



**Funding Opportunity Announcement No. R22AS00023  
WaterSMART: Water Recycling and Desalination Planning**

**Pure Water AV Title XVI Planning Grant Application**

**Pure Water Antelope Valley**

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**PURE  
WATER**  
ANTELOPE VALLEY  
*A Palmdale Water Project*

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# EXECUTIVE SUMMARY

**Date:** February 28, 2023

**About the Applicant:** The applicant is Palmdale Water District (PWD) (the District), located in Palmdale, Los Angeles County, California, which is 40 miles northeast of the City of Los Angeles. The District serves 125,000 people west of the Mojave Desert through imported and local surface water, and groundwater from the overdrafted and adjudicated Antelope Valley Groundwater Basin (AV Basin). PWD's entire service area is a state-designated Large Disadvantaged Community with a median household income of \$55,129, which is 65% of the California statewide median household income. The community experiences multiple environmental justice concerns according to federal indicators, including being above the 95<sup>th</sup> percentile for poverty, unemployment, housing costs, and climate risks.

**Project Summary:** The Pure Water Antelope Valley (Pure Water AV) (Project) is a regional recycled water program that will augment potable water supplies using PWD's 5,325 acre-feet per year (AFY) recycled water allocation from the Los Angeles County Sanitation Districts' Palmdale Water Reclamation Plant (PWRP). The tertiary wastewater will be treated to indirect potable standards and directly injected into the AV Basin. In line with the goals and objectives of this funding opportunity, the Project resolves near-term water shortages, alleviates additional subsidence in the overdrafted AV Basin, and addresses the uncertainty of future supplies from the State Water Project (SWP) due to climate change. Given the disadvantaged status and multiple environmental justice concerns in Palmdale, these benefits also closely align with the Department of Interior priorities. Project development is currently underway and is in the early stages. Due to the urgent need for federal and/or state funding in this disadvantaged area, PWD has prioritized the development of a Title XVI Feasibility Study, which is under development but has not been submitted to the Bureau of Reclamation at the time of application submittal. To continue to advance the Project towards construction, PWD is requesting \$714,670 for eligible activities occurring between October 31, 2023 and October 31, 2025. Eligible activities include site surveying, geotechnical studies, preliminary planning and design preparation, environmental studies and regulatory compliance, permitting, and an evaluation of expanded capacity to 10 MGD. These activities are all necessary for advancing the development of the Project.

The Project is not located on a Federal facility and does not involve Federal land.

**Length of time and estimated completion of the project:** Project planning, environmental compliance, and preliminary design is proposed to occur between Fall 2022 and Fall 2025. Eligible costs included in this Title XVI Planning Grant proposal will occur from October 31, 2023 to October 31, 2025. Final design and construction will occur from 2026 to 2028, with Project startup in early 2029.

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## 1.0 PROJECT LOCATION

The Pure Water AV program will be located in the City of Palmdale. Palmdale is in Los Angeles County, California, and is North of the San Gabriel Mountains and on the Western end of the Mojave Desert. PWD provides service to an area of approximately 40 square miles to the City of Palmdale and unincorporated areas in Los Angeles County.

Additional details about the Project location can be made available upon request.

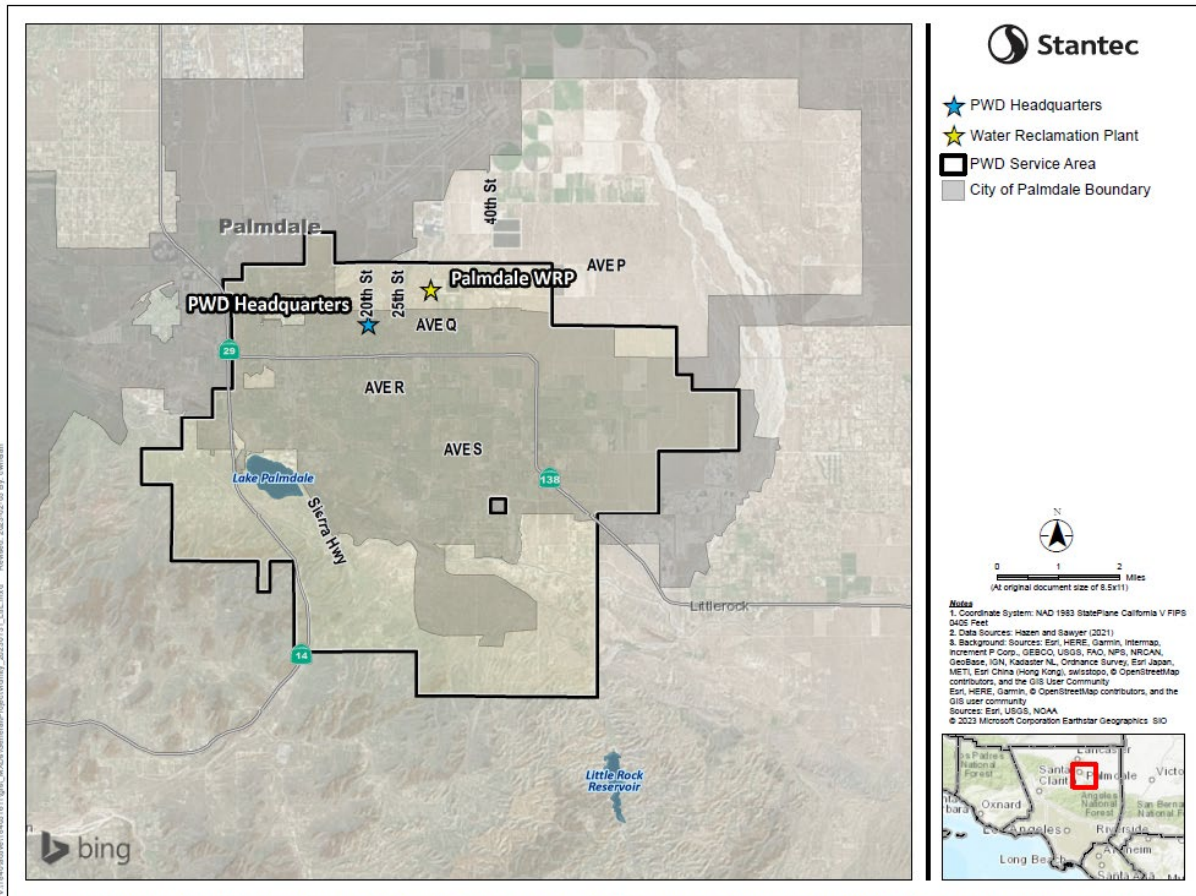


Figure 1-1 Project Location

## 2.0 TECHNICAL PROJECT DESCRIPTION

### *Applicant Category: Funding Group I*

**Eligibility of Applicant:** Palmdale Water District is a water district located in the state of California. The District was formed under the provisions of Division 11 of the Water Code of the State of California. Under the law, the District's primary functions are to acquire, control, conserve, store and distribute water for the beneficial use of inhabitants and water users within the District.

### **Goals:**

The Pure Water AV Program goals include reliably meeting water demands, reducing reliance on imported water, alleviating groundwater overdraft, improving water quality, and directly improving climate resilience of the disadvantaged and underserved community served by PWD. With drought-induced water shortages potentially reaching 10 MGD in the next two years and 13.1 MGD by 2045, options for increasing water supplies within PWD's service area are limited. Local supplies are constrained due to overdraft conditions in the adjudicated AV Basin and surface water allocation restrictions. Groundwater recharge via surface spreading is limited by geologic conditions. The availability of imported State Water Project (SWP) water is anticipated to fluctuate and gradually reduce over time, posing reliability concerns and potential constraints to the program, particularly with the worsening drought conditions in the State. The Pure Water AV Program will allow PWD to maximize its recycled water allocation to meet potable demands and increase water supply reliability with a drought-resilient water supply that adds flexibility to the PWD water system. Anticipated to use subsurface injection methods, the Project would alleviate groundwater overdraft and improve water quality in the groundwater basin. These combined impacts would increase the climate resilience of a disadvantaged community with income less than 65% of the statewide median income and with multiple environmental justice concerns.

### **Approach:**

PWD has conducted a number of studies that date back to as early as the 1990s to evaluate the water resources necessary to meet future water demands. Concepts evaluated to date include using recycled water for landscape irrigation, discharging into existing sand and gravel pits where the recycled water would replenish the groundwater basin naturally, as well as groundwater recharge (GWR) through the use of surface spreading recharge basins. When studying GWR via surface spreading, a series of subsequent pilot studies showed less than half of the original estimated recharge volume was realized, which challenged the feasibility of this alternative and prompted PWD to investigate other alternatives for a reliable water supply.

PWD anticipates using GWR via subsurface injection to fully utilize its 5,325 AFY recycled water allocation from the LA County Sanitation District Palmdale Water Reclamation Plant (PWRP). The 4.75 MGD Advanced Water Purification Facility (AWPF) is anticipated to include a treatment train consisting of micro-filtration (MF), primary reverse osmosis (RO), secondary RO, and ultraviolet-advanced oxidation processes (UV-AOP) along with ancillary facilities such as break tanks, transfer pumps, chemical pump skids. The Pure Water AV Program would also include conveyance pipelines for tertiary water from the PWRP to the new AWPF, groundwater injection wells, and a pipeline to convey brine from the AWPF to brine evaporation ponds. Approximately 7,700 linear feet (LF) of 18-inch diameter pipe would be needed to convey tertiary feed water from the PWRP to the new AWPF, located on an undeveloped 15-acre parcel just east of PWD

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headquarters. Equipment for the AWPf would be housed in a pre-engineered metal building and a separate operations and laboratory building would also be required adjacent to the AWPf. Advanced treated purified product water from the AWPf would be conveyed by approximately 500 LF of 16-inch diameter pipelines to two new injection wells located at the AWPf site. The brine from the RO system would be conveyed by approximately 17,000 LF of 6-inch diameter pipelines to new evaporation ponds (approximately 113 acres) to facilitate brine disposal at a separate nearby location. After the required residence time (groundwater travel time) as required by the State Water Resource Control Board Division of Drinking Water (DDW), groundwater will be extracted downgradient using two new municipal extraction wells (PWAV Extraction Wells #36 and 37) with a combined pumping capacity of 4,800 AFY to supply potable water to the service area. These Extraction Wells are necessary for Pure Water AV because without them, PWD would not have the pumping capacity required to extract the purified water in addition to its existing groundwater allotment.

In the Spring of 2022, PWD secured Program Management services for the Project. The Program Management Team began planning activities in Fall 2022. Due to the high need for federal and state funding to move this project forward, PWD has expedited the preparation of a Title XVI Feasibility Study. The Feasibility Study is currently being prepared and is anticipated to be submitted to Reclamation in summer 2023. However, the Project is still in the early stages of Project development and PWD will undertake many activities eligible under this Funding Opportunity to advance project development during the next three years. This Title XVI Planning Grant proposal includes all eligible planning, site surveys, environmental compliance, and preliminary design activities that will occur between October 31, 2023 and October 31, 2025. These activities are necessary to get the Project to the stage of being ready for construction and for requesting Title XVI Construction funds. PWD has contracted Stantec to perform all activities associated with the planning, environmental compliance, and preliminary design for the AWPf. Additional contractors will be secured for a AWPf boundary survey, AWPf geotechnical studies, and the siting study, preliminary design, and environmental permitting for PWAV Extraction Well 37.

