve and maintain recreational benefits.
- Increase sustainability of organic waste diversion.
- Reduce the salinity levels in Lake Jennings's Reservoir thereby improving water quality and benefiting aquatic life. In addition, salinity of surface water and ground water within the watershed will improve over time.

Regional Wastewater Treatment Cost Savings

In 2017, the U.S. Environmental Protection Agency (USEPA) granted a modification to the City of San Diego's NPDES permit allowing the City to continue to operate the Point Loma WWTP as a chemically enhanced primary treatment facility with the implementation of the City's Pure

Water Program (RWQCB, 2017) to offload the Point Loma WWTP and to produce product water for recycled water projects upstream of the WWTP. The City of San Diego is committed to offloading 100 MGD from the Point Loma WWTP for recycled water projects (City of San Diego, 2012). An additional benefit of the Phase 2 Project is that sending 9 MGD less wastewater flow to the Point Loma WWTP would result in less offload from the City of San Diego to achieve the same 100 MGD offload goal because Padre Dam, El Cajon, and the County are contributors to the regional Metro System flow. The City of San Diego is already planning to implement Phase 1 of the Pure Water Program by 2025, however with implementation of the Phase 2 Project, Phase 2 of Pure Water Program could be 9 MGD smaller. Therefore, the Phase 2 Project could help reduce the need for expensive regional conveyance and treatment upgrades, which could help reduce the unit cost of treatment for the regional Metro System for the 13 participating agencies.

Improved Surface Water and Groundwater Quality

As stated earlier, the Phase 2 Project will improve surface water quality (TDS and nutrients) in Lake Jennings through delivery of purified water for blending with other supplies for the reservoir. Improved water quality in the lake would not only benefit the potable water salinity but also benefit the aquatic life and fish within the lake. Further, potable water with a lower salinity level would result in lower salinity in the wastewater and therefore less salinity in the recycled water which is mainly used for irrigation and for Santee Lakes Preserve in the Padre Dam service area. Decreasing TDS in the recycled water would support the aquatic life and fish in Santee Lakes.

Supporting aquatic life and fish in the Santee Lakes will help to maintain or bolster economic benefits of recreation activities at the lakes, including fishing.

Sustainable Solution to Meet Organic Waste Diversion Requirements

Recent legislation in the State of California mandates waste haulers divert organic waste from landfills for recycling to reduce greenhouse gases (Assembly Bill No. 1826). According to the mandate, waste haulers are required to report their diversion plan to CalRecycle and transition into the diversion program in 2021 timeframe. With this mandate in mind, East County JPA is including provisions in the design to accept diverted organic waste within East County for co-digestion with the municipal sludge as part of the Phase 2 Project. The Phase 2 Project does not include construction of infrastructure to accept waste because the East County JPA would need to first secure a contract with a waste hauler. However, the Phase 2 Project design will enable East County JPA to exercise this option in the future. Implementing an anaerobic digestion process as a future part of the Phase 2 Project would provide a unique opportunity in the East County to find an economical and sustainable solution to the organic waste diversion requirement and meet the greenhouse gas emission reduction goals. Waste haulers would pass projected cost increases on their operations to meet the additional requirements by AB1826; therefore, having a more economical solution for them would mean less cost impact on the customers in East County.

1.3.4 Evaluation Criterion 4: Reclamation's Obligations and Benefits to Rural or Economically Disadvantaged Communities

1.3.4.1 *Subcriterion No. 4a - Legal and Contractual Water Supply Obligations*

Explain how the Project relates to Reclamation's mission and/or serves a Federal interest. Does the Project help fulfill any of Reclamation's legal or contractual obligations such as providing water for Indian Tribes, water right settlements, river restoration, minimum flows, legal court orders, or other obligations? If so, explain.

Reclamation's mission is "to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public." The Phase 2 Project will develop a new sustainable potable water supply that will offset demands on existing water resources. It has demonstrated financial benefits (i.e., it is economically sound) and turns a waste stream into a resource.

The Phase 2 Project would indirectly help to fulfill Reclamation's legal or contractual obligations, by reducing demands for imported water by 8,960 AFY, including Colorado River supplies (averaging 8,413 AFY offsets from the Colorado River between 2025 and 2040). This would allow more imported water to be available to meet other demands, including Reclamation's legal or contractual water-related obligations. Also, according to Padre Dam's 2020 UWMP, two tribes outside of the Padre Dam service area (the Viejas and Ewiiaapaayp) have expressed interest in receiving potable water from Padre Dam. Padre Dam expects to begin serving these tribes beginning in 2026 and have included their projected demands in their 2020 UWMP. The Phase 2 Project would improve reliability and regional self-reliance, and directly contribute to Padre Dam ability to serve these tribes.

1.3.4.2 *Subcriterion No. 4b - Benefits to Rural or Economically Disadvantaged Communities*

1. ***Does the Project serve a rural community, or are there any rural communities within the Project sponsor's service area? If so, provide supporting information. A rural community is defined as a community with fewer than 50,000 people. This may include rural areas that are part of a larger urban area.***

Padre Dam and Helix do not meet the definition of a rural community. Benefits to economically disadvantaged communities are discussed below.

2. ***E.O. 14008 and E.O. 13985 affirm the advancement of environmental justice and equity for all through the development and funding of programs to invest in disadvantaged or underserved communities. Does the Project serve an economically disadvantaged community, or are there any economically disadvantaged communities within the Project sponsor's service area? If so, provide supporting information. This may include neighborhoods or census tracts within a larger service area that are economically disadvantaged. A community may be considered disadvantaged based on a combination of variables that may include: low income, high and/or persistent poverty; high unemployment and underemployment; racial and ethnic residential segregation,***

particularly where the segregation stems from discrimination by government entities; linguistic isolation; high housing cost burden and substandard housing; distressed neighborhoods; high transportation cost burden and/or low transportation access; disproportionate environmental stressor burden and high cumulative impacts; limited water and sanitation access and affordability; disproportionate impacts from climate change; high energy cost burden and low energy access; jobs lots through energy transition; access to healthcare.

The Phase 2 Project will serve and benefit disadvantaged communities within Padre Dam and Helix's service areas. These communities are low income, contain minority populations, experience food deserts, and have limited public transportation. As shown in **Figure 1-3**, portions of Padre Dam and Helix's service areas include economically disadvantaged communities (DAC or SDAC), with a median household income (MHI) less than 80% or 60%, respectively, of the statewide MHI (DWR, 2021a). DACs are located primarily in the El Cajon, portions of La Mesa and Lemon Grove, south of the San Diego River in Padre Dam's WSA, and along portions of Highway 8 in Padre Dam's ESA. The Phase 2 Project provides indirect benefits to DACs because the Phase 2 Project provides benefits to all Padre Dam and Helix customers, including DACs within the service areas. Benefits realized by all Padre Dam and Helix customers, including DACs, include improved water supply reliability (and associated protection against cost increases of imported water), protection against the projected wastewater treatment cost increases, and improved local water quality. Although the benefits would be realized equally by all residents within the Phase 2 Project service area, the degree of benefits felt by DACs would be higher compared to the benefits felt by non-DACs because the impact of a rate change is more substantial to lower income households than higher income ones.

Minority communities and low-income communities exist throughout the Phase 2 Project service area. The California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) has developed CalEnviroScreen, the California Communities Environmental Health Screening Tool, to assess pollution burden and population characteristics. Pollution burdens includes the potential exposure to pollutants and the adverse environmental conditions caused by pollution (e.g., groundwater threats, cleanup sites, pesticide use, diesel particulate matter, drinking water contamination, etc.). Population characteristics includes physiological traits, health status, and community characteristics that may lead to increased vulnerability to pollution (e.g., linguistic isolation, poverty, asthma, low birth weight). The CalEnviroScreen score ranges from 86 (the worst score) to 4 (the best score) (OEHHA, 2022).

Of the areas served by the Phase 2 Project, El Cajon is particularly underserved and disadvantaged. El Cajon has nine out of 16 low-income census tracts that were determined to have significant public health concerns as they scored in the bottom 25% using the California Healthy Places Index (El Cajon, 2021). The El Cajon region has the worst ranking score for this

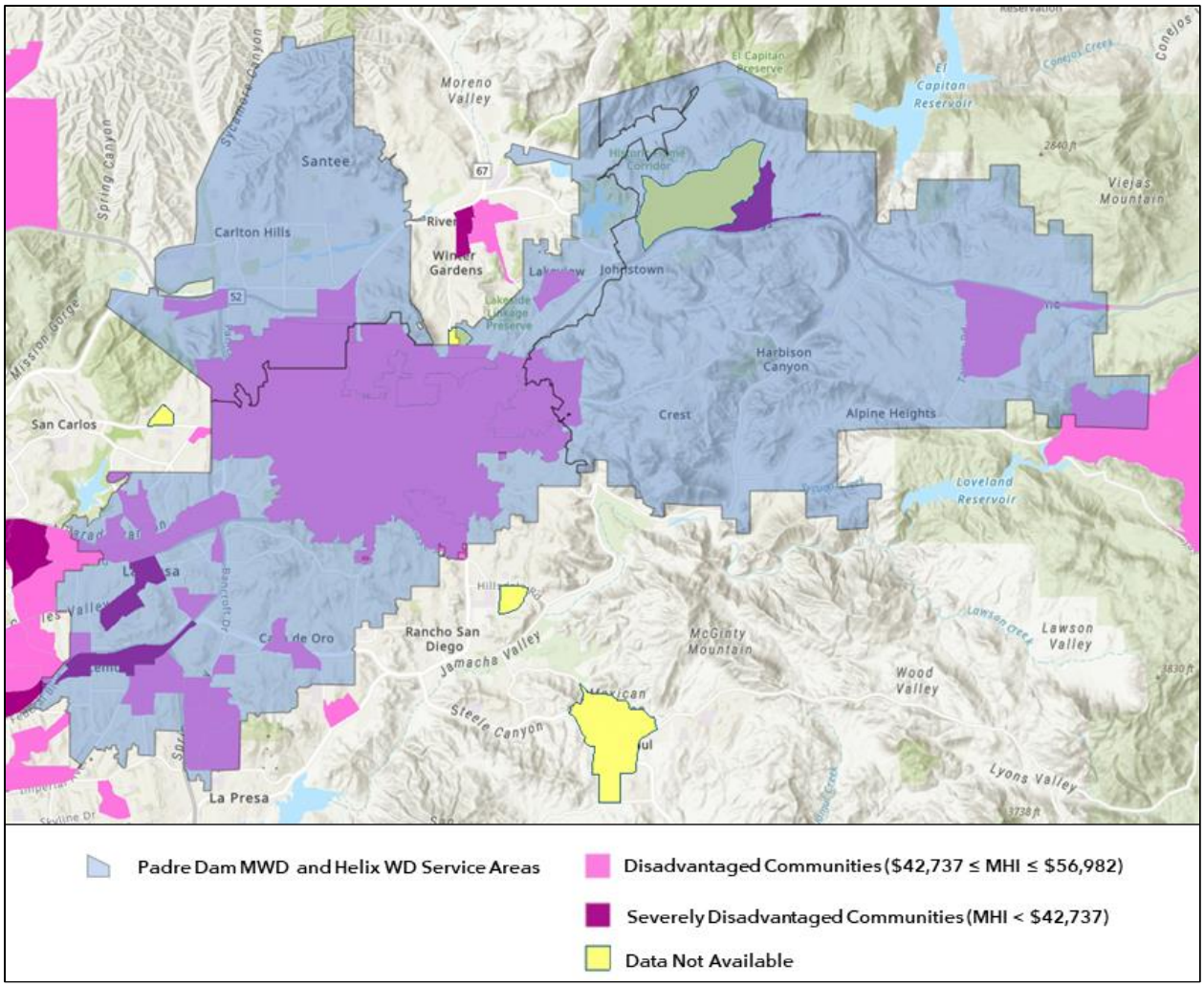
area due to high ranking exposures in diesel particulate matter as well as environmental effects from cleanup sites, groundwater threats, hazardous waste, and solid waste. In addition, the region has a high ranking within population characteristics through low birth weights, unemployment and housing burden. The main negative impacts seen in other, less severely impacted areas of Padre Dam and Helix's service area include linguistic isolation, poverty, education, asthma, and cardiovascular disease for population characteristics and ozone, toxic releases, particular matter 2.5, impaired waters, and groundwater threats for pollution burden.

