EXECUTIVE SUMMARY

INTRODUCTION

County Sanitation District No. 20 of Los Angeles County (District No. 20) has prepared the *Palmdale Water Reclamation Plant 2025 Facilities Plan and Environmental Impact Report* (PWRP 2025 Plan and EIR) to address the wastewater treatment and effluent management needs of the Palmdale Water Reclamation Plant (PWRP). The associated Environmental Impact Report (EIR) was prepared for District No. 20 by the environmental consulting firm Environmental Science Associates in conformance with the California Environmental Quality Act (CEQA). The planning horizon for this document extends through the year 2025. The PWRP 2025 Plan and EIR was prepared by District No. 20 in conformance with the State Revolving Fund (SRF) guidelines for a facilities plan.

BACKGROUND

County Sanitation Districts of Los Angeles County

The County Sanitation Districts of Los Angeles County (Districts) are a confederation of independent special districts that serve the wastewater and solid waste management needs of approximately 5.1 million people in Los Angeles County (County). The Districts' service area covers approximately 800 square miles and encompasses 78 cities and unincorporated territory within the County.

The Districts were formed under the authority provided by the County Sanitation District Act of 1923 (Act). In order to allow for a more efficient means of wastewater management, the Act authorizes the formation of sanitation districts determined by drainage areas rather than political boundaries. Provisions of the Act authorize the Districts to construct, operate, and maintain facilities for the collection, treatment, and disposal of wastewater and industrial wastes generated throughout the Districts' service area. In 1949, the Act was amended to allow sanitation districts to provide solid waste management and disposal services, including refuse transfer and resource recovery. The service area and facilities of the Districts are shown in Figure ES-1.

The Districts are composed of 24 separate sanitation districts working cooperatively under a Joint Administration Agreement (JAA) and benefiting from a centralized administrative staff headquartered near Whittier, California. Of these 24 districts, 23 are currently active. Each district has a separate board of directors consisting of the presiding officers of the governing bodies of the local jurisdictions situated within that district. Each district is required to pay its proportionate share of the joint administrative costs, pursuant to the terms of the JAA.

The Districts own, operate, and maintain over 1,300 miles of main trunk sewers and 11 wastewater treatment plants with a total permitted capacity of 636.8 million gallons per day (mgd). During the 2003-04 fiscal year, the Districts' sewerage system conveyed and treated approximately 510 mgd of wastewater. Approximately 187 mgd was treated to a tertiary level and approximately 65 mgd (35 percent) of this amount was beneficially reused for a variety of applications, which include landscape and agricultural irrigation, recreational impoundments, wildlife habitat maintenance, and groundwater recharge.

County Sanitation District No. 20 of Los Angeles County

District No. 20, which was formed on August 7, 1951, is one of two districts that provide wastewater management services for the Antelope Valley. Located in the northern portion of the County, District No. 20 serves an area that includes the majority of the City of Palmdale and portions of unincorporated County areas. The Board of Directors for District No. 20 consists of the Mayor and the Mayor Pro Tem of the City of Palmdale and the Chairperson of the Los Angeles County Board of Supervisors.

District No. 20 owns and operates the PWRP and a network of approximately 40 miles of trunk sewers. The reverse side of Figure ES-1 shows the service area, treatment facility, and trunk sewers for District No. 20.

Palmdale Water Reclamation Plant

The PWRP, which was originally built in 1953 with a capacity of 0.75 mgd, is located on two sites owned by District No. 20 in an unincorporated County area adjacent to the City of Palmdale. The first site is near the intersection of 30th Street East and Avenue P-8, and the second site is located near the intersection of 40th Street East and Avenue O-8. The PWRP provides primary treatment via sedimentation, secondary treatment via biological stabilization in oxidation ponds, and disinfection to all incoming wastewater. The PWRP and surrounding areas are shown in Figure ES-2.

The PWRP treated an average flow of 9.4 mgd in 2004, a rate that is well within its permitted capacity of 15.0 mgd. Figure ES-3 shows a schematic diagram of the treatment process at the PWRP. Recycled water produced at the plant is managed on land leased from Los Angeles World Airports (LAWA). The PWRP effluent management site (EMS) is shown in Figure ES-2.

NEED FOR PROJECT

There are three primary challenges with respect to ongoing and/or future operations at the PWRP that are addressed by the PWRP 2025 Plan: (1) increasing population; (2) increasing regulatory requirements; and (3) increasing demand for recycled water.

Increasing Population

Population increases in the Antelope Valley will result in higher wastewater flow rates and the need to provide additional wastewater treatment and effluent management capacity at the PWRP.

Wastewater Treatment

Wastewater flows tributary to the PWRP are expected to increase in proportion to the growth of the sewered population within District No. 20's sphere of influence. The most recent population forecast for the Antelope Valley prepared by the Southern California Association of Governments (SCAG) is included in the *Southern California Association of Governments 2004 Regional Transportation Plan* (SCAG 2004), which was adopted in July 2004. Based on SCAG 2004, the projected 2025 sewered population within District No. 20 is 225,000. This population, combined with permitted industrial dischargers and contracted flow rates, is expected to generate approximately 22.4 mgd of wastewater in the year 2025 that must be managed by the PWRP. The projected wastewater flow for District No. 20 over the planning horizon is shown in Figure ES-4. Since the current 15.0 mgd capacity of the PWRP is projected to be reached by 2013, the plant must be expanded in order to accommodate the expected wastewater flow from the projected population growth.

Effluent Management

Treated wastewater (i.e., effluent or recycled water) management for District No. 20 is particularly challenging because the Antelope Valley is a closed basin with no river or other outlet to the Pacific Ocean. Therefore, District No. 20 must rely solely on effluent management methods such as reuse, evaporation, and percolation.

A schematic of the existing District No. 20 effluent management system is provided in Figure ES-5. In the past, the effluent was handled in three ways: land application, agricultural irrigation above agronomic rates, and agricultural reuse (irrigation of crops at agronomic rates). "Land application" involves the discharge of recycled water to uncultivated land. "Agricultural irrigation above agronomic rates" involves the application of recycled water to crops at an

amount that can exceed agronomic rates. "Agricultural reuse" is a term that refers to crop irrigation in which recycled water is applied at the agronomic rate of the crop (i.e., the rate that meets the needs of the crop). Agricultural reuse minimizes nitrogen impacts to the underlying groundwater.

In 2000, the Regional Water Quality Control Board, Lahontan Region (RWQCB-LR) revised the Waste Discharge Requirements (WDRs) for the PWRP. District No. 20 was ordered to take action on suspected groundwater nitrate contamination attributed in part to historical land application and agricultural practices. The revised WDRs required that a Farm Management Plan (FMP), Effluent Disposal Plan, and Corrective Action Plan be submitted to the RWQCB-LR by January 2001. Per recommendations made in the FMP, District No. 20 entered into a 20-year lease agreement with LAWA in 2002 for the 2,680-acre EMS located northeast and east of the plant property. The FMP also specifies agronomic rates for crop irrigation, a strategy that cannot be fully implemented without adding reservoir capacity for winter storage of recycled water. Land application and agricultural irrigation above agronomic rates are no longer acceptable under the revised WDRs and are being phased out, so the PWRP 2025 Plan must provide for alternative effluent management methods.

Increasing Regulatory Requirements

In response to groundwater quality concerns at the EMS, the RWQCB-LR adopted Cleanup and Abatement Order No. R6V-2003-056 (CAO) and Cease and Desist Order No. R6V-2004-039 (CDO) in November 2003 and October 2004, respectively. These two orders were adopted to address elevated concentration of nitrate in the groundwater near and under the EMS. Groundwater monitoring conducted by the District showed that three monitoring wells located on or near the EMS periodically slightly exceeded the primary MCL for nitrate of 10 mg/l. However, recent groundwater monitoring results showed a slight exceedence in only one of the 27 monitoring wells sampled. Nitrate concentrations in the groundwater in the depths from which groundwater would normally be extracted for beneficial use (i.e., municipal and domestic supply) do not exceed the MCL.

The CAO requires District No. 20 and LAWA to clean up and abate the elevated nitrate levels identified in the groundwater beneath the EMS. The CDO supercedes the abatement portion of the CAO and imposes a time schedule order for implementing various abatement measures. Specifically, the CDO imposes restrictions on District No. 20 that would eliminate land application and agricultural irrigation above agronomic rates of treated effluent by October 15, 2008. It also requires that, by November 15, 2009, District No. 20 comply with requirements to prevent the discharge of nitrogenous compounds to the groundwater at levels that create a condition of pollution or violate the *1994 Water Quality Control Plan for the Lahontan Region* (1994 Basin Plan) water quality objectives.

Abatement will be achieved in two phases. The first phase, which will be fully implemented by December 2005, involves (1) expanding agricultural reuse operations at the EMS to fully utilize the currently leased site and (2) interim improvements to the treatment process to remove additional nitrogen compounds. Some areas will be irrigated at agronomic rates whenever possible, but will exceed agronomic rates in the winter months. This will significantly reduce the amount of nitrates potentially reaching the groundwater, since the nitrates remaining in the recycled water will act as a fertilizer and be taken up by the crops as nutrients. This is a key component of the groundwater remediation effort. The second phase, which includes the construction of wastewater treatment and effluent management facilities necessary to reduce nitrate to acceptable levels, will need to be addressed by the PWRP 2025 Plan.

Increasing Demand for Recycled Water

The Antelope Valley must contend with complex local water issues as its population and demand for water continue to grow. Surface water supplies are limited by rainfall as well as contract restrictions imposed by the State Water Project. At the same time, local groundwater basins are not adjudicated and experience overdrafting problems such as reduced aquifer storage capacity, land subsidence, and continually increasing pumping costs.

Recycled water is an underutilized resource in the region that could be integrated into the water supply by using it to supplement potable water. Upgrades to the treatment process at the PWRP would expand reuse opportunities for the local community.

PROJECT OBJECTIVES

The overall goal of the PWRP 2025 Plan is to identify a project that meets the wastewater treatment and effluent management needs of District No. 20 through year 2025 in a cost effective and environmentally sound manner. In order to meet the above-listed needs, the objectives of the PWRP 2025 Plan are as follows:

- Provide wastewater treatment capacity adequate to meet the needs of District No. 20 through the year 2025;
- Provide effluent management capacity adequate to meet the needs of District No. 20 through the year 2025;
- Provide a long-term solution for meeting water quality requirements set forth by regulatory agencies; and
- Provide a wastewater treatment and effluent management program that accommodates emerging recycled water reuse opportunities.

ANALYSIS OF PROJECT ALTERNATIVES

A wide range of wastewater treatment alternatives and effluent management alternatives were evaluated. This process identified two wastewater treatment alternatives and one feasible effluent management alternative that meet all project objectives (the analysis found another effluent management alternative that could meet, in part, the project objectives.) These were combined into a set of final project alternatives. The final project alternatives were then evaluated and ranked using a set of qualitative criteria, which included (1) environmental impacts; (2) cost-effectiveness; (3) effluent quality; and (4) operational considerations. The final project alternative with the highest ranking was selected as the proposed project of the PWRP 2025 Plan. The alternatives evaluation process is illustrated in Figure ES-6.

First-Level Screening of Conceptual Wastewater Treatment Alternatives

The wastewater treatment capacity of the PWRP must be expanded by 7.4 mgd (from 15.0 mgd to 22.4 mgd) in order to accommodate the wastewater flow rate expected by the year 2025. This expansion will involve construction of additional wastewater treatment processes, disinfection, and solids processing facilities.

The existing method of primary treatment at the PWRP is the industry-wide standard for wastewater treatment facilities. Therefore, expansion of the primary treatment capacity from 15.0 mgd to 22.4 mgd will involve construction of additional grit channels, comminutors, sedimentation tanks, and ancillary facilities. The existing method of secondary treatment at the PWRP is oxidation ponds; however, a number of alternative secondary treatment methods were evaluated for the upgrade and expansion of the PWRP. Tertiary treatment is currently not in use at the PWRP, so the method of tertiary treatment selected to follow secondary treatment was based on the most commonly

used industry-wide standard. Various methods for advanced treatment and disinfection were investigated as well. The six wastewater treatment alternatives that were evaluated for the PWRP upgrade and expansion are as follows:

- Primary Treatment;
- Primary + Secondary Treatment;
- Primary + Secondary + Disinfection;
- Primary + Secondary with Nitrification-Denitrification (w/NDN) + Disinfection;
- Primary + Secondary w/NDN + Tertiary Treatment + Disinfection; and
- Primary + Secondary w/NDN + Tertiary + Advanced Treatment + Disinfection.