The District is exploring the possibility of expanding the 4.75 MGD AWPf to a capacity of 10 MGD and securing an additional recycled water allocation from other local sources. Within the period of performance of this funding opportunity, PWD intends to evaluate the possibility of expansion of the full-scale AWPf. This will include an investigation into tertiary water sources, cost estimating, siting studies, funding strategies, groundwater modeling and brine management modeling. Expansion evaluation activities are requested in this proposal as they will allow PWD to continue to evaluate how the Project can use recycled water to meet potable needs.

### **3.0 RESPONSES TO EVALUATION CRITERIA**

#### **3.1 PROJECT PLANNING AND ANALYSIS (30 POINTS)**

##### **3.1.1 Water Recycling Needs and Opportunities**

###### **3.1.1.1 Problems and Needs**

*Describe the problems and needs in the project area*

The majority of PWD's potable water supply is imported water from the SWP. Several of its potable water supply sources depend either directly or indirectly on the SWP percent allocation determined annually by

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the California Department of Water Resources (DWR). Imported SWP water is expected to continue to represent a significant portion of PWD water supply through 2045. However, with it comes considerable uncertainty about future cost and reliability. The available supply from the SWP is dependent on external factors, including the amount and timing of rain and snowfall received each year, and the extreme weather due to climate change. Other factors affecting PWD’s water supply and demand include groundwater overdraft conditions and a lack of local storage capacity. La Niña events, which lead to decreased precipitation, and the overall drought seasonal outlook are useful determinants of PWD’s water supply reliability. Due to the effects of overdraft and drought, the reliability of both local groundwater and surface water supplies is becoming increasingly tenuous, resulting in a possible gap in PWD’s supply and demand. Consequently, there is a need to increase the basin’s overall safe yield and to diversify the region’s water supply sources using climate-resilient sources.

### 3.1.1.2 Water demands

*Describe the current and projected water supplies and demands in the project area; include a discussion on supply and demand imbalances. Additional consideration will be given to proposals that explain how the problems and needs in the area may be impacted by climate change, and/or if supply and demand projections will include climate change information.*

Current water use categories are single- and multi- family residential, commercial/industrial, institutional and irrigation. Current water demands are summarized in **Table 3-1** below, organized by demand category and based on 2020 data presented in PWD’s 2020 Urban Water Management Plan. Projected water demands up to 2045, also based on the 2020 Urban Water Management Plan, are shown in the table as well. The projected populations served each year are included for reference.

As shown in the table, the majority of PWD’s potable water demand comes from the residential category. It should be noted that irrigation water demand is divided into potable and non-potable categories. The potable category refers to the part of the landscape irrigation demand that is met using potable water and is included in the table above. The non-potable category is not considered for the purposes of this analysis.

**Table 3-1. Current Water Demands by Demand Category**

| Year  | 2020                       | 2025   | 2035    | 2045    |
|---|----------------------------|--|---------|---------|
| Projected Population Served (no. of people)                                 | 126,062                    | 128,998  | 138,554 | 153,766 |
| Demand Category   | Current Water Demand (AFY) | Projected Potable Water Demand (AFY) <sup>(1)</sup> <sup>(2)</sup> |         |         |
| Single-family residential   | 11,757                     | 11,460   | 12,310  | 13,660  |
| Multi-family residential  | 1,555                      | 1,450  | 1,560   | 1,730   |
| Commercial  | 1,190                      | 1,170  | 1,390   | 1,730   |
| Industrial  | 1,637                      | 1,350  | 1,480   | 1,700   |
| Landscape irrigation: potable   | 1,040                      | 1,050  | 1,300   | 1,690   |
| Other (street sweeping, construction, and other various limited use meters) | 34                         | 40   | 40      | 40      |



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| Year                              | 2020   | 2025   | 2035   | 2045   |
|-----------------------------------|--------|--------|--------|--------|
| Non-revenue water (system losses) | 1,997  | 1,900  | 2,100  | 2,400  |
| Total (AFY)                       | 19,210 | 18,420 | 20,180 | 22,950 |
| Total (MGD)                       | 17.1   | 16.4   | 18.0   | 20.5   |

Notes:

1. All projected values are from PWD's 2020 Urban Water Management Plan.
2. Projected potable water demands are based on the 2017-2020 average demand values rather than the 2020 historical demand values to avoid over-estimating projected demand, given that 2020 had the highest demand that PWD has experienced in the past 6 years.

### 3.1.1.3 Water Supplies

PWD has three types of water supplies: potable, non-potable and water transfers. **Table 3-2** summarizes current potable water supplies based on PWD's 2021 Consumer Confidence Report and the anticipated water supply in a normal year from 2025 to 2045, based on established water agreements and data presented in PWD's Final Urban Water Management Plan for 2020. PWD receives its potable water from three major sources: imported surface water from the SWP, surface water from Littlerock Reservoir, and groundwater pumped from the AV Basin. Tertiary recycled water is an additional water supply and is also discussed in this section. Most of PWRP's effluent is beneficially used, with the exception of losses to evaporation and unintentional infiltration into the AV Basin. The tertiary treated recycled water is currently used mostly for landscape irrigation and is available for cattle feed crop agricultural use, as needed.

**Table 3-2. Summary of Current and Projected Water Supplies for PWD**

| Water Source Description                        |                                    | Current (2021) Water Supply (AFY) | Projected Water Supply 2025 (AFY) | Projected Water Supply 2035 (AFY) | Projected Water Supply 2045 (AFY) |
|---|------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Imported Water (SWP) <sup>(2)</sup>             |                                    | 10,105 <sup>(1)</sup>             | 1,065 – 11,520                    | 1,065 – 10,520                    | 1,065 – 9,500                     |
| Littlerock Dam (Surface Water Reservoir)        |                                    | 674                               | 3,000                             | 3,500                             | 4,000                             |
| Groundwater Rights (Adjudication Judgment 2015) | Groundwater Supply <sup>(4)</sup>  | 9,844 <sup>(3)</sup>              | 2,770                             | 2,770                             | 2,770                             |
|   | Return Flow Credits <sup>(5)</sup> |                                   | 416– 6,620                        | 416 – 6,045                       | 416 – 5,458                       |
| Butte Transfer Agreement <sup>(6)</sup>         |                                    | 0                                 | 0 – 5,410                         | 0 – 4,940                         | 0 – 4,460                         |
| TOTAL (AFY)                                     |                                    | 20,623                            | 7,251 – 29,320                    | 8,924 – 27,775                    | 8,251 – 26,188                    |
| TOTAL (MGD)                                     |                                    | 18.4                              | 6.5 - 26.2                        | 6.9 - 24.8                        | 7.4 - 23.4                        |

Notes:

1. Final Table A SWP allocation from DWR for 2021
2. Projected water supply low range values based on 5 percent allocation DWR issued to its SWP contractors in 2022. Projected water supply high range values based on estimated long-term average reliability of the SWP as indicated in the 2021 State Water Project Delivery Capability Report and using a linear approach to estimate the percentage allocation for each year.
3. Current total groundwater supply as reported in PWD's 2021 Consumer Confidence Report. This includes PWD's groundwater production right, their share of unused Federal Reserved Water Right Production, and return flow credits.

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4. Projected groundwater supply values are based on PWD's groundwater production rights only and do not account for unused Federal reserved rights.
5. In accordance with PWD's variable groundwater rights, the return flow credits are calculated as 39.1% of the addition of imported water from SWP and the Butte Transfer Agreement.
6. Projected water supply low range values based on limited reliability during drier water years. Projected water supply high range values based on estimated long-term average reliability of the SWP as indicated in 2021's Delivery Capability Report and using a linear approach to estimate the percentage allocation for each year. The current agreement ends in 2025 but may and is expected to be extended into the future.

**Imported Water:** PWD has a contract for up to 21,300 AFY from the SWP but is allocated an annual percentage based on available supplies, which is dependent on rainfall and snowfall conditions in the Sierra Nevada mountains, the amount of water stored in northern California reservoirs (PWD, 2022), and the consequential effects of climate change. From 2010 to 2021, PWD received between 13 and 78 percent of their annual allocation. However, due to water supply conditions and ongoing drought at the time, in both 2021 and 2022, DWR reduced PWD's allocation to 5 percent. The projected average water supplies from the SWP, presented in the table, were calculated using a range of percent reliabilities from 5 percent to the estimated percent reliability for each year, along with the maximum entitlement mentioned above. Imported water supply is projected to decrease over time and remain highly uncertain, in part due to climate change.

**Surface Water:** Littlerock Dam, built in 1922, is fed by natural runoff from snowpack in the local San Gabriel Mountains and from rainfall via Littlerock Creek. The water is then transferred from Littlerock Dam Reservoir to Lake Palmdale via the Palmdale ditch for storage prior to treatment and distribution. Because this water supply depends on precipitation levels, the effects of climate change are of important consideration. It should be noted that the dam's capacity has been reduced due to sediment build-up. PWD has a sediment removal project to restore its capacity, but it will take approximately 7-12 years to do so. This timeframe is reflected in the table.

**Groundwater:** Groundwater is pumped from the AV Basin through 22 wells across Palmdale and has accounted for an average of 35% of PWD's water supplies from 2016 to 2020 (Kennedy Jenks, 2021). The Antelope Valley Groundwater Basin Adjudication (Judgement) and PWD's variable groundwater rights were used to calculate projected groundwater supplies. In accordance with the Judgment of December 2015, PWD has a groundwater production right of 2,770 AFY, which is assumed constant through 2045. In addition to its groundwater production right, PWD also has a pumping allocation for return flow credits, in accordance with its variable groundwater rights. Return flow credits are equal to 39.1% of all the SWP imported water utilized by PWD either for direct use via the Leslie O. Carter WTP or pumped following recharge at existing or future banking projects. Climate change-induced projected decreases in imported water supply is also projected to decrease over time, which reduces return flow credits available.

**Water Transfer:** PWD has a long-term lease agreement with Butte County for up to 10,000 AFY of its SWP water allocation. The lease has been amended and extended through 2031, with an opportunity for renegotiation and further extension. It is assumed that this supply will continue through 2045. This supply is projected to decrease over time due to climate change.

**Non-Potable Supplies:** The LACSD PWRP produces about 10,700 AFY of Title 22 recycled water on average and is expected to grow to about 13,500 AFY by 2045 (Kennedy Jenks, 2021). Both PWD and the City of Palmdale have agreements with LACSD for a specific allocation of recycled water. PWD's allocation of Title 22 Recycled Water from PWRP is 5,325 AFY (LACSD, 2016), which is currently used mostly for landscape irrigation and cattle feed crop agricultural use. While this is currently not a potable water source

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(which is why it is not included in the table above), per the agreement with LACSD, the 5,325 AFY is recycled water available for groundwater or surface water augmentation (Kennedy Jenks, 2021).