El Cajon also has the largest population of people experiencing homelessness in East San Diego County and the second most for the entire County after the City of San Diego (El Cajon, 2021). The city has taken many positive steps however homelessness continues to be an issue, particularly in environmental justice communities.

In addition, some residential areas within environmental justice communities within El Cajon live in a food desert. City-wide, 21% of households live within walking distance of a supermarket while 82% are within biking distance.

Finally, public transportation access is limited in many portions of the Phase 2 Project's service area. The unincorporated area of San Diego County found within Padre Dam's service area have no access to public transportation (SANDAG, 2011). There is one bus line that travels along Interstate 80 from El Cajon to Viejas. The City of Santee, La Mesa and El Cajon have local bus routes throughout the cities with one Trolley/SPRINTER line to help the area access other main areas of western San Diego County (SANDAG, 2011). However, the majority of El Cajon does not have a trolley stop within walking or biking distance (there are only three stops within city limits) (El Cajon, 2021). Only 14% of downtown El Cajon, which is within Helix's service area, has a trolley stop within biking distance and 3.5% within walking distance , while 10% of the entire city has a trolley stop within biking distance and 2.6% within walking distance (El Cajon, 2021).

Figure 1-3: Disadvantaged Communities in Padre Dam and Helix WD Service Areas



***** Note: DACs mapped using the DWR DAC Mapping Tool (DWR, 2021) as determined by the census tract, census block group, and census designated place data for the year 2018, from the American Community Survey 2014-2018 dataset.

1.3.5 Evaluation Criterion 5: Watershed Perspective

1. ***Does the Project implement a regional or state water plan or an integrated resource management plan? Explain.***

The Phase 2 Project is an important part of Padre Dam and Helix's efforts to reduce reliance on water purchased from CWA, and has been incorporated into water supply projections in Padre Dam's 2020 UWMP, Helix's 2020 UWMP, and CWA's 2020 UWMP. As the water wholesaler for the San Diego Region, CWA's 2020 UWMP represents regional water planning efforts and projections and incorporates planning efforts from all 24 of its member agencies. Regionally, development of secure, reliable, sustainable, and drought-proof local supplies is a high priority.

The Phase 2 Project implements the second portion of the ECAWP Program, which has been included in the San Diego IRWM Plan. The San Diego IRWM Plan encompasses all or a portion of eleven watersheds in San Diego County, including the San Diego River watershed in which the Phase 2 Project is located. IRWM plans are broad documents that are crafted in a collaborative approach of multiple stakeholders to meet the needs of the watershed and integrate the various aspects of water including water supply, water quality, water conservation, and ecosystem restoration. Padre Dam, Helix, El Cajon, and the county are active members of the Regional Advisory Committee for the IRWM planning effort, which provides stakeholder guidance to the San Diego IRWM Program's governing body, the Regional Water Management Group. The Phase 2 Project is consistent with the 2019 San Diego IRWM Plan (SDRWMG, 2019). It addresses the following objectives of that plan (summarized):

- Development of integrated solutions, including integration between agencies, across watersheds and hydrologic services, sustainability, and/or beneficial uses
- Develop and maintain diverse supplies to improve water supply reliability and reduce dependence on imported water
- Construct reliable water supply infrastructure to improve water supply reliability, quality, and ability to meet demands of the region
- Reduce sources of pollution that exacerbate impacts to the environment and to people

The Phase 2 Project meets the objectives listed above by dramatically expanding a coordinated water reuse program between four local agencies. The new water supply and infrastructure will increase supply reliability and reduce dependence on imported water. Additional wastewater treatment and increased purified water production will reduce wastewater flows to the Pacific Ocean, reducing pollutants to the ocean. Utilization of a drought-proof, sustainable, local supply, will help Padre Dam and Helix's ability to continue to meet customer demands.

2. ***Does the Project help meet the water supply needs of a large geographic area, region, or watershed? Explain.***

The Phase 2 Project implements a regional priority to develop local, sustainable, drought-proof supplies and reduce reliance on imported water as described in CWA's 2020 UWMP. CWA is the region's wholesaler, serving 24 member agencies, covering a large geographic area with a total service area of 1,486 square miles. Goals and priorities established in the CWA's 2020 UWMP are considered regional goals. Further, CWA's 2020 UWMP assumed that the Phase 2 Project would be implemented in the near future. As a result, regional water planning, including CWA's assessment of its ability to meet member agency demands during dry year scenarios, is dependent on the purified water produced by the Phase 2 Project. Should the Project not be implemented, drought planning and emergency preparedness developed by the region may no longer be adequate or meet the standards of local and state regulations and policies.

3. ***Does the Project promote collaborative partnerships to address water-related issues? Explain.***

The Phase 2 Project implements Phase 2 of the ECAWP Program, which is a coordinated effort between Padre Dam, Helix, El Cajon, and the County of San Diego to implement water reuse in eastern San Diego County. Together, these agencies have partnered to collaborate and develop potable reuse supplies and opportunities to eastern San Diego County, which has limited access to local supplies. The agencies have collaborated to form a Joints Power Authority to deploy the ECAWP Program. The Phase 2 Project is the second phase of this Program, and significantly expands the ECAWP Program, including SWA at Lake Jennings. Lake Jennings is owned by Helix and use of the reservoir for SWA requires close collaboration between Padre Dam and Helix. As described throughout this report, the Phase 2 Project and the ECAWP Program will help to diversify supplies, utilize a drought-proof, local, sustainable supply, and help to reduce dependence on imported water by Padre Dam and Helix. The Phase 2 project will increase local potable water production to up to 8,960 AFY for the East County, which is approximately 27% of the East County's water demand.

4. ***Does the Project include public outreach and opportunities for the public to learn about the Project? Explain.***

Padre Dam has an award-winning outreach and education program that features a combination of innovative and creative outreach tactics, including a comprehensive tour program at its AWP demonstration facility. Fiscal Year 2018 saw 51 tours given, reaching 935 K-12 students and scouts, and 353 members of the public, for a total of 1,253 people reached. Padre Dam offered a total of 50 tours in Fiscal Year 2019 with a total attendance of 1,925 people, including 1,119 K-12 students and scouts and 806 members of the public. In 2020, due to COVID-19 restrictions, Padre Dam transitioned tours to a virtual platform to enable continued engagement. Padre Dam has continued to communicate with their customers through bill inserts, e-newsletters, social media posts, a new project video and website updates throughout this period. In addition, the ECAWP Program maintains a website (http://eastcountyawp.com/) with videos, presentations, newsletters, and educational materials. These public outreach efforts will continue throughout project implementation.

Padre Dam's outreach and education program serves its customers, builds support and creates goodwill for the District and the AWP Program. Public education efforts have not only been a learning opportunity, but a pivotal opinion/perception changing experience. Communication strategies from video, tours, and beer brewing partnerships have instilled confidence in the treatment process, highlighted the professionalism and competence of Padre Dam and reinforced the program goals - all while building program support. The demonstrated increase in public acceptance resulting from the educational program underscores the importance of this vital water resource.

2 Environmental and Cultural Resources Compliance

A Mitigated Negative Declaration (MND) for the ECAWP Program covering the facilities within the fence-line of the existing treatment plant, (i.e., the Ray Stoyer WRF Expansion and the AWP Facility) was completed in July 2015 (2015 MND) (SCH No. 2015071078). Driven by the changes required for using Lake Jennings as the environmental buffer instead of Santee Basin and addition of the future Phase 2 expansion of the Project, a Program Environmental Impact Report (PEIR) (SCH No. 2015111014) for the facilities improvements for the ECAWP Program was completed in May 2017. The 2017 PEIR included all of Phase 1 and Phase 2 of the Program. A Tiered MND (SCH No. 2018091029) that builds off the 2017 PEIR for the AWP Pipeline and Solids Handling Facility was completed in December 2018 (2018 MND), with associated CEQA-Plus analysis, including federal crosscutters. The discussion below summarizes information from all previously prepared environmental documents (the 2015 MND, 2017 PEIR, and 2018 MND).

*a. **Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)?***

- ***Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area.***

Construction of the various Phase 2 Project components would occur both below and above grade. Excavation would be required to install foundations for the expansion of the facilities and construction of new facilities, including new WRF basins. Earthwork would be required for construction of the tankage related to headworks, equalization basin, aeration basins, and secondary clarifiers. For the AWP facility, earthwork would include site grading. Construction of the EMG force main and residuals bypass system would require excavation to install portions of the pipelines. Construction activities could result in air, water, and animal habitat impacts. Additionally, noise from construction may affect animal habitat in the project area, though no critical habitat was found within the project site. The 2018 MND found that the potential for impacts to air and water quality and to habitat from noise were all less than significant either before or with mitigation (Padre Dam, 2018).

- ***Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.***

Air quality will be protected by the incorporation of best management practices (BMP) into project construction to reduce dust emissions. Water quality will be protected during construction through the application of BMPs to avoid and minimize impacts to hydrology and biological resources. This will include the creation of a storm water pollution prevention plan (SWPPP) describing BMPs, monitoring, inspection, and recordkeeping. The SWPPP will be implemented by the construction contractor to minimize storm water discharge and reduce erosion. Potential noise impacts to sensitive biological resources will be addressed by avoidance during nesting season, as described below (Padre Dam, 2017). Potential impacts to

habitats for sensitive species would be mitigated through avoidance of construction activities where sensitive plant species are located, siting of facilities outside of sensitive habitat as appropriate, the use of trenchless technologies where pipelines must cross sensitive habitats, and implementation of BMPs to minimize impacts where construction must occur in the vicinity of sensitive species habitat (Padre Dam, 2018).

b. Are you aware of any species listed, or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, how would they be affected by activities associated with the proposed project?