Solids processing, required with any wastewater treatment alternative, was also evaluated. Three project objectives were used in the first-level screening of standard wastewater treatment processes: (1) accommodation of projected wastewater flow rates; (2) compliance with water quality requirements; and (3) accommodation of emerging reuse opportunities. The results of the first-level screening utilizing these objectives are summarized in Table ES-1.

Based on the first-level screening, four of the six standard wastewater treatment processes were eliminated as follows.

Primary Treatment

Primary treatment does not remove soluble organics. Removal of dissolved organic material is required under the terms of the WDRs issued by the RWQCB-LR. Additionally, wastewater that has undergone primary treatment only is not suitable for reuse.

Primary + Secondary Treatment

Secondary treatment removes much of the dissolved organic material present in the wastewater after primary treatment. This additional treatment makes it possible to use the effluent for irrigation on a limited variety of agricultural crops, but it would not allow reuse for other emerging opportunities.

Primary + Secondary + Disinfection

Disinfection eliminates nearly all organisms remaining in the secondary effluent. It allows a higher number and wider variety of crops to be irrigated. Restricted access areas such as freeway landscaping and cemeteries may be irrigated with disinfected effluent. However, this option does not allow for other emerging reuse opportunities.

Primary + Secondary w/NDN + Disinfection

NDN treatment reduces nitrogen levels. Unfortunately, reuse opportunities with this level of treatment do not include typical municipal applications such as park, school, and golf course irrigation. This option does not

Table ES-1
Summary of First-Level Screening of Standard Wastewater Treatment Alternatives

CONCEPTUAL WASTEWATER TREATMENT ALTERNATIVES	ACCOMMODATES PROJECTED WASTEWATER FLOWS	MEETS WATER QUALITY REQUIREMENTS	ACCOMMODATES EMERGING REUSE OPPORTUNITIES	FEASIBLE WASTEWATER TREATMENT PROCESS[a]
Primary	Yes	No	No	No
Primary + Secondary	Yes	No	No	No
Primary + Secondary + Disinfection	Yes	Yes	No	No
Primary + Secondary w/NDN + Disinfection	Yes	Yes	No	No
Primary + Secondary w/NDN + Tertiary + Disinfection	Yes	Yes	Yes	Yes
Primary + Secondary w/NDN + Tertiary + Advanced Treatment + Disinfection	Yes	Yes	Yes	Yes

(a) An alternative is deemed feasible if it meets all three screening criteria.

produce the recycled water quality necessary to meet emerging recycled water reuse opportunities.

First-Level Screening of Conceptual Effluent Management Alternatives

The effluent management capacity of the PWRP must be expanded in order to accommodate the wastewater flow of 22.4 mgd expected by the year 2025. In addition, existing land application and agricultural irrigation above agronomic rates operations must be replaced with an alternative effluent management method by October 15, 2008.

Eight methods of effluent management were evaluated as follows:

- Land Application;
- Agricultural Reuse;
- Groundwater Recharge;
- Municipal Reuse;
- Discharge to Water Body in the Antelope Valley;
- Wetlands;
- Pump Recycled Water Out of the Antelope Valley; and
- Evaporation Ponds.

Three project objectives were used in the first-level screening of effluent management processes: (1) accommodation of projected recycled water flow rates; (2) compliance with water quality requirements; and (3) accommodation of emerging reuse opportunities. The results of the first-level screening utilizing these objectives are summarized in Table ES-2.

Based on the first-level screening, six of the eight effluent management processes were eliminated as explained below. One of the alternatives, municipal reuse, could possibly be put into place during the planning period. However, municipal reuse would not accommodate the total recycled flow rate and would have to be combined with another effluent management method. Municipal reuse is discussed to show why the total recycled flow rate could not be accommodated by this alternative.

Land Application

Land application could include cultivation of a crop (agricultural irrigation above agronomic rates); however, recycled water would still be applied at an amount that exceed the agronomic rate. During the winter months when crop demand for water is low, applied effluent would likely percolate to the groundwater. District No. 20 would violate the CDO issued by the RWQCB-LR after October 15, 2008.

Table ES-2
Summary of First-Level Screening of General Effluent Management Methods

CONCEPTUAL EFFLUENT MANAGEMENT ALTERNATIVES	ACCOMMODATES EXPECTED RECYCLED WATER FLOWS	MEETS WATER QUALITY REQUIREMENTS	ACCOMODATES EMERGING REUSE OPPORTUNITIES	FEASIBLE EFFLUENT MANAGEMENT METHOD[a]
Land Application	Yes	No	Yes	**No**
Agricultural Reuse	Yes	Yes	Yes	**Yes**
Groundwater Recharge	No	Yes	Yes	**No**
Municipal Reuse	No[b]	Yes	Yes	**Partial**
Discharge to Water Body in Antelope Valley	No	Yes	No	**No**
Wetlands	Yes	Yes	No	**No**
Pump Water Outside of Antelope Valley	Yes	Yes	No	**No**
Evaporation Ponds	Yes	Yes	No	**No**

(a) An alternative is deemed feasible if it meets all three screening criteria.
(b) Municipal reuse could accommodate some, but not all, of the expected recycled water flow rate. Therefore, it could be used in combination with other effluent management methods.

Groundwater Recharge

Groundwater recharge provides a beneficial use for recycled water. However, it requires coordination with an existing local water purveyor, obtaining a permit from the RWQCB-LR, approval of the project by the California Department of Health Services (DHS), testing of tertiary-treated effluent for at least a year, and a significant quantity of dilution water. If all of the above could be satisfied, it still may not be possible to manage all of the 22.4 mgd generated during the term of this project by groundwater recharge via surface spreading. For example, limitations such as lower permeability than expected or the unavailability of a sufficient or constant source of dilution water could prevent complete or continuous groundwater recharge with recycled water from the PWRP. Therefore, this effluent management alternative could not provide for management of the recycled water produced by the PWRP in the time frame necessary. However, District No. 20 will remain actively involved with other stakeholders in the region interested in developing such a recharge project. See "Analysis of Developing and Implementing a Groundwater Recharge Reuse Project in the Antelope Valley" in Appendix E under a separate cover for a thorough discussion of the time required to implement a groundwater recharge project within the Antelope Valley.

Municipal Reuse

Using recycled water instead of potable water to irrigate parks, school grounds, golf courses, and similar areas could reduce potable water requirements by as much as 14 percent according to a 1997 Reclamation and Feasibility Study Draft Report by Metcalf & Eddy, Inc. The average demand for recycled water for these purposes has been estimated at 7.8 mgd. Since this is less than the projected flow rate of 22.4 mgd in 2025, not all of the recycled water from the PWRP could be managed in this way. Current statutes also require that District No. 20 coordinate a recycled water distribution system with local water purveyors.

District No. 20 has been actively involved with the Antelope Valley Water Reuse Group. This group meets regularly to bring together the various water interests of the region, including the 5th District Los Angeles County Supervisor's Office, Los Angeles County Waterworks District No. 40, the Palmdale Water District (PWD), the City of Palmdale, the City of Lancaster, the Antelope Valley-East Kern Water Agency (AVEK), the Rosamond Community Services District, and Los Angeles County Sanitation Districts Nos. 14 and 20. The purpose of these meetings is to explore options and develop plans for a regional municipal reuse system in the Antelope Valley.

It is feasible that all of the required steps to implement some quantity of municipal reuse could be put in place and coordinated with the facilities proposed in this report. District No. 20 has been actively involved with the Antelope Valley Water Reuse Group since its inception and remains committed to developing municipal reuse projects.

Discharge to Water Body in Antelope Valley

In this scenario, effluent management would be accommodated by discharging the effluent from the PWRP into either a manmade water body or an ephemeral stream within the Antelope Valley. There are many obstacles that would need to be overcome before implementing a project that would discharge recycled water into *waters of the state*. District No. 20 could face difficulties in obtaining a discharge permit, opposition by overlying landowners, flood liability, or potential conflicts with Edwards Air Force Base (EAFB) because of water contributions to the dry lakes. The anticipated length of a required anti-degradation analysis and other studies and the permitting process itself could require years to complete. Therefore, it is not feasible to rely on this alternative for effluent management at this time.

Wetlands

Constructed wetlands could provide sufficient effluent management capacity for the PWRP. However, this

alternative would effectively create a wildlife habitat dependent on the year-round supply of recycled water. Under these circumstances, the recycled water may not be available for diversion to emerging reuse opportunities. In addition, if the wetlands were lined, salts from the effluent would gradually build up and threaten the developing habitat. If unlined, regulatory agencies would likely consider the wetlands as a form of groundwater recharge.

Pump Recycled Water Out of the Antelope Valley

The California Aqueduct and the Santa Clara River are possible destinations for recycled water produced at and pumped from the PWRP. While this alternative would provide adequate effluent management capacity, it would require expensive infrastructure and might be faced with opposition from regulatory agencies and downstream consumers. Moreover, this option would remove recycled water from the Antelope Valley, making it unavailable for emerging reuse opportunities.

Evaporation Ponds

Evaporation ponds would accommodate the wastewater treatment needs of District No. 20 through the year 2025. However, this alternative would require more land than what is needed for agricultural reuse, while providing no reuse benefit. And, as other beneficial reuse projects are developed, these evaporation ponds would be taken out of service and maintained for reserve.

Identification of Feasible Wastewater Treatment and Effluent Management Alternatives

Based on the first-level screening analysis outlined above, two feasible general wastewater treatment alternatives and one effluent management alternative were identified. A second effluent management alternative that could utilize some, but not all, of the recycled water was also identified. Combining the feasible wastewater treatment alternatives from Table ES-1 and the feasible effluent management alternatives from Table ES-2 yields the feasible alternatives described below:

- Primary, Secondary w/NDN, Tertiary, and Disinfection Wastewater Treatment with Solids Processing combined with Agricultural Reuse, Storage Reservoirs, and Partial Municipal Reuse Effluent Management.

- Primary, Secondary w/NDN, Tertiary, Advanced, and Disinfection Wastewater Treatment with Solids Processing combined with Agricultural Reuse, Storage Reservoirs, and Partial Municipal Reuse Effluent Management.

Evaluation of Tertiary and Advanced Treatment With Identified Effluent Management Alternatives

The only difference between the two identified feasible wastewater treatment and effluent management alternatives delineated above is whether tertiary or advanced treatment will be the final treatment stage before disinfection. The advantages and disadvantages between these two alternatives are discussed below.

Agricultural reuse requires primary and secondary treatment. NDN, tertiary treatment, and disinfection are not required to reuse recycled water for agricultural irrigation of non-food crops or for food crop irrigation where there is no contact between the recycled water and edible portion of the crop. However, the additional treatment allows for a significantly greater number of crop choices than are available when irrigating with secondary treated recycled water, and makes it possible to use the recycled water for municipal reuse. Moreover, although tertiary treatment is not specifically required by the RWQCB-LR, it received strong public support during the planning process. Solids processing is required regardless of the specific treatment process employed.

Advanced treatment, consisting of microfiltration followed by reverse osmosis, would cost twice as much as tertiary treatment to construct, operate, and maintain,

and produces a concentrated brine stream that is difficult and costly to manage. The brine stream will consist of 15 to 20 percent of the water treated, which reduces the amount of water than can be reused. In addition, it does not significantly increase the number of reuse opportunities for recycled water. For these reasons, advanced treatment was eliminated as a treatment alternative.

The wastewater treatment and effluent management alternatives are therefore reduced to one:

- Primary, Secondary w/NDN, Tertiary, and Disinfection Wastewater Treatment with Solids Processing combined with Agricultural Reuse, Storage Reservoirs, and Partial Municipal Reuse Effluent Management.

Feasible Alternative Definition

A specific option for secondary treatment must now be identified. The possible types of secondary treatment with NDN that could be installed at the PWRP have been identified as conventional activated sludge (CAS), sequencing batch reactor (SBR), and membrane bioreactor (MBR). These three alternatives are defined below.

- Alternative 1: Primary, CAS w/NDN, Tertiary, and Disinfection Wastewater Treatment with Solids Processing combined with Agricultural Reuse, Storage Reservoirs, and Partial Municipal Reuse Effluent Management.