### 3.1.1.4 Imbalances in demand and supply

**Table 3-3** presents a comparison of the average annual water demands and the projected water supplies for years 2025, 2035 and 2045. The values for the projected water supplies and the average annual water demands are derived from the data presented in **Table 3-1** and **Table 3-2**.

**Table 3-3. Comparison of Projected Water Supply and Average Annual Water Demand**

| Year | Water Supply Range (1)<br>(MGD) |      | Average Annual<br>Water Demand<br>(MGD) | Possible Supply<br>Gap Range (MGD) |      |
|------|---------------------------------|------|---|------------------------------------|------|
|      | Low                             | High |   | Low                                | High |
| 2025 | 6.5                             | 26.2 | 16.4                                    | -10.0                              | 9.7  |
| 2035 | 6.9                             | 24.8 | 18.0                                    | -11.1                              | 6.8  |
| 2045 | 7.4                             | 23.4 | 20.5                                    | -13.1                              | 2.9  |

Notes:

1. Projected water supply low range values are based on 5 percent allocation DWR issued to its SWP contractors in 2022. Projected water supply high range values are based on estimated long-term average reliability of the SWP as indicated in 2021's Delivery Capability Report.

The data in **Table 3-3** shows a possible supply gap in relation to the low end of the projected water supply range. Overall, three of PWD's water supply sources depend (either directly or indirectly) on SWP's delivery capability and thus can be considered unreliable and vulnerable to climate change: imported water from SWP and the Butte Transfer Agreement as previously explained, and PWD's return flow credits. Adding potable reuse as a water supply can help offset PWD's supply and demand imbalances, reduce reliance on imported water, reduce groundwater overdraft, improve water reliability and quality, and produce local economic outputs that benefit the disadvantaged and underserved community within PWD's service area.

### 3.1.1.5 Potential uses and markets

*Describe how the planning activities will investigate potential uses and markets for reclaimed or desalinated water (e.g., environmental restoration, fish and wildlife, groundwater recharge, municipal, domestic, industrial, agricultural, power generation, and recreation).*

Planning activities currently underway have identified that advanced treated recycled water is intended to be used for municipal potable use for the PWD service area using indirect potable reuse through groundwater recharge.

### 3.1.1.6 Source water

*Describe the source water that will be considered for the project, including location, capacities, existing flows, treatment processes, and quantities of impaired water available to meet the new reclaimed, recycled, or desalinated water demands.*

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The source water considered for this project is the 5,325 AFY of Title 22 recycled water from PWRP that is allocated to PWD, per PWD's agreement with LACSD. The agreement stated that PWD may request a permanent increase to the allotment if additional permanent supplies of recycled water become available at the plant. PWRP, operated by LACSD District No. 20, provides tertiary treatment for an average of 9 MGD of wastewater generated in and around the City of Palmdale (Carollo, 2015). The PWRP provides primary treatment through comminution and grit removal, followed by primary clarification. Secondary treatment follows and includes activated sludge with nitrification and denitrification zones. Secondary flow equalization is used to optimize the treatment process in the tertiary treatment cloth filtration and chloramine disinfection processes. The primary sludge, primary skimmings and solids from air flotation thickeners are processed in anaerobic digestors. The digested sludge is taken offsite after dewatering and drying. Historical data of PWRP's tertiary effluent from 2017 through 2021 shows high quality tertiary effluent that meets the California Code of Regulations Title 22 requirements.

### 3.1.2 Evaluation of Project Alternatives

#### 3.1.2.1 Project alternatives

*Describe the objectives that all alternatives will be designed to meet. What other water supply alternatives and project alternatives will be investigated?*

Three project alternatives are being considered and evaluated for implementation.

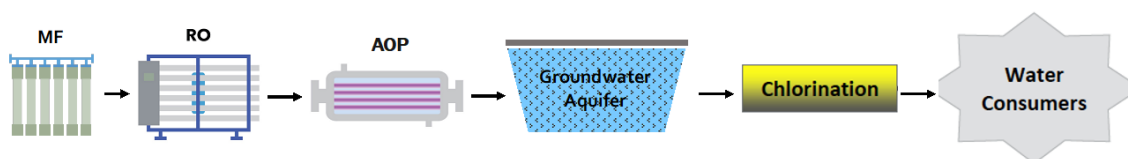
#### **No Project Alternative**

Under the No Project Alternative, PWD would not construct new facilities to provide new source water for its service area and would continue PWD's reliance on local groundwater wells and imported State Water. The objective of this alternative would be to continue with 'business as usual' and use PWD's recycled water allocation entirely for nonpotable uses. When facing shortages, PWD would continue to rely on imported water and emergency water transfers. SWP water is conveyed to Palmdale Lake where the Leslie O. Carter Water Treatment Plant (LOCWTP) provides additional treatment before being introduced into the domestic water system. Increased reliance on imported water will cause increased treatment costs at LOCWTP to supply more imported water into the distribution system. Additional storage may also be required, in addition to Lake Palmdale, since PWD only receives the annual Table A allocations from DWR and would want to strategically keep enough water stored to satisfy demands during periods of maintenance or unplanned outages of the SWP infrastructure. Without additional storage, PWD would rely solely on groundwater extraction wells and/or the Littlerock Dam for water supply. In years where supply does not meet demand, PWD would need to purchase emergency water transfers or restrict water provided to its service area, which is designated as a Large Disadvantaged community by the State Water Board. The No Project Alternative also does nothing to improve the water quality or yield in the AV Basin. Because the SWP supply allocation fluctuates year to year, it is difficult to predict future costs for the SWP supply which creates a potential economic hardship for PWD. Due to the unreliability of Table A allocations, some agencies have begun to purchase permanent rights to State Water. In order for PWD to meet the requirements of its customers, such additional water rights may be required at a steep cost.

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### Alternative 1: Groundwater Augmentation via Subsurface Injection

Alternative 1 consists of purified water from an AWPf being directly injected into the saturated zone of an aquifer via an injection well. The objective of this alternative would be to maximize the recycled water allocation for potable reuse with a relatively simple design that is widely implemented in the State of California.

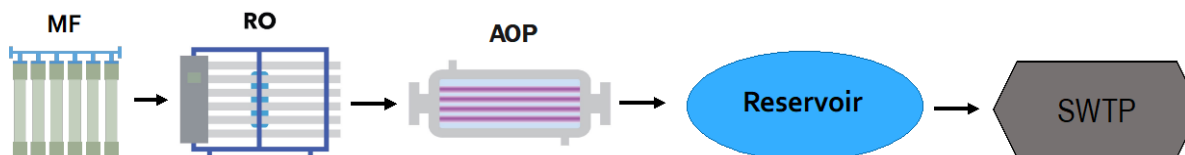


**Figure 3-1. Alternative 1 Groundwater Augmentation Schematic**

For GWR via subsurface injection, the required log removal values (LRVs) for viruses, Giardia cysts, and Cryptosporidium oocysts (V/G/C) are 12/10/10 (V/G/C) which can be achieved through a combination of treatment processes and an environmental buffer. Since the environmental buffer is described as “further treatment”, it can also provide virus LRVs to the project, as long as the minimum travel time from the injection point to the groundwater well for water extraction is greater than two months. Groundwater modeling performed shows that retention times within the aquifer are higher than 60 days (or 120 days based on modeling since regulations only provide half credit for modeled results). From a treatment process point of view, GWR with direct injection regulations require RO and an advanced oxidation process (AOP), which is usually an oxidant combined with ultraviolet light (UV), forming UV/AOP. The combination of these treatment technologies is called full advanced treatment (FAT) and would be part of the new AWPf. MF is usually employed before RO as a pretreatment in order to protect the RO membranes from larger particles. Further treatment can also be employed, but is not required, as long as the required pathogen LRVs and chemical control requirements are met.

### Alternative 2: Surface Water Augmentation

The objective of Alternative 2 Surface Water Augmentation (SWA) would be to generate potable water while also providing further treatment, dilution, and response time in case of failure. Alternative 2 would consist of purified water from an AWPf being conveyed to a water reservoir, that is in turn used as the source water for a downstream surface water treatment plant (SWTP), as shown in **Figure 3-2**. The reservoir serves as an environmental buffer that provides both dilution and response time in case of a treatment failure and further treatment to pathogens and chemicals. Since the adoption of the SWA regulations in late 2018, no SWA project is fully operational, but several utilities are pursuing this type of IPR and are currently undergoing the permitting process (demonstration testing, design, construction, regulatory documentation).

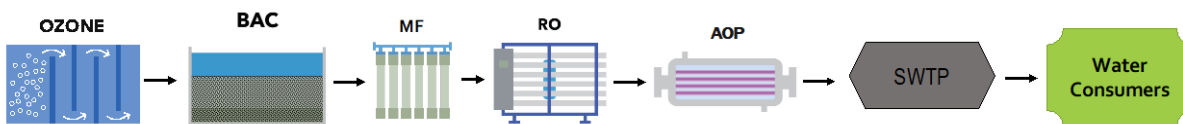


**Figure 3-2. Alternative 2 Surface Water Augmentation Schematic**

This alternative requires modeling to determine if: a) the reservoir volume and flows are adequate to meet the required dilution, and b) the hydrology parameters are adequate to meet retention time requirements (60 day minimum). Studies showed that 22.8 MGD is the maximum flow that can be withdrawn from Lake Palmdale by Leslie O’ Carter SWTP to keep the hydraulic retention time at 60 days or more while the reservoir is at full capacity, derating the SWTP from its capacity of 35 MGD. Hydrodynamic modeling and tracer tests are needed to determine the final dilution factor and retention time, which would also dictate if there would be a need for further treatment. As with GWR via direct injection, the required treatment technologies are the same (e.g., FAT). The required LRVs for this alternative, using Lake Palmdale as the reservoir, would be 13/11/11 assuming a dilution factor of 273:1 and a calculated mean theoretical hydraulic retention time of 68 days.

**Alternative 3: Raw Water Augmentation**

Alternative 3 would use raw water augmentation (RWA) with the objective of maximizing PWD’s recycled water allocation without relying on storage volume or retention time in surface water or groundwater. This alternative would send purified water from an to a source water aqueduct or directly to the headworks of a SWTP for further treatment before being distributed to customers by the public water system, as shown in **Figure 3-3**. Therefore, there is very little to no environmental buffer between the AWPf and the SWTP.



**Figure 3-3. Alternative 3 Raw Water Augmentation Schematic**

Due to the lack of a buffer and/or lower dilution and/or detention times than required by IPR, more rigorous treatment and higher LRVs are required for pathogen control to ensure public health safety when Direct Potable Reuse (DPR) is employed. It is expected that the final DPR regulations will require 20/14/15 LRVs for V/G/C, which must be provided throughout the AWPf and SWTP in the case of RWA. In addition to the FAT system, treatment with ozone (O<sub>3</sub>) and biological activated carbon will be required upstream of RO for DPR projects per the draft regulations unless the purified recycled water is less than 10 percent of the source drinking water.