Construction noise could impact two federally-listed species, the Coastal California gnatcatcher and the Least Bell's vireo, identified as having suitable habitat outside, but within 500 feet, of the project area. The potential impact to these species would cease with the end of project construction. These species were identified during a biological survey conducted on June 1, 2015 and a breeding pair of Coastal California gnatcatchers was confirmed as present in the Project Area in 2018 (Padre Dam, 2015a; Padre Dam, 2018). Least Bell's vireo was identified in 2018 as being within 500 feet of the project disturbance limit (Padre Dam, 2018). To avoid the potential impact of construction activity noise to the nesting behavior of these species, any construction that is to take place during the breeding season for either species will be contingent on the review of the potential impact area by a certified biologist. If active nests belonging to either sensitive species is found during the survey, then construction will be postponed until the nest is no longer active or until a suitable noise barrier can be constructed. Similarly, if construction activities requiring removal, pruning, or damage of any trees or shrubs will occur during general avian breeding season, a qualified biologist will conduct a pre-construction survey. Construction activities will halt if an active nest is found during the survey until the nest is no longer active or until the end of the breeding season, whichever occurs later (Padre Dam, 2015a; Padre Dam, 2017). A qualified biologist would monitor construction activities and install temporary fencing to protect sensitive species and habitat as appropriate (Padre Dam, 2018).

Four special-status plant species were identified in the Project area around Lake Jennings: Ashy spike-moss, San Diego County viguiera, delicate clarkia, and San Diego goldenstar. The Project would have less than significant impacts on ashy spike-moss and San Diego County viguiera. Avoidance would be employed to protect delicate clarkia and San Diego goldenstar, where construction activities would be prohibited in areas delineated on construction plans as supporting these species (Padre Dam, 2018).

c. Are there wetlands or other surface waters inside the project boundaries that potentially fall under Clean Water Act (CWA) jurisdiction as "Waters of the United States?" If so, please describe and estimate any impacts the proposed project may have.

There are currently three surface water bodies that are part of Padre Dam's water delivery and discharge system. These include:

1. Lake Jennings – Imported water is stored at Lake Jennings prior to treatment and use as a potable supply.

2. Santee Lakes – A quantity of the recycled water produced at the Ray Stoyer WRF is conveyed to the Santee Lakes and is eventually discharged to Sycamore Creek.

3. Sycamore Creek – Recycled water discharged from Santee Lakes enters Sycamore Creek and is controlled by an NPDES permit.

Of these three surface water bodies, Sycamore Creek and Lake Jennings are the only potential "waters of the United States" within the Phase 2 Project area. Santee Lakes is not a water of the United States because it is artificial, constructed lakes and part of Padre Dam's wastewater treatment and recycling system. The Phase 2 Project would send purified water to Lake Jennings as part of normal operation, but does not propose construction that would impact Lake Jennings. (Padre Dam, 2018).

Lake Jennings is owned, operated, and maintained by Helix and is used primarily to store imported water. Imported water storage accounts for 95% of the 9,790 AF of total storage. Local runoff accounts for the remainder. Substituting purified water for imported water will impact the total volume of imported water, but it will not change the volume of water stored in the Lake. Purified water is higher quality than untreated imported water purchased from CWA. As such, overall water quality at Lake Jennings is anticipated to improve as purified water is delivered for SWA. No adverse water quality impacts to Lake Jennings are anticipated as a result of operation of the Phase 2 Project, though additional studies are being completed to determine the potential impact of improved water quality in Lake Jennings from the ECAWP Project on the local ecosystem and connected water bodies. There is potential for construction dust or construction-related erosion to contribute to temporary water quality impacts to local water bodies. Implementation of dust and erosion control measures and a SWPPP will reduce these potential impacts to less than significant (Padre Dam, 2018).

The Phase 2 Project will not change the existing augmentation of Santee Lakes (which are not "waters of the United States") with purified water and it is therefore not expected to impact either the Santee Lakes or Sycamore Creek.

d. When was the water delivery system constructed?

Padre Dam was formed in 1976 as a merger of two agencies: Rio San Diego Municipal Water District (formed in 1955) and Santee County Water District (formed in 1956) (Padre Dam, 2021). Recycled water was first developed in Padre Dam's service area in the early 1960s, with discharges to the Santee Lakes (opened in 1961 for recreational use). The Ray Stoyer WRF was originally constructed in 1968 and upgraded in 1997 to a 2 MGD capacity (Padre Dam, 2016). Recycled water delivery system including pump station, reservoirs, and distribution pipeline were constructed along with the Ray Stoyer WRF expansion in 1997.

Helix was established in 1973, and was formed from multiple water suppliers that coalesced over many years. The eventual growth of Helix's current boundaries was the result of various

annexations of surrounding areas that are now part of Helix's service area. Helix's water supply that is not supplied by CWA is stored at Lake Cuyamaca, El Capitan Reservoir, and Lake Jennings. The R.M. Levy WTP is used to treat Helix's raw water supply and has been upgraded twice since its original construction in 1965. Helix maintains 15 interconnections with neighboring water agencies (eight with Otay Water District, three with Padre Dam, two with Lakeside Water District, and two with the City of San Diego) that are used for emergency situations and planned maintenance operations. The water system's age varies.

e. Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

The Phase 2 will modify the existing Ray Stoyer WRF through expansion of the facility, as well as the expansion of the AWP facility. Because the purified water is a new source of supply, advanced treatment facilities, pipelines, and the pump station will be new and not modify any individual features of an irrigation system. Lake Jennings has sufficient capacity to accommodate the purified water from the Phase 2 Project (8,960 AFY), and would not require extensive modifications as a result of the Phase 2 Project.

f. Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places (NRHP)? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

The project-level environmental documentation completed for the 2015 MND and 2018 MND included project-level cultural and historical records searches. The 2015 MND found no historical resources within the study area (within the fence line of the existing treatment plant). The 2018 MND found three historical resources within the area of potential effect, though only one of these was recommended as eligible for listing in the NRHP, the San Diego Flume. The Phase 2 Project would not impact the San Diego Flume.

g. Are there any known archeological sites in the proposed Project area?

There are no known archeological sites in the WRF and AWP sites for the Project. A records search was conducted at the South Coastal Information Center (SCIC) on May 19, 2015 and a Sacred Lands File (SLF) search was conducted on May 28, 2015. The results did not indicate the presence of any archeological or Native American cultural resources. An on-foot survey conducted June 1, 2015 by a Native American monitor also found no presence of cultural resources. During the construction activities a qualified archeologist will be retained and shall be present to monitor initial ground disturbance of the project. The archaeologist shall have the authority to temporarily halt or redirect ground-disturbing activity if necessary (Padre Dam, 2015a).

The cultural resources report for the 2017 PEIR included a review of ASM's known records but did not include formal records search due to the size of the program area. ASM's analysis of archaeological resources indicated some components of the ECAWP Project intersect a known cultural resources site. The Phase 2 Project component that intersects the known cultural site is the EMG force main (Padre Dam, 2017).

A project-level Cultural Resources Assessment in 2018 found five archaeological resources within the vicinity of the ECAWP Project. Of these sites, two were located within the APE for the project, though neither was relocated during surveys for the Cultural Resources Assessment. These sites are assumed to still exist, and are both prehistoric habitation sites (CA-SDI-10148 [P-37-010148] and CA-SDI-13815 [P-37-013812]). A 2018 SLF search and subsequent Native American consultation indicates sensitivity for cultural resources in the Project area. Construction monitoring and recovery of cultural resources would be implemented to reduce potential impacts to less than significant.

h. Will the proposed Project have a disproportionately high and adverse effect on low income or minority populations?

The Phase 2 Project is not anticipated to have a disproportionately high and adverse effect on low income or minority populations. The 2018 MND found a less-than-significant impact or no impact for population and housing indicators, public services indicators, and recreation indicators. Transportation/traffic impacts will be mitigated to less than significant. Noise was found to be at or below less than significant with mitigation incorporated. Noise mitigation will include the use of mufflers and limitations on the times of day when noise producing activities may occur. Based on the findings of the MND, adverse effects are not anticipated for any of the communities in or near the project area.

Conversely, the project will indirectly benefit the entire Padre Dam and Helix service areas, including the DAC and minority populations, by increasing local supply reliability and, in doing so, decreasing dependence on expensive imported water supplies. This shift in supply will help protect against water rate increases associated with the need for expensive water supply alternatives.

i. Will the proposed Project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

The Phase 2 Project will not have any impacts to tribal lands. A records search for the project area within the treatment plant boundaries was conducted at the SCIC on May 19, 2015 and a Sacred Lands File search was conducted on May 28, 2015. The results did not indicate the presence of any archeological or Native American cultural resources. An on-foot survey conducted June 1, 2015 by a Native American monitor also found no presence of cultural resources. During the construction activities, a qualified Native American monitor will be retained and shall be present to monitor initial ground disturbance of the project. In the event that Project activities uncover previously unknown cultural resources, the Native American

monitor will notify the lead agency, develop an appropriate plan for the resource, and consult with Native American representatives (Padre Dam, 2015a).

A Native American Heritage Commission (NAHC) consultation in January 2018 indicated the Phase 2 Project area was sensitive for cultural resources. Tribal consultation resulted in a request for a Kumeyaay Cultural Monitoring to be present during ground-disturbing activities to alert workers to any inadvertent discovery of cultural artifacts, cremation sites, or human burials. Construction monitoring and appropriate recovery and documentation of cultural resources will be implemented during excavation activities (Padre Dam, 2018).

j. Will the proposed Project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

It is not anticipated that the Project activities will contribute to the introduction, continued existence or spread of any invasive species. The Phase 2 Project will take place on disturbed, developed, and ornamental plant coverage areas and will not disturb native vegetation communities. It is therefore unlikely that the project will cause the introduction of invasive species in those areas.

3 Required Permits or Approvals

Both Phase 1 and Phase 2 of the East County AWP Project will be constructed and operated under a common permit. The permitting requirements for the Project are anticipated to include the followings:

- NPDES Permit for Treated Recycled Water Discharges into Lake Jennings: An NPDES permit is required by the RWQCB to regulate discharges into the inland water body (Lake Jennings) as described in the San Diego Basin Plan. The NPDES permit also includes provisions from DDW for the potable reuse requirements as stated in the SWA regulations. The following list provides the current status and expected progress with the Lake Jennings NPDES permitting.
  - Received DDW approval on the completed hydrodynamic modeling calibration and validation with Tracer Study data in 2020.
  - Received Conditional Acceptance Letter from the San Diego RWQCB regarding the compliance approach for discharges into Lake Jennings for reservoir augmentation on September 11, 2019.
  - Draft Title 22 Engineering Report was submitted to the SWRCB-DDW to in November 2021 to initiate the regulatory review process to receive the NPDES permit. The permit is anticipated to be obtained in late 2024.
  - RWQCB review process is expected to start in early 2023 once the DDW comments are addressed and DDW holds a public hearing. RWQCB review process is expected to take 12 months. The NPDES permit adoption is anticipated to occur in late 2024.

- Revised NPDES Permit and Waste Discharge Requirements (WDR) for Ray Stoyer WRF: The existing NPDES permit and WDR for Ray Stoyer WRF need to be revised and approved by the RWQCB for the improvement proposed at the WRF. The WDR will also address the use of the digested sludge.
- Helix Water Supply Permit Amendment from DDW: The permit amendment is required for Helix to use the purified water flows as a source of supply.
- Construction Permits: General construction permit, encroachment permits, building permits, and 401 and 404 permits would be obtained before construction begins by July 2022, if applicable.

A summary of state and local regulatory permits and approvals is summarized in **Table 3-1** below.