- Alternative 2: Primary, SBR w/NDN, Tertiary, and Disinfection Wastewater Treatment with Solids Processing combined with Agricultural Reuse, Storage Reservoirs, and Partial Municipal Reuse Effluent Management.

- Alternative 3: Primary, MBR, and Disinfection Wastewater Treatment with Solids Processing combined with Agricultural Reuse, Storage Reservoirs, and Partial Municipal Reuse Effluent Management.

Second-Level Screening of Feasible Alternatives

The feasible alternatives were evaluated and rated on a relative basis according to a set of specific criteria in order to identify the proposed alternative. The criteria used were: (1) environmental impacts; (2) cost-effectiveness; (3) effluent quality; and (4) operational considerations. The results of the screening are shown in Table ES-3, and the reasoning for the evaluation results are presented below.

Environmental Impacts

The impacts to certain environmental resources (e.g., biological, cultural, etc.) are proportional to the amount of land required to implement each alternative. The three alternatives were judged to require approximately the same amount of land area since the secondary with NDN treatment units are compact enough to be constructed on the current plant site. The amount of land required for agricultural reuse would also be the same for each alternative. Therefore, the environmental impact to various resources is the same for each of the three alternatives.

Cost-Effectiveness

Using CAS with tertiary treatment as the baseline, preliminary analyses were conducted to estimate the cost-effectiveness of each wastewater treatment option. The costs are compared for both construction and operation. The SBR with NDN alternative does not require a secondary clarifier, return sludge pumps/piping, or sludge transfer facilities; however, a more complex control system costing more to install and operate is required. It is expected to cost the same or slightly less than the base case. On the other hand, the MBR alternative was estimated to cost approximately 33 percent more than the base case to build and operate. Therefore, Alternatives 1 and 2 are the best options in terms of cost-effectiveness.

Table ES-3
Summary of Second-Level Screening of Feasible Secondary Treatment Alternatives[a]

FEASIBLE ALTERNATIVES	ENVIRONMENTAL IMPACTS	COST-EFFECTIVENESS	EFFLUENT QUALITY	OPERATIONAL CONSIDERATIONS	OVERALL RATING	OVERALL RANKING
Alternative 1 (CAS)	0	0	0	+	**+1**	**1**
Alternative 2 (SBR)	0	0	–	–	**–2**	**3**
Alternative 3 (MBR)	0	–	+	0	**0**	**2**

(a) Comparative ratings are Superior (+), Neutral (0), and Inferior (–).

Effluent Quality

The effluent quality generated by CAS with NDN and tertiary treatment is used as a baseline because it meets all of the identified needs. SBR with NDN and tertiary treatment removes nitrates as efficiently as CAS with NDN but does not reliably reduce particulates to the same degree. The MBR alternative removes nitrates as efficiently as CAS with NDN and removes particulates to a greater degree. Therefore, Alternative 3 is superior with respect to effluent quality.

Operational Considerations

The Districts have extensive experience with the operation and maintenance of CAS with NDN and tertiary treatment facilities. Since the Districts are most familiar with this treatment system, Alternative 1 is considered superior in terms of operational considerations.

Identification of Final Project Alternatives

Based on Table ES-3 and the criteria summarized above, Alternative 1 has been selected as the final project alternative. As required by CEQA, Alternative 1 is compared to a *No Project* alternative. The two final project alternatives to be evaluated are therefore defined as follows:

- No Project.
- Alternative 1: 22.4 mgd of CAS w/NDN and Tertiary Wastewater Treatment with Solids Processing combined with Agricultural Reuse**,** Storage Reservoirs, and Partial Municipal Reuse Effluent Management.

Evaluation of Final Project Alternatives

No Project

CEQA requires lead agencies to consider a *No Project* alternative as a baseline when evaluating project alternatives for which an Environmental Impact Report (EIR) must be prepared. Under the *No Project* alternative, no new facilities would be constructed and the PWRP capacity would be limited to 15.0 mgd. Based on current wastewater flow projections, this capacity is expected to be reached in approximately 2013. Once this capacity is reached, developers of new projects would not be allowed to discharge to the District No. 20 sewerage system and existing dischargers would not be allowed to increase their discharge flow rates.

Furthermore, without additional wastewater treatment and/or effluent management facilities, effluent with elevated nitrogen levels would continue to be discharged to the EMS. This would violate the CDO issued by the RWQCB-LR to District No. 20. For these reasons, the *No Project* alternative was not developed as a feasible project alternative and was dropped from further consideration.

Alternative 1

Under this alternative, District No. 20 would construct treatment facilities to bring the total capacity of the PWRP to 22.4 mgd. The existing 15.0 mgd oxidation

ponds would be replaced by a 22.4 mgd CAS system with NDN. Tertiary filters, disinfection, and solids processing facilities with a capacity of 22.4 mgd would also be added.

Sufficient agricultural reuse operations and storage reservoir capacity would be constructed to manage all treated effluent. This allows for establishing a municipal reuse system utilizing a portion of the treated effluent. In addition, if other dependable recycled water reuse alternatives such as groundwater recharge are implemented during the planning period, the amount of agricultural reuse operations can be further reduced. A pump station and recycled water pipelines to the designated sites would be constructed. The agricultural reuse operations themselves would be conducted by qualified farming entities. In order to accommodate the seasonal fluctuations in recycled water demand, storage reservoirs would also be constructed.

Locations for the gradual construction of EMS infrastructure would be continuously re-evaluated as conditions change. Ultimately, 5,140 acres would be needed for agricultural reuse by the year 2025. Of this total, 2,680 acres would replace the currently leased property and 2,460 acres would provide additional capacity as the PWRP flow rate increases to 22.4 mgd. Approximately 700 acres of land would be needed for the construction of the reservoirs. Of this total, the maximum wetted surface area would be approximately 420 acres. The remaining land would be used to construct berms, pump stations, pipelines, service roads, drainage channels, and buffer zones.

Identification of Proposed Project

The wastewater treatment and effluent management capabilities of the PWRP will be upgraded and expanded to ensure the planning objectives of the PWRP 2025 Plan are met. Because the *No Project* alternative does not satisfy these objectives, it is not considered feasible. Alternative 1 is the proposed project and consists of the components described below:

- Primary facilities consisting of grit channels, comminutors, sedimentation tanks, and ancillary facilities would be expanded from the current capacity of 15.0 mgd to 22.4 mgd;
- Secondary facilities consisting of oxidation ponds with a capacity of 15.0 mgd would be decommissioned, and upgraded and expanded secondary facilities consisting of CAS w/NDN with a capacity of 22.4 mgd would be constructed;
- Tertiary treatment facilities consisting of filters with a capacity of 22.4 mgd would be constructed;
- Permanent disinfection facilities would be constructed with a capacity of 22.4 mgd;
- Solids management facilities consisting of digesters, mechanical dewatering, and truck loading equipment would be constructed or expanded from a capacity of 15.0 mgd to 22.4 mgd;
- Storage reservoirs consisting of a wetted surface area of 420 acres on 700 acres of land, including pump stations, a water tank, and distribution piping, would be constructed;
- Agricultural reuse facilities currently consisting of 2,680 acres of farmland may be expanded to approximately 5,140 acres of farmland; and
- Municipal reuse will commence if all of the requirements (agreement with water purveyor(s), environmental documentation, permitting, and design and installation of distribution facilities) can be completed within the planning period.

PROPOSED PROJECT SUMMARY

The major components of the proposed project are wastewater treatment facilities, effluent management facilities, and agricultural and municipal reuse with the potential for integration of groundwater recharge. Some processes of the wastewater treatment and effluent

management facilities will be constructed to upgrade the treatment and effluent management level currently provided at the PWRP. For other processes, facilities will be expanded from 15.0 mgd to 22.4 mgd. These changes will be performed in stages, as described below.

Stage V

Stage V involves upgrading the existing 15 mgd wastewater treatment facilities by decommissioning the existing oxidation ponds and installing CAS with NDN and tertiary treatment filters. Expansion to 22.4 mgd will be constructed separately as Stage VI. The agricultural reuse capacity of the PWRP would be expanded to 15.0 mgd by securing the use of 840 acres of land for agricultural reuse operations and constructing storage reservoirs. District No. 20 will continue to seek municipal, industrial, and other public reuse opportunities for recycled water throughout the Stage V upgrade and expansion period, which would lessen the extent of agricultural reuse operations.

Wastewater Treatment Facilities

The proposed Stage V upgrade includes construction of facilities to upgrade the treatment capability of secondary treatment utilizing oxidation ponds with the installation of flow equalization, CAS aeration tanks, sedimentation tanks, and dissolved air flotation (DAF) units. Additional upgrades will be accomplished by: (1) installing tertiary treatment facilities consisting of tertiary filters and chemical treatment facilities, (2) expanding solids processing facilities by adding mechanical dewatering facilities, and (3) constructing related facilities, such as an emergency generator, control and laboratory buildings, and associated piping and appurtenant structures. The existing PWRP headworks and primary treatment facilities will remain in service, as will the existing solids processing equipment. As noted previously, the existing 15.0 mgd-capacity oxidation ponds will be decommissioned.

The CAS process will be operated in NDN mode to increase the removal of nitrogen from the wastewater. Following the Stage V upgrades, the PWRP will produce treated effluent that will meet all the prescribed DHS standards for the beneficial reuse of tertiary-treated recycled water.

The existing PWRP site has land available for all of the proposed treatment facilities. The new facilities for Stage V will be positioned next to the existing primary facilities on the southwest portion of the PWRP property at 30th Street East and Avenue P-8. A detailed layout of the proposed Stage V wastewater treatment facilities is shown in Figure ES-7.

Effluent Management Facilities

Stage V will include securing the use of approximately 840 acres of additional land that will be needed to accommodate the 15.0 mgd flow projected by the year 2013. A new plant effluent force main (approximately 36 inches in diameter), a plant effluent pump station, an agricultural recycled water pump station, an agricultural recycled water force main, and an agricultural recycled water storage tank will be constructed to convey recycled water to the proposed storage reservoirs and agricultural reuse sites. The new agricultural reuse areas will require irrigation systems (e.g., center pivots), booster pumps, electrical sources, ancillary piping and conduit, a water tank, and appurtenant structures.

As plant flow rates increase and exceed the capacity of the existing EMS with storage reservoirs on-line, additional agricultural reuse land will be developed. District No. 20 or contracted farming entities will be responsible for preparing the land, installing distribution lines and irrigation systems, and cultivating and harvesting crops in conformance with Title 22 of the California Code of Regulations (CCR). Agronomic irrigation rates will be used to protect groundwater quality. District No. 20 will prepare a recycled water reuse engineering report and obtain a recycled water reuse permit for the agricultural operations from the RWQCB-LR.

District No. 20 may also elect to enter into recycled water reuse contracts with farming entities on privately-owned land. However, reliance on these types of contracts does not provide the assurance that adequate and cost-effective effluent management capacity will be available at all times. Secured use of land by District No. 20 for agricultural operations and ongoing support of municipal, industrial, and other public reuse opportunities are the best ways to ensure that District No. 20 can meet its legal obligations under the WDRs.

For Stages V and VI, approximately 700 acres are needed to construct six reservoirs with a storage capacity of 2,310 million gallons (MG). District No. 20 will acquire the land necessary for all six reservoirs, although only four need to be constructed during this stage. The new storage reservoirs will be rectangular and/or trapezoidal modules, each having a capacity of approximately 385 MG. They will have a water depth of approximately 18 feet with approximately three feet of freeboard. The top of the reservoir berms will range from 14 to 24 feet above grade. The storage reservoirs will be constructed with a low-permeability synthetic liner to minimize infiltration.

Stage VI

Stage VI involves expanding both wastewater treatment and effluent management facilities to accommodate the projected increase in wastewater flow from 15.0 mgd to 22.4 mgd. District No. 20 will continue to seek municipal, industrial, and other reuse opportunities for recycled water throughout the Stage VI expansion period.

Wastewater Treatment Facilities

Construction of the Stage VI wastewater treatment components will not require acquisition of additional land. The current PWRP site located at 30th Street East and Avenue P-8 is large enough to accommodate the proposed wastewater treatment facilities.