**3.1.2.2 Development of project alternatives**

*Describe how the planning activities will develop project alternatives (water supply sources, reuse strategies, or treatment technologies) that have been or will be investigated.*

Project alternatives are currently being evaluated, including investigations into the benefits, challenges, and potential costs each alternative, and a project alternative has been selected. Activities included in this proposal will continue to develop the selected project alternative.

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### 3.1.2.3 Selected Project

*Provide a general description of the selected project, including project features, benefits, anticipated costs, and analyses conducted.*

The selected project will supplement PWD's supply with a local, reliable, and cost-effective water source and lessen its dependence on the SWP.

Alternatives are currently being evaluated, however, preliminary evaluation has found that GWR via direct injection (Alternative 1) provides the most straightforward and economical implementation while also improving the condition of the overdrafted groundwater basin. The new project components for Alternative 1 include conveyance lines for tertiary water from the PWRP to the new AWPf, groundwater injection wells, and brine conveyance to brine evaporation ponds. Advanced treated purified product water from the AWPf will be conveyed to two new injection wells, located at the AWPf site. The brine from the RO system will be conveyed to new evaporation ponds to facilitate brine disposal at a separate nearby location. After the required groundwater travel time, groundwater will be extracted using two new municipal wells.

The primary advantages of this alternative include increasing groundwater supply for drinking water use, lower capital and O&M costs, a small footprint, fewer treatment processes and complexity, and being a more established process. It will require additional modeling and studies to determine if groundwater flow and hydrogeology parameters are adequate to meet retention time and dilution requirements, the modeled travel time and the limits established in the AV Basin Salt and Nutrient Management Plan.

Though the project is still in early stages of development, initial analysis shows that all the goals will be met at the AWPf product water based on the current PWRP tertiary effluent water quality and on the processes that will be employed at the AWPf. The only factor that could affect implementation is the theoretical retention time that the aquifer provides. Groundwater modeling is required to finalize the decisions surrounding this recommendation.

Preliminary cost estimates have been completed. Table 3-4 provides a summary of the anticipated construction costs for the Alternative 1 project components described above.

**Table 3-4. Construction Cost Summary for Alternative 1**

| Parameter                  | Cost                 | Notes  |
|----------------------------|----------------------|--|
| Equipment                  | \$14,463,000         |  |
| Conveyance                 | \$13,115,000         |  |
| Buildings                  | \$20,825,000         |  |
| Brine Evaporation Pond     | \$16,836,000         |  |
| Sitework and Installation  | \$15,804,000         |  |
| Subtotal                   | \$81,043,000         |  |
| Mobilization               | \$4,060,000          | 5% of Subtotal   |
| Subtotal with Mobilization | \$85,103,000         |  |
| Contract Cost Allowances   | \$36,050,000         | includes design contingencies, sales tax, contractor markups and overheads |
| <b>CONTRACT COST</b>       | <b>\$121,153,000</b> |  |
| Construction Contingencies | \$30,290,000         | 25% of Contract Cost   |

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| Parameter               | Cost          | Notes   |
|-------------------------|---------------|---|
| FIELD COST              | \$151,443,000 |   |
| Non-Contract Costs      | \$44,900,000  | includes engineering, ESDC, PM, CM, land acquisition costs and permitting |
| TOTAL CONSTRUCTION COST | \$196,400,000 |   |

**3.1.2.4 Schedule and Tasks**

*Include a preliminary schedule showing major tasks, milestones, and dates for the planning, design, and construction activities related to the project.*

The project schedule anticipates preliminary design efforts including environmental investigations to be completed in 2025, with design and construction of project facilities to follow in 2026 through 2028. Under this schedule, PWD anticipates the project can begin operation by early 2029. Future efforts and updates to the recommended project will provide opportunities for adjusting the timelines based on actual development schedules and other factors.

Tasks included in this Title XVI Planning Grant proposal includes all eligible planning, site surveys, environmental compliance, and preliminary design activities that will occur between October 31, 2023 and October 31, 2025.

**Table 3-5. Preliminary schedule showing major tasks and dates related to the Pure Water AV Project**

| Major Task         | Year |      |      |      |      |      |      |
|--------------------|------|------|------|------|------|------|------|
|                    | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 |
| Planning           |      |      |      |      |      |      |      |
| Environmental      |      |      |      |      |      |      |      |
| Preliminary design |      |      |      |      |      |      |      |
| Design             |      |      |      |      |      |      |      |
| Construction       |      |      |      |      |      |      |      |

**3.2 STRETCHING WATER SUPPLIES (20 POINTS)**

*Describe the potential for the project to reduce, postpone, or eliminate the development of new or expanded non-recycled water supplies.*



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Potable reuse utilizing PWRP tertiary effluent is the only water source opportunity that meets PWD's goals. Based on current modeling, the Project will postpone the development of new or expanded non-recycled water supplies.

As detailed in Evaluation Criteria 1, PWD largely relies on imported water supply from SWP for potable water, supplemented by local surface water and groundwater supply. Drought conditions may create shortages as much as 10 MGD in the next two years and 13.1 MGD by 2045. Meeting demands with local supplies is limited by the overdraft conditions of the AV Basin and surface water allocations. Thus, to meet demands with existing supplies, PWD can only increase their supplies through new long-term or emergency water transfers, as further detailed above in the "No Project Alternative" in Evaluation Criteria 1. Because transfers are performed on a year-to-year basis, significant uncertainty exists regarding the availability and cost of water. In dry and critical years, the supply of water decreases while the demand increases, resulting in higher prices for water, and, in some years, a very limited supply of water transfers is available. Uncertainty is highest in dry and critical years.

The development of new, non-recycled water supplies is not currently feasible for PWD. Desalination is not a feasible option, as Palmdale is over 80 miles from the coastline. Water conservation is a useful tool for reducing demands, and PWD already operates a water conservation program and is implementing other water conservation measures such as lining the Palmdale Ditch – however, reducing demand cannot alone address the water shortage. Increased water storage capacity can add more flexibility but would still rely on surface water and imported SWP supplies, which as previously mentioned, are unreliable. Thus, PWD has few other options for increased water supplies beyond potable reuse. The addition of a 4.75 MGD potable reuse facility is the first step in meeting current and future demands.

*Describe the potential for the project to alleviate pressure on existing water supplies and/or facilities. Please describe the existing water supplies, identify the supplies and/or facilities that will be impacted and explain how they will be impacted by the Project, including quantifications where applicable.*

As detailed in Evaluation Criteria 1, PWD's existing water demands are putting extreme pressure on available supplies, with shortages potentially reaching up to 10 MGD in the near term. These pressures particularly impact local supplies, including the overdrafted AV Basin and local surface water from Littlerock Creek. PWD fully utilizes its allocations from these local sources, which comprise nearly half of PWD supply. The remaining half of PWD relies on the State Water Project, which experiences high demand and high competition in dry years because it is an important water source relied on by 27 million California residents and 750,000 acres of farmland<sup>1</sup>.

The 4.75 MGD of recycled water treated by the Project can alleviate reliance and pressure on these existing water supplies. Every year, the PWD water manager will monitor hydrology, water demands, expected allocations of SWP water, and legislation to determine when the water from the Project can offset surface water needs. In some average and wet years, this added supply can decrease PWD use of the AV Basin and Littlerock Creek, leading to higher water levels in the subsiding groundwater basin and the creek that serves multiple recreational and ecosystem benefits.

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<sup>1</sup> <https://water.ca.gov/programs/state-water-project>

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*Describe the potential for the project to make water available to address a specific concern. Explain the specific concern and its severity. Also explain the role of the project being investigated in addressing that concern and the extent to which the project will address it*

The locally-produced source of climate-resilient, potable water will address **water supply shortages, water supply unreliability, groundwater depletion, limited availability of alternative supplies, and water unaffordability for PWD's low income residents**. Increasing supply through direct injection into the groundwater adds reliability to the system by reducing usage of climate-dependent sources, such as the SWP. Direct injection is being pursued as it maximizes these benefits by fully utilizing the recycled water allocation, versus other groundwater replenishment methods that lose water to evaporation. This method also helps to reduce groundwater depletion, which is a key concern for the region because the adjudicated AV Basin is in a state of overdraft and is experiencing subsidence. Using PWD's recycled water allocation of 5,325 AFY to increase supply of reliable water is critical for PWD amidst the limited availability of alternative supplies such as desalination, increased storage, water transfers, or water conservation, as detailed two questions prior.

The increasing costs of supplying water is a concern to PWD and its customers. Average water and sewer bills in Palmdale are estimated to be more than 2.5% of median household income, which is considered to be unaffordable by the Environmental Protection Agency (EPA)<sup>2</sup>. PWD is seeking to address this final concern by pursuing grant and low-interest loan funds for the Project to help reduce the burden on ratepayers.

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

The Project will provide a reliable water source that is not impacted by climate change, which adds flexibility to the PWD water system. The source of water for the Project is the Palmdale Water Reclamation Plant, which consistently produces 9 MGD (10,080 AFY) of tertiary-treated, non-potable water independent of drought conditions. Approximately 60% of that effluent is recycled for nonpotable reuse at 35 different sites, of which roughly 4.75 MGD (5,325 AFY) is allocated to PWD. Drought-induced residential conservation efforts can reduce wastewater flows, however, as recycled water deliveries are only a portion of the full supply, PWD anticipates its contracted allocation will remain constant during drought. As such, recycled water is a reliable and drought-resilient water source that will continue to provide the same amount of water independent of drought severity. In comparison, other sources of water (imported, groundwater, and surface water) are reliant on rainfall and snowpack which are impacted by single-year and multi-year droughts intensified by climate change. Reductions in these types of sources may lead to larger gaps between future supply and demand within the PWD service area.

An expanded and climate-resilient water portfolio allows PWD's water manager to more flexibly manage water supply to address the extreme drought conditions being faced by Palmdale.

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<sup>2</sup> <https://www.epa.gov/waterfinancecenter/financial-technical-assistance-and-tools-water-infrastructure#affordability>

### **3.3 ENVIRONMENT AND WATER QUALITY (20 POINTS)**

#### **3.3.1 Groundwater quality**

*Describe the potential for the project to improve the quality of surface water or groundwater.*

High quality water produced by the Project will be injected up-gradient from PWD municipal wells and extracted after the required groundwater residence time. Dilution and movement of contaminants can reduce the likelihood of contaminant exposure and improve water quality in the AV Basin. Groundwater modeling has confirmed that injected purified water will move toward municipal wells.

Sub-basins within the AV Basin currently experience high levels of nitrate, arsenic, and salinity. Two Air Force bases within the AV Basin have documented spills of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) and the U.S. Air Force (USAF) Plant 42 operations include assembly of test aircraft and pilot training. Hazardous materials and wastes used and generated on site include various petroleum products, paints, solvents, and corrosives. USAF Plant 42 is listed on the EPA's Comprehensive Environmental Response, Compensation, and Liability Information System database as a potentially contaminated site. The California Department of Health Services has also identified USAF Plant 42 as a hazardous waste site targeted for cleanup. Twenty-eight contaminated areas have been identified; however, information available to date indicates that no hazardous waste exposure to public health or the environment exists at this time.