California Environmental Quality Act (CEQA)-Plus compliance and a Finding of No Significant Impact (FONSI) are in the process of being finalized. Padre Dam applied for CWSRF financing for the Phase 1 and Phase 2 Projects which required compliance with CEQA-Plus (CEQA in addition to federal crosscutters such as the Clean Air Act, National Historic Preservation Act, Federal Endangered Species Act, and others); SWRCB approved the Project's CEQA-Plus compliance. Padre Dam also applied for the WIFIA loan for the Phase 1 and Phase 2 projects and has received environmental approvals from the WIFIA program, including a Federal Cross-Cutting Authorities Review Memorandum and a WIFIA Programmatic Environmental Assessment Adequacy Memorandum with completed Clean Air Act, National Historic Preservation Act, Federal Endangered Species Act reviews, and others. Padre Dam secured grant funding for the Phase 1 Project through Reclamation's Title XVI grant program. As a result, Padre Dam has been coordinating with Doug McPherson at Reclamation regarding the FONSI approval process. During his consultation with SWRCB staff, both parties decided that the State would take the lead on the Endangered Species Act compliance and the State Historic Preservation Office (SHPO) consultation under Section 106 of the National Historic Preservation Act (as the State is conducting consultation as part of the CEQA-Plus approval process). FONSI approval for the Project is currently underway and is anticipated to be issued in spring 2022, as SWRCB's CEQA-Plus approval is complete.

Table 3-1: Required Permits and Approvals for Phase 2 Project

Permit/Approval	Regulating Agency	Criteria and Timelines
FONSI	United States Bureau of Reclamation	Anticipated by spring 2022
National Pollutant Discharge Elimination System (NPDES) General Construction Activity Storm Water Permit SWRCB Order No. 2009-0009-DWQ (as amended	SWRCB, RWQCB	By July 2022 (before start of construction)

Permit/Approval	Regulating Agency	Criteria and Timelines
by 2010-0014-DWQ and 2012-0006-DWQ)		
Waste Discharge Requirements (Water Code 13000 et seq.) and National Pollutant Discharge Elimination System (NPDES) Permit for discharges to Lake Jennings	SWRCB, RWQCB	Submitted Draft Title 22 Engineering Report to DDW and RWQCB in November 2021. A revised version of the Report is anticipated to be submitted for regulatory review in summer 2022. Anticipated to finalize the permit application process and obtain the permit in late 2024.
401 Certification (CWA, 33 USC 1341, if the project requires U.S. Army Corps of Engineers [USACE] 404 Permit)	SWRCB, RWQCB	Anticipated by July 2022 (before start of construction)
Amended domestic water supply permit for Helix to use the AWP facility flows as a source of supply in Lake Jennings (SWA using recycled water) (SBDDW-16-02)	SWRCB DDW	Anticipated by early 2024
California Endangered Species Act (California Public Resources Code Section 30600) California Fish and Game Code Section 1602 Notification of Lake or Streambed Alteration	CDFW, USFWS	On September 16, 2020, USFWS concurred with the determination that the proposed action is not likely to adversely affect the federally endangered least Bell's vireo, federally threatened coastal California gnatcatcher, arroyo toad, or their designated critical habitats.
Review under Section 106 Consultation, National Historic Preservation Act and California Office of Historic Preservation (California Public Resources Code Sections 5024, 5024.5, 21083.2 – 21084.1)	California State Historic Preservation Office (SHPO)	On March 11, 2021, SHPO concurred with the ineligibility determinations for six sites, the eligibility of San Diego Flume and El Monte Tunnel for listing on the National Register of Historic Places, and that the undertaking will not adversely affect historic properties.
Encroachment Permit	City of Santee	Anticipated by July 2022 (before start of construction)
Certificate of Occupancy	El Cajon	Anticipated by late 2024
JPA Water Purchase Agreement with Padre Dam and Helix	JPA/Padre Dam/Helix	Completed in October 2019
Sub-Water Purchase Agreement between Padre Dam and Helix	Padre Dam/Helix	Completed in October 2019

Permit/Approval	Regulating Agency	Criteria and Timelines
JPA Wastewater Services Agreement with Padre Dam, County, and El Cajon	JPA/Padre Dam/County/El Cajon	Completed in October 2019
Agreement for resolution of EMG Pump Station transfer	City of San Diego	Anticipated by July 2022 (before start of construction)

RWQCB = Regional Water Quality Control Board; SWRCB = State Water Resources Control Board; DDW = Division of Drinking Water; CDFW = California Department of Fish & Wildlife

4 Other Federal Funding

Padre Dam anticipates receiving a loan under the USEPA's Water Infrastructure Finance and Innovation Act (WIFIA) Program. See Section 5.1.1 for a detailed discussion of the WIFIA loan.

5 Project Budget

5.1 Funding Plan and Letters of Commitment

The total cost for the Phase 2 project including planning, design, and construction is estimated to be $256,254,009. Estimated costs for the Phase 2 Project that have been incurred since the ECAWP Program Phase 2 Project Feasibility Study was approved by Reclamation (January 14, 2020), and before September 30, 2025 are estimated to total $223 million. These include planning, design, and construction costs. As shown in **Table 1-2**, all project components are in the design phase, and construction is anticipated to be completed in summer 2025. Commissioning of the Phase 2 Project will continue between October 2025 and the beginning of 2026.

5.1.1 Sources of Funding

The Phase 2 Project has secured funding from the East County JPA capital funds, and is in the process of securing additional funding in the form of low-interest loans. East County JPA has submitted an application package for low-interest loan dollars to fund Phase 1 and Phase 2 through SWRCB's Clean Water State Revolving Fund (CWSRF) program. The SWRCB found that the JPA would be eligible for $373,150,850 with an anticipated interest rate of 0.8%. As described below, it is estimated $135.9 million of the CWSRF loan will be for the Phase 2 Project. The loan agreement with SWRCB is currently in draft form and is included in Appendix A. Padre Dam expects that the loan agreement will be executed by spring 2022, and thus has included the CWSRF loan as a funding source in this application.

East County JPA has also executed a loan agreement under the USEPA's WIFIA program for both Phase 1 and Phase 2. The loan agreement is for up to $387,533,169, a portion of which would be applied to the Phase 2 Project. As described below, it is estimated $90.4 million of the WIFIA loan will be for the Phase 2 Project. The loan would have a 30-year term and an estimated 1.95% interest rate. The loan agreement was executed on September 9, 2021, and is provided in Appendix A.

All project costs are covered by grants or loans currently awarded, being pursued, or anticipated to be pursued. As described above, these costs are considered secure. In the event that anticipated grant or loan funding is not received, costs are expected to be funded by the East County JPA local funds.

Reclamation's WaterSMART Title XVI WIIN Program

The maximum amount covered by Title XVI WIIN funds is 25% of the total project costs that will be completed by September 30, 2025. The Phase 2 Project has a total cost of approximately $256 million. Of this, approximately $223 million is expected to be incurred before September 30, 2025 (and occurred after Reclamation approved the ECAWP Program Phase 2 Project Feasibility Study). 25% of $223 million is $56 million. Thus, to complete the Phase 2 Project and deliver 8,960 AFY purified water, Padre Dam requests a total of $28.3 million in Federal funds to meet the maximum federal contribution of $30 million, or 25% of the project costs, whichever is less. The Phase 2 Project was previously awarded $1.7 million from Reclamation's Title XVI WIIN FY 2021 solicitation (the Notice of Selection is included in Appendix A). $28.3 million represents approximately 13% of the costs incurred between approval of the ECAWP Program, Phase 2 Feasibility Study and September 30, 2025. The previous $1.7 million plus an additional $28.3 million from FY 2022 would total $30 million, still representing approximately 13% of the costs incurred during that time period. The remaining funding is anticipated to be covered by a combination of Federal, State, and local funding. Each funding source is described in more detail below.

Local Wastewater and Water Funds

Monies from the Wastewater Funds are made available by treating additional wastewater at the expanded Ray Stoyer WRF rather than paying for it to be treated at Point Loma WWTP. Projected costs for disposal of wastewater to the Metro System range from $5,595/MG and $11,305/MG between 2025 and 2040, averaging $7,999/MG during those years. These projections also account for future costs for improvements related to the recycled water projects proposed upstream of the Point Loma WWTP. This is substantially higher than the average $3,297/MG estimated for wastewater treatment at the Ray Stoyer WRF and will allow for the use of Wastewater funds to increase the capacity of the facility. Avoiding the costs of sending wastewater to the Metro System will save Padre Dam money, which will be used to partially fund the costs of the Phase 2 Project via the Wastewater Funds. Similarly, avoiding the costs of sending wastewater to the Metro System will save other wastewater agencies including El Cajon and County to save money, which will be used to partially fund the costs of the Phase 2 Project. The costs saved from reducing imported water purchases from CWA will also be used to partially fund the Phase 2 Project to create new purified water.

CWSRF Loan

East County JPA has applied to SWRCB for, and was preliminarily awarded, approximately $373 million in financing, $135,853,000 of which will fund the Phase 2 Project. The funding

agreement is currently in draft form. The funding package from SWRCB consists of low interest loans (at an estimated interest rate of 0.8%). CWSRF financing would be used to meet the non-federal cost share requirements (together with local funds), as shown in **Table 5-1**. Because the final financing agreement has not yet been executed, the CWSRF funds have not yet been secured. If funding is not secured through the CWSRF, then the project will be funded through East County JPA's Wastewater Funds, Sewer System Net Revenues, and Water System Net Revenues. A summary of the funding sources is provided in **Table 5-1**.

WIFIA Loan

East County JPA has secured a loan under USEPA's WIFIA program for up to approximately $388 million low-cost supplemental loan to fund both the Phase 1 and Phase 2 Projects. Padre Dam and USEPA executed the loan agreement on September 9, 2021. WIFIA funds would be used to cover approximately $90 million of the Phase 2 Project costs. Together, the Title XVI WIIN grant amount ($30 million) and WIFIA funds ($90 million) total approximately $120 million in federal funding sources, or 46% of the total Phase 2 Project cost. WIFIA loans may fund up to 49% of project costs, and the WIFIA program requires that no more than 80% of a project's cost come from federal sources. The WIFIA loan would cover less than 49% of the Phase 2 Project cost, and the overall federal funding sources would not exceed 80% of the Phase 2 Project cost.

Table 5-1: Summary of Non-Federal and Federal Funding Sources

Funding Sources	Funding Amount
Non-Federal Entities	
SWRCB (CWSRF)	$135,853,000
Non-Federal Subtotal	**$135,853,000**
Federal Entities	
EPA (WIFIA)	$90,401,009
Requested Title XVI WIIN Funding (Total)	$30,00,000
1. Awarded Title XVI WIIN Funding – FY 2021	$1,700,000
2. Requested Reclamation Funding under this NOFO (FY 2022):	$28,300,000
Total Project Funding	***$256,254,009***

5.1.2 Letters of Commitment

Padre Dam anticipates the East County JPA will receive a loan through the CWSRF program, and the East County JPA has secured a loan through the WIFIA program. A copy of the executed WIFIA agreement is provided in **Appendix A**. Padre Dam will submit a copy of the executed CWSRF agreement to Reclamation upon its completion, which is anticipated in late spring/early summer 2022. A copy of the draft CWSRF agreement is provided in **Appendix A**.

5.2 Budget Proposal

The Phase 2 Project's detailed budget proposal is provided in **Table 5-2,** followed by a narrative explanation of the costs included. The budget proposal includes all project costs, not just those through September 2025.