The major wastewater treatment facilities planned for construction by 2013 as part of the Stage VI expansion from 15.0 mgd to 22.4 mgd include: (1) primary facilities consisting of influent pumps, comminutors, aerated grit channels, a grit channel blower, primary sedimentation tanks, primary sludge pumps, and a primary sludge grinder; (2) secondary facilities consisting of CAS aeration tanks, sedimentation tanks, and return and waste-activated sludge pump stations, and associated piping and appurtenant structures; (3) tertiary facilities consisting of tertiary filters and chemical pretreatment; (4) appropriate disinfection facilities; and (5) solids processing facilities consisting of an anaerobic digestion tank, a digested solids transfer pump, a ferrous chloride station, mechanical dewatering, supernatant pump, and appropriate piping and appurtenant structures. The locations of the proposed wastewater treatment and solids handling facilities are illustrated in Figure ES-8.

Effluent Management Facilities

As plant flows increase throughout the planning period, additional agricultural reuse operations will be developed as necessary to manage the increased volume of recycled water produced. Two additional storage reservoirs will be constructed as part of Stage VI. These reservoirs will be similar to those constructed in Stage V and will be constructed at the location of the four reservoirs constructed as a part of Stage V or at the location of the decommissioned oxidation ponds near the intersection of 40th Street East and Avenue O-8. Since District No. 20's lease agreement with LAWA will expire in 2022 and may not be renewed, approximately 4,300 acres of additional agricultural land could be required in Stage VI to accommodate the projected 22.4 mgd of PWRP flow by 2025.

Municipal Reuse

Members of the Antelope Valley Water Reuse Group have expressed interest in implementing recycled water reuse projects for landscape irrigation and industrial purposes within their jurisdictions. District No. 20 has committed to provide a sufficient quantity of

tertiary-treated recycled water to meet the demands of these municipal reuse projects.

Building the infrastructure (pipelines, pump stations, distribution systems, etc.) necessary to deliver recycled water from the PWRP to various end users, identifying and securing reuse sites, and preparing environmental documentation would not be the responsibility of District No. 20. District No. 20, on its part, will assure the availability of tertiary-treated recycled water to meet emerging municipal reuse needs by diverting water from agricultural reuse when other beneficial uses become available.

In addition, District No. 20 intends to work with the RWQCB-LR to secure a master recycled water reuse permit for the PWRP to allow for uses of recycled water that are widely accepted and implemented as appropriate uses of recycled water with minimal or no impacts to receiving water.

Proposed Project Site Selection

The proposed project requires the development of up to approximately 5,140 acres of land for agricultural reuse and 700 acres for storage reservoirs in order to manage 22.4 mgd of recycled water by the year 2025.

Siting of Wastewater Treatment Facilities

The proposed project calls for the decommissioning of all oxidation ponds, so there will be additional space available to the east of the primary facilities for future plant expansions. The property at 30th Street East and Avenue P-8 can accommodate all necessary wastewater treatment and solids processing facilities through the year 2025. Therefore, no additional land is required to site these facilities.

General Siting of Agricultural Reuse Facilities and Storage Reservoirs

The initial survey area for Agricultural Reuse Facilities and Storage Reservoirs included a search within a 15-mile radius (over 700 square miles) surrounding the location of the PWRP, which is located at 30th Street East and Avenue P-8 in an unincorporated area of the county. From this initial survey area, a 36,000-acre area was deemed suitable. This area is bounded by the Little Rock and Big Rock Washes to the west and southeast, respectively; the community of Littlerock to the south; Alpine and Lovejoy Buttes to the east; steep terrain to the northeast; and areas previously investigated as part of the LWRP 2020 Plan and EIR to the north.

Study Area Designations and Screening Criteria

The initial study area was subdivided into Agricultural Reuse Study Areas Nos. 1 through 6 and Storage Reservoir Study Areas Nos. 1 through 3 to facilitate further evaluation. As shown in Figure ES-9, each of these Agricultural Reuse and Storage Reservoir Study Areas encompasses approximately 6,000 acres and 1,400 acres respectively. The criteria used in comparing the study areas included: (1) environmental impacts, (2) soil suitability, (3) public impacts, (4) operational considerations, and (5) cost-effectiveness. Information on each of the study areas under consideration was gathered through a variety of sources and verified through field surveys. Each of the criteria is discussed in more detail below.

- *Environmental Impacts*

  Several factors were considered when determining the environmental impacts of siting agricultural reuse and storage reservoirs within each study area. Information from the California Natural Diversity Database (CNDDB) and field studies conducted by biologists were used to characterize and rate the value of biological resources. Joshua tree woodlands were also mapped out since they are an indication of lands that have not been disturbed. Pre-disturbed locations were identified, including existing current agricultural operations.

  The biological survey concluded that the potential for valuable habitat of threatened or endangered species exists throughout each of the study areas.

However, in general, biological value increases in areas that are not currently farmed. The actively farmed areas are concentrated in Agricultural Reuse Study Areas Nos. 1 and 3 and the western portions of Agricultural Reuse Study Areas Nos. 2 and 4.

- *Soil Suitability*

  District No. 20 commissioned a geotechnical investigation within the study areas to determine soil suitability. The investigation covered the suitability of land for siting agricultural reuse and storage reservoirs.

  The most important factors in determining the suitability of land for agricultural operations are soil conditions and susceptibility to wind erosion. Soil data collected and maintained by the United States Department of Agriculture National Resources Conservation Service (NRCS) was used to evaluate the ability of the land to sustain farming operations. According to the NRCS, soil conditions throughout each of the study areas will sustain agricultural operations. The majority of soils within the study areas are susceptible to wind erosion. Hazards associated with wind erosion include crop damage during dust storms and, to a lesser extent, transport of topsoil. Because these soil types are common throughout the initial survey area, including the existing agricultural reuse site where the soil has proven very conducive for farming, this issue was not a factor in evaluating the location of future agricultural operations.

  The most important factor for determining the suitability of land for storage reservoirs is liquefaction potential. The Storage Reservoir Study Areas were evaluated using soil data available through the California Department of Conservation. Based on this analysis, the highest potential for liquefaction occurs within Little Rock Wash, Big Rock Wash, and an area along the eastern extent of Storage Reservoir Study Area No. 2.

- *Public Impacts*

  Extensive research was conducted to determine the location of existing structures (including residences) and neighborhoods within each study area in order to minimize impacts to the community as a result of implementing the proposed project.

  Aerial imagery, combined with an extensive site survey, were used to locate and identify all improvements on the land within each of the six study areas. This included everything from well-established communities to abandoned farming structures. The number and condition of structures located in the study areas was used in the screening criteria.

- *Operational Considerations*

  The proximity of agricultural reuse and storage reservoirs to the PWRP is an important operational consideration. The proposed storage reservoirs will be operated and maintained by District No. 20. Although the agricultural operations will be managed through contracts and/or lease agreements with farming entities, the pumps, piping, electrical, and other facilities required to deliver recycled water to the agricultural areas will be operated and maintained by District No. 20. Furthermore, it is highly desirable to consolidate agricultural operations and storage reservoirs into one contiguous area. Closer, consolidated systems are easier to construct, operate, and maintain in an efficient and cost-effective manner.

- *Cost-Effectiveness*

  Two major considerations affecting the cost of implementing agricultural reuse operations and constructing storage reservoirs include land acquisition and site preparation. Land acquisition costs within each of the study areas is primarily influenced by the number and size of parcels and the types of improvements that have been made on

Table ES-4
Screening of Agricultural Reuse Siting Alternatives

STUDY AREA	ENVIRONMENTAL IMPACTS	SOIL SUITABILITY	PUBLIC IMPACTS	OPERATIONAL CONSIDERATIONS	COST-EFFECTIVENESS	TOTAL
1	+	0	–	–	–	**-2**
2	0	0	–	–	0	**-2**
3	+	0	–	0	–	**-1**
4	0	0	0	–	0	**-1**
5	0	0	0	+	0	**+1**
6	0	0	+	0	+	**+2**

properties. Site preparation includes removing existing structures and facilities, clearing the land, grading, and construction of facilities. Generally, sites that have been pre-disturbed are easier to prepare for agricultural operations and, therefore, are preferable over others. Existing agricultural operations were carefully noted as they present an investment in capital by farming interests, making them more expensive to acquire. District No. 20 hired an independent appraisal firm to determine costs associated with land acquisition for each of the study areas. The results of the appraisal are used in ranking each of the study areas based on cost.

Evaluation of Agricultural Reuse Sites

Table ES-4 summarizes the evaluation of each Agricultural Reuse Study Area using the screening criteria discussed above. This evaluation is qualitative in nature, with "+" to designate favorable conditions, "0" to designate neutral conditions, and "-" to designate unfavorable conditions. Based on Table ES-4, Agricultural Reuse Study Area No. 6 was found to be superior to the other alternatives. However, the total acreage available within Study Area No. 6 that is entirely within LAWA has been reduced due to comments received by USAF Plant 42 stating areas between Avenue M and N need to be avoided for flight safety. This reduces the total acreage below what is needed for effluent management by 2025. The second highest-ranked location was found to be Agricultural Reuse Study Area No. 5. Therefore, the highest-ranked alternative will include additional land from Agricultural Reuse Study Area No. 5 to make up the difference.

Evaluation of Storage Reservoir Sites

Table ES-5 summarizes the evaluation of each storage reservoir study area using the screening criteria discussed above. This evaluation is qualitative in nature, with "+" to designate favorable conditions, "0" to designate neutral conditions, and "-" to designate unfavorable conditions. Based on Table ES-5, Storage Reservoir Study Areas Nos. 1 and 2, both of which are located on LAWA-owned property, were ranked first and second, respectively.

Selection of Agricultural Reuse Operation and Storage Reservoir Locations

Based on the screening criteria, Agricultural Reuse Study Area No. 6 and Storage Reservoir Study Area No. 1 were identified as the highest ranked alternatives for agricultural reuse and storage reservoirs. Both are located entirely on land owned by LAWA. However, attempts to negotiate with LAWA on acquiring this land have been unsuccessful, which makes it unavailable for meeting the objectives of the plan. Agricultural Study Area No. 5 and Storage Reservoir Study Area No. 3 (shown in Figure ES-10) are the highest ranked alternatives that are available for use, making them the proposed project locations. If the opportunity to utilize land owned by LAWA in Agricultural Study Area No. 6 or Storage Reservoir Areas Nos. 1 or 2 presents itself, District No. 20 would reconsider its use.

Table ES-5
First-Level Screening of Storage Reservoir Siting Alternatives

STUDY AREA	ENVIRONMENTAL IMPACTS	SOIL SUITABILITY	PUBLIC IMPACTS	OPERATIONAL CONSIDERATIONS	COST-EFFECTIVENESS	TOTAL
1	0	0	+	0	0	**+1**
2	+	–	+	--	0	**0**
3	0	0	0	–	–	**-2**

The proposed project (shown in Figure ES-10) includes acquiring approximately 5,140 acres of land within Agricultural Reuse Study Area No. 5, which will be phased according to the needs described in Stages V and VI. District No. 20 currently has a lease for use of 2,680 acres of LAWA-owned property.

However, 3,520 acres of land are needed to support agricultural reuse operations through Stage V. Therefore, an additional 840 acres of land is needed to accommodate all flows anticipated for Stage V. Up to 4,300 acres of additional land could be needed to accommodate all flow anticipated for Stage VI.

Seasonal storage is a necessary component of the proposed project in order to provide for year-round irrigation of crops at agronomic rates. Approximately 700 acres of land are needed to construct six storage reservoirs and appurtenances, including the solids handling area, to meet District No. 20's needs through 2025. Land needed for storage reservoirs will be acquired on land in Storage Reservoir Study Area No. 3.

Project Implementation and Schedule

As described above and shown in Figure ES-11, the proposed project will be implemented in two stages. The Stage V storage reservoirs must be completed by October 2008, and the Stage V wastewater treatment upgrade and effluent reuse expansion must be completed by November 2009. District No. 20 will make every reasonable effort to comply with the schedule mandated by the RWQCB-LR. However, the milestones require completion of various actions by other entities that District No. 20 cannot control. Therefore, District No. 20 has taken appropriate steps to appeal the unrealistically short deadlines specified in the CDO. The Stage VI wastewater treatment and effluent management expansions are both scheduled to be completed by the year 2013 based on the SCAG 2004 population projections.