#### **3.3.2 Effluent discharge quality**

*Describe the potential for the project to improve effluent quality beyond levels necessary to meet State or Federal discharge requirements.*

No effluent will be discharged by the Project.

#### **3.3.3 Flow of natural streams**

*Describe the potential for the project to improve flow conditions in a natural stream channel.*

PWD has access to 5,500 AFY of surface water diversion rights from Littlerock Creek, which is stored in Littlerock Reservoir and delivered to Lake Palmdale via the Palmdale Ditch. Reduced reliance on this existing surface water source can indirectly lead to higher surface water levels in some years. Littlerock Creek is a natural stream channel that is more than just an important drinking water source, as it also provides important ecological and recreational benefits including protecting vulnerable species and habitats from intensifying climate change impacts, as described in the following sections 3.3.4 and 3.3.5.

#### **3.3.4 Habitat for non-listed species**

*Describe the potential for the project to restore or enhance habitat for non-listed fish and wildlife species.*

Littlerock Creek provides habitat for aquatic life, including Freshwater Shrimp and Mariposa Lily. Littlerock Creek supports Southwest Desert habitat within the Antelope Valley, which is one of the top ten habitats vulnerable to climate change according to the Endangered Species Coalition. In the greater Antelope Valley, land species that are supported by the vulnerable Southwest Desert habitat include the desert

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tortoise, burrowing owl, and Mojave ground squirrel. As climate change continues to threaten the Antelope Valley region, higher water levels in Littlerock Creek will be critical to the survival of these species and habitats.

### 3.3.5 Habitat for federally listed species

*Describe the potential for the project to provide water or habitat for federally listed threatened or endangered species.*

Littlerock Creek provides habitat to a federally protected arroyo toad.

## 3.4 DEPARTMENT OF INTERIOR PRIORITIES (15 POINTS)

### 3.4.1 Climate Change

*Please describe how the project will address climate change, including the following: Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis. Does this proposed project strengthen water supply sustainability to increase resilience to climate change? Does the proposed project contribute to climate change resiliency in other ways not described above?*

**Water shortages:** Palmdale is already experiencing climate change impacts through drought-related water shortages and rising temperatures. Higher temperatures increase the water requirements for vegetation and crops due to increased evapotranspiration rates, leading to greater water demand from vulnerable desert habitats, agricultural crops, and functional landscaping. Rising surface temperatures are also projected to decrease snowpack, cause earlier snowpack melting, and decrease SWP water supply. Risk of shortage has increased costs, strained existing local supplies, created uncertainty, and negatively impacted public trust in the reliability of the PWD water system. These shortages and cost burdens directly impact PWD's underserved, low-income population that is already experiencing environmental justice issues. By adding a reliable and drought-resilient water supply source, the Project will add certainty and flexibility to PWD's water system.

**Public trust:** Amidst climate uncertainty, the public places trust in PWD to reliably deliver water. Water recycling, however, often faces negative public opinion or a "yuck" factor that the water was once municipal wastewater in addition to concern over pharmaceuticals and other emerging contaminants, upward pressure on rates during the current period of inflation, and other challenges. To build public trust, the Project includes a permanent public education facility to demonstrate advanced purification processes and exhibit indoor and outdoor conservation practices. Workshops, facility tours, and events will increase the public's perceived value of water and conservation behaviors, as well as increase trust in the system.

**Combating the climate crisis:** The Project will help combat the climate crisis in multiple ways. The Project's education facility will be designed to serve as an emergency operations center, which will also increase climate-change resilience in the community. The Project will also have reduced carbon emissions

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compared to other alternatives. Past research by the Water Reuse Association (Status Consulting, 2015<sup>3</sup> page 20) has shown that water reuse through complete advanced treatment typically produces 373 kilograms of carbon dioxide equivalents per AF (kg CO<sub>2</sub>e/AF). This is roughly a quarter of the emissions from desalination (1349 kg CO<sub>2</sub>e /AF) and a third of imported SWP water (1142 kg CO<sub>2</sub>e /AF). The study had no quantification of emissions from other emergency backup water supplies such as water trucking. Using these multipliers at a scale of 5,325 AFY, recycled water from this Project would produce 1,986 metric tons of CO<sub>2</sub>e annually compared to the 6,081 metric tons of CO<sub>2</sub>e annually to import SWP water, a reduction of 4,095 metric tons of CO<sub>2</sub>e every year. Finally, PWD is also exploring various brine management technologies, including a carbon-negative option. However, decarbonization benefits are currently unquantified.

### 3.4.2 Disadvantaged or Underserved Communities

*Will the proposed project serve or benefit a disadvantaged or historically underserved community? Benefits can include, but are not limited to, public health and safety by addressing water quality, new water supplies, or economic growth opportunities. Please describe in detail how the community is disadvantaged.*

Yes. This Project will benefit all communities within PWD's service area. PWD's service area holds a Large Disadvantaged Community (Large DAC) designation by the California State Water Board with a Median Household Income (MHI) of \$55,129, and a lower bound MHI of \$48,135. This represents 65.5% and 57.2% of the California statewide MHI, respectively. The state designation of "Large DAC" will last for three years, from 7/2022 to 7/2025. The State Water Board makes this DAC determination by overlaying the corresponding service area with U.S. Census Bureau's American Community Survey 5-year estimates data. Given the limitations of using a median, the Water Board subtracts one standard error from the MHI for each census area. All areas are then aggregated to calculate a total MHI for the service area. This process is partially described in Appendix A of the SAFER Fund Expenditure Plan and has been further clarified through direct discussions with the State Water Board Division of Financial Assistance.

According to the Census Bureau, 15.8% of Palmdale residents live below the federal poverty line, 80% identify as people of color, and 47% speak a language other than English at home. The region also experiences environmental justice issues. The federal Climate Environmental Justice Screening Tool (CEJST) provides federal indicators aligned with the Justice40 Initiative, and CEJST indicators show Palmdale as above the 95th percentile for poverty, unemployment, housing costs, and climate risks. The EPA EJScreen tool shows Palmdale as above the US 90th percentile for indices for Particulate Matter 2.5, Ozone, and Hazardous Waste Proximity, and above the 80th percentile for Demographic Index, People of Color, Linguistically Isolated, and Less Than High School Education.

This qualifies PWD's entire service area as an underrepresented community as defined in E.O. 13985.

### 3.4.3 Tribal Benefits

*Does the proposed project directly serve and/or benefit a Tribe? Will the project improve water management for an Indian Tribe? Does the proposed project support Tribal resilience to climate change and drought*

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<sup>3</sup> <https://water.ca.gov/News/Blog/2020/May/Carbon-Emissions>

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*impacts or provide other Tribal benefits such as improved public health and safety by addressing water quality, new water supplies, or economic growth opportunities?*

No tribal benefits.

### 3.5 WATERSHED PERSPECTIVE (15 POINTS)

*Will the proposed project implement a regional or state water plan or an integrated resource management plan? Explain.*

The Project is identified as a priority project for the AV Regional Water Management Group, which is a regional coordination platform in which eleven public agencies work together to meet expected water demands within the entire Antelope Valley Region through 2035. PWD is a Group A voting member of the AV RWMG. Decades of planning by eleven public agencies and community stakeholders of the AV RWMG have led to the prioritization of water recycling as a strategy to meet water demand and improve water supply resiliency. In 2007, the RWMG created an Integrated Regional Water Management (IRWM) plan<sup>4</sup> consistent with the State sponsored IRWM program, which was later updated in 2012 and again in 2019 to reflect current conditions of the AV Region. While the plan has not been updated since the Project began, the previous project alternative, named the “Palmdale Regional Groundwater Recharge Project,” is listed on page ES-10 as a priority implementation project of the 2019 update. This Project is a continuation of that previous project alternative and provides the same benefits. Additionally, in February 2023, the AV RWMG group submitted a request for over \$500,000 to the California Proposition 1 Round 2 IRWM funding for the Pure Water AV influent pipeline along Avenue Q. A letter of support from the AV RWMG is also included in this application.

*Will the proposed project help meet the water supply needs of a large geographic area, region, or watershed? Explain.*

Beyond the 125,000 people served by Palmdale Water District, the Project will also increase the long-term reliability of the entire Antelope Valley Region’s water supply. The Antelope Valley Groundwater Basin is located in the western Mojave Desert, covering 1,580 square miles in portions of Los Angeles, Kern, and San Bernardino counties, and is relied on by over 4,000 parties including public water suppliers, landowners, small pumpers and non-pumping property owners, and the federal and state governments. The Project will increase the beneficial use of the District’s supply portfolio, which in turn will add water storage capacity and relieve subsidence in the overdrafted AV Basin.

*Will the proposed project promote collaborative partnerships to address water-related issues? Explain. Describe stakeholder involvement in the project planning process.*

Currently, PWD has sought to collaborate with regional stakeholders by engaging with the local agencies from the start of the project at the feasibility stage. Two key stakeholders that PWD has collaborated with as project supporters are LACSD and City of Palmdale, and PWD continues to work with these stakeholders to bring them on as partners. PWD and the City of Palmdale work together to implement long term water supply projects through the Palmdale Recycled Water Authority, a joint powers authority. Currently the

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<sup>4</sup> <https://pw.lacounty.gov/wwd/avirwmp/>

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Authority is determining the best path forward to support the Project due to the PWD's move to water augmentation versus recharge and recovery. LACSD is a key project partner as it is the owner of the PWRP that would be the source of tertiary water for the Project. The details of these partnerships with the City of Palmdale and LACSD are being coordinated between the agencies, and would continue to be strengthened as planning progresses. PWD staff has presented the project to several of the Boards of the various agencies, to generate support and receive input and support for the project.

As the Project would benefit the entire region, PWD has continued to seek support of all the stakeholders within Antelope Valley. As mentioned in the first question under this Evaluation Criteria, the Antelope Valley Integrated Water Management group is a collaborative partnership focused on solving water supply within the region. The group is currently supporting the California Proposition 1 funding application for the District's recycled water pipeline to supply the Pure Water AV Demonstration Facility and received funding for the conservation garden at the Demonstration Facility.

These stakeholders and others will continue to be engaged through the Pure Water AV Stakeholder Outreach Plan, which is currently being developed and is not included as an eligible cost in this proposal. Other identified stakeholders including Local Government and Agencies, Elected Officials/Key Staff, and Adjacent Residents & Communities.