Costs incurred prior to the anticipated FY 2022 WIIN award date of September 30, 2022, are estimated to total approximately $46 million. These costs include planning and design costs related to further developing the project. The amounts and dates of cost incurrence vary.

Table 5-2: Budget Proposal[1]

BUDGET ITEM DESCRIPTION	COMPUTATION			TOTAL COST
	$/Unit	Quantity	Quantity Type	
SALARIES AND WAGES				
Director of AWP Operations	$86	7,020	hr	$606,614
AWP Engineering Manager	$70	7,020	hr	$491,400
Engineer (Salary Grade 36)	$60	7,020	hr	$421,200
Engineer (Salary Grade 41)	$66	7,020	hr	$463,320
Plant Manager	$60	1,040	hr	$62,400
Recycled Water Operations Supervisor	$45	1,040	hr	$46,800
Recycled Water Operator (Salary Grade 20)	$40	1,040	hr	$41,600
Construction Inspector (Salary Grade 23)	$40	2,600	hr	$104,000
Construction Inspector (Salary Grade 20)	$35	2,600	hr	$91,000
Administrative Assistant (Salary Grade 18)	$30	936	hr	$28,080
GIS/CAD Specialist (Salary Grade 22)	$40	936	hr	$37,440
GIS/Mapping Coordinator	$55	936	hr	$51,480
Accounting Specialist (Grade 17)	$35	1,872	hr	$65,520
Communications Assistant	$26	936	hr	$24,336
Communications Manager	$55	936	hr	$51,480
Compliance Administrator	$43	936	hr	$40,248
Information Systems Manager	$65	1,040	hr	$67,600
Information Systems Analyst	$50	1,040	hr	$52,000
SCADA Administrator	$50	1,040	hr	$52,000
Right of Way Agent	$45	936	hr	$42,120
			Subtotal	**$2,840,638**
FRINGE BENEFITS				
For All Positions	63.48	N/A	%	$1,803,371
			Subtotal	**$1,803,371**
SUPPLIES AND MATERIALS				
Incorporated into Contractual Costs				
			Subtotal	**$0**
EQUIPMENT				
Incorporated into Contractual Costs				
			Subtotal	**$0**

BUDGET ITEM DESCRIPTION	COMPUTATION			TOTAL COST
	$/Unit	Quantity	Quantity Type	
TRAVEL				
Incorporated into Contractual Costs				
			Subtotal	**$0**
CONTRACTUAL				
Design			LS	$18,520,000
Environmental/Permitting			LS	$5,590,000
Legal/Admin			LS	$5,590,000
Project Management			LS	$18,520,000
Construction Management			LS	$18,520,000
Construction Costs				
EMG Pump Station			LS	$6,360,000
EMG Force Main			LS	$16,290,000
Residuals Bypass System			LS	$7,750,000
WRF Primary & Secondary Processes			LS	$73,450,000
Solids Handling Facility Expansion			LS	$26,880,000
WRF Tertiary Treatment and Disinfection			LS	$8,020,000
AWP Facility and Product Water Pump Station Expansion & Visitor's Center			LS	$46,120,000
			Subtotal	**$251,610,000**
TOTAL DIRECT COSTS				**$256,254,009**
INDIRECT COSTS	**Rate**	-	**Base**	-
		%		**$0**
TOTAL PROJECT/ACTIVITY COSTS				**$256,254,009**

1 Some differences may occur due to rounding

5.3 Budget Narrative

Salary and Wages

Salary and wages include standard rates for Padre Dam staff, exclusive of fringe benefits. Key personnel are identified by title, with the number of hours available based on anticipated workload and project schedule. Padre Dam staff role is being the Program Manager during the Phase 2 Project execution including managing the engineering planning and design work, overseeing construction and construction management work, interagency coordination with the East County JPA and other project stakeholders, coordination with regulatory agencies for permitting, environmental compliance coordination, and public outreach. Consultants will supplement the Padre Dam staff for planning, design, and construction of the facilities. Key Padre Dam staff include:

- Mark Niemiec – Director of AWP Program
- Seval Sen – AWP Project Engineering Manager

- Ken Simmons – AWP Engineer
- Alfred Pedroza- AWP Engineer
- Rob Northcote – Plant Manager
- Ryan Hughes – Recycled Water Operations Supervisor

Fringe Benefits

Padre Dam's fringe benefits are approximately 63% of staff costs for all positions at Padre Dam based on FY 2020 data. This benefit value was derived by Padre Dam's financial accounting and reflects standard rates and benefits at the agency. Fringe benefits include medical insurance, disability insurance, workers compensation insurance, and retirement benefits. Padre Dam's fringe benefits have been previously approved by Reclamation during contracting for funding awarded under previous Title XVI FOAs for the Phase 1 Project.

Travel

No travel costs for Padre Dam staff are included in the Phase 2 Project. Any travel that might be incurred by Padre Dam staff would be considered part of normal operations and not specific to the Phase 2 Project. Travel costs incurred by consultants and contractors are incorporated into contractor costs.

Equipment

No equipment is anticipated to be purchased by Padre Dam for this project. Any equipment used during construction is included in the contractor costs.

Supplies

Supplies are included in contractor costs and are not expected to be directly incurred by Padre Dam. Any materials and supplies purchased directly by Padre Dam are anticipated to be part of normal operations of the agency (e.g., printer paper) and not specific costs for the Phase 2 Project.

Contractual

The majority of the project costs are for contractors. Contractual planning and design costs for the Phase 2 Project include project management, environmental and permitting, legal/administrative work, and construction management costs. These non-construction costs total approximately $66.7 million. The Phase 2 Project is currently at the 60% design status. Engineer's estimates, planning studies, and previous experience were used to develop the estimated Phase 2 Project construction costs. Padre Dam has executed progressive design-build contracts that encompass both the Phase 1 and Phase 2 Project components. Contracts can be provided to Reclamation upon request.

Third-Party In-Kind Contributions

The proposed project does not include third-party in-kind contributions. This budget classification is not applicable.

Environmental and Regulatory Compliance Costs

Federal environmental compliance will be achieved through a FONSI. Per recent communications between Padre Dam and Reclamation, the Phase 2 Project will be added to Reclamation's Phase 1 FONSI. This is expected to be completed by summer 2022, based on personal communication with Doug McPherson of Reclamation. Padre Dam expects that some Reclamation costs may be withheld from the grant amount, but it is anticipated that Reclamation's costs will be minimal since the Phase 2 Project will be added to the existing Phase 1 FONSI. As such, these costs have not been included in this application.

Other Expenses

No other expenses are included in the Phase 2 Project.

Indirect Costs

No indirect costs are included in the Phase 2 Project.

Total Costs

The total capital cost for the Phase 2 Project is $256,254,009, based on the sum of the costs described above.

6 Letters of Project Support

Padre Dam has received letters of support from the following 21 organizations for the ECAWP Project; copies of these letters are provided as **Appendix B** of this application. The Phase 2 Project is a key part of the ECAWP Project and will dramatically expand local water supply. Thus, letters of support have been included for the entire ECAWP project. Letters of support have been received from:

- Helix Water District
- San Diego County Board of Supervisors
- El Cajon
- Otay Water District
- California Regional Water Quality Control Board, San Diego Region
- Congressman Duncan Hunter, 50th District, California, U.S. House of Representatives
- City of Santee
- Metro Wastewater JPA
- Sycuan Band of the Kumeyaay Nation
- San Diego IRWM Program
- Water Reliability Coalition
- Senator Joel Anderson, 36th Senate District, California Legislature
- Assemblyman Brian Jones, 71st District, Assembly, California Legislature
- Assemblyman Randy Voepel, 71st District, Assembly, California Legislature
- County Supervisor Dianne Jacob, 2nd District, San Diego County Board of Supervisors
- Senator Brian W. Jones, 38th Senate District, California Legislature
- Viejas Band of Kumeyaay Indians
- San Diego Coastkeeper
- San Diego River Conservancy
- San Diego Audubon Society
- Surfrider Foundation

7 Official Resolution

On February 16, 2022, Padre Dam's Board of Directors authorized Padre Dam's General Manager (or his designee) to apply for and enter into an agreement for funding under this FOA and confirmed that Padre Dam will be able to provide the required 75% funding match. A copy of the adopted resolution is provided as **Appendix C**.

8 Conflict of Interest, Audit, and Lobbying

Padre Dam has no conflicts of interest to disclose to Reclamation. Padre Dam maintains internal procedures to identify, disclose, mitigate, and eliminate conflicts of interest related to its procurement process and other activities.

Padre Dam was required to submit a Single Audit report for 2020 in compliance with existing funding agreements. The auditee EIN is 956006621.

Form SF-LLL Disclosure of Lobbying Activities, has been submitted via grants.gov.

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Appendix B – Letters of Support

September 29, 2020

Allen Carlisle
CEO/General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Re: Endorsement of Padre Dam's Advanced Water Purification Project

Dear Mr. Carlisle and East County AWP JPA Members,

The Water Reliability Coalition (WRC) is a broad-based group of 27 environmental, consumer, business, labor and technical organizations that have worked together to support water reuse as a strategy to develop a safe, reliable, sustainable and cost-effective local water supply. The WRC is proud to once again offer its support for the East County Advanced Water Purification (East County AWP) program.

As a collaborative effort between Padre Dam Municipal Water District, Helix Water District, the City of El Cajon and the County of San Diego, the East County AWP program will provide safe, locally controlled, drought-proof water supply to thousands of East County residents. This water recycling program will enhance the San Diego Region's water supply reliability and diversify East County's water supply.

Currently, the Padre Dam Municipal Water District imports 100% of its drinking water supply where the majority of its supply comes from the Sacramento Bay Delta and the Colorado River. Conservation, water efficiency and locally controlled water supplies are increasingly necessary and critically important with prolonged and more frequent droughts.

By the completion of the project's first phase in 2020, the East County AWP will use state-of-the-art technology to purify East San Diego County's recycled water and produce up to 30 percent of East County's drinking water supply. This will provide a sustainable supply of water for up to 6,000 homes a year. Expansion of the program during phase two, which will be completed by 2025, will increase the amount of water purified to over 10 million gallons each day: enough to serve 26,000 homes a year.

The WRC applauds the scope of this project, which is creating a new locally sourced, environmentally friendly supply of water in East County San Diego and reduces our regional dependence on imported water. Upon completion, this project achieves a significant benefit to our coastal environment by eliminating the need to send most of the wastewater generated from East County to the City of San Diego's Point Loma Wastewater Treatment Plant, where the majority of its wastewater is currently treated and then discharged into the ocean.

The WRC wholeheartedly endorses the East County Advanced Water Purification Project, and we applaud Padre Dam for its strong leadership in advancing the project.

Sincerely,

Dike Anyiwo
San Diego Regional Chamber & WRC Co-Chair

Matt O'Malley
San Diego Coastkeeper & WRC Co-Chair

April 21, 2020
East County Advanced Water Purification Project JPA
% Allen Carlisle - CEO, General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Re: Support for the East County Advanced Water Purification Project

Dear Mr. Carlisle and East County AWP JPA Members,

On behalf of the Surfrider Foundation San Diego County Chapter (Surfrider), we are pleased to extend our continued support for the East County Advanced Water Purification (AWP) project which is now governed by East County AWP Joint Powers Authority (JPA).