Phased construction will allow District No. 20 to re-evaluate the planned facilities and other options for effluent management between the two stages and determine whether any adjustments should be made. Adjustments may be needed to respond to any changes in wastewater flow projections or to new municipal, industrial, and other public recycled water reuse applications that emerge. If the projected wastewater flow rate during the planning period does not materialize as anticipated, the construction of the Stage VI facilities will be delayed accordingly. Alternatively, if the population in the planning area increases more rapidly than projected, the construction of the Stage VI facilities will likewise be accelerated. This approach will allow District No. 20 to integrate future recycled water reuse opportunities that may become feasible in subsequent phases of the project. The implementation schedules for Stages V and VI are provided in Figures ES-11 and ES-12, respectively.

Project Cost

The cost of the proposed project has been estimated as both a total capital cost and as an equivalent annual

Table ES-6
Capital Cost Breakdown of the Proposed Project[a,b]

PROJECT COMPONENT	PWRP		
	STAGE V	STAGE VI	TOTAL
Preliminary - Influent Pump Station	--	$2,640,000	$2,640,000
Preliminary - Odor Control Stations	--	$2,750,000	$2,750,000
Primary - Comminutors, Aerated Grit Channels	--	$550,000	$550,000
Primary - Sedimentation Tanks	--	$7,260,000	$7,260,000
Primary – Effluent Equalization Basins	--	$3,850,000	$3,850,000
Secondary - Aeration Tanks, Return Activated Sludge	$32,780,000	$8,030,000	$40,810,000
Secondary - Sedimentation Tanks, Waste Activated Sludge	$9,680,000	$3,410,000	$13,090,000
Secondary – DAF Tanks	$2,530,000	--	$2,530,000
Secondary - Chemical Stations	$770,000	$440,000	$1,210,000
Secondary – Effluent Equalization Basins	$3,960,000	--	$3,960,000
Tertiary - Filters, Pumps, Backwash Recovery	$12,210,000	$3,960,000	$16,170,000
Tertiary (Disinfection) - Chlorine Contact Tanks	$5,940,000	$1,430,000	$7,370,000
Tertiary (Disinfection) – Chlorination	$1,100,000	$220,000	$1,320,000
Solids Processing - Digestion Tanks	$6,820,000	$3,300,000	$10,120,000
Solids Processing – Dewatering	$4,400,000	$2,200,000	$6,600,000
Solids Processing – Truck Loading Station	$770,000	--	$770,000
Laboratory, Control, and Maintenance Buildings	$2,420,000	--	$2,420,000
Standby Electrical Generation Facility	$2,200,000	$1,100,000	$3,300,000
Effluent Management - Plant Effluent Pump Station	$2,420,000	$880,000	$3,300,000
Effluent Management - Plant Effluent Force Main	$9,680,000	--	$9,680,000
Effluent Management - Storage Reservoirs	$26,400,000	$12,540,000	$38,940,000
Effluent Management - Agricultural Recycled Water Pump Station	$3,300,000	$1,210,000	$4,510,000
Effluent Management - Agricultural Recycled Water Force Main	$1,100,000	$6,600,000	$7,700,000
Effluent Management - Agricultural Recycled Water Storage Tank	$1,100,000	--	$1,100,000
Effluent Management – Agricultural Site Development	$5,250,000	$17,065,000	$22,315,000
Effluent Management – Storage Reservoir Site Development	$2,925,000	--	$2,925,000
Land - Storage Reservoirs	$4,532,000	--	$4,532,000
Land - Agricultural Operations	$5,439,000	$27,843,000	$33,282,000
Land - Acquisition Services	$1,653,000	$8,459,000	$10,112,000
Land - Relocation Expenses	--	$3,454,000	$3,454,000
Contingency for Environmental Mitigation	$1,000,000	$2,000,000	$3,000,000
TOTAL CAPITAL COSTS	$150,379,000	$121,191,000	$271,570,000

(a) 2005 dollars.
(b) All costs, except land, land acquisition services, relocation expenses, and contingency for mitigation, include 10 percent for design.

cost. Table ES-6 shows the capital cost breakdown of the proposed project for Stage V, Stage VI, and the total project. Table ES-7 shows the equivalent annual project cost. This is comprised of the annualized capital cost and the anticipated annual operation and maintenance (O&M) cost. Although the project costs will be incurred in future years, all amounts contained in the following tables are expressed as 2005 dollars.

Revenue Program

The Revenue Program provides for the equitable distribution of the costs associated with providing wastewater services to both existing and future users of the wastewater system. The Revenue Program is used to determined what revenue is required to provide sufficient funds for construction and subsequent O&M of facilities.

The Revenue Program of District No. 20 is based on maximum utilization of the existing sources of revenue, supplemented by revenues from (1) the Service Charge Program, which is applicable to existing users; and 2) the Connection Fee Program, which applies to new users and existing users who significantly increase their discharge flow and/or strength. In order to prevent a large fluctuation in the service charge rates from year to year, District No. 20 plans to utilize outside financing to the maximum extent possible to distribute the capital costs of projects over an extended period of time. It is anticipated that financing will be composed of both SRF loans, to the maximum extent available, and revenue bonds.

If the proposed project was to be funded on a pay-as-you-go basis, the cost would have to be borne by the existing users and would be cost prohibitivefor many homeowners. However, with the use of outside financing, District No. 20 will be able to distribute the project cost over 20 to 30 years, significantly reducing the immediate impact on system users.

Service Charge and Connection Fee Rates

The current service charge rate is $131 per year per single family home. A previously approved rate increase will raise this rate to $161 per year per single family home in July 2006. A large component of this rate increase was needed to completely fund the groundwater cleanup program approved by the RWQCB-LR in April 2005. District No. 20 has taken the lead in financing all the groundwater remediation efforts so far, but believes LAWA is financially responsible to share in the costs. The Draft 2025 Plan and EIR projected the need to increase the service charge rate over several years to approximately $280 per year. However, the Final 2025 Plan and EIR has a higher capital cost due to higher construction costs and the need to acquire more expensive privately held land. The service charge rate required to fund this project remains uncertain and is dependent on the cost of purchasing private land or securing land from LAWA, and resolution of LAWA's responsibility for groundwater cleanup. District No. 20 is committed to set the service charge rate to sufficiently fund the proposed project.

Table ES-7
Equivalent Annual Cost of the Proposed Project[a]

PROJECT COMPONENT	PWRP		
	STAGE V	STAGE VI	TOTAL
Treatment and Effluent Management Facilities	$85,580,000	$41,140,000	$126,720,000
Land Acquisition	$11,624,000	$39,756,000	$51,380,000
Agricultural Site Development	$22,850,000	$25,755,000	$48,605,000
Storage Reservoir Site Development	$29,325,000	$12,540,000	$41,865,000
Contingency for Environmental Mitigation	$1,000,000	$2,000,000	$3,000,000
Total Capital Cost	$150,379,000	$121,191,000	$271,570,000
Annualized Capital Cost[b]	$13,783,670	$11,108,311	$24,891,981
Annual O&M Cost[c]	$5,447,625	$2,687,495	$8,135,120
EQUIVALENT ANNUAL COST	$19,231,295	$13,795,806	$33,027,101

(a) 2005 dollars.
(b) Amortized at 6.625 percent annual interest rate for 20 years.
(c) Based on 15.0 mgd for Stage V facilities, 7.4 mgd for Stage VI facilities, and 22.4 mgd for Total facilities.

The current connection fee rate is $2,720 per single family home. A previously approved rate increase will raise the rate to $3,190 in July 2006. The Draft 2025 Plan projected the need to increase the connection fee to approximately $5,100 per single family home. It is anticipated that this rate will increase even further due to higher construction costs estimated in the Final 2025 Plan and the need to acquire privately held land. The connection fee rate required to fund this project will not be known until the cost of purchasing land to site effluent management facilities is determined. District No. 20 is committed to set the connection fee rate to sufficiently fund the proposed project.

ENVIRONMENTAL IMPACT REPORT

California Environmental Quality Act Process Overview

The basic objectives of CEQA are to (1) inform governmental decision-makers and the public about potentially significant environmental effects of proposed projects; (2) identify ways that environmental damage can be avoided or significantly reduced; (3) prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures; and (4) disclose to the public the reasons why a governmental agency approved the project if significant environmental effects are involved. The EIR within the Final PWRP 2025 Plan and EIR was prepared to comply with CEQA regulations. A draft version was prepared in April 2005 to be used by local regulators and the public in their review of the potential environmental impacts of the proposed project, alternatives, and mitigation measures that will minimize, avoid, or eliminate the environmental impacts. The draft document was circulated to local, state and federal agencies, and to interested organizations and individuals during a 45-day public review period. Responses to comments received have been incorporated into the Final PWRP 2025 Plan and EIR.

Scope of Environmental Impact Report

The EIR within the PWRP 2025 Plan and EIR evaluates potential environmental effects associated with construction and operation of the proposed project. The EIR also evaluates potential impacts of constructing storage reservoirs within three distinct Storage Reservoir Study Areas and evaluates the potential impacts of converting land to agricultural uses within two large Agricultural Study Areas. The PWRP 2025 Plan and EIR provides an evaluation of the significance of potential impacts based on identified significance thresholds. Impacts are found to be either beneficial, less than significant, potentially significant but reduced to less than significant with the implementation of mitigation measures, or significant and unavoidable.

Known Areas of Controversy

CEQA requires that EIRs provide brief disclosures of any controversial issues pertaining to the project. No major controversial issues were raised during the scoping process. Potentially controversial issues of the project could include acquisition of land required to site an adequate amount of agricultural reuse and storage capacity for the proposed effluent management system. District No. 20 is in the process of complying with the RWQCB-LR CAO and CDO to abate the nitrate concentrations above the Maximum Contaminant Level within the groundwater near the existing effluent management site. The PWRP 2025 Plan and EIR assists in alleviating this controversial issue.

Environmentally Superior Alternative

CEQA requires that an EIR identify the environmentally superior alternative of a project. The PWRP 2025 Plan and EIR evaluates six treatment alternatives and eight effluent management alternatives. Of the six treatment alternatives, advanced treatment would be considered the environmentally superior

alternative if the only consideration was the highest quality water. However, the excessive energy requirements, costs associated with advanced treatment process, and loss of water as brine pose substantial constraints to the alternative. Chapter 6 of the PWRP 2025 Plan and EIR concludes that tertiary treatment produces high quality water that would be adequate for most effluent management alternatives using substantially less energy and at a lower cost. For these reasons, the proposed treatment alternative is tertiary treatment.

Of the eight effluent management alternatives evaluated by District No. 20, the groundwater recharge alternative would be considered the environmentally superior alternative, since it would augment the groundwater supply while avoiding the substantial effects of land conversion. However, there would be additional impacts associated with construction of facilities to convey blending water to the recharge sites with the groundwater recharge alternative.

The groundwater recharge alternative would be superior to the land application alternative since the infiltrating water quality would be higher. Otherwise, the land application alternative would be similar to the groundwater recharge alternative, since it would avoid the land conversion impacts while augmenting the groundwater supply, although to a lesser degree, through incidental recharge. In addition, the land application alternative would avoid construction impacts associated with the proposed project and the groundwater recharge alternative.

The combined agricultural reuse and municipal reuse alternatives (the proposed project) would require conversion of a large area of open space. As discussed in Chapter 6, the agricultural reuse and municipal reuse alternative is the proposed project since it provides the most reliable means of meeting project objectives including the time schedule requirements of the CAO and CDO.

The alternative to discharge to a water body in the Antelope Valley could be incompatible with existing and planned land uses within or near the water body and could degrade groundwater quality. The groundwater recharge alternative is environmentally superior to this alternative since it would provide higher water quality and would avoid potential incompatible land uses.

The wetlands alternative would potentially be incompatible with existing and planned land uses within or near the wetland and could degrade groundwater and surface water quality. The groundwater recharge alternative is environmentally superior to this alternative since it would provide higher water quality and would avoid potential incompatible land uses.

The alternative to pump water out of the Antelope Valley would likely result in substantial construction effects for pump station construction, tunneling, or pipeline construction. In addition, pumping water out of the valley would require substantial energy usage. Furthermore, the alternative would result in a net loss of water resources to the region.

The evaporation pond alternative would require substantial land conversion that would result in significant construction air emissions. Furthermore, evaporation ponds would not augment groundwater supplies or conserve water via reuse.