*Will the proposed project include public outreach and opportunities for the public to learn about the project? Explain.*

PWD sees public outreach as critical for the Project to be a priority to the public and a variety of local stakeholders and the public is a key stakeholder in the Project's Stakeholder Outreach Plan. Water recycling agencies across the nation often face negative public opinion about potable reuse projects, including a "yuck" factor that the water was once municipal wastewater, concern over pharmaceuticals and other emerging contaminants, upward pressure on rates during the current period of inflation, and other challenges. These public concerns will be tackled through the Pure Water AV Stakeholder Outreach Plan. The Plan is an audience-driven plan, meaning that the outreach activities outlined are tailored to the various audiences that need to be informed about the Pure Water AV. The efforts will be broad and inclusive, encompassing diverse audiences and ensuring all communities have access to program information and opportunities for participation and involvement. Relevant entities in the public that PWD has identified include District Customers /Ratepayers, Business/ Civic Groups, Recreation, and Environmental Organizations, and the Media. Key strategies and communication tactics are being designed to facilitate meaningful engagement. Considering the underserved and environmental justice communities in Palmdale, the Stakeholder Outreach Plan also strategizes specific methods for gathering inputs and generating buy-in from these vulnerable populations, such as developing relationships with community leaders, translating materials into Spanish, and distributing information through local publications and forums.

After testing and permit requirements are met, the Demonstration Facility will permanently remain as a center for public education and operator training. Outside the building, a 10,000 sq ft, demonstration garden will be watered with purified water. Dual-plumbed toilets also will use purified water onsite. Educational signage will show customers how to lower water usage and will promote PWD's existing Water Wise Landscape Conversion Program.

## 4.0 PROJECT BUDGET

*A project budget must be included, and it should include the following elements:*

### 4.1 FUNDING PLAN AND LETTERS OF COMMITMENT

*Describe how the non-Federal cost share will be obtained. Reclamation will use this information when making a determination that the applicant meets the cost share requirements identified in C.3 Cost Sharing Requirements.*

The non-federal share of project costs of \$714,670 will be contributed by PWD through a bond fund which is ultimately repaid through its operating fund. Existing PWD debt holds a strong A rating from S&P and an A+ rating from Fitch. The urgency for the project has prompted PWD to seek state grants for different elements of the Pure Water AV program. In December 2023, PWD applied for grant funds from the California Department of Water Resources Urban Community Drought Relief Program for the PWAV Extraction Well 37 siting study (6f. Item 7), preliminary design (6f. Item 8) and environmental permitting (6f. Item 9). Awards will be determined in March 2023 and, if awarded, PWD would immediately notify the Bureau of Reclamation that these state funds would be used as part of the non-federal match for this proposal. PWD is not currently seeking grant funds for any other items included in this proposal.

No project costs will have been expended prior the award.

### 4.2 BUDGET PROPOSAL

*The total project cost is the sum of all allowable items of costs, including all required cost sharing and voluntary committed cost sharing, including third-party contributions, that are necessary to complete the proposed activities. Include the following chart (table 1) to summarize all funding sources and denote in-kind contributions with an asterisk (\*).*

**Table 4-1 Summary of Non-Federal and Federal funding sources**

| <b>Funding sources</b>               | <b>Amount</b> |
|--------------------------------------|---------------|
| <b>Non-Federal entities</b>          |               |
| 1. Palmdale Water District           | \$714,670     |
| <b>Non-Federal subtotal</b>          | \$714,670     |
| <b>REQUESTED Reclamation funding</b> | \$714,670     |

*The budget proposal should include detailed information on the categories listed below, and it must clearly identify all items of cost, including those that will be contributed as a non-Federal cost share by the applicant (required and voluntary), third-party in-kind contributions, and those that will be covered using the funding requested from Reclamation, and any requested pre-award costs (table 2).*



# PURE WATER AV TITLE XVI PLANNING GRANT APPLICATION

**Table 4-2 Total Project Cost Table**

| <b>Source</b>   | <b>Amount</b>      |
|---|--------------------|
| Costs to be reimbursed with the requested Federal funding | \$714,670          |
| Costs to be paid by the applicant                         | \$714,670          |
| Value of third-party contributions                        | \$--               |
| <b>TOTAL project cost</b>                                 | <b>\$1,429,339</b> |

Additional details are provided in the Budget Proposal excel sheet.

## **4.3 BUDGET NARRATIVE**

*The budget narrative provides a discussion of, or explanation for, items included in Section B of the SF-424A. The information in the narrative should include, but is not limited to, that identified in the Budget Narrative Guidance attached to this NOFO. Applicants may elect to use the Budget Detail and Narrative spreadsheet for their budget narrative. Costs, including the valuation of third-party in-kind contributions, must comply with the applicable cost principles contained in 2 CFR Part 200, available at [www.ecfr.gov](http://www.ecfr.gov).*

### **4.3.1 Personnel**

Personnel costs are included in PWD annual operational budget and are not included in this budget request.

### **4.3.2 Fringe Benefits**

Fringe benefits costs are included in PWD annual operational budget and are not included in this budget request.

### **4.3.3 Travel**

No travel costs are included in this budget request.

### **4.3.4 Equipment**

No equipment costs are included in this budget request.

### **4.3.5 Supplies**

No supplies costs are included in this budget request.

## PURE WATER AV TITLE XVI PLANNING GRANT APPLICATION

### 4.3.6 Contractual

Consultants will be hired to assist with environmental studies and regulatory compliance, preliminary design, and other preplanning activities. Detailed below is a narrative description of all line items included under 6f. Contractual costs in the budget request. Cost estimates were prepared by the Program Coordinator and by the District based on expected scope, personnel, and previously conducted work of similar scope. Personnel rates vary and thus specific calculations are excluded for brevity but can be made available upon request.

#### **Item 1 AWP Environmental Studies and Regulatory Compliance (IS, CEQA/NEPA, Title 22 Report, WDR)**

Stantec is currently under contract to perform this task. The following studies and tasks shall be completed as part of the environmental studies and regulatory compliance task:

- Initial Study – An Initial Study (IS) will be prepared including assessments on air quality, biological resources, cultural resources, noise, water resources, traffic and Cortese list.
- Administer Statutory Process - Processing of the MND, including preparation of required notices, electronic filings with the State CEQA clearinghouse and reviewing comments received on the IS.
- Identify Permits – Prepare a comprehensive permit matrix including a brief description of the permit, permitting agency, contact information, schedule and estimated cost to obtain.
- Title 22 Engineering Report – Prepare a Title 22 Engineering Report for both the demonstration facility and full-scale project, in compliance with the requirements of the California Code of Regulations, for the PWAV in coordination with District staff and other District consultants for supporting documentation.
- Waste Discharge Requirements – Evaluate the waste discharge requirements and prepare the permit application for brine discharge with the Lahontan Regional Water Quality Control Board.

The cost of Item 1 was estimated to be \$292,167, as prepared by the Program Coordinator based on expected scope and personnel. Detailed list of personnel included in developing the fee

#### **Item 2 AWP Bridging Documents Preparation and RFQ/RFP Development**

Stantec is currently under contract to perform this task. The design team will prepare a preliminary design with sufficient detail to serve as bridging documents. This level of design is typically 10-20% to establish the design criteria and equipment performance that must be met by the DBE but does not restrict the DBE team from developing alternative equipment layouts and selecting alternative equipment vendors so that competitive bids can be obtained.

The Stantec PM team will also assist the District in the pre-bidding, bidding and award phases to select the DBE. The following items will be completed as part of this task and will include collaborating with, and incorporating comments from, District staff, board and legal team:

- Establish process for and evaluation criteria for selecting a DBE
- Assist District and District's legal counsel with development of a contract for delivery by the DBE
- Develop and prepare Request For Qualifications (RFQ) and Request For Proposal (RFP)
- Assist in administering RFQ and evaluate submittals from prospective DBE; make recommendation on shortlist of DBE to be invited to submit proposals
- Assist in administering the RFP and evaluate proposals from prospective DBE; Stantec suggests that the District consider conducting interviews with prospective DBE
- Stantec Team members will attend DBE interviews and make a recommendation on selection
- Assist District and legal counsel with negotiation of contract terms with recommended DBE

The cost of Item 2 was estimated to be \$60,025, as prepared by the Program Coordinator based on expected scope and personnel.

## PURE WATER AV TITLE XVI PLANNING GRANT APPLICATION

### **Items 3-6 AWWPF Design Criteria Package – site survey, boundary and topographic surveys, geotechnical studies, and preliminary planning and preliminary design preparation**

Stantec is currently under contract to perform Items 3 (site survey) and 6 (preliminary planning and preliminary design preparation). 3D Surveying will be contracted for Item 4 to conduct a boundary and topographic survey. Kleinfelder is under contract to perform Item 5 (geotechnical studies). Following selection of the location of the AWWPF, geotechnical investigations, and surveying, as well as delivery method for each project component, the Stantec Team will develop full-scale design criteria packages for the AWWPF, injection wells and pipeline up to approximately 15% completion.

15% construction drawings will be completed for all disciplines (civil, structural, mechanical, architectural, process, electrical, plumbing, I&C). A cost loaded schedule, utilizing P6 software, used by most contractors will be prepared for each package such that the District can use it to form the basis of payment. In addition, specifications will include details to prepare site-specific safety plans and requirements for start-up and testing plan to be developed by the DBE.

Estimated costs of Items 3, 4, 5, and 6 are \$4,589; \$7,000; \$270,773; and \$534,785, respectively. This estimate was prepared by the Program Coordinator and the District based on expected scope and personnel.

### **Items 7-9 PWAV Extraction Well 37 Siting Study, Preliminary Design, and Environmental Permits**

Contractors have not been secured for Items 6-8 but the estimates were generated using the past experience of the PWD Engineering Manager, based on previously conducted work. The following studies and tasks shall be completed as part of the planning and preliminary design for extraction Well 37, which will serve as the extraction point for potable recycled water created by the Pure Water AV Program. Tasks will include:

Item 7 Siting study: Evaluation of sites for PWAV Extraction Well 37 as to suitability for installation of a new groundwater production wells, and identify the site that has the greatest probability of success. The scope of work performed to achieve project objectives include a review of existing hydrogeologic data and reports, a summary of the hydrogeologic setting, and an assessment of water level interference and potential sources of groundwater contamination. Estimated cost of \$60,000 was prepared by PWD based on expected scope.

Preliminary Design: The development of a preliminary well design, including evaluation of construction logistics and constraints, evaluation of permitting constraints, and a preparation of engineer's estimates of well construction cost. Estimated cost of \$110,000 was prepared by PWD based on expected scope.

Environmental Permits: A CEQA Notice of Determination will be filed as an amendment to PWD's Water System Master Plan Environmental Impact Report, in compliance with Section 21108 of the Public Resources Code (State Clearinghouse Number 2017021042). Estimated cost of \$40,000 was prepared by PWD based on expected scope.

### **Item 10 Evaluation Study of AWWPF Expansion to 10MGD**

After preliminary design is complete, Stantec will evaluate the potential to expand the AWWPF to 10 MGD. The consultant will provide updated planning documents to investigate a future expansion of the full-scale AWWPF and update existing PWD models to include 10 MGD of potable recycled water supply. This effort would include tertiary water source investigation, cost estimating, siting studies, funding strategies, groundwater modeling and brine management modeling. These would all assist in consideration of the

## PURE WATER AV TITLE XVI PLANNING GRANT APPLICATION

future expansion into the overall program implementation. The cost of Item 10 is \$50,000, based on expected scope and experience by the District.