Surfrider is a grassroots volunteer organization dedicated to the protection of our oceans and coast. For more than three decades, Surfrider has worked with environmental experts to achieve solutions for coastal protection and we are pleased to see the steadfast progress of this important environmental and public infrastructure project that will provide a critical local source of water for our region.

Climate change exacerbates San Diego's dependence on imported water, which perpetuates an energy intensive system and makes our region more vulnerable to drought. We applaud the efforts of the AWP in taking a sustainable step towards regional water supply reliability while also making beneficial use of our wastewater, and we recognize the JPA's formation as an important step in this process.

The Advanced Water Purification Facility's goal of producing up to 11.5 million gallons of water per day by 2025 is laudable and a meaningful step towards securing a more resilient water supply for San Diegans.

Sincerely,

Laura Walsh
Policy Coordinator
The Surfrider Foundation, San Diego Chapter

Phone: 858.800.2282 | lauraw@surfridersd.org |
942 Calle Negocio # 350, San Clemente, CA 92673

Fostering the protection and appreciation of birds, other wildlife and their habitats...

April 12, 2020

East County Advanced Water Purification Project JPA
c/o Allen Carlisle - CEO, General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Re: Support for the East County Advanced Water Purification Project

Dear Mr. Carlisle and East County AWP JPA Members,

The San Diego Audubon Society advocates for the protection and appreciation of birds, other wildlife, and their habitats. As a result, we greatly appreciate the JPA's project for the potable reuse of 11.5 MGD of local wastewater. Potable reuse is the most environmentally benign source of water that is available to satisfy our region's drought security needs. Some of those environmental benefits will be:
It will provide a major level of water security without the construction more reservoirs and their negative habitat and watershed impacts.
It will tend to minimize the need to pump water from distant sources, like the Colorado River and Sacramento Valley, and the associated energy use and related GHG discharge and the negative habitat impacts to those source watersheds.
It will reduce the pressure for our region to depend on ocean desalination and its damage to ocean fisheries and water quality and its high energy use and therefore GHG discharge.
It will reduce the amount of wastewater that must be discharged into our coastal waters from the Point Loma Wastewater Treatment Plan.

From a civic point of view the project will allow local control of this water and it will probably have an ever increasing cost advantage over imported water.

We understand that the regulatory process may not be as easy as it should. We applaud that the JPA understands the long-term benefits and is willing to make that effort and investment. In case of questions or follow-up, contact the undersigned at peugh@cox.net or 619-224-4591.

James A. Peugh
Conservation Chair
San Diego Audubon Society

SAN DIEGO RIVER CONSERVANCY
11769 WATERHILL ROAD
LAKESIDE, CALIFORNIA 92040
PHONE (619) 390-0534
Julia.richards@sdrc.ca.gov
WWW.SDRC.CA.GOV

April 9, 2020

Mr. Allen Carlisle
CEO/General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Re: Support Letter for Padre Dam Municipal Water District's
East County Advanced Water Purification Project (East County AWP)

Dear Mr. Carlisle:

The San Diego River Conservancy, a State agency, mission specifically includes conserving land and protecting water supply, quality and natural flood conveyance, among other goals.

The Conservancy has partnered with Padre Dam Municipal Water District to help implement various restoration projects in Sycamore Creek. Padre Dam is a great partner and asset to the local communities in San Diego County. The East County AWP project will provide safe, locally controlled, drought-proof water supply to thousands of East County residents and will enhance the San Diego Region's water supply reliability.

Currently, the Padre Dam Municipal Water District imports 100% of its drinking water supply from the Sacramento Bay Delta and the Colorado River. Conservation, water efficiency and locally controlled water supplies are increasingly necessary and critically important with prolonged and more frequent droughts due to climate change.

When the Project begins producing water in 2025, the East County AWP Project will supply approximately 30% of East County's drinking water supply, which is approximately 12 million gallons of local water supply per day. This Project will also help reduce wastewater discharge into the Pacific Ocean.

The Conservancy applauds Padre Dam and the East County AWP Joint Powers Authority's leadership and supports the East County Advanced Water Purification Project to improve long term sustainably of local water supply.

Sincerely,

Julia L. Richards
Executive Officer

SAN DIEGO COASTKEEPER

April 3, 2020

East County Advanced Water Purification Project JPA
c/o Allen Carlisle - CEO, General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Re: Support for the East County Advanced Water Purification Project

Dear Mr. Carlisle and East County AWP JPA Members,

On behalf of San Diego Coastkeeper, I am pleased to express my continued support for the East County Advanced Water Purification (AWP) project and applaud the continued efforts of the newly formed Joint Powers Authority to advance forward with the implementation of this important new water supply reliability project.

This letter of support follows San Diego Coastkeeper's 2016 signature of endorsement for this project as part of the Water Reliability Coalition (WRC), a group of more than twenty environmental, consumer, business, labor and technical organizations joined in support of water reuse as a strategy to develop a safe, reliable, sustainable and cost effective local water supply. We continue to believe that the East County AWP project will provide safe, locally controlled, drought-proof water supply to thousands of East County residents and will enhance the San Diego Region's water supply reliability.

We support the JPA's plan to begin producing 11.5 million gallons of water per day by 2025. In addition to providing a new local water supply, the project will eliminate the need to send most of the wastewater generated from East County to the City of San Diego's Point Loma Wastewater Treatment Plant, where it is currently treated and then discharged into the ocean. This is a significant benefit to the San Diego coastal environment.

The 11.5 million gallons of new drinking water generated each day of new drinking water equals approximately 30% of the current drinking water demands for residents in East San Diego County. Seeing this important project scheduled for completion in 2025 is reassuring for the future of the entire San Diego region.

I commend the efforts of all project partners to continue moving this project towards a reality.

Sincerely,

Matt O'Malley
Executive Director and Managing Attorney

San Diego Coastkeeper
2825 Dewey Road, Suite 207
San Diego, California 92106
(619) 758-7743
www.sdcoastkeeper.org

January 15, 2019

Allen Carlisle
CEO/General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Dear Mr. Carlisle,

On behalf of the Sycuan Band of the Kumeyaay Nation, I want to thank you for your dedicated leadership and express our support of the East County Advanced Water Purification Program.

This important regional program demonstrates the value of collaboration and extensive planning demonstrated by the East County AWP partners led by Padre Dam Municipal Water District, the County of San Diego, City of El Cajon, Helix Water District and embraced by so many regional community leaders.

As we have said in the past, the Sycuan Band of the Kumeyaay Nation measure ourselves by our impact on the community. Likewise, we measure the East County AWP by its immeasurable impact on the community – delivering a reliable, clean and sustainable source of water, our greatest natural resource.

The Sycuan Band of the Kumeyaay Nation is pleased to extend its full support for the East County AWP. We appreciate that this program will create a new source of water that can be available to our tribal community.

We value the independence that this important project affords to East County communities, and we support the program partner efforts to create a local, drought-proof water supply that is also environmentally friendly. This commitment to long-term sustainability is crucial as we plan for the continued success and growth of all communities in East County San Diego, including Sycuan.

The grant funding that has been secured is impressive and the collaborative and transparent approach of each program partner is appreciated and will serve our communities well in a safe, prosperous and sustainable future.

Respectfully,

Cody J. Martinez
Chairman

California State Senate

SENATOR
BRIAN W. JONES
THIRTY-EIGHTH SENATE DISTRICT

February 5, 2019

Allen Carlisle
CEO/General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Dear Mr. Carlisle and Padre Dam Board of Directors:

As the elected representative for California's 38th Senate District, it is my pleasure to reiterate my strong support and commitment to the East County Advanced Water Purification Program (Program). I fully support Padre Dam Municipal Water District and the East County Advanced Water Purification Program's continued efforts to make this Program one of the first approved Surface Water Augmentation projects in California. This programs serves as an innovative example to others in California to achieve State recycled water goals.

Water supply reliability is an issue that is crucial not only in my district but throughout the state of California. This Program is a great example of innovation and collaboration by demonstrating how multiple agencies can work together to provide the best services for our communities and ensures future water supply reliability. I understand the Program has received State Revolving Fund money. I strongly support any additional State funding to further make this East San Diego County Program affordable for our ratepayers.

I commended you and Padre Dam for your "foresight and commitment to working with all stakeholders" and I am proud to highlight that your leadership and progress has only increased over the years to navigate a complex program alongside your East County AWP partners: the County of San Diego, City of El Cajon and Helix Water District.

Water supply challenges have increased in severity as our region has experienced increased periods of drought and projected increases in the cost of importing water. The East County AWP goal of delivering a reliable, clean, drought-resistant and sustainable source of water will protect the health, independence and economic prosperity of our east county communities. The grants and low interest loan that you have secured for this important program are impressive, as is the collaborative and transparent approach that all program partners have sustained, while engaging thousands of community members who have toured the Visitor's Center and Demonstration Facility.

Thank you again for your leadership and know that I am here to assist in the completion and successful operation of this important infrastructure asset for our region.

Sincerely,

Brian W. Jones
Senator, District 38

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Assembly
California Legislature

RANDY VOEPEL
ASSEMBLYMEMBER, SEVENTY-FIRST DISTRICT

COMMITTEES
VICE CHAIR: AGING AND LONG-TERM CARE
VICE CHAIR: PUBLIC EMPLOYMENT AND RETIREMENT
VICE CHAIR: VETERANS AFFAIRS
INSURANCE
LOCAL GOVERNMENT

JOINT LEGISLATIVE AUDIT

February 4, 2019

Allen Carlisle
CEO/General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Dear Mr. Carlisle and Padre Dam Board of Directors:

I am writing, as the proud elected representative of California's 71st Assembly District, to express my strong support for the East County Advanced Water Purification Program (Program), led by Padre Dam Municipal Water District with its program partners the County of San Diego, City of El Cajon and Helix Water District. I fully support the East County Advanced Water Purification Program's continued efforts to make this Program one of the first approved Surface Water Augmentation projects in California. This programs serves as an innovative example to others in California to achieve State recycled water goals.

This Program is a great example of innovation and collaboration by demonstrating how multiple agencies can work together to provide the best services for our communities and ensures future water supply reliability. I understand the Program has received State Revolving Fund money. I strongly support any additional State funding to further make this East San Diego County Program affordable for our ratepayers.

My commitment to the success of this important water resources infrastructure project continues from my role as Mayor of the City of Santee. As a representative of the Santee community, where the new treatment plant would reside, I wrote to you in 2014 as Mayor to express that "the economic benefits of having a reliable source of water are vital to the communities in this region."

This Program's efforts to reduce our region's reliance on imported water from hundreds of miles away, and to produce up to 30% of East County's current drinking water demands, are helping to secure our financial independence and modernize our local water resource systems.

Thank you for your collaborative leadership in working with key stakeholders and program partners, to secure extensive grants and favorable funding, as well as maintaining transparency and community involvement. Please do not hesitate to reach out for any assistance that I can continue to provide.

Respectfully,

RANDY VOEPEL
Assemblyman, 71st District

VIEJAS
TRIBAL GOVERNMENT

P.O. Box 908
Alpine, CA 91903
#1 Viejas Grade Road
Alpine, CA 91901

John A. Christman, Chairman
Victor E. Woods, Vice-Chairman
Rene Curo, Tribal Secretary
Samuel Q. Brown, Tribal Treasurer
Adrian M. Brown, Councilman
Gabriel T. TeSam, Jr., Councilman
Kevin M. Carrizosa, Councilman

Phone: 619.445.3810
Fax: 619.445.5337
viejas.com

January 23, 2019

Allen Carlisle
CEO/General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Dear Mr. Carlisle

This letter demonstrates the Viejas Band of Kumeyaay Indians' support of the East County Advanced Water Purification Program led by Padre Dam Municipal Water District, the County of San Diego, City of El Cajon, Helix Water District and embraced by so many regional community leaders.