The No Project alternative would avoid the construction and operations related impacts. However, the No Project alternative would result in potential impacts to groundwater quality, public services, and public health.

Impacts Associated With the Proposed Project

The PWRP 2025 Plan EIR assesses impacts for both construction and operational activities and identifies mitigation measures to avoid or reduce impacts. The proposed project would cause three significant and unavoidable impacts:

- Construction air emissions during the construction of project facilities;
- Cumulative impact to biological resources in the region resulting from the destruction of natural habitat and to air quality since the existing condition is already significantly impacted; and
- Secondary effects of growth.

The following sections summarize potential impacts of the PWRP 2025 Plan proposed project.

Land Use/Agricultural Resources

Less than significant effects of the project were identified including compatibility of the project with the planned Significant Ecological Area and with the existing and future airport operations in the project vicinity.

Aesthetics

Storage reservoirs and conversion of open space to agriculture would change the character of existing land uses. This would be considered less than significant.

Cultural Resources

Construction could encounter archaeological and paleontological resources during ground disturbing activities. This would be considered a less than significant impact with mitigation.

Biological Resources

Construction activities could directly affect sensitive species or could eliminate desert habitats that provide foraging or nesting habitat for sensitive species. Mitigation measures are provided to minimize impacts to biological resources to less than significant levels. However, the project's contribution to the regionally significant loss of natural habitats would be considered a cumulatively significant and unavoidable impact of the project.

Transportation

Construction and project operations would not significantly affect traffic in the project area. This impact would be less than significant.

Hydrology and Water Quality

Construction activities would increase the potential for soil erosion into local drainages. In addition, effluent could affect groundwater quality due to infiltration from storage reservoirs and agricultural sites. Also, improperly abandoned groundwater wells could provide a conduit for applied effluent to reach the groundwater table. Placing impoundments within the floodplain would increase the potential for localized flooding. Each of these impacts would be mitigated to less than significant levels.

Geology Hazards and Soils/Mineral Resources

Construction activities and agricultural operations would increase the potential for soil erosion. Seismic impacts would affect the design of the proposed new facilities. In addition, application of treated effluent onto agricultural lands could increase soil salinity. Each of these impacts would be mitigated to less than significant levels.

Air Quality and Odor

Construction would temporarily increase emissions of nitrogen oxides and PM_{10} (particulate matter less than 10 microns in diameter) above thresholds of significance identified by the Antelope Valley Air Quality Management District. This would be considered a significant and unavoidable impact of the project. Construction emissions of other criteria pollutants would be less than significant with mitigation. Operational emissions of criteria pollutants associated with treatment would also increase slightly but not significantly. Agricultural operations would increase PM_{10} emissions in the region. Implementation of best management practices would reduce the severity

of these potential effects below levels of significance. However, the project's contribution to the significantly degraded air quality in the region would be considered a cumulatively significant and unavoidable impact of the project.

Noise

Construction would temporarily increase noise in the vicinity of the project. Project operations could increase noise near the treatment plant. These impacts would be considered less than significant with mitigation.

Public Services and Utilities

Operation of the project would slightly increase demand for disposal capacity for biosolids. This would be considered a less than significant impact.

Recreational Facilities

The project would have no effect on local recreational facilities.

Population and Housing/Secondary Effects of Growth

The project may displace residents in a localized area if land is acquired for conversion to agricultural uses. The project would be growth-accommodating and therefore would allow for the secondary effects of growth to air quality, biology, cultural resources, transportation, energy, water resources, and noise. This would be considered a significant and unavoidable impact of the project.

Hazardous Materials

The project would slightly increase the quantity of stored chemicals. This would be considered a less than significant impact.

Public Health

The project would comply with DHS and RWQCB-LR requirements for the treatment and disposal of recycled water. This would be considered a less than significant impact.

Summary of Impacts and Mitigation Measures

The PWRP 2025 Plan EIR assesses impacts for both construction and operational activities and identifies mitigation measures to avoid or reduce impacts. Table ES-8 summarizes the identified impacts and proposed mitigation measures.

Table ES-8
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
9.0 Land Use/Agricultural Resources`		
Impact 9-1: Implementation of the proposed project would convert land to effluent management facilities.	**Mitigation Measure 9-1:** District No. 20 shall avoid constructing storage reservoirs or converting land to agriculture within Significant Ecological Area No. 49 or No. 52.	Less than significant.
Impact 9-2: Portions of the proposed project would be located within the proposed Antelope Valley Significant Ecological Area**.**	No mitigation measures are required.	Less than significant.
Impact 9-3: Construction of wastewater treatment facilities and effluent management facilities could conflict with existing and future plans to convert the LAWA property into a regional or international airport.	No mitigation measures are required.	Less than significant.
10.0 Aesthetics		
Impact 10-1: Implementation of agriculture, storage reservoirs, and new treatment facilities could alter the character of the project area. In addition, the new storage reservoirs could block views from local roadways.	No mitigation measures are required.	Less than significant.
11.0 Cultural Resources		
Impact 11-1: Construction of treatment facilities, pipelines and storage reservoirs, and the conversion of open space to agriculture could result in damage to previously unidentified buried archaeological and/or human remains.	**Mitigation Measure 11-1:** For areas outside the previously surveyed Los Angeles World Airport property, an adequate cultural resources inventory designed to identify potentially significant resources shall be conducted where activities are proposed that have the potential to impact cultural resources. **Mitigation Measure 11-2:** If feasible, impacts on identified cultural resources including prehistoric and historic archaeological sites, human remains, and historical buildings and structures should be avoided. Methods of avoidance may include, but not be limited to, project re-route or re-design or identification of protection measures such as capping or fencing.	Less than significant.

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Mitigation Measure 11-3: If ground-disturbing activities that have the potential to impact archaeological remains will occur in an area that has been determined by a qualified archaeologist to be an area that is sensitive for the presence of buried archaeological remains, a qualified archaeologist shall be retained to monitor those activities. Archaeological monitoring shall be conducted in areas where there is a strong likelihood that archaeological remains may be discovered but where those remains are not visible on the surface. The archaeologist on site shall determine the course of the monitoring depending on the circumstances posed by the project. Monitoring by Native Americans may also be required if burials or sacred lands are suspected to be present. Monitoring shall not be considered a substitute for efforts to identify and evaluate cultural resources prior to the project initiation. **Mitigation Measure 11-4:** If it is infeasible to avoid impacts on archaeological sites that have been determined to be eligible for listing on the California Register of Historical Resources or the National Register of Historic Places, additional research including, but not necessarily limited to, archaeological excavation shall be conducted. This work shall be conducted by a qualified archaeologist (per 36 CFR Part 61) and shall include preparation of a research design, additional archival and historical research, archaeological excavation, analysis of artifacts, features, and other attributes of the resource, and preparation of a technical report documenting the methods and results of the investigation. The purpose of this work is to recover a sufficient quantity of data to compensate for damage to or destruction of the resource. The procedures to be employed in this data recovery program will be determined in consultation with responsible agencies and interested parties, as appropriate. **Mitigation Measure 11-5:** In the event that any prehistoric or historic subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project proponent and/or lead agency shall consult with a qualified archaeologist or paleontologist to assess the significance of the find. If any find is determined to be significant,	

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	representatives of the project proponent and/or lead agency and the qualified archaeologist and/or paleontologist would meet to determine the appropriate avoidance measures or other appropriate mitigation, with the ultimate determination to be made by the lead agency. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and a report prepared by the qualified archaeologist according to current professional standards.	
Impact 11-2: Construction of treatment facility pipelines, storage reservoirs and the conversion of land to agricultural uses could uncover paleontological resources.	No mitigation measures are required.	Less than significant.
Impact 11-3: Conversion of previously developed areas could adversely affect historic architectural resources through demolition, material alteration, or significant changes to the historical setting.	**Mitigation Measure 11-6:** Prior to demolition of buildings over 45 years old, a Historic Building Survey will be conducted by a qualified architectural historian to determine whether the structures to be demolished possess significant historic qualities. District No. 20 will implement recommendations of the survey report to ensure that impacts to significant historic resources are avoided.	Less than significant.
12.0 Biological Resources		
Impact 12-1: The construction of storage reservoirs and the conversion of previously undeveloped areas to agriculture could result in the loss of special status plants.	**Mitigation Measure 12-1:** Prior to construction, District No. 20 shall retain a qualified biologist to conduct rare plant surveys of all areas to be cleared following Department of Fish and Game guidelines. A Rare Plant Survey Report shall be prepared and submitted to Department of Fish and Game prior to clearing the properties. Should no special status plant species be found, no further mitigation is necessary. Should special status species be found, the Rare Plant Survey Report shall recommend measures to avoid significant impacts to populations of rare plants identified on the properties. If feasible, modifications in project design should be made to avoid these populations (e.g., shifting the location of a planned storage reservoir within the larger proposed storage reservoir area). If avoidance is unachievable, measures could include providing compensatory conservation lands or transplanting individual	Less than significant.

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	specimens. Provision of compensatory lands would be expected to range from a ratio of ½:1 to 1:1 (depending on the status of the affected species, the size of affected population, and the quality of affected habitat) through the identification and conservation of habitat managed through the West Mojave Plan. If transplantation is conducted, the areas for relocation should be within a 20-mile radius of the project site. Plants should be relocated to areas with ecological conditions (slope, aspect, microclimate, soil moisture, etc.) as similar to those in which they were found as possible. Due to its unreliability, translocation alone should not be relied upon as a sole means of mitigation. Monitoring and success criteria for transplanted individuals should be specified in the Report. Recommended measures in the Rare Plant Survey Report, in addition to any modifications required by the Department of Fish and Game, must be approved by the Department of Fish and Game. Following approval, the measures must be implemented.	
Impact 12-2: The construction of storage reservoirs and the pipeline and the conversion of previously disturbed areas to agriculture could result in discharge or alteration to *waters of the state* regulated by the State Water Resources Control Board and Department of Fish and Game.	**Mitigation Measure 12-2:** Prior to clearing or alteration of land, a qualified biologist will survey the areas to be developed for the occurrence of *waters of the state*. Should no *waters of the state* be found to occur, no further mitigation is necessary. **Mitigation Measure 12-3:** Should *waters of the state* be found, they will be delineated and described in a wetland delineation report by a qualified biologist. **Mitigation Measure 12-4:** If *waters of the state* will be affected, a report of waste discharge will be submitted to the Regional Water Quality Control Board, Lahontan Region and a Water Quality Certification will be obtained if deemed necessary by the Regional Water Quality Control Board, Lahontan Region. A Streambed Alteration Agreement will be obtained from Department of Fish and Game if necessary. Conditions specified by these agencies may require off-site replacement of lost *waters of the state* at a 1:1.	Less than significant.
Impact 12-3: The construction of storage reservoirs and the pipeline and the conversion of	**Mitigation Measure 12-5:** If project activities cannot avoid the breeding bird season (generally March 1 – August 31), District No. 20	Less than significant.