### Subaward costs

No subaward costs are included in this budget request.

### 4.3.7 Construction

No construction costs are included in this budget request.

### 4.3.8 Other

No third-party in-kind contributions, tuition remission, rental costs, or other costs are included in this budget request.

### 4.3.9 Indirect Costs

No indirect costs are included in this budget request.

## 5.0 REQUIRED PERMITS OR APPROVALS

PWD will pursue and acquire the applicable permits for implementation of the Project. **Table 5-1** summarizes the anticipated permits that will be pursued and respective regulatory agencies. The list may not be exhaustive of all applicable permits for the project, and a more detailed assessment will be developed during final design to identify all applicable permits and regulatory requirements.

Table 5-1 Potential Permits required for the AWPf

| Permit/Approval  | Stakeholders   |
|--|--|
| National Pollutant Discharge Elimination System (NPDES) and Construction Stormwater Pollution Prevention Plan (SWPPP) permit                 | State Water Resource Control Board (State Water Board)               |
| Indirect Potable Ruse Permit   | State Water Resources Control Board Division of Drinking Water (DDW) |
| Waste Discharge & Water Recycling Requirements / User Water Recycling Permit/ Title 22 Engineering Report / Operations and Optimization Plan | Lahontan Regional Water Quality Control Board (RWQCB)                |
| Sewer Discharge Permit   | Los Angeles County, LACSD  |
| Cross Connection & Water Pollution Control Program Compliance  | Los Angeles County Department of Public Health                       |
| Fire Protection System Permit/Plan Check   | Los Angeles County Fire Department                                   |
| Hazardous Materials Review/Field Inspection<br>Spill Prevention Control and Countermeasure Plan<br>Certified Unified Program Agency Permit   | Los Angeles County Fire Department                                   |
| Fire protection system permit/plan check   | City of Palmdale   |

**PURE WATER AV TITLE XVI PLANNING GRANT APPLICATION**

| <b>Permit/Approval</b>   | <b>Stakeholders</b>   |
|--|---|
| Easement Encroachment/Haul Route Permit  | City of Palmdale  |
| Offsite Utilities, Roadway, Street Use, and Landscape  | City of Palmdale Public Works   |
| Construction Permits<br>Demolition<br>Stockpile<br>After Hours Construction<br>Oversize Load<br>Right-Of-Way<br>Sign<br>Roadway Closure (Temp Traffic Control Plan)<br>Dewatering<br>Boring<br>Fugitive Dust Control | City of Palmdale<br>CalTrans (for transportation permits of oversize/overweight vehicles on State Highway System) |
| Standard Urban Storm Water Mitigation Plan   | Los Angeles County Public Works   |
| Flood control permit   | Los Angeles County Department of Public Works Flood Control District  |
| Dust Control Plan (depending on acreage and volume of earthwork)<br>Construction and operations permit   | Antelope Valley AQMD  |

A demonstration facility will investigate compliance of the Title XVI project with all State and Federal regulations, and potential compliance challenges. The results will be communicated with DDW and RWQCB to demonstrate efficacy of proposed treatment and compliance with state and federal requirements. A Title 22 Engineering Report will be developed for the AWPf, in compliance with the requirements of the Consumer Confidence Report.

Permits for Pure Water AV Expansion Well 37 are as follows:

- County of Los Angeles Well Drilling Permit
- AV Water Master New Extraction Well
- Amendment to the PWD Water Master Plan Programmatic Environmental Impact Report

**6.0 OFFICIAL RESOLUTION**

The official resolution adopted by the board of the Palmdale Water District is attached as Attachment A.

**7.0 LETTERS OF SUPPORT FOR THE PROJECT AND LETTERS OF PARTICIPATION**

PWD has included four support letters provided in Attachment B. One additional letter of support is secured but can be made available upon request. These demonstrate the support for the Project.

- LA County Sanitation District

## PURE WATER AV TITLE XVI PLANNING GRANT APPLICATION

- City of Palmdale
- Littlerock Creek Irrigation District
- Antelope Valley Integrated Regional Water Management Group. Group members include: City of Palmdale, Quartz Hill Water District, Rosamond Community Services District, County of Los Angeles, Antelope Valley East Kern Water Authority, Los Angeles County Water District, Littlerock Creek Irrigation District, and City of Lancaster.

A letter of support has been secured from the Antelope Valley East Kern Water Authority but is not attached to application as it is being voted on by board on 2/28/2023 at 6pm and cannot be attached to the application. This can be made available upon request.

### 8.0 OVERLAP OR DUPLICATION OF EFFORT STATEMENT

Securing grant and low-interest loan funding is required for the Pure Water AV Program to move forward. As such, PWD has applied for multiple funding programs and intends to continue to apply to programs in the future. Many funding programs do not in any way duplicate costs included in this proposal. However, PWD's approved EPA Water Infrastructure Finance and Innovation Act (WIFIA) Letter of Interest included costs in this proposal. Future planned applications to the WIFIA program, California Water Recycling Funding Program, and California Clean Water State Revolving Fund program may include activities included in this Title XVI planning grant application. For any of these programs, PWD will not overlap the proposed project and any other active or anticipated proposals or projects in terms of activities, costs, or commitment of key personnel unless discussed with the Bureau of Reclamation as an allowable non-federal cost share.

To date, PWD has applied to the following funding programs:

- **California DWR Proposition 1 Disadvantaged Community Grant Program** funds of \$450,000 requested and secured for the Pure Water AV Demonstration Facility conservation garden in Fall 2023. There is **no overlap with costs in this proposal**.
- **EPA WIFIA**. PWD submitted an EPA WIFIA letter of interest in September 2022, which included a request for all costs included this proposal. In December 2022, the EPA invited PWD to apply for a loan, which PWD intends to submit in April 2023. Selection and negotiations are anticipated to take a minimum of 3 months, with an anticipated loan closing date of July 1, 2023. Grant funds from the Title XVI Planning grant program are preferable to a low-interest loan. Both funds are considered federal funding, thus, if a Title XVI Planning award is made prior to the submittal of the WIFIA application, PWD would remove all duplicated costs from the WIFIA application. If a Title XVI Planning award is made after the submittal of the WIFIA application and negotiations, PWD would notify EPA and would not draw down on the WIFIA loan for the costs funded by Reclamation. PWD will not overlap the proposed project and any other active or anticipated proposals or projects in terms of activities, costs, or commitment of key personnel.

## PURE WATER AV TITLE XVI PLANNING GRANT APPLICATION

- **California DWR Urban Community Drought Relief Program** funds of \$9,801,208 requested for design, permitting, and construction of the PWAV Extraction Well 37 and construction of PWAV Extraction Well 36. **\$210,000 in costs overlap with this proposal** (Items 7, 8 and 9). Awards anticipated in spring 2023. If awarded, PWD would immediately notify the Bureau of Reclamation and discuss the ability for PWD to use these state funds as non-federal cost share.
- **Bureau of Reclamation WaterSMART Drought Resiliency Projects Grant Program** was submitted in FY22 for planning, design, and construction of PWAV Extraction Well 36 and 37, but was not awarded. This proposal had included \$210,000 in cost overlap with this proposal (Items 7, 8 and 9), however, these funds were not awarded.
- **California DWR Urban Community Drought Relief Program** funds of \$13,117,422 requested for design and construction of the Pure Water AV Demonstration Facility. Awards anticipated in spring 2023. **No overlap with costs in this proposal.**
- **California DWR Proposition 1 Round 2 IRWM Implementation** funds of \$587,578 requested through the Antelope Valley IRWM group for the construction of the Avenue Q pipeline. Submitted by AV-IRWM in February 2023. **No overlap with costs in this proposal.**

Future funds will also be pursued from state and federal sources. One example would be the **California Water Recycling Funding Program and Clean Water State Revolving Fund Program**. Funds from these complementary state funding programs would be pursued for AWPf final design and construction. Costs included in this Title XVI Planning grant proposal are also eligible costs under these programs, however, an application for these programs will not be submitted until mid-2023 and would be informed by the outcome of this Title XVI planning grant application. PWD will not overlap the proposed project and any other active or anticipated proposals or projects in terms of activities, costs, or commitment of key personnel unless Bureau of Reclamation allows these funds to be used as a non-federal cost share.

### 9.0 UNIFORM AUDIT REPORTING STATEMENT

PWD will prepare a Single Audit if the award exceeds the \$750,000 limit. PWD was not required to submit a Single Audit report for the most recently closed fiscal year.

### 10.0 CONFLICT OF INTEREST DISCLOSURE STATEMENT

No actual or potential conflict of interest exists at the time of submission

## 11.0 ABBREVIATIONS AND ACRONYMS

| <b>Abbreviation or Acronym</b> | <b>Definition</b>  |
|--------------------------------|--|
| AF                             | acre-feet  |
| AFY                            | acre-feet per year   |
| AOP                            | advanced oxidation process   |
| AV Basin                       | Antelope Valley Groundwater Basin  |
| AWPF                           | advanced water purification facility   |
| CEQA                           | California Environmental Quality Act   |
| DAC                            | Disadvantaged Community  |
| DDW                            | California State Water Resources Control Board -- Division of Drinking Water |
| DPR                            | direct potable reuse   |
| DWR                            | California Department of Water Resources                                     |
| EPA                            | Environmental Protection Agency  |
| FAT                            | full advanced treatment  |
| GW                             | groundwater  |
| GWR                            | groundwater recharge   |
| IPR                            | indirect potable reuse   |
| IRWM                           | Integrated Regional Water Management   |
| LACSD                          | Los Angeles County Sanitation District                                       |
| LOCWTP                         | Leslie O. Carter Water Treatment Plant                                       |
| LRV                            | log removal values   |
| Max                            | Maximum  |
| MF                             | microfiltration  |
| MGD                            | million gallons per day  |
| min                            | minimum  |
| NPDES                          | National Pollutant Discharge Elimination System                              |
| PFAS                           | Perfluoroalkyl and Polyfluoroalkyl Substances                                |
| PWAV                           | Pure Water Antelope Valley   |
| PWD                            | Palmdale Water District  |
| PWRP                           | Palmdale Water Reclamation Plant   |
| Reclamation                    | U.S. Department of Interior, Bureau of Reclamation                           |
| RO                             | reverse osmosis  |
| RWA                            | raw water augmentation   |
| RWQCB                          | Regional Water Quality Control Board   |
| SWA                            | surface water augmentation   |
| SWP                            | California State Water Project   |
| SWPPP                          | Stormwater Pollution Prevention Plan   |
| SWTP                           | Surface Water Treatment Plant  |
| US                             | United States  |
| USAF                           | US Air Force   |
| UV                             | ultraviolet  |
| WIFIA                          | Water Infrastructure Finance and Innovation Act                              |
| WRP                            | water reclamation plant  |
| WTP                            | water treatment plant  |



**PURE WATER AV TITLE XVI PLANNING GRANT APPLICATION**

**ATTACHMENT A    OFFICIAL RESOLUTION**

## RESOLUTION 23-2

### **RESOLUTION OF THE BOARD OF DIRECTORS OF THE PALMDALE WATER DISTRICT AUTHORIZING THE DISTRICT'S APPLICATION FOR FUNDING FROM THE BUREAU OF RECLAMATION WATERSMART: WATER RECYCLING AND DESALINATION PLANNING GRANT FOR FEDERAL FISCAL YEAR 2023 FOR THE PURE WATER ANTELOPE VALLEY PROJECT**

**WHEREAS**, Palmdale Water District is a municipal water district established pursuant to Section 71000 et seq. of the California Water Code.