As the original native inhabitants of San Diego County, the Viejas Band has always understood the value of one of the most precious resources on this planet - water.

Water has always been the source of life, particularly in this arid land that our people have walked on for over 10,000 years. Our legacy of environmental stewardship and tradition of respect for natural resources is reflected in this water purification program that applies modern technology to mimic nature's timeless process for cleaning and recycling wastewater.

On behalf of the Viejas Tribal Council, I am pleased to offer our full support of your efforts to protect and enhance our local water supplies. We appreciate that this program will create a new source of water that can be available to our tribal community in the future.

We also commend your diligent planning, preparation and implementation of this significant program that responsibly addresses the effects of this historic drought. By reducing the current 100% reliance on imported water, we can all plan with more certainty for the future. We also protect future generations by assuring that each step of this program is environmentally responsible and applies proven and tested treatment methods that protect public health.

As your neighbor in the San Diego East County, we welcome the enhancement of water supply resources that will sustain and protect the people that cherish this land for their homes, businesses and recreation. By diversifying our local water supplies in ways that respect the environment, we all benefit and will be prepared for the future.

Sincerely,

John A. Christman, Chairman

TO File

CC: Melissa

RECEIVED

FEB 05 2018

PADRE DAM MWD
ADMINISTRATION

DIANNE JACOB

CHAIRWOMAN, SECOND DISTRICT
SAN DIEGO COUNTY BOARD OF SUPERVISORS

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Manzanita
Mesa Grande
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Sycuan
Viejas

January 30, 2018

Allen Carlisle
CEO / General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Dear Mr. Carlisle:

On behalf of the County of San Diego, it is my pleasure to commend the Padre Dam Municipal Water District's leadership for the advancement of the East County Advanced Water Purification Program. I endorse this effort, which is creating a local, sustainable and drought-proof water supply.

At present, plans for this state-of-the-art technology are on track to meet up to 30% of East County's current drinking water demands by 2025, and to assist with rising wastewater treatment costs. Independently producing drinking water is an opportunity for local control of a valuable resource.

I commend Padre Dam for its prioritization of environmental responsibility and for securing approximately $29 million in grant funding for the project. Plans are accelerating quickly with a collaborative partnership between the County, Padre Dam, the City of El Cajon and Helix Water District.

The County is proud to contribute financial resources and staff expertise, in addition to further solidifying its partnership agreement for this program.

Sincerely,

DIANNE JACOB
Supervisor, Second District

DJ:td

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September 14, 2016

Allen Carlisle
CEO/General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Dear Mr. Carlisle:

The San Diego Integrated Regional Water Management (IRWM) Program strongly supports the East County Advanced Water Purification (AWP) Program and its goal to offer significant benefits to the San Diego Region by producing a local, reliable, drought-proof water supply that reduces reliance on imported water.

We further support the East County AWP Program's aim to increase the production and use of recycled water, both potable and non-potable, in East San Diego County. Residents, businesses and all community members will benefit from the Program, which is designed to help reduce regional capital investment in the City of San Diego's Metropolitan Wastewater System and Point Loma Wastewater Treatment Plan by offloading flows to the Metro System.

The benefits expected from the East County AWP Program strongly support the regional goal of expanding and diversifying the overall water supply portfolio.

The San Diego IRWM Program applauds Padre Dam Municipal Water District's diligent efforts to obtain grant funding to help ensure the success of this important water resource program for East County. The IRWM Program has supported development of the AWP Program with two grants, one for $3 million in 2008 and one for $6 million in 2015. In addition to this funding, Padre Dam recently secured an additional $4.5 million in federal funds and continues to seek additional program grants.

The District's work to diversify water supplies and increase the region's independence and control of its own local water sources is admirable and should be fully realized via the successful construction and implementation of the East County AWP Program.

Sincerely,

Mark Stadler
San Diego IRWM Program Manager
Principal Water Resources Specialist
San Diego County Water Authority

WRC
WATER RELIABILITY COALITION

American Society of Plumbing Engineers, San Diego Chapter

BIOCOM

Building Industry Association of San Diego

Building Owners and Managers Association, San Diego Chapter

California Restaurant Association

Citizens Coordinate for Century 3

Coastal Environmental Rights Foundation

CONNECT

Empower San Diego

Endangered Habitats League

Environmental Health Coalition

Equinox Center

Friends of Infrastructure

Industrial Environmental Association

National Association of Industrial and Office Properties, San Diego Chapter

San Diego and Imperial Counties Labor Council

San Diego Audubon Society

San Diego Business Leadership Alliance

San Diego Regional Economic Development Corporation

San Diego Coastkeeper

San Diego County Apartment Assoc.

San Diego County Taxpayers Assoc.

San Diego Regional Chamber of Commerce

San Diego River Park Foundation

Surfrider Foundation San Diego Chapter

Sustainability Alliance of Southern California

WateReuse - San Diego Chapter

June 2, 2016

Allen Carlisle
CEO/General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Re: Endorsement of Padre Dam's Advanced Water Purification Project

Dear Mr. Carlisle:

The Water Reliability Coalition (WRC) is a broad-based group of 27 environmental, consumer, business, labor and technical organizations that have come together to support water reuse as a strategy to develop a safe, reliable, sustainable and cost-effective local water supply. The WRC is proud to offer its support for the East County Advanced Water Purification Program (AWPP). The AWPP will provide safe, locally controlled, drought-proof water supply to thousands of East County residents and will enhance the San Diego Region's water supply reliability.

Currently, the Padre Dam Municipal Water District imports 100% of its drinking water supply from the Sacramento Bay Delta and the Colorado River. Conservation, water efficiency and locally controlled water supplies are increasingly necessary and critically important with prolonged and more frequent droughts.

By the completion of the project's first phase in 2020, the AWPP will supply approximately 30% of Padre Dam's drinkable water supply, providing a sustainable supply of water for up to 6,000 homes a year. Expansion of the program during phase two, which will be completed by 2025, will increase the amount of water purified to over 10 million gallons each day: enough to serve 26,000 homes a year. The WRC applauds the scope of this project, which is creating a new locally sourced, environmentally friendly supply of water in East County San Diego.

The WRC wholeheartedly endorses the East County Advanced Water Purification Project, and we applaud Padre Dam for its strong leadership advancing the project.

Sincerely,

Sean Karafin
Water Reliability Coalition Co-Chair

Matt O'Malley
Water Reliability Coalition Co-Chair

...Dedicated to Community Service
2554 SWEETWATER SPRINGS BOULEVARD, SPRING VALLEY, CALIFORNIA 91978-2004
TELEPHONE: 670-2222, AREA CODE 619 www.otaywater.gov

January 26, 2015

Allen Carlisle, CEO/General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Dear Mr. Carlisle:

On behalf of the Otay Water District, please accept this letter in support of the Padre Dam Municipal Water District's Advanced Water Purification Demonstration Project. Water re-purification is a safe, cost-effective and environmentally responsible source of new water for the region.

Padre Dam and Otay each have long histories in water recycling that go back more than 50 years. Both of our agencies are viewed as leaders in water recycling as well as strong proponents of water reuse. Long ago we each recognized that with limited local resources, water reuse and recycling can significantly reduce our reliance on water imported from hundreds of miles away. Recycling and reusing water is also a drought proof and locally controlled supply of water.

We applaud Padre Dam Municipal Water District both for your commitment to water recycling and for a demonstration project that will further diversify local water supplies. With the state of California likely entering its fourth year of extremely dry conditions, water re-purification will create another drought proof supply of water for the region and further our goal of increasing water independence.

We wish your organization great success with this new project.

Sincerely,

Jose Lopez, President
Otay Water District

cc: Board of Directors
Mark Watton, General Manager

COMMITTEE ON ARMED SERVICES
COMMITTEE ON EDUCATION AND THE WORKFORCE
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
CHAIRMAN, SUBCOMMITTEE ON THE COAST GUARD AND MARITIME TRANSPORTATION

WASHINGTON, DC OFFICE:
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WASHINGTON, DC 20515
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DISTRICT OFFICES:
EL CAJON TELEPHONE: (619) 448-5201
ESCONDIDO TELEPHONE: (760) 743-3260
TEMECULA TELEPHONE: (951) 695-5108

Duncan Hunter
U.S. House of Representatives
50th District, California

October 22, 2014

Mr. Allen Carlisle
CEO / General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Dear Mr. Carlisle:

I am writing to indicate my full support for Padre Dam Municipal Water District's Advanced Water Purification Demonstration Project and to congratulate you and the District Board of Directors for pursuing an innovative alternative that will serve as an additional water resource for our community. As you know, it is imperative that we investigate the feasibility of every option available regarding effective water management and wastewater treatment is a reliable, safe approach that has the potential to provide water resource and economic dividends well into our future.

It is my understanding that this project will test the feasibility of creating a new source of approximately 2,000 to 3,000 acre feet per year of purified water for East San Diego County, thereby reducing our dependency on outside sources of imported water. Additionally, by utilizing Advanced Water Treatment technologies, the water produced through this project will meet or exceed state regulations and will be locally controlled, drought-proof and environmentally sound.

California's current drought conditions, coupled with San Diego County's historical reliance on imported water, mandate that we create a water management portfolio that utilizes conservation, desalination, reservoir and aquifer storage, and reclamation projects. I am pleased to provide my support for this important project and remain available to assist with any federal assistance the District may need to ensure it is fully implemented.

With best wishes.

Sincerely,

Duncan Hunter
Member of Congress

METRO WASTEWATER **JPA**

276 Fourth Avenue, Chula Vista, CA 91910 619-691-5044

www.metrojpa.org

Cheryl Cox, Chair

October 16, 2014

Allen Carlisle
CEO / General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Re: Letter of Support from the Metro Wastewater JPA for Padre Dam Municipal Water District's Advanced Water Purification Demonstration Project

Dear Mr. Carlisle,

Padre Dam's proposal to diversify water supplies and increase its independence and control of over local water sources could lead to reductions on San Diego County's reliance of imported water from hundreds of miles away. The Metro Wastewater JPA supports Padre Dam Municipal Water District's Advanced Water Purification Demonstration Project for these reasons:

1. The economic benefits of having a reliable source of water such as that proposed by this project will create a drought-resistant water supply;

2. The water re-purification process is a safe, cost-effective, locally controlled and environmentally responsible water source option; and

3. This project offers Metro JPA members in the San Diego's East County the opportunity to control an important resource which, if implemented, also benefits the JPA and the City of San Diego.

The JPA has worked cooperatively for several years with our participating agencies, including Padre Dam, on plans to offload wastewater flows from the Point Loma Wastewater Treatment Plant and potentially to lead to downsizing other regional facilities. The JPA is pleased to support Padre Dam Municipal Water District's Advanced Water Purification Demonstration Project.