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
previously undeveloped saltbush scrub, creosote bush scrub, and Joshua tree woodland in the Initial Study Area for agriculture could result in adverse impacts to nesting special-status bird species, including Swainson's hawk, northern harrier, white-tailed kite, burrowing owl, and other raptors, loggerhead shrike, Le Conte's thrasher, California horned lark, as well as more common migratory birds that are protected by the Migratory Bird Treaty Act.	shall conduct focused preconstruction breeding bird surveys to include Swainson's hawk, white-tailed kite, loggerhead shrike, Le Conte's thrasher, California horned lark, as well as other species protected under the Migratory Bird Treaty Act, in all areas that may provide suitable nesting habitat. For activities that occur outside the breeding bird season (generally September 1 through February 28) such surveys would not be required. No more than two weeks before construction, a survey for burrows and burrowing owls would be conducted by a qualified ornithologist. Surveys would be based on the protocol described by the California Burrowing Owl Consortium (1993) which includes up to four surveys on different dates if there are suitable burrows present. Simultaneous with the owl surveys, an assessment of the construction area would also be conducted to determine the nesting status of Swainson's hawk, white-tailed kite, loggerhead shrike, Le Conte's thrasher, California horned lark, as well as other species protected under the Migratory Bird Treaty Act. The survey protocol timing and methodology may include aspects of recent burrowing owl protocol research (i.e., Conway, 2003). If any of the above species are identified, occupied nests or burrows would not be disturbed during the nesting season (February 1 through August 31 for owls and other raptors; March 1 through August 31 for other species), including a minimum 250-foot buffer zone around any occupied burrow or passerine nest, 150 feet for other non-special status passerine birds, and up to 500 feet for raptors. The size of individual buffers may be modified through coordination with Department of Fish and Game based on sitespecific conditions and existing disturbance levels. During the non-nesting season, District No. 20 would encourage owls to relocate from the construction disturbance area to off-site habitat area through the use of one-way doors on burrows. Consistent with California Burrowing Owl Consortium Guidelines, if ground squirrel burrows, stand pipes, and other structures that have been documented during pre-construction surveys as supporting either a nesting burrowing owl pair or resident owl are removed to accommodate the proposed project,	

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	these structures and burrows will be sited within suitable foraging habitat within 1/2 mile of the project area. In addition, removed trees that have been documented during pre-construction surveys as supporting Swainson's hawk nests will be replaced with suitable native nest tree species (i.e., cottonwoods, etc.) within 1/2 mile of the project area and adjacent to suitable foraging habitat. No relocation measures are required for loggerhead shrike, Le Conte's thrasher, or California horned lark during the non-breeding season.	
Impact 12-4: The construction of storage reservoirs and the conversion of previously undeveloped saltbush scrub, creosote bush scrub, and Joshua tree woodland in the Initial Study Area to agriculture could cause loss of Mohave ground squirrel habitat and/or possible incidental take of the Mohave ground squirrel.	**Mitigation Measure 12-6:** District No. 20 shall attempt to utilize agricultural land or previously cleared or graded parcels for placement of storage reservoirs and conversion to agriculture where feasible to minimize grading of potential Mohave ground squirrel habitat. **Mitigation Measure 12-7:** District No. 20 will conduct absence surveys according to the modified protocol guidelines as approved by DFG for the Mohave ground squirrel in all proposed disturbance areas that could provide at least low quality habitat for the species (i.e., low and moderate quality saltbush scrub and low and moderate quality creosote bush scrub areas as shown in Figure 12-1). If no Mohave ground squirrels are found during these surveys, no other action would be required to protect the species. However, if Mohave ground squirrels are found to be present, mitigation measure 12-8 shall apply. At its discretion, District No. 20 may forgo these protocol surveys and proceed with mitigation measure 12-8, requiring compensatory lands. **Mitigation Measure 12-8:** If no DFG-approved absence surveys are conducted, or if the presence of Mohave ground squirrel on any of the undeveloped lands to be cleared by District No. 20 is indicated during the protocol surveys, compensatory lands at a 1/2:1 to 3:1 ratio shall be made in perpetuity for the protection of the Mohave ground squirrel, depending on the value of the habitat quality. Compensation would only be required for the conversion of the areas shown on Figure 12-1 that may be potentially suitable Mohave ground squirrel habitat such as low and moderate quality saltbush scrub and low and	Less than significant.

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	moderate quality creosote bush. The location and conservation management of the identified compensatory lands shall be approved by DFG pursuant to Section 2081 of the California Fish and Game Code.	
Impact 12-5: The construction of storage reservoirs and the pipeline and the conversion of previously undeveloped saltbush scrub, creosote bush scrub, and Joshua tree woodland in the Initial Study Area to agriculture could cause loss of desert tortoise habitat and/or possible incidental take of desert tortoise.	**Mitigation Measure 12-9:** District No. 20 shall attempt to utilize agricultural, cleared or pre-graded parcels for placement of storage reservoirs and conversion to agriculture where feasible to minimize grading of potential desert tortoise habitat. **Mitigation Measure 12-10:** District No. 20 will conduct absence surveys for desert tortoise in all proposed disturbance areas that provide potential habitat (i.e. moderate quality with moderate constraints areas shown in Figure 12-1). Surveys shall follow the United States Fish and Wildlife Service protocol (United States Fish and Wildlife Service, 1992) or other appropriate site-specific protocol as determined in coordination with United States Fish and Wildlife Service. **Mitigation Measure 12-11:** If United States Fish and Wildlife Service-approved surveys do not identify desert tortoise within proposed disturbance areas, the following measures shall be implemented. Prior to working on the project, all site managers and construction employees shall be educated as to the natural history, endangerment factors, and appropriate protocol for dealing with tortoise encountered in and around the construction areas. In addition, if a tortoise is observed during construction, all construction shall be halted in the immediate area. The United States Fish and Wildlife Service and Department of Fish and Game must be immediately notified to determine necessary actions. **Mitigation Measure 12-12:** If United States Fish and Wildlife Service-approved surveys identify desert tortoise on any of the undeveloped lands to be cleared by District No. 20, a Desert Tortoise Protection and Mitigation Plan will be developed and adopted in consultation with the United States Fish and Wildlife Service and the California Department of Fish and Game. Elements of the plan would include, but not be limited to the following:	Less than significant.

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	• Pre-construction desert tortoise surveys and tortoise relocation to an approved off-site location by a United States Fish and Wildlife Service- and California Department of Fish and Game-authorized biologist(s). • Staking of approved disturbance areas in the field and installation of temporary tortoise exclusion fencing around active construction areas. • A worker education program including the natural history, endangerment factors, and appropriate protocol for dealing with tortoise encountered in and around the construction areas. • Enforcement of speed limits and checking under vehicles for tortoise. • Biological monitoring of all ground disturbance. • Measures to prevent increased use of the project site by common ravens through trash management, removal of unnatural sources of standing water, and other means. In addition, compensatory mitigation for desert tortoise habitat loss at a 1/2:1 to 3:1 ratio, depending on the value of the habitat quality, shall be made available in perpetuity for the protection of the desert tortoise for the conversion of any of the potentially suitable habitat areas shown on Figure 12-1 (i.e., moderate quality with moderate constraints areas). The location and conservation management of the identified compensatory lands shall be approved by United States Fish and Wildlife Service pursuant to Sections 7 and 10a of the Federal Endangered Species Act and by the California Department of Fish and Game pursuant to Section 2081 of the California Fish and Game Code.	
Impact 12-6: The construction of storage reservoirs and the conversion of previously undeveloped Joshua tree woodland areas in the Initial Study Area to agriculture could result in adverse impacts to special-status bat species.	**Mitigation Measure 12-13:** District No. 20 shall retain a qualified biologist to conduct focused preconstruction surveys for special-status bats within 500 feet of suitable roosting habitat. If no evidence of bats (i.e., direct observation, guano, staining, strong odors) is present, no further mitigation is required. If evidence of bats is	Less than significant.

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
adverse impacts to special-status bat species.	observed, the following measures are required to avoid potential adverse effects to special-status bats: • A 200-foot no-disturbance buffer will be created around active bat roosts during the breeding season (March 1 through August 15). Buffer sizes may be modified in coordination with Department of Fish and Game based on existing noise and disturbance levels and other site-specific conditions. Bat roosts initiated during construction are presumed to be unaffected, and no buffer is necessary. However, the take of individuals will be prohibited. • Removal of trees and structures showing evidence of bat activity will occur during the period least likely to impact the bats, as determined by a qualified biologist, generally between February 15 and October 15 for winter hibernacula and between August 15 and March 1 for maternity roosts. If exclusion is necessary to prevent indirect impacts to bats from construction noise and human activity adjacent to trees showing evidence of bat activity, these activities shall be conducted during the noted periods as well.	
Impact 12-7: The construction of storage reservoirs and the pipeline and the conversion of previously undeveloped areas to agriculture could result in adverse impacts to silvery legless lizard and Mojave fringe-toed lizard.	No mitigation measures are required.	Less than significant.
Impact 12-8: The construction of storage reservoirs and the conversion of previously undeveloped areas to agriculture could result in adverse impacts to the American badger.	**Mitigation Measure 12-14:** District No. 20 shall retain a qualified biologist to conduct focused preconstruction surveys no more than two weeks prior to construction for potential American badger dens. If no potential American badger dens are present, no further mitigation is required. If potential dens are observed, the following measures are required to avoid potential adverse effects to the American badger: • If the qualified biologist determines that potential dens are inactive, the biologist shall excavate these dens by hand with a shovel to prevent badgers from re-using them during construction.	Less than significant.

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	• If the qualified biologist determines that potential dens may be active, the entrances of the dens shall be blocked with soil, sticks, and debris for three to five days to discourage use of these dens prior to project disturbance. The den entrances shall be blocked to an incrementally greater degree over the three to five-day period. After the qualified biologist determines that badgers have stopped using active dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent re-use during construction.	
Impact 12-9: The construction of storage reservoirs and the conversion of previously undeveloped areas to agriculture could result in the removal of Joshua trees and other desert native plants protected by local ordinances.	**Mitigation Measure 12-15:** District No. 20 shall attempt to place storage reservoirs and agricultural areas in areas exhibiting a low density of Joshua trees. **Mitigation Measure 12-16:** Prior to removal of Joshua trees within the boundaries of the City of Palmdale, District No. 20 will obtain and comply with a permit from the City of Palmdale landscape architect or director of public works designee. Conditions and measures anticipated to be in the permit include but are not limited to: • A desert vegetation preservation plan prepared by a qualified biologist consisting of a written report and site plan depicting the location of each Joshua tree and, if determined necessary by the City of Palmdale, a long term maintenance program for any Joshua trees left on site. • Criteria for preservation of desert vegetation, the minimum standard for preservation being two Joshua trees per acre or as determined by the qualified biologist in accordance with the City of Palmdale. Joshua trees to be left on site should be fenced off and left undisturbed during any grading activities or removed to a holding area until grading activities are completed. If two Joshua trees per acre cannot be preserved on site, the trees shall be transplanted to an off-site location by District No. 20 as approved by the City of Palmdale. Joshua trees may be transplanted to compensatory lands discussed in Measure 12-18. In lieu of transplantation of Joshua trees from areas to be developed,	Less than significant.

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	District No. 20 may satisfy the requirements of the city Code through payment of a fee to the city. At the city's discretion, compensatory mitigation for Joshua tree woodland included in Measure 12-18 may satisfy Measure 12-16 if the city determines that these lands support adequate numbers of Joshua trees. • Joshua trees preserved on site, in landscape easements, or landscape assessment districts are to be maintained in a healthy condition for a minimum of two growing seasons. The trees will be evaluated after one year by a qualified biologist. Trees determined to be failing or that have died will be replaced as determined by the city.	
Impact 12-10: The construction of storage reservoirs and the conversion of previously undeveloped areas to agriculture would result in the loss of Joshua tree woodland habitat and reduction of a sensitive natural community and available habitat for common and special-status wildlife species in the project region.	**Mitigation Measure 12-17:** District No. 20 shall attempt to utilize agricultural, cleared, or pre-graded parcels for placement of storage reservoirs and conversion to agriculture where feasible to minimize grading of Joshua tree woodland and common and special-status wildlife species habitat. **Mitigation Measure 12-18:** Compensatory mitigation for loss of moderate density Joshua tree woodland as shown on Figure 12-1 at a 1:1 ratio shall be made in perpetuity for the protection of this sensitive community and associated special-status species habitat. The compensation may include development of or donation to a conservation bank, land trust, or conservation easement. District No. 20 will develop and implement a Habitat Compensation Management Plan for the compensatory lands and submit the plan to Department of Fish and Game and United States Fish and Wildlife Service. Elements of the plan will include, but not be limited to, the identification of the compensatory lands, the identification of responsible parties and financial assurances for management of compensatory lands in perpetuity, and other project compensation and monitoring activities.	Less than significant.