**WHEREAS**, water supply in the Palmdale area is facing a growing list of challenges associated with reductions in allowed groundwater pumping due to groundwater adjudication, regulatory cutbacks on State Water Project deliveries, Bay-Delta instability, climate change, aging infrastructure, and growing population; and

**WHEREAS**, the United States Department of the Interior, Bureau of Reclamation under the Water Energy Efficiency Grant makes funding available to qualifying applicants; and

**WHEREAS**, the Board of Directors of the Palmdale Water District has identified a project that exemplifies the objectives of the WaterSMART Grant in the Pure Water Antelope Valley; and

**WHEREAS**, Palmdale Water District agrees to the administration and cost sharing requirements of the WaterSMART Grant criteria.

**NOW, THEREFORE, LET IT BE RESOLVED** by the Board of Directors of the Palmdale Water District as follows:

**SECTION 1.** Palmdale Water District is hereby authorized to receive, if awarded, the WaterSMART: Water Recycling and Desalination Planning for 2023 grant funding in an amount up to \$1,000,000 and will make a good faith effort to enter into a cooperative agreement with Reclamation for the receipt and administration of said grant funds.

**SECTION 2.** The General Manager, Dennis LaMoreaux, or his designee, is hereby authorized to take any and all action which may be necessary for the completion and execution of the project agreement and to take any and all other action which may be necessary for the receipt and administration of the grant funding in accordance with the requirements of the Bureau of Reclamation.

**SECTION 3.** This resolution officially becomes a component part of the Palmdale Water District's grant application.

**SECTION 4.** The Board of Directors has reviewed and supports the application to be submitted.

**SECTION 5.** Palmdale Water District is capable of providing the amount of funding and/or in-kind contributions specified in the grant application funding plan.

**SECTION 6.** This Resolution shall be effective as of the date of adoption.

**CERTIFICATION**

PASSED, APPROVED and ADOPTED this 27<sup>th</sup> day of February 2023.



---

Don Wilson, President  
Board of Directors  
Palmdale Water District



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Vincent Dino, Secretary  
Board of Directors  
Palmdale Water District

Approved as to form:



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Aleshire & Wynder, LLP  
General Counsel

**PURE WATER AV TITLE XVI PLANNING GRANT APPLICATION**

**ATTACHMENT B      LETTERS OF SUPPORT**



**LOS ANGELES COUNTY  
SANITATION DISTRICTS**  
*Converting Waste Into Resources*

**Robert C. Ferrante**  
Chief Engineer and General Manager

1955 Workman Mill Road, Whittier, CA 90601-1400  
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998  
(562) 699-7411 • www.lacsd.org

February 24, 2023

US Bureau of Reclamation  
Water Resources and Planning Office  
Attn: Ms. Maribeth Menendez  
PO Box 25007, 86-63000  
Denver, CO 80225

Dear Ms. Menendez:

**Support for the Palmdale Water District Pure Water Antelope Valley Application –  
WaterSMART Water Recycling and Desalination Planning Funding Opportunity**

Los Angeles County Sanitation District No. 20 (District) is pleased to support Palmdale Water District's (PWD) Pure Water Antelope Valley (Pure Water AV; Project) grant application in response to the United States Bureau of Reclamation's funding opportunity for WaterSMART Water Recycling and Desalination Planning.

The District owns and operates the Palmdale Water Reclamation Plant (WRP), which produces approximately 9,000 acre-feet per year (AFY) of tertiary recycled water in the City of Palmdale, California, located in the Antelope Valley (AV) Region. A small portion of this recycled water is delivered to customers for direct reuse, such as landscape irrigation and construction-related uses, while the majority of the plant's recycled water is currently used to irrigate nearby fodder crops. The District has a recycled water purchase agreement with PWD to allocate 5,325 AFY of recycled water from the Palmdale WRP for beneficial reuse.

The Project proposes to provide advanced treatment of the tertiary recycled water to meet indirect potable reuse standards and directly inject the water into the AV Groundwater Basin. The Project would beneficially use recycled water to recharge the groundwater as a crucial strategy to augment local water supplies in the arid AV Region, address the uncertainty of future supplies from the State Water Project and near-term water shortages, and alleviate additional subsidence in the overdrafted AV Groundwater Basin.

Support from the Bureau of Reclamation will allow this important and urgent project to move forward. We strongly urge your thoughtful consideration of Pure Water AV, which would be the first groundwater recharge project in the AV Region to use recycled water, a valuable resource, and would greatly benefit the local drinking water supply.

If you have any questions or require additional information, please contact Erika Bensch at (562) 908-4288, extension 2801, or by email at [erikabensch@lacsd.org](mailto:erikabensch@lacsd.org).

Very truly yours,

  
Robert Ferrante

RF:DZ:EB

cc: Dennis LaMoreaux, Scott Rogers – Palmdale Water District

DOC #6841747

*A Century of Service*



# PALMDALE

*a place to call home*

February 21, 2023

LAURA BETTENCOURT  
*Mayor*

ANDREA ALARCÓN  
*Mayor Pro Tem*

RICHARD J. LOA  
*Councilmember*

AUSTIN BISHOP  
*Councilmember*

ERIC OHLSEN  
*Councilmember*

38300 Sierra Highway

Palmdale, CA 93550-4798

Tel: 661/267-5100

TDD: 661/267-5167

Bureau of Reclamation  
Water Resources and Planning Office  
Attn: Ms. Maribeth Menendez  
P.O. BOX 25007, 86-63000  
Denver, CO 80225

Dear Ms. Menendez:

The City of Palmdale (City) supports Palmdale Water District's (District's) application to the U.S. Bureau of Reclamation's Water Recycling and Desalination Planning Grant Program for its Pure Water Antelope Valley (Pure Water AV) (Project).

The Project is a regional recycled water program that augments potable water supplies using 5,325 acre-feet per year (AFY) of recycled water allocation from the Los Angeles County Sanitation Districts' Palmdale Water Reclamation Plant (PWRP). The tertiary wastewater is treated to indirect potable standards and directly injected into the Antelope Valley Groundwater Basin (AV) Basin. The Project addresses the uncertainty of future supplies from the State Water Project (SWP), resolves near-term water shortages, and alleviates additional subsidence in the overdrafted AV Basin.

The City is supportive of this project as it will increase the beneficial use of the District's supply portfolio, which in turn will add water storage capacity in an over-drafted basin and will increase the long-term reliability of the District's water supply to Palmdale residents and businesses.

For these reasons, I enthusiastically support the District's Pure Water AV project.

Very truly yours,

Ronda Perez  
City Manager

**BOARD OF DIRECTORS**

**BARBARA HOGAN**  
PRESIDENT

**TIM CLARK**  
VICE PRESIDENT

**LEO THIBAUT**  
TREASURER

**JOHN TENERELLI**  
SECRETARY

**DAVID KRAAI**  
DIRECTOR

# LITTLEROCK CREEK



## IRRIGATION DISTRICT

FOUNDED 1892

**JAMES CHAISSON**  
GENERAL MANAGER

**OLIVAREZ MADRUGA**  
**LEMIEUX & O'NEILL**  
ATTORNEYS

February 21, 2023

Bureau of Reclamation  
Water Resources and Planning Office  
Attn: Ms. Maribeth Menendez  
P.O. BOX 25007, 86-63000  
Denver, CO 80225

Dear Ms. Menendez:

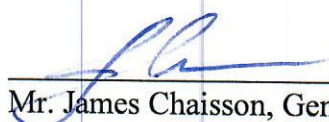
The Littlerock Creek Irrigation District (LCID) supports Palmdale Water District's (District's) application to the U.S. Bureau of Reclamation's Water Recycling and Desalination Planning Grant Program for its Pure Water Antelope Valley (Pure Water AV) (Project).

The Project is a regional recycled water program that augments potable water supplies using 5,325 acre-feet per year (AFY) of recycled water allocation from the Los Angeles County Sanitation Districts' Palmdale Water Reclamation Plant (PWRP). The tertiary wastewater is treated to indirect potable standards and directly injected into the Antelope Valley Groundwater Basin (AV) Basin. The Project addresses the uncertainty of future supplies from the State Water Project (SWP), resolves near-term water shortages, and alleviates additional subsidence in the over drafted AV Basin.

The LCID is supportive of this project as it will increase the beneficial use of the District's supply portfolio, which in turn will add water storage capacity in an over-drafted basin and will increase the long-term reliability of the District's water supply to LCID.

For these reasons, I enthusiastically support the District's Pure Water AV project.

Very truly yours,

  
Mr. James Chaisson, General Manager

February 24, 2023

Bureau of Reclamation  
Water Resources and Planning Office  
Attn: Ms. Maribeth Menendez  
P.O. BOX 25007, 86-63000  
Denver, CO 80225

Dear Ms. Menendez:

Antelope Valley Integrated Regional Water Management Group (AVIRWMG) supports Palmdale Water District's (District's) application to the U.S. Bureau of Reclamation's Water Recycling and Desalination Planning Grant Program for its Pure Water Antelope Valley (Pure Water AV) (Project).

The Project is a regional recycled water program that augments potable water supplies using 5,325 acre-feet per year (AFY) of recycled water allocation from the Los Angeles County Sanitation Districts' Palmdale Water Reclamation Plant (PWRP). The Project proposes to treat tertiary recycled water to indirect potable standards and directly inject the advanced treated water into the Antelope Valley Groundwater Basin (AV) Basin. The Project addresses the uncertainty of future supplies from the State Water Project (SWP), resolves near-term water shortages, and alleviates additional subsidence in the overdrafted AV Basin.

AVIRWMG is a group of agencies working cooperatively to manage local and imported water supplies to improve quality, quantity, and reliability. PWD's project will increase the beneficial use of the District's supply portfolio, which in turn will add water storage capacity in an over-drafted basin and increase the long-term reliability of the region's water supply.

For these reasons, AVIRWMG enthusiastically supports the District's Pure Water AV Project.

Very truly yours,



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On the behalf of Antelope Valley Integrated Water Management Group

Antelope Valley-East Kern Water Agency, Antelope Valley State Water Contractors Association, City of Lancaster, City of Palmdale, Littlerock Creek Irrigation District, Los Angeles County Sanitation District Nos. 14 and 20, Los Angeles County Waterworks District 40, Palmdale Water District, Quartz Hill Water District, and Rosamond Community Services District