Respectfully,

Cheryl Cox
Mayor, City of Chula Vista
Chair, Metro Wastewater JPA

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

California Regional Water Quality Control Board, San Diego Region

October 9, 2014

In Reply Refer to:
33680:jchan

Mr. Allen Carlisle
CEO / General Manager
Padre Dam Municipal Water District

Subject: Padre Dam Municipal Water District's Advanced Water Purification Project

Mr. Carlisle:

As the Executive Officer of the California Regional Water Quality Control Board, San Diego Region, I am writing to express this agency's support for Padre Dam Municipal Water District's Advanced Water Purification Demonstration Project. The ongoing, devastating statewide drought underscores the urgent need for forward looking projects like this one to build a sustainable local water supply for the San Diego Region.

The San Diego Water Board's Practical Vision recognizes that to create a sustainable local water supply, we must use groundwater and surface water in an environmentally responsible way, create sources of fresh water through innovative projects, and conserve water to reduce demand. At a statewide level, the Governor has called upon Californians to increase the use of recycled water over 2002 levels by at least one million acre-feet per year by 2020, and by at least two million acre-feet per year by 2030. The Advanced Water Purification Project implements the Practical Vision for a sustainable local water supply and responds to the Governor's call to increase recycled water use in a significant way.

Padre Dam Municipal Water District is a recognized leader in innovative wastewater treatment and recycled water projects. The San Diego Water Board supports your continuing efforts to decrease the Region's reliance on imported water. We look forward to working closely with your agency as you develop the Advanced Water Purification Project from demonstration to implementation.

Respectfully,

James G. Smith, AEO
for David W. Gibson

DWG:jac

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FAX (916) 319-2171

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Assemblymember.Jones@assembly.ca.gov

Assembly
California Legislature

BRIAN W. JONES
ASSEMBLYMAN, SEVENTY-FIRST DISTRICT

COMMITTEES
VICE CHAIR: BUSINESS, PROFESSIONS AND CONSUMER PROTECTION
GOVERNMENTAL ORGANIZATION
UTILITIES AND COMMERCE
ASSEMBLY LEGISLATIVE ETHICS

October 6, 2014

Mr. Allen Carlisle
CEO/General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Dear Mr. Carlisle,

As the elected representative of California's 71st Assembly District, I fully support Padre Dam Municipal Water District's Advanced Water Purification Demonstration Project. This project would offer many of the East County communities that I represent a water purification process that is safe, cost-effective, locally controlled. This would also be an environmentally responsible water source option that would be tested daily to ensure it meets the public health objectives for the California Public Health Department.

This project shows the foresight of Padre Dam by diversifying our water supplies and creating an independence and control over our own local water source, thereby reducing our current state of complete dependence on imported water. There are also economic benefits of having a reliable source of water, as this project would create a drought-resistant water supply for the East County, while not impacting the water rates of the residents.

Water supply is an issue that is crucial not only in my district but throughout the state of California and I commend Padre Dam for their foresight and commitment to working with all stakeholders, such as Helix Water District, the City of El Cajon and the County of San Diego to better serve the 100,000 plus residents in East County.

Sincerely,

BRIAN W. JONES
Assemblyman, 71st District

EL CAJON
The Valley of Opportunity
Incorporated 1912

Mayor and City Council

October 6, 2014

Allen Carlisle
CEO/General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Dear Mr. Carlisle:

I am pleased to inform you that the El Cajon City Council unanimously supports Padre Dam Municipal Water District's Advanced Water Purification Demonstration Project.

The water re-purification process is a safe, cost-effective, locally controlled, and environmentally responsible water source option. Regionally, water providers will be able to significantly reduce the reliance on imported water currently traveling from hundreds of miles away. As a result, this project offers residents of El Cajon and neighboring communities the opportunity to protect their future and regain control of an important resource.

The City of El Cajon applauds Padre Dam Municipal Water District's work to diversify water supplies and increase its independence and control over the local water sources.

Sincerely,

Bill Wells
Mayor
City of El Cajon

City of El Cajon • 200 Civic Center Way • El Cajon, CA 92020
(619) 441-1788 • Fax (619) 441-1770
www.cityofelcajon.us

Helix Water District

Setting standards of excellence in public service

7811 University Avenue
La Mesa, CA 91942-0427
(619) 466-0585
FAX (619) 466-1823
www.hwd.com

October 3, 2014

Allen Carlisle
CEO / General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Dear Mr. Carlisle:

Helix Water District's Board of Directors unanimously support Padre Dam Municipal Water District's Advanced Water Purification Demonstration project. This project will create a drought-resistant water supply.

The water re-purification process is a safe, cost-effective, locally controlled and environmentally responsible water source option. The water that is produced will be tested daily to ensure it meets the public health objectives for the California Public Health Department.

Regionally, water providers can significantly reduce our reliance on imported water currently traveling from hundreds of miles away. This project offers San Diego East County communities the opportunity to protect our future and regain control of an important resource.

Helix Water District commends Padre Dam Municipal Water District's work to diversify water supplies and increase their independence and control over their own local water source.

Sincerely,

Charles W. Muse

Charles W. Muse
President, Board of Directors

DIANNE JACOB

CHAIRWOMAN, SECOND DISTRICT
SAN DIEGO COUNTY BOARD OF SUPERVISORS

August 7, 2014

Allen Carlisle
CEO / General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Dear Mr. Carlisle:

As Supervisor for the Second Supervisorial District in San Diego County, I am writing in support of Padre Dam's grant-funded Advanced Water Purification pilot project. I understand this project will test the feasibility for achieving a new source of purified water for East San Diego County.

East San Diego County has been a place for leadership and innovation in water and wastewater treatment since the late 1950s. The Santee Lakes are a result of forward-thinking wastewater treatment efforts from decades ago. I am pleased to see that the current leadership is following in this tradition of innovation as you work to achieve water independence. The communities of Santee, Alpine, Blossom Valley, Crest, Harbison Canyon, Flinn Springs, Dehesa and parts of El Cajon will directly benefit from your work to expand local water resources. Your pilot project offers a step toward water independence and reliability for East County.

Water is a precious resource that we must protect, conserve and recycle. I support your efforts to strive for expansion of our local supply and increase our independence and control, as well as securing long-term solutions for regional stability. The Padre Dam Advanced Water Purification project offers San Diego County communities the opportunity to protect our future and regain control of an important resource.

Sincerely,

DIANNE JACOB
Chairwoman, Second District

DJ: mp/ac

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RANDY VOEPEL

MAYOR

COMMITTEES:
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United San Diego
Emergency Services Organization
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Community Leaders Forum
MCAS Miramar
County Service Area(CSA)
69 (Paramedics)
East County Economic
Development Council
Heartland Communications
Facility Commission
Heartland Fire Training Facility
Authority Commission
Library Committee
League of California Cities
San Diego River Park Coalition

August 8, 2014

Allen Carlisle
CEO/ General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway

Dear Mr. Carlisle,

As Mayor of Santee, I support Padre Dam Municipal Water District's Advanced Water Purification Demonstration Project. The economic benefits of having a reliable source of water are vital to the communities in this region.

This project will considerably reduce reliance on imported water which is currently imported from hundreds of miles away at significant cost. San Diego East County communities will have the opportunity to protect the future and regain control of an important resource. I am proud of Padre Dam's work to diversify water supplies and increase independence and control of over our own local water source.

Respectfully,

RANDY VOEPEL
Mayor

VICE CHAIR
OF THE FOLLOWING
COMMITTEES
PUBLIC SAFETY
JUDICIARY
ELECTIONS & CONSTITUTIONAL
AMENDMENTS

Senate
California Legislature
JOEL ANDERSON
SENATOR
THIRTY-SIXTH SENATE DISTRICT

MEMBER
OF THE FOLLOWING
COMMITTEE
BUDGET & FISCAL REVIEW

MEMBER
OF THE FOLLOWING
SUBCOMMITTEE
BUDGET & FISCAL REVIEW
SUBCOMMITTEE #5 ON
CORRECTIONS, PUBLIC SAFETY
& THE JUDICIARY

Allen Carlisle
CEO / General Manager
Padre Dam Municipal Water District
9300 Fanita Parkway
Santee, CA 92071

Dear Mr. Carlisle,

Congratulations on the groundbreaking of Padre Dam Municipal Water District's Advanced Water Purification Demonstration Project. This project offers San Diego East County communities the opportunity to learn about advanced water purification processes and how the project can potentially augment their water supply without any impact to their water rates.

It is important to explore ways to reduce our reliance on imported water, and Padre Dam is to be commended for working to diversify water supplies and increase independence and control of over local water sources.

I want to wish you continued success with the AWP Demonstration Project, and please let me know if there is ever anything I can do to be of assistance.

Sincerely,

Joel Anderson
Senator, District 36

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Appendix C – Authorizing Resolution

RESOLUTION 2022-07

RESOLUTION OF THE BOARD OF DIRECTORS OF PADRE DAM MUNICIPAL WATER DISTRICT AUTHORIZING WATERSMART TITLE XVI WATER RECLAMATION AND REUSE PROJECTS GRANT

WHEREAS, Padre Dam Municipal Water District (Padre Dam) prepared a Title XVI Feasibility Study for its East County Advanced Water Purification Program – Phase II Project (Project) in 2019, which was reviewed and approved by the U.S. Bureau of Reclamation (Reclamation) resulting in grant eligibility for Reclamation's WaterSMART: Title XVI Water Infrastructure Improvements for the Nation (WIIN) Reclamation and Reuse Program; and

WHEREAS, the United States Bureau of Reclamation (Reclamation) is soliciting applications for WaterSMART: Title XVI WIIN Water Reclamation and Reuse Program per Notice of Funding Opportunity No. R22AS00115; and

WHEREAS, Padre Dam is preparing a grant application under this Program for the Project with an application due date of March 16, 2022; and

WHEREAS, Reclamation has directed applicants to include in its application an official resolution adopted by the applicant's board of directors or governing body verifying 1) the identity of the official with legal authority to enter into an agreement, 2) the board of directors, governing body, or appropriate official who has reviewed and supports the application submitted, 3) the capability of the applicant to provide the amount of funding and/or in-kind contributions specified in the funding plan, and 4) that the applicant will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement.

NOW, THERFORE, BE IT RESOLVED by the Board of Directors of the Padre Dam Municipal Water District as follows:

1. Padre Dam is authorized to submit the application to Reclamation to obtain Title XVI WIIN Water Reclamation and Reuse Program Funding per Notice of Funding Opportunity No. R22AS00115; and
2. Padre Dam has legal authority to enter into an agreement with Reclamation to receive a grant; and
3. The Board of Directors has reviewed and supports the application that will be submitted; and
4. Padre Dam is able to provide the minimum 75 percent funding match specified in the funding plan for the application; and
5. Padre Dam's CEO/General Manager, or his designee, is hereby authorized and directed to prepare the necessary data, conduct investigations, file such application, and execute a grant agreement with Reclamation in association with this application process.
6. Padre Dam will work with Reclamation to meet established deadlines required for entering into a cooperative agreement to obtain the aforementioned grant funding.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of Padre Dam Municipal Water District help on February 16, 2022, by the following vote:

AYES: Caires, Peasley, Pommering, Till, and Wilson
NOES: None
ABSENT: None
ABSTAIN: None

Board President

ATTEST:

Board Secretary

PADRE DAM MUNICIPAL WATER DISTRICT
ORGANIZED
NOV. 23, 1955
CALIFORNIA