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
13.0 Transportation		
Impact 13-1: Construction activity would temporarily disrupt traffic near the project area.	**Mitigation Measure 13-1:** The contractor shall prepare and implement a traffic control plan to minimize traffic impacts during project construction.	Less than significant.
Impact 13-2: Project operation may generate additional vehicle trips that would cause traffic delays.	No mitigation measures are required.	Less than significant.
14.0 Hydrology and Water Quality		
Impact 14-1: Project construction activities could induce soil erosion and transport contaminants to downstream dry washes and playas.	**Mitigation Measure 14-1:** District No. 20 shall prepare a State Water Pollution Prevention Project for all construction phases of the proposed project. The objectives of the Storm Water Pollution Prevention Plans are to identify pollutant sources that may affect the quality of storm water discharge and to implement Best Management Practices to reduce pollutants in storm water discharges. Best Management Practices may include, but would not be limited to: • If excavation occurs during the rainy season, storm runoff from the construction area shall be regulated through a storm water management/erosion control plan that shall include temporary on site silt traps and/or basins with multiple discharge points to natural drainages and energy dissipaters. Stockpiles of loose material shall be covered and runoff diverted away from exposed soil material. If work stops due to rain, a positive grading away from slopes shall be provided to carry the surface runoff to areas where flow can be controlled, such as the temporary silt basins. Sediment basins/traps shall be located and operated to minimize the amount of off-site sediment transport. • Temporary erosion control measures shall be provided until perennial revegetation or landscaping is established and can minimize discharge of sediment into nearby waterways. • Best Management Practices selected and implemented for the project shall be in place and operational prior to the onset of	Less than significant.

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	major earthwork on the site. Effective mechanical and structural Best Management Practices that could be implemented at the project site include the following: – Mechanical storm water filtration measures. – Vegetative strips and high infiltration substrates can be used where feasible to reduce runoff and provide initial storm water treatment. – Permanent energy dissipaters can be included for drainage outlets. – Water quality detention basins. • Hazardous materials such as fuels and solvents used on the construction sites shall be stored in covered containers and protected from rainfall, runoff, vandalism, and accidental release to the environment. All stored fuels and solvents will be contained in a area of impervious surface with containment capacity equal to the volume of materials stored. A stockpile of spill cleanup materials shall be readily available at all construction sites. Employees shall be trained in spill prevention and cleanup, and individuals shall be designated as responsible for prevention and cleanup activities. • Equipment shall be properly maintained in designated areas with runoff and erosion control measures to minimize accidental release of pollutants.	
Impact 14-2: Effluent water infiltrating into the groundwater from the proposed storage reservoirs could degrade water quality.	**Mitigation Measure 14-2:** District No. 20 shall line all proposed storage reservoirs (bottoms and sides) with synthetic materials to minimize infiltration of treated effluent into the subsurface.	Less than significant.
Impact 14-3: Effluent water infiltrating into the groundwater from agricultural or municipal reuse operations could degrade groundwater quality.	**Mitigation Measure 14-3:** District No. 20 shall implement a Farm Management Plan outlining procedures for ensuring that effluent is applied at agronomic rates to minimize the potential for infiltration. The Farm Management Plan may include, but not be limited to, the following elements:	Less than significant.

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	• Farm Operations Management Structure – Crop selection process – Irrigation system selection process • Site/Soil Preparation • Irrigation Scheduling • Monitoring/Reporting – Effluent water quality – Groundwater quality – Soil quality – Crop production • Best Management Practices – Farming procedures – Site control/security – Good neighbor practices **Mitigation Measure 14-4:** District No. 20 shall provide liners to retention basins to prevent substantial infiltration of applied water or, with Regional Water Quality Control Board, Lahontan Region approval, manage these basins to minimize infiltration to ensure protection of groundwater.	
Impact 14-4: Recycled effluent could run off the site if over-applied or applied during storm events.	**Mitigation Measure 14-5:** District No. 20 shall construct a combination of earthen berms, modify existing site grades, and/or construct catch or pump basins at points around the proposed agricultural areas to prevent unauthorized runoff. The improvements would be designed to allow peak flood waters to inundate fields without modifying the flood plain by providing flood access culverts or other design features. The location and description of the improvements will be provided in the Farm Management Plan.	Less than significant.
Impact 14-5: Improperly abandoned wells could transport recycled water used for irrigation directly to the groundwater aquifer**.**	**Mitigation Measure 14-6:** District No. 20 shall identify and properly abandon groundwater wells in the proximity of the proposed project operations in conformance with Title 22 Article 4 requirements. **Mitigation Measure 14-7:** Title 22 requirements shall be used to determine the appropriate distance between agricultural irrigation activities and separating water wells.	Less than significant.

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 14-6: Project facilities located in a floodplain could redirect flood waters and cause localized flooding.	**Mitigation Measure 14-8:** District No. 20 shall incorporate engineering considerations in reservoir design to accommodate flood waters to prevent road inundation and minimize scouring.	Less than significant.
Impact 14-7: Construction of treatment facilities would increase the impervious surface area at the PWRP, increasing storm water runoff volumes.	No mitigation measures are required.	Less than significant.
Impact 14-8: Eliminating land application of treated effluent will reduce the amount of water recharged into the ground. This could adversely affect groundwater levels and local water supplies.	No mitigation measures are required.	Less than significant.
15.0 Geologic Hazards and Soils/Mineral Resources		
Impact 15-1: The project would increase the potential for soil erosion caused by construction of treatment facilities and storage reservoirs as well as from agricultural operations.	**Mitigation Measure 15-1:** District No. 20 shall include agricultural best management practices for erosion control within the updated Farm Management Plan. Measures could include but not be limited to preventing runoff from agricultural areas, minimizing tilling operations during high wind periods, maintaining moist soil conditions, maintaining crop ground cover as much as possible, and planting wind breaks to minimize wind erosion.	Less than significant.
Impact 15-2: Potential seismic groundshaking, subsidence, and expansive soils could cause structural damage to storage reservoirs, treatment facilities, and pipelines.	**Mitigation Measure 15-2:** District No. 20 shall conduct additional geotechnical investigations in the specific areas where storage reservoirs and treatment facilities are planned. The investigations will identify appropriate engineering considerations as recommended by a certified engineering geologist or registered geotechnical engineer for planned facilities. Recommendations made as a result of these investigations to protect new structures from seismic hazards shall become part of the project.	Less than significant.
Impact 15-3: Use of treated effluent for irrigation could increase soil salinity over the long term and impact soil chemistry.	**Mitigation Measure 15-3:** District No. 20 shall include agricultural best management practices for salinity management within the updated Farm Management Plan. The Farm Management Plan shall apply adaptive management methods and monitoring to ensure that long-term agricultural methods do not adversely impact soil chemistry	Less than significant.

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	and quality. Best management practices could include but not be limited to conducting periodic soil sampling, flushing salts into the vadose zone periodically, and rotating crops to maximize salt removal.	
Impact 15-4: Infiltration of effluent water from the storage reservoirs into soils potentially susceptible to hydrocompaction could cause subsidence, and settlement and could increase liquefaction hazards.	No mitigation measures are required.	Less than significant.
16.0 Air Quality and Odor **Impact 16-1:** Construction activities would result in a temporary increase in air pollutant emissions. Emissions of NO_x and PM_{10} could exceed Antelope Valley Air Quality Management District thresholds of significance.	**Mitigation Measure 16-1:** Construction crews shall maintain equipment engines in proper tune and operate construction equipment so as to minimize exhaust emissions. **Mitigation Measure 16-2:** Construction equipment shall be shut off to reduce idling when not in direct use. **Mitigation Measure 16-3:** Active construction areas shall be watered up to three times daily as needed to reduce fugitive dust emissions. **Mitigation Measure 16-4:** Prior to the demolition of houses, District No. 20 shall inspect structures for the presence of asbestos-containing materials and lead-based paint. District No. 20 shall ensure that asbestos-containing materials and lead based paint are removed and disposed of prior to demolition in accordance with Environmental Protection Agency air quality protection regulations.	Significant and unavoidable.
Impact 16-2: While operation of the expanded PWRP would increase air emissions, these emissions would be less than the Antelope Valley Air Quality Management District thresholds of significance.	**Mitigation Measure 16-5:** Limit off-road traffic speeds for maintenance vehicles to 15 miles per hour or less. **Mitigation Measure 16-6:** Service vehicles shall be maintained in proper tune to minimize exhaust emissions.	Less than significant.
Impact 16-3: Sewage treatment plant operations have the potential to cause significant odor impacts.	No mitigation measures are required.	Less than significant.

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
17.0 Noise		
Impact 17-1: Construction of each stage would cause intermittent and short-term increases in ambient noise levels.	**Mitigation Measure 17-1:** District No. 20 shall implement procedures to reduce noise generation from project construction activities. Typical noise control procedures include the following: • Require construction contractors to comply with the construction hour and day limitations established in local noise ordinances. Night-time construction would require approval from local jurisdictions. • Require all construction contractors to locate fixed construction equipment (e.g., compressors and generators) as far as possible from noise-sensitive receptors. • Equipment used in the construction of individual projects and management actions shall be muffled and maintained in good operating condition. Internal combustion engine-driven equipment shall be fitted with intake and exhaust mufflers that are in good condition. • If pile driving or sheetpiling is required for facility construction, the contract specifications for those projects shall incorporate the following requirements: – Wherever possible, sonic or vibratory pile drivers will be used lieu of impact pile drivers. – Wherever feasible, pile holes will be pre-drilled to reduce potential noise and vibration impacts. • Additional noise attenuating measures include changing the location of stationary construction equipment and/or staging areas; shutting off idling equipment; rescheduling construction activities; requiring on-going construction noise monitoring to assure adherence to city/county construction equipment standards; and/or installing temporary barriers around stationary construction noise sources.	Less than significant.

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Mitigation Measure 17-2: District No. 20 shall distribute information to residents and noise-sensitive receptors in the affected areas several weeks in advance of operations that would generate noise in excess of local standards. The information distributed should include brief description of the operations, including the duration of the project.	
Impact 17-2: Project operation could cause an increase in noise levels.	No mitigation measures are required.	Less than significant.
18.0 Public Services and Utilities **Impact 18-1:** Operation of the treatment and storage facilities would increase the demand for disposal capacity for biosolids.	No mitigation measures are required.	Less than significant.
19.0 Recreational Facilities The proposed project would result in no impacts to designated recreational areas.	No mitigation measures are required.	
20.0 Population and Housing/Secondary Effects of Growth **Impact 20-1:** The project could result in displacement of housing and individuals.	**Mitigation Measure 20-1:** All legal tenants/residents shall be relocated to residential dwelling units that are appropriate for the size of the family and in conformance with the housing quality standards set forth in the California Relocation Assistance and Real Property Acquisition Guidelines, California Code of Regulations, Title 25, Chapter 6, Subchapter 1. **Mitigation Measure 20-2:** No persons of low or moderate income shall be displaced unless and until there is a comparable replacement housing unit available and ready for occupancy by such displaced persons or families at rents comparable to those at the time of their displacement.	Less than significant.
Impact 20-2: The proposed project could cause disproportionate impacts to minority or low income populations.	No mitigation measures are required.	Less than significant.

Table ES-8 (continued)
Summary of Impacts and Mitigation Measures

ENVIRONMENTAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 20-3: The proposed project would indirectly cause secondary effects of growth.	**Mitigation Measure 20-3:** District No. 20 shall phase capacity to accommodate actual growth.	Significant and unavoidable.
21.0 Hazardous Materials **Impact 21-1:** The project will result in a minimal increase in chemicals stored including pesticides and could encounter contaminated soils during excavation activities.	**Mitigation Measure 21-1:** The Updated Farm Management Plan will include standards and procedures for the safe handling, storage, and disposal of pesticides, including providing worker safety education, providing secondary containment, providing protection from weather (including extreme heat and rain), and conducting periodic inspections of storage areas and application events. **Mitigation Measure 21-2:** If contaminated soils are encountered during construction, they shall be disposed of in accordance with applicable waste disposal regulations in coordination with the California Department of Toxic Substances Control.	Less than significant.
22.0 Public Health **Impact 22-1:** The project could result in a minimal potential increased risk from exposure to recycled water.	No mitigation measures are required.	Less than significant.
Impact 22-2: Construction of storage reservoirs and the recycled water distribution system may cause an increase to airborne insect populations.	**Mitigation Measure 22-1:** District No. 20 shall apply insect control measures as appropriate, such as vegetation removal around the reservoirs.	Less than significant.
23.0 Cumulative Impacts **Impact 23-1:** Implementation of the PWRP 2025 Plan would result in cumulatively significant impacts to regional air quality and biological resources.	**Mitigation measure 23-1:** District No. 20 shall comply with existing regulations regarding air emissions controls and biological resources permitting.	Significant and unavoidable.
Impact 23-2: Implementation of the PWRP 2025 Plan would result in less than significant cumulative impacts to aesthetics, geology, water quality, noise, transportation, public services, population and housing, hazards, and public safety.	No mitigation measures are required.	Less than significant.